| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

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U n i t H y d r o g r a p h
VALLEY S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 325.140 | 59.121 | 49.871 |
| 2 | 0.500 | 650.280 | 35.788 | 30.189 |
| 3 | 0.750 | 975.420 | 5.091 | 4.294 |
| | | | Sum = 100.000 | Sum= 84.354 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.061 | ( 0.084) | 0.220 |
| 2 | 0.50 | 4.80 | 0.365 | 0.061 | ( 0.109) | 0.304 |
| 3 | 0.75 | 5.10 | 0.387 | 0.061 | ( 0.116) | 0.327 |
| 4 | 1.00 | 4.90 | 0.372 | 0.061 | ( 0.112) | 0.311 |
| 5 | 1.25 | 6.60 | 0.501 | 0.061 | ( 0.150) | 0.441 |
| 6 | 1.50 | 7.30 | 0.555 | 0.061 | ( 0.166) | 0.494 |
| 7 | 1.75 | 8.40 | 0.638 | 0.061 | ( 0.191) | 0.577 |
| 8 | 2.00 | 9.00 | 0.684 | 0.061 | ( 0.205) | 0.623 |
| 9 | 2.25 | 12.30 | 0.934 | 0.061 | ( 0.280) | 0.874 |
| 10 | 2.50 | 17.60 | 1.337 | 0.061 | ( 0.401) | 1.276 |
| 11 | 2.75 | 16.10 | 1.223 | 0.061 | ( 0.367) | 1.162 |
| 12 | 3.00 | 4.20 | 0.319 | 0.061 | ( 0.096) | 0.258 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 6.9 |

Flood volume = Effective rainfall 1.72(In)
times area 83.7(Ac.)/[(In)/(Ft.)] = 12.0(Ac.Ft)
Total soil loss = 0.18(In)
Total soil loss = 1.272(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 521671.5 Cubic Feet
Total soil loss = 55396.0 Cubic Feet

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Peak flow rate of this hydrograph = 100.303(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 50.0 | 100.0 | 150.0 | 200.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.2271 | 10.99 | V Q | | | | |
| 0+30 | 0.6779 | 21.82 | \| V Q | | | | |
| 0+45 | 1.2239 | 26.43 | \| VQ | | | | |
| 1+ 0 | 1.7759 | 26.72 | \| Q | | | | |
| 1+15 | 2.4535 | 32.80 | \| Q V | | | | |
| 1+30 | 3.2653 | 39.29 | \| Q V | | | | |
| 1+45 | 4.2078 | 45.62 | \| Q\| V | | | | |
| 2+ 0 | 5.2542 | 50.65 | \| Q V | | | | |
| 2+15 | 6.5949 | 64.89 | \| Q V | | | | |
| 2+30 | 8.5113 | 92.75 | \| Q \| V | | | | |
| 2+45 | 10.5836 | 100.30 | \| Q V | | | | |
| 3+ 0 | 11.6886 | 53.48 | \| Q \| V | | | | |
| 3+15 | 11.9530 | 12.80 | \| Q \| V | | | | |
| 3+30 | 11.9759 | 1.11 | Q \| V | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 82 | 20.50 | 0.30 | 0.054 | ( 0.114) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.113) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.111) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.110) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.109) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.108) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.107) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.106) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.105) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.104) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.103) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.102) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.101) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.101) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.101) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 7.1

Flood volume = Effective rainfall 1.76(In)
times area 17.3(Ac.)/[(In)/(Ft.)] = 2.5(Ac.Ft)
Total soil loss = 2.74(In)
Total soil loss = 3.945(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 110755.3 Cubic Feet
Total soil loss = 171830.6 Cubic Feet

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Peak flow rate of this hydrograph = 7.610(CFS)

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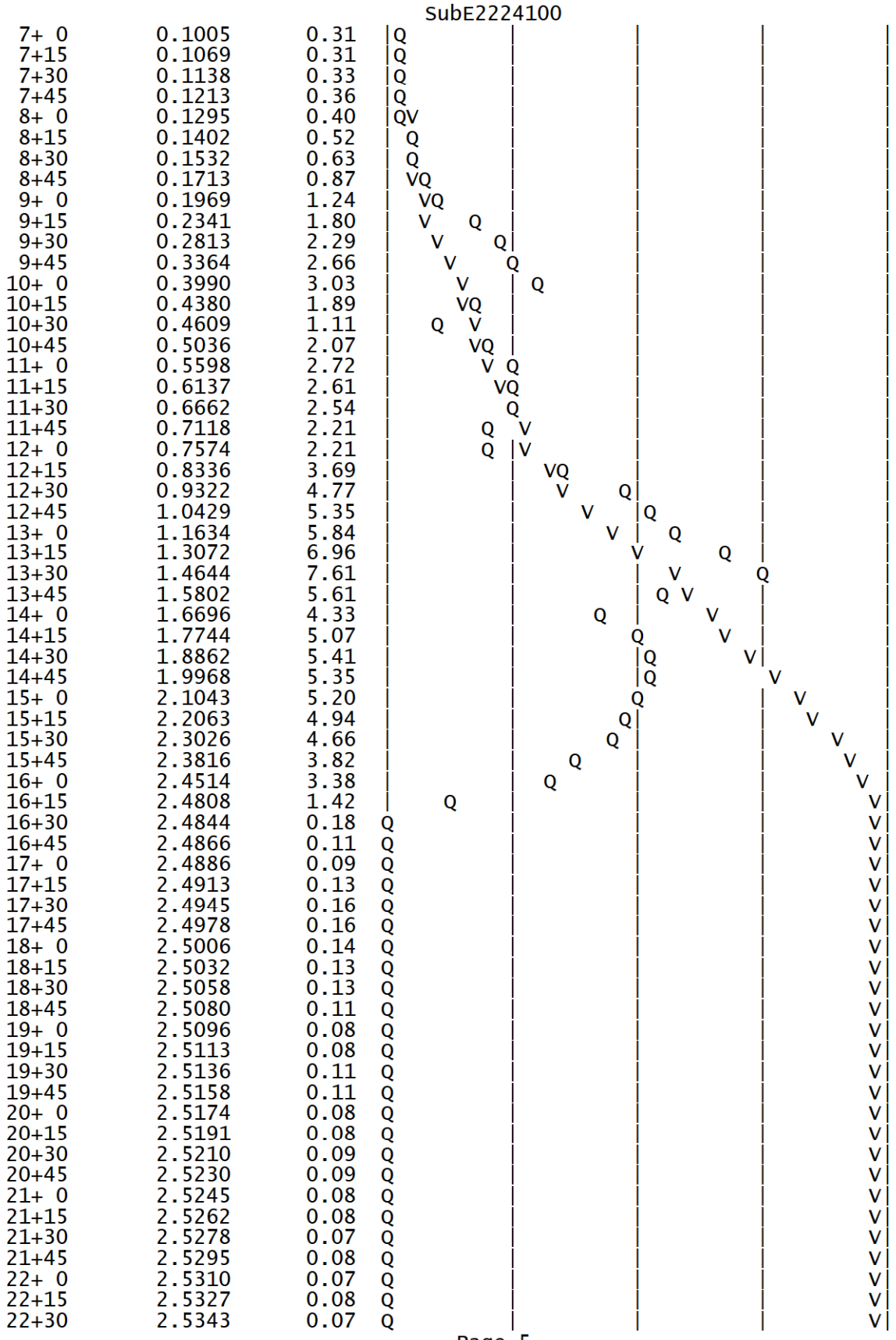
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

---

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 2.5 | 5.0 | 7.5 | 10.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0008 | 0.04 | Q | | | | |
| 0+30 | 0.0024 | 0.08 | Q | | | | |
| 0+45 | 0.0044 | 0.09 | Q | | | | |
| 1+ 0 | 0.0067 | 0.11 | Q | | | | |
| 1+15 | 0.0089 | 0.11 | Q | | | | |
| 1+30 | 0.0109 | 0.09 | Q | | | | |
| 1+45 | 0.0128 | 0.09 | Q | | | | |
| 2+ 0 | 0.0152 | 0.11 | Q | | | | |
| 2+15 | 0.0177 | 0.13 | Q | | | | |
| 2+30 | 0.0203 | 0.13 | Q | | | | |
| 2+45 | 0.0233 | 0.14 | Q | | | | |
| 3+ 0 | 0.0266 | 0.16 | Q | | | | |
| 3+15 | 0.0298 | 0.16 | Q | | | | |
| 3+30 | 0.0330 | 0.16 | Q | | | | |
| 3+45 | 0.0363 | 0.16 | Q | | | | |
| 4+ 0 | 0.0399 | 0.18 | Q | | | | |
| 4+15 | 0.0438 | 0.19 | Q | | | | |
| 4+30 | 0.0481 | 0.21 | Q | | | | |
| 4+45 | 0.0526 | 0.22 | Q | | | | |
| 5+ 0 | 0.0575 | 0.24 | Q | | | | |
| 5+15 | 0.0619 | 0.21 | Q | | | | |
| 5+30 | 0.0662 | 0.21 | QV | | | | |
| 5+45 | 0.0712 | 0.24 | QV | | | | |
| 6+ 0 | 0.0763 | 0.25 | \|Q | | | | |
| 6+15 | 0.0819 | 0.27 | \|Q | | | | |
| 6+30 | 0.0878 | 0.28 | \|Q | | | | |
| 6+45 | 0.0940 | 0.30 | \|Q | | | | |


SubE2224100
7+ 0 0.1005 0.31
7+15 0.1069 0.31
7+30 0.1138 0.33
7+45 0.1213 0.36
8+ 0 0.1295 0.40
8+15 0.1402 0.52
8+30 0.1532 0.63
8+45 0.1713 0.87
9+ 0 0.1969 1.24
9+15 0.2341 1.80
9+30 0.2813 2.29
9+45 0.3364 2.66
10+ 0 0.3990 3.03
10+15 0.4380 1.89
10+30 0.4609 1.11
10+45 0.5036 2.07
11+ 0 0.5598 2.72
11+15 0.6137 2.61
11+30 0.6662 2.54
11+45 0.7118 2.21
12+ 0 0.7574 2.21
12+15 0.8336 3.69
12+30 0.9322 4.77
12+45 1.0429 5.35
13+ 0 1.1634 5.84
13+15 1.3072 6.96
13+30 1.4644 7.61
13+45 1.5802 5.61
14+ 0 1.6696 4.33
14+15 1.7744 5.07
14+30 1.8862 5.41
14+45 1.9968 5.35
15+ 0 2.1043 5.20
15+15 2.2063 4.94
15+30 2.3026 4.66
15+45 2.3816 3.82
16+ 0 2.4514 3.38
16+15 2.4808 1.42
16+30 2.4844 0.18
16+45 2.4866 0.11
17+ 0 2.4886 0.09
17+15 2.4913 0.13
17+30 2.4945 0.16
17+45 2.4978 0.16
18+ 0 2.5006 0.14
18+15 2.5032 0.13
18+30 2.5058 0.13
18+45 2.5080 0.11
19+ 0 2.5096 0.08
19+15 2.5113 0.08
19+30 2.5136 0.11
19+45 2.5158 0.11
20+ 0 2.5174 0.08
20+15 2.5191 0.08
20+30 2.5210 0.09
20+45 2.5230 0.09
21+ 0 2.5245 0.08
21+15 2.5262 0.08
21+30 2.5278 0.07
21+45 2.5295 0.08
22+ 0 2.5310 0.07
22+15 2.5327 0.08
22+30 2.5343 0.07

SubE2224100

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 22+45 | 2.5356 | 0.06 | Q | \| | \| | \| | V\| |
| 23+ 0 | 2.5369 | 0.06 | Q | \| | \| | \| | V\| |
| 23+15 | 2.5382 | 0.06 | Q | \| | \| | \| | V\| |
| 23+30 | 2.5395 | 0.06 | Q | \| | \| | \| | V\| |
| 23+45 | 2.5408 | 0.06 | Q | \| | \| | \| | V\| |
| 24+ 0 | 2.5421 | 0.06 | Q | \| | \| | \| | V\| |
| 24+15 | 2.5426 | 0.03 | Q | \| | \| | \| | V\| |
| 24+30 | 2.5426 | 0.00 | Q | \| | \| | \| | V\| |

SubE324100

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 04/25/12 File: SubE324100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

----------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

----------------------------------------------------------------------
Watershed E, Subarea E3
Existing Condition
100-your, 24-hour

----------------------------------------------------------------------
Drainage Area = 54.80(Ac.) = 0.086 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 54.80(Ac.) = 0.086 Sq. Mi.
Length along longest watercourse = 2900.00(Ft.)
Length along longest watercourse measured to centroid = 1850.00(Ft.)
Length along longest watercourse = 0.549 Mi.
Length along longest watercourse measured to centroid = 0.350 Mi.
Difference in elevation = 53.00(Ft.)
Slope along watercourse = 96.4966 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.162 Hr.
Lag time = 9.69 Min.
25% of lag time = 2.42 Min.
40% of lag time = 3.88 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 54.80 | 1.80 | 98.64 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 54.80 | 4.50 | 246.60 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

SubE324100

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 22.300 | 76.00 | 0.000 |
| 32.500 | 85.00 | 0.000 |

Total Area Entered = 54.80(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 76.0 | 76.0 | 0.291 | 0.000 | 0.291 | 0.407 | 0.118 |
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 0.593 | 0.111 |
| | | | | | Sum (F) = | 0.229 |

Area averaged mean soil loss (F) (In/Hr) = 0.229
Minimum soil loss rate ((In/Hr)) = 0.115
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 154.750 | 31.833 | 17.581 |
| 2 | 0.500 | 309.500 | 53.965 | 29.804 |
| 3 | 0.750 | 464.249 | 11.299 | 6.240 |
| 4 | 1.000 | 618.999 | 2.163 | 1.194 |
| 5 | 1.250 | 773.749 | 0.741 | 0.409 |
| | | | Sum = 100.000 | Sum= 55.228 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.405) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.400) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.396) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.391) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.386) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.382) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.377) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.373) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.368) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.364) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.359) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.355) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.351) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.346) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.342) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.338) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.333) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.329) | 0.113 | 0.013 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 19 | 4.75 | 0.70 | 0.126 | ( 0.325) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.321) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.316) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.312) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.308) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.304) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.300) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.296) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.292) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.288) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.284) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.280) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.277) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.273) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.269) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.265) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.262) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | 0.258 | ( 0.275) | 0.048 |
| 37 | 9.25 | 1.90 | 0.342 | 0.254 | ( 0.308) | 0.088 |
| 38 | 9.50 | 2.00 | 0.360 | 0.251 | ( 0.324) | 0.109 |
| 39 | 9.75 | 2.10 | 0.378 | 0.247 | ( 0.340) | 0.131 |
| 40 | 10.00 | 2.20 | 0.396 | 0.243 | ( 0.356) | 0.153 |
| 41 | 10.25 | 1.50 | 0.270 | 0.240 | ( 0.243) | 0.030 |
| 42 | 10.50 | 1.50 | 0.270 | 0.236 | ( 0.243) | 0.034 |
| 43 | 10.75 | 2.00 | 0.360 | 0.233 | ( 0.324) | 0.127 |
| 44 | 11.00 | 2.00 | 0.360 | 0.230 | ( 0.324) | 0.130 |
| 45 | 11.25 | 1.90 | 0.342 | 0.226 | ( 0.308) | 0.116 |
| 46 | 11.50 | 1.90 | 0.342 | 0.223 | ( 0.308) | 0.119 |
| 47 | 11.75 | 1.70 | 0.306 | 0.220 | ( 0.275) | 0.086 |
| 48 | 12.00 | 1.80 | 0.324 | 0.216 | ( 0.292) | 0.108 |
| 49 | 12.25 | 2.50 | 0.450 | 0.213 | ( 0.405) | 0.237 |
| 50 | 12.50 | 2.60 | 0.468 | 0.210 | ( 0.421) | 0.258 |
| 51 | 12.75 | 2.80 | 0.504 | 0.207 | ( 0.454) | 0.297 |
| 52 | 13.00 | 2.90 | 0.522 | 0.204 | ( 0.470) | 0.318 |
| 53 | 13.25 | 3.40 | 0.612 | 0.201 | ( 0.551) | 0.411 |
| 54 | 13.50 | 3.40 | 0.612 | 0.197 | ( 0.551) | 0.414 |
| 55 | 13.75 | 2.30 | 0.414 | 0.194 | ( 0.373) | 0.219 |
| 56 | 14.00 | 2.30 | 0.414 | 0.192 | ( 0.373) | 0.222 |
| 57 | 14.25 | 2.70 | 0.486 | 0.189 | ( 0.437) | 0.297 |
| 58 | 14.50 | 2.60 | 0.468 | 0.186 | ( 0.421) | 0.282 |
| 59 | 14.75 | 2.60 | 0.468 | 0.183 | ( 0.421) | 0.285 |
| 60 | 15.00 | 2.50 | 0.450 | 0.180 | ( 0.405) | 0.270 |
| 61 | 15.25 | 2.40 | 0.432 | 0.177 | ( 0.389) | 0.255 |
| 62 | 15.50 | 2.30 | 0.414 | 0.175 | ( 0.373) | 0.239 |
| 63 | 15.75 | 1.90 | 0.342 | 0.172 | ( 0.308) | 0.170 |
| 64 | 16.00 | 1.90 | 0.342 | 0.169 | ( 0.308) | 0.173 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.167) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.164) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.162) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.159) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.157) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.155) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.152) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.150) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.148) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.146) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.143) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.141) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.139) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.138) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.136) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.134) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.132) | 0.049 | 0.005 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 82 | 20.50 | 0.30 | 0.054 | ( 0.130) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.129) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.127) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.126) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.124) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.123) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.122) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.120) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.119) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.118) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.117) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.116) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.116) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.115) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.115) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.3

Flood volume = Effective rainfall 1.56(In)
times area 54.8(Ac.)/[(In)/(Ft.)] = 7.1(Ac.Ft)
Total soil loss = 2.94(In)
Total soil loss = 13.409(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 310947.3 Cubic Feet
Total soil loss = 584114.9 Cubic Feet

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Peak flow rate of this hydrograph = 22.006(CFS)

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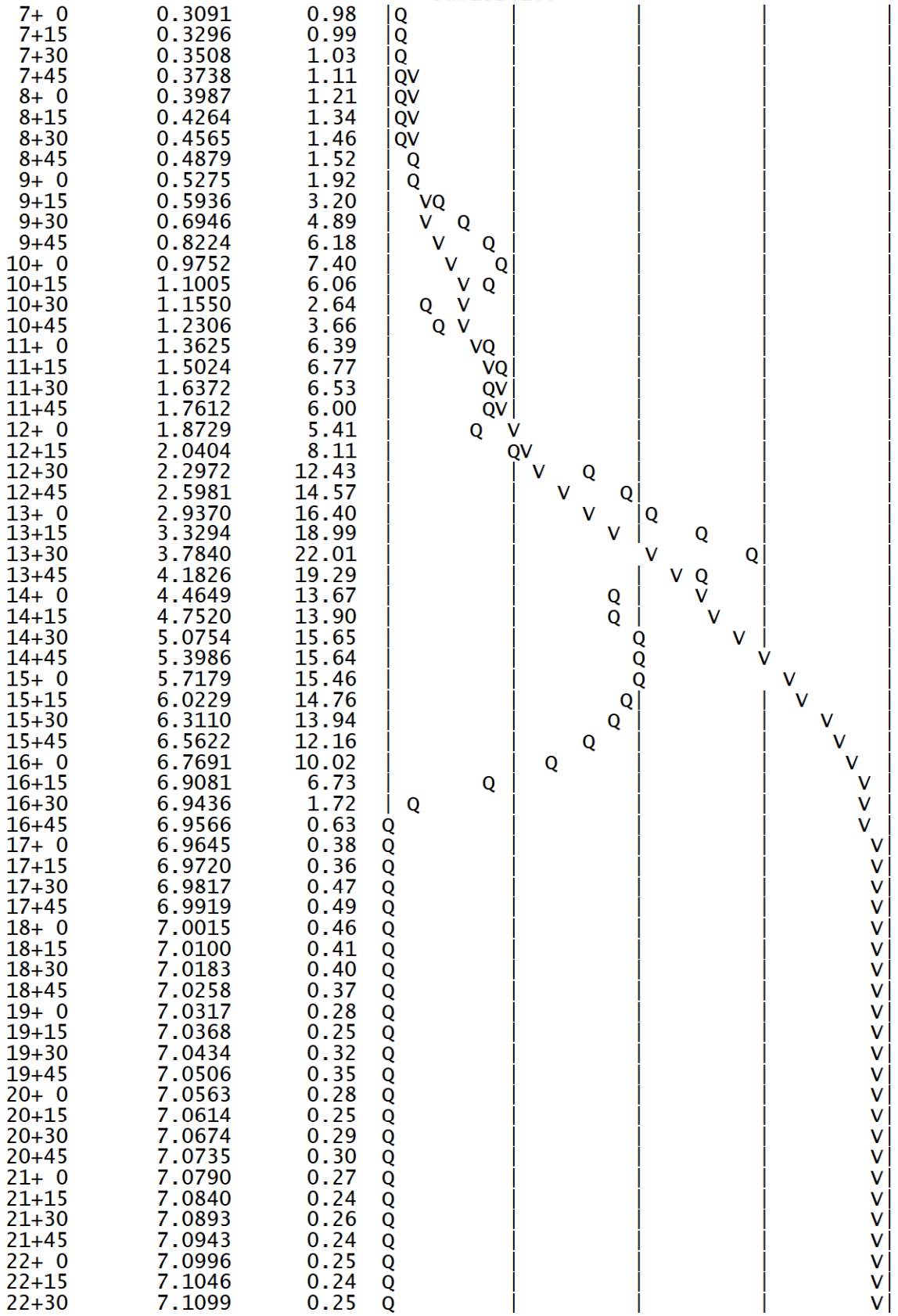
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

---

Hydrograph in 15 Minute intervals ((CFS))

---

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 7.5 | 15.0 | 22.5 | 30.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0013 | 0.06 | Q | | | | |
| 0+30 | 0.0055 | 0.20 | Q | | | | |
| 0+45 | 0.0112 | 0.28 | Q | | | | |
| 1+ 0 | 0.0180 | 0.33 | Q | | | | |
| 1+15 | 0.0252 | 0.35 | Q | | | | |
| 1+30 | 0.0316 | 0.31 | Q | | | | |
| 1+45 | 0.0378 | 0.30 | Q | | | | |
| 2+ 0 | 0.0447 | 0.33 | Q | | | | |
| 2+15 | 0.0526 | 0.38 | Q | | | | |
| 2+30 | 0.0608 | 0.39 | Q | | | | |
| 2+45 | 0.0696 | 0.43 | Q | | | | |
| 3+ 0 | 0.0796 | 0.48 | Q | | | | |
| 3+15 | 0.0898 | 0.49 | Q | | | | |
| 3+30 | 0.1001 | 0.50 | Q | | | | |
| 3+45 | 0.1103 | 0.50 | Q | | | | |
| 4+ 0 | 0.1213 | 0.53 | Q | | | | |
| 4+15 | 0.1333 | 0.58 | Q | | | | |
| 4+30 | 0.1462 | 0.63 | Q | | | | |
| 4+45 | 0.1603 | 0.68 | Q | | | | |
| 5+ 0 | 0.1753 | 0.72 | Q | | | | |
| 5+15 | 0.1901 | 0.72 | QV | | | | |
| 5+30 | 0.2036 | 0.65 | QV | | | | |
| 5+45 | 0.2185 | 0.72 | QV | | | | |
| 6+ 0 | 0.2346 | 0.78 | \|Q | | | | |
| 6+15 | 0.2516 | 0.82 | \|Q | | | | |
| 6+30 | 0.2698 | 0.88 | \|Q | | | | |
| 6+45 | 0.2889 | 0.92 | \|Q | | | | |



| | | | |
|---|---|---|---|
| 7+ 0 | 0.3091 | 0.98 | |
| 7+15 | 0.3296 | 0.99 | |
| 7+30 | 0.3508 | 1.03 | |
| 7+45 | 0.3738 | 1.11 | |
| 8+ 0 | 0.3987 | 1.21 | |
| 8+15 | 0.4264 | 1.34 | |
| 8+30 | 0.4565 | 1.46 | |
| 8+45 | 0.4879 | 1.52 | |
| 9+ 0 | 0.5275 | 1.92 | |
| 9+15 | 0.5936 | 3.20 | |
| 9+30 | 0.6946 | 4.89 | |
| 9+45 | 0.8224 | 6.18 | |
| 10+ 0 | 0.9752 | 7.40 | |
| 10+15 | 1.1005 | 6.06 | |
| 10+30 | 1.1550 | 2.64 | |
| 10+45 | 1.2306 | 3.66 | |
| 11+ 0 | 1.3625 | 6.39 | |
| 11+15 | 1.5024 | 6.77 | |
| 11+30 | 1.6372 | 6.53 | |
| 11+45 | 1.7612 | 6.00 | |
| 12+ 0 | 1.8729 | 5.41 | |
| 12+15 | 2.0404 | 8.11 | |
| 12+30 | 2.2972 | 12.43 | |
| 12+45 | 2.5981 | 14.57 | |
| 13+ 0 | 2.9370 | 16.40 | |
| 13+15 | 3.3294 | 18.99 | |
| 13+30 | 3.7840 | 22.01 | |
| 13+45 | 4.1826 | 19.29 | |
| 14+ 0 | 4.4649 | 13.67 | |
| 14+15 | 4.7520 | 13.90 | |
| 14+30 | 5.0754 | 15.65 | |
| 14+45 | 5.3986 | 15.64 | |
| 15+ 0 | 5.7179 | 15.46 | |
| 15+15 | 6.0229 | 14.76 | |
| 15+30 | 6.3110 | 13.94 | |
| 15+45 | 6.5622 | 12.16 | |
| 16+ 0 | 6.7691 | 10.02 | |
| 16+15 | 6.9081 | 6.73 | |
| 16+30 | 6.9436 | 1.72 | |
| 16+45 | 6.9566 | 0.63 | |
| 17+ 0 | 6.9645 | 0.38 | |
| 17+15 | 6.9720 | 0.36 | |
| 17+30 | 6.9817 | 0.47 | |
| 17+45 | 6.9919 | 0.49 | |
| 18+ 0 | 7.0015 | 0.46 | |
| 18+15 | 7.0100 | 0.41 | |
| 18+30 | 7.0183 | 0.40 | |
| 18+45 | 7.0258 | 0.37 | |
| 19+ 0 | 7.0317 | 0.28 | |
| 19+15 | 7.0368 | 0.25 | |
| 19+30 | 7.0434 | 0.32 | |
| 19+45 | 7.0506 | 0.35 | |
| 20+ 0 | 7.0563 | 0.28 | |
| 20+15 | 7.0614 | 0.25 | |
| 20+30 | 7.0674 | 0.29 | |
| 20+45 | 7.0735 | 0.30 | |
| 21+ 0 | 7.0790 | 0.27 | |
| 21+15 | 7.0840 | 0.24 | |
| 21+30 | 7.0893 | 0.26 | |
| 21+45 | 7.0943 | 0.24 | |
| 22+ 0 | 7.0996 | 0.25 | |
| 22+15 | 7.1046 | 0.24 | |
| 22+30 | 7.1099 | 0.25 | |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 22+45 | 7.1142 | 0.21 | Q | \| | \| | \| | V\| |
| 23+ 0 | 7.1184 | 0.20 | Q | \| | \| | \| | V\| |
| 23+15 | 7.1225 | 0.20 | Q | \| | \| | \| | V\| |
| 23+30 | 7.1266 | 0.20 | Q | \| | \| | \| | V\| |
| 23+45 | 7.1307 | 0.20 | Q | \| | \| | \| | V\| |
| 24+ 0 | 7.1348 | 0.20 | Q | \| | \| | \| | V\| |
| 24+15 | 7.1376 | 0.14 | Q | \| | \| | \| | V\| |
| 24+30 | 7.1382 | 0.03 | Q | \| | \| | \| | V\| |
| 24+45 | 7.1383 | 0.01 | Q | \| | \| | \| | V\| |
| 25+ 0 | 7.1384 | 0.00 | Q | \| | \| | \| | V |

SubF124100

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 04/25/12 File: Stream1/SubF124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

----------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

----------------------------------------------------------------------
Watershed F, Stream 1, Subarea F1
Existing Condition
100-year, 24-hour

----------------------------------------------------------------------
Drainage Area = 98.90(Ac.) = 0.155 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 98.90(Ac.) = 0.155 Sq. Mi.
Length along longest watercourse = 3020.00(Ft.)
Length along longest watercourse measured to centroid = 1040.00(Ft.)
Length along longest watercourse = 0.572 Mi.
Length along longest watercourse measured to centroid = 0.197 Mi.
Difference in elevation = 85.00(Ft.)
Slope along watercourse = 148.6093 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.121 Hr.
Lag time = 7.29 Min.
25% of lag time = 1.82 Min.
40% of lag time = 2.91 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 98.90 | 1.80 | 178.02 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 98.90 | 4.50 | 445.05 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

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Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 4.499(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 50.000 | 76.00 | 0.000 |
| 47.000 | 85.00 | 0.000 |
| 1.900 | 90.00 | 0.000 |

Total Area Entered = 98.90(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 76.0 | 76.0 | 0.291 | 0.000 | 0.291 | 0.506 | 0.147 |
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 0.475 | 0.089 |
| 90.0 | 90.0 | 0.130 | 0.000 | 0.130 | 0.019 | 0.002 |
| | | | | | Sum (F) = | 0.239 |

Area averaged mean soil loss (F) (In/Hr) = 0.239
Minimum soil loss rate ((In/Hr)) = 0.119
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 205.884 | 44.400 | 44.255 |
| 2 | 0.500 | 411.768 | 42.959 | 42.818 |
| 3 | 0.750 | 617.652 | 8.559 | 8.531 |
| 4 | 1.000 | 823.536 | 4.082 | 4.069 |
| | | | Sum = 100.000 | Sum= 99.673 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.421) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.416) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.412) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.407) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.402) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.397) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.392) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.388) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.383) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.378) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.374) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.369) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.365) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.360) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.356) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.351) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.347) | 0.097 | 0.011 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 18 | 4.50 | 0.70 | 0.126 | ( 0.342) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.338) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.333) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.329) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.325) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.321) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.316) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.312) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.308) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.304) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.300) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.296) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.292) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.288) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.284) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.280) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.276) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.272) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | 0.268 | ( 0.275) | 0.038 |
| 37 | 9.25 | 1.90 | 0.342 | 0.264 | ( 0.308) | 0.078 |
| 38 | 9.50 | 2.00 | 0.360 | 0.261 | ( 0.324) | 0.099 |
| 39 | 9.75 | 2.10 | 0.378 | 0.257 | ( 0.340) | 0.121 |
| 40 | 10.00 | 2.20 | 0.396 | 0.253 | ( 0.356) | 0.143 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.250) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.246) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.242 | ( 0.324) | 0.118 |
| 44 | 11.00 | 2.00 | 0.360 | 0.239 | ( 0.324) | 0.121 |
| 45 | 11.25 | 1.90 | 0.342 | 0.235 | ( 0.308) | 0.107 |
| 46 | 11.50 | 1.90 | 0.342 | 0.232 | ( 0.308) | 0.110 |
| 47 | 11.75 | 1.70 | 0.306 | 0.228 | ( 0.275) | 0.078 |
| 48 | 12.00 | 1.80 | 0.324 | 0.225 | ( 0.292) | 0.099 |
| 49 | 12.25 | 2.50 | 0.450 | 0.222 | ( 0.405) | 0.228 |
| 50 | 12.50 | 2.60 | 0.468 | 0.218 | ( 0.421) | 0.250 |
| 51 | 12.75 | 2.80 | 0.504 | 0.215 | ( 0.454) | 0.289 |
| 52 | 13.00 | 2.90 | 0.522 | 0.212 | ( 0.470) | 0.310 |
| 53 | 13.25 | 3.40 | 0.612 | 0.209 | ( 0.551) | 0.403 |
| 54 | 13.50 | 3.40 | 0.612 | 0.205 | ( 0.551) | 0.406 |
| 55 | 13.75 | 2.30 | 0.414 | 0.202 | ( 0.373) | 0.212 |
| 56 | 14.00 | 2.30 | 0.414 | 0.199 | ( 0.373) | 0.215 |
| 57 | 14.25 | 2.70 | 0.486 | 0.196 | ( 0.437) | 0.290 |
| 58 | 14.50 | 2.60 | 0.468 | 0.193 | ( 0.421) | 0.275 |
| 59 | 14.75 | 2.60 | 0.468 | 0.190 | ( 0.421) | 0.278 |
| 60 | 15.00 | 2.50 | 0.450 | 0.187 | ( 0.405) | 0.263 |
| 61 | 15.25 | 2.40 | 0.432 | 0.184 | ( 0.389) | 0.247 |
| 62 | 15.50 | 2.30 | 0.414 | 0.182 | ( 0.373) | 0.232 |
| 63 | 15.75 | 1.90 | 0.342 | 0.179 | ( 0.308) | 0.163 |
| 64 | 16.00 | 1.90 | 0.342 | 0.176 | ( 0.308) | 0.166 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.173) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.171) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.168) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.166) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.163) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.161) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.158) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.156) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.154) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.151) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.149) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.147) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.145) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.143) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.141) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.139) | 0.032 | 0.004 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| 81 | 20.25 | 0.30 | 0.054 | ( 0.137) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.136) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.134) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.132) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.131) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.129) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.128) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.126) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.125) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.124) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.123) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.122) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.121) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.120) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.120) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.119) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.0

Flood volume = Effective rainfall 1.50(In)
times area 98.9(Ac.)/[(In)/(Ft.)] = 12.4(Ac.Ft)
Total soil loss = 3.00(In)
Total soil loss = 24.685(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 539935.5 Cubic Feet
Total soil loss = 1075284.0 Cubic Feet

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Peak flow rate of this hydrograph = 39.100(CFS)

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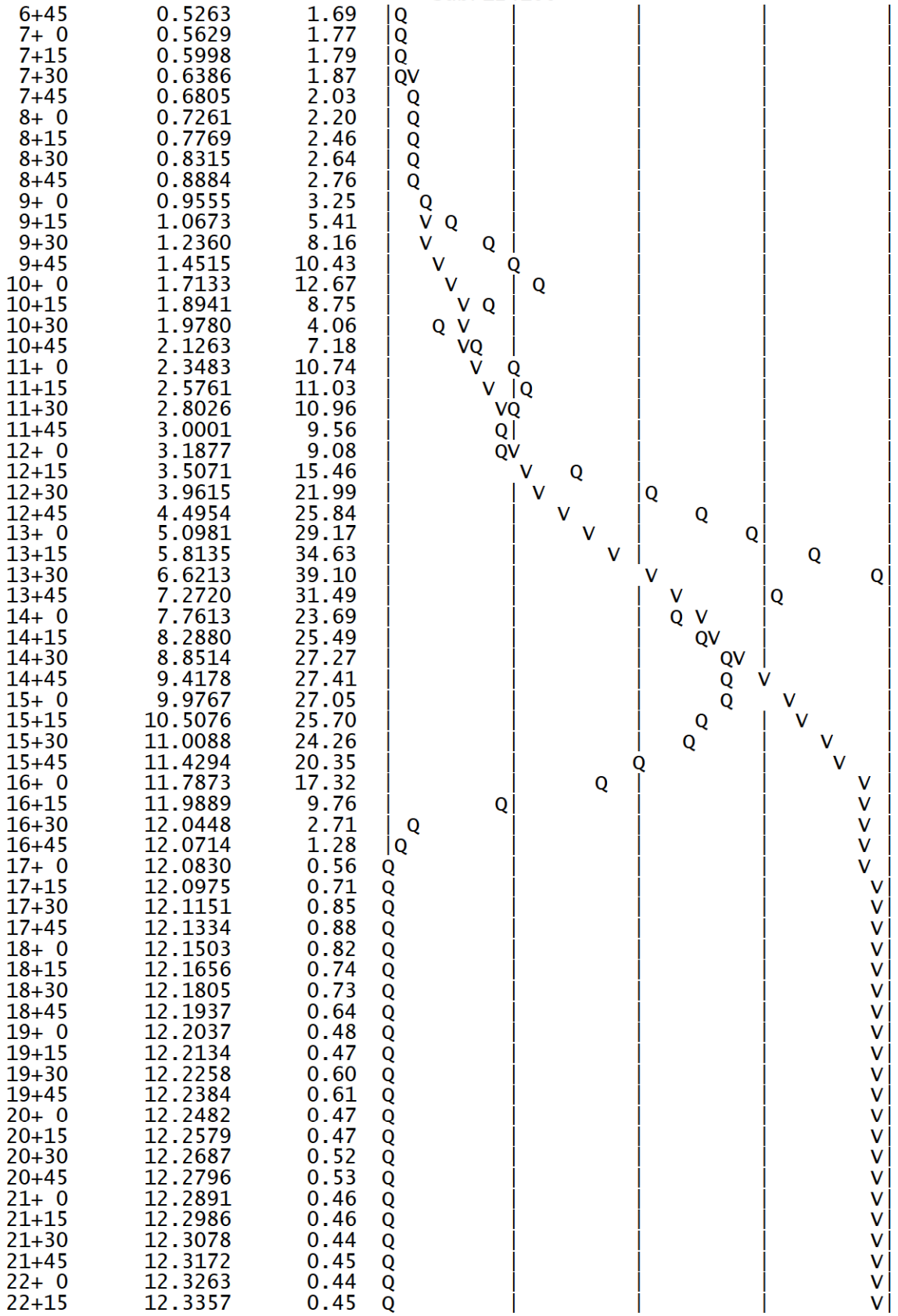
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

---

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 10.0 | 20.0 | 30.0 | 40.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0033 | 0.16 | Q | | | | |
| 0+30 | 0.0114 | 0.39 | Q | | | | |
| 0+45 | 0.0218 | 0.50 | Q | | | | |
| 1+ 0 | 0.0344 | 0.61 | Q | | | | |
| 1+15 | 0.0471 | 0.62 | Q | | | | |
| 1+30 | 0.0585 | 0.55 | Q | | | | |
| 1+45 | 0.0698 | 0.55 | Q | | | | |
| 2+ 0 | 0.0826 | 0.62 | Q | | | | |
| 2+15 | 0.0970 | 0.70 | Q | | | | |
| 2+30 | 0.1116 | 0.71 | Q | | | | |
| 2+45 | 0.1281 | 0.80 | Q | | | | |
| 3+ 0 | 0.1462 | 0.87 | Q | | | | |
| 3+15 | 0.1646 | 0.89 | Q | | | | |
| 3+30 | 0.1831 | 0.90 | Q | | | | |
| 3+45 | 0.2017 | 0.90 | Q | | | | |
| 4+ 0 | 0.2218 | 0.98 | Q | | | | |
| 4+15 | 0.2436 | 1.05 | VQ | | | | |
| 4+30 | 0.2674 | 1.15 | VQ | | | | |
| 4+45 | 0.2929 | 1.23 | VQ | | | | |
| 5+ 0 | 0.3203 | 1.33 | Q | | | | |
| 5+15 | 0.3462 | 1.25 | \|Q | | | | |
| 5+30 | 0.3709 | 1.19 | \|Q | | | | |
| 5+45 | 0.3983 | 1.33 | \|Q | | | | |
| 6+ 0 | 0.4274 | 1.41 | \|Q | | | | |
| 6+15 | 0.4585 | 1.51 | \|Q | | | | |
| 6+30 | 0.4914 | 1.59 | \|Q | | | | |



| | | | |
|---|---|---|---|
| 6+45 | 0.5263 | 1.69 | |
| 7+ 0 | 0.5629 | 1.77 | |
| 7+15 | 0.5998 | 1.79 | |
| 7+30 | 0.6386 | 1.87 | |
| 7+45 | 0.6805 | 2.03 | |
| 8+ 0 | 0.7261 | 2.20 | |
| 8+15 | 0.7769 | 2.46 | |
| 8+30 | 0.8315 | 2.64 | |
| 8+45 | 0.8884 | 2.76 | |
| 9+ 0 | 0.9555 | 3.25 | |
| 9+15 | 1.0673 | 5.41 | |
| 9+30 | 1.2360 | 8.16 | |
| 9+45 | 1.4515 | 10.43 | |
| 10+ 0 | 1.7133 | 12.67 | |
| 10+15 | 1.8941 | 8.75 | |
| 10+30 | 1.9780 | 4.06 | |
| 10+45 | 2.1263 | 7.18 | |
| 11+ 0 | 2.3483 | 10.74 | |
| 11+15 | 2.5761 | 11.03 | |
| 11+30 | 2.8026 | 10.96 | |
| 11+45 | 3.0001 | 9.56 | |
| 12+ 0 | 3.1877 | 9.08 | |
| 12+15 | 3.5071 | 15.46 | |
| 12+30 | 3.9615 | 21.99 | |
| 12+45 | 4.4954 | 25.84 | |
| 13+ 0 | 5.0981 | 29.17 | |
| 13+15 | 5.8135 | 34.63 | |
| 13+30 | 6.6213 | 39.10 | |
| 13+45 | 7.2720 | 31.49 | |
| 14+ 0 | 7.7613 | 23.69 | |
| 14+15 | 8.2880 | 25.49 | |
| 14+30 | 8.8514 | 27.27 | |
| 14+45 | 9.4178 | 27.41 | |
| 15+ 0 | 9.9767 | 27.05 | |
| 15+15 | 10.5076 | 25.70 | |
| 15+30 | 11.0088 | 24.26 | |
| 15+45 | 11.4294 | 20.35 | |
| 16+ 0 | 11.7873 | 17.32 | |
| 16+15 | 11.9889 | 9.76 | |
| 16+30 | 12.0448 | 2.71 | |
| 16+45 | 12.0714 | 1.28 | |
| 17+ 0 | 12.0830 | 0.56 | |
| 17+15 | 12.0975 | 0.71 | |
| 17+30 | 12.1151 | 0.85 | |
| 17+45 | 12.1334 | 0.88 | |
| 18+ 0 | 12.1503 | 0.82 | |
| 18+15 | 12.1656 | 0.74 | |
| 18+30 | 12.1805 | 0.73 | |
| 18+45 | 12.1937 | 0.64 | |
| 19+ 0 | 12.2037 | 0.48 | |
| 19+15 | 12.2134 | 0.47 | |
| 19+30 | 12.2258 | 0.60 | |
| 19+45 | 12.2384 | 0.61 | |
| 20+ 0 | 12.2482 | 0.47 | |
| 20+15 | 12.2579 | 0.47 | |
| 20+30 | 12.2687 | 0.52 | |
| 20+45 | 12.2796 | 0.53 | |
| 21+ 0 | 12.2891 | 0.46 | |
| 21+15 | 12.2986 | 0.46 | |
| 21+30 | 12.3078 | 0.44 | |
| 21+45 | 12.3172 | 0.45 | |
| 22+ 0 | 12.3263 | 0.44 | |
| 22+15 | 12.3357 | 0.45 | |

SubF124100

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 22+30 | 12.3449 | 0.44 | Q | \| | \| | \| | V\| |
| 22+45 | 12.3526 | 0.37 | Q | \| | \| | \| | V\| |
| 23+ 0 | 12.3602 | 0.37 | Q | \| | \| | \| | V\| |
| 23+15 | 12.3676 | 0.36 | Q | \| | \| | \| | V\| |
| 23+30 | 12.3750 | 0.36 | Q | \| | \| | \| | V\| |
| 23+45 | 12.3824 | 0.36 | Q | \| | \| | \| | V\| |
| 24+ 0 | 12.3898 | 0.36 | Q | \| | \| | \| | V\| |
| 24+15 | 12.3940 | 0.20 | Q | \| | \| | \| | V\| |
| 24+30 | 12.3949 | 0.05 | Q | \| | \| | \| | V\| |
| 24+45 | 12.3952 | 0.01 | Q | \| | \| | \| | V\| |

WSF24hrSt2

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
Study date: 04/27/12

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Watershed F, Stream 2
Existing Condition
100-year, 24-hour

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Program License Serial Number 6097

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********** HYDROGRAPH INFORMATION **********

From study/file name: SubF224100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 98
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 5.714 (CFS)
Total volume = 1.980 (Ac.Ft)
Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 91.000 to Point/Station 92.000
**** STREAM ROUTING SCS CONVEX METHOD ****
---
HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 950.00 (Ft.)
Elevation difference = 28.00 (Ft.)
Slope of channel = 0.029474 (Vert/Horiz)
Channel type - Improved Channel

Channel length = 950.00(Ft.) Elevation difference = 28.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width = 10.000(Ft.)
Slope or 'Z' of left channel bank = 2.000
Slope or 'Z' of right channel bank = 2.000
Manning's 'N' = 0.030
Maximum depth of channel = 5.000(Ft.)
Flow(q) thru subarea = 1.432(CFS)
Depth of flow = 0.086(Ft.)
Average velocity = 1.635(Ft/s)
Total flow rate = 1.432(CFS)
Channel flow top width = 10.344(Ft.)
Depth of flow in channel = 0.09(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 1.64(Ft/s)
Travel time = 0.00 min.

```
Individual channel flow =    1.432(CFS)
Total capacity of improved channels =      1.432(CFS)
Critical Depth in Channel =    0.09(Ft.)

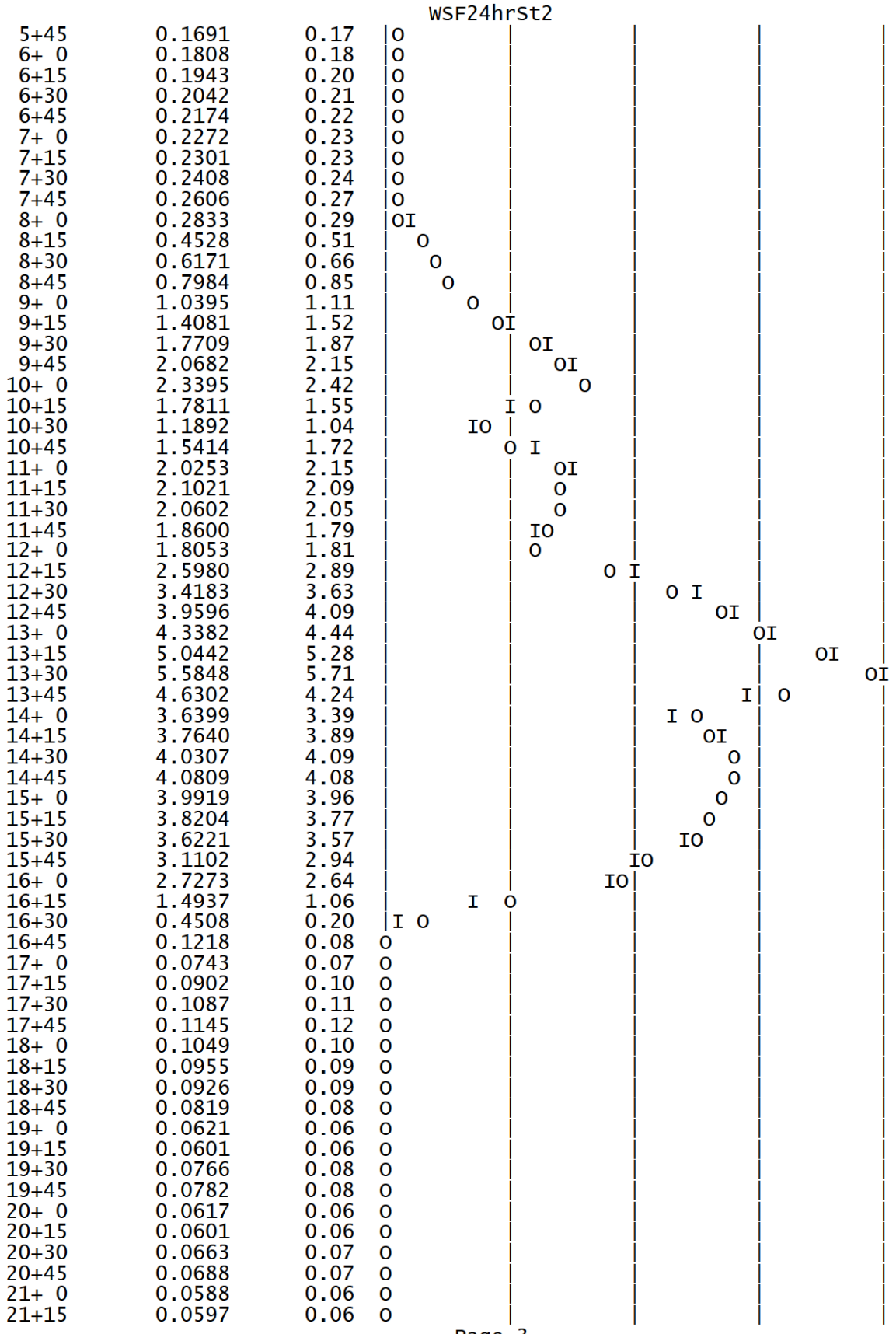

Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea =      5.714(CFS)
Depth of flow =     0.197(Ft.)
Average velocity =     2.792(Ft/s)
Total flow rate =     5.714(CFS)
Channel flow top width =   10.788(Ft.)
Depth of flow in channel =   0.20(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =    2.79(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =    5.714(CFS)
Total capacity of improved channels =      5.714(CFS)
Critical Depth in Channel =    0.21(Ft.)


********************** SCS CONVEX CHANNEL ROUTING **********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.6215   Travel time =   5.67 (min.)
         dt*(unit time interval) =  15.00(min.),  e=   3.1702
         dt(routing time-step) =   3.52 (min.),   c* =   0.9541

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                  P R I N T  O F  S T O R M
               R u n o f f     H y d r o g r a p h
----------------------------------------------------------------------
            Hydrograph in  15   Minute intervals (CFS)

----------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0        1.4       2.9       4.3       5.7
----------------------------------------------------------------------
  0+15       0.0206      0.03  O         |         |         |         |
  0+30       0.0499      0.06  O         |         |         |         |
  0+45       0.0651      0.07  O         |         |         |         |
  1+ 0       0.0791      0.08  O         |         |         |         |
  1+15       0.0786      0.08  O         |         |         |         |
  1+30       0.0721      0.07  O         |         |         |         |
  1+45       0.0695      0.07  O         |         |         |         |
  2+ 0       0.0795      0.08  O         |         |         |         |
  2+15       0.0889      0.09  O         |         |         |         |
  2+30       0.0918      0.09  O         |         |         |         |
  2+45       0.1025      0.11  O         |         |         |         |
  3+ 0       0.1120      0.11  O         |         |         |         |
  3+15       0.1149      0.12  O         |         |         |         |
  3+30       0.1152      0.12  O         |         |         |         |
  3+45       0.1152      0.12  O         |         |         |         |
  4+ 0       0.1256      0.13  O         |         |         |         |
  4+15       0.1350      0.14  O         |         |         |         |
  4+30       0.1483      0.15  |O        |         |         |         |
  4+45       0.1581      0.16  |O        |         |         |         |
  5+ 0       0.1713      0.18  |O        |         |         |         |
  5+15       0.1605      0.16  |O        |         |         |         |
  5+30       0.1548      0.15  |O        |         |         |         |
```


WSF24hrSt2
5+45 0.1691 0.17
6+ 0 0.1808 0.18
6+15 0.1943 0.20
6+30 0.2042 0.21
6+45 0.2174 0.22
7+ 0 0.2272 0.23
7+15 0.2301 0.23
7+30 0.2408 0.24
7+45 0.2606 0.27
8+ 0 0.2833 0.29
8+15 0.4528 0.51
8+30 0.6171 0.66
8+45 0.7984 0.85
9+ 0 1.0395 1.11
9+15 1.4081 1.52
9+30 1.7709 1.87
9+45 2.0682 2.15
10+ 0 2.3395 2.42
10+15 1.7811 1.55
10+30 1.1892 1.04
10+45 1.5414 1.72
11+ 0 2.0253 2.15
11+15 2.1021 2.09
11+30 2.0602 2.05
11+45 1.8600 1.79
12+ 0 1.8053 1.81
12+15 2.5980 2.89
12+30 3.4183 3.63
12+45 3.9596 4.09
13+ 0 4.3382 4.44
13+15 5.0442 5.28
13+30 5.5848 5.71
13+45 4.6302 4.24
14+ 0 3.6399 3.39
14+15 3.7640 3.89
14+30 4.0307 4.09
14+45 4.0809 4.08
15+ 0 3.9919 3.96
15+15 3.8204 3.77
15+30 3.6221 3.57
15+45 3.1102 2.94
16+ 0 2.7273 2.64
16+15 1.4937 1.06
16+30 0.4508 0.20
16+45 0.1218 0.08
17+ 0 0.0743 0.07
17+15 0.0902 0.10
17+30 0.1087 0.11
17+45 0.1145 0.12
18+ 0 0.1049 0.10
18+15 0.0955 0.09
18+30 0.0926 0.09
18+45 0.0819 0.08
19+ 0 0.0621 0.06
19+15 0.0601 0.06
19+30 0.0766 0.08
19+45 0.0782 0.08
20+ 0 0.0617 0.06
20+15 0.0601 0.06
20+30 0.0663 0.07
20+45 0.0688 0.07
21+ 0 0.0588 0.06
21+15 0.0597 0.06

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 21+30 | 0.0559 | 0.05 | Q | | | | |
| 21+45 | 0.0594 | 0.06 | Q | | | | |
| 22+ 0 | 0.0559 | 0.05 | Q | | | | |
| 22+15 | 0.0594 | 0.06 | Q | | | | |
| 22+30 | 0.0559 | 0.05 | Q | | | | |
| 22+45 | 0.0490 | 0.05 | Q | | | | |
| 23+ 0 | 0.0464 | 0.05 | Q | | | | |
| 23+15 | 0.0461 | 0.05 | Q | | | | |
| 23+30 | 0.0461 | 0.05 | Q | | | | |
| 23+45 | 0.0461 | 0.05 | Q | | | | |
| 24+ 0 | 0.0461 | 0.05 | Q | | | | |
| 24+15 | 0.0255 | 0.02 | Q | | | | |
| 24+30 | 0.0066 | 0.00 | Q | | | | |
| 24+45 | 0.0000 | 0.00 | Q | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 99
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 5.585 (CFS)
Total volume = 1.980 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 91.000 to Point/Station 92.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: SubF324100.rte

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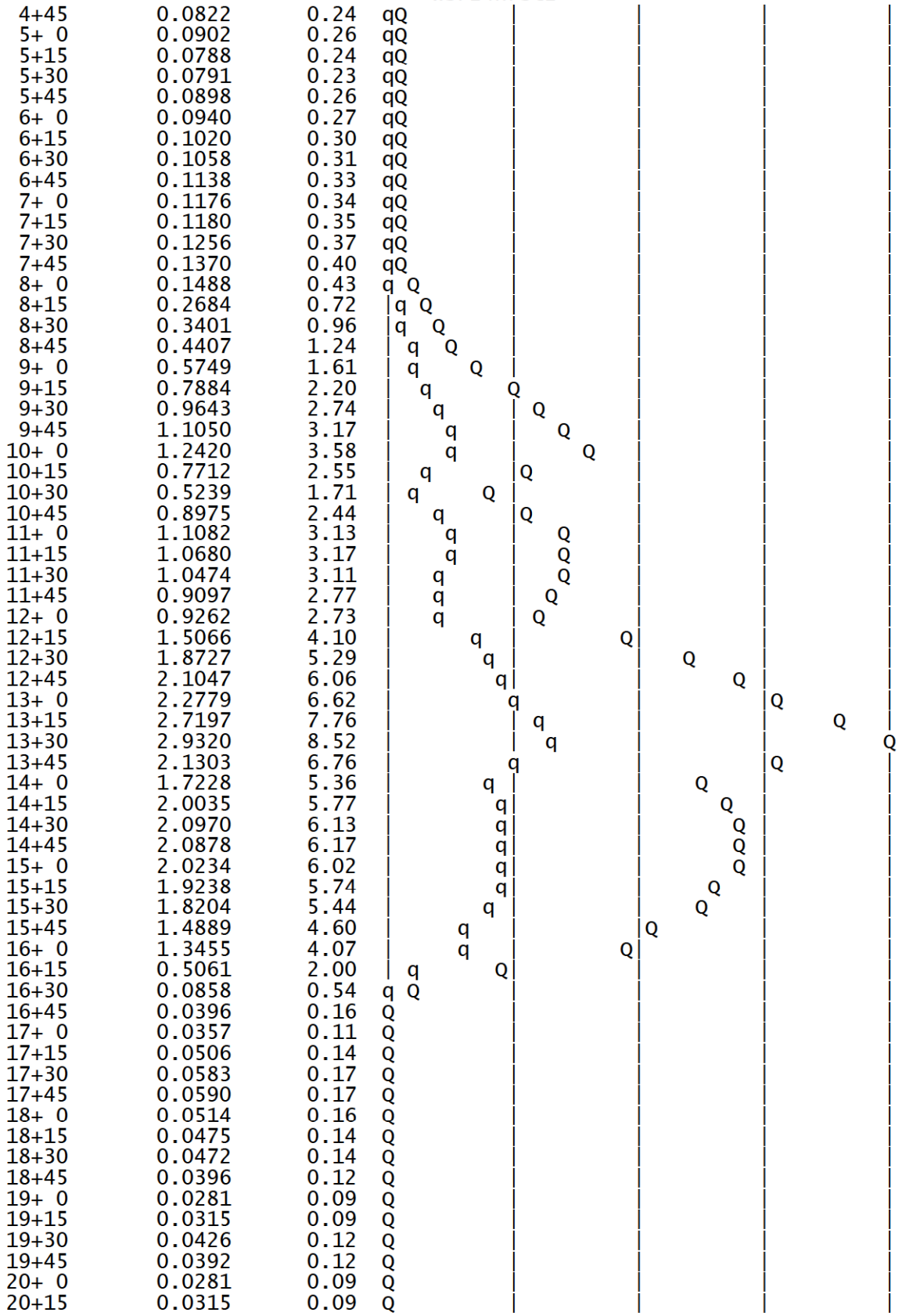
P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

---

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 2.1 | 4.3 | 6.4 | 8.5 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0152 | 0.04 | Q | | | | |
| 0+30 | 0.0305 | 0.08 | Q | | | | |
| 0+45 | 0.0350 | 0.10 | Q | | | | |
| 1+ 0 | 0.0430 | 0.12 | Q | | | | |
| 1+15 | 0.0392 | 0.12 | Q | | | | |
| 1+30 | 0.0357 | 0.11 | Q | | | | |
| 1+45 | 0.0354 | 0.10 | Q | | | | |
| 2+ 0 | 0.0430 | 0.12 | Q | | | | |
| 2+15 | 0.0468 | 0.14 | Q | | | | |
| 2+30 | 0.0472 | 0.14 | Q | | | | |
| 2+45 | 0.0548 | 0.16 | Q | | | | |
| 3+ 0 | 0.0586 | 0.17 | Q | | | | |
| 3+15 | 0.0590 | 0.17 | Q | | | | |
| 3+30 | 0.0590 | 0.17 | Q | | | | |
| 3+45 | 0.0590 | 0.17 | Q | | | | |
| 4+ 0 | 0.0666 | 0.19 | Q | | | | |
| 4+15 | 0.0704 | 0.21 | Q | | | | |
| 4+30 | 0.0784 | 0.23 | qQ | | | | |



| | | | |
|---|---|---|---|
| 4+45 | 0.0822 | 0.24 | qQ |
| 5+ 0 | 0.0902 | 0.26 | qQ |
| 5+15 | 0.0788 | 0.24 | qQ |
| 5+30 | 0.0791 | 0.23 | qQ |
| 5+45 | 0.0898 | 0.26 | qQ |
| 6+ 0 | 0.0940 | 0.27 | qQ |
| 6+15 | 0.1020 | 0.30 | qQ |
| 6+30 | 0.1058 | 0.31 | qQ |
| 6+45 | 0.1138 | 0.33 | qQ |
| 7+ 0 | 0.1176 | 0.34 | qQ |
| 7+15 | 0.1180 | 0.35 | qQ |
| 7+30 | 0.1256 | 0.37 | qQ |
| 7+45 | 0.1370 | 0.40 | qQ |
| 8+ 0 | 0.1488 | 0.43 | q Q |
| 8+15 | 0.2684 | 0.72 | q Q |
| 8+30 | 0.3401 | 0.96 | q Q |
| 8+45 | 0.4407 | 1.24 | q Q |
| 9+ 0 | 0.5749 | 1.61 | q Q |
| 9+15 | 0.7884 | 2.20 | q Q |
| 9+30 | 0.9643 | 2.74 | q Q |
| 9+45 | 1.1050 | 3.17 | q Q |
| 10+ 0 | 1.2420 | 3.58 | q Q |
| 10+15 | 0.7712 | 2.55 | q Q |
| 10+30 | 0.5239 | 1.71 | q Q |
| 10+45 | 0.8975 | 2.44 | q Q |
| 11+ 0 | 1.1082 | 3.13 | q Q |
| 11+15 | 1.0680 | 3.17 | q Q |
| 11+30 | 1.0474 | 3.11 | q Q |
| 11+45 | 0.9097 | 2.77 | q Q |
| 12+ 0 | 0.9262 | 2.73 | q Q |
| 12+15 | 1.5066 | 4.10 | q Q |
| 12+30 | 1.8727 | 5.29 | q Q |
| 12+45 | 2.1047 | 6.06 | q Q |
| 13+ 0 | 2.2779 | 6.62 | q Q |
| 13+15 | 2.7197 | 7.76 | q Q |
| 13+30 | 2.9320 | 8.52 | q Q |
| 13+45 | 2.1303 | 6.76 | q Q |
| 14+ 0 | 1.7228 | 5.36 | q Q |
| 14+15 | 2.0035 | 5.77 | q Q |
| 14+30 | 2.0970 | 6.13 | q Q |
| 14+45 | 2.0878 | 6.17 | q Q |
| 15+ 0 | 2.0234 | 6.02 | q Q |
| 15+15 | 1.9238 | 5.74 | q Q |
| 15+30 | 1.8204 | 5.44 | q Q |
| 15+45 | 1.4889 | 4.60 | q Q |
| 16+ 0 | 1.3455 | 4.07 | q Q |
| 16+15 | 0.5061 | 2.00 | q Q |
| 16+30 | 0.0858 | 0.54 | q Q |
| 16+45 | 0.0396 | 0.16 | Q |
| 17+ 0 | 0.0357 | 0.11 | Q |
| 17+15 | 0.0506 | 0.14 | Q |
| 17+30 | 0.0583 | 0.17 | Q |
| 17+45 | 0.0590 | 0.17 | Q |
| 18+ 0 | 0.0514 | 0.16 | Q |
| 18+15 | 0.0475 | 0.14 | Q |
| 18+30 | 0.0472 | 0.14 | Q |
| 18+45 | 0.0396 | 0.12 | Q |
| 19+ 0 | 0.0281 | 0.09 | Q |
| 19+15 | 0.0315 | 0.09 | Q |
| 19+30 | 0.0426 | 0.12 | Q |
| 19+45 | 0.0392 | 0.12 | Q |
| 20+ 0 | 0.0281 | 0.09 | Q |
| 20+15 | 0.0315 | 0.09 | Q |

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 6.9 | 13.7 | 20.6 | 27.5 |
|---|---|---|---|---|---|---|---|
| 20+30 | 0.0350 | 0.10 | Q | | | | |
| 20+45 | 0.0354 | 0.10 | Q | | | | |
| 21+ 0 | 0.0278 | 0.09 | Q | | | | |
| 21+15 | 0.0315 | 0.09 | Q | | | | |
| 21+30 | 0.0274 | 0.08 | Q | | | | |
| 21+45 | 0.0315 | 0.09 | Q | | | | |
| 22+ 0 | 0.0274 | 0.08 | Q | | | | |
| 22+15 | 0.0315 | 0.09 | Q | | | | |
| 22+30 | 0.0274 | 0.08 | Q | | | | |
| 22+45 | 0.0239 | 0.07 | Q | | | | |
| 23+ 0 | 0.0236 | 0.07 | Q | | | | |
| 23+15 | 0.0236 | 0.07 | Q | | | | |
| 23+30 | 0.0236 | 0.07 | Q | | | | |
| 23+45 | 0.0236 | 0.07 | Q | | | | |
| 24+ 0 | 0.0236 | 0.07 | Q | | | | |
| 24+15 | 0.0084 | 0.03 | Q | | | | |
| 24+30 | 0.0007 | 0.01 | Q | | | | |
| 24+45 | 0.0000 | 0.00 | Q | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 99
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 8.517 (CFS)
Total volume = 2.993 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 921.000 to Point/Station 92.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

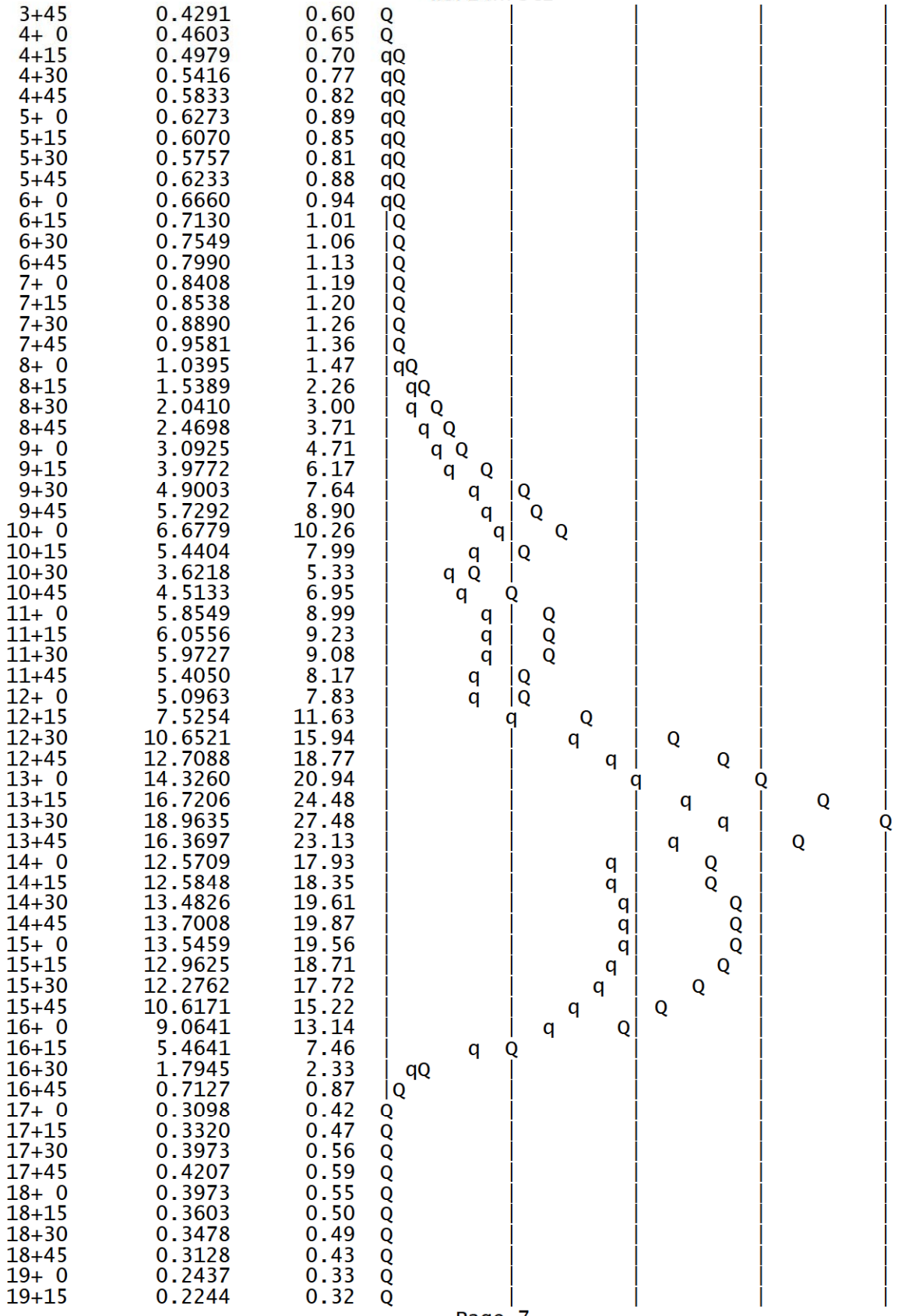
From study/file name: F31and32N92.rte

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 6.9 | 13.7 | 20.6 | 27.5 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0621 | 0.10 | Q | | | | |
| 0+30 | 0.1685 | 0.25 | Q | | | | |
| 0+45 | 0.2314 | 0.33 | Q | | | | |
| 1+ 0 | 0.2830 | 0.41 | Q | | | | |
| 1+15 | 0.2945 | 0.41 | Q | | | | |
| 1+30 | 0.2700 | 0.38 | Q | | | | |
| 1+45 | 0.2615 | 0.37 | Q | | | | |
| 2+ 0 | 0.2890 | 0.41 | Q | | | | |
| 2+15 | 0.3263 | 0.46 | Q | | | | |
| 2+30 | 0.3389 | 0.48 | Q | | | | |
| 2+45 | 0.3739 | 0.53 | Q | | | | |
| 3+ 0 | 0.4120 | 0.58 | Q | | | | |
| 3+15 | 0.4247 | 0.60 | Q | | | | |
| 3+30 | 0.4287 | 0.60 | Q | | | | |



| | | | |
|---|---|---|---|
| 3+45 | 0.4291 | 0.60 | Q |
| 4+ 0 | 0.4603 | 0.65 | Q |
| 4+15 | 0.4979 | 0.70 | qQ |
| 4+30 | 0.5416 | 0.77 | qQ |
| 4+45 | 0.5833 | 0.82 | qQ |
| 5+ 0 | 0.6273 | 0.89 | qQ |
| 5+15 | 0.6070 | 0.85 | qQ |
| 5+30 | 0.5757 | 0.81 | qQ |
| 5+45 | 0.6233 | 0.88 | qQ |
| 6+ 0 | 0.6660 | 0.94 | qQ |
| 6+15 | 0.7130 | 1.01 | \|Q |
| 6+30 | 0.7549 | 1.06 | \|Q |
| 6+45 | 0.7990 | 1.13 | \|Q |
| 7+ 0 | 0.8408 | 1.19 | \|Q |
| 7+15 | 0.8538 | 1.20 | \|Q |
| 7+30 | 0.8890 | 1.26 | \|Q |
| 7+45 | 0.9581 | 1.36 | \|Q |
| 8+ 0 | 1.0395 | 1.47 | \|qQ |
| 8+15 | 1.5389 | 2.26 | \| qQ |
| 8+30 | 2.0410 | 3.00 | \| q Q |
| 8+45 | 2.4698 | 3.71 | \|  q Q |
| 9+ 0 | 3.0925 | 4.71 | \|  q Q |
| 9+15 | 3.9772 | 6.17 | \|  q  Q |
| 9+30 | 4.9003 | 7.64 | \|  q  \|Q |
| 9+45 | 5.7292 | 8.90 | \|  q  \| Q |
| 10+ 0 | 6.6779 | 10.26 | \|  q\|  Q |
| 10+15 | 5.4404 | 7.99 | \|  q  \|Q |
| 10+30 | 3.6218 | 5.33 | \|  q Q  \| |
| 10+45 | 4.5133 | 6.95 | \|  q  Q |
| 11+ 0 | 5.8549 | 8.99 | \|  q  \|  Q |
| 11+15 | 6.0556 | 9.23 | \|  q  \|  Q |
| 11+30 | 5.9727 | 9.08 | \|  q  \|  Q |
| 11+45 | 5.4050 | 8.17 | \|  q  \|Q |
| 12+ 0 | 5.0963 | 7.83 | \|  q  \|Q |
| 12+15 | 7.5254 | 11.63 | \|  q  Q |
| 12+30 | 10.6521 | 15.94 | \|  \|  q  \|  Q |
| 12+45 | 12.7088 | 18.77 | \|  \|  \|  q  \|  Q |
| 13+ 0 | 14.3260 | 20.94 | \|  \|  \|  q  \|  Q |
| 13+15 | 16.7206 | 24.48 | \|  \|  \|  \|  q  \|  Q |
| 13+30 | 18.9635 | 27.48 | \|  \|  \|  \|  \|  q  \|  Q |
| 13+45 | 16.3697 | 23.13 | \|  \|  \|  \|  q  \|  Q |
| 14+ 0 | 12.5709 | 17.93 | \|  \|  \|  q  \|  Q |
| 14+15 | 12.5848 | 18.35 | \|  \|  \|  q  \|  Q |
| 14+30 | 13.4826 | 19.61 | \|  \|  \|  q  \|  Q |
| 14+45 | 13.7008 | 19.87 | \|  \|  \|  q  \|  Q |
| 15+ 0 | 13.5459 | 19.56 | \|  \|  \|  q  \|  Q |
| 15+15 | 12.9625 | 18.71 | \|  \|  \|  q  \|  Q |
| 15+30 | 12.2762 | 17.72 | \|  \|  \|  q  \|  Q |
| 15+45 | 10.6171 | 15.22 | \|  \|  \|  q  \|  Q |
| 16+ 0 | 9.0641 | 13.14 | \|  \|  \|  q  \|  Q |
| 16+15 | 5.4641 | 7.46 | \|  \|  q  \|  Q |
| 16+30 | 1.7945 | 2.33 | \|  qQ  \| |
| 16+45 | 0.7127 | 0.87 | \|Q |
| 17+ 0 | 0.3098 | 0.42 | Q |
| 17+15 | 0.3320 | 0.47 | Q |
| 17+30 | 0.3973 | 0.56 | Q |
| 17+45 | 0.4207 | 0.59 | Q |
| 18+ 0 | 0.3973 | 0.55 | Q |
| 18+15 | 0.3603 | 0.50 | Q |
| 18+30 | 0.3478 | 0.49 | Q |
| 18+45 | 0.3128 | 0.43 | Q |
| 19+ 0 | 0.2437 | 0.33 | Q |
| 19+15 | 0.2244 | 0.32 | Q |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19+30 | 0.2765 | 0.40 | Q | \| | \| | \| | \| |
| 19+45 | 0.2913 | 0.41 | Q | \| | \| | \| | \| |
| 20+ 0 | 0.2387 | 0.33 | Q | \| | \| | \| | \| |
| 20+15 | 0.2238 | 0.32 | Q | \| | \| | \| | \| |
| 20+30 | 0.2453 | 0.35 | Q | \| | \| | \| | \| |
| 20+45 | 0.2536 | 0.36 | Q | \| | \| | \| | \| |
| 21+ 0 | 0.2261 | 0.31 | Q | \| | \| | \| | \| |
| 21+15 | 0.2198 | 0.31 | Q | \| | \| | \| | \| |
| 21+30 | 0.2139 | 0.30 | Q | \| | \| | \| | \| |
| 21+45 | 0.2159 | 0.31 | Q | \| | \| | \| | \| |
| 22+ 0 | 0.2135 | 0.30 | Q | \| | \| | \| | \| |
| 22+15 | 0.2158 | 0.31 | Q | \| | \| | \| | \| |
| 22+30 | 0.2134 | 0.30 | Q | \| | \| | \| | \| |
| 22+45 | 0.1847 | 0.26 | Q | \| | \| | \| | \| |
| 23+ 0 | 0.1758 | 0.25 | Q | \| | \| | \| | \| |
| 23+15 | 0.1721 | 0.24 | Q | \| | \| | \| | \| |
| 23+30 | 0.1718 | 0.24 | Q | \| | \| | \| | \| |
| 23+45 | 0.1717 | 0.24 | Q | \| | \| | \| | \| |
| 24+ 0 | 0.1717 | 0.24 | Q | \| | \| | \| | \| |
| 24+15 | 0.1096 | 0.14 | Q | \| | \| | \| | \| |
| 24+30 | 0.0342 | 0.04 | Q | \| | \| | \| | \| |
| 24+45 | 0.0090 | 0.01 | Q | \| | \| | \| | \| |
| 25+ 0 | 0.0010 | 0.00 | Q | \| | \| | \| | \| |
| 25+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |

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**********HYDROGRAPH DATA**********

Number of intervals = 101
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 27.480 (CFS)
Total volume = 9.453 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 92.000 to Point/Station 93.000

**** STREAM ROUTING SCS CONVEX METHOD ****

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HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 980.00 (Ft.)
Elevation difference = 25.00 (Ft.)
Slope of channel = 0.025510 (Vert/Horiz)
Channel type - Improved Channel

Channel length = 980.00(Ft.) Elevation difference = 25.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width = 10.000(Ft.)
Slope or 'Z' of left channel bank = 2.000
Slope or 'Z' of right channel bank = 2.000
Manning's 'N' = 0.030
Maximum depth of channel = 5.000(Ft.)
Flow(q) thru subarea = 6.715(CFS)
Depth of flow = 0.226(Ft.)
Average velocity = 2.838(Ft/s)
Total flow rate = 6.715(CFS)
Channel flow top width = 10.905(Ft.)
Depth of flow in channel = 0.23(Ft.)

Total number of channels (same dimensions) = 1
Flow Velocity = 2.84(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 6.715(CFS)
Total capacity of improved channels = 6.715(CFS)
Critical Depth in Channel = 0.24(Ft.)

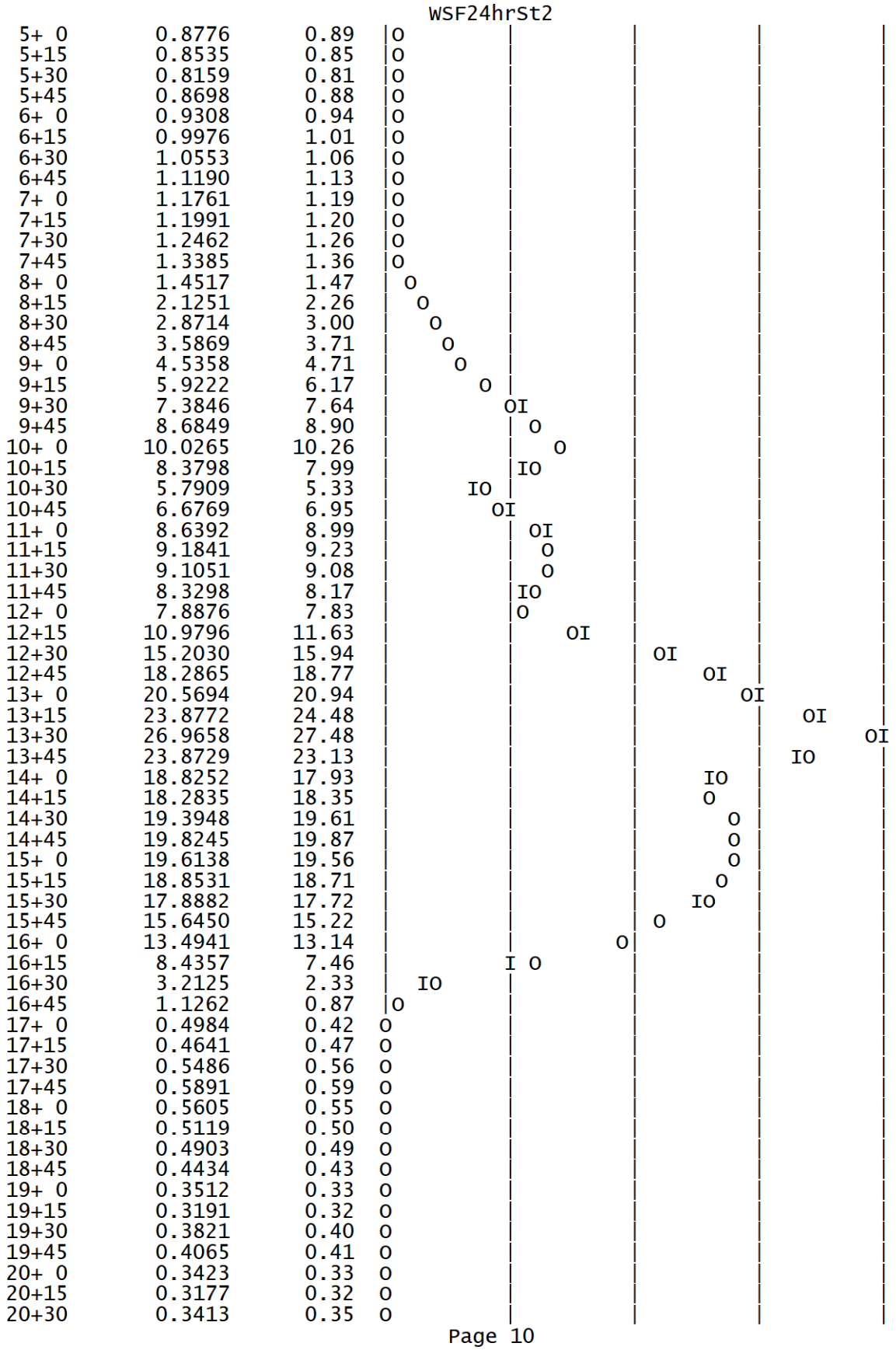
Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea = 27.480(CFS)
Depth of flow = 0.522(Ft.)
Average velocity = 4.765(Ft/s)
Total flow rate = 27.480(CFS)
Channel flow top width = 12.089(Ft.)
Depth of flow in channel = 0.52(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 4.77(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 27.480(CFS)
Total capacity of improved channels = 27.480(CFS)
Critical Depth in Channel = 0.59(Ft.)

********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.7371 Travel time = 3.43 (min.)
dt*(unit time interval) = 15.00(min.), e= 4.2918
dt(routing time-step) = 2.53 (min.), c* = 0.9968

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h
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Hydrograph in 15 Minute intervals (CFS)
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| Time(h+m) | Out = O(CFS) | In = I | 0 | 6.9 | 13.7 | 20.6 | 27.5 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0812 | 0.10 | O | | | | |
| 0+30 | 0.2230 | 0.25 | O | | | | |
| 0+45 | 0.3173 | 0.33 | O | | | | |
| 1+ 0 | 0.3925 | 0.41 | O | | | | |
| 1+15 | 0.4110 | 0.41 | O | | | | |
| 1+30 | 0.3837 | 0.38 | O | | | | |
| 1+45 | 0.3683 | 0.37 | O | | | | |
| 2+ 0 | 0.4038 | 0.41 | O | | | | |
| 2+15 | 0.4534 | 0.46 | O | | | | |
| 2+30 | 0.4752 | 0.48 | O | | | | |
| 2+45 | 0.5221 | 0.53 | O | | | | |
| 3+ 0 | 0.5738 | 0.58 | O | | | | |
| 3+15 | 0.5958 | 0.60 | O | | | | |
| 3+30 | 0.6022 | 0.60 | O | | | | |
| 3+45 | 0.6033 | 0.60 | O | | | | |
| 4+ 0 | 0.6440 | 0.65 | O | | | | |
| 4+15 | 0.6946 | 0.70 | \|O | | | | |
| 4+30 | 0.7571 | 0.77 | \|O | | | | |
| 4+45 | 0.8141 | 0.82 | \|O | | | | |


WSF24hrSt2
5+ 0 0.8776 0.89
5+15 0.8535 0.85
5+30 0.8159 0.81
5+45 0.8698 0.88
6+ 0 0.9308 0.94
6+15 0.9976 1.01
6+30 1.0553 1.06
6+45 1.1190 1.13
7+ 0 1.1761 1.19
7+15 1.1991 1.20
7+30 1.2462 1.26
7+45 1.3385 1.36
8+ 0 1.4517 1.47
8+15 2.1251 2.26
8+30 2.8714 3.00
8+45 3.5869 3.71
9+ 0 4.5358 4.71
9+15 5.9222 6.17
9+30 7.3846 7.64
9+45 8.6849 8.90
10+ 0 10.0265 10.26
10+15 8.3798 7.99
10+30 5.7909 5.33
10+45 6.6769 6.95
11+ 0 8.6392 8.99
11+15 9.1841 9.23
11+30 9.1051 9.08
11+45 8.3298 8.17
12+ 0 7.8876 7.83
12+15 10.9796 11.63
12+30 15.2030 15.94
12+45 18.2865 18.77
13+ 0 20.5694 20.94
13+15 23.8772 24.48
13+30 26.9658 27.48
13+45 23.8729 23.13
14+ 0 18.8252 17.93
14+15 18.2835 18.35
14+30 19.3948 19.61
14+45 19.8245 19.87
15+ 0 19.6138 19.56
15+15 18.8531 18.71
15+30 17.8882 17.72
15+45 15.6450 15.22
16+ 0 13.4941 13.14
16+15 8.4357 7.46
16+30 3.2125 2.33
16+45 1.1262 0.87
17+ 0 0.4984 0.42
17+15 0.4641 0.47
17+30 0.5486 0.56
17+45 0.5891 0.59
18+ 0 0.5605 0.55
18+15 0.5119 0.50
18+30 0.4903 0.49
18+45 0.4434 0.43
19+ 0 0.3512 0.33
19+15 0.3191 0.32
19+30 0.3821 0.40
19+45 0.4065 0.41
20+ 0 0.3423 0.33
20+15 0.3177 0.32
20+30 0.3413 0.35

| Time(h+m) | Add q(CFS) | Tot. Q | | 0 | 11.8 | 23.7 | 35.5 | 47.3 |
|---|---|---|---|---|---|---|---|---|
| 20+45 | 0.3559 | 0.36 | O | | | | | |
| 21+ 0 | 0.3204 | 0.31 | O | | | | | |
| 21+15 | 0.3113 | 0.31 | O | | | | | |
| 21+30 | 0.2996 | 0.30 | O | | | | | |
| 21+45 | 0.3051 | 0.31 | O | | | | | |
| 22+ 0 | 0.2985 | 0.30 | O | | | | | |
| 22+15 | 0.3050 | 0.31 | O | | | | | |
| 22+30 | 0.2985 | 0.30 | O | | | | | |
| 22+45 | 0.2644 | 0.26 | O | | | | | |
| 23+ 0 | 0.2479 | 0.25 | O | | | | | |
| 23+15 | 0.2425 | 0.24 | O | | | | | |
| 23+30 | 0.2415 | 0.24 | O | | | | | |
| 23+45 | 0.2414 | 0.24 | O | | | | | |
| 24+ 0 | 0.2414 | 0.24 | O | | | | | |
| 24+15 | 0.1602 | 0.14 | O | | | | | |
| 24+30 | 0.0590 | 0.04 | O | | | | | |
| 24+45 | 0.0146 | 0.01 | O | | | | | |
| 25+ 0 | 0.0024 | 0.00 | O | | | | | |
| 25+15 | 0.0002 | 0.00 | O | | | | | |
| 25+30 | 0.0000 | 0.00 | O | | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 102
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 26.966 (CFS)
Total volume = 9.453 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 92.000 to Point/Station 93.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: SubF424100.rte

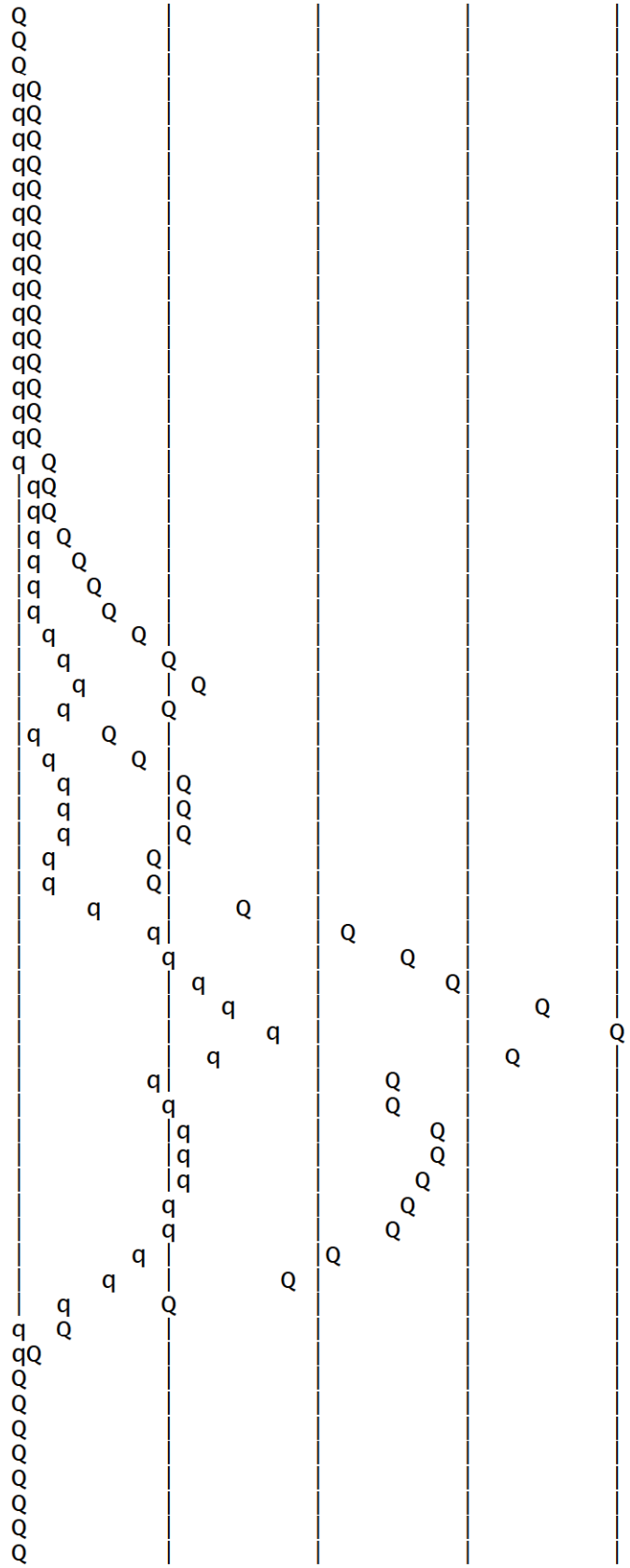
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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | | 0 | 11.8 | 23.7 | 35.5 | 47.3 |
|---|---|---|---|---|---|---|---|---|
| 0+15 | 0.0892 | 0.17 | Q | | | | | |
| 0+30 | 0.2305 | 0.45 | Q | | | | | |
| 0+45 | 0.2898 | 0.61 | Q | | | | | |
| 1+ 0 | 0.3416 | 0.73 | Q | | | | | |
| 1+15 | 0.3461 | 0.76 | Q | | | | | |
| 1+30 | 0.3033 | 0.69 | Q | | | | | |
| 1+45 | 0.2986 | 0.67 | Q | | | | | |
| 2+ 0 | 0.3424 | 0.75 | Q | | | | | |
| 2+15 | 0.3907 | 0.84 | Q | | | | | |
| 2+30 | 0.3963 | 0.87 | Q | | | | | |
| 2+45 | 0.4417 | 0.96 | Q | | | | | |
| 3+ 0 | 0.4900 | 1.06 | Q | | | | | |

| | | | |
|---|---|---|---|
| 3+15 | 0.4955 | 1.09 |  |
| 3+30 | 0.4963 | 1.10 | |
| 3+45 | 0.4963 | 1.10 | |
| 4+ 0 | 0.5410 | 1.18 | |
| 4+15 | 0.5893 | 1.28 | |
| 4+30 | 0.6394 | 1.40 | |
| 4+45 | 0.6886 | 1.50 | |
| 5+ 0 | 0.7387 | 1.62 | |
| 5+15 | 0.6986 | 1.55 | |
| 5+30 | 0.6521 | 1.47 | |
| 5+45 | 0.7348 | 1.60 | |
| 6+ 0 | 0.7870 | 1.72 | |
| 6+15 | 0.8380 | 1.84 | |
| 6+30 | 0.8871 | 1.94 | |
| 6+45 | 0.9372 | 2.06 | |
| 7+ 0 | 0.9864 | 2.16 | |
| 7+15 | 0.9919 | 2.19 | |
| 7+30 | 1.0373 | 2.28 | |
| 7+45 | 1.1302 | 2.47 | |
| 8+ 0 | 1.2287 | 2.68 | |
| 8+15 | 1.3726 | 3.50 | |
| 8+30 | 1.4756 | 4.35 | |
| 8+45 | 1.5320 | 5.12 | |
| 9+ 0 | 1.6266 | 6.16 | |
| 9+15 | 1.9180 | 7.84 | |
| 9+30 | 2.7342 | 10.12 | |
| 9+45 | 3.9145 | 12.60 | |
| 10+ 0 | 5.1352 | 15.16 | |
| 10+15 | 3.8283 | 12.21 | |
| 10+30 | 1.7604 | 7.55 | |
| 10+45 | 2.9217 | 9.60 | |
| 11+ 0 | 4.4983 | 13.14 | |
| 11+15 | 4.4329 | 13.62 | |
| 11+30 | 4.1934 | 13.30 | |
| 11+45 | 3.4636 | 11.79 | |
| 12+ 0 | 3.1505 | 11.04 | |
| 12+15 | 6.8593 | 17.84 | |
| 12+30 | 10.9372 | 26.14 | |
| 12+45 | 12.9154 | 31.20 | |
| 13+ 0 | 14.6458 | 35.22 | |
| 13+15 | 17.6814 | 41.56 | |
| 13+30 | 20.3694 | 47.34 | |
| 13+45 | 15.9440 | 39.82 | |
| 14+ 0 | 10.8650 | 29.69 | |
| 14+15 | 12.2352 | 30.52 | |
| 14+30 | 13.8225 | 33.22 | |
| 14+45 | 13.7478 | 33.57 | |
| 15+ 0 | 13.4639 | 33.08 | |
| 15+15 | 12.7086 | 31.56 | |
| 15+30 | 11.9035 | 29.79 | |
| 15+45 | 9.7490 | 25.39 | |
| 16+ 0 | 7.9266 | 21.42 | |
| 16+15 | 4.4779 | 12.91 | |
| 16+30 | 0.8664 | 4.08 | |
| 16+45 | 0.4130 | 1.54 | |
| 17+ 0 | 0.3041 | 0.80 | |
| 17+15 | 0.3879 | 0.85 | |
| 17+30 | 0.4837 | 1.03 | |
| 17+45 | 0.4947 | 1.08 | |
| 18+ 0 | 0.4517 | 1.01 | |
| 18+15 | 0.4034 | 0.92 | |
| 18+30 | 0.3979 | 0.89 | |
| 18+45 | 0.3525 | 0.80 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19+ 0 | 0.2595 | 0.61 | Q | \| | \| | \| | \| |
| 19+15 | 0.2503 | 0.57 | Q | \| | \| | \| | \| |
| 19+30 | 0.3369 | 0.72 | Q | \| | \| | \| | \| |
| 19+45 | 0.3453 | 0.75 | Q | \| | \| | \| | \| |
| 20+ 0 | 0.2587 | 0.60 | Q | \| | \| | \| | \| |
| 20+15 | 0.2503 | 0.57 | Q | \| | \| | \| | \| |
| 20+30 | 0.2923 | 0.63 | Q | \| | \| | \| | \| |
| 20+45 | 0.2970 | 0.65 | Q | \| | \| | \| | \| |
| 21+ 0 | 0.2532 | 0.57 | Q | \| | \| | \| | \| |
| 21+15 | 0.2495 | 0.56 | Q | \| | \| | \| | \| |
| 21+30 | 0.2477 | 0.55 | Q | \| | \| | \| | \| |
| 21+45 | 0.2487 | 0.55 | Q | \| | \| | \| | \| |
| 22+ 0 | 0.2477 | 0.55 | Q | \| | \| | \| | \| |
| 22+15 | 0.2487 | 0.55 | Q | \| | \| | \| | \| |
| 22+30 | 0.2477 | 0.55 | Q | \| | \| | \| | \| |
| 22+45 | 0.2041 | 0.47 | Q | \| | \| | \| | \| |
| 23+ 0 | 0.1994 | 0.45 | Q | \| | \| | \| | \| |
| 23+15 | 0.1985 | 0.44 | Q | \| | \| | \| | \| |
| 23+30 | 0.1985 | 0.44 | Q | \| | \| | \| | \| |
| 23+45 | 0.1985 | 0.44 | Q | \| | \| | \| | \| |
| 24+ 0 | 0.1985 | 0.44 | Q | \| | \| | \| | \| |
| 24+15 | 0.1093 | 0.27 | Q | \| | \| | \| | \| |
| 24+30 | 0.0127 | 0.07 | Q | \| | \| | \| | \| |
| 24+45 | 0.0016 | 0.02 | Q | \| | \| | \| | \| |
| 25+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 25+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 25+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |

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**********HYDROGRAPH DATA**********

Number of intervals = 102
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 47.335 (CFS)
Total volume = 15.396 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 90.000 to Point/Station 93.000

**** STORE OR DELETE CURRENT HYDROGRAPH ****

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Current stream hydrograph saved in file WSF24hrSt2.rte

**********HYDROGRAPH DATA**********

Number of intervals = 0
Time interval = 0.0 (Min.)
Maximum/Peak flow rate = 0.000 (CFS)
Total volume = 0.000 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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F31and32N92

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
Study date: 04/27/12

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Watershed F, Stream 2, Node 920 to 92
Existing Condition
100-year, 24-hour

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Program License Serial Number 6097

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********** HYDROGRAPH INFORMATION **********

From study/file name: SubF3124100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 97
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 6.330 (CFS)
Total volume = 1.736 (Ac.Ft)
Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 921.000 to Point/Station 92.000
**** STREAM ROUTING SCS CONVEX METHOD ****
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HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 2360.00 (Ft.)
Elevation difference = 69.00 (Ft.)
Slope of channel = 0.029237 (Vert/Horiz)
Channel type - Improved Channel

Channel length = 2360.00(Ft.) Elevation difference = 69.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width = 10.000(Ft.)
Slope or 'Z' of left channel bank = 2.000
Slope or 'Z' of right channel bank = 2.000
Manning's 'N' = 0.030
Maximum depth of channel = 5.000(Ft.)
Flow(q) thru subarea = 1.200(CFS)
Depth of flow = 0.078(Ft.)
Average velocity = 1.522(Ft/s)
Total flow rate = 1.200(CFS)
Channel flow top width = 10.311(Ft.)
Depth of flow in channel = 0.08(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 1.52(Ft/s)
Travel time = 0.00 min.

Individual channel flow = 1.200(CFS)
Total capacity of improved channels = 1.200(CFS)
Critical Depth in Channel = 0.08(Ft.)

Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea = 6.330(CFS)
Depth of flow = 0.210(Ft.)
Average velocity = 2.895(Ft/s)
Total flow rate = 6.330(CFS)
Channel flow top width = 10.839(Ft.)
Depth of flow in channel = 0.21(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 2.90(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 6.330(CFS)
Total capacity of improved channels = 6.330(CFS)
Critical Depth in Channel = 0.23(Ft.)

********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.6301 Travel time = 13.58 (min.)
dt*(unit time interval) = 15.00(min.), e= 1.5016
dt(routing time-step) = 8.56 (min.), c* = 0.7754

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h
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Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 1.6 3.2 4.7 6.3 |
|---|---|---|---|
| 0+15 | 0.0140 | 0.04 | O |
| 0+30 | 0.0499 | 0.08 | O |
| 0+45 | 0.0804 | 0.10 | O |
| 1+ 0 | 0.0989 | 0.12 | O |
| 1+15 | 0.1090 | 0.11 | O |
| 1+30 | 0.1031 | 0.10 | O |
| 1+45 | 0.0970 | 0.10 | O |
| 2+ 0 | 0.1027 | 0.12 | O |
| 2+15 | 0.1168 | 0.13 | O |
| 2+30 | 0.1248 | 0.13 | O |
| 2+45 | 0.1335 | 0.15 | O |
| 3+ 0 | 0.1484 | 0.16 | OI |
| 3+15 | 0.1565 | 0.16 | OI |
| 3+30 | 0.1583 | 0.16 | \|O |
| 3+45 | 0.1587 | 0.16 | \|O |
| 4+ 0 | 0.1658 | 0.18 | \|O |
| 4+15 | 0.1803 | 0.19 | \|O |
| 4+30 | 0.1953 | 0.21 | \|O |
| 4+45 | 0.2115 | 0.22 | \|O |
| 5+ 0 | 0.2269 | 0.24 | \|O |
| 5+15 | 0.2292 | 0.21 | \|O |
| 5+30 | 0.2157 | 0.21 | \|O |

```
 5+45       0.2231      0.24  |O         |          |          |          |
 6+ 0       0.2424      0.25  |O         |          |          |          |
 6+15       0.2585      0.28  |O         |          |          |          |
 6+30       0.2750      0.29  |O         |          |          |          |
 6+45       0.2904      0.31  |O         |          |          |          |
 7+ 0       0.3068      0.32  |OI        |          |          |          |
 7+15       0.3152      0.32  |OI        |          |          |          |
 7+30       0.3241      0.34  | O        |          |          |          |
 7+45       0.3460      0.37  | O        |          |          |          |
 8+ 0       0.3755      0.40  | O        |          |          |          |
 8+15       0.4138      0.45  | O        |          |          |          |
 8+30       0.4529      0.48  | OI       |          |          |          |
 8+45       0.4781      0.50  |  O       |          |          |          |
 9+ 0       0.5037      0.53  |  O       |          |          |          |
 9+15       0.5411      0.58  |  O       |          |          |          |
 9+30       0.6039      0.68  |  OI      |          |          |          |
 9+45       0.7595      0.98  |   O I    |          |          |          |
10+ 0       1.0598      1.37  |     O I  |          |          |          |
10+15       1.1204      0.82  |    I O   |          |          |          |
10+30       0.7751      0.48  |  IO      |          |          |          |
10+45       0.6828      0.89  |   OI     |          |          |          |
11+ 0       0.9349      1.16  |    O I   |          |          |          |
11+15       1.0636      1.02  |     O    |          |          |          |
11+30       1.0226      0.99  |     O    |          |          |          |
11+45       0.9023      0.70  |   IO     |          |          |          |
12+ 0       0.7607      0.74  |   O      |          |          |          |
12+15       1.2888      2.37  |       O  |   I      |          |          |
12+30       2.4704      3.40  |          |    O     |I         |          |
12+45       3.3923      4.00  |          |          |O   I     |          |
13+ 0       4.0295      4.50  |          |          |    O  I  |          |
13+15       4.8008      5.73  |          |          |          O     I   |
13+30       5.7191      6.33  |          |          |          |     O   I
13+45       5.4449      4.08  |          |          |    I     |   O      |
14+ 0       4.0190      2.97  |          |        I |    O     |          |
14+15       3.5088      3.88  |          |          | O I      |          |
14+30       3.8901      4.16  |          |          |   O I    |          |
14+45       4.0869      4.12  |          |          |    OI    |          |
15+ 0       4.0632      3.97  |          |          |    O     |          |
15+15       3.9077      3.72  |          |          |  IO      |          |
15+30       3.6746      3.46  |          |          |I O       |          |
15+45       3.2131      2.57  |          |      I   O          |          |
16+ 0       2.5934      2.20  |          |   I  O   |          |          |
16+15       1.8351      0.83  |    I     |O         |          |          |
16+30       0.8237      0.13  I    O     |          |          |          |
16+45       0.2765      0.11  IO         |          |          |          |
17+ 0       0.1407      0.10  O          |          |          |          |
17+15       0.1195      0.14  O          |          |          |          |
17+30       0.1405      0.16  OI         |          |          |          |
17+45       0.1547      0.16  OI         |          |          |          |
18+ 0       0.1509      0.14  O          |          |          |          |
18+15       0.1371      0.13  O          |          |          |          |
18+30       0.1293      0.13  O          |          |          |          |
18+45       0.1206      0.11  O          |          |          |          |
19+ 0       0.0987      0.07  O          |          |          |          |
19+15       0.0832      0.08  O          |          |          |          |
19+30       0.0948      0.12  O          |          |          |          |
19+45       0.1081      0.11  O          |          |          |          |
20+ 0       0.0959      0.07  O          |          |          |          |
20+15       0.0825      0.08  O          |          |          |          |
20+30       0.0877      0.10  O          |          |          |          |
20+45       0.0936      0.10  O          |          |          |          |
21+ 0       0.0879      0.07  O          |          |          |          |
21+15       0.0807      0.08  O          |          |          |          |
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 21+30 | 0.0803 | 0.07 | Q | | | | |
| 21+45 | 0.0790 | 0.08 | Q | | | | |
| 22+ 0 | 0.0799 | 0.07 | Q | | | | |
| 22+15 | 0.0789 | 0.08 | Q | | | | |
| 22+30 | 0.0799 | 0.07 | Q | | | | |
| 22+45 | 0.0719 | 0.06 | Q | | | | |
| 23+ 0 | 0.0654 | 0.06 | Q | | | | |
| 23+15 | 0.0639 | 0.06 | Q | | | | |
| 23+30 | 0.0636 | 0.06 | Q | | | | |
| 23+45 | 0.0635 | 0.06 | Q | | | | |
| 24+ 0 | 0.0635 | 0.06 | Q | | | | |
| 24+15 | 0.0495 | 0.02 | Q | | | | |
| 24+30 | 0.0206 | 0.00 | Q | | | | |
| 24+45 | 0.0046 | 0.00 | Q | | | | |
| 25+ 0 | 0.0010 | 0.00 | Q | | | | |
| 25+15 | 0.0000 | 0.00 | Q | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 101
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 5.719 (CFS)
Total volume = 1.736 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 921.000 to Point/Station 92.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

**********

********** HYDROGRAPH INFORMATION **********

From study/file name: SubF3224100.rte

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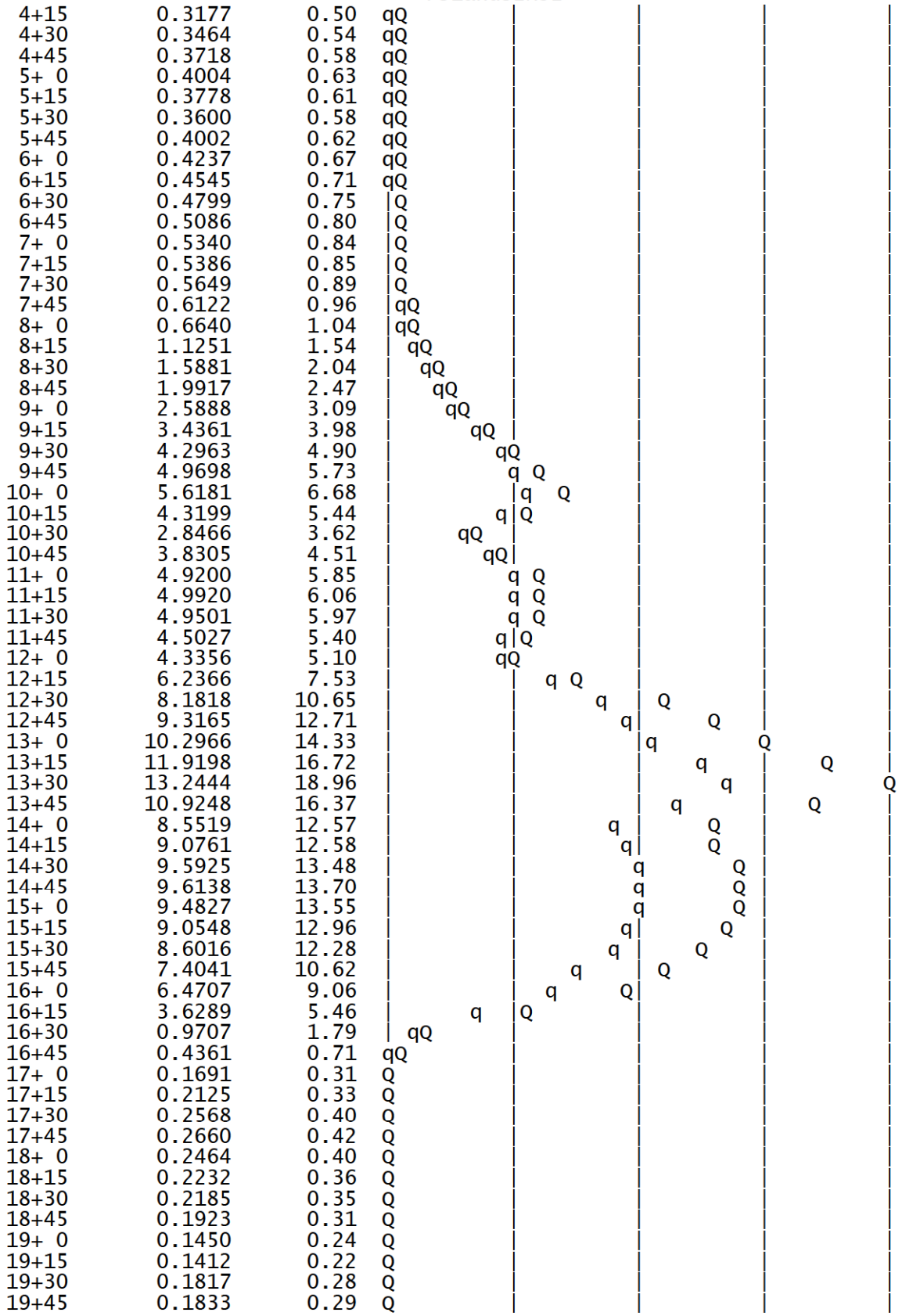
P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

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| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 4.7 | 9.5 | 14.2 | 19.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0481 | 0.06 | Q | | | | |
| 0+30 | 0.1186 | 0.17 | Q | | | | |
| 0+45 | 0.1510 | 0.23 | Q | | | | |
| 1+ 0 | 0.1841 | 0.28 | Q | | | | |
| 1+15 | 0.1855 | 0.29 | Q | | | | |
| 1+30 | 0.1669 | 0.27 | Q | | | | |
| 1+45 | 0.1644 | 0.26 | Q | | | | |
| 2+ 0 | 0.1863 | 0.29 | Q | | | | |
| 2+15 | 0.2095 | 0.33 | Q | | | | |
| 2+30 | 0.2141 | 0.34 | Q | | | | |
| 2+45 | 0.2404 | 0.37 | Q | | | | |
| 3+ 0 | 0.2636 | 0.41 | Q | | | | |
| 3+15 | 0.2682 | 0.42 | Q | | | | |
| 3+30 | 0.2704 | 0.43 | Q | | | | |
| 3+45 | 0.2704 | 0.43 | Q | | | | |
| 4+ 0 | 0.2945 | 0.46 | Q | | | | |


4+15 0.3177 0.50
4+30 0.3464 0.54
4+45 0.3718 0.58
5+ 0 0.4004 0.63
5+15 0.3778 0.61
5+30 0.3600 0.58
5+45 0.4002 0.62
6+ 0 0.4237 0.67
6+15 0.4545 0.71
6+30 0.4799 0.75
6+45 0.5086 0.80
7+ 0 0.5340 0.84
7+15 0.5386 0.85
7+30 0.5649 0.89
7+45 0.6122 0.96
8+ 0 0.6640 1.04
8+15 1.1251 1.54
8+30 1.5881 2.04
8+45 1.9917 2.47
9+ 0 2.5888 3.09
9+15 3.4361 3.98
9+30 4.2963 4.90
9+45 4.9698 5.73
10+ 0 5.6181 6.68
10+15 4.3199 5.44
10+30 2.8466 3.62
10+45 3.8305 4.51
11+ 0 4.9200 5.85
11+15 4.9920 6.06
11+30 4.9501 5.97
11+45 4.5027 5.40
12+ 0 4.3356 5.10
12+15 6.2366 7.53
12+30 8.1818 10.65
12+45 9.3165 12.71
13+ 0 10.2966 14.33
13+15 11.9198 16.72
13+30 13.2444 18.96
13+45 10.9248 16.37
14+ 0 8.5519 12.57
14+15 9.0761 12.58
14+30 9.5925 13.48
14+45 9.6138 13.70
15+ 0 9.4827 13.55
15+15 9.0548 12.96
15+30 8.6016 12.28
15+45 7.4041 10.62
16+ 0 6.4707 9.06
16+15 3.6289 5.46
16+30 0.9707 1.79
16+45 0.4361 0.71
17+ 0 0.1691 0.31
17+15 0.2125 0.33
17+30 0.2568 0.40
17+45 0.2660 0.42
18+ 0 0.2464 0.40
18+15 0.2232 0.36
18+30 0.2185 0.35
18+45 0.1923 0.31
19+ 0 0.1450 0.24
19+15 0.1412 0.22
19+30 0.1817 0.28
19+45 0.1833 0.29

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20+ 0 | 0.1428 | 0.24 | Q | \| | \| | \| | \| |
| 20+15 | 0.1412 | 0.22 | Q | \| | \| | \| | \| |
| 20+30 | 0.1576 | 0.25 | Q | \| | \| | \| | \| |
| 20+45 | 0.1601 | 0.25 | Q | \| | \| | \| | \| |
| 21+ 0 | 0.1382 | 0.23 | Q | \| | \| | \| | \| |
| 21+15 | 0.1390 | 0.22 | Q | \| | \| | \| | \| |
| 21+30 | 0.1336 | 0.21 | Q | \| | \| | \| | \| |
| 21+45 | 0.1368 | 0.22 | Q | \| | \| | \| | \| |
| 22+ 0 | 0.1336 | 0.21 | Q | \| | \| | \| | \| |
| 22+15 | 0.1368 | 0.22 | Q | \| | \| | \| | \| |
| 22+30 | 0.1336 | 0.21 | Q | \| | \| | \| | \| |
| 22+45 | 0.1128 | 0.18 | Q | \| | \| | \| | \| |
| 23+ 0 | 0.1104 | 0.18 | Q | \| | \| | \| | \| |
| 23+15 | 0.1082 | 0.17 | Q | \| | \| | \| | \| |
| 23+30 | 0.1082 | 0.17 | Q | \| | \| | \| | \| |
| 23+45 | 0.1082 | 0.17 | Q | \| | \| | \| | \| |
| 24+ 0 | 0.1082 | 0.17 | Q | \| | \| | \| | \| |
| 24+15 | 0.0601 | 0.11 | Q | \| | \| | \| | \| |
| 24+30 | 0.0136 | 0.03 | Q | \| | \| | \| | \| |
| 24+45 | 0.0044 | 0.01 | Q | \| | \| | \| | \| |
| 25+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 25+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |

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**********HYDROGRAPH DATA**********

Number of intervals = 101
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 18.963 (CFS)
Total volume = 6.460 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 921.000 to Point/Station 92.000

**** STORE OR DELETE CURRENT HYDROGRAPH ****

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Current stream hydrograph saved in file F31and32N92.rte

**********HYDROGRAPH DATA**********

Number of intervals = 0
Time interval = 0.0 (Min.)
Maximum/Peak flow rate = 0.000 (CFS)
Total volume = 0.000 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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SubF224100

U n i t  H y d r o g r a p h  A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 04/25/12 File: Stream2/SubF224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

----------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

----------------------------------------------------------------------
Watershed F, Stream 2, Subarea F2
Existing Condition
100-year, 24-hour

----------------------------------------------------------------------
Drainage Area = 12.70(Ac.) = 0.020 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 12.70(Ac.) = 0.020 Sq. Mi.
Length along longest watercourse = 980.00(Ft.)
Length along longest watercourse measured to centroid = 750.00(Ft.)
Length along longest watercourse = 0.186 Mi.
Length along longest watercourse measured to centroid = 0.142 Mi.
Difference in elevation = 25.00(Ft.)
Slope along watercourse = 134.6939 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.071 Hr.
Lag time = 4.27 Min.
25% of lag time = 1.07 Min.
40% of lag time = 1.71 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 12.70 | 1.80 | 22.86 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 12.70 | 4.50 | 57.15 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 12.700 | 85.00 | 0.000 |

Total Area Entered = 12.70(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 1.000 | 0.187 |
| | | | | | Sum (F) = | 0.187 |

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.094
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
VALLEY S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 350.910 | 61.373 | 7.855 |
| 2 | 0.500 | 701.821 | 34.479 | 4.413 |
| 3 | 0.750 | 1052.731 | 4.148 | 0.531 |
| | | | Sum = 100.000 | Sum= 12.799 |

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The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.330) | | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.326) | | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.323) | | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.319) | | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.315) | | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.311) | | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.308) | | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.304) | | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.300) | | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.297) | | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.293) | | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.289) | | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.286) | | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.282) | | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.279) | | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.275) | | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.272) | | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.268) | | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.265) | | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.261) | | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.258) | | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.255) | | 0.113 | 0.013 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 23 | 5.75 | 0.80 | 0.144 | ( 0.251) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.248) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.245) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.241) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.238) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.235) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.232) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.229) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.225) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.222) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | 0.219 | ( 0.243) | 0.051 |
| 34 | 8.50 | 1.50 | 0.270 | 0.216 | ( 0.243) | 0.054 |
| 35 | 8.75 | 1.60 | 0.288 | 0.213 | ( 0.259) | 0.075 |
| 36 | 9.00 | 1.70 | 0.306 | 0.210 | ( 0.275) | 0.096 |
| 37 | 9.25 | 1.90 | 0.342 | 0.207 | ( 0.308) | 0.135 |
| 38 | 9.50 | 2.00 | 0.360 | 0.204 | ( 0.324) | 0.156 |
| 39 | 9.75 | 2.10 | 0.378 | 0.201 | ( 0.340) | 0.177 |
| 40 | 10.00 | 2.20 | 0.396 | 0.198 | ( 0.356) | 0.198 |
| 41 | 10.25 | 1.50 | 0.270 | 0.196 | ( 0.243) | 0.074 |
| 42 | 10.50 | 1.50 | 0.270 | 0.193 | ( 0.243) | 0.077 |
| 43 | 10.75 | 2.00 | 0.360 | 0.190 | ( 0.324) | 0.170 |
| 44 | 11.00 | 2.00 | 0.360 | 0.187 | ( 0.324) | 0.173 |
| 45 | 11.25 | 1.90 | 0.342 | 0.184 | ( 0.308) | 0.158 |
| 46 | 11.50 | 1.90 | 0.342 | 0.182 | ( 0.308) | 0.160 |
| 47 | 11.75 | 1.70 | 0.306 | 0.179 | ( 0.275) | 0.127 |
| 48 | 12.00 | 1.80 | 0.324 | 0.176 | ( 0.292) | 0.148 |
| 49 | 12.25 | 2.50 | 0.450 | 0.174 | ( 0.405) | 0.276 |
| 50 | 12.50 | 2.60 | 0.468 | 0.171 | ( 0.421) | 0.297 |
| 51 | 12.75 | 2.80 | 0.504 | 0.169 | ( 0.454) | 0.335 |
| 52 | 13.00 | 2.90 | 0.522 | 0.166 | ( 0.470) | 0.356 |
| 53 | 13.25 | 3.40 | 0.612 | 0.163 | ( 0.551) | 0.449 |
| 54 | 13.50 | 3.40 | 0.612 | 0.161 | ( 0.551) | 0.451 |
| 55 | 13.75 | 2.30 | 0.414 | 0.159 | ( 0.373) | 0.255 |
| 56 | 14.00 | 2.30 | 0.414 | 0.156 | ( 0.373) | 0.258 |
| 57 | 14.25 | 2.70 | 0.486 | 0.154 | ( 0.437) | 0.332 |
| 58 | 14.50 | 2.60 | 0.468 | 0.151 | ( 0.421) | 0.317 |
| 59 | 14.75 | 2.60 | 0.468 | 0.149 | ( 0.421) | 0.319 |
| 60 | 15.00 | 2.50 | 0.450 | 0.147 | ( 0.405) | 0.303 |
| 61 | 15.25 | 2.40 | 0.432 | 0.145 | ( 0.389) | 0.287 |
| 62 | 15.50 | 2.30 | 0.414 | 0.142 | ( 0.373) | 0.272 |
| 63 | 15.75 | 1.90 | 0.342 | 0.140 | ( 0.308) | 0.202 |
| 64 | 16.00 | 1.90 | 0.342 | 0.138 | ( 0.308) | 0.204 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.136) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.134) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.132) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.130) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.128) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.126) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.124) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.122) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.120) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.119) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.117) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.115) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.114) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.112) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.111) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.109) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.108) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.106) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.105) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.104) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.102) | 0.049 | 0.005 |

SubF224100

| | | | | | | |
|---|---|---|---|---|---|---|
| 86 | 21.50 | 0.20 | 0.036 | ( 0.101) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.100) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.099) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.098) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.097) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.095) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 7.5

Flood volume = Effective rainfall 1.87(In)
times area 12.7(Ac.)/[(In)/(Ft.)] = 2.0(Ac.Ft)
Total soil loss = 2.63(In)
Total soil loss = 2.783(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 86234.7 Cubic Feet
Total soil loss = 121214.6 Cubic Feet

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Peak flow rate of this hydrograph = 5.714(CFS)

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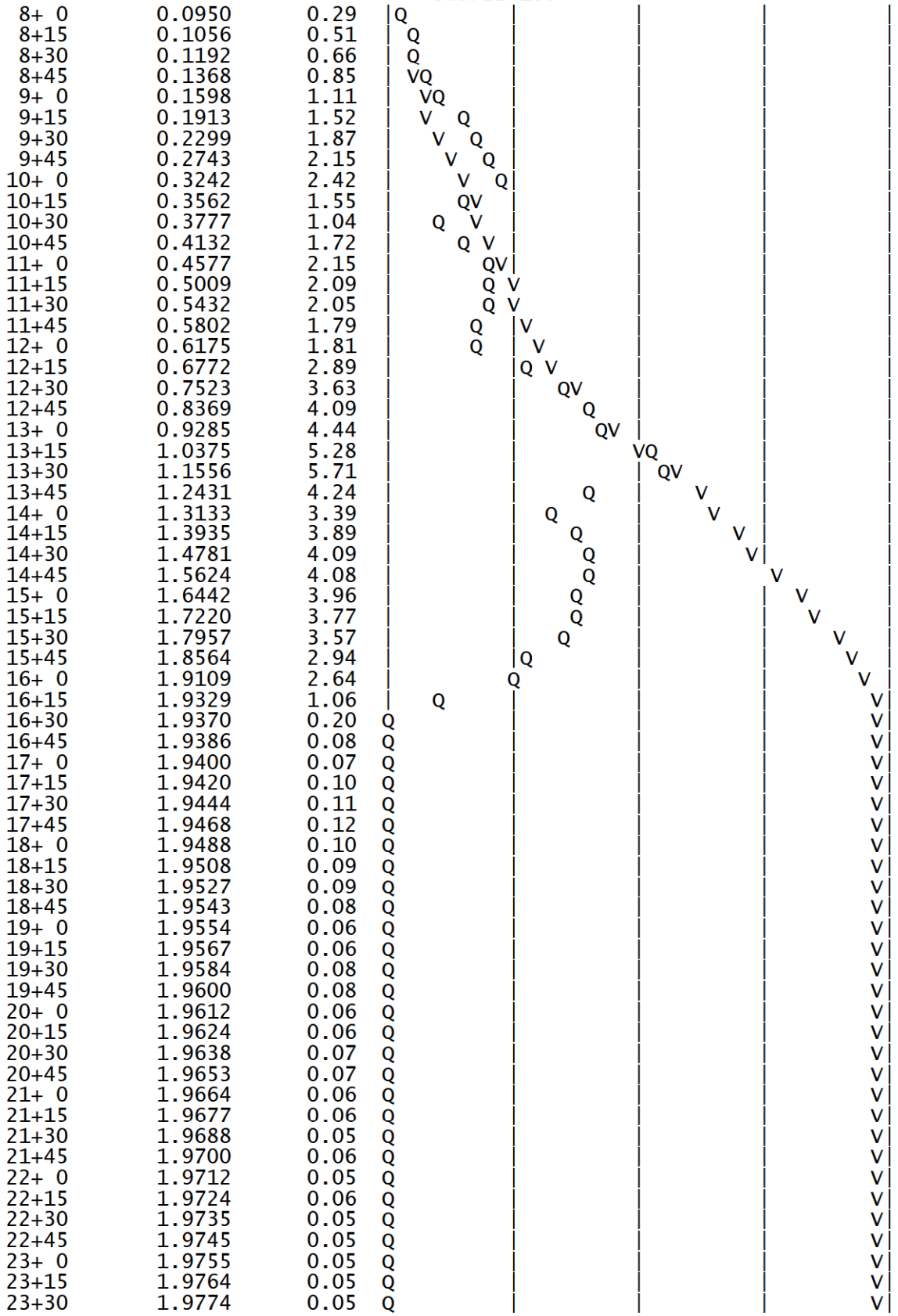
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

---

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 2.5 | 5.0 | 7.5 | 10.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0006 | 0.03 | Q | | | | |
| 0+30 | 0.0018 | 0.06 | Q | | | | |
| 0+45 | 0.0032 | 0.07 | Q | | | | |
| 1+ 0 | 0.0049 | 0.08 | Q | | | | |
| 1+15 | 0.0065 | 0.08 | Q | | | | |
| 1+30 | 0.0080 | 0.07 | Q | | | | |
| 1+45 | 0.0094 | 0.07 | Q | | | | |
| 2+ 0 | 0.0111 | 0.08 | Q | | | | |
| 2+15 | 0.0130 | 0.09 | Q | | | | |
| 2+30 | 0.0149 | 0.09 | Q | | | | |
| 2+45 | 0.0171 | 0.11 | Q | | | | |
| 3+ 0 | 0.0195 | 0.11 | Q | | | | |
| 3+15 | 0.0218 | 0.12 | Q | | | | |
| 3+30 | 0.0242 | 0.12 | Q | | | | |
| 3+45 | 0.0266 | 0.12 | Q | | | | |
| 4+ 0 | 0.0293 | 0.13 | Q | | | | |
| 4+15 | 0.0321 | 0.14 | Q | | | | |
| 4+30 | 0.0353 | 0.15 | Q | | | | |
| 4+45 | 0.0386 | 0.16 | Q | | | | |
| 5+ 0 | 0.0422 | 0.18 | Q | | | | |
| 5+15 | 0.0454 | 0.16 | Q | | | | |
| 5+30 | 0.0486 | 0.15 | Q | | | | |
| 5+45 | 0.0522 | 0.17 | QV | | | | |
| 6+ 0 | 0.0560 | 0.18 | QV | | | | |
| 6+15 | 0.0601 | 0.20 | QV | | | | |
| 6+30 | 0.0644 | 0.21 | QV | | | | |
| 6+45 | 0.0689 | 0.22 | QV | | | | |
| 7+ 0 | 0.0737 | 0.23 | QV | | | | |
| 7+15 | 0.0784 | 0.23 | QV | | | | |
| 7+30 | 0.0835 | 0.24 | QV | | | | |
| 7+45 | 0.0890 | 0.27 | \|Q | | | | |



| | | | |
|---|---|---|---|
| 8+ 0 | 0.0950 | 0.29 | |
| 8+15 | 0.1056 | 0.51 | |
| 8+30 | 0.1192 | 0.66 | |
| 8+45 | 0.1368 | 0.85 | |
| 9+ 0 | 0.1598 | 1.11 | |
| 9+15 | 0.1913 | 1.52 | |
| 9+30 | 0.2299 | 1.87 | |
| 9+45 | 0.2743 | 2.15 | |
| 10+ 0 | 0.3242 | 2.42 | |
| 10+15 | 0.3562 | 1.55 | |
| 10+30 | 0.3777 | 1.04 | |
| 10+45 | 0.4132 | 1.72 | |
| 11+ 0 | 0.4577 | 2.15 | |
| 11+15 | 0.5009 | 2.09 | |
| 11+30 | 0.5432 | 2.05 | |
| 11+45 | 0.5802 | 1.79 | |
| 12+ 0 | 0.6175 | 1.81 | |
| 12+15 | 0.6772 | 2.89 | |
| 12+30 | 0.7523 | 3.63 | |
| 12+45 | 0.8369 | 4.09 | |
| 13+ 0 | 0.9285 | 4.44 | |
| 13+15 | 1.0375 | 5.28 | |
| 13+30 | 1.1556 | 5.71 | |
| 13+45 | 1.2431 | 4.24 | |
| 14+ 0 | 1.3133 | 3.39 | |
| 14+15 | 1.3935 | 3.89 | |
| 14+30 | 1.4781 | 4.09 | |
| 14+45 | 1.5624 | 4.08 | |
| 15+ 0 | 1.6442 | 3.96 | |
| 15+15 | 1.7220 | 3.77 | |
| 15+30 | 1.7957 | 3.57 | |
| 15+45 | 1.8564 | 2.94 | |
| 16+ 0 | 1.9109 | 2.64 | |
| 16+15 | 1.9329 | 1.06 | |
| 16+30 | 1.9370 | 0.20 | |
| 16+45 | 1.9386 | 0.08 | |
| 17+ 0 | 1.9400 | 0.07 | |
| 17+15 | 1.9420 | 0.10 | |
| 17+30 | 1.9444 | 0.11 | |
| 17+45 | 1.9468 | 0.12 | |
| 18+ 0 | 1.9488 | 0.10 | |
| 18+15 | 1.9508 | 0.09 | |
| 18+30 | 1.9527 | 0.09 | |
| 18+45 | 1.9543 | 0.08 | |
| 19+ 0 | 1.9554 | 0.06 | |
| 19+15 | 1.9567 | 0.06 | |
| 19+30 | 1.9584 | 0.08 | |
| 19+45 | 1.9600 | 0.08 | |
| 20+ 0 | 1.9612 | 0.06 | |
| 20+15 | 1.9624 | 0.06 | |
| 20+30 | 1.9638 | 0.07 | |
| 20+45 | 1.9653 | 0.07 | |
| 21+ 0 | 1.9664 | 0.06 | |
| 21+15 | 1.9677 | 0.06 | |
| 21+30 | 1.9688 | 0.05 | |
| 21+45 | 1.9700 | 0.06 | |
| 22+ 0 | 1.9712 | 0.05 | |
| 22+15 | 1.9724 | 0.06 | |
| 22+30 | 1.9735 | 0.05 | |
| 22+45 | 1.9745 | 0.05 | |
| 23+ 0 | 1.9755 | 0.05 | |
| 23+15 | 1.9764 | 0.05 | |
| 23+30 | 1.9774 | 0.05 | |

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|---|---|---|---|---|---|---|---|
| 23+45 | 1.9783 | 0.05 | Q | \| | \| | \| | V\| |
| 24+ 0 | 1.9793 | 0.05 | Q | \| | \| | \| | V\| |
| 24+15 | 1.9796 | 0.02 | Q | \| | \| | \| | V\| |
| 24+30 | 1.9797 | 0.00 | Q | \| | \| | \| | V\| |

SubF324100

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 04/25/12 File: Stream2/SubF324100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

----------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

----------------------------------------------------------------------
Watershed F, Stream 2, Subarea F3
Existing Condition
100-year, 24-hour

----------------------------------------------------------------------
Drainage Area = 6.50(Ac.) = 0.010 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 6.50(Ac.) = 0.010 Sq. Mi.
Length along longest watercourse = 950.00(Ft.)
Length along longest watercourse measured to centroid = 630.00(Ft.)
Length along longest watercourse = 0.180 Mi.
Length along longest watercourse measured to centroid = 0.119 Mi.
Difference in elevation = 28.00(Ft.)
Slope along watercourse = 155.6211 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.064 Hr.
Lag time = 3.85 Min.
25% of lag time = 0.96 Min.
40% of lag time = 1.54 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 6.50 | 1.80 | 11.70 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 6.50 | 4.50 | 29.25 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 6.500 | 85.00 | 0.000 |

Total Area Entered = 6.50(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 1.000 | 0.187 |
| | | | | | Sum (F) = | 0.187 |

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.094
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
VALLEY S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 389.958 | 64.380 | 4.217 |
| 2 | 0.500 | 779.916 | 32.630 | 2.138 |
| 3 | 0.750 | 1169.874 | 2.990 | 0.196 |
| | | | Sum = 100.000 | Sum= 6.551 |

---

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.330) | | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.326) | | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.323) | | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.319) | | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.315) | | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.311) | | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.308) | | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.304) | | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.300) | | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.297) | | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.293) | | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.289) | | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.286) | | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.282) | | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.279) | | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.275) | | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.272) | | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.268) | | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.265) | | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.261) | | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.258) | | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.255) | | 0.113 | 0.013 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 23 | 5.75 | 0.80 | 0.144 | ( 0.251) | | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.248) | | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.245) | | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.241) | | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.238) | | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.235) | | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.232) | | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.229) | | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.225) | | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.222) | | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | 0.219 | ( | 0.243) | 0.051 |
| 34 | 8.50 | 1.50 | 0.270 | 0.216 | ( | 0.243) | 0.054 |
| 35 | 8.75 | 1.60 | 0.288 | 0.213 | ( | 0.259) | 0.075 |
| 36 | 9.00 | 1.70 | 0.306 | 0.210 | ( | 0.275) | 0.096 |
| 37 | 9.25 | 1.90 | 0.342 | 0.207 | ( | 0.308) | 0.135 |
| 38 | 9.50 | 2.00 | 0.360 | 0.204 | ( | 0.324) | 0.156 |
| 39 | 9.75 | 2.10 | 0.378 | 0.201 | ( | 0.340) | 0.177 |
| 40 | 10.00 | 2.20 | 0.396 | 0.198 | ( | 0.356) | 0.198 |
| 41 | 10.25 | 1.50 | 0.270 | 0.196 | ( | 0.243) | 0.074 |
| 42 | 10.50 | 1.50 | 0.270 | 0.193 | ( | 0.243) | 0.077 |
| 43 | 10.75 | 2.00 | 0.360 | 0.190 | ( | 0.324) | 0.170 |
| 44 | 11.00 | 2.00 | 0.360 | 0.187 | ( | 0.324) | 0.173 |
| 45 | 11.25 | 1.90 | 0.342 | 0.184 | ( | 0.308) | 0.158 |
| 46 | 11.50 | 1.90 | 0.342 | 0.182 | ( | 0.308) | 0.160 |
| 47 | 11.75 | 1.70 | 0.306 | 0.179 | ( | 0.275) | 0.127 |
| 48 | 12.00 | 1.80 | 0.324 | 0.176 | ( | 0.292) | 0.148 |
| 49 | 12.25 | 2.50 | 0.450 | 0.174 | ( | 0.405) | 0.276 |
| 50 | 12.50 | 2.60 | 0.468 | 0.171 | ( | 0.421) | 0.297 |
| 51 | 12.75 | 2.80 | 0.504 | 0.169 | ( | 0.454) | 0.335 |
| 52 | 13.00 | 2.90 | 0.522 | 0.166 | ( | 0.470) | 0.356 |
| 53 | 13.25 | 3.40 | 0.612 | 0.163 | ( | 0.551) | 0.449 |
| 54 | 13.50 | 3.40 | 0.612 | 0.161 | ( | 0.551) | 0.451 |
| 55 | 13.75 | 2.30 | 0.414 | 0.159 | ( | 0.373) | 0.255 |
| 56 | 14.00 | 2.30 | 0.414 | 0.156 | ( | 0.373) | 0.258 |
| 57 | 14.25 | 2.70 | 0.486 | 0.154 | ( | 0.437) | 0.332 |
| 58 | 14.50 | 2.60 | 0.468 | 0.151 | ( | 0.421) | 0.317 |
| 59 | 14.75 | 2.60 | 0.468 | 0.149 | ( | 0.421) | 0.319 |
| 60 | 15.00 | 2.50 | 0.450 | 0.147 | ( | 0.405) | 0.303 |
| 61 | 15.25 | 2.40 | 0.432 | 0.145 | ( | 0.389) | 0.287 |
| 62 | 15.50 | 2.30 | 0.414 | 0.142 | ( | 0.373) | 0.272 |
| 63 | 15.75 | 1.90 | 0.342 | 0.140 | ( | 0.308) | 0.202 |
| 64 | 16.00 | 1.90 | 0.342 | 0.138 | ( | 0.308) | 0.204 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.136) | | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.134) | | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.132) | | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.130) | | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.128) | | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.126) | | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.124) | | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.122) | | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.120) | | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.119) | | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.117) | | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.115) | | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.114) | | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.112) | | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.111) | | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.109) | | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.108) | | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.106) | | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.105) | | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.104) | | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.102) | | 0.049 | 0.005 |

SubF324100

| | | | | | | |
|---|---|---|---|---|---|---|
| 86 | 21.50 | 0.20 | 0.036 | ( 0.101) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.100) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.099) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.098) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.097) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.095) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 7.5

Flood volume = Effective rainfall 1.87(In)
times area 6.5(Ac.)/[(In)/(Ft.)] = 1.0(Ac.Ft)
Total soil loss = 2.63(In)
Total soil loss = 1.424(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 44136.8 Cubic Feet
Total soil loss = 62039.3 Cubic Feet

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Peak flow rate of this hydrograph = 2.932(CFS)

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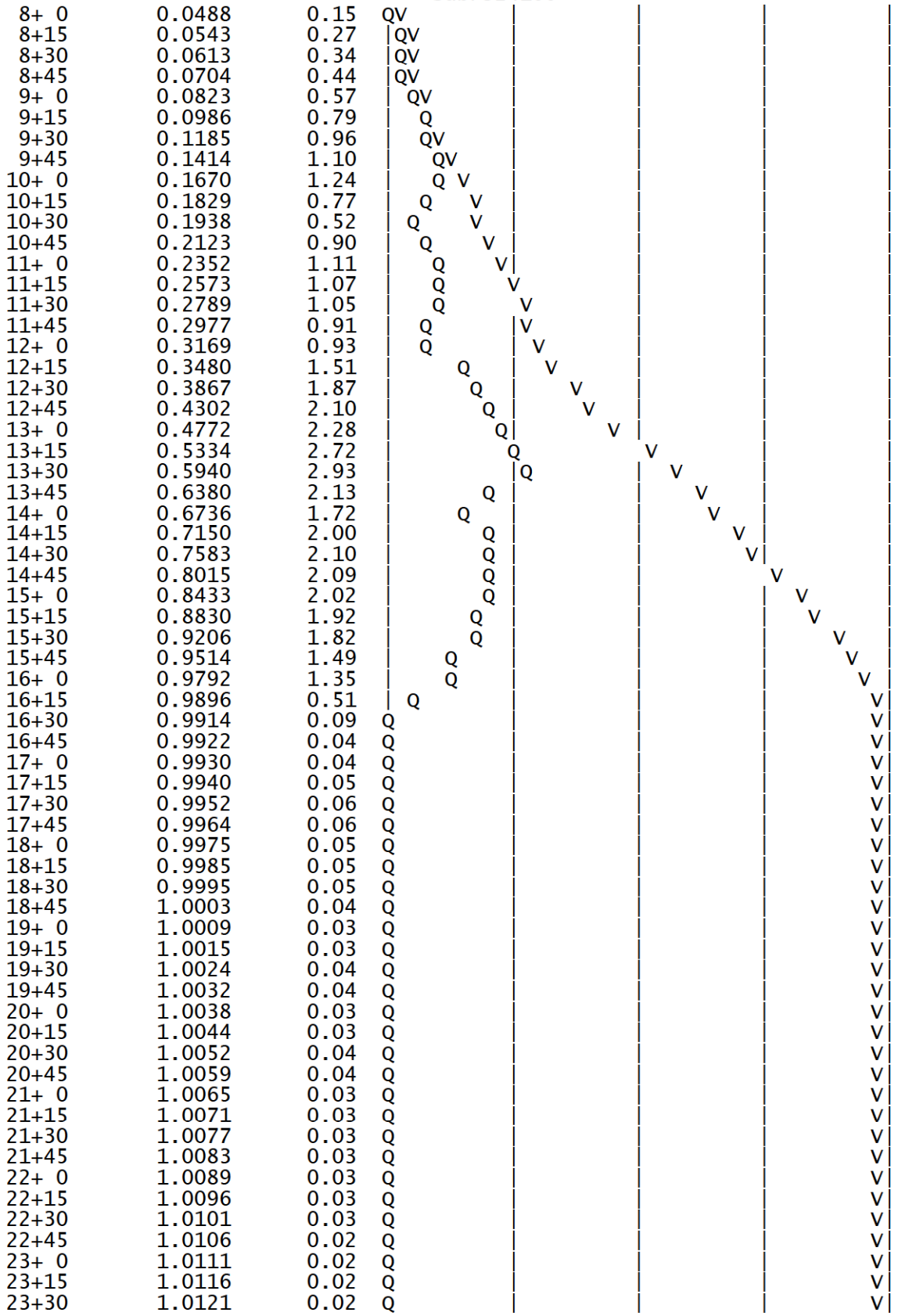
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 2.5 | 5.0 | 7.5 | 10.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0003 | 0.02 | Q | | | | |
| 0+30 | 0.0009 | 0.03 | Q | | | | |
| 0+45 | 0.0017 | 0.04 | Q | | | | |
| 1+ 0 | 0.0026 | 0.04 | Q | | | | |
| 1+15 | 0.0034 | 0.04 | Q | | | | |
| 1+30 | 0.0041 | 0.04 | Q | | | | |
| 1+45 | 0.0048 | 0.04 | Q | | | | |
| 2+ 0 | 0.0057 | 0.04 | Q | | | | |
| 2+15 | 0.0067 | 0.05 | Q | | | | |
| 2+30 | 0.0077 | 0.05 | Q | | | | |
| 2+45 | 0.0088 | 0.05 | Q | | | | |
| 3+ 0 | 0.0100 | 0.06 | Q | | | | |
| 3+15 | 0.0112 | 0.06 | Q | | | | |
| 3+30 | 0.0124 | 0.06 | Q | | | | |
| 3+45 | 0.0137 | 0.06 | Q | | | | |
| 4+ 0 | 0.0150 | 0.07 | Q | | | | |
| 4+15 | 0.0165 | 0.07 | Q | | | | |
| 4+30 | 0.0181 | 0.08 | Q | | | | |
| 4+45 | 0.0198 | 0.08 | Q | | | | |
| 5+ 0 | 0.0217 | 0.09 | Q | | | | |
| 5+15 | 0.0233 | 0.08 | Q | | | | |
| 5+30 | 0.0249 | 0.08 | Q | | | | |
| 5+45 | 0.0268 | 0.09 | QV | | | | |
| 6+ 0 | 0.0287 | 0.09 | QV | | | | |
| 6+15 | 0.0308 | 0.10 | QV | | | | |
| 6+30 | 0.0330 | 0.11 | QV | | | | |
| 6+45 | 0.0354 | 0.11 | QV | | | | |
| 7+ 0 | 0.0378 | 0.12 | QV | | | | |
| 7+15 | 0.0403 | 0.12 | QV | | | | |
| 7+30 | 0.0428 | 0.13 | QV | | | | |
| 7+45 | 0.0457 | 0.14 | QV | | | | |



| | | | |
|---|---|---|---|
| 8+ 0 | 0.0488 | 0.15 | QV |
| 8+15 | 0.0543 | 0.27 | QV |
| 8+30 | 0.0613 | 0.34 | QV |
| 8+45 | 0.0704 | 0.44 | QV |
| 9+ 0 | 0.0823 | 0.57 | QV |
| 9+15 | 0.0986 | 0.79 | Q |
| 9+30 | 0.1185 | 0.96 | QV |
| 9+45 | 0.1414 | 1.10 | QV |
| 10+ 0 | 0.1670 | 1.24 | Q V |
| 10+15 | 0.1829 | 0.77 | Q V |
| 10+30 | 0.1938 | 0.52 | Q V |
| 10+45 | 0.2123 | 0.90 | Q V |
| 11+ 0 | 0.2352 | 1.11 | Q V |
| 11+15 | 0.2573 | 1.07 | Q V |
| 11+30 | 0.2789 | 1.05 | Q V |
| 11+45 | 0.2977 | 0.91 | Q V |
| 12+ 0 | 0.3169 | 0.93 | Q V |
| 12+15 | 0.3480 | 1.51 | Q V |
| 12+30 | 0.3867 | 1.87 | Q V |
| 12+45 | 0.4302 | 2.10 | Q V |
| 13+ 0 | 0.4772 | 2.28 | Q V |
| 13+15 | 0.5334 | 2.72 | Q V |
| 13+30 | 0.5940 | 2.93 | Q V |
| 13+45 | 0.6380 | 2.13 | Q V |
| 14+ 0 | 0.6736 | 1.72 | Q V |
| 14+15 | 0.7150 | 2.00 | Q V |
| 14+30 | 0.7583 | 2.10 | Q V |
| 14+45 | 0.8015 | 2.09 | Q V |
| 15+ 0 | 0.8433 | 2.02 | Q V |
| 15+15 | 0.8830 | 1.92 | Q V |
| 15+30 | 0.9206 | 1.82 | Q V |
| 15+45 | 0.9514 | 1.49 | Q V |
| 16+ 0 | 0.9792 | 1.35 | Q V |
| 16+15 | 0.9896 | 0.51 | Q V |
| 16+30 | 0.9914 | 0.09 | Q V |
| 16+45 | 0.9922 | 0.04 | Q V |
| 17+ 0 | 0.9930 | 0.04 | Q V |
| 17+15 | 0.9940 | 0.05 | Q V |
| 17+30 | 0.9952 | 0.06 | Q V |
| 17+45 | 0.9964 | 0.06 | Q V |
| 18+ 0 | 0.9975 | 0.05 | Q V |
| 18+15 | 0.9985 | 0.05 | Q V |
| 18+30 | 0.9995 | 0.05 | Q V |
| 18+45 | 1.0003 | 0.04 | Q V |
| 19+ 0 | 1.0009 | 0.03 | Q V |
| 19+15 | 1.0015 | 0.03 | Q V |
| 19+30 | 1.0024 | 0.04 | Q V |
| 19+45 | 1.0032 | 0.04 | Q V |
| 20+ 0 | 1.0038 | 0.03 | Q V |
| 20+15 | 1.0044 | 0.03 | Q V |
| 20+30 | 1.0052 | 0.04 | Q V |
| 20+45 | 1.0059 | 0.04 | Q V |
| 21+ 0 | 1.0065 | 0.03 | Q V |
| 21+15 | 1.0071 | 0.03 | Q V |
| 21+30 | 1.0077 | 0.03 | Q V |
| 21+45 | 1.0083 | 0.03 | Q V |
| 22+ 0 | 1.0089 | 0.03 | Q V |
| 22+15 | 1.0096 | 0.03 | Q V |
| 22+30 | 1.0101 | 0.03 | Q V |
| 22+45 | 1.0106 | 0.02 | Q V |
| 23+ 0 | 1.0111 | 0.02 | Q V |
| 23+15 | 1.0116 | 0.02 | Q V |
| 23+30 | 1.0121 | 0.02 | Q V |

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|---|---|---|---|---|---|---|---|
| 23+45 | 1.0126 | 0.02 | Q | \| | \| | \| | V\| |
| 24+ 0 | 1.0131 | 0.02 | Q | \| | \| | \| | V\| |
| 24+15 | 1.0132 | 0.01 | Q | \| | \| | \| | V\| |
| 24+30 | 1.0132 | 0.00 | Q | \| | \| | \| | V\| |

SubF3124100

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 04/25/12 File: Stream2/SubF3124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

----------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

----------------------------------------------------------------------
Watershed F, Stream 2, Subarea F31
Existing Condition
100-year, 3-hour

----------------------------------------------------------------------
Drainage Area = 17.50(Ac.) = 0.027 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 17.50(Ac.) = 0.027 Sq. Mi.
Length along longest watercourse = 1610.00(Ft.)
Length along longest watercourse measured to centroid = 650.00(Ft.)
Length along longest watercourse = 0.305 Mi.
Length along longest watercourse measured to centroid = 0.123 Mi.
Difference in elevation = 139.00(Ft.)
Slope along watercourse = 455.8509 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.065 Hr.
Lag time = 3.88 Min.
25% of lag time = 0.97 Min.
40% of lag time = 1.55 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 17.50 | 1.80 | 31.50 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 17.50 | 4.50 | 78.75 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

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Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 2.200 | 46.00 | 0.000 |
| 2.900 | 66.00 | 0.000 |
| 12.400 | 83.00 | 0.000 |

Total Area Entered = 17.50(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.126 | 0.077 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.166 | 0.067 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.709 | 0.149 |
| | | | | | Sum (F) = | 0.293 |

Area averaged mean soil loss (F) (In/Hr) = 0.293
Minimum soil loss rate ((In/Hr)) = 0.146
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 386.798 | 66.248 | 11.684 |
| 2 | 0.500 | 773.597 | 33.752 | 5.953 |
| | | | Sum = 100.000 Sum= | 17.637 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.517) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.511) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.505) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.499) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.493) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.487) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.481) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.476) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.470) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.464) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.458) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.453) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.447) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.442) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.436) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.431) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.425) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.420) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.414) | 0.113 | 0.013 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 20 | 5.00 | 0.80 | 0.144 | ( 0.409) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.404) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.398) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.393) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.388) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.383) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.378) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.373) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.368) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.363) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.358) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.353) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.348) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.343) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.338) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.334) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.329) | 0.275 | 0.031 |
| 37 | 9.25 | 1.90 | 0.342 | ( 0.324) | 0.308 | 0.034 |
| 38 | 9.50 | 2.00 | 0.360 | 0.320 | ( 0.324) | 0.040 |
| 39 | 9.75 | 2.10 | 0.378 | 0.315 | ( 0.340) | 0.063 |
| 40 | 10.00 | 2.20 | 0.396 | 0.311 | ( 0.356) | 0.085 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.306) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.302) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.297 | ( 0.324) | 0.063 |
| 44 | 11.00 | 2.00 | 0.360 | 0.293 | ( 0.324) | 0.067 |
| 45 | 11.25 | 1.90 | 0.342 | 0.289 | ( 0.308) | 0.053 |
| 46 | 11.50 | 1.90 | 0.342 | 0.284 | ( 0.308) | 0.058 |
| 47 | 11.75 | 1.70 | 0.306 | ( 0.280) | 0.275 | 0.031 |
| 48 | 12.00 | 1.80 | 0.324 | 0.276 | ( 0.292) | 0.048 |
| 49 | 12.25 | 2.50 | 0.450 | 0.272 | ( 0.405) | 0.178 |
| 50 | 12.50 | 2.60 | 0.468 | 0.268 | ( 0.421) | 0.200 |
| 51 | 12.75 | 2.80 | 0.504 | 0.264 | ( 0.454) | 0.240 |
| 52 | 13.00 | 2.90 | 0.522 | 0.260 | ( 0.470) | 0.262 |
| 53 | 13.25 | 3.40 | 0.612 | 0.256 | ( 0.551) | 0.356 |
| 54 | 13.50 | 3.40 | 0.612 | 0.252 | ( 0.551) | 0.360 |
| 55 | 13.75 | 2.30 | 0.414 | 0.248 | ( 0.373) | 0.166 |
| 56 | 14.00 | 2.30 | 0.414 | 0.244 | ( 0.373) | 0.170 |
| 57 | 14.25 | 2.70 | 0.486 | 0.241 | ( 0.437) | 0.245 |
| 58 | 14.50 | 2.60 | 0.468 | 0.237 | ( 0.421) | 0.231 |
| 59 | 14.75 | 2.60 | 0.468 | 0.233 | ( 0.421) | 0.235 |
| 60 | 15.00 | 2.50 | 0.450 | 0.230 | ( 0.405) | 0.220 |
| 61 | 15.25 | 2.40 | 0.432 | 0.226 | ( 0.389) | 0.206 |
| 62 | 15.50 | 2.30 | 0.414 | 0.223 | ( 0.373) | 0.191 |
| 63 | 15.75 | 1.90 | 0.342 | 0.219 | ( 0.308) | 0.123 |
| 64 | 16.00 | 1.90 | 0.342 | 0.216 | ( 0.308) | 0.126 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.213) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.209) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.206) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.203) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.200) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.197) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.194) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.191) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.188) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.186) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.183) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.180) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.178) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.175) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.173) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.171) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.168) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.166) | 0.049 | 0.005 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 83 | 20.75 | 0.30 | 0.054 | ( 0.164) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.162) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.160) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.158) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.157) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.155) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.154) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.152) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.151) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.150) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.149) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.148) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.147) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.146) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 4.8

Flood volume = Effective rainfall 1.19(In)
times area 17.5(Ac.)/[(In)/(Ft.)] = 1.7(Ac.Ft)
Total soil loss = 3.31(In)
Total soil loss = 4.826(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 75617.2 Cubic Feet
Total soil loss = 210235.6 Cubic Feet

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Peak flow rate of this hydrograph = 6.330(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 2.5 | 5.0 | 7.5 | 10.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0009 | 0.04 | Q | | | | |
| 0+30 | 0.0026 | 0.08 | Q | | | | |
| 0+45 | 0.0046 | 0.10 | Q | | | | |
| 1+ 0 | 0.0070 | 0.12 | Q | | | | |
| 1+15 | 0.0092 | 0.11 | Q | | | | |
| 1+30 | 0.0111 | 0.10 | Q | | | | |
| 1+45 | 0.0131 | 0.10 | Q | | | | |
| 2+ 0 | 0.0155 | 0.12 | Q | | | | |
| 2+15 | 0.0181 | 0.13 | Q | | | | |
| 2+30 | 0.0208 | 0.13 | Q | | | | |
| 2+45 | 0.0238 | 0.15 | Q | | | | |
| 3+ 0 | 0.0271 | 0.16 | Q | | | | |
| 3+15 | 0.0304 | 0.16 | Q | | | | |
| 3+30 | 0.0337 | 0.16 | Q | | | | |
| 3+45 | 0.0370 | 0.16 | Q | | | | |
| 4+ 0 | 0.0407 | 0.18 | Q | | | | |
| 4+15 | 0.0446 | 0.19 | QV | | | | |
| 4+30 | 0.0490 | 0.21 | QV | | | | |
| 4+45 | 0.0536 | 0.22 | QV | | | | |
| 5+ 0 | 0.0586 | 0.24 | QV | | | | |
| 5+15 | 0.0630 | 0.21 | QV | | | | |
| 5+30 | 0.0674 | 0.21 | QV | | | | |
| 5+45 | 0.0724 | 0.24 | QV | | | | |
| 6+ 0 | 0.0776 | 0.25 | \|Q | | | | |
| 6+15 | 0.0833 | 0.28 | \|Q | | | | |
| 6+30 | 0.0892 | 0.29 | \|QV | | | | |
| 6+45 | 0.0956 | 0.31 | \|QV | | | | |
| 7+ 0 | 0.1021 | 0.32 | \|QV | | | | |

| | | | |
|---|---|---|---|
| 7+15 | 0.1087 | 0.32 | |
| 7+30 | 0.1157 | 0.34 | |
| 7+45 | 0.1233 | 0.37 | |
| 8+ 0 | 0.1316 | 0.40 | |
| 8+15 | 0.1410 | 0.45 | |
| 8+30 | 0.1509 | 0.48 | |
| 8+45 | 0.1612 | 0.50 | |
| 9+ 0 | 0.1721 | 0.53 | |
| 9+15 | 0.1841 | 0.58 | |
| 9+30 | 0.1981 | 0.68 | |
| 9+45 | 0.2183 | 0.98 | |
| 10+ 0 | 0.2466 | 1.37 | |
| 10+15 | 0.2637 | 0.82 | |
| 10+30 | 0.2735 | 0.48 | |
| 10+45 | 0.2920 | 0.89 | |
| 11+ 0 | 0.3159 | 1.16 | |
| 11+15 | 0.3371 | 1.02 | |
| 11+30 | 0.3576 | 0.99 | |
| 11+45 | 0.3721 | 0.70 | |
| 12+ 0 | 0.3875 | 0.74 | |
| 12+15 | 0.4364 | 2.37 | |
| 12+30 | 0.5067 | 3.40 | |
| 12+45 | 0.5894 | 4.00 | |
| 13+ 0 | 0.6823 | 4.50 | |
| 13+15 | 0.8006 | 5.73 | |
| 13+30 | 0.9314 | 6.33 | |
| 13+45 | 1.0157 | 4.08 | |
| 14+ 0 | 1.0771 | 2.97 | |
| 14+15 | 1.1573 | 3.88 | |
| 14+30 | 1.2433 | 4.16 | |
| 14+45 | 1.3284 | 4.12 | |
| 15+ 0 | 1.4105 | 3.97 | |
| 15+15 | 1.4873 | 3.72 | |
| 15+30 | 1.5588 | 3.46 | |
| 15+45 | 1.6119 | 2.57 | |
| 16+ 0 | 1.6574 | 2.20 | |
| 16+15 | 1.6747 | 0.83 | |
| 16+30 | 1.6773 | 0.13 | |
| 16+45 | 1.6795 | 0.11 | |
| 17+ 0 | 1.6815 | 0.10 | |
| 17+15 | 1.6843 | 0.14 | |
| 17+30 | 1.6876 | 0.16 | |
| 17+45 | 1.6909 | 0.16 | |
| 18+ 0 | 1.6937 | 0.14 | |
| 18+15 | 1.6963 | 0.13 | |
| 18+30 | 1.6990 | 0.13 | |
| 18+45 | 1.7011 | 0.11 | |
| 19+ 0 | 1.7027 | 0.07 | |
| 19+15 | 1.7044 | 0.08 | |
| 19+30 | 1.7068 | 0.12 | |
| 19+45 | 1.7090 | 0.11 | |
| 20+ 0 | 1.7106 | 0.07 | |
| 20+15 | 1.7123 | 0.08 | |
| 20+30 | 1.7143 | 0.10 | |
| 20+45 | 1.7162 | 0.10 | |
| 21+ 0 | 1.7178 | 0.07 | |
| 21+15 | 1.7195 | 0.08 | |
| 21+30 | 1.7211 | 0.07 | |
| 21+45 | 1.7228 | 0.08 | |
| 22+ 0 | 1.7243 | 0.07 | |
| 22+15 | 1.7261 | 0.08 | |
| 22+30 | 1.7276 | 0.07 | |
| 22+45 | 1.7289 | 0.06 | |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 23+ 0 | 1.7302 | 0.06 | Q | \| | \| | \| | V\| |
| 23+15 | 1.7316 | 0.06 | Q | \| | \| | \| | V\| |
| 23+30 | 1.7329 | 0.06 | Q | \| | \| | \| | V\| |
| 23+45 | 1.7342 | 0.06 | Q | \| | \| | \| | V\| |
| 24+ 0 | 1.7355 | 0.06 | Q | \| | \| | \| | V\| |
| 24+15 | 1.7359 | 0.02 | Q | \| | \| | \| | V\| |

SubF3224100

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 04/25/12 File: Stream2/SubF3224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

----------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

----------------------------------------------------------------------
Watershed F, Stream 2, Subarea F32
Existing Condition
100-year, 24-hour

----------------------------------------------------------------------
Drainage Area = 29.80(Ac.) = 0.047 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 29.80(Ac.) = 0.047 Sq. Mi.
Length along longest watercourse = 2360.00(Ft.)
Length along longest watercourse measured to centroid = 1350.00(Ft.)
Length along longest watercourse = 0.447 Mi.
Length along longest watercourse measured to centroid = 0.256 Mi.
Difference in elevation = 69.00(Ft.)
Slope along watercourse = 154.3729 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.121 Hr.
Lag time = 7.27 Min.
25% of lag time = 1.82 Min.
40% of lag time = 2.91 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 29.80 | 1.80 | 53.64 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 29.80 | 4.50 | 134.10 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 27.600 | 85.00 | 0.000 |
| 2.200 | 90.00 | 0.000 |

Total Area Entered = 29.80(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 0.926 | 0.173 |
| 90.0 | 90.0 | 0.130 | 0.000 | 0.130 | 0.074 | 0.010 |
| | | | | | Sum (F) = | 0.183 |

Area averaged mean soil loss (F) (In/Hr) = 0.183
Minimum soil loss rate ((In/Hr)) = 0.091
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
VALLEY S-Curve

---

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 206.255 | 44.462 | 13.353 |
| 2 | 0.500 | 412.510 | 42.933 | 12.894 |
| 3 | 0.750 | 618.765 | 8.544 | 2.566 |
| 4 | 1.000 | 825.020 | 4.061 | 1.219 |
| | | | Sum = 100.000 Sum= | 30.033 |

---

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.323) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.319) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.315) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.312) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.308) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.304) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.301) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.297) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.293) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.290) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.286) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.283) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.279) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.276) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.272) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.269) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.266) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.262) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.259) | 0.113 | 0.013 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 | 5.00 | 0.80 | 0.144 | ( 0.255) | 0.130 | | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.252) | 0.097 | | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.249) | 0.113 | | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.246) | 0.130 | | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.242) | 0.130 | | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.239) | 0.146 | | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.236) | 0.146 | | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.233) | 0.162 | | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.230) | 0.162 | | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.227) | 0.162 | | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.223) | 0.178 | | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.220) | 0.194 | | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.217) | 0.211 | | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | 0.214 | ( 0.243) | | 0.056 |
| 34 | 8.50 | 1.50 | 0.270 | 0.211 | ( 0.243) | | 0.059 |
| 35 | 8.75 | 1.60 | 0.288 | 0.208 | ( 0.259) | | 0.080 |
| 36 | 9.00 | 1.70 | 0.306 | 0.205 | ( 0.275) | | 0.101 |
| 37 | 9.25 | 1.90 | 0.342 | 0.203 | ( 0.308) | | 0.139 |
| 38 | 9.50 | 2.00 | 0.360 | 0.200 | ( 0.324) | | 0.160 |
| 39 | 9.75 | 2.10 | 0.378 | 0.197 | ( 0.340) | | 0.181 |
| 40 | 10.00 | 2.20 | 0.396 | 0.194 | ( 0.356) | | 0.202 |
| 41 | 10.25 | 1.50 | 0.270 | 0.191 | ( 0.243) | | 0.079 |
| 42 | 10.50 | 1.50 | 0.270 | 0.188 | ( 0.243) | | 0.082 |
| 43 | 10.75 | 2.00 | 0.360 | 0.186 | ( 0.324) | | 0.174 |
| 44 | 11.00 | 2.00 | 0.360 | 0.183 | ( 0.324) | | 0.177 |
| 45 | 11.25 | 1.90 | 0.342 | 0.180 | ( 0.308) | | 0.162 |
| 46 | 11.50 | 1.90 | 0.342 | 0.178 | ( 0.308) | | 0.164 |
| 47 | 11.75 | 1.70 | 0.306 | 0.175 | ( 0.275) | | 0.131 |
| 48 | 12.00 | 1.80 | 0.324 | 0.172 | ( 0.292) | | 0.152 |
| 49 | 12.25 | 2.50 | 0.450 | 0.170 | ( 0.405) | | 0.280 |
| 50 | 12.50 | 2.60 | 0.468 | 0.167 | ( 0.421) | | 0.301 |
| 51 | 12.75 | 2.80 | 0.504 | 0.165 | ( 0.454) | | 0.339 |
| 52 | 13.00 | 2.90 | 0.522 | 0.162 | ( 0.470) | | 0.360 |
| 53 | 13.25 | 3.40 | 0.612 | 0.160 | ( 0.551) | | 0.452 |
| 54 | 13.50 | 3.40 | 0.612 | 0.157 | ( 0.551) | | 0.455 |
| 55 | 13.75 | 2.30 | 0.414 | 0.155 | ( 0.373) | | 0.259 |
| 56 | 14.00 | 2.30 | 0.414 | 0.153 | ( 0.373) | | 0.261 |
| 57 | 14.25 | 2.70 | 0.486 | 0.150 | ( 0.437) | | 0.336 |
| 58 | 14.50 | 2.60 | 0.468 | 0.148 | ( 0.421) | | 0.320 |
| 59 | 14.75 | 2.60 | 0.468 | 0.146 | ( 0.421) | | 0.322 |
| 60 | 15.00 | 2.50 | 0.450 | 0.144 | ( 0.405) | | 0.306 |
| 61 | 15.25 | 2.40 | 0.432 | 0.141 | ( 0.389) | | 0.291 |
| 62 | 15.50 | 2.30 | 0.414 | 0.139 | ( 0.373) | | 0.275 |
| 63 | 15.75 | 1.90 | 0.342 | 0.137 | ( 0.308) | | 0.205 |
| 64 | 16.00 | 1.90 | 0.342 | 0.135 | ( 0.308) | | 0.207 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.133) | 0.065 | | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.131) | 0.065 | | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.129) | 0.049 | | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.127) | 0.049 | | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.125) | 0.081 | | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.123) | 0.081 | | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.121) | 0.081 | | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.119) | 0.065 | | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.118) | 0.065 | | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.116) | 0.065 | | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.114) | 0.049 | | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.113) | 0.032 | | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.111) | 0.049 | | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.110) | 0.065 | | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.108) | 0.049 | | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.107) | 0.032 | | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.105) | 0.049 | | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.104) | 0.049 | | 0.005 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 83 | 20.75 | 0.30 | 0.054 | ( 0.103) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.101) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.100) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.099) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.098) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.097) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.096) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.095) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.093) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.093) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.092) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.092) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.091) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 7.6

Flood volume = Effective rainfall 1.90(In)
times area 29.8(Ac.)/[(In)/(Ft.)] = 4.7(Ac.Ft)
Total soil loss = 2.60(In)
Total soil loss = 6.451(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 205767.2 Cubic Feet
Total soil loss = 280987.4 Cubic Feet

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Peak flow rate of this hydrograph = 13.244(CFS)

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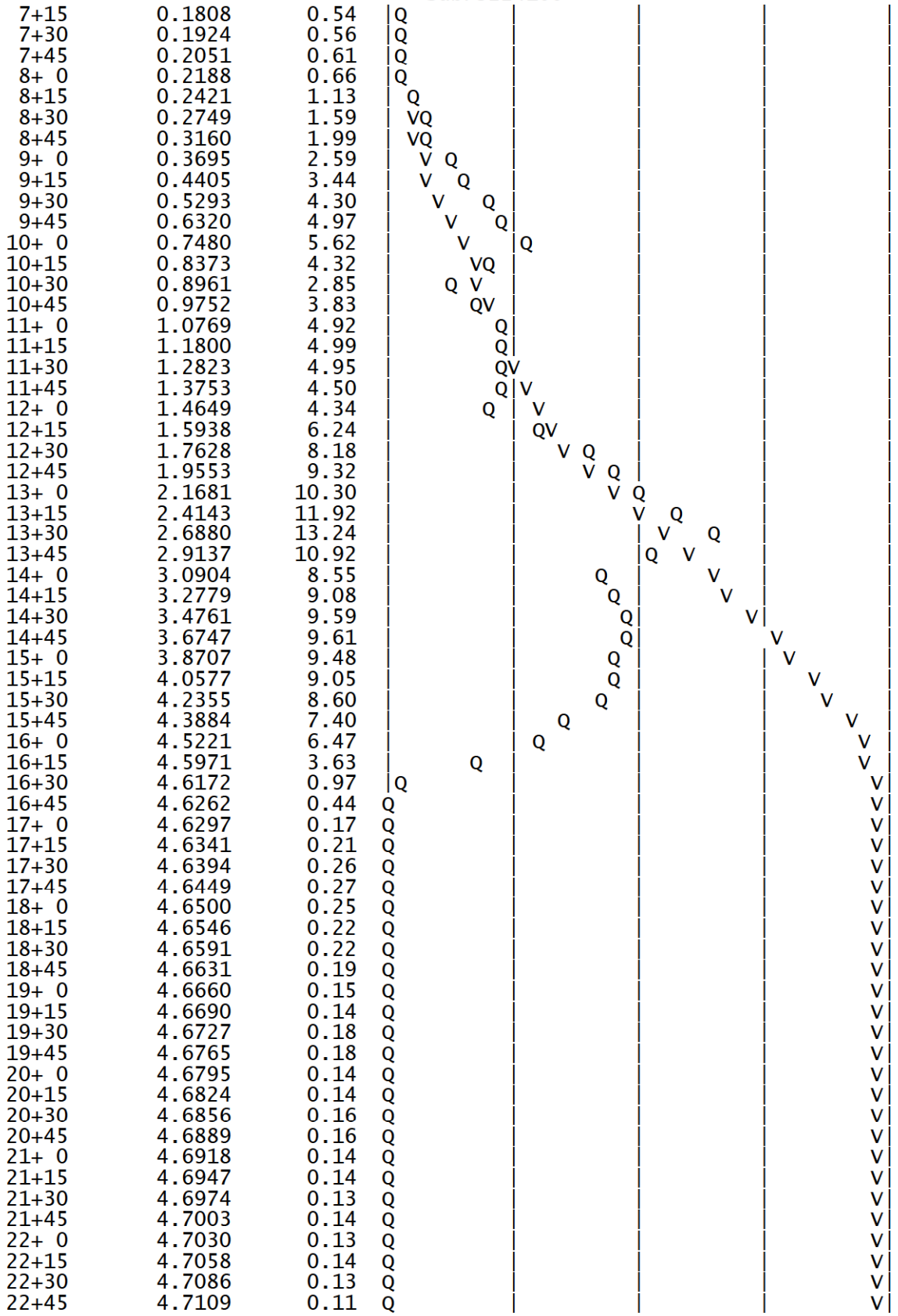
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 5.0 | 10.0 | 15.0 | 20.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0010 | 0.05 | Q | | | | |
| 0+30 | 0.0034 | 0.12 | Q | | | | |
| 0+45 | 0.0066 | 0.15 | Q | | | | |
| 1+ 0 | 0.0104 | 0.18 | Q | | | | |
| 1+15 | 0.0142 | 0.19 | Q | | | | |
| 1+30 | 0.0176 | 0.17 | Q | | | | |
| 1+45 | 0.0210 | 0.16 | Q | | | | |
| 2+ 0 | 0.0249 | 0.19 | Q | | | | |
| 2+15 | 0.0292 | 0.21 | Q | | | | |
| 2+30 | 0.0336 | 0.21 | Q | | | | |
| 2+45 | 0.0386 | 0.24 | Q | | | | |
| 3+ 0 | 0.0441 | 0.26 | Q | | | | |
| 3+15 | 0.0496 | 0.27 | Q | | | | |
| 3+30 | 0.0552 | 0.27 | Q | | | | |
| 3+45 | 0.0608 | 0.27 | Q | | | | |
| 4+ 0 | 0.0669 | 0.29 | Q | | | | |
| 4+15 | 0.0734 | 0.32 | Q | | | | |
| 4+30 | 0.0806 | 0.35 | Q | | | | |
| 4+45 | 0.0883 | 0.37 | Q | | | | |
| 5+ 0 | 0.0965 | 0.40 | Q | | | | |
| 5+15 | 0.1043 | 0.38 | Q | | | | |
| 5+30 | 0.1118 | 0.36 | Q | | | | |
| 5+45 | 0.1200 | 0.40 | QV | | | | |
| 6+ 0 | 0.1288 | 0.42 | QV | | | | |
| 6+15 | 0.1382 | 0.45 | QV | | | | |
| 6+30 | 0.1481 | 0.48 | QV | | | | |
| 6+45 | 0.1586 | 0.51 | \|Q | | | | |
| 7+ 0 | 0.1696 | 0.53 | \|Q | | | | |



| | | | |
|---|---|---|---|
| 7+15 | 0.1808 | 0.54 | |
| 7+30 | 0.1924 | 0.56 | |
| 7+45 | 0.2051 | 0.61 | |
| 8+ 0 | 0.2188 | 0.66 | |
| 8+15 | 0.2421 | 1.13 | |
| 8+30 | 0.2749 | 1.59 | |
| 8+45 | 0.3160 | 1.99 | |
| 9+ 0 | 0.3695 | 2.59 | |
| 9+15 | 0.4405 | 3.44 | |
| 9+30 | 0.5293 | 4.30 | |
| 9+45 | 0.6320 | 4.97 | |
| 10+ 0 | 0.7480 | 5.62 | |
| 10+15 | 0.8373 | 4.32 | |
| 10+30 | 0.8961 | 2.85 | |
| 10+45 | 0.9752 | 3.83 | |
| 11+ 0 | 1.0769 | 4.92 | |
| 11+15 | 1.1800 | 4.99 | |
| 11+30 | 1.2823 | 4.95 | |
| 11+45 | 1.3753 | 4.50 | |
| 12+ 0 | 1.4649 | 4.34 | |
| 12+15 | 1.5938 | 6.24 | |
| 12+30 | 1.7628 | 8.18 | |
| 12+45 | 1.9553 | 9.32 | |
| 13+ 0 | 2.1681 | 10.30 | |
| 13+15 | 2.4143 | 11.92 | |
| 13+30 | 2.6880 | 13.24 | |
| 13+45 | 2.9137 | 10.92 | |
| 14+ 0 | 3.0904 | 8.55 | |
| 14+15 | 3.2779 | 9.08 | |
| 14+30 | 3.4761 | 9.59 | |
| 14+45 | 3.6747 | 9.61 | |
| 15+ 0 | 3.8707 | 9.48 | |
| 15+15 | 4.0577 | 9.05 | |
| 15+30 | 4.2355 | 8.60 | |
| 15+45 | 4.3884 | 7.40 | |
| 16+ 0 | 4.5221 | 6.47 | |
| 16+15 | 4.5971 | 3.63 | |
| 16+30 | 4.6172 | 0.97 | |
| 16+45 | 4.6262 | 0.44 | |
| 17+ 0 | 4.6297 | 0.17 | |
| 17+15 | 4.6341 | 0.21 | |
| 17+30 | 4.6394 | 0.26 | |
| 17+45 | 4.6449 | 0.27 | |
| 18+ 0 | 4.6500 | 0.25 | |
| 18+15 | 4.6546 | 0.22 | |
| 18+30 | 4.6591 | 0.22 | |
| 18+45 | 4.6631 | 0.19 | |
| 19+ 0 | 4.6660 | 0.15 | |
| 19+15 | 4.6690 | 0.14 | |
| 19+30 | 4.6727 | 0.18 | |
| 19+45 | 4.6765 | 0.18 | |
| 20+ 0 | 4.6795 | 0.14 | |
| 20+15 | 4.6824 | 0.14 | |
| 20+30 | 4.6856 | 0.16 | |
| 20+45 | 4.6889 | 0.16 | |
| 21+ 0 | 4.6918 | 0.14 | |
| 21+15 | 4.6947 | 0.14 | |
| 21+30 | 4.6974 | 0.13 | |
| 21+45 | 4.7003 | 0.14 | |
| 22+ 0 | 4.7030 | 0.13 | |
| 22+15 | 4.7058 | 0.14 | |
| 22+30 | 4.7086 | 0.13 | |
| 22+45 | 4.7109 | 0.11 | |

SubF3224100

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 23+ 0 | 4.7132 | 0.11 | Q | \| | \| | \| | V\| |
| 23+15 | 4.7154 | 0.11 | Q | \| | \| | \| | V\| |
| 23+30 | 4.7177 | 0.11 | Q | \| | \| | \| | V\| |
| 23+45 | 4.7199 | 0.11 | Q | \| | \| | \| | V\| |
| 24+ 0 | 4.7222 | 0.11 | Q | \| | \| | \| | V\| |
| 24+15 | 4.7234 | 0.06 | Q | \| | \| | \| | V\| |
| 24+30 | 4.7237 | 0.01 | Q | \| | \| | \| | V\| |
| 24+45 | 4.7238 | 0.00 | Q | \| | \| | \| | V\| |

SubF424100

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 04/25/12 File: Stream2/SubF424100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

----------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

----------------------------------------------------------------------
Watershed F, Stream 2, Subarea F4
Existing Condition
100-year, 3-hour

----------------------------------------------------------------------
Drainage Area = 54.70(Ac.) = 0.085 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 54.70(Ac.) = 0.085 Sq. Mi.
Length along longest watercourse = 3200.00(Ft.)
Length along longest watercourse measured to centroid = 1700.00(Ft.)
Length along longest watercourse = 0.606 Mi.
Length along longest watercourse measured to centroid = 0.322 Mi.
Difference in elevation = 330.00(Ft.)
Slope along watercourse = 544.5000 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.117 Hr.
Lag time = 7.01 Min.
25% of lag time = 1.75 Min.
40% of lag time = 2.81 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 54.70 | 1.80 | 98.46 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 54.70 | 4.50 | 246.15 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

SubF424100

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 4.000 | 46.00 | 0.000 |
| 9.300 | 66.00 | 0.000 |
| 41.400 | 83.00 | 0.000 |

Total Area Entered = 54.70(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.073 | 0.045 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.170 | 0.069 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.757 | 0.159 |
| | | | | | Sum (F) = | 0.272 |

Area averaged mean soil loss (F) (In/Hr) = 0.272
Minimum soil loss rate ((In/Hr)) = 0.136
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 213.856 | 44.943 | 24.776 |
| 2 | 0.500 | 427.712 | 48.675 | 26.833 |
| 3 | 0.750 | 641.568 | 5.562 | 3.066 |
| 4 | 1.000 | 855.424 | 0.820 | 0.452 |
| | | | Sum = 100.000 | Sum= 55.127 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.481) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.475) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.470) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.464) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.459) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.453) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.448) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.443) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.437) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.432) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.427) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.421) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.416) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.411) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.406) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.401) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.396) | 0.097 | 0.011 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 18 | 4.50 | 0.70 | 0.126 | ( 0.391) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.386) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.381) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.376) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.371) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.366) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.361) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.356) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.352) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.347) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.342) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.338) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.333) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.328) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.324) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.319) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.315) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.310) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.306) | 0.275 | 0.031 |
| 37 | 9.25 | 1.90 | 0.342 | 0.302 | ( 0.308) | 0.040 |
| 38 | 9.50 | 2.00 | 0.360 | 0.297 | ( 0.324) | 0.062 |
| 39 | 9.75 | 2.10 | 0.378 | 0.293 | ( 0.340) | 0.085 |
| 40 | 10.00 | 2.20 | 0.396 | 0.289 | ( 0.356) | 0.107 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.285) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.281) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.277 | ( 0.324) | 0.083 |
| 44 | 11.00 | 2.00 | 0.360 | 0.273 | ( 0.324) | 0.087 |
| 45 | 11.25 | 1.90 | 0.342 | 0.269 | ( 0.308) | 0.073 |
| 46 | 11.50 | 1.90 | 0.342 | 0.265 | ( 0.308) | 0.077 |
| 47 | 11.75 | 1.70 | 0.306 | 0.261 | ( 0.275) | 0.045 |
| 48 | 12.00 | 1.80 | 0.324 | 0.257 | ( 0.292) | 0.067 |
| 49 | 12.25 | 2.50 | 0.450 | 0.253 | ( 0.405) | 0.197 |
| 50 | 12.50 | 2.60 | 0.468 | 0.249 | ( 0.421) | 0.219 |
| 51 | 12.75 | 2.80 | 0.504 | 0.245 | ( 0.454) | 0.258 |
| 52 | 13.00 | 2.90 | 0.522 | 0.242 | ( 0.470) | 0.280 |
| 53 | 13.25 | 3.40 | 0.612 | 0.238 | ( 0.551) | 0.374 |
| 54 | 13.50 | 3.40 | 0.612 | 0.234 | ( 0.551) | 0.377 |
| 55 | 13.75 | 2.30 | 0.414 | 0.231 | ( 0.373) | 0.183 |
| 56 | 14.00 | 2.30 | 0.414 | 0.227 | ( 0.373) | 0.187 |
| 57 | 14.25 | 2.70 | 0.486 | 0.224 | ( 0.437) | 0.262 |
| 58 | 14.50 | 2.60 | 0.468 | 0.221 | ( 0.421) | 0.247 |
| 59 | 14.75 | 2.60 | 0.468 | 0.217 | ( 0.421) | 0.251 |
| 60 | 15.00 | 2.50 | 0.450 | 0.214 | ( 0.405) | 0.236 |
| 61 | 15.25 | 2.40 | 0.432 | 0.211 | ( 0.389) | 0.221 |
| 62 | 15.50 | 2.30 | 0.414 | 0.207 | ( 0.373) | 0.207 |
| 63 | 15.75 | 1.90 | 0.342 | 0.204 | ( 0.308) | 0.138 |
| 64 | 16.00 | 1.90 | 0.342 | 0.201 | ( 0.308) | 0.141 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.198) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.195) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.192) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.189) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.186) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.183) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.181) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.178) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.175) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.173) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.170) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.168) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.166) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.163) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.161) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.159) | 0.032 | 0.004 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 81 | 20.25 | 0.30 | 0.054 | ( 0.157) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.155) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.153) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.151) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.149) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.147) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.146) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.144) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.143) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.142) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.140) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.139) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.138) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.137) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.137) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.136) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.2

Flood volume = Effective rainfall 1.30(In)
times area 54.7(Ac.)/[(In)/(Ft.)] = 5.9(Ac.Ft)
Total soil loss = 3.20(In)
Total soil loss = 14.567(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 258907.3 Cubic Feet
Total soil loss = 634521.7 Cubic Feet

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Peak flow rate of this hydrograph = 20.369(CFS)

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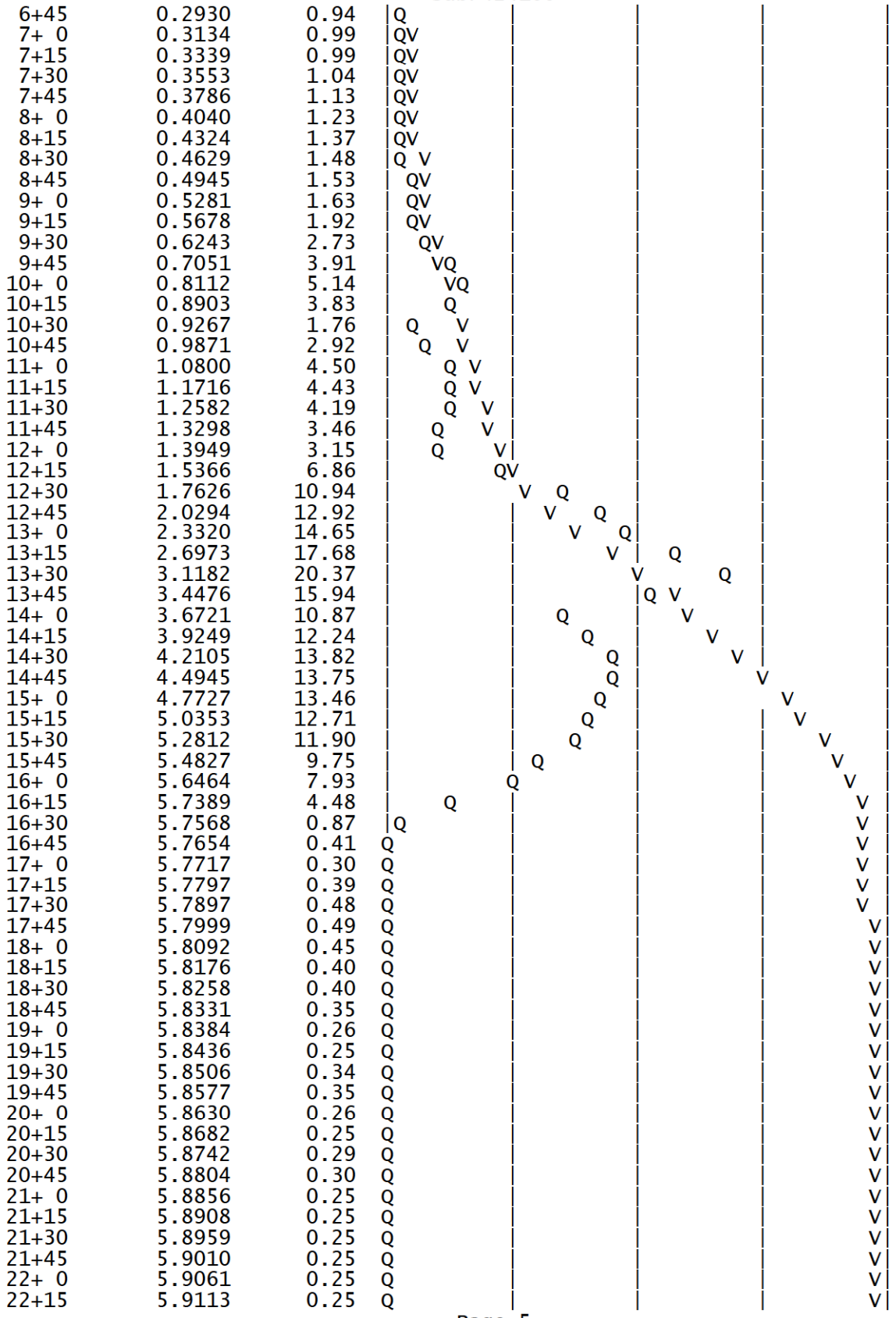
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

---

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 7.5 | 15.0 | 22.5 | 30.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0018 | 0.09 | Q | | | | |
| 0+30 | 0.0066 | 0.23 | Q | | | | |
| 0+45 | 0.0126 | 0.29 | Q | | | | |
| 1+ 0 | 0.0197 | 0.34 | Q | | | | |
| 1+15 | 0.0268 | 0.35 | Q | | | | |
| 1+30 | 0.0331 | 0.30 | Q | | | | |
| 1+45 | 0.0392 | 0.30 | Q | | | | |
| 2+ 0 | 0.0463 | 0.34 | Q | | | | |
| 2+15 | 0.0544 | 0.39 | Q | | | | |
| 2+30 | 0.0626 | 0.40 | Q | | | | |
| 2+45 | 0.0717 | 0.44 | Q | | | | |
| 3+ 0 | 0.0818 | 0.49 | Q | | | | |
| 3+15 | 0.0921 | 0.50 | Q | | | | |
| 3+30 | 0.1023 | 0.50 | Q | | | | |
| 3+45 | 0.1126 | 0.50 | Q | | | | |
| 4+ 0 | 0.1238 | 0.54 | Q | | | | |
| 4+15 | 0.1359 | 0.59 | Q | | | | |
| 4+30 | 0.1491 | 0.64 | QV | | | | |
| 4+45 | 0.1634 | 0.69 | QV | | | | |
| 5+ 0 | 0.1786 | 0.74 | QV | | | | |
| 5+15 | 0.1931 | 0.70 | QV | | | | |
| 5+30 | 0.2065 | 0.65 | QV | | | | |
| 5+45 | 0.2217 | 0.73 | QV | | | | |
| 6+ 0 | 0.2380 | 0.79 | \|Q | | | | |
| 6+15 | 0.2553 | 0.84 | \|Q | | | | |
| 6+30 | 0.2736 | 0.89 | \|Q | | | | |



| | | | |
|---|---|---|---|
| 6+45 | 0.2930 | 0.94 | |
| 7+ 0 | 0.3134 | 0.99 | |
| 7+15 | 0.3339 | 0.99 | |
| 7+30 | 0.3553 | 1.04 | |
| 7+45 | 0.3786 | 1.13 | |
| 8+ 0 | 0.4040 | 1.23 | |
| 8+15 | 0.4324 | 1.37 | |
| 8+30 | 0.4629 | 1.48 | |
| 8+45 | 0.4945 | 1.53 | |
| 9+ 0 | 0.5281 | 1.63 | |
| 9+15 | 0.5678 | 1.92 | |
| 9+30 | 0.6243 | 2.73 | |
| 9+45 | 0.7051 | 3.91 | |
| 10+ 0 | 0.8112 | 5.14 | |
| 10+15 | 0.8903 | 3.83 | |
| 10+30 | 0.9267 | 1.76 | |
| 10+45 | 0.9871 | 2.92 | |
| 11+ 0 | 1.0800 | 4.50 | |
| 11+15 | 1.1716 | 4.43 | |
| 11+30 | 1.2582 | 4.19 | |
| 11+45 | 1.3298 | 3.46 | |
| 12+ 0 | 1.3949 | 3.15 | |
| 12+15 | 1.5366 | 6.86 | |
| 12+30 | 1.7626 | 10.94 | |
| 12+45 | 2.0294 | 12.92 | |
| 13+ 0 | 2.3320 | 14.65 | |
| 13+15 | 2.6973 | 17.68 | |
| 13+30 | 3.1182 | 20.37 | |
| 13+45 | 3.4476 | 15.94 | |
| 14+ 0 | 3.6721 | 10.87 | |
| 14+15 | 3.9249 | 12.24 | |
| 14+30 | 4.2105 | 13.82 | |
| 14+45 | 4.4945 | 13.75 | |
| 15+ 0 | 4.7727 | 13.46 | |
| 15+15 | 5.0353 | 12.71 | |
| 15+30 | 5.2812 | 11.90 | |
| 15+45 | 5.4827 | 9.75 | |
| 16+ 0 | 5.6464 | 7.93 | |
| 16+15 | 5.7389 | 4.48 | |
| 16+30 | 5.7568 | 0.87 | |
| 16+45 | 5.7654 | 0.41 | |
| 17+ 0 | 5.7717 | 0.30 | |
| 17+15 | 5.7797 | 0.39 | |
| 17+30 | 5.7897 | 0.48 | |
| 17+45 | 5.7999 | 0.49 | |
| 18+ 0 | 5.8092 | 0.45 | |
| 18+15 | 5.8176 | 0.40 | |
| 18+30 | 5.8258 | 0.40 | |
| 18+45 | 5.8331 | 0.35 | |
| 19+ 0 | 5.8384 | 0.26 | |
| 19+15 | 5.8436 | 0.25 | |
| 19+30 | 5.8506 | 0.34 | |
| 19+45 | 5.8577 | 0.35 | |
| 20+ 0 | 5.8630 | 0.26 | |
| 20+15 | 5.8682 | 0.25 | |
| 20+30 | 5.8742 | 0.29 | |
| 20+45 | 5.8804 | 0.30 | |
| 21+ 0 | 5.8856 | 0.25 | |
| 21+15 | 5.8908 | 0.25 | |
| 21+30 | 5.8959 | 0.25 | |
| 21+45 | 5.9010 | 0.25 | |
| 22+ 0 | 5.9061 | 0.25 | |
| 22+15 | 5.9113 | 0.25 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 22+30 | 5.9164 | 0.25 | Q | \| | \| | \| | V\| |
| 22+45 | 5.9206 | 0.20 | Q | \| | \| | \| | V\| |
| 23+ 0 | 5.9247 | 0.20 | Q | \| | \| | \| | V\| |
| 23+15 | 5.9288 | 0.20 | Q | \| | \| | \| | V\| |
| 23+30 | 5.9329 | 0.20 | Q | \| | \| | \| | V\| |
| 23+45 | 5.9370 | 0.20 | Q | \| | \| | \| | V\| |
| 24+ 0 | 5.9411 | 0.20 | Q | \| | \| | \| | V\| |
| 24+15 | 5.9434 | 0.11 | Q | \| | \| | \| | V\| |
| 24+30 | 5.9437 | 0.01 | Q | \| | \| | \| | V\| |
| 24+45 | 5.9437 | 0.00 | Q | \| | \| | \| | V\| |

WSF24hrSt3

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
Study date: 04/27/12

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Waterhsed F, Stream 3
Existing Condition
100-year, 24-hour

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Program License Serial Number 6097

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********** HYDROGRAPH INFORMATION **********

From study/file name: SubF524100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 101
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 53.141 (CFS)
Total volume = 16.347 (Ac.Ft)
Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station 101.000 to Point/Station 102.000
**** STREAM ROUTING SCS CONVEX METHOD ****
---
HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 980.00 (Ft.)
Elevation difference = 29.00 (Ft.)
Slope of channel = 0.029592 (Vert/Horiz)
Channel type - Improved Channel

Channel length = 980.00(Ft.) Elevation difference = 29.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width = 10.000(Ft.)
Slope or 'Z' of left channel bank = 2.000
Slope or 'Z' of right channel bank = 2.000
Manning's 'N' = 0.030
Maximum depth of channel = 5.000(Ft.)
Flow(q) thru subarea = 11.507(CFS)
Depth of flow = 0.298(Ft.)
Average velocity = 3.638(Ft/s)
Total flow rate = 11.507(CFS)
Channel flow top width = 11.194(Ft.)
Depth of flow in channel = 0.30(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 3.64(Ft/s)
Travel time = 0.00 min.

Individual channel flow = 11.507(CFS)
Total capacity of improved channels = 11.507(CFS)
Critical Depth in Channel = 0.34(Ft.)

Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea = 53.141(CFS)
Depth of flow = 0.736(Ft.)
Average velocity = 6.296(Ft/s)
Total flow rate = 53.141(CFS)
Channel flow top width = 12.943(Ft.)
Depth of flow in channel = 0.74(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 6.30(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 53.141(CFS)
Total capacity of improved channels = 53.141(CFS)
Critical Depth in Channel = 0.90(Ft.)

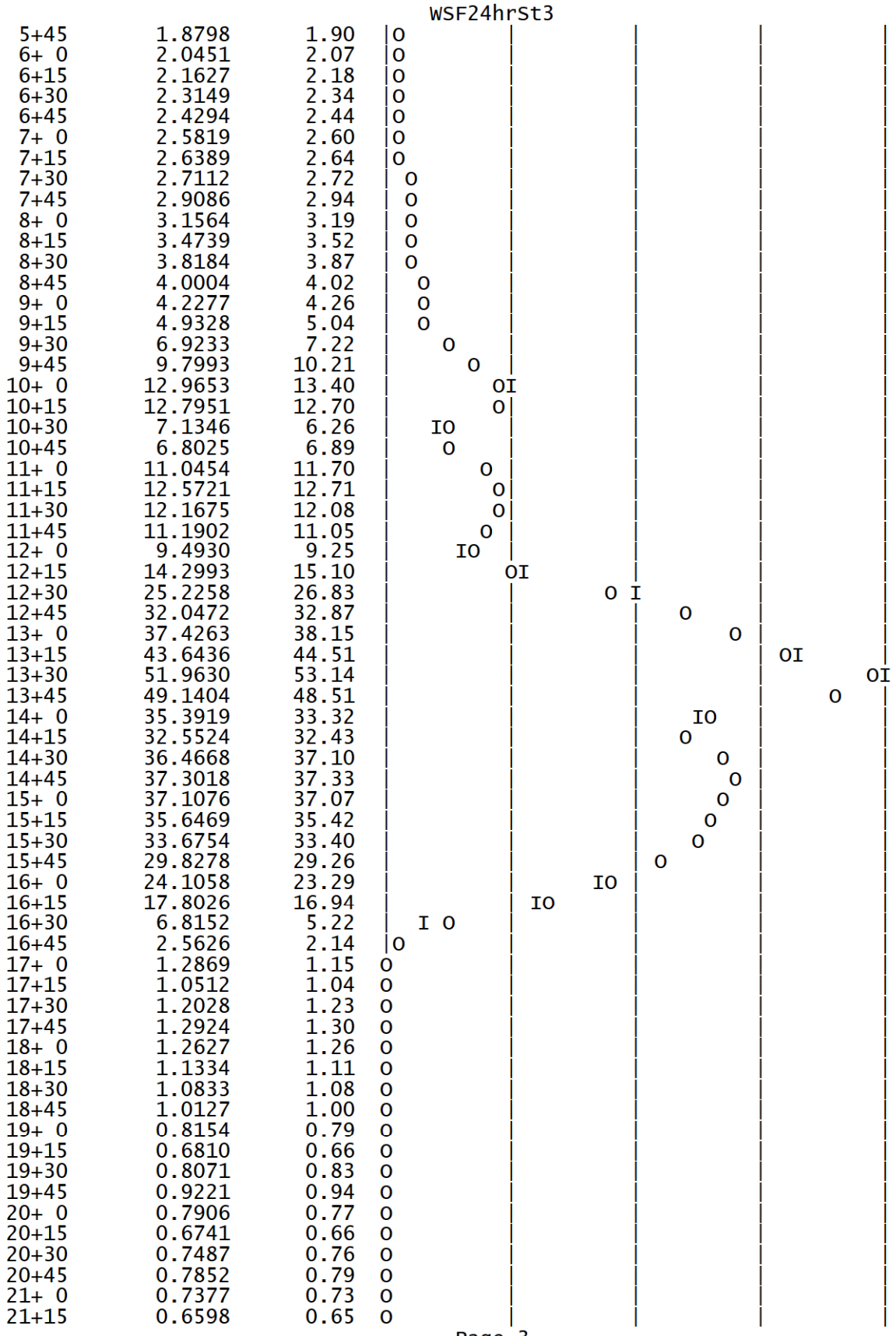
********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.7874 Travel time = 2.59 (min.)
dt*(unit time interval) = 15.00(min.), e= 5.2286
dt(routing time-step) = 2.04 (min.), c* = 0.9997

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h
---

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 13.3 | 26.6 | 39.9 | 53.1 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.1134 | 0.13 | O | | | | |
| 0+30 | 0.4436 | 0.49 | O | | | | |
| 0+45 | 0.6863 | 0.72 | O | | | | |
| 1+ 0 | 0.8243 | 0.84 | O | | | | |
| 1+15 | 0.9262 | 0.94 | O | | | | |
| 1+30 | 0.8491 | 0.83 | O | | | | |
| 1+45 | 0.8121 | 0.81 | O | | | | |
| 2+ 0 | 0.8585 | 0.87 | O | | | | |
| 2+15 | 0.9929 | 1.01 | O | | | | |
| 2+30 | 1.0446 | 1.05 | O | | | | |
| 2+45 | 1.1153 | 1.13 | O | | | | |
| 3+ 0 | 1.2559 | 1.28 | O | | | | |
| 3+15 | 1.3103 | 1.32 | O | | | | |
| 3+30 | 1.3246 | 1.33 | O | | | | |
| 3+45 | 1.3284 | 1.33 | OI | | | | |
| 4+ 0 | 1.3865 | 1.40 | \|O | | | | |
| 4+15 | 1.5235 | 1.54 | \|O | | | | |
| 4+30 | 1.6331 | 1.65 | \|O | | | | |
| 4+45 | 1.7841 | 1.81 | \|O | | | | |
| 5+ 0 | 1.8976 | 1.91 | \|O | | | | |
| 5+15 | 1.9365 | 1.94 | \|O | | | | |
| 5+30 | 1.7766 | 1.75 | \|O | | | | |


WSF24hrSt3
5+45 1.8798 1.90
6+ 0 2.0451 2.07
6+15 2.1627 2.18
6+30 2.3149 2.34
6+45 2.4294 2.44
7+ 0 2.5819 2.60
7+15 2.6389 2.64
7+30 2.7112 2.72
7+45 2.9086 2.94
8+ 0 3.1564 3.19
8+15 3.4739 3.52
8+30 3.8184 3.87
8+45 4.0004 4.02
9+ 0 4.2277 4.26
9+15 4.9328 5.04
9+30 6.9233 7.22
9+45 9.7993 10.21
10+ 0 12.9653 13.40
10+15 12.7951 12.70
10+30 7.1346 6.26
10+45 6.8025 6.89
11+ 0 11.0454 11.70
11+15 12.5721 12.71
11+30 12.1675 12.08
11+45 11.1902 11.05
12+ 0 9.4930 9.25
12+15 14.2993 15.10
12+30 25.2258 26.83
12+45 32.0472 32.87
13+ 0 37.4263 38.15
13+15 43.6436 44.51
13+30 51.9630 53.14
13+45 49.1404 48.51
14+ 0 35.3919 33.32
14+15 32.5524 32.43
14+30 36.4668 37.10
14+45 37.3018 37.33
15+ 0 37.1076 37.07
15+15 35.6469 35.42
15+30 33.6754 33.40
15+45 29.8278 29.26
16+ 0 24.1058 23.29
16+15 17.8026 16.94
16+30 6.8152 5.22
16+45 2.5626 2.14
17+ 0 1.2869 1.15
17+15 1.0512 1.04
17+30 1.2028 1.23
17+45 1.2924 1.30
18+ 0 1.2627 1.26
18+15 1.1334 1.11
18+30 1.0833 1.08
18+45 1.0127 1.00
19+ 0 0.8154 0.79
19+15 0.6810 0.66
19+30 0.8071 0.83
19+45 0.9221 0.94
20+ 0 0.7906 0.77
20+15 0.6741 0.66
20+30 0.7487 0.76
20+45 0.7852 0.79
21+ 0 0.7377 0.73
21+15 0.6598 0.65

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 21+30 | 0.6882 | 0.69 | O | | | | |
| 21+45 | 0.6470 | 0.64 | O | | | | |
| 22+ 0 | 0.6845 | 0.69 | O | | | | |
| 22+15 | 0.6456 | 0.64 | O | | | | |
| 22+30 | 0.6844 | 0.69 | O | | | | |
| 22+45 | 0.5889 | 0.57 | O | | | | |
| 23+ 0 | 0.5476 | 0.54 | O | | | | |
| 23+15 | 0.5360 | 0.53 | O | | | | |
| 23+30 | 0.5334 | 0.53 | O | | | | |
| 23+45 | 0.5322 | 0.53 | O | | | | |
| 24+ 0 | 0.5320 | 0.53 | O | | | | |
| 24+15 | 0.4186 | 0.40 | O | | | | |
| 24+30 | 0.1451 | 0.10 | O | | | | |
| 24+45 | 0.0392 | 0.03 | O | | | | |
| 25+ 0 | 0.0108 | 0.01 | O | | | | |
| 25+15 | 0.0031 | 0.00 | O | | | | |
| 25+30 | 0.0000 | 0.00 | O | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 102
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 51.963 (CFS)
Total volume = 16.347 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

Process from Point/Station 101.000 to Point/Station 102.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

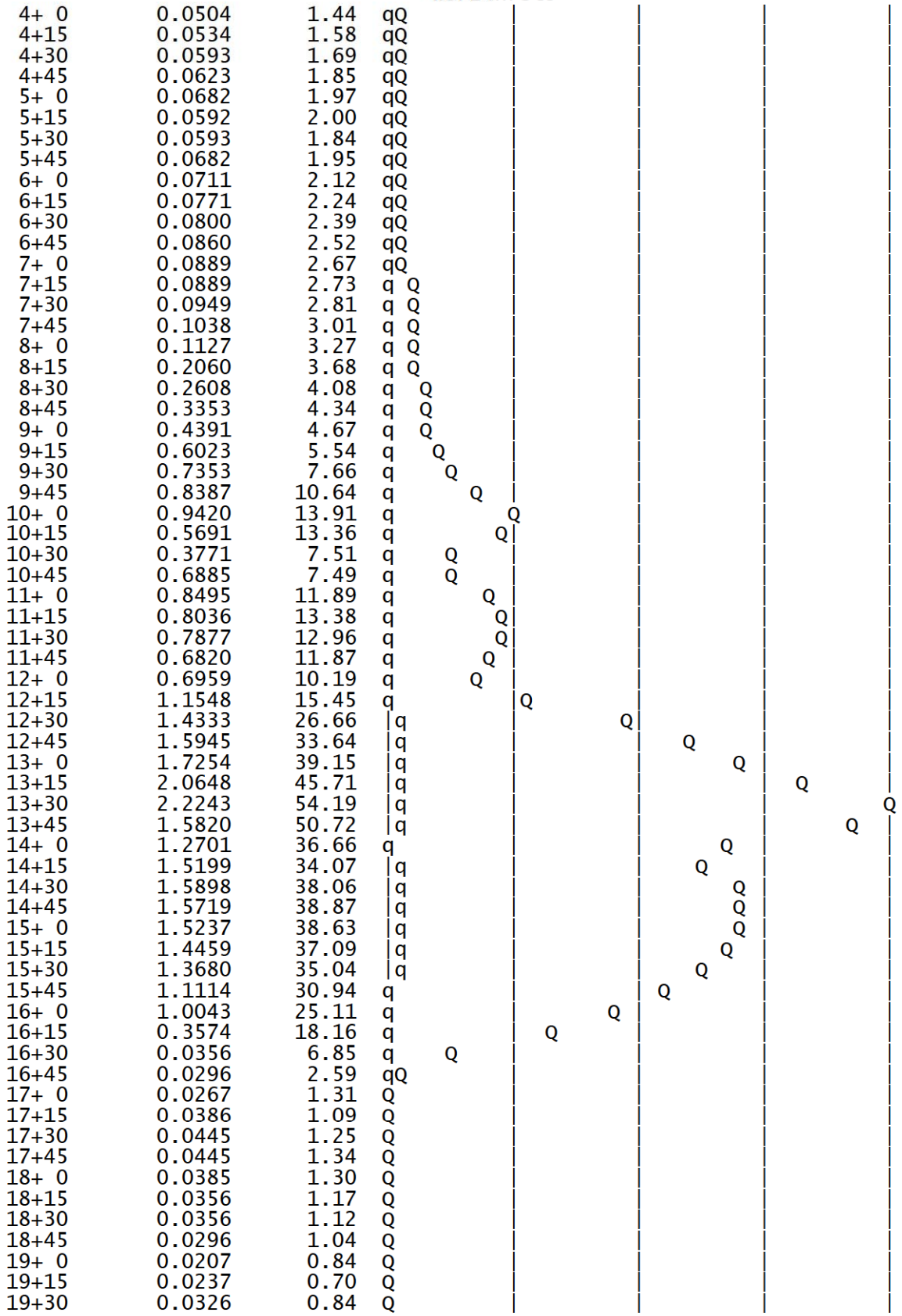
********** HYDROGRAPH INFORMATION **********

From study/file name: SubF624100.rte

P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 13.5 | 27.1 | 40.6 | 54.2 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0119 | 0.13 | Q | | | | |
| 0+30 | 0.0237 | 0.47 | Q | | | | |
| 0+45 | 0.0267 | 0.71 | Q | | | | |
| 1+ 0 | 0.0326 | 0.86 | Q | | | | |
| 1+15 | 0.0296 | 0.96 | Q | | | | |
| 1+30 | 0.0267 | 0.88 | Q | | | | |
| 1+45 | 0.0267 | 0.84 | Q | | | | |
| 2+ 0 | 0.0326 | 0.89 | Q | | | | |
| 2+15 | 0.0356 | 1.03 | Q | | | | |
| 2+30 | 0.0356 | 1.08 | Q | | | | |
| 2+45 | 0.0415 | 1.16 | Q | | | | |
| 3+ 0 | 0.0445 | 1.30 | Q | | | | |
| 3+15 | 0.0445 | 1.35 | qQ | | | | |
| 3+30 | 0.0445 | 1.37 | qQ | | | | |
| 3+45 | 0.0445 | 1.37 | qQ | | | | |


4+ 0 0.0504 1.44
4+15 0.0534 1.58
4+30 0.0593 1.69
4+45 0.0623 1.85
5+ 0 0.0682 1.97
5+15 0.0592 2.00
5+30 0.0593 1.84
5+45 0.0682 1.95
6+ 0 0.0711 2.12
6+15 0.0771 2.24
6+30 0.0800 2.39
6+45 0.0860 2.52
7+ 0 0.0889 2.67
7+15 0.0889 2.73
7+30 0.0949 2.81
7+45 0.1038 3.01
8+ 0 0.1127 3.27
8+15 0.2060 3.68
8+30 0.2608 4.08
8+45 0.3353 4.34
9+ 0 0.4391 4.67
9+15 0.6023 5.54
9+30 0.7353 7.66
9+45 0.8387 10.64
10+ 0 0.9420 13.91
10+15 0.5691 13.36
10+30 0.3771 7.51
10+45 0.6885 7.49
11+ 0 0.8495 11.89
11+15 0.8036 13.38
11+30 0.7877 12.96
11+45 0.6820 11.87
12+ 0 0.6959 10.19
12+15 1.1548 15.45
12+30 1.4333 26.66
12+45 1.5945 33.64
13+ 0 1.7254 39.15
13+15 2.0648 45.71
13+30 2.2243 54.19
13+45 1.5820 50.72
14+ 0 1.2701 36.66
14+15 1.5199 34.07
14+30 1.5898 38.06
14+45 1.5719 38.87
15+ 0 1.5237 38.63
15+15 1.4459 37.09
15+30 1.3680 35.04
15+45 1.1114 30.94
16+ 0 1.0043 25.11
16+15 0.3574 18.16
16+30 0.0356 6.85
16+45 0.0296 2.59
17+ 0 0.0267 1.31
17+15 0.0386 1.09
17+30 0.0445 1.25
17+45 0.0445 1.34
18+ 0 0.0385 1.30
18+15 0.0356 1.17
18+30 0.0356 1.12
18+45 0.0296 1.04
19+ 0 0.0207 0.84
19+15 0.0237 0.70
19+30 0.0326 0.84

```
19+45       0.0296      0.95  Q          |          |          |          |
20+ 0       0.0207      0.81  Q          |          |          |          |
20+15       0.0237      0.70  Q          |          |          |          |
20+30       0.0267      0.78  Q          |          |          |          |
20+45       0.0267      0.81  Q          |          |          |          |
21+ 0       0.0207      0.76  Q          |          |          |          |
21+15       0.0237      0.68  Q          |          |          |          |
21+30       0.0207      0.71  Q          |          |          |          |
21+45       0.0237      0.67  Q          |          |          |          |
22+ 0       0.0207      0.71  Q          |          |          |          |
22+15       0.0237      0.67  Q          |          |          |          |
22+30       0.0207      0.71  Q          |          |          |          |
22+45       0.0178      0.61  Q          |          |          |          |
23+ 0       0.0178      0.57  Q          |          |          |          |
23+15       0.0178      0.55  Q          |          |          |          |
23+30       0.0178      0.55  Q          |          |          |          |
23+45       0.0178      0.55  Q          |          |          |          |
24+ 0       0.0178      0.55  Q          |          |          |          |
24+15       0.0059      0.42  Q          |          |          |          |
24+30       0.0000      0.15  Q          |          |          |          |
24+45       0.0000      0.04  Q          |          |          |          |
25+ 0       0.0000      0.01  Q          |          |          |          |
25+15       0.0000      0.00  Q          |          |          |          |
25+30       0.0000      0.00  Q          |          |          |          |
--------------------------------------------------------------------------
        ****************************HYDROGRAPH DATA****************************
                    Number of intervals =   102
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =       54.187 (CFS)
                    Total volume =      17.111 (Ac.Ft)
             Status of hydrographs being held in storage
                       Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
             Peak (CFS)      0.000     0.000     0.000     0.000     0.000
             Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
        ****************************************************************************

        ----------------------------------------------------------------

        ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
        Process from Point/Station      100.000 to Point/Station      102.000
        **** STORE OR DELETE CURRENT HYDROGRAPH ****
        ____________________________________________________________________________
        Current stream hydrograph saved in file WSF24hrSt3.rte
        ****************************HYDROGRAPH DATA****************************
                    Number of intervals =     0
                    Time interval =    0.0 (Min.)
                    Maximum/Peak flow rate =        0.000 (CFS)
                    Total volume =       0.000 (Ac.Ft)
             Status of hydrographs being held in storage
                       Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
             Peak (CFS)      0.000     0.000     0.000     0.000     0.000
             Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
        ****************************************************************************

        ----------------------------------------------------------------
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SubF524100

U n i t  H y d r o g r a p h  A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 04/25/12 File: Stream3/SubF524100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

----------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

----------------------------------------------------------------------
Watershed F, Steam 3, Subarea F5
Existing Condition
100-year, 24-hour

----------------------------------------------------------------------
Drainage Area = 146.60(Ac.) = 0.229 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 146.60(Ac.) = 0.229 Sq. Mi.
Length along longest watercourse = 5600.00(Ft.)
Length along longest watercourse measured to centroid = 3020.00(Ft.)
Length along longest watercourse = 1.061 Mi.
Length along longest watercourse measured to centroid = 0.572 Mi.
Difference in elevation = 408.00(Ft.)
Slope along watercourse = 384.6857 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.192 Hr.
Lag time = 11.53 Min.
25% of lag time = 2.88 Min.
40% of lag time = 4.61 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 146.60 | 1.80 | 263.88 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 146.60 | 4.50 | 659.70 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

SubF524100

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 4.499(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 15.100 | 46.00 | 0.000 |
| 11.500 | 66.00 | 0.000 |
| 120.000 | 83.00 | 0.000 |

Total Area Entered = 146.60(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.103 | 0.063 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.078 | 0.032 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.819 | 0.172 |
| | | | | | Sum (F) = | 0.266 |

Area averaged mean soil loss (F) (In/Hr) = 0.266
Minimum soil loss rate ((In/Hr)) = 0.133
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 130.096 | 24.683 | 36.468 |
| 2 | 0.500 | 260.193 | 55.636 | 82.200 |
| 3 | 0.750 | 390.289 | 14.262 | 21.072 |
| 4 | 1.000 | 520.386 | 3.932 | 5.809 |
| 5 | 1.250 | 650.482 | 1.037 | 1.532 |
| 6 | 1.500 | 780.579 | 0.449 | 0.663 |
| | | | Sum = 100.000 | Sum= 147.745 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.471) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.465) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.460) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.454) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.449) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.444) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.438) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.433) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.428) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.423) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.417) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.412) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.407) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.402) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.397) | 0.081 | 0.009 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 16 | 4.00 | 0.60 | 0.108 | ( 0.392) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.387) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.382) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.377) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.372) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.368) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.363) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.358) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.353) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.349) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.344) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.339) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.335) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.330) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.326) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.321) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.317) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.312) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.308) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.304) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.299) | 0.275 | 0.031 |
| 37 | 9.25 | 1.90 | 0.342 | 0.295 | ( 0.308) | 0.047 |
| 38 | 9.50 | 2.00 | 0.360 | 0.291 | ( 0.324) | 0.069 |
| 39 | 9.75 | 2.10 | 0.378 | 0.287 | ( 0.340) | 0.091 |
| 40 | 10.00 | 2.20 | 0.396 | 0.283 | ( 0.356) | 0.113 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.279) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.275) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.271 | ( 0.324) | 0.089 |
| 44 | 11.00 | 2.00 | 0.360 | 0.267 | ( 0.324) | 0.093 |
| 45 | 11.25 | 1.90 | 0.342 | 0.263 | ( 0.308) | 0.079 |
| 46 | 11.50 | 1.90 | 0.342 | 0.259 | ( 0.308) | 0.083 |
| 47 | 11.75 | 1.70 | 0.306 | 0.255 | ( 0.275) | 0.051 |
| 48 | 12.00 | 1.80 | 0.324 | 0.251 | ( 0.292) | 0.073 |
| 49 | 12.25 | 2.50 | 0.450 | 0.248 | ( 0.405) | 0.202 |
| 50 | 12.50 | 2.60 | 0.468 | 0.244 | ( 0.421) | 0.224 |
| 51 | 12.75 | 2.80 | 0.504 | 0.240 | ( 0.453) | 0.264 |
| 52 | 13.00 | 2.90 | 0.522 | 0.237 | ( 0.470) | 0.285 |
| 53 | 13.25 | 3.40 | 0.612 | 0.233 | ( 0.551) | 0.379 |
| 54 | 13.50 | 3.40 | 0.612 | 0.229 | ( 0.551) | 0.382 |
| 55 | 13.75 | 2.30 | 0.414 | 0.226 | ( 0.372) | 0.188 |
| 56 | 14.00 | 2.30 | 0.414 | 0.222 | ( 0.372) | 0.191 |
| 57 | 14.25 | 2.70 | 0.486 | 0.219 | ( 0.437) | 0.267 |
| 58 | 14.50 | 2.60 | 0.468 | 0.216 | ( 0.421) | 0.252 |
| 59 | 14.75 | 2.60 | 0.468 | 0.212 | ( 0.421) | 0.255 |
| 60 | 15.00 | 2.50 | 0.450 | 0.209 | ( 0.405) | 0.241 |
| 61 | 15.25 | 2.40 | 0.432 | 0.206 | ( 0.389) | 0.226 |
| 62 | 15.50 | 2.30 | 0.414 | 0.203 | ( 0.372) | 0.211 |
| 63 | 15.75 | 1.90 | 0.342 | 0.200 | ( 0.308) | 0.142 |
| 64 | 16.00 | 1.90 | 0.342 | 0.197 | ( 0.308) | 0.145 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.194) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.191) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.188) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.185) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.182) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.179) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.177) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.174) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.172) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.169) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.167) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.164) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.162) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.160) | 0.065 | 0.007 |

SubF524100

| | | | | | | |
|---|---|---|---|---|---|---|
| 79 | 19.75 | 0.30 | 0.054 | ( 0.158) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.155) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.153) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.151) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.149) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.148) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.146) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.144) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.143) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.141) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.140) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.138) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.137) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.136) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.135) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.134) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.134) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.133) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.4

Flood volume = Effective rainfall 1.34(In)
times area 146.6(Ac.)/[(In)/(Ft.)] = 16.3(Ac.Ft)
Total soil loss = 3.16(In)
Total soil loss = 38.613(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 712062.5 Cubic Feet
Total soil loss = 1681962.8 Cubic Feet

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Peak flow rate of this hydrograph = 53.141(CFS)

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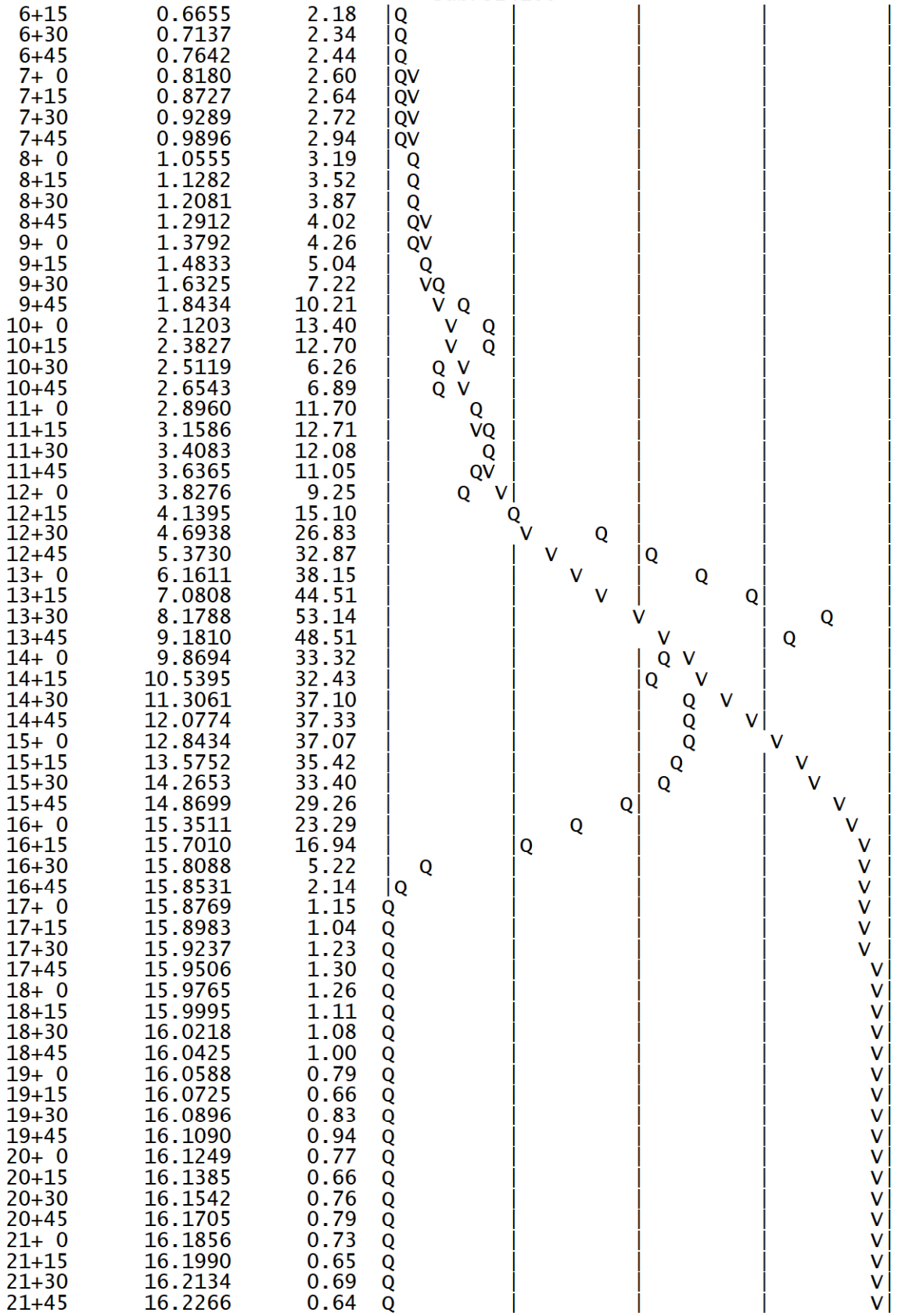
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

---

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 15.0 | 30.0 | 45.0 | 60.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0027 | 0.13 | Q | | | | |
| 0+30 | 0.0129 | 0.49 | Q | | | | |
| 0+45 | 0.0277 | 0.72 | Q | | | | |
| 1+ 0 | 0.0451 | 0.84 | Q | | | | |
| 1+15 | 0.0645 | 0.94 | Q | | | | |
| 1+30 | 0.0818 | 0.83 | Q | | | | |
| 1+45 | 0.0985 | 0.81 | Q | | | | |
| 2+ 0 | 0.1164 | 0.87 | Q | | | | |
| 2+15 | 0.1373 | 1.01 | Q | | | | |
| 2+30 | 0.1590 | 1.05 | Q | | | | |
| 2+45 | 0.1822 | 1.13 | Q | | | | |
| 3+ 0 | 0.2086 | 1.28 | Q | | | | |
| 3+15 | 0.2358 | 1.32 | Q | | | | |
| 3+30 | 0.2632 | 1.33 | Q | | | | |
| 3+45 | 0.2906 | 1.33 | Q | | | | |
| 4+ 0 | 0.3195 | 1.40 | Q | | | | |
| 4+15 | 0.3514 | 1.54 | VQ | | | | |
| 4+30 | 0.3854 | 1.65 | VQ | | | | |
| 4+45 | 0.4227 | 1.81 | Q | | | | |
| 5+ 0 | 0.4622 | 1.91 | \|Q | | | | |
| 5+15 | 0.5023 | 1.94 | \|Q | | | | |
| 5+30 | 0.5385 | 1.75 | \|Q | | | | |
| 5+45 | 0.5777 | 1.90 | \|Q | | | | |
| 6+ 0 | 0.6205 | 2.07 | \|Q | | | | |



| | | | |
|---|---|---|---|
| 6+15 | 0.6655 | 2.18 | |
| 6+30 | 0.7137 | 2.34 | |
| 6+45 | 0.7642 | 2.44 | |
| 7+ 0 | 0.8180 | 2.60 | |
| 7+15 | 0.8727 | 2.64 | |
| 7+30 | 0.9289 | 2.72 | |
| 7+45 | 0.9896 | 2.94 | |
| 8+ 0 | 1.0555 | 3.19 | |
| 8+15 | 1.1282 | 3.52 | |
| 8+30 | 1.2081 | 3.87 | |
| 8+45 | 1.2912 | 4.02 | |
| 9+ 0 | 1.3792 | 4.26 | |
| 9+15 | 1.4833 | 5.04 | |
| 9+30 | 1.6325 | 7.22 | |
| 9+45 | 1.8434 | 10.21 | |
| 10+ 0 | 2.1203 | 13.40 | |
| 10+15 | 2.3827 | 12.70 | |
| 10+30 | 2.5119 | 6.26 | |
| 10+45 | 2.6543 | 6.89 | |
| 11+ 0 | 2.8960 | 11.70 | |
| 11+15 | 3.1586 | 12.71 | |
| 11+30 | 3.4083 | 12.08 | |
| 11+45 | 3.6365 | 11.05 | |
| 12+ 0 | 3.8276 | 9.25 | |
| 12+15 | 4.1395 | 15.10 | |
| 12+30 | 4.6938 | 26.83 | |
| 12+45 | 5.3730 | 32.87 | |
| 13+ 0 | 6.1611 | 38.15 | |
| 13+15 | 7.0808 | 44.51 | |
| 13+30 | 8.1788 | 53.14 | |
| 13+45 | 9.1810 | 48.51 | |
| 14+ 0 | 9.8694 | 33.32 | |
| 14+15 | 10.5395 | 32.43 | |
| 14+30 | 11.3061 | 37.10 | |
| 14+45 | 12.0774 | 37.33 | |
| 15+ 0 | 12.8434 | 37.07 | |
| 15+15 | 13.5752 | 35.42 | |
| 15+30 | 14.2653 | 33.40 | |
| 15+45 | 14.8699 | 29.26 | |
| 16+ 0 | 15.3511 | 23.29 | |
| 16+15 | 15.7010 | 16.94 | |
| 16+30 | 15.8088 | 5.22 | |
| 16+45 | 15.8531 | 2.14 | |
| 17+ 0 | 15.8769 | 1.15 | |
| 17+15 | 15.8983 | 1.04 | |
| 17+30 | 15.9237 | 1.23 | |
| 17+45 | 15.9506 | 1.30 | |
| 18+ 0 | 15.9765 | 1.26 | |
| 18+15 | 15.9995 | 1.11 | |
| 18+30 | 16.0218 | 1.08 | |
| 18+45 | 16.0425 | 1.00 | |
| 19+ 0 | 16.0588 | 0.79 | |
| 19+15 | 16.0725 | 0.66 | |
| 19+30 | 16.0896 | 0.83 | |
| 19+45 | 16.1090 | 0.94 | |
| 20+ 0 | 16.1249 | 0.77 | |
| 20+15 | 16.1385 | 0.66 | |
| 20+30 | 16.1542 | 0.76 | |
| 20+45 | 16.1705 | 0.79 | |
| 21+ 0 | 16.1856 | 0.73 | |
| 21+15 | 16.1990 | 0.65 | |
| 21+30 | 16.2134 | 0.69 | |
| 21+45 | 16.2266 | 0.64 | |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 22+ 0 | 16.2409 | 0.69 | Q | \| | \| | \| | V\| |
| 22+15 | 16.2541 | 0.64 | Q | \| | \| | \| | V\| |
| 22+30 | 16.2683 | 0.69 | Q | \| | \| | \| | V\| |
| 22+45 | 16.2802 | 0.57 | Q | \| | \| | \| | V\| |
| 23+ 0 | 16.2914 | 0.54 | Q | \| | \| | \| | V\| |
| 23+15 | 16.3025 | 0.53 | Q | \| | \| | \| | V\| |
| 23+30 | 16.3135 | 0.53 | Q | \| | \| | \| | V\| |
| 23+45 | 16.3245 | 0.53 | Q | \| | \| | \| | V\| |
| 24+ 0 | 16.3355 | 0.53 | Q | \| | \| | \| | V\| |
| 24+15 | 16.3437 | 0.40 | Q | \| | \| | \| | V\| |
| 24+30 | 16.3459 | 0.10 | Q | \| | \| | \| | V\| |
| 24+45 | 16.3465 | 0.03 | Q | \| | \| | \| | V\| |
| 25+ 0 | 16.3467 | 0.01 | Q | \| | \| | \| | V\| |
| 25+15 | 16.3467 | 0.00 | Q | \| | \| | \| | V |

SubF624100

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 04/25/12 File: Stream3/SubF624100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

----------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

----------------------------------------------------------------------
Watershed F, Stream 3, Subarea F6
Existing Condition
100-year, 24-hour

----------------------------------------------------------------------
Drainage Area = 4.90(Ac.) = 0.008 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.90(Ac.) = 0.008 Sq. Mi.
Length along longest watercourse = 980.00(Ft.)
Length along longest watercourse measured to centroid = 480.00(Ft.)
Length along longest watercourse = 0.186 Mi.
Length along longest watercourse measured to centroid = 0.091 Mi.
Difference in elevation = 29.00(Ft.)
Slope along watercourse = 156.2449 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.058 Hr.
Lag time = 3.51 Min.
25% of lag time = 0.88 Min.
40% of lag time = 1.40 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 4.90 | 1.80 | 8.82 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 4.90 | 4.50 | 22.05 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

SubF624100

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 4.900 | 85.00 | 0.000 |

Total Area Entered = 4.90(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 1.000 | 0.187 |
| | | | | | Sum (F) = | 0.187 |

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.094
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
VALLEY S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 427.656 | 66.899 | 3.304 |
| 2 | 0.500 | 855.313 | 33.101 | 1.635 |
| | | | Sum = 100.000 Sum= | 4.938 |

---

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.330) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.326) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.323) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.319) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.315) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.311) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.308) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.304) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.300) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.297) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.293) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.289) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.286) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.282) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.279) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.275) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.272) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.268) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.265) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.261) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.258) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.255) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.251) | 0.130 | 0.014 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 24 | 6.00 | 0.80 | 0.144 | ( 0.248) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.245) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.241) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.238) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.235) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.232) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.229) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.225) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.222) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | 0.219 | ( 0.243) | 0.051 |
| 34 | 8.50 | 1.50 | 0.270 | 0.216 | ( 0.243) | 0.054 |
| 35 | 8.75 | 1.60 | 0.288 | 0.213 | ( 0.259) | 0.075 |
| 36 | 9.00 | 1.70 | 0.306 | 0.210 | ( 0.275) | 0.096 |
| 37 | 9.25 | 1.90 | 0.342 | 0.207 | ( 0.308) | 0.135 |
| 38 | 9.50 | 2.00 | 0.360 | 0.204 | ( 0.324) | 0.156 |
| 39 | 9.75 | 2.10 | 0.378 | 0.201 | ( 0.340) | 0.177 |
| 40 | 10.00 | 2.20 | 0.396 | 0.198 | ( 0.356) | 0.198 |
| 41 | 10.25 | 1.50 | 0.270 | 0.196 | ( 0.243) | 0.074 |
| 42 | 10.50 | 1.50 | 0.270 | 0.193 | ( 0.243) | 0.077 |
| 43 | 10.75 | 2.00 | 0.360 | 0.190 | ( 0.324) | 0.170 |
| 44 | 11.00 | 2.00 | 0.360 | 0.187 | ( 0.324) | 0.173 |
| 45 | 11.25 | 1.90 | 0.342 | 0.184 | ( 0.308) | 0.158 |
| 46 | 11.50 | 1.90 | 0.342 | 0.182 | ( 0.308) | 0.160 |
| 47 | 11.75 | 1.70 | 0.306 | 0.179 | ( 0.275) | 0.127 |
| 48 | 12.00 | 1.80 | 0.324 | 0.176 | ( 0.292) | 0.148 |
| 49 | 12.25 | 2.50 | 0.450 | 0.174 | ( 0.405) | 0.276 |
| 50 | 12.50 | 2.60 | 0.468 | 0.171 | ( 0.421) | 0.297 |
| 51 | 12.75 | 2.80 | 0.504 | 0.169 | ( 0.454) | 0.335 |
| 52 | 13.00 | 2.90 | 0.522 | 0.166 | ( 0.470) | 0.356 |
| 53 | 13.25 | 3.40 | 0.612 | 0.163 | ( 0.551) | 0.449 |
| 54 | 13.50 | 3.40 | 0.612 | 0.161 | ( 0.551) | 0.451 |
| 55 | 13.75 | 2.30 | 0.414 | 0.159 | ( 0.373) | 0.255 |
| 56 | 14.00 | 2.30 | 0.414 | 0.156 | ( 0.373) | 0.258 |
| 57 | 14.25 | 2.70 | 0.486 | 0.154 | ( 0.437) | 0.332 |
| 58 | 14.50 | 2.60 | 0.468 | 0.151 | ( 0.421) | 0.317 |
| 59 | 14.75 | 2.60 | 0.468 | 0.149 | ( 0.421) | 0.319 |
| 60 | 15.00 | 2.50 | 0.450 | 0.147 | ( 0.405) | 0.303 |
| 61 | 15.25 | 2.40 | 0.432 | 0.145 | ( 0.389) | 0.287 |
| 62 | 15.50 | 2.30 | 0.414 | 0.142 | ( 0.373) | 0.272 |
| 63 | 15.75 | 1.90 | 0.342 | 0.140 | ( 0.308) | 0.202 |
| 64 | 16.00 | 1.90 | 0.342 | 0.138 | ( 0.308) | 0.204 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.136) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.134) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.132) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.130) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.128) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.126) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.124) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.122) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.120) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.119) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.117) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.115) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.114) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.112) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.111) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.109) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.108) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.106) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.105) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.104) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.102) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.101) | 0.032 | 0.004 |

SubF624100

| | | | | | | |
|---|---|---|---|---|---|---|
| 87 | 21.75 | 0.30 | 0.054 | ( 0.100) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.099) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.098) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.097) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.095) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 7.5

Flood volume = Effective rainfall 1.87(In)
times area 4.9(Ac.)/[(In)/(Ft.)] = 0.8(Ac.Ft)
Total soil loss = 2.63(In)
Total soil loss = 1.074(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 33272.6 Cubic Feet
Total soil loss = 46768.2 Cubic Feet

---

Peak flow rate of this hydrograph = 2.224(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 2.5 | 5.0 | 7.5 | 10.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0002 | 0.01 | Q | | | | |
| 0+30 | 0.0007 | 0.02 | Q | | | | |
| 0+45 | 0.0013 | 0.03 | Q | | | | |
| 1+ 0 | 0.0020 | 0.03 | Q | | | | |
| 1+15 | 0.0026 | 0.03 | Q | | | | |
| 1+30 | 0.0031 | 0.03 | Q | | | | |
| 1+45 | 0.0037 | 0.03 | Q | | | | |
| 2+ 0 | 0.0044 | 0.03 | Q | | | | |
| 2+15 | 0.0051 | 0.04 | Q | | | | |
| 2+30 | 0.0058 | 0.04 | Q | | | | |
| 2+45 | 0.0067 | 0.04 | Q | | | | |
| 3+ 0 | 0.0076 | 0.04 | Q | | | | |
| 3+15 | 0.0085 | 0.04 | Q | | | | |
| 3+30 | 0.0094 | 0.04 | Q | | | | |
| 3+45 | 0.0104 | 0.04 | Q | | | | |
| 4+ 0 | 0.0114 | 0.05 | Q | | | | |
| 4+15 | 0.0125 | 0.05 | Q | | | | |
| 4+30 | 0.0137 | 0.06 | Q | | | | |
| 4+45 | 0.0150 | 0.06 | Q | | | | |
| 5+ 0 | 0.0164 | 0.07 | Q | | | | |
| 5+15 | 0.0176 | 0.06 | Q | | | | |
| 5+30 | 0.0189 | 0.06 | Q | | | | |
| 5+45 | 0.0203 | 0.07 | QV | | | | |
| 6+ 0 | 0.0217 | 0.07 | QV | | | | |
| 6+15 | 0.0233 | 0.08 | QV | | | | |
| 6+30 | 0.0250 | 0.08 | QV | | | | |
| 6+45 | 0.0268 | 0.09 | QV | | | | |
| 7+ 0 | 0.0286 | 0.09 | QV | | | | |
| 7+15 | 0.0304 | 0.09 | QV | | | | |
| 7+30 | 0.0324 | 0.09 | QV | | | | |
| 7+45 | 0.0345 | 0.10 | QV | | | | |
| 8+ 0 | 0.0369 | 0.11 | QV | | | | |

| | | | |
|---|---|---|---|
| 8+15 | 0.0411 | 0.21 | Q V |
| 8+30 | 0.0465 | 0.26 | \|QV |
| 8+45 | 0.0535 | 0.34 | \|QV |
| 9+ 0 | 0.0625 | 0.44 | \|Q V |
| 9+15 | 0.0750 | 0.60 | \| QV |
| 9+30 | 0.0902 | 0.74 | \| Q V |
| 9+45 | 0.1075 | 0.84 | \| Q V |
| 10+ 0 | 0.1270 | 0.94 | \| Q V |
| 10+15 | 0.1387 | 0.57 | \| Q V |
| 10+30 | 0.1465 | 0.38 | \|Q V |
| 10+45 | 0.1607 | 0.69 | \| Q V |
| 11+ 0 | 0.1783 | 0.85 | \| Q V\| |
| 11+15 | 0.1949 | 0.80 | \| Q V |
| 11+30 | 0.2112 | 0.79 | \| Q V |
| 11+45 | 0.2252 | 0.68 | \| Q \|V |
| 12+ 0 | 0.2396 | 0.70 | \| Q \| V |
| 12+15 | 0.2635 | 1.15 | \| Q \| V |
| 12+30 | 0.2931 | 1.43 | \| Q \| V |
| 12+45 | 0.3260 | 1.59 | \| Q \| V |
| 13+ 0 | 0.3617 | 1.73 | \| Q \| V |
| 13+15 | 0.4044 | 2.06 | \| Q \| V |
| 13+30 | 0.4503 | 2.22 | \| Q \| V |
| 13+45 | 0.4830 | 1.58 | \| Q \| V |
| 14+ 0 | 0.5092 | 1.27 | \| Q \| V |
| 14+15 | 0.5406 | 1.52 | \| Q \| V |
| 14+30 | 0.5735 | 1.59 | \| Q \| V |
| 14+45 | 0.6060 | 1.57 | \| Q \| V |
| 15+ 0 | 0.6375 | 1.52 | \| Q \| V |
| 15+15 | 0.6673 | 1.45 | \| Q \| V |
| 15+30 | 0.6956 | 1.37 | \| Q \| V |
| 15+45 | 0.7186 | 1.11 | \| Q \| V |
| 16+ 0 | 0.7393 | 1.00 | \| Q \| V |
| 16+15 | 0.7467 | 0.36 | \|Q \| V|
| 16+30 | 0.7474 | 0.04 | Q \| V|
| 16+45 | 0.7480 | 0.03 | Q \| V|
| 17+ 0 | 0.7486 | 0.03 | Q \| V|
| 17+15 | 0.7494 | 0.04 | Q \| V|
| 17+30 | 0.7503 | 0.04 | Q \| V|
| 17+45 | 0.7512 | 0.04 | Q \| V|
| 18+ 0 | 0.7520 | 0.04 | Q \| V|
| 18+15 | 0.7527 | 0.04 | Q \| V|
| 18+30 | 0.7535 | 0.04 | Q \| V|
| 18+45 | 0.7541 | 0.03 | Q \| V|
| 19+ 0 | 0.7545 | 0.02 | Q \| V|
| 19+15 | 0.7550 | 0.02 | Q \| V|
| 19+30 | 0.7557 | 0.03 | Q \| V|
| 19+45 | 0.7563 | 0.03 | Q \| V|
| 20+ 0 | 0.7567 | 0.02 | Q \| V|
| 20+15 | 0.7572 | 0.02 | Q \| V|
| 20+30 | 0.7578 | 0.03 | Q \| V|
| 20+45 | 0.7583 | 0.03 | Q \| V|
| 21+ 0 | 0.7587 | 0.02 | Q \| V|
| 21+15 | 0.7592 | 0.02 | Q \| V|
| 21+30 | 0.7597 | 0.02 | Q \| V|
| 21+45 | 0.7602 | 0.02 | Q \| V|
| 22+ 0 | 0.7606 | 0.02 | Q \| V|
| 22+15 | 0.7611 | 0.02 | Q \| V|
| 22+30 | 0.7615 | 0.02 | Q \| V|
| 22+45 | 0.7619 | 0.02 | Q \| V|
| 23+ 0 | 0.7622 | 0.02 | Q \| V|
| 23+15 | 0.7626 | 0.02 | Q \| V|
| 23+30 | 0.7630 | 0.02 | Q \| V|
| 23+45 | 0.7633 | 0.02 | Q \| V|

```
                                    SubF624100
   24+ 0       0.7637      0.02  Q          |          |          |         V|
   24+15       0.7638      0.01  Q          |          |          |         V|
-------------------------------------------------------------------------------
```

WSF24hrSt4

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
Study date: 04/27/12

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Watershed F, Stream 4
Existing Condition
100-year, 24-hour

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Program License Serial Number 6097

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********** HYDROGRAPH INFORMATION **********

From study/file name: SubF724100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 99
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 25.151 (CFS)
Total volume = 7.276 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station 111.000 to Point/Station 112.000
**** STREAM ROUTING SCS CONVEX METHOD ****

HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 350.00 (Ft.)
Elevation difference = 11.00 (Ft.)
Slope of channel = 0.031429 (Vert/Horiz)
Channel type - Improved Channel

Channel length = 350.00(Ft.) Elevation difference = 11.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width = 10.000(Ft.)
Slope or 'Z' of left channel bank = 2.000
Slope or 'Z' of right channel bank = 2.000
Manning's 'N' = 0.030
Maximum depth of channel = 5.000(Ft.)
Flow(q) thru subarea = 5.063(CFS)
Depth of flow = 0.180(Ft.)
Average velocity = 2.719(Ft/s)
Total flow rate = 5.063(CFS)
Channel flow top width = 10.719(Ft.)
Depth of flow in channel = 0.18(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 2.72(Ft/s)
Travel time = 0.00 min.

Individual channel flow = 5.063(CFS)
Total capacity of improved channels = 5.063(CFS)
Critical Depth in Channel = 0.20(Ft.)

Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea = 25.151(CFS)
Depth of flow = 0.466(Ft.)
Average velocity = 4.937(Ft/s)
Total flow rate = 25.151(CFS)
Channel flow top width = 11.864(Ft.)
Depth of flow in channel = 0.47(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 4.94(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 25.151(CFS)
Total capacity of improved channels = 25.151(CFS)
Critical Depth in Channel = 0.56(Ft.)

********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.7439 Travel time = 1.18 (min.)
dt*(unit time interval) = 15.00(min.), e= 11.7113
dt(routing time-step) = 0.88 (min.), c* = 1.0000

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h
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Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 6.3 | 12.6 | 18.9 | 25.2 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0930 | 0.10 | O | | | | |
| 0+30 | 0.2673 | 0.28 | O | | | | |
| 0+45 | 0.3578 | 0.36 | O | | | | |
| 1+ 0 | 0.4222 | 0.43 | O | | | | |
| 1+15 | 0.4422 | 0.44 | O | | | | |
| 1+30 | 0.3916 | 0.39 | O | | | | |
| 1+45 | 0.3807 | 0.38 | O | | | | |
| 2+ 0 | 0.4250 | 0.43 | O | | | | |
| 2+15 | 0.4888 | 0.49 | O | | | | |
| 2+30 | 0.5020 | 0.50 | O | | | | |
| 2+45 | 0.5509 | 0.55 | O | | | | |
| 3+ 0 | 0.6149 | 0.62 | O | | | | |
| 3+15 | 0.6282 | 0.63 | O | | | | |
| 3+30 | 0.6305 | 0.63 | \|O | | | | |
| 3+45 | 0.6306 | 0.63 | \|O | | | | |
| 4+ 0 | 0.6771 | 0.68 | \|O | | | | |
| 4+15 | 0.7410 | 0.74 | \|O | | | | |
| 4+30 | 0.8008 | 0.80 | \|O | | | | |
| 4+45 | 0.8671 | 0.87 | \|O | | | | |
| 5+ 0 | 0.9269 | 0.93 | \|O | | | | |
| 5+15 | 0.9002 | 0.90 | \|O | | | | |
| 5+30 | 0.8322 | 0.83 | \|O | | | | |

| | | | |
|---|---|---|---|
| 5+45 | 0.9185 | 0.92 | O |
| 6+ 0 | 0.9911 | 1.00 | O |
| 6+15 | 1.0529 | 1.06 | O |
| 6+30 | 1.1193 | 1.12 | O |
| 6+45 | 1.1792 | 1.18 | O |
| 7+ 0 | 1.2454 | 1.25 | O |
| 7+15 | 1.2588 | 1.26 | O |
| 7+30 | 1.3077 | 1.31 | O |
| 7+45 | 1.4182 | 1.42 | O |
| 8+ 0 | 1.5419 | 1.55 | O |
| 8+15 | 1.7144 | 1.72 | O |
| 8+30 | 1.8579 | 1.87 | O |
| 8+45 | 1.9334 | 1.94 | O |
| 9+ 0 | 2.0486 | 2.06 | O |
| 9+15 | 2.2190 | 2.23 | O |
| 9+30 | 2.8602 | 2.90 | O |
| 9+45 | 4.1517 | 4.23 | O |
| 10+ 0 | 5.6703 | 5.76 | O |
| 10+15 | 4.8143 | 4.76 | O |
| 10+30 | 2.4813 | 2.34 | O |
| 10+45 | 3.2267 | 3.28 | O |
| 11+ 0 | 4.9462 | 5.05 | OI |
| 11+15 | 5.0847 | 5.09 | O |
| 11+30 | 4.7908 | 4.77 | O |
| 11+45 | 4.0162 | 3.97 | O |
| 12+ 0 | 3.4619 | 3.43 | O |
| 12+15 | 7.3696 | 7.61 | OI |
| 12+30 | 12.6702 | 12.98 | O |
| 12+45 | 15.4613 | 15.62 | O |
| 13+ 0 | 17.7719 | 17.91 | O |
| 13+15 | 21.2989 | 21.51 | OI |
| 13+30 | 24.9380 | 25.15 | OI |
| 13+45 | 20.7704 | 20.50 | IO |
| 14+ 0 | 14.1147 | 13.72 | IO |
| 14+15 | 14.7755 | 14.84 | O |
| 14+30 | 16.8587 | 16.98 | OI |
| 14+45 | 16.9838 | 16.98 | O |
| 15+ 0 | 16.7225 | 16.71 | O |
| 15+15 | 15.8383 | 15.78 | O |
| 15+30 | 14.8359 | 14.78 | O |
| 15+45 | 12.4123 | 12.27 | O |
| 16+ 0 | 9.9269 | 9.78 | O |
| 16+15 | 6.2170 | 6.00 | O |
| 16+30 | 1.6181 | 1.35 | O |
| 16+45 | 0.6317 | 0.59 | IO |
| 17+ 0 | 0.4018 | 0.39 | O |
| 17+15 | 0.4738 | 0.48 | O |
| 17+30 | 0.5993 | 0.61 | O |
| 17+45 | 0.6257 | 0.63 | O |
| 18+ 0 | 0.5839 | 0.58 | O |
| 18+15 | 0.5202 | 0.52 | O |
| 18+30 | 0.5070 | 0.51 | O |
| 18+45 | 0.4581 | 0.46 | O |
| 19+ 0 | 0.3476 | 0.34 | O |
| 19+15 | 0.3169 | 0.32 | O |
| 19+30 | 0.4117 | 0.42 | O |
| 19+45 | 0.4399 | 0.44 | O |
| 20+ 0 | 0.3450 | 0.34 | O |
| 20+15 | 0.3168 | 0.32 | O |
| 20+30 | 0.3652 | 0.37 | O |
| 20+45 | 0.3760 | 0.38 | O |
| 21+ 0 | 0.3318 | 0.33 | O |
| 21+15 | 0.3145 | 0.31 | O |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 21+30 | 0.3186 | 0.32 | O | | | | |
| 21+45 | 0.3121 | 0.31 | O | | | | |
| 22+ 0 | 0.3185 | 0.32 | O | | | | |
| 22+15 | 0.3121 | 0.31 | O | | | | |
| 22+30 | 0.3185 | 0.32 | O | | | | |
| 22+45 | 0.2656 | 0.26 | O | | | | |
| 23+ 0 | 0.2546 | 0.25 | O | | | | |
| 23+15 | 0.2524 | 0.25 | O | | | | |
| 23+30 | 0.2523 | 0.25 | O | | | | |
| 23+45 | 0.2523 | 0.25 | O | | | | |
| 24+ 0 | 0.2523 | 0.25 | O | | | | |
| 24+15 | 0.1592 | 0.15 | O | | | | |
| 24+30 | 0.0314 | 0.02 | O | | | | |
| 24+45 | 0.0049 | 0.00 | O | | | | |
| 25+ 0 | 0.0000 | 0.00 | O | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 100
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 24.938 (CFS)
Total volume = 7.276 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 111.000 to Point/Station 112.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

**********

********** HYDROGRAPH INFORMATION **********

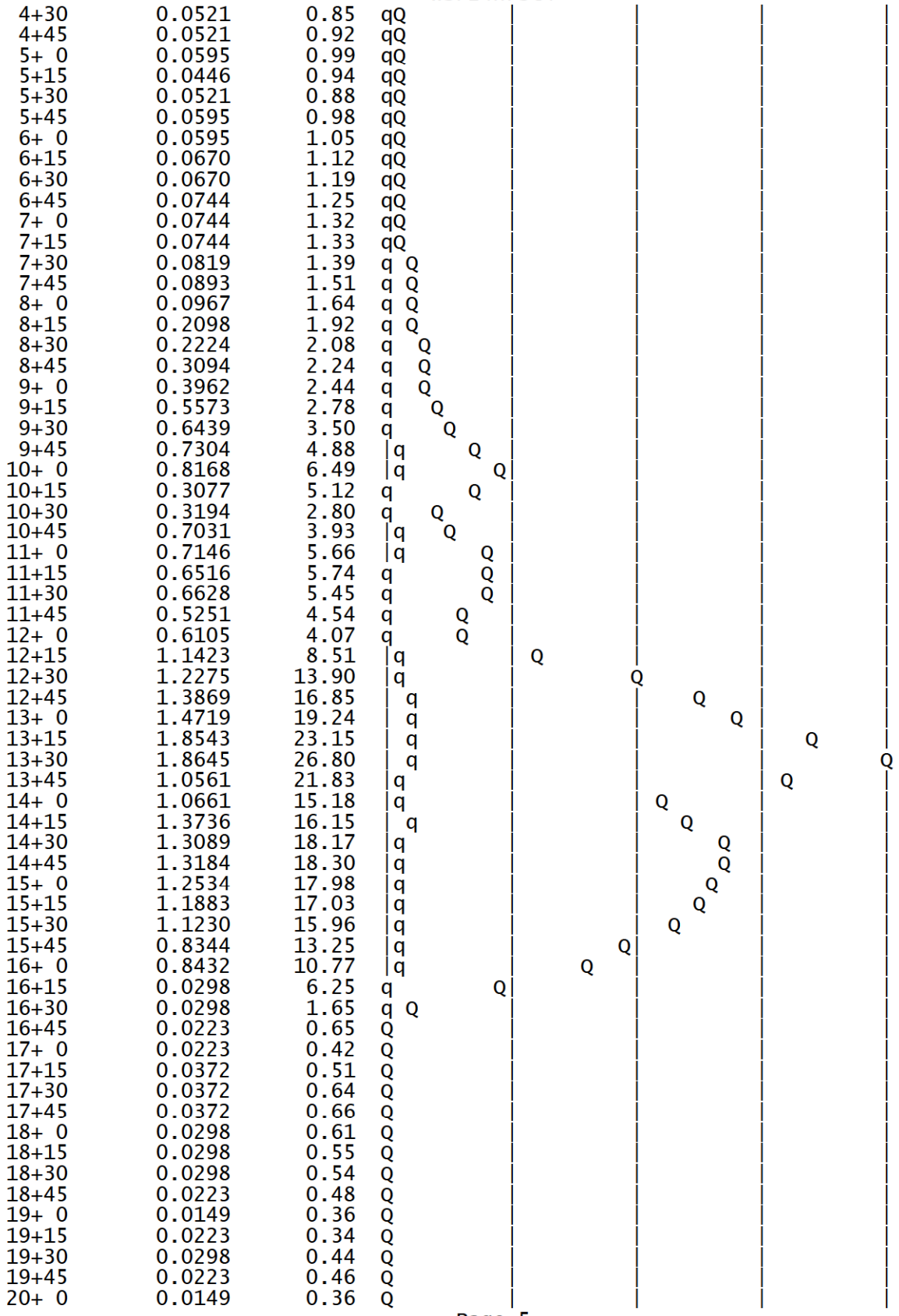
From study/file name: SubF824100.rte

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 6.7 | 13.4 | 20.1 | 26.8 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0149 | 0.11 | Q | | | | |
| 0+30 | 0.0223 | 0.29 | Q | | | | |
| 0+45 | 0.0223 | 0.38 | Q | | | | |
| 1+ 0 | 0.0298 | 0.45 | Q | | | | |
| 1+15 | 0.0223 | 0.46 | Q | | | | |
| 1+30 | 0.0223 | 0.41 | Q | | | | |
| 1+45 | 0.0223 | 0.40 | Q | | | | |
| 2+ 0 | 0.0298 | 0.45 | Q | | | | |
| 2+15 | 0.0298 | 0.52 | Q | | | | |
| 2+30 | 0.0298 | 0.53 | Q | | | | |
| 2+45 | 0.0372 | 0.59 | Q | | | | |
| 3+ 0 | 0.0372 | 0.65 | Q | | | | |
| 3+15 | 0.0372 | 0.67 | Q | | | | |
| 3+30 | 0.0372 | 0.67 | Q | | | | |
| 3+45 | 0.0372 | 0.67 | Q | | | | |
| 4+ 0 | 0.0446 | 0.72 | qQ | | | | |
| 4+15 | 0.0446 | 0.79 | qQ | | | | |



| | | | |
|---|---|---|---|
| 4+30 | 0.0521 | 0.85 | qQ |
| 4+45 | 0.0521 | 0.92 | qQ |
| 5+ 0 | 0.0595 | 0.99 | qQ |
| 5+15 | 0.0446 | 0.94 | qQ |
| 5+30 | 0.0521 | 0.88 | qQ |
| 5+45 | 0.0595 | 0.98 | qQ |
| 6+ 0 | 0.0595 | 1.05 | qQ |
| 6+15 | 0.0670 | 1.12 | qQ |
| 6+30 | 0.0670 | 1.19 | qQ |
| 6+45 | 0.0744 | 1.25 | qQ |
| 7+ 0 | 0.0744 | 1.32 | qQ |
| 7+15 | 0.0744 | 1.33 | qQ |
| 7+30 | 0.0819 | 1.39 | q Q |
| 7+45 | 0.0893 | 1.51 | q Q |
| 8+ 0 | 0.0967 | 1.64 | q Q |
| 8+15 | 0.2098 | 1.92 | q Q |
| 8+30 | 0.2224 | 2.08 | q  Q |
| 8+45 | 0.3094 | 2.24 | q  Q |
| 9+ 0 | 0.3962 | 2.44 | q  Q |
| 9+15 | 0.5573 | 2.78 | q   Q |
| 9+30 | 0.6439 | 3.50 | q    Q |
| 9+45 | 0.7304 | 4.88 | \|q      Q |
| 10+ 0 | 0.8168 | 6.49 | \|q       Q\| |
| 10+15 | 0.3077 | 5.12 | q      Q |
| 10+30 | 0.3194 | 2.80 | q   Q |
| 10+45 | 0.7031 | 3.93 | \|q   Q |
| 11+ 0 | 0.7146 | 5.66 | \|q     Q |
| 11+15 | 0.6516 | 5.74 | q      Q |
| 11+30 | 0.6628 | 5.45 | q      Q |
| 11+45 | 0.5251 | 4.54 | q     Q |
| 12+ 0 | 0.6105 | 4.07 | q     Q |
| 12+15 | 1.1423 | 8.51 | \|q        Q |
| 12+30 | 1.2275 | 13.90 | \|q          Q |
| 12+45 | 1.3869 | 16.85 | \| q          \|    Q |
| 13+ 0 | 1.4719 | 19.24 | \| q          \|       Q \| |
| 13+15 | 1.8543 | 23.15 | \| q          \|          \|   Q |
| 13+30 | 1.8645 | 26.80 | \| q          \|          \|       Q |
| 13+45 | 1.0561 | 21.83 | \|q          \|          \| Q       \| |
| 14+ 0 | 1.0661 | 15.18 | \|q          \|        Q \|       \| |
| 14+15 | 1.3736 | 16.15 | \| q          \|      Q \|       \| |
| 14+30 | 1.3089 | 18.17 | \|q          \|        Q \|       \| |
| 14+45 | 1.3184 | 18.30 | \|q          \|        Q \|       \| |
| 15+ 0 | 1.2534 | 17.98 | \|q          \|       Q \|       \| |
| 15+15 | 1.1883 | 17.03 | \|q          \|      Q \|       \| |
| 15+30 | 1.1230 | 15.96 | \|q          \|     Q \|       \| |
| 15+45 | 0.8344 | 13.25 | \|q          \|    Q \|       \| |
| 16+ 0 | 0.8432 | 10.77 | \|q          \|  Q \|       \| |
| 16+15 | 0.0298 | 6.25 | q       Q\|       \|       \| |
| 16+30 | 0.0298 | 1.65 | q Q       \|       \|       \| |
| 16+45 | 0.0223 | 0.65 | Q       \|       \|       \| |
| 17+ 0 | 0.0223 | 0.42 | Q       \|       \|       \| |
| 17+15 | 0.0372 | 0.51 | Q       \|       \|       \| |
| 17+30 | 0.0372 | 0.64 | Q       \|       \|       \| |
| 17+45 | 0.0372 | 0.66 | Q       \|       \|       \| |
| 18+ 0 | 0.0298 | 0.61 | Q       \|       \|       \| |
| 18+15 | 0.0298 | 0.55 | Q       \|       \|       \| |
| 18+30 | 0.0298 | 0.54 | Q       \|       \|       \| |
| 18+45 | 0.0223 | 0.48 | Q       \|       \|       \| |
| 19+ 0 | 0.0149 | 0.36 | Q       \|       \|       \| |
| 19+15 | 0.0223 | 0.34 | Q       \|       \|       \| |
| 19+30 | 0.0298 | 0.44 | Q       \|       \|       \| |
| 19+45 | 0.0223 | 0.46 | Q       \|       \|       \| |
| 20+ 0 | 0.0149 | 0.36 | Q       \|       \|       \| |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20+15 | 0.0223 | 0.34 | Q | \| | \| | \| | \| |
| 20+30 | 0.0223 | 0.39 | Q | \| | \| | \| | \| |
| 20+45 | 0.0223 | 0.40 | Q | \| | \| | \| | \| |
| 21+ 0 | 0.0149 | 0.35 | Q | \| | \| | \| | \| |
| 21+15 | 0.0223 | 0.34 | Q | \| | \| | \| | \| |
| 21+30 | 0.0149 | 0.33 | Q | \| | \| | \| | \| |
| 21+45 | 0.0223 | 0.33 | Q | \| | \| | \| | \| |
| 22+ 0 | 0.0149 | 0.33 | Q | \| | \| | \| | \| |
| 22+15 | 0.0223 | 0.33 | Q | \| | \| | \| | \| |
| 22+30 | 0.0149 | 0.33 | Q | \| | \| | \| | \| |
| 22+45 | 0.0149 | 0.28 | Q | \| | \| | \| | \| |
| 23+ 0 | 0.0149 | 0.27 | Q | \| | \| | \| | \| |
| 23+15 | 0.0149 | 0.27 | Q | \| | \| | \| | \| |
| 23+30 | 0.0149 | 0.27 | Q | \| | \| | \| | \| |
| 23+45 | 0.0149 | 0.27 | Q | \| | \| | \| | \| |
| 24+ 0 | 0.0149 | 0.27 | Q | \| | \| | \| | \| |
| 24+15 | 0.0000 | 0.16 | Q | \| | \| | \| | \| |
| 24+30 | 0.0000 | 0.03 | Q | \| | \| | \| | \| |
| 24+45 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 25+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |

```
----------------------------------------------------------------------
        ******************************HYDROGRAPH DATA*****************************
                    Number of intervals =   100
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =       26.803 (CFS)
                    Total volume =       7.915 (Ac.Ft)
              Status of hydrographs being held in storage
                         Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
              Peak (CFS)      0.000     0.000     0.000     0.000     0.000
              Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
        **************************************************************************

        ----------------------------------------------------------------

        ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
        Process from Point/Station      110.000 to Point/Station      112.000
        **** STORE OR DELETE CURRENT HYDROGRAPH ****
        ________________________________________________________________________
        Current stream hydrograph saved in file WSF24hrSt4.rte
        ******************************HYDROGRAPH DATA*****************************
                    Number of intervals =     0
                    Time interval =    0.0 (Min.)
                    Maximum/Peak flow rate =        0.000 (CFS)
                    Total volume =       0.000 (Ac.Ft)
              Status of hydrographs being held in storage
                         Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
              Peak (CFS)      0.000     0.000     0.000     0.000     0.000
              Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
        **************************************************************************

        ----------------------------------------------------------------
```

SubF724100

U n i t  H y d r o g r a p h  A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 04/25/12 File: Stream4/SubF724100.out

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----------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

----------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

----------------------------------------------------------------------
Watershed F, Stream 4, Subarea F7
Existing Condition
100-year, 3-hour

----------------------------------------------------------------------
Drainage Area = 69.50(Ac.) = 0.109 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 69.50(Ac.) = 0.109 Sq. Mi.
Length along longest watercourse = 3750.00(Ft.)
Length along longest watercourse measured to centroid = 1820.00(Ft.)
Length along longest watercourse = 0.710 Mi.
Length along longest watercourse measured to centroid = 0.345 Mi.
Difference in elevation = 285.00(Ft.)
Slope along watercourse = 401.2800 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.135 Hr.
Lag time = 8.10 Min.
25% of lag time = 2.03 Min.
40% of lag time = 3.24 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 69.50 | 1.80 | 125.10 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 69.50 | 4.50 | 312.75 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

SubF724100

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 4.499(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 5.300 | 46.00 | 0.000 |
| 14.300 | 66.00 | 0.000 |
| 49.900 | 83.00 | 0.000 |

Total Area Entered = 69.50(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.076 | 0.047 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.206 | 0.083 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.718 | 0.151 |
| | | | | | Sum (F) = | 0.281 |

Area averaged mean soil loss (F) (In/Hr) = 0.281
Minimum soil loss rate ((In/Hr)) = 0.140
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 185.142 | 39.169 | 27.435 |
| 2 | 0.500 | 370.284 | 51.389 | 35.994 |
| 3 | 0.750 | 555.426 | 7.965 | 5.579 |
| 4 | 1.000 | 740.569 | 1.478 | 1.035 |
| | | | Sum = 100.000 Sum= | 70.043 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.496) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.490) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.484) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.478) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.473) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.467) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.462) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.456) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.450) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.445) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.440) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.434) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.429) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.423) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.418) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.413) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.408) | 0.097 | 0.011 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 18 | 4.50 | 0.70 | 0.126 | ( 0.402) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.397) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.392) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.387) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.382) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.377) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.372) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.367) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.362) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.357) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.353) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.348) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.343) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.338) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.334) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.329) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.324) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.320) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.315) | 0.275 | 0.031 |
| 37 | 9.25 | 1.90 | 0.342 | ( 0.311) | 0.308 | 0.034 |
| 38 | 9.50 | 2.00 | 0.360 | 0.306 | ( 0.324) | 0.053 |
| 39 | 9.75 | 2.10 | 0.378 | 0.302 | ( 0.340) | 0.076 |
| 40 | 10.00 | 2.20 | 0.396 | 0.298 | ( 0.356) | 0.098 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.293) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.289) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.285 | ( 0.324) | 0.075 |
| 44 | 11.00 | 2.00 | 0.360 | 0.281 | ( 0.324) | 0.079 |
| 45 | 11.25 | 1.90 | 0.342 | 0.277 | ( 0.308) | 0.065 |
| 46 | 11.50 | 1.90 | 0.342 | 0.273 | ( 0.308) | 0.069 |
| 47 | 11.75 | 1.70 | 0.306 | 0.269 | ( 0.275) | 0.037 |
| 48 | 12.00 | 1.80 | 0.324 | 0.265 | ( 0.292) | 0.059 |
| 49 | 12.25 | 2.50 | 0.450 | 0.261 | ( 0.405) | 0.189 |
| 50 | 12.50 | 2.60 | 0.468 | 0.257 | ( 0.421) | 0.211 |
| 51 | 12.75 | 2.80 | 0.504 | 0.253 | ( 0.454) | 0.251 |
| 52 | 13.00 | 2.90 | 0.522 | 0.249 | ( 0.470) | 0.273 |
| 53 | 13.25 | 3.40 | 0.612 | 0.245 | ( 0.551) | 0.367 |
| 54 | 13.50 | 3.40 | 0.612 | 0.242 | ( 0.551) | 0.370 |
| 55 | 13.75 | 2.30 | 0.414 | 0.238 | ( 0.373) | 0.176 |
| 56 | 14.00 | 2.30 | 0.414 | 0.234 | ( 0.373) | 0.180 |
| 57 | 14.25 | 2.70 | 0.486 | 0.231 | ( 0.437) | 0.255 |
| 58 | 14.50 | 2.60 | 0.468 | 0.227 | ( 0.421) | 0.241 |
| 59 | 14.75 | 2.60 | 0.468 | 0.224 | ( 0.421) | 0.244 |
| 60 | 15.00 | 2.50 | 0.450 | 0.220 | ( 0.405) | 0.230 |
| 61 | 15.25 | 2.40 | 0.432 | 0.217 | ( 0.389) | 0.215 |
| 62 | 15.50 | 2.30 | 0.414 | 0.214 | ( 0.373) | 0.200 |
| 63 | 15.75 | 1.90 | 0.342 | 0.210 | ( 0.308) | 0.132 |
| 64 | 16.00 | 1.90 | 0.342 | 0.207 | ( 0.308) | 0.135 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.204) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.201) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.198) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.195) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.192) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.189) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.186) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.183) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.181) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.178) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.176) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.173) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.171) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.168) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.166) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.164) | 0.032 | 0.004 |

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|---|---|---|---|---|---|---|
| 81 | 20.25 | 0.30 | 0.054 | ( 0.162) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.159) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.157) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.156) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.154) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.152) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.150) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.149) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.147) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.146) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.145) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.143) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.142) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.142) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.141) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.140) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.0

Flood volume = Effective rainfall 1.26(In)
times area 69.5(Ac.)/[(In)/(Ft.)] = 7.3(Ac.Ft)
Total soil loss = 3.24(In)
Total soil loss = 18.783(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 316923.9 Cubic Feet
Total soil loss = 818204.5 Cubic Feet

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Peak flow rate of this hydrograph = 25.151(CFS)

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

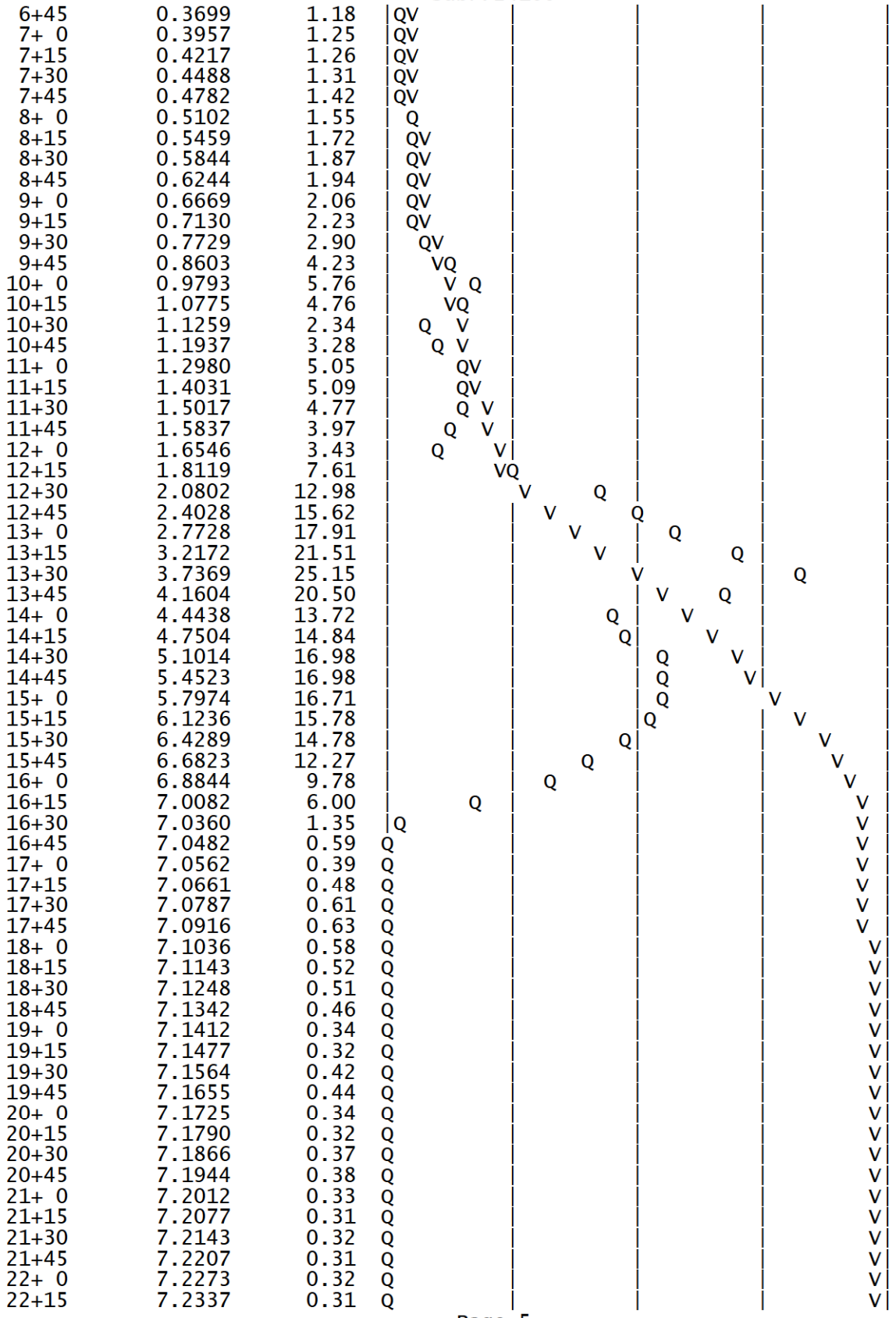
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

---

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 7.5 | 15.0 | 22.5 | 30.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0020 | 0.10 | Q | | | | |
| 0+30 | 0.0078 | 0.28 | Q | | | | |
| 0+45 | 0.0153 | 0.36 | Q | | | | |
| 1+ 0 | 0.0241 | 0.43 | Q | | | | |
| 1+15 | 0.0332 | 0.44 | Q | | | | |
| 1+30 | 0.0413 | 0.39 | Q | | | | |
| 1+45 | 0.0491 | 0.38 | Q | | | | |
| 2+ 0 | 0.0580 | 0.43 | Q | | | | |
| 2+15 | 0.0681 | 0.49 | Q | | | | |
| 2+30 | 0.0785 | 0.50 | Q | | | | |
| 2+45 | 0.0900 | 0.55 | Q | | | | |
| 3+ 0 | 0.1027 | 0.62 | Q | | | | |
| 3+15 | 0.1157 | 0.63 | Q | | | | |
| 3+30 | 0.1288 | 0.63 | Q | | | | |
| 3+45 | 0.1418 | 0.63 | Q | | | | |
| 4+ 0 | 0.1558 | 0.68 | Q | | | | |
| 4+15 | 0.1712 | 0.74 | Q | | | | |
| 4+30 | 0.1879 | 0.80 | Q | | | | |
| 4+45 | 0.2058 | 0.87 | \|Q | | | | |
| 5+ 0 | 0.2251 | 0.93 | \|Q | | | | |
| 5+15 | 0.2436 | 0.90 | \|Q | | | | |
| 5+30 | 0.2607 | 0.83 | \|Q | | | | |
| 5+45 | 0.2798 | 0.92 | \|Q | | | | |
| 6+ 0 | 0.3004 | 1.00 | \|Q | | | | |
| 6+15 | 0.3222 | 1.06 | \|Q | | | | |
| 6+30 | 0.3454 | 1.12 | \|Q | | | | |



| | | | |
|---|---|---|---|
| 6+45 | 0.3699 | 1.18 | QV |
| 7+ 0 | 0.3957 | 1.25 | QV |
| 7+15 | 0.4217 | 1.26 | QV |
| 7+30 | 0.4488 | 1.31 | QV |
| 7+45 | 0.4782 | 1.42 | QV |
| 8+ 0 | 0.5102 | 1.55 | Q |
| 8+15 | 0.5459 | 1.72 | QV |
| 8+30 | 0.5844 | 1.87 | QV |
| 8+45 | 0.6244 | 1.94 | QV |
| 9+ 0 | 0.6669 | 2.06 | QV |
| 9+15 | 0.7130 | 2.23 | QV |
| 9+30 | 0.7729 | 2.90 | QV |
| 9+45 | 0.8603 | 4.23 | VQ |
| 10+ 0 | 0.9793 | 5.76 | V Q |
| 10+15 | 1.0775 | 4.76 | VQ |
| 10+30 | 1.1259 | 2.34 | Q V |
| 10+45 | 1.1937 | 3.28 | Q V |
| 11+ 0 | 1.2980 | 5.05 | QV |
| 11+15 | 1.4031 | 5.09 | QV |
| 11+30 | 1.5017 | 4.77 | Q V |
| 11+45 | 1.5837 | 3.97 | Q V |
| 12+ 0 | 1.6546 | 3.43 | Q V |
| 12+15 | 1.8119 | 7.61 | VQ |
| 12+30 | 2.0802 | 12.98 | V Q |
| 12+45 | 2.4028 | 15.62 | V Q |
| 13+ 0 | 2.7728 | 17.91 | V Q |
| 13+15 | 3.2172 | 21.51 | V Q |
| 13+30 | 3.7369 | 25.15 | V Q |
| 13+45 | 4.1604 | 20.50 | V Q |
| 14+ 0 | 4.4438 | 13.72 | Q V |
| 14+15 | 4.7504 | 14.84 | Q V |
| 14+30 | 5.1014 | 16.98 | Q V |
| 14+45 | 5.4523 | 16.98 | Q V |
| 15+ 0 | 5.7974 | 16.71 | Q V |
| 15+15 | 6.1236 | 15.78 | Q V |
| 15+30 | 6.4289 | 14.78 | Q V |
| 15+45 | 6.6823 | 12.27 | Q V |
| 16+ 0 | 6.8844 | 9.78 | Q V |
| 16+15 | 7.0082 | 6.00 | Q V |
| 16+30 | 7.0360 | 1.35 | Q V |
| 16+45 | 7.0482 | 0.59 | Q V |
| 17+ 0 | 7.0562 | 0.39 | Q V |
| 17+15 | 7.0661 | 0.48 | Q V |
| 17+30 | 7.0787 | 0.61 | Q V |
| 17+45 | 7.0916 | 0.63 | Q V |
| 18+ 0 | 7.1036 | 0.58 | Q V |
| 18+15 | 7.1143 | 0.52 | Q V |
| 18+30 | 7.1248 | 0.51 | Q V |
| 18+45 | 7.1342 | 0.46 | Q V |
| 19+ 0 | 7.1412 | 0.34 | Q V |
| 19+15 | 7.1477 | 0.32 | Q V |
| 19+30 | 7.1564 | 0.42 | Q V |
| 19+45 | 7.1655 | 0.44 | Q V |
| 20+ 0 | 7.1725 | 0.34 | Q V |
| 20+15 | 7.1790 | 0.32 | Q V |
| 20+30 | 7.1866 | 0.37 | Q V |
| 20+45 | 7.1944 | 0.38 | Q V |
| 21+ 0 | 7.2012 | 0.33 | Q V |
| 21+15 | 7.2077 | 0.31 | Q V |
| 21+30 | 7.2143 | 0.32 | Q V |
| 21+45 | 7.2207 | 0.31 | Q V |
| 22+ 0 | 7.2273 | 0.32 | Q V |
| 22+15 | 7.2337 | 0.31 | Q V |

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|---|---|---|---|---|---|---|---|
| 22+30 | 7.2403 | 0.32 | Q | \| | \| | \| | V\| |
| 22+45 | 7.2457 | 0.26 | Q | \| | \| | \| | V\| |
| 23+ 0 | 7.2510 | 0.25 | Q | \| | \| | \| | V\| |
| 23+15 | 7.2562 | 0.25 | Q | \| | \| | \| | V\| |
| 23+30 | 7.2614 | 0.25 | Q | \| | \| | \| | V\| |
| 23+45 | 7.2666 | 0.25 | Q | \| | \| | \| | V\| |
| 24+ 0 | 7.2718 | 0.25 | Q | \| | \| | \| | V\| |
| 24+15 | 7.2750 | 0.15 | Q | \| | \| | \| | V\| |
| 24+30 | 7.2755 | 0.02 | Q | \| | \| | \| | V\| |
| 24+45 | 7.2756 | 0.00 | Q | \| | \| | \| | V\| |

SubF824100

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 04/25/12 File: Stream4/SubF824100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

----------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

----------------------------------------------------------------------
Watershed F, Stream 4, Subarea F8
Existing Condition
100-year, 24-hour

----------------------------------------------------------------------
Drainage Area = 4.10(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.10(Ac.) = 0.006 Sq. Mi.
Length along longest watercourse = 350.00(Ft.)
Length along longest watercourse measured to centroid = 200.00(Ft.)
Length along longest watercourse = 0.066 Mi.
Length along longest watercourse measured to centroid = 0.038 Mi.
Difference in elevation = 11.00(Ft.)
Slope along watercourse = 165.9429 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.028 Hr.
Lag time = 1.68 Min.
25% of lag time = 0.42 Min.
40% of lag time = 0.67 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 4.10 | 1.80 | 7.38 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 4.10 | 4.50 | 18.45 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

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Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 4.100 | 85.00 | 0.000 |

Total Area Entered = 4.10(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 1.000 | 0.187 |
| | | | | | Sum (F) = | 0.187 |

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.094
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
VALLEY S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 892.204 | 100.000 | 4.132 |
| | | | Sum = 100.000 Sum= | 4.132 |

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The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.330) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.326) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.323) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.319) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.315) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.311) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.308) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.304) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.300) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.297) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.293) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.289) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.286) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.282) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.279) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.275) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.272) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.268) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.265) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.261) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.258) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.255) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.251) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.248) | 0.130 | 0.014 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 25 | 6.25 | 0.90 | 0.162 | ( | 0.245) | 0.146 | | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( | 0.241) | 0.146 | | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( | 0.238) | 0.162 | | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( | 0.235) | 0.162 | | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( | 0.232) | 0.162 | | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( | 0.229) | 0.178 | | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( | 0.225) | 0.194 | | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( | 0.222) | 0.211 | | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | | 0.219 | ( 0.243) | | 0.051 |
| 34 | 8.50 | 1.50 | 0.270 | | 0.216 | ( 0.243) | | 0.054 |
| 35 | 8.75 | 1.60 | 0.288 | | 0.213 | ( 0.259) | | 0.075 |
| 36 | 9.00 | 1.70 | 0.306 | | 0.210 | ( 0.275) | | 0.096 |
| 37 | 9.25 | 1.90 | 0.342 | | 0.207 | ( 0.308) | | 0.135 |
| 38 | 9.50 | 2.00 | 0.360 | | 0.204 | ( 0.324) | | 0.156 |
| 39 | 9.75 | 2.10 | 0.378 | | 0.201 | ( 0.340) | | 0.177 |
| 40 | 10.00 | 2.20 | 0.396 | | 0.198 | ( 0.356) | | 0.198 |
| 41 | 10.25 | 1.50 | 0.270 | | 0.196 | ( 0.243) | | 0.074 |
| 42 | 10.50 | 1.50 | 0.270 | | 0.193 | ( 0.243) | | 0.077 |
| 43 | 10.75 | 2.00 | 0.360 | | 0.190 | ( 0.324) | | 0.170 |
| 44 | 11.00 | 2.00 | 0.360 | | 0.187 | ( 0.324) | | 0.173 |
| 45 | 11.25 | 1.90 | 0.342 | | 0.184 | ( 0.308) | | 0.158 |
| 46 | 11.50 | 1.90 | 0.342 | | 0.182 | ( 0.308) | | 0.160 |
| 47 | 11.75 | 1.70 | 0.306 | | 0.179 | ( 0.275) | | 0.127 |
| 48 | 12.00 | 1.80 | 0.324 | | 0.176 | ( 0.292) | | 0.148 |
| 49 | 12.25 | 2.50 | 0.450 | | 0.174 | ( 0.405) | | 0.276 |
| 50 | 12.50 | 2.60 | 0.468 | | 0.171 | ( 0.421) | | 0.297 |
| 51 | 12.75 | 2.80 | 0.504 | | 0.169 | ( 0.454) | | 0.335 |
| 52 | 13.00 | 2.90 | 0.522 | | 0.166 | ( 0.470) | | 0.356 |
| 53 | 13.25 | 3.40 | 0.612 | | 0.163 | ( 0.551) | | 0.449 |
| 54 | 13.50 | 3.40 | 0.612 | | 0.161 | ( 0.551) | | 0.451 |
| 55 | 13.75 | 2.30 | 0.414 | | 0.159 | ( 0.373) | | 0.255 |
| 56 | 14.00 | 2.30 | 0.414 | | 0.156 | ( 0.373) | | 0.258 |
| 57 | 14.25 | 2.70 | 0.486 | | 0.154 | ( 0.437) | | 0.332 |
| 58 | 14.50 | 2.60 | 0.468 | | 0.151 | ( 0.421) | | 0.317 |
| 59 | 14.75 | 2.60 | 0.468 | | 0.149 | ( 0.421) | | 0.319 |
| 60 | 15.00 | 2.50 | 0.450 | | 0.147 | ( 0.405) | | 0.303 |
| 61 | 15.25 | 2.40 | 0.432 | | 0.145 | ( 0.389) | | 0.287 |
| 62 | 15.50 | 2.30 | 0.414 | | 0.142 | ( 0.373) | | 0.272 |
| 63 | 15.75 | 1.90 | 0.342 | | 0.140 | ( 0.308) | | 0.202 |
| 64 | 16.00 | 1.90 | 0.342 | | 0.138 | ( 0.308) | | 0.204 |
| 65 | 16.25 | 0.40 | 0.072 | ( | 0.136) | 0.065 | | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( | 0.134) | 0.065 | | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( | 0.132) | 0.049 | | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( | 0.130) | 0.049 | | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( | 0.128) | 0.081 | | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( | 0.126) | 0.081 | | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( | 0.124) | 0.081 | | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( | 0.122) | 0.065 | | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( | 0.120) | 0.065 | | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( | 0.119) | 0.065 | | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( | 0.117) | 0.049 | | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( | 0.115) | 0.032 | | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( | 0.114) | 0.049 | | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( | 0.112) | 0.065 | | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( | 0.111) | 0.049 | | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( | 0.109) | 0.032 | | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( | 0.108) | 0.049 | | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( | 0.106) | 0.049 | | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( | 0.105) | 0.049 | | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( | 0.104) | 0.032 | | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( | 0.102) | 0.049 | | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( | 0.101) | 0.032 | | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( | 0.100) | 0.049 | | 0.005 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| 88 | 22.00 | 0.20 | 0.036 | ( 0.099) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.098) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.097) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.095) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 7.5

Flood volume = Effective rainfall 1.87(In)
times area 4.1(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft)
Total soil loss = 2.63(In)
Total soil loss = 0.898(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 27840.4 Cubic Feet
Total soil loss = 39132.6 Cubic Feet

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Peak flow rate of this hydrograph = 1.865(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 2.5 | 5.0 | 7.5 | 10.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0003 | 0.01 | Q | | | | |
| 0+30 | 0.0008 | 0.02 | Q | | | | |
| 0+45 | 0.0012 | 0.02 | Q | | | | |
| 1+ 0 | 0.0018 | 0.03 | Q | | | | |
| 1+15 | 0.0023 | 0.02 | Q | | | | |
| 1+30 | 0.0028 | 0.02 | Q | | | | |
| 1+45 | 0.0032 | 0.02 | Q | | | | |
| 2+ 0 | 0.0038 | 0.03 | Q | | | | |
| 2+15 | 0.0045 | 0.03 | Q | | | | |
| 2+30 | 0.0051 | 0.03 | Q | | | | |
| 2+45 | 0.0058 | 0.04 | Q | | | | |
| 3+ 0 | 0.0066 | 0.04 | Q | | | | |
| 3+15 | 0.0074 | 0.04 | Q | | | | |
| 3+30 | 0.0081 | 0.04 | Q | | | | |
| 3+45 | 0.0089 | 0.04 | Q | | | | |
| 4+ 0 | 0.0098 | 0.04 | Q | | | | |
| 4+15 | 0.0108 | 0.04 | Q | | | | |
| 4+30 | 0.0118 | 0.05 | Q | | | | |
| 4+45 | 0.0129 | 0.05 | Q | | | | |
| 5+ 0 | 0.0141 | 0.06 | Q | | | | |
| 5+15 | 0.0151 | 0.04 | Q | | | | |
| 5+30 | 0.0161 | 0.05 | QV | | | | |
| 5+45 | 0.0174 | 0.06 | QV | | | | |
| 6+ 0 | 0.0186 | 0.06 | QV | | | | |
| 6+15 | 0.0200 | 0.07 | QV | | | | |
| 6+30 | 0.0214 | 0.07 | QV | | | | |
| 6+45 | 0.0229 | 0.07 | QV | | | | |
| 7+ 0 | 0.0244 | 0.07 | QV | | | | |
| 7+15 | 0.0260 | 0.07 | QV | | | | |
| 7+30 | 0.0277 | 0.08 | QV | | | | |
| 7+45 | 0.0295 | 0.09 | QV | | | | |
| 8+ 0 | 0.0315 | 0.10 | QV | | | | |
| 8+15 | 0.0359 | 0.21 | Q V | | | | |

| | | | |
|---|---|---|---|
| 8+30 | 0.0404 | 0.22 | Q V |
| 8+45 | 0.0468 | 0.31 | QV |
| 9+ 0 | 0.0550 | 0.40 | Q V |
| 9+15 | 0.0665 | 0.56 | Q V |
| 9+30 | 0.0798 | 0.64 | Q V |
| 9+45 | 0.0949 | 0.73 | Q V |
| 10+ 0 | 0.1118 | 0.82 | Q V |
| 10+15 | 0.1182 | 0.31 | Q V |
| 10+30 | 0.1248 | 0.32 | Q V |
| 10+45 | 0.1393 | 0.70 | Q V |
| 11+ 0 | 0.1541 | 0.71 | Q V |
| 11+15 | 0.1675 | 0.65 | Q V |
| 11+30 | 0.1812 | 0.66 | Q V |
| 11+45 | 0.1921 | 0.53 | Q V |
| 12+ 0 | 0.2047 | 0.61 | Q V |
| 12+15 | 0.2283 | 1.14 | Q V |
| 12+30 | 0.2536 | 1.23 | Q V |
| 12+45 | 0.2823 | 1.39 | Q V |
| 13+ 0 | 0.3127 | 1.47 | Q V |
| 13+15 | 0.3510 | 1.85 | Q V |
| 13+30 | 0.3895 | 1.86 | Q V |
| 13+45 | 0.4114 | 1.06 | Q V |
| 14+ 0 | 0.4334 | 1.07 | Q V |
| 14+15 | 0.4618 | 1.37 | Q V |
| 14+30 | 0.4888 | 1.31 | Q V |
| 14+45 | 0.5161 | 1.32 | Q V |
| 15+ 0 | 0.5420 | 1.25 | Q V |
| 15+15 | 0.5665 | 1.19 | Q V |
| 15+30 | 0.5897 | 1.12 | Q V |
| 15+45 | 0.6069 | 0.83 | Q V |
| 16+ 0 | 0.6244 | 0.84 | Q V |
| 16+15 | 0.6250 | 0.03 | Q V |
| 16+30 | 0.6256 | 0.03 | Q V |
| 16+45 | 0.6261 | 0.02 | Q V |
| 17+ 0 | 0.6265 | 0.02 | Q V |
| 17+15 | 0.6273 | 0.04 | Q V |
| 17+30 | 0.6281 | 0.04 | Q V |
| 17+45 | 0.6288 | 0.04 | Q V |
| 18+ 0 | 0.6294 | 0.03 | Q V |
| 18+15 | 0.6301 | 0.03 | Q V |
| 18+30 | 0.6307 | 0.03 | Q V |
| 18+45 | 0.6311 | 0.02 | Q V |
| 19+ 0 | 0.6314 | 0.01 | Q V |
| 19+15 | 0.6319 | 0.02 | Q V |
| 19+30 | 0.6325 | 0.03 | Q V |
| 19+45 | 0.6330 | 0.02 | Q V |
| 20+ 0 | 0.6333 | 0.01 | Q V |
| 20+15 | 0.6337 | 0.02 | Q V |
| 20+30 | 0.6342 | 0.02 | Q V |
| 20+45 | 0.6347 | 0.02 | Q V |
| 21+ 0 | 0.6350 | 0.01 | Q V |
| 21+15 | 0.6354 | 0.02 | Q V |
| 21+30 | 0.6357 | 0.01 | Q V |
| 21+45 | 0.6362 | 0.02 | Q V |
| 22+ 0 | 0.6365 | 0.01 | Q V |
| 22+15 | 0.6370 | 0.02 | Q V |
| 22+30 | 0.6373 | 0.01 | Q V |
| 22+45 | 0.6376 | 0.01 | Q V |
| 23+ 0 | 0.6379 | 0.01 | Q V |
| 23+15 | 0.6382 | 0.01 | Q V |
| 23+30 | 0.6385 | 0.01 | Q V |
| 23+45 | 0.6388 | 0.01 | Q V |
| 24+ 0 | 0.6391 | 0.01 | Q V |

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
Study date: 09/16/13

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Line A, Routed
Proposed Condition
100yr, 3hr

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Program License Serial Number 6097

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********** HYDROGRAPH INFORMATION **********

From study/file name: AoffsiteRT.rte
**********HYDROGRAPH DATA**********
Number of intervals = 111
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1792.150 (CFS)
Total volume = 205.149 (Ac.Ft)
Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 1.000 to Point/Station 2.000
**** STREAM ROUTING SCS CONVEX METHOD ****
---
HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 2549.66 (Ft.)
Elevation difference = 37.90 (Ft.)
Slope of channel = 0.014865 (Vert/Horiz)
Channel type - Improved Channel

Channel length = 2549.66(Ft.) Elevation difference = 37.90(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width = 12.000(Ft.)
Slope or 'Z' of left channel bank = 0.000
Slope or 'Z' of right channel bank = 0.000
Manning's 'N' = 0.015
Maximum depth of channel = 9.000(Ft.)
Flow(q) thru subarea = 732.800(CFS)
Depth of flow = 3.127(Ft.)
Average velocity = 19.528(Ft/s)
Total flow rate = 732.800(CFS)
Channel flow top width = 12.000(Ft.)
Depth of flow in channel = 3.13(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 19.53(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 732.800(CFS)
Total capacity of improved channels = 732.800(CFS)
Critical Depth in Channel = 4.88(Ft.)

Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea = 1792.150(CFS)
Depth of flow = 5.958(Ft.)
Average velocity = 25.065(Ft/s)
Total flow rate = 1792.150(CFS)



Channel flow top width = 12.000(Ft.)
Depth of flow in channel = 5.96(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 25.07(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 1792.150(CFS)
Total capacity of improved channels = 1792.150(CFS)
Critical Depth in Channel = 8.88(Ft.)

********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.9365 Travel time = 1.70 (min.)
dt*(unit time interval) = 15.00(min.), e= 6.6319
dt(routing time-step) = 1.59 (min.), c* = 1.0000

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y c r o g r a p h
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Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 448.0 | 896.1 | 1344.1 | 1792.1 |
|---|---|---|---|---|---|---|---|
| 0+15 | 52.3434 | 58.54 | IO | | | | |
| 0+30 | 176.9987 | 191.02 | I OI | | | | |
| 0+45 | 284.6885 | 295.78 | I O | | | | |
| 1+ 0 | 324.4688 | 327.87 | I O | | | | |
| 1+15 | 397.4529 | 405.69 | I OI | | | | |
| 1+30 | 534.0340 | 549.23 | I OI | | | | |
| 1+45 | 660.2115 | 673.35 | I OI | | | | |
| 2+ 0 | 778.5045 | 790.95 | I O | | | | |
| 2+15 | 981.5081 | 1004.06 | I OI | | | | |
| 2+30 | 1425.5634 | 1475.46 | I OI | | | | |
| 2+45 | 1758.6300 | 1792.15 | I OI | | | | |
| 3+ 0 | 1289.0598 | 1229.51 | I O | | | | |
| 3+15 | 479.8626 | 391.13 | I O | | | | |
| 3+30 | 144.6220 | 115.44 | I O | | | | |
| 3+45 | 66.4901 | 60.70 | IO | | | | |
| 4+ 0 | 53.5109 | 52.66 | IO | | | | |
| 4+15 | 50.5298 | 50.28 | IO | | | | |
| 4+30 | 47.4396 | 47.10 | IO | | | | |
| 4+45 | 44.2995 | 43.97 | O | | | | |
| 5+ 0 | 41.3501 | 41.04 | O | | | | |
| 5+15 | 37.5760 | 37.17 | O | | | | |
| 5+30 | 33.4602 | 33.02 | O | | | | |
| 5+45 | 29.7291 | 29.34 | O | | | | |
| 6+ 0 | 26.4140 | 26.07 | O | | | | |
| 6+15 | 23.4685 | 23.16 | O | | | | |
| 6+30 | 20.8516 | 20.58 | O | | | | |
| 6+45 | 18.5264 | 18.28 | O | | | | |
| 7+ 0 | 16.4605 | 16.24 | O | | | | |
| 7+15 | 14.6250 | 14.43 | O | | | | |
| 7+30 | 12.9942 | 12.82 | O | | | | |
| 7+45 | 11.5452 | 11.39 | O | | | | |
| 8+ 0 | 10.2578 | 10.12 | O | | | | |
| 8+15 | 9.1139 | 8.99 | O | | | | |
| 8+30 | 8.0976 | 7.99 | O | | | | |
| 8+45 | 7.1947 | 7.10 | O | | | | |
| 9+ 0 | 6.3924 | 6.31 | O | | | | |
| 9+15 | 5.6796 | 5.61 | O | | | | |
| 9+30 | 5.0462 | 4.98 | O | | | | |
| 9+45 | 4.4835 | 4.42 | O | | | | |
| 10+ 0 | 3.9836 | 3.93 | O | | | | |
| 10+15 | 3.5394 | 3.49 | O | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10+30 | 3.1447 | 3.10 | O | \| | \| | \| | \| |
| 10+45 | 2.7940 | 2.76 | O | \| | \| | \| | \| |
| 11+ 0 | 2.4825 | 2.45 | O | \| | \| | \| | \| |
| 11+15 | 2.2056 | 2.18 | O | \| | \| | \| | \| |
| 11+30 | 1.9597 | 1.93 | O | \| | \| | \| | \| |
| 11+45 | 1.7412 | 1.72 | O | \| | \| | \| | \| |
| 12+ 0 | 1.5470 | 1.53 | O | \| | \| | \| | \| |
| 12+15 | 1.3745 | 1.36 | O | \| | \| | \| | \| |
| 12+30 | 1.2212 | 1.21 | O | \| | \| | \| | \| |
| 12+45 | 1.0851 | 1.07 | O | \| | \| | \| | \| |
| 13+ 0 | 0.9641 | 0.95 | O | \| | \| | \| | \| |
| 13+15 | 0.8566 | 0.85 | O | \| | \| | \| | \| |
| 13+30 | 0.7610 | 0.75 | O | \| | \| | \| | \| |
| 13+45 | 0.6762 | 0.67 | O | \| | \| | \| | \| |
| 14+ 0 | 0.6008 | 0.59 | O | \| | \| | \| | \| |
| 14+15 | 0.5338 | 0.53 | O | \| | \| | \| | \| |
| 14+30 | 0.4743 | 0.47 | O | \| | \| | \| | \| |
| 14+45 | 0.4214 | 0.42 | O | \| | \| | \| | \| |
| 15+ 0 | 0.3744 | 0.37 | O | \| | \| | \| | \| |
| 15+15 | 0.3326 | 0.33 | O | \| | \| | \| | \| |
| 15+30 | 0.2955 | 0.29 | O | \| | \| | \| | \| |
| 15+45 | 0.2626 | 0.26 | O | \| | \| | \| | \| |
| 16+ 0 | 0.2333 | 0.23 | O | \| | \| | \| | \| |
| 16+15 | 0.2073 | 0.20 | O | \| | \| | \| | \| |
| 16+30 | 0.1842 | 0.18 | O | \| | \| | \| | \| |
| 16+45 | 0.1636 | 0.16 | O | \| | \| | \| | \| |
| 17+ 0 | 0.1454 | 0.14 | O | \| | \| | \| | \| |
| 17+15 | 0.1292 | 0.13 | O | \| | \| | \| | \| |
| 17+30 | 0.1148 | 0.11 | O | \| | \| | \| | \| |
| 17+45 | 0.1020 | 0.10 | O | \| | \| | \| | \| |
| 18+ 0 | 0.0906 | 0.09 | O | \| | \| | \| | \| |
| 18+15 | 0.0805 | 0.08 | O | \| | \| | \| | \| |
| 18+30 | 0.0715 | 0.07 | O | \| | \| | \| | \| |
| 18+45 | 0.0635 | 0.06 | O | \| | \| | \| | \| |
| 19+ 0 | 0.0565 | 0.06 | O | \| | \| | \| | \| |
| 19+15 | 0.0502 | 0.05 | O | \| | \| | \| | \| |
| 19+30 | 0.0446 | 0.04 | O | \| | \| | \| | \| |
| 19+45 | 0.0396 | 0.04 | O | \| | \| | \| | \| |
| 20+ 0 | 0.0352 | 0.03 | O | \| | \| | \| | \| |
| 20+15 | 0.0313 | 0.03 | O | \| | \| | \| | \| |
| 20+30 | 0.0278 | 0.03 | O | \| | \| | \| | \| |
| 20+45 | 0.0247 | 0.02 | O | \| | \| | \| | \| |
| 21+ 0 | 0.0219 | 0.02 | O | \| | \| | \| | \| |
| 21+15 | 0.0195 | 0.02 | O | \| | \| | \| | \| |
| 21+30 | 0.0173 | 0.02 | O | \| | \| | \| | \| |
| 21+45 | 0.0154 | 0.02 | O | \| | \| | \| | \| |
| 22+ 0 | 0.0137 | 0.01 | O | \| | \| | \| | \| |
| 22+15 | 0.0121 | 0.01 | O | \| | \| | \| | \| |
| 22+30 | 0.0108 | 0.01 | O | \| | \| | \| | \| |
| 22+45 | 0.0096 | 0.01 | O | \| | \| | \| | \| |
| 23+ 0 | 0.0085 | 0.01 | O | \| | \| | \| | \| |
| 23+15 | 0.0076 | 0.01 | O | \| | \| | \| | \| |
| 23+30 | 0.0067 | 0.01 | O | \| | \| | \| | \| |
| 23+45 | 0.0060 | 0.01 | O | \| | \| | \| | \| |
| 24+ 0 | 0.0053 | 0.01 | O | \| | \| | \| | \| |
| 24+15 | 0.0047 | 0.00 | O | \| | \| | \| | \| |
| 24+30 | 0.0042 | 0.00 | O | \| | \| | \| | \| |
| 24+45 | 0.0037 | 0.00 | O | \| | \| | \| | \| |
| 25+ 0 | 0.0033 | 0.00 | O | \| | \| | \| | \| |
| 25+15 | 0.0029 | 0.00 | O | \| | \| | \| | \| |
| 25+30 | 0.0026 | 0.00 | O | \| | \| | \| | \| |
| 25+45 | 0.0023 | 0.00 | O | \| | \| | \| | \| |
| 26+ 0 | 0.0021 | 0.00 | O | \| | \| | \| | \| |
| 26+15 | 0.0018 | 0.00 | O | \| | \| | \| | \| |
| 26+30 | 0.0016 | 0.00 | O | \| | \| | \| | \| |
| 26+45 | 0.0014 | 0.00 | O | \| | \| | \| | \| |
| 27+ 0 | 0.0013 | 0.00 | O | \| | \| | \| | \| |
| 27+15 | 0.0011 | 0.00 | O | \| | \| | \| | \| |
| 27+30 | 0.0010 | 0.00 | O | \| | \| | \| | \| |
| 27+45 | 0.0010 | 0.00 | O | \| | \| | \| | \| |
| 28+ 0 | 0.0000 | 0.00 | O | \| | \| | \| | \| |



**********HYDROGRAPH DATA**********

Number of intervals = 112
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1758.630 (CFS)
Total volume = 205.149 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 2.000 to Point/Station 2.000

**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: SUBA13100.rte

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P R I N T O F S T O R M

R u n o f f H y c r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

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| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 503.1 | 1006.1 | 1509.2 | 2012.2 |
|---|---|---|---|---|---|---|---|
| 0+15 | 28.4799 | 80.82 | qQ | \| | \| | \| | \| |
| 0+30 | 55.6888 | 232.69 | \|q Q | \| | \| | \| | \| |
| 0+45 | 66.9493 | 351.64 | \|q Q | \| | \| | \| | \| |
| 1+ 0 | 67.4752 | 391.94 | \|q Q | \| | \| | \| | \| |
| 1+15 | 83.2575 | 480.71 | \|q Q\| | \| | \| | \| | \| |
| 1+30 | 99.6066 | 633.64 | \|q \| Q | \| | \| | \| | \| |
| 1+45 | 115.5968 | 775.81 | \| q \| Q | \| | \| | \| | \| |
| 2+ 0 | 128.2180 | 906.72 | \| q \| Q | \| | \| | \| | \| |
| 2+15 | 164.8184 | 1146.33 | \| q \| Q | \| | \| | \| | \| |
| 2+30 | 235.9779 | 1661.54 | \| q \| Q | \| | \| | \| Q | \| |
| 2+45 | 253.6092 | 2012.24 | \| q \| Q | \| | \| | \| Q | \| |
| 3+ 0 | 132.0616 | 1421.12 | \| q \| Q | \| | \| | Q \| | \| |
| 3+15 | 30.2641 | 510.13 | q \| Q | \| | \| | \| | \| |
| 3+30 | 2.4510 | 147.07 | q Q | \| | \| | \| | \| |
| 3+45 | 0.0000 | 66.49 | qQ | \| | \| | \| | \| |
| 4+ 0 | 0.0000 | 53.51 | qQ | \| | \| | \| | \| |
| 4+15 | 0.0000 | 50.53 | qQ | \| | \| | \| | \| |
| 4+30 | 0.0000 | 47.44 | Q | \| | \| | \| | \| |
| 4+45 | 0.0000 | 44.30 | Q | \| | \| | \| | \| |
| 5+ 0 | 0.0000 | 41.35 | Q | \| | \| | \| | \| |
| 5+15 | 0.0000 | 37.58 | Q | \| | \| | \| | \| |
| 5+30 | 0.0000 | 33.46 | Q | \| | \| | \| | \| |
| 5+45 | 0.0000 | 29.73 | Q | \| | \| | \| | \| |
| 6+ 0 | 0.0000 | 26.41 | Q | \| | \| | \| | \| |
| 6+15 | 0.0000 | 23.47 | Q | \| | \| | \| | \| |
| 6+30 | 0.0000 | 20.85 | Q | \| | \| | \| | \| |
| 6+45 | 0.0000 | 18.53 | Q | \| | \| | \| | \| |
| 7+ 0 | 0.0000 | 16.46 | Q | \| | \| | \| | \| |
| 7+15 | 0.0000 | 14.63 | Q | \| | \| | \| | \| |
| 7+30 | 0.0000 | 12.99 | Q | \| | \| | \| | \| |
| 7+45 | 0.0000 | 11.55 | Q | \| | \| | \| | \| |
| 8+ 0 | 0.0000 | 10.26 | Q | \| | \| | \| | \| |
| 8+15 | 0.0000 | 9.11 | Q | \| | \| | \| | \| |
| 8+30 | 0.0000 | 8.10 | Q | \| | \| | \| | \| |
| 8+45 | 0.0000 | 7.19 | Q | \| | \| | \| | \| |
| 9+ 0 | 0.0000 | 6.39 | Q | \| | \| | \| | \| |
| 9+15 | 0.0000 | 5.68 | Q | \| | \| | \| | \| |
| 9+30 | 0.0000 | 5.05 | Q | \| | \| | \| | \| |
| 9+45 | 0.0000 | 4.48 | Q | \| | \| | \| | \| |
| 10+ 0 | 0.0000 | 3.98 | Q | \| | \| | \| | \| |
| 10+15 | 0.0000 | 3.54 | Q | \| | \| | \| | \| |
| 10+30 | 0.0000 | 3.14 | Q | \| | \| | \| | \| |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10+45 | 0.0000 | 2.79 | Q | \| | \| | \| | \| |
| 11+ 0 | 0.0000 | 2.48 | Q | \| | \| | \| | \| |
| 11+15 | 0.0000 | 2.21 | Q | \| | \| | \| | \| |
| 11+30 | 0.0000 | 1.96 | Q | \| | \| | \| | \| |
| 11+45 | 0.0000 | 1.74 | Q | \| | \| | \| | \| |
| 12+ 0 | 0.0000 | 1.55 | Q | \| | \| | \| | \| |
| 12+15 | 0.0000 | 1.37 | Q | \| | \| | \| | \| |
| 12+30 | 0.0000 | 1.22 | Q | \| | \| | \| | \| |
| 12+45 | 0.0000 | 1.09 | Q | \| | \| | \| | \| |
| 13+ 0 | 0.0000 | 0.96 | Q | \| | \| | \| | \| |
| 13+15 | 0.0000 | 0.86 | Q | \| | \| | \| | \| |
| 13+30 | 0.0000 | 0.76 | Q | \| | \| | \| | \| |
| 13+45 | 0.0000 | 0.68 | Q | \| | \| | \| | \| |
| 14+ 0 | 0.0000 | 0.60 | Q | \| | \| | \| | \| |
| 14+15 | 0.0000 | 0.53 | Q | \| | \| | \| | \| |
| 14+30 | 0.0000 | 0.47 | Q | \| | \| | \| | \| |
| 14+45 | 0.0000 | 0.42 | Q | \| | \| | \| | \| |
| 15+ 0 | 0.0000 | 0.37 | Q | \| | \| | \| | \| |
| 15+15 | 0.0000 | 0.33 | Q | \| | \| | \| | \| |
| 15+30 | 0.0000 | 0.30 | Q | \| | \| | \| | \| |
| 15+45 | 0.0000 | 0.26 | Q | \| | \| | \| | \| |
| 16+ 0 | 0.0000 | 0.23 | Q | \| | \| | \| | \| |
| 16+15 | 0.0000 | 0.21 | Q | \| | \| | \| | \| |
| 16+30 | 0.0000 | 0.18 | Q | \| | \| | \| | \| |
| 16+45 | 0.0000 | 0.16 | Q | \| | \| | \| | \| |
| 17+ 0 | 0.0000 | 0.15 | Q | \| | \| | \| | \| |
| 17+15 | 0.0000 | 0.13 | Q | \| | \| | \| | \| |
| 17+30 | 0.0000 | 0.11 | Q | \| | \| | \| | \| |
| 17+45 | 0.0000 | 0.10 | Q | \| | \| | \| | \| |
| 18+ 0 | 0.0000 | 0.09 | Q | \| | \| | \| | \| |
| 18+15 | 0.0000 | 0.08 | Q | \| | \| | \| | \| |
| 18+30 | 0.0000 | 0.07 | Q | \| | \| | \| | \| |
| 18+45 | 0.0000 | 0.06 | Q | \| | \| | \| | \| |
| 19+ 0 | 0.0000 | 0.06 | Q | \| | \| | \| | \| |
| 19+15 | 0.0000 | 0.05 | Q | \| | \| | \| | \| |
| 19+30 | 0.0000 | 0.04 | Q | \| | \| | \| | \| |
| 19+45 | 0.0000 | 0.04 | Q | \| | \| | \| | \| |
| 20+ 0 | 0.0000 | 0.04 | Q | \| | \| | \| | \| |
| 20+15 | 0.0000 | 0.03 | Q | \| | \| | \| | \| |
| 20+30 | 0.0000 | 0.03 | Q | \| | \| | \| | \| |
| 20+45 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 21+ 0 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 21+15 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 21+30 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 21+45 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 22+ 0 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 22+15 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 22+30 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 22+45 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 23+ 0 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 23+15 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 23+30 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 23+45 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 24+ 0 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 24+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 24+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 24+45 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 25+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 25+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 25+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 25+45 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 26+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 26+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 26+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 26+45 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 27+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 27+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 27+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 27+45 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 28+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********



```
              Number of intervals =   112
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =     2012.239 (CFS)
              Total volume =     235.406 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
*******************************************************************************

-------------------------------------------------------------------------------


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Process from Point/Station        2.000 to Point/Station        3.000
**** STREAM ROUTING SCS CONVEX METHOD ****
_______________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   2568.71 (Ft.)
Elevation difference =   49.44 (Ft.)
Slope of channel =  0.019247 (Vert/Hcriz)
Channel type - Improved Channel


Channel length =  2568.71(Ft.)     Elevation difference =  49.44(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width  =   12.000(Ft.)
Slope or 'Z' of left channel bank =   0.000
Slope or 'Z' of right channel bank =   0.000
Manning's 'N'    = 0.015
Maximum depth of channel  =    9.000(Ft.)
Flow(q) thru subarea =    841.267(CFS)
Depth of flow =     3.146(Ft.)
Average velocity =    22.281(Ft/s)
Total flow rate =   841.267(CFS)
Channel flow top width =   12.000(Ft.)
Depth of flow in channel =   3.15(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   22.28(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  841.267(CFS)
Total capacity of improved channels =    841.267(CFS)
Critical Depth in Channel =    5.38(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea =   2012.239(CFS)
Depth of flow =     5.899(Ft.)
Average velocity =    28.426(Ft/s)
Total flow rate =  2012.239(CFS)
Channel flow top width =   12.000(Ft.)
Depth of flow in channel =   5.90(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   28.43(Ft/s)
Travel time  =    0.00 min.
Individual channel flow = 2012.239(CFS)
Total capacity of improved channels =   2012.239(CFS)
Critical Depth in Channel =    9.50(Ft.)


********************** SCS CONVEX CHANNEL ROUTING **********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
         where c* = 1 - (1-c)^e and dt = c(length)/velocity
         c(v/v+1.7) =   0.9436   Travel time =   1.51 (min.)
       dt*(unit time interval) =  15.00(min.),  e=   7.3703
       dt(routing time-step) =   1.42 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments
```

P R I N T  O F  S T O R M
R u n o f f  H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 503.1 | 1006.1 | 1509.2 | 2012.2 |
|---|---|---|---|---|---|---|---|
| 0+15 | 73.1663 | 80.82 | IO | | | | |
| 0+30 | 218.3002 | 232.69 | I O | | | | |
| 0+45 | 340.3686 | 351.64 | I O | | | | |
| 1+ 0 | 388.1255 | 391.94 | I O | | | | |
| 1+15 | 472.3008 | 480.71 | I O | | | | |
| 1+30 | 619.1523 | 633.64 | I O | | | | |
| 1+45 | 762.3396 | 775.81 | I O | | | | |
| 2+ 0 | 894.3200 | 906.72 | I OI | | | | |
| 2+15 | 1123.6269 | 1146.33 | I O | | | | |
| 2+30 | 1612.7307 | 1661.54 | I | | | OI | |
| 2+45 | 1979.0147 | 2012.24 | I | | | | OI |
| 3+ 0 | 1477.1229 | 1421.12 | I | | | IO | |
| 3+15 | 596.4328 | 510.13 | I | O | | | |
| 3+30 | 181.4681 | 147.07 | I IO | | | | |
| 3+45 | 74.1243 | 66.49 | IO | | | | |
| 4+ 0 | 54.7405 | 53.51 | IO | | | | |
| 4+15 | 50.8122 | 50.53 | IO | | | | |
| 4+30 | 47.7323 | 47.44 | O | | | | |
| 4+45 | 44.5970 | 44.30 | O | | | | |
| 5+ 0 | 41.6295 | 41.35 | O | | | | |
| 5+15 | 37.9336 | 37.58 | O | | | | |
| 5+30 | 33.8501 | 33.46 | O | | | | |
| 5+45 | 30.0825 | 29.73 | O | | | | |
| 6+ 0 | 26.7280 | 26.41 | O | | | | |
| 6+15 | 23.7476 | 23.47 | O | | | | |
| 6+30 | 21.0995 | 20.85 | O | | | | |
| 6+45 | 18.7467 | 18.53 | O | | | | |
| 7+ 0 | 16.6562 | 16.46 | O | | | | |
| 7+15 | 14.7989 | 14.63 | O | | | | |
| 7+30 | 13.1487 | 12.99 | O | | | | |
| 7+45 | 11.6825 | 11.55 | O | | | | |
| 8+ 0 | 10.3797 | 10.26 | O | | | | |
| 8+15 | 9.2223 | 9.11 | O | | | | |
| 8+30 | 8.1939 | 8.10 | O | | | | |
| 8+45 | 7.2802 | 7.19 | O | | | | |
| 9+ 0 | 6.4684 | 6.39 | O | | | | |
| 9+15 | 5.7471 | 5.68 | O | | | | |
| 9+30 | 5.1062 | 5.05 | O | | | | |
| 9+45 | 4.5368 | 4.48 | O | | | | |
| 10+ 0 | 4.0309 | 3.98 | O | | | | |
| 10+15 | 3.5815 | 3.54 | O | | | | |
| 10+30 | 3.1821 | 3.14 | O | | | | |
| 10+45 | 2.8272 | 2.79 | O | | | | |
| 11+ 0 | 2.5120 | 2.48 | O | | | | |
| 11+15 | 2.2319 | 2.21 | O | | | | |
| 11+30 | 1.9830 | 1.96 | O | | | | |
| 11+45 | 1.7619 | 1.74 | O | | | | |
| 12+ 0 | 1.5654 | 1.55 | O | | | | |
| 12+15 | 1.3908 | 1.37 | O | | | | |
| 12+30 | 1.2358 | 1.22 | O | | | | |
| 12+45 | 1.0980 | 1.09 | O | | | | |
| 13+ 0 | 0.9755 | 0.96 | O | | | | |
| 13+15 | 0.8667 | 0.86 | O | | | | |
| 13+30 | 0.7701 | 0.76 | O | | | | |
| 13+45 | 0.6842 | 0.68 | O | | | | |
| 14+ 0 | 0.6079 | 0.60 | O | | | | |
| 14+15 | 0.5401 | 0.53 | O | | | | |
| 14+30 | 0.4799 | 0.47 | O | | | | |
| 14+45 | 0.4264 | 0.42 | O | | | | |
| 15+ 0 | 0.3788 | 0.37 | O | | | | |
| 15+15 | 0.3366 | 0.33 | O | | | | |
| 15+30 | 0.2991 | 0.30 | O | | | | |
| 15+45 | 0.2657 | 0.26 | O | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 16+ 0 | 0.2361 | 0.23 | O | | | | |
| 16+15 | 0.2098 | 0.21 | O | | | | |
| 16+30 | 0.1864 | 0.18 | O | | | | |
| 16+45 | 0.1656 | 0.16 | O | | | | |
| 17+ 0 | 0.1471 | 0.15 | O | | | | |
| 17+15 | 0.1307 | 0.13 | O | | | | |
| 17+30 | 0.1161 | 0.11 | O | | | | |
| 17+45 | 0.1032 | 0.10 | O | | | | |
| 18+ 0 | 0.0917 | 0.09 | O | | | | |
| 18+15 | 0.0815 | 0.08 | O | | | | |
| 18+30 | 0.0724 | 0.07 | O | | | | |
| 18+45 | 0.0643 | 0.06 | O | | | | |
| 19+ 0 | 0.0571 | 0.06 | O | | | | |
| 19+15 | 0.0508 | 0.05 | O | | | | |
| 19+30 | 0.0451 | 0.04 | O | | | | |
| 19+45 | 0.0401 | 0.04 | O | | | | |
| 20+ 0 | 0.0356 | 0.04 | O | | | | |
| 20+15 | 0.0316 | 0.03 | O | | | | |
| 20+30 | 0.0281 | 0.03 | O | | | | |
| 20+45 | 0.0250 | 0.02 | O | | | | |
| 21+ 0 | 0.0222 | 0.02 | O | | | | |
| 21+15 | 0.0197 | 0.02 | O | | | | |
| 21+30 | 0.0175 | 0.02 | O | | | | |
| 21+45 | 0.0156 | 0.02 | O | | | | |
| 22+ 0 | 0.0138 | 0.01 | O | | | | |
| 22+15 | 0.0123 | 0.01 | O | | | | |
| 22+30 | 0.0109 | 0.01 | O | | | | |
| 22+45 | 0.0097 | 0.01 | O | | | | |
| 23+ 0 | 0.0086 | 0.01 | O | | | | |
| 23+15 | 0.0077 | 0.01 | O | | | | |
| 23+30 | 0.0068 | 0.01 | O | | | | |
| 23+45 | 0.0060 | 0.01 | O | | | | |
| 24+ 0 | 0.0054 | 0.01 | O | | | | |
| 24+15 | 0.0048 | 0.00 | O | | | | |
| 24+30 | 0.0042 | 0.00 | O | | | | |
| 24+45 | 0.0038 | 0.00 | O | | | | |
| 25+ 0 | 0.0033 | 0.00 | O | | | | |
| 25+15 | 0.0030 | 0.00 | O | | | | |
| 25+30 | 0.0026 | 0.00 | O | | | | |
| 25+45 | 0.0023 | 0.00 | O | | | | |
| 26+ 0 | 0.0021 | 0.00 | O | | | | |
| 26+15 | 0.0019 | 0.00 | O | | | | |
| 26+30 | 0.0016 | 0.00 | O | | | | |
| 26+45 | 0.0015 | 0.00 | O | | | | |
| 27+ 0 | 0.0013 | 0.00 | O | | | | |
| 27+15 | 0.0012 | 0.00 | O | | | | |
| 27+30 | 0.0010 | 0.00 | O | | | | |
| 27+45 | 0.0010 | 0.00 | O | | | | |
| 28+ 0 | 0.0001 | 0.00 | O | | | | |
| 28+15 | 0.0000 | 0.00 | O | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 113
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1979.015 (CFS)
Total volume = 235.406 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

Process from Point/Station 3.000 to Point/Station 3.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: SUBA23100.rte

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P R I N T  O F  S T O R M
R u n o f f  H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 582.5 | 1165.1 | 1747.6 | 2330.2 |
|---|---|---|---|---|---|---|---|
| 0+15 | 36.9615 | 110.13 | qQ | | | | |
| 0+30 | 75.1697 | 293.47 | q Q | | | | |
| 0+45 | 92.1949 | 432.56 | q Q | | | | |
| 1+ 0 | 93.6748 | 481.80 | q Q | | | | |
| 1+15 | 114.0952 | 586.40 | q Q | | | | |
| 1+30 | 136.9223 | 756.07 | q Q | | | | |
| 1+45 | 159.1447 | 921.48 | q Q | | | | |
| 2+ 0 | 176.9413 | 1071.26 | q Q | | | | |
| 2+15 | 225.5431 | 1349.17 | q Q | | | | |
| 2+30 | 321.4701 | 1934.20 | q | | | Q | |
| 2+45 | 351.1394 | 2330.15 | q | | | | Q |
| 3+ 0 | 194.2783 | 1671.40 | q | | | Q | |
| 3+15 | 49.5944 | 646.03 | q Q | | | | |
| 3+30 | 4.7189 | 186.19 | q Q | | | | |
| 3+45 | 0.0000 | 74.12 | qQ | | | | |
| 4+ 0 | 0.0000 | 54.74 | Q | | | | |
| 4+15 | 0.0000 | 50.81 | Q | | | | |
| 4+30 | 0.0000 | 47.73 | Q | | | | |
| 4+45 | 0.0000 | 44.60 | Q | | | | |
| 5+ 0 | 0.0000 | 41.63 | Q | | | | |
| 5+15 | 0.0000 | 37.93 | Q | | | | |
| 5+30 | 0.0000 | 33.85 | Q | | | | |
| 5+45 | 0.0000 | 30.08 | Q | | | | |
| 6+ 0 | 0.0000 | 26.73 | Q | | | | |
| 6+15 | 0.0000 | 23.75 | Q | | | | |
| 6+30 | 0.0000 | 21.10 | Q | | | | |
| 6+45 | 0.0000 | 18.75 | Q | | | | |
| 7+ 0 | 0.0000 | 16.66 | Q | | | | |
| 7+15 | 0.0000 | 14.80 | Q | | | | |
| 7+30 | 0.0000 | 13.15 | Q | | | | |
| 7+45 | 0.0000 | 11.68 | Q | | | | |
| 8+ 0 | 0.0000 | 10.38 | Q | | | | |
| 8+15 | 0.0000 | 9.22 | Q | | | | |
| 8+30 | 0.0000 | 8.19 | Q | | | | |
| 8+45 | 0.0000 | 7.28 | Q | | | | |
| 9+ 0 | 0.0000 | 6.47 | Q | | | | |
| 9+15 | 0.0000 | 5.75 | Q | | | | |
| 9+30 | 0.0000 | 5.11 | Q | | | | |
| 9+45 | 0.0000 | 4.54 | Q | | | | |
| 10+ 0 | 0.0000 | 4.03 | Q | | | | |
| 10+15 | 0.0000 | 3.58 | Q | | | | |
| 10+30 | 0.0000 | 3.18 | Q | | | | |
| 10+45 | 0.0000 | 2.83 | Q | | | | |
| 11+ 0 | 0.0000 | 2.51 | Q | | | | |
| 11+15 | 0.0000 | 2.23 | Q | | | | |
| 11+30 | 0.0000 | 1.98 | Q | | | | |
| 11+45 | 0.0000 | 1.76 | Q | | | | |
| 12+ 0 | 0.0000 | 1.57 | Q | | | | |
| 12+15 | 0.0000 | 1.39 | Q | | | | |
| 12+30 | 0.0000 | 1.24 | Q | | | | |
| 12+45 | 0.0000 | 1.10 | Q | | | | |
| 13+ 0 | 0.0000 | 0.98 | Q | | | | |
| 13+15 | 0.0000 | 0.87 | Q | | | | |
| 13+30 | 0.0000 | 0.77 | Q | | | | |
| 13+45 | 0.0000 | 0.68 | Q | | | | |
| 14+ 0 | 0.0000 | 0.61 | Q | | | | |
| 14+15 | 0.0000 | 0.54 | Q | | | | |
| 14+30 | 0.0000 | 0.48 | Q | | | | |
| 14+45 | 0.0000 | 0.43 | Q | | | | |
| 15+ 0 | 0.0000 | 0.38 | Q | | | | |
| 15+15 | 0.0000 | 0.34 | Q | | | | |
| 15+30 | 0.0000 | 0.30 | Q | | | | |
| 15+45 | 0.0000 | 0.27 | Q | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 16+ 0 | 0.0000 | 0.24 | Q | | | | |
| 16+15 | 0.0000 | 0.21 | Q | | | | |
| 16+30 | 0.0000 | 0.19 | Q | | | | |
| 16+45 | 0.0000 | 0.17 | Q | | | | |
| 17+ 0 | 0.0000 | 0.15 | Q | | | | |
| 17+15 | 0.0000 | 0.13 | Q | | | | |
| 17+30 | 0.0000 | 0.12 | Q | | | | |
| 17+45 | 0.0000 | 0.10 | Q | | | | |
| 18+ 0 | 0.0000 | 0.09 | Q | | | | |
| 18+15 | 0.0000 | 0.08 | Q | | | | |
| 18+30 | 0.0000 | 0.07 | Q | | | | |
| 18+45 | 0.0000 | 0.06 | Q | | | | |
| 19+ 0 | 0.0000 | 0.06 | Q | | | | |
| 19+15 | 0.0000 | 0.05 | Q | | | | |
| 19+30 | 0.0000 | 0.05 | Q | | | | |
| 19+45 | 0.0000 | 0.04 | Q | | | | |
| 20+ 0 | 0.0000 | 0.04 | Q | | | | |
| 20+15 | 0.0000 | 0.03 | Q | | | | |
| 20+30 | 0.0000 | 0.03 | Q | | | | |
| 20+45 | 0.0000 | 0.02 | Q | | | | |
| 21+ 0 | 0.0000 | 0.02 | Q | | | | |
| 21+15 | 0.0000 | 0.02 | Q | | | | |
| 21+30 | 0.0000 | 0.02 | Q | | | | |
| 21+45 | 0.0000 | 0.02 | Q | | | | |
| 22+ 0 | 0.0000 | 0.01 | Q | | | | |
| 22+15 | 0.0000 | 0.01 | Q | | | | |
| 22+30 | 0.0000 | 0.01 | Q | | | | |
| 22+45 | 0.0000 | 0.01 | Q | | | | |
| 23+ 0 | 0.0000 | 0.01 | Q | | | | |
| 23+15 | 0.0000 | 0.01 | Q | | | | |
| 23+30 | 0.0000 | 0.01 | Q | | | | |
| 23+45 | 0.0000 | 0.01 | Q | | | | |
| 24+ 0 | 0.0000 | 0.01 | Q | | | | |
| 24+15 | 0.0000 | 0.00 | Q | | | | |
| 24+30 | 0.0000 | 0.00 | Q | | | | |
| 24+45 | 0.0000 | 0.00 | Q | | | | |
| 25+ 0 | 0.0000 | 0.00 | Q | | | | |
| 25+15 | 0.0000 | 0.00 | Q | | | | |
| 25+30 | 0.0000 | 0.00 | Q | | | | |
| 25+45 | 0.0000 | 0.00 | Q | | | | |
| 26+ 0 | 0.0000 | 0.00 | Q | | | | |
| 26+15 | 0.0000 | 0.00 | Q | | | | |
| 26+30 | 0.0000 | 0.00 | Q | | | | |
| 26+45 | 0.0000 | 0.00 | Q | | | | |
| 27+ 0 | 0.0000 | 0.00 | Q | | | | |
| 27+15 | 0.0000 | 0.00 | Q | | | | |
| 27+30 | 0.0000 | 0.00 | Q | | | | |
| 27+45 | 0.0000 | 0.00 | Q | | | | |
| 28+ 0 | 0.0000 | 0.00 | Q | | | | |
| 28+15 | 0.0000 | 0.00 | Q | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 113
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 2330.154 (CFS)
Total volume = 277.386 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 3.000 to Point/Station 3.000
**** FLOWBY BASIN ROUTING OR SPLIT FLOW ****

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All flow in excess of 1640.00(CFS) is diverted
into stream number 2
Total volume of excess flow diverted into flowby

basin (stream number 2 ) is 20.99(Ac.Ft)

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P R I N T O F S T O R M

R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Volume(Ac.Ft) | Q(CFS) | 0 | 410.0 | 820.0 | 1230.0 | 1640.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 2.2754 | 110.13 | V Q | | | | |
| 0+30 | 8.3388 | 293.47 | V Q | | | | |
| 0+45 | 17.2761 | 432.56 | V Q | | | | |
| 1+ 0 | 27.2306 | 481.80 | V Q | | | | |
| 1+15 | 39.3462 | 586.40 | V Q | | | | |
| 1+30 | 54.9676 | 756.07 | V Q | | | | |
| 1+45 | 74.0065 | 921.48 | V Q | | | | |
| 2+ 0 | 96.1400 | 1071.26 | V Q | | | | |
| 2+15 | 124.0154 | 1349.17 | V Q | | | | |
| 2+30 | 157.8997 | 1640.00 | V Q | | | | |
| 2+45 | 191.7840 | 1640.00 | V Q | | | | |
| 3+ 0 | 225.6683 | 1640.00 | V Q | | | | |
| 3+15 | 239.0160 | 646.03 | V Q | | | | |
| 3+30 | 242.8628 | 186.19 | Q V | | | | |
| 3+45 | 244.3943 | 74.12 | Q V | | | | |
| 4+ 0 | 245.5253 | 54.74 | Q V | | | | |
| 4+15 | 246.5752 | 50.81 | Q V | | | | |
| 4+30 | 247.5614 | 47.73 | Q V | | | | |
| 4+45 | 248.4828 | 44.60 | Q V | | | | |
| 5+ 0 | 249.3429 | 41.63 | Q V | | | | |
| 5+15 | 250.1267 | 37.93 | Q V | | | | |
| 5+30 | 250.8261 | 33.85 | Q V | | | | |
| 5+45 | 251.4476 | 30.08 | Q V | | | | |
| 6+ 0 | 251.9998 | 26.73 | Q V | | | | |
| 6+15 | 252.4905 | 23.75 | Q V | | | | |
| 6+30 | 252.9264 | 21.10 | Q V | | | | |
| 6+45 | 253.3138 | 18.75 | Q V | | | | |
| 7+ 0 | 253.6579 | 16.66 | Q V | | | | |
| 7+15 | 253.9637 | 14.80 | Q V | | | | |
| 7+30 | 254.2353 | 13.15 | Q V | | | | |
| 7+45 | 254.4767 | 11.68 | Q V | | | | |
| 8+ 0 | 254.6912 | 10.38 | Q V | | | | |
| 8+15 | 254.8817 | 9.22 | Q V | | | | |
| 8+30 | 255.0510 | 8.19 | Q V | | | | |
| 8+45 | 255.2014 | 7.28 | Q V | | | | |
| 9+ 0 | 255.3351 | 6.47 | Q V | | | | |
| 9+15 | 255.4538 | 5.75 | Q V | | | | |
| 9+30 | 255.5593 | 5.11 | Q V | | | | |
| 9+45 | 255.6530 | 4.54 | Q V | | | | |
| 10+ 0 | 255.7363 | 4.03 | Q V | | | | |
| 10+15 | 255.8103 | 3.58 | Q V | | | | |
| 10+30 | 255.8761 | 3.18 | Q V | | | | |
| 10+45 | 255.9345 | 2.83 | Q V | | | | |
| 11+ 0 | 255.9864 | 2.51 | Q V | | | | |
| 11+15 | 256.0325 | 2.23 | Q V | | | | |
| 11+30 | 256.0735 | 1.98 | Q V | | | | |
| 11+45 | 256.1099 | 1.76 | Q V | | | | |
| 12+ 0 | 256.1422 | 1.57 | Q V | | | | |
| 12+15 | 256.1709 | 1.39 | Q V | | | | |
| 12+30 | 256.1965 | 1.24 | Q V | | | | |
| 12+45 | 256.2192 | 1.10 | Q V | | | | |
| 13+ 0 | 256.2393 | 0.98 | Q V | | | | |
| 13+15 | 256.2572 | 0.87 | Q V | | | | |
| 13+30 | 256.2731 | 0.77 | Q V | | | | |
| 13+45 | 256.2873 | 0.68 | Q V | | | | |
| 14+ 0 | 256.2998 | 0.61 | Q V | | | | |
| 14+15 | 256.3110 | 0.54 | Q V | | | | |
| 14+30 | 256.3209 | 0.48 | Q V | | | | |
| 14+45 | 256.3297 | 0.43 | Q V | | | | |
| 15+ 0 | 256.3375 | 0.38 | Q V | | | | |
| 15+15 | 256.3445 | 0.34 | Q V | | | | |
| 15+30 | 256.3507 | 0.30 | Q V | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 15+45 | 256.3562 | 0.27 | Q | | | | V |
| 16+ 0 | 256.3610 | 0.24 | Q | | | | V |
| 16+15 | 256.3654 | 0.21 | Q | | | | V |
| 16+30 | 256.3692 | 0.19 | Q | | | | V |
| 16+45 | 256.3726 | 0.17 | Q | | | | V |
| 17+ 0 | 256.3757 | 0.15 | Q | | | | V |
| 17+15 | 256.3784 | 0.13 | Q | | | | V |
| 17+30 | 256.3808 | 0.12 | Q | | | | V |
| 17+45 | 256.3829 | 0.10 | Q | | | | V |
| 18+ 0 | 256.3848 | 0.09 | Q | | | | V |
| 18+15 | 256.3865 | 0.08 | Q | | | | V |
| 18+30 | 256.3880 | 0.07 | Q | | | | V |
| 18+45 | 256.3893 | 0.06 | Q | | | | V |
| 19+ 0 | 256.3905 | 0.06 | Q | | | | V |
| 19+15 | 256.3915 | 0.05 | Q | | | | V |
| 19+30 | 256.3925 | 0.05 | Q | | | | V |
| 19+45 | 256.3933 | 0.04 | Q | | | | V |
| 20+ 0 | 256.3940 | 0.04 | Q | | | | V |
| 20+15 | 256.3947 | 0.03 | Q | | | | V |
| 20+30 | 256.3953 | 0.03 | Q | | | | V |
| 20+45 | 256.3958 | 0.02 | Q | | | | V |
| 21+ 0 | 256.3963 | 0.02 | Q | | | | V |
| 21+15 | 256.3967 | 0.02 | Q | | | | V |
| 21+30 | 256.3970 | 0.02 | Q | | | | V |
| 21+45 | 256.3973 | 0.02 | Q | | | | V |
| 22+ 0 | 256.3976 | 0.01 | Q | | | | V |
| 22+15 | 256.3979 | 0.01 | Q | | | | V |
| 22+30 | 256.3981 | 0.01 | Q | | | | V |
| 22+45 | 256.3983 | 0.01 | Q | | | | V |
| 23+ 0 | 256.3985 | 0.01 | Q | | | | V |
| 23+15 | 256.3986 | 0.01 | Q | | | | V |
| 23+30 | 256.3988 | 0.01 | Q | | | | V |
| 23+45 | 256.3989 | 0.01 | Q | | | | V |
| 24+ 0 | 256.3990 | 0.01 | Q | | | | V |
| 24+15 | 256.3991 | 0.00 | Q | | | | V |
| 24+30 | 256.3992 | 0.00 | Q | | | | V |
| 24+45 | 256.3993 | 0.00 | Q | | | | V |
| 25+ 0 | 256.3994 | 0.00 | Q | | | | V |
| 25+15 | 256.3994 | 0.00 | Q | | | | V |
| 25+30 | 256.3995 | 0.00 | Q | | | | V |
| 25+45 | 256.3995 | 0.00 | Q | | | | V |
| 26+ 0 | 256.3996 | 0.00 | Q | | | | V |
| 26+15 | 256.3996 | 0.00 | Q | | | | V |
| 26+30 | 256.3996 | 0.00 | Q | | | | V |
| 26+45 | 256.3997 | 0.00 | Q | | | | V |
| 27+ 0 | 256.3997 | 0.00 | Q | | | | V |
| 27+15 | 256.3997 | 0.00 | Q | | | | V |
| 27+30 | 256.3997 | 0.00 | Q | | | | V |
| 27+45 | 256.3998 | 0.00 | Q | | | | V |
| 28+ 0 | 256.3998 | 0.00 | Q | | | | V |
| 28+15 | 256.3998 | 0.00 | Q | | | | V |

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**********HYDROGRAPH DATA**********

Number of intervals = 113

Time interval = 15.0 (Min.)

Maximum/Peak flow rate = 1640.000 (CFS)

Total volume = 256.400 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 690.154 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 20.387 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 3.000 to Point/Station 4.000

**** STREAM ROUTING SCS CONVEX METHOD ****

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HYDROGRAPH STREAM ROUTING DATA:

Length of stream = 4281.63 (Ft.)

Elevation difference = 85.63 (Ft.)
Slope of channel = 0.019999 (Vert/Horiz)
Channel type - Improved Channel

Channel length = 4281.63(Ft.) Elevation difference = 85.63(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width = 12.000(Ft.)
Slope or 'Z' of left channel bank = 0.000
Slope or 'Z' of right channel bank = 0.000
Manning's 'N' = 0.015
Maximum depth of channel = 8.000(Ft.)
Flow(q) thru subarea = 910.196(CFS)
Depth of flow = 3.280(Ft.)
Average velocity = 23.125(Ft/s)
Total flow rate = 910.196(CFS)
Channel flow top width = 12.000(Ft.)
Depth of flow in channel = 3.28(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 23.13(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 910.196(CFS)
Total capacity of improved channels = 910.196(CFS)
Critical Depth in Channel = 5.63(Ft.)

Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea = 1640.000(CFS)
Depth of flow = 4.998(Ft.)
Average velocity = 27.344(Ft/s)
Total flow rate = 1640.000(CFS)
Channel flow top width = 12.000(Ft.)
Depth of flow in channel = 5.00(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 27.34(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 1640.000(CFS)
Total capacity of improved channels = 1640.000(CFS)
Critical Depth in Channel = 8.38(Ft.)

********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.9415 Travel time = 2.61 (min.)
dt*(unit time interval) = 15.00(min.), e= 4.4034
dt(routing time-step) = 2.46 (min.), c* = 1.0000

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h
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Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 410.0 | 820.0 | 1230.0 | 1640.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 92.0886 | 110.13 | O | | | | |
| 0+30 | 263.4380 | 293.47 | OI | | | | |
| 0+45 | 409.7796 | 432.56 | OI | | | | |
| 1+ 0 | 473.7351 | 481.80 | O | | | | |
| 1+15 | 569.2630 | 586.40 | OI | | | | |
| 1+30 | 728.2808 | 756.07 | OI | | | | |
| 1+45 | 894.3897 | 921.48 | OI | | | | |
| 2+ 0 | 1046.7274 | 1071.26 | OI | | | | |
| 2+15 | 1303.6479 | 1349.17 | OI | | | | |
| 2+30 | 1592.3613 | 1640.00 | O I | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2+45 | 1639.9998 | 1640.00 | O I | | | | |
| 3+ 0 | 1640.0000 | 1640.00 | O I | | | | |
| 3+15 | 808.8419 | 646.03 | I O | | | | |
| 3+30 | 261.5103 | 186.19 | I O | | | | |
| 3+45 | 92.4807 | 74.12 | IO | | | | |
| 4+ 0 | 57.9157 | 54.74 | O | | | | |
| 4+15 | 51.4557 | 50.81 | O | | | | |
| 4+30 | 48.2368 | 47.73 | O | | | | |
| 4+45 | 45.1105 | 44.60 | O | | | | |
| 5+ 0 | 42.1156 | 41.63 | O | | | | |
| 5+15 | 38.5390 | 37.93 | O | | | | |
| 5+30 | 34.5190 | 33.85 | O | | | | |
| 5+45 | 30.6997 | 30.08 | O | | | | |
| 6+ 0 | 27.2775 | 26.73 | O | | | | |
| 6+15 | 24.2358 | 23.75 | O | | | | |
| 6+30 | 21.5333 | 21.10 | O | | | | |
| 6+45 | 19.1321 | 18.75 | O | | | | |
| 7+ 0 | 16.9987 | 16.66 | O | | | | |
| 7+15 | 15.1031 | 14.80 | O | | | | |
| 7+30 | 13.4190 | 13.15 | O | | | | |
| 7+45 | 11.9226 | 11.68 | O | | | | |
| 8+ 0 | 10.5931 | 10.38 | O | | | | |
| 8+15 | 9.4119 | 9.22 | O | | | | |
| 8+30 | 8.3624 | 8.19 | O | | | | |
| 8+45 | 7.4299 | 7.28 | O | | | | |
| 9+ 0 | 6.6014 | 6.47 | O | | | | |
| 9+15 | 5.8653 | 5.75 | O | | | | |
| 9+30 | 5.2112 | 5.11 | O | | | | |
| 9+45 | 4.6301 | 4.54 | O | | | | |
| 10+ 0 | 4.1138 | 4.03 | O | | | | |
| 10+15 | 3.6551 | 3.58 | O | | | | |
| 10+30 | 3.2475 | 3.18 | O | | | | |
| 10+45 | 2.8854 | 2.83 | O | | | | |
| 11+ 0 | 2.5636 | 2.51 | O | | | | |
| 11+15 | 2.2778 | 2.23 | O | | | | |
| 11+30 | 2.0238 | 1.98 | O | | | | |
| 11+45 | 1.7981 | 1.76 | O | | | | |
| 12+ 0 | 1.5976 | 1.57 | O | | | | |
| 12+15 | 1.4194 | 1.39 | O | | | | |
| 12+30 | 1.2612 | 1.24 | O | | | | |
| 12+45 | 1.1205 | 1.10 | O | | | | |
| 13+ 0 | 0.9956 | 0.98 | O | | | | |
| 13+15 | 0.8846 | 0.87 | O | | | | |
| 13+30 | 0.7859 | 0.77 | O | | | | |
| 13+45 | 0.6983 | 0.68 | O | | | | |
| 14+ 0 | 0.6204 | 0.61 | O | | | | |
| 14+15 | 0.5512 | 0.54 | O | | | | |
| 14+30 | 0.4898 | 0.48 | O | | | | |
| 14+45 | 0.4352 | 0.43 | O | | | | |
| 15+ 0 | 0.3866 | 0.38 | O | | | | |
| 15+15 | 0.3435 | 0.34 | O | | | | |
| 15+30 | 0.3052 | 0.30 | O | | | | |
| 15+45 | 0.2712 | 0.27 | O | | | | |
| 16+ 0 | 0.2409 | 0.24 | O | | | | |
| 16+15 | 0.2141 | 0.21 | O | | | | |
| 16+30 | 0.1902 | 0.19 | O | | | | |
| 16+45 | 0.1690 | 0.17 | O | | | | |
| 17+ 0 | 0.1501 | 0.15 | O | | | | |
| 17+15 | 0.1334 | 0.13 | O | | | | |
| 17+30 | 0.1185 | 0.12 | O | | | | |
| 17+45 | 0.1053 | 0.10 | O | | | | |
| 18+ 0 | 0.0936 | 0.09 | O | | | | |
| 18+15 | 0.0831 | 0.08 | O | | | | |
| 18+30 | 0.0739 | 0.07 | O | | | | |
| 18+45 | 0.0656 | 0.06 | O | | | | |
| 19+ 0 | 0.0583 | 0.06 | O | | | | |
| 19+15 | 0.0518 | 0.05 | O | | | | |
| 19+30 | 0.0460 | 0.05 | O | | | | |
| 19+45 | 0.0409 | 0.04 | O | | | | |
| 20+ 0 | 0.0363 | 0.04 | O | | | | |
| 20+15 | 0.0323 | 0.03 | O | | | | |
| 20+30 | 0.0287 | 0.03 | O | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20+45 | 0.0255 | 0.02 | O | \| | \| | \| | \| |
| 21+ 0 | 0.0226 | 0.02 | O | \| | \| | \| | \| |
| 21+15 | 0.0201 | 0.02 | O | \| | \| | \| | \| |
| 21+30 | 0.0179 | 0.02 | O | \| | \| | \| | \| |
| 21+45 | 0.0159 | 0.02 | O | \| | \| | \| | \| |
| 22+ 0 | 0.0141 | 0.01 | O | \| | \| | \| | \| |
| 22+15 | 0.0125 | 0.01 | O | \| | \| | \| | \| |
| 22+30 | 0.0111 | 0.01 | O | \| | \| | \| | \| |
| 22+45 | 0.0099 | 0.01 | O | \| | \| | \| | \| |
| 23+ 0 | 0.0088 | 0.01 | O | \| | \| | \| | \| |
| 23+15 | 0.0078 | 0.01 | O | \| | \| | \| | \| |
| 23+30 | 0.0069 | 0.01 | O | \| | \| | \| | \| |
| 23+45 | 0.0062 | 0.01 | O | \| | \| | \| | \| |
| 24+ 0 | 0.0055 | 0.01 | O | \| | \| | \| | \| |
| 24+15 | 0.0049 | 0.00 | O | \| | \| | \| | \| |
| 24+30 | 0.0043 | 0.00 | O | \| | \| | \| | \| |
| 24+45 | 0.0038 | 0.00 | O | \| | \| | \| | \| |
| 25+ 0 | 0.0034 | 0.00 | O | \| | \| | \| | \| |
| 25+15 | 0.0030 | 0.00 | O | \| | \| | \| | \| |
| 25+30 | 0.0027 | 0.00 | O | \| | \| | \| | \| |
| 25+45 | 0.0024 | 0.00 | O | \| | \| | \| | \| |
| 26+ 0 | 0.0021 | 0.00 | O | \| | \| | \| | \| |
| 26+15 | 0.0019 | 0.00 | O | \| | \| | \| | \| |
| 26+30 | 0.0017 | 0.00 | O | \| | \| | \| | \| |
| 26+45 | 0.0015 | 0.00 | O | \| | \| | \| | \| |
| 27+ 0 | 0.0013 | 0.00 | O | \| | \| | \| | \| |
| 27+15 | 0.0012 | 0.00 | O | \| | \| | \| | \| |
| 27+30 | 0.0010 | 0.00 | O | \| | \| | \| | \| |
| 27+45 | 0.0010 | 0.00 | O | \| | \| | \| | \| |
| 28+ 0 | 0.0002 | 0.00 | O | \| | \| | \| | \| |
| 28+15 | 0.0000 | 0.00 | O | \| | \| | \| | \| |
| 28+30 | 0.0000 | 0.00 | O | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 114
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1640.000 (CFS)
Total volume = 256.400 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 690.154 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 20.987 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 4.000 to Point/Station 4.000

**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: SubA33100.rte

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P R I N T O F S T O R M

R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

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| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 445.6 | 891.2 | 1336.8 | 1782.4 |
|---|---|---|---|---|---|---|---|
| 0+15 | 14.4654 | 106.55 | q Q | \| | \| | \| | \| |
| 0+30 | 30.0670 | 293.51 | q Q | \| | \| | \| | \| |
| 0+45 | 37.2962 | 447.08 | q Q | \| | \| | \| | \| |
| 1+ 0 | 38.0641 | 511.80 | q Q | \| | \| | \| | \| |
| 1+15 | 46.0426 | 615.31 | \|q Q | \| | \| | \| | \| |
| 1+30 | 55.3331 | 783.61 | \|q Q | \| | \| | \| | \| |
| 1+45 | 64.3731 | 958.76 | \|q Q | \| | \| | \| | \| |
| 2+ 0 | 71.6604 | 1118.39 | \|q Q | \| | \| | \| | \| |
| 2+15 | 90.9334 | 1394.58 | \| q Q | \| | \| | \| | \| |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2+30 | 129.2734 | 1721.63 | \| q Q | \| | \| | \| | \| Q \| |
| 2+45 | 142.4345 | 1782.43 | \| q Q | \| | \| | \| | \| Q |
| 3+ 0 | 81.3081 | 1721.31 | \|q Q | \| | \| | \| | \| Q \| |
| 3+15 | 21.8618 | 830.70 | q Q | \| | \| Q \| | \| | \| |
| 3+30 | 2.2229 | 263.73 | q Q | \| | \| | \| | \| |
| 3+45 | 0.0000 | 92.48 | q Q | \| | \| | \| | \| |
| 4+ 0 | 0.0000 | 57.92 | qQ | \| | \| | \| | \| |
| 4+15 | 0.0000 | 51.46 | qQ | \| | \| | \| | \| |
| 4+30 | 0.0000 | 48.24 | qQ | \| | \| | \| | \| |
| 4+45 | 0.0000 | 45.11 | qQ | \| | \| | \| | \| |
| 5+ 0 | 0.0000 | 42.12 | Q | \| | \| | \| | \| |
| 5+15 | 0.0000 | 38.54 | Q | \| | \| | \| | \| |
| 5+30 | 0.0000 | 34.52 | Q | \| | \| | \| | \| |
| 5+45 | 0.0000 | 30.70 | Q | \| | \| | \| | \| |
| 6+ 0 | 0.0000 | 27.28 | Q | \| | \| | \| | \| |
| 6+15 | 0.0000 | 24.24 | Q | \| | \| | \| | \| |
| 6+30 | 0.0000 | 21.53 | Q | \| | \| | \| | \| |
| 6+45 | 0.0000 | 19.13 | Q | \| | \| | \| | \| |
| 7+ 0 | 0.0000 | 17.00 | Q | \| | \| | \| | \| |
| 7+15 | 0.0000 | 15.10 | Q | \| | \| | \| | \| |
| 7+30 | 0.0000 | 13.42 | Q | \| | \| | \| | \| |
| 7+45 | 0.0000 | 11.92 | Q | \| | \| | \| | \| |
| 8+ 0 | 0.0000 | 10.59 | Q | \| | \| | \| | \| |
| 8+15 | 0.0000 | 9.41 | Q | \| | \| | \| | \| |
| 8+30 | 0.0000 | 8.36 | Q | \| | \| | \| | \| |
| 8+45 | 0.0000 | 7.43 | Q | \| | \| | \| | \| |
| 9+ 0 | 0.0000 | 6.60 | Q | \| | \| | \| | \| |
| 9+15 | 0.0000 | 5.87 | Q | \| | \| | \| | \| |
| 9+30 | 0.0000 | 5.21 | Q | \| | \| | \| | \| |
| 9+45 | 0.0000 | 4.63 | Q | \| | \| | \| | \| |
| 10+ 0 | 0.0000 | 4.11 | Q | \| | \| | \| | \| |
| 10+15 | 0.0000 | 3.66 | Q | \| | \| | \| | \| |
| 10+30 | 0.0000 | 3.25 | Q | \| | \| | \| | \| |
| 10+45 | 0.0000 | 2.89 | Q | \| | \| | \| | \| |
| 11+ 0 | 0.0000 | 2.56 | Q | \| | \| | \| | \| |
| 11+15 | 0.0000 | 2.28 | Q | \| | \| | \| | \| |
| 11+30 | 0.0000 | 2.02 | Q | \| | \| | \| | \| |
| 11+45 | 0.0000 | 1.80 | Q | \| | \| | \| | \| |
| 12+ 0 | 0.0000 | 1.60 | Q | \| | \| | \| | \| |
| 12+15 | 0.0000 | 1.42 | Q | \| | \| | \| | \| |
| 12+30 | 0.0000 | 1.26 | Q | \| | \| | \| | \| |
| 12+45 | 0.0000 | 1.12 | Q | \| | \| | \| | \| |
| 13+ 0 | 0.0000 | 1.00 | Q | \| | \| | \| | \| |
| 13+15 | 0.0000 | 0.88 | Q | \| | \| | \| | \| |
| 13+30 | 0.0000 | 0.79 | Q | \| | \| | \| | \| |
| 13+45 | 0.0000 | 0.70 | Q | \| | \| | \| | \| |
| 14+ 0 | 0.0000 | 0.62 | Q | \| | \| | \| | \| |
| 14+15 | 0.0000 | 0.55 | Q | \| | \| | \| | \| |
| 14+30 | 0.0000 | 0.49 | Q | \| | \| | \| | \| |
| 14+45 | 0.0000 | 0.44 | Q | \| | \| | \| | \| |
| 15+ 0 | 0.0000 | 0.39 | Q | \| | \| | \| | \| |
| 15+15 | 0.0000 | 0.34 | Q | \| | \| | \| | \| |
| 15+30 | 0.0000 | 0.31 | Q | \| | \| | \| | \| |
| 15+45 | 0.0000 | 0.27 | Q | \| | \| | \| | \| |
| 16+ 0 | 0.0000 | 0.24 | Q | \| | \| | \| | \| |
| 16+15 | 0.0000 | 0.21 | Q | \| | \| | \| | \| |
| 16+30 | 0.0000 | 0.19 | Q | \| | \| | \| | \| |
| 16+45 | 0.0000 | 0.17 | Q | \| | \| | \| | \| |
| 17+ 0 | 0.0000 | 0.15 | Q | \| | \| | \| | \| |
| 17+15 | 0.0000 | 0.13 | Q | \| | \| | \| | \| |
| 17+30 | 0.0000 | 0.12 | Q | \| | \| | \| | \| |
| 17+45 | 0.0000 | 0.11 | Q | \| | \| | \| | \| |
| 18+ 0 | 0.0000 | 0.09 | Q | \| | \| | \| | \| |
| 18+15 | 0.0000 | 0.08 | Q | \| | \| | \| | \| |
| 18+30 | 0.0000 | 0.07 | Q | \| | \| | \| | \| |
| 18+45 | 0.0000 | 0.07 | Q | \| | \| | \| | \| |
| 19+ 0 | 0.0000 | 0.06 | Q | \| | \| | \| | \| |
| 19+15 | 0.0000 | 0.05 | Q | \| | \| | \| | \| |
| 19+30 | 0.0000 | 0.05 | Q | \| | \| | \| | \| |
| 19+45 | 0.0000 | 0.04 | Q | \| | \| | \| | \| |
| 20+ 0 | 0.0000 | 0.04 | Q | \| | \| | \| | \| |
| 20+15 | 0.0000 | 0.03 | Q | \| | \| | \| | \| |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20+30 | 0.0000 | 0.03 | Q | | | | |
| 20+45 | 0.0000 | 0.03 | Q | | | | |
| 21+ 0 | 0.0000 | 0.02 | Q | | | | |
| 21+15 | 0.0000 | 0.02 | Q | | | | |
| 21+30 | 0.0000 | 0.02 | Q | | | | |
| 21+45 | 0.0000 | 0.02 | Q | | | | |
| 22+ 0 | 0.0000 | 0.01 | Q | | | | |
| 22+15 | 0.0000 | 0.01 | Q | | | | |
| 22+30 | 0.0000 | 0.01 | Q | | | | |
| 22+45 | 0.0000 | 0.01 | Q | | | | |
| 23+ 0 | 0.0000 | 0.01 | Q | | | | |
| 23+15 | 0.0000 | 0.01 | Q | | | | |
| 23+30 | 0.0000 | 0.01 | Q | | | | |
| 23+45 | 0.0000 | 0.01 | Q | | | | |
| 24+ 0 | 0.0000 | 0.01 | Q | | | | |
| 24+15 | 0.0000 | 0.00 | Q | | | | |
| 24+30 | 0.0000 | 0.00 | Q | | | | |
| 24+45 | 0.0000 | 0.00 | Q | | | | |
| 25+ 0 | 0.0000 | 0.00 | Q | | | | |
| 25+15 | 0.0000 | 0.00 | Q | | | | |
| 25+30 | 0.0000 | 0.00 | Q | | | | |
| 25+45 | 0.0000 | 0.00 | Q | | | | |
| 26+ 0 | 0.0000 | 0.00 | Q | | | | |
| 26+15 | 0.0000 | 0.00 | Q | | | | |
| 26+30 | 0.0000 | 0.00 | Q | | | | |
| 26+45 | 0.0000 | 0.00 | Q | | | | |
| 27+ 0 | 0.0000 | 0.00 | Q | | | | |
| 27+15 | 0.0000 | 0.00 | Q | | | | |
| 27+30 | 0.0000 | 0.00 | Q | | | | |
| 27+45 | 0.0000 | 0.00 | Q | | | | |
| 28+ 0 | 0.0000 | 0.00 | Q | | | | |
| 28+15 | 0.0000 | 0.00 | Q | | | | |
| 28+30 | 0.0000 | 0.00 | Q | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 114
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1782.434 (CFS)
Total volume = 273.452 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 690.154 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 20.987 | 0.000 | 0.000 | 0.000 |

Process from Point/Station 4.000 to Point/Station 4.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: SubA43100.rte

P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 541.4 | 1082.9 | 1624.3 | 2165.8 |
|---|---|---|---|---|---|---|---|
| 0+15 | 38.9228 | 145.48 | q Q | | | | |
| 0+30 | 80.9066 | 374.41 | \|q Q \| | | | | |
| 0+45 | 100.3620 | 547.44 | \|q Q \| | | | | |
| 1+ 0 | 102.4288 | 614.23 | \|q \|Q \| | | | | |
| 1+15 | 123.9023 | 739.21 | \| q \| Q \| | | | | |
| 1+30 | 148.9066 | 932.52 | \| q \| Q \| | | | | |
| 1+45 | 173.2371 | 1132.00 | \| q \| Q \| | | | | |
| 2+ 0 | 192.8502 | 1311.24 | \| q \| Q \| | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2+15 | 244.7219 | 1639.30 | \| q \| Q \| | | | | |
| 2+30 | 347.9104 | 2069.55 | \| q \| Q \| | | | | |
| 2+45 | 383.3324 | 2165.77 | \| q \| Q \| | | | | |
| 3+ 0 | 218.8160 | 1940.12 | \| q \| Q \| | | | | |
| 3+15 | 58.8311 | 889.53 | \|q \| Q \| | | | | |
| 3+30 | 5.9815 | 269.71 | q Q \| | | | | |
| 3+45 | 0.0000 | 92.48 | qQ \| | | | | |
| 4+ 0 | 0.0000 | 57.92 | qQ \| | | | | |
| 4+15 | 0.0000 | 51.46 | Q \| | | | | |
| 4+30 | 0.0000 | 48.24 | Q \| | | | | |
| 4+45 | 0.0000 | 45.11 | Q \| | | | | |
| 5+ 0 | 0.0000 | 42.12 | Q \| | | | | |
| 5+15 | 0.0000 | 38.54 | Q \| | | | | |
| 5+30 | 0.0000 | 34.52 | Q \| | | | | |
| 5+45 | 0.0000 | 30.70 | Q \| | | | | |
| 6+ 0 | 0.0000 | 27.28 | Q \| | | | | |
| 6+15 | 0.0000 | 24.24 | Q \| | | | | |
| 6+30 | 0.0000 | 21.53 | Q \| | | | | |
| 6+45 | 0.0000 | 19.13 | Q \| | | | | |
| 7+ 0 | 0.0000 | 17.00 | Q \| | | | | |
| 7+15 | 0.0000 | 15.10 | Q \| | | | | |
| 7+30 | 0.0000 | 13.42 | Q \| | | | | |
| 7+45 | 0.0000 | 11.92 | Q \| | | | | |
| 8+ 0 | 0.0000 | 10.59 | Q \| | | | | |
| 8+15 | 0.0000 | 9.41 | Q \| | | | | |
| 8+30 | 0.0000 | 8.36 | Q \| | | | | |
| 8+45 | 0.0000 | 7.43 | Q \| | | | | |
| 9+ 0 | 0.0000 | 6.60 | Q \| | | | | |
| 9+15 | 0.0000 | 5.87 | Q \| | | | | |
| 9+30 | 0.0000 | 5.21 | Q \| | | | | |
| 9+45 | 0.0000 | 4.63 | Q \| | | | | |
| 10+ 0 | 0.0000 | 4.11 | Q \| | | | | |
| 10+15 | 0.0000 | 3.66 | Q \| | | | | |
| 10+30 | 0.0000 | 3.25 | Q \| | | | | |
| 10+45 | 0.0000 | 2.89 | Q \| | | | | |
| 11+ 0 | 0.0000 | 2.56 | Q \| | | | | |
| 11+15 | 0.0000 | 2.28 | Q \| | | | | |
| 11+30 | 0.0000 | 2.02 | Q \| | | | | |
| 11+45 | 0.0000 | 1.80 | Q \| | | | | |
| 12+ 0 | 0.0000 | 1.60 | Q \| | | | | |
| 12+15 | 0.0000 | 1.42 | Q \| | | | | |
| 12+30 | 0.0000 | 1.26 | Q \| | | | | |
| 12+45 | 0.0000 | 1.12 | Q \| | | | | |
| 13+ 0 | 0.0000 | 1.00 | Q \| | | | | |
| 13+15 | 0.0000 | 0.88 | Q \| | | | | |
| 13+30 | 0.0000 | 0.79 | Q \| | | | | |
| 13+45 | 0.0000 | 0.70 | Q \| | | | | |
| 14+ 0 | 0.0000 | 0.62 | Q \| | | | | |
| 14+15 | 0.0000 | 0.55 | Q \| | | | | |
| 14+30 | 0.0000 | 0.49 | Q \| | | | | |
| 14+45 | 0.0000 | 0.44 | Q \| | | | | |
| 15+ 0 | 0.0000 | 0.39 | Q \| | | | | |
| 15+15 | 0.0000 | 0.34 | Q \| | | | | |
| 15+30 | 0.0000 | 0.31 | Q \| | | | | |
| 15+45 | 0.0000 | 0.27 | Q \| | | | | |
| 16+ 0 | 0.0000 | 0.24 | Q \| | | | | |
| 16+15 | 0.0000 | 0.21 | Q \| | | | | |
| 16+30 | 0.0000 | 0.19 | Q \| | | | | |
| 16+45 | 0.0000 | 0.17 | Q \| | | | | |
| 17+ 0 | 0.0000 | 0.15 | Q \| | | | | |
| 17+15 | 0.0000 | 0.13 | Q \| | | | | |
| 17+30 | 0.0000 | 0.12 | Q \| | | | | |
| 17+45 | 0.0000 | 0.11 | Q \| | | | | |
| 18+ 0 | 0.0000 | 0.09 | Q \| | | | | |
| 18+15 | 0.0000 | 0.08 | Q \| | | | | |
| 18+30 | 0.0000 | 0.07 | Q \| | | | | |
| 18+45 | 0.0000 | 0.07 | Q \| | | | | |
| 19+ 0 | 0.0000 | 0.06 | Q \| | | | | |
| 19+15 | 0.0000 | 0.05 | Q \| | | | | |
| 19+30 | 0.0000 | 0.05 | Q \| | | | | |
| 19+45 | 0.0000 | 0.04 | Q \| | | | | |
| 20+ 0 | 0.0000 | 0.04 | Q \| | | | | |

```
 20+15       0.0000       0.03  Q         |          |          |          |
 20+30       0.0000       0.03  Q         |          |          |          |
 20+45       0.0000       0.03  Q         |          |          |          |
 21+ 0       0.0000       0.02  Q         |          |          |          |
 21+15       0.0000       0.02  Q         |          |          |          |
 21+30       0.0000       0.02  Q         |          |          |          |
 21+45       0.0000       0.02  Q         |          |          |          |
 22+ 0       0.0000       0.01  Q         |          |          |          |
 22+15       0.0000       0.01  Q         |          |          |          |
 22+30       0.0000       0.01  Q         |          |          |          |
 22+45       0.0000       0.01  Q         |          |          |          |
 23+ 0       0.0000       0.01  Q         |          |          |          |
 23+15       0.0000       0.01  Q         |          |          |          |
 23+30       0.0000       0.01  Q         |          |          |          |
 23+45       0.0000       0.01  Q         |          |          |          |
 24+ 0       0.0000       0.01  Q         |          |          |          |
 24+15       0.0000       0.00  Q         |          |          |          |
 24+30       0.0000       0.00  Q         |          |          |          |
 24+45       0.0000       0.00  Q         |          |          |          |
 25+ 0       0.0000       0.00  Q         |          |          |          |
 25+15       0.0000       0.00  Q         |          |          |          |
 25+30       0.0000       0.00  Q         |          |          |          |
 25+45       0.0000       0.00  Q         |          |          |          |
 26+ 0       0.0000       0.00  Q         |          |          |          |
 26+15       0.0000       0.00  Q         |          |          |          |
 26+30       0.0000       0.00  Q         |          |          |          |
 26+45       0.0000       0.00  Q         |          |          |          |
 27+ 0       0.0000       0.00  Q         |          |          |          |
 27+15       0.0000       0.00  Q         |          |          |          |
 27+30       0.0000       0.00  Q         |          |          |          |
 27+45       0.0000       0.00  Q         |          |          |          |
 28+ 0       0.0000       0.00  Q         |          |          |          |
 28+15       0.0000       0.00  Q         |          |          |          |
 28+30       0.0000       0.00  Q         |          |          |          |
-------------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA****************************
                  Number of intervals =   114
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =     2165.767 (CFS)
                  Total volume =     319.343 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)      0.000   690.154     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000    20.987     0.000     0.000     0.000
      ************************************************************************

      ------------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        1.000 to Point/Station        4.000
      **** STORE OR DELETE CURRENT HYDROGRAPH ****
      ________________________________________________________________________
      Current stream hydrograph saved in file LineA3hr.rte
      ***************************HYDROGRAPH DATA****************************
                  Number of intervals =     0
                  Time interval =    0.0 (Min.)
                  Maximum/Peak flow rate =        0.000 (CFS)
                  Total volume =       0.000 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)      0.000   690.154     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000    20.987     0.000     0.000     0.000
      ************************************************************************

      ------------------------------------------------------------------------
```



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                    FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                       Study date: 07/22/13

--------------------------------------------------------------------------


Watershed A/Line A, Offsite, routed
100 yr 3 hr


--------------------------------------------------------------------------


Program License Serial Number 6097

--------------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

               From study/file name: SUBA1off3100.rte
****************************HYDROGRAPH DATA*****************************
               Number of intervals =    15
               Time interval =   15.0 (Min.)
               Maximum/Peak flow rate =      931.518 (CFS)
               Total volume =      96.840 (Ac.Ft)
         Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
         Peak (CFS)      0.000     0.000     0.000     0.000     0.000
         Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       76.000 to Point/Station       81.000
**** STREAM ROUTING SCS CONVEX METHOD ****
__________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =    500.00 (Ft.)
Elevation difference =   10.00 (Ft.)
Slope of channel =  0.020000 (Vert/Hcriz)
Channel type - Improved Channel


Channel length =   500.00(Ft.)     Elevation difference =  10.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Covered channel
Channel base width  =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Manning's 'N'    = 0.015
Maximum depth of channel  =    8.000(Ft.)
Flow(q) thru subarea =    376.055(CFS)
Depth of flow =     1.625(Ft.)
Average velocity =    16.981(Ft/s)
Total flow rate =   376.055(CFS)
Channel flow top width =   15.251(Ft.)
Depth of flow in channel =   1.63(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   16.98(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  376.055(CFS)
Total capacity of improved channels =    376.055(CFS)
Critical Depth in Channel =    2.88(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Covered channel
Flow(q) thru subarea =    931.518(CFS)
Depth of flow =     2.775(Ft.)
```

```
Average velocity =    22.722(Ft/s)
Total flow rate =   931.518(CFS)
Channel flow top width =   17.549(Ft.)
Depth of flow in channel =    2.77(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   22.72(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  931.518(CFS)
Total capacity of improved channels =    931.518(CFS)
Critical Depth in Channel =    4.94(Ft.)


********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9304   Travel time =   0.37 (min.)
         dt*(unit time interval) =  15.00(min.),  e=  29.6403
         dt(routing time-step) =   0.34 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T   O F  S T O R M
                  R u n o f f      H y d r o g r a p h
----------------------------------------------------------------------
               Hydrograph in  15   Minute intervals (CFS)

----------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0      232.9     465.8     698.6     931.5
----------------------------------------------------------------------
  0+15      30.9927     31.71  |O        |         |         |         |
  0+30     100.7322    102.34  |   O     |         |         |         |
  0+45     153.3791    154.57  |     O   |         |         |         |
  1+ 0     166.6898    166.97  |      O  |         |         |         |
  1+15     205.7911    206.69  |       O |         |         |         |
  1+30     280.6510    282.37  |         | O       |         |         |
  1+45     342.4391    343.84  |         |   O     |         |         |
  2+ 0     401.3223    402.66  |         |     O   |         |         |
  2+15     512.5117    515.07  |         |         | O       |         |
  2+30     763.7133    769.50  |         |         |         | OI      |
  2+45     927.8321    931.52  |         |         |         |       OI
  3+ 0     612.8314    605.41  |         |         |    IO   |         |
  3+15     159.5856    149.21  |     O   |         |         |         |
  3+30      26.2827     23.42  |O        |         |         |         |
  3+45       2.2694      1.78  O         |         |         |         |
  4+ 0       0.0404      0.00  O         |         |         |         |
  4+15       0.0000      0.00  O         |         |         |         |
----------------------------------------------------------------------
**************************HYDROGRAPH DATA**************************
                Number of intervals =    17
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      927.832 (CFS)
                Total volume =      96.840 (Ac.Ft)
        Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)      0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
************************************************************************

----------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       81.000 to Point/Station       81.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****
______________________________________________________________________
********************* HYDROGRAPH INFORMATION **********************

               From study/file name: SUBA2off3100.rte
```



```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T   O F  S T O R M
                  R u n o f f      H y d r o g r a p h
----------------------------------------------------------------------
               Hydrograph in  15   Minute intervals (CFS)

----------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0      299.0     597.9     896.9    1195.8
----------------------------------------------------------------------
  0+15      10.6077     41.60  qQ       |         |         |         |
  0+30      31.4622    132.19  |q  Q     |         |         |         |
  0+45      45.4841    198.86  |q    Q   |         |         |         |
  1+ 0      47.8764    214.57  |q     Q  |         |         |         |
  1+15      61.0913    266.88  | q      Q|         |         |         |
  1+30      82.6289    363.28  | q       |Q        |         |         |
  1+45     100.2721    442.71  |  q      |  Q      |         |         |
  2+ 0     116.5655    517.89  |  q      |    Q    |         |         |
  2+15     151.6647    664.18  |    q    |         |Q        |         |
  2+30     228.3868    992.10  |      q  |         |         | Q       |
  2+45     267.9982   1195.83  |       q |         |         |        Q|
  3+ 0     158.1239    770.96  |    q    |         |   Q     |         |
  3+15      32.5896    192.18  |q   Q    |         |         |         |
  3+30       3.8937     30.18  qQ       |         |         |         |
  3+45       0.2649      2.53  Q        |         |         |         |
  4+ 0       0.0000      0.04  Q        |         |         |         |
  4+15       0.0000      0.00  Q        |         |         |         |
----------------------------------------------------------------------
**************************HYDROGRAPH DATA**************************
                Number of intervals =    17
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =     1195.830 (CFS)
                Total volume =     124.504 (Ac.Ft)
        Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)      0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
************************************************************************

----------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       81.000 to Point/Station       81.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****
______________________________________________________________________
********************* HYDROGRAPH INFORMATION **********************

               From study/file name: SUBA3offRT.rte
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T   O F  S T O R M
                  R u n o f f      H y d r o g r a p h
----------------------------------------------------------------------
               Hydrograph in  15   Minute intervals (CFS)

----------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0      437.8     875.5    1313.3    1751.0
----------------------------------------------------------------------
  0+15      18.5627     60.16  qQ       |         |         |         |
  0+30      60.3243    192.52  |q  Q     |         |         |         |
  0+45      91.8690    290.73  | q  Q    |         |         |         |
  1+ 0      99.8901    314.46  | q    Q  |         |         |         |
  1+15     123.2539    390.14  | q     Q |         |         |         |
  1+30     168.0060    531.29  |  q      |Q        |         |         |
  1+45     205.0017    647.71  |   q     |  Q      |         |         |
  2+ 0     240.2436    758.13  |    q    |    Q    |         |         |
  2+15     306.7135    970.89  |      q  |         |Q        |         |
  2+30     456.8561   1448.96  |         q         |         |  Q      |
  2+45     555.1948   1751.03  |          q|       |         |        Q|
  3+ 0     367.3301   1138.29  |         q |       |     Q   |         |
  3+15      96.2018    288.38  | q   Q   |         |         |         |
  3+30      15.9120     46.09  qQ       |         |         |         |
  3+45       1.3894      3.92  Q        |         |         |         |
```

```
 4+ 0       0.0266      0.07  Q         |         |         |         |
 4+15       0.0000      0.00  Q         |         |         |         |
--------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA****************************
                    Number of intervals =    17
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =     1751.025 (CFS)
                    Total volume =     182.495 (Ac.Ft)
             Status of hydrographs being held in storage
                       Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
             Peak (CFS)       0.000     0.000     0.000     0.000     0.000
             Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      **********************************************************************

      ----------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       81.000 to Point/Station       82.000
      **** STREAM ROUTING SCS CONVEX METHOD ****
      ______________________________________________________________________
      HYDROGRAPH STREAM ROUTING DATA:
      Length of stream =   1250.00 (Ft.)
      Elevation difference =   20.00 (Ft.)
      Slope of channel =  0.016000 (Vert/Horiz)
      Channel type - Improved Channel


      Channel length =  1250.00(Ft.)     Elevation difference =  20.00(Ft.)
      Channel evaluation using mean flow rate of hydrograph
      Covered channel
      Channel base width  =   12.000(Ft.)
      Slope or 'Z' of left channel bank =   1.000
      Slope or 'Z' of right channel bank =   1.000
      Manning's 'N'    = 0.015
      Maximum depth of channel  =    8.000(Ft.)
      Flow(q) thru subarea =    707.858(CFS)
      Depth of flow =     2.523(Ft.)
      Average velocity =    19.321(Ft/s)
      Total flow rate =   707.858(CFS)
      Channel flow top width =   17.045(Ft.)
      Depth of flow in channel =   2.52(Ft.)
      Total number of channels (same dimensions) = 1
      Flow Velocity =   19.32(Ft/s)
      Travel time  =    0.00 min.
      Individual channel flow =  707.858(CFS)
      Total capacity of improved channels =    707.858(CFS)
      Critical Depth in Channel =    4.19(Ft.)


      Channel evaluation using maximum flow rate of hydrograph
      Covered channel
      Flow(q) thru subarea =   1751.025(CFS)
      Depth of flow =     4.252(Ft.)
      Average velocity =    25.342(Ft/s)
      Total flow rate =  1751.025(CFS)
      Channel flow top width =   20.503(Ft.)
      Depth of flow in channel =   4.25(Ft.)
      Total number of channels (same dimensions) = 1
      Flow Velocity =   25.34(Ft/s)
      Travel time  =    0.00 min.
      Individual channel flow = 1751.025(CFS)
      Total capacity of improved channels =   1751.025(CFS)
      Critical Depth in Channel =    7.13(Ft.)


      ********************** SCS CONVEX CHANNEL ROUTING *********************
      Convex method of stream routing  data items:
      Using equation: Outflow =
      O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
                where c* = 1 - (1-c)^e and dt = c(length)/velocity
                c(v/v+1.7) =   0.9371   Travel time =   0.82 (min.)
```



```
            dt*(unit time interval) =  15.00(min.),  e=  13.3135
            dt(routing time-step) =   0.77 (min.),   c* =   1.0000

      Output hydrograph delayed by 0  unit time increments


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        P R I N T  O F  S T O R M
                     R u n o f f     H y c r o g r a p h
      ----------------------------------------------------------------------
                   Hydrograph in  15   Minute intervals (CFS)

      ----------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0      437.8     875.5    1313.3    1751.0
----------------------------------------------------------------------------
   0+15      57.0731     60.16  |O        |         |         |         |
   0+30     185.7209    192.52  |   O     |         |         |         |
   0+45     285.6879    290.73  |     O   |         |         |         |
   1+ 0     313.2378    314.46  |      O  |         |         |         |
   1+15     386.2494    390.14  |       O |         |         |         |
   1+30     524.0364    531.29  |         |OI       |         |         |
   1+45     641.7332    647.71  |         |  O      |         |         |
   2+ 0     752.4603    758.13  |         |     O   |         |         |
   2+15     959.9626    970.89  |         |         |OI       |         |
   2+30    1424.4026   1448.96  |         |         |         | OI      |
   2+45    1735.5107   1751.03  |         |         |         |        OI
   3+ 0    1169.7560   1138.29  |         |         |    O    |         |
   3+15     332.0287    288.38  |    IO   |         |         |         |
   3+30      58.5325     46.09  |O        |         |         |         |
   3+45       6.0892      3.92  O         |         |         |         |
   4+ 0       0.2651      0.07  O         |         |         |         |
   4+15       0.0034      0.00  O         |         |         |         |
   4+30       0.0000      0.00  O         |         |         |         |
----------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA****************************
                    Number of intervals =    18
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =     1735.511 (CFS)
                    Total volume =     182.495 (Ac.Ft)
             Status of hydrographs being held in storage
                       Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
             Peak (CFS)       0.000     0.000     0.000     0.000     0.000
             Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      **********************************************************************

      ----------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       82.000 to Point/Station       82.000
      **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
      ______________________________________________________________________
      ********************** HYDROGRAPH INFORMATION **********************

                    From study/file name: SketcherRT.rte
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        P R I N T  O F  S T O R M
                     R u n o f f     H y c r o g r a p h
      ----------------------------------------------------------------------
                   Hydrograph in  15   Minute intervals (CFS)

      ----------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0      448.0     896.1    1344.1    1792.1
----------------------------------------------------------------------------
   0+15       1.4664     58.54  qQ       |         |         |         |
   0+30       5.3002    191.02  q   Q    |         |         |         |
   0+45      10.0883    295.78  q     Q  |         |         |         |
   1+ 0      14.6274    327.87  q      Q |         |         |         |
   1+15      19.4408    405.69  q       Q|         |         |         |
   1+30      25.1900    549.23  q        | Q       |         |         |
   1+45      31.6160    673.35  q        |   Q     |         |         |
   2+ 0      38.4918    790.95  q        |     Q   |         |         |
```

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2+15 | 44.1021 | 1004.06 | q | \| | \| Q | \| | \| |
| 2+30 | 51.0548 | 1475.46 | \|q | \| | \| | \| Q | \| |
| 2+45 | 56.6392 | 1792.15 | \|q | \| | \| | \| | \| Q |
| 3+ 0 | 59.7516 | 1229.51 | \|q | \| | \| Q | \| | \| |
| 3+15 | 59.0963 | 391.13 | \|q Q | \| | \| | \| | \| |
| 3+30 | 56.9102 | 115.44 | \|qQ | \| | \| | \| | \| |
| 3+45 | 54.6061 | 60.70 | \|Q | \| | \| | \| | \| |
| 4+ 0 | 52.3954 | 52.66 | \|Q | \| | \| | \| | \| |
| 4+15 | 50.2741 | 50.28 | \|Q | \| | \| | \| | \| |
| 4+30 | 47.1036 | 47.10 | \|Q | \| | \| | \| | \| |
| 4+45 | 43.9676 | 43.97 | Q | \| | \| | \| | \| |
| 5+ 0 | 41.0403 | 41.04 | Q | \| | \| | \| | \| |
| 5+15 | 37.1659 | 37.17 | Q | \| | \| | \| | \| |
| 5+30 | 33.0216 | 33.02 | Q | \| | \| | \| | \| |
| 5+45 | 29.3393 | 29.34 | Q | \| | \| | \| | \| |
| 6+ 0 | 26.0677 | 26.07 | Q | \| | \| | \| | \| |
| 6+15 | 23.1609 | 23.16 | Q | \| | \| | \| | \| |
| 6+30 | 20.5782 | 20.58 | Q | \| | \| | \| | \| |
| 6+45 | 18.2835 | 18.28 | Q | \| | \| | \| | \| |
| 7+ 0 | 16.2447 | 16.24 | Q | \| | \| | \| | \| |
| 7+15 | 14.4333 | 14.43 | Q | \| | \| | \| | \| |
| 7+30 | 12.8238 | 12.82 | Q | \| | \| | \| | \| |
| 7+45 | 11.3938 | 11.39 | Q | \| | \| | \| | \| |
| 8+ 0 | 10.1233 | 10.12 | Q | \| | \| | \| | \| |
| 8+15 | 8.9945 | 8.99 | Q | \| | \| | \| | \| |
| 8+30 | 7.9915 | 7.99 | Q | \| | \| | \| | \| |
| 8+45 | 7.1003 | 7.10 | Q | \| | \| | \| | \| |
| 9+ 0 | 6.3086 | 6.31 | Q | \| | \| | \| | \| |
| 9+15 | 5.6051 | 5.61 | Q | \| | \| | \| | \| |
| 9+30 | 4.9801 | 4.98 | Q | \| | \| | \| | \| |
| 9+45 | 4.4248 | 4.42 | Q | \| | \| | \| | \| |
| 10+ 0 | 3.9314 | 3.93 | Q | \| | \| | \| | \| |
| 10+15 | 3.4930 | 3.49 | Q | \| | \| | \| | \| |
| 10+30 | 3.1035 | 3.10 | Q | \| | \| | \| | \| |
| 10+45 | 2.7574 | 2.76 | Q | \| | \| | \| | \| |
| 11+ 0 | 2.4499 | 2.45 | Q | \| | \| | \| | \| |
| 11+15 | 2.1767 | 2.18 | Q | \| | \| | \| | \| |
| 11+30 | 1.9340 | 1.93 | Q | \| | \| | \| | \| |
| 11+45 | 1.7183 | 1.72 | Q | \| | \| | \| | \| |
| 12+ 0 | 1.5267 | 1.53 | Q | \| | \| | \| | \| |
| 12+15 | 1.3565 | 1.36 | Q | \| | \| | \| | \| |
| 12+30 | 1.2052 | 1.21 | Q | \| | \| | \| | \| |
| 12+45 | 1.0708 | 1.07 | Q | \| | \| | \| | \| |
| 13+ 0 | 0.9514 | 0.95 | Q | \| | \| | \| | \| |
| 13+15 | 0.8453 | 0.85 | Q | \| | \| | \| | \| |
| 13+30 | 0.7511 | 0.75 | Q | \| | \| | \| | \| |
| 13+45 | 0.6673 | 0.67 | Q | \| | \| | \| | \| |
| 14+ 0 | 0.5929 | 0.59 | Q | \| | \| | \| | \| |
| 14+15 | 0.5268 | 0.53 | Q | \| | \| | \| | \| |
| 14+30 | 0.4680 | 0.47 | Q | \| | \| | \| | \| |
| 14+45 | 0.4159 | 0.42 | Q | \| | \| | \| | \| |
| 15+ 0 | 0.3695 | 0.37 | Q | \| | \| | \| | \| |
| 15+15 | 0.3283 | 0.33 | Q | \| | \| | \| | \| |
| 15+30 | 0.2917 | 0.29 | Q | \| | \| | \| | \| |
| 15+45 | 0.2591 | 0.26 | Q | \| | \| | \| | \| |
| 16+ 0 | 0.2303 | 0.23 | Q | \| | \| | \| | \| |
| 16+15 | 0.2046 | 0.20 | Q | \| | \| | \| | \| |
| 16+30 | 0.1818 | 0.18 | Q | \| | \| | \| | \| |
| 16+45 | 0.1615 | 0.16 | Q | \| | \| | \| | \| |
| 17+ 0 | 0.1435 | 0.14 | Q | \| | \| | \| | \| |
| 17+15 | 0.1275 | 0.13 | Q | \| | \| | \| | \| |
| 17+30 | 0.1133 | 0.11 | Q | \| | \| | \| | \| |
| 17+45 | 0.1006 | 0.10 | Q | \| | \| | \| | \| |
| 18+ 0 | 0.0894 | 0.09 | Q | \| | \| | \| | \| |
| 18+15 | 0.0794 | 0.08 | Q | \| | \| | \| | \| |
| 18+30 | 0.0706 | 0.07 | Q | \| | \| | \| | \| |
| 18+45 | 0.0627 | 0.06 | Q | \| | \| | \| | \| |
| 19+ 0 | 0.0557 | 0.06 | Q | \| | \| | \| | \| |
| 19+15 | 0.0495 | 0.05 | Q | \| | \| | \| | \| |
| 19+30 | 0.0440 | 0.04 | Q | \| | \| | \| | \| |
| 19+45 | 0.0391 | 0.04 | Q | \| | \| | \| | \| |
| 20+ 0 | 0.0347 | 0.03 | Q | \| | \| | \| | \| |



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 20+15 | 0.0309 | 0.03 | Q | \| | \| | \| | \| |
| 20+30 | 0.0274 | 0.03 | Q | \| | \| | \| | \| |
| 20+45 | 0.0244 | 0.02 | Q | \| | \| | \| | \| |
| 21+ 0 | 0.0216 | 0.02 | Q | \| | \| | \| | \| |
| 21+15 | 0.0192 | 0.02 | Q | \| | \| | \| | \| |
| 21+30 | 0.0171 | 0.02 | Q | \| | \| | \| | \| |
| 21+45 | 0.0152 | 0.02 | Q | \| | \| | \| | \| |
| 22+ 0 | 0.0135 | 0.01 | Q | \| | \| | \| | \| |
| 22+15 | 0.0120 | 0.01 | Q | \| | \| | \| | \| |
| 22+30 | 0.0106 | 0.01 | Q | \| | \| | \| | \| |
| 22+45 | 0.0095 | 0.01 | Q | \| | \| | \| | \| |
| 23+ 0 | 0.0084 | 0.01 | Q | \| | \| | \| | \| |
| 23+15 | 0.0075 | 0.01 | Q | \| | \| | \| | \| |
| 23+30 | 0.0066 | 0.01 | Q | \| | \| | \| | \| |
| 23+45 | 0.0059 | 0.01 | Q | \| | \| | \| | \| |
| 24+ 0 | 0.0052 | 0.01 | Q | \| | \| | \| | \| |
| 24+15 | 0.0047 | 0.00 | Q | \| | \| | \| | \| |
| 24+30 | 0.0041 | 0.00 | Q | \| | \| | \| | \| |
| 24+45 | 0.0037 | 0.00 | Q | \| | \| | \| | \| |
| 25+ 0 | 0.0033 | 0.00 | Q | \| | \| | \| | \| |
| 25+15 | 0.0029 | 0.00 | Q | \| | \| | \| | \| |
| 25+30 | 0.0026 | 0.00 | Q | \| | \| | \| | \| |
| 25+45 | 0.0023 | 0.00 | Q | \| | \| | \| | \| |
| 26+ 0 | 0.0020 | 0.00 | Q | \| | \| | \| | \| |
| 26+15 | 0.0018 | 0.00 | Q | \| | \| | \| | \| |
| 26+30 | 0.0016 | 0.00 | Q | \| | \| | \| | \| |
| 26+45 | 0.0014 | 0.00 | Q | \| | \| | \| | \| |
| 27+ 0 | 0.0013 | 0.00 | Q | \| | \| | \| | \| |
| 27+15 | 0.0011 | 0.00 | Q | \| | \| | \| | \| |
| 27+30 | 0.0010 | 0.00 | Q | \| | \| | \| | \| |
| 27+45 | 0.0010 | 0.00 | Q | \| | \| | \| | \| |

---

**********HYDROGRAPH DATA**********

Number of intervals = 111
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1792.150 (CFS)
Total volume = 205.149 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 82.000 to Point/Station 82.000

**** STORE OR DELETE CURRENT HYDROGRAPH ****

Current stream hydrograph saved in file AoffsiteRT.rte

**********HYDROGRAPH DATA**********

Number of intervals = 0
Time interval = 0.0 (Min.)
Maximum/Peak flow rate = 0.000 (CFS)
Total volume = 0.000 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

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```
                  FLOOD HYDROGRAPH ROUTING PROGRAM
            Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                        Study date: 07/22/13

------------------------------------------------------------------------


Watershed A3, North of 60 Fwy Routed to Node 75
Proposed Conditions
100 Yr, 3 Hr.

------------------------------------------------------------------------


Program License Serial Number 6097

------------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

               From study/file name: SUBA3off3100.rte
****************************HYDROGRAPH DATA*****************************
               Number of intervals =    15
               Time interval =   15.0 (Min.)
               Maximum/Peak flow rate =      557.615 (CFS)
               Total volume =      57.991 (Ac.Ft)
       Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       91.000 to Point/Station       75.000
**** STREAM ROUTING SCS CONVEX METHOD ****
________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =    500.00 (Ft.)
Elevation difference =   10.00 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Improved Channel


Channel length =   500.00(Ft.)     Elevation difference =  10.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Covered channel
Channel base width  =    8.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =    225.191(CFS)
Depth of flow =     1.517(Ft.)
Average velocity =    15.597(Ft/s)
Total flow rate =   225.191(CFS)
Channel flow top width =   11.034(Ft.)
Depth of flow in channel =   1.52(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   15.60(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  225.191(CFS)
Total capacity of improved channels =    225.191(CFS)
Critical Depth in Channel =    2.59(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Covered channel
Flow(q) thru subarea =    557.615(CFS)
Depth of flow =     2.567(Ft.)
```



```
Average velocity =    20.558(Ft/s)
Total flow rate =   557.615(CFS)
Channel flow top width =   13.134(Ft.)
Depth of flow in channel =   2.57(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   20.56(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  557.615(CFS)
Total capacity of improved channels =    557.615(CFS)
Critical Depth in Channel =    4.38(Ft.)


********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9236   Travel time =   0.41 (min.)
        dt*(unit time interval) =  15.00(min.),  e=  27.0425
        dt(routing time-step) =   0.37 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T  O F  S T O R M
                  R u n o f f     H y c r o g r a p h
------------------------------------------------------------------------
             Hydrograph in  15  Minute intervals (CFS)

------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0      139.4     278.8     418.2     557.6
------------------------------------------------------------------------
   0+15      18.5627     19.04  |O        |         |         |         |
   0+30      60.3243     61.38  |   O     |         |         |         |
   0+45      91.8690     92.65  |     O   |         |         |         |
   1+ 0      99.8901    100.08  |      O  |         |         |         |
   1+15     123.2539    123.85  |       O |         |         |         |
   1+30     168.0060    169.14  |         | O       |         |         |
   1+45     205.0017    205.92  |         |   O     |         |         |
   2+ 0     240.2436    241.12  |         |     O   |         |         |
   2+15     306.7135    308.39  |         |       O |         |         |
   2+30     456.8561    460.66  |         |         |         | OI      |
   2+45     555.1948    557.61  |         |         |         |       OI
   3+ 0     367.3301    362.46  |         |         |     O   |         |
   3+15      96.2018     89.39  |     O   |         |         |         |
   3+30      15.9120     14.03  |O        |         |         |         |
   3+45       1.3894      1.07  O         |         |         |         |
   4+ 0       0.0266      0.00  O         |         |         |         |
   4+15       0.0000      0.00  O         |         |         |         |
------------------------------------------------------------------------
****************************HYDROGRAPH DATA*****************************
               Number of intervals =    17
               Time interval =   15.0 (Min.)
               Maximum/Peak flow rate =      555.195 (CFS)
               Total volume =      57.991 (Ac.Ft)
       Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************

------------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       91.000 to Point/Station       75.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
________________________________________________________________________
Current stream hydrograph saved in file SUBA3offRT.rte
****************************HYDROGRAPH DATA*****************************
               Number of intervals =     0
```

```
            Time interval =    0.0 (Min.)
            Maximum/Peak flow rate =        0.000 (CFS)
            Total volume =       0.000 (Ac.Ft)
      Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)      0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
*******************************************************************************

--------------------------------------------------------------------------------
```



```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                       Study date: 07/22/13

--------------------------------------------------------------------------------

LineA, Offsite - Sketcher site
100 yr 3 hr

--------------------------------------------------------------------------------

Program License Serial Number 6097

--------------------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

            From study/file name: Sketcher3100.rte
****************************HYDROGRAPH DATA*****************************
            Number of intervals =    13
            Time interval =   15.0 (Min.)
            Maximum/Peak flow rate =      190.091 (CFS)
            Total volume =      22.656 (Ac.Ft)
      Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)      0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
*******************************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        1.000
**** RETARDING BASIN ROUTING ****
--------------------------------------------------------------------------------
User entry of depth-outflow-storage data
--------------------------------------------------------------------------------
Total number of inflow hydrograph intervals = 13
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)    (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)     (Ac.Ft)
--------------------------------------------------------------------------------
   0.000      0.000      0.000      0.000        0.000
   1.000      0.001      0.001      0.001        0.001
   2.000      0.002      0.001      0.002        0.002
   4.000      7.000     40.000      6.587        7.413
   5.000     10.000     50.000      9.483       10.517
   6.000     15.000     60.000     14.380       15.620
--------------------------------------------------------------------------------
                  Hydrograph Detention Basin Routing
--------------------------------------------------------------------------------

      Graph values: 'I'= unit inflow; 'O'=outflow at time shown
      --------------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                        Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0      47.5   95.05  142.57  190.09 (Ft.)
 0.250   26.48    1.47      0.258  O   I   |       |       |       |      2.07
 0.500   45.22    5.30      0.929  O     I|       |       |       |      2.26
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.750 | 51.26 | 10.09 | 1.767 | \|O I \| \| \| | | | | | 2.50 |
| 1.000 | 50.33 | 14.63 | 2.561 | \| O I \| \| \| | | | | | 2.73 |
| 1.250 | 65.25 | 19.44 | 3.403 | \| O \| I \| \| \| | | | | | 2.97 |
| 1.500 | 76.74 | 25.19 | 4.409 | \| O \| I \| \| \| | | | | | 3.26 |
| 1.750 | 88.89 | 31.62 | 5.533 | \| O \| I \| \| \| | | | | | 3.58 |
| 2.000 | 97.67 | 38.49 | 6.736 | \| O \| I \| \| | | | | | 3.92 |
| 2.250 | 129.60 | 44.10 | 8.231 | \| O\| \| I \| \| | | | | | 4.41 |
| 2.500 | 187.89 | 51.05 | 10.527 | \| O \| \| \| I\| | | | | | 5.11 |
| 2.750 | 190.09 | 56.64 | 13.320 | \| \|O \| \| \| I | | | | | | 5.66 |
| 3.000 | 76.94 | 59.75 | 14.876 | \| \| O I \| \| \| | | | | | 5.98 |
| 3.250 | 10.20 | 59.10 | 14.548 | \|I \|O \| \| \| | | | | | 5.91 |
| 3.500 | 0.00 | 56.91 | 13.455 | I \|O \| \| \| | | | | | 5.69 |
| 3.750 | 0.00 | 54.61 | 12.303 | I \|O \| \| \| | | | | | 5.46 |
| 4.000 | 0.00 | 52.40 | 11.198 | I O \| \| \| | | | | | 5.24 |
| 4.250 | 0.00 | 50.27 | 10.137 | I O \| \| \| | | | | | 5.03 |
| 4.500 | 0.00 | 47.10 | 9.131 | I O\| \| \| | | | | | 4.71 |
| 4.750 | 0.00 | 43.97 | 8.190 | I O\| \| \| | | | | | 4.40 |
| 5.000 | 0.00 | 41.04 | 7.312 | I O \| \| \| | | | | | 4.10 |
| 5.250 | 0.00 | 37.17 | 6.504 | I O \| \| \| | | | | | 3.86 |
| 5.500 | 0.00 | 33.02 | 5.779 | I O \| \| \| | | | | | 3.65 |
| 5.750 | 0.00 | 29.34 | 5.135 | I \| \| \| | | | | | 3.47 |
| 6.000 | 0.00 | 26.07 | 4.562 | I \| \| \| | | | | | 3.30 |
| 6.250 | 0.00 | 23.16 | 4.054 | I O \| \| \| | | | | | 3.16 |
| 6.500 | 0.00 | 20.58 | 3.602 | I O \| \| \| | | | | | 3.03 |
| 6.750 | 0.00 | 18.28 | 3.201 | I O \| \| \| | | | | | 2.91 |
| 7.000 | 0.00 | 16.24 | 2.844 | I O \| \| \| | | | | | 2.81 |
| 7.250 | 0.00 | 14.43 | 2.527 | I O \| \| \| | | | | | 2.72 |
| 7.500 | 0.00 | 12.82 | 2.245 | I O \| \| \| | | | | | 2.64 |
| 7.750 | 0.00 | 11.39 | 1.995 | IO \| \| \| | | | | | 2.57 |
| 8.000 | 0.00 | 10.12 | 1.773 | IO \| \| \| | | | | | 2.51 |
| 8.250 | 0.00 | 8.99 | 1.575 | IO \| \| \| | | | | | 2.45 |
| 8.500 | 0.00 | 7.99 | 1.400 | IO \| \| \| | | | | | 2.40 |
| 8.750 | 0.00 | 7.10 | 1.244 | IO \| \| \| | | | | | 2.35 |
| 9.000 | 0.00 | 6.31 | 1.106 | IO \| \| \| | | | | | 2.32 |
| 9.250 | 0.00 | 5.61 | 0.982 | O \| \| \| | | | | | 2.28 |
| 9.500 | 0.00 | 4.98 | 0.873 | O \| \| \| | | | | | 2.25 |
| 9.750 | 0.00 | 4.42 | 0.776 | O \| \| \| | | | | | 2.22 |
| 10.000 | 0.00 | 3.93 | 0.690 | O \| \| \| | | | | | 2.20 |
| 10.250 | 0.00 | 3.49 | 0.613 | O \| \| \| | | | | | 2.17 |
| 10.500 | 0.00 | 3.10 | 0.545 | O \| \| \| | | | | | 2.16 |
| 10.750 | 0.00 | 2.76 | 0.484 | O \| \| \| | | | | | 2.14 |
| 11.000 | 0.00 | 2.45 | 0.430 | O \| \| \| | | | | | 2.12 |
| 11.250 | 0.00 | 2.18 | 0.383 | O \| \| \| | | | | | 2.11 |
| 11.500 | 0.00 | 1.93 | 0.340 | O \| \| \| | | | | | 2.10 |
| 11.750 | 0.00 | 1.72 | 0.302 | O \| \| \| | | | | | 2.09 |
| 12.000 | 0.00 | 1.53 | 0.269 | O \| \| \| | | | | | 2.08 |
| 12.250 | 0.00 | 1.36 | 0.239 | O \| \| \| | | | | | 2.07 |
| 12.500 | 0.00 | 1.21 | 0.213 | O \| \| \| | | | | | 2.06 |
| 12.750 | 0.00 | 1.07 | 0.189 | O \| \| \| | | | | | 2.05 |
| 13.000 | 0.00 | 0.95 | 0.168 | O \| \| \| | | | | | 2.05 |
| 13.250 | 0.00 | 0.85 | 0.150 | O \| \| \| | | | | | 2.04 |
| 13.500 | 0.00 | 0.75 | 0.133 | O \| \| \| | | | | | 2.04 |
| 13.750 | 0.00 | 0.67 | 0.119 | O \| \| \| | | | | | 2.03 |
| 14.000 | 0.00 | 0.59 | 0.106 | O \| \| \| | | | | | 2.03 |
| 14.250 | 0.00 | 0.53 | 0.094 | O \| \| \| | | | | | 2.03 |
| 14.500 | 0.00 | 0.47 | 0.084 | O \| \| \| | | | | | 2.02 |
| 14.750 | 0.00 | 0.42 | 0.075 | O \| \| \| | | | | | 2.02 |
| 15.000 | 0.00 | 0.37 | 0.066 | O \| \| \| | | | | | 2.02 |
| 15.250 | 0.00 | 0.33 | 0.059 | O \| \| \| | | | | | 2.02 |
| 15.500 | 0.00 | 0.29 | 0.053 | O \| \| \| | | | | | 2.01 |
| 15.750 | 0.00 | 0.26 | 0.047 | O \| \| \| | | | | | 2.01 |
| 16.000 | 0.00 | 0.23 | 0.042 | O \| \| \| | | | | | 2.01 |
| 16.250 | 0.00 | 0.20 | 0.038 | O \| \| \| | | | | | 2.01 |
| 16.500 | 0.00 | 0.18 | 0.034 | O \| \| \| | | | | | 2.01 |
| 16.750 | 0.00 | 0.16 | 0.030 | O \| \| \| | | | | | 2.01 |
| 17.000 | 0.00 | 0.14 | 0.027 | O \| \| \| | | | | | 2.01 |
| 17.250 | 0.00 | 0.13 | 0.024 | O \| \| \| | | | | | 2.01 |
| 17.500 | 0.00 | 0.11 | 0.022 | O \| \| \| | | | | | 2.01 |
| 17.750 | 0.00 | 0.10 | 0.019 | O \| \| \| | | | | | 2.00 |
| 18.000 | 0.00 | 0.09 | 0.017 | O \| \| \| | | | | | 2.00 |
| 18.250 | 0.00 | 0.08 | 0.016 | O \| \| \| | | | | | 2.00 |
| 18.500 | 0.00 | 0.07 | 0.014 | O \| \| \| | | | | | 2.00 |



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18.750 | 0.00 | 0.06 | 0.013 | O \| \| \| \| | | | | | 2.00 |
| 19.000 | 0.00 | 0.06 | 0.012 | O \| \| \| \| | | | | | 2.00 |
| 19.250 | 0.00 | 0.05 | 0.010 | O \| \| \| \| | | | | | 2.00 |
| 19.500 | 0.00 | 0.04 | 0.010 | O \| \| \| \| | | | | | 2.00 |
| 19.750 | 0.00 | 0.04 | 0.009 | O \| \| \| \| | | | | | 2.00 |
| 20.000 | 0.00 | 0.03 | 0.008 | O \| \| \| \| | | | | | 2.00 |
| 20.250 | 0.00 | 0.03 | 0.007 | O \| \| \| \| | | | | | 2.00 |
| 20.500 | 0.00 | 0.03 | 0.007 | O \| \| \| \| | | | | | 2.00 |
| 20.750 | 0.00 | 0.02 | 0.006 | O \| \| \| \| | | | | | 2.00 |
| 21.000 | 0.00 | 0.02 | 0.006 | O \| \| \| \| | | | | | 2.00 |
| 21.250 | 0.00 | 0.02 | 0.005 | O \| \| \| \| | | | | | 2.00 |
| 21.500 | 0.00 | 0.02 | 0.005 | O \| \| \| \| | | | | | 2.00 |
| 21.750 | 0.00 | 0.02 | 0.004 | O \| \| \| \| | | | | | 2.00 |
| 22.000 | 0.00 | 0.01 | 0.004 | O \| \| \| \| | | | | | 2.00 |
| 22.250 | 0.00 | 0.01 | 0.004 | O \| \| \| \| | | | | | 2.00 |
| 22.500 | 0.00 | 0.01 | 0.004 | O \| \| \| \| | | | | | 2.00 |
| 22.750 | 0.00 | 0.01 | 0.003 | O \| \| \| \| | | | | | 2.00 |
| 23.000 | 0.00 | 0.01 | 0.003 | O \| \| \| \| | | | | | 2.00 |
| 23.250 | 0.00 | 0.01 | 0.003 | O \| \| \| \| | | | | | 2.00 |
| 23.500 | 0.00 | 0.01 | 0.003 | O \| \| \| \| | | | | | 2.00 |
| 23.750 | 0.00 | 0.01 | 0.003 | O \| \| \| \| | | | | | 2.00 |
| 24.000 | 0.00 | 0.01 | 0.003 | O \| \| \| \| | | | | | 2.00 |
| 24.250 | 0.00 | 0.00 | 0.003 | O \| \| \| \| | | | | | 2.00 |
| 24.500 | 0.00 | 0.00 | 0.003 | O \| \| \| \| | | | | | 2.00 |
| 24.750 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 25.000 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 25.250 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 25.500 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 25.750 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 26.000 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 26.250 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 26.500 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 26.750 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 27.000 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 27.250 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 27.500 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 2.00 |
| 27.750 | 0.00 | 0.00 | 0.002 | O \| \| \| \| | | | | | 1.98 |

```
Remaining water in basin =    0.00 (Ac.Ft)


*****************************HYDROGRAPH DATA*****************************
              Number of intervals =   111
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =       59.752 (CFS)
              Total volume =      22.654 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
*************************************************************************

-------------------------------------------------------------------------


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Process from Point/Station        1.000 to Point/Station        1.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
_________________________________________________________________________
Current stream hydrograph saved in file SketcherRT.rte
*****************************HYDROGRAPH DATA*****************************
              Number of intervals =    0
              Time interval =    0.0 (Min.)
              Maximum/Peak flow rate =        0.000 (CFS)
              Total volume =       0.000 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
*************************************************************************
```

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U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 07/22/13 File: SUBA1off3100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

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English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

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Watershed A1 Offsite
Proposed Conditions
100 Yr. 3 Hr.

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Drainage Area = 872.60(Ac.) = 1.363 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 872.60(Ac.) = 1.363 Sq. Mi.
Length along longest watercourse = 10000.00(Ft.)
Length along longest watercourse measured to centroid = 5000.00(Ft.)
Length along longest watercourse = 1.894 Mi.
Length along longest watercourse measured to centroid = 0.947 Mi.
Difference in elevation = 1000.00(Ft.)
Slope along watercourse = 528.000( Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.137 Hr.
Lag time = 8.20 Min.
25% of lag time = 2.05 Min.
40% of lag time = 3.28 Min.
Unit time = 15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 872.60 | 0.85 | 741.71 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 872.60 | 1.90 | 1657.94 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.850(In)
Area Averaged 100-Year Rainfall = 1.900(In)

Point rain (area averaged) = 1.900(In)
Areal adjustment factor = 99.62 %
Adjusted average point rain = 1.893(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 872.600 | 85.00 | 0.000 |

Total Area Entered = 872.60(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 1.000 | 0.187 |
| | | | | | Sum (F) = | 0.187 |

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.094
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 183.034 | 38.704 | 340.373 |
| 2 | 0.500 | 366.067 | 51.579 | 453.594 |
| 3 | 0.750 | 549.101 | 8.175 | 71.890 |
| 4 | 1.000 | 732.135 | 1.542 | 13.560 |
| | | Sum = 100.000 | Sum= | 879.417 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.280 | 0.187 | ( 0.252) | 0.093 |
| 2 | 0.50 | 4.80 | 0.363 | 0.187 | ( 0.327) | 0.176 |
| 3 | 0.75 | 5.10 | 0.386 | 0.187 | ( 0.348) | 0.199 |
| 4 | 1.00 | 4.90 | 0.371 | 0.187 | ( 0.334) | 0.184 |
| 5 | 1.25 | 6.60 | 0.500 | 0.187 | ( 0.450) | 0.313 |
| 6 | 1.50 | 7.30 | 0.553 | 0.187 | ( 0.497) | 0.366 |
| 7 | 1.75 | 8.40 | 0.636 | 0.187 | ( 0.572) | 0.449 |
| 8 | 2.00 | 9.00 | 0.681 | 0.187 | ( 0.613) | 0.494 |
| 9 | 2.25 | 12.30 | 0.931 | 0.187 | ( 0.838) | 0.744 |
| 10 | 2.50 | 17.60 | 1.332 | 0.187 | ( 1.199) | 1.145 |
| 11 | 2.75 | 16.10 | 1.219 | 0.187 | ( 1.097) | 1.032 |
| 12 | 3.00 | 4.20 | 0.318 | 0.187 | ( 0.286) | 0.131 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 5.3 |

Flood volume = Effective rainfall 1.33(In)
times area 872.6(Ac.)/[(In)/(Ft.)] = 96.8(Ac.Ft)
Total soil loss = 0.56(In)
Total soil loss = 40.794(Ac.Ft)
Total rainfall = 1.89(In)
Flood volume = 4218357.7 Cubic Feet
Total soil loss = 1776988.8 Cubic Feet

Peak flow rate of this hydrograph = 931.518(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 250.0 | 500.0 | 750.0 | 1000.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.6553 | 31.71 | VQ | | | | |
| 0+30 | 2.7697 | 102.34 | V Q | | | | |
| 0+45 | 5.9632 | 154.57 | V Q | | | | |
| 1+ 0 | 9.4131 | 166.97 | V Q | | | | |
| 1+15 | 13.6836 | 206.69 | V Q | | | | |
| 1+30 | 19.5178 | 282.37 | V Q | | | | |
| 1+45 | 26.6218 | 343.84 | V Q | | | | |
| 2+ 0 | 34.9413 | 402.66 | V Q | | | | |
| 2+15 | 45.5832 | 515.07 | V Q | | | | |
| 2+30 | 61.4820 | 769.50 | V Q | | | | |
| 2+45 | 80.7282 | 931.52 | V Q | | | | |
| 3+ 0 | 93.2367 | 605.41 | V Q | | | | |
| 3+15 | 96.3195 | 149.21 | Q | V | | | |
| 3+30 | 96.8035 | 23.42 | Q | V | | | |
| 3+45 | 96.8402 | 1.78 | Q | V | | | |

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 07/22/13 File: SUBA2off3100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

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English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

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Watershed A2 Offsite
Proposed Conditions
100 Yr. 3 Hr.

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Drainage Area = 248.30(Ac.) = 0.388 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 248.30(Ac.) = 0.388 Sq. Mi.
Length along longest watercourse = 8200.00(Ft.)
Length along longest watercourse measured to centroid = 4000.00(Ft.)
Length along longest watercourse = 1.553 Mi.
Length along longest watercourse measured to centroid = 0.758 Mi.
Difference in elevation = 820.00(Ft.)
Slope along watercourse = 528.0000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.116 Hr.
Lag time = 6.98 Min.
25% of lag time = 1.75 Min.
40% of lag time = 2.79 Min.
Unit time = 15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 248.30 | 0.85 | 211.06 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 248.30 | 1.90 | 471.77 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.850(In)
Area Averaged 100-Year Rainfall = 1.900(In)

Point rain (area averaged) = 1.900(In)
Areal adjustment factor = 99.89 %
Adjusted average point rain = 1.898(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 248.300 | 85.00 | 0.000 |

Total Area Entered = 248.30(Ac.)



| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 1.000 | 0.187 |
| | | | | | Sum (F) = | 0.187 |

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.094
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t  H y d r o g r a p h
FOOTHILL S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 214.836 | 45.123 | 112.916 |
| 2 | 0.500 | 429.673 | 48.579 | 121.564 |
| 3 | 0.750 | 644.509 | 5.496 | 13.752 |
| 4 | 1.000 | 859.345 | 0.802 | 2.008 |
| | | | Sum = 100.000 | Sum= 250.240 |

---

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.187 | ( 0.253) | 0.094 |
| 2 | 0.50 | 4.80 | 0.364 | 0.187 | ( 0.328) | 0.177 |
| 3 | 0.75 | 5.10 | 0.387 | 0.187 | ( 0.348) | 0.200 |
| 4 | 1.00 | 4.90 | 0.372 | 0.187 | ( 0.335) | 0.185 |
| 5 | 1.25 | 6.60 | 0.501 | 0.187 | ( 0.451) | 0.314 |
| 6 | 1.50 | 7.30 | 0.554 | 0.187 | ( 0.499) | 0.367 |
| 7 | 1.75 | 8.40 | 0.638 | 0.187 | ( 0.574) | 0.451 |
| 8 | 2.00 | 9.00 | 0.683 | 0.187 | ( 0.615) | 0.496 |
| 9 | 2.25 | 12.30 | 0.934 | 0.187 | ( 0.840) | 0.747 |
| 10 | 2.50 | 17.60 | 1.336 | 0.187 | ( 1.203) | 1.149 |
| 11 | 2.75 | 16.10 | 1.222 | 0.187 | ( 1.100) | 1.035 |
| 12 | 3.00 | 4.20 | 0.319 | 0.187 | ( 0.287) | 0.132 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 5.3 |

Flood volume = Effective rainfall 1.34(In)
times area 248.3(Ac.)/[(In)/(Ft.)] = 27.7(Ac.Ft)
Total soil loss = 0.56(In)
Total soil loss = 11.608(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 1205019.2 Cubic Feet
Total soil loss = 505645.6 Cubic Feet

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Peak flow rate of this hydrograph = 267.998(CFS)

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3 - H O U R  S T O R M
R u n o f f  H y c r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 75.0 | 150.0 | 225.0 | 300.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.2192 | 10.61 | VQ | | | | |
| 0+30 | 0.8692 | 31.46 | V Q | | | | |
| 0+45 | 1.8090 | 45.48 | V Q | | | | |
| 1+ 0 | 2.7981 | 47.88 | V Q | | | | |
| 1+15 | 4.0604 | 61.09 | V Q | | | | |
| 1+30 | 5.7676 | 82.63 | V Q | | | | |
| 1+45 | 7.8393 | 100.27 | V Q | | | | |

```
    2+ 0      10.2477    116.57  |          |   VQ     |          |          |
    2+15      13.3813    151.66  |          |          VQ         |          |
    2+30      18.1000    228.39  |          |          |     V    Q          |
    2+45      23.6371    268.00  |          |          |          |    VQ     |
    3+ 0      26.9042    158.12  |          |          |Q         |          V |
    3+15      27.5775     32.59  |    Q     |          |          |          V|
    3+30      27.6580      3.89  Q          |          |          |          V|
    3+45      27.6634      0.26  Q          |          |          |          V|
-------------------------------------------------------------------------------
```



```
        U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format


--------------------------------------------------------------------
Watershed A3 Offsite
Proposed Conditions
100 Yr. 3 Hr.

--------------------------------------------------------------------
Drainage Area =     521.40(Ac.)  =      0.815 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     521.40(Ac.)  =      0.815 Sq. Mi.
Length along longest watercourse =   10000.00(Ft.)
Length along longest watercourse measured to centroid =    5000.00(Ft.)
Length along longest watercourse =      1.894 Mi.
Length along longest watercourse measured to centroid =      0.947 Mi.
Difference in elevation =    1000.00(Ft.)
Slope along watercourse =    528.000( Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.137 Hr.
Lag time =     8.20 Min.
25% of lag time =     2.05 Min.
40% of lag time =     3.28 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      521.40            0.85                443.19

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      521.40            1.90                990.66

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.77 %
Adjusted average point rain =    1.896(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   521.400           85.00          0.000
 Total Area Entered =    521.40(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 1.000 | 0.187 |
| | | | | | Sum (F) = | 0.187 |

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.094
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 183.034 | 38.704 | 203.381 |
| 2 | 0.500 | 366.067 | 51.579 | 271.033 |
| 3 | 0.750 | 549.101 | 8.175 | 42.956 |
| 4 | 1.000 | 732.135 | 1.542 | 8.102 |
| | | Sum = 100.000 | Sum= | 525.473 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.187 | ( 0.253) | 0.094 |
| 2 | 0.50 | 4.80 | 0.364 | 0.187 | ( 0.328) | 0.177 |
| 3 | 0.75 | 5.10 | 0.387 | 0.187 | ( 0.348) | 0.200 |
| 4 | 1.00 | 4.90 | 0.372 | 0.187 | ( 0.334) | 0.185 |
| 5 | 1.25 | 6.60 | 0.500 | 0.187 | ( 0.450) | 0.313 |
| 6 | 1.50 | 7.30 | 0.554 | 0.187 | ( 0.498) | 0.367 |
| 7 | 1.75 | 8.40 | 0.637 | 0.187 | ( 0.573) | 0.450 |
| 8 | 2.00 | 9.00 | 0.682 | 0.187 | ( 0.614) | 0.495 |
| 9 | 2.25 | 12.30 | 0.933 | 0.187 | ( 0.839) | 0.746 |
| 10 | 2.50 | 17.60 | 1.335 | 0.187 | ( 1.201) | 1.148 |
| 11 | 2.75 | 16.10 | 1.221 | 0.187 | ( 1.099) | 1.034 |
| 12 | 3.00 | 4.20 | 0.318 | 0.187 | ( 0.287) | 0.131 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 5.3 |

Flood volume = Effective rainfall 1.33(In)
times area 521.4(Ac.)/[(In)/(Ft.)] = 58.0(Ac.Ft)
Total soil loss = 0.56(In)
Total soil loss = 24.375(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 2526098.1 Cubic Feet
Total soil loss = 1061794.6 Cubic Feet

Peak flow rate of this hydrograph = 557.615(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 150.0 | 300.0 | 450.0 | 600.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.3933 | 19.04 | VQ | | | | |
| 0+30 | 1.6616 | 61.38 | V Q | | | | |
| 0+45 | 3.5758 | 92.65 | V Q | | | | |
| 1+ 0 | 5.6435 | 100.08 | V Q | | | | |
| 1+15 | 8.2023 | 123.85 | V Q | | | | |
| 1+30 | 11.6969 | 169.14 | V Q | | | | |
| 1+45 | 15.9514 | 205.92 | V Q | | | | |
| 2+ 0 | 20.9333 | 241.12 | V Q | | | | |
| 2+15 | 27.3050 | 308.39 | V Q | | | | |
| 2+30 | 36.8227 | 460.66 | V Q | | | | |
| 2+45 | 48.3437 | 557.61 | V Q | | | | |
| 3+ 0 | 55.8325 | 362.46 | V Q | | | | |
| 3+15 | 57.6793 | 89.39 | Q | | | | V |
| 3+30 | 57.9692 | 14.03 | Q | | | | V |
| 3+45 | 57.9912 | 1.07 | Q | | | | V |

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       U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Sketcher Site
100 YR 3 HR


------------------------------------------------------------------------
Drainage Area =     158.40(Ac.)  =      0.248 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     158.40(Ac.)  =      0.248 Sq. Mi.
Length along longest watercourse =    1400.00(Ft.)
Length along longest watercourse measured to centroid =     700.00(Ft.)
Length along longest watercourse =      0.265 Mi.
Length along longest watercourse measured to centroid =      0.133 Mi.
Difference in elevation =      28.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.042 Hr.
Lag time =     2.50 Min.
25% of lag time =     0.62 Min.
40% of lag time =     1.00 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      158.40            0.85                134.64

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      158.40            1.90                300.96

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.93 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   158.400           85.00          0.750
 Total Area Entered =    158.40(Ac.)
```



```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)     (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
85.0  85.0       0.187      0.750         0.061        1.000       0.061
                                                    Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.300
------------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                      VALLEY S-Curve
------------------------------------------------------------------------
                   Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution    Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
    1   0.250        600.716         75.271            120.161
    2   0.500       1201.433         24.729             39.477
                              Sum = 100.000    Sum=     159.638
------------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
    (Hr.)   Percent   (In/Hr)         Max   |   Low          (In/Hr)
  1   0.25     3.70      0.281          0.051    (  0.084)        0.220
  2   0.50     4.80      0.365          0.051    (  0.109)        0.304
  3   0.75     5.10      0.387          0.051    (  0.116)        0.327
  4   1.00     4.90      0.372          0.051    (  0.112)        0.311
  5   1.25     6.60      0.501          0.051    (  0.150)        0.440
  6   1.50     7.30      0.554          0.051    (  0.166)        0.494
  7   1.75     8.40      0.638          0.051    (  0.191)        0.577
  8   2.00     9.00      0.684          0.051    (  0.205)        0.623
  9   2.25    12.30      0.934          0.051    (  0.280)        0.873
 10   2.50    17.60      1.337          0.051    (  0.401)        1.276
 11   2.75    16.10      1.223          0.051    (  0.367)        1.162
 12   3.00     4.20      0.319          0.051    (  0.096)        0.258
            (Loss Rate Not Used)
   Sum =    100.0                                 Sum =     6.9
    Flood volume = Effective rainfall      1.72(In)
     times area    158.4(Ac.)/[(In)/(Ft.)] =      22.7(Ac.Ft)
    Total soil loss =      0.18(In)
    Total soil loss =     2.407(Ac.Ft)
    Total rainfall =      1.90(In)
    Flood volume =      986892.3 Cubic Feet
    Total soil loss =      104835.4 Cubic Feet
    ------------------------------------------------------------------------
     Peak flow rate of this hydrograph =    190.091(CFS)
    ------------------------------------------------------------------------
    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                      3 - H O U R    S T O R M
                   R u n o f f     H y c r o g r a p h
    ------------------------------------------------------------------------
                Hydrograph in  15   Minute intervals ((CFS))

    ------------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       50.0     100.0     150.0     200.0
-------------------------------------------------------------------------------
  0+15       0.5470     26.48  V    Q    |         |         |         |
  0+30       1.4813     45.22  | V      Q|         |         |         |
  0+45       2.5404     51.26  |   V     Q         |         |         |
  1+ 0       3.5803     50.33  |     V   Q         |         |         |
  1+15       4.9285     65.25  |       V |  Q      |         |         |
  1+30       6.5141     76.74  |         V    Q    |         |         |
  1+45       8.3506     88.89  |         |    V  Q |         |         |
  2+ 0      10.3685     97.67  |         |      VQ |         |         |
  2+15      13.0461    129.60  |         |         |  V Q    |         |
```

```
    2+30      16.9281    187.89  |         |         |        V|      Q  |
    2+45      20.8556    190.09  |         |         |         |     V Q |
    3+ 0      22.4452     76.94  |         |    Q    |         |       V|
    3+15      22.6559     10.20  | Q       |         |         |        V|
----------------------------------------------------------------------------
```



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        U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format


------------------------------------------------------------------
Line A, Subarea A1
Proposed Condition
100-yr 3-hr
MODEL BY: NS
------------------------------------------------------------------------
Drainage Area =     211.60(Ac.)  =      0.331 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     211.60(Ac.)  =      0.331 Sq. Mi.
Length along longest watercourse =    2457.20(Ft.)
Length along longest watercourse measured to centroid =    1302.27(Ft.)
Length along longest watercourse =      0.465 Mi.
Length along longest watercourse measured to centroid =      0.247 Mi.
Difference in elevation =      27.06(Ft.)
Slope along watercourse =     58.1462 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.073 Hr.
Lag time =     4.38 Min.
25% of lag time =     1.10 Min.
40% of lag time =     1.75 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      211.60           0.85                 179.86

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      211.60           1.90                 402.04

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.91 %
Adjusted average point rain =    1.898(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   211.600           85.00          0.750
 Total Area Entered =    211.60(Ac.)
```

```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
85.0  85.0      0.187     0.750        0.061        1.000      0.061
                                                  Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.300
```

---

U n i t  H y d r o g r a p h
VALLEY S-Curve

---

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 342.093 | 60.628 | 129.290 |
| 2 | 0.500 | 684.187 | 34.922 | 74.472 |
| 3 | 0.750 | 1026.280 | 4.450 | 9.490 |
| | | | Sum = 100.000 | Sum= 213.253 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.061 | ( 0.084) | 0.220 |
| 2 | 0.50 | 4.80 | 0.364 | 0.061 | ( 0.109) | 0.304 |
| 3 | 0.75 | 5.10 | 0.387 | 0.061 | ( 0.116) | 0.326 |
| 4 | 1.00 | 4.90 | 0.372 | 0.061 | ( 0.112) | 0.311 |
| 5 | 1.25 | 6.60 | 0.501 | 0.061 | ( 0.150) | 0.440 |
| 6 | 1.50 | 7.30 | 0.554 | 0.061 | ( 0.166) | 0.494 |
| 7 | 1.75 | 8.40 | 0.638 | 0.061 | ( 0.191) | 0.577 |
| 8 | 2.00 | 9.00 | 0.683 | 0.061 | ( 0.205) | 0.623 |
| 9 | 2.25 | 12.30 | 0.934 | 0.061 | ( 0.280) | 0.873 |
| 10 | 2.50 | 17.60 | 1.336 | 0.061 | ( 0.401) | 1.276 |
| 11 | 2.75 | 16.10 | 1.222 | 0.061 | ( 0.367) | 1.162 |
| 12 | 3.00 | 4.20 | 0.319 | 0.061 | ( 0.096) | 0.258 |
| | | (Loss Rate Not Used) | | | |
| Sum = | | 100.0 | | | Sum = 6.9 |

```
Flood volume = Effective rainfall      1.72(In)
 times area     211.6(Ac.)/[(In)/(Ft.)] =      30.3(Ac.Ft)
Total soil loss =      0.18(In)
Total soil loss =     3.215(Ac.Ft)
Total rainfall =      1.90(In)
Flood volume =     1318008.9 Cubic Feet
Total soil loss =      140045.3 Cubic Feet
```

---

Peak flow rate of this hydrograph =  253.609(CFS)

---

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3 - H O U R  S T O R M
R u n o f f  H y d r o g r a p h

---

Hydrograph in 15 Minute intervals ((CFS))

---

```
Time(h+m) Volume Ac.Ft   Q(CFS)  0       75.0     150.0     225.0     300.0
-------------------------------------------------------------------------
  0+15       0.5884      28.48  V  Q      |         |         |         |
  0+30       1.7390      55.69  | V    Q  |         |         |         |
  0+45       3.1223      66.95  |   V   Q |         |         |         |
  1+ 0       4.5164      67.48  |    V  Q |         |         |         |
  1+15       6.2366      83.26  |       V |Q        |         |         |
  1+30       8.2946      99.61  |         V  Q      |         |         |
  1+45      10.6829     115.60  |         |   VQ    |         |         |
  2+ 0      13.3321     128.22  |         |      Q  |         |         |
  2+15      16.7374     164.82  |         |         QV        |         |
  2+30      21.6130     235.98  |         |         |       V |Q        |
  2+45      26.8528     253.61  |         |         |         |   Q V   |
  3+ 0      29.5814     132.06  |         |      Q  |         |         V|
  3+15      30.2067      30.26  |   Q     |         |         |         V|
  3+30      30.2573       2.45  Q         |         |         |         V
-------------------------------------------------------------------------
```

```
       U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Line A, Subarea A2
Proposed Condition
100-yr 3-hr
MODEL BY: NS
------------------------------------------------------------------
Drainage Area =     293.70(Ac.)  =      0.459 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     293.70(Ac.)  =      0.459 Sq. Mi.
Length along longest watercourse =    3701.83(Ft.)
Length along longest watercourse measured to centroid =     990.93(Ft.)
Length along longest watercourse =      0.701 Mi.
Length along longest watercourse measured to centroid =      0.188 Mi.
Difference in elevation =      27.00(Ft.)
Slope along watercourse =     38.5107 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.083 Hr.
Lag time =     4.99 Min.
25% of lag time =     1.25 Min.
40% of lag time =     2.00 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      293.70            0.85                249.64

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      293.70            1.90                558.03

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.87 %
Adjusted average point rain =    1.898(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   293.700            85.00          0.750
 Total Area Entered =    293.70(Ac.)
```



```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
85.0  85.0       0.187      0.750         0.061        1.000       0.061
                                                    Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.300
------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                     VALLEY S-Curve
------------------------------------------------------------------
                Unit Hydrograph Data
------------------------------------------------------------------
Unit time period   Time % of lag   Distribution    Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------
     1   0.250        300.334         56.714            167.871
     2   0.500        600.669         37.110            109.843
     3   0.750        901.003          6.176             18.280
                           Sum = 100.000    Sum=      295.995
------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
     (Hr.)  Percent   (In/Hr)          Max   |   Low          (In/Hr)
  1   0.25     3.70      0.281          0.051    (  0.084)        0.220
  2   0.50     4.80      0.364          0.051    (  0.109)        0.304
  3   0.75     5.10      0.387          0.051    (  0.116)        0.326
  4   1.00     4.90      0.372          0.051    (  0.112)        0.311
  5   1.25     6.60      0.501          0.051    (  0.150)        0.440
  6   1.50     7.30      0.554          0.051    (  0.166)        0.493
  7   1.75     8.40      0.638          0.051    (  0.191)        0.577
  8   2.00     9.00      0.683          0.051    (  0.205)        0.622
  9   2.25    12.30      0.934          0.051    (  0.280)        0.873
 10   2.50    17.60      1.336          0.051    (  0.401)        1.275
 11   2.75    16.10      1.222          0.051    (  0.367)        1.161
 12   3.00     4.20      0.319          0.051    (  0.096)        0.258
           (Loss Rate Not Used)
    Sum =    100.0                                 Sum =     6.9
     Flood volume = Effective rainfall      1.72(In)
      times area     293.7(Ac.)/[(In)/(Ft.)] =      42.0(Ac.Ft)
     Total soil loss =      0.18(In)
     Total soil loss =     4.462(Ac.Ft)
     Total rainfall =      1.90(In)
     Flood volume =     1828663.7 Cubic Feet
     Total soil loss =      194382.3 Cubic Feet
     ------------------------------------------------------------------
      Peak flow rate of this hydrograph =    351.139(CFS)
     ------------------------------------------------------------------
     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                   R u n o f f     H y c r o g r a p h
     ------------------------------------------------------------------
                Hydrograph in  15   Minute intervals ((CFS))

     ------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0      100.0     200.0     300.0     400.0
------------------------------------------------------------------------
   0+15       0.7637     36.96  V  Q      |         |         |         |
   0+30       2.3168     75.17  | V    Q  |         |         |         |
   0+45       4.2216     92.19  |   V    Q|         |         |         |
   1+ 0       6.1570     93.67  |    V   Q|         |         |         |
   1+15       8.5144    114.10  |        V |Q        |         |         |
   1+30      11.3434    136.92  |          V  Q      |         |         |
   1+45      14.6315    159.14  |          |  V Q    |         |         |
   2+ 0      18.2873    176.94  |          |     Q   |         |         |
```

```
    2+15      22.9473    225.54  |          |          VQ       |          |
    2+30      29.5892    321.47  |          |          |        V | Q        |
    2+45      36.8442    351.14  |          |          |                Q    |
    3+ 0      40.8582    194.28  |          |         Q|          |        V |
    3+15      41.8828     49.59  |   Q      |          |          |         V|
    3+30      41.9803      4.72  Q          |          |          |          V
------------------------------------------------------------------------------
```



```
        U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  09/10/13 File: SubA33100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Line A, Subarea A3
Proposed Condition
100-yr, 3-hr
MODEL BY: NS
------------------------------------------------------------------------
Drainage Area =     119.20(Ac.)  =      0.186 Sq. Mi.
Drainage Area for Depth-Area Areal Acjustment =     119.20(Ac.)  =      0.186 Sq. Mi.
Length along longest watercourse =    3200.00(Ft.)
Length along longest watercourse measured to centroid =    1600.00(Ft.)
Length along longest watercourse =      0.606 Mi.
Length along longest watercourse measured to centroid =      0.303 Mi.
Difference in elevation =      32.00(Ft.)
Slope along watercourse =     52.800C Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.089 Hr.
Lag time =     5.34 Min.
25% of lag time =     1.33 Min.
40% of lag time =     2.14 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      119.20           0.85                 101.32

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      119.20           1.90                 226.48

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.95 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   119.200           85.00          0.750
 Total Area Entered =    119.20(Ac.)
```

```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
85.0  85.0      0.187     0.750        0.061       1.000      0.061
                                                 Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.300
```

U n i t  H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 280.942 | 54.636 | 65.635 |
| 2 | 0.500 | 561.885 | 38.203 | 45.894 |
| 3 | 0.750 | 842.827 | 7.161 | 8.603 |
| | | | Sum = 100.000 | Sum= 120.131 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.061 | ( 0.084) | 0.220 |
| 2 | 0.50 | 4.80 | 0.365 | 0.061 | ( 0.109) | 0.304 |
| 3 | 0.75 | 5.10 | 0.387 | 0.061 | ( 0.116) | 0.327 |
| 4 | 1.00 | 4.90 | 0.372 | 0.061 | ( 0.112) | 0.311 |
| 5 | 1.25 | 6.60 | 0.501 | 0.061 | ( 0.150) | 0.441 |
| 6 | 1.50 | 7.30 | 0.555 | 0.061 | ( 0.166) | 0.494 |
| 7 | 1.75 | 8.40 | 0.638 | 0.061 | ( 0.191) | 0.577 |
| 8 | 2.00 | 9.00 | 0.684 | 0.061 | ( 0.205) | 0.623 |
| 9 | 2.25 | 12.30 | 0.934 | 0.061 | ( 0.280) | 0.874 |
| 10 | 2.50 | 17.60 | 1.337 | 0.061 | ( 0.401) | 1.276 |
| 11 | 2.75 | 16.10 | 1.223 | 0.061 | ( 0.367) | 1.162 |
| 12 | 3.00 | 4.20 | 0.319 | 0.061 | ( 0.096) | 0.258 |
| | | (Loss Rate Not Used) | | | |
| Sum = | | 100.0 | | | Sum = 6.9 |

```
Flood volume = Effective rainfall      1.72(In)
 times area     119.2(Ac.)/[(In)/(Ft.)] =      17.1(Ac.Ft)
Total soil loss =      0.18(In)
Total soil loss =     1.811(Ac.Ft)
Total rainfall =      1.90(In)
Flood volume =      742802.4 Cubic Feet
Total soil loss =       78891.3 Cubic Feet
```

Peak flow rate of this hydrograph =  142.435(CFS)

3 - H O U R  S T O R M
R u n o f f  H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 50.0 | 100.0 | 150.0 | 200.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.2989 | 14.47 | V Q | | | | |
| 0+30 | 0.9201 | 30.07 | V Q | | | | |
| 0+45 | 1.6907 | 37.30 | V Q | | | | |
| 1+ 0 | 2.4771 | 38.06 | V Q | | | | |
| 1+15 | 3.4284 | 46.04 | VQ | | | | |
| 1+30 | 4.5717 | 55.33 | VQ | | | | |
| 1+45 | 5.9017 | 64.37 | QV | | | | |
| 2+ 0 | 7.3823 | 71.66 | Q V | | | | |
| 2+15 | 9.2611 | 90.93 | Q V | | | | |
| 2+30 | 11.9320 | 129.27 | Q V | | | | |
| 2+45 | 14.8749 | 142.43 | Q V | | | | |
| 3+ 0 | 16.5548 | 81.31 | Q | | | | V |
| 3+15 | 17.0065 | 21.86 | Q | | | | V |
| 3+30 | 17.0524 | 2.22 | Q | | | | V |

```
       U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  09/10/13 File: SubA43100.out

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------------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Line A, Subarea A1
Proposed Condition
100-yr, 3-hr
LINE A, SUBAREA A6
------------------------------------------------------------------
Drainage Area =     321.10(Ac.)  =      0.502 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     321.10(Ac.)  =      0.502 Sq. Mi.
Length along longest watercourse =    3200.00(Ft.)
Length along longest watercourse measured to centroid =    1600.00(Ft.)
Length along longest watercourse =      0.606 Mi.
Length along longest watercourse measured to centroid =      0.303 Mi.
Difference in elevation =      32.00(Ft.)
Slope along watercourse =     52.8000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.089 Hr.
Lag time =     5.34 Min.
25% of lag time =     1.33 Min.
40% of lag time =     2.14 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      321.10            0.85                272.94

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      321.10            1.90                610.09

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.86 %
Adjusted average point rain =    1.897(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   321.100            85.00          0.750
 Total Area Entered =    321.10(Ac.)
```



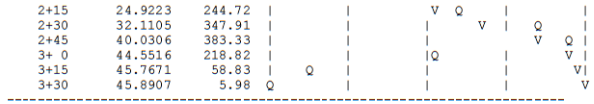
```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
85.0  85.0       0.187      0.750         0.061        1.000       0.061
                                                    Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.300
------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                      VALLEY S-Curve
------------------------------------------------------------------
                   Unit Hydrograph Data
------------------------------------------------------------------
Unit time period   Time % of lag   Distribution    Unit Hydrograph
    (hrs)                          Graph %           (CFS)
------------------------------------------------------------------
     1   0.250        280.942         54.636            176.806
     2   0.500        561.885         38.203            123.628
     3   0.750        842.827          7.161             23.174
                            Sum = 100.000    Sum=      323.609
------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time    Pattern    Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)   Percent    (In/Hr)         Max   |   Low          (In/Hr)
   1   0.25      3.70       0.281          0.051    (  0.084)        0.220
   2   0.50      4.80       0.364          0.051    (  0.109)        0.304
   3   0.75      5.10       0.387          0.051    (  0.116)        0.326
   4   1.00      4.90       0.372          0.051    (  0.112)        0.311
   5   1.25      6.60       0.501          0.051    (  0.150)        0.440
   6   1.50      7.30       0.554          0.051    (  0.166)        0.493
   7   1.75      8.40       0.638          0.051    (  0.191)        0.577
   8   2.00      9.00       0.683          0.051    (  0.205)        0.622
   9   2.25     12.30       0.933          0.051    (  0.280)        0.873
  10   2.50     17.60       1.336          0.051    (  0.401)        1.275
  11   2.75     16.10       1.222          0.051    (  0.367)        1.161
  12   3.00      4.20       0.319          0.051    (  0.096)        0.258
            (Loss Rate Not Used)
    Sum =     100.0                                  Sum =      6.9
     Flood volume = Effective rainfall      1.72(In)
      times area     321.1(Ac.)/[(In)/(Ft.)] =      45.9(Ac.Ft)
     Total soil loss =      0.18(In)
     Total soil loss =     4.879(Ac.Ft)
     Total rainfall =      1.90(In)
     Flood volume =     1998998.8 Cubic Feet
     Total soil loss =      212516.7 Cubic Feet
     ------------------------------------------------------------------
      Peak flow rate of this hydrograph =    383.332(CFS)
     ------------------------------------------------------------------
     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                    R u n o f f     H y c r o g r a p h
     ------------------------------------------------------------------
                  Hydrograph in  15   Minute intervals ((CFS))

     ------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0      100.0     200.0     300.0     400.0
------------------------------------------------------------------------
   0+15       0.8042     38.92  V  Q      |         |         |         |
   0+30       2.4758     80.91  | V     Q |         |         |         |
   0+45       4.5494    100.36  |  V      Q         |         |         |
   1+ 0       6.6657    102.43  |    V    Q         |         |         |
   1+15       9.2257    123.90  |       V | Q       |         |         |
   1+30      12.3023    148.91  |         V   Q     |         |         |
   1+45      15.8815    173.24  |         |  V   Q  |         |         |
   2+ 0      19.8660    192.85  |         |      V Q|         |         |
```


2+15 24.9223 244.72
2+30 32.1105 347.91
2+45 40.0306 383.33
3+ 0 44.5516 218.82
3+15 45.7671 58.83
3+30 45.8907 5.98

```
                FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                    Study date: 09/16/13

------------------------------------------------------------------------


Line A, Routed
Proposed Condition
100yr, 24hr

------------------------------------------------------------------------


Program License Serial Number 6097

------------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

              From study/file name: AoffsiteRT.rte
**************************HYDROGRAPH DATA*****************************
              Number of intervals =    171
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =      770.876 (CFS)
              Total volume =     303.396 (Ac.Ft)
       Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** STREAM ROUTING SCS CONVEX METHOD ****
________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   2549.66 (Ft.)
Elevation difference =   37.90 (Ft.)
Slope of channel =  0.014865 (Vert/Horiz)
Channel type - Improved Channel


Channel length =  2549.66(Ft.)     Elevation difference =  37.90(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width  =   12.000(Ft.)
Slope or 'Z' of left channel bank =   0.000
Slope or 'Z' of right channel bank =   0.000
Manning's 'N'    = 0.015
Maximum depth of channel  =    9.000(Ft.)
Flow(q) thru subarea =    208.441(CFS)
Depth of flow =     1.349(Ft.)
Average velocity =    12.880(Ft/s)
Total flow rate =   208.441(CFS)
Channel flow top width =   12.000(Ft.)
Depth of flow in channel =   1.35(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   12.88(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  208.441(CFS)
Total capacity of improved channels =    208.441(CFS)
Critical Depth in Channel =    2.11(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea =    770.876(CFS)
Depth of flow =     3.239(Ft.)
Average velocity =    19.830(Ft/s)
Total flow rate =   770.876(CFS)
```



```
Channel flow top width =   12.000(Ft.)
Depth of flow in channel =   3.24(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   19.83(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  770.876(CFS)
Total capacity of improved channels =    770.876(CFS)
Critical Depth in Channel =    5.06(Ft.)


********************** SCS CONVEX CHANNEL ROUTING ********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9210   Travel time =   2.14 (min.)
        dt*(unit time interval) =  15.00(min.),  e=   5.3999
        dt(routing time-step) =   1.97 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T  O F  S T O R M
                  R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------
              Hydrograph in  15  Minute intervals (CFS)

------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0      192.7     385.4     578.2     770.9
------------------------------------------------------------------------
  0+15       2.0067      2.31  0|        |         |         |         |
  0+30       6.2296      6.82  0|        |         |         |         |
  0+45       9.2180      9.58  0|        |         |         |         |
  1+ 0      11.4655     11.75  0|        |         |         |         |
  1+15      12.6761     12.82  0|        |         |         |         |
  1+30      12.2044     12.11  0|        |         |         |         |
  1+45      12.1746     12.18  0|        |         |         |         |
  2+ 0      13.4171     13.60  0|        |         |         |         |
  2+15      15.3001     15.56  0|        |         |         |         |
  2+30      16.2438     16.35  0|        |         |         |         |
  2+45      17.7521     17.96  0|        |         |         |         |
  3+ 0      19.7284     20.00 |0        |         |         |         |
  3+15      20.7357     20.85 |0        |         |         |         |
  3+30      21.2918     21.36 |0        |         |         |         |
  3+45      21.7094     21.76 |0        |         |         |         |
  4+ 0      23.0783     23.28 |0        |         |         |         |
  4+15      25.0064     25.27 |0        |         |         |         |
  4+30      26.9886     27.25 |0        |         |         |         |
  4+45      29.1238     29.41 |0        |         |         |         |
  5+ 0      31.2136     31.49 |0        |         |         |         |
  5+15      31.4193     31.41 |0        |         |         |         |
  5+30      30.3690     30.21 |0        |         |         |         |
  5+45      32.2852     32.60 |0        |         |         |         |
  6+ 0      34.5612     34.86 |0        |         |         |         |
  6+15      36.6570     36.93 |0        |         |         |         |
  6+30      38.8361     39.12  |0       |         |         |         |
  6+45      40.9559     41.23  |0       |         |         |         |
  7+ 0      43.2031     43.50  |0       |         |         |         |
  7+15      44.3841     44.52  |0       |         |         |         |
  7+30      46.0928     46.33  |0       |         |         |         |
  7+45      49.2542     49.70  |0       |         |         |         |
  8+ 0      53.0346     53.54  |0       |         |         |         |
  8+15      70.2799     72.82   |0      |         |         |         |
  8+30      95.4208     98.85   |OI     |         |         |         |
  8+45     117.8151    120.69    |0     |         |         |         |
  9+ 0     149.4119    153.76     |0    |         |         |         |
  9+15     194.3783    200.53      |0   |         |         |         |
  9+30     245.4293    252.23      |OI  |         |         |         |
  9+45     287.3258    292.64      |  OI|         |         |         |
 10+ 0     325.2966    330.24      |   OI         |         |         |
 10+15     286.8358    280.26      |  0 |         |         |         |
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10+30 | 197.7015 | 185.19 | \| | IO | \| | \| | \| |
| 10+45 | 215.9931 | 220.66 | \| | \|O | \| | \| | \| |
| 11+ 0 | 286.7447 | 296.76 | \| | OI | \| | \| | \| |
| 11+15 | 307.2933 | 308.89 | \| | OI | \| | \| | \| |
| 11+30 | 303.4498 | 302.63 | \| | O | \| | \| | \| |
| 11+45 | 285.5499 | 282.96 | \| | O | \| | \| | \| |
| 12+ 0 | 270.0941 | 268.14 | \| | IO | \| | \| | \| |
| 12+15 | 345.3308 | 357.03 | \| | OI | \| | \| | \| |
| 12+30 | 463.8800 | 480.07 | \| | \| | O \| | \| | \| |
| 12+45 | 538.4613 | 547.31 | \| | \| | OI \| | \| | \| |
| 13+ 0 | 594.6768 | 601.85 | \| | \| | OI | \| | \| |
| 13+15 | 673.9632 | 684.89 | \| | \| | \| | OI | \| |
| 13+30 | 759.5613 | 770.88 | \| | \| | \| | \| | OI |
| 13+45 | 688.2748 | 675.76 | \| | \| | \| | O \| | \| |
| 14+ 0 | 540.1875 | 519.65 | \| | \| | I O \| | \| | \| |
| 14+15 | 527.9515 | 529.21 | \| | \| | O \| | \| | \| |
| 14+30 | 569.6072 | 575.73 | \| | \| | O\| | \| | \| |
| 14+45 | 578.3136 | 578.71 | \| | \| | O | \| | \| |
| 15+ 0 | 572.2629 | 571.29 | \| | \| | O\| | \| | \| |
| 15+15 | 552.2430 | 549.36 | \| | \| | O \| | \| | \| |
| 15+30 | 527.5018 | 524.19 | \| | \| | O \| | \| | \| |
| 15+45 | 473.5306 | 465.85 | \| | \| | O \| | \| | \| |
| 16+ 0 | 413.4933 | 405.56 | \| | \| | O \| | \| | \| |
| 16+15 | 292.1236 | 274.94 | \| | IO | \| | \| | \| |
| 16+30 | 130.5890 | 108.72 | \| | I0 | \| | \| | \| |
| 16+45 | 73.2110 | 67.83 | \| O | \| | \| | \| | \| |
| 17+ 0 | 58.1561 | 56.69 | \| I0 | \| | \| | \| | \| |
| 17+15 | 55.5829 | 55.42 | \| 0 | \| | \| | \| | \| |
| 17+30 | 55.9331 | 56.01 | \| 0 | \| | \| | \| | \| |
| 17+45 | 54.6633 | 54.46 | \| 0 | \| | \| | \| | \| |
| 18+ 0 | 50.6878 | 50.12 | \| 0 | \| | \| | \| | \| |
| 18+15 | 46.1177 | 45.51 | \| 0 | \| | \| | \| | \| |
| 18+30 | 42.7763 | 42.36 | \| 0 | \| | \| | \| | \| |
| 18+45 | 39.1370 | 38.65 | \| 0 | \| | \| | \| | \| |
| 19+ 0 | 34.2598 | 33.59 | \|0 | \| | \| | \| | \| |
| 19+15 | 30.9701 | 30.57 | \|0 | \| | \| | \| | \| |
| 19+30 | 30.8449 | 30.89 | \|0 | \| | \| | \| | \| |
| 19+45 | 30.1147 | 30.00 | \|0 | \| | \| | \| | \| |
| 20+ 0 | 26.7551 | 26.26 | \|0 | \| | \| | \| | \| |
| 20+15 | 24.3995 | 24.12 | \|0 | \| | \| | \| | \| |
| 20+30 | 24.0104 | 23.99 | \|0 | \| | \| | \| | \| |
| 20+45 | 23.3303 | 23.23 | \|0 | \| | \| | \| | \| |
| 21+ 0 | 21.4659 | 21.20 | \|0 | \| | \| | \| | \| |
| 21+15 | 20.0385 | 19.86 | \|0 | \| | \| | \| | \| |
| 21+30 | 19.2045 | 19.10 | 0 | \| | \| | \| | \| |
| 21+45 | 18.3577 | 18.24 | 0 | \| | \| | \| | \| |
| 22+ 0 | 17.7869 | 17.72 | 0 | \| | \| | \| | \| |
| 22+15 | 17.1081 | 17.02 | 0 | \| | \| | \| | \| |
| 22+30 | 16.6773 | 16.63 | 0 | \| | \| | \| | \| |
| 22+45 | 15.1145 | 14.89 | 0 | \| | \| | \| | \| |
| 23+ 0 | 14.1935 | 14.09 | 0 | \| | \| | \| | \| |
| 23+15 | 13.6464 | 13.58 | 0 | \| | \| | \| | \| |
| 23+30 | 13.2274 | 13.17 | 0 | \| | \| | \| | \| |
| 23+45 | 12.8644 | 12.82 | 0 | \| | \| | \| | \| |
| 24+ 0 | 12.5425 | 12.50 | 0 | \| | \| | \| | \| |
| 24+15 | 10.2412 | 9.90 | 0 | \| | \| | \| | \| |
| 24+30 | 6.7715 | 6.30 | 0 | \| | \| | \| | \| |
| 24+45 | 5.1661 | 4.99 | 0 | \| | \| | \| | \| |
| 25+ 0 | 4.4155 | 4.33 | 0 | \| | \| | \| | \| |
| 25+15 | 3.9028 | 3.84 | 0 | \| | \| | \| | \| |
| 25+30 | 3.4666 | 3.41 | 0 | \| | \| | \| | \| |
| 25+45 | 3.0800 | 3.03 | 0 | \| | \| | \| | \| |
| 26+ 0 | 2.7366 | 2.69 | 0 | \| | \| | \| | \| |
| 26+15 | 2.4314 | 2.39 | 0 | \| | \| | \| | \| |
| 26+30 | 2.1603 | 2.13 | 0 | \| | \| | \| | \| |
| 26+45 | 1.9194 | 1.89 | 0 | \| | \| | \| | \| |
| 27+ 0 | 1.7054 | 1.68 | 0 | \| | \| | \| | \| |
| 27+15 | 1.5152 | 1.49 | 0 | \| | \| | \| | \| |
| 27+30 | 1.3462 | 1.32 | 0 | \| | \| | \| | \| |
| 27+45 | 1.1961 | 1.18 | 0 | \| | \| | \| | \| |
| 28+ 0 | 1.0627 | 1.05 | 0 | \| | \| | \| | \| |
| 28+15 | 0.9442 | 0.93 | 0 | \| | \| | \| | \| |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 28+30 | 0.8389 | 0.83 | 0 | \| | \| | \| | \| |
| 28+45 | 0.7454 | 0.73 | 0 | \| | \| | \| | \| |
| 29+ 0 | 0.6623 | 0.65 | 0 | \| | \| | \| | \| |
| 29+15 | 0.5884 | 0.58 | 0 | \| | \| | \| | \| |
| 29+30 | 0.5228 | 0.51 | 0 | \| | \| | \| | \| |
| 29+45 | 0.4645 | 0.46 | 0 | \| | \| | \| | \| |
| 30+ 0 | 0.4127 | 0.41 | 0 | \| | \| | \| | \| |
| 30+15 | 0.3667 | 0.36 | 0 | \| | \| | \| | \| |
| 30+30 | 0.3258 | 0.32 | 0 | \| | \| | \| | \| |
| 30+45 | 0.2895 | 0.28 | 0 | \| | \| | \| | \| |
| 31+ 0 | 0.2572 | 0.25 | 0 | \| | \| | \| | \| |
| 31+15 | 0.2285 | 0.22 | 0 | \| | \| | \| | \| |
| 31+30 | 0.2030 | 0.20 | 0 | \| | \| | \| | \| |
| 31+45 | 0.1804 | 0.18 | 0 | \| | \| | \| | \| |
| 32+ 0 | 0.1603 | 0.16 | 0 | \| | \| | \| | \| |
| 32+15 | 0.1424 | 0.14 | 0 | \| | \| | \| | \| |
| 32+30 | 0.1265 | 0.12 | 0 | \| | \| | \| | \| |
| 32+45 | 0.1124 | 0.11 | 0 | \| | \| | \| | \| |
| 33+ 0 | 0.0999 | 0.10 | 0 | \| | \| | \| | \| |
| 33+15 | 0.0887 | 0.09 | 0 | \| | \| | \| | \| |
| 33+30 | 0.0788 | 0.08 | 0 | \| | \| | \| | \| |
| 33+45 | 0.0701 | 0.07 | 0 | \| | \| | \| | \| |
| 34+ 0 | 0.0622 | 0.06 | 0 | \| | \| | \| | \| |
| 34+15 | 0.0553 | 0.05 | 0 | \| | \| | \| | \| |
| 34+30 | 0.0491 | 0.05 | 0 | \| | \| | \| | \| |
| 34+45 | 0.0437 | 0.04 | 0 | \| | \| | \| | \| |
| 35+ 0 | 0.0388 | 0.04 | 0 | \| | \| | \| | \| |
| 35+15 | 0.0345 | 0.03 | 0 | \| | \| | \| | \| |
| 35+30 | 0.0306 | 0.03 | 0 | \| | \| | \| | \| |
| 35+45 | 0.0272 | 0.03 | 0 | \| | \| | \| | \| |
| 36+ 0 | 0.0242 | 0.02 | 0 | \| | \| | \| | \| |
| 36+15 | 0.0215 | 0.02 | 0 | \| | \| | \| | \| |
| 36+30 | 0.0191 | 0.02 | 0 | \| | \| | \| | \| |
| 36+45 | 0.0170 | 0.02 | 0 | \| | \| | \| | \| |
| 37+ 0 | 0.0151 | 0.01 | 0 | \| | \| | \| | \| |
| 37+15 | 0.0134 | 0.01 | 0 | \| | \| | \| | \| |
| 37+30 | 0.0119 | 0.01 | 0 | \| | \| | \| | \| |
| 37+45 | 0.0106 | 0.01 | 0 | \| | \| | \| | \| |
| 38+ 0 | 0.0094 | 0.01 | 0 | \| | \| | \| | \| |
| 38+15 | 0.0083 | 0.01 | 0 | \| | \| | \| | \| |
| 38+30 | 0.0074 | 0.01 | 0 | \| | \| | \| | \| |
| 38+45 | 0.0066 | 0.01 | 0 | \| | \| | \| | \| |
| 39+ 0 | 0.0058 | 0.01 | 0 | \| | \| | \| | \| |
| 39+15 | 0.0052 | 0.01 | 0 | \| | \| | \| | \| |
| 39+30 | 0.0046 | 0.00 | 0 | \| | \| | \| | \| |
| 39+45 | 0.0041 | 0.00 | 0 | \| | \| | \| | \| |
| 40+ 0 | 0.0036 | 0.00 | 0 | \| | \| | \| | \| |
| 40+15 | 0.0032 | 0.00 | 0 | \| | \| | \| | \| |
| 40+30 | 0.0029 | 0.00 | 0 | \| | \| | \| | \| |
| 40+45 | 0.0026 | 0.00 | 0 | \| | \| | \| | \| |
| 41+ 0 | 0.0023 | 0.00 | 0 | \| | \| | \| | \| |
| 41+15 | 0.0020 | 0.00 | 0 | \| | \| | \| | \| |
| 41+30 | 0.0018 | 0.00 | 0 | \| | \| | \| | \| |
| 41+45 | 0.0016 | 0.00 | 0 | \| | \| | \| | \| |
| 42+ 0 | 0.0014 | 0.00 | 0 | \| | \| | \| | \| |
| 42+15 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| |
| 42+30 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 42+45 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 43+ 0 | 0.0000 | 0.00 | 0 | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 172
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 759.561 (CFS)
Total volume = 303.396 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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|---|---|---|---|---|---|---|---|
| 31+45 | 0.0000 | 0.18 | Q | \| | \| | \| | \| |
| 32+ 0 | 0.0000 | 0.16 | Q | \| | \| | \| | \| |
| 32+15 | 0.0000 | 0.14 | Q | \| | \| | \| | \| |
| 32+30 | 0.0000 | 0.13 | Q | \| | \| | \| | \| |
| 32+45 | 0.0000 | 0.11 | Q | \| | \| | \| | \| |
| 33+ 0 | 0.0000 | 0.10 | Q | \| | \| | \| | \| |
| 33+15 | 0.0000 | 0.09 | Q | \| | \| | \| | \| |
| 33+30 | 0.0000 | 0.08 | Q | \| | \| | \| | \| |
| 33+45 | 0.0000 | 0.07 | Q | \| | \| | \| | \| |
| 34+ 0 | 0.0000 | 0.06 | Q | \| | \| | \| | \| |
| 34+15 | 0.0000 | 0.06 | Q | \| | \| | \| | \| |
| 34+30 | 0.0000 | 0.05 | Q | \| | \| | \| | \| |
| 34+45 | 0.0000 | 0.04 | Q | \| | \| | \| | \| |
| 35+ 0 | 0.0000 | 0.04 | Q | \| | \| | \| | \| |
| 35+15 | 0.0000 | 0.03 | Q | \| | \| | \| | \| |
| 35+30 | 0.0000 | 0.03 | Q | \| | \| | \| | \| |
| 35+45 | 0.0000 | 0.03 | Q | \| | \| | \| | \| |
| 36+ 0 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 36+15 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 36+30 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 36+45 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 37+ 0 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 37+15 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 37+30 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 37+45 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 38+ 0 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 38+15 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 38+30 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 38+45 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 39+ 0 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 39+15 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 39+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 39+45 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 40+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 40+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 40+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 40+45 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 41+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 41+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 41+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 41+45 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 42+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 42+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 42+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 42+45 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 43+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 172
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 877.993 (CFS)
Total volume = 367.468 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 2.000 to Point/Station 3.000
**** STREAM ROUTING SCS CONVEX METHOD ****

HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 2568.71 (Ft.)
Elevation difference = 49.44 (Ft.)
Slope of channel = 0.019247 (Vert/Horiz)
Channel type - Improved Channel



Channel length = 2568.71(Ft.) Elevation difference = 49.44(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width = 12.000(Ft.)
Slope or 'Z' of left channel bank = 0.000
Slope or 'Z' of right channel bank = 0.000
Manning's 'N' = 0.015
Maximum depth of channel = 9.000(Ft.)
Flow(q) thru subarea = 251.598(CFS)
Depth of flow = 1.401(Ft.)
Average velocity = 14.963(Ft/s)
Total flow rate = 251.598(CFS)
Channel flow top width = 12.000(Ft.)
Depth of flow in channel = 1.40(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 14.96(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 251.598(CFS)
Total capacity of improved channels = 251.598(CFS)
Critical Depth in Channel = 2.38(Ft.)

Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea = 877.993(CFS)
Depth of flow = 3.242(Ft.)
Average velocity = 22.571(Ft/s)
Total flow rate = 877.993(CFS)
Channel flow top width = 12.000(Ft.)
Depth of flow in channel = 3.24(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 22.57(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 877.993(CFS)
Total capacity of improved channels = 877.993(CFS)
Critical Depth in Channel = 5.50(Ft.)

********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.9300 Travel time = 1.90 (min.)
dt*(unit time interval) = 15.00(min.), e= 6.0026
dt(routing time-step) = 1.76 (min.), c* = 1.0000

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 219.5 | 439.0 | 658.5 | 878.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 4.6460 | 5.27 | 0 | \| | \| | \| | \| |
| 0+30 | 12.0853 | 12.99 | 0 | \| | \| | \| | \| |
| 0+45 | 16.6703 | 17.16 | 0 | \| | \| | \| | \| |
| 1+ 0 | 20.6866 | 21.16 | 0 | \| | \| | \| | \| |
| 1+15 | 21.6153 | 21.68 | 0 | \| | \| | \| | \| |
| 1+30 | 20.5375 | 20.39 | 0 | \| | \| | \| | \| |
| 1+45 | 20.2540 | 20.24 | 0 | \| | \| | \| | \| |
| 2+ 0 | 22.7704 | 23.11 | \|0 | \| | \| | \| | \| |
| 2+15 | 25.5978 | 25.93 | \|0 | \| | \| | \| | \| |
| 2+30 | 26.8679 | 26.99 | \|0 | \| | \| | \| | \| |
| 2+45 | 29.7615 | 30.13 | \|0 | \| | \| | \| | \| |
| 3+ 0 | 32.7024 | 33.05 | \|0 | \| | \| | \| | \| |
| 3+15 | 34.0395 | 34.17 | \|0 | \| | \| | \| | \| |
| 3+30 | 34.6627 | 34.73 | \|0 | \| | \| | \| | \| |
| 3+45 | 35.0967 | 35.15 | \|0 | \| | \| | \| | \| |

| | | | |
|---|---|---|---|
| 4+ 0 | 37.7913 | 38.14 | 0 |
| 4+15 | 40.6734 | 41.01 | 0 |
| 4+30 | 44.3027 | 44.74 | 0 |
| 4+45 | 47.4537 | 47.82 | 0 |
| 5+ 0 | 51.2023 | 51.65 | 0 |
| 5+15 | 49.7880 | 49.54 | 0 |
| 5+30 | 48.4996 | 48.36 | 0 |
| 5+45 | 52.1066 | 52.61 | 0 |
| 6+ 0 | 55.5477 | 55.94 | 0 |
| 6+15 | 59.3322 | 59.78 | 0 |
| 6+30 | 62.5353 | 62.90 | 0 |
| 6+45 | 66.3156 | 66.77 | 0 |
| 7+ 0 | 69.5816 | 69.96 | 0 |
| 7+15 | 71.1038 | 71.26 | 0 |
| 7+30 | 74.2022 | 74.59 | 0 |
| 7+45 | 79.6501 | 80.32 | 0 |
| 8+ 0 | 86.0309 | 86.79 | 0 |
| 8+15 | 106.9259 | 109.61 | 0 |
| 8+30 | 134.3070 | 137.60 | 0 |
| 8+45 | 159.8831 | 162.85 | 0 |
| 9+ 0 | 194.1554 | 198.33 | OI |
| 9+15 | 243.6296 | 249.67 | 0 |
| 9+30 | 299.4662 | 306.10 | 0 |
| 9+45 | 346.7901 | 352.21 | OI |
| 10+ 0 | 389.2832 | 394.22 | 0 |
| 10+15 | 347.4188 | 341.18 | 0 |
| 10+30 | 254.5729 | 243.03 | 0 |
| 10+45 | 268.5577 | 271.96 | 0 |
| 11+ 0 | 340.4769 | 349.61 | 0 |
| 11+15 | 366.6092 | 368.87 | 0 |
| 11+30 | 364.4677 | 363.88 | 0 |
| 11+45 | 343.9926 | 341.34 | 0 |
| 12+ 0 | 327.5553 | 325.72 | 0 |
| 12+15 | 407.5270 | 418.43 | OI |
| 12+30 | 533.6834 | 549.04 | OI |
| 12+45 | 621.3576 | 630.99 | 0 |
| 13+ 0 | 685.3263 | 692.57 | 0 |
| 13+15 | 774.4373 | 785.35 | 0 |
| 13+30 | 867.0982 | 877.99 | OI |
| 13+45 | 793.4018 | 782.13 | IO |
| 14+ 0 | 638.5913 | 619.46 | IO |
| 14+15 | 615.3690 | 614.82 | 0 |
| 14+30 | 654.4034 | 659.68 | OI |
| 14+45 | 666.9231 | 667.89 | 0 |
| 15+ 0 | 660.4853 | 659.50 | 0 |
| 15+15 | 638.7347 | 635.97 | IO |
| 15+30 | 610.8846 | 607.54 | 0 |
| 15+45 | 550.5027 | 542.90 | IO |
| 16+ 0 | 485.1734 | 477.48 | IO |
| 16+15 | 341.6810 | 323.58 | IO |
| 16+30 | 164.8354 | 143.68 | IO |
| 16+45 | 89.5451 | 82.33 | IO |
| 17+ 0 | 68.2182 | 66.34 | 0 |
| 17+15 | 66.8367 | 66.90 | 0 |
| 17+30 | 68.8684 | 69.13 | 0 |
| 17+45 | 68.2208 | 68.10 | 0 |
| 18+ 0 | 63.1540 | 62.49 | 0 |
| 18+15 | 57.6342 | 56.99 | 0 |
| 18+30 | 53.9323 | 53.53 | 0 |
| 18+45 | 48.8764 | 48.26 | 0 |
| 19+ 0 | 41.6874 | 40.81 | 0 |
| 19+15 | 38.4131 | 38.09 | 0 |
| 19+30 | 40.1432 | 40.42 | 0 |
| 19+45 | 39.2680 | 39.11 | 0 |
| 20+ 0 | 33.9902 | 33.31 | 0 |
| 20+15 | 31.7327 | 31.52 | 0 |
| 20+30 | 31.9021 | 31.95 | 0 |
| 20+45 | 31.4580 | 31.39 | 0 |
| 21+ 0 | 28.3093 | 27.90 | 0 |
| 21+15 | 27.2485 | 27.16 | 0 |
| 21+30 | 25.7108 | 25.52 | 0 |
| 21+45 | 25.4853 | 25.48 | 0 |



| | | | |
|---|---|---|---|
| 22+ 0 | 24.2623 | 24.10 | 0 |
| 22+15 | 24.2160 | 24.23 | 0 |
| 22+30 | 23.1362 | 22.99 | 0 |
| 22+45 | 20.8887 | 20.61 | 0 |
| 23+ 0 | 19.6904 | 19.57 | 0 |
| 23+15 | 19.0853 | 19.02 | 0 |
| 23+30 | 18.6512 | 18.60 | 0 |
| 23+45 | 18.2817 | 18.24 | 0 |
| 24+ 0 | 17.9549 | 17.92 | 0 |
| 24+15 | 13.0111 | 12.36 | 0 |
| 24+30 | 7.6394 | 7.01 | 0 |
| 24+45 | 5.3830 | 5.17 | 0 |
| 25+ 0 | 4.5038 | 4.42 | 0 |
| 25+15 | 3.9631 | 3.90 | 0 |
| 25+30 | 3.5179 | 3.47 | 0 |
| 25+45 | 3.1255 | 3.08 | 0 |
| 26+ 0 | 2.7770 | 2.74 | 0 |
| 26+15 | 2.4673 | 2.43 | 0 |
| 26+30 | 2.1922 | 2.16 | 0 |
| 26+45 | 1.9477 | 1.92 | 0 |
| 27+ 0 | 1.7305 | 1.71 | 0 |
| 27+15 | 1.5376 | 1.52 | 0 |
| 27+30 | 1.3661 | 1.35 | 0 |
| 27+45 | 1.2138 | 1.20 | 0 |
| 28+ 0 | 1.0784 | 1.06 | 0 |
| 28+15 | 0.9582 | 0.94 | 0 |
| 28+30 | 0.8513 | 0.84 | 0 |
| 28+45 | 0.7564 | 0.75 | 0 |
| 29+ 0 | 0.6720 | 0.66 | 0 |
| 29+15 | 0.5971 | 0.59 | 0 |
| 29+30 | 0.5305 | 0.52 | 0 |
| 29+45 | 0.4714 | 0.46 | 0 |
| 30+ 0 | 0.4188 | 0.41 | 0 |
| 30+15 | 0.3721 | 0.37 | 0 |
| 30+30 | 0.3306 | 0.33 | 0 |
| 30+45 | 0.2937 | 0.29 | 0 |
| 31+ 0 | 0.2610 | 0.26 | 0 |
| 31+15 | 0.2319 | 0.23 | 0 |
| 31+30 | 0.2060 | 0.20 | 0 |
| 31+45 | 0.1831 | 0.18 | 0 |
| 32+ 0 | 0.1626 | 0.16 | 0 |
| 32+15 | 0.1445 | 0.14 | 0 |
| 32+30 | 0.1284 | 0.13 | 0 |
| 32+45 | 0.1141 | 0.11 | 0 |
| 33+ 0 | 0.1014 | 0.10 | 0 |
| 33+15 | 0.0901 | 0.09 | 0 |
| 33+30 | 0.0800 | 0.08 | 0 |
| 33+45 | 0.0711 | 0.07 | 0 |
| 34+ 0 | 0.0632 | 0.06 | 0 |
| 34+15 | 0.0561 | 0.06 | 0 |
| 34+30 | 0.0499 | 0.05 | 0 |
| 34+45 | 0.0443 | 0.04 | 0 |
| 35+ 0 | 0.0394 | 0.04 | 0 |
| 35+15 | 0.0350 | 0.03 | 0 |
| 35+30 | 0.0311 | 0.03 | 0 |
| 35+45 | 0.0276 | 0.03 | 0 |
| 36+ 0 | 0.0245 | 0.02 | 0 |
| 36+15 | 0.0218 | 0.02 | 0 |
| 36+30 | 0.0194 | 0.02 | 0 |
| 36+45 | 0.0172 | 0.02 | 0 |
| 37+ 0 | 0.0153 | 0.02 | 0 |
| 37+15 | 0.0136 | 0.01 | 0 |
| 37+30 | 0.0121 | 0.01 | 0 |
| 37+45 | 0.0107 | 0.01 | 0 |
| 38+ 0 | 0.0095 | 0.01 | 0 |
| 38+15 | 0.0085 | 0.01 | 0 |
| 38+30 | 0.0075 | 0.01 | 0 |
| 38+45 | 0.0067 | 0.01 | 0 |
| 39+ 0 | 0.0059 | 0.01 | 0 |
| 39+15 | 0.0053 | 0.01 | 0 |
| 39+30 | 0.0047 | 0.00 | 0 |
| 39+45 | 0.0042 | 0.00 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40+ 0 | 0.0037 | 0.00 | 0 | \| | \| | \| | \| |
| 40+15 | 0.0033 | 0.00 | 0 | \| | \| | \| | \| |
| 40+30 | 0.0029 | 0.00 | 0 | \| | \| | \| | \| |
| 40+45 | 0.0026 | 0.00 | 0 | \| | \| | \| | \| |
| 41+ 0 | 0.0023 | 0.00 | 0 | \| | \| | \| | \| |
| 41+15 | 0.0020 | 0.00 | 0 | \| | \| | \| | \| |
| 41+30 | 0.0018 | 0.00 | 0 | \| | \| | \| | \| |
| 41+45 | 0.0016 | 0.00 | 0 | \| | \| | \| | \| |
| 42+ 0 | 0.0014 | 0.00 | 0 | \| | \| | \| | \| |
| 42+15 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| |
| 42+30 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 42+45 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 43+ 0 | 0.0001 | 0.00 | 0 | \| | \| | \| | \| |
| 43+15 | 0.0000 | 0.00 | 0 | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 173
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 867.098 (CFS)
Total volume = 367.468 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 3.000 to Point/Station 3.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: SUBA224100.rte

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

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| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 257.7 | 515.5 | 773.2 | 1031.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 4.2301 | 8.88 | Q | \| | \| | \| | \| |
| 0+30 | 9.1131 | 21.20 | Q | \| | \| | \| | \| |
| 0+45 | 10.9576 | 27.63 | qQ | \| | \| | \| | \| |
| 1+ 0 | 13.3030 | 33.99 | qQ | \| | \| | \| | \| |
| 1+15 | 12.5719 | 34.19 | qQ | \| | \| | \| | \| |
| 1+30 | 11.4183 | 31.96 | qQ | \| | \| | \| | \| |
| 1+45 | 11.1880 | 31.44 | qQ | \| | \| | \| | \| |
| 2+ 0 | 13.3030 | 36.07 | qQ | \| | \| | \| | \| |
| 2+15 | 14.6870 | 40.28 | qQ | \| | \| | \| | \| |
| 2+30 | 14.9173 | 41.79 | qQ | \| | \| | \| | \| |
| 2+45 | 17.0323 | 46.79 | qQ | \| | \| | \| | \| |
| 3+ 0 | 18.4163 | 51.12 | qQ | \| | \| | \| | \| |
| 3+15 | 18.6466 | 52.69 | q Q | \| | \| | \| | \| |
| 3+30 | 18.6466 | 53.31 | q Q | \| | \| | \| | \| |
| 3+45 | 18.6466 | 53.74 | q Q | \| | \| | \| | \| |
| 4+ 0 | 20.7616 | 58.55 | q Q | \| | \| | \| | \| |
| 4+15 | 22.1456 | 62.82 | q Q | \| | \| | \| | \| |
| 4+30 | 24.4910 | 68.79 | q Q | \| | \| | \| | \| |
| 4+45 | 25.8749 | 73.33 | \|qQ | \| | \| | \| | \| |
| 5+ 0 | 28.2203 | 79.42 | \|q Q | \| | \| | \| | \| |
| 5+15 | 25.3741 | 75.16 | q Q | \| | \| | \| | \| |
| 5+30 | 24.9516 | 73.45 | q Q | \| | \| | \| | \| |
| 5+45 | 27.9900 | 80.10 | \|q Q | \| | \| | \| | \| |
| 6+ 0 | 29.6042 | 85.15 | \|q Q | \| | \| | \| | \| |
| 6+15 | 31.9496 | 91.28 | \|q Q | \| | \| | \| | \| |
| 6+30 | 33.3335 | 95.87 | \|q Q | \| | \| | \| | \| |
| 6+45 | 35.6789 | 101.99 | \|q Q | \| | \| | \| | \| |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7+ 0 | 37.0629 | 106.64 | \|q Q | \| | \| | \| | \| |
| 7+15 | 37.2932 | 108.40 | \|q Q | \| | \| | \| | \| |
| 7+30 | 39.4082 | 113.61 | \|q Q | \| | \| | \| | \| |
| 7+45 | 42.9072 | 122.56 | \|q Q | \| | \| | \| | \| |
| 8+ 0 | 46.6366 | 132.67 | \|q Q | \| | \| | \| | \| |
| 8+15 | 54.1094 | 161.04 | \| q Q | \| | \| | \| | \| |
| 8+30 | 58.3400 | 192.65 | \| q Q | \| | \| | \| | \| |
| 8+45 | 62.2740 | 222.16 | \| q Q | \| | \| | \| | \| |
| 9+ 0 | 67.5629 | 261.72 | \| q Q | \| | \| | \| | \| |
| 9+15 | 76.1996 | 319.83 | \| q Q | \| | \| | \| | \| |
| 9+30 | 83.7893 | 383.26 | \| q Q | \| | \| | \| | \| |
| 9+45 | 89.7284 | 436.52 | \| q Q | \| | \| | \| | \| |
| 10+ 0 | 95.3357 | 484.62 | \| q Q | \| | \| | \| | \| |
| 10+15 | 76.7682 | 424.19 | \| q Q | \| | \| | \| | \| |
| 10+30 | 63.5321 | 318.11 | \| q Q | \| | \| | \| | \| |
| 10+45 | 76.6081 | 345.17 | \| q Q | \| | \| | \| | \| |
| 11+ 0 | 86.7623 | 427.24 | \| q Q | \| | \| | \| | \| |
| 11+15 | 85.6520 | 452.26 | \| q Q | \| | \| | \| | \| |
| 11+30 | 83.9382 | 448.41 | \| q Q | \| | \| | \| | \| |
| 11+45 | 77.8266 | 421.82 | \| q Q | \| | \| | \| | \| |
| 12+ 0 | 77.1516 | 404.71 | \| q Q | \| | \| | \| | \| |
| 12+15 | 99.8759 | 507.40 | \| q Q | \| | \| | \| | \| |
| 12+30 | 117.3177 | 651.00 | \| q Q | \| | \| | \| | \| |
| 12+45 | 127.8898 | 749.25 | \| q Q | \| | \| | \| | \| |
| 13+ 0 | 135.4404 | 820.77 | \| q Q | \| | \| | \| | \| |
| 13+15 | 153.4260 | 927.86 | \| q Q | \| | \| | \| | \| |
| 13+30 | 163.8803 | 1030.98 | \| q Q | \| | \| | \| | \| |
| 13+45 | 132.5257 | 925.93 | \| q Q | \| | \| | \| | \| |
| 14+ 0 | 111.0117 | 749.60 | \| q Q | \| | \| | \| | \| |
| 14+15 | 119.7092 | 735.08 | \| q Q | \| | \| | \| | \| |
| 14+30 | 124.8235 | 779.23 | \| q Q | \| | \| | \| | \| |
| 14+45 | 124.3869 | 791.31 | \| q Q | \| | \| | \| | \| |
| 15+ 0 | 121.2574 | 781.74 | \| q Q | \| | \| | \| | \| |
| 15+15 | 116.4767 | 755.21 | \| q Q | \| | \| | \| | \| |
| 15+30 | 111.3637 | 722.25 | \| q Q | \| | \| | \| | \| |
| 15+45 | 97.1827 | 647.69 | \| q Q | \| | \| | \| | \| |
| 16+ 0 | 89.1532 | 574.33 | \| q Q | \| | \| | \| | \| |
| 16+15 | 46.5126 | 388.19 | \|q Q | \| | \| | \| | \| |
| 16+30 | 19.4269 | 184.26 | q Q | \| | \| | \| | \| |
| 16+45 | 12.8022 | 102.35 | q Q | \| | \| | \| | \| |
| 17+ 0 | 11.4183 | 79.64 | q Q | \| | \| | \| | \| |
| 17+15 | 15.4181 | 82.25 | q Q | \| | \| | \| | \| |
| 17+30 | 18.1860 | 87.05 | q Q | \| | \| | \| | \| |
| 17+45 | 18.6466 | 86.87 | q Q | \| | \| | \| | \| |
| 18+ 0 | 16.5315 | 79.69 | q Q | \| | \| | \| | \| |
| 18+15 | 15.1476 | 72.78 | q Q | \| | \| | \| | \| |
| 18+30 | 14.9173 | 68.85 | q Q | \| | \| | \| | \| |
| 18+45 | 12.8022 | 61.68 | q Q | \| | \| | \| | \| |
| 19+ 0 | 9.3032 | 50.99 | qQ | \| | \| | \| | \| |
| 19+15 | 9.8040 | 48.22 | qQ | \| | \| | \| | \| |
| 19+30 | 13.0727 | 53.22 | q Q | \| | \| | \| | \| |
| 19+45 | 12.5719 | 51.84 | q Q | \| | \| | \| | \| |
| 20+ 0 | 9.3032 | 43.29 | qQ | \| | \| | \| | \| |
| 20+15 | 9.8040 | 41.54 | qQ | \| | \| | \| | \| |
| 20+30 | 10.9576 | 42.86 | qQ | \| | \| | \| | \| |
| 20+45 | 11.1880 | 42.65 | qQ | \| | \| | \| | \| |
| 21+ 0 | 9.0729 | 37.38 | qQ | \| | \| | \| | \| |
| 21+15 | 9.8040 | 37.05 | qQ | \| | \| | \| | \| |
| 21+30 | 8.8426 | 34.55 | qQ | \| | \| | \| | \| |
| 21+45 | 9.8040 | 35.29 | qQ | \| | \| | \| | \| |
| 22+ 0 | 8.8426 | 33.10 | qQ | \| | \| | \| | \| |
| 22+15 | 9.8040 | 34.02 | qQ | \| | \| | \| | \| |
| 22+30 | 8.8426 | 31.98 | qQ | \| | \| | \| | \| |
| 22+45 | 7.6889 | 28.58 | qQ | \| | \| | \| | \| |
| 23+ 0 | 7.4586 | 27.15 | qQ | \| | \| | \| | \| |
| 23+15 | 7.4586 | 26.54 | qQ | \| | \| | \| | \| |
| 23+30 | 7.4586 | 26.11 | qQ | \| | \| | \| | \| |
| 23+45 | 7.4586 | 25.74 | Q | \| | \| | \| | \| |
| 24+ 0 | 7.4586 | 25.41 | Q | \| | \| | \| | \| |
| 24+15 | 3.2285 | 16.24 | Q | \| | \| | \| | \| |
| 24+30 | 0.4606 | 8.10 | Q | \| | \| | \| | \| |
| 24+45 | 0.0000 | 5.38 | Q | \| | \| | \| | \| |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 25+ 0 | 0.0000 | 4.50 | Q | | | | |
| 25+15 | 0.0000 | 3.96 | Q | | | | |
| 25+30 | 0.0000 | 3.52 | Q | | | | |
| 25+45 | 0.0000 | 3.13 | Q | | | | |
| 26+ 0 | 0.0000 | 2.78 | Q | | | | |
| 26+15 | 0.0000 | 2.47 | Q | | | | |
| 26+30 | 0.0000 | 2.19 | Q | | | | |
| 26+45 | 0.0000 | 1.95 | Q | | | | |
| 27+ 0 | 0.0000 | 1.73 | Q | | | | |
| 27+15 | 0.0000 | 1.54 | Q | | | | |
| 27+30 | 0.0000 | 1.37 | Q | | | | |
| 27+45 | 0.0000 | 1.21 | Q | | | | |
| 28+ 0 | 0.0000 | 1.08 | Q | | | | |
| 28+15 | 0.0000 | 0.96 | Q | | | | |
| 28+30 | 0.0000 | 0.85 | Q | | | | |
| 28+45 | 0.0000 | 0.76 | Q | | | | |
| 29+ 0 | 0.0000 | 0.67 | Q | | | | |
| 29+15 | 0.0000 | 0.60 | Q | | | | |
| 29+30 | 0.0000 | 0.53 | Q | | | | |
| 29+45 | 0.0000 | 0.47 | Q | | | | |
| 30+ 0 | 0.0000 | 0.42 | Q | | | | |
| 30+15 | 0.0000 | 0.37 | Q | | | | |
| 30+30 | 0.0000 | 0.33 | Q | | | | |
| 30+45 | 0.0000 | 0.29 | Q | | | | |
| 31+ 0 | 0.0000 | 0.26 | Q | | | | |
| 31+15 | 0.0000 | 0.23 | Q | | | | |
| 31+30 | 0.0000 | 0.21 | Q | | | | |
| 31+45 | 0.0000 | 0.18 | Q | | | | |
| 32+ 0 | 0.0000 | 0.16 | Q | | | | |
| 32+15 | 0.0000 | 0.14 | Q | | | | |
| 32+30 | 0.0000 | 0.13 | Q | | | | |
| 32+45 | 0.0000 | 0.11 | Q | | | | |
| 33+ 0 | 0.0000 | 0.10 | Q | | | | |
| 33+15 | 0.0000 | 0.09 | Q | | | | |
| 33+30 | 0.0000 | 0.08 | Q | | | | |
| 33+45 | 0.0000 | 0.07 | Q | | | | |
| 34+ 0 | 0.0000 | 0.06 | Q | | | | |
| 34+15 | 0.0000 | 0.06 | Q | | | | |
| 34+30 | 0.0000 | 0.05 | Q | | | | |
| 34+45 | 0.0000 | 0.04 | Q | | | | |
| 35+ 0 | 0.0000 | 0.04 | Q | | | | |
| 35+15 | 0.0000 | 0.03 | Q | | | | |
| 35+30 | 0.0000 | 0.03 | Q | | | | |
| 35+45 | 0.0000 | 0.03 | Q | | | | |
| 36+ 0 | 0.0000 | 0.02 | Q | | | | |
| 36+15 | 0.0000 | 0.02 | Q | | | | |
| 36+30 | 0.0000 | 0.02 | Q | | | | |
| 36+45 | 0.0000 | 0.02 | Q | | | | |
| 37+ 0 | 0.0000 | 0.02 | Q | | | | |
| 37+15 | 0.0000 | 0.01 | Q | | | | |
| 37+30 | 0.0000 | 0.01 | Q | | | | |
| 37+45 | 0.0000 | 0.01 | Q | | | | |
| 38+ 0 | 0.0000 | 0.01 | Q | | | | |
| 38+15 | 0.0000 | 0.01 | Q | | | | |
| 38+30 | 0.0000 | 0.01 | Q | | | | |
| 38+45 | 0.0000 | 0.01 | Q | | | | |
| 39+ 0 | 0.0000 | 0.01 | Q | | | | |
| 39+15 | 0.0000 | 0.01 | Q | | | | |
| 39+30 | 0.0000 | 0.00 | Q | | | | |
| 39+45 | 0.0000 | 0.00 | Q | | | | |
| 40+ 0 | 0.0000 | 0.00 | Q | | | | |
| 40+15 | 0.0000 | 0.00 | Q | | | | |
| 40+30 | 0.0000 | 0.00 | Q | | | | |
| 40+45 | 0.0000 | 0.00 | Q | | | | |
| 41+ 0 | 0.0000 | 0.00 | Q | | | | |
| 41+15 | 0.0000 | 0.00 | Q | | | | |
| 41+30 | 0.0000 | 0.00 | Q | | | | |
| 41+45 | 0.0000 | 0.00 | Q | | | | |
| 42+ 0 | 0.0000 | 0.00 | Q | | | | |
| 42+15 | 0.0000 | 0.00 | Q | | | | |
| 42+30 | 0.0000 | 0.00 | Q | | | | |
| 42+45 | 0.0000 | 0.00 | Q | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 43+ 0 | 0.0000 | 0.00 | Q | | | | |
| 43+15 | 0.0000 | 0.00 | Q | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 173
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1030.979 (CFS)
Total volume = 456.385 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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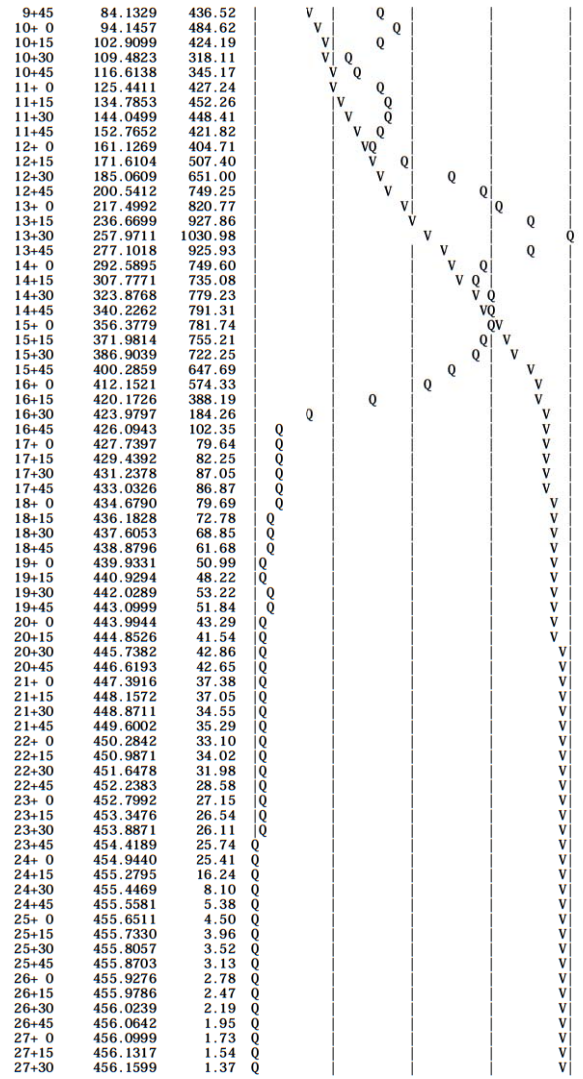
Process from Point/Station 3.000 to Point/Station 3.000
**** FLOWBY BASIN ROUTING OR SPLIT FLOW ****

All flow in excess of 1640.00(CFS) is diverted
into stream number 2
Total volume of excess flow diverted into flowby
basin (stream number 2 ) is 0.00(Ac.Ft)

P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

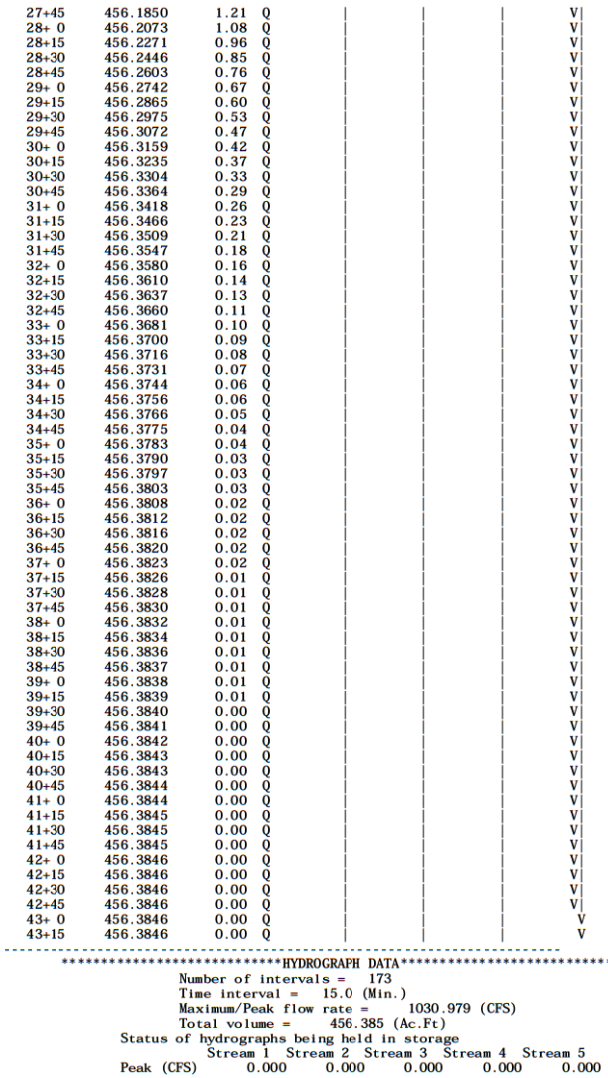
Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Volume(Ac.Ft) | Q(CFS) | 0 | 257.7 | 515.5 | 773.2 | 1031.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.1834 | 8.88 | Q | | | | |
| 0+30 | 0.6214 | 21.20 | Q | | | | |
| 0+45 | 1.1922 | 27.63 | VQ | | | | |
| 1+ 0 | 1.8945 | 33.99 | VQ | | | | |
| 1+15 | 2.6008 | 34.19 | VQ | | | | |
| 1+30 | 3.2611 | 31.96 | VQ | | | | |
| 1+45 | 3.9107 | 31.44 | VQ | | | | |
| 2+ 0 | 4.6560 | 36.07 | VQ | | | | |
| 2+15 | 5.4883 | 40.28 | VQ | | | | |
| 2+30 | 6.3517 | 41.79 | VQ | | | | |
| 2+45 | 7.3185 | 46.79 | VQ | | | | |
| 3+ 0 | 8.3746 | 51.12 | VQ | | | | |
| 3+15 | 9.4632 | 52.69 | V Q | | | | |
| 3+30 | 10.5646 | 53.31 | V Q | | | | |
| 3+45 | 11.6750 | 53.74 | VQ | | | | |
| 4+ 0 | 12.8848 | 58.55 | VQ | | | | |
| 4+15 | 14.1827 | 62.82 | VQ | | | | |
| 4+30 | 15.6041 | 68.79 | VQ | | | | |
| 4+45 | 17.1191 | 73.33 | VQ | | | | |
| 5+ 0 | 18.7601 | 79.42 | V Q | | | | |
| 5+15 | 20.3130 | 75.16 | VQ | | | | |
| 5+30 | 21.8306 | 73.45 | VQ | | | | |
| 5+45 | 23.4855 | 80.10 | VQ | | | | |
| 6+ 0 | 25.2448 | 85.15 | VQ | | | | |
| 6+15 | 27.1308 | 91.28 | VQ | | | | |
| 6+30 | 29.1116 | 95.87 | VQ | | | | |
| 6+45 | 31.2189 | 101.99 | VQ | | | | |
| 7+ 0 | 33.4223 | 106.64 | V Q | | | | |
| 7+15 | 35.6619 | 108.40 | VQ | | | | |
| 7+30 | 38.0092 | 113.61 | VQ | | | | |
| 7+45 | 40.5414 | 122.56 | VQ | | | | |
| 8+ 0 | 43.2825 | 132.67 | V Q | | | | |
| 8+15 | 46.6096 | 161.04 | V Q | | | | |
| 8+30 | 50.5900 | 192.65 | V Q | | | | |
| 8+45 | 55.1800 | 222.16 | V Q | | | | |
| 9+ 0 | 60.5874 | 261.72 | V Q | | | | |
| 9+15 | 67.1954 | 319.83 | V Q | | | | |
| 9+30 | 75.1139 | 383.26 | V Q | | | | |



| | | | |
|---|---|---|---|
| 9+45 | 84.1329 | 436.52 | V Q |
| 10+ 0 | 94.1457 | 484.62 | V Q |
| 10+15 | 102.9099 | 424.19 | V Q |
| 10+30 | 109.4823 | 318.11 | V Q |
| 10+45 | 116.6138 | 345.17 | V Q |
| 11+ 0 | 125.4411 | 427.24 | V Q |
| 11+15 | 134.7853 | 452.26 | V Q |
| 11+30 | 144.0499 | 448.41 | V Q |
| 11+45 | 152.7652 | 421.82 | V Q |
| 12+ 0 | 161.1269 | 404.71 | VQ |
| 12+15 | 171.6104 | 507.40 | V Q |
| 12+30 | 185.0609 | 651.00 | V Q |
| 12+45 | 200.5412 | 749.25 | V Q |
| 13+ 0 | 217.4992 | 820.77 | V Q |
| 13+15 | 236.6699 | 927.86 | V Q |
| 13+30 | 257.9711 | 1030.98 | V Q |
| 13+45 | 277.1018 | 925.93 | V Q |
| 14+ 0 | 292.5895 | 749.60 | V Q |
| 14+15 | 307.7771 | 735.08 | V Q |
| 14+30 | 323.8768 | 779.23 | V Q |
| 14+45 | 340.2262 | 791.31 | VQ |
| 15+ 0 | 356.3779 | 781.74 | QV |
| 15+15 | 371.9814 | 755.21 | Q V |
| 15+30 | 386.9039 | 722.25 | Q V |
| 15+45 | 400.2859 | 647.69 | Q V |
| 16+ 0 | 412.1521 | 574.33 | Q V |
| 16+15 | 420.1726 | 388.19 | Q V |
| 16+30 | 423.9797 | 184.26 | Q V |
| 16+45 | 426.0943 | 102.35 | Q V |
| 17+ 0 | 427.7397 | 79.64 | Q V |
| 17+15 | 429.4392 | 82.25 | Q V |
| 17+30 | 431.2378 | 87.05 | Q V |
| 17+45 | 433.0326 | 86.87 | Q V |
| 18+ 0 | 434.6790 | 79.69 | Q V |
| 18+15 | 436.1828 | 72.78 | Q V |
| 18+30 | 437.6053 | 68.85 | Q V |
| 18+45 | 438.8796 | 61.68 | Q V |
| 19+ 0 | 439.9331 | 50.99 | Q V |
| 19+15 | 440.9294 | 48.22 | Q V |
| 19+30 | 442.0289 | 53.22 | Q V |
| 19+45 | 443.0999 | 51.84 | Q V |
| 20+ 0 | 443.9944 | 43.29 | Q V |
| 20+15 | 444.8526 | 41.54 | Q V |
| 20+30 | 445.7382 | 42.86 | Q V |
| 20+45 | 446.6193 | 42.65 | Q V |
| 21+ 0 | 447.3916 | 37.38 | Q V |
| 21+15 | 448.1572 | 37.05 | Q V |
| 21+30 | 448.8711 | 34.55 | Q V |
| 21+45 | 449.6002 | 35.29 | Q V |
| 22+ 0 | 450.2842 | 33.10 | Q V |
| 22+15 | 450.9871 | 34.02 | Q V |
| 22+30 | 451.6478 | 31.98 | Q V |
| 22+45 | 452.2383 | 28.58 | Q V |
| 23+ 0 | 452.7992 | 27.15 | Q V |
| 23+15 | 453.3476 | 26.54 | Q V |
| 23+30 | 453.8871 | 26.11 | Q V |
| 23+45 | 454.4189 | 25.74 | Q V |
| 24+ 0 | 454.9440 | 25.41 | Q V |
| 24+15 | 455.2795 | 16.24 | Q V |
| 24+30 | 455.4469 | 8.10 | Q V |
| 24+45 | 455.5581 | 5.38 | Q V |
| 25+ 0 | 455.6511 | 4.50 | Q V |
| 25+15 | 455.7330 | 3.96 | Q V |
| 25+30 | 455.8057 | 3.52 | Q V |
| 25+45 | 455.8703 | 3.13 | Q V |
| 26+ 0 | 455.9276 | 2.78 | Q V |
| 26+15 | 455.9786 | 2.47 | Q V |
| 26+30 | 456.0239 | 2.19 | Q V |
| 26+45 | 456.0642 | 1.95 | Q V |
| 27+ 0 | 456.0999 | 1.73 | Q V |
| 27+15 | 456.1317 | 1.54 | Q V |
| 27+30 | 456.1599 | 1.37 | Q V |





| | | | |
|---|---|---|---|
| 27+45 | 456.1850 | 1.21 | Q V |
| 28+ 0 | 456.2073 | 1.08 | Q V |
| 28+15 | 456.2271 | 0.96 | Q V |
| 28+30 | 456.2446 | 0.85 | Q V |
| 28+45 | 456.2603 | 0.76 | Q V |
| 29+ 0 | 456.2742 | 0.67 | Q V |
| 29+15 | 456.2865 | 0.60 | Q V |
| 29+30 | 456.2975 | 0.53 | Q V |
| 29+45 | 456.3072 | 0.47 | Q V |
| 30+ 0 | 456.3159 | 0.42 | Q V |
| 30+15 | 456.3235 | 0.37 | Q V |
| 30+30 | 456.3304 | 0.33 | Q V |
| 30+45 | 456.3364 | 0.29 | Q V |
| 31+ 0 | 456.3418 | 0.26 | Q V |
| 31+15 | 456.3466 | 0.23 | Q V |
| 31+30 | 456.3509 | 0.21 | Q V |
| 31+45 | 456.3547 | 0.18 | Q V |
| 32+ 0 | 456.3580 | 0.16 | Q V |
| 32+15 | 456.3610 | 0.14 | Q V |
| 32+30 | 456.3637 | 0.13 | Q V |
| 32+45 | 456.3660 | 0.11 | Q V |
| 33+ 0 | 456.3681 | 0.10 | Q V |
| 33+15 | 456.3700 | 0.09 | Q V |
| 33+30 | 456.3716 | 0.08 | Q V |
| 33+45 | 456.3731 | 0.07 | Q V |
| 34+ 0 | 456.3744 | 0.06 | Q V |
| 34+15 | 456.3756 | 0.06 | Q V |
| 34+30 | 456.3766 | 0.05 | Q V |
| 34+45 | 456.3775 | 0.04 | Q V |
| 35+ 0 | 456.3783 | 0.04 | Q V |
| 35+15 | 456.3790 | 0.03 | Q V |
| 35+30 | 456.3797 | 0.03 | Q V |
| 35+45 | 456.3803 | 0.03 | Q V |
| 36+ 0 | 456.3808 | 0.02 | Q V |
| 36+15 | 456.3812 | 0.02 | Q V |
| 36+30 | 456.3816 | 0.02 | Q V |
| 36+45 | 456.3820 | 0.02 | Q V |
| 37+ 0 | 456.3823 | 0.02 | Q V |
| 37+15 | 456.3826 | 0.01 | Q V |
| 37+30 | 456.3828 | 0.01 | Q V |
| 37+45 | 456.3830 | 0.01 | Q V |
| 38+ 0 | 456.3832 | 0.01 | Q V |
| 38+15 | 456.3834 | 0.01 | Q V |
| 38+30 | 456.3836 | 0.01 | Q V |
| 38+45 | 456.3837 | 0.01 | Q V |
| 39+ 0 | 456.3838 | 0.01 | Q V |
| 39+15 | 456.3839 | 0.01 | Q V |
| 39+30 | 456.3840 | 0.00 | Q V |
| 39+45 | 456.3841 | 0.00 | Q V |
| 40+ 0 | 456.3842 | 0.00 | Q V |
| 40+15 | 456.3843 | 0.00 | Q V |
| 40+30 | 456.3843 | 0.00 | Q V |
| 40+45 | 456.3844 | 0.00 | Q V |
| 41+ 0 | 456.3844 | 0.00 | Q V |
| 41+15 | 456.3845 | 0.00 | Q V |
| 41+30 | 456.3845 | 0.00 | Q V |
| 41+45 | 456.3845 | 0.00 | Q V |
| 42+ 0 | 456.3846 | 0.00 | Q V |
| 42+15 | 456.3846 | 0.00 | Q V |
| 42+30 | 456.3846 | 0.00 | Q V |
| 42+45 | 456.3846 | 0.00 | Q V |
| 43+ 0 | 456.3846 | 0.00 | Q V |
| 43+15 | 456.3846 | 0.00 | Q V |

**********HYDROGRAPH DATA**********

Number of intervals = 173
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1030.979 (CFS)
Total volume = 456.385 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

```
       Vol (Ac.Ft)      0.000      0.000      0.000      0.000      0.000
**************************************************************************

--------------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** STREAM ROUTING SCS CONVEX METHOD ****
--------------------------------------------------------------------------
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   4281.63 (Ft.)
Elevation difference =   85.63 (Ft.)
Slope of channel =  0.019999 (Vert/Horiz)
Channel type - Improved Channel


Channel length =  4281.63(Ft.)     Elevation difference =  85.63(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width  =   12.000(Ft.)
Slope or 'Z' of left channel bank =   0.000
Slope or 'Z' of right channel bank =   0.000
Manning's 'N'    = 0.015
Maximum depth of channel  =    8.000(Ft.)
Flow(q) thru subarea =    311.690(CFS)
Depth of flow =     1.591(Ft.)
Average velocity =    16.324(Ft/s)
Total flow rate =   311.690(CFS)
Channel flow top width =   12.000(Ft.)
Depth of flow in channel =   1.59(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   16.32(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  311.690(CFS)
Total capacity of improved channels =    311.690(CFS)
Critical Depth in Channel =    2.75(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea =   1030.979(CFS)
Depth of flow =     3.580(Ft.)
Average velocity =    24.000(Ft/s)
Total flow rate =  1030.979(CFS)
Channel flow top width =   12.000(Ft.)
Depth of flow in channel =   3.58(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   24.00(Ft/s)
Travel time  =    0.00 min.
Individual channel flow = 1030.979(CFS)
Total capacity of improved channels =   1030.979(CFS)
Critical Depth in Channel =    6.13(Ft.)


********************** SCS CONVEX CHANNEL ROUTING **********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
         where c* = 1 - (1-c)^e and dt = c(length)/velocity
         c(v/v+1.7) =   0.9339   Travel time =   2.97 (min.)
       dt*(unit time interval) =  15.00(min.),   e=   3.9347
       dt(routing time-step) =   2.78 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
--------------------------------------------------------------------------
           Hydrograph in  15  Minute intervals (CFS)

--------------------------------------------------------------------------
```



```
Time(h+m) Out = O(CFS) In = I  0      257.7     515.5     773.2     1031.0
--------------------------------------------------------------------------
  0+15       7.2329      8.88  0          |         |         |         |
  0+30      18.9171     21.20  0          |         |         |         |
  0+45      26.4376     27.63  |0         |         |         |         |
  1+ 0      32.8119     33.99  |0         |         |         |         |
  1+15      34.1506     34.19  |0         |         |         |         |
  1+30      32.3689     31.96  |0         |         |         |         |
  1+45      31.5371     31.44  |0         |         |         |         |
  2+ 0      35.2160     36.07  |0         |         |         |         |
  2+15      39.5051     40.28  |0         |         |         |         |
  2+30      41.5073     41.79  |0         |         |         |         |
  2+45      45.8665     46.79  |0         |         |         |         |
  3+ 0      50.3179     51.12  |0         |         |         |         |
  3+15      52.3959     52.69  | 0        |         |         |         |
  3+30      53.1939     53.31  | 0        |         |         |         |
  3+45      53.6629     53.74  | 0        |         |         |         |
  4+ 0      57.6625     58.55  | 0        |         |         |         |
  4+15      62.0292     62.82  | 0        |         |         |         |
  4+30      67.6875     68.79  | 0        |         |         |         |
  4+45      72.4890     73.33  | 0        |         |         |         |
  5+ 0      78.2943     79.42  |  0       |         |         |         |
  5+15      75.9508     75.16  | 0        |         |         |         |
  5+30      73.7680     73.45  | 0        |         |         |         |
  5+45      78.8663     80.10  |  0       |         |         |         |
  6+ 0      84.2159     85.15  |  0       |         |         |         |
  6+15      90.1470     91.28  |  0       |         |         |         |
  6+30      95.0196     95.87  |  0       |         |         |         |
  6+45     100.8604    101.99  |  0       |         |         |         |
  7+ 0     105.7836    106.64  |   0      |         |         |         |
  7+15     108.0725    108.40  |   0      |         |         |         |
  7+30     112.6453    113.61  |   0      |         |         |         |
  7+45     120.9009    122.56  |   0      |         |         |         |
  8+ 0     130.7957    132.67  |    0     |         |         |         |
  8+15     155.7835    161.04  |     0    |         |         |         |
  8+30     186.7946    192.65  |      0   |         |         |         |
  8+45     216.6937    222.16  |       0  |         |         |         |
  9+ 0     254.3941    261.72  |        0I|         |         |         |
  9+15     309.0708    319.83  |         0I         |         |         |
  9+30     371.5130    383.26  |          0|        |         |         |
  9+45     426.6575    436.52  |           0        |         |         |
 10+ 0     475.7138    484.62  |            0|      |         |         |
 10+15     435.3747    424.19  |           0        |         |         |
 10+30     337.7444    318.11  |         I0         |         |         |
 10+45     340.1565    345.17  |         0          |         |         |
 11+ 0     412.0447    427.24  |          0I        |         |         |
 11+15     447.6285    452.26  |           0        |         |         |
 11+30     449.1195    448.41  |           0        |         |         |
 11+45     426.7412    421.82  |           0        |         |         |
 12+ 0     407.8750    404.71  |          0         |         |         |
 12+15     488.3907    507.40  |            0I      |         |         |
 12+30     624.4160    651.00  |               0I   |         |         |
 12+45     731.0583    749.25  |                 0I |         |         |
 13+ 0     807.5258    820.77  |                  0 |         |         |
 13+15     908.0360    927.86  |                    |         |         0
 13+30    1011.8881   1030.98  |                    |         |         0I
 13+45     945.3753    925.93  |                    |         |         I0
 14+ 0     782.2468    749.60  |                    |         I0        |
 14+15     737.7680    735.08  |                    |         0 |       |
 14+30     771.0536    779.23  |                    |         0I        |
 14+45     789.0728    791.31  |                    |         0         |
 15+ 0     783.5139    781.74  |                    |         0         |
 15+15     760.1233    755.21  |                    |         0|        |
 15+30     728.3509    722.25  |                    |        0 |        |
 15+45     661.4895    647.69  |                    |      0   |        |
 16+ 0     587.9080    574.33  |                    |    0     |        |
 16+15     422.6531    388.19  |                    |   I0     |        |
 16+30     222.0173    184.26  |                 I0 |          |        |
 16+45     117.5132    102.35  |  I0                |          |        |
 17+ 0      83.8413     79.64  |  0                 |          |        |
 17+15      81.7701     82.25  |  0                 |          |        |
 17+30      86.1658     87.05  |  0                 |          |        |
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17+45 | 86.9020 | 86.87 | \| 0 | \| | \| | \| | \| |
| 18+ 0 | 81.0151 | 79.69 | \| 0 | \| | \| | \| | \| |
| 18+15 | 74.0599 | 72.78 | \| 0 | \| | \| | \| | \| |
| 18+30 | 69.5776 | 68.85 | \| 0 | \| | \| | \| | \| |
| 18+45 | 63.0062 | 61.68 | \| 0 | \| | \| | \| | \| |
| 19+ 0 | 52.9693 | 50.99 | \|I0 | \| | \| | \| | \| |
| 19+15 | 48.7306 | 48.22 | \|0 | \| | \| | \| | \| |
| 19+30 | 52.2905 | 53.22 | \| 0 | \| | \| | \| | \| |
| 19+45 | 52.0946 | 51.84 | \| 0 | \| | \| | \| | \| |
| 20+ 0 | 44.8756 | 43.29 | \|0 | \| | \| | \| | \| |
| 20+15 | 41.8620 | 41.54 | \|0 | \| | \| | \| | \| |
| 20+30 | 42.6148 | 42.86 | \|0 | \| | \| | \| | \| |
| 20+45 | 42.6856 | 42.65 | \|0 | \| | \| | \| | \| |
| 21+ 0 | 38.3567 | 37.38 | \|0 | \| | \| | \| | \| |
| 21+15 | 37.1135 | 37.05 | \|0 | \| | \| | \| | \| |
| 21+30 | 35.0160 | 34.55 | \|0 | \| | \| | \| | \| |
| 21+45 | 35.1531 | 35.29 | \|0 | \| | \| | \| | \| |
| 22+ 0 | 33.5093 | 33.10 | \|0 | \| | \| | \| | \| |
| 22+15 | 33.8506 | 34.02 | \|0 | \| | \| | \| | \| |
| 22+30 | 32.3567 | 31.98 | \|0 | \| | \| | \| | \| |
| 22+45 | 29.2073 | 28.58 | \|0 | \| | \| | \| | \| |
| 23+ 0 | 27.4135 | 27.15 | \|0 | \| | \| | \| | \| |
| 23+15 | 26.6559 | 26.54 | \|0 | \| | \| | \| | \| |
| 23+30 | 26.1902 | 26.11 | \|0 | \| | \| | \| | \| |
| 23+45 | 25.8087 | 25.74 | I0 | \| | \| | \| | \| |
| 24+ 0 | 25.4740 | 25.41 | 0 | \| | \| | \| | \| |
| 24+15 | 17.9380 | 16.24 | 0 | \| | \| | \| | \| |
| 24+30 | 9.6070 | 8.10 | 0 | \| | \| | \| | \| |
| 24+45 | 5.8860 | 5.38 | 0 | \| | \| | \| | \| |
| 25+ 0 | 4.6665 | 4.50 | 0 | \| | \| | \| | \| |
| 25+15 | 4.0632 | 3.96 | 0 | \| | \| | \| | \| |
| 25+30 | 3.6003 | 3.52 | 0 | \| | \| | \| | \| |
| 25+45 | 3.1981 | 3.13 | 0 | \| | \| | \| | \| |
| 26+ 0 | 2.8415 | 2.78 | 0 | \| | \| | \| | \| |
| 26+15 | 2.5246 | 2.47 | 0 | \| | \| | \| | \| |
| 26+30 | 2.2431 | 2.19 | 0 | \| | \| | \| | \| |
| 26+45 | 1.9930 | 1.95 | 0 | \| | \| | \| | \| |
| 27+ 0 | 1.7707 | 1.73 | 0 | \| | \| | \| | \| |
| 27+15 | 1.5733 | 1.54 | 0 | \| | \| | \| | \| |
| 27+30 | 1.3979 | 1.37 | 0 | \| | \| | \| | \| |
| 27+45 | 1.2420 | 1.21 | 0 | \| | \| | \| | \| |
| 28+ 0 | 1.1035 | 1.08 | 0 | \| | \| | \| | \| |
| 28+15 | 0.9804 | 0.96 | 0 | \| | \| | \| | \| |
| 28+30 | 0.8711 | 0.85 | 0 | \| | \| | \| | \| |
| 28+45 | 0.7740 | 0.76 | 0 | \| | \| | \| | \| |
| 29+ 0 | 0.6877 | 0.67 | 0 | \| | \| | \| | \| |
| 29+15 | 0.6110 | 0.60 | 0 | \| | \| | \| | \| |
| 29+30 | 0.5429 | 0.53 | 0 | \| | \| | \| | \| |
| 29+45 | 0.4823 | 0.47 | 0 | \| | \| | \| | \| |
| 30+ 0 | 0.4285 | 0.42 | 0 | \| | \| | \| | \| |
| 30+15 | 0.3807 | 0.37 | 0 | \| | \| | \| | \| |
| 30+30 | 0.3383 | 0.33 | 0 | \| | \| | \| | \| |
| 30+45 | 0.3006 | 0.29 | 0 | \| | \| | \| | \| |
| 31+ 0 | 0.2671 | 0.26 | 0 | \| | \| | \| | \| |
| 31+15 | 0.2373 | 0.23 | 0 | \| | \| | \| | \| |
| 31+30 | 0.2108 | 0.21 | 0 | \| | \| | \| | \| |
| 31+45 | 0.1873 | 0.18 | 0 | \| | \| | \| | \| |
| 32+ 0 | 0.1664 | 0.16 | 0 | \| | \| | \| | \| |
| 32+15 | 0.1479 | 0.14 | 0 | \| | \| | \| | \| |
| 32+30 | 0.1314 | 0.13 | 0 | \| | \| | \| | \| |
| 32+45 | 0.1167 | 0.11 | 0 | \| | \| | \| | \| |
| 33+ 0 | 0.1037 | 0.10 | 0 | \| | \| | \| | \| |
| 33+15 | 0.0921 | 0.09 | 0 | \| | \| | \| | \| |
| 33+30 | 0.0819 | 0.08 | 0 | \| | \| | \| | \| |
| 33+45 | 0.0727 | 0.07 | 0 | \| | \| | \| | \| |
| 34+ 0 | 0.0646 | 0.06 | 0 | \| | \| | \| | \| |
| 34+15 | 0.0574 | 0.06 | 0 | \| | \| | \| | \| |
| 34+30 | 0.0510 | 0.05 | 0 | \| | \| | \| | \| |
| 34+45 | 0.0453 | 0.04 | 0 | \| | \| | \| | \| |
| 35+ 0 | 0.0403 | 0.04 | 0 | \| | \| | \| | \| |
| 35+15 | 0.0358 | 0.03 | 0 | \| | \| | \| | \| |
| 35+30 | 0.0318 | 0.03 | 0 | \| | \| | \| | \| |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 35+45 | 0.0282 | 0.03 | 0 | \| | \| | \| | \| |
| 36+ 0 | 0.0251 | 0.02 | 0 | \| | \| | \| | \| |
| 36+15 | 0.0223 | 0.02 | 0 | \| | \| | \| | \| |
| 36+30 | 0.0198 | 0.02 | 0 | \| | \| | \| | \| |
| 36+45 | 0.0176 | 0.02 | 0 | \| | \| | \| | \| |
| 37+ 0 | 0.0156 | 0.02 | 0 | \| | \| | \| | \| |
| 37+15 | 0.0139 | 0.01 | 0 | \| | \| | \| | \| |
| 37+30 | 0.0123 | 0.01 | 0 | \| | \| | \| | \| |
| 37+45 | 0.0110 | 0.01 | 0 | \| | \| | \| | \| |
| 38+ 0 | 0.0097 | 0.01 | 0 | \| | \| | \| | \| |
| 38+15 | 0.0087 | 0.01 | 0 | \| | \| | \| | \| |
| 38+30 | 0.0077 | 0.01 | 0 | \| | \| | \| | \| |
| 38+45 | 0.0068 | 0.01 | 0 | \| | \| | \| | \| |
| 39+ 0 | 0.0061 | 0.01 | 0 | \| | \| | \| | \| |
| 39+15 | 0.0054 | 0.01 | 0 | \| | \| | \| | \| |
| 39+30 | 0.0048 | 0.00 | 0 | \| | \| | \| | \| |
| 39+45 | 0.0043 | 0.00 | 0 | \| | \| | \| | \| |
| 40+ 0 | 0.0038 | 0.00 | 0 | \| | \| | \| | \| |
| 40+15 | 0.0034 | 0.00 | 0 | \| | \| | \| | \| |
| 40+30 | 0.0030 | 0.00 | 0 | \| | \| | \| | \| |
| 40+45 | 0.0027 | 0.00 | 0 | \| | \| | \| | \| |
| 41+ 0 | 0.0024 | 0.00 | 0 | \| | \| | \| | \| |
| 41+15 | 0.0021 | 0.00 | 0 | \| | \| | \| | \| |
| 41+30 | 0.0019 | 0.00 | 0 | \| | \| | \| | \| |
| 41+45 | 0.0017 | 0.00 | 0 | \| | \| | \| | \| |
| 42+ 0 | 0.0015 | 0.00 | 0 | \| | \| | \| | \| |
| 42+15 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| |
| 42+30 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| |
| 42+45 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 43+ 0 | 0.0003 | 0.00 | 0 | \| | \| | \| | \| |
| 43+15 | 0.0000 | 0.00 | 0 | \| | \| | \| | \| |
| 43+30 | 0.0000 | 0.00 | 0 | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 174
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1011.888 (CFS)
Total volume = 456.385 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

Process from Point/Station 4.000 to Point/Station 4.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: SubA324100.rte

P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 269.6 | 539.2 | 808.7 | 1078.3 |
|---|---|---|---|---|---|---|---|
| 0+15 | 1.6545 | 8.89 | Q | \| | \| | \| | \| |
| 0+30 | 3.6385 | 22.56 | Q | \| | \| | \| | \| |
| 0+45 | 4.4338 | 30.87 | qQ | \| | \| | \| | \| |
| 1+ 0 | 5.3695 | 38.18 | qQ | \| | \| | \| | \| |
| 1+15 | 5.1207 | 39.27 | qQ | \| | \| | \| | \| |
| 1+30 | 4.6507 | 37.02 | qQ | \| | \| | \| | \| |
| 1+45 | 4.5423 | 36.08 | qQ | \| | \| | \| | \| |
| 2+ 0 | 5.3695 | 40.59 | qQ | \| | \| | \| | \| |
| 2+15 | 5.9479 | 45.45 | qQ | \| | \| | \| | \| |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2+30 | 6.0563 | 47.56 | qQ | | | | | |
| 2+45 | 6.8836 | 52.75 | qQ | | | | | |
| 3+ 0 | 7.4620 | 57.78 | q Q | | | | | |
| 3+15 | 7.5704 | 59.97 | q Q | | | | | |
| 3+30 | 7.5704 | 60.76 | q Q | | | | | |
| 3+45 | 7.5704 | 61.23 | q Q | | | | | |
| 4+ 0 | 8.3976 | 66.06 | q Q | | | | | |
| 4+15 | 8.9761 | 71.01 | q Q | | | | | |
| 4+30 | 9.9117 | 77.60 | q Q | | | | | |
| 4+45 | 10.4902 | 82.98 | q Q | | | | | |
| 5+ 0 | 11.4258 | 89.72 | q Q | | | | | |
| 5+15 | 10.3498 | 86.30 | q Q | | | | | |
| 5+30 | 10.1286 | 83.90 | q Q | | | | | |
| 5+45 | 11.3174 | 90.18 | q Q | | | | | |
| 6+ 0 | 12.0042 | 96.22 | q Q | | | | | |
| 6+15 | 12.9399 | 103.09 | q Q | | | | | |
| 6+30 | 13.5183 | 108.54 | q Q | | | | | |
| 6+45 | 14.4540 | 115.31 | q Q | | | | | |
| 7+ 0 | 15.0324 | 120.82 | q Q | | | | | |
| 7+15 | 15.1408 | 123.21 | q Q | | | | | |
| 7+30 | 15.9681 | 128.61 | q Q | | | | | |
| 7+45 | 17.3737 | 138.27 | q Q | | | | | |
| 8+ 0 | 18.8878 | 149.68 | q Q | | | | | |
| 8+15 | 21.8676 | 177.65 | q Q | | | | | |
| 8+30 | 23.6446 | 210.44 | q Q | | | | | |
| 8+45 | 25.2372 | 241.93 | q Q | | | | | |
| 9+ 0 | 27.3631 | 281.76 | q Q | | | | | |
| 9+15 | 30.8246 | 339.90 | q Q | | | | | |
| 9+30 | 33.9296 | 405.44 | q Q | | | | | |
| 9+45 | 36.3622 | 463.02 | q Q | | | | | |
| 10+ 0 | 38.6387 | 514.35 | q Q | | | | | |
| 10+15 | 31.4601 | 466.83 | q Q | | | | | |
| 10+30 | 25.9421 | 363.69 | q Q | | | | | |
| 10+45 | 30.8769 | 371.03 | q Q | | | | | |
| 11+ 0 | 35.1176 | 447.16 | q Q | | | | | |
| 11+15 | 34.8184 | 482.45 | q Q | | | | | |
| 11+30 | 34.0989 | 483.22 | q Q | | | | | |
| 11+45 | 31.6863 | 458.43 | q Q | | | | | |
| 12+ 0 | 31.3200 | 439.20 | q Q | | | | | |
| 12+15 | 40.2122 | 528.60 | q Q | | | | | |
| 12+30 | 47.4354 | 671.85 | q Q | | | | | |
| 12+45 | 51.8105 | 782.87 | q Q | | | | | |
| 13+ 0 | 54.8997 | 862.43 | q Q | | | | | |
| 13+15 | 62.0432 | 970.08 | q Q | | | | | |
| 13+30 | 66.4272 | 1078.32 | q Q | | | | | |
| 13+45 | 54.2984 | 999.67 | q Q | | | | | |
| 14+ 0 | 45.3038 | 827.55 | q Q | | | | | |
| 14+15 | 48.4207 | 786.19 | q Q | | | | | |
| 14+30 | 50.6366 | 821.69 | q Q | | | | | |
| 14+45 | 50.5209 | 839.59 | q Q | | | | | |
| 15+ 0 | 49.2741 | 832.79 | q Q | | | | | |
| 15+15 | 47.3544 | 807.48 | q Q | | | | | |
| 15+30 | 45.2786 | 773.63 | q Q | | | | | |
| 15+45 | 39.6561 | 701.15 | q Q | | | | | |
| 16+ 0 | 36.2803 | 624.19 | q Q | | | | | |
| 16+15 | 19.5001 | 442.15 | q Q | | | | | |
| 16+30 | 8.1795 | 230.20 | q Q | | | | | |
| 16+45 | 5.2291 | 122.74 | q Q | | | | | |
| 17+ 0 | 4.6507 | 88.49 | q Q | | | | | |
| 17+15 | 6.1967 | 87.97 | q Q | | | | | |
| 17+30 | 7.3536 | 93.52 | q Q | | | | | |
| 17+45 | 7.5704 | 94.47 | q Q | | | | | |
| 18+ 0 | 6.7432 | 87.76 | q Q | | | | | |
| 18+15 | 6.1648 | 80.22 | q Q | | | | | |
| 18+30 | 6.0563 | 75.63 | q Q | | | | | |
| 18+45 | 5.2291 | 68.24 | q Q | | | | | |
| 19+ 0 | 3.8234 | 56.79 | q Q | | | | | |
| 19+15 | 3.9638 | 52.69 | qQ | | | | | |
| 19+30 | 5.2611 | 57.55 | q Q | | | | | |
| 19+45 | 5.1207 | 57.22 | q Q | | | | | |
| 20+ 0 | 3.8234 | 48.70 | qQ | | | | | |
| 20+15 | 3.9638 | 45.83 | qQ | | | | | |



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 20+30 | 4.4338 | 47.05 | qQ | | | | | |
| 20+45 | 4.5423 | 47.23 | qQ | | | | | |
| 21+ 0 | 3.7150 | 42.07 | qQ | | | | | |
| 21+15 | 3.9638 | 41.08 | qQ | | | | | |
| 21+30 | 3.6066 | 38.62 | qQ | | | | | |
| 21+45 | 3.9638 | 39.12 | qQ | | | | | |
| 22+ 0 | 3.6066 | 37.12 | qQ | | | | | |
| 22+15 | 3.9638 | 37.81 | qQ | | | | | |
| 22+30 | 3.6066 | 35.96 | qQ | | | | | |
| 22+45 | 3.1366 | 32.34 | qQ | | | | | |
| 23+ 0 | 3.0282 | 30.44 | qQ | | | | | |
| 23+15 | 3.0282 | 29.68 | qQ | | | | | |
| 23+30 | 3.0282 | 29.22 | qQ | | | | | |
| 23+45 | 3.0282 | 28.84 | qQ | | | | | |
| 24+ 0 | 3.0282 | 28.50 | qQ | | | | | |
| 24+15 | 1.3737 | 19.31 | Q | | | | | |
| 24+30 | 0.2169 | 9.82 | Q | | | | | |
| 24+45 | 0.0000 | 5.89 | Q | | | | | |
| 25+ 0 | 0.0000 | 4.67 | Q | | | | | |
| 25+15 | 0.0000 | 4.06 | Q | | | | | |
| 25+30 | 0.0000 | 3.60 | Q | | | | | |
| 25+45 | 0.0000 | 3.20 | Q | | | | | |
| 26+ 0 | 0.0000 | 2.84 | Q | | | | | |
| 26+15 | 0.0000 | 2.52 | Q | | | | | |
| 26+30 | 0.0000 | 2.24 | Q | | | | | |
| 26+45 | 0.0000 | 1.99 | Q | | | | | |
| 27+ 0 | 0.0000 | 1.77 | Q | | | | | |
| 27+15 | 0.0000 | 1.57 | Q | | | | | |
| 27+30 | 0.0000 | 1.40 | Q | | | | | |
| 27+45 | 0.0000 | 1.24 | Q | | | | | |
| 28+ 0 | 0.0000 | 1.10 | Q | | | | | |
| 28+15 | 0.0000 | 0.98 | Q | | | | | |
| 28+30 | 0.0000 | 0.87 | Q | | | | | |
| 28+45 | 0.0000 | 0.77 | Q | | | | | |
| 29+ 0 | 0.0000 | 0.69 | Q | | | | | |
| 29+15 | 0.0000 | 0.61 | Q | | | | | |
| 29+30 | 0.0000 | 0.54 | Q | | | | | |
| 29+45 | 0.0000 | 0.48 | Q | | | | | |
| 30+ 0 | 0.0000 | 0.43 | Q | | | | | |
| 30+15 | 0.0000 | 0.38 | Q | | | | | |
| 30+30 | 0.0000 | 0.34 | Q | | | | | |
| 30+45 | 0.0000 | 0.30 | Q | | | | | |
| 31+ 0 | 0.0000 | 0.27 | Q | | | | | |
| 31+15 | 0.0000 | 0.24 | Q | | | | | |
| 31+30 | 0.0000 | 0.21 | Q | | | | | |
| 31+45 | 0.0000 | 0.19 | Q | | | | | |
| 32+ 0 | 0.0000 | 0.17 | Q | | | | | |
| 32+15 | 0.0000 | 0.15 | Q | | | | | |
| 32+30 | 0.0000 | 0.13 | Q | | | | | |
| 32+45 | 0.0000 | 0.12 | Q | | | | | |
| 33+ 0 | 0.0000 | 0.10 | Q | | | | | |
| 33+15 | 0.0000 | 0.09 | Q | | | | | |
| 33+30 | 0.0000 | 0.08 | Q | | | | | |
| 33+45 | 0.0000 | 0.07 | Q | | | | | |
| 34+ 0 | 0.0000 | 0.06 | Q | | | | | |
| 34+15 | 0.0000 | 0.06 | Q | | | | | |
| 34+30 | 0.0000 | 0.05 | Q | | | | | |
| 34+45 | 0.0000 | 0.05 | Q | | | | | |
| 35+ 0 | 0.0000 | 0.04 | Q | | | | | |
| 35+15 | 0.0000 | 0.04 | Q | | | | | |
| 35+30 | 0.0000 | 0.03 | Q | | | | | |
| 35+45 | 0.0000 | 0.03 | Q | | | | | |
| 36+ 0 | 0.0000 | 0.03 | Q | | | | | |
| 36+15 | 0.0000 | 0.02 | Q | | | | | |
| 36+30 | 0.0000 | 0.02 | Q | | | | | |
| 36+45 | 0.0000 | 0.02 | Q | | | | | |
| 37+ 0 | 0.0000 | 0.02 | Q | | | | | |
| 37+15 | 0.0000 | 0.01 | Q | | | | | |
| 37+30 | 0.0000 | 0.01 | Q | | | | | |
| 37+45 | 0.0000 | 0.01 | Q | | | | | |
| 38+ 0 | 0.0000 | 0.01 | Q | | | | | |
| 38+15 | 0.0000 | 0.01 | Q | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 38+30 | 0.0000 | 0.01 | Q | | | | |
| 38+45 | 0.0000 | 0.01 | Q | | | | |
| 39+ 0 | 0.0000 | 0.01 | Q | | | | |
| 39+15 | 0.0000 | 0.01 | Q | | | | |
| 39+30 | 0.0000 | 0.00 | Q | | | | |
| 39+45 | 0.0000 | 0.00 | Q | | | | |
| 40+ 0 | 0.0000 | 0.00 | Q | | | | |
| 40+15 | 0.0000 | 0.00 | Q | | | | |
| 40+30 | 0.0000 | 0.00 | Q | | | | |
| 40+45 | 0.0000 | 0.00 | Q | | | | |
| 41+ 0 | 0.0000 | 0.00 | Q | | | | |
| 41+15 | 0.0000 | 0.00 | Q | | | | |
| 41+30 | 0.0000 | 0.00 | Q | | | | |
| 41+45 | 0.0000 | 0.00 | Q | | | | |
| 42+ 0 | 0.0000 | 0.00 | Q | | | | |
| 42+15 | 0.0000 | 0.00 | Q | | | | |
| 42+30 | 0.0000 | 0.00 | Q | | | | |
| 42+45 | 0.0000 | 0.00 | Q | | | | |
| 43+ 0 | 0.0000 | 0.00 | Q | | | | |
| 43+15 | 0.0000 | 0.00 | Q | | | | |
| 43+30 | 0.0000 | 0.00 | Q | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 174
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1078.315 (CFS)
Total volume = 492.486 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 4.000 to Point/Station 4.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: SubA424100.rte

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P R I N T 0 F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

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| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 314.3 | 628.6 | 942.9 | 1257.2 |
|---|---|---|---|---|---|---|---|
| 0+15 | 4.4550 | 13.34 | Q | | | | |
| 0+30 | 9.7976 | 32.35 | qQ | | | | |
| 0+45 | 11.9391 | 42.81 | qQ | | | | |
| 1+ 0 | 14.4586 | 52.64 | qQ | | | | |
| 1+15 | 13.7886 | 53.06 | qQ | | | | |
| 1+30 | 12.5230 | 49.54 | qQ | | | | |
| 1+45 | 12.2311 | 48.31 | qQ | | | | |
| 2+ 0 | 14.4586 | 55.04 | qQ | | | | |
| 2+15 | 16.0161 | 61.47 | qQ | | | | |
| 2+30 | 16.3081 | 63.87 | q Q | | | | |
| 2+45 | 18.5356 | 71.29 | q Q | | | | |
| 3+ 0 | 20.0931 | 77.87 | q Q | | | | |
| 3+15 | 20.3851 | 80.35 | q Q | | | | |
| 3+30 | 20.3851 | 81.15 | q Q | | | | |
| 3+45 | 20.3851 | 81.62 | q Q | | | | |
| 4+ 0 | 22.6126 | 88.67 | q Q | | | | |
| 4+15 | 24.1701 | 95.18 | q Q | | | | |
| 4+30 | 26.6896 | 104.29 | q Q | | | | |
| 4+45 | 28.2472 | 111.23 | q Q | | | | |
| 5+ 0 | 30.7666 | 120.49 | q Q | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5+15 | 27.8691 | 114.17 | q Q | | | | |
| 5+30 | 27.2735 | 111.17 | q Q | | | | |
| 5+45 | 30.4747 | 120.66 | q Q | | | | |
| 6+ 0 | 32.3242 | 128.54 | q Q | | | | |
| 6+15 | 34.8436 | 137.93 | q Q | | | | |
| 6+30 | 36.4012 | 144.94 | q Q | | | | |
| 6+45 | 38.9207 | 154.24 | q Q | | | | |
| 7+ 0 | 40.4782 | 161.29 | q Q | | | | |
| 7+15 | 40.7702 | 163.98 | q Q | | | | |
| 7+30 | 42.9977 | 171.61 | q Q | | | | |
| 7+45 | 46.7827 | 185.06 | q Q | | | | |
| 8+ 0 | 50.8598 | 200.54 | q Q | | | | |
| 8+15 | 58.8787 | 236.53 | q Q | | | | |
| 8+30 | 63.6602 | 274.10 | q Q | | | | |
| 8+45 | 67.9480 | 309.88 | q Q | | | | |
| 9+ 0 | 73.6727 | 355.43 | q Q | | | | |
| 9+15 | 82.9937 | 422.89 | q Q | | | | |
| 9+30 | 91.3548 | 496.80 | q Q | | | | |
| 9+45 | 97.9050 | 560.92 | q Q | | | | |
| 10+ 0 | 104.0353 | 618.39 | q Q | | | | |
| 10+15 | 84.7053 | 551.54 | q Q | | | | |
| 10+30 | 69.8469 | 433.53 | q Q | | | | |
| 10+45 | 83.1352 | 454.17 | q Q | | | | |
| 11+ 0 | 94.5545 | 541.72 | q Q | | | | |
| 11+15 | 93.7488 | 576.20 | q Q | | | | |
| 11+30 | 91.8116 | 575.03 | q Q | | | | |
| 11+45 | 85.3151 | 543.74 | q Q | | | | |
| 12+ 0 | 84.3288 | 523.52 | q Q | | | | |
| 12+15 | 108.2734 | 636.88 | q Q | | | | |
| 12+30 | 127.7235 | 799.57 | q Q | | | | |
| 12+45 | 139.5047 | 922.37 | q Q | | | | |
| 13+ 0 | 147.8231 | 1010.25 | q Q | | | | |
| 13+15 | 167.0588 | 1137.14 | q Q | | | | |
| 13+30 | 178.8636 | 1257.18 | q Q | | | | |
| 13+45 | 146.2043 | 1145.88 | q Q | | | | |
| 14+ 0 | 121.9844 | 949.53 | q Q | | | | |
| 14+15 | 130.3774 | 916.57 | q Q | | | | |
| 14+30 | 136.3443 | 958.03 | q Q | | | | |
| 14+45 | 136.0330 | 975.63 | q Q | | | | |
| 15+ 0 | 132.6756 | 965.46 | q Q | | | | |
| 15+15 | 127.5066 | 934.98 | q Q | | | | |
| 15+30 | 121.9170 | 895.55 | q Q | | | | |
| 15+45 | 106.7772 | 807.92 | q Q | | | | |
| 16+ 0 | 97.6872 | 721.88 | q Q | | | | |
| 16+15 | 52.5058 | 494.66 | q Q | | | | |
| 16+30 | 22.0248 | 252.22 | q Q | | | | |
| 16+45 | 14.0806 | 136.82 | q Q | | | | |
| 17+ 0 | 12.5230 | 101.02 | q Q | | | | |
| 17+15 | 16.6861 | 104.65 | q Q | | | | |
| 17+30 | 19.8012 | 113.32 | q Q | | | | |
| 17+45 | 20.3851 | 114.86 | q Q | | | | |
| 18+ 0 | 18.1576 | 105.92 | q Q | | | | |
| 18+15 | 16.6000 | 96.82 | q Q | | | | |
| 18+30 | 16.3081 | 91.94 | q Q | | | | |
| 18+45 | 14.0806 | 82.32 | q Q | | | | |
| 19+ 0 | 10.2955 | 67.09 | q Q | | | | |
| 19+15 | 10.6735 | 63.37 | q Q | | | | |
| 19+30 | 14.1666 | 71.72 | q Q | | | | |
| 19+45 | 13.7886 | 71.00 | q Q | | | | |
| 20+ 0 | 10.2955 | 58.99 | qQ | | | | |
| 20+15 | 10.6735 | 56.50 | qQ | | | | |
| 20+30 | 11.9391 | 58.99 | qQ | | | | |
| 20+45 | 12.2311 | 59.46 | qQ | | | | |
| 21+ 0 | 10.0035 | 52.08 | qQ | | | | |
| 21+15 | 10.6735 | 51.75 | qQ | | | | |
| 21+30 | 9.7116 | 48.33 | qQ | | | | |
| 21+45 | 10.6735 | 49.79 | qQ | | | | |
| 22+ 0 | 9.7116 | 46.83 | qQ | | | | |
| 22+15 | 10.6735 | 48.49 | qQ | | | | |
| 22+30 | 9.7116 | 45.67 | qQ | | | | |
| 22+45 | 8.4460 | 40.79 | qQ | | | | |
| 23+ 0 | 8.1540 | 38.60 | qQ | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 23+15 | 8.1540 | 37.84 | qQ | | | | |
| 23+30 | 8.1540 | 37.37 | qQ | | | | |
| 23+45 | 8.1540 | 36.99 | qQ | | | | |
| 24+ 0 | 8.1540 | 36.66 | qQ | | | | |
| 24+15 | 3.6990 | 23.01 | Q | | | | |
| 24+30 | 0.5839 | 10.41 | Q | | | | |
| 24+45 | 0.0000 | 5.89 | Q | | | | |
| 25+ 0 | 0.0000 | 4.67 | Q | | | | |
| 25+15 | 0.0000 | 4.06 | Q | | | | |
| 25+30 | 0.0000 | 3.60 | Q | | | | |
| 25+45 | 0.0000 | 3.20 | Q | | | | |
| 26+ 0 | 0.0000 | 2.84 | Q | | | | |
| 26+15 | 0.0000 | 2.52 | Q | | | | |
| 26+30 | 0.0000 | 2.24 | Q | | | | |
| 26+45 | 0.0000 | 1.99 | Q | | | | |
| 27+ 0 | 0.0000 | 1.77 | Q | | | | |
| 27+15 | 0.0000 | 1.57 | Q | | | | |
| 27+30 | 0.0000 | 1.40 | Q | | | | |
| 27+45 | 0.0000 | 1.24 | Q | | | | |
| 28+ 0 | 0.0000 | 1.10 | Q | | | | |
| 28+15 | 0.0000 | 0.98 | Q | | | | |
| 28+30 | 0.0000 | 0.87 | Q | | | | |
| 28+45 | 0.0000 | 0.77 | Q | | | | |
| 29+ 0 | 0.0000 | 0.69 | Q | | | | |
| 29+15 | 0.0000 | 0.61 | Q | | | | |
| 29+30 | 0.0000 | 0.54 | Q | | | | |
| 29+45 | 0.0000 | 0.48 | Q | | | | |
| 30+ 0 | 0.0000 | 0.43 | Q | | | | |
| 30+15 | 0.0000 | 0.38 | Q | | | | |
| 30+30 | 0.0000 | 0.34 | Q | | | | |
| 30+45 | 0.0000 | 0.30 | Q | | | | |
| 31+ 0 | 0.0000 | 0.27 | Q | | | | |
| 31+15 | 0.0000 | 0.24 | Q | | | | |
| 31+30 | 0.0000 | 0.21 | Q | | | | |
| 31+45 | 0.0000 | 0.19 | Q | | | | |
| 32+ 0 | 0.0000 | 0.17 | Q | | | | |
| 32+15 | 0.0000 | 0.15 | Q | | | | |
| 32+30 | 0.0000 | 0.13 | Q | | | | |
| 32+45 | 0.0000 | 0.12 | Q | | | | |
| 33+ 0 | 0.0000 | 0.10 | Q | | | | |
| 33+15 | 0.0000 | 0.09 | Q | | | | |
| 33+30 | 0.0000 | 0.08 | Q | | | | |
| 33+45 | 0.0000 | 0.07 | Q | | | | |
| 34+ 0 | 0.0000 | 0.06 | Q | | | | |
| 34+15 | 0.0000 | 0.06 | Q | | | | |
| 34+30 | 0.0000 | 0.05 | Q | | | | |
| 34+45 | 0.0000 | 0.05 | Q | | | | |
| 35+ 0 | 0.0000 | 0.04 | Q | | | | |
| 35+15 | 0.0000 | 0.04 | Q | | | | |
| 35+30 | 0.0000 | 0.03 | Q | | | | |
| 35+45 | 0.0000 | 0.03 | Q | | | | |
| 36+ 0 | 0.0000 | 0.03 | Q | | | | |
| 36+15 | 0.0000 | 0.02 | Q | | | | |
| 36+30 | 0.0000 | 0.02 | Q | | | | |
| 36+45 | 0.0000 | 0.02 | Q | | | | |
| 37+ 0 | 0.0000 | 0.02 | Q | | | | |
| 37+15 | 0.0000 | 0.01 | Q | | | | |
| 37+30 | 0.0000 | 0.01 | Q | | | | |
| 37+45 | 0.0000 | 0.01 | Q | | | | |
| 38+ 0 | 0.0000 | 0.01 | Q | | | | |
| 38+15 | 0.0000 | 0.01 | Q | | | | |
| 38+30 | 0.0000 | 0.01 | Q | | | | |
| 38+45 | 0.0000 | 0.01 | Q | | | | |
| 39+ 0 | 0.0000 | 0.01 | Q | | | | |
| 39+15 | 0.0000 | 0.01 | Q | | | | |
| 39+30 | 0.0000 | 0.00 | Q | | | | |
| 39+45 | 0.0000 | 0.00 | Q | | | | |
| 40+ 0 | 0.0000 | 0.00 | Q | | | | |
| 40+15 | 0.0000 | 0.00 | Q | | | | |
| 40+30 | 0.0000 | 0.00 | Q | | | | |
| 40+45 | 0.0000 | 0.00 | Q | | | | |
| 41+ 0 | 0.0000 | 0.00 | Q | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 41+15 | 0.0000 | 0.00 | Q | | | | |
| 41+30 | 0.0000 | 0.00 | Q | | | | |
| 41+45 | 0.0000 | 0.00 | Q | | | | |
| 42+ 0 | 0.0000 | 0.00 | Q | | | | |
| 42+15 | 0.0000 | 0.00 | Q | | | | |
| 42+30 | 0.0000 | 0.00 | Q | | | | |
| 42+45 | 0.0000 | 0.00 | Q | | | | |
| 43+ 0 | 0.0000 | 0.00 | Q | | | | |
| 43+15 | 0.0000 | 0.00 | Q | | | | |
| 43+30 | 0.0000 | 0.00 | Q | | | | |

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----------------------------------------------------------------------
      **************************HYDROGRAPH DATA**************************
                  Number of intervals =   174
                  Time interval =    15.0 (Min.)
                  Maximum/Peak flow rate =     1257.179 (CFS)
                  Total volume =     589.692 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ********************************************************************


      ----------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        1.000 to Point/Station        4.000
      **** STORE OR DELETE CURRENT HYDROGRAPH ****
      ____________________________________________________________________
      Current stream hydrograph saved in file LineA24hr.rte
      **************************HYDROGRAPH DATA**************************
                  Number of intervals =     0
                  Time interval =     0.0 (Min.)
                  Maximum/Peak flow rate =        0.000 (CFS)
                  Total volume =        0.000 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ********************************************************************


      ----------------------------------------------------------------
```

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
Study date: 07/22/13

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Watershed A/Line A, Offsite, routed
100 yr 24 hr

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Program License Serial Number 6097

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********** HYDROGRAPH INFORMATION **********

From study/file name: SUBAloff24100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 99
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 386.405 (CFS)
Total volume = 135.620 (Ac.Ft)
Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station 76.000 to Point/Station 81.000
**** STREAM ROUTING SCS CONVEX METHOD ****
---
HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 500.00 (Ft.)
Elevation difference = 10.00 (Ft.)
Slope of channel = 0.020000 (Vert/Horiz)
Channel type - Improved Channel

Channel length = 500.00(Ft.) Elevation difference = 10.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Covered channel
Channel base width = 12.000(Ft.)
Slope or 'Z' of left channel bank = 1.000
Slope or 'Z' of right channel bank = 1.000
Manning's 'N' = 0.015
Maximum depth of channel = 8.000(Ft.)
Flow(q) thru subarea = 97.120(CFS)
Depth of flow = 0.723(Ft.)
Average velocity = 10.563(Ft/s)
Total flow rate = 97.120(CFS)
Channel flow top width = 13.445(Ft.)
Depth of flow in channel = 0.72(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 10.56(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 97.120(CFS)
Total capacity of improved channels = 97.120(CFS)
Critical Depth in Channel = 1.22(Ft.)

Channel evaluation using maximum flow rate of hydrograph
Covered channel
Flow(q) thru subarea = 386.405(CFS)
Depth of flow = 1.652(Ft.)



Average velocity = 17.135(Ft/s)
Total flow rate = 386.405(CFS)
Channel flow top width = 15.304(Ft.)
Depth of flow in channel = 1.65(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 17.14(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 386.405(CFS)
Total capacity of improved channels = 386.405(CFS)
Critical Depth in Channel = 2.94(Ft.)

********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.9097 Travel time = 0.49 (min.)
dt*(unit time interval) = 15.00(min.), e= 22.9354
dt(routing time-step) = 0.44 (min.), c* = 1.0000

Output hydrograph delayed by 0 unit time increments

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
P R I N T O F S T O R M
R u n o f f H y d r o g r a p h
---
Hydrograph in 15 Minute intervals (CFS)
---

| Time(h+m) | Out = O(CFS) | In = I | 0 | 96.6 | 193.2 | 289.8 | 386.4 |
|---|---|---|---|---|---|---|---|
| 0+15 | 1.1878 | 1.22 | 0 | | | | |
| 0+30 | 3.4007 | 3.47 | 0 | | | | |
| 0+45 | 4.5091 | 4.54 | 0 | | | | |
| 1+ 0 | 5.3075 | 5.33 | 0 | | | | |
| 1+15 | 5.5520 | 5.56 | 0 | | | | |
| 1+30 | 4.8927 | 4.87 | 0 | | | | |
| 1+45 | 4.7707 | 4.77 | 0 | | | | |
| 2+ 0 | 5.3378 | 5.36 | 0 | | | | |
| 2+15 | 6.1466 | 6.17 | 0 | | | | |
| 2+30 | 6.2961 | 6.30 | 0 | | | | |
| 2+45 | 6.9175 | 6.94 | 0 | | | | |
| 3+ 0 | 7.7277 | 7.75 | 0 | | | | |
| 3+15 | 7.8772 | 7.88 | 0 | | | | |
| 3+30 | 7.9046 | 7.91 | 0 | | | | |
| 3+45 | 7.9053 | 7.91 | 0 | | | | |
| 4+ 0 | 8.4992 | 8.52 | 0 | | | | |
| 4+15 | 9.3087 | 9.33 | 0 | | | | |
| 4+30 | 10.0521 | 10.07 | 0 | | | | |
| 4+45 | 10.8891 | 10.91 | 0 | | | | |
| 5+ 0 | 11.6332 | 11.66 | 0 | | | | |
| 5+15 | 11.2824 | 11.27 | 0 | | | | |
| 5+30 | 10.4075 | 10.38 | 0 | | | | |
| 5+45 | 11.5394 | 11.57 | 0 | | | | |
| 6+ 0 | 12.4441 | 12.47 | 0 | | | | |
| 6+15 | 13.2135 | 13.24 | 0 | | | | |
| 6+30 | 14.0512 | 14.08 | 0 | | | | |
| 6+45 | 14.7953 | 14.82 | 0 | | | | |
| 7+ 0 | 15.6323 | 15.66 | 0 | | | | |
| 7+15 | 15.7825 | 15.79 | 0 | | | | |
| 7+30 | 16.4039 | 16.42 | 0 | | | | |
| 7+45 | 17.8080 | 17.85 | 0 | | | | |
| 8+ 0 | 19.3609 | 19.41 | 0 | | | | |
| 8+15 | 29.2462 | 29.55 | 0 | | | | |
| 8+30 | 42.5633 | 42.96 | 0 | | | | |
| 8+45 | 53.1485 | 53.46 | 0 | | | | |
| 9+ 0 | 70.2061 | 70.72 | 0 | | | | |
| 9+15 | 94.3193 | 95.04 | 0 | | | | |
| 9+30 | 120.8298 | 121.61 | 0 | | | | |
| 9+45 | 140.7232 | 141.30 | 0 | | | | |

| | | | |
|---|---|---|---|
| 10+ 0 | 159.3722 | 159.92 | \| 0 \| |
| 10+15 | 130.2176 | 129.31 | \| 0 \| |
| 10+30 | 77.8441 | 76.28 | \| IO \| |
| 10+45 | 99.8459 | 100.56 | \| 0 \| |
| 11+ 0 | 140.8690 | 142.09 | \| 0 \| |
| 11+15 | 144.7933 | 144.88 | \| 0 \| |
| 11+30 | 140.4854 | 140.35 | \| 0 \| |
| 11+45 | 129.5362 | 129.21 | \| 0 \| |
| 12+ 0 | 121.3723 | 121.13 | \| 0 \| |
| 12+15 | 170.3783 | 171.87 | \| 0 \| |
| 12+30 | 236.2363 | 238.19 | \| 0 \| |
| 12+45 | 269.2160 | 270.16 | \| 0 \| |
| 13+ 0 | 297.0253 | 297.84 | \| 0 \| |
| 13+15 | 340.3578 | 341.65 | \| 0 \| |
| 13+30 | 385.0846 | 386.40 | \| 0I \| |
| 13+45 | 329.6926 | 327.97 | \| IO \| |
| 14+ 0 | 244.1736 | 241.63 | \| 0 \| |
| 14+15 | 253.6376 | 254.00 | \| 0 \| |
| 14+30 | 279.1440 | 279.91 | \| 0 \| |
| 14+45 | 279.0080 | 278.98 | \| 0 \| |
| 15+ 0 | 274.7021 | 274.57 | \| 0 \| |
| 15+15 | 262.4215 | 262.05 | \| 0 \| |
| 15+30 | 248.8547 | 248.45 | \| 0 \| |
| 15+45 | 217.1731 | 216.22 | \| 0 \| |
| 16+ 0 | 184.9243 | 183.97 | \| 0 \| |
| 16+15 | 114.9983 | 112.90 | \| 0 \| |
| 16+30 | 25.7189 | 23.07 | 0 \| |
| 16+45 | 8.8076 | 8.37 | 0 |
| 17+ 0 | 4.9994 | 4.90 | 0 |
| 17+15 | 5.9592 | 5.99 | 0 |
| 17+30 | 7.5507 | 7.60 | 0 |
| 17+45 | 7.8490 | 7.86 | 0 |
| 18+ 0 | 7.3100 | 7.29 | 0 |
| 18+15 | 6.5020 | 6.48 | 0 |
| 18+30 | 6.3525 | 6.35 | 0 |
| 18+45 | 5.7311 | 5.71 | 0 |
| 19+ 0 | 4.3270 | 4.28 | 0 |
| 19+15 | 3.9619 | 3.95 | 0 |
| 19+30 | 5.1883 | 5.23 | 0 |
| 19+45 | 5.5252 | 5.53 | 0 |
| 20+ 0 | 4.2981 | 4.26 | 0 |
| 20+15 | 3.9612 | 3.95 | 0 |
| 20+30 | 4.5944 | 4.61 | 0 |
| 20+45 | 4.7157 | 4.72 | 0 |
| 21+ 0 | 4.1486 | 4.13 | 0 |
| 21+15 | 3.9337 | 3.93 | 0 |
| 21+30 | 3.9998 | 4.00 | 0 |
| 21+45 | 3.9062 | 3.90 | 0 |
| 22+ 0 | 3.9991 | 4.00 | 0 |
| 22+15 | 3.9062 | 3.90 | 0 |
| 22+30 | 3.9991 | 4.00 | 0 |
| 22+45 | 3.3123 | 3.29 | 0 |
| 23+ 0 | 3.1896 | 3.19 | 0 |
| 23+15 | 3.1629 | 3.16 | 0 |
| 23+30 | 3.1621 | 3.16 | 0 |
| 23+45 | 3.1621 | 3.16 | 0 |
| 24+ 0 | 3.1621 | 3.16 | 0 |
| 24+15 | 1.9744 | 1.94 | 0 |
| 24+30 | 0.3554 | 0.31 | 0 |
| 24+45 | 0.0564 | 0.05 | 0 |
| 25+ 0 | 0.0014 | 0.00 | 0 |
| 25+15 | 0.0000 | 0.00 | 0 |

**********HYDROGRAPH DATA**********

Number of intervals = 101
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 385.085 (CFS)
Total volume = 135.620 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |



Process from Point/Station 81.000 to Point/Station 81.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: SUBA2off24100.rte

P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 124.0 248.0 372.1 496.1 |
|---|---|---|---|
| 0+15 | 0.4065 | 1.59 | Q |
| 0+30 | 1.0474 | 4.45 | Q |
| 0+45 | 1.3157 | 5.82 | Q |
| 1+ 0 | 1.5510 | 6.86 | Q |
| 1+15 | 1.5702 | 7.12 | Q |
| 1+30 | 1.3761 | 6.27 | Q |
| 1+45 | 1.3550 | 6.13 | Q |
| 2+ 0 | 1.5546 | 6.89 | Q |
| 2+15 | 1.7734 | 7.92 | Q |
| 2+30 | 1.7982 | 8.09 | Q |
| 2+45 | 2.0050 | 8.92 | Q |
| 3+ 0 | 2.2239 | 9.95 | Q |
| 3+15 | 2.2486 | 10.13 | Q |
| 3+30 | 2.2522 | 10.16 | Q |
| 3+45 | 2.2522 | 10.16 | Q |
| 4+ 0 | 2.4555 | 10.95 | Q |
| 4+15 | 2.6743 | 11.98 | Q |
| 4+30 | 2.9023 | 12.95 | qQ |
| 4+45 | 3.1248 | 14.01 | qQ |
| 5+ 0 | 3.3528 | 14.99 | qQ |
| 5+15 | 3.1687 | 14.45 | qQ |
| 5+30 | 2.9591 | 13.37 | qQ |
| 5+45 | 3.3352 | 14.87 | qQ |
| 6+ 0 | 3.5716 | 16.02 | qQ |
| 6+15 | 3.8032 | 17.02 | qQ |
| 6+30 | 4.0256 | 18.08 | qQ |
| 6+45 | 4.2537 | 19.05 | qQ |
| 7+ 0 | 4.4761 | 20.11 | qQ |
| 7+15 | 4.5008 | 20.28 | qQ |
| 7+30 | 4.7077 | 21.11 | qQ |
| 7+45 | 5.1298 | 22.94 | qQ |
| 8+ 0 | 5.5766 | 24.94 | q Q |
| 8+15 | 8.8996 | 38.15 | q Q |
| 8+30 | 12.5847 | 55.15 | q Q |
| 8+45 | 15.7094 | 68.86 | q Q |
| 9+ 0 | 20.7346 | 90.94 | q Q |
| 9+15 | 27.9846 | 122.30 | q Q |
| 9+30 | 35.4196 | 156.25 | q Q |
| 9+45 | 40.9071 | 181.63 | q Q |
| 10+ 0 | 46.1762 | 205.55 | q Q |
| 10+15 | 35.1418 | 165.36 | q Q |
| 10+30 | 20.8224 | 98.67 | q Q |
| 10+45 | 29.9959 | 129.84 | q Q |
| 11+ 0 | 41.3843 | 182.25 | q Q |
| 11+15 | 41.2825 | 186.08 | q Q |
| 11+30 | 39.9608 | 180.45 | q Q |
| 11+45 | 36.3265 | 165.86 | q Q |
| 12+ 0 | 34.6175 | 155.99 | q Q |
| 12+15 | 51.2021 | 221.58 | q Q |
| 12+30 | 69.3835 | 305.62 | q Q |
| 12+45 | 78.0542 | 347.27 | q Q |

| | | | |
|---|---|---|---|
| 13+ 0 | 85.6044 | 382.63 | q Q |
| 13+15 | 99.1196 | 439.48 | q Q |
| 13+30 | 111.0056 | 496.09 | q Q |
| 13+45 | 90.5385 | 420.23 | q Q |
| 14+ 0 | 67.2580 | 311.43 | q Q |
| 14+15 | 73.2663 | 326.90 | q Q |
| 14+30 | 80.1819 | 359.33 | q Q |
| 14+45 | 79.5685 | 358.58 | q Q |
| 15+ 0 | 78.0092 | 352.71 | q Q |
| 15+15 | 74.3200 | 336.74 | q Q |
| 15+30 | 70.4109 | 319.27 | q Q |
| 15+45 | 60.3592 | 277.53 | q Q |
| 16+ 0 | 51.8644 | 236.79 | q Q |
| 16+15 | 28.9211 | 143.92 | q Q |
| 16+30 | 4.8976 | 30.62 | q Q |
| 16+45 | 1.9935 | 10.80 | Q |
| 17+ 0 | 1.3797 | 6.38 | Q |
| 17+15 | 1.7615 | 7.72 | Q |
| 17+30 | 2.1955 | 9.75 | Q |
| 17+45 | 2.2450 | 10.09 | Q |
| 18+ 0 | 2.0490 | 9.36 | Q |
| 18+15 | 1.8302 | 8.33 | Q |
| 18+30 | 1.8054 | 8.16 | Q |
| 18+45 | 1.5985 | 7.33 | Q |
| 19+ 0 | 1.1765 | 5.50 | Q |
| 19+15 | 1.1361 | 5.10 | Q |
| 19+30 | 1.5298 | 6.72 | Q |
| 19+45 | 1.5665 | 7.09 | Q |
| 20+ 0 | 1.1728 | 5.47 | Q |
| 20+15 | 1.1361 | 5.10 | Q |
| 20+30 | 1.3266 | 5.92 | Q |
| 20+45 | 1.3477 | 6.06 | Q |
| 21+ 0 | 1.1481 | 5.30 | Q |
| 21+15 | 1.1325 | 5.07 | Q |
| 21+30 | 1.1233 | 5.12 | Q |
| 21+45 | 1.1289 | 5.04 | Q |
| 22+ 0 | 1.1233 | 5.12 | Q |
| 22+15 | 1.1289 | 5.04 | Q |
| 22+30 | 1.1233 | 5.12 | Q |
| 22+45 | 0.9256 | 4.24 | Q |
| 23+ 0 | 0.9045 | 4.09 | Q |
| 23+15 | 0.9009 | 4.06 | Q |
| 23+30 | 0.9009 | 4.06 | Q |
| 23+45 | 0.9009 | 4.06 | Q |
| 24+ 0 | 0.9009 | 4.06 | Q |
| 24+15 | 0.4944 | 2.47 | Q |
| 24+30 | 0.0567 | 0.41 | Q |
| 24+45 | 0.0072 | 0.06 | Q |
| 25+ 0 | 0.0000 | 0.00 | Q |
| 25+15 | 0.0000 | 0.00 | Q |

**********HYDROGRAPH DATA**********

Number of intervals = 101
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 496.090 (CFS)
Total volume = 174.294 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 81.000 to Point/Station 81.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: SUBA3offRT.rte



PRINT OF STORM
Runoff Hydrograph

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 181.6 363.2 544.8 726.3 |
|---|---|---|---|
| 0+15 | 0.7085 | 2.30 | Q |
| 0+30 | 2.0302 | 6.48 | Q |
| 0+45 | 2.6946 | 8.52 | Q |
| 1+ 0 | 3.1724 | 10.03 | Q |
| 1+15 | 3.3194 | 10.44 | Q |
| 1+30 | 2.9265 | 9.20 | Q |
| 1+45 | 2.8527 | 8.98 | Q |
| 2+ 0 | 3.1908 | 10.08 | Q |
| 2+15 | 3.6741 | 11.59 | Q |
| 2+30 | 3.7645 | 11.86 | Q |
| 2+45 | 4.1353 | 13.06 | Q |
| 3+ 0 | 4.6195 | 14.57 | Q |
| 3+15 | 4.7098 | 14.84 | Q |
| 3+30 | 4.7264 | 14.88 | Q |
| 3+45 | 4.7269 | 14.88 | Q |
| 4+ 0 | 5.0811 | 16.04 | Q |
| 4+15 | 5.5649 | 17.55 | Q |
| 4+30 | 6.0095 | 18.96 | qQ |
| 4+45 | 6.5098 | 20.52 | qQ |
| 5+ 0 | 6.9548 | 21.94 | qQ |
| 5+15 | 6.7467 | 21.20 | qQ |
| 5+30 | 6.2243 | 19.59 | qQ |
| 5+45 | 6.8981 | 21.77 | qQ |
| 6+ 0 | 7.4395 | 23.46 | qQ |
| 6+15 | 7.8998 | 24.92 | qQ |
| 6+30 | 8.4005 | 26.48 | qQ |
| 6+45 | 8.8456 | 27.89 | qQ |
| 7+ 0 | 9.3459 | 29.45 | qQ |
| 7+15 | 9.4367 | 29.72 | qQ |
| 7+30 | 9.8075 | 30.92 | qQ |
| 7+45 | 10.6460 | 33.58 | qQ |
| 8+ 0 | 11.5743 | 36.51 | q Q |
| 8+15 | 17.5025 | 55.65 | q Q |
| 8+30 | 25.5008 | 80.65 | q Q |
| 8+45 | 31.8408 | 100.70 | q Q |
| 9+ 0 | 42.0308 | 132.97 | q Q |
| 9+15 | 56.4378 | 178.74 | q Q |
| 9+30 | 72.2851 | 228.53 | q Q |
| 9+45 | 84.1888 | 265.82 | q Q |
| 10+ 0 | 95.3402 | 300.89 | q Q |
| 10+15 | 77.9768 | 243.34 | q Q |
| 10+30 | 46.6918 | 145.36 | q Q |
| 10+45 | 59.7361 | 189.58 | q Q |
| 11+ 0 | 84.2397 | 266.49 | q Q |
| 11+15 | 86.6404 | 272.72 | q Q |
| 11+30 | 84.0740 | 264.52 | q Q |
| 11+45 | 77.5356 | 243.40 | q Q |
| 12+ 0 | 72.6487 | 228.64 | q Q |
| 12+15 | 101.8663 | 323.45 | q Q |
| 12+30 | 141.2219 | 446.84 | q Q |
| 12+45 | 160.9897 | 508.26 | q Q |
| 13+ 0 | 177.6230 | 560.25 | q Q |
| 13+15 | 203.5092 | 642.99 | q Q |
| 13+30 | 230.2507 | 726.34 | q Q |
| 13+45 | 197.2761 | 617.51 | q Q |
| 14+ 0 | 146.1802 | 457.61 | q Q |
| 14+15 | 151.6974 | 478.60 | q Q |
| 14+30 | 166.9284 | 526.25 | q Q |
| 14+45 | 166.8845 | 525.46 | q Q |
| 15+ 0 | 164.3140 | 517.03 | q Q |
| 15+15 | 156.9818 | 493.72 | q Q |
| 15+30 | 148.8704 | 468.14 | q Q |
| 15+45 | 129.9526 | 407.48 | q Q |

```
 16+ 0     110.6692    347.46  |      q    |         Q|          |          |
 16+15      68.8942    212.81  |    q      |Q         |          |          |
 16+30      15.5120     46.13  | q Q       |          |          |          |
 16+45       5.2882     16.09  | Q         |          |          |          |
 17+ 0       2.9943      9.37  | Q         |          |          |          |
 17+15       3.5616     11.28  | Q         |          |          |          |
 17+30       4.5125     14.26  | Q         |          |          |          |
 17+45       4.6928     14.79  | Q         |          |          |          |
 18+ 0       4.3717     13.73  | Q         |          |          |          |
 18+15       3.8889     12.22  | Q         |          |          |          |
 18+30       3.7985     11.96  | Q         |          |          |          |
 18+45       3.4277     10.76  | Q         |          |          |          |
 19+ 0       2.5893      8.09  | Q         |          |          |          |
 19+15       2.3694      7.47  | Q         |          |          |          |
 19+30       3.1005      9.82  | Q         |          |          |          |
 19+45       3.3033     10.40  | Q         |          |          |          |
 20+ 0       2.5718      8.04  | Q         |          |          |          |
 20+15       2.3690      7.47  | Q         |          |          |          |
 20+30       2.7462      8.67  | Q         |          |          |          |
 20+45       2.8196      8.88  | Q         |          |          |          |
 21+ 0       2.4814      7.78  | Q         |          |          |          |
 21+15       2.3524      7.42  | Q         |          |          |          |
 21+30       2.3915      7.51  | Q         |          |          |          |
 21+45       2.3358      7.37  | Q         |          |          |          |
 22+ 0       2.3911      7.51  | Q         |          |          |          |
 22+15       2.3358      7.37  | Q         |          |          |          |
 22+30       2.3911      7.51  | Q         |          |          |          |
 22+45       1.9816      6.22  | Q         |          |          |          |
 23+ 0       1.9073      6.00  | Q         |          |          |          |
 23+15       1.8912      5.95  | Q         |          |          |          |
 23+30       1.8908      5.95  | Q         |          |          |          |
 23+45       1.8908      5.95  | Q         |          |          |          |
 24+ 0       1.8908      5.95  | Q         |          |          |          |
 24+15       1.1823      3.65  | Q         |          |          |          |
 24+30       0.2148      0.63  | Q         |          |          |          |
 24+45       0.0341      0.10  | Q         |          |          |          |
 25+ 0       0.0000      0.00  | Q         |          |          |          |
 25+15       0.0000      0.00  | Q         |          |          |          |
--------------------------------------------------------------------------------

      ****************************HYDROGRAPH DATA****************************
                  Number of intervals =   101
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =      726.341 (CFS)
                  Total volume =     255.428 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ***********************************************************************


      ------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       81.000 to Point/Station       82.000
      **** STREAM ROUTING SCS CONVEX METHOD ****
      ------------------------------------------------------------------------
      HYDROGRAPH STREAM ROUTING DATA:
      Length of stream =   1250.00 (Ft.)
      Elevation difference =   20.00 (Ft.)
      Slope of channel =  0.016000 (Vert/Horiz)
      Channel type - Improved Channel


      Channel length =  1250.00(Ft.)     Elevation difference =  20.00(Ft.)
      Channel evaluation using mean flow rate of hydrograph
      Covered channel
      Channel base width  =   12.000(Ft.)
      Slope or 'Z' of left channel bank =   1.000
      Slope or 'Z' of right channel bank =   1.000
      Manning's 'N'    = 0.015
      Maximum depth of channel  =    8.000(Ft.)
```



```
      Flow(q) thru subarea =    182.819(CFS)
      Depth of flow =     1.129(Ft.)
      Average velocity =    12.329(Ft/s)
      Total flow rate =   182.819(CFS)
      Channel flow top width =   14.259(Ft.)
      Depth of flow in channel =   1.13(Ft.)
      Total number of channels (same dimensions) = 1
      Flow Velocity =   12.33(Ft/s)
      Travel time  =    0.00 min.
      Individual channel flow =  182.819(CFS)
      Total capacity of improved channels =    182.819(CFS)
      Critical Depth in Channel =    1.83(Ft.)


      Channel evaluation using maximum flow rate of hydrograph
      Covered channel
      Flow(q) thru subarea =    726.341(CFS)
      Depth of flow =     2.561(Ft.)
      Average velocity =    19.478(Ft/s)
      Total flow rate =   726.341(CFS)
      Channel flow top width =   17.122(Ft.)
      Depth of flow in channel =   2.56(Ft.)
      Total number of channels (same dimensions) = 1
      Flow Velocity =   19.48(Ft/s)
      Travel time  =    0.00 min.
      Individual channel flow =  726.341(CFS)
      Total capacity of improved channels =    726.341(CFS)
      Critical Depth in Channel =    4.25(Ft.)


      ********************** SCS CONVEX CHANNEL ROUTING **********************
      Convex method of stream routing  data items:
      Using equation: Outflow =
      O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
                where c* = 1 - (1-c)^e and dt = c(length)/velocity
                c(v/v+1.7) =   0.9197   Travel time =   1.07 (min.)
              dt*(unit time interval) =  15.00(min.),  e=  10.4985
              dt(routing time-step) =   0.98 (min.),   c* =   1.0000

      Output hydrograph delayed by 0  unit time increments


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                  P R I N T  O F  S T O R M
                  R u n o f f     H y d r o g r a p h
      ------------------------------------------------------------------------
                  Hydrograph in  15  Minute intervals (CFS)
      ------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0       181.6     363.2     544.8     726.3
------------------------------------------------------------------------------
  0+15       2.1518     2.30  0       |         |         |         |
  0+30       6.2044     6.48  0       |         |         |         |
  0+45       8.3857     8.52  0       |         |         |         |
  1+ 0       9.9317    10.03  0       |         |         |         |
  1+15      10.4146    10.44  0       |         |         |         |
  1+30       9.2770     9.20  0       |         |         |         |
  1+45       8.9926     8.98  0       |         |         |         |
  2+ 0      10.0108    10.08  0       |         |         |         |
  2+15      11.4950    11.59  0       |         |         |         |
  2+30      11.8414    11.86  0       |         |         |         |
  2+45      12.9791    13.06  0       |         |         |         |
  3+ 0      14.4718    14.57  0       |         |         |         |
  3+15      14.8183    14.84  0       |         |         |         |
  3+30      14.8802    14.88  0       |         |         |         |
  3+45      14.8844    14.88  0       |         |         |         |
  4+ 0      15.9603    16.04  0       |         |         |         |
  4+15      17.4487    17.55  0       |         |         |         |
  4+30      18.8710    18.96  |0      |         |         |         |
  4+45      20.4213    20.52  |0      |         |         |         |
  5+ 0      21.8478    21.94  |0      |         |         |         |
  5+15      21.2465    21.20  |0      |         |         |         |
```

| | | | |
|---|---|---|---|
| 5+30 | 19.6962 | 19.59 | 0 |
| 5+45 | 21.6296 | 21.77 | 0 |
| 6+ 0 | 23.3449 | 23.46 | 0 |
| 6+15 | 24.8207 | 24.92 | 0 |
| 6+30 | 26.3750 | 26.48 | 0 |
| 6+45 | 27.8016 | 27.89 | 0 |
| 7+ 0 | 29.3520 | 29.45 | 0 |
| 7+15 | 29.7027 | 29.72 | 0 |
| 7+30 | 30.8405 | 30.92 | 0 |
| 7+45 | 33.4090 | 33.58 | 0 |
| 8+ 0 | 36.3198 | 36.51 | 0 |
| 8+15 | 54.3933 | 55.65 | 0I |
| 8+30 | 79.0092 | 80.65 | 0 |
| 8+45 | 99.3837 | 100.70 | 0 |
| 9+ 0 | 130.8549 | 132.97 | 0 |
| 9+15 | 175.7400 | 178.74 | 0 |
| 9+30 | 225.2689 | 228.53 | 0 |
| 9+45 | 263.3739 | 265.82 | 0 |
| 10+ 0 | 298.5886 | 300.89 | 0 |
| 10+15 | 247.1106 | 243.34 | 0 |
| 10+30 | 151.7840 | 145.36 | 0 |
| 10+45 | 186.6779 | 189.58 | 0 |
| 11+ 0 | 261.4487 | 266.49 | 0 |
| 11+15 | 272.3080 | 272.72 | 0I |
| 11+30 | 265.0576 | 264.52 | 0 |
| 11+45 | 244.7836 | 243.40 | 0 |
| 12+ 0 | 229.6065 | 228.64 | 0 |
| 12+15 | 317.2288 | 323.45 | 0 |
| 12+30 | 438.7490 | 446.84 | 0 |
| 12+45 | 504.2319 | 508.26 | 0 |
| 13+ 0 | 556.8428 | 560.25 | 0 |
| 13+15 | 637.5606 | 642.99 | 0 |
| 13+30 | 720.8742 | 726.34 | 0I |
| 13+45 | 624.6448 | 617.51 | 0 |
| 14+ 0 | 468.0982 | 457.61 | 0 |
| 14+15 | 477.2247 | 478.60 | 0 |
| 14+30 | 523.1291 | 526.25 | 0 |
| 14+45 | 525.5130 | 525.46 | 0 |
| 15+ 0 | 517.5785 | 517.03 | 0 |
| 15+15 | 495.2515 | 493.72 | 0 |
| 15+30 | 469.8141 | 468.14 | 0 |
| 15+45 | 411.4627 | 407.48 | 0 |
| 16+ 0 | 351.3946 | 347.46 | 0 |
| 16+15 | 221.6440 | 212.81 | IO |
| 16+30 | 57.0603 | 46.13 | IO |
| 16+45 | 18.0594 | 16.09 | 0 |
| 17+ 0 | 9.8139 | 9.37 | 0 |
| 17+15 | 11.1571 | 11.28 | 0 |
| 17+30 | 14.0635 | 14.26 | 0 |
| 17+45 | 14.7521 | 14.79 | 0 |
| 18+ 0 | 13.8000 | 13.73 | 0 |
| 18+15 | 12.3200 | 12.22 | 0 |
| 18+30 | 11.9738 | 11.96 | 0 |
| 18+45 | 10.8360 | 10.76 | 0 |
| 19+ 0 | 8.2675 | 8.09 | 0 |
| 19+15 | 7.5085 | 7.47 | 0 |
| 19+30 | 9.6644 | 9.82 | 0 |
| 19+45 | 10.3573 | 10.40 | 0 |
| 20+ 0 | 8.1970 | 8.04 | 0 |
| 20+15 | 7.5041 | 7.47 | 0 |
| 20+30 | 8.5885 | 8.67 | 0 |
| 20+45 | 8.8689 | 8.88 | 0 |
| 21+ 0 | 7.8506 | 7.78 | 0 |
| 21+15 | 7.4422 | 7.42 | 0 |
| 21+30 | 7.5084 | 7.51 | 0 |
| 21+45 | 7.3804 | 7.37 | 0 |
| 22+ 0 | 7.5042 | 7.51 | 0 |
| 22+15 | 7.3803 | 7.37 | 0 |
| 22+30 | 7.5042 | 7.51 | 0 |
| 22+45 | 6.3044 | 6.22 | 0 |
| 23+ 0 | 6.0158 | 6.00 | 0 |
| 23+15 | 5.9580 | 5.95 | 0 |



| | | | |
|---|---|---|---|
| 23+30 | 5.9539 | 5.95 | 0 |
| 23+45 | 5.9538 | 5.95 | 0 |
| 24+ 0 | 5.9538 | 5.95 | 0 |
| 24+15 | 3.8020 | 3.65 | 0 |
| 24+30 | 0.8252 | 0.63 | 0 |
| 24+45 | 0.1324 | 0.10 | 0 |
| 25+ 0 | 0.0078 | 0.00 | 0 |
| 25+15 | 0.0001 | 0.00 | 0 |
| 25+30 | 0.0000 | 0.00 | 0 |

**********HYDROGRAPH DATA**********

Number of intervals = 102
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 720.874 (CFS)
Total volume = 255.428 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 82.000 to Point/Station 82.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: SketcherRT.rte

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 192.7 | 385.4 | 578.2 | 770.9 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.1590 | 2.31 | Q | | | | |
| 0+30 | 0.6189 | 6.82 | Q | | | | |
| 0+45 | 1.1952 | 9.58 | Q | | | | |
| 1+ 0 | 1.8194 | 11.75 | Q | | | | |
| 1+15 | 2.4017 | 12.82 | Q | | | | |
| 1+30 | 2.8346 | 12.11 | Q | | | | |
| 1+45 | 3.1916 | 12.18 | Q | | | | |
| 2+ 0 | 3.5931 | 13.60 | Q | | | | |
| 2+15 | 4.0621 | 15.56 | Q | | | | |
| 2+30 | 4.5065 | 16.35 | Q | | | | |
| 2+45 | 4.9858 | 17.96 | Q | | | | |
| 3+ 0 | 5.5238 | 20.00 | qQ | | | | |
| 3+15 | 6.0295 | 20.85 | qQ | | | | |
| 3+30 | 6.4789 | 21.36 | qQ | | | | |
| 3+45 | 6.8781 | 21.76 | qQ | | | | |
| 4+ 0 | 7.3173 | 23.28 | qQ | | | | |
| 4+15 | 7.8197 | 25.27 | qQ | | | | |
| 4+30 | 8.3782 | 27.25 | qQ | | | | |
| 4+45 | 8.9866 | 29.41 | qQ | | | | |
| 5+ 0 | 9.6393 | 31.49 | qQ | | | | |
| 5+15 | 10.1625 | 31.41 | qQ | | | | |
| 5+30 | 10.5153 | 30.21 | qQ | | | | |
| 5+45 | 10.9698 | 32.60 | qQ | | | | |
| 6+ 0 | 11.5136 | 34.86 | qQ | | | | |
| 6+15 | 12.1088 | 36.93 | qQ | | | | |
| 6+30 | 12.7499 | 39.12 | q Q | | | | |
| 6+45 | 13.4317 | 41.23 | q Q | | | | |
| 7+ 0 | 14.1496 | 43.50 | q Q | | | | |
| 7+15 | 14.8152 | 44.52 | q Q | | | | |
| 7+30 | 15.4910 | 46.33 | q Q | | | | |
| 7+45 | 16.2880 | 49.70 | q Q | | | | |
| 8+ 0 | 17.2205 | 53.54 | q Q | | | | |

| | | | |
|---|---|---|---|
| 8+15 | 18.4230 | 72.82 | q Q |
| 8+30 | 19.8366 | 98.85 | q Q |
| 8+45 | 21.3055 | 120.69 | q Q |
| 9+ 0 | 22.9090 | 153.76 | q Q |
| 9+15 | 24.7921 | 200.53 | q Q |
| 9+30 | 26.9632 | 252.23 | q Q |
| 9+45 | 29.2693 | 292.64 | q Q |
| 10+ 0 | 31.6556 | 330.24 | q Q |
| 10+15 | 33.1480 | 280.26 | q Q |
| 10+30 | 33.4085 | 185.19 | q Q |
| 10+45 | 33.9820 | 220.66 | q Q |
| 11+ 0 | 35.3090 | 296.76 | q Q |
| 11+15 | 36.5816 | 308.89 | q Q |
| 11+30 | 37.5679 | 302.63 | q Q |
| 11+45 | 38.1791 | 282.96 | q Q |
| 12+ 0 | 38.5378 | 268.14 | q Q |
| 12+15 | 39.7971 | 357.03 | q Q |
| 12+30 | 41.3214 | 480.07 | q Q |
| 12+45 | 43.0767 | 547.31 | q Q |
| 13+ 0 | 45.0111 | 601.85 | q Q |
| 13+15 | 47.3285 | 684.89 | q Q |
| 13+30 | 50.0014 | 770.88 | q Q |
| 13+45 | 51.1145 | 675.76 | q Q |
| 14+ 0 | 51.5477 | 519.65 | q Q |
| 14+15 | 51.9853 | 529.21 | q Q |
| 14+30 | 52.5991 | 575.73 | q Q |
| 14+45 | 53.1923 | 578.71 | q Q |
| 15+ 0 | 53.7082 | 571.29 | q Q |
| 15+15 | 54.1060 | 549.36 | q Q |
| 15+30 | 54.3761 | 524.19 | q Q |
| 15+45 | 54.3921 | 465.85 | q Q |
| 16+ 0 | 54.1649 | 405.56 | q Q |
| 16+15 | 53.2919 | 274.94 | q Q |
| 16+30 | 51.6574 | 108.72 | q Q |
| 16+45 | 49.7716 | 67.83 | qQ |
| 17+ 0 | 46.8763 | 56.69 | Q |
| 17+15 | 44.2581 | 55.42 | Q |
| 17+30 | 41.9480 | 56.01 | Q |
| 17+45 | 39.7068 | 54.46 | Q |
| 18+ 0 | 36.3164 | 50.12 | qQ |
| 18+15 | 33.1918 | 45.51 | qQ |
| 18+30 | 30.3880 | 42.36 | qQ |
| 18+45 | 27.8124 | 38.65 | qQ |
| 19+ 0 | 25.3273 | 33.59 | Q |
| 19+15 | 23.0639 | 30.57 | Q |
| 19+30 | 21.2218 | 30.89 | Q |
| 19+45 | 19.6405 | 30.00 | Q |
| 20+ 0 | 18.0667 | 26.26 | qQ |
| 20+15 | 16.6130 | 24.12 | qQ |
| 20+30 | 15.4057 | 23.99 | qQ |
| 20+45 | 14.3609 | 23.23 | qQ |
| 21+ 0 | 13.3481 | 21.20 | qQ |
| 21+15 | 12.4205 | 19.86 | qQ |
| 21+30 | 11.5963 | 19.10 | Q |
| 21+45 | 10.8641 | 18.24 | Q |
| 22+ 0 | 10.2135 | 17.72 | Q |
| 22+15 | 9.6354 | 17.02 | Q |
| 22+30 | 9.1218 | 16.63 | Q |
| 22+45 | 8.5811 | 14.89 | Q |
| 23+ 0 | 8.0729 | 14.09 | Q |
| 23+15 | 7.6214 | 13.58 | Q |
| 23+30 | 7.2202 | 13.17 | Q |
| 23+45 | 6.8637 | 12.82 | Q |
| 24+ 0 | 6.5470 | 12.50 | Q |
| 24+15 | 6.0968 | 9.90 | Q |
| 24+30 | 5.4724 | 6.30 | Q |
| 24+45 | 4.8622 | 4.99 | Q |
| 25+ 0 | 4.3200 | 4.33 | Q |
| 25+15 | 3.8383 | 3.84 | Q |
| 25+30 | 3.4103 | 3.41 | Q |
| 25+45 | 3.0300 | 3.03 | Q |
| 26+ 0 | 2.6921 | 2.69 | Q |



| | | | |
|---|---|---|---|
| 26+15 | 2.3919 | 2.39 | Q |
| 26+30 | 2.1252 | 2.13 | Q |
| 26+45 | 1.8882 | 1.89 | Q |
| 27+ 0 | 1.6777 | 1.68 | Q |
| 27+15 | 1.4906 | 1.49 | Q |
| 27+30 | 1.3244 | 1.32 | Q |
| 27+45 | 1.1767 | 1.18 | Q |
| 28+ 0 | 1.0455 | 1.05 | Q |
| 28+15 | 0.9289 | 0.93 | Q |
| 28+30 | 0.8253 | 0.83 | Q |
| 28+45 | 0.7333 | 0.73 | Q |
| 29+ 0 | 0.6515 | 0.65 | Q |
| 29+15 | 0.5789 | 0.58 | Q |
| 29+30 | 0.5143 | 0.51 | Q |
| 29+45 | 0.4570 | 0.46 | Q |
| 30+ 0 | 0.4060 | 0.41 | Q |
| 30+15 | 0.3607 | 0.36 | Q |
| 30+30 | 0.3205 | 0.32 | Q |
| 30+45 | 0.2848 | 0.28 | Q |
| 31+ 0 | 0.2530 | 0.25 | Q |
| 31+15 | 0.2248 | 0.22 | Q |
| 31+30 | 0.1997 | 0.20 | Q |
| 31+45 | 0.1775 | 0.18 | Q |
| 32+ 0 | 0.1577 | 0.16 | Q |
| 32+15 | 0.1401 | 0.14 | Q |
| 32+30 | 0.1245 | 0.12 | Q |
| 32+45 | 0.1106 | 0.11 | Q |
| 33+ 0 | 0.0983 | 0.10 | Q |
| 33+15 | 0.0873 | 0.09 | Q |
| 33+30 | 0.0776 | 0.08 | Q |
| 33+45 | 0.0689 | 0.07 | Q |
| 34+ 0 | 0.0612 | 0.06 | Q |
| 34+15 | 0.0544 | 0.05 | Q |
| 34+30 | 0.0483 | 0.05 | Q |
| 34+45 | 0.0429 | 0.04 | Q |
| 35+ 0 | 0.0382 | 0.04 | Q |
| 35+15 | 0.0339 | 0.03 | Q |
| 35+30 | 0.0301 | 0.03 | Q |
| 35+45 | 0.0268 | 0.03 | Q |
| 36+ 0 | 0.0238 | 0.02 | Q |
| 36+15 | 0.0211 | 0.02 | Q |
| 36+30 | 0.0188 | 0.02 | Q |
| 36+45 | 0.0167 | 0.02 | Q |
| 37+ 0 | 0.0148 | 0.01 | Q |
| 37+15 | 0.0132 | 0.01 | Q |
| 37+30 | 0.0117 | 0.01 | Q |
| 37+45 | 0.0104 | 0.01 | Q |
| 38+ 0 | 0.0092 | 0.01 | Q |
| 38+15 | 0.0082 | 0.01 | Q |
| 38+30 | 0.0073 | 0.01 | Q |
| 38+45 | 0.0065 | 0.01 | Q |
| 39+ 0 | 0.0058 | 0.01 | Q |
| 39+15 | 0.0051 | 0.01 | Q |
| 39+30 | 0.0045 | 0.00 | Q |
| 39+45 | 0.0040 | 0.00 | Q |
| 40+ 0 | 0.0036 | 0.00 | Q |
| 40+15 | 0.0032 | 0.00 | Q |
| 40+30 | 0.0028 | 0.00 | Q |
| 40+45 | 0.0025 | 0.00 | Q |
| 41+ 0 | 0.0022 | 0.00 | Q |
| 41+15 | 0.0020 | 0.00 | Q |
| 41+30 | 0.0018 | 0.00 | Q |
| 41+45 | 0.0016 | 0.00 | Q |
| 42+ 0 | 0.0014 | 0.00 | Q |
| 42+15 | 0.0012 | 0.00 | Q |
| 42+30 | 0.0011 | 0.00 | Q |
| 42+45 | 0.0010 | 0.00 | Q |

**********HYDROGRAPH DATA**********

Number of intervals = 171
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 770.876 (CFS)

```
            Total volume =      303.396 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************

----------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       82.000 to Point/Station       82.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
______________________________________________________________________
Current stream hydrograph saved in file AoffsiteRT.rte
**************************HYDROGRAPH DATA*****************************
            Number of intervals =      0
            Time interval =    0.0 (Min.)
            Maximum/Peak flow rate =        0.000 (CFS)
            Total volume =        0.000 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************

----------------------------------------------------------------------
```



```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                       Study date: 07/22/13

----------------------------------------------------------------------


Watershed A3, North of 60 Fwy Routed to Node 75
Proposed Conditions
100 yr 24 hr

----------------------------------------------------------------------


Program License Serial Number 6097

----------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

            From study/file name: SUBA3off24100.rte
**************************HYDROGRAPH DATA*****************************
            Number of intervals =     99
            Time interval =   15.0 (Min.)
            Maximum/Peak flow rate =       231.104 (CFS)
            Total volume =      81.134 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       91.000 to Point/Station       75.000
**** STREAM ROUTING SCS CONVEX METHOD ****
______________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =    500.00 (Ft.)
Elevation difference =   10.00 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Improved Channel


Channel length =   500.00(Ft.)     Elevation difference =  10.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Covered channel
Channel base width  =    8.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Manning's 'N'    = 0.015
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =     58.102(CFS)
Depth of flow =     0.677(Ft.)
Average velocity =     9.886(Ft/s)
Total flow rate =    58.102(CFS)
Channel flow top width =    9.355(Ft.)
Depth of flow in channel =   0.68(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =    9.89(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =   58.102(CFS)
Total capacity of improved channels =     58.102(CFS)
Critical Depth in Channel =    1.13(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Covered channel
Flow(q) thru subarea =    231.104(CFS)
Depth of flow =     1.540(Ft.)
```

```
Average velocity =    15.726(Ft/s)
Total flow rate =   231.104(CFS)
Channel flow top width =   11.081(Ft.)
Depth of flow in channel =    1.54(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   15.73(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  231.104(CFS)
Total capacity of improved channels =    231.104(CFS)
Critical Depth in Channel =    2.63(Ft.)


********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9024   Travel time =   0.53 (min.)
        dt*(unit time interval) =  15.00(min.),   e=  21.2449
        dt(routing time-step) =   0.48 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T  O F  S T O R M
                  R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------
              Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0        57.8      115.6      173.3      231.1
------------------------------------------------------------------------
  0+15        0.7085      0.73  0          |          |          |          |
  0+30        2.0302      2.07  0          |          |          |          |
  0+45        2.6946      2.72  0          |          |          |          |
  1+ 0        3.1724      3.19  0          |          |          |          |
  1+15        3.3194      3.32  0          |          |          |          |
  1+30        2.9265      2.91  0          |          |          |          |
  1+45        2.8527      2.85  0          |          |          |          |
  2+ 0        3.1908      3.20  0          |          |          |          |
  2+15        3.6741      3.69  0          |          |          |          |
  2+30        3.7645      3.77  0          |          |          |          |
  2+45        4.1353      4.15  0          |          |          |          |
  3+ 0        4.6195      4.64  0          |          |          |          |
  3+15        4.7098      4.71  0          |          |          |          |
  3+30        4.7264      4.73  0          |          |          |          |
  3+45        4.7269      4.73  0          |          |          |          |
  4+ 0        5.0811      5.09  0          |          |          |          |
  4+15        5.5649      5.58  0          |          |          |          |
  4+30        6.0095      6.02  |0         |          |          |          |
  4+45        6.5098      6.53  |0         |          |          |          |
  5+ 0        6.9548      6.97  |0         |          |          |          |
  5+15        6.7467      6.74  |0         |          |          |          |
  5+30        6.2243      6.21  |0         |          |          |          |
  5+45        6.8981      6.92  |0         |          |          |          |
  6+ 0        7.4395      7.46  |0         |          |          |          |
  6+15        7.8998      7.91  |0         |          |          |          |
  6+30        8.4005      8.42  |0         |          |          |          |
  6+45        8.8456      8.86  |0         |          |          |          |
  7+ 0        9.3459      9.36  |0         |          |          |          |
  7+15        9.4367      9.44  |0         |          |          |          |
  7+30        9.8075      9.82  |0         |          |          |          |
  7+45       10.6460     10.67  |0         |          |          |          |
  8+ 0       11.5743     11.60  | 0        |          |          |          |
  8+15       17.5025     17.70  |  0       |          |          |          |
  8+30       25.5008     25.76  |   0      |          |          |          |
  8+45       31.8408     32.04  |    0     |          |          |          |
  9+ 0       42.0308     42.36  |      0   |          |          |          |
  9+15       56.4378     56.90  |        0 |          |          |          |
  9+30       72.2851     72.79  |          | 0        |          |          |
  9+45       84.1888     84.56  |          |  0       |          |          |
```



```
  10+ 0       95.3402     95.70  |          |    0     |          |          |
  10+15       77.9768     77.39  |          |  0       |          |          |
  10+30       46.6918     45.68  |       IO |          |          |          |
  10+45       59.7361     60.20  |         0|          |          |          |
  11+ 0       84.2397     85.03  |          |  0       |          |          |
  11+15       86.6404     86.69  |          |  0I      |          |          |
  11+30       84.0740     83.99  |          |  0       |          |          |
  11+45       77.5356     77.32  |          |  0       |          |          |
  12+ 0       72.6487     72.49  |          | 0        |          |          |
  12+15      101.8663    102.83  |          |    0     |          |          |
  12+30      141.2219    142.49  |          |      0   |          |          |
  12+45      160.9897    161.60  |          |       0  |          |          |
  13+ 0      177.6230    178.15  |          |        0 |          |          |
  13+15      203.5092    204.34  |          |          |        0 |          |
  13+30      230.2507    231.10  |          |          |          |         0I
  13+45      197.2761    196.16  |          |          |          |       IO |
  14+ 0      146.1802    144.53  |          |          |      0   |          |
  14+15      151.6974    151.93  |          |          |       0  |          |
  14+30      166.9284    167.42  |          |          |        0 |          |
  14+45      166.8845    166.87  |          |          |        0 |          |
  15+ 0      164.3140    164.23  |          |          |        0 |          |
  15+15      156.9818    156.74  |          |          |       0  |          |
  15+30      148.8704    148.61  |          |          |      0   |          |
  15+45      129.9526    129.34  |          |          |    0     |          |
  16+ 0      110.6692    110.05  |          |          |  0       |          |
  16+15       68.8942     67.54  |          | 0        |          |          |
  16+30       15.5120     13.80  | 0        |          |          |          |
  16+45        5.2882      5.01  0          |          |          |          |
  17+ 0        2.9943      2.93  0          |          |          |          |
  17+15        3.5616      3.58  0          |          |          |          |
  17+30        4.5125      4.54  0          |          |          |          |
  17+45        4.6928      4.70  0          |          |          |          |
  18+ 0        4.3717      4.36  0          |          |          |          |
  18+15        3.8889      3.87  0          |          |          |          |
  18+30        3.7985      3.80  0          |          |          |          |
  18+45        3.4277      3.42  0          |          |          |          |
  19+ 0        2.5893      2.56  0          |          |          |          |
  19+15        2.3694      2.36  0          |          |          |          |
  19+30        3.1005      3.12  0          |          |          |          |
  19+45        3.3033      3.31  0          |          |          |          |
  20+ 0        2.5718      2.55  0          |          |          |          |
  20+15        2.3690      2.36  0          |          |          |          |
  20+30        2.7462      2.76  0          |          |          |          |
  20+45        2.8196      2.82  0          |          |          |          |
  21+ 0        2.4814      2.47  0          |          |          |          |
  21+15        2.3524      2.35  0          |          |          |          |
  21+30        2.3915      2.39  0          |          |          |          |
  21+45        2.3358      2.33  0          |          |          |          |
  22+ 0        2.3911      2.39  0          |          |          |          |
  22+15        2.3358      2.33  0          |          |          |          |
  22+30        2.3911      2.39  0          |          |          |          |
  22+45        1.9816      1.97  0          |          |          |          |
  23+ 0        1.9073      1.91  0          |          |          |          |
  23+15        1.8912      1.89  0          |          |          |          |
  23+30        1.8908      1.89  0          |          |          |          |
  23+45        1.8908      1.89  0          |          |          |          |
  24+ 0        1.8908      1.89  0          |          |          |          |
  24+15        1.1823      1.16  0          |          |          |          |
  24+30        0.2148      0.18  0          |          |          |          |
  24+45        0.0341      0.03  0          |          |          |          |
  25+ 0        0.0000      0.00  0          |          |          |          |
------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA**************************
                Number of intervals =   100
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      230.251 (CFS)
                Total volume =      81.134 (Ac.Ft)
          Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)      0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
      ********************************************************************
```

```
------------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       91.000 to Point/Station       75.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
________________________________________________________________________
Current stream hydrograph saved in file SUBA3offRT.rte
**************************HYDROGRAPH DATA**************************
              Number of intervals =     0
              Time interval =    0.0 (Min.)
              Maximum/Peak flow rate =         0.000 (CFS)
              Total volume =         0.000 (Ac.Ft)
       Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************

------------------------------------------------------------------------
```



```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                       Study date: 07/22/13

------------------------------------------------------------------------


LineA, Offsite - Sketcher site
100 yr 24 hr


------------------------------------------------------------------------


Program License Serial Number 6097

------------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

              From study/file name: Sketcher24100.rte
**************************HYDROGRAPH DATA**************************
              Number of intervals =    97
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =       89.330 (CFS)
              Total volume =      47.969 (Ac.Ft)
       Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       1.000 to Point/Station       1.000
**** RETARDING BASIN ROUTING ****
________________________________________________________________________

User entry of depth-outflow-storage data
------------------------------------------------------------------------
Total number of inflow hydrograph intervals = 97
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin =    0.00(Ft.)
------------------------------------------------------------------------
------------------------------------------------------------------------
Initial basin depth =    0.00 (Ft.)
Initial basin storage =       0.00 (Ac.Ft)
Initial basin outflow =    0.00 (CFS)
------------------------------------------------------------------------
------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)    (S+O*dt/2)
     (Ft.)    (Ac.Ft)     (CFS)     (Ac.Ft)     (Ac.Ft)
------------------------------------------------------------------------
   0.000       0.000       0.000       0.000       0.000
   1.000       0.001       0.001       0.001       0.001
   2.000       0.002       0.001       0.002       0.002
   4.000       7.000      40.000       6.587       7.413
   5.000      10.000      50.000       9.483      10.517
   6.000      15.000      60.000      14.380      15.620
------------------------------------------------------------------------
                Hydrograph Detention Basin Routing
------------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
------------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                  Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft)  .0      22.3    44.66    67.00    89.33 (Ft.)
 0.250    3.03    0.16      0.030  OI      |        |        |        |      2.01
 0.500    5.54    0.62      0.110  OI      |        |        |        |      2.03
```

| | | | | | |
|---|---|---|---|---|---|
| 0.750 | 6.04 | 1.20 | 0.211 | 0 I | 2.06 |
| 1.000 | 7.55 | 1.82 | 0.320 | 0 I | 2.09 |
| 1.250 | 6.53 | 2.40 | 0.422 | 0 I | 2.12 |
| 1.500 | 6.04 | 2.83 | 0.498 | 0I | 2.14 |
| 1.750 | 6.04 | 3.19 | 0.560 | 0I | 2.16 |
| 2.000 | 7.55 | 3.59 | 0.630 | 0I | 2.18 |
| 2.250 | 8.05 | 4.06 | 0.713 | 0I | 2.20 |
| 2.500 | 8.05 | 4.51 | 0.790 | 0I | 2.23 |
| 2.750 | 9.56 | 4.99 | 0.874 | 0 I | 2.25 |
| 3.000 | 10.06 | 5.52 | 0.968 | 0 I | 2.28 |
| 3.250 | 10.06 | 6.03 | 1.057 | 0I | 2.30 |
| 3.500 | 10.06 | 6.48 | 1.135 | 0I | 2.32 |
| 3.750 | 10.06 | 6.88 | 1.205 | 0I | 2.34 |
| 4.000 | 11.57 | 7.32 | 1.282 | 0 I | 2.37 |
| 4.250 | 12.07 | 7.82 | 1.370 | 0 I | 2.39 |
| 4.500 | 13.59 | 8.38 | 1.468 | 0I | 2.42 |
| 4.750 | 14.08 | 8.99 | 1.574 | 0 I | 2.45 |
| 5.000 | 15.60 | 9.64 | 1.688 | 0 I | 2.48 |
| 5.250 | 13.07 | 10.16 | 1.780 | 0I | 2.51 |
| 5.500 | 13.59 | 10.52 | 1.842 | 0I | 2.53 |
| 5.750 | 15.60 | 10.97 | 1.921 | 0 I | 2.55 |
| 6.000 | 16.09 | 11.51 | 2.016 | 0I | 2.58 |
| 6.250 | 17.61 | 12.11 | 2.120 | 0 I | 2.61 |
| 6.500 | 18.11 | 12.75 | 2.232 | 0 I | 2.64 |
| 6.750 | 19.62 | 13.43 | 2.352 | 0 I | 2.67 |
| 7.000 | 20.12 | 14.15 | 2.477 | 0 I | 2.71 |
| 7.250 | 20.12 | 14.82 | 2.594 | 0 I | 2.74 |
| 7.500 | 21.63 | 15.49 | 2.712 | 0 I | 2.77 |
| 7.750 | 23.64 | 16.29 | 2.851 | 0 I | 2.81 |
| 8.000 | 25.66 | 17.22 | 3.015 | 0 I | 2.86 |
| 8.250 | 30.35 | 18.42 | 3.225 | 0 I | 2.92 |
| 8.500 | 31.85 | 19.84 | 3.472 | 0 I | 2.99 |
| 8.750 | 34.17 | 21.31 | 3.729 | 0 I | 3.07 |
| 9.000 | 37.20 | 22.91 | 4.010 | 0 I | 3.15 |
| 9.250 | 42.39 | 24.79 | 4.339 | 0 I | 3.24 |
| 9.500 | 46.13 | 26.96 | 4.719 | 0 I | 3.35 |
| 9.750 | 49.16 | 29.27 | 5.123 | 0 I | 3.46 |
| 10.000 | 52.18 | 31.66 | 5.540 | 0 I | 3.58 |
| 10.250 | 37.90 | 33.15 | 5.801 | 0 I | 3.66 |
| 10.500 | 33.07 | 33.41 | 5.847 | 0 | 3.67 |
| 10.750 | 44.03 | 33.98 | 5.947 | 0 I | 3.70 |
| 11.000 | 47.73 | 35.31 | 6.179 | 0 I | 3.77 |
| 11.250 | 45.71 | 36.58 | 6.402 | 0 I | 3.83 |
| 11.500 | 45.14 | 37.57 | 6.574 | 0 I | 3.88 |
| 11.750 | 40.96 | 38.18 | 6.681 | 0I | 3.91 |
| 12.000 | 41.84 | 38.54 | 6.744 | 0I | 3.93 |
| 12.250 | 57.83 | 39.80 | 6.965 | 0 I | 3.99 |
| 12.500 | 65.10 | 41.32 | 7.396 | 0 I | 4.13 |
| 12.750 | 70.27 | 43.08 | 7.923 | 0 I | 4.31 |
| 13.000 | 73.99 | 45.01 | 8.503 | 0 I | 4.50 |
| 13.250 | 85.65 | 47.33 | 9.199 | 0 I | 4.73 |
| 13.500 | 89.33 | 50.00 | 10.001 | 0 I | 5.00 |
| 13.750 | 65.66 | 51.11 | 10.557 | 0 I | 5.11 |
| 14.000 | 57.97 | 51.55 | 10.774 | 0 I | 5.15 |
| 14.250 | 66.75 | 51.99 | 10.993 | 0 I | 5.20 |
| 14.500 | 67.55 | 52.60 | 11.300 | 0 I | 5.26 |
| 14.750 | 66.96 | 53.19 | 11.596 | 0 I | 5.32 |
| 15.000 | 64.91 | 53.71 | 11.854 | 0 I | 5.37 |
| 15.250 | 62.16 | 54.11 | 12.053 | 0 I | 5.41 |
| 15.500 | 59.40 | 54.38 | 12.188 | 0 I | 5.44 |
| 15.750 | 50.15 | 54.39 | 12.196 | I 0 | 5.44 |
| 16.000 | 47.41 | 54.16 | 12.082 | I 0 | 5.42 |
| 16.250 | 17.79 | 53.29 | 11.646 | I 0 | 5.33 |
| 16.500 | 8.05 | 51.66 | 10.829 | I 0 | 5.17 |
| 16.750 | 6.53 | 49.77 | 9.931 | I 0 | 4.98 |
| 17.000 | 6.04 | 46.88 | 9.063 | I 0 | 4.69 |
| 17.250 | 9.06 | 44.26 | 8.277 | I 0 | 4.43 |
| 17.500 | 10.06 | 41.95 | 7.584 | I 0 | 4.19 |
| 17.750 | 10.06 | 39.71 | 6.949 | I 0 | 3.99 |
| 18.000 | 8.54 | 36.32 | 6.356 | I 0 | 3.82 |
| 18.250 | 8.05 | 33.19 | 5.809 | I 0 | 3.66 |
| 18.500 | 8.05 | 30.39 | 5.318 | I 0 | 3.52 |



| | | | | | |
|---|---|---|---|---|---|
| 18.750 | 6.53 | 27.81 | 4.868 | I 0 | 3.39 |
| 19.000 | 4.52 | 25.33 | 4.433 | I 0 | 3.27 |
| 19.250 | 5.54 | 23.06 | 4.037 | I 0 | 3.15 |
| 19.500 | 7.55 | 21.22 | 3.715 | I 0 | 3.06 |
| 19.750 | 6.53 | 19.64 | 3.438 | I 0 | 2.98 |
| 20.000 | 4.52 | 18.07 | 3.163 | I 0 | 2.90 |
| 20.250 | 5.54 | 16.61 | 2.908 | I 0 | 2.83 |
| 20.500 | 6.04 | 15.41 | 2.697 | I 0 | 2.77 |
| 20.750 | 6.04 | 14.36 | 2.514 | I 0 | 2.72 |
| 21.000 | 4.52 | 13.35 | 2.337 | I 0 | 2.67 |
| 21.250 | 5.54 | 12.42 | 2.175 | I 0 | 2.62 |
| 21.500 | 4.52 | 11.60 | 2.031 | I 0 | 2.58 |
| 21.750 | 5.54 | 10.86 | 1.903 | I 0 | 2.54 |
| 22.000 | 4.52 | 10.21 | 1.789 | I 0 | 2.51 |
| 22.250 | 5.54 | 9.64 | 1.688 | I 0 | 2.48 |
| 22.500 | 4.52 | 9.12 | 1.598 | I 0 | 2.46 |
| 22.750 | 4.02 | 8.58 | 1.503 | I 0 | 2.43 |
| 23.000 | 4.02 | 8.07 | 1.414 | I0 | 2.40 |
| 23.250 | 4.02 | 7.62 | 1.335 | I0 | 2.38 |
| 23.500 | 4.02 | 7.22 | 1.265 | I0 | 2.36 |
| 23.750 | 4.02 | 6.86 | 1.203 | I0 | 2.34 |
| 24.000 | 4.02 | 6.55 | 1.147 | I0 | 2.33 |
| 24.250 | 1.00 | 6.10 | 1.068 | I 0 | 2.30 |
| 24.500 | 0.00 | 5.47 | 0.959 | I0 | 2.27 |
| 24.750 | 0.00 | 4.86 | 0.852 | I0 | 2.24 |
| 25.000 | 0.00 | 4.32 | 0.758 | I0 | 2.22 |
| 25.250 | 0.00 | 3.84 | 0.673 | I0 | 2.19 |
| 25.500 | 0.00 | 3.41 | 0.598 | I0 | 2.17 |
| 25.750 | 0.00 | 3.03 | 0.532 | I0 | 2.15 |
| 26.000 | 0.00 | 2.69 | 0.473 | 0 | 2.13 |
| 26.250 | 0.00 | 2.39 | 0.420 | 0 | 2.12 |
| 26.500 | 0.00 | 2.13 | 0.374 | 0 | 2.11 |
| 26.750 | 0.00 | 1.89 | 0.332 | 0 | 2.09 |
| 27.000 | 0.00 | 1.68 | 0.295 | 0 | 2.08 |
| 27.250 | 0.00 | 1.49 | 0.263 | 0 | 2.07 |
| 27.500 | 0.00 | 1.32 | 0.234 | 0 | 2.07 |
| 27.750 | 0.00 | 1.18 | 0.208 | 0 | 2.06 |
| 28.000 | 0.00 | 1.05 | 0.185 | 0 | 2.05 |
| 28.250 | 0.00 | 0.93 | 0.164 | 0 | 2.05 |
| 28.500 | 0.00 | 0.83 | 0.146 | 0 | 2.04 |
| 28.750 | 0.00 | 0.73 | 0.130 | 0 | 2.04 |
| 29.000 | 0.00 | 0.65 | 0.116 | 0 | 2.03 |
| 29.250 | 0.00 | 0.58 | 0.103 | 0 | 2.03 |
| 29.500 | 0.00 | 0.51 | 0.092 | 0 | 2.03 |
| 29.750 | 0.00 | 0.46 | 0.082 | 0 | 2.02 |
| 30.000 | 0.00 | 0.41 | 0.073 | 0 | 2.02 |
| 30.250 | 0.00 | 0.36 | 0.065 | 0 | 2.02 |
| 30.500 | 0.00 | 0.32 | 0.058 | 0 | 2.02 |
| 30.750 | 0.00 | 0.28 | 0.052 | 0 | 2.01 |
| 31.000 | 0.00 | 0.25 | 0.046 | 0 | 2.01 |
| 31.250 | 0.00 | 0.22 | 0.041 | 0 | 2.01 |
| 31.500 | 0.00 | 0.20 | 0.037 | 0 | 2.01 |
| 31.750 | 0.00 | 0.18 | 0.033 | 0 | 2.01 |
| 32.000 | 0.00 | 0.16 | 0.029 | 0 | 2.01 |
| 32.250 | 0.00 | 0.14 | 0.026 | 0 | 2.01 |
| 32.500 | 0.00 | 0.12 | 0.024 | 0 | 2.01 |
| 32.750 | 0.00 | 0.11 | 0.021 | 0 | 2.01 |
| 33.000 | 0.00 | 0.10 | 0.019 | 0 | 2.00 |
| 33.250 | 0.00 | 0.09 | 0.017 | 0 | 2.00 |
| 33.500 | 0.00 | 0.08 | 0.015 | 0 | 2.00 |
| 33.750 | 0.00 | 0.07 | 0.014 | 0 | 2.00 |
| 34.000 | 0.00 | 0.06 | 0.013 | 0 | 2.00 |
| 34.250 | 0.00 | 0.05 | 0.011 | 0 | 2.00 |
| 34.500 | 0.00 | 0.05 | 0.010 | 0 | 2.00 |
| 34.750 | 0.00 | 0.04 | 0.009 | 0 | 2.00 |
| 35.000 | 0.00 | 0.04 | 0.009 | 0 | 2.00 |
| 35.250 | 0.00 | 0.03 | 0.008 | 0 | 2.00 |
| 35.500 | 0.00 | 0.03 | 0.007 | 0 | 2.00 |
| 35.750 | 0.00 | 0.03 | 0.007 | 0 | 2.00 |
| 36.000 | 0.00 | 0.02 | 0.006 | 0 | 2.00 |
| 36.250 | 0.00 | 0.02 | 0.006 | 0 | 2.00 |
| 36.500 | 0.00 | 0.02 | 0.005 | 0 | 2.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 36.750 | 0.00 | 0.02 | 0.005 | 0 | \| | \| | \| | \| | 2.00 |
| 37.000 | 0.00 | 0.01 | 0.004 | 0 | \| | \| | \| | \| | 2.00 |
| 37.250 | 0.00 | 0.01 | 0.004 | 0 | \| | \| | \| | \| | 2.00 |
| 37.500 | 0.00 | 0.01 | 0.004 | 0 | \| | \| | \| | \| | 2.00 |
| 37.750 | 0.00 | 0.01 | 0.004 | 0 | \| | \| | \| | \| | 2.00 |
| 38.000 | 0.00 | 0.01 | 0.003 | 0 | \| | \| | \| | \| | 2.00 |
| 38.250 | 0.00 | 0.01 | 0.003 | 0 | \| | \| | \| | \| | 2.00 |
| 38.500 | 0.00 | 0.01 | 0.003 | 0 | \| | \| | \| | \| | 2.00 |
| 38.750 | 0.00 | 0.01 | 0.003 | 0 | \| | \| | \| | \| | 2.00 |
| 39.000 | 0.00 | 0.01 | 0.003 | 0 | \| | \| | \| | \| | 2.00 |
| 39.250 | 0.00 | 0.01 | 0.003 | 0 | \| | \| | \| | \| | 2.00 |
| 39.500 | 0.00 | 0.00 | 0.003 | 0 | \| | \| | \| | \| | 2.00 |
| 39.750 | 0.00 | 0.00 | 0.003 | 0 | \| | \| | \| | \| | 2.00 |
| 40.000 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 40.250 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 40.500 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 40.750 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 41.000 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 41.250 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 41.500 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 41.750 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 42.000 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 42.250 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 42.500 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 42.750 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |

```
Remaining water in basin =    0.00 (Ac.Ft)


****************************HYDROGRAPH DATA****************************
              Number of intervals =   171
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =       54.392 (CFS)
              Total volume =      47.967 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
***********************************************************************

-----------------------------------------------------------------------


+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        1.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
_________________________________________________________________________
Current stream hydrograph saved in file SketcherRT.rte
****************************HYDROGRAPH DATA****************************
              Number of intervals =     0
              Time interval =    0.0 (Min.)
              Maximum/Peak flow rate =        0.000 (CFS)
              Total volume =       0.000 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
***********************************************************************

-----------------------------------------------------------------------
```



```
        U n i t   H y d r o g r a p h   A n a l y s i s

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
              Study date  07/22/13 File: SUBAloff24100.out

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
--------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

-----------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



-----------------------------------------------------------------
Watershed A1 Offsite
Proposed Conditions
100 yr 24 hr

----------------------------------------------------------------
Drainage Area =     872.60(Ac.)  =      1.363 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     872.60(Ac.)  =      1.363 Sq. Mi.
Length along longest watercourse =   10000.00(Ft.)
Length along longest watercourse measured to centroid =    5000.00(Ft.)
Length along longest watercourse =      1.894 Mi.
Length along longest watercourse measured to centroid =      0.947 Mi.
Difference in elevation =    1000.00(Ft.)
Slope along watercourse =    528.0000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.137 Hr.
Lag time =     8.20 Min.
25% of lag time =     2.05 Min.
40% of lag time =     3.28 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      872.60             1.80                1570.68

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      872.60             4.50                3926.70

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.83 %
Adjusted average point rain =    4.492(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
   872.600            85.00           0.000
 Total Area Entered =    872.60(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 1.000 | 0.187 |
| | | | | | Sum (F) = | 0.187 |

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.094
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | | Unit Hydrograph (CFS) |
|---|---|---|---|---|---|
| 1 | 0.250 | 183.034 | 38.704 | | 340.373 |
| 2 | 0.500 | 366.067 | 51.579 | | 453.594 |
| 3 | 0.750 | 549.101 | 8.175 | | 71.890 |
| 4 | 1.000 | 732.135 | 1.542 | | 13.560 |
| | | | Sum = 100.000 | Sum= | 879.417 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.330) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.326) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.323) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.319) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.315) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.311) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.308) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.304) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.300) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.297) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.293) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.289) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.286) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.282) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.279) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.275) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.272) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.268) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.265) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.261) | 0.129 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.258) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.255) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.251) | 0.129 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.248) | 0.129 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.245) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.241) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.238) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.235) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.232) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.229) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.225) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.222) | 0.210 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | 0.219 | ( 0.243) | 0.050 |
| 34 | 8.50 | 1.50 | 0.270 | 0.216 | ( 0.243) | 0.053 |
| 35 | 8.75 | 1.60 | 0.288 | 0.213 | ( 0.259) | 0.074 |
| 36 | 9.00 | 1.70 | 0.305 | 0.210 | ( 0.275) | 0.095 |
| 37 | 9.25 | 1.90 | 0.341 | 0.207 | ( 0.307) | 0.134 |
| 38 | 9.50 | 2.00 | 0.359 | 0.204 | ( 0.323) | 0.155 |
| 39 | 9.75 | 2.10 | 0.377 | 0.201 | ( 0.340) | 0.176 |
| 40 | 10.00 | 2.20 | 0.395 | 0.198 | ( 0.356) | 0.197 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 41 | 10.25 | 1.50 | 0.270 | 0.196 | ( 0.243) | 0.074 |
| 42 | 10.50 | 1.50 | 0.270 | 0.193 | ( 0.243) | 0.077 |
| 43 | 10.75 | 2.00 | 0.359 | 0.190 | ( 0.323) | 0.169 |
| 44 | 11.00 | 2.00 | 0.359 | 0.187 | ( 0.323) | 0.172 |
| 45 | 11.25 | 1.90 | 0.341 | 0.184 | ( 0.307) | 0.157 |
| 46 | 11.50 | 1.90 | 0.341 | 0.182 | ( 0.307) | 0.160 |
| 47 | 11.75 | 1.70 | 0.305 | 0.179 | ( 0.275) | 0.126 |
| 48 | 12.00 | 1.80 | 0.323 | 0.176 | ( 0.291) | 0.147 |
| 49 | 12.25 | 2.50 | 0.449 | 0.174 | ( 0.404) | 0.276 |
| 50 | 12.50 | 2.60 | 0.467 | 0.171 | ( 0.420) | 0.296 |
| 51 | 12.75 | 2.80 | 0.503 | 0.169 | ( 0.453) | 0.335 |
| 52 | 13.00 | 2.90 | 0.521 | 0.166 | ( 0.469) | 0.355 |
| 53 | 13.25 | 3.40 | 0.611 | 0.163 | ( 0.550) | 0.447 |
| 54 | 13.50 | 3.40 | 0.611 | 0.161 | ( 0.550) | 0.450 |
| 55 | 13.75 | 2.30 | 0.413 | 0.159 | ( 0.372) | 0.255 |
| 56 | 14.00 | 2.30 | 0.413 | 0.156 | ( 0.372) | 0.257 |
| 57 | 14.25 | 2.70 | 0.485 | 0.154 | ( 0.437) | 0.331 |
| 58 | 14.50 | 2.60 | 0.467 | 0.151 | ( 0.420) | 0.316 |
| 59 | 14.75 | 2.60 | 0.467 | 0.149 | ( 0.420) | 0.318 |
| 60 | 15.00 | 2.50 | 0.449 | 0.147 | ( 0.404) | 0.302 |
| 61 | 15.25 | 2.40 | 0.431 | 0.145 | ( 0.388) | 0.287 |
| 62 | 15.50 | 2.30 | 0.413 | 0.142 | ( 0.372) | 0.271 |
| 63 | 15.75 | 1.90 | 0.341 | 0.140 | ( 0.307) | 0.201 |
| 64 | 16.00 | 1.90 | 0.341 | 0.138 | ( 0.307) | 0.203 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.136) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.134) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.132) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.130) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.128) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.126) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.124) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.122) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.120) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.119) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.117) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.115) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.114) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.112) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.111) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.109) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.108) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.106) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.105) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.104) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.102) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.101) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.100) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.099) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.098) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.097) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.095) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 7.5

Flood volume = Effective rainfall 1.87(In)
times area 872.6(Ac.)/[(In)/(Ft.)] = 135.6(Ac.Ft)
Total soil loss = 2.63(In)
Total soil loss = 191.047(Ac.Ft)
Total rainfall = 4.49(In)
Flood volume = 5907618.6 Cubic Feet
Total soil loss = 8322009.4 Cubic Feet

Peak flow rate of this hydrograph = 386.405(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 100.0 | 200.0 | 300.0 | 400.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0253 | 1.22 | Q | | | | |
| 0+30 | 0.0969 | 3.47 | Q | | | | |
| 0+45 | 0.1907 | 4.54 | Q | | | | |
| 1+ 0 | 0.3009 | 5.33 | Q | | | | |
| 1+15 | 0.4157 | 5.56 | Q | | | | |
| 1+30 | 0.5164 | 4.87 | Q | | | | |
| 1+45 | 0.6149 | 4.77 | Q | | | | |
| 2+ 0 | 0.7255 | 5.36 | Q | | | | |
| 2+15 | 0.8530 | 6.17 | Q | | | | |
| 2+30 | 0.9832 | 6.30 | Q | | | | |
| 2+45 | 1.1265 | 6.94 | Q | | | | |
| 3+ 0 | 1.2867 | 7.75 | Q | | | | |
| 3+15 | 1.4495 | 7.88 | Q | | | | |
| 3+30 | 1.6128 | 7.91 | Q | | | | |
| 3+45 | 1.7762 | 7.91 | Q | | | | |
| 4+ 0 | 1.9521 | 8.52 | Q | | | | |
| 4+15 | 2.1450 | 9.33 | Q | | | | |
| 4+30 | 2.3531 | 10.07 | VQ | | | | |
| 4+45 | 2.5786 | 10.91 | VQ | | | | |
| 5+ 0 | 2.8194 | 11.66 | VQ | | | | |
| 5+15 | 3.0523 | 11.27 | VQ | | | | |
| 5+30 | 3.2668 | 10.38 | VQ | | | | |
| 5+45 | 3.5059 | 11.57 | Q | | | | |
| 6+ 0 | 3.7636 | 12.47 | Q | | | | |
| 6+15 | 4.0370 | 13.24 | Q | | | | |
| 6+30 | 4.3279 | 14.08 | Q | | | | |
| 6+45 | 4.6340 | 14.82 | Q | | | | |
| 7+ 0 | 4.9575 | 15.66 | Q | | | | |
| 7+15 | 5.2837 | 15.79 | Q | | | | |
| 7+30 | 5.6230 | 16.42 | Q | | | | |
| 7+45 | 5.9918 | 17.85 | Q | | | | |
| 8+ 0 | 6.3927 | 19.41 | Q | | | | |
| 8+15 | 7.0032 | 29.55 | Q | | | | |
| 8+30 | 7.8908 | 42.96 | V Q | | | | |
| 8+45 | 8.9953 | 53.46 | V Q | | | | |
| 9+ 0 | 10.4563 | 70.72 | V Q | | | | |
| 9+15 | 12.4199 | 95.04 | V Q | | | | |
| 9+30 | 14.9326 | 121.61 | V Q | | | | |
| 9+45 | 17.8521 | 141.30 | V Q | | | | |
| 10+ 0 | 21.1562 | 159.92 | V Q | | | | |
| 10+15 | 23.8280 | 129.31 | V Q | | | | |
| 10+30 | 25.4041 | 76.28 | Q | | | | |
| 10+45 | 27.4818 | 100.56 | V Q | | | | |
| 11+ 0 | 30.4176 | 142.09 | V Q | | | | |
| 11+15 | 33.4109 | 144.88 | V Q | | | | |
| 11+30 | 36.3107 | 140.35 | V Q | | | | |
| 11+45 | 38.9803 | 129.21 | VQ | | | | |
| 12+ 0 | 41.4831 | 121.13 | Q | | | | |
| 12+15 | 45.0342 | 171.87 | V Q | | | | |
| 12+30 | 49.9556 | 238.19 | V Q | | | | |
| 12+45 | 55.5374 | 270.16 | V Q | | | | |
| 13+ 0 | 61.6911 | 297.84 | V Q | | | | |
| 13+15 | 68.7500 | 341.65 | V Q | | | | |
| 13+30 | 76.7336 | 386.40 | V Q | | | | |
| 13+45 | 83.5098 | 327.97 | V Q | | | | |
| 14+ 0 | 88.5021 | 241.63 | Q V | | | | |
| 14+15 | 93.7501 | 254.00 | Q V | | | | |
| 14+30 | 99.5333 | 279.91 | Q V | | | | |
| 14+45 | 105.2973 | 278.98 | Q V | | | | |
| 15+ 0 | 110.9703 | 274.57 | Q V | | | | |
| 15+15 | 116.3846 | 262.05 | Q V | | | | |
| 15+30 | 121.5180 | 248.45 | Q V | | | | |
| 15+45 | 125.9854 | 216.22 | Q V | | | | |
| 16+ 0 | 129.7865 | 183.97 | Q V | | | | |
| 16+15 | 132.1192 | 112.90 | Q V | | | | |
| 16+30 | 132.5958 | 23.07 | Q V | | | | |
| 16+45 | 132.7688 | 8.37 | Q V | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17+ 0 | 132.8700 | 4.90 | Q | | | | V |
| 17+15 | 132.9938 | 5.99 | Q | | | | V |
| 17+30 | 133.1508 | 7.60 | Q | | | | V |
| 17+45 | 133.3131 | 7.86 | Q | | | | V |
| 18+ 0 | 133.4638 | 7.29 | Q | | | | V |
| 18+15 | 133.5976 | 6.48 | Q | | | | V |
| 18+30 | 133.7288 | 6.35 | Q | | | | V |
| 18+45 | 133.8468 | 5.71 | Q | | | | V |
| 19+ 0 | 133.9353 | 4.28 | Q | | | | V |
| 19+15 | 134.0170 | 3.95 | Q | | | | V |
| 19+30 | 134.1250 | 5.23 | Q | | | | V |
| 19+45 | 134.2393 | 5.53 | Q | | | | V |
| 20+ 0 | 134.3273 | 4.26 | Q | | | | V |
| 20+15 | 134.4090 | 3.95 | Q | | | | V |
| 20+30 | 134.5043 | 4.61 | Q | | | | V |
| 20+45 | 134.6018 | 4.72 | Q | | | | V |
| 21+ 0 | 134.6872 | 4.13 | Q | | | | V |
| 21+15 | 134.7683 | 3.93 | Q | | | | V |
| 21+30 | 134.8510 | 4.00 | Q | | | | V |
| 21+45 | 134.9317 | 3.90 | Q | | | | V |
| 22+ 0 | 135.0144 | 4.00 | Q | | | | V |
| 22+15 | 135.0950 | 3.90 | Q | | | | V |
| 22+30 | 135.1777 | 4.00 | Q | | | | V |
| 22+45 | 135.2457 | 3.29 | Q | | | | V |
| 23+ 0 | 135.3115 | 3.19 | Q | | | | V |
| 23+15 | 135.3769 | 3.16 | Q | | | | V |
| 23+30 | 135.4422 | 3.16 | Q | | | | V |
| 23+45 | 135.5075 | 3.16 | Q | | | | V |
| 24+ 0 | 135.5729 | 3.16 | Q | | | | V |
| 24+15 | 135.6129 | 1.94 | Q | | | | V |
| 24+30 | 135.6193 | 0.31 | Q | | | | V |
| 24+45 | 135.6203 | 0.05 | Q | | | | V |

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 07/22/13 File: SUBA2off24100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

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English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

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Watershed A2 Offsite
Proposed Conditions
100 yr 24 hr

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Drainage Area = 248.30(Ac.) = 0.388 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 248.30(Ac.) = 0.388 Sq. Mi.
Length along longest watercourse = 8200.00(Ft.)
Length along longest watercourse measured to centroid = 4000.00(Ft.)
Length along longest watercourse = 1.553 Mi.
Length along longest watercourse measured to centroid = 0.758 Mi.
Difference in elevation = 820.00(Ft.)
Slope along watercourse = 528.0000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.116 Hr.
Lag time = 6.98 Min.
25% of lag time = 1.75 Min.
40% of lag time = 2.79 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 248.30 | 1.80 | 446.94 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 248.30 | 4.50 | 1117.35 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.95 %
Adjusted average point rain = 4.498(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 248.300 | 85.00 | 0.000 |

Total Area Entered = 248.30(Ac.)



| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 1.000 | 0.187 |
| | | | | | Sum (F) = | 0.187 |

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.094
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t  H y d r o g r a p h
FOOTHILL S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 214.836 | 45.123 | 112.916 |
| 2 | 0.500 | 429.673 | 48.579 | 121.564 |
| 3 | 0.750 | 644.509 | 5.496 | 13.752 |
| 4 | 1.000 | 859.345 | 0.802 | 2.008 |
| | | | Sum = 100.000 | Sum= 250.240 |

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The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.330) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.326) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.323) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.319) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.315) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.311) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.308) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.304) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.300) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.297) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.293) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.289) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.286) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.282) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.279) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.275) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.272) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.268) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.265) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.261) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.258) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.255) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.251) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.248) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.245) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.241) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.238) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.235) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.232) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.229) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.225) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.222) | 0.210 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | 0.219 | ( 0.243) | 0.051 |
| 34 | 8.50 | 1.50 | 0.270 | 0.216 | ( 0.243) | 0.054 |
| 35 | 8.75 | 1.60 | 0.288 | 0.213 | ( 0.259) | 0.075 |
| 36 | 9.00 | 1.70 | 0.306 | 0.210 | ( 0.275) | 0.096 |
| 37 | 9.25 | 1.90 | 0.342 | 0.207 | ( 0.308) | 0.135 |
| 38 | 9.50 | 2.00 | 0.360 | 0.204 | ( 0.324) | 0.156 |
| 39 | 9.75 | 2.10 | 0.378 | 0.201 | ( 0.340) | 0.176 |
| 40 | 10.00 | 2.20 | 0.396 | 0.198 | ( 0.356) | 0.197 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 41 | 10.25 | 1.50 | 0.270 | 0.196 | ( 0.243) | 0.074 |
| 42 | 10.50 | 1.50 | 0.270 | 0.193 | ( 0.243) | 0.077 |
| 43 | 10.75 | 2.00 | 0.360 | 0.190 | ( 0.324) | 0.170 |
| 44 | 11.00 | 2.00 | 0.360 | 0.187 | ( 0.324) | 0.173 |
| 45 | 11.25 | 1.90 | 0.342 | 0.184 | ( 0.308) | 0.157 |
| 46 | 11.50 | 1.90 | 0.342 | 0.182 | ( 0.308) | 0.160 |
| 47 | 11.75 | 1.70 | 0.306 | 0.179 | ( 0.275) | 0.127 |
| 48 | 12.00 | 1.80 | 0.324 | 0.176 | ( 0.291) | 0.148 |
| 49 | 12.25 | 2.50 | 0.450 | 0.174 | ( 0.405) | 0.276 |
| 50 | 12.50 | 2.60 | 0.468 | 0.171 | ( 0.421) | 0.297 |
| 51 | 12.75 | 2.80 | 0.504 | 0.169 | ( 0.453) | 0.335 |
| 52 | 13.00 | 2.90 | 0.522 | 0.166 | ( 0.470) | 0.356 |
| 53 | 13.25 | 3.40 | 0.612 | 0.163 | ( 0.551) | 0.448 |
| 54 | 13.50 | 3.40 | 0.612 | 0.161 | ( 0.551) | 0.451 |
| 55 | 13.75 | 2.30 | 0.414 | 0.159 | ( 0.372) | 0.255 |
| 56 | 14.00 | 2.30 | 0.414 | 0.156 | ( 0.372) | 0.258 |
| 57 | 14.25 | 2.70 | 0.486 | 0.154 | ( 0.437) | 0.332 |
| 58 | 14.50 | 2.60 | 0.468 | 0.151 | ( 0.421) | 0.316 |
| 59 | 14.75 | 2.60 | 0.468 | 0.149 | ( 0.421) | 0.319 |
| 60 | 15.00 | 2.50 | 0.450 | 0.147 | ( 0.405) | 0.303 |
| 61 | 15.25 | 2.40 | 0.432 | 0.145 | ( 0.389) | 0.287 |
| 62 | 15.50 | 2.30 | 0.414 | 0.142 | ( 0.372) | 0.271 |
| 63 | 15.75 | 1.90 | 0.342 | 0.140 | ( 0.308) | 0.202 |
| 64 | 16.00 | 1.90 | 0.342 | 0.138 | ( 0.308) | 0.204 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.136) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.134) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.132) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.130) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.128) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.126) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.124) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.122) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.120) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.119) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.117) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.115) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.114) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.112) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.111) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.109) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.108) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.106) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.105) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.104) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.102) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.101) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.100) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.099) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.098) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.097) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.095) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 7.5

Flood volume = Effective rainfall 1.87(In)
times area 248.3(Ac.)/[(In)/(Ft.)] = 38.7(Ac.Ft)
Total soil loss = 2.63(In)
Total soil loss = 54.394(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 1684630.0 Cubic Feet
Total soil loss = 2369383.5 Cubic Feet

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Peak flow rate of this hydrograph = 111.006(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 50.0 | 100.0 | 150.0 | 200.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0084 | 0.41 | Q | | | | |
| 0+30 | 0.0300 | 1.05 | Q | | | | |
| 0+45 | 0.0572 | 1.32 | Q | | | | |
| 1+ 0 | 0.0893 | 1.55 | Q | | | | |
| 1+15 | 0.1217 | 1.57 | Q | | | | |
| 1+30 | 0.1501 | 1.38 | Q | | | | |
| 1+45 | 0.1781 | 1.35 | Q | | | | |
| 2+ 0 | 0.2103 | 1.55 | Q | | | | |
| 2+15 | 0.2469 | 1.77 | Q | | | | |
| 2+30 | 0.2841 | 1.80 | Q | | | | |
| 2+45 | 0.3255 | 2.01 | Q | | | | |
| 3+ 0 | 0.3714 | 2.22 | Q | | | | |
| 3+15 | 0.4179 | 2.25 | Q | | | | |
| 3+30 | 0.4644 | 2.25 | Q | | | | |
| 3+45 | 0.5110 | 2.25 | Q | | | | |
| 4+ 0 | 0.5617 | 2.46 | Q | | | | |
| 4+15 | 0.6169 | 2.67 | Q | | | | |
| 4+30 | 0.6769 | 2.90 | Q | | | | |
| 4+45 | 0.7415 | 3.12 | Q | | | | |
| 5+ 0 | 0.8107 | 3.35 | Q | | | | |
| 5+15 | 0.8762 | 3.17 | Q | | | | |
| 5+30 | 0.9373 | 2.96 | Q | | | | |
| 5+45 | 1.0063 | 3.34 | QV | | | | |
| 6+ 0 | 1.0800 | 3.57 | QV | | | | |
| 6+15 | 1.1586 | 3.80 | QV | | | | |
| 6+30 | 1.2418 | 4.03 | QV | | | | |
| 6+45 | 1.3297 | 4.25 | QV | | | | |
| 7+ 0 | 1.4222 | 4.48 | QV | | | | |
| 7+15 | 1.5152 | 4.50 | QV | | | | |
| 7+30 | 1.6124 | 4.71 | QV | | | | |
| 7+45 | 1.7184 | 5.13 | Q | | | | |
| 8+ 0 | 1.8336 | 5.58 | Q | | | | |
| 8+15 | 2.0175 | 8.90 | QV | | | | |
| 8+30 | 2.2775 | 12.58 | Q | | | | |
| 8+45 | 2.6021 | 15.71 | VQ | | | | |
| 9+ 0 | 3.0305 | 20.73 | VQ | | | | |
| 9+15 | 3.6087 | 27.98 | V Q | | | | |
| 9+30 | 4.3405 | 35.42 | V Q | | | | |
| 9+45 | 5.1857 | 40.91 | V Q | | | | |
| 10+ 0 | 6.1397 | 46.18 | V Q | | | | |
| 10+15 | 6.8658 | 35.14 | Q | | | | |
| 10+30 | 7.2960 | 20.82 | Q V | | | | |
| 10+45 | 7.9158 | 30.00 | Q V | | | | |
| 11+ 0 | 8.7708 | 41.38 | QV | | | | |
| 11+15 | 9.6238 | 41.28 | QV | | | | |
| 11+30 | 10.4494 | 39.96 | Q V | | | | |
| 11+45 | 11.2000 | 36.33 | Q V | | | | |
| 12+ 0 | 11.9152 | 34.62 | Q V | | | | |
| 12+15 | 12.9731 | 51.20 | Q V | | | | |
| 12+30 | 14.4066 | 69.38 | QV | | | | |
| 12+45 | 16.0193 | 78.05 | QV | | | | |
| 13+ 0 | 17.7880 | 85.60 | QV | | | | |
| 13+15 | 19.8359 | 99.12 | QV | | | | |
| 13+30 | 22.1294 | 111.01 | Q | | | | |
| 13+45 | 24.0001 | 90.54 | Q V | | | | |
| 14+ 0 | 25.3897 | 67.26 | Q V | | | | |
| 14+15 | 26.9035 | 73.27 | Q V | | | | |
| 14+30 | 28.5601 | 80.18 | Q V | | | | |
| 14+45 | 30.2041 | 79.57 | Q V | | | | |
| 15+ 0 | 31.8158 | 78.01 | Q V | | | | |
| 15+15 | 33.3514 | 74.32 | Q V | | | | |
| 15+30 | 34.8062 | 70.41 | Q V | | | | |
| 15+45 | 36.0532 | 60.36 | Q V | | | | |
| 16+ 0 | 37.1248 | 51.86 | Q V | | | | |
| 16+15 | 37.7224 | 28.92 | Q V | | | | |
| 16+30 | 37.8236 | 4.90 | Q V | | | | |
| 16+45 | 37.8647 | 1.99 | Q V | | | | |

```
 17+ 0      37.8933      1.38  Q        |          |          |          V|
 17+15      37.9296      1.76  Q        |          |          |          V|
 17+30      37.9750      2.20  Q        |          |          |          V|
 17+45      38.0214      2.25  Q        |          |          |          V|
 18+ 0      38.0637      2.05  Q        |          |          |          V|
 18+15      38.1015      1.83  Q        |          |          |          V|
 18+30      38.1388      1.81  Q        |          |          |          V|
 18+45      38.1719      1.60  Q        |          |          |          V|
 19+ 0      38.1962      1.18  Q        |          |          |          V|
 19+15      38.2196      1.14  Q        |          |          |          V|
 19+30      38.2513      1.53  Q        |          |          |          V|
 19+45      38.2836      1.57  Q        |          |          |          V|
 20+ 0      38.3079      1.17  Q        |          |          |          V|
 20+15      38.3313      1.14  Q        |          |          |          V|
 20+30      38.3587      1.33  Q        |          |          |          V|
 20+45      38.3866      1.35  Q        |          |          |          V|
 21+ 0      38.4103      1.15  Q        |          |          |          V|
 21+15      38.4337      1.13  Q        |          |          |          V|
 21+30      38.4569      1.12  Q        |          |          |          V|
 21+45      38.4802      1.13  Q        |          |          |          V|
 22+ 0      38.5034      1.12  Q        |          |          |          V|
 22+15      38.5268      1.13  Q        |          |          |          V|
 22+30      38.5500      1.12  Q        |          |          |          V|
 22+45      38.5691      0.93  Q        |          |          |          V|
 23+ 0      38.5878      0.90  Q        |          |          |          V|
 23+15      38.6064      0.90  Q        |          |          |          V|
 23+30      38.6250      0.90  Q        |          |          |          V|
 23+45      38.6436      0.90  Q        |          |          |          V|
 24+ 0      38.6622      0.90  Q        |          |          |          V|
 24+15      38.6725      0.49  Q        |          |          |          V|
 24+30      38.6736      0.06  Q        |          |          |          V|
 24+45      38.6738      0.01  Q        |          |          |           V
----------------------------------------------------------------------------
```



```
                U n i t   H y d r o g r a p h   A n a l y s i s

                Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
                      Study date  07/22/13 File: SUBA3off24100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Watershed A3 Offsite
Proposed Conditions
100 yr. 24 hr.

------------------------------------------------------------------------
Drainage Area =     521.40(Ac.)  =      0.815 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     521.40(Ac.)  =      0.815 Sq. Mi.
Length along longest watercourse =   10000.00(Ft.)
Length along longest watercourse measured to centroid =    5000.00(Ft.)
Length along longest watercourse =      1.894 Mi.
Length along longest watercourse measured to centroid =      0.947 Mi.
Difference in elevation =    1000.00(Ft.)
Slope along watercourse =    528.0000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.137 Hr.
Lag time =     8.20 Min.
25% of lag time =     2.05 Min.
40% of lag time =     3.28 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      521.40             1.80                938.52

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      521.40             4.50               2346.30

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.90 %
Adjusted average point rain =    4.495(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   521.400            85.00          0.000
 Total Area Entered =    521.40(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.000 | 0.187 | 1.000 | 0.187 |
| | | | | | Sum (F) = | 0.187 |

Area averaged mean soil loss (F) (In/Hr) = 0.187
Minimum soil loss rate ((In/Hr)) = 0.094
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
FOOTHILL S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | | Unit Hydrograph (CFS) |
|---|---|---|---|---|---|
| 1 | 0.250 | 183.034 | 38.704 | | 203.381 |
| 2 | 0.500 | 366.067 | 51.579 | | 271.033 |
| 3 | 0.750 | 549.101 | 8.175 | | 42.956 |
| 4 | 1.000 | 732.135 | 1.542 | | 8.102 |
| | | | Sum = 100.000 | Sum= | 525.473 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.330) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.326) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.323) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.319) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.315) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.311) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.308) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.304) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.300) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.297) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.293) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.289) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.286) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.282) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.279) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.275) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.272) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.268) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.265) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.261) | 0.129 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.258) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.255) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.251) | 0.129 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.248) | 0.129 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.245) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.241) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.238) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.235) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.232) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.229) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.225) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.222) | 0.210 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | 0.219 | ( 0.243) | 0.050 |
| 34 | 8.50 | 1.50 | 0.270 | 0.216 | ( 0.243) | 0.054 |
| 35 | 8.75 | 1.60 | 0.288 | 0.213 | ( 0.259) | 0.075 |
| 36 | 9.00 | 1.70 | 0.306 | 0.210 | ( 0.275) | 0.096 |
| 37 | 9.25 | 1.90 | 0.342 | 0.207 | ( 0.307) | 0.134 |
| 38 | 9.50 | 2.00 | 0.360 | 0.204 | ( 0.324) | 0.155 |
| 39 | 9.75 | 2.10 | 0.378 | 0.201 | ( 0.340) | 0.176 |
| 40 | 10.00 | 2.20 | 0.396 | 0.198 | ( 0.356) | 0.197 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 41 | 10.25 | 1.50 | 0.270 | 0.196 | ( 0.243) | 0.074 |
| 42 | 10.50 | 1.50 | 0.270 | 0.193 | ( 0.243) | 0.077 |
| 43 | 10.75 | 2.00 | 0.360 | 0.190 | ( 0.324) | 0.170 |
| 44 | 11.00 | 2.00 | 0.360 | 0.187 | ( 0.324) | 0.172 |
| 45 | 11.25 | 1.90 | 0.342 | 0.184 | ( 0.307) | 0.157 |
| 46 | 11.50 | 1.90 | 0.342 | 0.182 | ( 0.307) | 0.160 |
| 47 | 11.75 | 1.70 | 0.306 | 0.179 | ( 0.275) | 0.127 |
| 48 | 12.00 | 1.80 | 0.324 | 0.176 | ( 0.291) | 0.147 |
| 49 | 12.25 | 2.50 | 0.450 | 0.174 | ( 0.405) | 0.276 |
| 50 | 12.50 | 2.60 | 0.468 | 0.171 | ( 0.421) | 0.296 |
| 51 | 12.75 | 2.80 | 0.503 | 0.169 | ( 0.453) | 0.335 |
| 52 | 13.00 | 2.90 | 0.521 | 0.166 | ( 0.469) | 0.355 |
| 53 | 13.25 | 3.40 | 0.611 | 0.163 | ( 0.550) | 0.448 |
| 54 | 13.50 | 3.40 | 0.611 | 0.161 | ( 0.550) | 0.450 |
| 55 | 13.75 | 2.30 | 0.414 | 0.159 | ( 0.372) | 0.255 |
| 56 | 14.00 | 2.30 | 0.414 | 0.156 | ( 0.372) | 0.257 |
| 57 | 14.25 | 2.70 | 0.486 | 0.154 | ( 0.437) | 0.332 |
| 58 | 14.50 | 2.60 | 0.468 | 0.151 | ( 0.421) | 0.316 |
| 59 | 14.75 | 2.60 | 0.468 | 0.149 | ( 0.421) | 0.318 |
| 60 | 15.00 | 2.50 | 0.450 | 0.147 | ( 0.405) | 0.303 |
| 61 | 15.25 | 2.40 | 0.432 | 0.145 | ( 0.388) | 0.287 |
| 62 | 15.50 | 2.30 | 0.414 | 0.142 | ( 0.372) | 0.271 |
| 63 | 15.75 | 1.90 | 0.342 | 0.140 | ( 0.307) | 0.201 |
| 64 | 16.00 | 1.90 | 0.342 | 0.138 | ( 0.307) | 0.204 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.136) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.134) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.132) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.130) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.128) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.126) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.124) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.122) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.120) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.119) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.117) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.115) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.114) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.112) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.111) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.109) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.108) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.106) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.105) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.104) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.102) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.101) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.100) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.099) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.098) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.097) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.096) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.095) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.094) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 7.5

Flood volume = Effective rainfall 1.87(In)
times area 521.4(Ac.)/[(In)/(Ft.)] = 81.1(Ac.Ft)
Total soil loss = 2.63(In)
Total soil loss = 114.192(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 3534207.2 Cubic Feet
Total soil loss = 4974188.3 Cubic Feet

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Peak flow rate of this hydrograph = 231.104(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 75.0 | 150.0 | 225.0 | 300.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0151 | 0.73 | Q | | | | |
| 0+30 | 0.0579 | 2.07 | Q | | | | |
| 0+45 | 0.1140 | 2.72 | Q | | | | |
| 1+ 0 | 0.1799 | 3.19 | Q | | | | |
| 1+15 | 0.2486 | 3.32 | Q | | | | |
| 1+30 | 0.3088 | 2.91 | Q | | | | |
| 1+45 | 0.3677 | 2.85 | Q | | | | |
| 2+ 0 | 0.4338 | 3.20 | Q | | | | |
| 2+15 | 0.5101 | 3.69 | Q | | | | |
| 2+30 | 0.5879 | 3.77 | Q | | | | |
| 2+45 | 0.6736 | 4.15 | Q | | | | |
| 3+ 0 | 0.7693 | 4.64 | Q | | | | |
| 3+15 | 0.8667 | 4.71 | Q | | | | |
| 3+30 | 0.9644 | 4.73 | Q | | | | |
| 3+45 | 1.0620 | 4.73 | Q | | | | |
| 4+ 0 | 1.1673 | 5.09 | Q | | | | |
| 4+15 | 1.2826 | 5.58 | Q | | | | |
| 4+30 | 1.4070 | 6.02 | Q | | | | |
| 4+45 | 1.5418 | 6.53 | Q | | | | |
| 5+ 0 | 1.6858 | 6.97 | Q | | | | |
| 5+15 | 1.8251 | 6.74 | Q | | | | |
| 5+30 | 1.9533 | 6.21 | Q | | | | |
| 5+45 | 2.0963 | 6.92 | QV | | | | |
| 6+ 0 | 2.2504 | 7.46 | QV | | | | |
| 6+15 | 2.4139 | 7.91 | Q | | | | |
| 6+30 | 2.5878 | 8.42 | Q | | | | |
| 6+45 | 2.7708 | 8.86 | Q | | | | |
| 7+ 0 | 2.9643 | 9.36 | Q | | | | |
| 7+15 | 3.1593 | 9.44 | Q | | | | |
| 7+30 | 3.3622 | 9.82 | Q | | | | |
| 7+45 | 3.5827 | 10.67 | Q | | | | |
| 8+ 0 | 3.8224 | 11.60 | Q | | | | |
| 8+15 | 4.1881 | 17.70 | Q | | | | |
| 8+30 | 4.7203 | 25.76 | VQ | | | | |
| 8+45 | 5.3823 | 32.04 | V Q | | | | |
| 9+ 0 | 6.2575 | 42.36 | V Q | | | | |
| 9+15 | 7.4331 | 56.90 | V Q | | | | |
| 9+30 | 8.9371 | 72.79 | V Q | | | | |
| 9+45 | 10.6843 | 84.56 | V Q | | | | |
| 10+ 0 | 12.6614 | 95.70 | V Q | | | | |
| 10+15 | 14.2605 | 77.39 | V Q | | | | |
| 10+30 | 15.2043 | 45.68 | QV | | | | |
| 10+45 | 16.4481 | 60.20 | Q | | | | |
| 11+ 0 | 18.2049 | 85.03 | V Q | | | | |
| 11+15 | 19.9961 | 86.69 | V Q | | | | |
| 11+30 | 21.7314 | 83.99 | VQ | | | | |
| 11+45 | 23.3290 | 77.32 | QV | | | | |
| 12+ 0 | 24.8268 | 72.49 | Q V | | | | |
| 12+15 | 26.9515 | 102.83 | Q | | | | |
| 12+30 | 29.8954 | 142.49 | V Q | | | | |
| 12+45 | 33.2342 | 161.60 | V Q | | | | |
| 13+ 0 | 36.9150 | 178.15 | V Q | | | | |
| 13+15 | 41.1370 | 204.34 | V Q | | | | |
| 13+30 | 45.9119 | 231.10 | V Q | | | | |
| 13+45 | 49.9648 | 196.16 | V Q | | | | |
| 14+ 0 | 52.9511 | 144.53 | Q V | | | | |
| 14+15 | 56.0902 | 151.93 | Q V | | | | |
| 14+30 | 59.5493 | 167.42 | Q V | | | | |
| 14+45 | 62.9970 | 166.87 | Q V | | | | |
| 15+ 0 | 66.3902 | 164.23 | Q V | | | | |
| 15+15 | 69.6286 | 156.74 | Q V | | | | |
| 15+30 | 72.6991 | 148.61 | Q V | | | | |
| 15+45 | 75.3714 | 129.34 | Q V | | | | |
| 16+ 0 | 77.6453 | 110.05 | Q V | | | | |
| 16+15 | 79.0407 | 67.54 | Q V | | | | |
| 16+30 | 79.3258 | 13.80 | Q V | | | | |
| 16+45 | 79.4292 | 5.01 | Q V | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17+ 0 | 79.4897 | 2.93 | Q | | | | V |
| 17+15 | 79.5638 | 3.58 | Q | | | | V |
| 17+30 | 79.6576 | 4.54 | Q | | | | V |
| 17+45 | 79.7547 | 4.70 | Q | | | | V |
| 18+ 0 | 79.8448 | 4.36 | Q | | | | V |
| 18+15 | 79.9248 | 3.87 | Q | | | | V |
| 18+30 | 80.0033 | 3.80 | Q | | | | V |
| 18+45 | 80.0738 | 3.42 | Q | | | | V |
| 19+ 0 | 80.1268 | 2.56 | Q | | | | V |
| 19+15 | 80.1756 | 2.36 | Q | | | | V |
| 19+30 | 80.2401 | 3.12 | Q | | | | V |
| 19+45 | 80.3085 | 3.31 | Q | | | | V |
| 20+ 0 | 80.3612 | 2.55 | Q | | | | V |
| 20+15 | 80.4100 | 2.36 | Q | | | | V |
| 20+30 | 80.4670 | 2.76 | Q | | | | V |
| 20+45 | 80.5253 | 2.82 | Q | | | | V |
| 21+ 0 | 80.5763 | 2.47 | Q | | | | V |
| 21+15 | 80.6248 | 2.35 | Q | | | | V |
| 21+30 | 80.6743 | 2.39 | Q | | | | V |
| 21+45 | 80.7225 | 2.33 | Q | | | | V |
| 22+ 0 | 80.7719 | 2.39 | Q | | | | V |
| 22+15 | 80.8202 | 2.33 | Q | | | | V |
| 22+30 | 80.8696 | 2.39 | Q | | | | V |
| 22+45 | 80.9103 | 1.97 | Q | | | | V |
| 23+ 0 | 80.9496 | 1.91 | Q | | | | V |
| 23+15 | 80.9887 | 1.89 | Q | | | | V |
| 23+30 | 81.0278 | 1.89 | Q | | | | V |
| 23+45 | 81.0668 | 1.89 | Q | | | | V |
| 24+ 0 | 81.1059 | 1.89 | Q | | | | V |
| 24+15 | 81.1298 | 1.16 | Q | | | | V |
| 24+30 | 81.1336 | 0.18 | Q | | | | V |
| 24+45 | 81.1342 | 0.03 | Q | | | | V |

```
        U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  07/22/13 File: Sketcher24100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Sketcher Site
Proposed Conditions
100 yr 24 hr

--------------------------------------------------------------------
Drainage Area =     158.40(Ac.)  =      0.248 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     158.40(Ac.)  =      0.248 Sq. Mi.
Length along longest watercourse =     1400.00(Ft.)
Length along longest watercourse measured to centroid =      700.00(Ft.)
Length along longest watercourse =       0.265 Mi.
Length along longest watercourse measured to centroid =       0.133 Mi.
Difference in elevation =       28.00(Ft.)
Slope along watercourse =     105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.042 Hr.
Lag time =      2.50 Min.
25% of lag time =      0.62 Min.
40% of lag time =      1.00 Min.
Unit time =     15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      158.40             1.80                  285.12

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      158.40             4.50                  712.80

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     1.800(In)
Area Averaged 100-Year Rainfall =     4.500(In)

Point rain (area averaged) =     4.500(In)
Areal adjustment factor =    99.97 %
Adjusted average point rain =     4.499(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   158.400             85.00          0.750
 Total Area Entered =     158.40(Ac.)
```



```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
85.0  85.0       0.187      0.750         0.061        1.000      0.061
                                                    Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.300
--------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                      VALLEY S-Curve
--------------------------------------------------------------------
                    Unit Hydrograph Data
--------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
    (hrs)                           Graph %           (CFS)
--------------------------------------------------------------------
     1   0.250        600.716         75.271           120.161
     2   0.500       1201.433         24.729            39.477
                              Sum = 100.000    Sum=      159.638
--------------------------------------------------------------------
```

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.275 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.294 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.312 |
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |
| 42 | 10.50 | 1.50 | 0.270 | 0.063 | ( 0.081) | 0.207 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 43 | 10.75 | 2.00 | 0.360 | | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | | 0.052 | ( 0.184) | 0.559 |
| 55 | 13.75 | 2.30 | 0.414 | | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 158.4(Ac.)/[(In)/(Ft.)] = 48.0(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 11.412(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 2089540.2 Cubic Feet
Total soil loss = 497123.3 Cubic Feet

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Peak flow rate of this hydrograph = 89.330(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))



| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 22.5 45.0 67.5 90.0 |
|---|---|---|---|
| 0+15 | 0.0626 | 3.03 | VQ |
| 0+30 | 0.1770 | 5.54 | V Q |
| 0+45 | 0.3017 | 6.04 | V Q |
| 1+ 0 | 0.4577 | 7.55 | V Q |
| 1+15 | 0.5927 | 6.53 | V Q |
| 1+30 | 0.7174 | 6.04 | V Q |
| 1+45 | 0.8421 | 6.04 | V Q |
| 2+ 0 | 0.9981 | 7.55 | V Q |
| 2+15 | 1.1643 | 8.05 | V Q |
| 2+30 | 1.3306 | 8.05 | V Q |
| 2+45 | 1.5282 | 9.56 | V Q |
| 3+ 0 | 1.7360 | 10.06 | V Q |
| 3+15 | 1.9438 | 10.06 | V Q |
| 3+30 | 2.1517 | 10.06 | V Q |
| 3+45 | 2.3595 | 10.06 | V Q |
| 4+ 0 | 2.5986 | 11.57 | V Q |
| 4+15 | 2.8480 | 12.07 | V Q |
| 4+30 | 3.1287 | 13.59 | V Q |
| 4+45 | 3.4197 | 14.08 | V Q |
| 5+ 0 | 3.7419 | 15.60 | V Q |
| 5+15 | 4.0119 | 13.07 | V Q |
| 5+30 | 4.2926 | 13.59 | V Q |
| 5+45 | 4.6149 | 15.60 | V Q |
| 6+ 0 | 4.9474 | 16.09 | V Q |
| 6+15 | 5.3112 | 17.61 | V Q |
| 6+30 | 5.6853 | 18.11 | V Q |
| 6+45 | 6.0907 | 19.62 | V Q |
| 7+ 0 | 6.5064 | 20.12 | V Q |
| 7+15 | 6.9221 | 20.12 | V Q |
| 7+30 | 7.3690 | 21.63 | V Q |
| 7+45 | 7.8575 | 23.64 | V Q |
| 8+ 0 | 8.3876 | 25.66 | V Q |
| 8+15 | 9.0147 | 30.35 | V Q |
| 8+30 | 9.6728 | 31.85 | V Q |
| 8+45 | 10.3788 | 34.17 | V Q |
| 9+ 0 | 11.1474 | 37.20 | V Q |
| 9+15 | 12.0232 | 42.39 | V Q |
| 9+30 | 12.9764 | 46.13 | V Q |
| 9+45 | 13.9920 | 49.16 | V Q |
| 10+ 0 | 15.0701 | 52.18 | V Q |
| 10+15 | 15.8531 | 37.90 | V Q |
| 10+30 | 16.5364 | 33.07 | VQ |
| 10+45 | 17.4462 | 44.03 | V Q |
| 11+ 0 | 18.4324 | 47.73 | V Q |
| 11+15 | 19.3768 | 45.71 | V Q |
| 11+30 | 20.3095 | 45.14 | V Q |
| 11+45 | 21.1557 | 40.96 | VQ |
| 12+ 0 | 22.0201 | 41.84 | Q |
| 12+15 | 23.2148 | 57.83 | V Q |
| 12+30 | 24.5599 | 65.10 | V Q |
| 12+45 | 26.0118 | 70.27 | V Q |
| 13+ 0 | 27.5405 | 73.99 | V Q |
| 13+15 | 29.3101 | 85.65 | V Q |
| 13+30 | 31.1557 | 89.33 | V Q |
| 13+45 | 32.5123 | 65.66 | V Q |
| 14+ 0 | 33.7100 | 57.97 | Q V |
| 14+15 | 35.0891 | 66.75 | Q |
| 14+30 | 36.4847 | 67.55 | Q |
| 14+45 | 37.8681 | 66.96 | Q V |
| 15+ 0 | 39.2093 | 64.91 | Q V |
| 15+15 | 40.4935 | 62.16 | Q V |
| 15+30 | 41.7207 | 59.40 | Q V |
| 15+45 | 42.7568 | 50.15 | Q V |
| 16+ 0 | 43.7364 | 47.41 | Q V |
| 16+15 | 44.1039 | 17.79 | Q V |
| 16+30 | 44.2702 | 8.05 | Q V |
| 16+45 | 44.4052 | 6.53 | Q V |
| 17+ 0 | 44.5299 | 6.04 | Q V |
| 17+15 | 44.7172 | 9.06 | Q V |

```
 17+30      44.9250     10.06  |    Q     |          |          |       V  |
 17+45      45.1328     10.06  |    Q     |          |          |       V  |
 18+ 0      45.3094      8.54  |   Q      |          |          |       V  |
 18+15      45.4757      8.05  |   Q      |          |          |       V  |
 18+30      45.6419      8.05  |   Q      |          |          |        V |
 18+45      45.7769      6.53  | Q        |          |          |        V |
 19+ 0      45.8703      4.52  | Q        |          |          |        V |
 19+15      45.9847      5.54  | Q        |          |          |        V |
 19+30      46.1407      7.55  |  Q       |          |          |        V |
 19+45      46.2757      6.53  | Q        |          |          |        V |
 20+ 0      46.3691      4.52  | Q        |          |          |        V |
 20+15      46.4836      5.54  | Q        |          |          |        V |
 20+30      46.6083      6.04  | Q        |          |          |        V |
 20+45      46.7330      6.04  | Q        |          |          |        V |
 21+ 0      46.8264      4.52  | Q        |          |          |         V|
 21+15      46.9408      5.54  | Q        |          |          |         V|
 21+30      47.0342      4.52  | Q        |          |          |         V|
 21+45      47.1486      5.54  | Q        |          |          |         V|
 22+ 0      47.2420      4.52  | Q        |          |          |         V|
 22+15      47.3565      5.54  | Q        |          |          |         V|
 22+30      47.4499      4.52  | Q        |          |          |         V|
 22+45      47.5330      4.02  |Q         |          |          |         V|
 23+ 0      47.6161      4.02  |Q         |          |          |         V|
 23+15      47.6993      4.02  |Q         |          |          |         V|
 23+30      47.7824      4.02  |Q         |          |          |         V|
 23+45      47.8656      4.02  |Q         |          |          |         V|
 24+ 0      47.9487      4.02  |Q         |          |          |         V|
 24+15      47.9692      1.00  Q          |          |          |          V
--------------------------------------------------------------------------
```



```
        U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  09/10/13 File: SubA224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Line A, Subarea A2
Proposed Condition
100-yr, 24-hr

------------------------------------------------------------------
Drainage Area =     293.70(Ac.)  =      0.459 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     293.70(Ac.)  =      0.459 Sq. Mi.
Length along longest watercourse =    3701.83(Ft.)
Length along longest watercourse measured to centroid =     990.93(Ft.)
Length along longest watercourse =      0.701 Mi.
Length along longest watercourse measured to centroid =      0.188 Mi.
Difference in elevation =      27.00(Ft.)
Slope along watercourse =     38.5107 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.083 Hr.
Lag time =     4.99 Min.
25% of lag time =     1.25 Min.
40% of lag time =     2.00 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      293.70             1.80                528.66

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      293.70             4.50               1321.65

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.94 %
Adjusted average point rain =    4.497(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   293.700           85.00          0.750
 Total Area Entered =    293.70(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 300.334 | 56.714 | 167.871 |
| 2 | 0.500 | 600.669 | 37.110 | 109.843 |
| 3 | 0.750 | 901.003 | 6.176 | 18.280 |
| | | | Sum = 100.000 | Sum= 295.995 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time | | Pattern | Storm Rain | Loss rate(In./Hr) | | Effective |
|---|---|---|---|---|---|---|
| | (Hr.) | Percent | (In/Hr) | Max | Low | (In/Hr) |
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.274 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.293 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.312 |
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 42 | 10.50 | 1.50 | 0.270 | 0.063 | ( 0.081) | 0.207 |
| 43 | 10.75 | 2.00 | 0.360 | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | 0.053 | ( 0.183) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | 0.052 | ( 0.183) | 0.559 |
| 55 | 13.75 | 2.30 | 0.414 | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | 0.046 | ( 0.124) | 0.367 |
| 63 | 15.75 | 1.90 | 0.342 | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | 0.011 | 0.025 |

(Loss Rate Not Used)
Sum = 100.0 Sum = 14.5
Flood volume = Effective rainfall 3.63(In)
times area 293.7(Ac.)/[(In)/(Ft.)] = 88.9(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 21.158(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 3873202.5 Cubic Feet
Total soil loss = 921635.0 Cubic Feet

Peak flow rate of this hydrograph = 163.880(CFS)

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 50.0 | 100.0 | 150.0 | 200.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0874 | 4.23 | Q | | | | |
| 0+30 | 0.2757 | 9.11 | VQ | | | | |
| 0+45 | 0.5021 | 10.96 | V Q | | | | |
| 1+ 0 | 0.7769 | 13.30 | V Q | | | | |
| 1+15 | 1.0367 | 12.57 | V Q | | | | |
| 1+30 | 1.2726 | 11.42 | V Q | | | | |
| 1+45 | 1.5038 | 11.19 | V Q | | | | |
| 2+ 0 | 1.7786 | 13.30 | V Q | | | | |
| 2+15 | 2.0821 | 14.69 | V Q | | | | |
| 2+30 | 2.3903 | 14.92 | VQ | | | | |
| 2+45 | 2.7422 | 17.03 | V Q | | | | |
| 3+ 0 | 3.1227 | 18.42 | V Q | | | | |
| 3+15 | 3.5079 | 18.65 | V Q | | | | |
| 3+30 | 3.8932 | 18.65 | V Q | | | | |
| 3+45 | 4.2785 | 18.65 | V Q | | | | |
| 4+ 0 | 4.7074 | 20.76 | V Q | | | | |
| 4+15 | 5.1650 | 22.15 | V Q | | | | |
| 4+30 | 5.6710 | 24.49 | V Q | | | | |
| 4+45 | 6.2056 | 25.87 | V Q | | | | |
| 5+ 0 | 6.7887 | 28.22 | V Q | | | | |
| 5+15 | 7.3129 | 25.37 | V Q | | | | |
| 5+30 | 7.8284 | 24.95 | VQ | | | | |
| 5+45 | 8.4067 | 27.99 | V Q | | | | |
| 6+ 0 | 9.0184 | 29.60 | VQ | | | | |
| 6+15 | 9.6785 | 31.95 | V Q | | | | |
| 6+30 | 10.3672 | 33.33 | V Q | | | | |
| 6+45 | 11.1044 | 35.68 | V Q | | | | |
| 7+ 0 | 11.8702 | 37.06 | V Q | | | | |
| 7+15 | 12.6407 | 37.29 | V Q | | | | |
| 7+30 | 13.4549 | 39.41 | VQ | | | | |
| 7+45 | 14.3414 | 42.91 | V Q | | | | |
| 8+ 0 | 15.3050 | 46.64 | V Q | | | | |
| 8+15 | 16.4229 | 54.11 | V Q | | | | |
| 8+30 | 17.6283 | 58.34 | V Q | | | | |
| 8+45 | 18.9150 | 62.27 | V Q | | | | |
| 9+ 0 | 20.3109 | 67.56 | V Q | | | | |
| 9+15 | 21.8853 | 76.20 | V Q | | | | |
| 9+30 | 23.6165 | 83.79 | V Q | | | | |
| 9+45 | 25.4703 | 89.73 | V Q | | | | |
| 10+ 0 | 27.4401 | 95.34 | V Q | | | | |
| 10+15 | 29.0262 | 76.77 | V Q | | | | |
| 10+30 | 30.3389 | 63.53 | QV | | | | |
| 10+45 | 31.9217 | 76.61 | VQ | | | | |
| 11+ 0 | 33.7143 | 86.76 | V Q | | | | |
| 11+15 | 35.4839 | 85.65 | V Q | | | | |
| 11+30 | 37.2182 | 83.94 | Q | | | | |
| 11+45 | 38.8262 | 77.83 | Q V | | | | |
| 12+ 0 | 40.4202 | 77.15 | Q V | | | | |
| 12+15 | 42.4838 | 99.88 | Q | | | | |
| 12+30 | 44.9077 | 117.32 | V Q | | | | |
| 12+45 | 47.5501 | 127.89 | V Q | | | | |
| 13+ 0 | 50.3484 | 135.44 | V Q | | | | |
| 13+15 | 53.5184 | 153.43 | V Q | | | | |
| 13+30 | 56.9043 | 163.88 | V Q | | | | |
| 13+45 | 59.6425 | 132.53 | Q | | | | |
| 14+ 0 | 61.9361 | 111.01 | Q V | | | | |
| 14+15 | 64.4094 | 119.71 | Q V | | | | |
| 14+30 | 66.9884 | 124.82 | Q V | | | | |
| 14+45 | 69.5584 | 124.39 | Q V | | | | |
| 15+ 0 | 72.0637 | 121.26 | Q V | | | | |
| 15+15 | 74.4703 | 116.48 | Q V | | | | |
| 15+30 | 76.7712 | 111.36 | Q V | | | | |
| 15+45 | 78.7791 | 97.18 | Q V | | | | |
| 16+ 0 | 80.6211 | 89.15 | Q V | | | | |
| 16+15 | 81.5821 | 46.51 | Q V | | | | |
| 16+30 | 81.9835 | 19.43 | Q V | | | | |
| 16+45 | 82.2480 | 12.80 | Q V | | | | |
| 17+ 0 | 82.4839 | 11.42 | Q V | | | | |
| 17+15 | 82.8025 | 15.42 | Q V | | | | |
| 17+30 | 83.1782 | 18.19 | Q V | | | | |
| 17+45 | 83.5635 | 18.65 | Q V | | | | |
| 18+ 0 | 83.9050 | 16.53 | Q V | | | | |
| 18+15 | 84.2180 | 15.15 | Q V | | | | |
| 18+30 | 84.5262 | 14.92 | Q V | | | | |
| 18+45 | 84.7907 | 12.80 | Q V | | | | |
| 19+ 0 | 84.9829 | 9.30 | Q V | | | | |
| 19+15 | 85.1855 | 9.80 | Q V | | | | |
| 19+30 | 85.4556 | 13.07 | Q V | | | | |
| 19+45 | 85.7153 | 12.57 | Q V | | | | |
| 20+ 0 | 85.9075 | 9.30 | Q V | | | | |
| 20+15 | 86.1101 | 9.80 | Q V | | | | |
| 20+30 | 86.3365 | 10.96 | Q V | | | | |
| 20+45 | 86.5677 | 11.19 | Q V | | | | |
| 21+ 0 | 86.7551 | 9.07 | Q V | | | | |
| 21+15 | 86.9577 | 9.80 | Q V | | | | |
| 21+30 | 87.1404 | 8.84 | Q V | | | | |
| 21+45 | 87.3429 | 9.80 | Q V | | | | |
| 22+ 0 | 87.5256 | 8.84 | Q V | | | | |
| 22+15 | 87.7282 | 9.80 | Q V | | | | |
| 22+30 | 87.9109 | 8.84 | Q V | | | | |
| 22+45 | 88.0698 | 7.69 | Q V | | | | |
| 23+ 0 | 88.2239 | 7.46 | Q V | | | | |
| 23+15 | 88.3780 | 7.46 | Q V | | | | |
| 23+30 | 88.5321 | 7.46 | Q V | | | | |
| 23+45 | 88.6862 | 7.46 | Q V | | | | |
| 24+ 0 | 88.8403 | 7.46 | Q V | | | | |
| 24+15 | 88.9070 | 3.23 | Q V | | | | |
| 24+30 | 88.9165 | 0.46 | Q V | | | | |

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 09/10/13 File: SubA124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

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English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

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Line A, Subarea A1
Proposed Condition
100-yr 24-hr

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Drainage Area = 211.60(Ac.) = 0.331 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 211.60(Ac.) = 0.331 Sq. Mi.
Length along longest watercourse = 2457.20(Ft.)
Length along longest watercourse measured to centroid = 1302.27(Ft.)
Length along longest watercourse = 0.465 Mi.
Length along longest watercourse measured to centroid = 0.247 Mi.
Difference in elevation = 27.06(Ft.)
Slope along watercourse = 58.1462 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.073 Hr.
Lag time = 4.38 Min.
25% of lag time = 1.10 Min.
40% of lag time = 1.75 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 211.60 | 1.80 | 380.88 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 211.60 | 4.50 | 952.20 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.96 %
Adjusted average point rain = 4.498(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 211.600 | 85.00 | 0.750 |

Total Area Entered = 211.60(Ac.)



| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

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U n i t  H y d r o g r a p h
VALLEY S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | | Unit Hydrograph (CFS) |
|---|---|---|---|---|---|
| 1 | 0.250 | 342.093 | 60.628 | | 129.290 |
| 2 | 0.500 | 684.187 | 34.922 | | 74.472 |
| 3 | 0.750 | 1026.280 | 4.450 | | 9.490 |
| | | | Sum = 100.000 | Sum= | 213.253 |

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The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.275 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.293 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.312 |
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 42 | 10.50 | 1.50 | 0.270 | | 0.063 | ( 0.081) | 0.207 |
| 43 | 10.75 | 2.00 | 0.360 | | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | | 0.052 | ( 0.184) | 0.559 |
| 55 | 13.75 | 2.30 | 0.414 | | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 211.6(Ac.)/[(In)/(Ft.)] = 64.1(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 15.245(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 2791003.5 Cubic Feet
Total soil loss = 664054.0 Cubic Feet

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Peak flow rate of this hydrograph = 118.431(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))



| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 50.0 100.0 150.0 200.0 |
|---|---|---|---|
| 0+15 | 0.0673 | 3.26 | Q |
| 0+30 | 0.2071 | 6.76 | VQ |
| 0+45 | 0.3712 | 7.94 | VQ |
| 1+ 0 | 0.5714 | 9.69 | VQ |
| 1+15 | 0.7574 | 9.00 | VQ |
| 1+30 | 0.9264 | 8.18 | VQ |
| 1+45 | 1.0930 | 8.06 | VQ |
| 2+ 0 | 1.2932 | 9.69 | VQ |
| 2+15 | 1.5128 | 10.63 | V Q |
| 2+30 | 1.7349 | 10.75 | VQ |
| 2+45 | 1.9907 | 12.38 | VQ |
| 3+ 0 | 2.2658 | 13.32 | VQ |
| 3+15 | 2.5434 | 13.44 | VQ |
| 3+30 | 2.8210 | 13.44 | VQ |
| 3+45 | 3.0986 | 13.44 | VQ |
| 4+ 0 | 3.4099 | 15.07 | VQ |
| 4+15 | 3.7406 | 16.00 | VQ |
| 4+30 | 4.1073 | 17.75 | VQ |
| 4+45 | 4.4935 | 18.69 | VQ |
| 5+ 0 | 4.9158 | 20.44 | VQ |
| 5+15 | 5.2902 | 18.12 | Q |
| 5+30 | 5.6620 | 17.99 | Q |
| 5+45 | 6.0818 | 20.32 | VQ |
| 6+ 0 | 6.5235 | 21.38 | Q |
| 6+15 | 7.0014 | 23.13 | Q |
| 6+30 | 7.4986 | 24.07 | Q |
| 6+45 | 8.0319 | 25.81 | Q |
| 7+ 0 | 8.5847 | 26.75 | Q |
| 7+15 | 9.1399 | 26.87 | Q |
| 7+30 | 9.7288 | 28.50 | QV |
| 7+45 | 10.3707 | 31.07 | Q |
| 8+ 0 | 11.0682 | 33.76 | Q |
| 8+15 | 11.8808 | 39.33 | Q |
| 8+30 | 12.7522 | 42.18 | VQ |
| 8+45 | 13.6827 | 45.04 | VQ |
| 9+ 0 | 14.6934 | 48.91 | Q |
| 9+15 | 15.8357 | 55.29 | VQ |
| 9+30 | 17.0893 | 60.67 | V Q |
| 9+45 | 18.4299 | 64.89 | VQ |
| 10+ 0 | 19.8540 | 68.93 | VQ |
| 10+15 | 20.9769 | 54.35 | Q V |
| 10+30 | 21.9134 | 45.33 | Q V |
| 10+45 | 23.0698 | 55.97 | Q V |
| 11+ 0 | 24.3686 | 62.86 | Q V |
| 11+15 | 25.6409 | 61.58 | Q V |
| 11+30 | 26.8895 | 60.43 | Q V |
| 11+45 | 28.0422 | 55.79 | Q V |
| 12+ 0 | 29.1915 | 55.62 | Q V |
| 12+15 | 30.7018 | 73.10 | Q V |
| 12+30 | 32.4614 | 85.16 | Q V |
| 12+45 | 34.3732 | 92.53 | Q V |
| 13+ 0 | 36.3957 | 97.89 | Q V |
| 13+15 | 38.6971 | 111.38 | Q V |
| 13+30 | 41.1440 | 118.43 | Q V |
| 13+45 | 43.0831 | 93.85 | Q V |
| 14+ 0 | 44.7210 | 79.28 | Q V |
| 14+15 | 46.5159 | 86.87 | Q V |
| 14+30 | 48.3769 | 90.07 | Q V |
| 14+45 | 50.2276 | 89.58 | Q V |
| 15+ 0 | 52.0300 | 87.24 | Q V |
| 15+15 | 53.7598 | 83.72 | Q V |
| 15+30 | 55.4136 | 80.04 | Q V |
| 15+45 | 56.8468 | 69.37 | Q V |
| 16+ 0 | 58.1689 | 63.99 | Q V |
| 16+15 | 58.8189 | 31.46 | Q V |
| 16+30 | 59.0894 | 13.09 | Q V |
| 16+45 | 59.2778 | 9.12 | Q V |
| 17+ 0 | 59.4468 | 8.18 | Q V |

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   17+15      59.6807     11.32  | Q        |          |          |       V  |
   17+30      59.9534     13.20  | Q        |          |          |       V  |
   17+45      60.2310     13.44  | Q        |          |          |       V  |
   18+ 0      60.4749     11.81  | Q        |          |          |       V  |
   18+15      60.6995     10.87  | Q        |          |          |       V  |
   18+30      60.9216     10.75  | Q        |          |          |       V  |
   18+45      61.1100      9.12  |Q         |          |          |       V  |
   19+ 0      61.2454      6.55  |Q         |          |          |       V  |
   19+15      61.3926      7.12  |Q         |          |          |       V  |
   19+30      61.5903      9.57  |Q         |          |          |       V  |
   19+45      61.7763      9.00  |Q         |          |          |       V  |
   20+ 0      61.9117      6.55  |Q         |          |          |       V  |
   20+15      62.0588      7.12  |Q         |          |          |       V  |
   20+30      62.2229      7.94  |Q         |          |          |       V  |
   20+45      62.3895      8.06  |Q         |          |          |       V  |
   21+ 0      62.5224      6.43  |Q         |          |          |       V  |
   21+15      62.6696      7.12  |Q         |          |          |       V  |
   21+30      62.8000      6.31  |Q         |          |          |       V  |
   21+45      62.9472      7.12  |Q         |          |          |       V  |
   22+ 0      63.0776      6.31  |Q         |          |          |       V  |
   22+15      63.2248      7.12  |Q         |          |          |       V  |
   22+30      63.3552      6.31  |Q         |          |          |       V  |
   22+45      63.4687      5.49  |Q         |          |          |       V  |
   23+ 0      63.5798      5.37  |Q         |          |          |       V  |
   23+15      63.6908      5.37  |Q         |          |          |       V  |
   23+30      63.8019      5.37  |Q         |          |          |       V  |
   23+45      63.9129      5.37  |Q         |          |          |       V  |
   24+ 0      64.0240      5.37  |Q         |          |          |       V  |
   24+15      64.0677      2.12  Q          |          |          |       V  |
   24+30      64.0726      0.24  Q          |          |          |        V
----------------------------------------------------------------------------
```





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        U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  09/10/13 File: SubA324100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Line A, Subarea A3
Proposed Condition
100-yr, 24-hr

------------------------------------------------------------------------
Drainage Area =     119.20(Ac.)  =      0.186 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     119.20(Ac.)  =      0.186 Sq. Mi.
Length along longest watercourse =    3200.00(Ft.)
Length along longest watercourse measured to centroid =    1600.00(Ft.)
Length along longest watercourse =       0.606 Mi.
Length along longest watercourse measured to centroid =       0.303 Mi.
Difference in elevation =      32.00(Ft.)
Slope along watercourse =     52.8000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.089 Hr.
Lag time =      5.34 Min.
25% of lag time =      1.33 Min.
40% of lag time =      2.14 Min.
Unit time =     15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      119.20              1.80                  214.56

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      119.20              4.50                  536.40

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     1.800(In)
Area Averaged 100-Year Rainfall =     4.500(In)

Point rain (area averaged) =     4.500(In)
Areal adjustment factor =    99.98 %
Adjusted average point rain =     4.499(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
   119.200            85.00           0.750
 Total Area Entered =     119.20(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 280.942 | 54.636 | 65.635 |
| 2 | 0.500 | 561.885 | 38.203 | 45.894 |
| 3 | 0.750 | 842.827 | 7.161 | 8.603 |
| | | | Sum = 100.000 | Sum= 120.131 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| | Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.275 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.294 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.312 |
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 42 | 10.50 | 1.50 | 0.270 | 0.063 | ( 0.081) | 0.207 |
| 43 | 10.75 | 2.00 | 0.360 | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | 0.052 | ( 0.184) | 0.560 |
| 55 | 13.75 | 2.30 | 0.414 | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | 0.011 | 0.025 |

(Loss Rate Not Used)
Sum = 100.0 Sum = 14.5
Flood volume = Effective rainfall 3.63(In)
times area 119.2(Ac.)/[(In)/(Ft.)] = 36.1(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 8.588(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 1572567.4 Cubic Feet
Total soil loss = 374111.3 Cubic Feet

Peak flow rate of this hydrograph = 66.427(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 17.5 | 35.0 | 52.5 | 70.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0342 | 1.65 | Q | | | | |
| 0+30 | 0.1094 | 3.64 | V Q | | | | |
| 0+45 | 0.2010 | 4.43 | V Q | | | | |
| 1+ 0 | 0.3119 | 5.37 | V Q | | | | |
| 1+15 | 0.4177 | 5.12 | V Q | | | | |
| 1+30 | 0.5138 | 4.65 | V Q | | | | |
| 1+45 | 0.6076 | 4.54 | V Q | | | | |
| 2+ 0 | 0.7186 | 5.37 | V Q | | | | |
| 2+15 | 0.8415 | 5.95 | V Q | | | | |
| 2+30 | 0.9666 | 6.06 | V Q | | | | |
| 2+45 | 1.1088 | 6.88 | V Q | | | | |
| 3+ 0 | 1.2630 | 7.46 | V Q | | | | |
| 3+15 | 1.4194 | 7.57 | V Q | | | | |
| 3+30 | 1.5758 | 7.57 | V Q | | | | |
| 3+45 | 1.7322 | 7.57 | V Q | | | | |
| 4+ 0 | 1.9057 | 8.40 | V Q | | | | |
| 4+15 | 2.0912 | 8.98 | V Q | | | | |
| 4+30 | 2.2960 | 9.91 | V Q | | | | |
| 4+45 | 2.5127 | 10.49 | V Q | | | | |
| 5+ 0 | 2.7488 | 11.43 | V Q | | | | |
| 5+15 | 2.9626 | 10.35 | V Q | | | | |
| 5+30 | 3.1719 | 10.13 | V Q | | | | |
| 5+45 | 3.4057 | 11.32 | V Q | | | | |
| 6+ 0 | 3.6538 | 12.00 | V Q | | | | |
| 6+15 | 3.9211 | 12.94 | V Q | | | | |
| 6+30 | 4.2004 | 13.52 | V Q | | | | |
| 6+45 | 4.4991 | 14.45 | V Q | | | | |
| 7+ 0 | 4.8096 | 15.03 | V Q | | | | |
| 7+15 | 5.1225 | 15.14 | V Q | | | | |
| 7+30 | 5.4524 | 15.97 | V Q | | | | |
| 7+45 | 5.8113 | 17.37 | V Q | | | | |
| 8+ 0 | 6.2016 | 18.89 | V Q | | | | |
| 8+15 | 6.6534 | 21.87 | V Q | | | | |
| 8+30 | 7.1419 | 23.64 | V Q | | | | |
| 8+45 | 7.6634 | 25.24 | V Q | | | | |
| 9+ 0 | 8.2287 | 27.36 | V Q | | | | |
| 9+15 | 8.8656 | 30.82 | V Q | | | | |
| 9+30 | 9.5666 | 33.93 | V Q | | | | |
| 9+45 | 10.3179 | 36.36 | V Q | | | | |
| 10+ 0 | 11.1162 | 38.64 | V Q | | | | |
| 10+15 | 11.7662 | 31.46 | V Q | | | | |
| 10+30 | 12.3022 | 25.94 | VQ | | | | |
| 10+45 | 12.9402 | 30.88 | V Q | | | | |
| 11+ 0 | 13.6657 | 35.12 | V Q | | | | |
| 11+15 | 14.3851 | 34.82 | V Q | | | | |
| 11+30 | 15.0896 | 34.10 | V Q | | | | |
| 11+45 | 15.7443 | 31.69 | VQ | | | | |
| 12+ 0 | 16.3914 | 31.32 | QV | | | | |
| 12+15 | 17.2223 | 40.21 | V Q | | | | |
| 12+30 | 18.2023 | 47.44 | V Q | | | | |
| 12+45 | 19.2728 | 51.81 | V Q | | | | |
| 13+ 0 | 20.4071 | 54.90 | V Q | | | | |
| 13+15 | 21.6890 | 62.04 | V Q | | | | |
| 13+30 | 23.0614 | 66.43 | V Q | | | | |
| 13+45 | 24.1833 | 54.30 | V Q | | | | |
| 14+ 0 | 25.1193 | 45.30 | Q V | | | | |
| 14+15 | 26.1198 | 48.42 | QV | | | | |
| 14+30 | 27.1660 | 50.64 | Q V | | | | |
| 14+45 | 28.2098 | 50.52 | Q V | | | | |
| 15+ 0 | 29.2278 | 49.27 | Q V | | | | |
| 15+15 | 30.2062 | 47.35 | Q V | | | | |
| 15+30 | 31.1418 | 45.28 | Q V | | | | |
| 15+45 | 31.9611 | 39.66 | Q V | | | | |
| 16+ 0 | 32.7107 | 36.28 | Q V | | | | |
| 16+15 | 33.1136 | 19.50 | Q V | | | | |
| 16+30 | 33.2826 | 8.18 | Q V | | | | |
| 16+45 | 33.3906 | 5.23 | Q V | | | | |
| 17+ 0 | 33.4867 | 4.65 | Q V | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17+15 | 33.6147 | 6.20 | Q | | | V | |
| 17+30 | 33.7667 | 7.35 | Q | | | V | |
| 17+45 | 33.9231 | 7.57 | Q | | | V | |
| 18+ 0 | 34.0624 | 6.74 | Q | | | V | |
| 18+15 | 34.1898 | 6.16 | Q | | | V | |
| 18+30 | 34.3149 | 6.06 | Q | | | V | |
| 18+45 | 34.4229 | 5.23 | Q | | | V | |
| 19+ 0 | 34.5019 | 3.82 | Q | | | V | |
| 19+15 | 34.5838 | 3.96 | Q | | | V | |
| 19+30 | 34.6925 | 5.26 | Q | | | V | |
| 19+45 | 34.7983 | 5.12 | Q | | | V | |
| 20+ 0 | 34.8773 | 3.82 | Q | | | V | |
| 20+15 | 34.9592 | 3.96 | Q | | | V | |
| 20+30 | 35.0508 | 4.43 | Q | | | V | |
| 20+45 | 35.1447 | 4.54 | Q | | | V | |
| 21+ 0 | 35.2214 | 3.72 | Q | | | V | |
| 21+15 | 35.3033 | 3.96 | Q | | | V | |
| 21+30 | 35.3779 | 3.61 | Q | | | V | |
| 21+45 | 35.4598 | 3.96 | Q | | | V | |
| 22+ 0 | 35.5343 | 3.61 | Q | | | V | |
| 22+15 | 35.6162 | 3.96 | Q | | | V | |
| 22+30 | 35.6907 | 3.61 | Q | | | V | |
| 22+45 | 35.7555 | 3.14 | Q | | | V | |
| 23+ 0 | 35.8181 | 3.03 | Q | | | V | |
| 23+15 | 35.8806 | 3.03 | Q | | | V | |
| 23+30 | 35.9432 | 3.03 | Q | | | V | |
| 23+45 | 36.0058 | 3.03 | Q | | | V | |
| 24+ 0 | 36.0683 | 3.03 | Q | | | V | |
| 24+15 | 36.0967 | 1.37 | Q | | | V | |
| 24+30 | 36.1012 | 0.22 | Q | | | V | |

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 09/10/13 File: SubA424100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

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English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

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Line A, Subarea A4
Proposed Condition
100-yr, 24-hr

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Drainage Area = 321.10(Ac.) = 0.502 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 321.10(Ac.) = 0.502 Sq. Mi.
Length along longest watercourse = 3200.00(Ft.)
Length along longest watercourse measured to centroid = 1600.00(Ft.)
Length along longest watercourse = 0.606 Mi.
Length along longest watercourse measured to centroid = 0.303 Mi.
Difference in elevation = 32.00(Ft.)
Slope along watercourse = 52.8000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.089 Hr.
Lag time = 5.34 Min.
25% of lag time = 1.33 Min.
40% of lag time = 2.14 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 321.10 | 1.80 | 577.98 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 321.10 | 4.50 | 1444.95 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.94 %
Adjusted average point rain = 4.497(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 321.100 | 85.00 | 0.750 |

Total Area Entered = 321.10(Ac.)



| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

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U n i t  H y d r o g r a p h
VALLEY S-Curve

---

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 280.942 | 54.636 | 176.806 |
| 2 | 0.500 | 561.885 | 38.203 | 123.628 |
| 3 | 0.750 | 842.827 | 7.161 | 23.174 |
| | | | Sum = 100.000 | Sum= 323.609 |

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The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.274 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.293 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.312 |
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 42 | 10.50 | 1.50 | 0.270 | | 0.063 | ( 0.081) | 0.207 |
| 43 | 10.75 | 2.00 | 0.360 | | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | | 0.057 | ( 0.097) | 0.266 |
| 49 | 12.25 | 2.50 | 0.450 | | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | | 0.053 | ( 0.183) | 0.558 |
| 54 | 13.50 | 3.40 | 0.612 | | 0.052 | ( 0.183) | 0.559 |
| 55 | 13.75 | 2.30 | 0.414 | | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | | 0.046 | ( 0.124) | 0.367 |
| 63 | 15.75 | 1.90 | 0.342 | | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 321.1(Ac.)/[(In)/(Ft.)] = 97.2(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 23.131(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 4234287.8 Cubic Feet
Total soil loss = 1007591.2 Cubic Feet

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Peak flow rate of this hydrograph = 178.864(CFS)

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

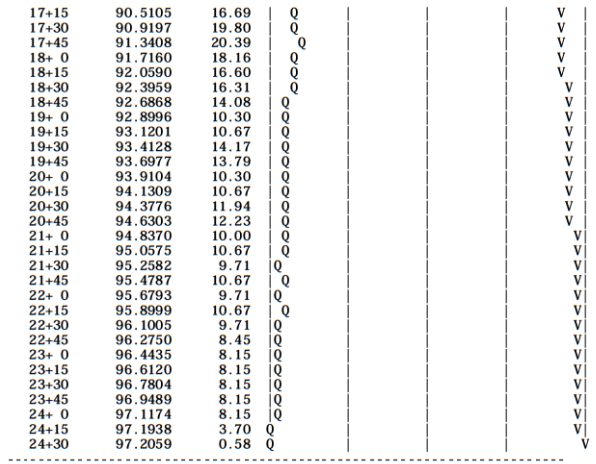
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))



| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 50.0 100.0 150.0 200.0 |
|---|---|---|---|
| 0+15 | 0.0920 | 4.46 | Q |
| 0+30 | 0.2945 | 9.80 | VQ |
| 0+45 | 0.5412 | 11.94 | V Q |
| 1+ 0 | 0.8399 | 14.46 | V Q |
| 1+15 | 1.1248 | 13.79 | V Q |
| 1+30 | 1.3835 | 12.52 | V Q |
| 1+45 | 1.6362 | 12.23 | V Q |
| 2+ 0 | 1.9349 | 14.46 | V Q |
| 2+15 | 2.2659 | 16.02 | V Q |
| 2+30 | 2.6028 | 16.31 | V Q |
| 2+45 | 2.9858 | 18.54 | V Q |
| 3+ 0 | 3.4009 | 20.09 | V Q |
| 3+15 | 3.8221 | 20.39 | V Q |
| 3+30 | 4.2433 | 20.39 | V Q |
| 3+45 | 4.6645 | 20.39 | V Q |
| 4+ 0 | 5.1317 | 22.61 | V Q |
| 4+15 | 5.6310 | 24.17 | V Q |
| 4+30 | 6.1825 | 26.69 | V Q |
| 4+45 | 6.7661 | 28.25 | V Q |
| 5+ 0 | 7.4018 | 30.77 | V Q |
| 5+15 | 7.9776 | 27.87 | V Q |
| 5+30 | 8.5411 | 27.27 | V Q |
| 5+45 | 9.1707 | 30.47 | V Q |
| 6+ 0 | 9.8386 | 32.32 | V Q |
| 6+15 | 10.5585 | 34.84 | V Q |
| 6+30 | 11.3106 | 36.40 | V Q |
| 6+45 | 12.1147 | 38.92 | V Q |
| 7+ 0 | 12.9511 | 40.48 | V Q |
| 7+15 | 13.7934 | 40.77 | V Q |
| 7+30 | 14.6818 | 43.00 | V Q |
| 7+45 | 15.6484 | 46.78 | V Q |
| 8+ 0 | 16.6992 | 50.86 | V Q |
| 8+15 | 17.9157 | 58.88 | V Q |
| 8+30 | 19.2310 | 63.66 | V Q |
| 8+45 | 20.6349 | 67.95 | V Q |
| 9+ 0 | 22.1570 | 73.67 | V Q |
| 9+15 | 23.8718 | 82.99 | V Q |
| 9+30 | 25.7593 | 91.35 | V Q |
| 9+45 | 27.7821 | 97.91 | V Q |
| 10+ 0 | 29.9316 | 104.04 | V Q |
| 10+15 | 31.6817 | 84.71 | V Q |
| 10+30 | 33.1248 | 69.85 | Q |
| 10+45 | 34.8425 | 83.14 | V Q |
| 11+ 0 | 36.7961 | 94.55 | V Q |
| 11+15 | 38.7331 | 93.75 | V Q |
| 11+30 | 40.6300 | 91.81 | V Q |
| 11+45 | 42.3927 | 85.32 | Q |
| 12+ 0 | 44.1350 | 84.33 | Q V |
| 12+15 | 46.3721 | 108.27 | V Q |
| 12+30 | 49.0110 | 127.72 | V Q |
| 12+45 | 51.8933 | 139.50 | V Q |
| 13+ 0 | 54.9475 | 147.82 | V Q |
| 13+15 | 58.3992 | 167.06 | V Q |
| 13+30 | 62.0947 | 178.86 | V Q |
| 13+45 | 65.1154 | 146.20 | V Q |
| 14+ 0 | 67.6358 | 121.98 | Q V |
| 14+15 | 70.3295 | 130.38 | Q V |
| 14+30 | 73.1466 | 136.34 | Q V |
| 14+45 | 75.9572 | 136.03 | Q V |
| 15+ 0 | 78.6984 | 132.68 | Q V |
| 15+15 | 81.3328 | 127.51 | Q V |
| 15+30 | 83.8518 | 121.92 | Q V |
| 15+45 | 86.0579 | 106.78 | Q V |
| 16+ 0 | 88.0762 | 97.69 | Q V |
| 16+15 | 89.1611 | 52.51 | Q V |
| 16+30 | 89.6161 | 22.02 | Q V |
| 16+45 | 89.9071 | 14.08 | Q V |
| 17+ 0 | 90.1658 | 12.52 | Q V |



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17+15 | 90.5105 | 16.69 | | Q | | | | V | |
| 17+30 | 90.9197 | 19.80 | | Q | | | | V | |
| 17+45 | 91.3408 | 20.39 | | Q | | | | V | |
| 18+ 0 | 91.7160 | 18.16 | | Q | | | | V | |
| 18+15 | 92.0590 | 16.60 | | Q | | | | V | |
| 18+30 | 92.3959 | 16.31 | | Q | | | | V | |
| 18+45 | 92.6868 | 14.08 | Q | | | | | V | |
| 19+ 0 | 92.8996 | 10.30 | Q | | | | | V | |
| 19+15 | 93.1201 | 10.67 | Q | | | | | V | |
| 19+30 | 93.4128 | 14.17 | Q | | | | | V | |
| 19+45 | 93.6977 | 13.79 | Q | | | | | V | |
| 20+ 0 | 93.9104 | 10.30 | Q | | | | | V | |
| 20+15 | 94.1309 | 10.67 | Q | | | | | V | |
| 20+30 | 94.3776 | 11.94 | Q | | | | | V | |
| 20+45 | 94.6303 | 12.23 | Q | | | | | V | |
| 21+ 0 | 94.8370 | 10.00 | Q | | | | | V | |
| 21+15 | 95.0575 | 10.67 | Q | | | | | V | |
| 21+30 | 95.2582 | 9.71 | Q | | | | | V | |
| 21+45 | 95.4787 | 10.67 | Q | | | | | V | |
| 22+ 0 | 95.6793 | 9.71 | Q | | | | | V | |
| 22+15 | 95.8999 | 10.67 | Q | | | | | V | |
| 22+30 | 96.1005 | 9.71 | Q | | | | | V | |
| 22+45 | 96.2750 | 8.45 | Q | | | | | V | |
| 23+ 0 | 96.4435 | 8.15 | Q | | | | | V | |
| 23+15 | 96.6120 | 8.15 | Q | | | | | V | |
| 23+30 | 96.7804 | 8.15 | Q | | | | | V | |
| 23+45 | 96.9489 | 8.15 | Q | | | | | V | |
| 24+ 0 | 97.1174 | 8.15 | Q | | | | | V | |
| 24+15 | 97.1938 | 3.70 | Q | | | | | V | |
| 24+30 | 97.2059 | 0.58 | Q | | | | | V | |

```
                FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                    Study date: 09/18/13

------------------------------------------------------------------------

Line B
Proposed Condition
100 yr 3 hr

------------------------------------------------------------------------

Program License Serial Number 6097

------------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

              From study/file name: OffsiteB13100.rte
**************************HYDROGRAPH DATA**************************
              Number of intervals =    15
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =       82.945 (CFS)
              Total volume =       6.835 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
********************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** STREAM ROUTING SCS CONVEX METHOD ****
________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   3500.00 (Ft.)
Elevation difference =   70.00 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  3500.00(Ft.)   Elevation difference =  70.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =    26.576(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =    26.576(CFS)
Normal flow depth in pipe =   11.07(In.)
Flow top width inside pipe =   51.95(In.)
Critical Depth =    1.35(Ft.)
Pipe flow velocity =      9.63(Ft/s)
Travel time through pipe =    6.05 min.


Pipe length  =  3500.00(Ft.)   Elevation difference =  70.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =    82.945(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =    82.945(CFS)
Normal flow depth in pipe =   19.45(In.)
Flow top width inside pipe =   63.94(In.)
Critical Depth =    2.44(Ft.)
Pipe flow velocity =     13.44(Ft/s)
Travel time through pipe =    4.34 min.
```



```
********************** SCS CONVEX CHANNEL ROUTING ********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.8877   Travel time =   4.34 (min.)
        dt*(unit time interval) =  15.00(min.),  e=   2.9293
        dt(routing time-step) =   3.85 (min.),   c* =   0.9983

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------
            Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0        20.7       41.5       62.2       82.9
------------------------------------------------------------------------
  0+15       0.7246      0.98  0        |          |          |          |
  0+30       2.2005      2.63  |0       |          |          |          |
  0+45       3.1544      3.34  |0       |          |          |          |
  1+ 0       3.4652      3.51  |0       |          |          |          |
  1+15       6.3020      7.27  |  0     |          |          |          |
  1+30      12.5668     14.41  |     0  |          |          |          |
  1+45      19.1291     20.77  |       OI          |          |          |
  2+ 0      25.3982     27.01  |          | OI     |          |          |
  2+15      35.6742     38.69  |          |     OI |          |          |
  2+30      58.4391     65.31  |          |        |          0 |I        |
  2+45      78.3840     82.94  |          |        |          |          0  I
  3+ 0      60.0118     52.05  |          |        |       I  0          |
  3+15      21.0057     10.19  |    I     0        |          |          |
  3+30       3.8798      1.66  I0        |        |          |          |
  3+45       0.4703      0.05  0         |        |          |          |
  4+ 0       0.0140      0.00  0         |        |          |          |
  4+15       0.0000      0.00  0         |        |          |          |
------------------------------------------------------------------------
            **************************HYDROGRAPH DATA**************************
                  Number of intervals =    17
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =       78.384 (CFS)
                  Total volume =       6.835 (Ac.Ft)
           Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
           Peak (CFS)       0.000     0.000     0.000     0.000     0.000
           Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
           ********************************************************************



           ------------------------------------------------------------------------



           ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
           Process from Point/Station        1.000 to Point/Station        2.000
           **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
           ________________________________________________________________________
           ********************* HYDROGRAPH INFORMATION **********************

                    From study/file name: SUBB13100.rte
           ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T  O F  S T O R M
                  R u n o f f     H y d r o g r a p h
           ------------------------------------------------------------------------
                Hydrograph in  15   Minute intervals (CFS)

           ------------------------------------------------------------------------
           Time(h+m) Add q(CFS)  Tot. Q  0        74.3       148.5      222.8      297.0
           ------------------------------------------------------------------------
             0+15      22.9798     23.70  | Q      |          |          |          |
             0+30      46.7805     48.98  |    Q   |          |          |          |
             0+45      57.4048     60.56  |     qQ |          |          |          |
```

```
 1+ 0      58.3381     61.80  |      qQ |         |         |         |
 1+15      71.0314     77.33  |        qQ         |         |         |
 1+30      85.2475     97.81  |          |q Q     |         |         |
 1+45      99.0864    118.22  |          |  q Q   |         |         |
 2+ 0     110.1728    135.57  |          |    q   Q         |         |
 2+15     140.4038    176.08  |          |        q   Q     |         |
 2+30     200.0939    258.53  |          |            q     |   Q     |
 2+45     218.6491    297.03  |          |                  q         Q
 3+ 0     121.1552    181.17  |          |      q   |   Q   |         |
 3+15      31.0065     52.01  |   q  Q   |          |       |         |
 3+30       2.9603      6.84  Q          |          |       |         |
 3+45       0.0000      0.47  Q          |          |       |         |
 4+ 0       0.0000      0.01  Q          |          |       |         |
 4+15       0.0000      0.00  Q          |          |       |         |
--------------------------------------------------------------------------
      **************************HYDROGRAPH DATA**************************
                    Number of intervals =    17
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =      297.033 (CFS)
                    Total volume =      32.978 (Ac.Ft)
          Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)       0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      *******************************************************************


      ---------------------------------------------------------------------


      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       2.000 to Point/Station       2.000
      **** RETARDING BASIN ROUTING ****
      _____________________________________________________________________

      User entry of depth-outflow-storage data
      ---------------------------------------------------------------------
      Total number of inflow hydrograph intervals = 17
      Hydrograph time unit = 15.000 (Min.)
      Initial depth in storage basin =   0.00(Ft.)
      ---------------------------------------------------------------------
      ---------------------------------------------------------------------
      Initial basin depth =   0.00 (Ft.)
      Initial basin storage =      0.00 (Ac.Ft)
      Initial basin outflow =   0.00 (CFS)
      ---------------------------------------------------------------------
      ---------------------------------------------------------------------
      Depth vs. Storage and Depth vs. Discharge data:
       Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
            (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)     (Ac.Ft)
      ---------------------------------------------------------------------
         0.000       0.000      0.000      0.000       0.000
         1.000       0.001      0.001      0.001       0.001
         2.000       1.000     30.000      0.690       1.310
         3.000       5.000    100.000      3.967       6.033
         5.000      11.000    200.000      8.934      13.066
         6.000      12.000    280.000      9.107      14.893
      ---------------------------------------------------------------------
                      Hydrograph Detention Basin Routing
      ---------------------------------------------------------------------

      Graph values: 'I'= unit inflow; 'O'=outflow at time shown
      ---------------------------------------------------------------------
 Time    Inflow  Outflow    Storage                                  Depth
(Hours)  (CFS)    (CFS)     (Ac.Ft) .0      74.3   148.52   222.77  297.03 (Ft.)
 0.250   23.70     5.59      0.187  0 I      |       |        |       |     1.19
 0.500   48.98    20.15      0.672  | 0  I   |       |        |       |     1.67
 0.750   60.56    34.23      1.242  |  0  I  |       |        |       |     2.06
 1.000   61.80    42.48      1.713  |   0 I  |       |        |       |     2.18
 1.250   77.33    50.78      2.187  |    0  I|       |        |       |     2.30
 1.500   97.81    62.05      2.831  |     0 | I     |        |       |     2.46
 1.750  118.22    76.12      3.636  |       0   I    |        |       |     2.66
 2.000  135.57    91.67      4.524  |       |0    I  |        |       |     2.88
```



```
 2.250  176.08   110.85      5.651  |       | 0     | I     |       |     3.22
 2.500  258.53   142.13      7.528  |       |       0       | I     |     3.84
 2.750  297.03   181.98      9.919  |       |         | 0     |     I 4.64
 3.000  181.17   198.76     10.926  |       |         | I 0   |       |     4.98
 3.250   52.01   174.62      9.477  |    I  |         | 0     |       |     4.49
 3.500    6.84   131.97      6.918  I       |      0  |       |       |     3.64
 3.750    0.47    94.03      4.659  I       | 0     |       |       |     2.91
 4.000    0.01    65.31      3.018  I      0|       |       |       |     2.50
 4.250    0.00    45.31      1.875  I   0   |       |       |       |     2.22
 4.500    0.00    31.44      1.082  I  0    |       |       |       |     2.02
 4.750    0.00    17.34      0.578  IO     |       |       |       |     1.58
 5.000    0.00     9.13      0.305  0      |       |       |       |     1.30
 5.250    0.00     4.81      0.161  0      |       |       |       |     1.16
 5.500    0.00     2.53      0.085  0      |       |       |       |     1.08
 5.750    0.00     1.33      0.045  0      |       |       |       |     1.04
 6.000    0.00     0.70      0.024  0      |       |       |       |     1.02
 6.250    0.00     0.37      0.013  0      |       |       |       |     1.01
 6.500    0.00     0.19      0.007  0      |       |       |       |     1.01
 6.750    0.00     0.10      0.004  0      |       |       |       |     1.00
 7.000    0.00     0.05      0.003  0      |       |       |       |     1.00
 7.250    0.00     0.03      0.002  0      |       |       |       |     1.00
 7.500    0.00     0.01      0.001  0      |       |       |       |     1.00
 7.750    0.00     0.01      0.001  0      |       |       |       |     1.00
 8.000    0.00     0.00      0.001  0      |       |       |       |     1.00
 8.250    0.00     0.00      0.001  0      |       |       |       |     1.00
 8.500    0.00     0.00      0.001  0      |       |       |       |     1.00
 8.750    0.00     0.00      0.001  0      |       |       |       |     0.98

      **************************HYDROGRAPH DATA**************************
                    Number of intervals =    35
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =      198.759 (CFS)
                    Total volume =      32.977 (Ac.Ft)
          Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)       0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      *******************************************************************


      ---------------------------------------------------------------------


      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       2.000 to Point/Station       3.000
      **** STREAM ROUTING SCS CONVEX METHOD ****
      _____________________________________________________________________
      HYDROGRAPH STREAM ROUTING DATA:
      Length of stream =   4000.00 (Ft.)
      Elevation difference =   80.00 (Ft.)
      Slope of channel =  0.020000 (Vert/Horiz)
      Channel type - Pipe


      Pipe length  =  4000.00(Ft.)   Elevation difference =  80.00(Ft.)
      Manning's N = 0.015   No. of pipes = 1
      Pipe evaluation using mean flow rate of hydrograph
      Required pipe flow  =    94.527(CFS)
      Given pipe size =     72.00(In.)
      Calculated individual pipe flow  =    94.527(CFS)
      Normal flow depth in pipe =   20.81(In.)
      Flow top width inside pipe =   65.28(In.)
      Critical Depth =    2.61(Ft.)
      Pipe flow velocity =     13.96(Ft/s)
      Travel time through pipe =    4.78 min.


      Pipe length  =  4000.00(Ft.)   Elevation difference =  80.00(Ft.)
      Manning's N = 0.015   No. of pipes = 1
      Pipe evaluation using maximum flow rate of hydrograph
      Required pipe flow  =   198.759(CFS)
      Given pipe size =     72.00(In.)
      Calculated individual pipe flow  =   198.759(CFS)
```

```
Normal flow depth in pipe =   30.89(In.)
Flow top width inside pipe =   71.27(In.)
Critical Depth =    3.85(Ft.)
Pipe flow velocity =     17.13(Ft/s)
Travel time through pipe =    3.89 min.


********************** SCS CONVEX CHANNEL ROUTING **********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9097   Travel time =    3.89 (min.)
        dt*(unit time interval) =  15.00(min.),   e=   3.1584
        dt(routing time-step) =   3.54 (min.),    c* =   0.9995

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T   O F   S T O R M
                  R u n o f f       H y d r o g r a p h
------------------------------------------------------------------------------
                Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0       49.7      99.4      149.1      198.8
------------------------------------------------------------------------------
  0+15        4.2689      5.59  OI       |         |         |          |
  0+30       16.7100     20.15  |  OI     |         |         |          |
  0+45       30.9028     34.23  |     O   |         |         |          |
  1+ 0       40.5324     42.48  |       O |         |         |          |
  1+15       48.8167     50.78  |        OI         |         |          |
  1+30       59.3811     62.05  |         |OI       |         |          |
  1+45       72.7932     76.12  |         |  OI     |         |          |
  2+ 0       87.9922     91.67  |         |     OI  |         |          |
  2+15      106.3176    110.85  |         |         |OI       |          |
  2+30      134.7327    142.13  |         |         |     OI  |          |
  2+45      172.5554    181.98  |         |         |         |   O I    |
  3+ 0      194.7883    198.76  |         |         |         |        OI|
  3+15      180.3238    174.62  |         |         |         |    IO    |
  3+30      142.0509    131.97  |         |         |    I O  |          |
  3+45      103.0014     94.03  |         |       I O         |          |
  4+ 0       72.1033     65.31  |         |   IO    |         |          |
  4+15       50.0438     45.31  |       IO|         |         |          |
  4+30       34.7203     31.44  |     O   |         |         |          |
  4+45       20.6717     17.34  |   IO    |         |         |          |
  5+ 0       11.0695      9.13  | IO      |         |         |          |
  5+15        5.8278      4.81  IO        |         |         |          |
  5+30        3.0681      2.53  O         |         |         |          |
  5+45        1.6153      1.33  O         |         |         |          |
  6+ 0        0.8504      0.70  O         |         |         |          |
  6+15        0.4477      0.37  O         |         |         |          |
  6+30        0.2357      0.19  O         |         |         |          |
  6+45        0.1241      0.10  O         |         |         |          |
  7+ 0        0.0653      0.05  O         |         |         |          |
  7+15        0.0344      0.03  O         |         |         |          |
  7+30        0.0181      0.01  O         |         |         |          |
  7+45        0.0095      0.01  O         |         |         |          |
  8+ 0        0.0050      0.00  O         |         |         |          |
  8+15        0.0026      0.00  O         |         |         |          |
  8+30        0.0014      0.00  O         |         |         |          |
  8+45        0.0010      0.00  O         |         |         |          |
  9+ 0        0.0000      0.00  O         |         |         |          |
------------------------------------------------------------------------------
        ***************************HYDROGRAPH DATA***************************
                Number of intervals =    36
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      194.788 (CFS)
                Total volume =      32.977 (Ac.Ft)
          Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
```



```
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*******************************************************************************

------------------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        3.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****
------------------------------------------------------------------------------
********************* HYDROGRAPH INFORMATION **********************

                From study/file name: SUBB23100.rte
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T   O F   S T O R M
                  R u n o f f       H y d r o g r a p h
------------------------------------------------------------------------------
                Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0       104.3     208.6     312.9     417.2
------------------------------------------------------------------------------
  0+15       25.8585     30.13  | Q       |         |         |          |
  0+30       52.4573     69.17  |   qQ    |         |         |          |
  0+45       64.2549     95.16  |    q  Q |         |         |          |
  1+ 0       65.2527    105.79  |    q  Q |         |         |          |
  1+15       79.5400    128.36  |     q | Q       |         |          |
  1+30       95.4358    154.82  |       q|  Q     |         |          |
  1+45      110.9127    183.71  |        q    Q   |         |          |
  2+ 0       123.2972    211.29  |         q       Q         |          |
  2+15       157.2448    263.56  |           q     |   Q     |          |
  2+30       224.1867    358.92  |           |     q|      Q |          |
  2+45       244.6308    417.19  |           |      |  q      |        Q |
  3+ 0       134.8548    329.64  |           |  q   |         |  Q       |
  3+15        34.2108    214.53  |  q        |      Q         |          |
  3+30         3.2278    145.28  q           |   Q    |       |          |
  3+45         0.0000    103.00  q         Q |        |       |          |
  4+ 0         0.0000     72.10  q       Q   |        |       |          |
  4+15         0.0000     50.04  q    Q      |        |       |          |
  4+30         0.0000     34.72  q  Q        |        |       |          |
  4+45         0.0000     20.67  qQ          |        |       |          |
  5+ 0         0.0000     11.07  qQ          |        |       |          |
  5+15         0.0000      5.83  Q           |        |       |          |
  5+30         0.0000      3.07  Q           |        |       |          |
  5+45         0.0000      1.62  Q           |        |       |          |
  6+ 0         0.0000      0.85  Q           |        |       |          |
  6+15         0.0000      0.45  Q           |        |       |          |
  6+30         0.0000      0.24  Q           |        |       |          |
  6+45         0.0000      0.12  Q           |        |       |          |
  7+ 0         0.0000      0.07  Q           |        |       |          |
  7+15         0.0000      0.03  Q           |        |       |          |
  7+30         0.0000      0.02  Q           |        |       |          |
  7+45         0.0000      0.01  Q           |        |       |          |
  8+ 0         0.0000      0.01  Q           |        |       |          |
  8+15         0.0000      0.00  Q           |        |       |          |
  8+30         0.0000      0.00  Q           |        |       |          |
  8+45         0.0000      0.00  Q           |        |       |          |
  9+ 0         0.0000      0.00  Q           |        |       |          |
------------------------------------------------------------------------------
        ***************************HYDROGRAPH DATA***************************
                Number of intervals =    36
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      417.186 (CFS)
                Total volume =      62.220 (Ac.Ft)
          Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*******************************************************************************

------------------------------------------------------------------------------
```

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        0.000
**** RETARDING BASIN ROUTING ****
______________________________________________________________________________

User entry of depth-outflow-storage data
------------------------------------------------------------------------------
Total number of inflow hydrograph intervals = 36
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin =    0.00(Ft.)
------------------------------------------------------------------------------
------------------------------------------------------------------------------
Initial basin depth =    0.00 (Ft.)
Initial basin storage =       0.00 (Ac.Ft)
Initial basin outflow =    0.00 (CFS)
------------------------------------------------------------------------------
------------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth   Storage     Outflow    (S-O*dt/2)    (S+O*dt/2)
      (Ft.)    (Ac.Ft)     (CFS)      (Ac.Ft)      (Ac.Ft)
------------------------------------------------------------------------------
   0.000       0.000       0.000       0.000        0.000
   1.000       0.001       0.001       0.001        0.001
   2.000       0.002       0.001       0.002        0.002
   3.000      10.000     500.000       4.835       15.165
   4.000      30.000     700.000      22.769       37.231
   6.000      41.000     900.000      31.702       50.298
------------------------------------------------------------------------------
                  Hydrograph Detention Basin Routing
------------------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
------------------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                        Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0     104.3  208.59  312.89  417.19 (Ft.)
 0.250   30.13   10.20      0.206  0 I      |       |       |       |     2.02
 0.500   69.17   37.07      0.743  | 0  I   |       |       |       |     2.07
 0.750   95.16   67.79      1.358  |    0 I |       |       |       |     2.14
 1.000  105.79   90.06      1.803  |      0 I       |       |       |     2.18
 1.250  128.36  108.46      2.171  |        0I      |       |       |     2.22
 1.500  154.82  131.03      2.622  |         | 0I   |       |       |     2.26
 1.750  183.71  157.08      3.143  |         |   0 I |       |       |     2.31
 2.000  211.29  184.61      3.694  |         |     0 I       |       |     2.37
 2.250  263.56  220.59      4.413  |         |       0   I   |       |     2.44
 2.500  358.92  282.35      5.648  |         |         |   0     I     |     2.56
 2.750  417.19  354.36      7.088  |         |         |         0     I   2.71
 3.000  329.64  367.34      7.347  |         |         |       I 0     |     2.73
 3.250  214.53  302.45      6.050  |         |       I       0       |     2.60
 3.500  145.28  218.96      4.380  |         |   I   0       |       |     2.44
 3.750  103.00  154.36      3.089  |       I |  0    |       |       |     2.31
 4.000   72.10  108.85      2.178  |     I  0       |       |       |     2.22
 4.250   50.04   76.30      1.528  |   I 0  |       |       |       |     2.15
 4.500   34.72   53.19      1.066  |  I 0   |       |       |       |     2.11
 4.750   20.67   35.82      0.718  |I0      |       |       |       |     2.07
 5.000   11.07   22.23      0.446  I0     |       |       |       |     2.04
 5.250    5.83   12.84      0.259  0      |       |       |       |     2.03
 5.500    3.07    7.12      0.144  0      |       |       |       |     2.01
 5.750    1.62    3.87      0.079  0      |       |       |       |     2.01
 6.000    0.85    2.07      0.043  0      |       |       |       |     2.00
 6.250    0.45    1.10      0.024  0      |       |       |       |     2.00
 6.500    0.24    0.58      0.014  0      |       |       |       |     2.00
 6.750    0.12    0.31      0.008  0      |       |       |       |     2.00
 7.000    0.07    0.16      0.005  0      |       |       |       |     2.00
 7.250    0.03    0.09      0.004  0      |       |       |       |     2.00
 7.500    0.02    0.05      0.003  0      |       |       |       |     2.00
 7.750    0.01    0.02      0.002  0      |       |       |       |     2.00
 8.000    0.01    0.01      0.002  0      |       |       |       |     2.00
 8.250    0.00    0.01      0.002  0      |       |       |       |     2.00
 8.500    0.00    0.00      0.002  0      |       |       |       |     2.00
 8.750    0.00    0.00      0.002  0      |       |       |       |     2.00
```



```
 9.000    0.00    0.00      0.002  0      |       |       |       |     2.00
 9.250    0.00    0.00      0.002  0      |       |       |       |     1.98

Remaining water in basin =    0.00 (Ac.Ft)

****************************HYDROGRAPH DATA****************************
              Number of intervals =    37
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =      367.343 (CFS)
              Total volume =      62.218 (Ac.Ft)
       Status of hydrographs being held in storage
                  Stream 1   Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
***********************************************************************

------------------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** STREAM ROUTING SCS CONVEX METHOD ****
______________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   2000.00 (Ft.)
Elevation difference =   40.00 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  2000.00(Ft.)   Elevation difference =  40.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =   180.883(CFS)
Given pipe size =     96.00(In.)
Calculated individual pipe flow  =   180.883(CFS)
Normal flow depth in pipe =   26.11(In.)
Flow top width inside pipe =   85.44(In.)
Critical Depth =    3.36(Ft.)
Pipe flow velocity =     16.35(Ft/s)
Travel time through pipe =    2.04 min.


Pipe length  =  2000.00(Ft.)   Elevation difference =  40.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =   367.343(CFS)
Given pipe size =     96.00(In.)
Calculated individual pipe flow  =   367.343(CFS)
Normal flow depth in pipe =   37.88(In.)
Flow top width inside pipe =   93.84(In.)
Critical Depth =    4.87(Ft.)
Pipe flow velocity =     19.93(Ft/s)
Travel time through pipe =    1.67 min.


********************** SCS CONVEX CHANNEL ROUTING ********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
         where c* = 1 - (1-c)^e and dt = c(length)/velocity
         c(v/v+1.7) =   0.9214   Travel time =   1.67 (min.)
       dt*(unit time interval) =  15.00(min.),   e=   6.8217
       dt(routing time-step) =   1.54 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


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                P R I N T  O F  S T O R M
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R u n o f f  H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 91.8 | 183.7 | 275.5 | 367.3 |
|---|---|---|---|---|---|---|---|
| 0+15 | 9.1497 | 10.20 | OI | | | | |
| 0+30 | 34.3126 | 37.07 | I | OI | | | |
| 0+45 | 64.6360 | 67.79 | | O | I | | |
| 1+ 0 | 87.7686 | 90.06 | | O | | | |
| 1+15 | 106.5699 | 108.46 | | O | | | |
| 1+30 | 128.7103 | 131.03 | | O | I | | |
| 1+45 | 154.4000 | 157.08 | | | OI | | |
| 2+ 0 | 181.7854 | 184.61 | | | OI | | |
| 2+15 | 216.8976 | 220.59 | | | I | OI | |
| 2+30 | 276.0054 | 282.35 | | | | O | |
| 2+45 | 346.9650 | 354.36 | | | | | OI |
| 3+ 0 | 366.0096 | 367.34 | | | | | OI |
| 3+15 | 309.1155 | 302.45 | | | | IO | |
| 3+30 | 227.5399 | 218.96 | | | | IO | |
| 3+45 | 160.9986 | 154.36 | | | IO | | |
| 4+ 0 | 113.5217 | 108.85 | | IO | | | |
| 4+15 | 79.6430 | 76.30 | | O | | | |
| 4+30 | 55.5660 | 53.19 | | IO | | | |
| 4+45 | 37.6066 | 35.82 | | IO | | | |
| 5+ 0 | 23.6259 | 22.23 | O | | | | |
| 5+15 | 13.8054 | 12.84 | O | | | | |
| 5+30 | 7.7103 | 7.12 | O | | | | |
| 5+45 | 4.2002 | 3.87 | O | | | | |
| 6+ 0 | 2.2562 | 2.07 | O | | | | |
| 6+15 | 1.2021 | 1.10 | O | | | | |
| 6+30 | 0.6374 | 0.58 | O | | | | |
| 6+45 | 0.3370 | 0.31 | O | | | | |
| 7+ 0 | 0.1779 | 0.16 | O | | | | |
| 7+15 | 0.0938 | 0.09 | O | | | | |
| 7+30 | 0.0494 | 0.05 | O | | | | |
| 7+45 | 0.0260 | 0.02 | O | | | | |
| 8+ 0 | 0.0137 | 0.01 | O | | | | |
| 8+15 | 0.0072 | 0.01 | O | | | | |
| 8+30 | 0.0038 | 0.00 | O | | | | |
| 8+45 | 0.0021 | 0.00 | O | | | | |
| 9+ 0 | 0.0011 | 0.00 | O | | | | |
| 9+15 | 0.0010 | 0.00 | O | | | | |
| 9+30 | 0.0000 | 0.00 | O | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 38
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 366.010 (CFS)
Total volume = 62.218 (Ac.Ft)
Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 3.000 to Point/Station 4.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: Subb33100.rte

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)



| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 274.8 | 549.7 | 824.5 | 1099.4 |
|---|---|---|---|---|---|---|---|
| 0+15 | 43.3218 | 52.47 | Q | | | | |
| 0+30 | 130.7311 | 165.04 | q | Q | | | |
| 0+45 | 180.1163 | 244.75 | | q | Q | | |
| 1+ 0 | 199.2586 | 287.03 | | q | Q | | |
| 1+15 | 228.9933 | 335.56 | | q | Q | | |
| 1+30 | 285.5268 | 414.24 | | | q Q | | |
| 1+45 | 330.7671 | 485.17 | | | q Q | | |
| 2+ 0 | 375.7189 | 557.50 | | | q Q | | |
| 2+15 | 450.8078 | 667.71 | | | q Q | | |
| 2+30 | 620.5202 | 896.53 | | | q Q | | |
| 2+45 | 752.4085 | 1099.37 | | | q | Q | |
| 3+ 0 | 581.8260 | 947.84 | | | q | Q | |
| 3+15 | 250.4983 | 559.61 | | | q Q | | |
| 3+30 | 100.9833 | 328.52 | | q | Q | | |
| 3+45 | 50.8298 | 211.83 | q | Q | | | |
| 4+ 0 | 22.0248 | 135.55 | q | Q | | | |
| 4+15 | 3.7630 | 83.41 | q | Q | | | |
| 4+30 | 0.0000 | 55.57 | q | Q | | | |
| 4+45 | 0.0000 | 37.61 | qQ | | | | |
| 5+ 0 | 0.0000 | 23.63 | Q | | | | |
| 5+15 | 0.0000 | 13.81 | Q | | | | |
| 5+30 | 0.0000 | 7.71 | Q | | | | |
| 5+45 | 0.0000 | 4.20 | Q | | | | |
| 6+ 0 | 0.0000 | 2.26 | Q | | | | |
| 6+15 | 0.0000 | 1.20 | Q | | | | |
| 6+30 | 0.0000 | 0.64 | Q | | | | |
| 6+45 | 0.0000 | 0.34 | Q | | | | |
| 7+ 0 | 0.0000 | 0.18 | Q | | | | |
| 7+15 | 0.0000 | 0.09 | Q | | | | |
| 7+30 | 0.0000 | 0.05 | Q | | | | |
| 7+45 | 0.0000 | 0.03 | Q | | | | |
| 8+ 0 | 0.0000 | 0.01 | Q | | | | |
| 8+15 | 0.0000 | 0.01 | Q | | | | |
| 8+30 | 0.0000 | 0.00 | Q | | | | |
| 8+45 | 0.0000 | 0.00 | Q | | | | |
| 9+ 0 | 0.0000 | 0.00 | Q | | | | |
| 9+15 | 0.0000 | 0.00 | Q | | | | |
| 9+30 | 0.0000 | 0.00 | Q | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 38
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1099.374 (CFS)
Total volume = 157.427 (Ac.Ft)
Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 4.000 to Point/Station 4.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 38
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

---

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Depth vs. Storage and Depth vs. Discharge data:

| Basin Depth (Ft.) | Storage (Ac.Ft) | Outflow (CFS) | (S-O*dt/2) (Ac.Ft) | (S+O*dt/2) (Ac.Ft) |
|---|---|---|---|---|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1.000 | 10.000 | 800.000 | 1.736 | 18.264 |
| 2.000 | 25.000 | 1130.000 | 13.326 | 36.674 |
| 3.000 | 45.000 | 1600.000 | 28.471 | 61.529 |

---

Hydrograph Detention Basin Routing

---

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

---

| Time (Hours) | Inflow (CFS) | Outflow (CFS) | Storage (Ac.Ft) | .0 274.8 549.69 824.53 1099.37 | Depth (Ft.) |
|---|---|---|---|---|---|
| 0.250 | 52.47 | 23.74 | 0.297 | OI | 0.03 |
| 0.500 | 165.04 | 100.68 | 1.258 | O I | 0.13 |
| 0.750 | 244.75 | 194.99 | 2.437 | O I | 0.24 |
| 1.000 | 287.03 | 259.15 | 3.239 | OI | 0.32 |
| 1.250 | 335.56 | 306.34 | 3.829 | OI | 0.38 |
| 1.500 | 414.24 | 368.39 | 4.605 | O I | 0.46 |
| 1.750 | 485.17 | 441.98 | 5.525 | O I | 0.55 |
| 2.000 | 557.50 | 513.79 | 6.422 | O I | 0.64 |
| 2.250 | 667.71 | 603.22 | 7.540 | O I | 0.75 |
| 2.500 | 896.53 | 765.12 | 9.564 | O I | 0.96 |
| 2.750 | 1099.37 | 871.96 | 13.271 | O I | 1.22 |
| 3.000 | 947.84 | 928.12 | 15.824 | O | 1.39 |
| 3.250 | 559.61 | 863.53 | 12.888 | I O | 1.19 |
| 3.500 | 328.52 | 575.63 | 7.195 | I O | 0.72 |
| 3.750 | 211.83 | 299.20 | 3.740 | I O | 0.37 |
| 4.000 | 135.55 | 185.61 | 2.320 | I O | 0.23 |
| 4.250 | 83.41 | 116.71 | 1.459 | IO | 0.15 |
| 4.500 | 55.57 | 73.97 | 0.925 | IO | 0.09 |
| 4.750 | 37.61 | 49.19 | 0.615 | O | 0.06 |
| 5.000 | 23.63 | 32.38 | 0.405 | O | 0.04 |
| 5.250 | 13.81 | 20.01 | 0.250 | O | 0.03 |
| 5.500 | 7.71 | 11.64 | 0.145 | O | 0.01 |
| 5.750 | 4.20 | 6.50 | 0.081 | O | 0.01 |
| 6.000 | 2.26 | 3.54 | 0.044 | O | 0.00 |
| 6.250 | 1.20 | 1.90 | 0.024 | O | 0.00 |
| 6.500 | 0.64 | 1.01 | 0.013 | O | 0.00 |
| 6.750 | 0.34 | 0.54 | 0.007 | O | 0.00 |
| 7.000 | 0.18 | 0.28 | 0.004 | O | 0.00 |
| 7.250 | 0.09 | 0.15 | 0.002 | O | 0.00 |
| 7.500 | 0.05 | 0.08 | 0.001 | O | 0.00 |
| 7.750 | 0.03 | 0.04 | 0.001 | O | 0.00 |
| 8.000 | 0.01 | 0.02 | 0.000 | O | 0.00 |
| 8.250 | 0.01 | 0.01 | 0.000 | O | 0.00 |
| 8.500 | 0.00 | 0.01 | 0.000 | O | 0.00 |
| 8.750 | 0.00 | 0.00 | 0.000 | O | 0.00 |
| 9.000 | 0.00 | 0.00 | 0.000 | O | 0.00 |
| 9.250 | 0.00 | 0.00 | 0.000 | O | 0.00 |
| 9.500 | 0.00 | 0.00 | 0.000 | O | 0.00 |
| 9.750 | 0.00 | 0.00 | 0.000 | O | 0.00 |

**********HYDROGRAPH DATA**********

Number of intervals = 39
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 928.123 (CFS)
Total volume = 157.427 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

Process from Point/Station 4.000 to Point/Station 4.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****

---

Current stream hydrograph saved in file LineB3hr.rte

**********HYDROGRAPH DATA**********

Number of intervals = 0
Time interval = 0.0 (Min.)
Maximum/Peak flow rate = 0.000 (CFS)
Total volume = 0.000 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

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```
        U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed B, Offsite B1
Proposed Condition
100-year, 3-hour

--------------------------------------------------------------------
Drainage Area =      92.10(Ac.)  =      0.144 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      92.10(Ac.)  =      0.144 Sq. Mi.
Length along longest watercourse =     3800.00(Ft.)
Length along longest watercourse measured to centroid =     1780.00(Ft.)
Length along longest watercourse =      0.720 Mi.
Length along longest watercourse measured to centroid =      0.337 Mi.
Difference in elevation =      226.00(Ft.)
Slope along watercourse =     314.0211 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =     0.141 Hr.
Lag time =      8.46 Min.
25% of lag time =      2.11 Min.
40% of lag time =      3.38 Min.
Unit time =     15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
       92.10                 0.85                78.28

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
       92.10                 1.90               174.99

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     0.850(In)
Area Averaged 100-Year Rainfall =     1.900(In)

Point rain (area averaged) =     1.900(In)
Areal adjustment factor =    99.96 %
Adjusted average point rain =     1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
    19.000            46.00          0.000
    28.000            66.00          0.000
     3.500            77.00          0.000
```



```
    41.600            83.00          0.000
 Total Area Entered =      92.10(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)     (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
46.0  46.0       0.611       0.000        0.611        0.206      0.126
66.0  66.0       0.405       0.000        0.405        0.304      0.123
77.0  77.0       0.279       0.000        0.279        0.038      0.011
83.0  83.0       0.210       0.000        0.210        0.452      0.095
                                                    Sum (F) =    0.355
Area averaged mean soil loss (F) (In/Hr) =  0.355
Minimum soil loss rate ((In/Hr)) =  0.177
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.900
--------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                      FOOTHILL S-Curve
--------------------------------------------------------------------
                   Unit Hydrograph Data
--------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
    (hrs)                           Graph %           (CFS)
--------------------------------------------------------------------
     1   0.250         177.319          37.414            34.727
     2   0.500         354.637          52.090            48.350
     3   0.750         531.956           8.760             8.131
     4   1.000         709.274           1.737             1.612
                                 Sum = 100.000    Sum=      92.820
--------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)  Percent   (In/Hr)        Max    |   Low          (In/Hr)
  1   0.25     3.70      0.281       (  0.355)      0.253        0.028
  2   0.50     4.80      0.365       (  0.355)      0.328        0.036
  3   0.75     5.10      0.387       (  0.355)      0.349        0.039
  4   1.00     4.90      0.372       (  0.355)      0.335        0.037
  5   1.25     6.60      0.501          0.355    (  0.451)      0.147
  6   1.50     7.30      0.555          0.355    (  0.499)      0.200
  7   1.75     8.40      0.638          0.355    (  0.574)      0.283
  8   2.00     9.00      0.684          0.355    (  0.615)      0.329
  9   2.25    12.30      0.934          0.355    (  0.841)      0.580
 10   2.50    17.60      1.337          0.355    (  1.203)      0.982
 11   2.75    16.10      1.223          0.355    (  1.101)      0.868
 12   3.00     4.20      0.319       (  0.355)      0.287        0.032
            (Loss Rate Not Used)
    Sum =    100.0                                  Sum =      3.6
    Flood volume = Effective rainfall     0.89(In)
     times area      92.1(Ac.)/[(In)/(Ft.)] =      6.8(Ac.Ft)
    Total soil loss =      1.01(In)
    Total soil loss =     7.742(Ac.Ft)
    Total rainfall =      1.90(In)
    Flood volume =      297737.9 Cubic Feet
    Total soil loss =      337219.8 Cubic Feet
    --------------------------------------------------------------------
     Peak flow rate of this hydrograph =     82.945(CFS)
    --------------------------------------------------------------------
    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    3 - H O U R     S T O R M
                  R u n o f f     H y d r o g r a p h
    --------------------------------------------------------------------
              Hydrograph in  15   Minute intervals ((CFS))
    --------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       22.5      45.0      67.5      90.0
--------------------------------------------------------------------------
  0+15       0.0202       0.98  Q        |         |         |         |
```

```
 0+30      0.0744      2.63  VQ        |         |         |         |
 0+45      0.1434      3.34  VQ        |         |         |         |
 1+ 0      0.2159      3.51   Q        |         |         |         |
 1+15      0.3662      7.27  | VQ       |         |         |         |
 1+30      0.6639     14.41  |  V  Q    |         |         |         |
 1+45      1.0932     20.77  |     V  Q |         |         |         |
 2+ 0      1.6512     27.01  |        V | Q       |         |         |
 2+15      2.4506     38.69  |          |    V  Q |         |         |
 2+30      3.8001     65.31  |          |         | V       Q         |
 2+45      5.5138     82.94  |          |         |         |  V   Q  |
 3+ 0      6.5892     52.05  |          |         |  Q      |       V |
 3+15      6.7998     10.19  |   Q      |         |         |         V|
 3+30      6.8341      1.66  Q          |         |         |         V|
 3+45      6.8351      0.05  Q          |         |         |         V|
--------------------------------------------------------------------
```



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                U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  07/26/13 File: SUBB13100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Watershed B, Onsite B1
Proposed Condition
100-year, 3-hour

------------------------------------------------------------------------
Drainage Area =     182.80(Ac.)  =      0.286 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     182.80(Ac.)  =      0.286 Sq. Mi.
Length along longest watercourse =    3500.00(Ft.)
Length along longest watercourse measured to centroid =    1750.00(Ft.)
Length along longest watercourse =      0.663 Mi.
Length along longest watercourse measured to centroid =      0.331 Mi.
Difference in elevation =      70.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.084 Hr.
Lag time =     5.01 Min.
25% of lag time =     1.25 Min.
40% of lag time =     2.00 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      182.80             0.85                155.38

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      182.80             1.90                347.32

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.92 %
Adjusted average point rain =    1.898(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
   182.800            85.00          0.750
 Total Area Entered =    182.80(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

---

U n i t H y d r o g r a p h
VALLEY S-Curve

---

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 299.389 | 56.617 | 104.305 |
| 2 | 0.500 | 598.777 | 37.162 | 68.463 |
| 3 | 0.750 | 898.166 | 6.221 | 11.461 |
| | | | Sum = 100.000 | Sum= 184.228 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.061 | ( 0.084) 0.220 |
| 2 | 0.50 | 4.80 | 0.365 | 0.061 | ( 0.109) 0.304 |
| 3 | 0.75 | 5.10 | 0.387 | 0.061 | ( 0.116) 0.327 |
| 4 | 1.00 | 4.90 | 0.372 | 0.061 | ( 0.112) 0.311 |
| 5 | 1.25 | 6.60 | 0.501 | 0.061 | ( 0.150) 0.440 |
| 6 | 1.50 | 7.30 | 0.554 | 0.061 | ( 0.166) 0.494 |
| 7 | 1.75 | 8.40 | 0.638 | 0.061 | ( 0.191) 0.577 |
| 8 | 2.00 | 9.00 | 0.683 | 0.061 | ( 0.205) 0.623 |
| 9 | 2.25 | 12.30 | 0.934 | 0.061 | ( 0.280) 0.873 |
| 10 | 2.50 | 17.60 | 1.337 | 0.061 | ( 0.401) 1.276 |
| 11 | 2.75 | 16.10 | 1.223 | 0.061 | ( 0.367) 1.162 |
| 12 | 3.00 | 4.20 | 0.319 | 0.061 | ( 0.096) 0.258 |
| | | (Loss Rate Not Used) | | | |
| Sum = | | 100.0 | | | Sum = 6.9 |

Flood volume = Effective rainfall 1.72(In)
times area 182.8(Ac.)/[(In)/(Ft.)] = 26.1(Ac.Ft)
Total soil loss = 0.18(In)
Total soil loss = 2.777(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 1138779.0 Cubic Feet
Total soil loss = 120984.3 Cubic Feet

---

Peak flow rate of this hydrograph = 218.649(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

---

Hydrograph in 15 Minute intervals ((CFS))

---

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 75.0 | 150.0 | 225.0 | 300.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.4748 | 22.98 | V Q | | | | |
| 0+30 | 1.4413 | 46.78 | V Q | | | | |
| 0+45 | 2.6274 | 57.40 | V Q | | | | |
| 1+ 0 | 3.8327 | 58.34 | V Q | | | | |
| 1+15 | 5.3003 | 71.03 | VQ | | | | |
| 1+30 | 7.0616 | 85.25 | VQ | | | | |
| 1+45 | 9.1089 | 99.09 | Q | | | | |
| 2+ 0 | 11.3851 | 110.17 | Q V | | | | |
| 2+15 | 14.2861 | 140.40 | Q V | | | | |
| 2+30 | 18.4202 | 200.09 | Q V | | | | |
| 2+45 | 22.9378 | 218.65 | Q V | | | | |
| 3+ 0 | 25.4410 | 121.16 | Q | V | | | |
| 3+15 | 26.0816 | 31.01 | Q | V | | | |
| 3+30 | 26.1428 | 2.96 | Q | V | | | |

```
                U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  09/10/13 File: SubB23100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed B, Onsite B2
Proposed Condition
100-year, 3-hour

--------------------------------------------------------------------
Drainage Area =     204.50(Ac.)  =      0.320 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     204.50(Ac.)  =      0.320 Sq. Mi.
Length along longest watercourse =     3500.00(Ft.)
Length along longest watercourse measured to centroid =     1700.00(Ft.)
Length along longest watercourse =       0.663 Mi.
Length along longest watercourse measured to centroid =       0.322 Mi.
Difference in elevation =       70.00(Ft.)
Slope along watercourse =     105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.083 Hr.
Lag time =      4.96 Min.
25% of lag time =      1.24 Min.
40% of lag time =      1.98 Min.
Unit time =     15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      204.50             0.85                  173.82

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      204.50             1.90                  388.55

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     0.850(In)
Area Averaged 100-Year Rainfall =     1.900(In)

Point rain (area averaged) =     1.900(In)
Areal adjustment factor =    99.91 %
Adjusted average point rain =     1.898(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   204.500             85.00          0.750
 Total Area Entered =     204.50(Ac.)
```



```
 RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
 AMC2 AMC-2      (In/Hr)     (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
 85.0  85.0       0.187      0.750         0.061        1.000       0.061
                                                     Sum (F) =    0.061
 Area averaged mean soil loss (F) (In/Hr) =  0.061
 Minimum soil loss rate ((In/Hr)) =  0.030
 (for 24 hour storm duration)
 Soil low loss rate (decimal) =   0.300
 ------------------------------------------------------------------------

                  U n i t   H y d r o g r a p h
                        VALLEY S-Curve
 ------------------------------------------------------------------------
                  Unit Hydrograph Data
 ------------------------------------------------------------------------
 Unit time period   Time % of lag   Distribution    Unit Hydrograph
     (hrs)                          Graph %           (CFS)
 ------------------------------------------------------------------------
      1   0.250        302.705         56.956           117.385
      2   0.500        605.409         36.980            76.215
      3   0.750        908.114          6.064            12.498
                                Sum = 100.000    Sum=     206.098
 ------------------------------------------------------------------------

 The following loss rate calculations reflect use of the minimum calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective Rain value

  Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)  Percent    (In/Hr)       Max   |   Low          (In/Hr)
    1   0.25     3.70      0.281        0.061    (  0.084)        0.220
    2   0.50     4.80      0.364        0.061    (  0.109)        0.304
    3   0.75     5.10      0.387        0.061    (  0.116)        0.326
    4   1.00     4.90      0.372        0.061    (  0.112)        0.311
    5   1.25     6.60      0.501        0.061    (  0.150)        0.440
    6   1.50     7.30      0.554        0.061    (  0.166)        0.494
    7   1.75     8.40      0.638        0.061    (  0.191)        0.577
    8   2.00     9.00      0.683        0.061    (  0.205)        0.623
    9   2.25    12.30      0.934        0.061    (  0.280)        0.873
   10   2.50    17.60      1.336        0.061    (  0.401)        1.276
   11   2.75    16.10      1.223        0.061    (  0.367)        1.162
   12   3.00     4.20      0.319        0.061    (  0.096)        0.258
             (Loss Rate Not Used)
    Sum =     100.0                                 Sum =      6.9
     Flood volume = Effective rainfall      1.72(In)
      times area     204.5(Ac.)/[(In)/(Ft.)] =      29.2(Ac.Ft)
     Total soil loss =      0.18(In)
     Total soil loss =     3.107(Ac.Ft)
     Total rainfall =      1.90(In)
     Flood volume =     1273828.4 Cubic Feet
     Total soil loss =      135346.2 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =    244.631(CFS)
     ---------------------------------------------------------------------
     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                    R u n o f f     H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in  15  Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0       75.0      150.0     225.0     300.0
 ---------------------------------------------------------------------------
   0+15       0.5343      25.86  V  Q     |         |         |         |
   0+30       1.6181      52.46  | V   Q   |         |         |         |
   0+45       2.9457      64.25  |   V   Q |         |         |         |
   1+ 0       4.2939      65.25  |     V  Q|         |         |         |
   1+15       5.9373      79.54  |        V Q        |         |         |
   1+30       7.9091      95.44  |          V Q      |         |         |
   1+45      10.2007     110.91  |          |  VQ    |         |         |
   2+ 0      12.7481     123.30  |          |    QV  |         |         |
```

```
     2+15      15.9970     157.24  |          |          QV         |          |
     2+30      20.6289     224.19  |          |          |        VQ|          |
     2+45      25.6833     244.63  |          |          |          |  Q  V    |
     3+ 0      28.4696     134.85  |          |        Q |          |          |  V
     3+15      29.1764      34.21  |    Q     |          |          |          |  V
     3+30      29.2431       3.23  Q          |          |          |          |  V
----------------------------------------------------------------------
```



```
                U n i t   H y d r o g r a p h   A n a l y s i s

                Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
                      Study date  09/10/13 File: SubB33100.out

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
------------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Watershed B, Onsite B3
Proposed Condition
100-yr, 3-hr

------------------------------------------------------------------------
Drainage Area =     667.30(Ac.)  =      1.043 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     667.30(Ac.)  =      1.043 Sq. Mi.
Length along longest watercourse =   10000.00(Ft.)
Length along longest watercourse measured to centroid =    5000.00(Ft.)
Length along longest watercourse =      1.894 Mi.
Length along longest watercourse measured to centroid =      0.947 Mi.
Difference in elevation =     200.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.185 Hr.
Lag time =    11.13 Min.
25% of lag time =     2.78 Min.
40% of lag time =     4.45 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      667.30             0.85                567.20

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      667.30             1.90               1267.87

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.71 %
Adjusted average point rain =    1.894(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   667.300            85.00          0.750
 Total Area Entered =     667.30(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period | (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 134.811 | 29.318 | 197.170 |
| 2 | 0.500 | 269.623 | 48.027 | 322.985 |
| 3 | 0.750 | 404.434 | 12.157 | 81.759 |
| 4 | 1.000 | 539.246 | 5.392 | 36.261 |
| 5 | 1.250 | 674.057 | 2.934 | 19.731 |
| 6 | 1.500 | 808.869 | 2.172 | 14.607 |
| | | | Sum = 100.000 | Sum= 672.513 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.280 | 0.061 | ( 0.084) | 0.220 |
| 2 | 0.50 | 4.80 | 0.364 | 0.061 | ( 0.109) | 0.303 |
| 3 | 0.75 | 5.10 | 0.386 | 0.061 | ( 0.116) | 0.326 |
| 4 | 1.00 | 4.90 | 0.371 | 0.061 | ( 0.111) | 0.311 |
| 5 | 1.25 | 6.60 | 0.500 | 0.061 | ( 0.150) | 0.439 |
| 6 | 1.50 | 7.30 | 0.553 | 0.061 | ( 0.166) | 0.492 |
| 7 | 1.75 | 8.40 | 0.637 | 0.061 | ( 0.191) | 0.576 |
| 8 | 2.00 | 9.00 | 0.682 | 0.061 | ( 0.205) | 0.621 |
| 9 | 2.25 | 12.30 | 0.932 | 0.061 | ( 0.280) | 0.871 |
| 10 | 2.50 | 17.60 | 1.334 | 0.061 | ( 0.400) | 1.273 |
| 11 | 2.75 | 16.10 | 1.220 | 0.061 | ( 0.366) | 1.159 |
| 12 | 3.00 | 4.20 | 0.318 | 0.061 | ( 0.095) | 0.257 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 6.8 |

Flood volume = Effective rainfall 1.71(In)
times area 667.3(Ac.)/[(In)/(Ft.)] = 95.2(Ac.Ft)
Total soil loss = 0.18(In)
Total soil loss = 10.139(Ac.Ft)
Total rainfall = 1.89(In)
Flood volume = 4147286.1 Cubic Feet
Total soil loss = 441645.7 Cubic Feet

Peak flow rate of this hydrograph = 752.409(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 200.0 | 400.0 | 600.0 | 800.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.8951 | 43.32 | V Q | | | | |
| 0+30 | 3.5961 | 130.73 | V Q | | | | |
| 0+45 | 7.3175 | 180.12 | V Q | | | | |
| 1+ 0 | 11.4345 | 199.26 | V Q | | | | |
| 1+15 | 16.1657 | 228.99 | V Q | | | | |
| 1+30 | 22.0650 | 285.53 | V Q | | | | |
| 1+45 | 28.8991 | 330.77 | V Q | | | | |
| 2+ 0 | 36.6619 | 375.72 | V Q | | | | |
| 2+15 | 45.9761 | 450.81 | V Q | | | | |
| 2+30 | 58.7967 | 620.52 | V Q | | | | |
| 2+45 | 74.3424 | 752.41 | V Q | | | | |
| 3+ 0 | 86.3636 | 581.83 | V Q | | | | |
| 3+15 | 91.5391 | 250.50 | V Q | | | | |
| 3+30 | 93.6256 | 100.98 | Q V | | | | |
| 3+45 | 94.6758 | 50.83 | Q V | | | | |
| 4+ 0 | 95.1308 | 22.02 | Q V | | | | |
| 4+15 | 95.2086 | 3.76 | Q V | | | | |

```
                FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                    Study date: 09/18/13

------------------------------------------------------------------------


Line B
Proposed Condition
100-yr, 24-hr

------------------------------------------------------------------------


Program License Serial Number 6097

------------------------------------------------------------------------
********************* HYDROGRAPH INFORMATION **********************

            From study/file name: OffsiteB124100.rte
**************************HYDROGRAPH DATA*****************************
            Number of intervals =    99
            Time interval =   15.0 (Min.)
            Maximum/Peak flow rate =       27.237 (CFS)
            Total volume =       7.185 (Ac.Ft)
      Status of hydrographs being held in storage
               Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)       0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** STREAM ROUTING SCS CONVEX METHOD ****
________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   3500.00 (Ft.)
Elevation difference =   70.00 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  3500.00(Ft.)   Elevation difference =  70.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =     4.827(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =     4.827(CFS)
Normal flow depth in pipe =    4.91(In.)
Flow top width inside pipe =   36.30(In.)
Critical depth could not be calculated.
Pipe flow velocity =      5.77(Ft/s)
Travel time through pipe =   10.12 min.


Pipe length  =  3500.00(Ft.)   Elevation difference =  70.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =    27.237(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =    27.237(CFS)
Normal flow depth in pipe =   11.20(In.)
Flow top width inside pipe =   52.20(In.)
Critical Depth =    1.37(Ft.)
Pipe flow velocity =      9.70(Ft/s)
Travel time through pipe =    6.01 min.
```



```
********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.8509   Travel time =   6.01 (min.)
        dt*(unit time interval) =  15.00(min.),  e=   2.2882
        dt(routing time-step) =   5.12 (min.),   c* =   0.9872

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------
            Hydrograph in  15  Minute intervals (CFS)
------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0        6.8       13.6       20.4       27.2
------------------------------------------------------------------------
  0+15       0.0814      0.13  0        |          |          |          |
  0+30       0.2784      0.36  0        |          |          |          |
  0+45       0.4363      0.48  0        |          |          |          |
  1+ 0       0.5315      0.56  0        |          |          |          |
  1+15       0.5785      0.59  0        |          |          |          |
  1+30       0.5412      0.52  0        |          |          |          |
  1+45       0.5087      0.50  0        |          |          |          |
  2+ 0       0.5431      0.56  0        |          |          |          |
  2+15       0.6203      0.65  0        |          |          |          |
  2+30       0.6601      0.67  0        |          |          |          |
  2+45       0.7081      0.73  |0       |          |          |          |
  3+ 0       0.7874      0.82  |0       |          |          |          |
  3+15       0.8272      0.83  |0       |          |          |          |
  3+30       0.8346      0.84  |0       |          |          |          |
  3+45       0.8356      0.84  |0       |          |          |          |
  4+ 0       0.8763      0.90  |0       |          |          |          |
  4+15       0.9545      0.99  |0       |          |          |          |
  4+30       1.0351      1.06  |0       |          |          |          |
  4+45       1.1206      1.15  |0       |          |          |          |
  5+ 0       1.2022      1.23  |0       |          |          |          |
  5+15       1.2064      1.19  |0       |          |          |          |
  5+30       1.1315      1.10  |0       |          |          |          |
  5+45       1.1781      1.22  |0       |          |          |          |
  6+ 0       1.2825      1.32  |0       |          |          |          |
  6+15       1.3683      1.40   0       |          |          |          |
  6+30       1.4548      1.49   0       |          |          |          |
  6+45       1.5364      1.56   0       |          |          |          |
  7+ 0       1.6220      1.65   0       |          |          |          |
  7+15       1.6629      1.67   0       |          |          |          |
  7+30       1.7109      1.73   0       |          |          |          |
  7+45       1.8309      1.88   0       |          |          |          |
  8+ 0       1.9896      2.05   0I      |          |          |          |
  8+15       2.1963      2.28    0      |          |          |          |
  8+30       2.4010      2.47    0      |          |          |          |
  8+45       2.5297      2.56    0      |          |          |          |
  9+ 0       2.6643      2.72    0      |          |          |          |
  9+15       2.8659      2.95     0     |          |          |          |
  9+30       3.1102      3.20     0     |          |          |          |
  9+45       3.3171      3.38     0     |          |          |          |
 10+ 0       3.4916      3.55      0    |          |          |          |
 10+15       3.3344      3.22     0     |          |          |          |
 10+30       2.8352      2.63    I0     |          |          |          |
 10+45       2.7681      2.84     0     |          |          |          |
 11+ 0       3.1090      3.25     0     |          |          |          |
 11+15       3.2600      3.27     0     |          |          |          |
 11+30       3.2183      3.19     0     |          |          |          |
 11+45       3.1025      3.05     0     |          |          |          |
 12+ 0       2.9795      2.94     0     |          |          |          |
 12+15       4.9686      6.06        0I |          |          |          |
 12+30       9.3412     11.13           |    0  I  |          |          |
 12+45      13.2170     14.38           |          |     0    |I         |
```

| | | |

```
 16+ 0      55.5090     64.56 |          |      q  Q          |          |
 16+15      29.0008     35.01 |          qQ                   |          |
 16+30      12.1146     14.76 |   qQ     |                    |          |
 16+45       7.9721      8.94 |  Q       |                    |          |
 17+ 0       7.1094      7.70 |  Q       |                    |          |
 17+15       9.5938     10.19 |   Q      |                    |          |
 17+30      11.3194     12.06 |   Q      |                    |          |
 17+45      11.6082     12.43 |   Q      |                    |          |
 18+ 0      10.2938     11.09 |   Q      |                    |          |
 18+15       9.4310     10.15 |  qQ      |                    |          |
 18+30       9.2866      9.96 |  qQ      |                    |          |
 18+45       7.9721      8.60 |  Q       |                    |          |
 19+ 0       5.7949      6.30 |Q         |                    |          |
 19+15       6.1022      6.53 |qQ        |                    |          |
 19+30       8.1350      8.64 |  Q       |                    |          |
 19+45       7.8277      8.40 |  Q       |                    |          |
 20+ 0       5.7949      6.29 |Q         |                    |          |
 20+15       6.1022      6.53 |qQ        |                    |          |
 20+30       6.8205      7.28 |  Q       |                    |          |
 20+45       6.9649      7.46 |  Q       |                    |          |
 21+ 0       5.6505      6.11 |Q         |                    |          |
 21+15       6.1022      6.53 |qQ        |                    |          |
 21+30       5.5061      5.93 |Q         |                    |          |
 21+45       6.1022      6.52 |qQ        |                    |          |
 22+ 0       5.5061      5.93 |Q         |                    |          |
 22+15       6.1022      6.52 |qQ        |                    |          |
 22+30       5.5061      5.93 |Q         |                    |          |
 22+45       4.7877      5.16 |Q         |                    |          |
 23+ 0       4.6433      4.98 |Q         |                    |          |
 23+15       4.6433      4.98 |Q         |                    |          |
 23+30       4.6433      4.98 |Q         |                    |          |
 23+45       4.6433      4.98 |Q         |                    |          |
 24+ 0       4.6433      4.98 |Q         |                    |          |
 24+15       2.0144      2.27  Q         |                    |          |
 24+30       0.2889      0.39  Q         |                    |          |
 24+45       0.0000      0.02  Q         |                    |          |
 25+ 0       0.0000      0.00  Q         |                    |          |
 25+15       0.0000      0.00  Q         |                    |          |
--------------------------------------------------------------------------

      ****************************HYDROGRAPH DATA****************************
                Number of intervals =   101
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      127.485 (CFS)
                Total volume =      62.540 (Ac.Ft)
          Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)      0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
      ***********************************************************************

      ---------------------------------------------------------------------


      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       2.000 to Point/Station       2.000
      **** RETARDING BASIN ROUTING ****
      _____________________________________________________________________

      User entry of depth-outflow-storage data
      ---------------------------------------------------------------------
      Total number of inflow hydrograph intervals = 101
      Hydrograph time unit = 15.000 (Min.)
      Initial depth in storage basin =   0.00(Ft.)
      ---------------------------------------------------------------------
      ---------------------------------------------------------------------
      Initial basin depth =   0.00 (Ft.)
      Initial basin storage =      0.00 (Ac.Ft)
      Initial basin outflow =   0.00 (CFS)
      ---------------------------------------------------------------------
      ---------------------------------------------------------------------
      Depth vs. Storage and Depth vs. Discharge data:
       Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
```



```
          (Ft.)     (Ac.Ft)      (CFS)      (Ac.Ft)     (Ac.Ft)
      ---------------------------------------------------------------------
            0.000     0.000      0.000      0.000       0.000
            1.000     0.001      0.001      0.001       0.001
            2.000     1.000     30.000      0.690       1.310
            3.000     5.000    100.000      3.967       6.033
            5.000    11.000    200.000      8.934      13.066
            6.000    12.000    280.000      9.107      14.893
      ---------------------------------------------------------------------
                      Hydrograph Detention Basin Routing
      ---------------------------------------------------------------------

      Graph values: 'I'= unit inflow; 'O'=outflow at time shown
      ---------------------------------------------------------------------
 Time   Inflow  Outflow   Storage                                        Depth
(Hours) (CFS)   (CFS)     (Ac.Ft)  .0      31.9    63.74    95.61  127.48 (Ft.)
 0.250    2.71    0.62     0.022   0       |       |        |      |      1.02
 0.500    5.95    2.38     0.080   OI      |       |        |      |      1.08
 0.750    7.26    4.38     0.147   |O      |       |        |      |      1.15
 1.000    8.81    6.11     0.204   |OI     |       |        |      |      1.20
 1.250    8.41    7.29     0.244   |OI     |       |        |      |      1.24
 1.500    7.65    7.64     0.255   |O      |       |        |      |      1.25
 1.750    7.47    7.60     0.254   |O      |       |        |      |      1.25
 2.000    8.82    7.86     0.263   |OI     |       |        |      |      1.26
 2.250    9.76    8.54     0.285    O      |       |        |      |      1.28
 2.500    9.95    9.16     0.306    O      |       |        |      |      1.31
 2.750   11.31    9.86     0.329    O      |       |        |      |      1.33
 3.000   12.25   10.77     0.360    OI     |       |        |      |      1.36
 3.250   12.44   11.51     0.384    OI     |       |        |      |      1.38
 3.500   12.44   11.95     0.399     O     |       |        |      |      1.40
 3.750   12.44   12.18     0.407     O     |       |        |      |      1.41
 4.000   13.80   12.63     0.422     O     |       |        |      |      1.42
 4.250   14.74   13.41     0.447     O     |       |        |      |      1.45
 4.500   16.28   14.40     0.481     OI    |       |        |      |      1.48
 4.750   17.23   15.52     0.518     OI    |       |        |      |      1.52
 5.000   18.77   16.69     0.557      O    |       |        |      |      1.56
 5.250   17.01   17.26     0.576      O    |       |        |      |      1.58
 5.500   16.66   17.06     0.569      O    |       |        |      |      1.57
 5.750   18.60   17.33     0.578      O    |       |        |      |      1.58
 6.000   19.71   18.19     0.607      O    |       |        |      |      1.61
 6.250   21.26   19.28     0.643      OI   |       |        |      |      1.64
 6.500   22.21   20.44     0.682       O   |       |        |      |      1.68
 6.750   23.75   21.64     0.722       O   |       |        |      |      1.72
 7.000   24.69   22.86     0.762       OI  |       |        |      |      1.76
 7.250   24.88   23.77     0.793       OI  |       |        |      |      1.79
 7.500   26.24   24.62     0.821        O  |       |        |      |      1.82
 7.750   28.54   25.93     0.865        OI |       |        |      |      1.86
 8.000   31.02   27.75     0.925        OI |       |        |      |      1.93
 8.250   35.88   30.29     1.017         O|I      |        |      |      2.00
 8.500   38.72   32.44     1.139         OI      |        |      |      2.03
 8.750   41.30   34.76     1.272         O I     |        |      |      2.07
 9.000   44.72   37.28     1.416         |O I    |        |      |      2.10
 9.250   50.30   40.41     1.595          O I    |        |      |      2.15
 9.500   55.27   44.20     1.812          O I    |        |      |      2.20
 9.750   59.17   48.19     2.039           O I   |        |      |      2.26
10.000   62.84   52.11     2.264            O I  |        |      |      2.32
10.250   51.15   53.61     2.349            IO   |        |      |      2.34
10.500   42.40   51.52     2.229           I O   |        |      |      2.31
10.750   50.45   49.96     2.140            O    |        |      |      2.29
11.000   57.12   51.13     2.207            O I  |        |      |      2.30
11.250   56.59   52.88     2.307             OI  |        |      |      2.33
11.500   55.48   53.85     2.363             O   |        |      |      2.34
11.750   51.56   53.75     2.357             IO  |        |      |      2.34
12.000   51.01   52.99     2.314             IO  |        |      |      2.33
12.250   67.12   54.85     2.420              O I|        |      |      2.36
12.500   82.36   60.94     2.768                O|   I    |      |      2.44
12.750   92.83   69.10     3.235                 |O     I |      |      2.56
13.000  100.69   77.57     3.718                 |  O     |I     |      2.68
13.250  116.06   87.00     4.257                 |    O   |   I  |      2.81
13.500  127.48   97.65     4.866                 |        |O     I      2.97
13.750  106.06  103.36     5.202                 |        |OI    |      3.07
14.000   84.85  101.04     5.062                 |        |  I   |O     |3.02
```

```
14.250   87.96   96.60    4.806 |        |        |      I O       |      2.95
14.500   93.49   94.80    4.703 |        |        |       0|       |      2.93
14.750   94.33   94.53    4.687 |        |        |       0|       |      2.92
15.000   92.28   94.15    4.666 |        |        |       0|       |      2.92
15.250   88.49   93.00    4.600 |        |        |      IO|       |      2.90
15.500   84.10   90.95    4.483 |        |        |     IO |       |      2.87
15.750   72.79   87.12    4.264 |        |        |  I  0  |       |      2.82
16.000   64.56   81.47    3.941 |        |        | I   0  |       |      2.74
16.250   35.01   71.77    3.387 |        |I       |  0     |       |      2.60
16.500   14.76   57.41    2.566 |   I    |     0  |        |       |      2.39
16.750    8.94   43.46    1.769 |  I     | 0      |        |       |      2.19
17.000    7.70   32.70    1.154 | I      0        |        |       |      2.04
17.250   10.19   22.93    0.764 |  I  0  |        |        |       |      1.76
17.500   12.06   17.34    0.578 |   I0   |        |        |       |      1.58
17.750   12.43   14.93    0.498 |   0    |        |        |       |      1.50
18.000   11.09   13.42    0.448 |  IO    |        |        |       |      1.45
18.250   10.15   12.10    0.404 |  IO    |        |        |       |      1.40
18.500    9.96   11.13    0.372 |  0     |        |        |       |      1.37
18.750    8.60   10.25    0.342 |  0     |        |        |       |      1.34
19.000    6.30    8.93    0.298 |IO      |        |        |       |      1.30
19.250    6.53    7.74    0.259 |0       |        |        |       |      1.26
19.500    8.64    7.67    0.256 |OI      |        |        |       |      1.26
19.750    8.40    8.07    0.270 |  0     |        |        |       |      1.27
20.000    6.29    7.73    0.258 |0       |        |        |       |      1.26
20.250    6.53    7.11    0.238 |0       |        |        |       |      1.24
20.500    7.28    7.01    0.234 |0       |        |        |       |      1.23
20.750    7.46    7.18    0.240 |0       |        |        |       |      1.24
21.000    6.11    6.99    0.234 |0       |        |        |       |      1.23
21.250    6.53    6.67    0.223 |0       |        |        |       |      1.22
21.500    5.93    6.46    0.216 |0       |        |        |       |      1.22
21.750    6.52    6.35    0.212 |0       |        |        |       |      1.21
22.000    5.93    6.29    0.210 |0       |        |        |       |      1.21
22.250    6.52    6.26    0.209 |0       |        |        |       |      1.21
22.500    5.93    6.24    0.209 |0       |        |        |       |      1.21
22.750    5.16    5.91    0.198 |0       |        |        |       |      1.20
23.000    4.98    5.51    0.185 |0       |        |        |       |      1.18
23.250    4.98    5.26    0.176 |0       |        |        |       |      1.18
23.500    4.98    5.13    0.172 |0       |        |        |       |      1.17
23.750    4.98    5.06    0.169 |0       |        |        |       |      1.17
24.000    4.98    5.02    0.168 |0       |        |        |       |      1.17
24.250    2.27    4.36    0.146 |O       |        |        |       |      1.15
24.500    0.39    2.92    0.098 |0       |        |        |       |      1.10
24.750    0.02    1.63    0.055 |0       |        |        |       |      1.05
25.000    0.00    0.86    0.030 |0       |        |        |       |      1.03
25.250    0.00    0.46    0.016 |0       |        |        |       |      1.02
25.500    0.00    0.24    0.009 |0       |        |        |       |      1.01
25.750    0.00    0.13    0.005 |0       |        |        |       |      1.00
26.000    0.00    0.07    0.003 |0       |        |        |       |      1.00
26.250    0.00    0.04    0.002 |0       |        |        |       |      1.00
26.500    0.00    0.02    0.002 |0       |        |        |       |      1.00
26.750    0.00    0.01    0.001 |0       |        |        |       |      1.00
27.000    0.00    0.01    0.001 |0       |        |        |       |      1.00
27.250    0.00    0.00    0.001 |0       |        |        |       |      1.00
27.500    0.00    0.00    0.001 |0       |        |        |       |      1.00
27.750    0.00    0.00    0.001 |0       |        |        |       |      0.99

*****************************HYDROGRAPH DATA*****************************
            Number of intervals =   111
            Time interval =   15.0 (Min.)
            Maximum/Peak flow rate =      103.363 (CFS)
            Total volume =      62.539 (Ac.Ft)
      Status of hydrographs being held in storage
            Stream 1   Stream 2   Stream 3   Stream 4   Stream 5
      Peak (CFS)       0.000      0.000      0.000      0.000      0.000
      Vol (Ac.Ft)      0.000      0.000      0.000      0.000      0.000
*************************************************************************

-------------------------------------------------------------------------


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Process from Point/Station        2.000 to Point/Station        3.000
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**** STREAM ROUTING SCS CONVEX METHOD ****
_________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =    4000.00 (Ft.)
Elevation difference =    80.00 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  4000.00(Ft.)   Elevation difference =  80.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =     40.899(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =     40.899(CFS)
Normal flow depth in pipe =    13.66(In.)
Flow top width inside pipe =    56.47(In.)
Critical Depth =     1.69(Ft.)
Pipe flow velocity =     10.94(Ft/s)
Travel time through pipe =     6.09 min.


Pipe length  =  4000.00(Ft.)   Elevation difference =  80.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =    103.363(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =    103.363(CFS)
Normal flow depth in pipe =    21.80(In.)
Flow top width inside pipe =    66.16(In.)
Critical Depth =     2.74(Ft.)
Pipe flow velocity =     14.32(Ft/s)
Travel time through pipe =     4.66 min.


********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =    0.8939   Travel time =    4.66 (min.)
        dt*(unit time interval) =  15.00(min.),   e=    2.7363
        dt(routing time-step) =    4.16 (min.),   c* =    0.9978

Output hydrograph delayed by 0  unit time increments


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                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
---------------------------------------------------------------------------
            Hydrograph in  15   Minute intervals (CFS)
---------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0       25.8       51.7       77.5      103.4
---------------------------------------------------------------------------
  0+15        0.4467      0.62  0        |          |          |          |
  0+30        1.8856      2.38  0        |          |          |          |
  0+45        3.8178      4.38  |0       |          |          |          |
  1+ 0        5.6244      6.11  | 0      |          |          |          |
  1+15        6.9612      7.29  | 0      |          |          |          |
  1+30        7.5430      7.64  | 0      |          |          |          |
  1+45        7.6138      7.60  | 0      |          |          |          |
  2+ 0        7.7895      7.86  |  0     |          |          |          |
  2+15        8.3499      8.54  |  0     |          |          |          |
  2+30        8.9878      9.16  |  0     |          |          |          |
  2+45        9.6621      9.86  |  0     |          |          |          |
  3+ 0       10.5126     10.77  |   0    |          |          |          |
  3+15       11.3048     11.51  |   0    |          |          |          |
  3+30       11.8291     11.95  |   0    |          |          |          |
  3+45       12.1194     12.18  |   0    |          |          |          |
  4+ 0       12.5043     12.63  |   0    |          |          |          |
```

| | | | |
|---|---|---|---|
| 4+15 | 13.1883 | 13.41 | 0 |
| 4+30 | 14.1234 | 14.40 | 0 |
| 4+45 | 15.2042 | 15.52 | 0I |
| 5+ 0 | 16.3623 | 16.69 | 0 |
| 5+15 | 17.0987 | 17.26 | 0 |
| 5+30 | 17.1130 | 17.06 | 0 |
| 5+45 | 17.2539 | 17.33 | 0 |
| 6+ 0 | 17.9529 | 18.19 | 0I |
| 6+15 | 18.9753 | 19.28 | 0 |
| 6+30 | 20.1149 | 20.44 | 0 |
| 6+45 | 21.3046 | 21.64 | 0 |
| 7+ 0 | 22.5203 | 22.86 | 0 |
| 7+15 | 23.5183 | 23.77 | 0 |
| 7+30 | 24.3830 | 24.62 | 0 |
| 7+45 | 25.5651 | 25.93 | 0I |
| 8+ 0 | 27.2445 | 27.75 | 0 |
| 8+15 | 29.5819 | 30.29 | 0 |
| 8+30 | 31.8363 | 32.44 | 0 |
| 8+45 | 34.1069 | 34.76 | 0 |
| 9+ 0 | 36.5761 | 37.28 | 0 |
| 9+15 | 39.5392 | 40.41 | 0 |
| 9+30 | 43.1433 | 44.20 | 0I |
| 9+45 | 47.0740 | 48.19 | 0 |
| 10+ 0 | 51.0162 | 52.11 | 0I |
| 10+15 | 53.1888 | 53.61 | 0 |
| 10+30 | 52.0984 | 51.52 | I0 |
| 10+45 | 50.3923 | 49.96 | 0 |
| 11+ 0 | 50.8014 | 51.13 | 0 |
| 11+15 | 52.3904 | 52.88 | 0 |
| 11+30 | 53.5750 | 53.85 | 0 |
| 11+45 | 53.7726 | 53.75 | 0 |
| 12+ 0 | 53.2025 | 52.99 | 0 |
| 12+15 | 54.3340 | 54.85 | 0 |
| 12+30 | 59.2430 | 60.94 | 0I |
| 12+45 | 66.8241 | 69.10 | 0I |
| 13+ 0 | 75.2051 | 77.57 | 0I |
| 13+15 | 84.3675 | 87.00 | 0I |
| 13+30 | 94.6741 | 97.65 | 0I |
| 13+45 | 101.7624 | 103.36 | 0I |
| 14+ 0 | 101.6841 | 101.04 | 0 |
| 14+15 | 97.8416 | 96.60 | 0 |
| 14+30 | 95.3075 | 94.80 | 0 |
| 14+45 | 94.6068 | 94.53 | 0 |
| 15+ 0 | 94.2591 | 94.15 | 0 |
| 15+15 | 93.3218 | 93.00 | I0 |
| 15+30 | 91.5198 | 90.95 | 0 |
| 15+45 | 88.1882 | 87.12 | I0 |
| 16+ 0 | 83.0497 | 81.47 | I0 |
| 16+15 | 74.4797 | 71.77 | I0 |
| 16+30 | 61.4245 | 57.41 | I0 |
| 16+45 | 47.3626 | 43.46 | I 0 |
| 17+ 0 | 35.7116 | 32.70 | I0 |
| 17+15 | 25.6606 | 22.93 | I0 |
| 17+30 | 18.9028 | 17.34 | I0 |
| 17+45 | 15.6015 | 14.93 | I0 |
| 18+ 0 | 13.8449 | 13.42 | 0 |
| 18+15 | 12.4671 | 12.10 | 0 |
| 18+30 | 11.3997 | 11.13 | 0 |
| 18+45 | 10.4994 | 10.25 | I0 |
| 19+ 0 | 9.2985 | 8.93 | 0 |
| 19+15 | 8.0720 | 7.74 | I0 |
| 19+30 | 7.6879 | 7.67 | 0 |
| 19+45 | 7.9579 | 8.07 | 0 |
| 20+ 0 | 7.8233 | 7.73 | I0 |
| 20+15 | 7.2794 | 7.11 | 0 |
| 20+30 | 7.0384 | 7.01 | 0 |
| 20+45 | 7.1346 | 7.18 | 0 |
| 21+ 0 | 7.0462 | 6.99 | 0 |
| 21+15 | 6.7631 | 6.67 | 0 |
| 21+30 | 6.5211 | 6.46 | 0 |
| 21+45 | 6.3802 | 6.35 | 0 |
| 22+ 0 | 6.3053 | 6.29 | 0 |



| | | | |
|---|---|---|---|
| 22+15 | 6.2658 | 6.26 | 0 |
| 22+30 | 6.2451 | 6.24 | 0 |
| 22+45 | 6.0028 | 5.91 | 0 |
| 23+ 0 | 5.6253 | 5.51 | 0 |
| 23+15 | 5.3328 | 5.26 | 0 |
| 23+30 | 5.1654 | 5.13 | 0 |
| 23+45 | 5.0765 | 5.06 | 0 |
| 24+ 0 | 5.0296 | 5.02 | 0 |
| 24+15 | 4.5423 | 4.36 | 0 |
| 24+30 | 3.3232 | 2.92 | 0 |
| 24+45 | 1.9941 | 1.63 | 0 |
| 25+ 0 | 1.0799 | 0.86 | 0 |
| 25+15 | 0.5702 | 0.46 | 0 |
| 25+30 | 0.3004 | 0.24 | 0 |
| 25+45 | 0.1581 | 0.13 | 0 |
| 26+ 0 | 0.0832 | 0.07 | 0 |
| 26+15 | 0.0438 | 0.04 | 0 |
| 26+30 | 0.0231 | 0.02 | 0 |
| 26+45 | 0.0121 | 0.01 | 0 |
| 27+ 0 | 0.0064 | 0.01 | 0 |
| 27+15 | 0.0034 | 0.00 | 0 |
| 27+30 | 0.0018 | 0.00 | 0 |
| 27+45 | 0.0011 | 0.00 | 0 |
| 28+ 0 | 0.0000 | 0.00 | 0 |

**********HYDROGRAPH DATA**********

Number of intervals = 112
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 101.762 (CFS)
Total volume = 62.539 (Ac.Ft)
Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 2.000 to Point/Station 3.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: subb224100.rte

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P R I N T 0 F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

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| Time(h+m) | Add q(CFS) | Tot. Q | 0 52.2 104.4 156.6 208.8 |
|---|---|---|---|
| 0+15 | 2.9585 | 3.41 | Q |
| 0+30 | 6.3585 | 8.24 | Q |
| 0+45 | 7.6339 | 11.45 | qQ |
| 1+ 0 | 9.2706 | 14.90 | qQ |
| 1+15 | 8.7518 | 15.71 | q Q |
| 1+30 | 7.9489 | 15.49 | qQ |
| 1+45 | 7.7914 | 15.41 | qQ |
| 2+ 0 | 9.2706 | 17.06 | q Q |
| 2+15 | 10.2310 | 18.58 | q Q |
| 2+30 | 10.3885 | 19.38 | q Q |
| 2+45 | 11.8678 | 21.53 | q Q |
| 3+ 0 | 12.8282 | 23.34 | q Q |
| 3+15 | 12.9857 | 24.29 | q Q |
| 3+30 | 12.9857 | 24.81 | q Q |
| 3+45 | 12.9857 | 25.11 | q Q |
| 4+ 0 | 14.4649 | 26.97 | q Q |
| 4+15 | 15.4253 | 28.61 | q Q |

| | | | |
|---|---|---|---|
| 4+30 | 17.0620 | 31.19 | q Q |
| 4+45 | 18.0225 | 33.23 | q Q |
| 5+ 0 | 19.6592 | 36.02 | q Q |
| 5+15 | 17.6611 | 34.76 | q Q |
| 5+30 | 17.3770 | 34.49 | q Q |
| 5+45 | 19.5017 | 36.76 | q Q |
| 6+ 0 | 20.6196 | 38.57 | q Q |
| 6+15 | 22.2563 | 41.23 | q Q |
| 6+30 | 23.2167 | 43.33 | q Q |
| 6+45 | 24.8534 | 46.16 | q Q |
| 7+ 0 | 25.8139 | 48.33 | q Q |
| 7+15 | 25.9713 | 49.49 | q Q |
| 7+30 | 27.4506 | 51.83 | q Q |
| 7+45 | 29.8902 | 55.46 | q Q |
| 8+ 0 | 32.4874 | 59.73 | q Q |
| 8+15 | 37.7041 | 67.29 | q Q |
| 8+30 | 40.6395 | 72.48 | q Q |
| 8+45 | 43.3805 | 77.49 | q Q |
| 9+ 0 | 47.0678 | 83.64 | q Q |
| 9+15 | 53.0914 | 92.63 | q Q |
| 9+30 | 58.3721 | 101.52 | q Q |
| 9+45 | 62.5039 | 109.58 | q Q |
| 10+ 0 | 66.4089 | 117.43 | q Q |
| 10+15 | 53.4065 | 106.60 | q Q |
| 10+30 | 44.2183 | 96.32 | q Q |
| 10+45 | 53.3984 | 103.79 | q Q |
| 11+ 0 | 60.4457 | 111.25 | q Q |
| 11+15 | 59.6428 | 112.03 | q Q |
| 11+30 | 58.4540 | 112.03 | q Q |
| 11+45 | 54.1840 | 107.96 | q Q |
| 12+ 0 | 53.7325 | 106.93 | q Q |
| 12+15 | 69.6242 | 123.96 | q Q |
| 12+30 | 81.7419 | 140.98 | q Q |
| 12+45 | 89.0885 | 155.91 | q Q |
| 13+ 0 | 94.3419 | 169.55 | q Q |
| 13+15 | 106.8990 | 191.27 | q Q |
| 13+30 | 114.1511 | 208.83 | q Q |
| 13+45 | 92.1960 | 193.96 | q Q |
| 14+ 0 | 77.2665 | 178.95 | q Q |
| 14+15 | 83.4050 | 181.25 | q Q |
| 14+30 | 86.9383 | 182.25 | q Q |
| 14+45 | 86.6224 | 181.23 | q Q |
| 15+ 0 | 84.4382 | 178.70 | q Q |
| 15+15 | 81.1047 | 174.43 | q Q |
| 15+30 | 77.5439 | 169.06 | q Q |
| 15+45 | 67.6412 | 155.83 | q Q |
| 16+ 0 | 62.0728 | 145.12 | q Q |
| 16+15 | 32.2698 | 106.75 | q Q |
| 16+30 | 13.4724 | 74.90 | q Q |
| 16+45 | 8.9093 | 56.27 | q Q |
| 17+ 0 | 7.9489 | 43.66 | q Q |
| 17+15 | 10.7499 | 36.41 | q Q |
| 17+30 | 12.6707 | 31.57 | q Q |
| 17+45 | 12.9857 | 28.59 | q Q |
| 18+ 0 | 11.5064 | 25.35 | q Q |
| 18+15 | 10.5460 | 23.01 | q Q |
| 18+30 | 10.3885 | 21.79 | q Q |
| 18+45 | 8.9093 | 19.41 | q Q |
| 19+ 0 | 6.4697 | 15.77 | q Q |
| 19+15 | 6.8310 | 14.90 | qQ |
| 19+30 | 9.1131 | 16.80 | q Q |
| 19+45 | 8.7518 | 16.71 | q Q |
| 20+ 0 | 6.4697 | 14.29 | qQ |
| 20+15 | 6.8310 | 14.11 | qQ |
| 20+30 | 7.6339 | 14.67 | qQ |
| 20+45 | 7.7914 | 14.93 | qQ |
| 21+ 0 | 6.3122 | 13.36 | qQ |
| 21+15 | 6.8310 | 13.59 | qQ |
| 21+30 | 6.1547 | 12.68 | qQ |
| 21+45 | 6.8310 | 13.21 | qQ |
| 22+ 0 | 6.1547 | 12.46 | qQ |
| 22+15 | 6.8310 | 13.10 | qQ |



| | | | |
|---|---|---|---|
| 22+30 | 6.1547 | 12.40 | qQ |
| 22+45 | 5.3518 | 11.35 | qQ |
| 23+ 0 | 5.1943 | 10.82 | q Q |
| 23+15 | 5.1943 | 10.53 | q Q |
| 23+30 | 5.1943 | 10.36 | qQ |
| 23+45 | 5.1943 | 10.27 | qQ |
| 24+ 0 | 5.1943 | 10.22 | qQ |
| 24+15 | 2.2358 | 6.78 | qQ |
| 24+30 | 0.3150 | 3.64 | Q |
| 24+45 | 0.0000 | 1.99 | Q |
| 25+ 0 | 0.0000 | 1.08 | Q |
| 25+15 | 0.0000 | 0.57 | Q |
| 25+30 | 0.0000 | 0.30 | Q |
| 25+45 | 0.0000 | 0.16 | Q |
| 26+ 0 | 0.0000 | 0.08 | Q |
| 26+15 | 0.0000 | 0.04 | Q |
| 26+30 | 0.0000 | 0.02 | Q |
| 26+45 | 0.0000 | 0.01 | Q |
| 27+ 0 | 0.0000 | 0.01 | Q |
| 27+15 | 0.0000 | 0.00 | Q |
| 27+30 | 0.0000 | 0.00 | Q |
| 27+45 | 0.0000 | 0.00 | Q |
| 28+ 0 | 0.0000 | 0.00 | Q |

**********HYDROGRAPH DATA**********

Number of intervals = 112
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 208.825 (CFS)
Total volume = 124.463 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 3.000 to Point/Station 3.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 112
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

| Basin Depth (Ft.) | Storage (Ac.Ft) | Outflow (CFS) | (S-O*dt/2) (Ac.Ft) | (S+O*dt/2) (Ac.Ft) |
|---|---|---|---|---|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1.000 | 0.001 | 0.001 | 0.001 | 0.001 |
| 2.000 | 0.002 | 0.001 | 0.002 | 0.002 |
| 3.000 | 10.000 | 500.000 | 4.835 | 15.165 |
| 4.000 | 30.000 | 700.000 | 22.769 | 37.231 |
| 6.000 | 41.000 | 900.000 | 31.702 | 50.298 |

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

| Time | Inflow | Outflow | Storage | Depth |
|---|---|---|---|---|

| (Hours) | (CFS) | (CFS) | (Ac.Ft) | .0 52.2 104.41 156.62 208.83 | (Ft.) |
|---|---|---|---|---|---|
| 0.250 | 3.41 | 1.09 | 0.024 | 0 | 2.00 |
| 0.500 | 8.24 | 4.32 | 0.088 | 0I | 2.01 |
| 0.750 | 11.45 | 8.09 | 0.164 | 0 | 2.02 |
| 1.000 | 14.90 | 11.55 | 0.233 | 0I | 2.02 |
| 1.250 | 15.71 | 14.11 | 0.284 | 0 | 2.03 |
| 1.500 | 15.49 | 15.13 | 0.304 | 0 | 2.03 |
| 1.750 | 15.41 | 15.35 | 0.309 | 0 | 2.03 |
| 2.000 | 17.06 | 15.95 | 0.321 | 0 | 2.03 |
| 2.250 | 18.58 | 17.22 | 0.346 | 0 | 2.03 |
| 2.500 | 19.38 | 18.42 | 0.370 | 0 | 2.04 |
| 2.750 | 21.53 | 19.80 | 0.398 | 0 | 2.04 |
| 3.000 | 23.34 | 21.60 | 0.434 | 0 | 2.04 |
| 3.250 | 24.29 | 23.11 | 0.464 | 0 | 2.05 |
| 3.500 | 24.81 | 24.09 | 0.484 | 0 | 2.05 |
| 3.750 | 25.11 | 24.68 | 0.496 | 0 | 2.05 |
| 4.000 | 26.97 | 25.61 | 0.514 | 0I | 2.05 |
| 4.250 | 28.61 | 27.09 | 0.544 | 0 | 2.05 |
| 4.500 | 31.19 | 29.01 | 0.582 | 0 | 2.06 |
| 4.750 | 33.23 | 31.19 | 0.626 | 0I | 2.06 |
| 5.000 | 36.02 | 33.53 | 0.672 | 0 | 2.07 |
| 5.250 | 34.76 | 34.80 | 0.698 | 0 | 2.07 |
| 5.500 | 34.49 | 34.68 | 0.695 | 0 | 2.07 |
| 5.750 | 36.76 | 35.32 | 0.708 | 0 | 2.07 |
| 6.000 | 38.57 | 36.92 | 0.740 | 0 | 2.07 |
| 6.250 | 41.23 | 38.95 | 0.781 | 0I | 2.08 |
| 6.500 | 43.33 | 41.22 | 0.826 | 0 | 2.08 |
| 6.750 | 46.16 | 43.62 | 0.874 | 0I | 2.09 |
| 7.000 | 48.33 | 46.09 | 0.924 | 0 | 2.09 |
| 7.250 | 49.49 | 48.01 | 0.962 | 0 | 2.10 |
| 7.500 | 51.83 | 49.82 | 0.998 | 0 | 2.10 |
| 7.750 | 55.46 | 52.42 | 1.050 | 0 | 2.10 |
| 8.000 | 59.73 | 55.95 | 1.121 | 0I | 2.11 |
| 8.250 | 67.29 | 61.10 | 1.224 | 0I | 2.12 |
| 8.500 | 72.48 | 67.08 | 1.343 | 0I | 2.13 |
| 8.750 | 77.49 | 72.46 | 1.451 | 0 | 2.14 |
| 9.000 | 83.64 | 77.98 | 1.561 | 0I | 2.16 |
| 9.250 | 92.63 | 84.90 | 1.700 | 0I | 2.17 |
| 9.500 | 101.52 | 93.19 | 1.865 | 0I | 2.19 |
| 9.750 | 109.58 | 101.61 | 2.034 | 0I | 2.20 |
| 10.000 | 117.43 | 109.71 | 2.196 | 0I | 2.22 |
| 10.250 | 106.60 | 111.28 | 2.227 | I0 | 2.22 |
| 10.500 | 96.32 | 104.59 | 2.093 | I 0 | 2.21 |
| 10.750 | 103.79 | 101.50 | 2.032 | 0 | 2.20 |
| 11.000 | 111.25 | 105.60 | 2.114 | 0I | 2.21 |
| 11.250 | 112.03 | 109.72 | 2.196 | 0I | 2.22 |
| 11.500 | 112.03 | 111.29 | 2.227 | 0 | 2.22 |
| 11.750 | 107.96 | 110.41 | 2.210 | 0 | 2.22 |
| 12.000 | 106.93 | 108.39 | 2.169 | 0 | 2.22 |
| 12.250 | 123.96 | 113.20 | 2.265 | 0I | 2.23 |
| 12.500 | 140.98 | 126.33 | 2.528 | 0 I | 2.25 |
| 12.750 | 155.91 | 141.40 | 2.829 | 0 I | 2.28 |
| 13.000 | 169.55 | 155.93 | 3.120 | 0 I | 2.31 |
| 13.250 | 191.27 | 172.61 | 3.453 | 0 I | 2.35 |
| 13.500 | 208.83 | 191.30 | 3.827 | 0 I | 2.38 |
| 13.750 | 193.96 | 198.18 | 3.965 | I0 | 2.40 |
| 14.000 | 178.95 | 190.19 | 3.805 | I 0 | 2.38 |
| 14.250 | 181.25 | 183.31 | 3.668 | I0 | 2.37 |
| 14.500 | 182.25 | 182.25 | 3.646 | 0 | 2.36 |
| 14.750 | 181.23 | 181.90 | 3.639 | 0 | 2.36 |
| 15.000 | 178.70 | 180.58 | 3.613 | 0 | 2.36 |
| 15.250 | 174.43 | 177.84 | 3.558 | I0 | 2.36 |
| 15.500 | 169.06 | 173.69 | 3.475 | I0 | 2.35 |
| 15.750 | 155.83 | 166.03 | 3.322 | I 0 | 2.33 |
| 16.000 | 145.12 | 155.43 | 3.110 | I0 | 2.31 |
| 16.250 | 106.75 | 135.34 | 2.708 | I 0 | 2.27 |
| 16.500 | 74.90 | 105.01 | 2.102 | I 0 | 2.21 |
| 16.750 | 56.27 | 78.15 | 1.565 | I 0 | 2.16 |
| 17.000 | 43.66 | 58.95 | 1.181 | I 0 | 2.12 |
| 17.250 | 36.41 | 46.06 | 0.923 | I 0 | 2.09 |
| 17.500 | 31.57 | 37.84 | 0.759 | I0 | 2.08 |
| 17.750 | 28.59 | 32.55 | 0.653 | 0 | 2.07 |



| | | | | | |
|---|---|---|---|---|---|
| 18.000 | 25.35 | 28.75 | 0.577 | I0 | 2.06 |
| 18.250 | 23.01 | 25.64 | 0.515 | 0 | 2.05 |
| 18.500 | 21.79 | 23.43 | 0.471 | 0 | 2.05 |
| 18.750 | 19.41 | 21.50 | 0.432 | I0 | 2.04 |
| 19.000 | 15.77 | 18.84 | 0.379 | 0 | 2.04 |
| 19.250 | 14.90 | 16.45 | 0.331 | 0 | 2.03 |
| 19.500 | 16.80 | 16.04 | 0.323 | 0 | 2.03 |
| 19.750 | 16.71 | 16.53 | 0.332 | 0 | 2.03 |
| 20.000 | 14.29 | 15.83 | 0.318 | 0 | 2.03 |
| 20.250 | 14.11 | 14.72 | 0.296 | 0 | 2.03 |
| 20.500 | 14.67 | 14.50 | 0.292 | 0 | 2.03 |
| 20.750 | 14.93 | 14.70 | 0.296 | 0 | 2.03 |
| 21.000 | 13.36 | 14.32 | 0.288 | 0 | 2.03 |
| 21.250 | 13.59 | 13.75 | 0.277 | 0 | 2.03 |
| 21.500 | 12.68 | 13.33 | 0.269 | I0 | 2.03 |
| 21.750 | 13.21 | 13.07 | 0.263 | 0 | 2.03 |
| 22.000 | 12.46 | 12.91 | 0.260 | 0 | 2.03 |
| 22.250 | 13.10 | 12.82 | 0.258 | 0I | 2.03 |
| 22.500 | 12.40 | 12.77 | 0.257 | 0 | 2.03 |
| 22.750 | 11.35 | 12.16 | 0.245 | 0 | 2.02 |
| 23.000 | 10.82 | 11.43 | 0.231 | 0 | 2.02 |
| 23.250 | 10.53 | 10.91 | 0.220 | 0 | 2.02 |
| 23.500 | 10.36 | 10.59 | 0.214 | 0 | 2.02 |
| 23.750 | 10.27 | 10.40 | 0.210 | 0 | 2.02 |
| 24.000 | 10.22 | 10.30 | 0.208 | 0 | 2.02 |
| 24.250 | 6.78 | 9.07 | 0.183 | 0 | 2.02 |
| 24.500 | 3.64 | 6.44 | 0.131 | 0 | 2.01 |
| 24.750 | 1.99 | 3.97 | 0.081 | 0 | 2.01 |
| 25.000 | 1.08 | 2.31 | 0.048 | 0 | 2.00 |
| 25.250 | 0.57 | 1.30 | 0.028 | 0 | 2.00 |
| 25.500 | 0.30 | 0.71 | 0.016 | 0 | 2.00 |
| 25.750 | 0.16 | 0.38 | 0.010 | 0 | 2.00 |
| 26.000 | 0.08 | 0.20 | 0.006 | 0 | 2.00 |
| 26.250 | 0.04 | 0.11 | 0.004 | 0 | 2.00 |
| 26.500 | 0.02 | 0.06 | 0.003 | 0 | 2.00 |
| 26.750 | 0.01 | 0.03 | 0.003 | 0 | 2.00 |
| 27.000 | 0.01 | 0.02 | 0.002 | 0 | 2.00 |
| 27.250 | 0.00 | 0.01 | 0.002 | 0 | 2.00 |
| 27.500 | 0.00 | 0.00 | 0.002 | 0 | 2.00 |
| 27.750 | 0.00 | 0.00 | 0.002 | 0 | 2.00 |
| 28.000 | 0.00 | 0.00 | 0.002 | 0 | 2.00 |
| 28.250 | 0.00 | 0.00 | 0.002 | 0 | 1.98 |

Remaining water in basin = 0.00 (Ac.Ft)

**********HYDROGRAPH DATA**********

Number of intervals = 113
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 198.176 (CFS)
Total volume = 124.461 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 3.000 to Point/Station 4.000
**** STREAM ROUTING SCS CONVEX METHOD ****

HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 2000.00 (Ft.)
Elevation difference = 40.00 (Ft.)
Slope of channel = 0.020000 (Vert/Horiz)
Channel type - Pipe

```
Pipe length  =  2000.00(Ft.)   Elevation difference =  40.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =    81.213(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =    81.213(CFS)
Normal flow depth in pipe =   19.25(In.)
Flow top width inside pipe =   63.74(In.)
Critical Depth =    2.41(Ft.)
Pipe flow velocity =     13.37(Ft/s)
Travel time through pipe =    2.49 min.


Pipe length  =  2000.00(Ft.)   Elevation difference =  40.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =   198.176(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =   198.176(CFS)
Normal flow depth in pipe =   30.84(In.)
Flow top width inside pipe =   71.26(In.)
Critical Depth =    3.85(Ft.)
Pipe flow velocity =     17.12(Ft/s)
Travel time through pipe =    1.95 min.


********************** SCS CONVEX CHANNEL ROUTING **********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9097   Travel time =    1.95 (min.)
        dt*(unit time interval) =  15.00(min.),  e=   5.9798
        dt(routing time-step) =   1.77 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


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                    P R I N T  O F  S T O R M
                  R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------------
                Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------------
Time(h+m) Out = O(CFS)  In = I  0       49.5      99.1     148.6     198.2
------------------------------------------------------------------------------
  0+15        0.9654      1.09  0        |         |         |         |
  0+30        3.9367      4.32  0        |         |         |         |
  0+45        7.6403      8.09  |0       |         |         |         |
  1+ 0       11.1424     11.55  | 0      |         |         |         |
  1+15       13.8063     14.11  | 0      |         |         |         |
  1+30       15.0060     15.13  |  0     |         |         |         |
  1+45       15.3199     15.35  |  0     |         |         |         |
  2+ 0       15.8787     15.95  |  0     |         |         |         |
  2+15       17.0739     17.22  |  0     |         |         |         |
  2+30       18.2784     18.42  |  0     |         |         |         |
  2+45       19.6414     19.80  |  0     |         |         |         |
  3+ 0       21.3855     21.60  |   0    |         |         |         |
  3+15       22.9301     23.11  |   0    |         |         |         |
  3+30       23.9762     24.09  |   0    |         |         |         |
  3+45       24.6137     24.68  |   0    |         |         |         |
  4+ 0       25.4968     25.61  |    0   |         |         |         |
  4+15       26.9190     27.09  |    0   |         |         |         |
  4+30       28.7800     29.01  |    0   |         |         |         |
  4+45       30.9286     31.19  |     0  |         |         |         |
  5+ 0       33.2518     33.53  |     0  |         |         |         |
  5+15       34.6473     34.80  |     0I |         |         |         |
  5+30       34.6936     34.68  |     I0 |         |         |         |
  5+45       35.2464     35.32  |      0 |         |         |         |
  6+ 0       36.7293     36.92  |      0 |         |         |         |
  6+15       38.7108     38.95  |      0 |         |         |         |
```



```
  6+30       40.9522     41.22  |       0 |         |         |         |
  6+45       43.3379     43.62  |       0 |         |         |         |
  7+ 0       45.7994     46.09  |        0|         |         |         |
  7+15       47.7859     48.01  |        0|         |         |         |
  7+30       49.6043     49.82  |         0         |         |         |
  7+45       52.1169     52.42  |         0         |         |         |
  8+ 0       55.5304     55.95  |          0        |         |         |
  8+15       60.4903     61.10  |           0       |         |         |
  8+30       66.3755     67.08  |            0      |         |         |
  8+45       71.8284     72.46  |             0     |         |         |
  9+ 0       77.3318     77.98  |              0    |         |         |
  9+15       84.0844     84.90  |               0I  |         |         |
  9+30       92.2146     93.19  |                0  |         |         |
  9+45      100.6160    101.61  |                 0 |         |         |
 10+ 0      108.7549    109.71  |                 0I|         |         |
 10+15      111.0926    111.28  |                  0|         |         |
 10+30      105.3763    104.59  |                 0 |         |         |
 10+45      101.8629    101.50  |                 0 |         |         |
 11+ 0      105.1158    105.60  |                 0 |         |         |
 11+15      109.2293    109.72  |                  0|         |         |
 11+30      111.1067    111.29  |                  0|         |         |
 11+45      110.5118    110.41  |                  0|         |         |
 12+ 0      108.6279    108.39  |                 0 |         |         |
 12+15      112.6298    113.20  |                  0|         |         |
 12+30      124.7783    126.33  |                   |0        |         |
 12+45      139.6195    141.40  |                   |  0      |         |
 13+ 0      154.2155    155.93  |                   |       0 |         |
 13+15      170.6374    172.61  |                   |         0         |
 13+30      189.0933    191.30  |                   |           0       |
 13+45      197.3639    198.18  |                   |            0I     |
 14+ 0      191.1330    190.19  |                   |            0      |
 14+15      184.1266    183.31  |                   |           0       |
 14+30      182.3723    182.25  |                   |          0        |
 14+45      181.9405    181.90  |                   |          0        |
 15+ 0      180.7361    180.58  |                   |          0        |
 15+15      178.1659    177.84  |                   |         0         |
 15+30      174.1789    173.69  |                   |         0         |
 15+45      166.9337    166.03  |                   |        0          |
 16+ 0      156.6841    155.43  |                   |       0 |         |
 16+15      137.7097    135.34  |                   |     0   |         |
 16+30      108.5909    105.01  |                   |0        |         |
 16+45       81.3213     78.15  |                   | IO      |         |
 17+ 0       61.2157     58.95  |                  I0 |         |         |
 17+15       47.5847     46.06  |            0      |         |         |
 17+30       38.8103     37.84  |          0        |         |         |
 17+45       33.1773     32.55  |         0         |         |         |
 18+ 0       29.1981     28.75  |        0          |         |         |
 18+15       26.0050     25.64  |        0          |         |         |
 18+30       23.6928     23.43  |      0            |         |         |
 18+45       21.7296     21.50  |      0            |         |         |
 19+ 0       19.1504     18.84  |    0              |         |         |
 19+15       16.7326     16.45  |    0              |         |         |
 19+30       16.0911     16.04  |    0              |         |         |
 19+45       16.4710     16.53  |    0              |         |         |
 20+ 0       15.9113     15.83  |    0              |         |         |
 20+15       14.8511     14.72  |0                  |         |         |
 20+30       14.5226     14.50  |0                  |         |         |
 20+45       14.6782     14.70  |0                  |         |         |
 21+ 0       14.3659     14.32  |0                  |         |         |
 21+15       13.8134     13.75  |0                  |         |         |
 21+30       13.3786     13.33  |0                  |         |         |
 21+45       13.0975     13.07  |0                  |         |         |
 22+ 0       12.9278     12.91  |0                  |         |         |
 22+15       12.8306     12.82  |0                  |         |         |
 22+30       12.7769     12.77  |0                  |         |         |
 22+45       12.2340     12.16  |0                  |         |         |
 23+ 0       11.5161     11.43  |0                  |         |         |
 23+15       10.9752     10.91  |0                  |         |         |
 23+30       10.6314     10.59  |0                  |         |         |
 23+45       10.4263     10.40  |0                  |         |         |
 24+ 0       10.3098     10.30  |0                  |         |         |
 24+15        9.2180      9.07  |0                  |         |         |
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 24+30 | 6.7510 | 6.44 | \|0 | \| | \| | \| | \| |
| 24+45 | 4.2626 | 3.97 | 0 | \| | \| | \| | \| |
| 25+ 0 | 2.5086 | 2.31 | 0 | \| | \| | \| | \| |
| 25+15 | 1.4189 | 1.30 | 0 | \| | \| | \| | \| |
| 25+30 | 0.7801 | 0.71 | 0 | \| | \| | \| | \| |
| 25+45 | 0.4214 | 0.38 | 0 | \| | \| | \| | \| |
| 26+ 0 | 0.2253 | 0.20 | 0 | \| | \| | \| | \| |
| 26+15 | 0.1197 | 0.11 | 0 | \| | \| | \| | \| |
| 26+30 | 0.0634 | 0.06 | 0 | \| | \| | \| | \| |
| 26+45 | 0.0335 | 0.03 | 0 | \| | \| | \| | \| |
| 27+ 0 | 0.0177 | 0.02 | 0 | \| | \| | \| | \| |
| 27+15 | 0.0093 | 0.01 | 0 | \| | \| | \| | \| |
| 27+30 | 0.0049 | 0.00 | 0 | \| | \| | \| | \| |
| 27+45 | 0.0026 | 0.00 | 0 | \| | \| | \| | \| |
| 28+ 0 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| |
| 28+15 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 28+30 | 0.0000 | 0.00 | 0 | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 114
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 197.364 (CFS)
Total volume = 124.461 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 3.000 to Point/Station 4.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: subb324100.rte

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P R I N T 0 F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

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| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 137.0 | 274.0 | 411.1 | 548.1 |
|---|---|---|---|---|---|---|---|
| 0+15 | 4.9648 | 5.93 | Q | \| | \| | \| | \| |
| 0+30 | 15.5800 | 19.52 | \|Q | \| | \| | \| | \| |
| 0+45 | 21.7051 | 29.35 | \|qQ | \| | \| | \| | \| |
| 1+ 0 | 26.1299 | 37.27 | \|qQ | \| | \| | \| | \| |
| 1+15 | 28.6673 | 42.47 | \| qQ | \| | \| | \| | \| |
| 1+30 | 26.2464 | 41.25 | \|q Q | \| | \| | \| | \| |
| 1+45 | 25.8575 | 41.18 | \|q Q | \| | \| | \| | \| |
| 2+ 0 | 28.1318 | 44.01 | \| qQ | \| | \| | \| | \| |
| 2+15 | 32.1337 | 49.21 | \| qQ | \| | \| | \| | \| |
| 2+30 | 32.9791 | 51.26 | \| qQ | \| | \| | \| | \| |
| 2+45 | 35.9181 | 55.56 | \| q Q | \| | \| | \| | \| |
| 3+ 0 | 40.2329 | 61.62 | \| q Q | \| | \| | \| | \| |
| 3+15 | 41.4461 | 64.38 | \| qQ | \| | \| | \| | \| |
| 3+30 | 41.9027 | 65.88 | \| qQ | \| | \| | \| | \| |
| 3+45 | 42.1511 | 66.76 | \| qQ | \| | \| | \| | \| |
| 4+ 0 | 44.8174 | 70.31 | \| q Q | \| | \| | \| | \| |
| 4+15 | 48.8838 | 75.80 | \| q Q | \| | \| | \| | \| |
| 4+30 | 52.3955 | 81.18 | \| q Q | \| | \| | \| | \| |
| 4+45 | 56.9185 | 87.85 | \| q Q | \| | \| | \| | \| |
| 5+ 0 | 60.6786 | 93.93 | \| q Q | \| | \| | \| | \| |
| 5+15 | 60.4207 | 95.07 | \| q Q | \| | \| | \| | \| |
| 5+30 | 56.0480 | 90.74 | \| q Q | \| | \| | \| | \| |
| 5+45 | 61.1785 | 96.42 | \| q Q | \| | \| | \| | \| |
| 6+ 0 | 65.6097 | 102.34 | \| q Q | \| | \| | \| | \| |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6+15 | 69.2650 | 107.98 | \| q Q | \| | \| | \| | \| |
| 6+30 | 73.6686 | 114.62 | \| q Q | \| | \| | \| | \| |
| 6+45 | 77.6126 | 120.95 | \| q Q | \| | \| | \| | \| |
| 7+ 0 | 82.3195 | 128.12 | \| q Q | \| | \| | \| | \| |
| 7+15 | 83.5972 | 131.38 | \| q Q | \| | \| | \| | \| |
| 7+30 | 86.7200 | 136.32 | \| q Q | \| | \| | \| | \| |
| 7+45 | 93.5173 | 145.63 | \| q Q | \| | \| | \| | \| |
| 8+ 0 | 101.2793 | 156.81 | \| q Q | \| | \| | \| | \| |
| 8+15 | 113.6974 | 174.19 | \| q Q | \| | \| | \| | \| |
| 8+30 | 126.8746 | 193.25 | \| q Q | \| | \| | \| | \| |
| 8+45 | 134.6719 | 206.50 | \| q Q | \| | \| | \| | \| |
| 9+ 0 | 146.3143 | 223.65 | \| q Q | \| | \| | \| | \| |
| 9+15 | 162.1801 | 246.26 | \| q Q | \| | \| | \| | \| |
| 9+30 | 180.6127 | 272.83 | \| q Q | \| | \| | \| | \| |
| 9+45 | 194.5615 | 295.18 | \| q Q | \| | \| | \| | \| |
| 10+ 0 | 207.9486 | 316.70 | \| q Q | \| | \| | \| | \| |
| 10+15 | 192.6622 | 303.75 | \| q Q | \| | \| | \| | \| |
| 10+30 | 155.6282 | 261.00 | \| q Q | \| | \| | \| | \| |
| 10+45 | 164.9568 | 266.82 | \| q Q | \| | \| | \| | \| |
| 11+ 0 | 190.6695 | 295.79 | \| q Q | \| | \| | \| | \| |
| 11+15 | 192.8627 | 302.09 | \| q Q | \| | \| | \| | \| |
| 11+30 | 189.0776 | 300.18 | \| q Q | \| | \| | \| | \| |
| 11+45 | 182.8846 | 293.40 | \| q Q | \| | \| | \| | \| |
| 12+ 0 | 176.0632 | 284.69 | \| q Q | \| | \| | \| | \| |
| 12+15 | 203.9832 | 316.61 | \| q Q | \| | \| | \| | \| |
| 12+30 | 248.6731 | 373.45 | \| q Q | \| | \| | \| | \| |
| 12+45 | 272.3803 | 412.00 | \| q Q | \| | \| | \| | \| |
| 13+ 0 | 293.9731 | 448.19 | \| q Q | \| | \| | \| | \| |
| 13+15 | 324.4098 | 495.05 | \| q Q | \| | \| | \| | \| |
| 13+30 | 358.9736 | 548.07 | \| q Q | \| | \| | \| | \| |
| 13+45 | 329.4842 | 526.85 | \| q Q | \| | \| | \| | \| |
| 14+ 0 | 270.2603 | 461.39 | \| q Q | \| | \| | \| | \| |
| 14+15 | 270.8354 | 454.96 | \| q Q | \| | \| | \| | \| |
| 14+30 | 285.1866 | 467.56 | \| q Q | \| | \| | \| | \| |
| 14+45 | 281.8699 | 463.81 | \| q Q | \| | \| | \| | \| |
| 15+ 0 | 277.0789 | 457.82 | \| q Q | \| | \| | \| | \| |
| 15+15 | 268.9903 | 447.16 | \| q Q | \| | \| | \| | \| |
| 15+30 | 259.3524 | 433.53 | \| q Q | \| | \| | \| | \| |
| 15+45 | 237.4573 | 404.39 | \| q Q | \| | \| | \| | \| |
| 16+ 0 | 212.2200 | 368.90 | \| q Q | \| | \| | \| | \| |
| 16+15 | 156.8022 | 294.51 | \| q Q | \| | \| | \| | \| |
| 16+30 | 74.0714 | 182.66 | \| q Q | \| | \| | \| | \| |
| 16+45 | 49.8040 | 131.13 | \| q Q | \| | \| | \| | \| |
| 17+ 0 | 35.7729 | 96.99 | \| q Q | \| | \| | \| | \| |
| 17+15 | 34.8550 | 82.44 | \| q Q | \| | \| | \| | \| |
| 17+30 | 38.9309 | 77.74 | \| q Q | \| | \| | \| | \| |
| 17+45 | 40.7412 | 73.92 | \| q Q | \| | \| | \| | \| |
| 18+ 0 | 38.9880 | 68.19 | \| q Q | \| | \| | \| | \| |
| 18+15 | 35.4184 | 61.42 | \| q Q | \| | \| | \| | \| |
| 18+30 | 34.7568 | 58.45 | \| q Q | \| | \| | \| | \| |
| 18+45 | 31.8179 | 53.55 | \| qQ | \| | \| | \| | \| |
| 19+ 0 | 25.0207 | 44.17 | \| q Q | \| | \| | \| | \| |
| 19+15 | 22.2234 | 38.96 | \| qQ | \| | \| | \| | \| |
| 19+30 | 27.2863 | 43.38 | \| q Q | \| | \| | \| | \| |
| 19+45 | 29.1948 | 45.67 | \| qQ | \| | \| | \| | \| |
| 20+ 0 | 23.6995 | 39.61 | \| qQ | \| | \| | \| | \| |
| 20+15 | 21.6072 | 36.46 | \| qQ | \| | \| | \| | \| |
| 20+30 | 24.6201 | 39.14 | \| qQ | \| | \| | \| | \| |
| 20+45 | 25.1284 | 39.81 | \| qQ | \| | \| | \| | \| |
| 21+ 0 | 22.6702 | 37.04 | \| qQ | \| | \| | \| | \| |
| 21+15 | 21.1507 | 34.96 | \| qQ | \| | \| | \| | \| |
| 21+30 | 21.8892 | 35.27 | \| qQ | \| | \| | \| | \| |
| 21+45 | 20.8781 | 33.98 | \| qQ | \| | \| | \| | \| |
| 22+ 0 | 21.6408 | 34.57 | \| qQ | \| | \| | \| | \| |
| 22+15 | 20.6942 | 33.52 | \| qQ | \| | \| | \| | \| |
| 22+30 | 21.6408 | 34.42 | \| qQ | \| | \| | \| | \| |
| 22+45 | 18.2118 | 30.45 | \| qQ | \| | \| | \| | \| |
| 23+ 0 | 17.5744 | 29.09 | \| qQ | \| | \| | \| | \| |
| 23+15 | 17.1824 | 28.16 | \| qQ | \| | \| | \| | \| |
| 23+30 | 17.1179 | 27.75 | \| qQ | \| | \| | \| | \| |
| 23+45 | 16.9340 | 27.36 | \| Q | \| | \| | \| | \| |
| 24+ 0 | 16.9340 | 27.24 | \| Q | \| | \| | \| | \| |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 24+15 | 11.9692 | 21.19 | qQ | \| | \| | \| | \| |
| 24+30 | 3.8364 | 10.59 | Q | \| | \| | \| | \| |
| 24+45 | 1.7777 | 6.04 | Q | \| | \| | \| | \| |
| 25+ 0 | 0.8646 | 3.37 | Q | \| | \| | \| | \| |
| 25+15 | 0.3678 | 1.79 | Q | \| | \| | \| | \| |
| 25+30 | 0.0000 | 0.78 | Q | \| | \| | \| | \| |
| 25+45 | 0.0000 | 0.42 | Q | \| | \| | \| | \| |
| 26+ 0 | 0.0000 | 0.23 | Q | \| | \| | \| | \| |
| 26+15 | 0.0000 | 0.12 | Q | \| | \| | \| | \| |
| 26+30 | 0.0000 | 0.06 | Q | \| | \| | \| | \| |
| 26+45 | 0.0000 | 0.03 | Q | \| | \| | \| | \| |
| 27+ 0 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 27+15 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 27+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 27+45 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 28+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 28+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 28+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |

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**********HYDROGRAPH DATA**********

Number of intervals = 114
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 548.067 (CFS)
Total volume = 326.317 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 4.000 to Point/Station 4.000
**** RETARDING BASIN ROUTING ****

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User entry of depth-outflow-storage data

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Total number of inflow hydrograph intervals = 114
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

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Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

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Depth vs. Storage and Depth vs. Discharge data:

| Basin Depth (Ft.) | Storage (Ac.Ft) | Outflow (CFS) | (S-O*dt/2) (Ac.Ft) | (S+O*dt/2) (Ac.Ft) |
|---|---|---|---|---|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1.000 | 10.000 | 800.000 | 1.736 | 18.264 |
| 2.000 | 25.000 | 1130.000 | 13.326 | 36.674 |
| 3.000 | 45.000 | 1600.000 | 28.471 | 61.529 |

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Hydrograph Detention Basin Routing

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Graph values: 'I'= unit inflow; 'O'=outflow at time shown

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| Time (Hours) | Inflow (CFS) | Outflow (CFS) | Storage (Ac.Ft) | .0 137.0 274.03 411.05 548.07 | Depth (Ft.) |
|---|---|---|---|---|---|
| 0.250 | 5.93 | 2.68 | 0.034 | O \| \| \| \| | 0.00 |
| 0.500 | 19.52 | 11.77 | 0.147 | OI \| \| \| \| | 0.01 |
| 0.750 | 29.35 | 23.23 | 0.290 | O \| \| \| \| | 0.03 |
| 1.000 | 37.27 | 32.35 | 0.404 | OI \| \| \| \| | 0.04 |
| 1.250 | 42.47 | 39.16 | 0.489 | O \| \| \| \| | 0.05 |
| 1.500 | 41.25 | 41.61 | 0.520 | O \| \| \| \| | 0.05 |



| | | | | | |
|---|---|---|---|---|---|
| 1.750 | 41.18 | 41.25 | 0.516 | O \| \| \| \| | 0.05 |
| 2.000 | 44.01 | 42.47 | 0.531 | O \| \| \| \| | 0.05 |
| 2.250 | 49.21 | 46.22 | 0.578 | O \| \| \| \| | 0.06 |
| 2.500 | 51.26 | 49.85 | 0.623 | O \| \| \| \| | 0.06 |
| 2.750 | 55.56 | 53.07 | 0.663 | O \| \| \| \| | 0.07 |
| 3.000 | 61.62 | 58.06 | 0.726 | O \| \| \| \| | 0.07 |
| 3.250 | 64.38 | 62.53 | 0.782 | O \| \| \| \| | 0.08 |
| 3.500 | 65.88 | 64.88 | 0.811 | O \| \| \| \| | 0.08 |
| 3.750 | 66.76 | 66.18 | 0.827 | O \| \| \| \| | 0.08 |
| 4.000 | 70.31 | 68.32 | 0.854 | OI \| \| \| \| | 0.09 |
| 4.250 | 75.80 | 72.61 | 0.908 | O \| \| \| \| | 0.09 |
| 4.500 | 81.18 | 77.93 | 0.974 | O \| \| \| \| | 0.10 |
| 4.750 | 87.85 | 83.89 | 1.049 | OI \| \| \| \| | 0.10 |
| 5.000 | 93.93 | 90.22 | 1.128 | O \| \| \| \| | 0.11 |
| 5.250 | 95.07 | 94.09 | 1.176 | O \| \| \| \| | 0.12 |
| 5.500 | 90.74 | 93.02 | 1.163 | O \| \| \| \| | 0.12 |
| 5.750 | 96.42 | 93.53 | 1.169 | O \| \| \| \| | 0.12 |
| 6.000 | 102.34 | 98.83 | 1.235 | O \| \| \| \| | 0.12 |
| 6.250 | 107.98 | 104.56 | 1.307 | O \| \| \| \| | 0.13 |
| 6.500 | 114.62 | 110.66 | 1.383 | O \| \| \| \| | 0.14 |
| 6.750 | 120.95 | 117.11 | 1.464 | OI \| \| \| \| | 0.15 |
| 7.000 | 128.12 | 123.83 | 1.548 | O \| \| \| \| | 0.15 |
| 7.250 | 131.38 | 129.19 | 1.615 | O \| \| \| \| | 0.16 |
| 7.500 | 136.32 | 133.41 | 1.668 | O \| \| \| \| | 0.17 |
| 7.750 | 145.63 | 140.26 | 1.753 | O \| \| \| \| | 0.18 |
| 8.000 | 156.81 | 150.18 | 1.877 | OI \| \| \| \| | 0.19 |
| 8.250 | 174.19 | 164.04 | 2.051 | \|OI \| \| \| | 0.21 |
| 8.500 | 193.25 | 181.85 | 2.273 | \| OI \| \| \| | 0.23 |
| 8.750 | 206.50 | 198.16 | 2.477 | \| OI \| \| \| | 0.25 |
| 9.000 | 223.65 | 213.47 | 2.668 | \| OI \| \| \| | 0.27 |
| 9.250 | 246.26 | 232.91 | 2.911 | \| OI \| \| \| | 0.29 |
| 9.500 | 272.83 | 257.02 | 3.213 | \| O \| \| \| | 0.32 |
| 9.750 | 295.18 | 281.44 | 3.518 | \| OI \| \| \| | 0.35 |
| 10.000 | 316.70 | 303.61 | 3.795 | \| \|OI \| \| | 0.38 |
| 10.250 | 303.75 | 309.60 | 3.870 | \| \|IO \| \| | 0.39 |
| 10.500 | 261.00 | 284.97 | 3.562 | \| IO \| \| | 0.36 |
| 10.750 | 266.82 | 265.91 | 3.324 | \| O \| \| | 0.33 |
| 11.000 | 295.79 | 279.84 | 3.498 | \| OI \| \| | 0.35 |
| 11.250 | 302.09 | 297.12 | 3.714 | \| \|O \| \| | 0.37 |
| 11.500 | 300.18 | 300.76 | 3.759 | \| \|O \| \| | 0.38 |
| 11.750 | 293.40 | 297.17 | 3.715 | \| \|O \| \| | 0.37 |
| 12.000 | 284.69 | 289.82 | 3.623 | \| O \| \| | 0.36 |
| 12.250 | 316.61 | 299.62 | 3.745 | \| \|OI \| \| | 0.37 |
| 12.500 | 373.45 | 340.72 | 4.259 | \| \| O I \| \| | 0.43 |
| 12.750 | 412.00 | 387.78 | 4.847 | \| \| \| O I \| | 0.48 |
| 13.000 | 448.19 | 426.07 | 5.326 | \| \| \| O I \| | 0.53 |
| 13.250 | 495.05 | 467.29 | 5.841 | \| \| \| \| OI \| | 0.58 |
| 13.500 | 548.07 | 516.40 | 6.455 | \| \| \| \| \| O I | 0.65 |
| 13.750 | 526.85 | 535.46 | 6.693 | \| \| \| \| \| IO \| | 0.67 |
| 14.000 | 461.39 | 498.05 | 6.226 | \| \| \| \| I O \| | 0.62 |
| 14.250 | 454.96 | 461.97 | 5.775 | \| \| \| \| O \| | 0.58 |
| 14.500 | 467.56 | 461.33 | 5.767 | \| \| \| \| OI \| | 0.58 |
| 14.750 | 463.81 | 465.27 | 5.816 | \| \| \| \| O \| | 0.58 |
| 15.000 | 457.82 | 461.24 | 5.765 | \| \| \| \| O \| | 0.58 |
| 15.250 | 447.16 | 453.32 | 5.666 | \| \| \| \| O \| | 0.57 |
| 15.500 | 433.53 | 441.58 | 5.520 | \| \| \| \| O \| | 0.55 |
| 15.750 | 404.39 | 421.11 | 5.264 | \| \| \| IO \| | 0.53 |
| 16.000 | 368.90 | 389.92 | 4.874 | \| \| \| IO \| | 0.49 |
| 16.250 | 294.51 | 337.24 | 4.215 | \| \| I O \| | 0.42 |
| 16.500 | 182.66 | 247.96 | 3.100 | \| \| I O \| | 0.31 |
| 16.750 | 131.13 | 165.55 | 2.069 | \| I O \| | 0.21 |
| 17.000 | 96.99 | 118.95 | 1.487 | \| IO \| | 0.15 |
| 17.250 | 82.44 | 92.49 | 1.156 | \| IO \| | 0.12 |
| 17.500 | 77.74 | 81.27 | 1.016 | \| O \| | 0.10 |
| 17.750 | 73.92 | 76.35 | 0.954 | \| O \| | 0.10 |
| 18.000 | 68.19 | 71.56 | 0.894 | \| IO \| | 0.09 |
| 18.250 | 61.42 | 65.45 | 0.818 | \| O \| | 0.08 |
| 18.500 | 58.45 | 60.46 | 0.756 | \| O \| | 0.08 |
| 18.750 | 53.55 | 56.42 | 0.705 | \| O \| | 0.07 |
| 19.000 | 44.17 | 49.58 | 0.620 | O \| \| \| \| | 0.06 |
| 19.250 | 38.96 | 42.33 | 0.529 | O \| \| \| \| | 0.05 |
| 19.500 | 43.38 | 41.28 | 0.516 | O \| \| \| \| | 0.05 |

```
19.750   45.67   44.21    0.553  | 0      |        |        |        |     0.06
20.000   39.61   42.79    0.535  | 0      |        |        |        |     0.05
20.250   36.46   38.49    0.481  | 0      |        |        |        |     0.05
20.500   39.14   37.87    0.473  | 0      |        |        |        |     0.05
20.750   39.81   39.32    0.492  | 0      |        |        |        |     0.05
21.000   37.04   38.51    0.481  | 0      |        |        |        |     0.05
21.250   34.96   36.24    0.453  | 0      |        |        |        |     0.05
21.500   35.27   35.22    0.440  | 0      |        |        |        |     0.04
21.750   33.98   34.68    0.433  |I0      |        |        |        |     0.04
22.000   34.57   34.31    0.429  | 0      |        |        |        |     0.04
22.250   33.52   34.07    0.426  |0       |        |        |        |     0.04
22.500   34.42   33.98    0.425  |OI      |        |        |        |     0.04
22.750   30.45   32.58    0.407  |0       |        |        |        |     0.04
23.000   29.09   30.04    0.375  |0       |        |        |        |     0.04
23.250   28.16   28.76    0.359  |0       |        |        |        |     0.04
23.500   27.75   28.03    0.350  |0       |        |        |        |     0.04
23.750   27.36   27.60    0.345  |0       |        |        |        |     0.03
24.000   27.24   27.33    0.342  |0       |        |        |        |     0.03
24.250   21.19   24.51    0.306  |0       |        |        |        |     0.03
24.500   10.59   16.71    0.209  0        |        |        |        |     0.02
24.750    6.04    9.11    0.114  0        |        |        |        |     0.01
25.000    3.37    5.13    0.064  0        |        |        |        |     0.01
25.250    1.79    2.82    0.035  0        |        |        |        |     0.00
25.500    0.78    1.43    0.018  0        |        |        |        |     0.00
25.750    0.42    0.68    0.008  0        |        |        |        |     0.00
26.000    0.23    0.36    0.004  0        |        |        |        |     0.00
26.250    0.12    0.19    0.002  0        |        |        |        |     0.00
26.500    0.06    0.10    0.001  0        |        |        |        |     0.00
26.750    0.03    0.05    0.001  0        |        |        |        |     0.00
27.000    0.02    0.03    0.000  0        |        |        |        |     0.00
27.250    0.01    0.01    0.000  0        |        |        |        |     0.00
27.500    0.00    0.01    0.000  0        |        |        |        |     0.00
27.750    0.00    0.00    0.000  0        |        |        |        |     0.00
28.000    0.00    0.00    0.000  0        |        |        |        |     0.00
28.250    0.00    0.00    0.000  0        |        |        |        |     0.00
28.500    0.00    0.00    0.000  0        |        |        |        |     0.00
28.750    0.00    0.00    0.000  0        |        |        |        |     0.00

    ****************************HYDROGRAPH DATA****************************
                Number of intervals =   115
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      535.457 (CFS)
                Total volume =     326.317 (Ac.Ft)
          Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)      0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
    ***********************************************************************

    ----------------------------------------------------------------------


    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
    Process from Point/Station        4.000 to Point/Station        4.000
    **** STORE OR DELETE CURRENT HYDROGRAPH ****
    ______________________________________________________________________
    Current stream hydrograph saved in file LineB24hr.rte
    ****************************HYDROGRAPH DATA****************************
                Number of intervals =     0
                Time interval =    0.0 (Min.)
                Maximum/Peak flow rate =        0.000 (CFS)
                Total volume =        0.000 (Ac.Ft)
          Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)      0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
    ***********************************************************************

    ----------------------------------------------------------------------
```

```
        U n i t   H y d r o g r a p h   A n a l y s i s

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
              Study date  07/29/13 File: OffsiteB124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Watershed B, Offsite B1
Proposed Condition
100-year, 24-hour

----------------------------------------------------------------------
Drainage Area =      92.10(Ac.)  =      0.144 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      92.10(Ac.)  =      0.144 Sq. Mi.
Length along longest watercourse =     3800.00(Ft.)
Length along longest watercourse measured to centroid =     1780.00(Ft.)
Length along longest watercourse =      0.720 Mi.
Length along longest watercourse measured to centroid =      0.337 Mi.
Difference in elevation =      226.00(Ft.)
Slope along watercourse =     314.0211 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =     0.141 Hr.
Lag time =     8.46 Min.
25% of lag time =     2.11 Min.
40% of lag time =     3.38 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
       92.10             1.80                165.78

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
       92.10             4.50                414.45

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.98 %
Adjusted average point rain =    4.499(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
    19.000            46.00          0.000
    28.000            66.00          0.000
     3.500            77.00          0.000
```



```
    41.600            83.00          0.000
 Total Area Entered =      92.10(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
46.0  46.0      0.611      0.000        0.611         0.206     0.126
66.0  66.0      0.405      0.000        0.405         0.304     0.123
77.0  77.0      0.279      0.000        0.279         0.038     0.011
83.0  83.0      0.210      0.000        0.210         0.452     0.095
                                                    Sum (F) =   0.355
Area averaged mean soil loss (F) (In/Hr) =  0.355
Minimum soil loss rate ((In/Hr)) =  0.177
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
------------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                      FOOTHILL S-Curve
------------------------------------------------------------------------
                    Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
    (hrs)                           Graph %           (CFS)
------------------------------------------------------------------------
    1   0.250         177.319          37.414            34.727
    2   0.500         354.637          52.090            48.350
    3   0.750         531.956           8.760             8.131
    4   1.000         709.274           1.737             1.612
                                 Sum = 100.000    Sum=     92.820
------------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)  Percent   (In/Hr)       Max    |   Low          (In/Hr)
  1   0.25     0.20      0.036      (  0.626)     0.032          0.004
  2   0.50     0.30      0.054      (  0.619)     0.049          0.005
  3   0.75     0.30      0.054      (  0.612)     0.049          0.005
  4   1.00     0.40      0.072      (  0.605)     0.065          0.007
  5   1.25     0.30      0.054      (  0.597)     0.049          0.005
  6   1.50     0.30      0.054      (  0.590)     0.049          0.005
  7   1.75     0.30      0.054      (  0.583)     0.049          0.005
  8   2.00     0.40      0.072      (  0.576)     0.065          0.007
  9   2.25     0.40      0.072      (  0.569)     0.065          0.007
 10   2.50     0.40      0.072      (  0.562)     0.065          0.007
 11   2.75     0.50      0.090      (  0.556)     0.081          0.009
 12   3.00     0.50      0.090      (  0.549)     0.081          0.009
 13   3.25     0.50      0.090      (  0.542)     0.081          0.009
 14   3.50     0.50      0.090      (  0.535)     0.081          0.009
 15   3.75     0.50      0.090      (  0.528)     0.081          0.009
 16   4.00     0.60      0.108      (  0.522)     0.097          0.011
 17   4.25     0.60      0.108      (  0.515)     0.097          0.011
 18   4.50     0.70      0.126      (  0.509)     0.113          0.013
 19   4.75     0.70      0.126      (  0.502)     0.113          0.013
 20   5.00     0.80      0.144      (  0.496)     0.130          0.014
 21   5.25     0.60      0.108      (  0.489)     0.097          0.011
 22   5.50     0.70      0.126      (  0.483)     0.113          0.013
 23   5.75     0.80      0.144      (  0.477)     0.130          0.014
 24   6.00     0.80      0.144      (  0.470)     0.130          0.014
 25   6.25     0.90      0.162      (  0.464)     0.146          0.016
 26   6.50     0.90      0.162      (  0.458)     0.146          0.016
 27   6.75     1.00      0.180      (  0.452)     0.162          0.018
 28   7.00     1.00      0.180      (  0.446)     0.162          0.018
 29   7.25     1.00      0.180      (  0.440)     0.162          0.018
 30   7.50     1.10      0.198      (  0.434)     0.178          0.020
 31   7.75     1.20      0.216      (  0.428)     0.194          0.022
 32   8.00     1.30      0.234      (  0.422)     0.211          0.023
 33   8.25     1.50      0.270      (  0.416)     0.243          0.027
 34   8.50     1.50      0.270      (  0.410)     0.243          0.027
```

| | | | | | | |
|---|---|---|---|---|---|---|
| 35 | 8.75 | 1.60 | 0.288 | ( 0.404) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.399) | 0.275 | 0.031 |
| 37 | 9.25 | 1.90 | 0.342 | ( 0.393) | 0.308 | 0.034 |
| 38 | 9.50 | 2.00 | 0.360 | ( 0.387) | 0.324 | 0.036 |
| 39 | 9.75 | 2.10 | 0.378 | ( 0.382) | 0.340 | 0.038 |
| 40 | 10.00 | 2.20 | 0.396 | ( 0.376) | 0.356 | 0.040 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.371) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.366) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | ( 0.360) | 0.324 | 0.036 |
| 44 | 11.00 | 2.00 | 0.360 | ( 0.355) | 0.324 | 0.036 |
| 45 | 11.25 | 1.90 | 0.342 | ( 0.350) | 0.308 | 0.034 |
| 46 | 11.50 | 1.90 | 0.342 | ( 0.345) | 0.308 | 0.034 |
| 47 | 11.75 | 1.70 | 0.306 | ( 0.339) | 0.275 | 0.031 |
| 48 | 12.00 | 1.80 | 0.324 | ( 0.334) | 0.292 | 0.032 |
| 49 | 12.25 | 2.50 | 0.450 | 0.329 | ( 0.405) | 0.121 |
| 50 | 12.50 | 2.60 | 0.468 | 0.324 | ( 0.421) | 0.143 |
| 51 | 12.75 | 2.80 | 0.504 | 0.320 | ( 0.454) | 0.184 |
| 52 | 13.00 | 2.90 | 0.522 | 0.315 | ( 0.470) | 0.207 |
| 53 | 13.25 | 3.40 | 0.612 | 0.310 | ( 0.551) | 0.302 |
| 54 | 13.50 | 3.40 | 0.612 | 0.305 | ( 0.551) | 0.307 |
| 55 | 13.75 | 2.30 | 0.414 | 0.301 | ( 0.373) | 0.113 |
| 56 | 14.00 | 2.30 | 0.414 | 0.296 | ( 0.373) | 0.118 |
| 57 | 14.25 | 2.70 | 0.486 | 0.292 | ( 0.437) | 0.194 |
| 58 | 14.50 | 2.60 | 0.468 | 0.287 | ( 0.421) | 0.181 |
| 59 | 14.75 | 2.60 | 0.468 | 0.283 | ( 0.421) | 0.185 |
| 60 | 15.00 | 2.50 | 0.450 | 0.278 | ( 0.405) | 0.171 |
| 61 | 15.25 | 2.40 | 0.432 | 0.274 | ( 0.389) | 0.158 |
| 62 | 15.50 | 2.30 | 0.414 | 0.270 | ( 0.373) | 0.144 |
| 63 | 15.75 | 1.90 | 0.342 | 0.266 | ( 0.308) | 0.076 |
| 64 | 16.00 | 1.90 | 0.342 | 0.262 | ( 0.308) | 0.080 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.258) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.254) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.250) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.246) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.243) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.239) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.235) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.232) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.228) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.225) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.222) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.219) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.216) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.213) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.210) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.207) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.204) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.202) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.199) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.197) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.194) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.192) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.190) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.188) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.186) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.184) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.183) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.181) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.180) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.179) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.178) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.177) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.7

Flood volume = Effective rainfall 0.94(In)
times area 92.1(Ac.)/[(In)/(Ft.)] = 7.2(Ac.Ft)
Total soil loss = 3.56(In)
Total soil loss = 27.346(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 312975.8 Cubic Feet
Total soil loss = 1191207.0 Cubic Feet

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Peak flow rate of this hydrograph = 27.237(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 7.5 | 15.0 | 22.5 | 30.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0026 | 0.13 | Q | | | | |
| 0+30 | 0.0101 | 0.36 | Q | | | | |
| 0+45 | 0.0199 | 0.48 | Q | | | | |
| 1+ 0 | 0.0315 | 0.56 | Q | | | | |
| 1+15 | 0.0437 | 0.59 | Q | | | | |
| 1+30 | 0.0543 | 0.52 | Q | | | | |
| 1+45 | 0.0648 | 0.50 | Q | | | | |
| 2+ 0 | 0.0764 | 0.56 | Q | | | | |
| 2+15 | 0.0899 | 0.65 | Q | | | | |
| 2+30 | 0.1036 | 0.67 | Q | | | | |
| 2+45 | 0.1187 | 0.73 | Q | | | | |
| 3+ 0 | 0.1356 | 0.82 | VQ | | | | |
| 3+15 | 0.1528 | 0.83 | VQ | | | | |
| 3+30 | 0.1701 | 0.84 | VQ | | | | |
| 3+45 | 0.1874 | 0.84 | Q | | | | |
| 4+ 0 | 0.2059 | 0.90 | Q | | | | |
| 4+15 | 0.2263 | 0.99 | Q | | | | |
| 4+30 | 0.2482 | 1.06 | Q | | | | |
| 4+45 | 0.2720 | 1.15 | Q | | | | |
| 5+ 0 | 0.2974 | 1.23 | Q | | | | |
| 5+15 | 0.3221 | 1.19 | Q | | | | |
| 5+30 | 0.3448 | 1.10 | Q | | | | |
| 5+45 | 0.3700 | 1.22 | QV | | | | |
| 6+ 0 | 0.3972 | 1.32 | QV | | | | |
| 6+15 | 0.4261 | 1.40 | QV | | | | |
| 6+30 | 0.4568 | 1.49 | QV | | | | |
| 6+45 | 0.4891 | 1.56 | Q | | | | |
| 7+ 0 | 0.5233 | 1.65 | Q | | | | |
| 7+15 | 0.5577 | 1.67 | QV | | | | |
| 7+30 | 0.5936 | 1.73 | QV | | | | |
| 7+45 | 0.6325 | 1.88 | QV | | | | |
| 8+ 0 | 0.6748 | 2.05 | QV | | | | |
| 8+15 | 0.7218 | 2.28 | QV | | | | |
| 8+30 | 0.7729 | 2.47 | QV | | | | |
| 8+45 | 0.8258 | 2.56 | QV | | | | |
| 9+ 0 | 0.8820 | 2.72 | QV | | | | |
| 9+15 | 0.9429 | 2.95 | Q V | | | | |
| 9+30 | 1.0090 | 3.20 | QV | | | | |
| 9+45 | 1.0789 | 3.38 | Q V | | | | |
| 10+ 0 | 1.1522 | 3.55 | Q V | | | | |
| 10+15 | 1.2187 | 3.22 | Q V | | | | |
| 10+30 | 1.2730 | 2.63 | Q V | | | | |
| 10+45 | 1.3317 | 2.84 | Q V | | | | |
| 11+ 0 | 1.3989 | 3.25 | Q V | | | | |
| 11+15 | 1.4664 | 3.27 | Q V | | | | |
| 11+30 | 1.5324 | 3.19 | Q V | | | | |
| 11+45 | 1.5955 | 3.05 | Q V | | | | |
| 12+ 0 | 1.6562 | 2.94 | Q V | | | | |
| 12+15 | 1.7814 | 6.06 | QV | | | | |
| 12+30 | 2.0112 | 11.13 | V Q | | | | |
| 12+45 | 2.3083 | 14.38 | V Q | | | | |
| 13+ 0 | 2.6693 | 17.47 | V Q | | | | |
| 13+15 | 3.1288 | 22.24 | V Q | | | | |
| 13+30 | 3.6915 | 27.24 | V Q | | | | |
| 13+45 | 4.1368 | 21.55 | V Q | | | | |
| 14+ 0 | 4.3962 | 12.55 | Q V | | | | |
| 14+15 | 4.6827 | 13.87 | Q V | | | | |
| 14+30 | 5.0302 | 16.82 | Q V | | | | |
| 14+45 | 5.3804 | 16.95 | Q V | | | | |
| 15+ 0 | 5.7255 | 16.70 | Q V | | | | |
| 15+15 | 6.0473 | 15.57 | Q V | | | | |

```
 15+30     6.3433    14.33 |          |          Q|          |     V    |
 15+45     6.5740    11.17 |          |     Q    |          |     V    |
 16+ 0     6.7371     7.89 |          |Q         |          |      V   |
 16+15     6.8399     4.98 |     Q    |          |          |        V |
 16+30     6.8683     1.37 |Q         |          |          |        V |
 16+45     6.8832     0.72 Q          |          |          |        V |
 17+ 0     6.8940     0.52 Q          |          |          |        V |
 17+15     6.9070     0.63 Q          |          |          |        V |
 17+30     6.9235     0.80 |Q         |          |          |        V |
 17+45     6.9407     0.83 |Q         |          |          |        V |
 18+ 0     6.9566     0.77 |Q         |          |          |        V |
 18+15     6.9708     0.69 Q          |          |          |        V |
 18+30     6.9847     0.67 Q          |          |          |        V |
 18+45     6.9972     0.61 Q          |          |          |        V |
 19+ 0     7.0066     0.46 Q          |          |          |         V|
 19+15     7.0153     0.42 Q          |          |          |         V|
 19+30     7.0266     0.55 Q          |          |          |         V|
 19+45     7.0387     0.59 Q          |          |          |         V|
 20+ 0     7.0481     0.45 Q          |          |          |         V|
 20+15     7.0567     0.42 Q          |          |          |         V|
 20+30     7.0667     0.49 Q          |          |          |         V|
 20+45     7.0770     0.50 Q          |          |          |         V|
 21+ 0     7.0861     0.44 Q          |          |          |         V|
 21+15     7.0947     0.41 Q          |          |          |         V|
 21+30     7.1034     0.42 Q          |          |          |         V|
 21+45     7.1119     0.41 Q          |          |          |         V|
 22+ 0     7.1207     0.42 Q          |          |          |         V|
 22+15     7.1292     0.41 Q          |          |          |         V|
 22+30     7.1380     0.42 Q          |          |          |         V|
 22+45     7.1452     0.35 Q          |          |          |         V|
 23+ 0     7.1521     0.34 Q          |          |          |         V|
 23+15     7.1591     0.33 Q          |          |          |         V|
 23+30     7.1660     0.33 Q          |          |          |         V|
 23+45     7.1729     0.33 Q          |          |          |         V|
 24+ 0     7.1798     0.33 Q          |          |          |         V|
 24+15     7.1841     0.21 Q          |          |          |         V|
 24+30     7.1848     0.04 Q          |          |          |         V|
 24+45     7.1849     0.01 Q          |          |          |         V|
--------------------------------------------------------------------------
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        U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  09/10/13 File: SubB124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Watershed B, Onsite B1
Proposed Condition
100-yr 24-hr

------------------------------------------------------------------------
Drainage Area =     182.80(Ac.)  =      0.286 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     182.80(Ac.)  =      0.286 Sq. Mi.
Length along longest watercourse =    3500.00(Ft.)
Length along longest watercourse measured to centroid =    1750.00(Ft.)
Length along longest watercourse =       0.663 Mi.
Length along longest watercourse measured to centroid =       0.331 Mi.
Difference in elevation =      70.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.084 Hr.
Lag time =     5.01 Min.
25% of lag time =     1.25 Min.
40% of lag time =     2.00 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        0.00            0.01                 0.00
        0.00            0.01                 0.00
      182.80            1.80               329.04

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      182.80            4.50               822.60

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.96 %
Adjusted average point rain =    4.498(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   182.800            85.00          0.750
```

Total Area Entered = 182.80(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 299.389 | 56.617 | 104.305 |
| 2 | 0.500 | 598.777 | 37.162 | 68.463 |
| 3 | 0.750 | 898.166 | 6.221 | 11.461 |
| | | | Sum = 100.000 | Sum= 184.228 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.275 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.293 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.312 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |
| 42 | 10.50 | 1.50 | 0.270 | 0.063 | ( 0.081) | 0.207 |
| 43 | 10.75 | 2.00 | 0.360 | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | 0.052 | ( 0.184) | 0.559 |
| 55 | 13.75 | 2.30 | 0.414 | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | 0.011 | 0.025 |

(Loss Rate Not Used)
Sum = 100.0 Sum = 14.5
Flood volume = Effective rainfall 3.63(In)
times area 182.8(Ac.)/[(In)/(Ft.)] = 55.4(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 13.170(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 2411284.4 Cubic Feet
Total soil loss = 573687.5 Cubic Feet

Peak flow rate of this hydrograph = 102.016(CFS)

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 50.0 | 100.0 | 150.0 | 200.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0543 | 2.63 | Q | | | | |
| 0+30 | 0.1714 | 5.67 | VQ | | | | |
| 0+45 | 0.3124 | 6.82 | VQ | | | | |
| 1+ 0 | 0.4834 | 8.28 | VQ | | | | |
| 1+15 | 0.6452 | 7.83 | VQ | | | | |
| 1+30 | 0.7920 | 7.11 | VQ | | | | |
| 1+45 | 0.9359 | 6.96 | VQ | | | | |
| 2+ 0 | 1.1070 | 8.28 | VQ | | | | |
| 2+15 | 1.2959 | 9.14 | VQ | | | | |
| 2+30 | 1.4878 | 9.29 | Q | | | | |
| 2+45 | 1.7068 | 10.60 | VQ | | | | |
| 3+ 0 | 1.9436 | 11.46 | VQ | | | | |
| 3+15 | 2.1835 | 11.61 | VQ | | | | |
| 3+30 | 2.4233 | 11.61 | VQ | | | | |
| 3+45 | 2.6632 | 11.61 | VQ | | | | |
| 4+ 0 | 2.9302 | 12.92 | Q | | | | |
| 4+15 | 3.2150 | 13.79 | Q | | | | |
| 4+30 | 3.5300 | 15.24 | VQ | | | | |
| 4+45 | 3.8627 | 16.11 | VQ | | | | |
| 5+ 0 | 4.2257 | 17.57 | Q | | | | |
| 5+15 | 4.5521 | 15.80 | Q | | | | |
| 5+30 | 4.8731 | 15.53 | Q | | | | |
| 5+45 | 5.2330 | 17.42 | Q | | | | |
| 6+ 0 | 5.6138 | 18.43 | QV | | | | |
| 6+15 | 6.0247 | 19.89 | QV | | | | |
| 6+30 | 6.4534 | 20.75 | Q | | | | |
| 6+45 | 6.9123 | 22.21 | Q | | | | |
| 7+ 0 | 7.3890 | 23.07 | QV | | | | |
| 7+15 | 7.8686 | 23.22 | QV | | | | |
| 7+30 | 8.3755 | 24.53 | Q V | | | | |
| 7+45 | 8.9273 | 26.71 | QV | | | | |
| 8+ 0 | 9.5271 | 29.03 | QV | | | | |
| 8+15 | 10.2229 | 33.68 | QV | | | | |
| 8+30 | 10.9733 | 36.32 | Q | | | | |
| 8+45 | 11.7743 | 38.77 | QV | | | | |
| 9+ 0 | 12.6433 | 42.06 | QV | | | | |
| 9+15 | 13.6233 | 47.43 | Q | | | | |
| 9+30 | 14.7009 | 52.16 | Q | | | | |
| 9+45 | 15.8550 | 55.86 | Q | | | | |
| 10+ 0 | 17.0812 | 59.35 | QV | | | | |
| 10+15 | 18.0691 | 47.81 | Q V | | | | |
| 10+30 | 18.8865 | 39.56 | Q V | | | | |
| 10+45 | 19.8716 | 47.68 | Q V | | | | |
| 11+ 0 | 20.9875 | 54.01 | Q V | | | | |
| 11+15 | 22.0893 | 53.33 | Q V | | | | |
| 11+30 | 23.1690 | 52.26 | Q V | | | | |
| 11+45 | 24.1702 | 48.46 | Q V | | | | |
| 12+ 0 | 25.1626 | 48.03 | Q V | | | | |
| 12+15 | 26.4468 | 62.15 | Q V | | | | |
| 12+30 | 27.9555 | 73.02 | Q V | | | | |
| 12+45 | 29.6003 | 79.61 | Q V | | | | |
| 13+ 0 | 31.3423 | 84.31 | Q V | | | | |
| 13+15 | 33.3154 | 95.50 | Q V | | | | |
| 13+30 | 35.4232 | 102.02 | Q V | | | | |
| 13+45 | 37.1286 | 82.54 | Q V | | | | |
| 14+ 0 | 38.5568 | 69.13 | Q V | | | | |
| 14+15 | 40.0963 | 74.51 | Q V | | | | |
| 14+30 | 41.7019 | 77.71 | Q V | | | | |
| 14+45 | 43.3018 | 77.44 | Q V | | | | |
| 15+ 0 | 44.8616 | 75.49 | Q V | | | | |
| 15+15 | 46.3599 | 72.52 | Q V | | | | |
| 15+30 | 47.7924 | 69.33 | Q V | | | | |
| 15+45 | 49.0428 | 60.52 | Q V | | | | |
| 16+ 0 | 50.1896 | 55.51 | Q V | | | | |
| 16+15 | 50.7888 | 29.00 | Q V | | | | |
| 16+30 | 51.0391 | 12.11 | Q V | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 16+45 | 51.2038 | 7.97 | Q | | | V | |
| 17+ 0 | 51.3507 | 7.11 | Q | | | V | |
| 17+15 | 51.5489 | 9.59 | Q | | | V | |
| 17+30 | 51.7828 | 11.32 | Q | | | V | |
| 17+45 | 52.0227 | 11.61 | Q | | | V | |
| 18+ 0 | 52.2353 | 10.29 | Q | | | V | |
| 18+15 | 52.4302 | 9.43 | Q | | | V | |
| 18+30 | 52.6221 | 9.29 | Q | | | V | |
| 18+45 | 52.7868 | 7.97 | Q | | | V | |
| 19+ 0 | 52.9065 | 5.79 | Q | | | V | |
| 19+15 | 53.0326 | 6.10 | Q | | | V | |
| 19+30 | 53.2007 | 8.13 | Q | | | V | |
| 19+45 | 53.3624 | 7.83 | Q | | | V | |
| 20+ 0 | 53.4821 | 5.79 | Q | | | V | |
| 20+15 | 53.6082 | 6.10 | Q | | | V | |
| 20+30 | 53.7491 | 6.82 | Q | | | V | |
| 20+45 | 53.8930 | 6.96 | Q | | | V | |
| 21+ 0 | 54.0098 | 5.65 | Q | | | V | |
| 21+15 | 54.1358 | 6.10 | Q | | | V | |
| 21+30 | 54.2496 | 5.51 | Q | | | V | |
| 21+45 | 54.3757 | 6.10 | Q | | | V | |
| 22+ 0 | 54.4894 | 5.51 | Q | | | V | |
| 22+15 | 54.6155 | 6.10 | Q | | | V | |
| 22+30 | 54.7293 | 5.51 | Q | | | V | |
| 22+45 | 54.8282 | 4.79 | Q | | | V | |
| 23+ 0 | 54.9241 | 4.64 | Q | | | V | |
| 23+15 | 55.0201 | 4.64 | Q | | | V | |
| 23+30 | 55.1160 | 4.64 | Q | | | V | |
| 23+45 | 55.2119 | 4.64 | Q | | | V | |
| 24+ 0 | 55.3079 | 4.64 | Q | | | V | |
| 24+15 | 55.3495 | 2.01 | Q | | | V | |
| 24+30 | 55.3555 | 0.29 | Q | | | V | |

```
                U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  09/10/13 File: SubB224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed B, Onsite B2
Proposed Condition
100-yr, 24-hr

--------------------------------------------------------------------
Drainage Area =     204.50(Ac.)  =      0.320 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     204.50(Ac.)  =      0.320 Sq. Mi.
Length along longest watercourse =     3500.00(Ft.)
Length along longest watercourse measured to centroid =     1700.00(Ft.)
Length along longest watercourse =      0.663 Mi.
Length along longest watercourse measured to centroid =      0.322 Mi.
Difference in elevation =      70.00(Ft.)
Slope along watercourse =     105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.083 Hr.
Lag time =     4.96 Min.
25% of lag time =     1.24 Min.
40% of lag time =     1.98 Min.
Unit time =     15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
      204.50             0.01                 2.04

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
      204.50             4.50               920.25

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     0.010(In)
Area Averaged 100-Year Rainfall =     4.500(In)

Point rain (area averaged) =     4.500(In)
Areal adjustment factor =    99.96 %
Adjusted average point rain =     4.498(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
   204.500            85.00           0.750
 Total Area Entered =     204.50(Ac.)
```



```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)     (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
85.0  85.0       0.187      0.750         0.061        1.000       0.061
                                                    Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.300
--------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                      VALLEY S-Curve
--------------------------------------------------------------------
                    Unit Hydrograph Data
--------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
     (hrs)                          Graph %           (CFS)
--------------------------------------------------------------------
     1   0.250         302.705         56.956           117.385
     2   0.500         605.409         36.980            76.215
     3   0.750         908.114          6.064            12.498
                                Sum = 100.000    Sum=     206.098
--------------------------------------------------------------------
```

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.275 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.293 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.312 |
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 42 | 10.50 | 1.50 | 0.270 | | 0.063 | ( 0.081) | 0.207 |
| 43 | 10.75 | 2.00 | 0.360 | | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | | 0.052 | ( 0.184) | 0.559 |
| 55 | 13.75 | 2.30 | 0.414 | | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 204.5(Ac.)/[(In)/(Ft.)] = 61.9(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 14.733(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 2697396.7 Cubic Feet
Total soil loss = 641776.6 Cubic Feet

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Peak flow rate of this hydrograph = 114.151(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))



| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 50.0 100.0 150.0 200.0 |
|---|---|---|---|
| 0+15 | 0.0611 | 2.96 | Q |
| 0+30 | 0.1925 | 6.36 | VQ |
| 0+45 | 0.3502 | 7.63 | VQ |
| 1+ 0 | 0.5418 | 9.27 | VQ |
| 1+15 | 0.7226 | 8.75 | VQ |
| 1+30 | 0.8868 | 7.95 | VQ |
| 1+45 | 1.0478 | 7.79 | VQ |
| 2+ 0 | 1.2393 | 9.27 | VQ |
| 2+15 | 1.4507 | 10.23 | V Q |
| 2+30 | 1.6654 | 10.39 | VQ |
| 2+45 | 1.9106 | 11.87 | VQ |
| 3+ 0 | 2.1756 | 12.83 | VQ |
| 3+15 | 2.4439 | 12.99 | VQ |
| 3+30 | 2.7122 | 12.99 | VQ |
| 3+45 | 2.9805 | 12.99 | VQ |
| 4+ 0 | 3.2794 | 14.46 | Q |
| 4+15 | 3.5981 | 15.43 | VQ |
| 4+30 | 3.9506 | 17.06 | VQ |
| 4+45 | 4.3230 | 18.02 | VQ |
| 5+ 0 | 4.7291 | 19.66 | Q |
| 5+15 | 5.0940 | 17.66 | Q |
| 5+30 | 5.4531 | 17.38 | Q |
| 5+45 | 5.8560 | 19.50 | Q |
| 6+ 0 | 6.2820 | 20.62 | Q |
| 6+15 | 6.7419 | 22.26 | Q |
| 6+30 | 7.2216 | 23.22 | Q |
| 6+45 | 7.7351 | 24.85 | Q |
| 7+ 0 | 8.2684 | 25.81 | Q |
| 7+15 | 8.8050 | 25.97 | Q |
| 7+30 | 9.3722 | 27.45 | QV |
| 7+45 | 9.9897 | 29.89 | QV |
| 8+ 0 | 10.6609 | 32.49 | Q |
| 8+15 | 11.4400 | 37.70 | Q |
| 8+30 | 12.2796 | 40.64 | VQ |
| 8+45 | 13.1759 | 43.38 | Q |
| 9+ 0 | 14.1484 | 47.07 | Q |
| 9+15 | 15.2453 | 53.09 | VQ |
| 9+30 | 16.4513 | 58.37 | VQ |
| 9+45 | 17.7428 | 62.50 | VQ |
| 10+ 0 | 19.1148 | 66.41 | VQ |
| 10+15 | 20.2183 | 53.41 | Q V |
| 10+30 | 21.1319 | 44.22 | Q V |
| 10+45 | 22.2352 | 53.40 | Q V |
| 11+ 0 | 23.4840 | 60.45 | Q V |
| 11+15 | 24.7163 | 59.64 | Q V |
| 11+30 | 25.9240 | 58.45 | Q V |
| 11+45 | 27.0436 | 54.18 | Q V |
| 12+ 0 | 28.1537 | 53.73 | Q V |
| 12+15 | 29.5922 | 69.62 | Q V |
| 12+30 | 31.2811 | 81.74 | Q V |
| 12+45 | 33.1218 | 89.09 | Q V |
| 13+ 0 | 35.0710 | 94.34 | Q V |
| 13+15 | 37.2797 | 106.90 | Q V |
| 13+30 | 39.6382 | 114.15 | Q V |
| 13+45 | 41.5430 | 92.20 | Q V |
| 14+ 0 | 43.1395 | 77.27 | Q V |
| 14+15 | 44.8627 | 83.40 | Q V |
| 14+30 | 46.6589 | 86.94 | Q V |
| 14+45 | 48.4487 | 86.62 | Q V |
| 15+ 0 | 50.1932 | 84.44 | Q V |
| 15+15 | 51.8690 | 81.10 | Q V |
| 15+30 | 53.4711 | 77.54 | Q V |
| 15+45 | 54.8687 | 67.64 | Q V |
| 16+ 0 | 56.1512 | 62.07 | Q V |
| 16+15 | 56.8179 | 32.27 | Q V |
| 16+30 | 57.0962 | 13.47 | Q V |
| 16+45 | 57.2803 | 8.91 | Q V |
| 17+ 0 | 57.4445 | 7.95 | Q V |

```
  17+15      57.6667     10.75  | Q        |          |          |       V  |
  17+30      57.9284     12.67  | Q        |          |          |       V  |
  17+45      58.1967     12.99  | Q        |          |          |       V  |
  18+ 0      58.4345     11.51  | Q        |          |          |       V  |
  18+15      58.6524     10.55  | Q        |          |          |       V  |
  18+30      58.8670     10.39  | Q        |          |          |        V |
  18+45      59.0511      8.91  |Q         |          |          |        V |
  19+ 0      59.1848      6.47  |Q         |          |          |        V |
  19+15      59.3259      6.83  |Q         |          |          |        V |
  19+30      59.5142      9.11  |Q         |          |          |        V |
  19+45      59.6950      8.75  |Q         |          |          |        V |
  20+ 0      59.8287      6.47  |Q         |          |          |        V |
  20+15      59.9698      6.83  |Q         |          |          |        V |
  20+30      60.1275      7.63  |Q         |          |          |        V |
  20+45      60.2885      7.79  |Q         |          |          |        V |
  21+ 0      60.4189      6.31  |Q         |          |          |         V|
  21+15      60.5601      6.83  |Q         |          |          |         V|
  21+30      60.6872      6.15  |Q         |          |          |         V|
  21+45      60.8284      6.83  |Q         |          |          |         V|
  22+ 0      60.9555      6.15  |Q         |          |          |         V|
  22+15      61.0967      6.83  |Q         |          |          |         V|
  22+30      61.2238      6.15  |Q         |          |          |         V|
  22+45      61.3344      5.35  |Q         |          |          |         V|
  23+ 0      61.4417      5.19  |Q         |          |          |         V|
  23+15      61.5490      5.19  |Q         |          |          |         V|
  23+30      61.6564      5.19  |Q         |          |          |         V|
  23+45      61.7637      5.19  |Q         |          |          |         V|
  24+ 0      61.8710      5.19  |Q         |          |          |         V|
  24+15      61.9172      2.24  Q          |          |          |         V|
  24+30      61.9237      0.31  Q          |          |          |         V|
--------------------------------------------------------------------------
```



```
        U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  09/10/13 File: SubB324100.out

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------------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Watershed B, Onsite B3
Proposed Condition
100-yr, 24-hr

------------------------------------------------------------------------
Drainage Area =     667.30(Ac.)  =      1.043 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     667.30(Ac.)  =      1.043 Sq. Mi.
Length along longest watercourse =   10000.00(Ft.)
Length along longest watercourse measured to centroid =    5000.00(Ft.)
Length along longest watercourse =      1.894 Mi.
Length along longest watercourse measured to centroid =      0.947 Mi.
Difference in elevation =     200.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.185 Hr.
Lag time =    11.13 Min.
25% of lag time =     2.78 Min.
40% of lag time =     4.45 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      667.30             1.80                1201.14

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      667.30             4.50                3002.85

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.87 %
Adjusted average point rain =    4.494(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   667.300            85.00          0.750
 Total Area Entered =     667.30(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 134.811 | 29.318 | 197.170 |
| 2 | 0.500 | 269.623 | 48.027 | 322.985 |
| 3 | 0.750 | 404.434 | 12.157 | 81.759 |
| 4 | 1.000 | 539.246 | 5.392 | 36.261 |
| 5 | 1.250 | 674.057 | 2.934 | 19.731 |
| 6 | 1.500 | 808.869 | 2.172 | 14.607 |
| | | | Sum = 100.000 | Sum= 672.513 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.138 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.198 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.199 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.218 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.237 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.102) | 0.274 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.293 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.312 |
| 40 | 10.00 | 2.20 | 0.395 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |
| 42 | 10.50 | 1.50 | 0.270 | 0.063 | ( 0.081) | 0.207 |
| 43 | 10.75 | 2.00 | 0.360 | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | 0.060 | ( 0.102) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | 0.059 | ( 0.102) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | 0.058 | ( 0.092) | 0.247 |
| 48 | 12.00 | 1.80 | 0.324 | 0.057 | ( 0.097) | 0.266 |
| 49 | 12.25 | 2.50 | 0.449 | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.467 | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.503 | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.521 | 0.054 | ( 0.156) | 0.467 |
| 53 | 13.25 | 3.40 | 0.611 | 0.053 | ( 0.183) | 0.558 |
| 54 | 13.50 | 3.40 | 0.611 | 0.052 | ( 0.183) | 0.559 |
| 55 | 13.75 | 2.30 | 0.413 | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.413 | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.485 | 0.050 | ( 0.146) | 0.435 |
| 58 | 14.50 | 2.60 | 0.467 | 0.049 | ( 0.140) | 0.418 |
| 59 | 14.75 | 2.60 | 0.467 | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.449 | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.431 | 0.047 | ( 0.129) | 0.384 |
| 62 | 15.50 | 2.30 | 0.413 | 0.046 | ( 0.124) | 0.367 |
| 63 | 15.75 | 1.90 | 0.342 | 0.046 | ( 0.102) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | 0.045 | ( 0.102) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 667.3(Ac.)/[(In)/(Ft.)] = 201.9(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 48.055(Ac.Ft)
Total rainfall = 4.49(In)
Flood volume = 8792859.8 Cubic Feet
Total soil loss = 2093279.1 Cubic Feet

Peak flow rate of this hydrograph = 358.974(CFS)

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24 - H O U R S T O R M

## Runoff Hydrograph

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 100.0 200.0 300.0 400.0 |
|---|---|---|---|
| 0+15 | 0.1026 | 4.96 | Q |
| 0+30 | 0.4245 | 15.58 | VQ |
| 0+45 | 0.8729 | 21.71 | V Q |
| 1+ 0 | 1.4128 | 26.13 | V Q |
| 1+15 | 2.0051 | 28.67 | V Q |
| 1+30 | 2.5474 | 26.25 | V Q |
| 1+45 | 3.0816 | 25.86 | V Q |
| 2+ 0 | 3.6629 | 28.13 | V Q |
| 2+15 | 4.3268 | 32.13 | V Q |
| 2+30 | 5.0082 | 32.98 | V Q |
| 2+45 | 5.7503 | 35.92 | V Q |
| 3+ 0 | 6.5815 | 40.23 | V Q |
| 3+15 | 7.4379 | 41.45 | V Q |
| 3+30 | 8.3036 | 41.90 | V Q |
| 3+45 | 9.1745 | 42.15 | V Q |
| 4+ 0 | 10.1005 | 44.82 | V Q |
| 4+15 | 11.1105 | 48.88 | V Q |
| 4+30 | 12.1930 | 52.40 | V Q |
| 4+45 | 13.3690 | 56.92 | V Q |
| 5+ 0 | 14.6227 | 60.68 | V Q |
| 5+15 | 15.8711 | 60.42 | V Q |
| 5+30 | 17.0291 | 56.05 | V Q |
| 5+45 | 18.2931 | 61.18 | V Q |
| 6+ 0 | 19.6487 | 65.61 | V Q |
| 6+15 | 21.0798 | 69.27 | V Q |
| 6+30 | 22.6019 | 73.67 | V Q |
| 6+45 | 24.2054 | 77.61 | V Q |
| 7+ 0 | 25.9063 | 82.32 | V Q |
| 7+15 | 27.6335 | 83.60 | V Q |
| 7+30 | 29.4252 | 86.72 | V Q |
| 7+45 | 31.3574 | 93.52 | V Q |
| 8+ 0 | 33.4499 | 101.28 | V Q |
| 8+15 | 35.7991 | 113.70 | V Q |
| 8+30 | 38.4204 | 126.87 | V Q |
| 8+45 | 41.2029 | 134.67 | V Q |
| 9+ 0 | 44.2259 | 146.31 | V Q |
| 9+15 | 47.5768 | 162.18 | V Q |
| 9+30 | 51.3084 | 180.61 | V Q |
| 9+45 | 55.3283 | 194.56 | V Q |
| 10+ 0 | 59.6247 | 207.95 | V Q |
| 10+15 | 63.6054 | 192.66 | V Q |
| 10+30 | 66.8208 | 155.63 | V Q |
| 10+45 | 70.2290 | 164.96 | V Q |
| 11+ 0 | 74.1685 | 190.67 | V Q |
| 11+15 | 78.1532 | 192.86 | V Q |
| 11+30 | 82.0598 | 189.08 | V Q |
| 11+45 | 85.8384 | 182.88 | VQ |
| 12+ 0 | 89.4761 | 176.06 | Q |
| 12+15 | 93.6906 | 203.98 | V Q |
| 12+30 | 98.8285 | 248.67 | V Q |
| 12+45 | 104.4562 | 272.38 | V Q |
| 13+ 0 | 110.5300 | 293.97 | V Q |
| 13+15 | 117.2327 | 324.41 | V Q |
| 13+30 | 124.6495 | 358.97 | V Q |
| 13+45 | 131.4570 | 329.48 | V Q |
| 14+ 0 | 137.0409 | 270.26 | Q |
| 14+15 | 142.6367 | 270.84 | QV |
| 14+30 | 148.5290 | 285.19 | QV |
| 14+45 | 154.3527 | 281.87 | Q V |
| 15+ 0 | 160.0775 | 277.08 | Q V |
| 15+15 | 165.6352 | 268.99 | Q V |
| 15+30 | 170.9937 | 259.35 | Q V |
| 15+45 | 175.8998 | 237.46 | Q V |
| 16+ 0 | 180.2845 | 212.22 | Q V |
| 16+15 | 183.5242 | 156.80 | Q V |
| 16+30 | 185.0546 | 74.07 | Q V |
| 16+45 | 186.0836 | 49.80 | Q V |
| 17+ 0 | 186.8228 | 35.77 | Q V |
| 17+15 | 187.5429 | 34.85 | Q V |
| 17+30 | 188.3473 | 38.93 | Q V |
| 17+45 | 189.1890 | 40.74 | Q V |
| 18+ 0 | 189.9946 | 38.99 | Q V |
| 18+15 | 190.7263 | 35.42 | Q V |
| 18+30 | 191.4445 | 34.76 | Q V |
| 18+45 | 192.1019 | 31.82 | Q V |
| 19+ 0 | 192.6188 | 25.02 | Q V |
| 19+15 | 193.0780 | 22.22 | Q V |
| 19+30 | 193.6417 | 27.29 | Q V |
| 19+45 | 194.2449 | 29.19 | Q V |
| 20+ 0 | 194.7346 | 23.70 | Q V |
| 20+15 | 195.1810 | 21.61 | Q V |
| 20+30 | 195.6897 | 24.62 | Q V |
| 20+45 | 196.2089 | 25.13 | Q V |
| 21+ 0 | 196.6773 | 22.67 | Q V |
| 21+15 | 197.1143 | 21.15 | Q V |
| 21+30 | 197.5665 | 21.89 | Q V |
| 21+45 | 197.9979 | 20.88 | Q V |
| 22+ 0 | 198.4450 | 21.64 | Q V |
| 22+15 | 198.8726 | 20.69 | Q V |
| 22+30 | 199.3197 | 21.64 | Q V |
| 22+45 | 199.6960 | 18.21 | Q V |
| 23+ 0 | 200.0591 | 17.57 | Q V |
| 23+15 | 200.4141 | 17.18 | Q V |
| 23+30 | 200.7678 | 17.12 | Q V |
| 23+45 | 201.1177 | 16.93 | Q V |
| 24+ 0 | 201.4675 | 16.93 | Q V |
| 24+15 | 201.7148 | 11.97 | Q V |
| 24+30 | 201.7941 | 3.84 | Q V |
| 24+45 | 201.8308 | 1.78 | Q V |
| 25+ 0 | 201.8487 | 0.86 | Q V |
| 25+15 | 201.8563 | 0.37 | Q V |

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                    FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                       Study date: 09/18/13

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 Line C, Routed
 Proposed Condition
 100 Yr. 3 Hr

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 Program License Serial Number 6097

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 ******************** HYDROGRAPH INFORMATION **********************

                From study/file name: SUBC13100.rte
 ****************************HYDROGRAPH DATA****************************
                Number of intervals =     14
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =       125.816 (CFS)
                Total volume =      15.022 (Ac.Ft)
        Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
 ***********************************************************************



 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station        1.000 to Point/Station         2.000
 **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
 _____________________________________________________________________
 ******************** HYDROGRAPH INFORMATION **********************

                From study/file name: CoffsiteRT1.rte
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                   P R I N T  O F  S T O R M
                   R u n o f f      H y d r o g r a p h
 ---------------------------------------------------------------------
              Hydrograph in  15   Minute intervals (CFS)

 ---------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0       162.7      325.4      488.1      650.8
 ---------------------------------------------------------------------
   0+15      4.7930     18.58  qQ          |          |          |          |
   0+30     27.3502     54.72  |q Q        |          |          |          |
   0+45     59.7908     92.94  |  q Q      |          |          |          |
   1+ 0     78.9278    112.44  |    q Q    |          |          |          |
   1+15     95.0089    136.15  |     q  Q  |          |          |          |
   1+30    136.4920    185.77  |        q  |Q         |          |          |
   1+45    176.4627    233.68  |           q   Q      |          |          |
   2+ 0    217.4588    280.99  |           |  q   Q   |          |          |
   2+15    269.3536    350.75  |           |     q    |Q         |          |
   2+30    386.2478    502.59  |           |          |  q       Q          |
   2+45    524.9408    650.76  |           |          |          | q        Q
   3+ 0    483.6777    550.76  |           |          |          q   Q       |
   3+15    241.8438    257.89  |           |          qQ         |          |
   3+30    100.4114    101.80  |      Q    |          |          |          |
   3+45     42.1872     42.19  |  Q        |          |          |          |
   4+ 0     17.0320     17.03  |Q          |          |          |          |
   4+15      7.8126      7.81  Q           |          |          |          |
   4+30      4.0765      4.08  Q           |          |          |          |
   4+45      1.5975      1.60  Q           |          |          |          |
   5+ 0      0.2830      0.28  Q           |          |          |          |
   5+15      0.0162      0.02  Q           |          |          |          |
```



```
   5+30      0.0000      0.00  Q           |          |          |          |
 ---------------------------------------------------------------------
 ****************************HYDROGRAPH DATA****************************
                Number of intervals =     22
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =       650.757 (CFS)
                Total volume =      74.439 (Ac.Ft)
        Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
 ***********************************************************************

 ---------------------------------------------------------------------


 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station        1.000 to Point/Station         2.000
 **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
 _____________________________________________________________________
 ******************** HYDROGRAPH INFORMATION **********************

                From study/file name: CoffsiteRT2.rte
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                   P R I N T  O F  S T O R M
                   R u n o f f      H y d r o g r a p h
 ---------------------------------------------------------------------
              Hydrograph in  15   Minute intervals (CFS)

 ---------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0       181.5      362.9      544.4      725.9
 ---------------------------------------------------------------------
   0+15      1.2570     19.84  qQ          |          |          |          |
   0+30      5.4194     60.14  q  Q        |          |          |          |
   0+45      8.9875    101.93  q    Q      |          |          |          |
   1+ 0      9.4088    121.85  q     Q     |          |          |          |
   1+15     14.1841    150.33  q       Q   |          |          |          |
   1+30     20.2727    206.05  |q        Q |          |          |          |
   1+45     25.7444    259.43  |q         Q          |          |          |
   2+ 0     30.3840    311.37  |q           Q        |          |          |
   2+15     42.1227    392.87  | q          |Q       |          |          |
   2+30     66.1688    568.76  |  q         |        |Q         |          |
   2+45     75.1132    725.87  |   q        |        |          |          Q
   3+ 0     37.0701    587.83  |  q         |        |          Q          |
   3+15      5.9485    263.84  q            Q        |          |          |
   3+30      0.4151    102.22  q    Q       |        |          |          |
   3+45      0.0128     42.20  q Q          |        |          |          |
   4+ 0      0.0001     17.03  Q           |        |          |          |
   4+15      0.0000      7.81  Q           |        |          |          |
   4+30      0.0000      4.08  Q           |        |          |          |
   4+45      0.0000      1.60  Q           |        |          |          |
   5+ 0      0.0000      0.28  Q           |        |          |          |
   5+15      0.0000      0.02  Q           |        |          |          |
   5+30      0.0000      0.00  Q           |        |          |          |
 ---------------------------------------------------------------------
 ****************************HYDROGRAPH DATA****************************
                Number of intervals =     22
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =       725.870 (CFS)
                Total volume =      81.515 (Ac.Ft)
        Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
 ***********************************************************************

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 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station        2.000 to Point/Station         3.000
 **** STREAM ROUTING SCS CONVEX METHOD ****
```

```
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   4000.00 (Ft.)
Elevation difference =   80.00 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  4000.00(Ft.)   Elevation difference =  80.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =   292.188(CFS)
Given pipe size =    96.00(In.)
Calculated individual pipe flow  =   292.188(CFS)
Normal flow depth in pipe =   33.49(In.)
Flow top width inside pipe =   91.51(In.)
Critical Depth =    4.32(Ft.)
Pipe flow velocity =    18.72(Ft/s)
Travel time through pipe =    3.56 min.


Pipe length  =  4000.00(Ft.)   Elevation difference =  80.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =   725.870(CFS)
Given pipe size =    96.00(In.)
Calculated individual pipe flow  =   725.870(CFS)
Normal flow depth in pipe =   56.34(In.)
Flow top width inside pipe =   94.54(In.)
Critical Depth =    6.78(Ft.)
Pipe flow velocity =    23.67(Ft/s)
Travel time through pipe =    2.82 min.


********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9330   Travel time =   2.82 (min.)
        dt*(unit time interval) =  15.00(min.),   e=   4.1390
        dt(routing time-step) =   2.63 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
----------------------------------------------------------------------
             Hydrograph in  15   Minute intervals (CFS)
----------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0      181.5      362.9      544.4      725.9
----------------------------------------------------------------------
  0+15      16.3637     19.84  OI       |          |          |          |
  0+30      53.0769     60.14  | OI     |          |          |          |
  0+45      94.6043    101.93  |    O   |          |          |          |
  1+ 0     118.3565    121.85  |     O  |          |          |          |
  1+15     145.3429    150.33  |      O |          |          |          |
  1+30     196.2849    206.05  |        OI         |          |          |
  1+45     250.0765    259.43  |         | OI      |          |          |
  2+ 0     302.2707    311.37  |         |   OI    |          |          |
  2+15     378.5944    392.87  |         |      OI  |          |          |
  2+30     537.9454    568.76  |         |          |          |        O|I       |
  2+45     698.3456    725.87  |         |          |          |          |      O I
  3+ 0     612.0145    587.83  |         |          |          |        IO        |
  3+15     320.6027    263.84  |         |          |  I  O    |          |       |
  3+30     130.5342    102.22  |    I O  |          |          |          |       |
  3+45      52.7150     42.20  | O       |          |          |          |       |
  4+ 0      21.4414     17.03  IO        |          |          |          |       |
  4+15       9.4279      7.81  O         |          |          |          |       |
```



```
  4+30       4.7310      4.08  O         |          |          |          |       |
  4+45       2.0318      1.60  O         |          |          |          |       |
  5+ 0       0.5133      0.28  O         |          |          |          |       |
  5+15       0.0629      0.02  O         |          |          |          |       |
  5+30       0.0028      0.00  O         |          |          |          |       |
  5+45       0.0000      0.00  O         |          |          |          |       |
----------------------------------------------------------------------
          **************************HYDROGRAPH DATA**************************
                    Number of intervals =    23
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =      698.346 (CFS)
                    Total volume =      81.515 (Ac.Ft)
          Status of hydrographs being held in storage
                    Stream 1   Stream 2   Stream 3   Stream 4   Stream 5
          Peak (CFS)      0.000      0.000      0.000      0.000      0.000
          Vol (Ac.Ft)     0.000      0.000      0.000      0.000      0.000
          ********************************************************************


          ----------------------------------------------------------------


          ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
          Process from Point/Station        2.000 to Point/Station        3.000
          **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
          ----------------------------------------------------------------------
          ********************* HYDROGRAPH INFORMATION *********************

                    From study/file name: SUBC23100.rte
          ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         P R I N T  O F  S T O R M
                       R u n o f f     H y d r o g r a p h
          ----------------------------------------------------------------------
                    Hydrograph in  15   Minute intervals (CFS)
          ----------------------------------------------------------------------
          Time(h+m) Add q(CFS)  Tot. Q   0      264.9      529.9      794.8     1059.8
          ----------------------------------------------------------------------
            0+15      35.9250     52.29  |Q         |          |          |          |
            0+30      75.6509    128.73  | q Q      |          |          |          |
            0+45      94.4798    189.08  |  q   Q   |          |          |          |
            1+ 0      96.6788    215.04  |  q    Q  |          |          |          |
            1+15     116.4827    261.83  |   q     Q|          |          |          |
            1+30     140.0983    336.38  |    q      Q          |          |          |
            1+45     163.0844    413.16  |     q        Q       |          |          |
            2+ 0     181.6780    483.95  |      q           Q   |          |          |
            2+15     229.9459    608.54  |        q            Q|          |          |
            2+30     326.3995    864.34  |           q          |          Q          |
            2+45     361.4481   1059.79  |            q         |          |          Q
            3+ 0     210.0188    822.03  |             q        |          Q          |
            3+15      58.0930    378.70  | q             Q      |          |          |
            3+30       6.1094    136.64  q   Q          |      |          |          |
            3+45       0.0000     52.72  qQ             |      |          |          |
            4+ 0       0.0000     21.44  Q              |      |          |          |
            4+15       0.0000      9.43  Q              |      |          |          |
            4+30       0.0000      4.73  Q              |      |          |          |
            4+45       0.0000      2.03  Q              |      |          |          |
            5+ 0       0.0000      0.51  Q              |      |          |          |
            5+15       0.0000      0.06  Q              |      |          |          |
            5+30       0.0000      0.00  Q              |      |          |          |
            5+45       0.0000      0.00  Q              |      |          |          |
          ----------------------------------------------------------------------
          **************************HYDROGRAPH DATA**************************
                    Number of intervals =    23
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =     1059.794 (CFS)
                    Total volume =     124.823 (Ac.Ft)
          Status of hydrographs being held in storage
                    Stream 1   Stream 2   Stream 3   Stream 4   Stream 5
          Peak (CFS)      0.000      0.000      0.000      0.000      0.000
          Vol (Ac.Ft)     0.000      0.000      0.000      0.000      0.000
          ********************************************************************
```

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------------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** RETARDING BASIN ROUTING ****
____________________________________________________________________________

User entry of depth-outflow-storage data
---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 23
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin =    0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =    0.00 (Ft.)
Initial basin storage =       0.00 (Ac.Ft)
Initial basin outflow =    0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage     Outflow   (S-O*dt/2)    (S+O*dt/2)
      (Ft.)    (Ac.Ft)     (CFS)     (Ac.Ft)     (Ac.Ft)
---------------------------------------------------------------------
   0.000       0.000       0.000       0.000         0.000
   1.000       0.001       0.001       0.001         0.001
   2.000       0.002       0.002       0.002         0.002
   3.000      15.000     300.000      11.901        18.099
   4.000      30.000     900.000      20.702        39.298
   6.000      80.000    1100.000      68.636        91.364
---------------------------------------------------------------------
                  Hydrograph Detention Basin Routing
---------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                    Depth
(Hours)  (CFS)    (CFS)     (Ac.Ft) .0     264.9  529.90  794.85 1059.79 (Ft.)
 0.250   52.29     8.92      0.448  OI      |       |       |       |     2.03
 0.500  128.73    36.87      1.845  |O I    |       |       |       |     2.12
 0.750  189.08    78.66      3.935  | O  I  |       |       |       |     2.26
 1.000  215.04   120.93      6.048  |  O  I |       |       |       |     2.40
 1.250  261.83   161.17      8.060  |   O  I|       |       |       |     2.54
 1.500  336.38   208.41     10.421  |      O | I     |       |       |     2.69
 1.750  413.16   265.39     13.270  |        O   I  |       |       |     2.88
 2.000  483.95   348.02     16.201  |        | O   I |       |       |     3.08
 2.250  608.54   463.94     19.099  |        |     O | I     |       |     3.27
 2.500  864.34   623.30     23.082  |        |       O |     I |       |     3.54
 2.750 1059.79   821.41     28.035  |        |         |       O       I     3.87
 3.000  822.03   891.30     29.782  |        |         |       I O     |     3.99
 3.250  378.70   721.16     25.529  |        |  I      |     O |       |     3.70
 3.500  136.64   450.11     18.753  |    I   |    O    |       |       |     3.25
 3.750   52.72   266.18     13.309  |I       O         |       |       |     2.89
 4.000   21.44   187.71      9.386  I    O  |         |       |       |     2.63
 4.250    9.43   128.71      6.436  I  O    |         |       |       |     2.43
 4.500    4.73    87.05      4.354  I O    |         |       |       |     2.29
 4.750    2.03    58.39      2.921  IO     |         |       |       |     2.19
 5.000    0.51    38.83      1.943  IO     |         |       |       |     2.13
 5.250    0.06    25.63      1.283  O      |         |       |       |     2.09
 5.500    0.00    16.86      0.845  O      |         |       |       |     2.06
 5.750    0.00    11.09      0.556  O      |         |       |       |     2.04
 6.000    0.00     7.29      0.366  O      |         |       |       |     2.02
 6.250    0.00     4.79      0.242  O      |         |       |       |     2.02
 6.500    0.00     3.15      0.159  O      |         |       |       |     2.01
 6.750    0.00     2.07      0.105  O      |         |       |       |     2.01
 7.000    0.00     1.36      0.070  O      |         |       |       |     2.00
 7.250    0.00     0.90      0.047  O      |         |       |       |     2.00
 7.500    0.00     0.59      0.031  O      |         |       |       |     2.00
 7.750    0.00     0.39      0.021  O      |         |       |       |     2.00
 8.000    0.00     0.25      0.015  O      |         |       |       |     2.00
 8.250    0.00     0.17      0.010  O      |         |       |       |     2.00
 8.500    0.00     0.11      0.007  O      |         |       |       |     2.00
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 8.750    0.00     0.07      0.006  O      |         |       |       |     2.00
 9.000    0.00     0.05      0.004  O      |         |       |       |     2.00
 9.250    0.00     0.03      0.003  O      |         |       |       |     2.00
 9.500    0.00     0.02      0.003  O      |         |       |       |     2.00
 9.750    0.00     0.01      0.003  O      |         |       |       |     2.00
10.000    0.00     0.01      0.002  O      |         |       |       |     2.00
10.250    0.00     0.01      0.002  O      |         |       |       |     2.00
10.500    0.00     0.00      0.002  O      |         |       |       |     2.00
10.750    0.00     0.00      0.002  O      |         |       |       |     2.00
11.000    0.00     0.00      0.002  O      |         |       |       |     1.98
11.250    0.00     0.00      0.002  O      |         |       |       |     1.94
11.500    0.00     0.00      0.002  O      |         |       |       |     1.90
11.750    0.00     0.00      0.002  O      |         |       |       |     1.86
12.000    0.00     0.00      0.002  O      |         |       |       |     1.82
12.250    0.00     0.00      0.002  O      |         |       |       |     1.79
12.500    0.00     0.00      0.002  O      |         |       |       |     1.75
12.750    0.00     0.00      0.002  O      |         |       |       |     1.71
13.000    0.00     0.00      0.002  O      |         |       |       |     1.68
13.250    0.00     0.00      0.002  O      |         |       |       |     1.64
13.500    0.00     0.00      0.002  O      |         |       |       |     1.61
13.750    0.00     0.00      0.002  O      |         |       |       |     1.58
14.000    0.00     0.00      0.002  O      |         |       |       |     1.55
14.250    0.00     0.00      0.002  O      |         |       |       |     1.51
14.500    0.00     0.00      0.001  O      |         |       |       |     1.48
14.750    0.00     0.00      0.001  O      |         |       |       |     1.45
15.000    0.00     0.00      0.001  O      |         |       |       |     1.42
15.250    0.00     0.00      0.001  O      |         |       |       |     1.39
15.500    0.00     0.00      0.001  O      |         |       |       |     1.36
15.750    0.00     0.00      0.001  O      |         |       |       |     1.34
16.000    0.00     0.00      0.001  O      |         |       |       |     1.31
16.250    0.00     0.00      0.001  O      |         |       |       |     1.28
16.500    0.00     0.00      0.001  O      |         |       |       |     1.26
16.750    0.00     0.00      0.001  O      |         |       |       |     1.23
17.000    0.00     0.00      0.001  O      |         |       |       |     1.21
17.250    0.00     0.00      0.001  O      |         |       |       |     1.18
17.500    0.00     0.00      0.001  O      |         |       |       |     1.16
17.750    0.00     0.00      0.001  O      |         |       |       |     1.13
18.000    0.00     0.00      0.001  O      |         |       |       |     1.11
18.250    0.00     0.00      0.001  O      |         |       |       |     1.09
18.500    0.00     0.00      0.001  O      |         |       |       |     1.07
18.750    0.00     0.00      0.001  O      |         |       |       |     1.04
19.000    0.00     0.00      0.001  O      |         |       |       |     1.02
19.250    0.00     0.00      0.001  O      |         |       |       |     1.00
19.500    0.00     0.00      0.001  O      |         |       |       |     0.98

*****************************HYDROGRAPH DATA*****************************
              Number of intervals =    78
              Time interval =    15.0 (Min.)
              Maximum/Peak flow rate =       891.295 (CFS)
              Total volume =      124.822 (Ac.Ft)
       Status of hydrographs being held in storage
              Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*************************************************************************

------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** STREAM ROUTING SCS CONVEX METHOD ****
____________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   4320.00 (Ft.)
Elevation difference =   46.00 (Ft.)
Slope of channel =  0.010648 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  4320.00(Ft.)   Elevation difference =  46.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
```

```
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =   371.400(CFS)
Given pipe size =     96.00(In.)
Calculated individual pipe flow  =   371.400(CFS)
Normal flow depth in pipe =   45.47(In.)
Flow top width inside pipe =   95.87(In.)
Critical Depth =    4.89(Ft.)
Pipe flow velocity =     15.85(Ft/s)
Travel time through pipe =    4.54 min.


Pipe length  = 4320.00(Ft.)   Elevation difference =  46.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =   891.295(CFS)
Given pipe size =     96.00(In.)
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is     46.000(Ft.)
Pipe friction loss =     40.609(Ft.)
Minor friction loss =      5.415(Ft.)     K-factor =   1.50
Maximum capacity of pipe(s) =  766.40(CFS)
Pipe flow velocity =     15.25(Ft/s)
Travel time through pipe =    4.72 min.


********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.8997   Travel time =   4.72 (min.)
        dt*(unit time interval) =  15.00(min.),  e=   2.6871
        dt(routing time-step) =   4.25 (min.),   c* =   0.9979

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T  0 F  S T O R M
                  R u n o f f      H y d r o g r a p h
------------------------------------------------------------------------
              Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0      222.8     445.6     668.5     891.3
------------------------------------------------------------------------
  0+15       6.3824      8.92  0          |         |         |         |
  0+30      28.9048     36.87  |O         |         |         |         |
  0+45      66.7474     78.66  | OI       |         |         |         |
  1+ 0     108.8700    120.93  |   OI     |         |         |         |
  1+15     149.6891    161.17  |     OI   |         |         |         |
  1+30     194.9400    208.41  |       OI |         |         |         |
  1+45     249.1416    265.39  |          |O        |         |         |
  2+ 0     324.4623    348.02  |          |  OI     |         |         |
  2+15     430.8883    463.94  |          |      OI |         |         |
  2+30     577.8581    623.30  |          |         |   0 I   |         |
  2+45     766.3997    821.41  |          |         |         |  0 I    |
  3+ 0     766.3997    891.30  |          |         |         |  0      I
  3+15     766.3997    721.16  |          |         |         | I 0     |
  3+30     766.3997    450.11  |          |         I         |  0      |
  3+45      71.5021    266.18  |  0       |I        |         |         |
  4+ 0       0.0000    187.71  0       I  |         |         |         |
------------------------------------------------------------------------

Note: For pressure channel flow, the basin storage requirements
at the headworks of this channel =     3.72 (Ac.Ft)


****************************HYDROGRAPH DATA****************************
                Number of intervals =    16
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      766.400 (CFS)
```



```
                Total volume =     108.987 (Ac.Ft)
        Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************


------------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       3.000 to Point/Station       4.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****
________________________________________________________________________
******************** HYDROGRAPH INFORMATION **********************

                From study/file name: SUBC33100.rte
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T  0 F  S T O R M
                  R u n o f f      H y d r o g r a p h
------------------------------------------------------------------------
              Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0      216.7     433.4     650.0     866.7
------------------------------------------------------------------------
  0+15      10.9934     17.38  Q          |         |         |         |
  0+30      21.8179     50.72  |qQ        |         |         |         |
  0+45      26.4259     93.17  |q  Q      |         |         |         |
  1+ 0      26.7152    135.59  |q    Q    |         |         |         |
  1+15      32.7985    182.49  |q      Q  |         |         |         |
  1+30      39.2877    234.23  |q        Q|         |         |         |
  1+45      45.6187    294.76  | q       |  Q      |         |         |
  2+ 0      50.6458    375.11  | q       |     Q   |         |         |
  2+15      64.8912    495.78  | q       |         |  Q      |         |
  2+30      92.7506    670.61  |   q     |         |       Q |         |
  2+45     100.3034    866.70  |   q     |         |         |       Q |
  3+ 0      53.4811    819.88  | q       |         |         |     Q   |
  3+15      12.7959    779.20  q         |         |         |   Q     |
  3+30       1.1098    767.51  q         |         |         |   Q     |
  3+45       0.0000     71.50  q  Q      |         |         |         |
  4+ 0       0.0000      0.00  Q         |         |         |         |
------------------------------------------------------------------------
****************************HYDROGRAPH DATA****************************
                Number of intervals =    16
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      866.703 (CFS)
                Total volume =     120.963 (Ac.Ft)
        Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************


------------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       4.000 to Point/Station       5.000
**** STREAM ROUTING SCS CONVEX METHOD ****
________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =    1300.00 (Ft.)
Elevation difference =    30.00 (Ft.)
Slope of channel =  0.023077 (Vert/Horiz)
Channel type - Pipe


Pipe length  = 1300.00(Ft.)   Elevation difference =  30.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =   413.080(CFS)
```

```
Given pipe size =     96.00(In.)
Calculated individual pipe flow  =   413.080(CFS)
Normal flow depth in pipe =   38.84(In.)
Flow top width inside pipe =   94.23(In.)
Critical Depth =    5.17(Ft.)
Pipe flow velocity =     21.67(Ft/s)
Travel time through pipe =    1.00 min.


Pipe length  = 1300.00(Ft.)   Elevation difference =  30.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =   866.703(CFS)
Given pipe size =     96.00(In.)
Calculated individual pipe flow  =   866.703(CFS)
Normal flow depth in pipe =   60.38(In.)
Flow top width inside pipe =   92.75(In.)
Critical Depth =    7.24(Ft.)
Pipe flow velocity =     26.01(Ft/s)
Travel time through pipe =    0.83 min.


********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9386   Travel time =    0.83 (min.)
        dt*(unit time interval) =  15.00(min.),   e=  13.1221
        dt(routing time-step) =   0.78 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
----------------------------------------------------------------------
            Hydrograph in  15  Minute intervals (CFS)
----------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0      216.7     433.4     650.0     866.7
----------------------------------------------------------------------
  0+15      16.4700     17.38  0         |         |         |         |
  0+30      48.9844     50.72  | 0       |         |         |         |
  0+45      90.9604     93.17  |   0     |         |         |         |
  1+ 0     133.3743    135.59  |     0   |         |         |         |
  1+15     180.0426    182.49  |       0 |         |         |         |
  1+30     231.5305    234.23  |         0         |         |         |
  1+45     291.6048    294.76  |           0       |         |         |
  2+ 0     370.9196    375.11  |             0     |         |         |
  2+15     489.4890    495.78  |               0   |         |         |
  2+30     661.4951    670.61  |                   0         |         |
  2+45     856.4809    866.70  |                             |         OI
  3+ 0     822.3216    819.88  |                             |       0 |
  3+15     781.3165    779.20  |                             |     IO  |
  3+30     768.1187    767.51  |                             |     0   |
  3+45     107.7843     71.50  |  IO       |         |       |         |
  4+ 0       3.7273      0.00  0         |         |         |         |
  4+15       0.0000      0.00  0         |         |         |         |
----------------------------------------------------------------------
        ***************************HYDROGRAPH DATA**************************
                    Number of intervals =    17
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =     856.481 (CFS)
                    Total volume =     120.963 (Ac.Ft)
          Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)       0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
        ********************************************************************
```



```
----------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** RETARDING BASIN ROUTING ****
----------------------------------------------------------------------

User entry of depth-outflow-storage data
----------------------------------------------------------------------
Total number of inflow hydrograph intervals = 17
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin =   0.10(Ft.)
----------------------------------------------------------------------
----------------------------------------------------------------------
Initial basin depth =   0.10 (Ft.)
Initial basin storage =      2.00 (Ac.Ft)
Initial basin outflow =  70.00 (CFS)
----------------------------------------------------------------------
----------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
      (Ft.)    (Ac.Ft)    (CFS)      (Ac.Ft)     (Ac.Ft)
----------------------------------------------------------------------
   0.000       0.000       0.000       0.000        0.000
   1.000      20.000     700.000      12.769       27.231
   2.000      50.000    1000.000      39.669       60.331
   3.000      73.000    1600.000      56.471       89.529
----------------------------------------------------------------------
              Hydrograph Detention Basin Routing
----------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
----------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                    Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0     214.1  428.24  642.36  856.48 (Ft.)
 0.250    16.47   18.61     0.532  0       |       |       |       |     0.03
 0.500    48.98   26.11     0.746  OI      |       |       |       |     0.04
 0.750    90.96   49.40     1.412  |O I    |       |       |       |     0.07
 1.000   133.37   82.74     2.364  |  OI   |       |       |       |     0.12
 1.250   180.04  122.02     3.486  |   O I |       |       |       |     0.17
 1.500   231.53  166.51     4.757  |     O I       |       |       |     0.24
 1.750   291.60  217.00     6.200  |       O I     |       |       |     0.31
 2.000   370.92  277.68     7.934  |       | O  I  |       |       |     0.40
 2.250   489.49  358.69    10.248  |       |    O  | I     |       |     0.51
 2.500   661.50  473.83    13.538  |       |       O       I       |     0.68
 2.750   856.48  625.28    17.865  |       |               O|      I     0.89
 3.000   822.32  713.75    21.375  |       |                | O   I |     1.05
 3.250   781.32  730.24    23.024  |       |                |  O I  |     1.10
 3.500   768.12  738.57    23.857  |       |                |  OI   |     1.13
 3.750   107.78  649.73    18.564  |   I   |                O       |     0.93
 4.000     3.73  334.27     9.550  I       |     O         |       |     0.48
 4.250     0.00  157.73     4.506  I    O  |               |       |     0.23
 4.500     0.00   73.96     2.113  I O    |               |       |     0.11
 4.750     0.00   34.68     0.991  IO     |               |       |     0.05
 5.000     0.00   16.26     0.465  O      |               |       |     0.02
 5.250     0.00    7.62     0.218  O      |               |       |     0.01
 5.500     0.00    3.57     0.102  O      |               |       |     0.01
 5.750     0.00    1.68     0.048  O      |               |       |     0.00
 6.000     0.00    0.79     0.022  O      |               |       |     0.00
 6.250     0.00    0.37     0.011  O      |               |       |     0.00

        ***************************HYDROGRAPH DATA**************************
                    Number of intervals =    25
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =     738.572 (CFS)
                    Total volume =     121.510 (Ac.Ft)
          Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)       0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
        ********************************************************************
```

```
------------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
____________________________________________________________________________
Current stream hydrograph saved in file LineC3hr.rte
**************************HYDROGRAPH DATA**************************
              Number of intervals =     0
              Time interval =    0.0 (Min.)
              Maximum/Peak flow rate =        0.000 (CFS)
              Total volume =        0.000 (Ac.Ft)
       Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*******************************************************************


------------------------------------------------------------------------
```



```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                       Study date: 07/29/13


------------------------------------------------------------------------


Line C, Offsite subdrain Area C1 and C21
Routed
100 Yr. 3 Hr.

------------------------------------------------------------------------


Program License Serial Number 6097

------------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

          From study/file name: OffsiteSUBC13100.rte
**************************HYDROGRAPH DATA**************************
              Number of intervals =    20
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =      360.479 (CFS)
              Total volume =      41.223 (Ac.Ft)
       Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*******************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** STREAM ROUTING SCS CONVEX METHOD ****
____________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   3000.00 (Ft.)
Elevation difference =   50.00 (Ft.)
Slope of channel =  0.016667 (Vert/Horiz)
Channel type - Improved Channel


Channel length =  3000.00(Ft.)     Elevation difference =  50.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Covered channel
Channel base width  =    5.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Manning's 'N'    = 0.015
Maximum depth of channel  =    5.000(Ft.)
Flow(q) thru subarea =    140.469(CFS)
Depth of flow =     1.573(Ft.)
Average velocity =    13.582(Ft/s)
Total flow rate =   140.469(CFS)
Channel flow top width =    8.147(Ft.)
Depth of flow in channel =   1.57(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   13.58(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  140.469(CFS)
Total capacity of improved channels =    140.469(CFS)
Critical Depth in Channel =    2.44(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Covered channel
Flow(q) thru subarea =    360.479(CFS)
Depth of flow =     2.660(Ft.)
```

```
Average velocity =    17.692(Ft/s)
Total flow rate =   360.479(CFS)
Channel flow top width =   10.320(Ft.)
Depth of flow in channel =    2.66(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   17.69(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  360.479(CFS)
Total capacity of improved channels =    360.479(CFS)
Critical Depth in Channel =    4.13(Ft.)


********************** SCS CONVEX CHANNEL ROUTING ********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9123   Travel time =   2.83 (min.)
        dt*(unit time interval) =  15.00(min.),  e=   4.2117
        dt(routing time-step) =   2.58 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T  O F  S T O R M
                  R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------
              Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0       90.1      180.2     270.4     360.5
------------------------------------------------------------------------
  0+15       1.8418      2.22  0          |         |         |         |
  0+30      14.5408     17.10  |0         |         |         |         |
  0+45      36.3745     40.38  |   0      |         |         |         |
  1+ 0      52.1491     54.59  |    OI    |         |         |         |
  1+15      61.5254     62.96  |      0   |         |         |         |
  1+30      87.4078     92.48  |        OI|         |         |         |
  1+45     114.7350    119.36  |          | OI      |         |         |
  2+ 0     143.3035    148.28  |          |   OI    |         |         |
  2+15     174.3831    179.80  |          |      0  |         |         |
  2+30     242.4964    255.51  |          |         |    0 I  |         |
  2+45     342.4322    360.48  |          |         |         |      0  I
  3+ 0     353.8363    352.46  |          |         |         |        0|
  3+15     206.3617    176.03  |          |        I| 0       |         |
  3+30      92.7497     75.46  |         I 0        |         |         |
  3+45      40.3501     33.06  |   IO     |         |         |         |
  4+ 0      16.8993     13.54  |0         |         |         |         |
  4+15       7.8126      6.62  0          |         |         |         |
  4+30       4.0765      3.55  0          |         |         |         |
  4+45       1.5975      1.19  0          |         |         |         |
  5+ 0       0.2830      0.09  0          |         |         |         |
  5+15       0.0162      0.00  0          |         |         |         |
  5+30       0.0000      0.00  0          |         |         |         |
------------------------------------------------------------------------
        ***************************HYDROGRAPH DATA**********************
                Number of intervals =    22
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      353.836 (CFS)
                Total volume =      41.223 (Ac.Ft)
          Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)      0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
        ****************************************************************


        ------------------------------------------------------------------


        ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
        Process from Point/Station        1.000 to Point/Station        2.000
```



```
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****
__________________________________________________________________
********************* HYDROGRAPH INFORMATION **********************

              From study/file name: OffsiteSUBC213100.rte
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T  O F  S T O R M
                  R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------
              Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0       131.2     262.5     393.7     524.9
------------------------------------------------------------------------
  0+15       2.9512      4.79  Q          |         |         |         |
  0+30      12.8095     27.35  q Q        |         |         |         |
  0+45      23.4163     59.79  |q  Q      |         |         |         |
  1+ 0      26.7787     78.93  | q   Q    |         |         |         |
  1+15      33.4835     95.01  | q    Q   |         |         |         |
  1+30      49.0842    136.49  |  q      Q|         |         |         |
  1+45      61.7277    176.46  |   q      | Q       |         |         |
  2+ 0      74.1553    217.46  |    q     |   Q     |         |         |
  2+15      94.9705    269.35  |      q   |      Q  |         |         |
  2+30     143.7514    386.25  |          q         |      Q  |         |
  2+45     182.5086    524.94  |          | q       |         |       Q |
  3+ 0     129.8414    483.68  |          |  q      |         |    Q    |
  3+15      35.4821    241.84  | q        |      Q  |         |         |
  3+30       7.6617    100.41  q          Q        |         |         |
  3+45       1.8371     42.19  q  Q       |         |         |         |
  4+ 0       0.1327     17.03  qQ         |         |         |         |
  4+15       0.0000      7.81  Q          |         |         |         |
  4+30       0.0000      4.08  Q          |         |         |         |
  4+45       0.0000      1.60  Q          |         |         |         |
  5+ 0       0.0000      0.28  Q          |         |         |         |
  5+15       0.0000      0.02  Q          |         |         |         |
  5+30       0.0000      0.00  Q          |         |         |         |
------------------------------------------------------------------------
        ***************************HYDROGRAPH DATA**********************
                Number of intervals =    22
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      524.941 (CFS)
                Total volume =      59.417 (Ac.Ft)
          Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)      0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
        ****************************************************************


        ------------------------------------------------------------------


        ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
        Process from Point/Station        1.000 to Point/Station        2.000
        **** STORE OR DELETE CURRENT HYDROGRAPH ****
        ____________________________________________________________
        Current stream hydrograph saved in file CoffsiteRT1.rte
        ***************************HYDROGRAPH DATA**********************
                Number of intervals =     0
                Time interval =    0.0 (Min.)
                Maximum/Peak flow rate =        0.000 (CFS)
                Total volume =        0.000 (Ac.Ft)
          Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)      0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
        ****************************************************************


        ------------------------------------------------------------------
```

```
                FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                    Study date: 07/29/13

---------------------------------------------------------------------


LineC, Offsite Subdrains C41 and C51
Routed
100 Yr. 3 Hr.

---------------------------------------------------------------------


Program License Serial Number 6097

---------------------------------------------------------------------
********************* HYDROGRAPH INFORMATION **********************

             From study/file name: OffsiteSUBC413100.rte
**************************HYDROGRAPH DATA**************************
             Number of intervals =    14
             Time interval =   15.0 (Min.)
             Maximum/Peak flow rate =       63.042 (CFS)
             Total volume =       5.923 (Ac.Ft)
      Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)       0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** STREAM ROUTING SCS CONVEX METHOD ****
______________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =    400.00 (Ft.)
Elevation difference =   10.00 (Ft.)
Slope of channel =  0.025000 (Vert/Horiz)
Channel type - Improved Channel


Channel length =   400.00(Ft.)     Elevation difference =  10.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Covered channel
Channel base width  =    5.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Manning's 'N'    = 0.015
Maximum depth of channel  =    5.000(Ft.)
Flow(q) thru subarea =     22.848(CFS)
Depth of flow =     0.480(Ft.)
Average velocity =     8.693(Ft/s)
Total flow rate =    22.848(CFS)
Channel flow top width =    5.959(Ft.)
Depth of flow in channel =   0.48(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =    8.69(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =   22.848(CFS)
Total capacity of improved channels =     22.848(CFS)
Critical Depth in Channel =    0.81(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Covered channel
Flow(q) thru subarea =     63.042(CFS)
Depth of flow =     0.878(Ft.)
```



```
Average velocity =    12.223(Ft/s)
Total flow rate =    63.042(CFS)
Channel flow top width =    6.755(Ft.)
Depth of flow in channel =   0.88(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   12.22(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =   63.042(CFS)
Total capacity of improved channels =     63.042(CFS)
Critical Depth in Channel =    1.53(Ft.)


********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.8779   Travel time =   0.55 (min.)
        dt*(unit time interval) =  15.00(min.),  e=  21.2180
        dt(routing time-step) =   0.48 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
----------------------------------------------------------------------
            Hydrograph in  15  Minute intervals (CFS)

----------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0        15.8       31.5       47.3       63.0
----------------------------------------------------------------------
  0+15        1.0308      1.06  0       |          |          |          |
  0+30        4.5717      4.69  | 0      |          |          |          |
  0+45        7.6834      7.78  |   0    |          |          |          |
  1+ 0        8.0737      8.08  |    0   |          |          |          |
  1+15       11.8196     11.94  |      0 |          |          |          |
  1+30       17.0081     17.18  |        0          |          |          |
  1+45       21.4911     21.63  |         | 0       |          |          |
  2+ 0        25.3936     25.52  |         |   0     |          |          |
  2+15       34.8341     35.14  |         |         | 0        |          |
  2+30       54.6119     55.25  |         |         |          | OI       |
  2+45       62.7929     63.04  |         |         |          |       OI |
  3+ 0        32.2161     31.20  |         |       IO |         |          |
  3+15        4.8507      3.98  | IO      |         |          |          |
  3+30        0.2712      0.15  0         |         |          |          |
  3+45        0.0048      0.00  0         |         |          |          |
  4+ 0        0.0000      0.00  0         |         |          |          |
----------------------------------------------------------------------
**************************HYDROGRAPH DATA**************************
             Number of intervals =    16
             Time interval =   15.0 (Min.)
             Maximum/Peak flow rate =       62.793 (CFS)
             Total volume =       5.923 (Ac.Ft)
      Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)       0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************

---------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****
______________________________________________________________________
********************* HYDROGRAPH INFORMATION **********************

             From study/file name: OffsiteSUBC513100.rte
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```

```
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
-------------------------------------------------------------
          Hydrograph in  15  Minute intervals (CFS)
-------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0       18.8      37.7      56.5      75.4
-------------------------------------------------------------
  0+15      0.2655      1.30  Q        |         |         |         |
  0+30      0.9768      5.55  q Q      |         |         |         |
  0+45      1.4118      9.10  q   Q    |         |         |         |
  1+ 0      1.3450      9.42  q   Q    |         |         |         |
  1+15      2.5137     14.33  |q     Q  |         |         |         |
  1+30      3.4505     20.46  |q       Q|         |         |         |
  1+45      4.4188     25.91  | q      |  Q      |         |         |
  2+ 0      5.1305     30.52  | q      |    Q    |         |         |
  2+15      7.6518     42.49  |   q    |         | Q       |         |
  2+30     12.2984     66.91  |     q  |         |         |    Q    |
  2+45     12.5770     75.37  |     q  |         |         |         Q
  3+ 0      3.6549     35.87  |q       |        Q|         |         |
  3+15      0.1609      5.01  q Q      |         |         |         |
  3+30      0.0000      0.27  Q        |         |         |         |
  3+45      0.0000      0.00  Q        |         |         |         |
  4+ 0      0.0000      0.00  Q        |         |         |         |
-------------------------------------------------------------------
     ***************************HYDROGRAPH DATA**************************
                 Number of intervals =    16
                 Time interval =   15.0 (Min.)
                 Maximum/Peak flow rate =       75.370 (CFS)
                 Total volume =       7.077 (Ac.Ft)
          Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)       0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
     ********************************************************************

     ------------------------------------------------------------------


     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
     Process from Point/Station        1.000 to Point/Station        2.000
     **** STREAM ROUTING SCS CONVEX METHOD ****
     ____________________________________________________________________
     HYDROGRAPH STREAM ROUTING DATA:
     Length of stream =    400.00 (Ft.)
     Elevation difference =   10.00 (Ft.)
     Slope of channel =  0.025000 (Vert/Horiz)
     Channel type - Improved Channel


     Channel length =   400.00(Ft.)     Elevation difference =  10.00(Ft.)
     Channel evaluation using mean flow rate of hydrograph
     Covered channel
     Channel base width =    5.000(Ft.)
     Slope or 'Z' of left channel bank =   1.000
     Slope or 'Z' of right channel bank =   1.000
     Manning's 'N'    = 0.015
     Maximum depth of channel =    5.000(Ft.)
     Flow(q) thru subarea =     27.396(CFS)
     Depth of flow =     0.535(Ft.)
     Average velocity =     9.258(Ft/s)
     Total flow rate =    27.396(CFS)
     Channel flow top width =    6.069(Ft.)
     Depth of flow in channel =   0.53(Ft.)
     Total number of channels (same dimensions) = 1
     Flow Velocity =    9.26(Ft/s)
     Travel time =    0.00 min.
     Individual channel flow =   27.396(CFS)
     Total capacity of improved channels =     27.396(CFS)
     Critical Depth in Channel =    0.92(Ft.)
```



```
     Channel evaluation using maximum flow rate of hydrograph
     Covered channel
     Flow(q) thru subarea =     75.370(CFS)
     Depth of flow =     0.975(Ft.)
     Average velocity =    12.940(Ft/s)
     Total flow rate =    75.370(CFS)
     Channel flow top width =    6.950(Ft.)
     Depth of flow in channel =   0.97(Ft.)
     Total number of channels (same dimensions) = 1
     Flow Velocity =   12.94(Ft/s)
     Travel time =    0.00 min.
     Individual channel flow =   75.370(CFS)
     Total capacity of improved channels =     75.370(CFS)
     Critical Depth in Channel =    1.70(Ft.)


     ********************** SCS CONVEX CHANNEL ROUTING *********************
     Convex method of stream routing  data items:
     Using equation: Outflow =
     O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.8839   Travel time =   0.52 (min.)
        dt*(unit time interval) =  15.00(min.),  e=  22.2933
        dt(routing time-step) =   0.46 (min.),   c* =   1.0000

     Output hydrograph delayed by 0  unit time increments


     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                   P R I N T  O F  S T O R M
                 R u n o f f     H y d r o g r a p h
     -------------------------------------------------------------
               Hydrograph in  15  Minute intervals (CFS)
     -------------------------------------------------------------
     Time(h+m) Out = O(CFS) In = I  0       18.8      37.7      56.5      75.4
     -------------------------------------------------------------
       0+15       1.2570      1.30  0        |         |         |         |
       0+30       5.4194      5.55  | 0      |         |         |         |
       0+45       8.9875      9.10  |   0    |         |         |         |
       1+ 0       9.4088      9.42  |   0    |         |         |         |
       1+15      14.1841     14.33  |      0 |         |         |         |
       1+30      20.2727     20.46  |        0|         |         |         |
       1+45      25.7444     25.91  |        | 0       |         |         |
       2+ 0      30.3840     30.52  |        |    0    |         |         |
       2+15      42.1227     42.49  |        |         | 0       |         |
       2+30      66.1688     66.91  |        |         |         |    0    |
       2+45      75.1132     75.37  |        |         |         |         0I
       3+ 0      37.0701     35.87  |        |         |        0|         |
       3+15       5.9485      5.01  | I0     |         |         |         |
       3+30       0.4151      0.27  0        |         |         |         |
       3+45       0.0128      0.00  0        |         |         |         |
       4+ 0       0.0001      0.00  0        |         |         |         |
       4+15       0.0000      0.00  0        |         |         |         |
     -------------------------------------------------------------------
          ***************************HYDROGRAPH DATA**************************
                      Number of intervals =    17
                      Time interval =   15.0 (Min.)
                      Maximum/Peak flow rate =       75.113 (CFS)
                      Total volume =       7.077 (Ac.Ft)
               Status of hydrographs being held in storage
                         Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
               Peak (CFS)       0.000     0.000     0.000     0.000     0.000
               Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
          ********************************************************************

          ------------------------------------------------------------------


          ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
          Process from Point/Station        1.000 to Point/Station        2.000
          **** STORE OR DELETE CURRENT HYDROGRAPH ****
```

```
Current stream hydrograph saved in file CoffsiteRT2.rte
**************************HYDROGRAPH DATA**************************
              Number of intervals =      0
              Time interval =    0.0 (Min.)
              Maximum/Peak flow rate =        0.000 (CFS)
              Total volume =        0.000 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*******************************************************************

------------------------------------------------------------------
```



```
        U n i t   H y d r o g r a p h   A n a l y s i s

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
              Study date  09/18/13 File: OffsiteSubC13100.out

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------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Line C, Offsite C1
Proposed Condition
100 yr, 3 hr

------------------------------------------------------------------
Drainage Area =     403.10(Ac.)  =      0.630 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     403.10(Ac.)  =      0.630 Sq. Mi.
Length along longest watercourse =    9900.00(Ft.)
Length along longest watercourse measured to centroid =    5600.00(Ft.)
Length along longest watercourse =      1.875 Mi.
Length along longest watercourse measured to centroid =      1.061 Mi.
Difference in elevation =     700.00(Ft.)
Slope along watercourse =    373.3333 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.303 Hr.
Lag time =    18.21 Min.
25% of lag time =     4.55 Min.
40% of lag time =     7.28 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      403.10             0.85                342.63

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      403.10             1.90                765.89

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.82 %
Adjusted average point rain =    1.897(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
     8.500            46.00           0.000
     5.400            66.00           0.000
    13.200            77.00           0.000
```

376.000 83.00 0.000
Total Area Entered = 403.10(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.021 | 0.013 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.013 | 0.005 |
| 77.0 | 77.0 | 0.279 | 0.000 | 0.279 | 0.033 | 0.009 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.933 | 0.196 |
| | | | | | Sum (F) = | 0.223 |

Area averaged mean soil loss (F) (In/Hr) = 0.223
Minimum soil loss rate ((In/Hr)) = 0.112
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit | time period (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 82.386 | 9.509 | 38.632 |
| 2 | 0.500 | 164.773 | 49.802 | 202.320 |
| 3 | 0.750 | 247.159 | 23.542 | 95.638 |
| 4 | 1.000 | 329.545 | 9.452 | 38.397 |
| 5 | 1.250 | 411.931 | 4.591 | 18.651 |
| 6 | 1.500 | 494.318 | 1.618 | 6.571 |
| 7 | 1.750 | 576.704 | 0.707 | 2.873 |
| 8 | 2.000 | 659.090 | 0.536 | 2.179 |
| 9 | 2.250 | 741.476 | 0.243 | 0.986 |
| | | | Sum = 100.000 | Sum= 406.249 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.223 | ( 0.253) | 0.058 |
| 2 | 0.50 | 4.80 | 0.364 | 0.223 | ( 0.328) | 0.141 |
| 3 | 0.75 | 5.10 | 0.387 | 0.223 | ( 0.348) | 0.164 |
| 4 | 1.00 | 4.90 | 0.372 | 0.223 | ( 0.335) | 0.149 |
| 5 | 1.25 | 6.60 | 0.501 | 0.223 | ( 0.451) | 0.278 |
| 6 | 1.50 | 7.30 | 0.554 | 0.223 | ( 0.498) | 0.331 |
| 7 | 1.75 | 8.40 | 0.637 | 0.223 | ( 0.574) | 0.414 |
| 8 | 2.00 | 9.00 | 0.683 | 0.223 | ( 0.615) | 0.460 |
| 9 | 2.25 | 12.30 | 0.933 | 0.223 | ( 0.840) | 0.710 |
| 10 | 2.50 | 17.60 | 1.335 | 0.223 | ( 1.202) | 1.112 |
| 11 | 2.75 | 16.10 | 1.221 | 0.223 | ( 1.099) | 0.998 |
| 12 | 3.00 | 4.20 | 0.319 | 0.223 | ( 0.287) | 0.095 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 4.9 |

Flood volume = Effective rainfall 1.23(In)
times area 403.1(Ac.)/[(In)/(Ft.)] = 41.2(Ac.Ft)
Total soil loss = 0.67(In)
Total soil loss = 22.489(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 1795655.1 Cubic Feet
Total soil loss = 979622.6 Cubic Feet

Peak flow rate of this hydrograph = 360.479(CFS)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 100.0 200.0 300.0 400.0 |
|---|---|---|---|
| 0+15 | 0.0460 | 2.22 | Q |
| 0+30 | 0.3992 | 17.10 | VQ |
| 0+45 | 1.2334 | 40.38 | V Q |
| 1+ 0 | 2.3614 | 54.59 | V Q |
| 1+15 | 3.6623 | 62.96 | V Q |
| 1+30 | 5.5731 | 92.48 | V Q |
| 1+45 | 8.0391 | 119.36 | V Q |
| 2+ 0 | 11.1027 | 148.28 | V Q |
| 2+15 | 14.8176 | 179.80 | V Q |
| 2+30 | 20.0968 | 255.51 | V Q |
| 2+45 | 27.5447 | 360.48 | V Q |
| 3+ 0 | 34.8269 | 352.46 | V Q |
| 3+15 | 38.4639 | 176.03 | Q V |
| 3+30 | 40.0230 | 75.46 | Q V |
| 3+45 | 40.7060 | 33.06 | Q V |
| 4+ 0 | 40.9859 | 13.54 | Q V |
| 4+15 | 41.1227 | 6.62 | Q V |
| 4+30 | 41.1960 | 3.55 | Q V |
| 4+45 | 41.2206 | 1.19 | Q V |
| 5+ 0 | 41.2226 | 0.09 | Q V |

```
                U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  09/18/13 File: OffsiteSubC213100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Line C, Offsite C21
Proposed Condition
100 yr, 3 hr

--------------------------------------------------------------------
Drainage Area =     180.10(Ac.)  =      0.281 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     180.10(Ac.)  =      0.281 Sq. Mi.
Length along longest watercourse =     5800.00(Ft.)
Length along longest watercourse measured to centroid =     2200.00(Ft.)
Length along longest watercourse =      1.098 Mi.
Length along longest watercourse measured to centroid =      0.417 Mi.
Difference in elevation =      547.00(Ft.)
Slope along watercourse =     497.9586 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =     0.164 Hr.
Lag time =     9.86 Min.
25% of lag time =     2.47 Min.
40% of lag time =     3.95 Min.
Unit time =     15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      180.10              0.85                153.08

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      180.10              1.90                342.19

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     0.850(In)
Area Averaged 100-Year Rainfall =     1.900(In)

Point rain (area averaged) =     1.900(In)
Areal adjustment factor =    99.92 %
Adjusted average point rain =     1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
    17.000            66.00           0.000
     1.300            77.00           0.000
   161.800            83.00           0.000
```



```
 Total Area Entered =     180.10(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
66.0  66.0       0.405      0.000        0.405        0.094      0.038
77.0  77.0       0.279      0.000        0.279        0.007      0.002
83.0  83.0       0.210      0.000        0.210        0.898      0.188
                                                    Sum (F) =    0.229
Area averaged mean soil loss (F) (In/Hr) =  0.229
Minimum soil loss rate ((In/Hr)) =  0.114
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.900
--------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                      FOOTHILL S-Curve
--------------------------------------------------------------------
                    Unit Hydrograph Data
--------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
     (hrs)                          Graph %           (CFS)
--------------------------------------------------------------------
     1   0.250         152.073         31.114            56.474
     2   0.500         304.146         54.171            98.324
     3   0.750         456.220         11.618            21.087
     4   1.000         608.293          2.287             4.152
     5   1.250         760.366          0.810             1.471
                                 Sum = 100.000    Sum=     181.507
--------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)  Percent   (In/Hr)        Max   |   Low          (In/Hr)
  1   0.25     3.70      0.281         0.229    (  0.253)        0.052
  2   0.50     4.80      0.365         0.229    (  0.328)        0.136
  3   0.75     5.10      0.387         0.229    (  0.349)        0.159
  4   1.00     4.90      0.372         0.229    (  0.335)        0.143
  5   1.25     6.60      0.501         0.229    (  0.451)        0.272
  6   1.50     7.30      0.554         0.229    (  0.499)        0.326
  7   1.75     8.40      0.638         0.229    (  0.574)        0.409
  8   2.00     9.00      0.683         0.229    (  0.615)        0.455
  9   2.25    12.30      0.934         0.229    (  0.841)        0.705
 10   2.50    17.60      1.337         0.229    (  1.203)        1.108
 11   2.75    16.10      1.223         0.229    (  1.100)        0.994
 12   3.00     4.20      0.319         0.229    (  0.287)        0.090
            (Loss Rate Not Used)
    Sum =    100.0                                Sum =     4.8
      Flood volume = Effective rainfall     1.21(In)
       times area     180.1(Ac.)/[(In)/(Ft.)] =     18.2(Ac.Ft)
      Total soil loss =      0.69(In)
      Total soil loss =    10.299(Ac.Ft)
      Total rainfall =      1.90(In)
      Flood volume =     792532.8 Cubic Feet
      Total soil loss =     448638.2 Cubic Feet
      --------------------------------------------------------------------
       Peak flow rate of this hydrograph =    182.509(CFS)
      --------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                    R u n o f f     H y d r o g r a p h
      --------------------------------------------------------------------
                  Hydrograph in  15   Minute intervals ((CFS))
      --------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       50.0      100.0     150.0     200.0
--------------------------------------------------------------------------
  0+15       0.0610      2.95  Q        |         |         |         |
  0+30       0.3256     12.81  V Q      |         |         |         |
```

```
0+45      0.8094     23.42 |V  Q      |          |          |          |
1+ 0      1.3627     26.78 | V  Q     |          |          |          |
1+15      2.0545     33.48 |   V Q    |          |          |          |
1+30      3.0687     49.08 |      V  Q|          |          |          |
1+45      4.3440     61.73 |         V| Q        |          |          |
2+ 0      5.8762     74.16 |          | V Q      |          |          |
2+15      7.8384     94.97 |          |      VQ  |          |          |
2+30     10.8084    143.75 |          |          |  V    Q  |          |
2+45     14.5793    182.51 |          |          |          |  V   Q   |
3+ 0     17.2620    129.84 |          |          |    Q     |      V   |
3+15     17.9951     35.48 |      Q   |          |          |          V|
3+30     18.1534      7.66 |Q         |          |          |          V|
3+45     18.1913      1.84 Q          |          |          |          V|
4+ 0     18.1940      0.13 Q          |          |          |          V
------------------------------------------------------------------------
```



```
        U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Line C, Offsite C41
Proposed Condition
100 yr, 3 hr

------------------------------------------------------------------------
Drainage Area =      61.60(Ac.)  =      0.096 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      61.60(Ac.)  =      0.096 Sq. Mi.
Length along longest watercourse =    2300.00(Ft.)
Length along longest watercourse measured to centroid =    1340.00(Ft.)
Length along longest watercourse =      0.436 Mi.
Length along longest watercourse measured to centroid =      0.254 Mi.
Difference in elevation =     219.00(Ft.)
Slope along watercourse =    502.7478 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.096 Hr.
Lag time =     5.74 Min.
25% of lag time =     1.43 Min.
40% of lag time =     2.30 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       61.60                0.85               52.36

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       61.60                1.90              117.04

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.97 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
     8.200             66.00          0.000
    11.300             77.00          0.000
    42.100             83.00          0.000
```

```
 Total Area Entered =      61.60(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)       (Dec.)    (In/Hr)
66.0  66.0      0.405      0.000       0.405         0.133     0.054
77.0  77.0      0.279      0.000       0.279         0.183     0.051
83.0  83.0      0.210      0.000       0.210         0.683     0.143
                                                   Sum (F) =   0.249
Area averaged mean soil loss (F) (In/Hr) =  0.249
Minimum soil loss rate ((In/Hr)) =  0.124
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
------------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                      FOOTHILL S-Curve
------------------------------------------------------------------------
                    Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
    (hrs)                           Graph %           (CFS)
------------------------------------------------------------------------
    1   0.250         261.402         52.675           32.701
    2   0.500         522.805         43.927           27.270
    3   0.750         784.207          3.398            2.110
                              Sum = 100.000    Sum=      62.081
------------------------------------------------------------------------


The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain    Loss rate(In./Hr)      Effective
      (Hr.)  Percent   (In/Hr)       Max    |   Low          (In/Hr)
  1   0.25     3.70      0.281        0.249    (  0.253)        0.033
  2   0.50     4.80      0.365        0.249    (  0.328)        0.116
  3   0.75     5.10      0.387        0.249    (  0.349)        0.139
  4   1.00     4.90      0.372        0.249    (  0.335)        0.124
  5   1.25     6.60      0.501        0.249    (  0.451)        0.253
  6   1.50     7.30      0.555        0.249    (  0.499)        0.306
  7   1.75     8.40      0.638        0.249    (  0.574)        0.390
  8   2.00     9.00      0.684        0.249    (  0.615)        0.435
  9   2.25    12.30      0.935        0.249    (  0.841)        0.686
 10   2.50    17.60      1.337        0.249    (  1.204)        1.089
 11   2.75    16.10      1.223        0.249    (  1.101)        0.975
 12   3.00     4.20      0.319        0.249    (  0.287)        0.071
            (Loss Rate Not Used)
    Sum =     100.0                                Sum =      4.6
      Flood volume = Effective rainfall      1.15(In)
       times area      61.6(Ac.)/[(In)/(Ft.)] =       5.9(Ac.Ft)
      Total soil loss =      0.75(In)
      Total soil loss =     3.828(Ac.Ft)
      Total rainfall =      1.90(In)
      Flood volume =      257988.2 Cubic Feet
      Total soil loss =      166752.5 Cubic Feet
      ---------------------------------------------------------------
       Peak flow rate of this hydrograph =      63.042(CFS)
      ---------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                   R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------
                  Hydrograph in  15   Minute intervals ((CFS))

      ---------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        17.5       35.0       52.5       70.0
-------------------------------------------------------------------------------
  0+15        0.0220       1.06  Q        |          |          |          |
  0+30        0.1188       4.69  V Q      |          |          |          |
  0+45        0.2796       7.78  |V  Q     |          |          |          |
  1+ 0        0.4466       8.08  |  VQ     |          |          |          |
```



```
  1+15        0.6934      11.94  |   V Q    |          |          |          |
  1+30        1.0483      17.18  |      V Q |          |          |          |
  1+45        1.4952      21.63  |        V Q          |          |          |
  2+ 0        2.0224      25.52  |          | VQ       |          |          |
  2+15        2.7485      35.14  |          |    V Q   |          |          |
  2+30        3.8901      55.25  |          |          |    V     |Q         |
  2+45        5.1926      63.04  |          |          |          |  VQ      |
  3+ 0        5.8372      31.20  |          |     Q    |          |          |V
  3+15        5.9195       3.98  | Q        |          |          |          |V
  3+30        5.9226       0.15  Q          |          |          |          |V
-------------------------------------------------------------------------------
```

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                U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Line C, Offsite C51
Proposed Condition
100 yr, 3 hr

--------------------------------------------------------------------------
Drainage Area =      12.70(Ac.)  =      0.020 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      12.70(Ac.)  =      0.020 Sq. Mi.
Length along longest watercourse =     1160.00(Ft.)
Length along longest watercourse measured to centroid =      510.00(Ft.)
Length along longest watercourse =      0.220 Mi.
Length along longest watercourse measured to centroid =      0.097 Mi.
Difference in elevation =      129.00(Ft.)
Slope along watercourse =     587.1724 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =     0.050 Hr.
Lag time =      2.98 Min.
25% of lag time =      0.74 Min.
40% of lag time =      1.19 Min.
Unit time =     15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
       12.70                 0.85                10.80

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
       12.70                 1.90                24.13

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     0.850(In)
Area Averaged 100-Year Rainfall =     1.900(In)

Point rain (area averaged) =     1.900(In)
Areal adjustment factor =    99.99 %
Adjusted average point rain =     1.900(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
      4.000            66.00          0.000
      8.700            83.00          0.000
 Total Area Entered =      12.70(Ac.)
```



```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
66.0  66.0      0.405      0.000        0.405         0.315     0.128
83.0  83.0      0.210      0.000        0.210         0.685     0.144
                                                   Sum (F) =   0.271
Area averaged mean soil loss (F) (In/Hr) =  0.271
Minimum soil loss rate ((In/Hr)) =  0.136
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.900
--------------------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                      FOOTHILL S-Curve
--------------------------------------------------------------------------------
                Unit Hydrograph Data
--------------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution    Unit Hydrograph
    (hrs)                          Graph %           (CFS)
--------------------------------------------------------------------------------
     1   0.250        504.085         73.731            9.437
     2   0.500       1008.171         26.269            3.362
                              Sum = 100.000    Sum=      12.799
--------------------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
     (Hr.)  Percent   (In/Hr)         Max    |    Low          (In/Hr)
 1   0.25     3.70      0.281        (  0.271)      0.253         0.028
 2   0.50     4.80      0.365          0.271     (  0.328)        0.093
 3   0.75     5.10      0.388          0.271     (  0.349)        0.116
 4   1.00     4.90      0.372          0.271     (  0.335)        0.101
 5   1.25     6.60      0.502          0.271     (  0.451)        0.230
 6   1.50     7.30      0.555          0.271     (  0.499)        0.283
 7   1.75     8.40      0.638          0.271     (  0.575)        0.367
 8   2.00     9.00      0.684          0.271     (  0.616)        0.413
 9   2.25    12.30      0.935          0.271     (  0.841)        0.663
10   2.50    17.60      1.338          0.271     (  1.204)        1.066
11   2.75    16.10      1.224          0.271     (  1.101)        0.952
12   3.00     4.20      0.319          0.271     (  0.287)        0.048
           (Loss Rate Not Used)
   Sum =    100.0                                  Sum =     4.4
    Flood volume = Effective rainfall      1.09(In)
     times area      12.7(Ac.)/[(In)/(Ft.)] =       1.2(Ac.Ft)
    Total soil loss =      0.81(In)
    Total soil loss =     0.857(Ac.Ft)
    Total rainfall =      1.90(In)
    Flood volume =       50270.1 Cubic Feet
    Total soil loss =       37316.9 Cubic Feet
    --------------------------------------------------------------------------
     Peak flow rate of this hydrograph =     12.577(CFS)
    --------------------------------------------------------------------------
    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                      3 - H O U R    S T O R M
                   R u n o f f     H y d r o g r a p h
    --------------------------------------------------------------------------
              Hydrograph in  15   Minute intervals ((CFS))

    --------------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0       10.0       15.0       20.0
--------------------------------------------------------------------------------
  0+15       0.0055       0.27  Q        |         |          |          |
  0+30       0.0257       0.98  VQ       |         |          |          |
  0+45       0.0548       1.41  |VQ       |         |          |          |
  1+ 0       0.0826       1.34  | Q       |         |          |          |
  1+15       0.1346       2.51  |   VQ    |         |          |          |
  1+30       0.2059       3.45  |     QV  |         |          |          |
  1+45       0.2972       4.42  |       Q V         |          |          |
```

```
 2+ 0       0.4032      5.13 |          Q  V      |          |          |
 2+15       0.5612      7.65 |          |    Q    V|          |          |
 2+30       0.8153     12.30 |          |          |    Q     V|          |
 2+45       1.0752     12.58 |          |          |     Q    |          V|
 3+ 0       1.1507      3.65 |     Q    |          |          |           V|
 3+15       1.1540      0.16 Q          |          |          |            V
----------------------------------------------------------------------------
```



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                U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Watershed C, Subdrain Area C1
Proposed Condition
100 Yr, 3 Hr.

------------------------------------------------------------------------
Drainage Area =     105.00(Ac.)  =      0.164 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     105.00(Ac.)  =      0.164 Sq. Mi.
Length along longest watercourse =    3000.00(Ft.)
Length along longest watercourse measured to centroid =    1500.00(Ft.)
Length along longest watercourse =      0.568 Mi.
Length along longest watercourse measured to centroid =      0.284 Mi.
Difference in elevation =      50.00(Ft.)
Slope along watercourse =     88.0000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.077 Hr.
Lag time =     4.61 Min.
25% of lag time =     1.15 Min.
40% of lag time =     1.85 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      105.00             0.85                89.25

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      105.00             1.90               199.50

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.95 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   105.000            85.00          0.750
 Total Area Entered =     105.00(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

---

U n i t H y d r o g r a p h
VALLEY S-Curve

---

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 325.140 | 59.121 | 62.562 |
| 2 | 0.500 | 650.280 | 35.788 | 37.871 |
| 3 | 0.750 | 975.420 | 5.091 | 5.387 |
| | | | Sum = 100.000 | Sum= 105.820 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.061 | ( 0.084) 0.220 |
| 2 | 0.50 | 4.80 | 0.365 | 0.061 | ( 0.109) 0.304 |
| 3 | 0.75 | 5.10 | 0.387 | 0.061 | ( 0.116) 0.327 |
| 4 | 1.00 | 4.90 | 0.372 | 0.061 | ( 0.112) 0.311 |
| 5 | 1.25 | 6.60 | 0.501 | 0.061 | ( 0.150) 0.441 |
| 6 | 1.50 | 7.30 | 0.555 | 0.061 | ( 0.166) 0.494 |
| 7 | 1.75 | 8.40 | 0.638 | 0.061 | ( 0.191) 0.577 |
| 8 | 2.00 | 9.00 | 0.684 | 0.061 | ( 0.205) 0.623 |
| 9 | 2.25 | 12.30 | 0.934 | 0.061 | ( 0.280) 0.874 |
| 10 | 2.50 | 17.60 | 1.337 | 0.061 | ( 0.401) 1.276 |
| 11 | 2.75 | 16.10 | 1.223 | 0.061 | ( 0.367) 1.162 |
| 12 | 3.00 | 4.20 | 0.319 | 0.061 | ( 0.096) 0.258 |
| | | (Loss Rate Not Used) | | | |
| Sum = | | 100.0 | | | Sum = 6.9 |

Flood volume = Effective rainfall 1.72(In)
times area 105.0(Ac.)/[(In)/(Ft.)] = 15.0(Ac.Ft)
Total soil loss = 0.18(In)
Total soil loss = 1.595(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 654359.2 Cubic Feet
Total soil loss = 69493.2 Cubic Feet

---

Peak flow rate of this hydrograph = 125.816(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

---

Hydrograph in 15 Minute intervals ((CFS))

---

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 50.0 | 100.0 | 150.0 | 200.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.2849 | 13.79 | V Q | \| | \| | \| | \| |
| 0+30 | 0.8503 | 27.37 | \| V Q | \| | \| | \| | \| |
| 0+45 | 1.5352 | 33.15 | \| V Q | \| | \| | \| | \| |
| 1+ 0 | 2.2275 | 33.51 | \| VQ | \| | \| | \| | \| |
| 1+15 | 3.0776 | 41.14 | \| Q | \| | \| | \| | \| |
| 1+30 | 4.0958 | 49.28 | \| QV | \| | \| | \| | \| |
| 1+45 | 5.2780 | 57.22 | \| \|Q V | \| | \| | \| | \| |
| 2+ 0 | 6.5906 | 63.53 | \| \| Q V | \| | \| | \| | \| |
| 2+15 | 8.2723 | 81.40 | \| \| Q V | \| | \| | \| | \| |
| 2+30 | 10.6761 | 116.34 | \| \| \| Q V | \| | \| | \| | \| |
| 2+45 | 13.2756 | 125.82 | \| \| \| Q V | \| | \| | \| | \| |
| 3+ 0 | 14.6616 | 67.08 | \| Q \| | \| | \| | \| | V\| |
| 3+15 | 14.9933 | 16.05 | \| Q \| | \| | \| | \| | V\| |
| 3+30 | 15.0220 | 1.39 | Q \| | \| | \| | \| | V\| |

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                U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------------
Watershed C, Subdrain Area C2
Proposed Conditions
100 Yr, 3 Hr.

--------------------------------------------------------------------------
Drainage Area =     303.00(Ac.)  =      0.473 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     303.00(Ac.)  =      0.473 Sq. Mi.
Length along longest watercourse =     4000.00(Ft.)
Length along longest watercourse measured to centroid =     2000.00(Ft.)
Length along longest watercourse =       0.758 Mi.
Length along longest watercourse measured to centroid =       0.379 Mi.
Difference in elevation =       80.00(Ft.)
Slope along watercourse =     105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.092 Hr.
Lag time =      5.55 Min.
25% of lag time =      1.39 Min.
40% of lag time =      2.22 Min.
Unit time =     15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      303.00              0.85                257.55

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      303.00              1.90                575.70

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     0.850(In)
Area Averaged 100-Year Rainfall =     1.900(In)

Point rain (area averaged) =     1.900(In)
Areal adjustment factor =    99.87 %
Adjusted average point rain =     1.897(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   303.000            85.00          0.750
 Total Area Entered =     303.00(Ac.)
```



```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)     (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
85.0  85.0       0.187      0.750         0.061        1.000       0.061
                                                    Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.300
--------------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                      VALLEY S-Curve
--------------------------------------------------------------------------
                    Unit Hydrograph Data
--------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution    Unit Hydrograph
    (hrs)                          Graph %           (CFS)
--------------------------------------------------------------------------
     1   0.250         270.496         53.435           163.172
     2   0.500         540.992         38.815           118.527
     3   0.750         811.489          7.750            23.667
                              Sum = 100.000    Sum=      305.367
--------------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
     (Hr.)  Percent   (In/Hr)        Max   |   Low          (In/Hr)
  1   0.25     3.70      0.281         0.061    (  0.084)        0.220
  2   0.50     4.80      0.364         0.061    (  0.109)        0.304
  3   0.75     5.10      0.387         0.061    (  0.116)        0.326
  4   1.00     4.90      0.372         0.061    (  0.112)        0.311
  5   1.25     6.60      0.501         0.061    (  0.150)        0.440
  6   1.50     7.30      0.554         0.061    (  0.166)        0.493
  7   1.75     8.40      0.638         0.061    (  0.191)        0.577
  8   2.00     9.00      0.683         0.061    (  0.205)        0.622
  9   2.25    12.30      0.934         0.061    (  0.280)        0.873
 10   2.50    17.60      1.336         0.061    (  0.401)        1.275
 11   2.75    16.10      1.222         0.061    (  0.367)        1.161
 12   3.00     4.20      0.319         0.061    (  0.096)        0.258
            (Loss Rate Not Used)
   Sum =    100.0                                 Sum =     6.9
    Flood volume = Effective rainfall      1.72(In)
     times area     303.0(Ac.)/[(In)/(Ft.)] =      43.3(Ac.Ft)
    Total soil loss =      0.18(In)
    Total soil loss =     4.604(Ac.Ft)
    Total rainfall =      1.90(In)
    Flood volume =     1886483.3 Cubic Feet
    Total soil loss =      200537.4 Cubic Feet
    --------------------------------------------------------------------------
     Peak flow rate of this hydrograph =    361.448(CFS)
    --------------------------------------------------------------------------
    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                    R u n o f f     H y d r o g r a p h
    --------------------------------------------------------------------------
                  Hydrograph in  15  Minute intervals ((CFS))

    --------------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       100.0      200.0      300.0      400.0
--------------------------------------------------------------------------
  0+15       0.7423      35.93  V  Q     |          |          |          |
  0+30       2.3053      75.65  | V    Q  |          |          |          |
  0+45       4.2573      94.48  |  V     Q|          |          |          |
  1+ 0       6.2548      96.68  |    V   Q|          |          |          |
  1+15       8.6615     116.48  |      V  |Q         |          |          |
  1+30      11.5561     140.10  |         V  Q       |          |          |
  1+45      14.9256     163.08  |         |  V Q     |          |          |
  2+ 0      18.6793     181.68  |         |     VQ   |          |          |
```

```
     2+15      23.4302     229.95  |          |          VQ       |          |
     2+30      30.1740     326.40  |          |          |        V  | Q        |
     2+45      37.6420     361.45  |          |          |           V Q      |
     3+ 0      41.9812     210.02  |          |          |Q          |       V  |
     3+15      43.1815      58.09  |    Q     |          |           |        V |
     3+30      43.3077       6.11  Q          |          |           |          V
----------------------------------------------------------------------
```



```
                U n i t   H y d r o g r a p h   A n a l y s i s

                Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
                      Study date  07/29/13 File: SUBC33100.out

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
------------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Watershed C, Subdrain Area C3
Proposed Conditions
100 Yr. 3 Hr.

------------------------------------------------------------------------
Drainage Area =      83.70(Ac.)  =      0.131 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      83.70(Ac.)  =      0.131 Sq. Mi.
Length along longest watercourse =    3000.00(Ft.)
Length along longest watercourse measured to centroid =    1500.00(Ft.)
Length along longest watercourse =      0.568 Mi.
Length along longest watercourse measured to centroid =      0.284 Mi.
Difference in elevation =      50.00(Ft.)
Slope along watercourse =     88.0000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.077 Hr.
Lag time =     4.61 Min.
25% of lag time =     1.15 Min.
40% of lag time =     1.85 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       83.70                 0.85               71.14

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       83.70                 1.90              159.03

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.96 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
    83.700            85.00          0.750
 Total Area Entered =     83.70(Ac.)
```

FLOOD HYDROGRAPH ROUTING PROGRAM
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Study date: 09/18/13

---

Line C Routed
Proposed Condition
100 Yr. 24 Hr.

---

Program License Serial Number 6097

---
********** HYDROGRAPH INFORMATION **********

From study/file name: subc124100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 98
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 63.005 (CFS)
Total volume = 34.195 (Ac.Ft)
Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station 1.000 to Point/Station 2.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****
---
********** HYDROGRAPH INFORMATION **********

From study/file name: CoffsiteRT1.rte
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
P R I N T O F S T O R M
R u n o f f H y d r o g r a p h
---
Hydrograph in 15 Minute intervals (CFS)

---

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 70.1 | 140.3 | 210.4 | 280.5 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.3127 | 1.99 | Q | | | | |
| 0+30 | 1.4256 | 4.97 | Q | | | | |
| 0+45 | 2.4058 | 6.60 | Q | | | | |
| 1+ 0 | 3.0103 | 8.12 | qQ | | | | |
| 1+15 | 3.5184 | 8.30 | qQ | | | | |
| 1+30 | 3.3678 | 7.71 | qQ | | | | |
| 1+45 | 3.2450 | 7.51 | qQ | | | | |
| 2+ 0 | 3.3616 | 8.47 | qQ | | | | |
| 2+15 | 3.8212 | 9.44 | qQ | | | | |
| 2+30 | 4.0653 | 9.76 | qQ | | | | |
| 2+45 | 4.3182 | 10.85 | qQ | | | | |
| 3+ 0 | 4.8383 | 11.88 | qQ | | | | |
| 3+15 | 5.1039 | 12.22 | qQ | | | | |
| 3+30 | 5.2086 | 12.32 | qQ | | | | |
| 3+45 | 5.2566 | 12.37 | qQ | | | | |
| 4+ 0 | 5.4317 | 13.39 | qQ | | | | |
| 4+15 | 5.9169 | 14.38 | q Q | | | | |
| 4+30 | 6.3284 | 15.71 | q Q | | | | |
| 4+45 | 6.9075 | 16.79 | q Q | | | | |
| 5+ 0 | 7.3590 | 18.16 | qQ | | | | |
| 5+15 | 7.6396 | 17.27 | qQ | | | | |



| | | | |
|---|---|---|---|
| 5+30 | 7.1408 | 16.66 | qQ |
| 5+45 | 7.3927 | 18.12 | qQ |
| 6+ 0 | 7.9774 | 19.29 | qQ |
| 6+15 | 8.4167 | 20.64 | qQ |
| 6+30 | 9.0133 | 21.74 | q Q |
| 6+45 | 9.4722 | 23.12 | q Q |
| 7+ 0 | 10.0660 | 24.22 | q Q |
| 7+15 | 10.3675 | 24.59 | q Q |
| 7+30 | 10.6445 | 25.71 | q Q |
| 7+45 | 11.3321 | 27.75 | q Q |
| 8+ 0 | 12.2388 | 30.24 | q Q |
| 8+15 | 13.3881 | 34.54 | q Q |
| 8+30 | 14.7426 | 37.53 | q Q |
| 8+45 | 15.7020 | 40.01 | q Q |
| 9+ 0 | 19.0030 | 45.34 | q Q |
| 9+15 | 28.9372 | 58.61 | q Q |
| 9+30 | 44.6843 | 77.22 | q Q |
| 9+45 | 59.1438 | 93.92 | q Q |
| 10+ 0 | 72.4913 | 109.40 | q Q |
| 10+15 | 72.9216 | 102.34 | q Q |
| 10+30 | 45.8094 | 70.34 | q Q |
| 10+45 | 39.8403 | 69.75 | q Q |
| 11+ 0 | 59.6264 | 93.27 | q Q |
| 11+15 | 69.8425 | 102.90 | q Q |
| 11+30 | 70.9284 | 103.35 | q Q |
| 11+45 | 69.0230 | 99.03 | q Q |
| 12+ 0 | 62.5061 | 92.36 | q Q |
| 12+15 | 74.8473 | 113.72 | q Q |
| 12+30 | 112.3190 | 157.68 | q Q |
| 12+45 | 139.8034 | 189.11 | q Q |
| 13+ 0 | 162.2562 | 214.41 | q Q |
| 13+15 | 185.7462 | 244.93 | q Q |
| 13+30 | 217.4951 | 280.50 | q Q |
| 13+45 | 217.0923 | 267.48 | q Q |
| 14+ 0 | 172.2927 | 214.76 | q Q |
| 14+15 | 155.3467 | 201.57 | q Q |
| 14+30 | 164.7901 | 212.80 | q Q |
| 14+45 | 167.3210 | 215.10 | q Q |
| 15+ 0 | 167.2671 | 213.82 | q Q |
| 15+15 | 162.7028 | 207.40 | q Q |
| 15+30 | 155.2268 | 197.97 | q Q |
| 15+45 | 142.1249 | 179.31 | q Q |
| 16+ 0 | 120.6734 | 154.92 | q Q |
| 16+15 | 95.8648 | 113.07 | q Q |
| 16+30 | 47.0988 | 54.22 | qQ |
| 16+45 | 21.5515 | 26.40 | Q |
| 17+ 0 | 11.1021 | 15.44 | qQ |
| 17+15 | 6.7458 | 12.70 | qQ |
| 17+30 | 5.8749 | 12.84 | qQ |
| 17+45 | 5.6274 | 12.74 | qQ |
| 18+ 0 | 5.2447 | 11.52 | qQ |
| 18+15 | 4.6373 | 10.40 | qQ |
| 18+30 | 4.3793 | 10.07 | qQ |
| 18+45 | 4.1353 | 8.98 | qQ |
| 19+ 0 | 3.4649 | 6.96 | Q |
| 19+15 | 2.8800 | 6.64 | Q |
| 19+30 | 3.1593 | 8.20 | qQ |
| 19+45 | 3.5856 | 8.36 | qQ |
| 20+ 0 | 3.2380 | 6.74 | Q |
| 20+15 | 2.7841 | 6.54 | Q |
| 20+30 | 2.9623 | 7.16 | qQ |
| 20+45 | 3.0875 | 7.36 | qQ |
| 21+ 0 | 2.9776 | 6.40 | Q |
| 21+15 | 2.6825 | 6.44 | Q |
| 21+30 | 2.7618 | 6.12 | Q |
| 21+45 | 2.5928 | 6.35 | Q |
| 22+ 0 | 2.7201 | 6.07 | Q |
| 22+15 | 2.5798 | 6.34 | Q |
| 22+30 | 2.7157 | 6.07 | Q |
| 22+45 | 2.4196 | 5.34 | Q |
| 23+ 0 | 2.2352 | 5.08 | Q |
| 23+15 | 2.1683 | 5.01 | Q |

```
 23+30      2.1367      4.98  Q          |          |          |          |
 23+45      2.1245      4.97  Q          |          |          |          |
 24+ 0      2.1202      4.97  Q          |          |          |          |
 24+15      1.8051      2.97  Q          |          |          |          |
 24+30      0.8467      0.99  Q          |          |          |          |
 24+45      0.3444      0.34  Q          |          |          |          |
 25+ 0      0.1473      0.15  Q          |          |          |          |
 25+15      0.0597      0.06  Q          |          |          |          |
 25+30      0.0268      0.03  Q          |          |          |          |
 25+45      0.0136      0.01  Q          |          |          |          |
 26+ 0      0.0052      0.01  Q          |          |          |          |
 26+15      0.0000      0.00  Q          |          |          |          |
--------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA****************************
                  Number of intervals =   105
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =      280.500 (CFS)
                  Total volume =     111.585 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      **********************************************************************


      ----------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        1.000 to Point/Station        2.000
      **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
      ----------------------------------------------------------------------
      ******************** HYDROGRAPH INFORMATION **********************

                  From study/file name: CoffsiteRT2.rte
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                     P R I N T   O F   S T O R M
                     R u n o f f     H y d r o g r a p h
      ----------------------------------------------------------------------
               Hydrograph in  15  Minute intervals (CFS)

      ----------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0       77.4      154.8     232.1     309.5
----------------------------------------------------------------------------
  0+15      0.1410      2.14  Q          |          |          |          |
  0+30      0.3240      5.29  Q          |          |          |          |
  0+45      0.3957      7.00  Q          |          |          |          |
  1+ 0      0.4746      8.59  qQ         |          |          |          |
  1+15      0.4608      8.76  qQ         |          |          |          |
  1+30      0.4122      8.12  qQ         |          |          |          |
  1+45      0.4049      7.92  qQ         |          |          |          |
  2+ 0      0.4750      8.95  qQ         |          |          |          |
  2+15      0.5313      9.97  qQ         |          |          |          |
  2+30      0.5390     10.29  qQ         |          |          |          |
  2+45      0.6098     11.46  qQ         |          |          |          |
  3+ 0      0.6661     12.55  qQ         |          |          |          |
  3+15      0.6738     12.89  qQ         |          |          |          |
  3+30      0.6742     13.00  qQ         |          |          |          |
  3+45      0.6742     13.04  qQ         |          |          |          |
  4+ 0      0.7447     14.13  qQ         |          |          |          |
  4+15      0.8010     15.18  qQ         |          |          |          |
  4+30      0.8791     16.58  q Q        |          |          |          |
  4+45      0.9358     17.73  q Q        |          |          |          |
  5+ 0      1.0140     19.17  q Q        |          |          |          |
  5+15      0.9297     18.20  q Q        |          |          |          |
  5+30      0.8953     17.56  q Q        |          |          |          |
  5+45      1.0071     19.13  q Q        |          |          |          |
  6+ 0      1.0703     20.36  q Q        |          |          |          |
  6+15      1.1488     21.79  q Q        |          |          |          |
  6+30      1.2055     22.95  q Q        |          |          |          |
  6+45      1.2837     24.40  q  Q       |          |          |          |
  7+ 0      1.3403     25.56  q  Q       |          |          |          |
  7+15      1.3480     25.94  q  Q       |          |          |          |
```



```
  7+30      1.4189     27.13  q  Q       |          |          |          |
  7+45      1.5457     29.30  q  Q       |          |          |          |
  8+ 0      1.6801     31.92  q   Q      |          |          |          |
  8+15      1.8854     36.42  q   Q      |          |          |          |
  8+30      2.0061     39.54  q    Q     |          |          |          |
  8+45      2.0923     42.10  q    Q     |          |          |          |
  9+ 0      2.2198     47.56  q     Q    |          |          |          |
  9+15      3.4631     62.07  q      Q   |          |          |          |
  9+30      5.3659     82.59  q       Q  |          |          |          |
  9+45      7.0632    100.98  q        Q |          |          |          |
 10+ 0      8.7086    118.10  |q        Q|          |          |          |
 10+15      5.5906    107.94  q         Q          |          |          |
 10+30      2.4864     72.83  q        Q|          |          |          |
 10+45      4.9883     74.74  q        Q|          |          |          |
 11+ 0      7.5480    100.82  q         Q          |          |          |
 11+15      7.4463    110.35  q          Q         |          |          |
 11+30      7.1765    110.53  q          Q         |          |          |
 11+45      5.9640    105.00  q         Q          |          |          |
 12+ 0      5.8103     98.17  q        Q           |          |          |
 12+15     11.4212    125.14  |q          Q        |          |          |
 12+30     16.3998    174.08  | q              Q   |          |          |
 12+45     19.1758    208.28  | q                Q |          |          |
 13+ 0      21.3684    235.77  | q                 Q|          |          |
 13+15     25.8689    270.79  |  q                 |Q         |          |
 13+30     29.0198    309.52  |  q                 |          |          Q
 13+45     21.9036    289.39  | q                  |          |        Q |
 14+ 0      15.9775    230.74  | q                  |          Q          |
 14+15     18.1944    219.76  | q                  |         Q           |
 14+30     19.9382    232.74  | q                  |          Q          |
 14+45     19.9180    235.02  | q                  |          Q          |
 15+ 0      19.3840    233.20  | q                  |          Q          |
 15+15     18.3419    225.75  | q                  |         Q           |
 15+30     17.2229    215.20  | q                  |       Q             |
 15+45     13.9821    193.29  |q                   |     Q               |
 16+ 0      11.8686    166.79  |q                   |Q                    |
 16+15      5.8879    118.96  q                    Q                     |
 16+30      1.2152     55.44  q          Q         |                     |
 16+45      0.5013     26.90  q  Q       |         |                     |
 17+ 0      0.4131     15.86  q Q        |         |                     |
 17+15      0.5459     13.24  qQ         |         |                     |
 17+30      0.6581     13.50  qQ         |         |                     |
 17+45      0.6734     13.41  qQ         |         |                     |
 18+ 0      0.6037     12.12  qQ         |         |                     |
 18+15      0.5474     10.95  qQ         |         |                     |
 18+30      0.5397     10.61  qQ         |         |                     |
 18+45      0.4689      9.45  qQ         |         |                     |
 19+ 0      0.3421      7.31  Q          |         |                     |
 19+15      0.3486      6.99  Q          |         |                     |
 19+30      0.4673      8.66  qQ         |         |                     |
 19+45      0.4604      8.82  qQ         |         |                     |
 20+ 0      0.3417      7.08  Q          |         |                     |
 20+15      0.3486      6.89  Q          |         |                     |
 20+30      0.3968      7.55  Q          |         |                     |
 20+45      0.4041      7.76  qQ         |         |                     |
 21+ 0      0.3340      6.74  Q          |         |                     |
 21+15      0.3482      6.79  Q          |         |                     |
 21+30      0.3263      6.44  Q          |         |                     |
 21+45      0.3479      6.70  Q          |         |                     |
 22+ 0      0.3263      6.40  Q          |         |                     |
 22+15      0.3479      6.69  Q          |         |                     |
 22+30      0.3263      6.40  Q          |         |                     |
 22+45      0.2774      5.61  Q          |         |                     |
 23+ 0      0.2701      5.35  Q          |         |                     |
 23+15      0.2697      5.28  Q          |         |                     |
 23+30      0.2697      5.25  Q          |         |                     |
 23+45      0.2697      5.24  Q          |         |                     |
 24+ 0      0.2697      5.24  Q          |         |                     |
 24+15      0.1287      3.10  Q          |         |                     |
 24+30      0.0161      1.01  Q          |         |                     |
 24+45      0.0005      0.34  Q          |         |                     |
 25+ 0      0.0000      0.15  Q          |         |                     |
 25+15      0.0000      0.06  Q          |         |                     |
```

```
25+30       0.0000       0.03  Q        |         |         |         |
25+45       0.0000       0.01  Q        |         |         |         |
26+ 0       0.0000       0.01  Q        |         |         |         |
26+15       0.0000       0.00  Q        |         |         |         |
----------------------------------------------------------------------
      ***************************HYDROGRAPH DATA**************************
                  Number of intervals =   105
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =      309.520 (CFS)
                  Total volume =     120.383 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ********************************************************************

      ---------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        2.000 to Point/Station        3.000
      **** STREAM ROUTING SCS CONVEX METHOD ****
      ______________________________________________________________________
      HYDROGRAPH STREAM ROUTING DATA:
      Length of stream =   4000.00 (Ft.)
      Elevation difference =   80.00 (Ft.)
      Slope of channel =  0.020000 (Vert/Horiz)
      Channel type - Pipe


      Pipe length  =  4000.00(Ft.)   Elevation difference =  80.00(Ft.)
      Manning's N = 0.015   No. of pipes = 1
      Pipe evaluation using mean flow rate of hydrograph
      Required pipe flow  =    84.097(CFS)
      Given pipe size =     96.00(In.)
      Calculated individual pipe flow  =    84.097(CFS)
      Normal flow depth in pipe =   17.81(In.)
      Flow top width inside pipe =   74.64(In.)
      Critical Depth =    2.26(Ft.)
      Pipe flow velocity =     13.08(Ft/s)
      Travel time through pipe =    5.10 min.


      Pipe length  =  4000.00(Ft.)   Elevation difference =  80.00(Ft.)
      Manning's N = 0.015   No. of pipes = 1
      Pipe evaluation using maximum flow rate of hydrograph
      Required pipe flow  =   309.520(CFS)
      Given pipe size =     96.00(In.)
      Calculated individual pipe flow  =   309.520(CFS)
      Normal flow depth in pipe =   34.55(In.)
      Flow top width inside pipe =   92.15(In.)
      Critical Depth =    4.44(Ft.)
      Pipe flow velocity =     19.02(Ft/s)
      Travel time through pipe =    3.51 min.


      ********************** SCS CONVEX CHANNEL ROUTING **********************
      Convex method of stream routing  data items:
      Using equation: Outflow =
      O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
              where c* = 1 - (1-c)^e and dt = c(length)/velocity
               c(v/v+1.7) =   0.9180   Travel time =   3.51 (min.)
            dt*(unit time interval) =  15.00(min.),  e=   3.4414
            dt(routing time-step) =   3.22 (min.),   c* =   0.9998

      Output hydrograph delayed by 0  unit time increments


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                     P R I N T  O F  S T O R M
                   R u n o f f     H y d r o g r a p h
      ----------------------------------------------------------------------
```



Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 77.4 | 154.8 | 232.1 | 309.5 |
|---|---|---|---|---|---|---|---|
| 0+15 | 1.6774 | 2.14 | 0 | | | | |
| 0+30 | 4.6139 | 5.29 | 0 | | | | |
| 0+45 | 6.6308 | 7.00 | 0 | | | | |
| 1+ 0 | 8.2512 | 8.59 | 0 | | | | |
| 1+15 | 8.7214 | 8.76 | 0 | | | | |
| 1+30 | 8.2569 | 8.12 | 0 | | | | |
| 1+45 | 7.9614 | 7.92 | 0 | | | | |
| 2+ 0 | 8.7251 | 8.95 | 0 | | | | |
| 2+15 | 9.7507 | 9.97 | 0 | | | | |
| 2+30 | 10.2253 | 10.29 | 0 | | | | |
| 2+45 | 11.2097 | 11.46 | 0 | | | | |
| 3+ 0 | 12.3123 | 12.55 | 0 | | | | |
| 3+15 | 12.8168 | 12.89 | 0 | | | | |
| 3+30 | 12.9736 | 13.00 | 0 | | | | |
| 3+45 | 13.0339 | 13.04 | 0 | | | | |
| 4+ 0 | 13.8976 | 14.13 | 0 | | | | |
| 4+15 | 14.9559 | 15.18 | 0 | | | | |
| 4+30 | 16.2835 | 16.58 | 0 | | | | |
| 4+45 | 17.4838 | 17.73 | 0 | | | | |
| 5+ 0 | 18.8630 | 19.17 | 0 | | | | |
| 5+15 | 18.4056 | 18.20 | 0 | | | | |
| 5+30 | 17.6950 | 17.56 | 0 | | | | |
| 5+45 | 18.7903 | 19.13 | 0 | | | | |
| 6+ 0 | 20.0926 | 20.36 | 0 | | | | |
| 6+15 | 21.4807 | 21.79 | 0 | | | | |
| 6+30 | 22.7008 | 22.95 | 0 | | | | |
| 6+45 | 24.0896 | 24.40 | 0 | | | | |
| 7+ 0 | 25.3116 | 25.56 | 0 | | | | |
| 7+15 | 25.8602 | 25.94 | 0 | | | | |
| 7+30 | 26.8759 | 27.13 | 0 | | | | |
| 7+45 | 28.8311 | 29.30 | 0 | | | | |
| 8+ 0 | 31.3587 | 31.92 | 0 | | | | |
| 8+15 | 35.4573 | 36.42 | 0 | | | | |
| 8+30 | 38.8707 | 39.54 | 0 | | | | |
| 8+45 | 41.5493 | 42.10 | 0 | | | | |
| 9+ 0 | 46.3876 | 47.56 | OI | | | | |
| 9+15 | 58.9585 | 62.07 | OI | | | | |
| 9+30 | 78.1824 | 82.59 | O | | | | |
| 9+45 | 97.0303 | 100.98 | OI | | | | |
| 10+ 0 | 114.4279 | 118.10 | OI | | | | |
| 10+15 | 110.1175 | 107.94 | IO | | | | |
| 10+30 | 80.3649 | 72.83 | IO | | | | |
| 10+45 | 74.3333 | 74.74 | O | | | | |
| 11+ 0 | 95.2236 | 100.82 | OI | | | | |
| 11+15 | 108.3010 | 110.35 | OI | | | | |
| 11+30 | 110.4898 | 110.53 | O | | | | |
| 11+45 | 106.1852 | 105.00 | O | | | | |
| 12+ 0 | 99.6328 | 98.17 | O | | | | |
| 12+15 | 119.3512 | 125.14 | OI | | | | |
| 12+30 | 163.5727 | 174.08 | OI | | | | |
| 12+45 | 200.9381 | 208.28 | OI | | | | |
| 13+ 0 | 229.8722 | 235.77 | OI | | | | |
| 13+15 | 263.2764 | 270.79 | O | | | | |
| 13+30 | 301.2063 | 309.52 | O I | | | | |
| 13+45 | 293.7057 | 289.39 | O | | | | |
| 14+ 0 | 243.3305 | 230.74 | I O | | | | |
| 14+15 | 222.1228 | 219.76 | O | | | | |
| 14+30 | 229.9556 | 232.74 | OI | | | | |
| 14+45 | 234.5285 | 235.02 | O | | | | |
| 15+ 0 | 233.5931 | 233.20 | O | | | | |
| 15+15 | 227.3471 | 225.75 | O | | | | |
| 15+30 | 217.4605 | 215.20 | IO | | | | |
| 15+45 | 197.9933 | 193.29 | IO | | | | |
| 16+ 0 | 172.4773 | 166.79 | IO | | | | |
| 16+15 | 129.2247 | 118.96 | OI | | | | |
| 16+30 | 69.0745 | 55.44 | IO | | | | |
| 16+45 | 33.0301 | 26.90 | IO | | | | |

```
 17+ 0      18.2279     15.86  | 0        |          |          |          |
 17+15      13.8034     13.24  |0         |          |          |          |
 17+30      13.4459     13.50  |0         |          |          |          |
 17+45      13.4329     13.41  |0         |          |          |          |
 18+ 0      12.3983     12.12  |0         |          |          |          |
 18+15      11.1996     10.95  |0         |          |          |          |
 18+30      10.6824     10.61  |0         |          |          |          |
 18+45       9.7019      9.45  |0         |          |          |          |
 19+ 0       7.7673      7.31  IO         |          |          |          |
 19+15       7.0560      6.99  0          |          |          |          |
 19+30       8.3036      8.66  |0         |          |          |          |
 19+45       8.7888      8.82  |0         |          |          |          |
 20+ 0       7.4534      7.08  0          |          |          |          |
 20+15       6.9319      6.89  0          |          |          |          |
 20+30       7.4124      7.55  0          |          |          |          |
 20+45       7.7157      7.76  OI         |          |          |          |
 21+ 0       6.9577      6.74  0          |          |          |          |
 21+15       6.7787      6.79  0          |          |          |          |
 21+30       6.5171      6.44  0          |          |          |          |
 21+45       6.6444      6.70  0          |          |          |          |
 22+ 0       6.4650      6.40  0          |          |          |          |
 22+15       6.6252      6.69  0          |          |          |          |
 22+30       6.4588      6.40  0          |          |          |          |
 22+45       5.7826      5.61  0          |          |          |          |
 23+ 0       5.4073      5.35  0          |          |          |          |
 23+15       5.2977      5.28  0          |          |          |          |
 23+30       5.2585      5.25  0          |          |          |          |
 23+45       5.2421      5.24  0          |          |          |          |
 24+ 0       5.2361      5.24  0          |          |          |          |
 24+15       3.5559      3.10  0          |          |          |          |
 24+30       1.4563      1.01  0          |          |          |          |
 24+45       0.4872      0.34  0          |          |          |          |
 25+ 0       0.1897      0.15  0          |          |          |          |
 25+15       0.0785      0.06  0          |          |          |          |
 25+30       0.0339      0.03  0          |          |          |          |
 25+45       0.0164      0.01  0          |          |          |          |
 26+ 0       0.0070      0.01  0          |          |          |          |
 26+15       0.0011      0.00  0          |          |          |          |
 26+30       0.0000      0.00  0          |          |          |          |
-------------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA**************************
                Number of intervals =    106
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      301.206 (CFS)
                Total volume =     120.383 (Ac.Ft)
          Status of hydrographs being held in storage
                Stream 1   Stream 2  Stream 3   Stream 4  Stream 5
          Peak (CFS)       0.000      0.000      0.000      0.000      0.000
          Vol (Ac.Ft)      0.000      0.000      0.000      0.000      0.000
      ********************************************************************

      ---------------------------------------------------------------------


      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        2.000 to Point/Station         3.000
      **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
      _____________________________________________________________________
      ********************* HYDROGRAPH INFORMATION **********************

                From study/file name: subc224100.rte
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                   P R I N T  O F  S T O R M
                R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
              Hydrograph in  15  Minute intervals (CFS)

      ---------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0       120.5      241.1      361.6      482.1
-------------------------------------------------------------------------------
  0+15       4.3857      6.06  Q        |          |          |          |
  0+30       9.7644     14.38  qQ       |          |          |          |
```



```
  0+45      11.9934     18.62 qQ        |          |          |          |
  1+ 0      14.5044     22.76 |Q        |          |          |          |
  1+15      13.9044     22.63 |Q        |          |          |          |
  1+30      12.6295     20.89 |Q        |          |          |          |
  1+45      12.3115     20.27 |Q        |          |          |          |
  2+ 0      14.5044     23.23 |Q        |          |          |          |
  2+15      16.0972     25.85 |qQ       |          |          |          |
  2+30      16.4153     26.64 |qQ       |          |          |          |
  2+45      18.6082     29.82 |qQ       |          |          |          |
  3+ 0      20.2011     32.51 |qQ       |          |          |          |
  3+15      20.5191     33.34 |qQ       |          |          |          |
  3+30      20.5191     33.49 |qQ       |          |          |          |
  3+45      20.5191     33.55 |qQ       |          |          |          |
  4+ 0      22.7120     36.61 |q Q      |          |          |          |
  4+15      24.3049     39.26 | qQ      |          |          |          |
  4+30      26.8158     43.10 | qQ      |          |          |          |
  4+45      28.4087     45.89 | qQ      |          |          |          |
  5+ 0      30.9197     49.78 | q Q     |          |          |          |
  5+15      28.1268     46.53 | qQ      |          |          |          |
  5+30      27.4520     45.15 | qQ      |          |          |          |
  5+45      30.6016     49.39 | q Q     |          |          |          |
  6+ 0      32.5125     52.61 | q Q     |          |          |          |
  6+15      35.0235     56.50 | q Q     |          |          |          |
  6+30      36.6164     59.32 |  qQ     |          |          |          |
  6+45      39.1273     63.22 |  q Q    |          |          |          |
  7+ 0      40.7202     66.03 |  q Q    |          |          |          |
  7+15      41.0383     66.90 |  q Q    |          |          |          |
  7+30      43.2311     70.11 |  q Q    |          |          |          |
  7+45      47.0169     75.85 |  q  Q   |          |          |          |
  8+ 0      51.5413     82.90 |   q Q   |          |          |          |
  8+15      60.1866     95.64 |   q  Q  |          |          |          |
  8+30      65.3978    104.27 |    q  Q |          |          |          |
  8+45      69.7415    111.29 |    q   Q|          |          |          |
  9+ 0      75.4493    121.84 |     q  Q |          |          |          |
  9+15      84.7415    143.70 |      q  |Q         |          |          |
  9+30      93.1738    171.36 |      q  |  Q       |          |          |
  9+45      99.7823    196.81 |       q |    Q     |          |          |
 10+ 0     105.9336    220.36 |       q |      Q   |          |          |
 10+15      87.0208    197.14 |      q  |     Q    |          |          |
 10+30      71.8294    152.19 |    q    |  Q       |          |          |
 10+45      84.5925    158.93 |      q  |   Q      |          |          |
 11+ 0      96.2478    191.47 |      q  |    Q     |          |          |
 11+15      95.6616    203.96 |      q  |     Q    |          |          |
 11+30      93.6578    204.15 |      q  |     Q    |          |          |
 11+45      87.2069    193.39 |      q  |     Q    |          |          |
 12+ 0      86.0544    185.69 |      q  |    Q     |          |          |
 12+15     109.6128    228.96 |       q |       Q  |          |          |
 12+30     129.3887    292.96 |        q|          |Q         |          |
 12+45     141.3672    342.31 |         q|         |  Q       |          |
 13+ 0     149.7592    379.63 |         q|         |   Q      |          |
 13+15     168.8577    432.13 |          q|        |     Q    |          |
 13+30     180.9375    482.14 |          q|        |      Q   |          |Q
 13+45     148.9945    442.70 |         q|         |       Q  |          |
 14+ 0     124.2048    367.54 |        q |         |    Q     |          |
 14+15     131.9754    354.10 |        q |         |   Q      |          |
 14+30     138.1799    368.14 |         q|         |   Q      |          |
 14+45     137.9534    372.48 |         q|         |   Q      |          |
 15+ 0     134.5947    368.19 |         q|         |   Q      |          |
 15+15     129.4113    356.76 |        q |         |  Q       |          |
 15+30     123.7702    341.23 |        q |         |  Q       |          |
 15+45     108.7277    306.72 |       q  |         |Q         |          |
 16+ 0      99.3856    271.86 |      q   |         |Q         |          |
 16+15      54.2417    183.47 |   q      |      Q  |          |          |
 16+30      22.7140     91.79 |q     Q   |         |          |          |
 16+45      14.2224     47.25 |q Q       |         |          |          |
 17+ 0      12.6295     30.86 |qQ        |         |          |          |
 17+15      16.6972     30.50 |qQ        |         |          |          |
 17+30      19.8830     33.33 |qQ        |         |          |          |
 17+45      20.5191     33.95 |qQ        |         |          |          |
 18+ 0      18.3263     30.72 |qQ        |         |          |          |
 18+15      16.7334     27.93 |qQ        |         |          |          |
 18+30      16.4153     27.10 |qQ        |         |          |          |
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 18+45 | 14.2224 | 23.92 | \|Q | \| | \| | \| | \| |
| 19+ 0 | 10.4367 | 18.20 | qQ | \| | \| | \| | \| |
| 19+15 | 10.7186 | 17.77 | qQ | \| | \| | \| | \| |
| 19+30 | 14.1863 | 22.49 | \|Q | \| | \| | \| | \| |
| 19+45 | 13.9044 | 22.69 | \|Q | \| | \| | \| | \| |
| 20+ 0 | 10.4367 | 17.89 | qQ | \| | \| | \| | \| |
| 20+15 | 10.7186 | 17.65 | qQ | \| | \| | \| | \| |
| 20+30 | 11.9934 | 19.41 | qQ | \| | \| | \| | \| |
| 20+45 | 12.3115 | 20.03 | \|Q | \| | \| | \| | \| |
| 21+ 0 | 10.1186 | 17.08 | qQ | \| | \| | \| | \| |
| 21+15 | 10.7186 | 17.50 | qQ | \| | \| | \| | \| |
| 21+30 | 9.8005 | 16.32 | qQ | \| | \| | \| | \| |
| 21+45 | 10.7186 | 17.36 | qQ | \| | \| | \| | \| |
| 22+ 0 | 9.8005 | 16.27 | qQ | \| | \| | \| | \| |
| 22+15 | 10.7186 | 17.34 | qQ | \| | \| | \| | \| |
| 22+30 | 9.8005 | 16.26 | qQ | \| | \| | \| | \| |
| 22+45 | 8.5257 | 14.31 | qQ | \| | \| | \| | \| |
| 23+ 0 | 8.2077 | 13.61 | qQ | \| | \| | \| | \| |
| 23+15 | 8.2077 | 13.51 | qQ | \| | \| | \| | \| |
| 23+30 | 8.2077 | 13.47 | qQ | \| | \| | \| | \| |
| 23+45 | 8.2077 | 13.45 | qQ | \| | \| | \| | \| |
| 24+ 0 | 8.2077 | 13.44 | qQ | \| | \| | \| | \| |
| 24+15 | 3.8219 | 7.38 | Q | \| | \| | \| | \| |
| 24+30 | 0.6361 | 2.09 | Q | \| | \| | \| | \| |
| 24+45 | 0.0000 | 0.49 | Q | \| | \| | \| | \| |
| 25+ 0 | 0.0000 | 0.19 | Q | \| | \| | \| | \| |
| 25+15 | 0.0000 | 0.08 | Q | \| | \| | \| | \| |
| 25+30 | 0.0000 | 0.03 | Q | \| | \| | \| | \| |
| 25+45 | 0.0000 | 0.02 | Q | \| | \| | \| | \| |
| 26+ 0 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 26+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 26+30 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |

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**********HYDROGRAPH DATA**********

Number of intervals = 106
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 482.144 (CFS)
Total volume = 219.016 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 3.000 to Point/Station 3.000

**** RETARDING BASIN ROUTING ****

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User entry of depth-outflow-storage data

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Total number of inflow hydrograph intervals = 106
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

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Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

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Depth vs. Storage and Depth vs. Discharge data:

| Basin Depth (Ft.) | Storage (Ac.Ft) | Outflow (CFS) | (S-O*dt/2) (Ac.Ft) | (S+O*dt/2) (Ac.Ft) |
|---|---|---|---|---|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1.000 | 0.001 | 0.001 | 0.001 | 0.001 |
| 2.000 | 0.002 | 0.002 | 0.002 | 0.002 |
| 3.000 | 15.000 | 300.000 | 11.901 | 18.099 |



| | | | |
|---|---|---|---|
| 4.000 | 30.000 | 900.000 | 20.702 | 39.298 |
| 6.000 | 80.000 | 1100.000 | 68.636 | 91.364 |

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Hydrograph Detention Basin Routing

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Graph values: 'I'= unit inflow; 'O'=outflow at time shown

| Time (Hours) | Inflow (CFS) | Outflow (CFS) | Storage (Ac.Ft) | .0 120.5 241.07 361.61 482.14 | Depth (Ft.) |
|---|---|---|---|---|---|
| 0.250 | 6.06 | 1.01 | 0.052 | O | 2.00 |
| 0.500 | 14.38 | 4.16 | 0.210 | O | 2.01 |
| 0.750 | 18.62 | 8.39 | 0.421 | OI | 2.03 |
| 1.000 | 22.76 | 12.60 | 0.632 | OI | 2.04 |
| 1.250 | 22.63 | 16.06 | 0.805 | \|O | 2.05 |
| 1.500 | 20.89 | 18.01 | 0.902 | \|O | 2.06 |
| 1.750 | 20.27 | 18.89 | 0.946 | \|O | 2.06 |
| 2.000 | 23.23 | 19.87 | 0.995 | \|O | 2.07 |
| 2.250 | 25.85 | 21.47 | 1.075 | \|O | 2.07 |
| 2.500 | 26.64 | 23.10 | 1.157 | \|O | 2.08 |
| 2.750 | 29.82 | 24.86 | 1.245 | \|O | 2.08 |
| 3.000 | 32.51 | 27.02 | 1.353 | \|OI | 2.09 |
| 3.250 | 33.34 | 29.04 | 1.454 | \|OI | 2.10 |
| 3.500 | 33.49 | 30.54 | 1.529 | \|O | 2.10 |
| 3.750 | 33.55 | 31.56 | 1.580 | \|O | 2.11 |
| 4.000 | 36.61 | 32.77 | 1.640 | \|O | 2.11 |
| 4.250 | 39.26 | 34.54 | 1.729 | \|O | 2.12 |
| 4.500 | 43.10 | 36.81 | 1.842 | \|O | 2.12 |
| 4.750 | 45.89 | 39.44 | 1.974 | \|OI | 2.13 |
| 5.000 | 49.78 | 42.32 | 2.118 | \|OI | 2.14 |
| 5.250 | 46.53 | 44.32 | 2.218 | \|OI | 2.15 |
| 5.500 | 45.15 | 44.84 | 2.244 | \|O | 2.15 |
| 5.750 | 49.39 | 45.67 | 2.285 | \|O | 2.15 |
| 6.000 | 52.61 | 47.50 | 2.376 | \|O | 2.16 |
| 6.250 | 56.50 | 49.91 | 2.497 | \|O | 2.17 |
| 6.500 | 59.32 | 52.65 | 2.634 | \|O | 2.18 |
| 6.750 | 63.22 | 55.60 | 2.782 | \|OI | 2.19 |
| 7.000 | 66.03 | 58.69 | 2.936 | \|OI | 2.20 |
| 7.250 | 66.90 | 61.35 | 3.069 | \|O | 2.20 |
| 7.500 | 70.11 | 63.80 | 3.192 | \|O | 2.21 |
| 7.750 | 75.85 | 66.95 | 3.349 | \|OI | 2.22 |
| 8.000 | 82.90 | 71.20 | 3.562 | \|OI | 2.24 |
| 8.250 | 95.64 | 77.39 | 3.871 | \|OI | 2.26 |
| 8.500 | 104.27 | 85.12 | 4.257 | \|OI | 2.28 |
| 8.750 | 111.29 | 92.88 | 4.645 | \|OI | 2.31 |
| 9.000 | 121.84 | 100.99 | 5.051 | \|O I | 2.34 |
| 9.250 | 143.70 | 111.88 | 5.595 | \|O I | 2.37 |
| 9.500 | 171.36 | 127.51 | 6.377 | \|O I | 2.43 |
| 9.750 | 196.81 | 146.89 | 7.345 | \|O I | 2.49 |
| 10.000 | 220.36 | 168.02 | 8.402 | \| O I | 2.56 |
| 10.250 | 197.14 | 181.97 | 9.099 | \| OI | 2.61 |
| 10.500 | 152.19 | 179.47 | 8.974 | \| IO | 2.60 |
| 10.750 | 158.93 | 171.28 | 8.565 | \| IO | 2.57 |
| 11.000 | 191.47 | 172.62 | 8.632 | \| OI | 2.58 |
| 11.250 | 203.96 | 181.22 | 9.062 | \| OI | 2.60 |
| 11.500 | 204.15 | 189.04 | 9.453 | \| OI | 2.63 |
| 11.750 | 193.39 | 192.37 | 9.619 | \| O | 2.64 |
| 12.000 | 185.69 | 191.40 | 9.571 | \| O | 2.64 |
| 12.250 | 228.96 | 196.86 | 9.843 | \| O I | 2.66 |
| 12.500 | 292.96 | 218.81 | 10.941 | \| O \| I | 2.73 |
| 12.750 | 342.31 | 252.66 | 12.633 | \| O I | 2.84 |
| 13.000 | 379.63 | 289.76 | 14.488 | \| O \| I | 2.97 |
| 13.250 | 432.13 | 350.42 | 16.260 | \| O\| I | 3.08 |
| 13.500 | 482.14 | 412.83 | 17.821 | \| O I | 3.19 |
| 13.750 | 442.70 | 441.83 | 18.546 | \| O | 3.24 |
| 14.000 | 367.54 | 420.36 | 18.009 | \| I O | 3.20 |
| 14.250 | 354.10 | 385.54 | 17.138 | \| I\|O | 3.14 |
| 14.500 | 368.14 | 371.26 | 16.781 | \| O | 3.12 |
| 14.750 | 372.48 | 370.70 | 16.768 | \| O | 3.12 |
| 15.000 | 368.19 | 370.49 | 16.762 | \| O | 3.12 |
| 15.250 | 356.76 | 365.80 | 16.645 | \| IO | 3.11 |
| 15.500 | 341.23 | 355.97 | 16.399 | \| IO\| | 3.09 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 15.750 | 306.72 | 337.26 | 15.932 | | | I O | | 3.06 |
| 16.000 | 271.86 | 309.21 | 15.230 | | | I O | | 3.02 |
| 16.250 | 183.47 | 277.46 | 13.873 | | I | O | | 2.92 |
| 16.500 | 91.79 | 229.57 | 11.479 | I | O | | | 2.77 |
| 16.750 | 47.25 | 174.75 | 8.738 | I | O | | | 2.58 |
| 17.000 | 30.86 | 128.28 | 6.415 | I O | | | | 2.43 |
| 17.250 | 30.50 | 94.85 | 4.744 | I O | | | | 2.32 |
| 17.500 | 33.33 | 73.29 | 3.666 | I O | | | | 2.24 |
| 17.750 | 33.95 | 59.71 | 2.987 | IO | | | | 2.20 |
| 18.000 | 30.72 | 50.34 | 2.518 | IO | | | | 2.17 |
| 18.250 | 27.93 | 43.14 | 2.159 | IO | | | | 2.14 |
| 18.500 | 27.10 | 37.79 | 1.891 | IO | | | | 2.13 |
| 18.750 | 23.92 | 33.58 | 1.681 | IO | | | | 2.11 |
| 19.000 | 18.20 | 29.30 | 1.467 | O | | | | 2.10 |
| 19.250 | 17.77 | 25.42 | 1.273 | O | | | | 2.08 |
| 19.500 | 22.49 | 23.61 | 1.182 | O | | | | 2.08 |
| 19.750 | 22.69 | 23.26 | 1.165 | O | | | | 2.08 |
| 20.000 | 17.89 | 22.24 | 1.114 | O | | | | 2.07 |
| 20.250 | 17.65 | 20.71 | 1.037 | O | | | | 2.07 |
| 20.500 | 19.41 | 19.96 | 1.000 | O | | | | 2.07 |
| 20.750 | 20.03 | 19.88 | 0.996 | O | | | | 2.07 |
| 21.000 | 17.08 | 19.42 | 0.973 | O | | | | 2.06 |
| 21.250 | 17.50 | 18.69 | 0.936 | O | | | | 2.06 |
| 21.500 | 16.32 | 18.08 | 0.906 | O | | | | 2.06 |
| 21.750 | 17.36 | 17.66 | 0.885 | O | | | | 2.06 |
| 22.000 | 16.27 | 17.37 | 0.870 | O | | | | 2.06 |
| 22.250 | 17.34 | 17.17 | 0.861 | O | | | | 2.06 |
| 22.500 | 16.26 | 17.05 | 0.854 | O | | | | 2.06 |
| 22.750 | 14.31 | 16.44 | 0.824 | IO | | | | 2.05 |
| 23.000 | 13.61 | 15.59 | 0.781 | IO | | | | 2.05 |
| 23.250 | 13.51 | 14.90 | 0.747 | O | | | | 2.05 |
| 23.500 | 13.47 | 14.41 | 0.722 | O | | | | 2.05 |
| 23.750 | 13.45 | 14.09 | 0.706 | O | | | | 2.05 |
| 24.000 | 13.44 | 13.87 | 0.695 | O | | | | 2.05 |
| 24.250 | 7.38 | 12.68 | 0.636 | O | | | | 2.04 |
| 24.500 | 2.09 | 9.96 | 0.500 | O | | | | 2.03 |
| 24.750 | 0.49 | 6.99 | 0.351 | O | | | | 2.02 |
| 25.000 | 0.19 | 4.71 | 0.238 | O | | | | 2.02 |
| 25.250 | 0.08 | 3.14 | 0.159 | O | | | | 2.01 |
| 25.500 | 0.03 | 2.09 | 0.106 | O | | | | 2.01 |
| 25.750 | 0.02 | 1.38 | 0.071 | O | | | | 2.00 |
| 26.000 | 0.01 | 0.91 | 0.047 | O | | | | 2.00 |
| 26.250 | 0.00 | 0.60 | 0.032 | O | | | | 2.00 |
| 26.500 | 0.00 | 0.40 | 0.022 | O | | | | 2.00 |
| 26.750 | 0.00 | 0.26 | 0.015 | O | | | | 2.00 |
| 27.000 | 0.00 | 0.17 | 0.010 | O | | | | 2.00 |
| 27.250 | 0.00 | 0.11 | 0.008 | O | | | | 2.00 |
| 27.500 | 0.00 | 0.07 | 0.006 | O | | | | 2.00 |
| 27.750 | 0.00 | 0.05 | 0.004 | O | | | | 2.00 |
| 28.000 | 0.00 | 0.03 | 0.003 | O | | | | 2.00 |
| 28.250 | 0.00 | 0.02 | 0.003 | O | | | | 2.00 |
| 28.500 | 0.00 | 0.01 | 0.003 | O | | | | 2.00 |
| 28.750 | 0.00 | 0.01 | 0.002 | O | | | | 2.00 |
| 29.000 | 0.00 | 0.01 | 0.002 | O | | | | 2.00 |
| 29.250 | 0.00 | 0.00 | 0.002 | O | | | | 2.00 |
| 29.500 | 0.00 | 0.00 | 0.002 | O | | | | 2.00 |
| 29.750 | 0.00 | 0.00 | 0.002 | O | | | | 1.98 |
| 30.000 | 0.00 | 0.00 | 0.002 | O | | | | 1.94 |
| 30.250 | 0.00 | 0.00 | 0.002 | O | | | | 1.90 |
| 30.500 | 0.00 | 0.00 | 0.002 | O | | | | 1.86 |
| 30.750 | 0.00 | 0.00 | 0.002 | O | | | | 1.82 |
| 31.000 | 0.00 | 0.00 | 0.002 | O | | | | 1.79 |
| 31.250 | 0.00 | 0.00 | 0.002 | O | | | | 1.75 |
| 31.500 | 0.00 | 0.00 | 0.002 | O | | | | 1.71 |
| 31.750 | 0.00 | 0.00 | 0.002 | O | | | | 1.68 |
| 32.000 | 0.00 | 0.00 | 0.002 | O | | | | 1.65 |
| 32.250 | 0.00 | 0.00 | 0.002 | O | | | | 1.61 |
| 32.500 | 0.00 | 0.00 | 0.002 | O | | | | 1.58 |
| 32.750 | 0.00 | 0.00 | 0.002 | O | | | | 1.55 |
| 33.000 | 0.00 | 0.00 | 0.002 | O | | | | 1.52 |
| 33.250 | 0.00 | 0.00 | 0.001 | O | | | | 1.48 |
| 33.500 | 0.00 | 0.00 | 0.001 | O | | | | 1.45 |



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 33.750 | 0.00 | 0.00 | 0.001 | O | | | | 1.42 |
| 34.000 | 0.00 | 0.00 | 0.001 | O | | | | 1.39 |
| 34.250 | 0.00 | 0.00 | 0.001 | O | | | | 1.37 |
| 34.500 | 0.00 | 0.00 | 0.001 | O | | | | 1.34 |
| 34.750 | 0.00 | 0.00 | 0.001 | O | | | | 1.31 |
| 35.000 | 0.00 | 0.00 | 0.001 | O | | | | 1.28 |
| 35.250 | 0.00 | 0.00 | 0.001 | O | | | | 1.26 |
| 35.500 | 0.00 | 0.00 | 0.001 | O | | | | 1.23 |
| 35.750 | 0.00 | 0.00 | 0.001 | O | | | | 1.21 |
| 36.000 | 0.00 | 0.00 | 0.001 | O | | | | 1.18 |
| 36.250 | 0.00 | 0.00 | 0.001 | O | | | | 1.16 |
| 36.500 | 0.00 | 0.00 | 0.001 | O | | | | 1.13 |
| 36.750 | 0.00 | 0.00 | 0.001 | O | | | | 1.11 |
| 37.000 | 0.00 | 0.00 | 0.001 | O | | | | 1.09 |
| 37.250 | 0.00 | 0.00 | 0.001 | O | | | | 1.07 |
| 37.500 | 0.00 | 0.00 | 0.001 | O | | | | 1.04 |
| 37.750 | 0.00 | 0.00 | 0.001 | O | | | | 1.02 |
| 38.000 | 0.00 | 0.00 | 0.001 | O | | | | 1.00 |
| 38.250 | 0.00 | 0.00 | 0.001 | O | | | | 0.98 |

```
**************************HYDROGRAPH DATA**************************
              Number of intervals =   153
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =      441.830 (CFS)
              Total volume =     219.015 (Ac.Ft)
      Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)      0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
*******************************************************************

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Process from Point/Station        3.000 to Point/Station        4.000
**** STREAM ROUTING SCS CONVEX METHOD ****
______________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   4320.00 (Ft.)
Elevation difference =   46.00 (Ft.)
Slope of channel =  0.010648 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  4320.00(Ft.)   Elevation difference =  46.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =   143.360(CFS)
Given pipe size =     96.00(In.)
Calculated individual pipe flow  =   143.360(CFS)
Normal flow depth in pipe =   27.23(In.)
Flow top width inside pipe =   86.55(In.)
Critical Depth =    2.98(Ft.)
Pipe flow velocity =     12.21(Ft/s)
Travel time through pipe =    5.90 min.


Pipe length  =  4320.00(Ft.)   Elevation difference =  46.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =   441.830(CFS)
Given pipe size =     96.00(In.)
Calculated individual pipe flow  =   441.830(CFS)
Normal flow depth in pipe =   50.34(In.)
Flow top width inside pipe =   95.89(In.)
Critical Depth =    5.36(Ft.)
Pipe flow velocity =     16.55(Ft/s)
Travel time through pipe =    4.35 min.


********************** SCS CONVEX CHANNEL ROUTING **********************
```

Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.9069 Travel time = 4.35 (min.)
dt*(unit time interval) = 15.00(min.), e= 2.8683
dt(routing time-step) = 3.94 (min.), c* = 0.9989

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 110.5 | 220.9 | 331.4 | 441.8 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.7412 | 1.01 | 0 | | | | |
| 0+30 | 3.3298 | 4.16 | 0 | | | | |
| 0+45 | 7.2729 | 8.39 | 0 | | | | |
| 1+ 0 | 11.4891 | 12.60 | I0 | | | | |
| 1+15 | 15.1445 | 16.06 | I0 | | | | |
| 1+30 | 17.4932 | 18.01 | I0 | | | | |
| 1+45 | 18.6567 | 18.89 | I0 | | | | |
| 2+ 0 | 19.6108 | 19.87 | I0 | | | | |
| 2+15 | 21.0467 | 21.47 | I0 | | | | |
| 2+30 | 22.6725 | 23.10 | 0 | | | | |
| 2+45 | 24.3962 | 24.86 | 0 | | | | |
| 3+ 0 | 26.4492 | 27.02 | 0 | | | | |
| 3+15 | 28.5078 | 29.04 | 0 | | | | |
| 3+30 | 30.1439 | 30.54 | 0 | | | | |
| 3+45 | 31.2913 | 31.56 | 0 | | | | |
| 4+ 0 | 32.4486 | 32.77 | 0 | | | | |
| 4+15 | 34.0697 | 34.54 | 0 | | | | |
| 4+30 | 36.2116 | 36.81 | 0 | | | | |
| 4+45 | 38.7490 | 39.44 | 0 | | | | |
| 5+ 0 | 41.5596 | 42.32 | 0 | | | | |
| 5+15 | 43.7902 | 44.32 | OI | | | | |
| 5+30 | 44.7015 | 44.84 | 0 | | | | |
| 5+45 | 45.4521 | 45.67 | 0 | | | | |
| 6+ 0 | 47.0147 | 47.50 | 0 | | | | |
| 6+15 | 49.2755 | 49.91 | 0 | | | | |
| 6+30 | 51.9295 | 52.65 | 0 | | | | |
| 6+45 | 54.8240 | 55.60 | OI | | | | |
| 7+ 0 | 57.8770 | 58.69 | 0 | | | | |
| 7+15 | 60.6518 | 61.35 | 0 | | | | |
| 7+30 | 63.1565 | 63.80 | 0 | | | | |
| 7+45 | 66.1157 | 66.95 | OI | | | | |
| 8+ 0 | 70.0783 | 71.20 | 0 | | | | |
| 8+15 | 75.7572 | 77.39 | OI | | | | |
| 8+30 | 83.0791 | 85.12 | 0 | | | | |
| 8+45 | 90.8311 | 92.88 | 0 | | | | |
| 9+ 0 | 98.8501 | 100.99 | OI | | | | |
| 9+15 | 109.0022 | 111.88 | OI | | | | |
| 9+30 | 123.3836 | 127.51 | O | | | | |
| 9+45 | 141.7718 | 146.89 | OI | | | | |
| 10+ 0 | 162.4396 | 168.02 | OI | | | | |
| 10+15 | 178.2838 | 181.97 | 0 | | | | |
| 10+30 | 180.1243 | 179.47 | 0 | | | | |
| 10+45 | 173.4407 | 171.28 | 0 | | | | |
| 11+ 0 | 172.2703 | 172.62 | 0 | | | | |
| 11+15 | 178.9493 | 181.22 | 0 | | | | |
| 11+30 | 186.9731 | 189.04 | OI | | | | |
| 11+45 | 191.4905 | 192.37 | 0 | | | | |
| 12+ 0 | 191.6568 | 191.40 | 0 | | | | |
| 12+15 | 195.4173 | 196.86 | 0 | | | | |
| 12+30 | 213.0187 | 218.81 | O | | | | |
| 12+45 | 243.7236 | 252.66 | O | | | | |
| 13+ 0 | 279.9590 | 289.76 | OI | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13+15 | 334.4043 | 350.42 | OI | | | | |
| 13+30 | 396.3465 | 412.83 | O I | | | | |
| 13+45 | 434.1613 | 441.83 | OI | | | | |
| 14+ 0 | 426.0163 | 420.36 | O | | | | |
| 14+15 | 394.7321 | 385.54 | IO | | | | |
| 14+30 | 375.0353 | 371.26 | 0 | | | | |
| 14+45 | 370.8531 | 370.70 | 0 | | | | |
| 15+ 0 | 370.5444 | 370.49 | 0 | | | | |
| 15+15 | 367.0372 | 365.80 | 0 | | | | |
| 15+30 | 358.5667 | 355.97 | 0 | | | | |
| 15+45 | 342.2001 | 337.26 | 0 | | | | |
| 16+ 0 | 316.6147 | 309.21 | IO | | | | |
| 16+15 | 285.8469 | 277.46 | 0 | | | | |
| 16+30 | 242.2140 | 229.57 | IO | | | | |
| 16+45 | 189.2278 | 174.75 | I O | | | | |
| 17+ 0 | 140.5528 | 128.28 | IO | | | | |
| 17+15 | 103.6807 | 94.85 | IO | | | | |
| 17+30 | 78.9899 | 73.29 | IO | | | | |
| 17+45 | 63.3016 | 59.71 | 0 | | | | |
| 18+ 0 | 52.8141 | 50.34 | 0 | | | | |
| 18+15 | 45.0424 | 43.14 | IO | | | | |
| 18+30 | 39.2035 | 37.79 | 0 | | | | |
| 18+45 | 34.6951 | 33.58 | 0 | | | | |
| 19+ 0 | 30.4284 | 29.30 | I0 | | | | |
| 19+15 | 26.4463 | 25.42 | I0 | | | | |
| 19+30 | 24.0904 | 23.61 | I0 | | | | |
| 19+45 | 23.3546 | 23.26 | I0 | | | | |
| 20+ 0 | 22.5131 | 22.24 | I0 | | | | |
| 20+15 | 21.1167 | 20.71 | I0 | | | | |
| 20+30 | 20.1619 | 19.96 | I0 | | | | |
| 20+45 | 19.9019 | 19.88 | I0 | | | | |
| 21+ 0 | 19.5446 | 19.42 | I0 | | | | |
| 21+15 | 18.8857 | 18.69 | I0 | | | | |
| 21+30 | 18.2426 | 18.08 | I0 | | | | |
| 21+45 | 17.7684 | 17.66 | I0 | | | | |
| 22+ 0 | 17.4440 | 17.37 | I0 | | | | |
| 22+15 | 17.2259 | 17.17 | I0 | | | | |
| 22+30 | 17.0808 | 17.05 | I0 | | | | |
| 22+45 | 16.6025 | 16.44 | I0 | | | | |
| 23+ 0 | 15.8176 | 15.59 | I0 | | | | |
| 23+15 | 15.0808 | 14.90 | I0 | | | | |
| 23+30 | 14.5413 | 14.41 | I0 | | | | |
| 23+45 | 14.1728 | 14.09 | I0 | | | | |
| 24+ 0 | 13.9251 | 13.87 | I0 | | | | |
| 24+15 | 12.9958 | 12.68 | I0 | | | | |
| 24+30 | 10.6796 | 9.96 | I0 | | | | |
| 24+45 | 7.7754 | 6.99 | I0 | | | | |
| 25+ 0 | 5.3146 | 4.71 | I0 | | | | |
| 25+15 | 3.5588 | 3.14 | I0 | | | | |
| 25+30 | 2.3662 | 2.09 | I0 | | | | |
| 25+45 | 1.5672 | 1.38 | I0 | | | | |
| 26+ 0 | 1.0357 | 0.91 | I0 | | | | |
| 26+15 | 0.6830 | 0.60 | I0 | | | | |
| 26+30 | 0.4496 | 0.40 | I0 | | | | |
| 26+45 | 0.2957 | 0.26 | I0 | | | | |
| 27+ 0 | 0.1944 | 0.17 | I0 | | | | |
| 27+15 | 0.1278 | 0.11 | I0 | | | | |
| 27+30 | 0.0840 | 0.07 | I0 | | | | |
| 27+45 | 0.0553 | 0.05 | I0 | | | | |
| 28+ 0 | 0.0363 | 0.03 | I0 | | | | |
| 28+15 | 0.0239 | 0.02 | I0 | | | | |
| 28+30 | 0.0157 | 0.01 | I0 | | | | |
| 28+45 | 0.0103 | 0.01 | I0 | | | | |
| 29+ 0 | 0.0068 | 0.01 | I0 | | | | |
| 29+15 | 0.0045 | 0.00 | I0 | | | | |
| 29+30 | 0.0029 | 0.00 | I0 | | | | |
| 29+45 | 0.0021 | 0.00 | I0 | | | | |
| 30+ 0 | 0.0020 | 0.00 | I0 | | | | |
| 30+15 | 0.0019 | 0.00 | I0 | | | | |
| 30+30 | 0.0019 | 0.00 | I0 | | | | |
| 30+45 | 0.0018 | 0.00 | I0 | | | | |
| 31+ 0 | 0.0018 | 0.00 | I0 | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 31+15 | 0.0018 | 0.00 | 0 | \| | \| | \| | \| |
| 31+30 | 0.0017 | 0.00 | 0 | \| | \| | \| | \| |
| 31+45 | 0.0017 | 0.00 | 0 | \| | \| | \| | \| |
| 32+ 0 | 0.0017 | 0.00 | 0 | \| | \| | \| | \| |
| 32+15 | 0.0016 | 0.00 | 0 | \| | \| | \| | \| |
| 32+30 | 0.0016 | 0.00 | 0 | \| | \| | \| | \| |
| 32+45 | 0.0016 | 0.00 | 0 | \| | \| | \| | \| |
| 33+ 0 | 0.0015 | 0.00 | 0 | \| | \| | \| | \| |
| 33+15 | 0.0015 | 0.00 | 0 | \| | \| | \| | \| |
| 33+30 | 0.0015 | 0.00 | 0 | \| | \| | \| | \| |
| 33+45 | 0.0014 | 0.00 | 0 | \| | \| | \| | \| |
| 34+ 0 | 0.0014 | 0.00 | 0 | \| | \| | \| | \| |
| 34+15 | 0.0014 | 0.00 | 0 | \| | \| | \| | \| |
| 34+30 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| |
| 34+45 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| |
| 35+ 0 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| |
| 35+15 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| |
| 35+30 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| |
| 35+45 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| |
| 36+ 0 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| |
| 36+15 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| |
| 36+30 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 36+45 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 37+ 0 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 37+15 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 37+30 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 37+45 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 38+ 0 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 38+15 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 38+30 | 0.0000 | 0.00 | 0 | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 154
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 434.161 (CFS)
Total volume = 219.015 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 3.000 to Point/Station 4.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: subc324100.rte

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

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| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 117.9 | 235.8 | 353.7 | 471.5 |
|---|---|---|---|---|---|---|---|
| 0+15 | 1.2572 | 2.00 | Q | \| | \| | \| | \| |
| 0+30 | 2.6468 | 5.98 | Q | \| | \| | \| | \| |
| 0+45 | 3.1356 | 10.41 | Q | \| | \| | \| | \| |
| 1+ 0 | 3.8183 | 15.31 | qQ | \| | \| | \| | \| |
| 1+15 | 3.5702 | 18.71 | qQ | \| | \| | \| | \| |
| 1+30 | 3.2438 | 20.74 | qQ | \| | \| | \| | \| |
| 1+45 | 3.1897 | 21.85 | qQ | \| | \| | \| | \| |
| 2+ 0 | 3.8183 | 23.43 | qQ | \| | \| | \| | \| |
| 2+15 | 4.1988 | 25.25 | q Q | \| | \| | \| | \| |
| 2+30 | 4.2529 | 26.93 | q Q | \| | \| | \| | \| |
| 2+45 | 4.8815 | 29.28 | q Q | \| | \| | \| | \| |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3+ 0 | 5.2620 | 31.71 | q Q | \| | \| | \| | \| |
| 3+15 | 5.3162 | 33.82 | q Q | \| | \| | \| | \| |
| 3+30 | 5.3162 | 35.46 | q Q | \| | \| | \| | \| |
| 3+45 | 5.3162 | 36.61 | q Q | \| | \| | \| | \| |
| 4+ 0 | 5.9448 | 38.39 | q Q | \| | \| | \| | \| |
| 4+15 | 6.3253 | 40.40 | q Q | \| | \| | \| | \| |
| 4+30 | 7.0080 | 43.22 | q Q | \| | \| | \| | \| |
| 4+45 | 7.3885 | 46.14 | q Q | \| | \| | \| | \| |
| 5+ 0 | 8.0712 | 49.63 | q Q | \| | \| | \| | \| |
| 5+15 | 7.1946 | 50.98 | q Q | \| | \| | \| | \| |
| 5+30 | 7.1163 | 51.82 | q Q | \| | \| | \| | \| |
| 5+45 | 8.0171 | 53.47 | q Q | \| | \| | \| | \| |
| 6+ 0 | 8.4518 | 55.47 | q Q | \| | \| | \| | \| |
| 6+15 | 9.1345 | 58.41 | q Q | \| | \| | \| | \| |
| 6+30 | 9.5150 | 61.44 | q Q | \| | \| | \| | \| |
| 6+45 | 10.1977 | 65.02 | q Q | \| | \| | \| | \| |
| 7+ 0 | 10.5782 | 68.46 | q Q | \| | \| | \| | \| |
| 7+15 | 10.6323 | 71.28 | q Q | \| | \| | \| | \| |
| 7+30 | 11.2609 | 74.42 | q Q | \| | \| | \| | \| |
| 7+45 | 12.2701 | 78.39 | q Q | \| | \| | \| | \| |
| 8+ 0 | 13.3333 | 83.41 | q Q | \| | \| | \| | \| |
| 8+15 | 15.5106 | 91.27 | q Q | \| | \| | \| | \| |
| 8+30 | 16.6691 | 99.75 | q Q | \| | \| | \| | \| |
| 8+45 | 17.7963 | 108.63 | q Q | \| | \| | \| | \| |
| 9+ 0 | 19.3206 | 118.17 | q Q | \| | \| | \| | \| |
| 9+15 | 21.8195 | 130.82 | q Q | \| | \| | \| | \| |
| 9+30 | 23.9632 | 147.35 | q Q | \| | \| | \| | \| |
| 9+45 | 25.6398 | 167.41 | q Q | \| | \| | \| | \| |
| 10+ 0 | 27.2384 | 189.68 | q Q | \| | \| | \| | \| |
| 10+15 | 21.6523 | 199.94 | q Q | \| | \| | \| | \| |
| 10+30 | 18.0026 | 198.13 | q Q | \| | \| | \| | \| |
| 10+45 | 22.0288 | 195.47 | q Q | \| | \| | \| | \| |
| 11+ 0 | 24.8233 | 197.09 | q Q | \| | \| | \| | \| |
| 11+15 | 24.3877 | 203.34 | q Q | \| | \| | \| | \| |
| 11+30 | 23.9191 | 210.89 | q Q | \| | \| | \| | \| |
| 11+45 | 22.1200 | 213.61 | q Q | \| | \| | \| | \| |
| 12+ 0 | 22.0042 | 213.66 | q Q | \| | \| | \| | \| |
| 12+15 | 28.7517 | 224.17 | q Q | \| | \| | \| | \| |
| 12+30 | 33.6039 | 246.62 | q Q | \| | \| | \| | \| |
| 12+45 | 36.5556 | 280.28 | q Q | \| | \| | \| | \| |
| 13+ 0 | 38.6881 | 318.65 | q Q | \| | \| | \| | \| |
| 13+15 | 43.9456 | 378.35 | q Q | \| | \| | \| | \| |
| 13+30 | 46.8092 | 443.16 | q Q | \| | \| | \| | \| |
| 13+45 | 37.3853 | 471.55 | q Q | \| | \| | \| | \| |
| 14+ 0 | 31.4724 | 457.49 | q Q | \| | \| | \| | \| |
| 14+15 | 34.2796 | 429.01 | q Q | \| | \| | \| | \| |
| 14+30 | 35.6207 | 410.66 | q Q | \| | \| | \| | \| |
| 14+45 | 35.4503 | 406.30 | q Q | \| | \| | \| | \| |
| 15+ 0 | 34.5380 | 405.08 | q Q | \| | \| | \| | \| |
| 15+15 | 33.1585 | 400.20 | q Q | \| | \| | \| | \| |
| 15+30 | 31.7007 | 390.27 | q Q | \| | \| | \| | \| |
| 15+45 | 27.5479 | 369.75 | q Q | \| | \| | \| | \| |
| 16+ 0 | 25.3554 | 341.97 | q Q | \| | \| | \| | \| |
| 16+15 | 12.7610 | 298.61 | q Q | \| | \| | \| | \| |
| 16+30 | 5.3128 | 247.53 | q Q | \| | \| | \| | \| |
| 16+45 | 3.6243 | 192.85 | q Q | \| | \| | \| | \| |
| 17+ 0 | 3.2438 | 143.80 | q Q | \| | \| | \| | \| |
| 17+15 | 4.4469 | 108.13 | q Q | \| | \| | \| | \| |
| 17+30 | 5.2079 | 84.20 | q Q | \| | \| | \| | \| |
| 17+45 | 5.3162 | 68.62 | q Q | \| | \| | \| | \| |
| 18+ 0 | 4.6876 | 57.50 | q Q | \| | \| | \| | \| |
| 18+15 | 4.3071 | 49.35 | q Q | \| | \| | \| | \| |
| 18+30 | 4.2529 | 43.46 | q Q | \| | \| | \| | \| |
| 18+45 | 3.6243 | 38.32 | q Q | \| | \| | \| | \| |
| 19+ 0 | 2.6152 | 33.04 | q Q | \| | \| | \| | \| |
| 19+15 | 2.8092 | 29.26 | q Q | \| | \| | \| | \| |
| 19+30 | 3.7642 | 27.85 | q Q | \| | \| | \| | \| |
| 19+45 | 3.5702 | 26.92 | q Q | \| | \| | \| | \| |
| 20+ 0 | 2.6152 | 25.13 | q Q | \| | \| | \| | \| |
| 20+15 | 2.8092 | 23.93 | q Q | \| | \| | \| | \| |
| 20+30 | 3.1356 | 23.30 | qQ | \| | \| | \| | \| |
| 20+45 | 3.1897 | 23.09 | qQ | \| | \| | \| | \| |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 21+ 0 | 2.5611 | 22.11 | qQ | | | | |
| 21+15 | 2.8092 | 21.69 | qQ | | | | |
| 21+30 | 2.5070 | 20.75 | qQ | | | | |
| 21+45 | 2.8092 | 20.58 | qQ | | | | |
| 22+ 0 | 2.5070 | 19.95 | qQ | | | | |
| 22+15 | 2.8092 | 20.04 | qQ | | | | |
| 22+30 | 2.5070 | 19.59 | qQ | | | | |
| 22+45 | 2.1806 | 18.78 | qQ | | | | |
| 23+ 0 | 2.1265 | 17.94 | qQ | | | | |
| 23+15 | 2.1265 | 17.21 | qQ | | | | |
| 23+30 | 2.1265 | 16.67 | qQ | | | | |
| 23+45 | 2.1265 | 16.30 | qQ | | | | |
| 24+ 0 | 2.1265 | 16.05 | qQ | | | | |
| 24+15 | 0.8693 | 13.87 | qQ | | | | |
| 24+30 | 0.1082 | 10.79 | Q | | | | |
| 24+45 | 0.0000 | 7.78 | Q | | | | |
| 25+ 0 | 0.0000 | 5.31 | Q | | | | |
| 25+15 | 0.0000 | 3.56 | Q | | | | |
| 25+30 | 0.0000 | 2.37 | Q | | | | |
| 25+45 | 0.0000 | 1.57 | Q | | | | |
| 26+ 0 | 0.0000 | 1.04 | Q | | | | |
| 26+15 | 0.0000 | 0.68 | Q | | | | |
| 26+30 | 0.0000 | 0.45 | Q | | | | |
| 26+45 | 0.0000 | 0.30 | Q | | | | |
| 27+ 0 | 0.0000 | 0.19 | Q | | | | |
| 27+15 | 0.0000 | 0.13 | Q | | | | |
| 27+30 | 0.0000 | 0.08 | Q | | | | |
| 27+45 | 0.0000 | 0.06 | Q | | | | |
| 28+ 0 | 0.0000 | 0.04 | Q | | | | |
| 28+15 | 0.0000 | 0.02 | Q | | | | |
| 28+30 | 0.0000 | 0.02 | Q | | | | |
| 28+45 | 0.0000 | 0.01 | Q | | | | |
| 29+ 0 | 0.0000 | 0.01 | Q | | | | |
| 29+15 | 0.0000 | 0.00 | Q | | | | |
| 29+30 | 0.0000 | 0.00 | Q | | | | |
| 29+45 | 0.0000 | 0.00 | Q | | | | |
| 30+ 0 | 0.0000 | 0.00 | Q | | | | |
| 30+15 | 0.0000 | 0.00 | Q | | | | |
| 30+30 | 0.0000 | 0.00 | Q | | | | |
| 30+45 | 0.0000 | 0.00 | Q | | | | |
| 31+ 0 | 0.0000 | 0.00 | Q | | | | |
| 31+15 | 0.0000 | 0.00 | Q | | | | |
| 31+30 | 0.0000 | 0.00 | Q | | | | |
| 31+45 | 0.0000 | 0.00 | Q | | | | |
| 32+ 0 | 0.0000 | 0.00 | Q | | | | |
| 32+15 | 0.0000 | 0.00 | Q | | | | |
| 32+30 | 0.0000 | 0.00 | Q | | | | |
| 32+45 | 0.0000 | 0.00 | Q | | | | |
| 33+ 0 | 0.0000 | 0.00 | Q | | | | |
| 33+15 | 0.0000 | 0.00 | Q | | | | |
| 33+30 | 0.0000 | 0.00 | Q | | | | |
| 33+45 | 0.0000 | 0.00 | Q | | | | |
| 34+ 0 | 0.0000 | 0.00 | Q | | | | |
| 34+15 | 0.0000 | 0.00 | Q | | | | |
| 34+30 | 0.0000 | 0.00 | Q | | | | |
| 34+45 | 0.0000 | 0.00 | Q | | | | |
| 35+ 0 | 0.0000 | 0.00 | Q | | | | |
| 35+15 | 0.0000 | 0.00 | Q | | | | |
| 35+30 | 0.0000 | 0.00 | Q | | | | |
| 35+45 | 0.0000 | 0.00 | Q | | | | |
| 36+ 0 | 0.0000 | 0.00 | Q | | | | |
| 36+15 | 0.0000 | 0.00 | Q | | | | |
| 36+30 | 0.0000 | 0.00 | Q | | | | |
| 36+45 | 0.0000 | 0.00 | Q | | | | |
| 37+ 0 | 0.0000 | 0.00 | Q | | | | |
| 37+15 | 0.0000 | 0.00 | Q | | | | |
| 37+30 | 0.0000 | 0.00 | Q | | | | |
| 37+45 | 0.0000 | 0.00 | Q | | | | |
| 38+ 0 | 0.0000 | 0.00 | Q | | | | |
| 38+15 | 0.0000 | 0.00 | Q | | | | |
| 38+30 | 0.0000 | 0.00 | Q | | | | |



```
**************************HYDROGRAPH DATA**************************
              Number of intervals =   154
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =      471.547 (CFS)
              Total volume =     244.367 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*******************************************************************


-------------------------------------------------------------------


+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** STREAM ROUTING SCS CONVEX METHOD ****
___________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   1300.00 (Ft.)
Elevation difference =   30.00 (Ft.)
Slope of channel =  0.023077 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  1300.00(Ft.)   Elevation difference =  30.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =   159.585(CFS)
Given pipe size =     96.00(In.)
Calculated individual pipe flow  =   159.585(CFS)
Normal flow depth in pipe =   23.63(In.)
Flow top width inside pipe =   82.70(In.)
Critical Depth =    3.14(Ft.)
Pipe flow velocity =     16.59(Ft/s)
Travel time through pipe =    1.31 min.


Pipe length  =  1300.00(Ft.)   Elevation difference =  30.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =   471.547(CFS)
Given pipe size =     96.00(In.)
Calculated individual pipe flow  =   471.547(CFS)
Normal flow depth in pipe =   41.81(In.)
Flow top width inside pipe =   95.20(In.)
Critical Depth =    5.53(Ft.)
Pipe flow velocity =     22.46(Ft/s)
Travel time through pipe =    0.96 min.


********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9296   Travel time =   0.96 (min.)
        dt*(unit time interval) =  15.00(min.),  e=  11.4819
        dt(routing time-step) =   0.90 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
--------------------------------------------------------------------
           Hydrograph in  15   Minute intervals (CFS)
____________________________________________________________________
Time(h+m) Out = O(CFS) In = I  0      117.9     235.8     353.7     471.5
--------------------------------------------------------------------
```

| | | | |
|---|---|---|---|
| 0+15 | 1.8789 | 2.00 | 0 |
| 0+30 | 5.7387 | 5.98 | 0 |
| 0+45 | 10.1434 | 10.41 | 0 |
| 1+ 0 | 15.0145 | 15.31 | 0 |
| 1+15 | 18.5109 | 18.71 | 0 |
| 1+30 | 20.6161 | 20.74 | 0 |
| 1+45 | 21.7801 | 21.85 | 0 |
| 2+ 0 | 23.3345 | 23.43 | 0 |
| 2+15 | 25.1369 | 25.25 | 0 |
| 2+30 | 26.8249 | 26.93 | 0 |
| 2+45 | 29.1370 | 29.28 | 0 |
| 3+ 0 | 31.5657 | 31.71 | 0 |
| 3+15 | 33.6977 | 33.82 | 0 |
| 3+30 | 35.3622 | 35.46 | 0I |
| 3+45 | 36.5389 | 36.61 | 0 |
| 4+ 0 | 38.2866 | 38.39 | 0 |
| 4+15 | 40.2753 | 40.40 | 0 |
| 4+30 | 43.0507 | 43.22 | 0 |
| 4+45 | 45.9631 | 46.14 | 0 |
| 5+ 0 | 49.4220 | 49.63 | 0 |
| 5+15 | 50.9037 | 50.98 | 0 |
| 5+30 | 51.7679 | 51.82 | 0 |
| 5+45 | 53.3704 | 53.47 | 0 |
| 6+ 0 | 55.3470 | 55.47 | 0 |
| 6+15 | 58.2339 | 58.41 | 0 |
| 6+30 | 61.2630 | 61.44 | 0 |
| 6+45 | 64.8078 | 65.02 | 0 |
| 7+ 0 | 68.2499 | 68.46 | 0 |
| 7+15 | 71.1150 | 71.28 | 0 |
| 7+30 | 74.2300 | 74.42 | 0 |
| 7+45 | 78.1484 | 78.39 | 0 |
| 8+ 0 | 83.1110 | 83.41 | 0 |
| 8+15 | 90.7980 | 91.27 | 0 |
| 8+30 | 99.2411 | 99.75 | 0 |
| 8+45 | 108.0964 | 108.63 | 0 |
| 9+ 0 | 117.6001 | 118.17 | 0I |
| 9+15 | 130.0651 | 130.82 | 0 |
| 9+30 | 146.3586 | 147.35 | 0 |
| 9+45 | 166.2118 | 167.41 | 0 |
| 10+ 0 | 188.3465 | 189.68 | 0I |
| 10+15 | 199.3227 | 199.94 | 0 |
| 10+30 | 198.2352 | 198.13 | 0 |
| 10+45 | 195.6284 | 195.47 | 0 |
| 11+ 0 | 196.9965 | 197.09 | 0 |
| 11+15 | 202.9636 | 203.34 | 0 |
| 11+30 | 210.4405 | 210.89 | 0 |
| 11+45 | 213.4479 | 213.61 | 0 |
| 12+ 0 | 213.6580 | 213.66 | 0 |
| 12+15 | 223.5406 | 224.17 | 0I |
| 12+30 | 245.2798 | 246.62 | 0 |
| 12+45 | 278.2666 | 280.28 | 0 |
| 13+ 0 | 316.3528 | 318.65 | 0I |
| 13+15 | 374.7798 | 378.35 | 0I |
| 13+30 | 439.2804 | 443.16 | 0 |
| 13+45 | 469.8488 | 471.55 | 0I |
| 14+ 0 | 458.3293 | 457.49 | 0 |
| 14+15 | 430.7145 | 429.01 | 0 |
| 14+30 | 411.7537 | 410.66 | 0 |
| 14+45 | 406.5637 | 406.30 | 0 |
| 15+ 0 | 405.1554 | 405.08 | 0 |
| 15+15 | 400.4879 | 400.20 | 0 |
| 15+30 | 390.8610 | 390.27 | 0 |
| 15+45 | 370.9750 | 369.75 | 0 |
| 16+ 0 | 343.6312 | 341.97 | 0 |
| 16+15 | 301.2009 | 298.61 | 0 |
| 16+30 | 250.5814 | 247.53 | 0 |
| 16+45 | 196.1216 | 192.85 | 0 |
| 17+ 0 | 146.7301 | 143.80 | 0 |
| 17+15 | 110.2605 | 108.13 | 0 |
| 17+30 | 85.6288 | 84.20 | 0 |
| 17+45 | 69.5494 | 68.62 | 0 |
| 18+ 0 | 58.1664 | 57.50 | 0 |



| | | | |
|---|---|---|---|
| 18+15 | 49.8369 | 49.35 | 0 |
| 18+30 | 43.8088 | 43.46 | 0 |
| 18+45 | 38.6266 | 38.32 | 0 |
| 19+ 0 | 33.3592 | 33.04 | 0 |
| 19+15 | 29.4820 | 29.26 | 0 |
| 19+30 | 27.9384 | 27.85 | 0 |
| 19+45 | 26.9804 | 26.92 | 0 |
| 20+ 0 | 25.2358 | 25.13 | 0 |
| 20+15 | 23.9978 | 23.93 | 0 |
| 20+30 | 23.3351 | 23.30 | 0 |
| 20+45 | 23.1039 | 23.09 | 0 |
| 21+ 0 | 22.1646 | 22.11 | 0 |
| 21+15 | 21.7195 | 21.69 | 0 |
| 21+30 | 20.8061 | 20.75 | 0 |
| 21+45 | 20.5879 | 20.58 | 0 |
| 22+ 0 | 19.9884 | 19.95 | 0 |
| 22+15 | 20.0300 | 20.04 | 0 |
| 22+30 | 19.6145 | 19.59 | 0 |
| 22+45 | 18.8312 | 18.78 | 0 |
| 23+ 0 | 17.9942 | 17.94 | 0 |
| 23+15 | 17.2514 | 17.21 | 0 |
| 23+30 | 16.7000 | 16.67 | 0 |
| 23+45 | 16.3213 | 16.30 | 0 |
| 24+ 0 | 16.0664 | 16.05 | 0 |
| 24+15 | 13.9958 | 13.87 | 0 |
| 24+30 | 10.9719 | 10.79 | 0 |
| 24+45 | 7.9556 | 7.78 | 0 |
| 25+ 0 | 5.4617 | 5.31 | 0 |
| 25+15 | 3.6638 | 3.56 | 0 |
| 25+30 | 2.4375 | 2.37 | 0 |
| 25+45 | 1.6150 | 1.57 | 0 |
| 26+ 0 | 1.0675 | 1.04 | 0 |
| 26+15 | 0.7041 | 0.68 | 0 |
| 26+30 | 0.4636 | 0.45 | 0 |
| 26+45 | 0.3049 | 0.30 | 0 |
| 27+ 0 | 0.2005 | 0.19 | 0 |
| 27+15 | 0.1318 | 0.13 | 0 |
| 27+30 | 0.0867 | 0.08 | 0 |
| 27+45 | 0.0570 | 0.06 | 0 |
| 28+ 0 | 0.0375 | 0.04 | 0 |
| 28+15 | 0.0246 | 0.02 | 0 |
| 28+30 | 0.0162 | 0.02 | 0 |
| 28+45 | 0.0106 | 0.01 | 0 |
| 29+ 0 | 0.0070 | 0.01 | 0 |
| 29+15 | 0.0046 | 0.00 | 0 |
| 29+30 | 0.0030 | 0.00 | 0 |
| 29+45 | 0.0022 | 0.00 | 0 |
| 30+ 0 | 0.0020 | 0.00 | 0 |
| 30+15 | 0.0019 | 0.00 | 0 |
| 30+30 | 0.0019 | 0.00 | 0 |
| 30+45 | 0.0018 | 0.00 | 0 |
| 31+ 0 | 0.0018 | 0.00 | 0 |
| 31+15 | 0.0018 | 0.00 | 0 |
| 31+30 | 0.0017 | 0.00 | 0 |
| 31+45 | 0.0017 | 0.00 | 0 |
| 32+ 0 | 0.0017 | 0.00 | 0 |
| 32+15 | 0.0016 | 0.00 | 0 |
| 32+30 | 0.0016 | 0.00 | 0 |
| 32+45 | 0.0016 | 0.00 | 0 |
| 33+ 0 | 0.0015 | 0.00 | 0 |
| 33+15 | 0.0015 | 0.00 | 0 |
| 33+30 | 0.0015 | 0.00 | 0 |
| 33+45 | 0.0014 | 0.00 | 0 |
| 34+ 0 | 0.0014 | 0.00 | 0 |
| 34+15 | 0.0014 | 0.00 | 0 |
| 34+30 | 0.0013 | 0.00 | 0 |
| 34+45 | 0.0013 | 0.00 | 0 |
| 35+ 0 | 0.0013 | 0.00 | 0 |
| 35+15 | 0.0013 | 0.00 | 0 |
| 35+30 | 0.0012 | 0.00 | 0 |
| 35+45 | 0.0012 | 0.00 | 0 |
| 36+ 0 | 0.0012 | 0.00 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 36+15 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| |
| 36+30 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 36+45 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 37+ 0 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 37+15 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 37+30 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 37+45 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 38+ 0 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 38+15 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 38+30 | 0.0001 | 0.00 | 0 | \| | \| | \| | \| |
| 38+45 | 0.0000 | 0.00 | 0 | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 155
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 469.849 (CFS)
Total volume = 244.367 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 4.000 to Point/Station 5.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 155
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin = 0.10(Ft.)

Initial basin depth = 0.10 (Ft.)
Initial basin storage = 2.00 (Ac.Ft)
Initial basin outflow = 70.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

| Basin Depth (Ft.) | Storage (Ac.Ft) | Outflow (CFS) | (S-O*dt/2) (Ac.Ft) | (S+O*dt/2) (Ac.Ft) |
|---|---|---|---|---|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1.000 | 20.000 | 700.000 | 12.769 | 27.231 |
| 2.000 | 50.000 | 1000.000 | 39.669 | 60.331 |
| 3.000 | 73.000 | 1600.000 | 56.471 | 89.529 |

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

| Time (Hours) | Inflow (CFS) | Outflow (CFS) | Storage (Ac.Ft) | .0 175.0 350.00 525.00 700.00 | Depth (Ft.) |
|---|---|---|---|---|---|
| 0.250 | 1.88 | 14.73 | 0.421 | 0 | 0.02 |
| 0.500 | 5.74 | 8.93 | 0.255 | 0 | 0.01 |
| 0.750 | 10.14 | 8.41 | 0.240 | 0 | 0.01 |
| 1.000 | 15.01 | 10.62 | 0.303 | 0 | 0.02 |
| 1.250 | 18.51 | 13.88 | 0.397 | 0 | 0.02 |
| 1.500 | 20.62 | 16.90 | 0.483 | 0 | 0.02 |
| 1.750 | 21.78 | 19.18 | 0.548 | 0 | 0.03 |
| 2.000 | 23.33 | 20.98 | 0.599 | OI | 0.03 |
| 2.250 | 25.14 | 22.71 | 0.649 | \|O | 0.03 |
| 2.500 | 26.82 | 24.45 | 0.698 | \|O | 0.03 |
| 2.750 | 29.14 | 26.32 | 0.752 | \|O | 0.04 |
| 3.000 | 31.57 | 28.46 | 0.813 | \|O | 0.04 |
| 3.250 | 33.70 | 30.68 | 0.876 | \|O | 0.04 |



| | | | | | |
|---|---|---|---|---|---|
| 3.500 | 35.36 | 32.72 | 0.935 | \|O | 0.05 |
| 3.750 | 36.54 | 34.44 | 0.984 | \|O | 0.05 |
| 4.000 | 38.29 | 36.02 | 1.029 | \|O | 0.05 |
| 4.250 | 40.28 | 37.75 | 1.079 | \|O | 0.05 |
| 4.500 | 43.05 | 39.83 | 1.138 | \|O | 0.06 |
| 4.750 | 45.96 | 42.31 | 1.209 | \|OI | 0.06 |
| 5.000 | 49.42 | 45.17 | 1.291 | \|O | 0.06 |
| 5.250 | 50.90 | 47.82 | 1.366 | \|O | 0.07 |
| 5.500 | 51.77 | 49.69 | 1.420 | \|O | 0.07 |
| 5.750 | 53.37 | 51.22 | 1.463 | \|O | 0.07 |
| 6.000 | 55.35 | 52.89 | 1.511 | \|O | 0.08 |
| 6.250 | 58.23 | 54.96 | 1.570 | \|O | 0.08 |
| 6.500 | 61.26 | 57.50 | 1.643 | \|O | 0.08 |
| 6.750 | 64.81 | 60.44 | 1.727 | \|O | 0.09 |
| 7.000 | 68.25 | 63.67 | 1.819 | \|OI | 0.09 |
| 7.250 | 71.11 | 66.87 | 1.910 | \|O | 0.10 |
| 7.500 | 74.23 | 69.95 | 1.999 | \|O | 0.10 |
| 7.750 | 78.15 | 73.26 | 2.093 | \|O | 0.10 |
| 8.000 | 83.11 | 77.18 | 2.205 | \|O | 0.11 |
| 8.250 | 90.80 | 82.37 | 2.353 | \|OI | 0.12 |
| 8.500 | 99.24 | 89.09 | 2.545 | \|O | 0.13 |
| 8.750 | 108.10 | 96.83 | 2.767 | \|O | 0.14 |
| 9.000 | 117.60 | 105.34 | 3.010 | \|OI | 0.15 |
| 9.250 | 130.07 | 115.16 | 3.290 | \|O | 0.16 |
| 9.500 | 146.36 | 127.40 | 3.640 | \|OI | 0.18 |
| 9.750 | 166.21 | 142.74 | 4.078 | \|OI | 0.20 |
| 10.000 | 188.35 | 161.09 | 4.602 | \|OI | 0.23 |
| 10.250 | 199.32 | 178.48 | 5.099 | \|OI | 0.25 |
| 10.500 | 198.24 | 189.26 | 5.407 | \|OI | 0.27 |
| 10.750 | 195.63 | 193.33 | 5.524 | \|O | 0.28 |
| 11.000 | 197.00 | 194.92 | 5.569 | \|OI | 0.28 |
| 11.250 | 202.96 | 197.61 | 5.646 | \|O | 0.28 |
| 11.500 | 210.44 | 202.44 | 5.784 | \|O | 0.29 |
| 11.750 | 213.45 | 207.49 | 5.928 | \|O | 0.30 |
| 12.000 | 213.66 | 210.71 | 6.020 | \|O | 0.30 |
| 12.250 | 223.54 | 214.90 | 6.140 | \|OI | 0.31 |
| 12.500 | 245.28 | 225.26 | 6.436 | \|OI | 0.32 |
| 12.750 | 278.27 | 244.65 | 6.990 | \|OI | 0.35 |
| 13.000 | 316.35 | 272.62 | 7.789 | \|O I | 0.39 |
| 13.250 | 374.78 | 311.36 | 8.896 | \|O \|I | 0.44 |
| 13.500 | 439.28 | 362.17 | 10.348 | \|O I | 0.52 |
| 13.750 | 469.85 | 411.24 | 11.750 | \|O I | 0.59 |
| 14.000 | 458.33 | 439.31 | 12.552 | \|O | 0.63 |
| 14.250 | 430.71 | 442.08 | 12.631 | \|IO | 0.63 |
| 14.500 | 411.75 | 431.01 | 12.315 | \|IO | 0.62 |
| 14.750 | 406.56 | 419.40 | 11.983 | \|IO | 0.60 |
| 15.000 | 405.16 | 412.21 | 11.777 | \|O | 0.59 |
| 15.250 | 400.49 | 407.22 | 11.635 | \|O | 0.58 |
| 15.500 | 390.86 | 401.09 | 11.460 | \|IO | 0.57 |
| 15.750 | 370.98 | 390.38 | 11.154 | \|IO | 0.56 |
| 16.000 | 343.63 | 372.81 | 10.652 | \|I\|O | 0.53 |
| 16.250 | 301.20 | 346.05 | 9.887 | \|I O\| | 0.49 |
| 16.500 | 250.58 | 308.79 | 8.822 | \|I O \| | 0.44 |
| 16.750 | 196.12 | 263.41 | 7.526 | \|I O \| | 0.38 |
| 17.000 | 146.73 | 214.56 | 6.130 | \|I\|O \| | 0.31 |
| 17.250 | 110.26 | 168.85 | 4.824 | \|I O\| | 0.24 |
| 17.500 | 85.63 | 131.19 | 3.748 | \|I O \| | 0.19 |
| 17.750 | 69.55 | 102.72 | 2.935 | \|IO \| | 0.15 |
| 18.000 | 58.17 | 82.08 | 2.345 | \|IO \| | 0.12 |
| 18.250 | 49.84 | 67.17 | 1.919 | \|IO \| | 0.10 |
| 18.500 | 43.81 | 56.36 | 1.610 | \|O \| | 0.08 |
| 18.750 | 38.63 | 48.32 | 1.381 | \|IO \| | 0.07 |
| 19.000 | 33.36 | 41.77 | 1.193 | \|O \| | 0.06 |
| 19.250 | 29.48 | 36.27 | 1.036 | \|O \| | 0.05 |
| 19.500 | 27.94 | 32.26 | 0.922 | \|O \| | 0.05 |
| 19.750 | 26.98 | 29.71 | 0.849 | \|O \| | 0.04 |
| 20.000 | 25.24 | 27.80 | 0.794 | \|O \| | 0.04 |
| 20.250 | 24.00 | 26.11 | 0.746 | \|O \| | 0.04 |
| 20.500 | 23.34 | 24.81 | 0.709 | \|O \| | 0.04 |
| 20.750 | 23.10 | 23.97 | 0.685 | \|O \| | 0.03 |
| 21.000 | 22.16 | 23.26 | 0.665 | \|O \| | 0.03 |
| 21.250 | 21.72 | 22.56 | 0.645 | IO \| | 0.03 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 21.500 | 20.81 | 21.87 | 0.625 | 0 | \| | \| | \| | \| | 0.03 |
| 21.750 | 20.59 | 21.25 | 0.607 | 0 | \| | \| | \| | \| | 0.03 |
| 22.000 | 19.99 | 20.74 | 0.593 | 0 | \| | \| | \| | \| | 0.03 |
| 22.250 | 20.03 | 20.35 | 0.581 | 0 | \| | \| | \| | \| | 0.03 |
| 22.500 | 19.61 | 20.07 | 0.573 | 0 | \| | \| | \| | \| | 0.03 |
| 22.750 | 18.83 | 19.62 | 0.561 | 0 | \| | \| | \| | \| | 0.03 |
| 23.000 | 17.99 | 18.98 | 0.542 | 0 | \| | \| | \| | \| | 0.03 |
| 23.250 | 17.25 | 18.26 | 0.522 | 0 | \| | \| | \| | \| | 0.03 |
| 23.500 | 16.70 | 17.58 | 0.502 | 0 | \| | \| | \| | \| | 0.03 |
| 23.750 | 16.32 | 17.01 | 0.486 | 0 | \| | \| | \| | \| | 0.02 |
| 24.000 | 16.07 | 16.58 | 0.474 | 0 | \| | \| | \| | \| | 0.02 |
| 24.250 | 14.00 | 15.76 | 0.450 | 0 | \| | \| | \| | \| | 0.02 |
| 24.500 | 10.97 | 14.02 | 0.401 | 0 | \| | \| | \| | \| | 0.02 |
| 24.750 | 7.96 | 11.60 | 0.331 | 0 | \| | \| | \| | \| | 0.02 |
| 25.000 | 5.46 | 9.00 | 0.257 | 0 | \| | \| | \| | \| | 0.01 |
| 25.250 | 3.66 | 6.64 | 0.190 | 0 | \| | \| | \| | \| | 0.01 |
| 25.500 | 2.44 | 4.74 | 0.135 | 0 | \| | \| | \| | \| | 0.01 |
| 25.750 | 1.61 | 3.30 | 0.094 | 0 | \| | \| | \| | \| | 0.00 |
| 26.000 | 1.07 | 2.26 | 0.065 | 0 | \| | \| | \| | \| | 0.00 |
| 26.250 | 0.70 | 1.53 | 0.044 | 0 | \| | \| | \| | \| | 0.00 |
| 26.500 | 0.46 | 1.03 | 0.029 | 0 | \| | \| | \| | \| | 0.00 |
| 26.750 | 0.30 | 0.69 | 0.020 | 0 | \| | \| | \| | \| | 0.00 |
| 27.000 | 0.20 | 0.46 | 0.013 | 0 | \| | \| | \| | \| | 0.00 |
| 27.250 | 0.13 | 0.30 | 0.009 | 0 | \| | \| | \| | \| | 0.00 |
| 27.500 | 0.09 | 0.20 | 0.006 | 0 | \| | \| | \| | \| | 0.00 |
| 27.750 | 0.06 | 0.13 | 0.004 | 0 | \| | \| | \| | \| | 0.00 |
| 28.000 | 0.04 | 0.09 | 0.002 | 0 | \| | \| | \| | \| | 0.00 |
| 28.250 | 0.02 | 0.06 | 0.002 | 0 | \| | \| | \| | \| | 0.00 |
| 28.500 | 0.02 | 0.04 | 0.001 | 0 | \| | \| | \| | \| | 0.00 |
| 28.750 | 0.01 | 0.02 | 0.001 | 0 | \| | \| | \| | \| | 0.00 |
| 29.000 | 0.01 | 0.02 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 29.250 | 0.00 | 0.01 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 29.500 | 0.00 | 0.01 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 29.750 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 30.000 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 30.250 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 30.500 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 30.750 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 31.000 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 31.250 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 31.500 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 31.750 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 32.000 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 32.250 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 32.500 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 32.750 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 33.000 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 33.250 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 33.500 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 33.750 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 34.000 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 34.250 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 34.500 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 34.750 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 35.000 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 35.250 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 35.500 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 35.750 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 36.000 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 36.250 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 36.500 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 36.750 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 37.000 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 37.250 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 37.500 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 37.750 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 38.000 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 38.250 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 38.500 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 38.750 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |
| 39.000 | 0.00 | 0.00 | 0.000 | 0 | \| | \| | \| | \| | 0.00 |



```
**************************HYDROGRAPH DATA**************************
              Number of intervals =   156
              Time interval =    15.0 (Min.)
              Maximum/Peak flow rate =      442.078 (CFS)
              Total volume =     244.920 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*******************************************************************

-------------------------------------------------------------------


+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
___________________________________________________________________
Current stream hydrograph saved in file LineC24hr.rte
**************************HYDROGRAPH DATA**************************
              Number of intervals =     0
              Time interval =    0.0 (Min.)
              Maximum/Peak flow rate =        0.000 (CFS)
              Total volume =       0.000 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*******************************************************************

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```

```
                 FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                     Study date: 05/02/12

------------------------------------------------------------------------


Line C, Offsite Subdrain Ara C1 and C21
Routed
100 Yr. 24 Hr.

------------------------------------------------------------------------


Program License Serial Number 6097

------------------------------------------------------------------------
********************* HYDROGRAPH INFORMATION **********************

            From study/file name: OffsiteSubC124100.rte
**************************HYDROGRAPH DATA**************************
            Number of intervals =   104
            Time interval =   15.0 (Min.)
            Maximum/Peak flow rate =      154.262 (CFS)
            Total volume =      53.876 (Ac.Ft)
      Status of hydrographs being held in storage
               Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)      0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
********************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** STREAM ROUTING SCS CONVEX METHOD ****
------------------------------------------------------------------------
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   3000.00 (Ft.)
Elevation difference =   50.00 (Ft.)
Slope of channel =  0.016667 (Vert/Horiz)
Channel type - Improved Channel


Channel length =  3000.00(Ft.)     Elevation difference =  50.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Covered channel
Channel base width  =    5.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Manning's 'N'    = 0.015
Maximum depth of channel  =    5.000(Ft.)
Flow(q) thru subarea =     37.864(CFS)
Depth of flow =     0.732(Ft.)
Average velocity =     9.029(Ft/s)
Total flow rate =    37.864(CFS)
Channel flow top width =    6.463(Ft.)
Depth of flow in channel =   0.73(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =    9.03(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =   37.864(CFS)
Total capacity of improved channels =     37.864(CFS)
Critical Depth in Channel =    1.13(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Covered channel
Flow(q) thru subarea =    154.262(CFS)
Depth of flow =     1.660(Ft.)
```



```
Average velocity =    13.958(Ft/s)
Total flow rate =   154.262(CFS)
Channel flow top width =    8.319(Ft.)
Depth of flow in channel =   1.66(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   13.96(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  154.262(CFS)
Total capacity of improved channels =    154.262(CFS)
Critical Depth in Channel =    2.59(Ft.)


********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.8914   Travel time =   3.58 (min.)
        dt*(unit time interval) =  15.00(min.),  e=   3.4649
        dt(routing time-step) =   3.19 (min.),   c* =   0.9995

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------
            Hydrograph in  15  Minute intervals (CFS)

------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0       38.6      77.1      115.7     154.3
------------------------------------------------------------------------
  0+15      0.1094     0.14  0|        |         |         |         |
  0+30      0.7666     0.94  0|        |         |         |         |
  0+45      1.4939     1.64  0|        |         |         |         |
  1+ 0      1.9437     2.02  0|        |         |         |         |
  1+15      2.3637     2.46  0|        |         |         |         |
  1+30      2.3495     2.32  0|        |         |         |         |
  1+45      2.2572     2.24  0|        |         |         |         |
  2+ 0      2.2770     2.29  0|        |         |         |         |
  2+15      2.5622     2.64  0|        |         |         |         |
  2+30      2.7683     2.80  0|        |         |         |         |
  2+45      2.9121     2.94  0|        |         |         |         |
  3+ 0      3.2525     3.34  0|        |         |         |         |
  3+15      3.4802     3.52  0|        |         |         |         |
  3+30      3.5774     3.59  0|        |         |         |         |
  3+45      3.6228     3.63  0|        |         |         |         |
  4+ 0      3.6962     3.71  0|        |         |         |         |
  4+15      4.0044     4.08  |0       |         |         |         |
  4+30      4.2763     4.33  |0       |         |         |         |
  4+45      4.6709     4.76  |0       |         |         |         |
  5+ 0      4.9801     5.04  |0       |         |         |         |
  5+15      5.2795     5.34  |0       |         |         |         |
  5+30      4.9925     4.90  |0       |         |         |         |
  5+45      5.0341     5.07  |0       |         |         |         |
  6+ 0      5.4162     5.51  |0       |         |         |         |
  6+15      5.7137     5.77  |0       |         |         |         |
  6+30      6.1231     6.22  |0       |         |         |         |
  6+45      6.4398     6.50  |0       |         |         |         |
  7+ 0      6.8491     6.94  |0       |         |         |         |
  7+15      7.1099     7.15  |0       |         |         |         |
  7+30      7.2778     7.31  |0       |         |         |         |
  7+45      7.6841     7.79  |0I      |         |         |         |
  8+ 0      8.2741     8.41  | 0      |         |         |         |
  8+15      8.9977     9.16  | 0      |         |         |         |
  8+30      9.9500    10.16  | 0      |         |         |         |
  8+45     10.7217    10.87  | 0      |         |         |         |
  9+ 0     12.6971    13.19  |  0     |         |         |         |
  9+15     18.3797    19.79  |   0I   |         |         |         |
  9+30     28.5782    30.96  |      0I|         |         |         |
  9+45     38.7725    40.89  |        |      0  |         |         |
```

| | | | |
|---|---|---|---|
| 10+ 0 | 48.1321 | 50.10 | \| 0 \| \| \| \| |
| 10+15 | 52.7600 | 53.48 | \| 0 \| \| \| \| |
| 10+30 | 36.9223 | 32.43 | \| IO \| \| \| \| |
| 10+45 | 27.7966 | 26.54 | \| IO \| \| \| \| |
| 11+ 0 | 38.6059 | 41.88 | \| O \| \| \| \| |
| 11+15 | 47.5094 | 49.04 | \| 0 \| \| \| \| |
| 11+30 | 49.3816 | 49.48 | \| 0 \| \| \| \| |
| 11+45 | 49.1532 | 49.07 | \| 0 \| \| \| \| |
| 12+ 0 | 44.6375 | 43.44 | \| 0 \| \| \| \| |
| 12+15 | 48.2871 | 49.60 | \| 0 \| \| \| \| |
| 12+30 | 71.5374 | 77.48 | \| \| O I \| \| \| |
| 12+45 | 91.9620 | 95.89 | \| \| OI \| \| \| |
| 13+ 0 | 108.3583 | 111.74 | \| \| \| 0 \| \| |
| 13+15 | 123.4120 | 126.58 | \| \| \| \| 0 \| |
| 13+30 | 145.1984 | 150.25 | \| \| \| \| \| OI |
| 13+45 | 153.4039 | 154.26 | \| \| \| \| \| OI |
| 14+ 0 | 127.1331 | 119.78 | \| \| \| \| IO \| |
| 14+15 | 109.6288 | 106.87 | \| \| \| IO \| \| |
| 14+30 | 113.3027 | 115.04 | \| \| \| O \| \| |
| 14+45 | 115.8559 | 116.08 | \| \| \| O \| \| |
| 15+ 0 | 116.3861 | 116.47 | \| \| \| O \| \| |
| 15+15 | 114.0718 | 113.42 | \| \| \| O \| \| |
| 15+30 | 109.2907 | 108.17 | \| \| \| O \| \| |
| 15+45 | 101.9897 | 100.31 | \| \| O \| \| \| |
| 16+ 0 | 87.6168 | 84.17 | \| \| IO \| \| \| |
| 16+15 | 73.4692 | 70.57 | \| \| IO \| \| \| |
| 16+30 | 41.2727 | 33.33 | \| I O \| \| \| \| |
| 16+45 | 19.4171 | 15.64 | \| IO \| \| \| \| |
| 17+ 0 | 9.8297 | 8.25 | \| 0 \| \| \| \| |
| 17+15 | 5.5521 | 4.82 | \|0 \| \| \| \| |
| 17+30 | 4.3346 | 4.20 | \|0 \| \| \| \| |
| 17+45 | 4.0138 | 3.96 | \|0 \| \| \| \| |
| 18+ 0 | 3.7179 | 3.65 | 0 \| \| \| \| |
| 18+15 | 3.2821 | 3.18 | 0 \| \| \| \| |
| 18+30 | 3.0621 | 3.03 | 0 \| \| \| \| |
| 18+45 | 2.9273 | 2.90 | 0 \| \| \| \| |
| 19+ 0 | 2.5382 | 2.44 | 0 \| \| \| \| |
| 19+15 | 2.0666 | 1.97 | 0 \| \| \| \| |
| 19+30 | 2.1126 | 2.15 | 0 \| \| \| \| |
| 19+45 | 2.4358 | 2.51 | 0 \| \| \| \| |
| 20+ 0 | 2.3241 | 2.27 | 0 \| \| \| \| |
| 20+15 | 1.9733 | 1.89 | 0 \| \| \| \| |
| 20+30 | 2.0173 | 2.05 | 0 \| \| \| \| |
| 20+45 | 2.1147 | 2.13 | 0 \| \| \| \| |
| 21+ 0 | 2.1017 | 2.09 | 0 \| \| \| \| |
| 21+15 | 1.8792 | 1.82 | 0 \| \| \| \| |
| 21+30 | 1.9211 | 1.95 | 0 \| \| \| \| |
| 21+45 | 1.7970 | 1.76 | 0 \| \| \| \| |
| 22+ 0 | 1.8821 | 1.92 | 0 \| \| \| \| |
| 22+15 | 1.7840 | 1.75 | 0 \| \| \| \| |
| 22+30 | 1.8777 | 1.91 | 0 \| \| \| \| |
| 22+45 | 1.7255 | 1.67 | 0 \| \| \| \| |
| 23+ 0 | 1.5742 | 1.55 | 0 \| \| \| \| |
| 23+15 | 1.5121 | 1.50 | 0 \| \| \| \| |
| 23+30 | 1.4831 | 1.48 | 0 \| \| \| \| |
| 23+45 | 1.4709 | 1.47 | 0 \| \| \| \| |
| 24+ 0 | 1.4667 | 1.47 | 0 \| \| \| \| |
| 24+15 | 1.3549 | 1.32 | 0 \| \| \| \| |
| 24+30 | 0.7506 | 0.59 | 0 \| \| \| \| |
| 24+45 | 0.3242 | 0.25 | 0 \| \| \| \| |
| 25+ 0 | 0.1420 | 0.11 | 0 \| \| \| \| |
| 25+15 | 0.0597 | 0.05 | 0 \| \| \| \| |
| 25+30 | 0.0268 | 0.02 | 0 \| \| \| \| |
| 25+45 | 0.0136 | 0.01 | 0 \| \| \| \| |
| 26+ 0 | 0.0052 | 0.00 | 0 \| \| \| \| |
| 26+15 | 0.0000 | 0.00 | 0 \| \| \| \| |

**********HYDROGRAPH DATA**********

Number of intervals = 105
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 153.404 (CFS)
Total volume = 53.876 (Ac.Ft)



Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

Process from Point/Station 1.000 to Point/Station 2.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: OffsiteSubC2124100.rte

P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 54.4 108.7 163.1 217.5 |
|---|---|---|---|
| 0+15 | 0.2033 | 0.31 | Q |
| 0+30 | 0.6590 | 1.43 | Q |
| 0+45 | 0.9120 | 2.41 | Q |
| 1+ 0 | 1.0666 | 3.01 | Q |
| 1+15 | 1.1547 | 3.52 | Q |
| 1+30 | 1.0183 | 3.37 | Q |
| 1+45 | 0.9878 | 3.25 | Q |
| 2+ 0 | 1.0846 | 3.36 | Q |
| 2+15 | 1.2590 | 3.82 | Q |
| 2+30 | 1.2969 | 4.07 | Q |
| 2+45 | 1.4061 | 4.32 | Q |
| 3+ 0 | 1.5857 | 4.84 | Q |
| 3+15 | 1.6237 | 5.10 | Q |
| 3+30 | 1.6312 | 5.21 | Q |
| 3+45 | 1.6338 | 5.26 | Q |
| 4+ 0 | 1.7355 | 5.43 | Q |
| 4+15 | 1.9125 | 5.92 | qQ |
| 4+30 | 2.0521 | 6.33 | qQ |
| 4+45 | 2.2366 | 6.91 | qQ |
| 5+ 0 | 2.3789 | 7.36 | qQ |
| 5+15 | 2.3601 | 7.64 | qQ |
| 5+30 | 2.1483 | 7.14 | qQ |
| 5+45 | 2.3585 | 7.39 | qQ |
| 6+ 0 | 2.5612 | 7.98 | qQ |
| 6+15 | 2.7030 | 8.42 | qQ |
| 6+30 | 2.8902 | 9.01 | qQ |
| 6+45 | 3.0324 | 9.47 | qQ |
| 7+ 0 | 3.2169 | 10.07 | qQ |
| 7+15 | 3.2575 | 10.37 | qQ |
| 7+30 | 3.3667 | 10.64 | qQ |
| 7+45 | 3.6480 | 11.33 | q Q |
| 8+ 0 | 3.9647 | 12.24 | q Q |
| 8+15 | 4.3904 | 13.39 | q Q |
| 8+30 | 4.7926 | 14.74 | q Q |
| 8+45 | 4.9803 | 15.70 | q Q |
| 9+ 0 | 6.3059 | 19.00 | q Q |
| 9+15 | 10.5575 | 28.94 | q Q |
| 9+30 | 16.1060 | 44.68 | q Q |
| 9+45 | 20.3713 | 59.14 | q Q |
| 10+ 0 | 24.3592 | 72.49 | q Q |
| 10+15 | 20.1616 | 72.92 | q Q |
| 10+30 | 8.8871 | 45.81 | q Q |
| 10+45 | 12.0437 | 39.84 | q Q |
| 11+ 0 | 21.0205 | 59.63 | q Q |
| 11+15 | 22.3331 | 69.84 | q Q |
| 11+30 | 21.5469 | 70.93 | q Q |
| 11+45 | 19.8698 | 69.02 | q Q |

```
 12+ 0     17.8686     62.51  |  q      |Q        |         |         |         |
 12+15     26.5603     74.85  |   q     |  Q      |         |         |         |
 12+30     40.7817    112.32  |     q   |      Q  |         |         |         |
 12+45     47.8414    139.80  |      q  |         |    Q    |         |         |
 13+ 0     53.8979    162.26  |       q |         |         |  Q      |         |
 13+15     62.3342    185.75  |        q|         |         |         |  Q      |
 13+30     72.2968    217.50  |         | q       |         |         |         |Q
 13+45     63.6884    217.09  |         |q        |         |         |         |Q
 14+ 0     45.1595    172.29  |      q  |         |         |         |Q        |
 14+15     45.7179    155.35  |      q  |         |         |  Q      |         |
 14+30     51.4874    164.79  |       q |         |         |  Q      |         |
 14+45     51.4651    167.32  |       q |         |         |  Q      |         |
 15+ 0     50.8810    167.27  |       q |         |         |  Q      |         |
 15+15     48.6310    162.70  |      q  |         |         |  Q      |         |
 15+30     45.9361    155.23  |      q  |         |         |  Q      |         |
 15+45     40.1352    142.12  |     q   |         |         |  Q      |         |
 16+ 0     33.0565    120.67  |    q    |         |  Q      |         |         |
 16+15     22.3956     95.86  |  q      |      Q  |         |         |         |
 16+30      5.8261     47.10  |q        Q         |         |         |         |
 16+45      2.1344     21.55  | q  Q    |         |         |         |         |
 17+ 0      1.2724     11.10  | q Q     |         |         |         |         |
 17+15      1.1938      6.75  | qQ      |         |         |         |         |
 17+30      1.5403      5.87  | qQ      |         |         |         |         |
 17+45      1.6136      5.63  | qQ      |         |         |         |         |
 18+ 0      1.5269      5.24  | Q       |         |         |         |         |
 18+15      1.3552      4.64  | Q       |         |         |         |         |
 18+30      1.3172      4.38  | Q       |         |         |         |         |
 18+45      1.2080      4.14  | Q       |         |         |         |         |
 19+ 0      0.9267      3.46  | Q       |         |         |         |         |
 19+15      0.8134      2.88  | Q       |         |         |         |         |
 19+30      1.0467      3.16  | Q       |         |         |         |         |
 19+45      1.1498      3.59  | Q       |         |         |         |         |
 20+ 0      0.9139      3.24  | Q       |         |         |         |         |
 20+15      0.8108      2.78  | Q       |         |         |         |         |
 20+30      0.9450      2.96  | Q       |         |         |         |         |
 20+45      0.9728      3.09  | Q       |         |         |         |         |
 21+ 0      0.8760      2.98  | Q       |         |         |         |         |
 21+15      0.8033      2.68  | Q       |         |         |         |         |
 21+30      0.8407      2.76  | Q       |         |         |         |         |
 21+45      0.7958      2.59  | Q       |         |         |         |         |
 22+ 0      0.8380      2.72  | Q       |         |         |         |         |
 22+15      0.7958      2.58  | Q       |         |         |         |         |
 22+30      0.8380      2.72  | Q       |         |         |         |         |
 22+45      0.6941      2.42  | Q       |         |         |         |         |
 23+ 0      0.6610      2.24  | Q       |         |         |         |         |
 23+15      0.6562      2.17  | Q       |         |         |         |         |
 23+30      0.6535      2.14  | Q       |         |         |         |         |
 23+45      0.6535      2.12  | Q       |         |         |         |         |
 24+ 0      0.6535      2.12  | Q       |         |         |         |         |
 24+15      0.4502      1.81  | Q       |         |         |         |         |
 24+30      0.0962      0.85  | Q       |         |         |         |         |
 24+45      0.0202      0.34  | Q       |         |         |         |         |
 25+ 0      0.0053      0.15  | Q       |         |         |         |         |
 25+15      0.0000      0.06  | Q       |         |         |         |         |
 25+30      0.0000      0.03  | Q       |         |         |         |         |
 25+45      0.0000      0.01  | Q       |         |         |         |         |
 26+ 0      0.0000      0.01  | Q       |         |         |         |         |
 26+15      0.0000      0.00  | Q       |         |         |         |         |
--------------------------------------------------------------------------------
      **************************HYDROGRAPH DATA**************************
                Number of intervals =   105
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      217.495 (CFS)
                Total volume =      77.391 (Ac.Ft)
          Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)       0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ********************************************************************


      ----------------------------------------------------------------
```



```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
________________________________________________________________________________
Current stream hydrograph saved in file CoffsiteRT1.rte
**************************HYDROGRAPH DATA**************************
                Number of intervals =     0
                Time interval =    0.0 (Min.)
                Maximum/Peak flow rate =        0.000 (CFS)
                Total volume =       0.000 (Ac.Ft)
          Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)       0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
********************************************************************************


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```

```
                FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                    Study date: 05/02/12

------------------------------------------------------------------------


Line C, Offsite Subdrain Area C41 and C51
Routed
100 Yr. 24 Hr.

------------------------------------------------------------------------


Program License Serial Number 6097

------------------------------------------------------------------------
********************* HYDROGRAPH INFORMATION **********************

            From study/file name: OffsiteSubC4124100.rte
**************************HYDROGRAPH DATA**************************
            Number of intervals =    98
            Time interval =   15.0 (Min.)
            Maximum/Peak flow rate =       24.423 (CFS)
            Total volume =       7.411 (Ac.Ft)
      Status of hydrographs being held in storage
               Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)       0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** STREAM ROUTING SCS CONVEX METHOD ****
________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =    400.00 (Ft.)
Elevation difference =   10.00 (Ft.)
Slope of channel =  0.025000 (Vert/Horiz)
Channel type - Improved Channel


Channel length =   400.00(Ft.)     Elevation difference =  10.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Covered channel
Channel base width  =    5.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Manning's 'N'    = 0.015
Maximum depth of channel  =    5.000(Ft.)
Flow(q) thru subarea =      5.237(CFS)
Depth of flow =     0.198(Ft.)
Average velocity =     5.088(Ft/s)
Total flow rate =     5.237(CFS)
Channel flow top width =    5.396(Ft.)
Depth of flow in channel =   0.20(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =    5.09(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =    5.237(CFS)
Total capacity of improved channels =      5.237(CFS)
Critical Depth in Channel =    0.32(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Covered channel
Flow(q) thru subarea =     24.423(CFS)
Depth of flow =     0.499(Ft.)
```



```
Average velocity =     8.897(Ft/s)
Total flow rate =    24.423(CFS)
Channel flow top width =    5.998(Ft.)
Depth of flow in channel =   0.50(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =    8.90(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =   24.423(CFS)
Total capacity of improved channels =     24.423(CFS)
Critical Depth in Channel =    0.85(Ft.)


********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.8396   Travel time =   0.75 (min.)
        dt*(unit time interval) =  15.00(min.),  e=  16.2294
        dt(routing time-step) =   0.63 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------
            Hydrograph in  15  Minute intervals (CFS)
------------------------------------------------------------------------
Time(h+m) Out = 0(CFS) In = I  0        6.1       12.2       18.3       24.4
------------------------------------------------------------------------
  0+15       0.1128      0.12  0        |          |          |          |
  0+30       0.2683      0.27  0        |          |          |          |
  0+45       0.3292      0.33  0        |          |          |          |
  1+ 0       0.3916      0.39  0        |          |          |          |
  1+15       0.3849      0.38  0        |          |          |          |
  1+30       0.3411      0.34  0        |          |          |          |
  1+45       0.3355      0.34  0        |          |          |          |
  2+ 0       0.3918      0.39  0        |          |          |          |
  2+15       0.4413      0.44  0        |          |          |          |
  2+30       0.4470      0.45  0        |          |          |          |
  2+45       0.5036      0.51  0        |          |          |          |
  3+ 0       0.5531      0.56  0        |          |          |          |
  3+15       0.5588      0.56  0        |          |          |          |
  3+30       0.5590      0.56  0        |          |          |          |
  3+45       0.5590      0.56  0        |          |          |          |
  4+ 0       0.6154      0.62  |0       |          |          |          |
  4+15       0.6649      0.67  |0       |          |          |          |
  4+30       0.7270      0.73  |0       |          |          |          |
  4+45       0.7767      0.78  |0       |          |          |          |
  5+ 0       0.8388      0.84  |0       |          |          |          |
  5+15       0.7756      0.77  |0       |          |          |          |
  5+30       0.7387      0.74  |0       |          |          |          |
  5+45       0.8334      0.84  |0       |          |          |          |
  6+ 0       0.8883      0.89  |0       |          |          |          |
  6+15       0.9506      0.95  |0       |          |          |          |
  6+30       1.0003      1.00  |0       |          |          |          |
  6+45       1.0624      1.07  |0       |          |          |          |
  7+ 0       1.1120      1.11  |0       |          |          |          |
  7+15       1.1177      1.12  |0       |          |          |          |
  7+30       1.1743      1.18  |0       |          |          |          |
  7+45       1.2803      1.28  | 0      |          |          |          |
  8+ 0       1.3919      1.40  | 0      |          |          |          |
  8+15       1.5601      1.57  | 0      |          |          |          |
  8+30       1.6650      1.67  | 0      |          |          |          |
  8+45       1.7330      1.74  | 0      |          |          |          |
  9+ 0       1.8392      1.84  |  0     |          |          |          |
  9+15       3.0211      3.07  |  OI    |          |          |          |
  9+30       4.7029      4.77  |     0  |          |          |          |
  9+45       6.1057      6.16  |        0          |          |          |
```

| | | | |
|---|---|---|---|
| 10+ 0 | 7.4649 | 7.52 | \| 0 \| \| \| \| |
| 10+15 | 4.8400 | 4.72 | \| 0 \| \| \| \| |
| 10+30 | 2.0173 | 1.90 | \| 0 \| \| \| \| |
| 10+45 | 4.2094 | 4.31 | \| OI \| \| \| \| |
| 11+ 0 | 6.5306 | 6.63 | \| 0 \| \| \| \| |
| 11+15 | 6.4376 | 6.43 | \| 0 \| \| \| \| |
| 11+30 | 6.1752 | 6.16 | \| 0 \| \| \| \| |
| 11+45 | 5.2135 | 5.17 | \| 0 \| \| \| \| |
| 12+ 0 | 5.0068 | 5.00 | \| 0 \| \| \| \| |
| 12+15 | 9.5558 | 9.76 | \| \| 0 \| \| \| \| |
| 12+30 | 13.8560 | 14.04 | \| \| \| 0 \| \| \| |
| 12+45 | 16.0937 | 16.18 | \| \| \| \| 0 \| \| |
| 13+ 0 | 17.9274 | 18.00 | \| \| \| \| \| 0 \| |
| 13+15 | 21.5675 | 21.72 | \| \| \| \| \| \| 0 |
| 13+30 | 24.3095 | 24.42 | \| \| \| \| \| \| 0I |
| 13+45 | 18.5936 | 18.34 | \| \| \| \| \| 0 \| |
| 14+ 0 | 13.3555 | 13.14 | \| \| \| \| 0 \| \| |
| 14+15 | 15.1833 | 15.27 | \| \| \| \| OI \| \| |
| 14+30 | 16.7776 | 16.84 | \| \| \| \| \| 0 \| |
| 14+45 | 16.7030 | 16.70 | \| \| \| \| \| 0 \| |
| 15+ 0 | 16.2780 | 16.26 | \| \| \| \| \| 0 \| |
| 15+15 | 15.4042 | 15.37 | \| \| \| \| \| 0 \| |
| 15+30 | 14.4721 | 14.43 | \| \| \| \| \| 0 \| |
| 15+45 | 11.8430 | 11.73 | \| \| \| \| 0 \| \| |
| 16+ 0 | 9.9822 | 9.91 | \| \| \| 0 \| \| \| |
| 16+15 | 5.0985 | 4.89 | \| \| 0 \| \| \| \| |
| 16+30 | 0.9393 | 0.77 | \|0 \| \| \| \| \| |
| 16+45 | 0.4041 | 0.39 | 0 \| \| \| \| \| |
| 17+ 0 | 0.3412 | 0.34 | 0 \| \| \| \| \| |
| 17+15 | 0.4484 | 0.45 | 0 \| \| \| \| \| |
| 17+30 | 0.5472 | 0.55 | 0 \| \| \| \| \| |
| 17+45 | 0.5586 | 0.56 | 0 \| \| \| \| \| |
| 18+ 0 | 0.5025 | 0.50 | 0 \| \| \| \| \| |
| 18+15 | 0.4530 | 0.45 | 0 \| \| \| \| \| |
| 18+30 | 0.4473 | 0.45 | 0 \| \| \| \| \| |
| 18+45 | 0.3907 | 0.39 | 0 \| \| \| \| \| |
| 19+ 0 | 0.2848 | 0.28 | 0 \| \| \| \| \| |
| 19+15 | 0.2860 | 0.29 | 0 \| \| \| \| \| |
| 19+30 | 0.3861 | 0.39 | 0 \| \| \| \| \| |
| 19+45 | 0.3847 | 0.38 | 0 \| \| \| \| \| |
| 20+ 0 | 0.2847 | 0.28 | 0 \| \| \| \| \| |
| 20+15 | 0.2860 | 0.29 | 0 \| \| \| \| \| |
| 20+30 | 0.3297 | 0.33 | 0 \| \| \| \| \| |
| 20+45 | 0.3352 | 0.34 | 0 \| \| \| \| \| |
| 21+ 0 | 0.2790 | 0.28 | 0 \| \| \| \| \| |
| 21+15 | 0.2859 | 0.29 | 0 \| \| \| \| \| |
| 21+30 | 0.2733 | 0.27 | 0 \| \| \| \| \| |
| 21+45 | 0.2857 | 0.29 | 0 \| \| \| \| \| |
| 22+ 0 | 0.2733 | 0.27 | 0 \| \| \| \| \| |
| 22+15 | 0.2857 | 0.29 | 0 \| \| \| \| \| |
| 22+30 | 0.2733 | 0.27 | 0 \| \| \| \| \| |
| 22+45 | 0.2293 | 0.23 | 0 \| \| \| \| \| |
| 23+ 0 | 0.2237 | 0.22 | 0 \| \| \| \| \| |
| 23+15 | 0.2236 | 0.22 | 0 \| \| \| \| \| |
| 23+30 | 0.2236 | 0.22 | 0 \| \| \| \| \| |
| 23+45 | 0.2236 | 0.22 | 0 \| \| \| \| \| |
| 24+ 0 | 0.2236 | 0.22 | 0 \| \| \| \| \| |
| 24+15 | 0.1107 | 0.11 | 0 \| \| \| \| \| |
| 24+30 | 0.0117 | 0.01 | 0 \| \| \| \| \| |
| 24+45 | 0.0000 | 0.00 | 0 \| \| \| \| \| |

**********HYDROGRAPH DATA**********

Number of intervals = 99
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 24.309 (CFS)
Total volume = 7.411 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********



Process from Point/Station 1.000 to Point/Station 2.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: OffsiteSubC5124100.rte

P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 7.3 14.6 21.9 29.1 |
|---|---|---|---|
| 0+15 | 0.0340 | 0.15 | Q \| \| \| \| \| |
| 0+30 | 0.0631 | 0.33 | Q \| \| \| \| \| |
| 0+45 | 0.0691 | 0.40 | Q \| \| \| \| \| |
| 1+ 0 | 0.0861 | 0.48 | Q \| \| \| \| \| |
| 1+15 | 0.0752 | 0.46 | Q \| \| \| \| \| |
| 1+30 | 0.0691 | 0.41 | Q \| \| \| \| \| |
| 1+45 | 0.0691 | 0.40 | Q \| \| \| \| \| |
| 2+ 0 | 0.0861 | 0.48 | Q \| \| \| \| \| |
| 2+15 | 0.0922 | 0.53 | Q \| \| \| \| \| |
| 2+30 | 0.0922 | 0.54 | Q \| \| \| \| \| |
| 2+45 | 0.1092 | 0.61 | Q \| \| \| \| \| |
| 3+ 0 | 0.1152 | 0.67 | Q \| \| \| \| \| |
| 3+15 | 0.1152 | 0.67 | Q \| \| \| \| \| |
| 3+30 | 0.1152 | 0.67 | Q \| \| \| \| \| |
| 3+45 | 0.1152 | 0.67 | Q \| \| \| \| \| |
| 4+ 0 | 0.1322 | 0.75 | qQ \| \| \| \| \| |
| 4+15 | 0.1383 | 0.80 | qQ \| \| \| \| \| |
| 4+30 | 0.1553 | 0.88 | qQ \| \| \| \| \| |
| 4+45 | 0.1613 | 0.94 | qQ \| \| \| \| \| |
| 5+ 0 | 0.1783 | 1.02 | qQ \| \| \| \| \| |
| 5+15 | 0.1504 | 0.93 | qQ \| \| \| \| \| |
| 5+30 | 0.1553 | 0.89 | qQ \| \| \| \| \| |
| 5+45 | 0.1783 | 1.01 | qQ \| \| \| \| \| |
| 6+ 0 | 0.1844 | 1.07 | qQ \| \| \| \| \| |
| 6+15 | 0.2014 | 1.15 | qQ \| \| \| \| \| |
| 6+30 | 0.2074 | 1.21 | qQ \| \| \| \| \| |
| 6+45 | 0.2244 | 1.29 | qQ \| \| \| \| \| |
| 7+ 0 | 0.2305 | 1.34 | qQ \| \| \| \| \| |
| 7+15 | 0.2305 | 1.35 | qQ \| \| \| \| \| |
| 7+30 | 0.2475 | 1.42 | qQ \| \| \| \| \| |
| 7+45 | 0.2705 | 1.55 | q Q \| \| \| \| \| |
| 8+ 0 | 0.2936 | 1.69 | q Q \| \| \| \| \| |
| 8+15 | 0.3336 | 1.89 | q Q \| \| \| \| \| |
| 8+30 | 0.3457 | 2.01 | q Q \| \| \| \| \| |
| 8+45 | 0.3627 | 2.10 | q Q \| \| \| \| \| |
| 9+ 0 | 0.3858 | 2.22 | q Q \| \| \| \| \| |
| 9+15 | 0.4934 | 3.51 | q Q \| \| \| \| \| |
| 9+30 | 0.7399 | 5.44 | \|q Q \| \| \| \| \| |
| 9+45 | 1.0248 | 7.13 | \|q Q \| \| \| \| \| |
| 10+ 0 | 1.3091 | 8.77 | \|q Q \| \| \| \| \| |
| 10+15 | 0.6184 | 5.46 | q Q \| \| \| \| \| |
| 10+30 | 0.3457 | 2.36 | q Q \| \| \| \| \| |
| 10+45 | 0.8878 | 5.10 | \|q Q \| \| \| \| \| |
| 11+ 0 | 1.1190 | 7.65 | \|q Q \| \| \| \| \| |
| 11+15 | 1.0003 | 7.44 | \|q Q \| \| \| \| \| |
| 11+30 | 0.9904 | 7.17 | \|q Q \| \| \| \| \| |
| 11+45 | 0.7007 | 5.91 | q Q \| \| \| \| \| |
| 12+ 0 | 0.7992 | 5.81 | \|q Q \| \| \| \| \| |
| 12+15 | 2.0984 | 11.65 | \| q \| Q \| \| \| \| |
| 12+30 | 2.7407 | 16.60 | \| q \| \| Q \| \| \| |
| 12+45 | 3.1891 | 19.28 | \| q \| \| Q \| \| |
| 13+ 0 | 3.5274 | 21.45 | \| q \| \| Q \| |
| 13+15 | 4.4845 | 26.05 | \| q \| \| \| Q \| |

```
 13+30      4.8335     29.14 |     q     |           |           |           Q
 13+45      3.0096     21.60 |    q      |           |           Q           |
 14+ 0      2.3886     15.74 |   q       |           Q           |           |
 14+15      3.1127     18.30 |    q      |           |     Q     |           |
 14+30      3.2288     20.01 |    q      |           |           Q           |
 14+45      3.2114     19.91 |    q      |           |           Q           |
 15+ 0      3.0840     19.36 |    q      |           |          Q            |
 15+15      2.8954     18.30 |   q       |           |     Q     |           |
 15+30      2.7062     17.18 |   q       |           Q           |           |
 15+45      2.0065     13.85 | q         |           Q           |           |
 16+ 0      1.8042     11.79 | q         |     Q     |           |           |
 16+15      0.5447      5.64 q     Q      |           |           |           |
 16+30      0.0922      1.03 qQ           |           |           |           |
 16+45      0.0752      0.48 Q            |           |           |           |
 17+ 0      0.0691      0.41 Q            |           |           |           |
 17+15      0.1031      0.55 Q            |           |           |           |
 17+30      0.1152      0.66 Q            |           |           |           |
 17+45      0.1152      0.67 Q            |           |           |           |
 18+ 0      0.0983      0.60 Q            |           |           |           |
 18+15      0.0922      0.55 Q            |           |           |           |
 18+30      0.0922      0.54 Q            |           |           |           |
 18+45      0.0752      0.47 Q            |           |           |           |
 19+ 0      0.0522      0.34 Q            |           |           |           |
 19+15      0.0631      0.35 Q            |           |           |           |
 19+30      0.0861      0.47 Q            |           |           |           |
 19+45      0.0752      0.46 Q            |           |           |           |
 20+ 0      0.0522      0.34 Q            |           |           |           |
 20+15      0.0631      0.35 Q            |           |           |           |
 20+30      0.0691      0.40 Q            |           |           |           |
 20+45      0.0691      0.40 Q            |           |           |           |
 21+ 0      0.0522      0.33 Q            |           |           |           |
 21+15      0.0631      0.35 Q            |           |           |           |
 21+30      0.0522      0.33 Q            |           |           |           |
 21+45      0.0631      0.35 Q            |           |           |           |
 22+ 0      0.0522      0.33 Q            |           |           |           |
 22+15      0.0631      0.35 Q            |           |           |           |
 22+30      0.0522      0.33 Q            |           |           |           |
 22+45      0.0461      0.28 Q            |           |           |           |
 23+ 0      0.0461      0.27 Q            |           |           |           |
 23+15      0.0461      0.27 Q            |           |           |           |
 23+30      0.0461      0.27 Q            |           |           |           |
 23+45      0.0461      0.27 Q            |           |           |           |
 24+ 0      0.0461      0.27 Q            |           |           |           |
 24+15      0.0121      0.12 Q            |           |           |           |
 24+30      0.0000      0.01 Q            |           |           |           |
 24+45      0.0000      0.00 Q            |           |           |           |
----------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA**************************
                Number of intervals =    99
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =       29.143 (CFS)
                Total volume =       8.797 (Ac.Ft)
          Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)       0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ********************************************************************


      ---------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        1.000 to Point/Station        2.000
      **** STREAM ROUTING SCS CONVEX METHOD ****
      ____________________________________________________________________
      HYDROGRAPH STREAM ROUTING DATA:
      Length of stream =    400.00 (Ft.)
      Elevation difference =   10.00 (Ft.)
      Slope of channel =  0.025000 (Vert/Horiz)
      Channel type - Improved Channel
```



```
      Channel length =   400.00(Ft.)     Elevation difference =  10.00(Ft.)
      Channel evaluation using mean flow rate of hydrograph
      Covered channel
      Channel base width  =    5.000(Ft.)
      Slope or 'Z' of left channel bank =   1.000
      Slope or 'Z' of right channel bank =   1.000
      Manning's 'N'    = 0.015
      Maximum depth of channel  =    5.000(Ft.)
      Flow(q) thru subarea =      6.213(CFS)
      Depth of flow =     0.219(Ft.)
      Average velocity =     5.424(Ft/s)
      Total flow rate =     6.213(CFS)
      Channel flow top width =     5.439(Ft.)
      Depth of flow in channel =     0.22(Ft.)
      Total number of channels (same dimensions) = 1
      Flow Velocity =     5.42(Ft/s)
      Travel time  =    0.00 min.
      Individual channel flow =     6.213(CFS)
      Total capacity of improved channels =      6.213(CFS)
      Critical Depth in Channel =     0.36(Ft.)


      Channel evaluation using maximum flow rate of hydrograph
      Covered channel
      Flow(q) thru subarea =     29.143(CFS)
      Depth of flow =     0.555(Ft.)
      Average velocity =     9.457(Ft/s)
      Total flow rate =    29.143(CFS)
      Channel flow top width =     6.110(Ft.)
      Depth of flow in channel =     0.55(Ft.)
      Total number of channels (same dimensions) = 1
      Flow Velocity =     9.46(Ft/s)
      Travel time  =    0.00 min.
      Individual channel flow =    29.143(CFS)
      Total capacity of improved channels =     29.143(CFS)
      Critical Depth in Channel =     0.95(Ft.)


      ********************** SCS CONVEX CHANNEL ROUTING *********************
      Convex method of stream routing  data items:
      Using equation: Outflow =
      O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
                where c* = 1 - (1-c)^e and dt = c(length)/velocity
                c(v/v+1.7) =    0.8476   Travel time =    0.70 (min.)
              dt*(unit time interval) =  15.00(min.),  e=  17.0687
              dt(routing time-step) =    0.60 (min.),   c* =   1.0000

      Output hydrograph delayed by 0  unit time increments


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        P R I N T  O F  S T O R M
                      R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                    Hydrograph in  15   Minute intervals (CFS)
      ---------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0        7.3       14.6       21.9       29.1
---------------------------------------------------------------------------
      0+15       0.1410      0.15  0        |         |         |         |
      0+30       0.3240      0.33  0        |         |         |         |
      0+45       0.3957      0.40  0        |         |         |         |
      1+ 0       0.4746      0.48  0        |         |         |         |
      1+15       0.4608      0.46  0        |         |         |         |
      1+30       0.4122      0.41  0        |         |         |         |
      1+45       0.4049      0.40  0        |         |         |         |
      2+ 0       0.4750      0.48  0        |         |         |         |
      2+15       0.5313      0.53  0        |         |         |         |
      2+30       0.5390      0.54  0        |         |         |         |
      2+45       0.6098      0.61  0        |         |         |         |
      3+ 0       0.6661      0.67  0        |         |         |         |
      3+15       0.6738      0.67  0        |         |         |         |
```

| | | | |
|---|---|---|---|
| 3+30 | 0.6742 | 0.67 | 0 |
| 3+45 | 0.6742 | 0.67 | 0 |
| 4+ 0 | 0.7447 | 0.75 | 0 |
| 4+15 | 0.8010 | 0.80 | 0 |
| 4+30 | 0.8791 | 0.88 | 0 |
| 4+45 | 0.9358 | 0.94 | 0 |
| 5+ 0 | 1.0140 | 1.02 | 0 |
| 5+15 | 0.9297 | 0.93 | 0 |
| 5+30 | 0.8953 | 0.89 | 0 |
| 5+45 | 1.0071 | 1.01 | 0 |
| 6+ 0 | 1.0703 | 1.07 | 0 |
| 6+15 | 1.1488 | 1.15 | 0 |
| 6+30 | 1.2055 | 1.21 | 0 |
| 6+45 | 1.2837 | 1.29 | 0 |
| 7+ 0 | 1.3403 | 1.34 | 0 |
| 7+15 | 1.3480 | 1.35 | 0 |
| 7+30 | 1.4189 | 1.42 | 0 |
| 7+45 | 1.5457 | 1.55 | 0 |
| 8+ 0 | 1.6801 | 1.69 | 0 |
| 8+15 | 1.8854 | 1.89 | 0 |
| 8+30 | 2.0061 | 2.01 | 0 |
| 8+45 | 2.0923 | 2.10 | 0 |
| 9+ 0 | 2.2198 | 2.22 | 0 |
| 9+15 | 3.4631 | 3.51 | 0 |
| 9+30 | 5.3659 | 5.44 | 0 |
| 9+45 | 7.0632 | 7.13 | 0 |
| 10+ 0 | 8.7086 | 8.77 | OI |
| 10+15 | 5.5906 | 5.46 | 0 |
| 10+30 | 2.4864 | 2.36 | 0 |
| 10+45 | 4.9883 | 5.10 | 0 |
| 11+ 0 | 7.5480 | 7.65 | 0 |
| 11+15 | 7.4463 | 7.44 | 0 |
| 11+30 | 7.1765 | 7.17 | 0 |
| 11+45 | 5.9640 | 5.91 | 0 |
| 12+ 0 | 5.8103 | 5.81 | 0 |
| 12+15 | 11.4212 | 11.65 | 0 |
| 12+30 | 16.3998 | 16.60 | 0 |
| 12+45 | 19.1758 | 19.28 | 0 |
| 13+ 0 | 21.3684 | 21.45 | 0 |
| 13+15 | 25.8689 | 26.05 | 0 |
| 13+30 | 29.0198 | 29.14 | 0 |
| 13+45 | 21.9036 | 21.60 | IO |
| 14+ 0 | 15.9775 | 15.74 | 0 |
| 14+15 | 18.1944 | 18.30 | OI |
| 14+30 | 19.9382 | 20.01 | 0 |
| 14+45 | 19.9180 | 19.91 | 0 |
| 15+ 0 | 19.3840 | 19.36 | 0 |
| 15+15 | 18.3419 | 18.30 | 0 |
| 15+30 | 17.2229 | 17.18 | 0 |
| 15+45 | 13.9821 | 13.85 | 0 |
| 16+ 0 | 11.8686 | 11.79 | 0 |
| 16+15 | 5.8879 | 5.64 | IO |
| 16+30 | 1.2152 | 1.03 | 0 |
| 16+45 | 0.5013 | 0.48 | 0 |
| 17+ 0 | 0.4131 | 0.41 | 0 |
| 17+15 | 0.5459 | 0.55 | 0 |
| 17+30 | 0.6581 | 0.66 | 0 |
| 17+45 | 0.6734 | 0.67 | 0 |
| 18+ 0 | 0.6037 | 0.60 | 0 |
| 18+15 | 0.5474 | 0.55 | 0 |
| 18+30 | 0.5397 | 0.54 | 0 |
| 18+45 | 0.4689 | 0.47 | 0 |
| 19+ 0 | 0.3421 | 0.34 | 0 |
| 19+15 | 0.3486 | 0.35 | 0 |
| 19+30 | 0.4673 | 0.47 | 0 |
| 19+45 | 0.4604 | 0.46 | 0 |
| 20+ 0 | 0.3417 | 0.34 | 0 |
| 20+15 | 0.3486 | 0.35 | 0 |
| 20+30 | 0.3968 | 0.40 | 0 |
| 20+45 | 0.4041 | 0.40 | 0 |
| 21+ 0 | 0.3340 | 0.33 | 0 |
| 21+15 | 0.3482 | 0.35 | 0 |



| | | | |
|---|---|---|---|
| 21+30 | 0.3263 | 0.33 | 0 |
| 21+45 | 0.3479 | 0.35 | 0 |
| 22+ 0 | 0.3263 | 0.33 | 0 |
| 22+15 | 0.3479 | 0.35 | 0 |
| 22+30 | 0.3263 | 0.33 | 0 |
| 22+45 | 0.2774 | 0.28 | 0 |
| 23+ 0 | 0.2701 | 0.27 | 0 |
| 23+15 | 0.2697 | 0.27 | 0 |
| 23+30 | 0.2697 | 0.27 | 0 |
| 23+45 | 0.2697 | 0.27 | 0 |
| 24+ 0 | 0.2697 | 0.27 | 0 |
| 24+15 | 0.1287 | 0.12 | 0 |
| 24+30 | 0.0161 | 0.01 | 0 |
| 24+45 | 0.0005 | 0.00 | 0 |
| 25+ 0 | 0.0000 | 0.00 | 0 |

**********HYDROGRAPH DATA**********

Number of intervals = 100
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 29.020 (CFS)
Total volume = 8.797 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 1.000 to Point/Station 2.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****

Current stream hydrograph saved in file CoffsiteRT2.rte

**********HYDROGRAPH DATA**********

Number of intervals = 0
Time interval = 0.0 (Min.)
Maximum/Peak flow rate = 0.000 (CFS)
Total volume = 0.000 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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U n i t  H y d r o g r a p h  A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 05/02/12 File: SubC124100.out

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---------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

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English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

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Line C
Offsite, Existing Condition
100 Yr. 24 Hr.

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Drainage Area = 403.10(Ac.) = 0.630 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 403.10(Ac.) = 0.630 Sq. Mi.
Length along longest watercourse = 9900.00(Ft.)
Length along longest watercourse measured to centroid = 5600.00(Ft.)
Length along longest watercourse = 1.875 Mi.
Length along longest watercourse measured to centroid = 1.061 Mi.
Difference in elevation = 700.00(Ft.)
Slope along watercourse = 373.3333 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.303 Hr.
Lag time = 18.21 Min.
25% of lag time = 4.55 Min.
40% of lag time = 7.28 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 403.10 | 1.80 | 725.58 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 403.10 | 4.50 | 1813.95 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.92 %
Adjusted average point rain = 4.496(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 8.500 | 46.00 | 0.000 |
| 5.400 | 66.00 | 0.000 |
| 13.200 | 77.00 | 0.000 |



| | | |
|---|---|---|
| 376.000 | 83.00 | 0.000 |

Total Area Entered = 403.10(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.021 | 0.013 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.013 | 0.005 |
| 77.0 | 77.0 | 0.279 | 0.000 | 0.279 | 0.033 | 0.009 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.933 | 0.196 |
| | | | | | Sum (F) = | 0.223 |

Area averaged mean soil loss (F) (In/Hr) = 0.223
Minimum soil loss rate ((In/Hr)) = 0.112
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t  H y d r o g r a p h
FOOTHILL S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 82.386 | 9.509 | 38.632 |
| 2 | 0.500 | 164.773 | 49.802 | 202.320 |
| 3 | 0.750 | 247.159 | 23.542 | 95.638 |
| 4 | 1.000 | 329.545 | 9.452 | 38.397 |
| 5 | 1.250 | 411.931 | 4.591 | 18.651 |
| 6 | 1.500 | 494.318 | 1.618 | 6.571 |
| 7 | 1.750 | 576.704 | 0.707 | 2.873 |
| 8 | 2.000 | 659.090 | 0.536 | 2.179 |
| 9 | 2.250 | 741.476 | 0.243 | 0.986 |
| | | | Sum = 100.000 | Sum= 406.249 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 0.25 | 0.20 | 0.036 | ( 0.394) | 0.032 | 0.004 |
| 2 0.50 | 0.30 | 0.054 | ( 0.390) | 0.049 | 0.005 |
| 3 0.75 | 0.30 | 0.054 | ( 0.385) | 0.049 | 0.005 |
| 4 1.00 | 0.40 | 0.072 | ( 0.380) | 0.065 | 0.007 |
| 5 1.25 | 0.30 | 0.054 | ( 0.376) | 0.049 | 0.005 |
| 6 1.50 | 0.30 | 0.054 | ( 0.371) | 0.049 | 0.005 |
| 7 1.75 | 0.30 | 0.054 | ( 0.367) | 0.049 | 0.005 |
| 8 2.00 | 0.40 | 0.072 | ( 0.363) | 0.065 | 0.007 |
| 9 2.25 | 0.40 | 0.072 | ( 0.358) | 0.065 | 0.007 |
| 10 2.50 | 0.40 | 0.072 | ( 0.354) | 0.065 | 0.007 |
| 11 2.75 | 0.50 | 0.090 | ( 0.350) | 0.081 | 0.009 |
| 12 3.00 | 0.50 | 0.090 | ( 0.345) | 0.081 | 0.009 |
| 13 3.25 | 0.50 | 0.090 | ( 0.341) | 0.081 | 0.009 |
| 14 3.50 | 0.50 | 0.090 | ( 0.337) | 0.081 | 0.009 |
| 15 3.75 | 0.50 | 0.090 | ( 0.333) | 0.081 | 0.009 |
| 16 4.00 | 0.60 | 0.108 | ( 0.328) | 0.097 | 0.011 |
| 17 4.25 | 0.60 | 0.108 | ( 0.324) | 0.097 | 0.011 |
| 18 4.50 | 0.70 | 0.126 | ( 0.320) | 0.113 | 0.013 |
| 19 4.75 | 0.70 | 0.126 | ( 0.316) | 0.113 | 0.013 |
| 20 5.00 | 0.80 | 0.144 | ( 0.312) | 0.129 | 0.014 |
| 21 5.25 | 0.60 | 0.108 | ( 0.308) | 0.097 | 0.011 |
| 22 5.50 | 0.70 | 0.126 | ( 0.304) | 0.113 | 0.013 |
| 23 5.75 | 0.80 | 0.144 | ( 0.300) | 0.129 | 0.014 |
| 24 6.00 | 0.80 | 0.144 | ( 0.296) | 0.129 | 0.014 |
| 25 6.25 | 0.90 | 0.162 | ( 0.292) | 0.146 | 0.016 |
| 26 6.50 | 0.90 | 0.162 | ( 0.288) | 0.146 | 0.016 |
| 27 6.75 | 1.00 | 0.180 | ( 0.284) | 0.162 | 0.018 |
| 28 7.00 | 1.00 | 0.180 | ( 0.280) | 0.162 | 0.018 |
| 29 7.25 | 1.00 | 0.180 | ( 0.277) | 0.162 | 0.018 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 30 | 7.50 | 1.10 | 0.198 | ( 0.273) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.269) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.265) | 0.210 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.262) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.258) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | 0.254 | ( 0.259) | 0.033 |
| 36 | 9.00 | 1.70 | 0.306 | 0.251 | ( 0.275) | 0.055 |
| 37 | 9.25 | 1.90 | 0.342 | 0.247 | ( 0.308) | 0.094 |
| 38 | 9.50 | 2.00 | 0.360 | 0.244 | ( 0.324) | 0.116 |
| 39 | 9.75 | 2.10 | 0.378 | 0.240 | ( 0.340) | 0.137 |
| 40 | 10.00 | 2.20 | 0.396 | 0.237 | ( 0.356) | 0.159 |
| 41 | 10.25 | 1.50 | 0.270 | 0.233 | ( 0.243) | 0.036 |
| 42 | 10.50 | 1.50 | 0.270 | 0.230 | ( 0.243) | 0.040 |
| 43 | 10.75 | 2.00 | 0.360 | 0.227 | ( 0.324) | 0.133 |
| 44 | 11.00 | 2.00 | 0.360 | 0.223 | ( 0.324) | 0.136 |
| 45 | 11.25 | 1.90 | 0.342 | 0.220 | ( 0.308) | 0.122 |
| 46 | 11.50 | 1.90 | 0.342 | 0.217 | ( 0.308) | 0.125 |
| 47 | 11.75 | 1.70 | 0.306 | 0.214 | ( 0.275) | 0.092 |
| 48 | 12.00 | 1.80 | 0.324 | 0.210 | ( 0.291) | 0.113 |
| 49 | 12.25 | 2.50 | 0.450 | 0.207 | ( 0.405) | 0.242 |
| 50 | 12.50 | 2.60 | 0.468 | 0.204 | ( 0.421) | 0.263 |
| 51 | 12.75 | 2.80 | 0.504 | 0.201 | ( 0.453) | 0.303 |
| 52 | 13.00 | 2.90 | 0.522 | 0.198 | ( 0.469) | 0.324 |
| 53 | 13.25 | 3.40 | 0.612 | 0.195 | ( 0.550) | 0.416 |
| 54 | 13.50 | 3.40 | 0.612 | 0.192 | ( 0.550) | 0.419 |
| 55 | 13.75 | 2.30 | 0.414 | 0.189 | ( 0.372) | 0.224 |
| 56 | 14.00 | 2.30 | 0.414 | 0.186 | ( 0.372) | 0.227 |
| 57 | 14.25 | 2.70 | 0.486 | 0.183 | ( 0.437) | 0.302 |
| 58 | 14.50 | 2.60 | 0.468 | 0.181 | ( 0.421) | 0.287 |
| 59 | 14.75 | 2.60 | 0.468 | 0.178 | ( 0.421) | 0.290 |
| 60 | 15.00 | 2.50 | 0.450 | 0.175 | ( 0.405) | 0.274 |
| 61 | 15.25 | 2.40 | 0.432 | 0.173 | ( 0.388) | 0.259 |
| 62 | 15.50 | 2.30 | 0.414 | 0.170 | ( 0.372) | 0.244 |
| 63 | 15.75 | 1.90 | 0.342 | 0.167 | ( 0.308) | 0.174 |
| 64 | 16.00 | 1.90 | 0.342 | 0.165 | ( 0.308) | 0.177 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.162) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.160) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.157) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.155) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.153) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.150) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.148) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.146) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.144) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.142) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.140) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.138) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.136) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.134) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.132) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.130) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.128) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.127) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.125) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.124) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.122) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.121) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.119) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.118) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.117) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.116) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.115) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.114) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.113) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.113) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.112) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.112) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.4

Flood volume = Effective rainfall 1.60(In)
times area 403.1(Ac.)/[(In)/(Ft.)] = 53.9(Ac.Ft)
Total soil loss = 2.89(In)



Total soil loss = 97.167(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 2346842.5 Cubic Feet
Total soil loss = 4232611.9 Cubic Feet

Peak flow rate of this hydrograph = 154.262(CFS)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 50.0 | 100.0 | 150.0 | 200.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0029 | 0.14 | Q | | | | |
| 0+30 | 0.0222 | 0.94 | Q | | | | |
| 0+45 | 0.0562 | 1.64 | Q | | | | |
| 1+ 0 | 0.0980 | 2.02 | Q | | | | |
| 1+15 | 0.1488 | 2.46 | Q | | | | |
| 1+30 | 0.1967 | 2.32 | Q | | | | |
| 1+45 | 0.2430 | 2.24 | Q | | | | |
| 2+ 0 | 0.2903 | 2.29 | Q | | | | |
| 2+15 | 0.3447 | 2.64 | Q | | | | |
| 2+30 | 0.4027 | 2.80 | Q | | | | |
| 2+45 | 0.4635 | 2.94 | Q | | | | |
| 3+ 0 | 0.5324 | 3.34 | Q | | | | |
| 3+15 | 0.6051 | 3.52 | Q | | | | |
| 3+30 | 0.6793 | 3.59 | Q | | | | |
| 3+45 | 0.7544 | 3.63 | Q | | | | |
| 4+ 0 | 0.8311 | 3.71 | Q | | | | |
| 4+15 | 0.9155 | 4.08 | Q | | | | |
| 4+30 | 1.0049 | 4.33 | Q | | | | |
| 4+45 | 1.1033 | 4.76 | Q | | | | |
| 5+ 0 | 1.2074 | 5.04 | VQ | | | | |
| 5+15 | 1.3179 | 5.34 | VQ | | | | |
| 5+30 | 1.4190 | 4.90 | QV | | | | |
| 5+45 | 1.5238 | 5.07 | Q | | | | |
| 6+ 0 | 1.6376 | 5.51 | Q | | | | |
| 6+15 | 1.7568 | 5.77 | Q | | | | |
| 6+30 | 1.8853 | 6.22 | Q | | | | |
| 6+45 | 2.0196 | 6.50 | Q | | | | |
| 7+ 0 | 2.1631 | 6.94 | Q | | | | |
| 7+15 | 2.3109 | 7.15 | Q | | | | |
| 7+30 | 2.4620 | 7.31 | Q | | | | |
| 7+45 | 2.6228 | 7.79 | Q | | | | |
| 8+ 0 | 2.7965 | 8.41 | QV | | | | |
| 8+15 | 2.9857 | 9.16 | QV | | | | |
| 8+30 | 3.1958 | 10.16 | Q | | | | |
| 8+45 | 3.4204 | 10.87 | Q | | | | |
| 9+ 0 | 3.6930 | 13.19 | Q | | | | |
| 9+15 | 4.1018 | 19.79 | Q | | | | |
| 9+30 | 4.7415 | 30.96 | V Q | | | | |
| 9+45 | 5.5863 | 40.89 | V Q | | | | |
| 10+ 0 | 6.6214 | 50.10 | V Q | | | | |
| 10+15 | 7.7264 | 53.48 | V Q | | | | |
| 10+30 | 8.3965 | 32.43 | Q | | | | |
| 10+45 | 8.9448 | 26.54 | QV | | | | |
| 11+ 0 | 9.8100 | 41.88 | VQ | | | | |
| 11+15 | 10.8232 | 49.04 | VQ | | | | |
| 11+30 | 11.8454 | 49.48 | VQ | | | | |
| 11+45 | 12.8592 | 49.07 | Q | | | | |
| 12+ 0 | 13.7566 | 43.44 | Q V | | | | |
| 12+15 | 14.7815 | 49.60 | QV | | | | |
| 12+30 | 16.3824 | 77.48 | V Q | | | | |
| 12+45 | 18.3636 | 95.89 | V Q | | | | |
| 13+ 0 | 20.6722 | 111.74 | V Q | | | | |
| 13+15 | 23.2875 | 126.58 | V Q | | | | |
| 13+30 | 26.3918 | 150.25 | V Q | | | | |
| 13+45 | 29.5790 | 154.26 | V Q | | | | |
| 14+ 0 | 32.0538 | 119.78 | Q | | | | |

```
 14+15      34.2619    106.87  |          |          |Q   V     |          |
 14+30      36.6389    115.04  |          |          |  Q   V   |          |
 14+45      39.0371    116.08  |          |          |  Q    V  |          |
 15+ 0      41.4435    116.47  |          |          |  Q     V |          |
 15+15      43.7870    113.42  |          |          | Q       | V        |
 15+30      46.0219    108.17  |          |          |Q        |  V       |
 15+45      48.0945    100.31  |          |          Q         |   V      |
 16+ 0      49.8336     84.17  |          |     Q    |         |    V     |
 16+15      51.2916     70.57  |          |  Q       |         |     V    |
 16+30      51.9803     33.33  |     Q    |          |         |     V    |
 16+45      52.3034     15.64  |  Q       |          |         |     V    |
 17+ 0      52.4739      8.25  |Q         |          |         |     V    |
 17+15      52.5735      4.82  Q          |          |         |      V   |
 17+30      52.6603      4.20  Q          |          |         |      V   |
 17+45      52.7422      3.96  Q          |          |         |      V   |
 18+ 0      52.8177      3.65  Q          |          |         |      V   |
 18+15      52.8834      3.18  Q          |          |         |      V   |
 18+30      52.9460      3.03  Q          |          |         |      V   |
 18+45      53.0059      2.90  Q          |          |         |      V   |
 19+ 0      53.0563      2.44  Q          |          |         |      V   |
 19+15      53.0969      1.97  Q          |          |         |      V   |
 19+30      53.1414      2.15  Q          |          |         |      V   |
 19+45      53.1933      2.51  Q          |          |         |      V   |
 20+ 0      53.2403      2.27  Q          |          |         |      V   |
 20+15      53.2794      1.89  Q          |          |         |      V   |
 20+30      53.3217      2.05  Q          |          |         |      V   |
 20+45      53.3658      2.13  Q          |          |         |      V   |
 21+ 0      53.4091      2.09  Q          |          |         |      V   |
 21+15      53.4467      1.82  Q          |          |         |      V   |
 21+30      53.4869      1.95  Q          |          |         |      V   |
 21+45      53.5232      1.76  Q          |          |         |      V   |
 22+ 0      53.5628      1.92  Q          |          |         |      V   |
 22+15      53.5989      1.75  Q          |          |         |      V   |
 22+30      53.6384      1.91  Q          |          |         |      V   |
 22+45      53.6730      1.67  Q          |          |         |      V   |
 23+ 0      53.7050      1.55  Q          |          |         |      V   |
 23+15      53.7361      1.50  Q          |          |         |      V   |
 23+30      53.7666      1.48  Q          |          |         |      V   |
 23+45      53.7969      1.47  Q          |          |         |      V   |
 24+ 0      53.8272      1.47  Q          |          |         |      V   |
 24+15      53.8546      1.32  Q          |          |         |      V   |
 24+30      53.8669      0.59  Q          |          |         |      V   |
 24+45      53.8721      0.25  Q          |          |         |      V   |
 25+ 0      53.8744      0.11  Q          |          |         |      V   |
 25+15      53.8753      0.05  Q          |          |         |      V   |
 25+30      53.8758      0.02  Q          |          |         |      V   |
 25+45      53.8760      0.01  Q          |          |         |      V   |
 26+ 0      53.8761      0.00  Q          |          |         |       V  |
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        U n i t   H y d r o g r a p h   A n a l y s i s

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
              Study date  04/25/12 File: SubC2124100.out

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------------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Watershed C, Stream 1, Existing Condition
Subarea C21
100-year, 24-hour

------------------------------------------------------------------------
Drainage Area =     180.10(Ac.)  =      0.281 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     180.10(Ac.)  =      0.281 Sq. Mi.
Length along longest watercourse =    5800.00(Ft.)
Length along longest watercourse measured to centroid =    2200.00(Ft.)
Length along longest watercourse =      1.098 Mi.
Length along longest watercourse measured to centroid =      0.417 Mi.
Difference in elevation =     547.00(Ft.)
Slope along watercourse =    497.9586 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.164 Hr.
Lag time =     9.86 Min.
25% of lag time =     2.47 Min.
40% of lag time =     3.95 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      180.10             1.80                324.18

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      180.10             4.50                810.45

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.96 %
Adjusted average point rain =    4.498(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
    17.000            66.00          0.000
     1.300            77.00          0.000
   161.800            83.00          0.000
```

Total Area Entered = 180.10(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.094 | 0.038 |
| 77.0 | 77.0 | 0.279 | 0.000 | 0.279 | 0.007 | 0.002 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.898 | 0.188 |
| | | | | | Sum (F) = | 0.229 |

Area averaged mean soil loss (F) (In/Hr) = 0.229
Minimum soil loss rate ((In/Hr)) = 0.114
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
FOOTHILL S-Curve

---

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 152.073 | 31.114 | 56.474 |
| 2 | 0.500 | 304.146 | 54.171 | 98.324 |
| 3 | 0.750 | 456.220 | 11.618 | 21.087 |
| 4 | 1.000 | 608.293 | 2.287 | 4.152 |
| 5 | 1.250 | 760.366 | 0.810 | 1.471 |
| | | | Sum = 100.000 | Sum= 181.507 |

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The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.404) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.399) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.395) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.390) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.385) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.381) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.376) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.372) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.367) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.363) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.358) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.354) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.350) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.345) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.341) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.337) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.332) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.328) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.324) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.320) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.316) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.311) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.307) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.303) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.299) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.295) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.291) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.287) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.283) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.280) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.276) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.272) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.268) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.264) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.261) | 0.259 | 0.029 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 36 | 9.00 | 1.70 | 0.306 | 0.257 | ( 0.275) | 0.049 |
| 37 | 9.25 | 1.90 | 0.342 | 0.253 | ( 0.308) | 0.088 |
| 38 | 9.50 | 2.00 | 0.360 | 0.250 | ( 0.324) | 0.110 |
| 39 | 9.75 | 2.10 | 0.378 | 0.246 | ( 0.340) | 0.132 |
| 40 | 10.00 | 2.20 | 0.396 | 0.243 | ( 0.356) | 0.153 |
| 41 | 10.25 | 1.50 | 0.270 | 0.239 | ( 0.243) | 0.031 |
| 42 | 10.50 | 1.50 | 0.270 | 0.236 | ( 0.243) | 0.034 |
| 43 | 10.75 | 2.00 | 0.360 | 0.232 | ( 0.324) | 0.128 |
| 44 | 11.00 | 2.00 | 0.360 | 0.229 | ( 0.324) | 0.131 |
| 45 | 11.25 | 1.90 | 0.342 | 0.226 | ( 0.308) | 0.116 |
| 46 | 11.50 | 1.90 | 0.342 | 0.222 | ( 0.308) | 0.120 |
| 47 | 11.75 | 1.70 | 0.306 | 0.219 | ( 0.275) | 0.087 |
| 48 | 12.00 | 1.80 | 0.324 | 0.216 | ( 0.291) | 0.108 |
| 49 | 12.25 | 2.50 | 0.450 | 0.212 | ( 0.405) | 0.237 |
| 50 | 12.50 | 2.60 | 0.468 | 0.209 | ( 0.421) | 0.259 |
| 51 | 12.75 | 2.80 | 0.504 | 0.206 | ( 0.453) | 0.298 |
| 52 | 13.00 | 2.90 | 0.522 | 0.203 | ( 0.470) | 0.319 |
| 53 | 13.25 | 3.40 | 0.612 | 0.200 | ( 0.551) | 0.412 |
| 54 | 13.50 | 3.40 | 0.612 | 0.197 | ( 0.551) | 0.415 |
| 55 | 13.75 | 2.30 | 0.414 | 0.194 | ( 0.372) | 0.220 |
| 56 | 14.00 | 2.30 | 0.414 | 0.191 | ( 0.372) | 0.223 |
| 57 | 14.25 | 2.70 | 0.486 | 0.188 | ( 0.437) | 0.298 |
| 58 | 14.50 | 2.60 | 0.468 | 0.185 | ( 0.421) | 0.283 |
| 59 | 14.75 | 2.60 | 0.468 | 0.182 | ( 0.421) | 0.285 |
| 60 | 15.00 | 2.50 | 0.450 | 0.180 | ( 0.405) | 0.270 |
| 61 | 15.25 | 2.40 | 0.432 | 0.177 | ( 0.389) | 0.255 |
| 62 | 15.50 | 2.30 | 0.414 | 0.174 | ( 0.372) | 0.240 |
| 63 | 15.75 | 1.90 | 0.342 | 0.171 | ( 0.308) | 0.170 |
| 64 | 16.00 | 1.90 | 0.342 | 0.169 | ( 0.308) | 0.173 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.166) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.164) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.161) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.159) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.156) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.154) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.152) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.150) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.147) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.145) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.143) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.141) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.139) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.137) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.135) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.133) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.132) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.130) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.128) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.127) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.125) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.124) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.122) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.121) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.120) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.119) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.118) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.117) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.116) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.115) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.115) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.114) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.3

Flood volume = Effective rainfall 1.57(In)
times area 180.1(Ac.)/[(In)/(Ft.)] = 23.5(Ac.Ft)
Total soil loss = 2.93(In)
Total soil loss = 43.999(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 1024294.3 Cubic Feet
Total soil loss = 1916604.3 Cubic Feet

---

Peak flow rate of this hydrograph = 72.297(CFS)

24 - H O U R  S T O R M
R u n o f f  H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 20.0 | 40.0 | 60.0 | 80.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0042 | 0.20 | Q | | | | |
| 0+30 | 0.0178 | 0.66 | Q | | | | |
| 0+45 | 0.0367 | 0.91 | Q | | | | |
| 1+ 0 | 0.0587 | 1.07 | Q | | | | |
| 1+15 | 0.0826 | 1.15 | Q | | | | |
| 1+30 | 0.1036 | 1.02 | Q | | | | |
| 1+45 | 0.1240 | 0.99 | Q | | | | |
| 2+ 0 | 0.1464 | 1.08 | Q | | | | |
| 2+15 | 0.1724 | 1.26 | Q | | | | |
| 2+30 | 0.1992 | 1.30 | Q | | | | |
| 2+45 | 0.2283 | 1.41 | Q | | | | |
| 3+ 0 | 0.2610 | 1.59 | Q | | | | |
| 3+15 | 0.2946 | 1.62 | Q | | | | |
| 3+30 | 0.3283 | 1.63 | Q | | | | |
| 3+45 | 0.3620 | 1.63 | Q | | | | |
| 4+ 0 | 0.3979 | 1.74 | Q | | | | |
| 4+15 | 0.4374 | 1.91 | Q | | | | |
| 4+30 | 0.4798 | 2.05 | VQ | | | | |
| 4+45 | 0.5260 | 2.24 | VQ | | | | |
| 5+ 0 | 0.5752 | 2.38 | VQ | | | | |
| 5+15 | 0.6239 | 2.36 | \|Q | | | | |
| 5+30 | 0.6683 | 2.15 | \|Q | | | | |
| 5+45 | 0.7171 | 2.36 | \|Q | | | | |
| 6+ 0 | 0.7700 | 2.56 | \|Q | | | | |
| 6+15 | 0.8258 | 2.70 | \|Q | | | | |
| 6+30 | 0.8855 | 2.89 | \|Q | | | | |
| 6+45 | 0.9482 | 3.03 | \|Q | | | | |
| 7+ 0 | 1.0147 | 3.22 | \|Q | | | | |
| 7+15 | 1.0820 | 3.26 | \|Q | | | | |
| 7+30 | 1.1515 | 3.37 | \|Q | | | | |
| 7+45 | 1.2269 | 3.65 | \|QV | | | | |
| 8+ 0 | 1.3088 | 3.96 | \|QV | | | | |
| 8+15 | 1.3995 | 4.39 | \| Q | | | | |
| 8+30 | 1.4985 | 4.79 | \| Q | | | | |
| 8+45 | 1.6014 | 4.98 | \| Q | | | | |
| 9+ 0 | 1.7317 | 6.31 | \| VQ | | | | |
| 9+15 | 1.9499 | 10.56 | \| V Q | | | | |
| 9+30 | 2.2826 | 16.11 | \| V Q | | | | |
| 9+45 | 2.7035 | 20.37 | \| V Q | | | | |
| 10+ 0 | 3.2068 | 24.36 | \| V \| Q | | | | |
| 10+15 | 3.6234 | 20.16 | \| V Q | | | | |
| 10+30 | 3.8070 | 8.89 | \| Q V \| | | | | |
| 10+45 | 4.0558 | 12.04 | \| Q \| | | | | |
| 11+ 0 | 4.4901 | 21.02 | \| V Q | | | | |
| 11+15 | 4.9516 | 22.33 | \| V \|Q | | | | |
| 11+30 | 5.3967 | 21.55 | \| VQ | | | | |
| 11+45 | 5.8073 | 19.87 | \| Q\| | | | | |
| 12+ 0 | 6.1765 | 17.87 | \| Q V | | | | |
| 12+15 | 6.7252 | 26.56 | \| V Q | | | | |
| 12+30 | 7.5678 | 40.78 | \| V \| Q | | | | |
| 12+45 | 8.5563 | 47.84 | \| V \| Q | | | | |
| 13+ 0 | 9.6699 | 53.90 | \| V \| Q | | | | |
| 13+15 | 10.9578 | 62.33 | \| V \| Q | | | | |
| 13+30 | 12.4515 | 72.30 | \| V \| Q | | | | |
| 13+45 | 13.7674 | 63.69 | \| V \| Q | | | | |
| 14+ 0 | 14.7004 | 45.16 | \| Q V \| | | | | |
| 14+15 | 15.6450 | 45.72 | \| Q V \| | | | | |
| 14+30 | 16.7088 | 51.49 | \| Q V \| | | | | |
| 14+45 | 17.7721 | 51.47 | \| Q V \| | | | | |
| 15+ 0 | 18.8234 | 50.88 | \| Q V \| | | | | |
| 15+15 | 19.8282 | 48.63 | \| Q \| V \| | | | | |
| 15+30 | 20.7773 | 45.94 | \| Q \| V \| | | | | |
| 15+45 | 21.6065 | 40.14 | \| Q \| V \| | | | | |
| 16+ 0 | 22.2895 | 33.06 | \| Q \| V \| | | | | |
| 16+15 | 22.7522 | 22.40 | \|Q \| V \| | | | | |
| 16+30 | 22.8726 | 5.83 | \| Q \| V \| | | | | |
| 16+45 | 22.9167 | 2.13 | \|Q \| V \| | | | | |
| 17+ 0 | 22.9430 | 1.27 | Q \| V \| | | | | |
| 17+15 | 22.9676 | 1.19 | Q \| V \| | | | | |
| 17+30 | 22.9995 | 1.54 | Q \| V \| | | | | |
| 17+45 | 23.0328 | 1.61 | Q \| V \| | | | | |
| 18+ 0 | 23.0643 | 1.53 | Q \| V \| | | | | |
| 18+15 | 23.0923 | 1.36 | Q \| V \| | | | | |
| 18+30 | 23.1195 | 1.32 | Q \| V \| | | | | |
| 18+45 | 23.1445 | 1.21 | Q \| V \| | | | | |
| 19+ 0 | 23.1637 | 0.93 | Q \| V \| | | | | |
| 19+15 | 23.1805 | 0.81 | Q \| V \| | | | | |
| 19+30 | 23.2021 | 1.05 | Q \| V \| | | | | |
| 19+45 | 23.2258 | 1.15 | Q \| V \| | | | | |
| 20+ 0 | 23.2447 | 0.91 | Q \| V \| | | | | |
| 20+15 | 23.2615 | 0.81 | Q \| V \| | | | | |
| 20+30 | 23.2810 | 0.94 | Q \| V \| | | | | |
| 20+45 | 23.3011 | 0.97 | Q \| V \| | | | | |
| 21+ 0 | 23.3192 | 0.88 | Q \| V \| | | | | |
| 21+15 | 23.3358 | 0.80 | Q \| V \| | | | | |
| 21+30 | 23.3532 | 0.84 | Q \| V \| | | | | |
| 21+45 | 23.3696 | 0.80 | Q \| V \| | | | | |
| 22+ 0 | 23.3869 | 0.84 | Q \| V \| | | | | |
| 22+15 | 23.4034 | 0.80 | Q \| V \| | | | | |
| 22+30 | 23.4207 | 0.84 | Q \| V \| | | | | |
| 22+45 | 23.4350 | 0.69 | Q \| V \| | | | | |
| 23+ 0 | 23.4487 | 0.66 | Q \| V \| | | | | |
| 23+15 | 23.4622 | 0.66 | Q \| V \| | | | | |
| 23+30 | 23.4757 | 0.65 | Q \| V \| | | | | |
| 23+45 | 23.4892 | 0.65 | Q \| V \| | | | | |
| 24+ 0 | 23.5027 | 0.65 | Q \| V \| | | | | |
| 24+15 | 23.5120 | 0.45 | Q \| V \| | | | | |
| 24+30 | 23.5140 | 0.10 | Q \| V \| | | | | |
| 24+45 | 23.5145 | 0.02 | Q \| V \| | | | | |
| 25+ 0 | 23.5146 | 0.01 | Q \| V \| | | | | |

```
                U n i t   H y d r o g r a p h   A n a l y s i s

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
                Study date  04/25/12 File: SubC4124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed C, Stream 1, Existing Condition
Subarea C41
100-year, 24-hour

------------------------------------------------------------------------
Drainage Area =      61.60(Ac.)  =      0.096 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      61.60(Ac.)  =      0.096 Sq. Mi.
Length along longest watercourse =    2300.00(Ft.)
Length along longest watercourse measured to centroid =    1340.00(Ft.)
Length along longest watercourse =       0.436 Mi.
Length along longest watercourse measured to centroid =       0.254 Mi.
Difference in elevation =     219.00(Ft.)
Slope along watercourse =    502.7478 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.096 Hr.
Lag time =     5.74 Min.
25% of lag time =     1.43 Min.
40% of lag time =     2.30 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       61.60                1.80                110.88

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       61.60                4.50                277.20

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    4.499(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
     8.200             66.00          0.000
    11.300             77.00          0.000
    42.100             83.00          0.000
```



```
 Total Area Entered =      61.60(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
66.0  66.0       0.405      0.000        0.405        0.133      0.054
77.0  77.0       0.279      0.000        0.279        0.183      0.051
83.0  83.0       0.210      0.000        0.210        0.683      0.143
                                                    Sum (F) =    0.249
Area averaged mean soil loss (F) (In/Hr) =  0.249
Minimum soil loss rate ((In/Hr)) =  0.124
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.900
------------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                     FOOTHILL S-Curve
------------------------------------------------------------------------
                     Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
     (hrs)                          Graph %           (CFS)
------------------------------------------------------------------------
     1   0.250         261.402         52.675           32.701
     2   0.500         522.805         43.927           27.270
     3   0.750         784.207          3.398            2.110
                                Sum = 100.000    Sum=     62.081
------------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)  Percent     (In/Hr)      Max    |   Low          (In/Hr)
  1   0.25     0.20       0.036     (  0.439)     0.032          0.004
  2   0.50     0.30       0.054     (  0.434)     0.049          0.005
  3   0.75     0.30       0.054     (  0.429)     0.049          0.005
  4   1.00     0.40       0.072     (  0.424)     0.065          0.007
  5   1.25     0.30       0.054     (  0.419)     0.049          0.005
  6   1.50     0.30       0.054     (  0.414)     0.049          0.005
  7   1.75     0.30       0.054     (  0.409)     0.049          0.005
  8   2.00     0.40       0.072     (  0.404)     0.065          0.007
  9   2.25     0.40       0.072     (  0.399)     0.065          0.007
 10   2.50     0.40       0.072     (  0.394)     0.065          0.007
 11   2.75     0.50       0.090     (  0.389)     0.081          0.009
 12   3.00     0.50       0.090     (  0.385)     0.081          0.009
 13   3.25     0.50       0.090     (  0.380)     0.081          0.009
 14   3.50     0.50       0.090     (  0.375)     0.081          0.009
 15   3.75     0.50       0.090     (  0.370)     0.081          0.009
 16   4.00     0.60       0.108     (  0.366)     0.097          0.011
 17   4.25     0.60       0.108     (  0.361)     0.097          0.011
 18   4.50     0.70       0.126     (  0.357)     0.113          0.013
 19   4.75     0.70       0.126     (  0.352)     0.113          0.013
 20   5.00     0.80       0.144     (  0.347)     0.130          0.014
 21   5.25     0.60       0.108     (  0.343)     0.097          0.011
 22   5.50     0.70       0.126     (  0.338)     0.113          0.013
 23   5.75     0.80       0.144     (  0.334)     0.130          0.014
 24   6.00     0.80       0.144     (  0.330)     0.130          0.014
 25   6.25     0.90       0.162     (  0.325)     0.146          0.016
 26   6.50     0.90       0.162     (  0.321)     0.146          0.016
 27   6.75     1.00       0.180     (  0.317)     0.162          0.018
 28   7.00     1.00       0.180     (  0.312)     0.162          0.018
 29   7.25     1.00       0.180     (  0.308)     0.162          0.018
 30   7.50     1.10       0.198     (  0.304)     0.178          0.020
 31   7.75     1.20       0.216     (  0.300)     0.194          0.022
 32   8.00     1.30       0.234     (  0.296)     0.211          0.023
 33   8.25     1.50       0.270     (  0.291)     0.243          0.027
 34   8.50     1.50       0.270     (  0.287)     0.243          0.027
 35   8.75     1.60       0.288     (  0.283)     0.259          0.029
 36   9.00     1.70       0.306     (  0.279)     0.275          0.031
 37   9.25     1.90       0.342        0.275    (  0.308)         0.067
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 38 | 9.50 | 2.00 | 0.360 | | 0.271 | ( 0.324) | 0.088 |
| 39 | 9.75 | 2.10 | 0.378 | | 0.268 | ( 0.340) | 0.110 |
| 40 | 10.00 | 2.20 | 0.396 | | 0.264 | ( 0.356) | 0.132 |
| 41 | 10.25 | 1.50 | 0.270 | ( | 0.260) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( | 0.256) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | | 0.252 | ( 0.324) | 0.107 |
| 44 | 11.00 | 2.00 | 0.360 | | 0.249 | ( 0.324) | 0.111 |
| 45 | 11.25 | 1.90 | 0.342 | | 0.245 | ( 0.308) | 0.097 |
| 46 | 11.50 | 1.90 | 0.342 | | 0.241 | ( 0.308) | 0.100 |
| 47 | 11.75 | 1.70 | 0.306 | | 0.238 | ( 0.275) | 0.068 |
| 48 | 12.00 | 1.80 | 0.324 | | 0.234 | ( 0.292) | 0.090 |
| 49 | 12.25 | 2.50 | 0.450 | | 0.231 | ( 0.405) | 0.219 |
| 50 | 12.50 | 2.60 | 0.468 | | 0.227 | ( 0.421) | 0.241 |
| 51 | 12.75 | 2.80 | 0.504 | | 0.224 | ( 0.454) | 0.280 |
| 52 | 13.00 | 2.90 | 0.522 | | 0.221 | ( 0.470) | 0.301 |
| 53 | 13.25 | 3.40 | 0.612 | | 0.217 | ( 0.551) | 0.395 |
| 54 | 13.50 | 3.40 | 0.612 | | 0.214 | ( 0.551) | 0.398 |
| 55 | 13.75 | 2.30 | 0.414 | | 0.211 | ( 0.373) | 0.203 |
| 56 | 14.00 | 2.30 | 0.414 | | 0.208 | ( 0.373) | 0.206 |
| 57 | 14.25 | 2.70 | 0.486 | | 0.204 | ( 0.437) | 0.282 |
| 58 | 14.50 | 2.60 | 0.468 | | 0.201 | ( 0.421) | 0.267 |
| 59 | 14.75 | 2.60 | 0.468 | | 0.198 | ( 0.421) | 0.270 |
| 60 | 15.00 | 2.50 | 0.450 | | 0.195 | ( 0.405) | 0.255 |
| 61 | 15.25 | 2.40 | 0.432 | | 0.192 | ( 0.389) | 0.240 |
| 62 | 15.50 | 2.30 | 0.414 | | 0.189 | ( 0.373) | 0.225 |
| 63 | 15.75 | 1.90 | 0.342 | | 0.186 | ( 0.308) | 0.156 |
| 64 | 16.00 | 1.90 | 0.342 | | 0.183 | ( 0.308) | 0.158 |
| 65 | 16.25 | 0.40 | 0.072 | ( | 0.181) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( | 0.178) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( | 0.175) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( | 0.173) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( | 0.170) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( | 0.167) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( | 0.165) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( | 0.162) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( | 0.160) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( | 0.158) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( | 0.155) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( | 0.153) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( | 0.151) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( | 0.149) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( | 0.147) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( | 0.145) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( | 0.143) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( | 0.141) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( | 0.139) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( | 0.138) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( | 0.136) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( | 0.135) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( | 0.133) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( | 0.132) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( | 0.130) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( | 0.129) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( | 0.128) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( | 0.127) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( | 0.126) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( | 0.125) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( | 0.125) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( | 0.124) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.8

Flood volume = Effective rainfall 1.44(In)
times area 61.6(Ac.)/[(In)/(Ft.)] = 7.4(Ac.Ft)
Total soil loss = 3.06(In)
Total soil loss = 15.686(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 322815.8 Cubic Feet
Total soil loss = 683299.1 Cubic Feet

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Peak flow rate of this hydrograph = 24.423(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 7.5 | 15.0 | 22.5 | 30.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0024 | 0.12 | Q | | | | |
| 0+30 | 0.0081 | 0.27 | Q | | | | |
| 0+45 | 0.0150 | 0.33 | Q | | | | |
| 1+ 0 | 0.0231 | 0.39 | Q | | | | |
| 1+15 | 0.0311 | 0.38 | Q | | | | |
| 1+30 | 0.0381 | 0.34 | Q | | | | |
| 1+45 | 0.0450 | 0.34 | Q | | | | |
| 2+ 0 | 0.0531 | 0.39 | Q | | | | |
| 2+15 | 0.0623 | 0.44 | Q | | | | |
| 2+30 | 0.0715 | 0.45 | Q | | | | |
| 2+45 | 0.0820 | 0.51 | Q | | | | |
| 3+ 0 | 0.0935 | 0.56 | Q | | | | |
| 3+15 | 0.1050 | 0.56 | Q | | | | |
| 3+30 | 0.1166 | 0.56 | Q | | | | |
| 3+45 | 0.1281 | 0.56 | Q | | | | |
| 4+ 0 | 0.1409 | 0.62 | Q | | | | |
| 4+15 | 0.1547 | 0.67 | Q | | | | |
| 4+30 | 0.1697 | 0.73 | Q | | | | |
| 4+45 | 0.1858 | 0.78 | Q | | | | |
| 5+ 0 | 0.2032 | 0.84 | Q | | | | |
| 5+15 | 0.2192 | 0.77 | Q | | | | |
| 5+30 | 0.2344 | 0.74 | QV | | | | |
| 5+45 | 0.2517 | 0.84 | Q | | | | |
| 6+ 0 | 0.2701 | 0.89 | Q | | | | |
| 6+15 | 0.2898 | 0.95 | Q | | | | |
| 6+30 | 0.3105 | 1.00 | Q | | | | |
| 6+45 | 0.3325 | 1.07 | Q | | | | |
| 7+ 0 | 0.3555 | 1.11 | Q | | | | |
| 7+15 | 0.3786 | 1.12 | QV | | | | |
| 7+30 | 0.4029 | 1.18 | QV | | | | |
| 7+45 | 0.4295 | 1.28 | QV | | | | |
| 8+ 0 | 0.4583 | 1.40 | QV | | | | |
| 8+15 | 0.4907 | 1.57 | Q | | | | |
| 8+30 | 0.5252 | 1.67 | Q | | | | |
| 8+45 | 0.5611 | 1.74 | QV | | | | |
| 9+ 0 | 0.5992 | 1.84 | QV | | | | |
| 9+15 | 0.6627 | 3.07 | VQ | | | | |
| 9+30 | 0.7613 | 4.77 | V Q | | | | |
| 9+45 | 0.8886 | 6.16 | V Q | | | | |
| 10+ 0 | 1.0441 | 7.52 | V Q | | | | |
| 10+15 | 1.1416 | 4.72 | Q | | | | |
| 10+30 | 1.1809 | 1.90 | Q V | | | | |
| 10+45 | 1.2699 | 4.31 | QV | | | | |
| 11+ 0 | 1.4069 | 6.63 | VQ | | | | |
| 11+15 | 1.5397 | 6.43 | Q | | | | |
| 11+30 | 1.6671 | 6.16 | Q | | | | |
| 11+45 | 1.7739 | 5.17 | Q V | | | | |
| 12+ 0 | 1.8772 | 5.00 | Q V | | | | |
| 12+15 | 2.0788 | 9.76 | V Q | | | | |
| 12+30 | 2.3688 | 14.04 | V Q | | | | |
| 12+45 | 2.7031 | 16.18 | V Q | | | | |
| 13+ 0 | 3.0751 | 18.00 | V Q | | | | |
| 13+15 | 3.5239 | 21.72 | V Q | | | | |
| 13+30 | 4.0285 | 24.42 | V Q | | | | |
| 13+45 | 4.4074 | 18.34 | VQ | | | | |
| 14+ 0 | 4.6789 | 13.14 | Q V | | | | |
| 14+15 | 4.9944 | 15.27 | Q V | | | | |
| 14+30 | 5.3424 | 16.84 | Q V | | | | |
| 14+45 | 5.6874 | 16.70 | Q V | | | | |
| 15+ 0 | 6.0234 | 16.26 | Q V | | | | |
| 15+15 | 6.3409 | 15.37 | Q V | | | | |
| 15+30 | 6.6391 | 14.43 | Q V | | | | |
| 15+45 | 6.8814 | 11.73 | Q V | | | | |
| 16+ 0 | 7.0861 | 9.91 | Q V | | | | |

```
   16+15      7.1871     4.89  |     Q    |          |          |          V |
   16+30      7.2029     0.77  |Q         |          |          |          V |
   16+45      7.2109     0.39  Q          |          |          |          V |
   17+ 0      7.2179     0.34  Q          |          |          |          V |
   17+15      7.2273     0.45  Q          |          |          |           V|
   17+30      7.2387     0.55  Q          |          |          |           V|
   17+45      7.2502     0.56  Q          |          |          |           V|
   18+ 0      7.2606     0.50  Q          |          |          |           V|
   18+15      7.2699     0.45  Q          |          |          |           V|
   18+30      7.2791     0.45  Q          |          |          |           V|
   18+45      7.2871     0.39  Q          |          |          |           V|
   19+ 0      7.2929     0.28  Q          |          |          |           V|
   19+15      7.2988     0.29  Q          |          |          |           V|
   19+30      7.3069     0.39  Q          |          |          |           V|
   19+45      7.3148     0.38  Q          |          |          |           V|
   20+ 0      7.3206     0.28  Q          |          |          |           V|
   20+15      7.3266     0.29  Q          |          |          |           V|
   20+30      7.3334     0.33  Q          |          |          |           V|
   20+45      7.3403     0.34  Q          |          |          |           V|
   21+ 0      7.3460     0.28  Q          |          |          |           V|
   21+15      7.3520     0.29  Q          |          |          |           V|
   21+30      7.3576     0.27  Q          |          |          |           V|
   21+45      7.3635     0.29  Q          |          |          |           V|
   22+ 0      7.3691     0.27  Q          |          |          |           V|
   22+15      7.3751     0.29  Q          |          |          |           V|
   22+30      7.3807     0.27  Q          |          |          |           V|
   22+45      7.3854     0.23  Q          |          |          |           V|
   23+ 0      7.3900     0.22  Q          |          |          |           V|
   23+15      7.3946     0.22  Q          |          |          |           V|
   23+30      7.3992     0.22  Q          |          |          |           V|
   23+45      7.4039     0.22  Q          |          |          |           V|
   24+ 0      7.4085     0.22  Q          |          |          |           V|
   24+15      7.4107     0.11  Q          |          |          |           V|
   24+30      7.4108     0.01  Q          |          |          |            V
----------------------------------------------------------------------------
```



```
                U n i t   H y d r o g r a p h   A n a l y s i s

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                      Study date  04/25/12 File: SubC5124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed C, Stream 1, Existing Condition
Subarea C51
100-year, 24-hour

------------------------------------------------------------------------
Drainage Area =      12.70(Ac.)  =      0.020 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      12.70(Ac.)  =      0.020 Sq. Mi.
Length along longest watercourse =    1160.00(Ft.)
Length along longest watercourse measured to centroid =     510.00(Ft.)
Length along longest watercourse =      0.220 Mi.
Length along longest watercourse measured to centroid =      0.097 Mi.
Difference in elevation =     129.00(Ft.)
Slope along watercourse =    587.1724 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.050 Hr.
Lag time =     2.98 Min.
25% of lag time =     0.74 Min.
40% of lag time =     1.19 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       12.70              1.80               22.86

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       12.70              4.50               57.15

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    4.500(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
     4.000            66.00          0.000
     8.700            83.00          0.000
 Total Area Entered =     12.70(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.315 | 0.128 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.685 | 0.144 |
| | | | | | Sum (F) = | 0.271 |

Area averaged mean soil loss (F) (In/Hr) = 0.271
Minimum soil loss rate ((In/Hr)) = 0.136
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
FOOTHILL S-Curve

---

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 504.085 | 73.731 | 9.437 |
| 2 | 0.500 | 1008.171 | 26.269 | 3.362 |
| | | | Sum = 100.000 | Sum= 12.799 |

---

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.479) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.474) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.468) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.463) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.457) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.452) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.446) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.441) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.436) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.430) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.425) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.420) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.415) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.409) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.404) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.399) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.394) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.389) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.384) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.379) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.374) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.369) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.365) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.360) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.355) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.350) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.346) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.341) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.336) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.332) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.327) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.323) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.318) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.314) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.309) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.305) | 0.275 | 0.031 |
| 37 | 9.25 | 1.90 | 0.342 | 0.301 | ( 0.308) | 0.041 |
| 38 | 9.50 | 2.00 | 0.360 | 0.296 | ( 0.324) | 0.064 |
| 39 | 9.75 | 2.10 | 0.378 | 0.292 | ( 0.340) | 0.086 |
| 40 | 10.00 | 2.20 | 0.396 | 0.288 | ( 0.356) | 0.108 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 41 | 10.25 | 1.50 | 0.270 | ( 0.284) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.280) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.276 | ( 0.324) | 0.084 |
| 44 | 11.00 | 2.00 | 0.360 | 0.272 | ( 0.324) | 0.088 |
| 45 | 11.25 | 1.90 | 0.342 | 0.268 | ( 0.308) | 0.074 |
| 46 | 11.50 | 1.90 | 0.342 | 0.264 | ( 0.308) | 0.078 |
| 47 | 11.75 | 1.70 | 0.306 | 0.260 | ( 0.275) | 0.046 |
| 48 | 12.00 | 1.80 | 0.324 | 0.256 | ( 0.292) | 0.068 |
| 49 | 12.25 | 2.50 | 0.450 | 0.252 | ( 0.405) | 0.198 |
| 50 | 12.50 | 2.60 | 0.468 | 0.248 | ( 0.421) | 0.220 |
| 51 | 12.75 | 2.80 | 0.504 | 0.245 | ( 0.454) | 0.259 |
| 52 | 13.00 | 2.90 | 0.522 | 0.241 | ( 0.470) | 0.281 |
| 53 | 13.25 | 3.40 | 0.612 | 0.237 | ( 0.551) | 0.375 |
| 54 | 13.50 | 3.40 | 0.612 | 0.234 | ( 0.551) | 0.378 |
| 55 | 13.75 | 2.30 | 0.414 | 0.230 | ( 0.373) | 0.184 |
| 56 | 14.00 | 2.30 | 0.414 | 0.227 | ( 0.373) | 0.187 |
| 57 | 14.25 | 2.70 | 0.486 | 0.223 | ( 0.437) | 0.263 |
| 58 | 14.50 | 2.60 | 0.468 | 0.220 | ( 0.421) | 0.248 |
| 59 | 14.75 | 2.60 | 0.468 | 0.216 | ( 0.421) | 0.252 |
| 60 | 15.00 | 2.50 | 0.450 | 0.213 | ( 0.405) | 0.237 |
| 61 | 15.25 | 2.40 | 0.432 | 0.210 | ( 0.389) | 0.222 |
| 62 | 15.50 | 2.30 | 0.414 | 0.207 | ( 0.373) | 0.207 |
| 63 | 15.75 | 1.90 | 0.342 | 0.203 | ( 0.308) | 0.139 |
| 64 | 16.00 | 1.90 | 0.342 | 0.200 | ( 0.308) | 0.142 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.197) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.194) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.191) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.188) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.186) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.183) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.180) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.177) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.175) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.172) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.170) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.167) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.165) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.163) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.160) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.158) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.156) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.154) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.152) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.150) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.149) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.147) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.145) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.144) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.142) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.141) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.140) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.139) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.138) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.137) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.136) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.136) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.2

Flood volume = Effective rainfall 1.31(In)
times area 12.7(Ac.)/[(In)/(Ft.)] = 1.4(Ac.Ft)
Total soil loss = 3.19(In)
Total soil loss = 3.376(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 60402.2 Cubic Feet
Total soil loss = 147047.2 Cubic Feet

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Peak flow rate of this hydrograph = 4.833(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 2.5 5.0 7.5 10.0 |
|---|---|---|---|
| 0+15 | 0.0007 | 0.03 | Q |
| 0+30 | 0.0020 | 0.06 | Q |
| 0+45 | 0.0034 | 0.07 | Q |
| 1+ 0 | 0.0052 | 0.09 | Q |
| 1+15 | 0.0068 | 0.08 | Q |
| 1+30 | 0.0082 | 0.07 | Q |
| 1+45 | 0.0096 | 0.07 | Q |
| 2+ 0 | 0.0114 | 0.09 | Q |
| 2+15 | 0.0133 | 0.09 | Q |
| 2+30 | 0.0152 | 0.09 | Q |
| 2+45 | 0.0175 | 0.11 | Q |
| 3+ 0 | 0.0199 | 0.12 | Q |
| 3+15 | 0.0222 | 0.12 | Q |
| 3+30 | 0.0246 | 0.12 | Q |
| 3+45 | 0.0270 | 0.12 | Q |
| 4+ 0 | 0.0297 | 0.13 | Q |
| 4+15 | 0.0326 | 0.14 | Q |
| 4+30 | 0.0358 | 0.16 | QV |
| 4+45 | 0.0391 | 0.16 | QV |
| 5+ 0 | 0.0428 | 0.18 | QV |
| 5+15 | 0.0459 | 0.15 | QV |
| 5+30 | 0.0491 | 0.16 | QV |
| 5+45 | 0.0528 | 0.18 | QV |
| 6+ 0 | 0.0566 | 0.18 | QV |
| 6+15 | 0.0608 | 0.20 | QV |
| 6+30 | 0.0651 | 0.21 | QV |
| 6+45 | 0.0697 | 0.22 | Q V |
| 7+ 0 | 0.0745 | 0.23 | Q V |
| 7+15 | 0.0792 | 0.23 | Q V |
| 7+30 | 0.0843 | 0.25 | Q V |
| 7+45 | 0.0899 | 0.27 | QV |
| 8+ 0 | 0.0960 | 0.29 | QV |
| 8+15 | 0.1029 | 0.33 | QV |
| 8+30 | 0.1100 | 0.35 | Q V |
| 8+45 | 0.1175 | 0.36 | Q V |
| 9+ 0 | 0.1255 | 0.39 | Q V |
| 9+15 | 0.1357 | 0.49 | Q V |
| 9+30 | 0.1510 | 0.74 | Q V |
| 9+45 | 0.1722 | 1.02 | Q |
| 10+ 0 | 0.1992 | 1.31 | Q |
| 10+15 | 0.2120 | 0.62 | Q V |
| 10+30 | 0.2191 | 0.35 | Q V |
| 10+45 | 0.2375 | 0.89 | Q V |
| 11+ 0 | 0.2606 | 1.12 | Q V |
| 11+15 | 0.2813 | 1.00 | Q V |
| 11+30 | 0.3017 | 0.99 | Q V |
| 11+45 | 0.3162 | 0.70 | Q V |
| 12+ 0 | 0.3327 | 0.80 | Q V |
| 12+15 | 0.3761 | 2.10 | Q V |
| 12+30 | 0.4327 | 2.74 | Q V |
| 12+45 | 0.4986 | 3.19 | Q V |
| 13+ 0 | 0.5715 | 3.53 | Q V |
| 13+15 | 0.6641 | 4.48 | Q V |
| 13+30 | 0.7640 | 4.83 | Q V |
| 13+45 | 0.8262 | 3.01 | Q V |
| 14+ 0 | 0.8755 | 2.39 | Q V |
| 14+15 | 0.9398 | 3.11 | Q V |
| 14+30 | 1.0065 | 3.23 | Q V |
| 14+45 | 1.0729 | 3.21 | Q V |
| 15+ 0 | 1.1366 | 3.08 | Q V |
| 15+15 | 1.1964 | 2.90 | Q V |
| 15+30 | 1.2523 | 2.71 | Q V |
| 15+45 | 1.2938 | 2.01 | Q V |
| 16+ 0 | 1.3311 | 1.80 | Q V |
| 16+15 | 1.3423 | 0.54 | Q V |
| 16+30 | 1.3442 | 0.09 | Q V |
| 16+45 | 1.3458 | 0.08 | Q V |



| | | | |
|---|---|---|---|
| 17+ 0 | 1.3472 | 0.07 | Q V |
| 17+15 | 1.3493 | 0.10 | Q V |
| 17+30 | 1.3517 | 0.12 | Q V |
| 17+45 | 1.3541 | 0.12 | Q V |
| 18+ 0 | 1.3561 | 0.10 | Q V |
| 18+15 | 1.3580 | 0.09 | Q V |
| 18+30 | 1.3599 | 0.09 | Q V |
| 18+45 | 1.3615 | 0.08 | Q V |
| 19+ 0 | 1.3626 | 0.05 | Q V |
| 19+15 | 1.3639 | 0.06 | Q V |
| 19+30 | 1.3657 | 0.09 | Q V |
| 19+45 | 1.3672 | 0.08 | Q V |
| 20+ 0 | 1.3683 | 0.05 | Q V |
| 20+15 | 1.3696 | 0.06 | Q V |
| 20+30 | 1.3710 | 0.07 | Q V |
| 20+45 | 1.3725 | 0.07 | Q V |
| 21+ 0 | 1.3735 | 0.05 | Q V |
| 21+15 | 1.3748 | 0.06 | Q V |
| 21+30 | 1.3759 | 0.05 | Q V |
| 21+45 | 1.3772 | 0.06 | Q V |
| 22+ 0 | 1.3783 | 0.05 | Q V |
| 22+15 | 1.3796 | 0.06 | Q V |
| 22+30 | 1.3807 | 0.05 | Q V |
| 22+45 | 1.3816 | 0.05 | Q V |
| 23+ 0 | 1.3826 | 0.05 | Q V |
| 23+15 | 1.3835 | 0.05 | Q V |
| 23+30 | 1.3845 | 0.05 | Q V |
| 23+45 | 1.3854 | 0.05 | Q V |
| 24+ 0 | 1.3864 | 0.05 | Q V |
| 24+15 | 1.3866 | 0.01 | Q V |

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 05/02/12 File: SUBC124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

---------------------------------------------------------------------
English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

---------------------------------------------------------------------
Watershed Cm Subdrain Area C2
Proposed Conditions
100 Yr, 24 Hr.

---------------------------------------------------------------------
Drainage Area = 105.00(Ac.) = 0.164 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 105.00(Ac.) = 0.164 Sq. Mi.
Length along longest watercourse = 3000.00(Ft.)
Length along longest watercourse measured to centroid = 1500.00(Ft.)
Length along longest watercourse = 0.568 Mi.
Length along longest watercourse measured to centroid = 0.284 Mi.
Difference in elevation = 50.00(Ft.)
Slope along watercourse = 88.0000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.077 Hr.
Lag time = 4.61 Min.
25% of lag time = 1.15 Min.
40% of lag time = 1.85 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 105.00 | 1.80 | 189.00 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 105.00 | 4.80 | 504.00 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.800(In)

Point rain (area averaged) = 4.800(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 4.799(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 105.000 | 85.00 | 0.750 |

Total Area Entered = 105.00(Ac.)



| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

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U n i t  H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 325.140 | 59.121 | 62.562 |
| 2 | 0.500 | 650.280 | 35.788 | 37.871 |
| 3 | 0.750 | 975.420 | 5.091 | 5.387 |
| | | | Sum = 100.000 Sum= | 105.820 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.038 | ( 0.107) | 0.012 | 0.027 |
| 2 | 0.50 | 0.30 | 0.058 | ( 0.106) | 0.017 | 0.040 |
| 3 | 0.75 | 0.30 | 0.058 | ( 0.105) | 0.017 | 0.040 |
| 4 | 1.00 | 0.40 | 0.077 | ( 0.104) | 0.023 | 0.054 |
| 5 | 1.25 | 0.30 | 0.058 | ( 0.102) | 0.017 | 0.040 |
| 6 | 1.50 | 0.30 | 0.058 | ( 0.101) | 0.017 | 0.040 |
| 7 | 1.75 | 0.30 | 0.058 | ( 0.100) | 0.017 | 0.040 |
| 8 | 2.00 | 0.40 | 0.077 | ( 0.099) | 0.023 | 0.054 |
| 9 | 2.25 | 0.40 | 0.077 | ( 0.098) | 0.023 | 0.054 |
| 10 | 2.50 | 0.40 | 0.077 | ( 0.096) | 0.023 | 0.054 |
| 11 | 2.75 | 0.50 | 0.096 | ( 0.095) | 0.029 | 0.067 |
| 12 | 3.00 | 0.50 | 0.096 | ( 0.094) | 0.029 | 0.067 |
| 13 | 3.25 | 0.50 | 0.096 | ( 0.093) | 0.029 | 0.067 |
| 14 | 3.50 | 0.50 | 0.096 | ( 0.092) | 0.029 | 0.067 |
| 15 | 3.75 | 0.50 | 0.096 | ( 0.091) | 0.029 | 0.067 |
| 16 | 4.00 | 0.60 | 0.115 | ( 0.089) | 0.035 | 0.081 |
| 17 | 4.25 | 0.60 | 0.115 | ( 0.088) | 0.035 | 0.081 |
| 18 | 4.50 | 0.70 | 0.134 | ( 0.087) | 0.040 | 0.094 |
| 19 | 4.75 | 0.70 | 0.134 | ( 0.086) | 0.040 | 0.094 |
| 20 | 5.00 | 0.80 | 0.154 | ( 0.085) | 0.046 | 0.107 |
| 21 | 5.25 | 0.60 | 0.115 | ( 0.084) | 0.035 | 0.081 |
| 22 | 5.50 | 0.70 | 0.134 | ( 0.083) | 0.040 | 0.094 |
| 23 | 5.75 | 0.80 | 0.154 | ( 0.082) | 0.046 | 0.107 |
| 24 | 6.00 | 0.80 | 0.154 | ( 0.081) | 0.046 | 0.107 |
| 25 | 6.25 | 0.90 | 0.173 | ( 0.080) | 0.052 | 0.121 |
| 26 | 6.50 | 0.90 | 0.173 | ( 0.078) | 0.052 | 0.121 |
| 27 | 6.75 | 1.00 | 0.192 | ( 0.077) | 0.058 | 0.134 |
| 28 | 7.00 | 1.00 | 0.192 | ( 0.076) | 0.058 | 0.134 |
| 29 | 7.25 | 1.00 | 0.192 | ( 0.075) | 0.058 | 0.134 |
| 30 | 7.50 | 1.10 | 0.211 | ( 0.074) | 0.063 | 0.148 |
| 31 | 7.75 | 1.20 | 0.230 | ( 0.073) | 0.069 | 0.161 |
| 32 | 8.00 | 1.30 | 0.250 | 0.072 | ( 0.075) | 0.177 |
| 33 | 8.25 | 1.50 | 0.288 | 0.071 | ( 0.086) | 0.217 |
| 34 | 8.50 | 1.50 | 0.288 | 0.070 | ( 0.086) | 0.218 |
| 35 | 8.75 | 1.60 | 0.307 | 0.069 | ( 0.092) | 0.238 |
| 36 | 9.00 | 1.70 | 0.326 | 0.068 | ( 0.098) | 0.258 |
| 37 | 9.25 | 1.90 | 0.365 | 0.067 | ( 0.109) | 0.297 |
| 38 | 9.50 | 2.00 | 0.384 | 0.066 | ( 0.115) | 0.318 |
| 39 | 9.75 | 2.10 | 0.403 | 0.065 | ( 0.121) | 0.338 |
| 40 | 10.00 | 2.20 | 0.422 | 0.064 | ( 0.127) | 0.358 |
| 41 | 10.25 | 1.50 | 0.288 | 0.064 | ( 0.086) | 0.224 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 42 | 10.50 | 1.50 | 0.288 | | 0.063 | ( 0.086) | 0.225 |
| 43 | 10.75 | 2.00 | 0.384 | | 0.062 | ( 0.115) | 0.322 |
| 44 | 11.00 | 2.00 | 0.384 | | 0.061 | ( 0.115) | 0.323 |
| 45 | 11.25 | 1.90 | 0.365 | | 0.060 | ( 0.109) | 0.305 |
| 46 | 11.50 | 1.90 | 0.365 | | 0.059 | ( 0.109) | 0.306 |
| 47 | 11.75 | 1.70 | 0.326 | | 0.058 | ( 0.098) | 0.268 |
| 48 | 12.00 | 1.80 | 0.346 | | 0.057 | ( 0.104) | 0.288 |
| 49 | 12.25 | 2.50 | 0.480 | | 0.056 | ( 0.144) | 0.423 |
| 50 | 12.50 | 2.60 | 0.499 | | 0.056 | ( 0.150) | 0.443 |
| 51 | 12.75 | 2.80 | 0.537 | | 0.055 | ( 0.161) | 0.483 |
| 52 | 13.00 | 2.90 | 0.557 | | 0.054 | ( 0.167) | 0.503 |
| 53 | 13.25 | 3.40 | 0.653 | | 0.053 | ( 0.196) | 0.600 |
| 54 | 13.50 | 3.40 | 0.653 | | 0.052 | ( 0.196) | 0.600 |
| 55 | 13.75 | 2.30 | 0.442 | | 0.052 | ( 0.132) | 0.390 |
| 56 | 14.00 | 2.30 | 0.442 | | 0.051 | ( 0.132) | 0.391 |
| 57 | 14.25 | 2.70 | 0.518 | | 0.050 | ( 0.155) | 0.468 |
| 58 | 14.50 | 2.60 | 0.499 | | 0.049 | ( 0.150) | 0.450 |
| 59 | 14.75 | 2.60 | 0.499 | | 0.048 | ( 0.150) | 0.451 |
| 60 | 15.00 | 2.50 | 0.480 | | 0.048 | ( 0.144) | 0.432 |
| 61 | 15.25 | 2.40 | 0.461 | | 0.047 | ( 0.138) | 0.414 |
| 62 | 15.50 | 2.30 | 0.442 | | 0.046 | ( 0.132) | 0.395 |
| 63 | 15.75 | 1.90 | 0.365 | | 0.046 | ( 0.109) | 0.319 |
| 64 | 16.00 | 1.90 | 0.365 | | 0.045 | ( 0.109) | 0.320 |
| 65 | 16.25 | 0.40 | 0.077 | ( 0.044) | | 0.023 | 0.054 |
| 66 | 16.50 | 0.40 | 0.077 | ( 0.044) | | 0.023 | 0.054 |
| 67 | 16.75 | 0.30 | 0.058 | ( 0.043) | | 0.017 | 0.040 |
| 68 | 17.00 | 0.30 | 0.058 | ( 0.042) | | 0.017 | 0.040 |
| 69 | 17.25 | 0.50 | 0.096 | ( 0.042) | | 0.029 | 0.067 |
| 70 | 17.50 | 0.50 | 0.096 | ( 0.041) | | 0.029 | 0.067 |
| 71 | 17.75 | 0.50 | 0.096 | ( 0.040) | | 0.029 | 0.067 |
| 72 | 18.00 | 0.40 | 0.077 | ( 0.040) | | 0.023 | 0.054 |
| 73 | 18.25 | 0.40 | 0.077 | ( 0.039) | | 0.023 | 0.054 |
| 74 | 18.50 | 0.40 | 0.077 | ( 0.039) | | 0.023 | 0.054 |
| 75 | 18.75 | 0.30 | 0.058 | ( 0.038) | | 0.017 | 0.040 |
| 76 | 19.00 | 0.20 | 0.038 | ( 0.037) | | 0.012 | 0.027 |
| 77 | 19.25 | 0.30 | 0.058 | ( 0.037) | | 0.017 | 0.040 |
| 78 | 19.50 | 0.40 | 0.077 | ( 0.036) | | 0.023 | 0.054 |
| 79 | 19.75 | 0.30 | 0.058 | ( 0.036) | | 0.017 | 0.040 |
| 80 | 20.00 | 0.20 | 0.038 | ( 0.035) | | 0.012 | 0.027 |
| 81 | 20.25 | 0.30 | 0.058 | ( 0.035) | | 0.017 | 0.040 |
| 82 | 20.50 | 0.30 | 0.058 | ( 0.035) | | 0.017 | 0.040 |
| 83 | 20.75 | 0.30 | 0.058 | ( 0.034) | | 0.017 | 0.040 |
| 84 | 21.00 | 0.20 | 0.038 | ( 0.034) | | 0.012 | 0.027 |
| 85 | 21.25 | 0.30 | 0.058 | ( 0.033) | | 0.017 | 0.040 |
| 86 | 21.50 | 0.20 | 0.038 | ( 0.033) | | 0.012 | 0.027 |
| 87 | 21.75 | 0.30 | 0.058 | ( 0.033) | | 0.017 | 0.040 |
| 88 | 22.00 | 0.20 | 0.038 | ( 0.032) | | 0.012 | 0.027 |
| 89 | 22.25 | 0.30 | 0.058 | ( 0.032) | | 0.017 | 0.040 |
| 90 | 22.50 | 0.20 | 0.038 | ( 0.032) | | 0.012 | 0.027 |
| 91 | 22.75 | 0.20 | 0.038 | ( 0.031) | | 0.012 | 0.027 |
| 92 | 23.00 | 0.20 | 0.038 | ( 0.031) | | 0.012 | 0.027 |
| 93 | 23.25 | 0.20 | 0.038 | ( 0.031) | | 0.012 | 0.027 |
| 94 | 23.50 | 0.20 | 0.038 | ( 0.031) | | 0.012 | 0.027 |
| 95 | 23.75 | 0.20 | 0.038 | ( 0.031) | | 0.012 | 0.027 |
| 96 | 24.00 | 0.20 | 0.038 | ( 0.030) | | 0.012 | 0.027 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 15.6

Flood volume = Effective rainfall 3.91(In)
times area 105.0(Ac.)/[(In)/(Ft.)] = 34.2(Ac.Ft)
Total soil loss = 0.89(In)
Total soil loss = 7.797(Ac.Ft)
Total rainfall = 4.80(In)
Flood volume = 1489521.1 Cubic Feet
Total soil loss = 339623.7 Cubic Feet

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Peak flow rate of this hydrograph = 63.005(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))



| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 17.5 35.0 52.5 70.0 |
|---|---|---|---|
| 0+15 | 0.0348 | 1.68 | Q |
| 0+30 | 0.1079 | 3.54 | V Q |
| 0+45 | 0.1946 | 4.20 | V Q |
| 1+ 0 | 0.3002 | 5.11 | V Q |
| 1+15 | 0.3989 | 4.78 | V Q |
| 1+30 | 0.4886 | 4.34 | V Q |
| 1+45 | 0.5767 | 4.27 | V Q |
| 2+ 0 | 0.6823 | 5.11 | V Q |
| 2+15 | 0.7984 | 5.62 | V Q |
| 2+30 | 0.9160 | 5.69 | V Q |
| 2+45 | 1.0509 | 6.53 | V Q |
| 3+ 0 | 1.1964 | 7.04 | V Q |
| 3+15 | 1.3433 | 7.11 | V Q |
| 3+30 | 1.4903 | 7.11 | V Q |
| 3+45 | 1.6373 | 7.11 | V Q |
| 4+ 0 | 1.8016 | 7.95 | V Q |
| 4+15 | 1.9765 | 8.46 | V Q |
| 4+30 | 2.1702 | 9.38 | V Q |
| 4+45 | 2.3745 | 9.89 | V Q |
| 5+ 0 | 2.5976 | 10.80 | V Q |
| 5+15 | 2.7965 | 9.63 | V Q |
| 5+30 | 2.9933 | 9.52 | V Q |
| 5+45 | 3.2149 | 10.73 | V Q |
| 6+ 0 | 3.4486 | 11.31 | V Q |
| 6+15 | 3.7011 | 12.22 | V Q |
| 6+30 | 3.9642 | 12.73 | V Q |
| 6+45 | 4.2461 | 13.65 | V Q |
| 7+ 0 | 4.5385 | 14.15 | V Q |
| 7+15 | 4.8325 | 14.23 | V Q |
| 7+30 | 5.1438 | 15.07 | V Q |
| 7+45 | 5.4830 | 16.42 | V Q |
| 8+ 0 | 5.8550 | 18.00 | V Q |
| 8+15 | 6.2920 | 21.15 | V Q |
| 8+30 | 6.7628 | 22.79 | V Q |
| 8+45 | 7.2650 | 24.30 | V Q |
| 9+ 0 | 7.8092 | 26.34 | V Q |
| 9+15 | 8.4222 | 29.67 | V Q |
| 9+30 | 9.0945 | 32.54 | V Q |
| 9+45 | 9.8129 | 34.77 | V Q |
| 10+ 0 | 10.5754 | 36.90 | V Q |
| 10+15 | 11.1833 | 29.42 | V Q |
| 10+30 | 11.6902 | 24.53 | VQ |
| 10+45 | 12.3083 | 29.91 | V Q |
| 11+ 0 | 13.0034 | 33.65 | V Q |
| 11+15 | 13.6865 | 33.06 | V Q |
| 11+30 | 14.3564 | 32.42 | V Q |
| 11+45 | 14.9764 | 30.01 | Q |
| 12+ 0 | 15.5932 | 29.85 | QV |
| 12+15 | 16.3963 | 38.87 | V Q |
| 12+30 | 17.3335 | 45.36 | V Q |
| 12+45 | 18.3521 | 49.30 | V Q |
| 13+ 0 | 19.4296 | 52.15 | V Q |
| 13+15 | 20.6523 | 59.18 | V Q |
| 13+30 | 21.9541 | 63.00 | V Q |
| 13+45 | 22.9952 | 50.39 | V Q |
| 14+ 0 | 23.8727 | 42.47 | Q V |
| 14+15 | 24.8277 | 46.22 | Q V |
| 14+30 | 25.8197 | 48.01 | Q V |
| 14+45 | 26.8069 | 47.78 | Q V |
| 15+ 0 | 27.7687 | 46.55 | Q V |
| 15+15 | 28.6923 | 44.70 | Q V |
| 15+30 | 29.5755 | 42.75 | Q V |
| 15+45 | 30.3438 | 37.18 | Q V |
| 16+ 0 | 31.0513 | 34.25 | Q V |
| 16+15 | 31.4068 | 17.20 | Q V |
| 16+30 | 31.5540 | 7.12 | Q V |
| 16+45 | 31.6542 | 4.85 | Q V |
| 17+ 0 | 31.7439 | 4.34 | Q V |

```
  17+15      31.8668      5.95  |  Q       |          |          |       V  |
  17+30      32.0108      6.97  |  Q       |          |          |       V  |
  17+45      32.1577      7.11  |   Q      |          |          |       V  |
  18+ 0      32.2873      6.27  |  Q       |          |          |       V  |
  18+15      32.4064      5.76  |  Q       |          |          |       V  |
  18+30      32.5240      5.69  |  Q       |          |          |       V  |
  18+45      32.6242      4.85  | Q        |          |          |       V  |
  19+ 0      32.6965      3.50  |Q         |          |          |       V  |
  19+15      32.7741      3.76  | Q        |          |          |       V  |
  19+30      32.8782      5.04  | Q        |          |          |       V  |
  19+45      32.9769      4.78  | Q        |          |          |       V  |
  20+ 0      33.0492      3.50  |Q         |          |          |       V  |
  20+15      33.1269      3.76  | Q        |          |          |       V  |
  20+30      33.2136      4.20  | Q        |          |          |       V  |
  20+45      33.3017      4.27  | Q        |          |          |       V  |
  21+ 0      33.3725      3.43  |Q         |          |          |       V  |
  21+15      33.4502      3.76  | Q        |          |          |       V  |
  21+30      33.5195      3.35  |Q         |          |          |       V  |
  21+45      33.5972      3.76  | Q        |          |          |       V  |
  22+ 0      33.6665      3.35  |Q         |          |          |       V  |
  22+15      33.7441      3.76  | Q        |          |          |       V  |
  22+30      33.8135      3.35  |Q         |          |          |       V  |
  22+45      33.8737      2.92  |Q         |          |          |       V  |
  23+ 0      33.9325      2.85  |Q         |          |          |       V  |
  23+15      33.9913      2.85  |Q         |          |          |       V  |
  23+30      34.0501      2.85  |Q         |          |          |       V  |
  23+45      34.1089      2.85  |Q         |          |          |       V  |
  24+ 0      34.1677      2.85  |Q         |          |          |       V  |
  24+15      34.1917      1.16  Q          |          |          |       V  |
  24+30      34.1947      0.14  Q          |          |          |       V  |
----------------------------------------------------------------------------
```



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        U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  05/02/12 File: SUBC224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Watershed C, Subdrain Area C2
Proposed Conditions
100 Yr, 24 Hr.

------------------------------------------------------------------
Drainage Area =     303.00(Ac.)  =      0.473 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     303.00(Ac.)  =      0.473 Sq. Mi.
Length along longest watercourse =    4000.00(Ft.)
Length along longest watercourse measured to centroid =    2000.00(Ft.)
Length along longest watercourse =      0.758 Mi.
Length along longest watercourse measured to centroid =      0.379 Mi.
Difference in elevation =      80.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.092 Hr.
Lag time =     5.55 Min.
25% of lag time =     1.39 Min.
40% of lag time =     2.22 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      303.00             1.80                545.40

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      303.00             4.80               1454.40

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.800(In)

Point rain (area averaged) =    4.800(In)
Areal adjustment factor =   99.94 %
Adjusted average point rain =    4.797(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   303.000           85.00          0.750
 Total Area Entered =     303.00(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

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U n i t H y d r o g r a p h
VALLEY S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 270.496 | 53.435 | 163.172 |
| 2 | 0.500 | 540.992 | 38.815 | 118.527 |
| 3 | 0.750 | 811.489 | 7.750 | 23.667 |
| | | | Sum = 100.000 | Sum= 305.367 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.038 | ( 0.107) | 0.012 | 0.027 |
| 2 | 0.50 | 0.30 | 0.058 | ( 0.106) | 0.017 | 0.040 |
| 3 | 0.75 | 0.30 | 0.058 | ( 0.105) | 0.017 | 0.040 |
| 4 | 1.00 | 0.40 | 0.077 | ( 0.104) | 0.023 | 0.054 |
| 5 | 1.25 | 0.30 | 0.058 | ( 0.102) | 0.017 | 0.040 |
| 6 | 1.50 | 0.30 | 0.058 | ( 0.101) | 0.017 | 0.040 |
| 7 | 1.75 | 0.30 | 0.058 | ( 0.100) | 0.017 | 0.040 |
| 8 | 2.00 | 0.40 | 0.077 | ( 0.099) | 0.023 | 0.054 |
| 9 | 2.25 | 0.40 | 0.077 | ( 0.098) | 0.023 | 0.054 |
| 10 | 2.50 | 0.40 | 0.077 | ( 0.096) | 0.023 | 0.054 |
| 11 | 2.75 | 0.50 | 0.096 | ( 0.095) | 0.029 | 0.067 |
| 12 | 3.00 | 0.50 | 0.096 | ( 0.094) | 0.029 | 0.067 |
| 13 | 3.25 | 0.50 | 0.096 | ( 0.093) | 0.029 | 0.067 |
| 14 | 3.50 | 0.50 | 0.096 | ( 0.092) | 0.029 | 0.067 |
| 15 | 3.75 | 0.50 | 0.096 | ( 0.091) | 0.029 | 0.067 |
| 16 | 4.00 | 0.60 | 0.115 | ( 0.089) | 0.035 | 0.081 |
| 17 | 4.25 | 0.60 | 0.115 | ( 0.088) | 0.035 | 0.081 |
| 18 | 4.50 | 0.70 | 0.134 | ( 0.087) | 0.040 | 0.094 |
| 19 | 4.75 | 0.70 | 0.134 | ( 0.086) | 0.040 | 0.094 |
| 20 | 5.00 | 0.80 | 0.154 | ( 0.085) | 0.046 | 0.107 |
| 21 | 5.25 | 0.60 | 0.115 | ( 0.084) | 0.035 | 0.081 |
| 22 | 5.50 | 0.70 | 0.134 | ( 0.083) | 0.040 | 0.094 |
| 23 | 5.75 | 0.80 | 0.154 | ( 0.082) | 0.046 | 0.107 |
| 24 | 6.00 | 0.80 | 0.154 | ( 0.081) | 0.046 | 0.107 |
| 25 | 6.25 | 0.90 | 0.173 | ( 0.080) | 0.052 | 0.121 |
| 26 | 6.50 | 0.90 | 0.173 | ( 0.078) | 0.052 | 0.121 |
| 27 | 6.75 | 1.00 | 0.192 | ( 0.077) | 0.058 | 0.134 |
| 28 | 7.00 | 1.00 | 0.192 | ( 0.076) | 0.058 | 0.134 |
| 29 | 7.25 | 1.00 | 0.192 | ( 0.075) | 0.058 | 0.134 |
| 30 | 7.50 | 1.10 | 0.211 | ( 0.074) | 0.063 | 0.148 |
| 31 | 7.75 | 1.20 | 0.230 | ( 0.073) | 0.069 | 0.161 |
| 32 | 8.00 | 1.30 | 0.249 | 0.072 | ( 0.075) | 0.177 |
| 33 | 8.25 | 1.50 | 0.288 | 0.071 | ( 0.086) | 0.217 |
| 34 | 8.50 | 1.50 | 0.288 | 0.070 | ( 0.086) | 0.218 |
| 35 | 8.75 | 1.60 | 0.307 | 0.069 | ( 0.092) | 0.238 |
| 36 | 9.00 | 1.70 | 0.326 | 0.068 | ( 0.098) | 0.258 |
| 37 | 9.25 | 1.90 | 0.365 | 0.067 | ( 0.109) | 0.297 |
| 38 | 9.50 | 2.00 | 0.384 | 0.066 | ( 0.115) | 0.317 |
| 39 | 9.75 | 2.10 | 0.403 | 0.065 | ( 0.121) | 0.338 |
| 40 | 10.00 | 2.20 | 0.422 | 0.064 | ( 0.127) | 0.358 |
| 41 | 10.25 | 1.50 | 0.288 | 0.064 | ( 0.086) | 0.224 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 42 | 10.50 | 1.50 | 0.288 | 0.063 | ( 0.086) | 0.225 |
| 43 | 10.75 | 2.00 | 0.384 | 0.062 | ( 0.115) | 0.322 |
| 44 | 11.00 | 2.00 | 0.384 | 0.061 | ( 0.115) | 0.323 |
| 45 | 11.25 | 1.90 | 0.365 | 0.060 | ( 0.109) | 0.305 |
| 46 | 11.50 | 1.90 | 0.365 | 0.059 | ( 0.109) | 0.306 |
| 47 | 11.75 | 1.70 | 0.326 | 0.058 | ( 0.098) | 0.268 |
| 48 | 12.00 | 1.80 | 0.345 | 0.057 | ( 0.104) | 0.288 |
| 49 | 12.25 | 2.50 | 0.480 | 0.056 | ( 0.144) | 0.423 |
| 50 | 12.50 | 2.60 | 0.499 | 0.056 | ( 0.150) | 0.443 |
| 51 | 12.75 | 2.80 | 0.537 | 0.055 | ( 0.161) | 0.483 |
| 52 | 13.00 | 2.90 | 0.556 | 0.054 | ( 0.167) | 0.503 |
| 53 | 13.25 | 3.40 | 0.652 | 0.053 | ( 0.196) | 0.599 |
| 54 | 13.50 | 3.40 | 0.652 | 0.052 | ( 0.196) | 0.600 |
| 55 | 13.75 | 2.30 | 0.441 | 0.052 | ( 0.132) | 0.390 |
| 56 | 14.00 | 2.30 | 0.441 | 0.051 | ( 0.132) | 0.391 |
| 57 | 14.25 | 2.70 | 0.518 | 0.050 | ( 0.155) | 0.468 |
| 58 | 14.50 | 2.60 | 0.499 | 0.049 | ( 0.150) | 0.450 |
| 59 | 14.75 | 2.60 | 0.499 | 0.048 | ( 0.150) | 0.450 |
| 60 | 15.00 | 2.50 | 0.480 | 0.048 | ( 0.144) | 0.432 |
| 61 | 15.25 | 2.40 | 0.461 | 0.047 | ( 0.138) | 0.414 |
| 62 | 15.50 | 2.30 | 0.441 | 0.046 | ( 0.132) | 0.395 |
| 63 | 15.75 | 1.90 | 0.365 | 0.046 | ( 0.109) | 0.319 |
| 64 | 16.00 | 1.90 | 0.365 | 0.045 | ( 0.109) | 0.320 |
| 65 | 16.25 | 0.40 | 0.077 | ( 0.044) | 0.023 | 0.054 |
| 66 | 16.50 | 0.40 | 0.077 | ( 0.044) | 0.023 | 0.054 |
| 67 | 16.75 | 0.30 | 0.058 | ( 0.043) | 0.017 | 0.040 |
| 68 | 17.00 | 0.30 | 0.058 | ( 0.042) | 0.017 | 0.040 |
| 69 | 17.25 | 0.50 | 0.096 | ( 0.042) | 0.029 | 0.067 |
| 70 | 17.50 | 0.50 | 0.096 | ( 0.041) | 0.029 | 0.067 |
| 71 | 17.75 | 0.50 | 0.096 | ( 0.040) | 0.029 | 0.067 |
| 72 | 18.00 | 0.40 | 0.077 | ( 0.040) | 0.023 | 0.054 |
| 73 | 18.25 | 0.40 | 0.077 | ( 0.039) | 0.023 | 0.054 |
| 74 | 18.50 | 0.40 | 0.077 | ( 0.039) | 0.023 | 0.054 |
| 75 | 18.75 | 0.30 | 0.058 | ( 0.038) | 0.017 | 0.040 |
| 76 | 19.00 | 0.20 | 0.038 | ( 0.037) | 0.012 | 0.027 |
| 77 | 19.25 | 0.30 | 0.058 | ( 0.037) | 0.017 | 0.040 |
| 78 | 19.50 | 0.40 | 0.077 | ( 0.036) | 0.023 | 0.054 |
| 79 | 19.75 | 0.30 | 0.058 | ( 0.036) | 0.017 | 0.040 |
| 80 | 20.00 | 0.20 | 0.038 | ( 0.035) | 0.012 | 0.027 |
| 81 | 20.25 | 0.30 | 0.058 | ( 0.035) | 0.017 | 0.040 |
| 82 | 20.50 | 0.30 | 0.058 | ( 0.035) | 0.017 | 0.040 |
| 83 | 20.75 | 0.30 | 0.058 | ( 0.034) | 0.017 | 0.040 |
| 84 | 21.00 | 0.20 | 0.038 | ( 0.034) | 0.012 | 0.027 |
| 85 | 21.25 | 0.30 | 0.058 | ( 0.033) | 0.017 | 0.040 |
| 86 | 21.50 | 0.20 | 0.038 | ( 0.033) | 0.012 | 0.027 |
| 87 | 21.75 | 0.30 | 0.058 | ( 0.033) | 0.017 | 0.040 |
| 88 | 22.00 | 0.20 | 0.038 | ( 0.032) | 0.012 | 0.027 |
| 89 | 22.25 | 0.30 | 0.058 | ( 0.032) | 0.017 | 0.040 |
| 90 | 22.50 | 0.20 | 0.038 | ( 0.032) | 0.012 | 0.027 |
| 91 | 22.75 | 0.20 | 0.038 | ( 0.031) | 0.012 | 0.027 |
| 92 | 23.00 | 0.20 | 0.038 | ( 0.031) | 0.012 | 0.027 |
| 93 | 23.25 | 0.20 | 0.038 | ( 0.031) | 0.012 | 0.027 |
| 94 | 23.50 | 0.20 | 0.038 | ( 0.031) | 0.012 | 0.027 |
| 95 | 23.75 | 0.20 | 0.038 | ( 0.031) | 0.012 | 0.027 |
| 96 | 24.00 | 0.20 | 0.038 | ( 0.030) | 0.012 | 0.027 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 15.6

Flood volume = Effective rainfall 3.91(In)
times area 303.0(Ac.)/[(In)/(Ft.)] = 98.6(Ac.Ft)
Total soil loss = 0.89(In)
Total soil loss = 22.495(Ac.Ft)
Total rainfall = 4.80(In)
Flood volume = 4296467.2 Cubic Feet
Total soil loss = 979880.4 Cubic Feet

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Peak flow rate of this hydrograph = 180.938(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 50.0 | 100.0 | 150.0 | 200.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0906 | 4.39 | Q | | | | |
| 0+30 | 0.2924 | 9.76 | VQ | | | | |
| 0+45 | 0.5402 | 11.99 | V Q | | | | |
| 1+ 0 | 0.8398 | 14.50 | V Q | | | | |
| 1+15 | 1.1271 | 13.90 | V Q | | | | |
| 1+30 | 1.3881 | 12.63 | V Q | | | | |
| 1+45 | 1.6424 | 12.31 | V Q | | | | |
| 2+ 0 | 1.9421 | 14.50 | V Q | | | | |
| 2+15 | 2.2747 | 16.10 | V Q | | | | |
| 2+30 | 2.6138 | 16.42 | V Q | | | | |
| 2+45 | 2.9983 | 18.61 | V Q | | | | |
| 3+ 0 | 3.4157 | 20.20 | V Q | | | | |
| 3+15 | 3.8396 | 20.52 | V Q | | | | |
| 3+30 | 4.2636 | 20.52 | V Q | | | | |
| 3+45 | 4.6875 | 20.52 | V Q | | | | |
| 4+ 0 | 5.1568 | 22.71 | V Q | | | | |
| 4+15 | 5.6590 | 24.30 | V Q | | | | |
| 4+30 | 6.2130 | 26.82 | V Q | | | | |
| 4+45 | 6.8000 | 28.41 | V Q | | | | |
| 5+ 0 | 7.4388 | 30.92 | V Q | | | | |
| 5+15 | 8.0199 | 28.13 | V Q | | | | |
| 5+30 | 8.5871 | 27.45 | V Q | | | | |
| 5+45 | 9.2194 | 30.60 | V Q | | | | |
| 6+ 0 | 9.8911 | 32.51 | V Q | | | | |
| 6+15 | 10.6148 | 35.02 | V Q | | | | |
| 6+30 | 11.3713 | 36.62 | V Q | | | | |
| 6+45 | 12.1797 | 39.13 | V Q | | | | |
| 7+ 0 | 13.0210 | 40.72 | V Q | | | | |
| 7+15 | 13.8689 | 41.04 | V Q | | | | |
| 7+30 | 14.7621 | 43.23 | V Q | | | | |
| 7+45 | 15.7336 | 47.02 | V Q | | | | |
| 8+ 0 | 16.7985 | 51.54 | V Q | | | | |
| 8+15 | 18.0420 | 60.19 | V Q | | | | |
| 8+30 | 19.3932 | 65.40 | V Q | | | | |
| 8+45 | 20.8341 | 69.74 | V Q | | | | |
| 9+ 0 | 22.3930 | 75.45 | V Q | | | | |
| 9+15 | 24.1438 | 84.74 | V Q | | | | |
| 9+30 | 26.0689 | 93.17 | V Q | | | | |
| 9+45 | 28.1305 | 99.78 | V Q | | | | |
| 10+ 0 | 30.3193 | 105.93 | V Q | | | | |
| 10+15 | 32.1172 | 87.02 | V Q | | | | |
| 10+30 | 33.6013 | 71.83 | VQ | | | | |
| 10+45 | 35.3491 | 84.59 | V Q | | | | |
| 11+ 0 | 37.3377 | 96.25 | V Q | | | | |
| 11+15 | 39.3141 | 95.66 | V Q | | | | |
| 11+30 | 41.2492 | 93.66 | V Q | | | | |
| 11+45 | 43.0510 | 87.21 | Q | | | | |
| 12+ 0 | 44.8290 | 86.05 | QV | | | | |
| 12+15 | 47.0937 | 109.61 | V Q | | | | |
| 12+30 | 49.7670 | 129.39 | V Q | | | | |
| 12+45 | 52.6879 | 141.37 | V Q | | | | |
| 13+ 0 | 55.7820 | 149.76 | V Q | | | | |
| 13+15 | 59.2708 | 168.86 | V Q | | | | |
| 13+30 | 63.0092 | 180.94 | V Q | | | | |
| 13+45 | 66.0876 | 148.99 | V Q | | | | |
| 14+ 0 | 68.6538 | 124.20 | Q V | | | | |
| 14+15 | 71.3806 | 131.98 | Q V | | | | |
| 14+30 | 74.2356 | 138.18 | Q V | | | | |
| 14+45 | 77.0858 | 137.95 | Q V | | | | |
| 15+ 0 | 79.8667 | 134.59 | Q V | | | | |
| 15+15 | 82.5405 | 129.41 | Q V | | | | |
| 15+30 | 85.0977 | 123.77 | Q V | | | | |
| 15+45 | 87.3442 | 108.73 | Q V | | | | |
| 16+ 0 | 89.3976 | 99.39 | Q V | | | | |
| 16+15 | 90.5183 | 54.24 | Q V | | | | |
| 16+30 | 90.9876 | 22.71 | Q V | | | | |
| 16+45 | 91.2814 | 14.22 | Q V | | | | |
| 17+ 0 | 91.5424 | 12.63 | Q V | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17+15 | 91.8874 | 16.70 | Q | | | V | |
| 17+30 | 92.2982 | 19.88 | Q | | | V | |
| 17+45 | 92.7221 | 20.52 | Q | | | V | |
| 18+ 0 | 93.1008 | 18.33 | Q | | | V | |
| 18+15 | 93.4465 | 16.73 | Q | | | V | |
| 18+30 | 93.7857 | 16.42 | Q | | | V | |
| 18+45 | 94.0795 | 14.22 | Q | | | V | |
| 19+ 0 | 94.2951 | 10.44 | Q | | | V | |
| 19+15 | 94.5166 | 10.72 | Q | | | V | |
| 19+30 | 94.8097 | 14.19 | Q | | | V | |
| 19+45 | 95.0970 | 13.90 | Q | | | V | |
| 20+ 0 | 95.3126 | 10.44 | Q | | | V | |
| 20+15 | 95.5341 | 10.72 | Q | | | V | |
| 20+30 | 95.7819 | 11.99 | Q | | | V | |
| 20+45 | 96.0362 | 12.31 | Q | | | V | |
| 21+ 0 | 96.2453 | 10.12 | Q | | | V | |
| 21+15 | 96.4668 | 10.72 | Q | | | V | |
| 21+30 | 96.6693 | 9.80 | Q | | | V | |
| 21+45 | 96.8907 | 10.72 | Q | | | V | |
| 22+ 0 | 97.0932 | 9.80 | Q | | | V | |
| 22+15 | 97.3147 | 10.72 | Q | | | V | |
| 22+30 | 97.5172 | 9.80 | Q | | | V | |
| 22+45 | 97.6933 | 8.53 | Q | | | V | |
| 23+ 0 | 97.8629 | 8.21 | Q | | | V | |
| 23+15 | 98.0325 | 8.21 | Q | | | V | |
| 23+30 | 98.2020 | 8.21 | Q | | | V | |
| 23+45 | 98.3716 | 8.21 | Q | | | V | |
| 24+ 0 | 98.5412 | 8.21 | Q | | | V | |
| 24+15 | 98.6202 | 3.82 | Q | | | V | |
| 24+30 | 98.6333 | 0.64 | Q | | | V | |

```
        U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  05/02/12 File: SUBC324100.out

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------------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Watershed C, Subdrain Area C3
Proposed Conditions
100 Yr, 24 Hr.

---------------------------------------------------------------
Drainage Area =      83.70(Ac.)  =      0.131 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      83.70(Ac.)  =      0.131 Sq. Mi.
Length along longest watercourse =     3000.00(Ft.)
Length along longest watercourse measured to centroid =     1500.00(Ft.)
Length along longest watercourse =      0.568 Mi.
Length along longest watercourse measured to centroid =      0.284 Mi.
Difference in elevation =      50.00(Ft.)
Slope along watercourse =     88.0000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.077 Hr.
Lag time =     4.61 Min.
25% of lag time =     1.15 Min.
40% of lag time =     1.85 Min.
Unit time =     15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
       83.70             1.80                150.66

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
       83.70             4.50                376.65

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     1.800(In)
Area Averaged 100-Year Rainfall =     4.500(In)

Point rain (area averaged) =     4.500(In)
Areal adjustment factor =    99.98 %
Adjusted average point rain =     4.499(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
    83.700            85.00           0.750
 Total Area Entered =      83.70(Ac.)
```



```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)     (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
85.0  85.0       0.187      0.750         0.061        1.000       0.061
                                                    Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.300
------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                     VALLEY S-Curve
-----------------------------------------------------------------
                  Unit Hydrograph Data
-----------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
    (hrs)                           Graph %           (CFS)
-----------------------------------------------------------------
     1   0.250         325.140         59.121           49.871
     2   0.500         650.280         35.788           30.189
     3   0.750         975.420          5.091            4.294
                              Sum = 100.000    Sum=      84.354
-----------------------------------------------------------------
```

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.275 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.294 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.313 |
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 42 | 10.50 | 1.50 | 0.270 | | 0.063 | ( 0.081) | 0.207 |
| 43 | 10.75 | 2.00 | 0.360 | | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | | 0.052 | ( 0.184) | 0.560 |
| 55 | 13.75 | 2.30 | 0.414 | | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 83.7(Ac.)/[(In)/(Ft.)] = 25.4(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 6.031(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 1104313.5 Cubic Feet
Total soil loss = 262702.5 Cubic Feet

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Peak flow rate of this hydrograph = 46.809(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))



| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 12.5 25.0 37.5 50.0 |
|---|---|---|---|
| 0+15 | 0.0260 | 1.26 | VQ |
| 0+30 | 0.0807 | 2.65 | V Q |
| 0+45 | 0.1454 | 3.14 | V Q |
| 1+ 0 | 0.2243 | 3.82 | V Q |
| 1+15 | 0.2981 | 3.57 | V Q |
| 1+30 | 0.3651 | 3.24 | V Q |
| 1+45 | 0.4310 | 3.19 | V Q |
| 2+ 0 | 0.5099 | 3.82 | V Q |
| 2+15 | 0.5967 | 4.20 | V Q |
| 2+30 | 0.6845 | 4.25 | V Q |
| 2+45 | 0.7854 | 4.88 | V Q |
| 3+ 0 | 0.8941 | 5.26 | V Q |
| 3+15 | 1.0040 | 5.32 | V Q |
| 3+30 | 1.1138 | 5.32 | V Q |
| 3+45 | 1.2236 | 5.32 | V Q |
| 4+ 0 | 1.3465 | 5.94 | V Q |
| 4+15 | 1.4771 | 6.33 | V Q |
| 4+30 | 1.6219 | 7.01 | V Q |
| 4+45 | 1.7746 | 7.39 | V Q |
| 5+ 0 | 1.9414 | 8.07 | V Q |
| 5+15 | 2.0900 | 7.19 | V Q |
| 5+30 | 2.2370 | 7.12 | V Q |
| 5+45 | 2.4027 | 8.02 | V Q |
| 6+ 0 | 2.5773 | 8.45 | V Q |
| 6+15 | 2.7660 | 9.13 | V Q |
| 6+30 | 2.9626 | 9.51 | V Q |
| 6+45 | 3.1733 | 10.20 | V Q |
| 7+ 0 | 3.3919 | 10.58 | V Q |
| 7+15 | 3.6116 | 10.63 | V Q |
| 7+30 | 3.8442 | 11.26 | V Q |
| 7+45 | 4.0977 | 12.27 | V Q |
| 8+ 0 | 4.3732 | 13.33 | V Q |
| 8+15 | 4.6937 | 15.51 | V Q |
| 8+30 | 5.0381 | 16.67 | V Q |
| 8+45 | 5.4058 | 17.80 | V Q |
| 9+ 0 | 5.8050 | 19.32 | V Q |
| 9+15 | 6.2558 | 21.82 | V Q |
| 9+30 | 6.7509 | 23.96 | V Q |
| 9+45 | 7.2806 | 25.64 | V Q |
| 10+ 0 | 7.8434 | 27.24 | V Q |
| 10+15 | 8.2908 | 21.65 | V Q |
| 10+30 | 8.6627 | 18.00 | VQ |
| 10+45 | 9.1179 | 22.03 | V Q |
| 11+ 0 | 9.6307 | 24.82 | V Q |
| 11+15 | 10.1346 | 24.39 | V Q |
| 11+30 | 10.6288 | 23.92 | V Q |
| 11+45 | 11.0858 | 22.12 | Q |
| 12+ 0 | 11.5405 | 22.00 | QV |
| 12+15 | 12.1345 | 28.75 | V Q |
| 12+30 | 12.8288 | 33.60 | V Q |
| 12+45 | 13.5841 | 36.56 | V Q |
| 13+ 0 | 14.3834 | 38.69 | V Q |
| 13+15 | 15.2914 | 43.95 | V Q |
| 13+30 | 16.2585 | 46.81 | V Q |
| 13+45 | 17.0310 | 37.39 | V Q |
| 14+ 0 | 17.6812 | 31.47 | Q V |
| 14+15 | 18.3895 | 34.28 | Q V |
| 14+30 | 19.1254 | 35.62 | Q V |
| 14+45 | 19.8579 | 35.45 | Q V |
| 15+ 0 | 20.5715 | 34.54 | Q V |
| 15+15 | 21.2566 | 33.16 | Q V |
| 15+30 | 21.9115 | 31.70 | Q V |
| 15+45 | 22.4807 | 27.55 | Q V |
| 16+ 0 | 23.0046 | 25.36 | Q V |
| 16+15 | 23.2682 | 12.76 | Q V |
| 16+30 | 23.3780 | 5.31 | Q V |
| 16+45 | 23.4529 | 3.62 | Q V |
| 17+ 0 | 23.5199 | 3.24 | Q V |

```
17+15      23.6118     4.45  |   Q     |         |         |       V   |
17+30      23.7194     5.21  |    Q    |         |         |       V   |
17+45      23.8292     5.32  |    Q    |         |         |       V   |
18+ 0      23.9261     4.69  |   Q     |         |         |       V   |
18+15      24.0151     4.31  |   Q     |         |         |       V   |
18+30      24.1029     4.25  |   Q     |         |         |        V  |
18+45      24.1778     3.62  |  Q      |         |         |        V  |
19+ 0      24.2319     2.62  |  Q      |         |         |        V  |
19+15      24.2899     2.81  |  Q      |         |         |        V  |
19+30      24.3677     3.76  |   Q     |         |         |        V  |
19+45      24.4414     3.57  |  Q      |         |         |        V  |
20+ 0      24.4955     2.62  |  Q      |         |         |        V  |
20+15      24.5535     2.81  |  Q      |         |         |        V  |
20+30      24.6183     3.14  |  Q      |         |         |        V  |
20+45      24.6842     3.19  |  Q      |         |         |        V  |
21+ 0      24.7371     2.56  |  Q      |         |         |         V |
21+15      24.7951     2.81  |  Q      |         |         |         V |
21+30      24.8469     2.51  |  Q      |         |         |         V |
21+45      24.9050     2.81  |  Q      |         |         |         V |
22+ 0      24.9568     2.51  |  Q      |         |         |         V |
22+15      25.0148     2.81  |  Q      |         |         |         V |
22+30      25.0666     2.51  |  Q      |         |         |         V |
22+45      25.1117     2.18  |Q        |         |         |         V |
23+ 0      25.1556     2.13  |Q        |         |         |         V |
23+15      25.1995     2.13  |Q        |         |         |         V |
23+30      25.2435     2.13  |Q        |         |         |         V |
23+45      25.2874     2.13  |Q        |         |         |         V |
24+ 0      25.3314     2.13  |Q        |         |         |         V |
24+15      25.3493     0.87  Q         |         |         |         V |
24+30      25.3515     0.11  Q         |         |         |          V
-------------------------------------------------------------------------
```

```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                       Study date: 09/19/13


 ---------------------------------------------------------------------


 Line D, Routed
 Proposed Condition
 100 Yr. 3 Hr.

 ---------------------------------------------------------------------


 Program License Serial Number 6097

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 ******************** HYDROGRAPH INFORMATION **********************

                From study/file name: OffsiteD13100.rte
 ****************************HYDROGRAPH DATA****************************
                Number of intervals =    22
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      373.436 (CFS)
                Total volume =      42.431 (Ac.Ft)
        Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
 *********************************************************************



 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station        0.000 to Point/Station        1.000
 **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
 ---------------------------------------------------------------------
 ******************** HYDROGRAPH INFORMATION **********************

                From study/file name: OffsiteD23100.rte
 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                   P R I N T   O F   S T O R M
                   R u n o f f     H y d r o g r a p h
 ---------------------------------------------------------------------
              Hydrograph in  15   Minute intervals (CFS)

 ---------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0       130.4      260.7      391.1      521.5
---------------------------------------------------------------------------
  0+15       1.7742      2.69  Q          |          |          |          |
  0+30       6.7907     15.43  qQ         |          |          |          |
  0+45      12.2708     40.00  q  Q       |          |          |          |
  1+ 0      14.3332     58.59 |q  Q       |          |          |          |
  1+15      21.5676     75.34 |q   Q      |          |          |          |
  1+30      37.4948    116.61  | q     Q  |          |          |          |
  1+45      50.4496    160.23  |  q      | Q        |          |          |
  2+ 0      63.0103    202.76  |   q     |   Q      |          |          |
  2+15      85.2339    258.19  |     q   |      Q   |          |          |
  2+30     136.5971    378.01  |         q          |       Q  |          |
  2+45     174.1599    521.46  |          |  q      |          |          Q
  3+ 0      115.2907   488.73  |          |   q     |          |       Q  |
  3+15       24.8564   257.39 |q         |         Q|          |          |
  3+30        4.7669   111.68  q          Q         |          |          |
  3+45        1.0290    57.65  q   Q      |         |          |          |
  4+ 0        0.0319    29.08  q Q        |         |          |          |
  4+15        0.0000    13.67  qQ         |         |          |          |
  4+30        0.0000     7.29  Q          |         |          |          |
  4+45        0.0000     4.77  Q          |         |          |          |
  5+ 0        0.0000     2.79  Q          |         |          |          |
  5+15        0.0000     0.92  Q          |         |          |          |
```



```
  5+30        0.0000     0.06  Q          |         |          |          |
---------------------------------------------------------------------------
 ****************************HYDROGRAPH DATA****************************
                Number of intervals =    22
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      521.460 (CFS)
                Total volume =      57.920 (Ac.Ft)
        Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
 *********************************************************************


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 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station        1.000 to Point/Station        2.000
 **** STREAM ROUTING SCS CONVEX METHOD ****
 ---------------------------------------------------------------------
 HYDROGRAPH STREAM ROUTING DATA:
 Length of stream =   1500.00 (Ft.)
 Elevation difference =   30.00 (Ft.)
 Slope of channel =  0.020000 (Vert/Horiz)
 Channel type - Pipe


 Pipe length  =  1500.00(Ft.)   Elevation difference =  30.00(Ft.)
 Manning's N = 0.013   No. of pipes = 1
 Pipe evaluation using mean flow rate of hydrograph
 Required pipe flow  =   193.170(CFS)
 Given pipe size =    96.00(In.)
 Calculated individual pipe flow  =   193.170(CFS)
 Normal flow depth in pipe =   25.10(In.)
 Flow top width inside pipe =   84.37(In.)
 Critical Depth =    3.48(Ft.)
 Pipe flow velocity =    18.45(Ft/s)
 Travel time through pipe =    1.36 min.


 Pipe length  =  1500.00(Ft.)   Elevation difference =  30.00(Ft.)
 Manning's N = 0.013   No. of pipes = 1
 Pipe evaluation using maximum flow rate of hydrograph
 Required pipe flow  =   521.460(CFS)
 Given pipe size =    96.00(In.)
 Calculated individual pipe flow  =   521.460(CFS)
 Normal flow depth in pipe =   42.47(In.)
 Flow top width inside pipe =   95.36(In.)
 Critical Depth =    5.82(Ft.)
 Pipe flow velocity =    24.30(Ft/s)
 Travel time through pipe =    1.03 min.


 ********************** SCS CONVEX CHANNEL ROUTING ********************
 Convex method of stream routing  data items:
 Using equation: Outflow =
 O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
           where c* = 1 - (1-c)^e and dt = c(length)/velocity
           c(v/v+1.7) =   0.9346   Travel time =   1.03 (min.)
         dt*(unit time interval) =  15.00(min.),   e=  10.7323
         dt(routing time-step) =   0.96 (min.),   c* =   1.0000

 Output hydrograph delayed by 0  unit time increments


 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                   P R I N T   O F   S T O R M
                   R u n o f f     H y d r o g r a p h
 ---------------------------------------------------------------------
              Hydrograph in  15   Minute intervals (CFS)

 ---------------------------------------------------------------------
```

| Time(h+m) | Out = O(CFS) | In = I | 0 | 130.4 | 260.7 | 391.1 | 521.5 |
|---|---|---|---|---|---|---|---|
| 0+15 | 2.5160 | 2.69 | O | \| | \| | \| | \| |
| 0+30 | 14.6145 | 15.43 | IO | \| | \| | \| | \| |
| 0+45 | 38.4295 | 40.00 | OI | \| | \| | \| | \| |
| 1+ 0 | 57.3982 | 58.59 | O | \| | \| | \| | \| |
| 1+15 | 74.2668 | 75.34 | O | \| | \| | \| | \| |
| 1+30 | 113.9664 | 116.61 | O | \| | \| | \| | \| |
| 1+45 | 157.4319 | 160.23 | O | \| | \| | \| | \| |
| 2+ 0 | 200.0333 | 202.76 | O | \| | \| | \| | \| |
| 2+15 | 254.6394 | 258.19 | O | \| | \| | \| | \| |
| 2+30 | 370.3255 | 378.01 | O | \| | \| | \| | \| |
| 2+45 | 512.2636 | 521.46 | O | \| | \| | \| | I |
| 3+ 0 | 490.8248 | 488.73 | O | \| | \| | \| | \| |
| 3+15 | 272.2188 | 257.39 | O | \| | \| | \| | \| |
| 3+30 | 121.0229 | 111.68 | O | \| | \| | \| | \| |
| 3+45 | 61.1143 | 57.65 | O | \| | \| | \| | \| |
| 4+ 0 | 30.9119 | 29.08 | O | \| | \| | \| | \| |
| 4+15 | 14.6602 | 13.67 | O | \| | \| | \| | \| |
| 4+30 | 7.6982 | 7.29 | O | \| | \| | \| | \| |
| 4+45 | 4.9288 | 4.77 | O | \| | \| | \| | \| |
| 5+ 0 | 2.9150 | 2.79 | O | \| | \| | \| | \| |
| 5+15 | 1.0434 | 0.92 | O | \| | \| | \| | \| |
| 5+30 | 0.1125 | 0.06 | O | \| | \| | \| | \| |
| 5+45 | 0.0036 | 0.00 | O | \| | \| | \| | \| |
| 6+ 0 | 0.0000 | 0.00 | O | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 24
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 512.264 (CFS)
Total volume = 57.920 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 1.000 to Point/Station 2.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

**********  HYDROGRAPH INFORMATION  **********

From study/file name: SubD13100.rte

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P R I N T  O F  S T O R M
R u n o f f  H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

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| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 176.3 | 352.6 | 529.0 | 705.3 |
|---|---|---|---|---|---|---|---|
| 0+15 | 26.4282 | 28.94 | Q | \| | \| | \| | \| |
| 0+30 | 45.7041 | 60.32 | qQ | \| | \| | \| | \| |
| 0+45 | 51.9474 | 90.38 | q Q | \| | \| | \| | \| |
| 1+ 0 | 51.0816 | 108.48 | q Q | \| | \| | \| | \| |
| 1+15 | 65.9372 | 140.20 | q Q | \| | \| | \| | \| |
| 1+30 | 77.7402 | 191.71 | q Q | \| | \| | \| | \| |
| 1+45 | 89.9986 | 247.43 | q Q | \| | \| | \| | \| |
| 2+ 0 | 98.9760 | 299.01 | q Q | \| | \| | \| | \| |
| 2+15 | 130.9659 | 385.61 | q Q | \| | \| | \| | \| |
| 2+30 | 189.7970 | 560.12 | q | \| | \| | \| | Q |
| 2+45 | 193.0339 | 705.30 | q | \| | \| | \| | Q |
| 3+ 0 | 79.7934 | 570.62 | q | \| | \| | \| | Q |
| 3+15 | 10.8457 | 283.06 | q | \| | Q | \| | \| |
| 3+30 | 0.0000 | 121.02 | q | Q | \| | \| | \| |
| 3+45 | 0.0000 | 61.11 | q Q | \| | \| | \| | \| |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4+ 0 | 0.0000 | 30.91 | qQ | \| | \| | \| | \| |
| 4+15 | 0.0000 | 14.66 | Q | \| | \| | \| | \| |
| 4+30 | 0.0000 | 7.70 | Q | \| | \| | \| | \| |
| 4+45 | 0.0000 | 4.93 | Q | \| | \| | \| | \| |
| 5+ 0 | 0.0000 | 2.92 | Q | \| | \| | \| | \| |
| 5+15 | 0.0000 | 1.04 | Q | \| | \| | \| | \| |
| 5+30 | 0.0000 | 0.11 | Q | \| | \| | \| | \| |
| 5+45 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |
| 6+ 0 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 24
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 705.297 (CFS)
Total volume = 80.901 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 2.000 to Point/Station 2.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

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Total number of inflow hydrograph intervals = 24
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

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Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

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Depth vs. Storage and Depth vs. Discharge data:

| Basin Depth (Ft.) | Storage (Ac.Ft) | Outflow (CFS) | (S-O*dt/2) (Ac.Ft) | (S+O*dt/2) (Ac.Ft) |
|---|---|---|---|---|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1.000 | 8.000 | 550.000 | 2.318 | 13.682 |
| 2.000 | 16.000 | 850.000 | 7.219 | 24.781 |
| 3.000 | 30.000 | 1000.000 | 19.669 | 40.331 |
| 4.000 | 42.001 | 1200.000 | 29.604 | 54.398 |

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Hydrograph Detention Basin Routing

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Graph values: 'I'= unit inflow; 'O'=outflow at time shown

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| Time (Hours) | Inflow (CFS) | Outflow (CFS) | Storage (Ac.Ft) | .0 | 176.3 | 352.65 | 528.97 | 705.30 | Depth (Ft.) |
|---|---|---|---|---|---|---|---|---|---|
| 0.250 | 28.94 | 12.02 | 0.175 | OI | \| | \| | \| | \| | 0.02 |
| 0.500 | 60.32 | 39.11 | 0.569 | OI | \| | \| | \| | \| | 0.07 |
| 0.750 | 90.38 | 69.21 | 1.007 | OI | \| | \| | \| | \| | 0.13 |
| 1.000 | 108.48 | 94.31 | 1.372 | O | \| | \| | \| | \| | 0.17 |
| 1.250 | 140.20 | 119.25 | 1.735 | OI | \| | \| | \| | \| | 0.22 |
| 1.500 | 191.71 | 158.04 | 2.299 | OI | \| | \| | \| | \| | 0.29 |
| 1.750 | 247.43 | 209.14 | 3.042 | O I | \| | \| | \| | \| | 0.38 |
| 2.000 | 299.01 | 262.36 | 3.816 | O I | \| | \| | \| | \| | 0.48 |
| 2.250 | 385.61 | 328.76 | 4.782 | O | I \| | \| | \| | \| | 0.60 |
| 2.500 | 560.12 | 448.45 | 6.523 | \| | \| | O | I \| | \| | 0.82 |
| 2.750 | 705.30 | 584.62 | 8.923 | \| | \| | \| | O | I \| | 1.12 |
| 3.000 | 570.62 | 614.41 | 9.718 | \| | \| | \| | I O | \| | 1.21 |
| 3.250 | 283.06 | 490.00 | 7.127 | \| | I \| | O | \| | \| | 0.89 |
| 3.500 | 121.02 | 250.83 | 3.649 | \| | I \| | O | \| | \| | 0.46 |

```
3.750   61.11  118.14      1.718  | I  0 |       |       |       |      0.21
4.000   30.91   58.23      0.847  |IO    |       |       |       |      0.11
4.250   14.66   28.79      0.419  IO     |       |       |       |      0.05
4.500    7.70   14.16      0.206  0      |       |       |       |      0.03
4.750    4.93    7.64      0.111  0      |       |       |       |      0.01
5.000    2.92    4.55      0.066  0      |       |       |       |      0.01
5.250    1.04    2.42      0.035  0      |       |       |       |      0.00
5.500    0.11    0.89      0.013  0      |       |       |       |      0.00
5.750    0.00    0.20      0.003  0      |       |       |       |      0.00
6.000    0.00    0.04      0.001  0      |       |       |       |      0.00
6.250    0.00    0.01      0.000  0      |       |       |       |      0.00

**************************HYDROGRAPH DATA**************************
                Number of intervals =    25
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      614.407 (CFS)
                Total volume =      80.901 (Ac.Ft)
        Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*******************************************************************


-------------------------------------------------------------------


+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        3.000
**** STREAM ROUTING SCS CONVEX METHOD ****
___________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   3720.00 (Ft.)
Elevation difference =   74.40 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  3720.00(Ft.)   Elevation difference =  74.40(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =   263.822(CFS)
Given pipe size =     96.00(In.)
Calculated individual pipe flow  =   263.822(CFS)
Normal flow depth in pipe =   31.73(In.)
Flow top width inside pipe =   90.32(In.)
Critical Depth =    4.09(Ft.)
Pipe flow velocity =     18.19(Ft/s)
Travel time through pipe =    3.41 min.


Pipe length  =  3720.00(Ft.)   Elevation difference =  74.40(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =   614.407(CFS)
Given pipe size =     96.00(In.)
Calculated individual pipe flow  =   614.407(CFS)
Normal flow depth in pipe =   50.81(In.)
Flow top width inside pipe =   95.84(In.)
Critical Depth =    6.31(Ft.)
Pipe flow velocity =     22.77(Ft/s)
Travel time through pipe =    2.72 min.


********************** SCS CONVEX CHANNEL ROUTING ********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =    0.9305   Travel time =    2.72 (min.)
        dt*(unit time interval) =  15.00(min.),   e=    4.2799
        dt(routing time-step) =   2.53 (min.),    c* =    1.0000
```



```
Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f    H y d r o g r a p h
--------------------------------------------------------------------
            Hydrograph in  15  Minute intervals (CFS)

--------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0      153.6     307.2     460.8     614.4
--------------------------------------------------------------------
  0+15       9.9894     12.02  0       |         |         |         |
  0+30      34.5301     39.11  | 0      |         |         |         |
  0+45      64.1220     69.21  |   0    |         |         |         |
  1+ 0      90.0674     94.31  |    OI  |         |         |         |
  1+15     115.0390    119.25  |      0 |         |         |         |
  1+30     151.4895    158.04  |        OI        |         |         |
  1+45     200.5111    209.14  |          | 0     |         |         |
  2+ 0      253.3726   262.36  |          |    OI |         |         |
  2+15     317.5450    328.76  |          |       OI        |         |
  2+30     428.2291    448.45  |          |          |    0 I |         |
  2+45     561.6162    584.62  |          |          |        |      0 I|
  3+ 0      609.3746   614.41  |          |          |        |        OI
  3+15     511.0200    490.00  |          |          |        |   I 0   |
  3+30     291.2381    250.83  |          |       I 0 |       |         |
  3+45     140.5555    118.14  |       I 0|          |       |         |
  4+ 0       68.3538    58.23  |   IO     |          |       |         |
  4+15       33.7658    28.79  |IO        |          |       |         |
  4+30       16.6347    14.16  IO         |          |       |         |
  4+45        8.7450     7.64  0          |          |       |         |
  5+ 0        5.0747     4.55  0          |          |       |         |
  5+15        2.7763     2.42  0          |          |       |         |
  5+30        1.1470     0.89  0          |          |       |         |
  5+45        0.3155     0.20  0          |          |       |         |
  6+ 0        0.0629     0.04  0          |          |       |         |
  6+15        0.0109     0.01  0          |          |       |         |
  6+30        0.0010     0.00  0          |          |       |         |
  6+45        0.0000     0.00  0          |          |       |         |
--------------------------------------------------------------------

**************************HYDROGRAPH DATA**************************
                Number of intervals =    27
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      609.375 (CFS)
                Total volume =      80.901 (Ac.Ft)
        Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*******************************************************************


-------------------------------------------------------------------


+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        3.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****
___________________________________________________________________
********************* HYDROGRAPH INFORMATION **********************

                From study/file name: SUBD23100.rte
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f    H y d r o g r a p h
--------------------------------------------------------------------
            Hydrograph in  15  Minute intervals (CFS)

--------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q  0      176.2     352.5     528.7     704.9
--------------------------------------------------------------------
  0+15      14.6449     24.63  qQ       |         |         |         |
  0+30      30.3266     64.86  |q Q     |         |         |         |
```

```
0+45      37.5450     101.67  | q  Q    |         |         |         |
1+ 0      38.2889     128.36  | q    Q  |         |         |         |
1+15      46.3684     161.41  | q      Q|         |         |         |
1+30      55.7114     207.20  |  q       |Q        |         |         |
1+45      64.8026     265.31  |  q       |   Q     |         |         |
2+ 0      72.1234     325.50  |   q      |      Q  |         |         |
2+15      91.5904     409.14  |    q     |         |  Q      |         |
2+30     130.2650     558.49  |      q   |         |         |Q        |
2+45     143.3165     704.93  |       q  |         |         |         Q
3+ 0      81.3855     690.76  |    q     |         |         |        Q|
3+15      21.6973     532.72  |q         |         |       Q |         |
3+30       2.1832     293.42  q          |      Q  |         |         |
3+45       0.0000     140.56  q    Q     |         |         |         |
4+ 0       0.0000      68.35  q  Q       |         |         |         |
4+15       0.0000      33.77  qQ        |         |         |         |
4+30       0.0000      16.63  Q         |         |         |         |
4+45       0.0000       8.74  Q         |         |         |         |
5+ 0       0.0000       5.07  Q         |         |         |         |
5+15       0.0000       2.78  Q         |         |         |         |
5+30       0.0000       1.15  Q         |         |         |         |
5+45       0.0000       0.32  Q         |         |         |         |
6+ 0       0.0000       0.06  Q         |         |         |         |
6+15       0.0000       0.01  Q         |         |         |         |
6+30       0.0000       0.00  Q         |         |         |         |
6+45       0.0000       0.00  Q         |         |         |         |
--------------------------------------------------------------------------
     ***************************HYDROGRAPH DATA**************************
                 Number of intervals =    27
                 Time interval =   15.0 (Min.)
                 Maximum/Peak flow rate =      704.933 (CFS)
                 Total volume =      98.054 (Ac.Ft)
           Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
           Peak (CFS)       0.000     0.000     0.000     0.000     0.000
           Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
     ********************************************************************

     ----------------------------------------------------------------------
```



```
          U n i t   H y d r o g r a p h   A n a l y s i s

          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
                Study date  04/27/12 File: OffsiteD13100.out

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
------------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Watershed D, Offsite D1
Proposed Condition
100-year, 3-hour

------------------------------------------------------------------
Drainage Area =     443.50(Ac.)  =      0.693 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     443.50(Ac.)  =      0.693 Sq. Mi.
Length along longest watercourse =   13900.00(Ft.)
Length along longest watercourse measured to centroid =    6600.00(Ft.)
Length along longest watercourse =      2.633 Mi.
Length along longest watercourse measured to centroid =      1.250 Mi.
Difference in elevation =     857.00(Ft.)
Slope along watercourse =    325.5367 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.377 Hr.
Lag time =    22.63 Min.
25% of lag time =     5.66 Min.
40% of lag time =     9.05 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      443.50             0.85                376.97

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      443.50             1.90                842.65

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.81 %
Adjusted average point rain =    1.896(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
    35.200            46.00           0.000
    16.200            66.00           0.000
     3.900            77.00           0.000
```

388.200 83.00 0.000
Total Area Entered = 443.50(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.079 | 0.049 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.037 | 0.015 |
| 77.0 | 77.0 | 0.279 | 0.000 | 0.279 | 0.009 | 0.002 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.875 | 0.184 |
| | | | | | Sum (F) = | 0.249 |

Area averaged mean soil loss (F) (In/Hr) = 0.249
Minimum soil loss rate ((In/Hr)) = 0.125
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

---

U n i t H y d r o g r a p h
FOOTHILL S-Curve

---

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 66.287 | 6.542 | 29.242 |
| 2 | 0.500 | 132.575 | 37.826 | 169.068 |
| 3 | 0.750 | 198.862 | 30.871 | 137.982 |
| 4 | 1.000 | 265.150 | 11.436 | 51.115 |
| 5 | 1.250 | 331.437 | 6.452 | 28.840 |
| 6 | 1.500 | 397.724 | 3.588 | 16.038 |
| 7 | 1.750 | 464.012 | 1.551 | 6.933 |
| 8 | 2.000 | 530.299 | 0.677 | 3.026 |
| 9 | 2.250 | 596.587 | 0.470 | 2.099 |
| 10 | 2.500 | 662.874 | 0.403 | 1.800 |
| 11 | 2.750 | 729.161 | 0.184 | 0.822 |
| | | | Sum = 100.000 | Sum= 446.965 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.249 | ( 0.253) | 0.031 |
| 2 | 0.50 | 4.80 | 0.364 | 0.249 | ( 0.328) | 0.115 |
| 3 | 0.75 | 5.10 | 0.387 | 0.249 | ( 0.348) | 0.137 |
| 4 | 1.00 | 4.90 | 0.372 | 0.249 | ( 0.335) | 0.122 |
| 5 | 1.25 | 6.60 | 0.501 | 0.249 | ( 0.451) | 0.251 |
| 6 | 1.50 | 7.30 | 0.554 | 0.249 | ( 0.498) | 0.304 |
| 7 | 1.75 | 8.40 | 0.637 | 0.249 | ( 0.573) | 0.388 |
| 8 | 2.00 | 9.00 | 0.683 | 0.249 | ( 0.614) | 0.433 |
| 9 | 2.25 | 12.30 | 0.933 | 0.249 | ( 0.840) | 0.684 |
| 10 | 2.50 | 17.60 | 1.335 | 0.249 | ( 1.202) | 1.086 |
| 11 | 2.75 | 16.10 | 1.221 | 0.249 | ( 1.099) | 0.972 |
| 12 | 3.00 | 4.20 | 0.319 | 0.249 | ( 0.287) | 0.069 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 4.6 |

Flood volume = Effective rainfall 1.15(In)
times area 443.5(Ac.)/[(In)/(Ft.)] = 42.4(Ac.Ft)
Total soil loss = 0.75(In)
Total soil loss = 27.653(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 1848314.3 Cubic Feet
Total soil loss = 1204570.1 Cubic Feet

---

Peak flow rate of this hydrograph = 373.436(CFS)

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3 - H O U R S T O R M
R u n o f f H y d r o g r a p h



---

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 100.0 200.0 300.0 400.0 |
|---|---|---|---|
| 0+15 | 0.0189 | 0.91 | Q |
| 0+30 | 0.1974 | 8.64 | Q |
| 0+45 | 0.7704 | 27.73 | V Q |
| 1+ 0 | 1.6848 | 44.26 | V Q |
| 1+15 | 2.7958 | 53.77 | V Q |
| 1+30 | 4.4305 | 79.12 | V Q |
| 1+45 | 6.6986 | 109.78 | V Q |
| 2+ 0 | 9.5860 | 139.75 | V Q |
| 2+15 | 13.1596 | 172.96 | V Q |
| 2+30 | 18.1474 | 241.41 | V Q |
| 2+45 | 25.3230 | 347.30 | V Q |
| 3+ 0 | 33.0386 | 373.44 | V Q |
| 3+15 | 37.8430 | 232.53 | Q V |
| 3+30 | 40.0520 | 106.91 | Q V |
| 3+45 | 41.2218 | 56.62 | Q V |
| 4+ 0 | 41.8220 | 29.05 | Q V |
| 4+15 | 42.1045 | 13.67 | Q V |
| 4+30 | 42.2551 | 7.29 | Q V |
| 4+45 | 42.3536 | 4.77 | Q V |
| 5+ 0 | 42.4112 | 2.79 | Q V |
| 5+15 | 42.4303 | 0.92 | Q V |
| 5+30 | 42.4315 | 0.06 | Q V |

```
        U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  04/27/12 File: OffsiteD23100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed D, Offsite D2
Proposed Condition
100-year, 3-hour

--------------------------------------------------------------------
Drainage Area =     183.80(Ac.)  =      0.287 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     183.80(Ac.)  =      0.287 Sq. Mi.
Length along longest watercourse =     4950.00(Ft.)
Length along longest watercourse measured to centroid =     2120.00(Ft.)
Length along longest watercourse =      0.938 Mi.
Length along longest watercourse measured to centroid =      0.402 Mi.
Difference in elevation =      461.00(Ft.)
Slope along watercourse =     491.7333 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =     0.153 Hr.
Lag time =     9.18 Min.
25% of lag time =     2.29 Min.
40% of lag time =     3.67 Min.
Unit time =     15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
      183.80              0.85                156.23

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
      183.80              1.90                349.22

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     0.850(In)
Area Averaged 100-Year Rainfall =     1.900(In)

Point rain (area averaged) =     1.900(In)
Areal adjustment factor =    99.92 %
Adjusted average point rain =     1.898(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
    22.800            46.00          0.000
    35.900            66.00          0.000
     8.300            77.00          0.000
```



```
    116.800            83.00          0.000
 Total Area Entered =     183.80(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)     (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
46.0  46.0       0.611       0.000         0.611        0.124      0.076
66.0  66.0       0.405       0.000         0.405        0.195      0.079
77.0  77.0       0.279       0.000         0.279        0.045      0.013
83.0  83.0       0.210       0.000         0.210        0.635      0.133
                                                      Sum (F) =    0.301
Area averaged mean soil loss (F) (In/Hr) =  0.301
Minimum soil loss rate ((In/Hr)) =  0.150
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.900
--------------------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                      FOOTHILL S-Curve
--------------------------------------------------------------------------------
                    Unit Hydrograph Data
--------------------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
    (hrs)                           Graph %           (CFS)
--------------------------------------------------------------------------------
     1   0.250         163.411         34.070            63.110
     2   0.500         326.821         53.280            98.693
     3   0.750         490.232         10.282            19.046
     4   1.000         653.643          1.829             3.388
     5   1.250         817.053          0.539             0.999
                                Sum = 100.000    Sum=     185.236
--------------------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)  Percent   (In/Hr)          Max    |   Low         (In/Hr)
  1   0.25     3.70      0.281       ( 0.301)       0.253        0.028
  2   0.50     4.80      0.365          0.301    ( 0.328)        0.064
  3   0.75     5.10      0.387          0.301    ( 0.349)        0.086
  4   1.00     4.90      0.372          0.301    ( 0.335)        0.071
  5   1.25     6.60      0.501          0.301    ( 0.451)        0.200
  6   1.50     7.30      0.554          0.301    ( 0.499)        0.253
  7   1.75     8.40      0.638          0.301    ( 0.574)        0.337
  8   2.00     9.00      0.683          0.301    ( 0.615)        0.383
  9   2.25    12.30      0.934          0.301    ( 0.841)        0.633
 10   2.50    17.60      1.337          0.301    ( 1.203)        1.036
 11   2.75    16.10      1.223          0.301    ( 1.100)        0.922
 12   3.00     4.20      0.319       ( 0.301)       0.287        0.032
              (Loss Rate Not Used)
    Sum =    100.0                                Sum =     4.0
     Flood volume = Effective rainfall     1.01(In)
      times area     183.8(Ac.)/[(In)/(Ft.)] =      15.5(Ac.Ft)
     Total soil loss =      0.89(In)
     Total soil loss =    13.589(Ac.Ft)
     Total rainfall =      1.90(In)
     Flood volume =      674691.2 Cubic Feet
     Total soil loss =      591958.0 Cubic Feet
     --------------------------------------------------------------------
      Peak flow rate of this hydrograph =    174.160(CFS)
     --------------------------------------------------------------------
     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                     3 - H O U R    S T O R M
                  R u n o f f     H y d r o g r a p h
     --------------------------------------------------------------------
               Hydrograph in  15   Minute intervals ((CFS))
     --------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        50.0      100.0      150.0      200.0
--------------------------------------------------------------------------------
```

```
 0+15      0.0367      1.77  Q          |          |          |          |
 0+30      0.1770      6.79  VQ         |          |          |          |
 0+45      0.4305     12.27   VQ        |          |          |          |
 1+ 0      0.7266     14.33  |VQ        |          |          |          |
 1+15      1.1722     21.57  |  VQ      |          |          |          |
 1+30      1.9469     37.49  |    V Q   |          |          |          |
 1+45      2.9893     50.45  |      V   Q          |          |          |
 2+ 0      4.2911     63.01  |          |VQ        |          |          |
 2+15      6.0522     85.23  |          |   V Q    |          |          |
 2+30      8.8744    136.60  |          |          |  V    Q  |          |
 2+45     12.4728    174.16  |          |          |          |  V Q     |
 3+ 0     14.8548    115.29  |          |          |  Q       |       V  |
 3+15     15.3684     24.86  |    Q     |          |          |          V|
 3+30     15.4669      4.77  Q          |          |          |          V|
 3+45     15.4881      1.03  Q          |          |          |          V|
 4+ 0     15.4888      0.03  Q          |          |          |          V
-------------------------------------------------------------------------
```



```
        U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  04/30/12 File: SubD13100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------------
Watershed D, Onsite D1
Proposed Condition
100-year, 3-hour

--------------------------------------------------------------------
Drainage Area =     160.67(Ac.)  =      0.251 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     160.67(Ac.)  =      0.251 Sq. Mi.
Length along longest watercourse =    1500.00(Ft.)
Length along longest watercourse measured to centroid =     750.00(Ft.)
Length along longest watercourse =      0.284 Mi.
Length along longest watercourse measured to centroid =      0.142 Mi.
Difference in elevation =      30.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.044 Hr.
Lag time =     2.63 Min.
25% of lag time =     0.66 Min.
40% of lag time =     1.05 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      160.67              0.85              136.57

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      160.67              1.90              305.27

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.93 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
   160.670            85.00           0.750
 Total Area Entered =     160.67(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period | (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 570.030 | 74.072 | 119.942 |
| 2 | 0.500 | 1140.059 | 25.928 | 41.983 |
| | | | Sum = 100.000 | Sum= 161.925 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.061 | ( 0.084) | 0.220 |
| 2 | 0.50 | 4.80 | 0.365 | 0.061 | ( 0.109) | 0.304 |
| 3 | 0.75 | 5.10 | 0.387 | 0.061 | ( 0.116) | 0.327 |
| 4 | 1.00 | 4.90 | 0.372 | 0.061 | ( 0.112) | 0.311 |
| 5 | 1.25 | 6.60 | 0.501 | 0.061 | ( 0.150) | 0.440 |
| 6 | 1.50 | 7.30 | 0.554 | 0.061 | ( 0.166) | 0.494 |
| 7 | 1.75 | 8.40 | 0.638 | 0.061 | ( 0.191) | 0.577 |
| 8 | 2.00 | 9.00 | 0.684 | 0.061 | ( 0.205) | 0.623 |
| 9 | 2.25 | 12.30 | 0.934 | 0.061 | ( 0.280) | 0.873 |
| 10 | 2.50 | 17.60 | 1.337 | 0.061 | ( 0.401) | 1.276 |
| 11 | 2.75 | 16.10 | 1.223 | 0.061 | ( 0.367) | 1.162 |
| 12 | 3.00 | 4.20 | 0.319 | 0.061 | ( 0.096) | 0.258 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 6.9 |

Flood volume = Effective rainfall 1.72(In)
times area 160.7(Ac.)/[(In)/(Ft.)] = 23.0(Ac.Ft)
Total soil loss = 0.18(In)
Total soil loss = 2.441(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 1001024.3 Cubic Feet
Total soil loss = 106337.8 Cubic Feet

Peak flow rate of this hydrograph = 193.034(CFS)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 50.0 | 100.0 | 150.0 | 200.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.5460 | 26.43 | V Q | | | | |
| 0+30 | 1.4903 | 45.70 | V Q | | | | |
| 0+45 | 2.5636 | 51.95 | V Q | | | | |
| 1+ 0 | 3.6190 | 51.08 | V Q | | | | |
| 1+15 | 4.9814 | 65.94 | V Q | | | | |
| 1+30 | 6.5876 | 77.74 | V Q | | | | |
| 1+45 | 8.4470 | 90.00 | V Q | | | | |
| 2+ 0 | 10.4920 | 98.98 | VQ | | | | |
| 2+15 | 13.1979 | 130.97 | V Q | | | | |
| 2+30 | 17.1193 | 189.80 | V | | | Q | |
| 2+45 | 21.1076 | 193.03 | V | | | Q | |
| 3+ 0 | 22.7563 | 79.79 | Q | | | V | |
| 3+15 | 22.9804 | 10.85 | Q | | | V | |

```
                U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  04/30/12 File: SubD23100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed D, Onsite D2
Proposed Condition
100-year, 3-hour

--------------------------------------------------------------------
Drainage Area =     119.91(Ac.)  =      0.187 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     119.91(Ac.)  =      0.187 Sq. Mi.
Length along longest watercourse =     3750.00(Ft.)
Length along longest watercourse measured to centroid =     1875.00(Ft.)
Length along longest watercourse =      0.710 Mi.
Length along longest watercourse measured to centroid =      0.355 Mi.
Difference in elevation =      75.00(Ft.)
Slope along watercourse =     105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.088 Hr.
Lag time =     5.28 Min.
25% of lag time =     1.32 Min.
40% of lag time =     2.11 Min.
Unit time =     15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
      119.91              0.85                101.92

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]      Weighting[1*2]
      119.91              1.90                227.83

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     0.850(In)
Area Averaged 100-Year Rainfall =     1.900(In)

Point rain (area averaged) =     1.900(In)
Areal adjustment factor =    99.95 %
Adjusted average point rain =     1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   119.910             85.00          0.750
 Total Area Entered =     119.91(Ac.)
```



```
 RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
 AMC2 AMC-2      (In/Hr)     (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
 85.0  85.0       0.187      0.750         0.061        1.000       0.061
                                                     Sum (F) =    0.061
 Area averaged mean soil loss (F) (In/Hr) =  0.061
 Minimum soil loss rate ((In/Hr)) =  0.030
 (for 24 hour storm duration)
 Soil low loss rate (decimal) =   0.300
 ------------------------------------------------------------------------

                  U n i t   H y d r o g r a p h
                        VALLEY S-Curve
 ------------------------------------------------------------------------
                  Unit Hydrograph Data
 ------------------------------------------------------------------------
 Unit time period   Time % of lag   Distribution    Unit Hydrograph
     (hrs)                          Graph %           (CFS)
 ------------------------------------------------------------------------
      1   0.250        284.095         54.987            66.450
      2   0.500        568.189         38.022            45.948
      3   0.750        852.284          6.992             8.449
                                Sum = 100.000    Sum=     120.847
 ------------------------------------------------------------------------

 The following loss rate calculations reflect use of the minimum calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective Rain value

  Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)   Percent   (In/Hr)        Max   |   Low          (In/Hr)
    1   0.25     3.70      0.281        0.061    (  0.084)        0.220
    2   0.50     4.80      0.365        0.061    (  0.109)        0.304
    3   0.75     5.10      0.387        0.061    (  0.116)        0.327
    4   1.00     4.90      0.372        0.061    (  0.112)        0.311
    5   1.25     6.60      0.501        0.061    (  0.150)        0.441
    6   1.50     7.30      0.555        0.061    (  0.166)        0.494
    7   1.75     8.40      0.638        0.061    (  0.191)        0.577
    8   2.00     9.00      0.684        0.061    (  0.205)        0.623
    9   2.25    12.30      0.934        0.061    (  0.280)        0.874
   10   2.50    17.60      1.337        0.061    (  0.401)        1.276
   11   2.75    16.10      1.223        0.061    (  0.367)        1.162
   12   3.00     4.20      0.319        0.061    (  0.096)        0.258
              (Loss Rate Not Used)
   Sum =     100.0                                 Sum =      6.9
     Flood volume = Effective rainfall      1.72(In)
      times area     119.9(Ac.)/[(In)/(Ft.)] =      17.2(Ac.Ft)
     Total soil loss =      0.18(In)
     Total soil loss =     1.822(Ac.Ft)
     Total rainfall =     1.90(In)
     Flood volume =      747224.2 Cubic Feet
     Total soil loss =       79361.2 Cubic Feet
     ---------------------------------------------------------------------
      Peak flow rate of this hydrograph =    143.317(CFS)
     ---------------------------------------------------------------------
     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                    R u n o f f     H y d r o g r a p h
     ---------------------------------------------------------------------
                  Hydrograph in  15  Minute intervals ((CFS))

     ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0       50.0      100.0     150.0     200.0
 ---------------------------------------------------------------------------
   0+15       0.3026      14.64  V Q      |         |         |         |
   0+30       0.9292      30.33  | V   Q  |         |         |         |
   0+45       1.7049      37.54  |  V   Q |         |         |         |
   1+ 0       2.4960      38.29  |    V Q |         |         |         |
   1+15       3.4540      46.37  |      VQ|         |         |         |
   1+30       4.6051      55.71  |        VQ        |         |         |
   1+45       5.9440      64.80  |         | QV     |         |         |
   2+ 0       7.4341      72.12  |         |   Q  V |         |         |
```

```
 2+15      9.3265     91.59  |          |        Q  V          |          |
 2+30     12.0179    130.26  |          |           |     Q V  |          |
 2+45     14.9790    143.32  |          |           |        Q     V     |
 3+ 0     16.6605     81.39  |          |     Q     |          |        V |
 3+15     17.1088     21.70  |    Q     |           |          |          V|
 3+30     17.1539      2.18  Q          |           |          |          V|
-------------------------------------------------------------------------
```



```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                       Study date: 09/17/13

 ---------------------------------------------------------------------


Line D Basin D2
Proposed Condition
100-yr 3-hr

 ---------------------------------------------------------------------


Program License Serial Number 6097

 ---------------------------------------------------------------------
********************* HYDROGRAPH INFORMATION **********************

              From study/file name: SubD33100.rte
**************************HYDROGRAPH DATA**************************
              Number of intervals =    13
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =      126.682 (CFS)
              Total volume =      15.065 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
*******************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** RETARDING BASIN ROUTING ****
_________________________________________________________________________

User entry of depth-outflow-storage data
 ---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 13
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin =    0.10(Ft.)
 ---------------------------------------------------------------------
 ---------------------------------------------------------------------
Initial basin depth =    0.10 (Ft.)
Initial basin storage =       1.00 (Ac.Ft)
Initial basin outflow =   20.00 (CFS)
 ---------------------------------------------------------------------
 ---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)     (CFS)     (Ac.Ft)     (Ac.Ft)
 ---------------------------------------------------------------------
   0.000      0.000      0.000      0.000       0.000
   1.000     10.000    200.000      7.934      12.066
   2.000     20.000    500.000     14.835      25.165
   3.000     28.000   1000.000     17.669      38.331
 ---------------------------------------------------------------------
              Hydrograph Detention Basin Routing
 ---------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
 ---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                  Depth
(Hours) (CFS)   (CFS)     (Ac.Ft) .0      50.0   100.00  150.00  200.00 (Ft.)
 0.250   17.06   12.65      0.632 | 0     |      |       |       |      0.06
 0.500   29.86   16.35      0.817 | 0 I   |      |       |       |      0.08
 0.750   34.03   21.69      1.084 |  0 I  |      |       |       |      0.11
 1.000   33.51   25.83      1.291 |   0I  |      |       |       |      0.13
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.250 | 43.07 | 30.09 | 1.505 | | 0 I | | | | 0.15 |
| 1.500 | 50.90 | 35.88 | 1.794 | | 0 I | | | | 0.18 |
| 1.750 | 58.90 | 42.39 | 2.120 | | 0 \|I | | | | 0.21 |
| 2.000 | 64.83 | 49.06 | 2.453 | | 0\| I | | | | 0.25 |
| 2.250 | 85.55 | 58.01 | 2.900 | | \|0 I | | | | 0.29 |
| 2.500 | 123.93 | 74.01 | 3.701 | | \| 0 | I | | | 0.37 |
| 2.750 | 126.68 | 91.58 | 4.579 | | \| 0 | I | | | 0.46 |
| 3.000 | 53.42 | 91.05 | 4.553 | | I 0 | | | | 0.46 |
| 3.250 | 7.43 | 70.29 | 3.514 | I | \| 0 | | | | 0.35 |
| 3.500 | 0.00 | 47.49 | 2.374 | I 0 | \| | | | | 0.24 |
| 3.750 | 0.00 | 31.23 | 1.561 | I 0 | \| | | | | 0.16 |
| 4.000 | 0.00 | 20.53 | 1.027 | I 0 | \| | | | | 0.10 |
| 4.250 | 0.00 | 13.50 | 0.675 | I 0 | \| | | | | 0.07 |
| 4.500 | 0.00 | 8.88 | 0.444 | I0 | \| | | | | 0.04 |
| 4.750 | 0.00 | 5.84 | 0.292 | 0 | \| | | | | 0.03 |
| 5.000 | 0.00 | 3.84 | 0.192 | 0 | \| | | | | 0.02 |
| 5.250 | 0.00 | 2.52 | 0.126 | 0 | \| | | | | 0.01 |
| 5.500 | 0.00 | 1.66 | 0.083 | 0 | \| | | | | 0.01 |
| 5.750 | 0.00 | 1.09 | 0.055 | 0 | \| | | | | 0.01 |
| 6.000 | 0.00 | 0.72 | 0.036 | 0 | \| | | | | 0.00 |
| 6.250 | 0.00 | 0.47 | 0.024 | 0 | \| | | | | 0.00 |
| 6.500 | 0.00 | 0.31 | 0.016 | 0 | \| | | | | 0.00 |
| 6.750 | 0.00 | 0.20 | 0.010 | 0 | \| | | | | 0.00 |
| 7.000 | 0.00 | 0.13 | 0.007 | 0 | \| | | | | 0.00 |

**********HYDROGRAPH DATA**********

Number of intervals = 28
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 91.578 (CFS)
Total volume = 15.646 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 1.000 to Point/Station 2.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****

Current stream hydrograph saved in file SubD3Bsn.rte

**********HYDROGRAPH DATA**********

Number of intervals = 0
Time interval = 0.0 (Min.)
Maximum/Peak flow rate = 0.000 (CFS)
Total volume = 0.000 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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U n i t H y d r o g r a p h A n a l y s i s

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Study date 05/07/12 File: SubD33100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

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English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

---

Watershed D, Onsite D3
Proposed Condition
100 Yr. 3 Hr.

---

Drainage Area = 105.30(Ac.) = 0.165 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 105.30(Ac.) = 0.165 Sq. Mi.
Length along longest watercourse = 1600.00(Ft.)
Length along longest watercourse measured to centroid = 800.00(Ft.)
Length along longest watercourse = 0.303 Mi.
Length along longest watercourse measured to centroid = 0.152 Mi.
Difference in elevation = 32.00(Ft.)
Slope along watercourse = 105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.046 Hr.
Lag time = 2.76 Min.
25% of lag time = 0.69 Min.
40% of lag time = 1.11 Min.
Unit time = 15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 105.30 | 0.85 | 89.50 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 105.30 | 1.90 | 200.07 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.850(In)
Area Averaged 100-Year Rainfall = 1.900(In)

Point rain (area averaged) = 1.900(In)
Areal adjustment factor = 99.95 %
Adjusted average point rain = 1.899(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 105.300 | 85.00 | 0.750 |

Total Area Entered = 105.30(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period | (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 542.745 | 72.919 | 77.384 |
| 2 | 0.500 | 1085.490 | 27.081 | 28.739 |
| | | | Sum = 100.000 | Sum= 106.123 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time | (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.061 | ( 0.084) | 0.220 |
| 2 | 0.50 | 4.80 | 0.365 | 0.061 | ( 0.109) | 0.304 |
| 3 | 0.75 | 5.10 | 0.387 | 0.061 | ( 0.116) | 0.327 |
| 4 | 1.00 | 4.90 | 0.372 | 0.061 | ( 0.112) | 0.311 |
| 5 | 1.25 | 6.60 | 0.501 | 0.061 | ( 0.150) | 0.441 |
| 6 | 1.50 | 7.30 | 0.555 | 0.061 | ( 0.166) | 0.494 |
| 7 | 1.75 | 8.40 | 0.638 | 0.061 | ( 0.191) | 0.577 |
| 8 | 2.00 | 9.00 | 0.684 | 0.061 | ( 0.205) | 0.623 |
| 9 | 2.25 | 12.30 | 0.934 | 0.061 | ( 0.280) | 0.874 |
| 10 | 2.50 | 17.60 | 1.337 | 0.061 | ( 0.401) | 1.276 |
| 11 | 2.75 | 16.10 | 1.223 | 0.061 | ( 0.367) | 1.162 |
| 12 | 3.00 | 4.20 | 0.319 | 0.061 | ( 0.096) | 0.258 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 6.9 |

Flood volume = Effective rainfall 1.72(In)
times area 105.3(Ac.)/[(In)/(Ft.)] = 15.1(Ac.Ft)
Total soil loss = 0.18(In)
Total soil loss = 1.600(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 656227.8 Cubic Feet
Total soil loss = 69691.7 Cubic Feet

Peak flow rate of this hydrograph = 126.682(CFS)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 50.0 | 100.0 | 150.0 | 200.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.3524 | 17.06 | V Q | | | | |
| 0+30 | 0.9693 | 29.86 | V Q | | | | |
| 0+45 | 1.6724 | 34.03 | V Q | | | | |
| 1+ 0 | 2.3647 | 33.51 | Q | | | | |
| 1+15 | 3.2545 | 43.07 | Q | | | | |
| 1+30 | 4.3061 | 50.90 | QV | | | | |
| 1+45 | 5.5230 | 58.90 | Q V | | | | |
| 2+ 0 | 6.8624 | 64.83 | Q V | | | | |
| 2+15 | 8.6299 | 85.55 | Q | V | | | |
| 2+30 | 11.1904 | 123.93 | Q | V | | | |
| 2+45 | 13.8078 | 126.68 | Q | V | | | |
| 3+ 0 | 14.9115 | 53.42 | Q | V | | | |
| 3+15 | 15.0649 | 7.43 | Q | V | | | |

```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
              Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                          Study date: 09/19/13

 ---------------------------------------------------------------------


 Watershed D, Line D
 Proposed Condition
 100 Yr. 24 Hr.

 ---------------------------------------------------------------------


 Program License Serial Number 6097

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 ********************* HYDROGRAPH INFORMATION **********************

                From study/file name: OffsiteD124100.rte
 ****************************HYDROGRAPH DATA****************************
                Number of intervals =   106
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      156.763 (CFS)
                Total volume =      53.095 (Ac.Ft)
        Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)      0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
 **********************************************************************



 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station        0.000 to Point/Station         1.000
 **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
 ______________________________________________________________________
 ********************* HYDROGRAPH INFORMATION **********************

                From study/file name: OffsiteD224100.rte
 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                   P R I N T   O F   S T O R M
                   R u n o f f     H y d r o g r a p h
 ----------------------------------------------------------------------
              Hydrograph in  15   Minute intervals (CFS)

 ----------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0       52.3      104.7      157.0      209.4
----------------------------------------------------------------------------
  0+15      0.2272     0.33  Q          |          |          |          |
  0+30      0.6962     1.46  Q          |          |          |          |
  0+45      0.9425     2.51  Q          |          |          |          |
  1+ 0      1.1026     3.15  Q          |          |          |          |
  1+15      1.1763     3.68  Q          |          |          |          |
  1+30      1.0347     3.59  Q          |          |          |          |
  1+45      1.0065     3.46  Q          |          |          |          |
  2+ 0      1.1158     3.60  Q          |          |          |          |
  2+15      1.2917     4.07  Q          |          |          |          |
  2+30      1.3260     4.35  Q          |          |          |          |
  2+45      1.4457     4.61  Q          |          |          |          |
  3+ 0      1.6252     5.15  Q          |          |          |          |
  3+15      1.6595     5.46  qQ         |          |          |          |
  3+30      1.6656     5.57  qQ         |          |          |          |
  3+45      1.6674     5.62  qQ         |          |          |          |
  4+ 0      1.7810     5.82  qQ         |          |          |          |
  4+15      1.9587     6.32  qQ         |          |          |          |
  4+30      2.1066     6.78  qQ         |          |          |          |
  4+45      2.2904     7.36  qQ         |          |          |          |
  5+ 0      2.4401     7.87  qQ         |          |          |          |
  5+15      2.3966     8.14  qQ         |          |          |          |
```



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  5+30      2.1910     7.70  qQ         |          |          |          |
  5+45      2.4198     7.91  qQ         |          |          |          |
  6+ 0      2.6213     8.55  qQ         |          |          |          |
  6+15      2.7717     9.03  qQ         |          |          |          |
  6+30      2.9573     9.62  qQ         |          |          |          |
  6+45      3.1070    10.14  qQ         |          |          |          |
  7+ 0      3.2908    10.75  q Q        |          |          |          |
  7+15      3.3269    11.10  q Q        |          |          |          |
  7+30      3.4466    11.40  q Q        |          |          |          |
  7+45      3.7397    12.12  q Q        |          |          |          |
  8+ 0      4.0653    13.09  q Q        |          |          |          |
  8+15      4.5106    14.30  q Q        |          |          |          |
  8+30      4.9081    15.71  q  Q       |          |          |          |
  8+45      5.0982    16.62  q  Q       |          |          |          |
  9+ 0      5.4035    17.57  |q Q       |          |          |          |
  9+15      5.8463    19.73  |q Q       |          |          |          |
  9+30      6.3556    27.19  |q   Q     |          |          |          |
  9+45      7.7419    37.90  |q    Q    |          |          |          |
 10+ 0     10.9906    50.40  | q     Q  |          |          |          |
 10+15     10.4481    55.71  |q       Q |          |          |          |
 10+30      6.0471    39.06  |q     Q   |          |          |          |
 10+45      6.9195    30.25  |q   Q     |          |          |          |
 11+ 0      9.7500    42.54  |q     Q   |          |          |          |
 11+15      9.8051    51.41  |q      Q  |          |          |          |
 11+30      8.9195    51.44  |q      Q  |          |          |          |
 11+45      7.9384    50.09  |q      Q  |          |          |          |
 12+ 0      6.7130    44.96  |q     Q   |          |          |          |
 12+15     15.5197    56.95  | q      Q  |          |          |          |
 12+30     29.8982    95.13  |   q      |     Q    |          |          |
 12+45     37.1163   125.21  |    q     |        Q |          |          |
 13+ 0      43.3460  148.54  |     q    |          Q          |          |
 13+15     52.4319   174.42  |      q   |          |   Q      |          |
 13+30     62.5449   208.10  |       |q |          |          |     Q    |
 13+45     52.5954   209.36  |      q   |          |          |       Q  |
 14+ 0      34.1015  165.05  |    q     |          |          |  Q       |
 14+15     35.6822   146.34  |    q     |          |        Q |          |
 14+30     41.6902   157.27  |     q    |          |          Q          |
 14+45     41.7855   160.85  |     q    |          |          Q          |
 15+ 0      41.2387  159.59  |     q    |          |          Q          |
 15+15     39.0149   155.21  |     q    |          |         Q|          |
 15+30     36.4092   148.13  |    q     |          |          Q          |
 15+45     30.3416   134.72  |   q      |          |      Q   |          |
 16+ 0      23.4600  112.81  |  q       |          Q          |          |
 16+15     15.3237    89.76  | q        |     Q    |          |          |
 16+30      4.0265    49.22  q          Q          |          |          |
 16+45      1.7109    23.89  q   Q      |          |          |          |
 17+ 0      1.1551    14.13  q Q        |          |          |          |
 17+15      1.2356     9.19  qQ         |          |          |          |
 17+30      1.5848     7.38  qQ         |          |          |          |
 17+45      1.6516     6.68  qQ         |          |          |          |
 18+ 0      1.5502     6.09  qQ         |          |          |          |
 18+15      1.3761     5.34  qQ         |          |          |          |
 18+30      1.3418     4.84  Q          |          |          |          |
 18+45      1.2221     4.47  Q          |          |          |          |
 19+ 0      0.9290     3.78  Q          |          |          |          |
 19+15      0.8307     3.16  Q          |          |          |          |
 19+30      1.0816     3.42  Q          |          |          |          |
 19+45      1.1720     3.86  Q          |          |          |          |
 20+ 0      0.9193     3.51  Q          |          |          |          |
 20+15      0.8289     3.02  Q          |          |          |          |
 20+30      0.9679     3.18  Q          |          |          |          |
 20+45      0.9943     3.34  Q          |          |          |          |
 21+ 0      0.8850     3.20  Q          |          |          |          |
 21+15      0.8228     2.90  Q          |          |          |          |
 21+30      0.8525     2.95  Q          |          |          |          |
 21+45      0.8167     2.83  Q          |          |          |          |
 22+ 0      0.8507     2.91  Q          |          |          |          |
 22+15      0.8167     2.80  Q          |          |          |          |
 22+30      0.8507     2.90  Q          |          |          |          |
 22+45      0.7030     2.63  Q          |          |          |          |
 23+ 0      0.6731     2.41  Q          |          |          |          |
 23+15      0.6688     2.35  Q          |          |          |          |
```

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23+30       0.6670       2.31  Q        |          |          |          |
23+45       0.6670       2.29  Q        |          |          |          |
24+ 0       0.6670       2.28  Q        |          |          |          |
24+15       0.4397       1.95  Q        |          |          |          |
24+30       0.0844       0.98  Q        |          |          |          |
24+45       0.0158       0.42  Q        |          |          |          |
25+ 0       0.0036       0.22  Q        |          |          |          |
25+15       0.0000       0.11  Q        |          |          |          |
25+30       0.0000       0.05  Q        |          |          |          |
25+45       0.0000       0.03  Q        |          |          |          |
26+ 0       0.0000       0.02  Q        |          |          |          |
26+15       0.0000       0.01  Q        |          |          |          |
26+30       0.0000       0.00  Q        |          |          |          |
--------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA**************************
                  Number of intervals =   106
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =      209.358 (CFS)
                  Total volume =       70.654 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ********************************************************************


      ------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        1.000 to Point/Station        2.000
      **** STREAM ROUTING SCS CONVEX METHOD ****
      ____________________________________________________________________
      HYDROGRAPH STREAM ROUTING DATA:
      Length of stream =   1500.00 (Ft.)
      Elevation difference =   30.00 (Ft.)
      Slope of channel =  0.020000 (Vert/Horiz)
      Channel type - Pipe


      Pipe length  =  1500.00(Ft.)   Elevation difference =  30.00(Ft.)
      Manning's N = 0.013   No. of pipes = 1
      Pipe evaluation using mean flow rate of hydrograph
      Required pipe flow  =    48.951(CFS)
      Given pipe size =     96.00(In.)
      Calculated individual pipe flow  =    48.951(CFS)
      Normal flow depth in pipe =   12.77(In.)
      Flow top width inside pipe =   65.21(In.)
      Critical Depth =    1.71(Ft.)
      Pipe flow velocity =     12.31(Ft/s)
      Travel time through pipe =    2.03 min.


      Pipe length  =  1500.00(Ft.)   Elevation difference =  30.00(Ft.)
      Manning's N = 0.013   No. of pipes = 1
      Pipe evaluation using maximum flow rate of hydrograph
      Required pipe flow  =   209.358(CFS)
      Given pipe size =     96.00(In.)
      Calculated individual pipe flow  =   209.358(CFS)
      Normal flow depth in pipe =   26.16(In.)
      Flow top width inside pipe =   85.48(In.)
      Critical Depth =    3.63(Ft.)
      Pipe flow velocity =     18.88(Ft/s)
      Travel time through pipe =    1.32 min.


      ********************** SCS CONVEX CHANNEL ROUTING *********************
      Convex method of stream routing  data items:
      Using equation: Outflow =
      O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
                where c* = 1 - (1-c)^e and dt = c(length)/velocity
                c(v/v+1.7) =   0.9174   Travel time =   1.32 (min.)
              dt*(unit time interval) =  15.00(min.),  e=   8.5651
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      dt(routing time-step) =   1.21 (min.),   c* =   1.0000

      Output hydrograph delayed by 0  unit time increments


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        P R I N T  O F  S T O R M
                      R u n o f f    H y d r o g r a p h
      ____________________________________________________________________
                     Hydrograph in  15  Minute intervals (CFS)

                      ------------------------------------------------------
      Time(h+m) Out = O(CFS) In = I  0        52.3      104.7      157.0      209.4
      ------------------------------------------------------------------------
        0+15       0.3055       0.33  0          |          |          |          |
        0+30       1.3710       1.46  0          |          |          |          |
        0+45       2.4247       2.51  0          |          |          |          |
        1+ 0       3.1022       3.15  0          |          |          |          |
        1+15       3.6334       3.68  0          |          |          |          |
        1+30       3.5948       3.59  0          |          |          |          |
        1+45       3.4676       3.46  0          |          |          |          |
        2+ 0       3.5904       3.60  0          |          |          |          |
        2+15       4.0342       4.07  0          |          |          |          |
        2+30       4.3263       4.35  0          |          |          |          |
        2+45       4.5908       4.61  0          |          |          |          |
        3+ 0       5.1042       5.15  0          |          |          |          |
        3+15       5.4333       5.46  |0         |          |          |          |
        3+30       5.5584       5.57  |0         |          |          |          |
        3+45       5.6202       5.62  |0         |          |          |          |
        4+ 0       5.8077       5.82  |0         |          |          |          |
        4+15       6.2811       6.32  |0         |          |          |          |
        4+30       6.7402       6.78  |0         |          |          |          |
        4+45       7.3136       7.36  |0         |          |          |          |
        5+ 0       7.8256       7.87  |0         |          |          |          |
        5+15       8.1219       8.14  |0         |          |          |          |
        5+30       7.7319       7.70  |0         |          |          |          |
        5+45       7.8935       7.91  |0         |          |          |          |
        6+ 0       8.4975       8.55  |0         |          |          |          |
        6+15       8.9876       9.03  |0         |          |          |          |
        6+30       9.5718       9.62  |0         |          |          |          |
        6+45      10.0933      10.14  |0         |          |          |          |
        7+ 0      10.7008      10.75   0         |          |          |          |
        7+15      11.0722      11.10   0         |          |          |          |
        7+30      11.3738      11.40   0         |          |          |          |
        7+45      12.0581      12.12   0         |          |          |          |
        8+ 0      13.0075      13.09   0         |          |          |          |
        8+15      14.2005      14.30   0         |          |          |          |
        8+30      15.5916      15.71   0I        |          |          |          |
        8+45      16.5485      16.62    0        |          |          |          |
        9+ 0      17.4890      17.57    0        |          |          |          |
        9+15      19.5552      19.73    0        |          |          |          |
        9+30      26.5824      27.19     0       |          |          |          |
        9+45      37.0363      37.90      0      |          |          |          |
       10+ 0      49.3864      50.40       0|    |          |          |          |
       10+15      55.2760      55.71        0|   |          |          |          |
       10+30      40.4071      39.06      0 |    |          |          |          |
       10+45      30.9605      30.25     0  |    |          |          |          |
       11+ 0      41.5476      42.54      0I|    |          |          |          |
       11+15      50.6954      51.41       0|    |          |          |          |
       11+30      51.4416      51.44       0|    |          |          |          |
       11+45      50.2019      50.09       0|    |          |          |          |
       12+ 0      45.3741      44.96       0 |   |          |          |          |
       12+15      55.9743      56.95        0|   |          |          |          |
       12+30      92.0366      95.13         |  0I|          |          |          |
       12+45     122.7749     125.21         |    |  0       |          |          |
       13+ 0     146.6549     148.54         |    |     0    |          |          |
       13+15     172.3228     174.42         |    |          |  0I      |          |
       13+30     205.3738     208.10         |    |          |          |          0|
       13+45     209.2565     209.36         |    |          |          |          0I
       14+ 0     168.6401     165.05         |    |          |  I0      |          |
       14+15     147.8546     146.34         |    |       I0 |          |          |
       14+30     156.3823     157.27         |    |          0I         |          |
```

| | | | |
|---|---|---|---|
| 14+45 | 160.5625 | 160.85 | 0 |
| 15+ 0 | 159.6937 | 159.59 | 0 |
| 15+15 | 155.5687 | 155.21 | 0 |
| 15+30 | 148.7044 | 148.13 | 0 |
| 15+45 | 135.8085 | 134.72 | 0 |
| 16+ 0 | 114.5818 | 112.81 | 0 |
| 16+15 | 91.6279 | 89.76 | 0 |
| 16+30 | 52.5056 | 49.22 | IO |
| 16+45 | 25.9454 | 23.89 | 0 |
| 17+ 0 | 14.9193 | 14.13 | 0 |
| 17+15 | 9.5911 | 9.19 | 0 |
| 17+30 | 7.5297 | 7.38 | 0 |
| 17+45 | 6.7330 | 6.68 | 0 |
| 18+ 0 | 6.1380 | 6.09 | 0 |
| 18+15 | 5.3973 | 5.34 | 0 |
| 18+30 | 4.8778 | 4.84 | 0 |
| 18+45 | 4.5002 | 4.47 | 0 |
| 19+ 0 | 3.8326 | 3.78 | 0 |
| 19+15 | 3.2056 | 3.16 | 0 |
| 19+30 | 3.3956 | 3.42 | 0 |
| 19+45 | 3.8248 | 3.86 | 0 |
| 20+ 0 | 3.5356 | 3.51 | 0 |
| 20+15 | 3.0557 | 3.02 | 0 |
| 20+30 | 3.1670 | 3.18 | 0 |
| 20+45 | 3.3301 | 3.34 | 0 |
| 21+ 0 | 3.2148 | 3.20 | 0 |
| 21+15 | 2.9289 | 2.90 | 0 |
| 21+30 | 2.9502 | 2.95 | 0 |
| 21+45 | 2.8410 | 2.83 | 0 |
| 22+ 0 | 2.9021 | 2.91 | 0 |
| 22+15 | 2.8098 | 2.80 | 0 |
| 22+30 | 2.8890 | 2.90 | 0 |
| 22+45 | 2.6541 | 2.63 | 0 |
| 23+ 0 | 2.4304 | 2.41 | 0 |
| 23+15 | 2.3522 | 2.35 | 0 |
| 23+30 | 2.3158 | 2.31 | 0 |
| 23+45 | 2.2948 | 2.29 | 0 |
| 24+ 0 | 2.2849 | 2.28 | 0 |
| 24+15 | 1.9755 | 1.95 | 0 |
| 24+30 | 1.0607 | 0.98 | 0 |
| 24+45 | 0.4615 | 0.42 | 0 |
| 25+ 0 | 0.2339 | 0.22 | 0 |
| 25+15 | 0.1192 | 0.11 | 0 |
| 25+30 | 0.0575 | 0.05 | 0 |
| 25+45 | 0.0299 | 0.03 | 0 |
| 26+ 0 | 0.0179 | 0.02 | 0 |
| 26+15 | 0.0100 | 0.01 | 0 |
| 26+30 | 0.0035 | 0.00 | 0 |
| 26+45 | 0.0000 | 0.00 | 0 |

**********HYDROGRAPH DATA**********

Number of intervals = 107
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 209.257 (CFS)
Total volume = 70.654 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 1.000 to Point/Station 2.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: SubD124100.rte

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 74.0 148.0 222.0 296.0 |
|---|---|---|---|
| 0+15 | 3.0232 | 3.33 | Q |
| 0+30 | 5.5929 | 6.96 | Q |
| 0+45 | 6.1220 | 8.55 | qQ |
| 1+ 0 | 7.6336 | 10.74 | Q |
| 1+15 | 6.6511 | 10.28 | qQ |
| 1+30 | 6.1220 | 9.72 | qQ |
| 1+45 | 6.1220 | 9.59 | qQ |
| 2+ 0 | 7.6336 | 11.22 | Q |
| 2+15 | 8.1627 | 12.20 | Q |
| 2+30 | 8.1627 | 12.49 | Q |
| 2+45 | 9.6743 | 14.27 | Q |
| 3+ 0 | 10.2034 | 15.31 | qQ |
| 3+15 | 10.2034 | 15.64 | qQ |
| 3+30 | 10.2034 | 15.76 | qQ |
| 3+45 | 10.2034 | 15.82 | qQ |
| 4+ 0 | 11.7149 | 17.52 | qQ |
| 4+15 | 12.2440 | 18.53 | qQ |
| 4+30 | 13.7556 | 20.50 | qQ |
| 4+45 | 14.2847 | 21.60 | qQ |
| 5+ 0 | 15.7963 | 23.62 | qQ |
| 5+15 | 13.3022 | 21.42 | qQ |
| 5+30 | 13.7556 | 21.49 | qQ |
| 5+45 | 15.7963 | 23.69 | qQ |
| 6+ 0 | 16.3254 | 24.82 | qQ |
| 6+15 | 17.8369 | 26.82 | qQ |
| 6+30 | 18.3660 | 27.94 | qQ |
| 6+45 | 19.8776 | 29.97 | q Q |
| 7+ 0 | 20.4067 | 31.11 | q Q |
| 7+15 | 20.4067 | 31.48 | q Q |
| 7+30 | 21.9183 | 33.29 | q Q |
| 7+45 | 23.9590 | 36.02 | qQ |
| 8+ 0 | 25.9996 | 39.01 | q Q |
| 8+15 | 30.7179 | 44.92 | q Q |
| 8+30 | 32.3035 | 47.90 | q Q |
| 8+45 | 34.6228 | 51.17 | q Q |
| 9+ 0 | 37.6965 | 55.19 | q Q |
| 9+15 | 42.9281 | 62.48 | q Q |
| 9+30 | 46.7548 | 73.34 | q Q |
| 9+45 | 49.8242 | 86.86 | q Q |
| 10+ 0 | 52.8921 | 102.28 | q Q |
| 10+15 | 38.6834 | 93.96 | q Q |
| 10+30 | 33.5422 | 73.95 | q Q |
| 10+45 | 44.4874 | 75.45 | q Q |
| 11+ 0 | 48.4134 | 89.96 | q Q |
| 11+15 | 46.3992 | 97.09 | q Q |
| 11+30 | 45.7870 | 97.23 | q Q |
| 11+45 | 41.6103 | 91.81 | q Q |
| 12+ 0 | 42.3986 | 87.77 | q Q |
| 12+15 | 58.4092 | 114.38 | q Q |
| 12+30 | 65.9969 | 158.03 | q Q |
| 12+45 | 71.2073 | 193.98 | q Q |
| 13+ 0 | 75.0126 | 221.67 | q Q |
| 13+15 | 86.6979 | 259.02 | q Q |
| 13+30 | 90.6080 | 295.98 | q Q |
| 13+45 | 66.9839 | 276.24 | q Q |
| 14+ 0 | 58.7970 | 227.44 | q Q |
| 14+15 | 67.5604 | 215.41 | q Q |
| 14+30 | 68.5485 | 224.93 | q Q |
| 14+45 | 67.9149 | 228.48 | q Q |
| 15+ 0 | 65.8761 | 225.57 | q Q |
| 15+15 | 63.0796 | 218.65 | q Q |
| 15+30 | 60.2813 | 208.99 | q Q |
| 15+45 | 51.0030 | 186.81 | q Q |
| 16+ 0 | 48.0928 | 162.67 | q Q |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 16+15 | 18.5232 | 110.15 | \| q \| | Q \| | \| | \| | \| |
| 16+30 | 8.1627 | 60.67 | \|q Q \| | | | | |
| 16+45 | 6.6511 | 32.60 | q Q \| | | | | |
| 17+ 0 | 6.1220 | 21.04 | q Q \| | | | | |
| 17+15 | 9.1452 | 18.74 | \|qQ \| | | | | |
| 17+30 | 10.2034 | 17.73 | \|qQ \| | | | | |
| 17+45 | 10.2034 | 16.94 | \|qQ \| | | | | |
| 18+ 0 | 8.6918 | 14.83 | \|qQ \| | | | | |
| 18+15 | 8.1627 | 13.56 | \|Q \| | | | | |
| 18+30 | 8.1627 | 13.04 | \|Q \| | | | | |
| 18+45 | 6.6511 | 11.15 | qQ \| | | | | |
| 19+ 0 | 4.6104 | 8.44 | qQ \| | | | | |
| 19+15 | 5.5929 | 8.80 | qQ \| | | | | |
| 19+30 | 7.6336 | 11.03 | \|Q \| | | | | |
| 19+45 | 6.6511 | 10.48 | qQ \| | | | | |
| 20+ 0 | 4.6104 | 8.15 | qQ \| | | | | |
| 20+15 | 5.5929 | 8.65 | qQ \| | | | | |
| 20+30 | 6.1220 | 9.29 | qQ \| | | | | |
| 20+45 | 6.1220 | 9.45 | qQ \| | | | | |
| 21+ 0 | 4.6104 | 7.83 | qQ \| | | | | |
| 21+15 | 5.5929 | 8.52 | qQ \| | | | | |
| 21+30 | 4.6104 | 7.56 | qQ \| | | | | |
| 21+45 | 5.5929 | 8.43 | qQ \| | | | | |
| 22+ 0 | 4.6104 | 7.51 | qQ \| | | | | |
| 22+15 | 5.5929 | 8.40 | qQ \| | | | | |
| 22+30 | 4.6104 | 7.50 | qQ \| | | | | |
| 22+45 | 4.0813 | 6.74 | Q \| | | | | |
| 23+ 0 | 4.0813 | 6.51 | Q \| | | | | |
| 23+15 | 4.0813 | 6.43 | Q \| | | | | |
| 23+30 | 4.0813 | 6.40 | Q \| | | | | |
| 23+45 | 4.0813 | 6.38 | Q \| | | | | |
| 24+ 0 | 4.0813 | 6.37 | Q \| | | | | |
| 24+15 | 1.0582 | 3.03 | Q \| | | | | |
| 24+30 | 0.0000 | 1.06 | Q \| | | | | |
| 24+45 | 0.0000 | 0.46 | Q \| | | | | |
| 25+ 0 | 0.0000 | 0.23 | Q \| | | | | |
| 25+15 | 0.0000 | 0.12 | Q \| | | | | |
| 25+30 | 0.0000 | 0.06 | Q \| | | | | |
| 25+45 | 0.0000 | 0.03 | Q \| | | | | |
| 26+ 0 | 0.0000 | 0.02 | Q \| | | | | |
| 26+15 | 0.0000 | 0.01 | Q \| | | | | |
| 26+30 | 0.0000 | 0.00 | Q \| | | | | |
| 26+45 | 0.0000 | 0.00 | Q \| | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 107
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 295.982 (CFS)
Total volume = 119.311 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 2.000 to Point/Station 2.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 107
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)



Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

| Basin Depth (Ft.) | Storage (Ac.Ft) | Outflow (CFS) | (S-O*dt/2) (Ac.Ft) | (S+O*dt/2) (Ac.Ft) |
|---|---|---|---|---|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1.000 | 8.000 | 550.000 | 2.318 | 13.682 |
| 2.000 | 16.000 | 850.000 | 7.219 | 24.781 |
| 3.000 | 30.000 | 1000.000 | 19.669 | 40.331 |
| 4.000 | 42.000 | 1200.000 | 29.603 | 54.397 |

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

| Time (Hours) | Inflow (CFS) | Outflow (CFS) | Storage (Ac.Ft) | .0 74.0 147.99 221.99 295.98 | Depth (Ft.) |
|---|---|---|---|---|---|
| 0.250 | 3.33 | 1.38 | 0.020 | O | 0.00 |
| 0.500 | 6.96 | 4.51 | 0.066 | O | 0.01 |
| 0.750 | 8.55 | 7.21 | 0.105 | O | 0.01 |
| 1.000 | 10.74 | 9.23 | 0.134 | OI | 0.02 |
| 1.250 | 10.28 | 10.29 | 0.150 | O | 0.02 |
| 1.500 | 9.72 | 10.05 | 0.146 | O | 0.02 |
| 1.750 | 9.59 | 9.72 | 0.141 | O | 0.02 |
| 2.000 | 11.22 | 10.29 | 0.150 | O | 0.02 |
| 2.250 | 12.20 | 11.47 | 0.167 | O | 0.02 |
| 2.500 | 12.49 | 12.20 | 0.177 | O | 0.02 |
| 2.750 | 14.27 | 13.18 | 0.192 | O | 0.02 |
| 3.000 | 15.31 | 14.51 | 0.211 | O | 0.03 |
| 3.250 | 15.64 | 15.31 | 0.223 | O | 0.03 |
| 3.500 | 15.76 | 15.63 | 0.227 | O | 0.03 |
| 3.750 | 15.82 | 15.77 | 0.229 | O | 0.03 |
| 4.000 | 17.52 | 16.52 | 0.240 | O | 0.03 |
| 4.250 | 18.53 | 17.77 | 0.258 | OI | 0.03 |
| 4.500 | 20.50 | 19.22 | 0.279 | O | 0.03 |
| 4.750 | 21.60 | 20.74 | 0.302 | O | 0.04 |
| 5.000 | 23.62 | 22.29 | 0.324 | O | 0.04 |
| 5.250 | 21.42 | 22.48 | 0.327 | O | 0.04 |
| 5.500 | 21.49 | 21.63 | 0.315 | O | 0.04 |
| 5.750 | 23.69 | 22.43 | 0.326 | O | 0.04 |
| 6.000 | 24.82 | 23.95 | 0.348 | O | 0.04 |
| 6.250 | 26.82 | 25.51 | 0.371 | O | 0.05 |
| 6.500 | 27.94 | 27.06 | 0.394 | OI | 0.05 |
| 6.750 | 29.97 | 28.63 | 0.416 | O | 0.05 |
| 7.000 | 31.11 | 30.22 | 0.440 | O | 0.05 |
| 7.250 | 31.48 | 31.11 | 0.453 | O | 0.06 |
| 7.500 | 33.29 | 32.17 | 0.468 | O | 0.06 |
| 7.750 | 36.02 | 34.23 | 0.498 | O | 0.06 |
| 8.000 | 39.01 | 36.96 | 0.538 | OI | 0.07 |
| 8.250 | 44.92 | 41.11 | 0.598 | O | 0.07 |
| 8.500 | 47.90 | 45.51 | 0.662 | OI | 0.08 |
| 8.750 | 51.17 | 48.85 | 0.711 | O | 0.09 |
| 9.000 | 55.19 | 52.45 | 0.763 | O | 0.10 |
| 9.250 | 62.48 | 57.75 | 0.840 | O | 0.11 |
| 9.500 | 73.34 | 66.19 | 0.963 | O | 0.12 |
| 9.750 | 86.86 | 77.74 | 1.131 | OI | 0.14 |
| 10.000 | 102.28 | 91.72 | 1.334 | O I | 0.17 |
| 10.250 | 93.96 | 97.03 | 1.411 | O | 0.18 |
| 10.500 | 73.95 | 86.17 | 1.253 | IO | 0.16 |
| 10.750 | 75.45 | 76.64 | 1.115 | O | 0.14 |
| 11.000 | 89.96 | 81.68 | 1.188 | OI | 0.15 |
| 11.250 | 97.09 | 91.52 | 1.331 | OI | 0.17 |
| 11.500 | 97.23 | 96.21 | 1.399 | O | 0.17 |
| 11.750 | 91.81 | 94.81 | 1.379 | IO | 0.17 |
| 12.000 | 87.77 | 90.64 | 1.318 | O | 0.16 |
| 12.250 | 114.38 | 99.31 | 1.445 | O I | 0.18 |
| 12.500 | 158.03 | 129.96 | 1.890 | O I | 0.24 |
| 12.750 | 193.98 | 168.21 | 2.447 | O I | 0.31 |
| 13.000 | 221.67 | 201.11 | 2.925 | O I | 0.37 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13.250 | 259.02 | 233.70 | 3.399 | \| | \| | \| | \|0 I | \| | 0.42 |
| 13.500 | 295.98 | 270.08 | 3.928 | \| | \| | \| | \| 0 I | | 0.49 |
| 13.750 | 276.24 | 283.39 | 4.122 | \| | \| | \| | \| I0 | | 0.52 |
| 14.000 | 227.44 | 257.19 | 3.741 | \| | \| | \| I 0 | \| | | 0.47 |
| 14.250 | 215.41 | 227.48 | 3.309 | \| | \| | \| I0 | \| | | 0.41 |
| 14.500 | 224.93 | 221.41 | 3.221 | \| | \| | \| 0I | \| | | 0.40 |
| 14.750 | 228.48 | 225.81 | 3.284 | \| | \| | \| 0 | \| | | 0.41 |
| 15.000 | 225.57 | 226.82 | 3.299 | \| | \| | \| 0 | \| | | 0.41 |
| 15.250 | 218.65 | 222.91 | 3.242 | \| | \| | \| I0 | \| | | 0.41 |
| 15.500 | 208.99 | 215.36 | 3.132 | \| | \| | I0 \| | \| | | 0.39 |
| 15.750 | 186.81 | 200.86 | 2.922 | \| | \| I0 | \| | \| | | 0.37 |
| 16.000 | 162.67 | 179.17 | 2.606 | \| | I 0 | \| | \| | | 0.33 |
| 16.250 | 110.15 | 143.66 | 2.090 | \| I 0 | \| | \| | \| | | 0.26 |
| 16.500 | 60.67 | 95.28 | 1.386 | I 0 | \| | \| | \| | \| | | 0.17 |
| 16.750 | 32.60 | 54.87 | 0.798 | I 0 \| | \| | \| | \| | \| | | 0.10 |
| 17.000 | 21.04 | 31.57 | 0.459 | I0 \| | \| | \| | \| | \| | | 0.06 |
| 17.250 | 18.74 | 21.87 | 0.318 | 0 \| | \| | \| | \| | \| | | 0.04 |
| 17.500 | 17.73 | 18.85 | 0.274 | I0 \| | \| | \| | \| | \| | | 0.03 |
| 17.750 | 16.94 | 17.59 | 0.256 | 0 \| | \| | \| | \| | \| | | 0.03 |
| 18.000 | 14.83 | 16.17 | 0.235 | 0 \| | \| | \| | \| | \| | | 0.03 |
| 18.250 | 13.56 | 14.53 | 0.211 | 0 \| | \| | \| | \| | \| | | 0.03 |
| 18.500 | 13.04 | 13.51 | 0.196 | 0 \| | \| | \| | \| | \| | | 0.02 |
| 18.750 | 11.15 | 12.34 | 0.179 | 0 \| | \| | \| | \| | \| | | 0.02 |
| 19.000 | 8.44 | 10.23 | 0.149 | I0 \| | \| | \| | \| | \| | | 0.02 |
| 19.250 | 8.80 | 8.89 | 0.129 | 0 \| | \| | \| | \| | \| | | 0.02 |
| 19.500 | 11.03 | 9.74 | 0.142 | 0 \| | \| | \| | \| | \| | | 0.02 |
| 19.750 | 10.48 | 10.58 | 0.154 | 0 \| | \| | \| | \| | \| | | 0.02 |
| 20.000 | 8.15 | 9.53 | 0.139 | I0 \| | \| | \| | \| | \| | | 0.02 |
| 20.250 | 8.65 | 8.59 | 0.125 | 0 \| | \| | \| | \| | \| | | 0.02 |
| 20.500 | 9.29 | 8.90 | 0.130 | 0I \| | \| | \| | \| | \| | | 0.02 |
| 20.750 | 9.45 | 9.29 | 0.135 | 0 \| | \| | \| | \| | \| | | 0.02 |
| 21.000 | 7.83 | 8.75 | 0.127 | 0 \| | \| | \| | \| | \| | | 0.02 |
| 21.250 | 8.52 | 8.27 | 0.120 | 0 \| | \| | \| | \| | \| | | 0.02 |
| 21.500 | 7.56 | 8.08 | 0.118 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 21.750 | 8.43 | 8.01 | 0.117 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 22.000 | 7.51 | 7.98 | 0.116 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 22.250 | 8.40 | 7.96 | 0.116 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 22.500 | 7.50 | 7.95 | 0.116 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 22.750 | 6.74 | 7.26 | 0.106 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 23.000 | 6.51 | 6.73 | 0.098 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 23.250 | 6.43 | 6.52 | 0.095 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 23.500 | 6.40 | 6.43 | 0.094 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 23.750 | 6.38 | 6.39 | 0.093 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 24.000 | 6.37 | 6.38 | 0.093 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 24.250 | 3.03 | 4.98 | 0.072 | 0 \| | \| | \| | \| | \| | | 0.01 |
| 24.500 | 1.06 | 2.54 | 0.037 | 0 \| | \| | \| | \| | \| | | 0.00 |
| 24.750 | 0.46 | 1.06 | 0.015 | 0 \| | \| | \| | \| | \| | | 0.00 |
| 25.000 | 0.23 | 0.47 | 0.007 | 0 \| | \| | \| | \| | \| | | 0.00 |
| 25.250 | 0.12 | 0.23 | 0.003 | 0 \| | \| | \| | \| | \| | | 0.00 |
| 25.500 | 0.06 | 0.11 | 0.002 | 0 \| | \| | \| | \| | \| | | 0.00 |
| 25.750 | 0.03 | 0.06 | 0.001 | 0 \| | \| | \| | \| | \| | | 0.00 |
| 26.000 | 0.02 | 0.03 | 0.000 | 0 \| | \| | \| | \| | \| | | 0.00 |
| 26.250 | 0.01 | 0.02 | 0.000 | 0 \| | \| | \| | \| | \| | | 0.00 |
| 26.500 | 0.00 | 0.01 | 0.000 | 0 \| | \| | \| | \| | \| | | 0.00 |
| 26.750 | 0.00 | 0.00 | 0.000 | 0 \| | \| | \| | \| | \| | | 0.00 |
| 27.000 | 0.00 | 0.00 | 0.000 | 0 \| | \| | \| | \| | \| | | 0.00 |

**********HYDROGRAPH DATA**********

Number of intervals = 108
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 283.395 (CFS)
Total volume = 119.311 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 2.000 to Point/Station 3.000
**** STREAM ROUTING SCS CONVEX METHOD ****

HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 3720.00 (Ft.)
Elevation difference = 74.40 (Ft.)
Slope of channel = 0.020000 (Vert/Horiz)
Channel type - Pipe

Pipe length = 3720.00(Ft.) Elevation difference = 74.40(Ft.)
Manning's N = 0.015 No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow = 81.478(CFS)
Given pipe size = 96.00(In.)
Calculated individual pipe flow = 81.478(CFS)
Normal flow depth in pipe = 17.54(In.)
Flow top width inside pipe = 74.20(In.)
Critical Depth = 2.22(Ft.)
Pipe flow velocity = 12.96(Ft/s)
Travel time through pipe = 4.78 min.

Pipe length = 3720.00(Ft.) Elevation difference = 74.40(Ft.)
Manning's N = 0.015 No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow = 283.395(CFS)
Given pipe size = 96.00(In.)
Calculated individual pipe flow = 283.395(CFS)
Normal flow depth in pipe = 32.95(In.)
Flow top width inside pipe = 91.16(In.)
Critical Depth = 4.24(Ft.)
Pipe flow velocity = 18.56(Ft/s)
Travel time through pipe = 3.34 min.

********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.9161 Travel time = 3.34 (min.)
dt*(unit time interval) = 15.00(min.), e= 3.6007
dt(routing time-step) = 3.06 (min.), c* = 0.9999

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 70.8 | 141.7 | 212.5 | 283.4 |
|---|---|---|---|---|---|---|---|
| 0+15 | 1.1001 | 1.38 | 0 \| | \| | \| | \| | \| |
| 0+30 | 3.8703 | 4.51 | 0 \| | \| | \| | \| | \| |
| 0+45 | 6.6546 | 7.21 | 0I \| | \| | \| | \| | \| |
| 1+ 0 | 8.8154 | 9.23 | 0 \| | \| | \| | \| | \| |
| 1+15 | 10.0756 | 10.29 | 0 \| | \| | \| | \| | \| |
| 1+30 | 10.0997 | 10.05 | 0 \| | \| | \| | \| | \| |
| 1+45 | 9.7878 | 9.72 | 0 \| | \| | \| | \| | \| |
| 2+ 0 | 10.1741 | 10.29 | 0 \| | \| | \| | \| | \| |
| 2+15 | 11.2291 | 11.47 | 0 \| | \| | \| | \| | \| |
| 2+30 | 12.0469 | 12.20 | 0 \| | \| | \| | \| | \| |
| 2+45 | 12.9763 | 13.18 | 0 \| | \| | \| | \| | \| |
| 3+ 0 | 14.2407 | 14.51 | 0 \| | \| | \| | \| | \| |
| 3+15 | 15.1471 | 15.31 | 0 \| | \| | \| | \| | \| |
| 3+30 | 15.5671 | 15.63 | 0 \| | \| | \| | \| | \| |
| 3+45 | 15.7386 | 15.77 | 0 \| | \| | \| | \| | \| |

| | | | |
|---|---|---|---|
| 4+ 0 | 16.3655 | 16.52 | 0 |
| 4+15 | 17.5138 | 17.77 | 0 |
| 4+30 | 18.9201 | 19.22 | 0 |
| 4+45 | 20.4261 | 20.74 | 0 |
| 5+ 0 | 21.9750 | 22.29 | 0 |
| 5+15 | 22.4449 | 22.48 | 0 |
| 5+30 | 21.8044 | 21.63 | 0 |
| 5+45 | 22.2637 | 22.43 | 0 |
| 6+ 0 | 23.6359 | 23.95 | 0 |
| 6+15 | 25.1872 | 25.51 | 0 |
| 6+30 | 26.7454 | 27.06 | 0 |
| 6+45 | 28.3133 | 28.63 | 0I |
| 7+ 0 | 29.8933 | 30.22 | 0 |
| 7+15 | 30.9281 | 31.11 | 0 |
| 7+30 | 31.9534 | 32.17 | 0 |
| 7+45 | 33.8122 | 34.23 | 0 |
| 8+ 0 | 36.4006 | 36.96 | 0 |
| 8+15 | 40.2656 | 41.11 | 0 |
| 8+30 | 44.6126 | 45.51 | 0 |
| 8+45 | 48.1692 | 48.85 | 0 |
| 9+ 0 | 51.7115 | 52.45 | 0 |
| 9+15 | 56.6684 | 57.75 | 0I |
| 9+30 | 64.4665 | 66.19 | 0 |
| 9+45 | 75.3833 | 77.74 | 0 |
| 10+ 0 | 88.8648 | 91.72 | 0 |
| 10+15 | 95.9488 | 97.03 | 0 |
| 10+30 | 88.3883 | 86.17 | 0 |
| 10+45 | 78.5878 | 76.64 | IO |
| 11+ 0 | 80.6497 | 81.68 | IO |
| 11+15 | 89.5105 | 91.52 | 0 |
| 11+30 | 95.2489 | 96.21 | 0 |
| 11+45 | 95.0916 | 94.81 | 0 |
| 12+ 0 | 91.4920 | 90.64 | 0 |
| 12+15 | 97.5404 | 99.31 | 0I |
| 12+30 | 123.6999 | 129.96 | OI |
| 12+45 | 160.3960 | 168.21 | OI |
| 13+ 0 | 194.3931 | 201.11 | OI |
| 13+15 | 227.0438 | 233.70 | 0 |
| 13+30 | 262.6510 | 270.08 | OI |
| 13+45 | 280.6755 | 283.39 | OI |
| 14+ 0 | 262.5356 | 257.19 | IO |
| 14+15 | 233.5489 | 227.48 | 0 |
| 14+30 | 222.6524 | 221.41 | 0 |
| 14+45 | 224.9102 | 225.81 | 0 |
| 15+ 0 | 226.6112 | 226.82 | 0I |
| 15+15 | 223.7052 | 222.91 | 0 |
| 15+30 | 216.8985 | 215.36 | 0 |
| 15+45 | 203.8171 | 200.86 | 0 |
| 16+ 0 | 183.5957 | 179.17 | 0 |
| 16+15 | 150.9069 | 143.66 | IO |
| 16+30 | 105.1560 | 95.28 | IO |
| 16+45 | 63.1244 | 54.87 | IO |
| 17+ 0 | 36.3307 | 31.57 | IO |
| 17+15 | 23.8501 | 21.87 | 0 |
| 17+30 | 19.4668 | 18.85 | 0 |
| 17+45 | 17.8486 | 17.59 | 0 |
| 18+ 0 | 16.4622 | 16.17 | 0 |
| 18+15 | 14.8653 | 14.53 | 0 |
| 18+30 | 13.7171 | 13.51 | 0 |
| 18+45 | 12.5748 | 12.34 | 0 |
| 19+ 0 | 10.6576 | 10.23 | 0 |
| 19+15 | 9.1654 | 8.89 | 0 |
| 19+30 | 9.5678 | 9.74 | 0 |
| 19+45 | 10.4096 | 10.58 | 0 |
| 20+ 0 | 9.7416 | 9.53 | 0 |
| 20+15 | 8.7801 | 8.59 | 0 |
| 20+30 | 8.8400 | 8.90 | 0 |
| 20+45 | 9.2125 | 9.29 | 0 |
| 21+ 0 | 8.8600 | 8.75 | 0 |
| 21+15 | 8.3687 | 8.27 | 0 |
| 21+30 | 8.1191 | 8.08 | 0 |
| 21+45 | 8.0254 | 8.01 | 0 |



| | | | |
|---|---|---|---|
| 22+ 0 | 7.9862 | 7.98 | 0 |
| 22+15 | 7.9651 | 7.96 | 0 |
| 22+30 | 7.9546 | 7.95 | 0 |
| 22+45 | 7.4006 | 7.26 | 0 |
| 23+ 0 | 6.8390 | 6.73 | 0 |
| 23+15 | 6.5603 | 6.52 | 0 |
| 23+30 | 6.4496 | 6.43 | 0 |
| 23+45 | 6.4022 | 6.39 | 0 |
| 24+ 0 | 6.3791 | 6.38 | 0 |
| 24+15 | 5.2678 | 4.98 | 0 |
| 24+30 | 3.0427 | 2.54 | 0 |
| 24+45 | 1.3658 | 1.06 | 0 |
| 25+ 0 | 0.5903 | 0.47 | 0 |
| 25+15 | 0.2757 | 0.23 | 0 |
| 25+30 | 0.1351 | 0.11 | 0 |
| 25+45 | 0.0668 | 0.06 | 0 |
| 26+ 0 | 0.0345 | 0.03 | 0 |
| 26+15 | 0.0191 | 0.02 | 0 |
| 26+30 | 0.0101 | 0.01 | 0 |
| 26+45 | 0.0040 | 0.00 | 0 |
| 27+ 0 | 0.0010 | 0.00 | 0 |
| 27+15 | 0.0000 | 0.00 | 0 |

**********HYDROGRAPH DATA**********

Number of intervals = 109
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 280.675 (CFS)
Total volume = 119.311 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 2.000 to Point/Station 3.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: SubD224100.rte

P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 84.3 | 168.7 | 253.0 | 337.3 |
|---|---|---|---|---|---|---|---|
| 0+15 | 1.3495 | 2.45 | Q | | | | |
| 0+30 | 3.3341 | 7.20 | Q | | | | |
| 0+45 | 4.2505 | 10.91 | qQ | | | | |
| 1+ 0 | 5.1814 | 14.00 | qQ | | | | |
| 1+15 | 5.2242 | 15.30 | qQ | | | | |
| 1+30 | 4.7000 | 14.80 | qQ | | | | |
| 1+45 | 4.6320 | 14.42 | qQ | | | | |
| 2+ 0 | 5.2441 | 15.42 | qQ | | | | |
| 2+15 | 5.8990 | 17.13 | q Q | | | | |
| 2+30 | 6.0297 | 18.08 | q Q | | | | |
| 2+45 | 6.7672 | 19.74 | q Q | | | | |
| 3+ 0 | 7.4221 | 21.66 | q Q | | | | |
| 3+15 | 7.5528 | 22.70 | q Q | | | | |
| 3+30 | 7.6155 | 23.18 | q Q | | | | |
| 3+45 | 7.6155 | 23.35 | q Q | | | | |
| 4+ 0 | 8.2903 | 24.66 | q Q | | | | |
| 4+15 | 8.9452 | 26.46 | q Q | | | | |
| 4+30 | 9.7507 | 28.67 | q Q | | | | |
| 4+45 | 10.4683 | 30.89 | q Q | | | | |

| | | | |
|---|---|---|---|
| 5+ 0 | 11.2738 | 33.25 | q Q |
| 5+15 | 10.6419 | 33.09 | q Q |
| 5+30 | 10.1375 | 31.94 | q Q |
| 5+45 | 11.2685 | 33.53 | q Q |
| 6+ 0 | 11.9287 | 35.56 | q Q |
| 6+15 | 12.7969 | 37.98 | q Q |
| 6+30 | 13.5145 | 40.26 | q Q |
| 6+45 | 14.3200 | 42.63 | q Q |
| 7+ 0 | 15.0376 | 44.93 | q Q |
| 7+15 | 15.1683 | 46.10 | q Q |
| 7+30 | 15.9058 | 47.86 | q Q |
| 7+45 | 17.2354 | 51.05 | q Q |
| 8+ 0 | 18.6958 | 55.10 | q Q |
| 8+15 | 21.4145 | 61.68 | q Q |
| 8+30 | 23.4765 | 68.09 | q Q |
| 8+45 | 24.9699 | 73.14 | q Q |
| 9+ 0 | 27.1570 | 78.87 | q Q |
| 9+15 | 30.3249 | 86.99 | q Q |
| 9+30 | 33.5530 | 98.02 | q Q |
| 9+45 | 36.0311 | 111.41 | q Q |
| 10+ 0 | 38.4110 | 127.28 | q Q |
| 10+15 | 32.9887 | 128.94 | q Q |
| 10+30 | 26.8279 | 115.22 | q Q |
| 10+45 | 30.5413 | 109.13 | q Q |
| 11+ 0 | 34.7024 | 115.35 | q Q |
| 11+15 | 34.7809 | 124.29 | q Q |
| 11+30 | 34.4009 | 129.65 | q Q |
| 11+45 | 32.3929 | 127.48 | q Q |
| 12+ 0 | 31.5015 | 122.99 | q Q |
| 12+15 | 38.9156 | 136.46 | q Q |
| 12+30 | 46.5394 | 170.24 | q Q |
| 12+45 | 50.9015 | 211.30 | q Q |
| 13+ 0 | 54.6511 | 249.04 | q Q |
| 13+15 | 60.9689 | 288.01 | q Q |
| 13+30 | 66.1111 | 328.76 | q Q |
| 13+45 | 56.6279 | 337.30 | q Q |
| 14+ 0 | 46.8798 | 309.42 | q Q |
| 14+15 | 48.7761 | 282.32 | q Q |
| 14+30 | 50.6624 | 273.31 | q Q |
| 14+45 | 50.5656 | 275.48 | q Q |
| 15+ 0 | 49.8638 | 276.48 | q Q |
| 15+15 | 47.9639 | 271.67 | q Q |
| 15+30 | 45.9656 | 262.86 | q Q |
| 15+45 | 40.9844 | 244.80 | q Q |
| 16+ 0 | 37.0508 | 220.65 | q Q |
| 16+15 | 23.0484 | 173.96 | q Q |
| 16+30 | 9.8763 | 115.03 | q Q |
| 16+45 | 6.6455 | 69.77 | q Q |
| 17+ 0 | 4.7627 | 41.09 | q Q |
| 17+15 | 5.9815 | 29.83 | q Q |
| 17+30 | 7.2287 | 26.70 | q Q |
| 17+45 | 7.4901 | 25.34 | q Q |
| 18+ 0 | 6.9407 | 23.40 | q Q |
| 18+15 | 6.2858 | 21.15 | q Q |
| 18+30 | 6.1551 | 19.87 | q Q |
| 18+45 | 5.4176 | 17.99 | q Q |
| 19+ 0 | 4.0879 | 14.75 | qQ |
| 19+15 | 3.9771 | 13.14 | qQ |
| 19+30 | 5.1134 | 14.68 | qQ |
| 19+45 | 5.1615 | 15.57 | qQ |
| 20+ 0 | 4.0252 | 13.77 | qQ |
| 20+15 | 3.9771 | 12.76 | qQ |
| 20+30 | 4.4386 | 13.28 | qQ |
| 20+45 | 4.5066 | 13.72 | qQ |
| 21+ 0 | 3.8945 | 12.75 | qQ |
| 21+15 | 3.9144 | 12.28 | qQ |
| 21+30 | 3.7638 | 11.88 | qQ |
| 21+45 | 3.8517 | 11.88 | qQ |
| 22+ 0 | 3.7638 | 11.75 | qQ |
| 22+15 | 3.8517 | 11.82 | qQ |
| 22+30 | 3.7638 | 11.72 | qQ |
| 22+45 | 3.1769 | 10.58 | qQ |



| | | | |
|---|---|---|---|
| 23+ 0 | 3.1089 | 9.95 | qQ |
| 23+15 | 3.0462 | 9.61 | qQ |
| 23+30 | 3.0462 | 9.50 | qQ |
| 23+45 | 3.0462 | 9.45 | qQ |
| 24+ 0 | 3.0462 | 9.43 | qQ |
| 24+15 | 1.6967 | 6.96 | Q |
| 24+30 | 0.3868 | 3.43 | Q |
| 24+45 | 0.1254 | 1.49 | Q |
| 25+ 0 | 0.0000 | 0.59 | Q |
| 25+15 | 0.0000 | 0.28 | Q |
| 25+30 | 0.0000 | 0.14 | Q |
| 25+45 | 0.0000 | 0.07 | Q |
| 26+ 0 | 0.0000 | 0.03 | Q |
| 26+15 | 0.0000 | 0.02 | Q |
| 26+30 | 0.0000 | 0.01 | Q |
| 26+45 | 0.0000 | 0.00 | Q |
| 27+ 0 | 0.0000 | 0.00 | Q |
| 27+15 | 0.0000 | 0.00 | Q |

**********HYDROGRAPH DATA**********

Number of intervals = 109
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 337.303 (CFS)
Total volume = 155.627 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

```
        U n i t   H y d r o g r a p h   A n a l y s i s

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
              Study date  04/27/12 File: OffsiteD124100.out

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------------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Watershed D, Offsite D1
Proposed Condition
100-year, 3-hour

------------------------------------------------------------------
Drainage Area =     443.50(Ac.)  =      0.693 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     443.50(Ac.)  =      0.693 Sq. Mi.
Length along longest watercourse =    13900.00(Ft.)
Length along longest watercourse measured to centroid =     6600.00(Ft.)
Length along longest watercourse =       2.633 Mi.
Length along longest watercourse measured to centroid =       1.250 Mi.
Difference in elevation =      857.00(Ft.)
Slope along watercourse =     325.5367 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =     0.377 Hr.
Lag time =     22.63 Min.
25% of lag time =      5.66 Min.
40% of lag time =      9.05 Min.
Unit time =     15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      443.50              1.80                  798.30

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      443.50              4.50                 1995.75

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     1.800(In)
Area Averaged 100-Year Rainfall =     4.500(In)

Point rain (area averaged) =     4.500(In)
Areal adjustment factor =    99.91 %
Adjusted average point rain =     4.496(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
    35.200            46.00           0.000
    16.200            66.00           0.000
     3.900            77.00           0.000
```



```
   388.200            83.00           0.000
 Total Area Entered =     443.50(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
46.0  46.0       0.611      0.000        0.611        0.079     0.049
66.0  66.0       0.405      0.000        0.405        0.037     0.015
77.0  77.0       0.279      0.000        0.279        0.009     0.002
83.0  83.0       0.210      0.000        0.210        0.875     0.184
                                                    Sum (F) =   0.249
Area averaged mean soil loss (F) (In/Hr) =  0.249
Minimum soil loss rate ((In/Hr)) =  0.125
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.900
------------------------------------------------------------------

            U n i t   H y d r o g r a p h
                  FOOTHILL S-Curve
------------------------------------------------------------------
                  Unit Hydrograph Data
------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
    (hrs)                           Graph %           (CFS)
------------------------------------------------------------------
    1   0.250          66.287          6.542            29.242
    2   0.500         132.575         37.826           169.068
    3   0.750         198.862         30.871           137.982
    4   1.000         265.150         11.436            51.115
    5   1.250         331.437          6.452            28.840
    6   1.500         397.724          3.588            16.038
    7   1.750         464.012          1.551             6.933
    8   2.000         530.299          0.677             3.026
    9   2.250         596.587          0.470             2.099
   10   2.500         662.874          0.403             1.800
   11   2.750         729.161          0.184             0.822
                                Sum = 100.000    Sum=     446.965
------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)  Percent   (In/Hr)       Max    |   Low          (In/Hr)
  1   0.25     0.20      0.036      (  0.440)     0.032          0.004
  2   0.50     0.30      0.054      (  0.435)     0.049          0.005
  3   0.75     0.30      0.054      (  0.430)     0.049          0.005
  4   1.00     0.40      0.072      (  0.425)     0.065          0.007
  5   1.25     0.30      0.054      (  0.420)     0.049          0.005
  6   1.50     0.30      0.054      (  0.415)     0.049          0.005
  7   1.75     0.30      0.054      (  0.410)     0.049          0.005
  8   2.00     0.40      0.072      (  0.405)     0.065          0.007
  9   2.25     0.40      0.072      (  0.400)     0.065          0.007
 10   2.50     0.40      0.072      (  0.396)     0.065          0.007
 11   2.75     0.50      0.090      (  0.391)     0.081          0.009
 12   3.00     0.50      0.090      (  0.386)     0.081          0.009
 13   3.25     0.50      0.090      (  0.381)     0.081          0.009
 14   3.50     0.50      0.090      (  0.376)     0.081          0.009
 15   3.75     0.50      0.090      (  0.372)     0.081          0.009
 16   4.00     0.60      0.108      (  0.367)     0.097          0.011
 17   4.25     0.60      0.108      (  0.362)     0.097          0.011
 18   4.50     0.70      0.126      (  0.358)     0.113          0.013
 19   4.75     0.70      0.126      (  0.353)     0.113          0.013
 20   5.00     0.80      0.144      (  0.349)     0.129          0.014
 21   5.25     0.60      0.108      (  0.344)     0.097          0.011
 22   5.50     0.70      0.126      (  0.340)     0.113          0.013
 23   5.75     0.80      0.144      (  0.335)     0.129          0.014
 24   6.00     0.80      0.144      (  0.331)     0.129          0.014
 25   6.25     0.90      0.162      (  0.326)     0.146          0.016
 26   6.50     0.90      0.162      (  0.322)     0.146          0.016
 27   6.75     1.00      0.180      (  0.318)     0.162          0.018
```

| | | | | | | |
|---|---|---|---|---|---|---|
| 28 | 7.00 | 1.00 | 0.180 | ( 0.313) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.309) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.305) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.301) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.297) | 0.210 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.292) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.288) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.284) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.280) | 0.275 | 0.031 |
| 37 | 9.25 | 1.90 | 0.342 | 0.276 | ( 0.308) | 0.065 |
| 38 | 9.50 | 2.00 | 0.360 | 0.272 | ( 0.324) | 0.087 |
| 39 | 9.75 | 2.10 | 0.378 | 0.269 | ( 0.340) | 0.109 |
| 40 | 10.00 | 2.20 | 0.396 | 0.265 | ( 0.356) | 0.131 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.261) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.257) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.253 | ( 0.324) | 0.106 |
| 44 | 11.00 | 2.00 | 0.360 | 0.250 | ( 0.324) | 0.110 |
| 45 | 11.25 | 1.90 | 0.342 | 0.246 | ( 0.308) | 0.096 |
| 46 | 11.50 | 1.90 | 0.342 | 0.242 | ( 0.308) | 0.099 |
| 47 | 11.75 | 1.70 | 0.306 | 0.239 | ( 0.275) | 0.067 |
| 48 | 12.00 | 1.80 | 0.324 | 0.235 | ( 0.291) | 0.089 |
| 49 | 12.25 | 2.50 | 0.450 | 0.232 | ( 0.405) | 0.218 |
| 50 | 12.50 | 2.60 | 0.468 | 0.228 | ( 0.421) | 0.239 |
| 51 | 12.75 | 2.80 | 0.504 | 0.225 | ( 0.453) | 0.279 |
| 52 | 13.00 | 2.90 | 0.522 | 0.221 | ( 0.469) | 0.300 |
| 53 | 13.25 | 3.40 | 0.611 | 0.218 | ( 0.550) | 0.393 |
| 54 | 13.50 | 3.40 | 0.611 | 0.215 | ( 0.550) | 0.397 |
| 55 | 13.75 | 2.30 | 0.414 | 0.211 | ( 0.372) | 0.202 |
| 56 | 14.00 | 2.30 | 0.414 | 0.208 | ( 0.372) | 0.205 |
| 57 | 14.25 | 2.70 | 0.486 | 0.205 | ( 0.437) | 0.281 |
| 58 | 14.50 | 2.60 | 0.468 | 0.202 | ( 0.421) | 0.266 |
| 59 | 14.75 | 2.60 | 0.468 | 0.199 | ( 0.421) | 0.269 |
| 60 | 15.00 | 2.50 | 0.450 | 0.196 | ( 0.405) | 0.254 |
| 61 | 15.25 | 2.40 | 0.432 | 0.193 | ( 0.388) | 0.239 |
| 62 | 15.50 | 2.30 | 0.414 | 0.190 | ( 0.372) | 0.224 |
| 63 | 15.75 | 1.90 | 0.342 | 0.187 | ( 0.308) | 0.155 |
| 64 | 16.00 | 1.90 | 0.342 | 0.184 | ( 0.308) | 0.158 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.181) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.179) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.176) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.173) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.171) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.168) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.165) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.163) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.161) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.158) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.156) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.154) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.152) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.150) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.147) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.145) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.144) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.142) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.140) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.138) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.137) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.135) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.134) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.132) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.131) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.130) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.128) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.127) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.127) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.126) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.125) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.125) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.7

Flood volume = Effective rainfall 1.44(In)



times area 443.5(Ac.)/[(In)/(Ft.)] = 53.1(Ac.Ft)

Total soil loss = 3.06(In)

Total soil loss = 113.073(Ac.Ft)

Total rainfall = 4.50(In)

Flood volume = 2312836.3 Cubic Feet

Total soil loss = 4925460.9 Cubic Feet

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Peak flow rate of this hydrograph = 156.763(CFS)

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24 - H O U R S T O R M

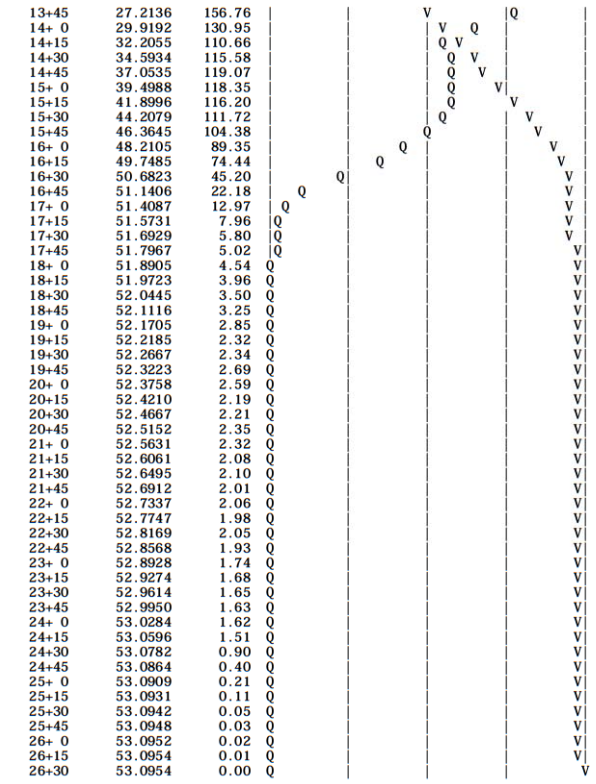
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 50.0 | 100.0 | 150.0 | 200.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0022 | 0.11 | Q | | | | |
| 0+30 | 0.0180 | 0.77 | Q | | | | |
| 0+45 | 0.0504 | 1.57 | Q | | | | |
| 1+ 0 | 0.0928 | 2.05 | Q | | | | |
| 1+15 | 0.1444 | 2.50 | Q | | | | |
| 1+30 | 0.1972 | 2.55 | Q | | | | |
| 1+45 | 0.2478 | 2.45 | Q | | | | |
| 2+ 0 | 0.2992 | 2.49 | Q | | | | |
| 2+15 | 0.3566 | 2.78 | Q | | | | |
| 2+30 | 0.4191 | 3.02 | Q | | | | |
| 2+45 | 0.4845 | 3.17 | Q | | | | |
| 3+ 0 | 0.5573 | 3.52 | Q | | | | |
| 3+15 | 0.6358 | 3.80 | Q | | | | |
| 3+30 | 0.7164 | 3.90 | Q | | | | |
| 3+45 | 0.7981 | 3.96 | Q | | | | |
| 4+ 0 | 0.8817 | 4.04 | Q | | | | |
| 4+15 | 0.9718 | 4.36 | Q | | | | |
| 4+30 | 1.0683 | 4.67 | Q | | | | |
| 4+45 | 1.1731 | 5.07 | VQ | | | | |
| 5+ 0 | 1.2852 | 5.43 | VQ | | | | |
| 5+15 | 1.4039 | 5.75 | Q | | | | |
| 5+30 | 1.5177 | 5.50 | Q | | | | |
| 5+45 | 1.6311 | 5.49 | Q | | | | |
| 6+ 0 | 1.7536 | 5.93 | Q | | | | |
| 6+15 | 1.8828 | 6.25 | Q | | | | |
| 6+30 | 2.0205 | 6.66 | Q | | | | |
| 6+45 | 2.1657 | 7.03 | Q | | | | |
| 7+ 0 | 2.3198 | 7.46 | Q | | | | |
| 7+15 | 2.4804 | 7.77 | Q | | | | |
| 7+30 | 2.6447 | 7.95 | Q | | | | |
| 7+45 | 2.8178 | 8.38 | QV | | | | |
| 8+ 0 | 3.0042 | 9.02 | QV | | | | |
| 8+15 | 3.2064 | 9.79 | QV | | | | |
| 8+30 | 3.4295 | 10.80 | Q | | | | |
| 8+45 | 3.6676 | 11.52 | Q | | | | |
| 9+ 0 | 3.9189 | 12.16 | Q | | | | |
| 9+15 | 4.2057 | 13.88 | QV | | | | |
| 9+30 | 4.6361 | 20.83 | VQ | | | | |
| 9+45 | 5.2593 | 30.16 | V Q | | | | |
| 10+ 0 | 6.0735 | 39.41 | V Q | | | | |
| 10+15 | 7.0086 | 45.26 | V Q | | | | |
| 10+30 | 7.6907 | 33.01 | VQ | | | | |
| 10+45 | 8.1726 | 23.33 | Q V | | | | |
| 11+ 0 | 8.8502 | 32.79 | Q | | | | |
| 11+15 | 9.7099 | 41.61 | VQ | | | | |
| 11+30 | 10.5885 | 42.52 | VQ | | | | |
| 11+45 | 11.4594 | 42.15 | Q | | | | |
| 12+ 0 | 12.2496 | 38.25 | Q V | | | | |
| 12+15 | 13.1055 | 41.43 | QV | | | | |
| 12+30 | 14.4532 | 65.23 | V Q | | | | |
| 12+45 | 16.2734 | 88.09 | V Q | | | | |
| 13+ 0 | 18.4469 | 105.20 | V | Q | | | |
| 13+15 | 20.9673 | 121.99 | V | Q | | | |
| 13+30 | 23.9747 | 145.56 | V | Q | | | |



| | | | |
|---|---|---|---|
| 13+45 | 27.2136 | 156.76 | Q |
| 14+ 0 | 29.9192 | 130.95 | Q |
| 14+15 | 32.2055 | 110.66 | Q |
| 14+30 | 34.5934 | 115.58 | Q |
| 14+45 | 37.0535 | 119.07 | Q |
| 15+ 0 | 39.4988 | 118.35 | Q |
| 15+15 | 41.8996 | 116.20 | Q |
| 15+30 | 44.2079 | 111.72 | Q |
| 15+45 | 46.3645 | 104.38 | Q |
| 16+ 0 | 48.2105 | 89.35 | Q |
| 16+15 | 49.7485 | 74.44 | Q |
| 16+30 | 50.6823 | 45.20 | Q |
| 16+45 | 51.1406 | 22.18 | Q |
| 17+ 0 | 51.4087 | 12.97 | Q |
| 17+15 | 51.5731 | 7.96 | Q |
| 17+30 | 51.6929 | 5.80 | Q |
| 17+45 | 51.7967 | 5.02 | Q |
| 18+ 0 | 51.8905 | 4.54 | Q |
| 18+15 | 51.9723 | 3.96 | Q |
| 18+30 | 52.0445 | 3.50 | Q |
| 18+45 | 52.1116 | 3.25 | Q |
| 19+ 0 | 52.1705 | 2.85 | Q |
| 19+15 | 52.2185 | 2.32 | Q |
| 19+30 | 52.2667 | 2.34 | Q |
| 19+45 | 52.3223 | 2.69 | Q |
| 20+ 0 | 52.3758 | 2.59 | Q |
| 20+15 | 52.4210 | 2.19 | Q |
| 20+30 | 52.4667 | 2.21 | Q |
| 20+45 | 52.5152 | 2.35 | Q |
| 21+ 0 | 52.5631 | 2.32 | Q |
| 21+15 | 52.6061 | 2.08 | Q |
| 21+30 | 52.6495 | 2.10 | Q |
| 21+45 | 52.6912 | 2.01 | Q |
| 22+ 0 | 52.7337 | 2.06 | Q |
| 22+15 | 52.7747 | 1.98 | Q |
| 22+30 | 52.8169 | 2.05 | Q |
| 22+45 | 52.8568 | 1.93 | Q |
| 23+ 0 | 52.8928 | 1.74 | Q |
| 23+15 | 52.9274 | 1.68 | Q |
| 23+30 | 52.9614 | 1.65 | Q |
| 23+45 | 52.9950 | 1.63 | Q |
| 24+ 0 | 53.0284 | 1.62 | Q |
| 24+15 | 53.0596 | 1.51 | Q |
| 24+30 | 53.0782 | 0.90 | Q |
| 24+45 | 53.0864 | 0.40 | Q |
| 25+ 0 | 53.0909 | 0.21 | Q |
| 25+15 | 53.0931 | 0.11 | Q |
| 25+30 | 53.0942 | 0.05 | Q |
| 25+45 | 53.0948 | 0.03 | Q |
| 26+ 0 | 53.0952 | 0.02 | Q |
| 26+15 | 53.0954 | 0.01 | Q |
| 26+30 | 53.0954 | 0.00 | Q |



U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 04/27/12 File: OffsiteD224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

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English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

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Watershed D, Offsite D2
Proposed Condition
100-year, 3-hour

---

Drainage Area = 183.80(Ac.) = 0.287 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 183.80(Ac.) = 0.287 Sq. Mi.
Length along longest watercourse = 4950.00(Ft.)
Length along longest watercourse measured to centroid = 2120.00(Ft.)
Length along longest watercourse = 0.938 Mi.
Length along longest watercourse measured to centroid = 0.402 Mi.
Difference in elevation = 461.00(Ft.)
Slope along watercourse = 491.7333 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.153 Hr.
Lag time = 9.18 Min.
25% of lag time = 2.29 Min.
40% of lag time = 3.67 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 183.80 | 1.80 | 330.84 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 183.80 | 4.50 | 827.10 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.96 %
Adjusted average point rain = 4.498(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 22.800 | 46.00 | 0.000 |
| 35.900 | 66.00 | 0.000 |
| 8.300 | 77.00 | 0.000 |

116.800 83.00 0.000
Total Area Entered = 183.80(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.124 | 0.076 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.195 | 0.079 |
| 77.0 | 77.0 | 0.279 | 0.000 | 0.279 | 0.045 | 0.013 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.635 | 0.133 |
| | | | | | Sum (F) = | 0.301 |

Area averaged mean soil loss (F) (In/Hr) = 0.301
Minimum soil loss rate ((In/Hr)) = 0.150
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 163.411 | 34.070 | 63.110 |
| 2 | 0.500 | 326.821 | 53.280 | 98.693 |
| 3 | 0.750 | 490.232 | 10.282 | 19.046 |
| 4 | 1.000 | 653.643 | 1.829 | 3.388 |
| 5 | 1.250 | 817.053 | 0.539 | 0.999 |
| | | | Sum = 100.000 | Sum= 185.236 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.531) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.525) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.519) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.513) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.507) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.501) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.495) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.489) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.483) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.477) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.471) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.466) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.460) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.454) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.448) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.443) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.437) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.432) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.426) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.421) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.415) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.410) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.404) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.399) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.394) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.388) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.383) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.378) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.373) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.368) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.363) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.358) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.353) | 0.243 | 0.027 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 34 | 8.50 | 1.50 | 0.270 | ( 0.348) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.343) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.338) | 0.275 | 0.031 |
| 37 | 9.25 | 1.90 | 0.342 | ( 0.333) | 0.308 | 0.034 |
| 38 | 9.50 | 2.00 | 0.360 | ( 0.329) | 0.324 | 0.036 |
| 39 | 9.75 | 2.10 | 0.378 | 0.324 | ( 0.340) | 0.054 |
| 40 | 10.00 | 2.20 | 0.396 | 0.319 | ( 0.356) | 0.077 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.315) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.310) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.306 | ( 0.324) | 0.054 |
| 44 | 11.00 | 2.00 | 0.360 | 0.301 | ( 0.324) | 0.059 |
| 45 | 11.25 | 1.90 | 0.342 | 0.297 | ( 0.308) | 0.045 |
| 46 | 11.50 | 1.90 | 0.342 | 0.292 | ( 0.308) | 0.050 |
| 47 | 11.75 | 1.70 | 0.306 | ( 0.288) | 0.275 | 0.031 |
| 48 | 12.00 | 1.80 | 0.324 | 0.284 | ( 0.291) | 0.040 |
| 49 | 12.25 | 2.50 | 0.450 | 0.279 | ( 0.405) | 0.170 |
| 50 | 12.50 | 2.60 | 0.468 | 0.275 | ( 0.421) | 0.193 |
| 51 | 12.75 | 2.80 | 0.504 | 0.271 | ( 0.453) | 0.233 |
| 52 | 13.00 | 2.90 | 0.522 | 0.267 | ( 0.470) | 0.255 |
| 53 | 13.25 | 3.40 | 0.612 | 0.263 | ( 0.551) | 0.349 |
| 54 | 13.50 | 3.40 | 0.612 | 0.259 | ( 0.551) | 0.353 |
| 55 | 13.75 | 2.30 | 0.414 | 0.255 | ( 0.372) | 0.159 |
| 56 | 14.00 | 2.30 | 0.414 | 0.251 | ( 0.372) | 0.163 |
| 57 | 14.25 | 2.70 | 0.486 | 0.247 | ( 0.437) | 0.238 |
| 58 | 14.50 | 2.60 | 0.468 | 0.244 | ( 0.421) | 0.224 |
| 59 | 14.75 | 2.60 | 0.468 | 0.240 | ( 0.421) | 0.228 |
| 60 | 15.00 | 2.50 | 0.450 | 0.236 | ( 0.405) | 0.214 |
| 61 | 15.25 | 2.40 | 0.432 | 0.233 | ( 0.389) | 0.199 |
| 62 | 15.50 | 2.30 | 0.414 | 0.229 | ( 0.372) | 0.185 |
| 63 | 15.75 | 1.90 | 0.342 | 0.226 | ( 0.308) | 0.116 |
| 64 | 16.00 | 1.90 | 0.342 | 0.222 | ( 0.308) | 0.120 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.219) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.215) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.212) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.209) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.206) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.203) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.200) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.197) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.194) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.191) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.188) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.186) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.183) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.180) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.178) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.176) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.173) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.171) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.169) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.167) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.165) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.163) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.161) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.159) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.158) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.156) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.155) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.154) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.153) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.152) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.151) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.151) | 0.032 | 0.004 |
| | | | (Loss Rate Not Used) | | | |
| Sum = | | 100.0 | | | Sum = | 4.6 |

Flood volume = Effective rainfall 1.15(In)
times area 183.8(Ac.)/[(In)/(Ft.)] = 17.6(Ac.Ft)
Total soil loss = 3.35(In)
Total soil loss = 51.341(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 764866.3 Cubic Feet
Total soil loss = 2236428.9 Cubic Feet

Peak flow rate of this hydrograph = 62.545(CFS)

24 - H O U R  S T O R M
R u n o f f  H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 17.5 | 35.0 | 52.5 | 70.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0047 | 0.23 | Q | | | | |
| 0+30 | 0.0191 | 0.70 | Q | | | | |
| 0+45 | 0.0386 | 0.94 | Q | | | | |
| 1+ 0 | 0.0613 | 1.10 | Q | | | | |
| 1+15 | 0.0856 | 1.18 | Q | | | | |
| 1+30 | 0.1070 | 1.03 | Q | | | | |
| 1+45 | 0.1278 | 1.01 | Q | | | | |
| 2+ 0 | 0.1509 | 1.12 | Q | | | | |
| 2+15 | 0.1776 | 1.29 | Q | | | | |
| 2+30 | 0.2050 | 1.33 | Q | | | | |
| 2+45 | 0.2348 | 1.45 | Q | | | | |
| 3+ 0 | 0.2684 | 1.63 | Q | | | | |
| 3+15 | 0.3027 | 1.66 | Q | | | | |
| 3+30 | 0.3371 | 1.67 | Q | | | | |
| 3+45 | 0.3715 | 1.67 | Q | | | | |
| 4+ 0 | 0.4083 | 1.78 | VQ | | | | |
| 4+15 | 0.4488 | 1.96 | Q | | | | |
| 4+30 | 0.4923 | 2.11 | Q | | | | |
| 4+45 | 0.5397 | 2.29 | Q | | | | |
| 5+ 0 | 0.5901 | 2.44 | Q | | | | |
| 5+15 | 0.6396 | 2.40 | Q | | | | |
| 5+30 | 0.6849 | 2.19 | Q | | | | |
| 5+45 | 0.7349 | 2.42 | Q | | | | |
| 6+ 0 | 0.7890 | 2.62 | Q | | | | |
| 6+15 | 0.8463 | 2.77 | Q | | | | |
| 6+30 | 0.9074 | 2.96 | QV | | | | |
| 6+45 | 0.9716 | 3.11 | QV | | | | |
| 7+ 0 | 1.0396 | 3.29 | QV | | | | |
| 7+15 | 1.1083 | 3.33 | QV | | | | |
| 7+30 | 1.1795 | 3.45 | QV | | | | |
| 7+45 | 1.2568 | 3.74 | Q | | | | |
| 8+ 0 | 1.3408 | 4.07 | QV | | | | |
| 8+15 | 1.4340 | 4.51 | QV | | | | |
| 8+30 | 1.5354 | 4.91 | QV | | | | |
| 8+45 | 1.6407 | 5.10 | QV | | | | |
| 9+ 0 | 1.7524 | 5.40 | Q | | | | |
| 9+15 | 1.8731 | 5.85 | QV | | | | |
| 9+30 | 2.0045 | 6.36 | QV | | | | |
| 9+45 | 2.1644 | 7.74 | Q | | | | |
| 10+ 0 | 2.3915 | 10.99 | VQ | | | | |
| 10+15 | 2.6074 | 10.45 | Q | | | | |
| 10+30 | 2.7323 | 6.05 | Q V | | | | |
| 10+45 | 2.8753 | 6.92 | Q V | | | | |
| 11+ 0 | 3.0767 | 9.75 | Q V | | | | |
| 11+15 | 3.2793 | 9.81 | Q V | | | | |
| 11+30 | 3.4636 | 8.92 | Q V | | | | |
| 11+45 | 3.6276 | 7.94 | Q V | | | | |
| 12+ 0 | 3.7663 | 6.71 | Q V | | | | |
| 12+15 | 4.0870 | 15.52 | QV | | | | |
| 12+30 | 4.7047 | 29.90 | V Q | | | | |
| 12+45 | 5.4716 | 37.12 | V Q | | | | |
| 13+ 0 | 6.3671 | 43.35 | V Q | | | | |
| 13+15 | 7.4504 | 52.43 | V Q | | | | |
| 13+30 | 8.7427 | 62.54 | V | | | Q | |
| 13+45 | 9.8294 | 52.60 | V Q | | | | |
| 14+ 0 | 10.5339 | 34.10 | Q V | | | | |
| 14+15 | 11.2712 | 35.68 | Q V | | | | |
| 14+30 | 12.1325 | 41.69 | Q V | | | | |
| 14+45 | 12.9959 | 41.79 | Q V | | | | |
| 15+ 0 | 13.8479 | 41.24 | Q V | | | | |
| 15+15 | 14.6540 | 39.01 | Q V | | | | |
| 15+30 | 15.4063 | 36.41 | Q V | | | | |
| 15+45 | 16.0332 | 30.34 | Q V | | | | |
| 16+ 0 | 16.5179 | 23.46 | Q V | | | | |
| 16+15 | 16.8345 | 15.32 | Q V | | | | |
| 16+30 | 16.9177 | 4.03 | Q V | | | | |
| 16+45 | 16.9530 | 1.71 | Q V | | | | |
| 17+ 0 | 16.9769 | 1.16 | Q V | | | | |
| 17+15 | 17.0024 | 1.24 | Q V | | | | |
| 17+30 | 17.0352 | 1.58 | Q V | | | | |
| 17+45 | 17.0693 | 1.65 | Q V | | | | |
| 18+ 0 | 17.1013 | 1.55 | Q V | | | | |
| 18+15 | 17.1297 | 1.38 | Q V | | | | |
| 18+30 | 17.1575 | 1.34 | Q V | | | | |
| 18+45 | 17.1827 | 1.22 | Q V | | | | |
| 19+ 0 | 17.2019 | 0.93 | Q V | | | | |
| 19+15 | 17.2191 | 0.83 | Q V | | | | |
| 19+30 | 17.2414 | 1.08 | Q V | | | | |
| 19+45 | 17.2656 | 1.17 | Q V | | | | |
| 20+ 0 | 17.2846 | 0.92 | Q V | | | | |
| 20+15 | 17.3018 | 0.83 | Q V | | | | |
| 20+30 | 17.3218 | 0.97 | Q V | | | | |
| 20+45 | 17.3423 | 0.99 | Q V | | | | |
| 21+ 0 | 17.3606 | 0.89 | Q V | | | | |
| 21+15 | 17.3776 | 0.82 | Q V | | | | |
| 21+30 | 17.3952 | 0.85 | Q V | | | | |
| 21+45 | 17.4121 | 0.82 | Q V | | | | |
| 22+ 0 | 17.4296 | 0.85 | Q V | | | | |
| 22+15 | 17.4465 | 0.82 | Q V | | | | |
| 22+30 | 17.4641 | 0.85 | Q V | | | | |
| 22+45 | 17.4786 | 0.70 | Q V | | | | |
| 23+ 0 | 17.4925 | 0.67 | Q V | | | | |
| 23+15 | 17.5063 | 0.67 | Q V | | | | |
| 23+30 | 17.5201 | 0.67 | Q V | | | | |
| 23+45 | 17.5339 | 0.67 | Q V | | | | |
| 24+ 0 | 17.5477 | 0.67 | Q V | | | | |
| 24+15 | 17.5568 | 0.44 | Q V | | | | |
| 24+30 | 17.5585 | 0.08 | Q V | | | | |
| 24+45 | 17.5588 | 0.02 | Q V | | | | |
| 25+ 0 | 17.5589 | 0.00 | Q V | | | | |

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                U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  04/30/12 File: SubD124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed D, Onsite D1
Proposed Condition
100-year, 24-hour

--------------------------------------------------------------------
Drainage Area =     160.67(Ac.)  =      0.251 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     160.67(Ac.)  =      0.251 Sq. Mi.
Length along longest watercourse =     1500.00(Ft.)
Length along longest watercourse measured to centroid =      750.00(Ft.)
Length along longest watercourse =       0.284 Mi.
Length along longest watercourse measured to centroid =       0.142 Mi.
Difference in elevation =       30.00(Ft.)
Slope along watercourse =     105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.044 Hr.
Lag time =      2.63 Min.
25% of lag time =      0.66 Min.
40% of lag time =      1.05 Min.
Unit time =     15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      160.67             1.80                  289.21

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
      160.67             4.50                  723.01

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     1.800(In)
Area Averaged 100-Year Rainfall =     4.500(In)

Point rain (area averaged) =     4.500(In)
Areal adjustment factor =    99.97 %
Adjusted average point rain =     4.499(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   160.670             85.00          0.750
 Total Area Entered =     160.67(Ac.)
```



```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
85.0  85.0       0.187      0.750         0.061        1.000      0.061
                                                   Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.300
--------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                      VALLEY S-Curve
--------------------------------------------------------------------
                    Unit Hydrograph Data
--------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
    (hrs)                           Graph %           (CFS)
--------------------------------------------------------------------
     1    0.250        570.030        74.072           119.942
     2    0.500       1140.059        25.928            41.983
                                Sum = 100.000    Sum=    161.925
--------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
     (Hr.)  Percent    (In/Hr)       Max    |   Low          (In/Hr)
  1   0.25     0.20      0.036      (  0.107)     0.011         0.025
  2   0.50     0.30      0.054      (  0.106)     0.016         0.038
  3   0.75     0.30      0.054      (  0.105)     0.016         0.038
  4   1.00     0.40      0.072      (  0.104)     0.022         0.050
  5   1.25     0.30      0.054      (  0.102)     0.016         0.038
  6   1.50     0.30      0.054      (  0.101)     0.016         0.038
  7   1.75     0.30      0.054      (  0.100)     0.016         0.038
  8   2.00     0.40      0.072      (  0.099)     0.022         0.050
  9   2.25     0.40      0.072      (  0.098)     0.022         0.050
 10   2.50     0.40      0.072      (  0.096)     0.022         0.050
 11   2.75     0.50      0.090      (  0.095)     0.027         0.063
 12   3.00     0.50      0.090      (  0.094)     0.027         0.063
 13   3.25     0.50      0.090      (  0.093)     0.027         0.063
 14   3.50     0.50      0.090      (  0.092)     0.027         0.063
 15   3.75     0.50      0.090      (  0.091)     0.027         0.063
 16   4.00     0.60      0.108      (  0.089)     0.032         0.076
 17   4.25     0.60      0.108      (  0.088)     0.032         0.076
 18   4.50     0.70      0.126      (  0.087)     0.038         0.088
 19   4.75     0.70      0.126      (  0.086)     0.038         0.088
 20   5.00     0.80      0.144      (  0.085)     0.043         0.101
 21   5.25     0.60      0.108      (  0.084)     0.032         0.076
 22   5.50     0.70      0.126      (  0.083)     0.038         0.088
 23   5.75     0.80      0.144      (  0.082)     0.043         0.101
 24   6.00     0.80      0.144      (  0.081)     0.043         0.101
 25   6.25     0.90      0.162      (  0.080)     0.049         0.113
 26   6.50     0.90      0.162      (  0.078)     0.049         0.113
 27   6.75     1.00      0.180      (  0.077)     0.054         0.126
 28   7.00     1.00      0.180      (  0.076)     0.054         0.126
 29   7.25     1.00      0.180      (  0.075)     0.054         0.126
 30   7.50     1.10      0.198      (  0.074)     0.059         0.139
 31   7.75     1.20      0.216      (  0.073)     0.065         0.151
 32   8.00     1.30      0.234      (  0.072)     0.070         0.164
 33   8.25     1.50      0.270         0.071   (  0.081)       0.199
 34   8.50     1.50      0.270         0.070   (  0.081)       0.200
 35   8.75     1.60      0.288         0.069   (  0.086)       0.219
 36   9.00     1.70      0.306         0.068   (  0.092)       0.238
 37   9.25     1.90      0.342         0.067   (  0.103)       0.275
 38   9.50     2.00      0.360         0.066   (  0.108)       0.294
 39   9.75     2.10      0.378         0.065   (  0.113)       0.312
 40  10.00     2.20      0.396         0.064   (  0.119)       0.331
 41  10.25     1.50      0.270         0.064   (  0.081)       0.206
 42  10.50     1.50      0.270         0.063   (  0.081)       0.207
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 43 | 10.75 | 2.00 | 0.360 | | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | | 0.052 | ( 0.184) | 0.559 |
| 55 | 13.75 | 2.30 | 0.414 | | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 160.7(Ac.)/[(In)/(Ft.)] = 48.7(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 11.576(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 2119474.4 Cubic Feet
Total soil loss = 504246.4 Cubic Feet

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Peak flow rate of this hydrograph = 90.608(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))



| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 25.0 50.0 75.0 100.0 |
|---|---|---|---|
| 0+15 | 0.0625 | 3.02 | VQ |
| 0+30 | 0.1780 | 5.59 | V Q |
| 0+45 | 0.3045 | 6.12 | V Q |
| 1+ 0 | 0.4622 | 7.63 | V Q |
| 1+15 | 0.5996 | 6.65 | V Q |
| 1+30 | 0.7261 | 6.12 | V Q |
| 1+45 | 0.8526 | 6.12 | V Q |
| 2+ 0 | 1.0103 | 7.63 | V Q |
| 2+15 | 1.1790 | 8.16 | V Q |
| 2+30 | 1.3476 | 8.16 | V Q |
| 2+45 | 1.5475 | 9.67 | V Q |
| 3+ 0 | 1.7583 | 10.20 | V Q |
| 3+15 | 1.9691 | 10.20 | V Q |
| 3+30 | 2.1800 | 10.20 | V Q |
| 3+45 | 2.3908 | 10.20 | V Q |
| 4+ 0 | 2.6328 | 11.71 | V Q |
| 4+15 | 2.8858 | 12.24 | V Q |
| 4+30 | 3.1700 | 13.76 | V Q |
| 4+45 | 3.4651 | 14.28 | V Q |
| 5+ 0 | 3.7915 | 15.80 | V Q |
| 5+15 | 4.0663 | 13.30 | V Q |
| 5+30 | 4.3506 | 13.76 | V Q |
| 5+45 | 4.6769 | 15.80 | V Q |
| 6+ 0 | 5.0142 | 16.33 | V Q |
| 6+15 | 5.3828 | 17.84 | V Q |
| 6+30 | 5.7622 | 18.37 | V Q |
| 6+45 | 6.1729 | 19.88 | V Q |
| 7+ 0 | 6.5945 | 20.41 | V Q |
| 7+15 | 7.0162 | 20.41 | V Q |
| 7+30 | 7.4690 | 21.92 | V Q |
| 7+45 | 7.9640 | 23.96 | V Q |
| 8+ 0 | 8.5012 | 26.00 | V Q |
| 8+15 | 9.1359 | 30.72 | V Q |
| 8+30 | 9.8033 | 32.30 | V Q |
| 8+45 | 10.5187 | 34.62 | V Q |
| 9+ 0 | 11.2975 | 37.70 | V Q |
| 9+15 | 12.1845 | 42.93 | V Q |
| 9+30 | 13.1505 | 46.75 | V Q |
| 9+45 | 14.1799 | 49.82 | V Q |
| 10+ 0 | 15.2727 | 52.89 | V Q |
| 10+15 | 16.0720 | 38.68 | V Q |
| 10+30 | 16.7650 | 33.54 | Q |
| 10+45 | 17.6841 | 44.49 | V Q |
| 11+ 0 | 18.6844 | 48.41 | V Q |
| 11+15 | 19.6431 | 46.40 | V Q |
| 11+30 | 20.5891 | 45.79 | V Q |
| 11+45 | 21.4488 | 41.61 | QV |
| 12+ 0 | 22.3248 | 42.40 | Q V |
| 12+15 | 23.5316 | 58.41 | V Q |
| 12+30 | 24.8952 | 66.00 | V Q |
| 12+45 | 26.3664 | 71.21 | V Q |
| 13+ 0 | 27.9163 | 75.01 | V Q |
| 13+15 | 29.7075 | 86.70 | V Q |
| 13+30 | 31.5796 | 90.61 | V Q |
| 13+45 | 32.9636 | 66.98 | QV |
| 14+ 0 | 34.1784 | 58.80 | Q V |
| 14+15 | 35.5743 | 67.56 | Q V |
| 14+30 | 36.9905 | 68.55 | Q V |
| 14+45 | 38.3938 | 67.91 | Q V |
| 15+ 0 | 39.7548 | 65.88 | Q V |
| 15+15 | 41.0581 | 63.08 | Q V |
| 15+30 | 42.3036 | 60.28 | Q V |
| 15+45 | 43.3574 | 51.00 | Q V |
| 16+ 0 | 44.3510 | 48.09 | Q V |
| 16+15 | 44.7337 | 18.52 | Q V |
| 16+30 | 44.9024 | 8.16 | Q V |
| 16+45 | 45.0398 | 6.65 | Q V |
| 17+ 0 | 45.1663 | 6.12 | Q V |
| 17+15 | 45.3553 | 9.15 | Q V |

```
 17+30      45.5661     10.20  |    Q     |          |          |       V  |
 17+45      45.7769     10.20  |    Q     |          |          |       V  |
 18+ 0      45.9565      8.69  |   Q      |          |          |       V  |
 18+15      46.1251      8.16  |   Q      |          |          |       V  |
 18+30      46.2938      8.16  |   Q      |          |          |        V |
 18+45      46.4312      6.65  |  Q       |          |          |        V |
 19+ 0      46.5264      4.61  |Q         |          |          |        V |
 19+15      46.6420      5.59  |  Q       |          |          |        V |
 19+30      46.7997      7.63  |   Q      |          |          |        V |
 19+45      46.9371      6.65  |  Q       |          |          |        V |
 20+ 0      47.0324      4.61  |Q         |          |          |        V |
 20+15      47.1479      5.59  |  Q       |          |          |        V |
 20+30      47.2744      6.12  |  Q       |          |          |        V |
 20+45      47.4009      6.12  |  Q       |          |          |        V |
 21+ 0      47.4962      4.61  |Q         |          |          |         V|
 21+15      47.6117      5.59  |  Q       |          |          |         V|
 21+30      47.7070      4.61  |Q         |          |          |         V|
 21+45      47.8226      5.59  |  Q       |          |          |         V|
 22+ 0      47.9178      4.61  |Q         |          |          |         V|
 22+15      48.0334      5.59  |  Q       |          |          |         V|
 22+30      48.1286      4.61  |Q         |          |          |         V|
 22+45      48.2129      4.08  |Q         |          |          |         V|
 23+ 0      48.2973      4.08  |Q         |          |          |         V|
 23+15      48.3816      4.08  |Q         |          |          |         V|
 23+30      48.4659      4.08  |Q         |          |          |         V|
 23+45      48.5502      4.08  |Q         |          |          |         V|
 24+ 0      48.6346      4.08  |Q         |          |          |         V|
 24+15      48.6564      1.06  Q          |          |          |          V
----------------------------------------------------------------------------
```



```
                U n i t   H y d r o g r a p h   A n a l y s i s

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                      Study date  04/30/12 File: SubD224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Watershed D, Onsite D2
Proposed Condition
100-year, 24-hour

------------------------------------------------------------------------
Drainage Area =     119.91(Ac.)  =      0.187 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     119.91(Ac.)  =      0.187 Sq. Mi.
Length along longest watercourse =    5750.00(Ft.)
Length along longest watercourse measured to centroid =    2875.00(Ft.)
Length along longest watercourse =      1.089 Mi.
Length along longest watercourse measured to centroid =      0.545 Mi.
Difference in elevation =     115.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.122 Hr.
Lag time =     7.31 Min.
25% of lag time =     1.83 Min.
40% of lag time =     2.92 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      119.91             1.80                215.84

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      119.91             4.50                539.60

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.98 %
Adjusted average point rain =    4.499(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   119.910            85.00          0.750
 Total Area Entered =    119.91(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 205.295 | 44.302 | 53.537 |
| 2 | 0.500 | 410.591 | 43.000 | 51.964 |
| 3 | 0.750 | 615.886 | 8.582 | 10.371 |
| 4 | 1.000 | 821.182 | 4.117 | 4.975 |
| | | | Sum = 100.000 | Sum= 120.847 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.275 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.294 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.312 |
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |
| 42 | 10.50 | 1.50 | 0.270 | 0.063 | ( 0.081) | 0.207 |
| 43 | 10.75 | 2.00 | 0.360 | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | 0.052 | ( 0.184) | 0.560 |
| 55 | 13.75 | 2.30 | 0.414 | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | 0.011 | 0.025 |

(Loss Rate Not Used)
Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 119.9(Ac.)/[(In)/(Ft.)] = 36.3(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 8.640(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 1581931.7 Cubic Feet
Total soil loss = 376339.4 Cubic Feet

Peak flow rate of this hydrograph = 66.111(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 17.5 | 35.0 | 52.5 | 70.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0279 | 1.35 | Q | | | | |
| 0+30 | 0.0968 | 3.33 | VQ | | | | |
| 0+45 | 0.1846 | 4.25 | V Q | | | | |
| 1+ 0 | 0.2916 | 5.18 | V Q | | | | |
| 1+15 | 0.3996 | 5.22 | V Q | | | | |
| 1+30 | 0.4967 | 4.70 | V Q | | | | |
| 1+45 | 0.5924 | 4.63 | V Q | | | | |
| 2+ 0 | 0.7007 | 5.24 | V Q | | | | |
| 2+15 | 0.8226 | 5.90 | V Q | | | | |
| 2+30 | 0.9472 | 6.03 | V Q | | | | |
| 2+45 | 1.0870 | 6.77 | V Q | | | | |
| 3+ 0 | 1.2404 | 7.42 | V Q | | | | |
| 3+15 | 1.3964 | 7.55 | V Q | | | | |
| 3+30 | 1.5538 | 7.62 | V Q | | | | |
| 3+45 | 1.7111 | 7.62 | V Q | | | | |
| 4+ 0 | 1.8824 | 8.29 | V Q | | | | |
| 4+15 | 2.0672 | 8.95 | V Q | | | | |
| 4+30 | 2.2687 | 9.75 | V Q | | | | |
| 4+45 | 2.4850 | 10.47 | V Q | | | | |
| 5+ 0 | 2.7179 | 11.27 | V Q | | | | |
| 5+15 | 2.9378 | 10.64 | V Q | | | | |
| 5+30 | 3.1472 | 10.14 | V Q | | | | |
| 5+45 | 3.3800 | 11.27 | V Q | | | | |
| 6+ 0 | 3.6265 | 11.93 | V Q | | | | |
| 6+15 | 3.8909 | 12.80 | V Q | | | | |
| 6+30 | 4.1701 | 13.51 | V Q | | | | |
| 6+45 | 4.4660 | 14.32 | V Q | | | | |
| 7+ 0 | 4.7767 | 15.04 | V Q | | | | |
| 7+15 | 5.0901 | 15.17 | V Q | | | | |
| 7+30 | 5.4187 | 15.91 | V Q | | | | |
| 7+45 | 5.7748 | 17.24 | V Q | | | | |
| 8+ 0 | 6.1611 | 18.70 | V Q | | | | |
| 8+15 | 6.6035 | 21.41 | V Q | | | | |
| 8+30 | 7.0886 | 23.48 | V Q | | | | |
| 8+45 | 7.6045 | 24.97 | V Q | | | | |
| 9+ 0 | 8.1656 | 27.16 | V Q | | | | |
| 9+15 | 8.7921 | 30.32 | V Q | | | | |
| 9+30 | 9.4854 | 33.55 | V Q | | | | |
| 9+45 | 10.2298 | 36.03 | V Q | | | | |
| 10+ 0 | 11.0234 | 38.41 | V Q | | | | |
| 10+15 | 11.7050 | 32.99 | V Q | | | | |
| 10+30 | 12.2593 | 26.83 | V Q | | | | |
| 10+45 | 12.8903 | 30.54 | V Q | | | | |
| 11+ 0 | 13.6073 | 34.70 | V Q | | | | |
| 11+15 | 14.3259 | 34.78 | V Q | | | | |
| 11+30 | 15.0367 | 34.40 | V Q | | | | |
| 11+45 | 15.7060 | 32.39 | VQ | | | | |
| 12+ 0 | 16.3568 | 31.50 | Q | | | | |
| 12+15 | 17.1609 | 38.92 | V Q | | | | |
| 12+30 | 18.1224 | 46.54 | V Q | | | | |
| 12+45 | 19.1741 | 50.90 | V Q | | | | |
| 13+ 0 | 20.3033 | 54.65 | V Q | | | | |
| 13+15 | 21.5630 | 60.97 | V Q | | | | |
| 13+30 | 22.9289 | 66.11 | V Q | | | | |
| 13+45 | 24.0989 | 56.63 | V Q | | | | |
| 14+ 0 | 25.0675 | 46.88 | QV | | | | |
| 14+15 | 26.0753 | 48.78 | QV | | | | |
| 14+30 | 27.1220 | 50.66 | QV | | | | |
| 14+45 | 28.1667 | 50.57 | Q V | | | | |
| 15+ 0 | 29.1970 | 49.86 | Q V | | | | |
| 15+15 | 30.1880 | 47.96 | Q V | | | | |
| 15+30 | 31.1377 | 45.97 | Q V | | | | |
| 15+45 | 31.9845 | 40.98 | Q V | | | | |
| 16+ 0 | 32.7500 | 37.05 | Q V | | | | |
| 16+15 | 33.2262 | 23.05 | Q V | | | | |
| 16+30 | 33.4302 | 9.88 | Q V | | | | |
| 16+45 | 33.5675 | 6.65 | Q V | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17+ 0 | 33.6659 | 4.76 | Q | | | V | |
| 17+15 | 33.7895 | 5.98 | Q | | | V | |
| 17+30 | 33.9389 | 7.23 | Q | | | V | |
| 17+45 | 34.0936 | 7.49 | Q | | | V | |
| 18+ 0 | 34.2370 | 6.94 | Q | | | V | |
| 18+15 | 34.3669 | 6.29 | Q | | | V | |
| 18+30 | 34.4941 | 6.16 | Q | | | V | |
| 18+45 | 34.6060 | 5.42 | Q | | | V | |
| 19+ 0 | 34.6905 | 4.09 | Q | | | V | |
| 19+15 | 34.7727 | 3.98 | Q | | | V | |
| 19+30 | 34.8783 | 5.11 | Q | | | V | |
| 19+45 | 34.9849 | 5.16 | Q | | | V | |
| 20+ 0 | 35.0681 | 4.03 | Q | | | V | |
| 20+15 | 35.1503 | 3.98 | Q | | | V | |
| 20+30 | 35.2420 | 4.44 | Q | | | V | |
| 20+45 | 35.3351 | 4.51 | Q | | | V | |
| 21+ 0 | 35.4156 | 3.89 | Q | | | V | |
| 21+15 | 35.4964 | 3.91 | Q | | | V | |
| 21+30 | 35.5742 | 3.76 | Q | | | V | |
| 21+45 | 35.6538 | 3.85 | Q | | | V | |
| 22+ 0 | 35.7315 | 3.76 | Q | | | V | |
| 22+15 | 35.8111 | 3.85 | Q | | | V | |
| 22+30 | 35.8889 | 3.76 | Q | | | V | |
| 22+45 | 35.9545 | 3.18 | Q | | | V | |
| 23+ 0 | 36.0188 | 3.11 | Q | | | V | |
| 23+15 | 36.0817 | 3.05 | Q | | | V | |
| 23+30 | 36.1446 | 3.05 | Q | | | V | |
| 23+45 | 36.2076 | 3.05 | Q | | | V | |
| 24+ 0 | 36.2705 | 3.05 | Q | | | V | |
| 24+15 | 36.3056 | 1.70 | Q | | | V | |
| 24+30 | 36.3136 | 0.39 | Q | | | V | |
| 24+45 | 36.3162 | 0.13 | Q | | | V | |

```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
              Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                         Study date: 09/17/13

------------------------------------------------------------------------


Line D Basin D2
Proposed Condition
100-yr, 24-hr

------------------------------------------------------------------------


Program License Serial Number 6097

------------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

                From study/file name: SubD324100.rte
****************************HYDROGRAPH DATA****************************
                Number of intervals =     97
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =       59.389 (CFS)
                Total volume =      31.892 (Ac.Ft)
        Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)       0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** RETARDING BASIN ROUTING ****
________________________________________________________________________

User entry of depth-outflow-storage data
------------------------------------------------------------------------
Total number of inflow hydrograph intervals = 97
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin =    0.00(Ft.)
------------------------------------------------------------------------
------------------------------------------------------------------------
Initial basin depth =    0.00 (Ft.)
Initial basin storage =       0.00 (Ac.Ft)
Initial basin outflow =    0.00 (CFS)
------------------------------------------------------------------------
------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)     (CFS)     (Ac.Ft)     (Ac.Ft)
------------------------------------------------------------------------
   0.000       0.000       0.000       0.000         0.000
   1.000      10.000     200.000       7.934        12.066
   2.000      20.000     500.000      14.835        25.165
   3.000      28.000    1000.000      17.669        38.331
------------------------------------------------------------------------
                 Hydrograph Detention Basin Routing
------------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
------------------------------------------------------------------------
 Time    Inflow  Outflow    Storage                                  Depth
(Hours)  (CFS)    (CFS)     (Ac.Ft) .0      14.8    29.69    44.54   59.39 (Ft.)
 0.250    1.95     0.33      0.017  OI      |        |        |        |      0.00
 0.500    3.65     1.18      0.059  OI      |        |        |        |      0.01
 0.750    4.01     2.09      0.104  |OI     |        |        |        |      0.01
 1.000    4.99     2.91      0.146  |OI     |        |        |        |      0.01
 1.250    4.37     3.52      0.176  |OI     |        |        |        |      0.02
 1.500    4.01     3.75      0.188  | O     |        |        |        |      0.02
 1.750    4.01     3.84      0.192  | O     |        |        |        |      0.02
 2.000    4.99     4.07      0.203  | O     |        |        |        |      0.02
 2.250    5.35     4.44      0.222  | O     |        |        |        |      0.02
 2.500    5.35     4.75      0.238  | O     |        |        |        |      0.02
 2.750    6.33     5.13      0.256  | OI    |        |        |        |      0.03
 3.000    6.69     5.60      0.280  |  O    |        |        |        |      0.03
 3.250    6.69     5.97      0.299  |  O    |        |        |        |      0.03
 3.500    6.69     6.22      0.311  |  O    |        |        |        |      0.03
 3.750    6.69     6.38      0.319  |  O    |        |        |        |      0.03
 4.000    7.66     6.65      0.333  |  OI   |        |        |        |      0.03
 4.250    8.03     7.06      0.353  |  OI   |        |        |        |      0.04
 4.500    9.00     7.56      0.378  |   O   |        |        |        |      0.04
 4.750    9.36     8.11      0.406  |   OI  |        |        |        |      0.04
 5.000   10.34     8.71      0.435  |   OI  |        |        |        |      0.04
 5.250    8.75     8.99      0.450  |  O    |        |        |        |      0.04
 5.500    9.00     8.95      0.448  |  O    |        |        |        |      0.04
 5.750   10.34     9.20      0.460  |  OI   |        |        |        |      0.05
 6.000   10.70     9.65      0.483  |   O   |        |        |        |      0.05
 6.250   11.68    10.18      0.509  |   OI  |        |        |        |      0.05
 6.500   12.04    10.75      0.538  |   OI  |        |        |        |      0.05
 6.750   13.01    11.36      0.568  |    OI |        |        |        |      0.06
 7.000   13.38    11.99      0.599  |    OI |        |        |        |      0.06
 7.250   13.38    12.46      0.623  |    OI |        |        |        |      0.06
 7.500   14.35    12.94      0.647  |    OI |        |        |        |      0.06
 7.750   15.69    13.65      0.683  |     OI|        |        |        |      0.07
 8.000   17.03    14.58      0.729  |     O|I        |        |        |      0.07
 8.250   20.09    15.94      0.797  |      O I       |        |        |      0.08
 8.500   21.17    17.55      0.877  |      |O I      |        |        |      0.09
 8.750   22.67    19.05      0.952  |      | O I     |        |        |      0.10
 9.000   24.69    20.63      1.032  |      |  O I    |        |        |      0.10
 9.250   28.09    22.60      1.130  |      |   O  I  |        |        |      0.11
 9.500   30.62    24.92      1.246  |      |    O  I |        |        |      0.12
 9.750   32.63    27.22      1.361  |      |     O  |I       |        |      0.14
10.000   34.65    29.42      1.471  |      |      O| I      |        |      0.15
10.250   25.51    29.64      1.482  |      |    I O |       |        |      0.15
10.500   21.98    27.62      1.381  |      |  I  O  |       |        |      0.14
10.750   29.05    26.90      1.345  |      |    OI  |       |        |      0.13
11.000   31.73    28.10      1.405  |      |     O  |I      |        |      0.14
11.250   30.43    29.12      1.456  |      |     OI |       |        |      0.15
11.500   30.01    29.50      1.475  |      |     OI |       |        |      0.15
11.750   27.32    29.21      1.461  |      |    IO  |       |        |      0.15
12.000   27.77    28.64      1.432  |      |    IO  |       |        |      0.14
12.250   38.13    30.12      1.506  |      |      O   I     |        |      0.15
12.500   43.24    33.73      1.687  |      |       | O    I |        |      0.17
12.750   46.63    37.57      1.878  |      |       |   O    |I       |      0.19
13.000   49.14    41.10      2.055  |      |       |     O  | I      |      0.21
13.250   56.72    45.15      2.258  |      |       |       O      I |      0.23
13.500   59.39    49.57      2.479  |      |       |        |  O     I|      0.25
13.750   44.15    50.32      2.516  |      |       |       I|  O     |      0.25
14.000   38.54    47.25      2.362  |      |       |    I   |O       |      0.24
14.250   44.19    45.23      2.262  |      |       |      IO|        |      0.23
14.500   44.95    45.01      2.250  |      |       |       O|        |      0.23
14.750   44.51    44.91      2.246  |      |       |      IO|        |      0.22
15.000   43.20    44.55      2.228  |      |       |      IO|        |      0.22
15.250   41.37    43.78      2.189  |      |       |     IO |        |      0.22
15.500   39.53    42.64      2.132  |      |       |    IO  |        |      0.21
15.750   33.52    40.54      2.027  |      |       |  I  O  |        |      0.20
16.000   31.52    37.80      1.890  |      |       | I  O   |        |      0.19
16.250   12.44    32.38      1.619  |      I       |O       |        |      0.16
16.500    5.35    24.34      1.217  |I             O        |        |      0.12
16.750    4.37    17.67      0.883  |I            O|        |        |      0.09
17.000    4.01    13.05      0.653  |I           O |        |        |      0.07
17.250    5.96    10.29      0.515  | I O        |        |        |        |      0.05
17.500    6.69     8.93      0.447  |  IO        |        |        |        |      0.04
17.750    6.69     8.16      0.408  |  IO        |        |        |        |      0.04
18.000    5.71     7.49      0.375  |  IO        |        |        |        |      0.04
18.250    5.35     6.82      0.341  | IO         |        |        |        |      0.03
18.500    5.35     6.32      0.316  | IO         |        |        |        |      0.03
18.750    4.37     5.82      0.291  | IO         |        |        |        |      0.03
19.000    3.04     5.10      0.255  |IO          |        |        |        |      0.03
```

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19.250    3.65    4.50     0.225  |IO     |       |       |       |      0.02
19.500    4.99    4.44     0.222  | O     |       |       |       |      0.02
19.750    4.37    4.52     0.226  | O     |       |       |       |      0.02
20.000    3.04    4.24     0.212  |IO     |       |       |       |      0.02
20.250    3.65    3.93     0.197  |IO     |       |       |       |      0.02
20.500    4.01    3.90     0.195  | O     |       |       |       |      0.02
20.750    4.01    3.94     0.197  | O     |       |       |       |      0.02
21.000    3.04    3.80     0.190  |IO     |       |       |       |      0.02
21.250    3.65    3.64     0.182  |O      |       |       |       |      0.02
21.500    3.04    3.54     0.177  |O      |       |       |       |      0.02
21.750    3.65    3.47     0.174  |O      |       |       |       |      0.02
22.000    3.04    3.43     0.171  |O      |       |       |       |      0.02
22.250    3.65    3.40     0.170  |O      |       |       |       |      0.02
22.500    3.04    3.38     0.169  |O      |       |       |       |      0.02
22.750    2.68    3.20     0.160  |O      |       |       |       |      0.02
23.000    2.68    3.02     0.151  |O      |       |       |       |      0.02
23.250    2.68    2.90     0.145  |O      |       |       |       |      0.01
23.500    2.68    2.82     0.141  |O      |       |       |       |      0.01
23.750    2.68    2.77     0.139  |O      |       |       |       |      0.01
24.000    2.68    2.74     0.137  |O      |       |       |       |      0.01
24.250    0.72    2.38     0.119  |O      |       |       |       |      0.01
24.500    0.00    1.69     0.085  O       |       |       |       |      0.01
24.750    0.00    1.11     0.056  O       |       |       |       |      0.01
25.000    0.00    0.73     0.037  O       |       |       |       |      0.00
25.250    0.00    0.48     0.024  O       |       |       |       |      0.00
25.500    0.00    0.32     0.016  O       |       |       |       |      0.00
25.750    0.00    0.21     0.010  O       |       |       |       |      0.00
26.000    0.00    0.14     0.007  O       |       |       |       |      0.00

      Remaining water in basin =     0.01 (Ac.Ft)


      ****************************HYDROGRAPH DATA****************************
                    Number of intervals =    104
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =        50.323 (CFS)
                    Total volume =       31.887 (Ac.Ft)
            Status of hydrographs being held in storage
                      Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ***********************************************************************

      ---------------------------------------------------------------------


      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       1.000 to Point/Station       2.000
      **** STORE OR DELETE CURRENT HYDROGRAPH ****
      _____________________________________________________________________
      Current stream hydrograph saved in file SubD3Bsn.rte
      ****************************HYDROGRAPH DATA****************************
                    Number of intervals =     0
                    Time interval =    0.0 (Min.)
                    Maximum/Peak flow rate =         0.000 (CFS)
                    Total volume =       0.000 (Ac.Ft)
            Status of hydrographs being held in storage
                      Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ***********************************************************************

      ---------------------------------------------------------------------
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            U n i t   H y d r o g r a p h   A n a l y s i s

            Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
                  Study date  05/07/12 File: SUBD324100.out

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
------------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Watershed D, Onsite D3
Proposed Condition
100 Yr. 24 Hr.

------------------------------------------------------------------
Drainage Area =     105.30(Ac.)  =      0.165 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     105.30(Ac.)  =      0.165 Sq. Mi.
Length along longest watercourse =    1600.00(Ft.)
Length along longest watercourse measured to centroid =     800.00(Ft.)
Length along longest watercourse =       0.303 Mi.
Length along longest watercourse measured to centroid =       0.152 Mi.
Difference in elevation =      32.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.046 Hr.
Lag time =     2.76 Min.
25% of lag time =     0.69 Min.
40% of lag time =     1.11 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      105.30             1.80                189.54

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      105.30             4.50                473.85

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.98 %
Adjusted average point rain =    4.499(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
   105.300            85.00           0.750
 Total Area Entered =     105.30(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 542.745 | 72.919 | 77.384 |
| 2 | 0.500 | 1085.490 | 27.081 | 28.739 |
| | | | Sum = 100.000 | Sum= 106.123 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.275 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.294 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.312 |
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |
| 42 | 10.50 | 1.50 | 0.270 | 0.063 | ( 0.081) | 0.207 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 43 | 10.75 | 2.00 | 0.360 | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | 0.052 | ( 0.184) | 0.560 |
| 55 | 13.75 | 2.30 | 0.414 | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 105.3(Ac.)/[(In)/(Ft.)] = 31.9(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 7.587(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 1389231.6 Cubic Feet
Total soil loss = 330490.1 Cubic Feet

Peak flow rate of this hydrograph = 59.389(CFS)

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 15.0 | 30.0 | 45.0 | 60.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0403 | 1.95 | VQ | | | | |
| 0+30 | 0.1157 | 3.65 | V Q | | | | |
| 0+45 | 0.1986 | 4.01 | V Q | | | | |
| 1+ 0 | 0.3017 | 4.99 | V Q | | | | |
| 1+15 | 0.3921 | 4.37 | V Q | | | | |
| 1+30 | 0.4750 | 4.01 | V Q | | | | |
| 1+45 | 0.5579 | 4.01 | V Q | | | | |
| 2+ 0 | 0.6610 | 4.99 | V Q | | | | |
| 2+15 | 0.7715 | 5.35 | V Q | | | | |
| 2+30 | 0.8820 | 5.35 | V Q | | | | |
| 2+45 | 1.0127 | 6.33 | V Q | | | | |
| 3+ 0 | 1.1509 | 6.69 | V Q | | | | |
| 3+15 | 1.2891 | 6.69 | V Q | | | | |
| 3+30 | 1.4273 | 6.69 | V Q | | | | |
| 3+45 | 1.5654 | 6.69 | V Q | | | | |
| 4+ 0 | 1.7238 | 7.66 | V Q | | | | |
| 4+15 | 1.8896 | 8.03 | V Q | | | | |
| 4+30 | 2.0756 | 9.00 | V Q | | | | |
| 4+45 | 2.2690 | 9.36 | V Q | | | | |
| 5+ 0 | 2.4826 | 10.34 | V Q | | | | |
| 5+15 | 2.6634 | 8.75 | V Q | | | | |
| 5+30 | 2.8493 | 9.00 | V Q | | | | |
| 5+45 | 3.0629 | 10.34 | V Q | | | | |
| 6+ 0 | 3.2840 | 10.70 | V Q | | | | |
| 6+15 | 3.5253 | 11.68 | V Q | | | | |
| 6+30 | 3.7740 | 12.04 | V Q | | | | |
| 6+45 | 4.0429 | 13.01 | V Q | | | | |
| 7+ 0 | 4.3192 | 13.38 | V Q | | | | |
| 7+15 | 4.5956 | 13.38 | V Q | | | | |
| 7+30 | 4.8921 | 14.35 | V Q | | | | |
| 7+45 | 5.2162 | 15.69 | V Q | | | | |
| 8+ 0 | 5.5680 | 17.03 | V Q | | | | |
| 8+15 | 5.9831 | 20.09 | V Q | | | | |
| 8+30 | 6.4206 | 21.17 | V Q | | | | |
| 8+45 | 6.8890 | 22.67 | V Q | | | | |
| 9+ 0 | 7.3990 | 24.69 | V Q | | | | |
| 9+15 | 7.9795 | 28.09 | V Q | | | | |
| 9+30 | 8.6122 | 30.62 | V Q | | | | |
| 9+45 | 9.2864 | 32.63 | V Q | | | | |
| 10+ 0 | 10.0023 | 34.65 | V Q | | | | |
| 10+15 | 10.5293 | 25.51 | V Q | | | | |
| 10+30 | 10.9835 | 21.98 | VQ | | | | |
| 10+45 | 11.5837 | 29.05 | V Q | | | | |
| 11+ 0 | 12.2393 | 31.73 | V Q | | | | |
| 11+15 | 12.8682 | 30.43 | V Q | | | | |
| 11+30 | 13.4882 | 30.01 | V Q | | | | |
| 11+45 | 14.0526 | 27.32 | VQ | | | | |
| 12+ 0 | 14.6263 | 27.77 | Q | | | | |
| 12+15 | 15.4141 | 38.13 | V Q | | | | |
| 12+30 | 16.3074 | 43.24 | V Q | | | | |
| 12+45 | 17.2708 | 46.63 | V Q | | | | |
| 13+ 0 | 18.2862 | 49.14 | V Q | | | | |
| 13+15 | 19.4580 | 56.72 | V Q | | | | |
| 13+30 | 20.6851 | 59.39 | V Q | | | | |
| 13+45 | 21.5972 | 44.15 | V Q | | | | |
| 14+ 0 | 22.3934 | 38.54 | Q V | | | | |
| 14+15 | 23.3065 | 44.19 | Q | | | | |
| 14+30 | 24.2353 | 44.95 | QV | | | | |
| 14+45 | 25.1550 | 44.51 | Q V | | | | |
| 15+ 0 | 26.0476 | 43.20 | Q V | | | | |
| 15+15 | 26.9023 | 41.37 | Q V | | | | |
| 15+30 | 27.7191 | 39.53 | Q V | | | | |
| 15+45 | 28.4116 | 33.52 | Q V | | | | |
| 16+ 0 | 29.0629 | 31.52 | Q V | | | | |
| 16+15 | 29.3200 | 12.44 | Q V | | | | |
| 16+30 | 29.4305 | 5.35 | Q V | | | | |
| 16+45 | 29.5209 | 4.37 | Q V | | | | |
| 17+ 0 | 29.6038 | 4.01 | Q V | | | | |
| 17+15 | 29.7270 | 5.96 | Q V | | | | |
| 17+30 | 29.8652 | 6.69 | Q V | | | | |
| 17+45 | 30.0034 | 6.69 | Q V | | | | |
| 18+ 0 | 30.1214 | 5.71 | Q V | | | | |
| 18+15 | 30.2319 | 5.35 | Q V | | | | |
| 18+30 | 30.3425 | 5.35 | Q V | | | | |
| 18+45 | 30.4329 | 4.37 | Q V | | | | |
| 19+ 0 | 30.4956 | 3.04 | Q V | | | | |
| 19+15 | 30.5710 | 3.65 | Q V | | | | |
| 19+30 | 30.6741 | 4.99 | Q V | | | | |
| 19+45 | 30.7645 | 4.37 | Q V | | | | |
| 20+ 0 | 30.8273 | 3.04 | Q V | | | | |
| 20+15 | 30.9027 | 3.65 | Q V | | | | |
| 20+30 | 30.9856 | 4.01 | Q V | | | | |
| 20+45 | 31.0685 | 4.01 | Q V | | | | |
| 21+ 0 | 31.1312 | 3.04 | Q V | | | | |
| 21+15 | 31.2067 | 3.65 | Q V | | | | |
| 21+30 | 31.2694 | 3.04 | Q V | | | | |
| 21+45 | 31.3448 | 3.65 | Q V | | | | |
| 22+ 0 | 31.4076 | 3.04 | Q V | | | | |
| 22+15 | 31.4830 | 3.65 | Q V | | | | |
| 22+30 | 31.5458 | 3.04 | Q V | | | | |
| 22+45 | 31.6010 | 2.68 | Q V | | | | |
| 23+ 0 | 31.6563 | 2.68 | Q V | | | | |
| 23+15 | 31.7116 | 2.68 | Q V | | | | |
| 23+30 | 31.7669 | 2.68 | Q V | | | | |
| 23+45 | 31.8221 | 2.68 | Q V | | | | |
| 24+ 0 | 31.8774 | 2.68 | Q V | | | | |
| 24+15 | 31.8924 | 0.72 | Q V | | | | |

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                FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                    Study date: 09/18/13

------------------------------------------------------------------------


Line E, Routed
Proposed Condition
100 yr, 3 hr

------------------------------------------------------------------------


Program License Serial Number 6097

------------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

              From study/file name: OffsiteE13100.rte
**************************HYDROGRAPH DATA*****************************
              Number of intervals =     24
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =      1355.820 (CFS)
              Total volume =     159.492 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       71.000 to Point/Station       72.000
**** STREAM ROUTING SCS CONVEX METHOD ****
________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   1070.00 (Ft.)
Elevation difference =   51.00 (Ft.)
Slope of channel =  0.047664 (Vert/Horiz)
Channel type - Improved Channel


Channel length =  1070.00(Ft.)     Elevation difference =  51.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width  =   20.000(Ft.)
Slope or 'Z' of left channel bank =   2.000
Slope or 'Z' of right channel bank =   2.000
Manning's 'N'    = 0.030
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =    504.998(CFS)
Depth of flow =     1.620(Ft.)
Average velocity =    13.415(Ft/s)
Total flow rate =   504.998(CFS)
Channel flow top width =   26.479(Ft.)
Depth of flow in channel =   1.62(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   13.42(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  504.998(CFS)
Total capacity of improved channels =    504.998(CFS)
Critical Depth in Channel =    2.47(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea =   1355.820(CFS)
Depth of flow =     2.851(Ft.)
Average velocity =    18.501(Ft/s)
Total flow rate =  1355.820(CFS)
```



```
Channel flow top width =   31.405(Ft.)
Depth of flow in channel =   2.85(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   18.50(Ft/s)
Travel time  =    0.00 min.
Individual channel flow = 1355.820(CFS)
Total capacity of improved channels =   1355.820(CFS)
Critical Depth in Channel =    4.47(Ft.)


********************** SCS CONVEX CHANNEL ROUTING ********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9158   Travel time =   0.96 (min.)
        dt*(unit time interval) =  15.00(min.),  e=  11.6607
        dt(routing time-step) =   0.88 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T  O F  S T O R M
                  R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------
              Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0      339.0     677.9     1016.9    1355.8
------------------------------------------------------------------------
  0+15       2.9246      3.11  0          |         |         |         |
  0+30      25.3138     26.70  0          |         |         |         |
  0+45      84.4960     88.11  | 0        |         |         |         |
  1+ 0     151.1106    155.05  |   0      |         |         |         |
  1+15     193.1893    195.57  |     0    |         |         |         |
  1+30     262.5128    266.70  |       0  |         |         |         |
  1+45     375.4758    382.28  |          0         |         |         |
  2+ 0     481.6486    487.86  |            0       |         |         |
  2+15     601.7301    608.85  |              0     |         |         |
  2+30     804.4456    816.68  |                I   |         |         |
  2+45    1146.4785   1167.10  |                    |         I         |
  3+ 0    1344.7133   1355.82  |                    |         |         O
  3+15    1031.4273   1011.14  |                    |         I         |
  3+30     520.7342    490.07  |            I       |         |         |
  3+45     292.8475    280.51  |          0         |         |         |
  4+ 0     174.7917    168.18  |     I    |         |         |         |
  4+15      99.1384     94.82  |  0       |         |         |         |
  4+30      52.0453     49.37  | 0        |         |         |         |
  4+45      28.9463     27.67  0          |         |         |         |
  5+ 0      19.9104     19.43  0          |         |         |         |
  5+15      14.1023     13.77  0          |         |         |         |
  5+30       8.0856      7.73  0          |         |         |         |
  5+45       3.0064      2.71  0          |         |         |         |
  6+ 0       0.3307      0.18  0          |         |         |         |
  6+15       0.0107      0.00  0          |         |         |         |
  6+30       0.0000      0.00  0          |         |         |         |
------------------------------------------------------------------------
**************************HYDROGRAPH DATA*****************************
              Number of intervals =     26
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =      1344.713 (CFS)
              Total volume =     159.492 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************


------------------------------------------------------------------------
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       71.000 to Point/Station       72.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
______________________________________________________________________________
Current stream hydrograph of  15.0 minute
intervals has been stored as stream number 1 with
a starting time of   0.00 hours and ending time of 100.00 hours
With a total volume of     159.49(Ac.Ft)
**************************HYDROGRAPH DATA**************************************
                Number of intervals =     0
                Time interval =    0.0 (Min.)
                Maximum/Peak flow rate =        0.000 (CFS)
                Total volume =          0.000 (Ac.Ft)
        Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)    1344.713      0.000      0.000      0.000      0.000
        Vol (Ac.Ft)     159.492      0.000      0.000      0.000      0.000
******************************************************************************

------------------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       0.000 to Point/Station       0.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****
______________________________________________________________________________
********************* HYDROGRAPH INFORMATION **********************

                From study/file name: OffsiteE23100.rte
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                     P R I N T  O F  S T O R M
                     R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------------
               Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0      163.4     326.7     490.1     653.4
------------------------------------------------------------------------------
  0+15       1.5962      1.60  Q          |         |         |         |
  0+30      14.4732     14.47  Q          |         |         |         |
  0+45      46.3153     46.32  | Q        |         |         |         |
  1+ 0      76.8464     76.85  |   Q      |         |         |         |
  1+15      94.7073     94.71  |    Q     |         |         |         |
  1+30     134.3377    134.34  |      Q   |         |         |         |
  1+45     188.9294    188.93  |        Q |         |         |         |
  2+ 0     240.4777    240.48  |          Q         |         |         |
  2+15     298.3362    298.34  |           Q        |         |         |
  2+30     408.6207    408.62  |            |       Q         |         |
  2+45     586.4368    586.44  |            |         |       Q         |
  3+ 0     653.4110    653.41  |            |         |         |       Q
  3+15     443.6474    443.65  |            |         |       Q |         |
  3+30     208.7271    208.73  |          Q |         |         |         |
  3+45     115.4235    115.42  |        Q   |         |         |         |
  4+ 0      64.3027     64.30  |  Q         |         |         |         |
  4+15      32.6778     32.68  | Q          |         |         |         |
  4+30      16.3136     16.31  Q            |         |         |         |
  4+45      10.4749     10.47  Q            |         |         |         |
  5+ 0       7.0679      7.07  Q            |         |         |         |
  5+15       3.8806      3.88  Q            |         |         |         |
  5+30       1.2588      1.26  Q            |         |         |         |
  5+45       0.0808      0.08  Q            |         |         |         |
------------------------------------------------------------------------------
      **************************HYDROGRAPH DATA**************************************
                Number of intervals =    23
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      653.411 (CFS)
                Total volume =       75.379 (Ac.Ft)
        Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)    1344.713      0.000      0.000      0.000      0.000
        Vol (Ac.Ft)     159.492      0.000      0.000      0.000      0.000
      ******************************************************************************
```



```
------------------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       0.000 to Point/Station       1.000
**** STREAM ROUTING SCS CONVEX METHOD ****
______________________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   1200.00 (Ft.)
Elevation difference =   24.00 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Improved Channel


Channel length =  1200.00(Ft.)     Elevation difference =  24.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width  =   12.000(Ft.)
Slope or 'Z' of left channel bank =   1.000
Slope or 'Z' of right channel bank =   1.000
Manning's 'N'    = 0.015
Maximum depth of channel  =    6.000(Ft.)
Flow(q) thru subarea =    245.241(CFS)
Depth of flow =    1.259(Ft.)
Average velocity =    14.685(Ft/s)
Total flow rate =   245.241(CFS)
Channel flow top width =   14.519(Ft.)
Depth of flow in channel =   1.26(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   14.68(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  245.241(CFS)
Total capacity of improved channels =    245.241(CFS)
Critical Depth in Channel =    2.20(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea =    653.411(CFS)
Depth of flow =    2.254(Ft.)
Average velocity =    20.335(Ft/s)
Total flow rate =   653.411(CFS)
Channel flow top width =   16.508(Ft.)
Depth of flow in channel =   2.25(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   20.33(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  653.411(CFS)
Total capacity of improved channels =    653.411(CFS)
Critical Depth in Channel =    4.00(Ft.)


********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9228   Travel time =   0.98 (min.)
        dt*(unit time interval) =  15.00(min.),  e=  11.3507
        dt(routing time-step) =   0.91 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                     P R I N T  O F  S T O R M
                     R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------------
               Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0      163.4     326.7     490.1     653.4
------------------------------------------------------------------------------
```

```
  0+15      1.4996      1.60  0          |          |          |          |
  0+30     13.6941     14.47  0          |          |          |          |
  0+45     44.3886     46.32  | 0        |          |          |          |
  1+ 0     74.9989     76.85  |   0      |          |          |          |
  1+15     93.6265     94.71  |    0     |          |          |          |
  1+30    131.9396    134.34  |        0 |          |          |          |
  1+45    185.6261    188.93  |          |0         |          |          |
  2+ 0     237.3585    240.48  |          |   0      |          |          |
  2+15     294.8352    298.34  |          |       0  |          |          |
  2+30     401.9474    408.62  |          |          |    OI    |          |
  2+45     575.6771    586.44  |          |          |          |    0     |
  3+ 0     649.3584    653.41  |          |          |          |         OI
  3+15     456.3403    443.65  |          |          |       0  |          |
  3+30     222.9422    208.73  |          |          I0         |          |
  3+45     121.0694    115.42  |          |     0    |          |          |
  4+ 0      67.3961     64.30  |    I0    |          |          |          |
  4+15      34.5914     32.68  |  0       |          |          |          |
  4+30      17.3038     16.31  I0         |          |          |          |
  4+45      10.8282     10.47  0          |          |          |          |
  5+ 0       7.2740      7.07  0          |          |          |          |
  5+15       4.0734      3.88  0          |          |          |          |
  5+30       1.4175      1.26  0          |          |          |          |
  5+45       0.1520      0.08  0          |          |          |          |
  6+ 0       0.0049      0.00  0          |          |          |          |
  6+15       0.0000      0.00  0          |          |          |          |
-------------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA****************************
                  Number of intervals =    25
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =      649.358 (CFS)
                  Total volume =      75.379 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)   1344.713     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)    159.492     0.000     0.000     0.000     0.000
      ********************************************************************


      ---------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        1.000 to Point/Station        1.000
      **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
      _____________________________________________________________________
      ********************* HYDROGRAPH INFORMATION **********************

                  From study/file name: OffsiteE33100.rte
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                     P R I N T  O F  S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in  15  Minute intervals (CFS)
      ---------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0      163.8     327.6     491.5     655.3
      ---------------------------------------------------------------------
  0+15      0.3287      1.83  Q          |          |          |          |
  0+30      1.0107     14.70  Q          |          |          |          |
  0+45      1.5393     45.93  q Q        |          |          |          |
  1+ 0      1.4974     76.50  q   Q      |          |          |          |
  1+15      2.9171     96.54  q    Q     |          |          |          |
  1+30      4.3084    136.25  q       Q  |          |          |          |
  1+45      5.6024    191.23  q          |Q         |          |          |
  2+ 0      6.6333    243.99  q          |  Q       |          |          |
  2+15      9.8365    304.67  q          |     Q    |          |          |
  2+30     16.0385    417.99  q          |          |   Q      |          |
  2+45     17.1048    592.78  |q         |          |          |     Q    |
  3+ 0      5.9172    655.28  q          |          |          |        Q |
  3+15      0.1901    456.53  q          |          |      Q   |          |
  3+30      0.0000    222.94  q          |   Q      |          |          |
  3+45      0.0000    121.07  q      Q   |          |          |          |
  4+ 0      0.0000     67.40  q   Q      |          |          |          |
```



```
  4+15      0.0000     34.59  q Q        |          |          |          |
  4+30      0.0000     17.30  qQ         |          |          |          |
  4+45      0.0000     10.83  Q          |          |          |          |
  5+ 0      0.0000      7.27  Q          |          |          |          |
  5+15      0.0000      4.07  Q          |          |          |          |
  5+30      0.0000      1.42  Q          |          |          |          |
  5+45      0.0000      0.15  Q          |          |          |          |
  6+ 0      0.0000      0.00  Q          |          |          |          |
  6+15      0.0000      0.00  Q          |          |          |          |
-------------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA****************************
                  Number of intervals =    25
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =      655.276 (CFS)
                  Total volume =      76.886 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)   1344.713     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)    159.492     0.000     0.000     0.000     0.000
      ********************************************************************


      ---------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        1.000 to Point/Station        2.000
      **** STREAM ROUTING SCS CONVEX METHOD ****
      _____________________________________________________________________
      HYDROGRAPH STREAM ROUTING DATA:
      Length of stream =    1500.00 (Ft.)
      Elevation difference =    30.00 (Ft.)
      Slope of channel =  0.020000 (Vert/Horiz)
      Channel type - Pipe


      Pipe length  =  1500.00(Ft.)   Elevation difference =  30.00(Ft.)
      Manning's N = 0.013   No. of pipes = 1
      Pipe evaluation using mean flow rate of hydrograph
      Required pipe flow  =   248.786(CFS)
      Given pipe size =     96.00(In.)
      Calculated individual pipe flow  =   248.786(CFS)
      Normal flow depth in pipe =   28.57(In.)
      Flow top width inside pipe =   87.78(In.)
      Critical Depth =    3.97(Ft.)
      Pipe flow velocity =     19.83(Ft/s)
      Travel time through pipe =    1.26 min.


      Pipe length  =  1500.00(Ft.)   Elevation difference =  30.00(Ft.)
      Manning's N = 0.013   No. of pipes = 1
      Pipe evaluation using maximum flow rate of hydrograph
      Required pipe flow  =   655.276(CFS)
      Given pipe size =     96.00(In.)
      Calculated individual pipe flow  =   655.276(CFS)
      Normal flow depth in pipe =   48.47(In.)
      Flow top width inside pipe =   96.00(In.)
      Critical Depth =    6.49(Ft.)
      Pipe flow velocity =     25.77(Ft/s)
      Travel time through pipe =    0.97 min.


      ********************** SCS CONVEX CHANNEL ROUTING *********************
      Convex method of stream routing  data items:
      Using equation: Outflow =
      O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
                where c* = 1 - (1-c)^e and dt = c(length)/velocity
                c(v/v+1.7) =   0.9381   Travel time =   0.97 (min.)
              dt*(unit time interval) =  15.00(min.),  e=  11.3201
              dt(routing time-step) =   0.91 (min.),   c* =   1.0000

      Output hydrograph delayed by 0  unit time increments
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T  O F  S T O R M
                  R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------------
                Hydrograph in  15   Minute intervals (CFS)
------------------------------------------------------------------------------
Time(h+m) Out = 0(CFS) In = I  0      163.8     327.6     491.5     655.3
------------------------------------------------------------------------------
  0+15       1.7174      1.83  0          |         |         |         |
  0+30      13.9234     14.70  0          |         |         |         |
  0+45      44.0333     45.93  | 0        |         |         |         |
  1+ 0      74.6415     76.50  |   0      |         |         |         |
  1+15      95.3272     96.54  |     0    |         |         |         |
  1+30     133.8388    136.25  |       0  |         |         |         |
  1+45     187.8923    191.23  |         0|         |         |         |
  2+ 0     240.7902    243.99  |          |  0      |         |         |
  2+15     300.9897    304.67  |          |     0   |         |         |
  2+30     411.1100    417.99  |          |         |   0     |         |
  2+45     582.1753    592.78  |          |         |         |    OI   |
  3+ 0     651.4835    655.28  |          |         |         |         OI
  3+15     468.5901    456.53  |          |         |      IO |         |
  3+30     237.1162    222.94  |          |      IO |         |         |
  3+45     127.2509    121.07  |        0 |         |         |         |
  4+ 0      70.6529     67.40  |   0      |         |         |         |
  4+15      36.5820     34.59  | 0        |         |         |         |
  4+30      18.3528     17.30  |0         |         |         |         |
  4+45      11.2211     10.83  0          |         |         |         |
  5+ 0       7.4897      7.27  0          |         |         |         |
  5+15       4.2677      4.07  0          |         |         |         |
  5+30       1.5786      1.42  0          |         |         |         |
  5+45       0.2288      0.15  0          |         |         |         |
  6+ 0       0.0138      0.00  0          |         |         |         |
  6+15       0.0003      0.00  0          |         |         |         |
  6+30       0.0000      0.00  0          |         |         |         |
------------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA**************************
                Number of intervals =    26
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      651.484 (CFS)
                Total volume =      76.886 (Ac.Ft)
          Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)    1344.713     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     159.492     0.000     0.000     0.000     0.000
      ********************************************************************

      ------------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        2.000 to Point/Station        2.000
      **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
      ________________________________________________________________________
      ********************* HYDROGRAPH INFORMATION *********************

                From study/file name: SubE13100.rte
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T  O F  S T O R M
                  R u n o f f     H y d r o g r a p h
      ------------------------------------------------------------------------
                Hydrograph in  15   Minute intervals (CFS)
      ------------------------------------------------------------------------
      Time(h+m) Add q(CFS)  Tot. Q   0       172.3     344.6     516.9     689.2
      ------------------------------------------------------------------------
        0+15      14.0847     15.80  Q          |         |         |         |
        0+30      23.4419     37.37  |qQ        |         |         |         |
        0+45      26.4217     70.45  |q  Q      |         |         |         |
        1+ 0      25.8656    100.51  |q   Q     |         |         |         |
        1+15      33.8452    129.17  |q     Q   |         |         |         |
```



```
        1+30      39.5983    173.44  | q       Q         |         |         |
        1+45      45.9098    233.80  | q       |  Q      |         |         |
        2+ 0      50.3466    291.14  | q       |     Q   |         |         |
        2+15      67.2045    368.19  |  q      |         |Q        |         |
        2+30      97.5135    508.62  |    q    |         |      Q  |         |
        2+45      97.5655    679.74  |    q    |         |         |       Q |
        3+ 0      37.6938    689.18  | q       |         |         |         Q
        3+15       4.7069    473.30  q         |         |      Q  |         |
        3+30       0.0000    237.12  q         |  Q      |         |         |
        3+45       0.0000    127.25  q       Q |         |         |         |
        4+ 0       0.0000     70.65  q   Q     |         |         |         |
        4+15       0.0000     36.58  q Q       |         |         |         |
        4+30       0.0000     18.35  qQ        |         |         |         |
        4+45       0.0000     11.22  Q         |         |         |         |
        5+ 0       0.0000      7.49  Q         |         |         |         |
        5+15       0.0000      4.27  Q         |         |         |         |
        5+30       0.0000      1.58  Q         |         |         |         |
        5+45       0.0000      0.23  Q         |         |         |         |
        6+ 0       0.0000      0.01  Q         |         |         |         |
        6+15       0.0000      0.00  Q         |         |         |         |
        6+30       0.0000      0.00  Q         |         |         |         |
      ------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA**************************
                Number of intervals =    26
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      689.177 (CFS)
                Total volume =      88.543 (Ac.Ft)
          Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)    1344.713     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     159.492     0.000     0.000     0.000     0.000
      ********************************************************************

      ------------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        2.000 to Point/Station        2.000
      **** RETARDING BASIN ROUTING ****
      ________________________________________________________________________

      User entry of depth-outflow-storage data
      ------------------------------------------------------------------------
      Total number of inflow hydrograph intervals = 26
      Hydrograph time unit = 15.000 (Min.)
      Initial depth in storage basin =   0.00(Ft.)
      ------------------------------------------------------------------------
      ------------------------------------------------------------------------
      Initial basin depth =   0.00 (Ft.)
      Initial basin storage =      0.00 (Ac.Ft)
      Initial basin outflow =   0.00 (CFS)
      ------------------------------------------------------------------------
      ------------------------------------------------------------------------
      Depth vs. Storage and Depth vs. Discharge data:
       Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
            (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)     (Ac.Ft)
      ------------------------------------------------------------------------
         0.000      0.000      0.000      0.000       0.000
         1.000      0.001      0.001      0.001       0.001
         2.000      0.002      0.002      0.002       0.002
         3.000     10.000    200.000      7.934      12.066
         4.000     26.000    550.000     20.318      31.682
      ------------------------------------------------------------------------
                    Hydrograph Detention Basin Routing
      ------------------------------------------------------------------------

      Graph values: 'I'= unit inflow; 'O'=outflow at time shown
      ------------------------------------------------------------------------
       Time   Inflow  Outflow    Storage                                 Depth
      (Hours)  (CFS)   (CFS)     (Ac.Ft) .0     172.3   344.59   516.88  689.18 (Ft.)
       0.250   15.80    2.67      0.136  0      |       |        |       |     2.01
       0.500   37.37   10.86      0.545  OI     |       |        |       |     2.05
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.750 | 70.45 | 25.61 | 1.282 | 0 I | | | | | 2.13 |
| 1.000 | 100.51 | 46.12 | 2.307 | 0 I | | | | | 2.23 |
| 1.250 | 129.17 | 69.66 | 3.484 | 0 I | | | | | 2.35 |
| 1.500 | 173.44 | 97.62 | 4.882 | 0 I | | | | | 2.49 |
| 1.750 | 233.80 | 133.93 | 6.697 | 0 I | | | | | 2.67 |
| 2.000 | 291.14 | 177.96 | 8.898 | 0 I | | | | | 2.89 |
| 2.250 | 368.19 | 232.20 | 11.472 | 0 I | | | | | 3.09 |
| 2.500 | 508.62 | 308.22 | 14.947 | 0 I | | | | | 3.31 |
| 2.750 | 679.74 | 413.64 | 19.766 | 0 I | | | | | 3.61 |
| 3.000 | 689.18 | 513.48 | 24.330 | 0 I | | | | | 3.90 |
| 3.250 | 473.30 | 538.46 | 25.472 | I 0 | | | | | 3.97 |
| 3.500 | 237.12 | 470.90 | 22.384 | I 0 | | | | | 3.77 |
| 3.750 | 127.25 | 364.46 | 17.518 | I 0 | | | | | 3.47 |
| 4.000 | 70.65 | 266.58 | 13.044 | I 0 | | | | | 3.19 |
| 4.250 | 36.58 | 188.92 | 9.446 | I 0 | | | | | 2.94 |
| 4.500 | 18.35 | 133.62 | 6.682 | I 0 | | | | | 2.67 |
| 4.750 | 11.22 | 92.92 | 4.647 | I 0 | | | | | 2.46 |
| 5.000 | 7.49 | 64.29 | 3.216 | I 0 | | | | | 2.32 |
| 5.250 | 4.27 | 44.29 | 2.216 | I 0 | | | | | 2.22 |
| 5.500 | 1.58 | 30.12 | 1.508 | I0 | | | | | 2.15 |
| 5.750 | 0.23 | 20.11 | 1.007 | 0 | | | | | 2.10 |
| 6.000 | 0.01 | 13.26 | 0.665 | 0 | | | | | 2.07 |
| 6.250 | 0.00 | 8.72 | 0.438 | 0 | | | | | 2.04 |
| 6.500 | 0.00 | 5.74 | 0.289 | 0 | | | | | 2.03 |
| 6.750 | 0.00 | 3.77 | 0.190 | 0 | | | | | 2.02 |
| 7.000 | 0.00 | 2.48 | 0.126 | 0 | | | | | 2.01 |
| 7.250 | 0.00 | 1.63 | 0.083 | 0 | | | | | 2.01 |
| 7.500 | 0.00 | 1.07 | 0.055 | 0 | | | | | 2.01 |
| 7.750 | 0.00 | 0.70 | 0.037 | 0 | | | | | 2.00 |
| 8.000 | 0.00 | 0.46 | 0.025 | 0 | | | | | 2.00 |
| 8.250 | 0.00 | 0.30 | 0.017 | 0 | | | | | 2.00 |
| 8.500 | 0.00 | 0.20 | 0.012 | 0 | | | | | 2.00 |
| 8.750 | 0.00 | 0.13 | 0.008 | 0 | | | | | 2.00 |
| 9.000 | 0.00 | 0.09 | 0.006 | 0 | | | | | 2.00 |
| 9.250 | 0.00 | 0.06 | 0.005 | 0 | | | | | 2.00 |
| 9.500 | 0.00 | 0.04 | 0.004 | 0 | | | | | 2.00 |
| 9.750 | 0.00 | 0.02 | 0.003 | 0 | | | | | 2.00 |
| 10.000 | 0.00 | 0.02 | 0.003 | 0 | | | | | 2.00 |
| 10.250 | 0.00 | 0.01 | 0.002 | 0 | | | | | 2.00 |
| 10.500 | 0.00 | 0.01 | 0.002 | 0 | | | | | 2.00 |
| 10.750 | 0.00 | 0.00 | 0.002 | 0 | | | | | 2.00 |
| 11.000 | 0.00 | 0.00 | 0.002 | 0 | | | | | 2.00 |
| 11.250 | 0.00 | 0.00 | 0.002 | 0 | | | | | 2.00 |
| 11.500 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.96 |
| 11.750 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.92 |
| 12.000 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.88 |
| 12.250 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.84 |
| 12.500 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.80 |
| 12.750 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.77 |
| 13.000 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.73 |
| 13.250 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.69 |
| 13.500 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.66 |
| 13.750 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.63 |
| 14.000 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.59 |
| 14.250 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.56 |
| 14.500 | 0.00 | 0.00 | 0.002 | 0 | | | | | 1.53 |
| 14.750 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.50 |
| 15.000 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.47 |
| 15.250 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.44 |
| 15.500 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.41 |
| 15.750 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.38 |
| 16.000 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.35 |
| 16.250 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.32 |
| 16.500 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.30 |
| 16.750 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.27 |
| 17.000 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.24 |
| 17.250 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.22 |
| 17.500 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.19 |
| 17.750 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.17 |
| 18.000 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.14 |
| 18.250 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.12 |
| 18.500 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.10 |



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18.750 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.08 |
| 19.000 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.05 |
| 19.250 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.03 |
| 19.500 | 0.00 | 0.00 | 0.001 | 0 | | | | | 1.01 |
| 19.750 | 0.00 | 0.00 | 0.001 | 0 | | | | | 0.99 |

**********HYDROGRAPH DATA**********

Number of intervals = 79
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 538.459 (CFS)
Total volume = 88.542 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 1344.713 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 159.492 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 2.000 to Point/Station 72.000
**** STREAM ROUTING SCS CONVEX METHOD ****

HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 2500.00 (Ft.)
Elevation difference = 50.00 (Ft.)
Slope of channel = 0.020000 (Vert/Horiz)
Channel type - Pipe

Pipe length = 2500.00(Ft.) Elevation difference = 50.00(Ft.)
Manning's N = 0.015 No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow = 227.053(CFS)
Given pipe size = 90.00(In.)
Calculated individual pipe flow = 227.053(CFS)
Normal flow depth in pipe = 30.09(In.)
Flow top width inside pipe = 84.92(In.)
Critical Depth = 3.86(Ft.)
Pipe flow velocity = 17.53(Ft/s)
Travel time through pipe = 2.38 min.

Pipe length = 2500.00(Ft.) Elevation difference = 50.00(Ft.)
Manning's N = 0.015 No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow = 538.459(CFS)
Given pipe size = 90.00(In.)
Calculated individual pipe flow = 538.459(CFS)
Normal flow depth in pipe = 48.80(In.)
Flow top width inside pipe = 89.68(In.)
Critical Depth = 5.99(Ft.)
Pipe flow velocity = 22.02(Ft/s)
Travel time through pipe = 1.89 min.

********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.9283 Travel time = 1.89 (min.)
dt*(unit time interval) = 15.00(min.), e= 6.0258
dt(routing time-step) = 1.76 (min.), c* = 1.0000

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 134.6 | 269.2 | 403.8 | 538.5 |
|---|---|---|---|---|---|---|---|
| 0+15 | 2.3615 | 2.67 | 0 | | | | |
| 0+30 | 9.9050 | 10.86 | 0 | | | | |
| 0+45 | 23.8814 | 25.61 | O | | | | |
| 1+ 0 | 43.7140 | 46.12 | O | | | | |
| 1+15 | 66.8983 | 69.66 | OI | | | | |
| 1+30 | 94.3464 | 97.62 | O | | | | |
| 1+45 | 129.6761 | 133.93 | O | | | | |
| 2+ 0 | 172.7997 | 177.96 | OI | | | | |
| 2+15 | 225.8493 | 232.20 | OI | | | | |
| 2+30 | 299.3183 | 308.22 | O | | | | |
| 2+45 | 401.2956 | 413.64 | O | | | | |
| 3+ 0 | 501.7872 | 513.48 | I | | | | O |
| 3+15 | 535.5333 | 538.46 | I | | | | O |
| 3+30 | 478.8140 | 470.90 | I | | | | O |
| 3+45 | 376.9302 | 364.46 | I | | | | O |
| 4+ 0 | 278.0460 | 266.58 | I | O | | | |
| 4+15 | 198.0134 | 188.92 | I | O | | | |
| 4+30 | 140.0942 | 133.62 | I | O | | | |
| 4+45 | 97.6827 | 92.92 | I | O | | | |
| 5+ 0 | 67.6467 | 64.29 | I | O | | | |
| 5+15 | 46.6294 | 44.29 | O | | | | |
| 5+30 | 31.7777 | 30.12 | O | | | | |
| 5+45 | 21.2838 | 20.11 | O | | | | |
| 6+ 0 | 14.0666 | 13.26 | IO | | | | |
| 6+15 | 9.2555 | 8.72 | O | | | | |
| 6+30 | 6.0856 | 5.74 | O | | | | |
| 6+45 | 4.0012 | 3.77 | O | | | | |
| 7+ 0 | 2.6307 | 2.48 | O | | | | |
| 7+15 | 1.7296 | 1.63 | O | | | | |
| 7+30 | 1.1372 | 1.07 | O | | | | |
| 7+45 | 0.7477 | 0.70 | O | | | | |
| 8+ 0 | 0.4916 | 0.46 | O | | | | |
| 8+15 | 0.3232 | 0.30 | O | | | | |
| 8+30 | 0.2125 | 0.20 | O | | | | |
| 8+45 | 0.1397 | 0.13 | O | | | | |
| 9+ 0 | 0.0919 | 0.09 | O | | | | |
| 9+15 | 0.0604 | 0.06 | O | | | | |
| 9+30 | 0.0397 | 0.04 | O | | | | |
| 9+45 | 0.0261 | 0.02 | O | | | | |
| 10+ 0 | 0.0172 | 0.02 | O | | | | |
| 10+15 | 0.0113 | 0.01 | O | | | | |
| 10+30 | 0.0074 | 0.01 | O | | | | |
| 10+45 | 0.0049 | 0.00 | O | | | | |
| 11+ 0 | 0.0032 | 0.00 | O | | | | |
| 11+15 | 0.0021 | 0.00 | O | | | | |
| 11+30 | 0.0020 | 0.00 | O | | | | |
| 11+45 | 0.0019 | 0.00 | O | | | | |
| 12+ 0 | 0.0019 | 0.00 | O | | | | |
| 12+15 | 0.0018 | 0.00 | O | | | | |
| 12+30 | 0.0018 | 0.00 | O | | | | |
| 12+45 | 0.0018 | 0.00 | O | | | | |
| 13+ 0 | 0.0017 | 0.00 | O | | | | |
| 13+15 | 0.0017 | 0.00 | O | | | | |
| 13+30 | 0.0017 | 0.00 | O | | | | |
| 13+45 | 0.0016 | 0.00 | O | | | | |
| 14+ 0 | 0.0016 | 0.00 | O | | | | |
| 14+15 | 0.0016 | 0.00 | O | | | | |
| 14+30 | 0.0015 | 0.00 | O | | | | |
| 14+45 | 0.0015 | 0.00 | O | | | | |
| 15+ 0 | 0.0015 | 0.00 | O | | | | |
| 15+15 | 0.0014 | 0.00 | O | | | | |
| 15+30 | 0.0014 | 0.00 | O | | | | |
| 15+45 | 0.0014 | 0.00 | O | | | | |
| 16+ 0 | 0.0014 | 0.00 | O | | | | |
| 16+15 | 0.0013 | 0.00 | O | | | | |
| 16+30 | 0.0013 | 0.00 | O | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 16+45 | 0.0013 | 0.00 | O | | | | |
| 17+ 0 | 0.0012 | 0.00 | O | | | | |
| 17+15 | 0.0012 | 0.00 | O | | | | |
| 17+30 | 0.0012 | 0.00 | O | | | | |
| 17+45 | 0.0012 | 0.00 | O | | | | |
| 18+ 0 | 0.0011 | 0.00 | O | | | | |
| 18+15 | 0.0011 | 0.00 | O | | | | |
| 18+30 | 0.0011 | 0.00 | O | | | | |
| 18+45 | 0.0011 | 0.00 | O | | | | |
| 19+ 0 | 0.0011 | 0.00 | O | | | | |
| 19+15 | 0.0010 | 0.00 | O | | | | |
| 19+30 | 0.0010 | 0.00 | O | | | | |
| 19+45 | 0.0010 | 0.00 | O | | | | |
| 20+ 0 | 0.0000 | 0.00 | O | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 80
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 535.533 (CFS)
Total volume = 88.542 (Ac.Ft)
Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 1344.713 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 159.492 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

Process from Point/Station 71.000 to Point/Station 72.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

From stored stream number 1 the total
volume of 159.49 (Ac.Ft) is being added to the
current hydrograph at its original rate from user
with a delay time to start of addition of 0.00 hours.

PRINT OF STORM
Runoff Hydrograph

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 461.6 | 923.3 | 1384.9 | 1846.5 |
|---|---|---|---|---|---|---|---|
| 0+15 | 2.9246 | 5.29 | Q | | | | |
| 0+30 | 25.3138 | 35.22 | Q | | | | |
| 0+45 | 84.4960 | 108.38 | qQ | | | | |
| 1+ 0 | 151.1106 | 194.82 | qQ | | | | |
| 1+15 | 193.1893 | 260.09 | qQ | | | | |
| 1+30 | 262.5128 | 356.86 | q Q | | | | |
| 1+45 | 375.4758 | 505.15 | q Q | | | | |
| 2+ 0 | 481.6486 | 654.45 | q Q | | | | |
| 2+15 | 601.7301 | 827.58 | q Q | | | | |
| 2+30 | 804.4456 | 1103.76 | q Q | | | | |
| 2+45 | 1146.4785 | 1547.77 | q Q | | | | |
| 3+ 0 | 1344.7133 | 1846.50 | q Q | | | | |
| 3+15 | 1031.4273 | 1566.96 | q Q | | | | |
| 3+30 | 520.7342 | 999.55 | q Q | | | | |
| 3+45 | 292.8475 | 669.78 | q Q | | | | |
| 4+ 0 | 174.7917 | 452.84 | q Q | | | | |
| 4+15 | 99.1384 | 297.15 | q Q | | | | |
| 4+30 | 52.0453 | 192.14 | q Q | | | | |
| 4+45 | 28.9463 | 126.63 | q Q | | | | |
| 5+ 0 | 19.9104 | 87.56 | qQ | | | | |
| 5+15 | 14.1023 | 60.73 | qQ | | | | |
| 5+30 | 8.0856 | 39.86 | Q | | | | |
| 5+45 | 3.0064 | 24.29 | Q | | | | |
| 6+ 0 | 0.3307 | 14.40 | Q | | | | |
| 6+15 | 0.0107 | 9.27 | Q | | | | |
| 6+30 | 0.0000 | 6.09 | Q | | | | |

```
 6+45       0.0000      4.00  Q        |          |          |          |
 7+ 0       0.0000      2.63  Q        |          |          |          |
 7+15       0.0000      1.73  Q        |          |          |          |
 7+30       0.0000      1.14  Q        |          |          |          |
 7+45       0.0000      0.75  Q        |          |          |          |
 8+ 0       0.0000      0.49  Q        |          |          |          |
 8+15       0.0000      0.32  Q        |          |          |          |
 8+30       0.0000      0.21  Q        |          |          |          |
 8+45       0.0000      0.14  Q        |          |          |          |
 9+ 0       0.0000      0.09  Q        |          |          |          |
 9+15       0.0000      0.06  Q        |          |          |          |
 9+30       0.0000      0.04  Q        |          |          |          |
 9+45       0.0000      0.03  Q        |          |          |          |
10+ 0       0.0000      0.02  Q        |          |          |          |
10+15       0.0000      0.01  Q        |          |          |          |
10+30       0.0000      0.01  Q        |          |          |          |
10+45       0.0000      0.00  Q        |          |          |          |
11+ 0       0.0000      0.00  Q        |          |          |          |
11+15       0.0000      0.00  Q        |          |          |          |
11+30       0.0000      0.00  Q        |          |          |          |
11+45       0.0000      0.00  Q        |          |          |          |
12+ 0       0.0000      0.00  Q        |          |          |          |
12+15       0.0000      0.00  Q        |          |          |          |
12+30       0.0000      0.00  Q        |          |          |          |
12+45       0.0000      0.00  Q        |          |          |          |
13+ 0       0.0000      0.00  Q        |          |          |          |
13+15       0.0000      0.00  Q        |          |          |          |
13+30       0.0000      0.00  Q        |          |          |          |
13+45       0.0000      0.00  Q        |          |          |          |
14+ 0       0.0000      0.00  Q        |          |          |          |
14+15       0.0000      0.00  Q        |          |          |          |
14+30       0.0000      0.00  Q        |          |          |          |
14+45       0.0000      0.00  Q        |          |          |          |
15+ 0       0.0000      0.00  Q        |          |          |          |
15+15       0.0000      0.00  Q        |          |          |          |
15+30       0.0000      0.00  Q        |          |          |          |
15+45       0.0000      0.00  Q        |          |          |          |
16+ 0       0.0000      0.00  Q        |          |          |          |
16+15       0.0000      0.00  Q        |          |          |          |
16+30       0.0000      0.00  Q        |          |          |          |
16+45       0.0000      0.00  Q        |          |          |          |
17+ 0       0.0000      0.00  Q        |          |          |          |
17+15       0.0000      0.00  Q        |          |          |          |
17+30       0.0000      0.00  Q        |          |          |          |
17+45       0.0000      0.00  Q        |          |          |          |
18+ 0       0.0000      0.00  Q        |          |          |          |
18+15       0.0000      0.00  Q        |          |          |          |
18+30       0.0000      0.00  Q        |          |          |          |
18+45       0.0000      0.00  Q        |          |          |          |
19+ 0       0.0000      0.00  Q        |          |          |          |
19+15       0.0000      0.00  Q        |          |          |          |
19+30       0.0000      0.00  Q        |          |          |          |
19+45       0.0000      0.00  Q        |          |          |          |
20+ 0       0.0000      0.00  Q        |          |          |          |
--------------------------------------------------------------------------
      ****************************HYDROGRAPH DATA****************************
                  Number of intervals =     80
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =      1846.500 (CFS)
                  Total volume =      248.034 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ***********************************************************************

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      Process from Point/Station       72.000 to Point/Station       73.000
      **** STREAM ROUTING SCS CONVEX METHOD ****
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      ----------------------------------------------------------------------
      HYDROGRAPH STREAM ROUTING DATA:
      Length of stream =    2900.00 (Ft.)
      Elevation difference =    53.00 (Ft.)
      Slope of channel =  0.018276 (Vert/Horiz)
      Channel type - Improved Channel


      Channel length =  2900.00(Ft.)     Elevation difference =  53.00(Ft.)
      Channel evaluation using mean flow rate of hydrograph
      Channel base width  =   20.000(Ft.)
      Slope or 'Z' of left channel bank =   2.000
      Slope or 'Z' of right channel bank =   2.000
      Manning's 'N'    = 0.030
      Maximum depth of channel  =   10.000(Ft.)
      Flow(q) thru subarea =    715.170(CFS)
      Depth of flow =     2.605(Ft.)
      Average velocity =    10.893(Ft/s)
      Total flow rate =   715.170(CFS)
      Channel flow top width =   30.418(Ft.)
      Depth of flow in channel =   2.60(Ft.)
      Total number of channels (same dimensions) = 1
      Flow Velocity =   10.89(Ft/s)
      Travel time  =    1.89 min.
      Individual channel flow =  715.170(CFS)
      Total capacity of improved channels =    715.170(CFS)
      Critical Depth in Channel =    3.06(Ft.)


      Channel evaluation using maximum flow rate of hydrograph
      Flow(q) thru subarea =   1846.500(CFS)
      Depth of flow =     4.408(Ft.)
      Average velocity =    14.537(Ft/s)
      Total flow rate =  1846.500(CFS)
      Channel flow top width =   37.632(Ft.)
      Depth of flow in channel =   4.41(Ft.)
      Total number of channels (same dimensions) = 1
      Flow Velocity =   14.54(Ft/s)
      Travel time  =    1.89 min.
      Individual channel flow = 1846.500(CFS)
      Total capacity of improved channels =   1846.500(CFS)
      Critical Depth in Channel =    5.31(Ft.)


      ********************** SCS CONVEX CHANNEL ROUTING **********************
      Convex method of stream routing  data items:
      Using equation: Outflow =
      O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
                where c* = 1 - (1-c)^e and dt = c(length)/velocity
                c(v/v+1.7) =   0.8953   Travel time =   3.32 (min.)
              dt*(unit time interval) =  15.00(min.),  e=   3.6927
              dt(routing time-step) =   2.98 (min.),   c* =   0.9998

      Output hydrograph delayed by 0  unit time increments


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        P R I N T  O F  S T O R M
                     R u n o f f     H y d r o g r a p h
      ----------------------------------------------------------------------
                Hydrograph in  15  Minute intervals (CFS)

      ----------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  O      461.6     923.3     1384.9    1846.5
----------------------------------------------------------------------------
  0+15       4.2361     5.29  O        |         |         |         |
  0+30      29.2725    35.22  O        |         |         |         |
  0+45      93.8433   108.38  | O      |         |         |         |
  1+ 0     177.6488   194.82  |  OI    |         |         |         |
  1+15     247.1193   260.09  |    O   |         |         |         |
  1+30     337.6329   356.86  |      O |         |         |         |
  1+45     475.6896   505.15  |        O         |         |         |
```

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2+ 0 | 624.7841 | 654.45 | \| | \| OI | \| | \| | \| |
| 2+15 | 793.1806 | 827.58 | \| | \| 0 | \| | \| | \| |
| 2+30 | 1048.8929 | 1103.76 | \| | \| | \| OI | \| | \| |
| 2+45 | 1459.5603 | 1547.77 | \| | \| | \| | \|O I | \| |
| 3+ 0 | 1787.1386 | 1846.50 | \| | \| | \| | \| | 0 I |
| 3+15 | 1622.4757 | 1566.96 | \| | \| | \| | I O | \| |
| 3+30 | 1112.2754 | 999.55 | \| | \| | I O | \| | \| |
| 3+45 | 735.3122 | 669.78 | \| | \| IO | \| | \| | \| |
| 4+ 0 | 495.9476 | 452.84 | \| | IO | \| | \| | \| | \| |
| 4+15 | 328.0884 | 297.15 | \| I0 | \| | \| | \| | \| | \| |
| 4+30 | 213.0072 | 192.14 | \| 0 | \| | \| | \| | \| | \| |
| 4+45 | 139.6474 | 126.63 | \| IO | \| | \| | \| | \| | \| |
| 5+ 0 | 95.3217 | 87.56 | \|IO | \| | \| | \| | \| | \| |
| 5+15 | 66.0623 | 60.73 | \|0 | \| | \| | \| | \| | \| |
| 5+30 | 44.0100 | 39.86 | 0 | \| | \| | \| | \| | \| |
| 5+45 | 27.3847 | 24.29 | 0 | \| | \| | \| | \| | \| |
| 6+ 0 | 16.3632 | 14.40 | 0 | \| | \| | \| | \| | \| |
| 6+15 | 10.2860 | 9.27 | 0 | \| | \| | \| | \| | \| |
| 6+30 | 6.7177 | 6.09 | 0 | \| | \| | \| | \| | \| |
| 6+45 | 4.4154 | 4.00 | 0 | \| | \| | \| | \| | \| |
| 7+ 0 | 2.9031 | 2.63 | 0 | \| | \| | \| | \| | \| |
| 7+15 | 1.9087 | 1.73 | 0 | \| | \| | \| | \| | \| |
| 7+30 | 1.2549 | 1.14 | 0 | \| | \| | \| | \| | \| |
| 7+45 | 0.8251 | 0.75 | 0 | \| | \| | \| | \| | \| |
| 8+ 0 | 0.5425 | 0.49 | 0 | \| | \| | \| | \| | \| |
| 8+15 | 0.3567 | 0.32 | 0 | \| | \| | \| | \| | \| |
| 8+30 | 0.2345 | 0.21 | 0 | \| | \| | \| | \| | \| |
| 8+45 | 0.1542 | 0.14 | 0 | \| | \| | \| | \| | \| |
| 9+ 0 | 0.1014 | 0.09 | 0 | \| | \| | \| | \| | \| |
| 9+15 | 0.0666 | 0.06 | 0 | \| | \| | \| | \| | \| |
| 9+30 | 0.0438 | 0.04 | 0 | \| | \| | \| | \| | \| |
| 9+45 | 0.0288 | 0.03 | 0 | \| | \| | \| | \| | \| |
| 10+ 0 | 0.0189 | 0.02 | 0 | \| | \| | \| | \| | \| |
| 10+15 | 0.0125 | 0.01 | 0 | \| | \| | \| | \| | \| |
| 10+30 | 0.0082 | 0.01 | 0 | \| | \| | \| | \| | \| |
| 10+45 | 0.0054 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 11+ 0 | 0.0035 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 11+15 | 0.0023 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 11+30 | 0.0020 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 11+45 | 0.0019 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 12+ 0 | 0.0019 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 12+15 | 0.0019 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 12+30 | 0.0018 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 12+45 | 0.0018 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 13+ 0 | 0.0017 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 13+15 | 0.0017 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 13+30 | 0.0017 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 13+45 | 0.0016 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 14+ 0 | 0.0016 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 14+15 | 0.0016 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 14+30 | 0.0015 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 14+45 | 0.0015 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 15+ 0 | 0.0015 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 15+15 | 0.0014 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 15+30 | 0.0014 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 15+45 | 0.0014 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 16+ 0 | 0.0014 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 16+15 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 16+30 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 16+45 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 17+ 0 | 0.0013 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 17+15 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 17+30 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 17+45 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 18+ 0 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 18+15 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 18+30 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 18+45 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 19+ 0 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 19+15 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 19+30 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 19+45 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| | \| |



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 20+ 0 | 0.0002 | 0.00 | 0 | \| | \| | \| | \| | \| |
| 20+15 | 0.0000 | 0.00 | 0 | \| | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 81
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 1787.139 (CFS)
Total volume = 248.034 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 72.000 to Point/Station 73.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

**********HYDROGRAPH INFORMATION**********

From study/file name: SubE23100.rte

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

---

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 450.1 | 900.3 | 1350.4 | 1800.6 |
|---|---|---|---|---|---|---|---|
| 0+15 | 1.0803 | 5.32 | Q | \| | \| | \| | \| |
| 0+30 | 3.2330 | 32.51 | Q | \| | \| | \| | \| |
| 0+45 | 4.2485 | 98.09 | q Q | \| | \| | \| | \| |
| 1+ 0 | 4.5260 | 182.17 | q Q | \| | \| | \| | \| |
| 1+15 | 5.0014 | 252.12 | q Q | \| | \| | \| | \| |
| 1+30 | 6.0400 | 343.67 | q Q | \| | \| | \| | \| |
| 1+45 | 6.9066 | 482.60 | q Q | \| | \| | \| | \| |
| 2+ 0 | 7.8482 | 632.63 | q Q | \| | \| | \| | \| |
| 2+15 | 9.7972 | 802.98 | q Q | \| | \| | \| | \| |
| 2+30 | 14.4585 | 1063.35 | q Q | \| | \| | \| | \| |
| 2+45 | 18.0942 | 1477.65 | q Q | \| | \| | \| | \| |
| 3+ 0 | 13.4546 | 1800.59 | q Q | \| | \| | \| | \| |
| 3+15 | 4.6227 | 1627.10 | q Q | \| | \| | \| | \| |
| 3+30 | 0.9687 | 1113.24 | q Q | \| | \| | \| | \| |
| 3+45 | 0.2157 | 735.53 | q Q | \| | \| | \| | \| |
| 4+ 0 | 0.0285 | 495.98 | q Q | \| | \| | \| | \| |
| 4+15 | 0.0000 | 328.09 | q Q | \| | \| | \| | \| |
| 4+30 | 0.0000 | 213.01 | q Q | \| | \| | \| | \| |
| 4+45 | 0.0000 | 139.65 | q Q | \| | \| | \| | \| |
| 5+ 0 | 0.0000 | 95.32 | q Q | \| | \| | \| | \| |
| 5+15 | 0.0000 | 66.06 | qQ | \| | \| | \| | \| |
| 5+30 | 0.0000 | 44.01 | Q | \| | \| | \| | \| |
| 5+45 | 0.0000 | 27.38 | Q | \| | \| | \| | \| |
| 6+ 0 | 0.0000 | 16.36 | Q | \| | \| | \| | \| |
| 6+15 | 0.0000 | 10.29 | Q | \| | \| | \| | \| |
| 6+30 | 0.0000 | 6.72 | Q | \| | \| | \| | \| |
| 6+45 | 0.0000 | 4.42 | Q | \| | \| | \| | \| |
| 7+ 0 | 0.0000 | 2.90 | Q | \| | \| | \| | \| |
| 7+15 | 0.0000 | 1.91 | Q | \| | \| | \| | \| |
| 7+30 | 0.0000 | 1.25 | Q | \| | \| | \| | \| |
| 7+45 | 0.0000 | 0.83 | Q | \| | \| | \| | \| |
| 8+ 0 | 0.0000 | 0.54 | Q | \| | \| | \| | \| |
| 8+15 | 0.0000 | 0.36 | Q | \| | \| | \| | \| |
| 8+30 | 0.0000 | 0.23 | Q | \| | \| | \| | \| |
| 8+45 | 0.0000 | 0.15 | Q | \| | \| | \| | \| |
| 9+ 0 | 0.0000 | 0.10 | Q | \| | \| | \| | \| |
| 9+15 | 0.0000 | 0.07 | Q | \| | \| | \| | \| |
| 9+30 | 0.0000 | 0.04 | Q | \| | \| | \| | \| |
| 9+45 | 0.0000 | 0.03 | Q | \| | \| | \| | \| |

```
 10+ 0       0.0000       0.02  Q        |          |          |          |
 10+15       0.0000       0.01  Q        |          |          |          |
 10+30       0.0000       0.01  Q        |          |          |          |
 10+45       0.0000       0.01  Q        |          |          |          |
 11+ 0       0.0000       0.00  Q        |          |          |          |
 11+15       0.0000       0.00  Q        |          |          |          |
 11+30       0.0000       0.00  Q        |          |          |          |
 11+45       0.0000       0.00  Q        |          |          |          |
 12+ 0       0.0000       0.00  Q        |          |          |          |
 12+15       0.0000       0.00  Q        |          |          |          |
 12+30       0.0000       0.00  Q        |          |          |          |
 12+45       0.0000       0.00  Q        |          |          |          |
 13+ 0       0.0000       0.00  Q        |          |          |          |
 13+15       0.0000       0.00  Q        |          |          |          |
 13+30       0.0000       0.00  Q        |          |          |          |
 13+45       0.0000       0.00  Q        |          |          |          |
 14+ 0       0.0000       0.00  Q        |          |          |          |
 14+15       0.0000       0.00  Q        |          |          |          |
 14+30       0.0000       0.00  Q        |          |          |          |
 14+45       0.0000       0.00  Q        |          |          |          |
 15+ 0       0.0000       0.00  Q        |          |          |          |
 15+15       0.0000       0.00  Q        |          |          |          |
 15+30       0.0000       0.00  Q        |          |          |          |
 15+45       0.0000       0.00  Q        |          |          |          |
 16+ 0       0.0000       0.00  Q        |          |          |          |
 16+15       0.0000       0.00  Q        |          |          |          |
 16+30       0.0000       0.00  Q        |          |          |          |
 16+45       0.0000       0.00  Q        |          |          |          |
 17+ 0       0.0000       0.00  Q        |          |          |          |
 17+15       0.0000       0.00  Q        |          |          |          |
 17+30       0.0000       0.00  Q        |          |          |          |
 17+45       0.0000       0.00  Q        |          |          |          |
 18+ 0       0.0000       0.00  Q        |          |          |          |
 18+15       0.0000       0.00  Q        |          |          |          |
 18+30       0.0000       0.00  Q        |          |          |          |
 18+45       0.0000       0.00  Q        |          |          |          |
 19+ 0       0.0000       0.00  Q        |          |          |          |
 19+15       0.0000       0.00  Q        |          |          |          |
 19+30       0.0000       0.00  Q        |          |          |          |
 19+45       0.0000       0.00  Q        |          |          |          |
 20+ 0       0.0000       0.00  Q        |          |          |          |
 20+15       0.0000       0.00  Q        |          |          |          |
--------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA**************************
                Number of intervals =    81
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =     1800.593 (CFS)
                Total volume =     250.111 (Ac.Ft)
          Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)      0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
      ********************************************************************

      ------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       72.000 to Point/Station       73.000
      **** STORE OR DELETE CURRENT HYDROGRAPH ****
      ____________________________________________________________________
      Current stream hydrograph saved in file LineE3hr.rte
      ***************************HYDROGRAPH DATA**************************
                Number of intervals =     0
                Time interval =    0.0 (Min.)
                Maximum/Peak flow rate =         0.000 (CFS)
                Total volume =         0.000 (Ac.Ft)
          Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)      0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
      ********************************************************************
```



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```
        U n i t   H y d r o g r a p h   A n a l y s i s

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
              Study date  09/11/13 File: OffsiteE13100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Watershed E, Offsite E1
Proposed Condition
100-year, 3-hour

------------------------------------------------------------------
Drainage Area =    1648.50(Ac.)  =      2.576 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =    1648.50(Ac.)  =      2.576 Sq. Mi.
Length along longest watercourse =   14430.00(Ft.)
Length along longest watercourse measured to centroid =    9640.00(Ft.)
Length along longest watercourse =      2.733 Mi.
Length along longest watercourse measured to centroid =      1.826 Mi.
Difference in elevation =     815.00(Ft.)
Slope along watercourse =    298.2121 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.449 Hr.
Lag time =    26.95 Min.
25% of lag time =     6.74 Min.
40% of lag time =    10.78 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
     1648.50             0.85                1401.22

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
     1648.50             1.90                3132.15

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.28 %
Adjusted average point rain =    1.886(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
   105.000            46.00          0.000
    47.400            66.00          0.000
    18.500            77.00          0.000
```



```
  1477.600            83.00          0.000
 Total Area Entered =    1648.50(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
46.0  46.0      0.611      0.000        0.611         0.064     0.039
66.0  66.0      0.405      0.000        0.405         0.029     0.012
77.0  77.0      0.279      0.000        0.279         0.011     0.003
83.0  83.0      0.210      0.000        0.210         0.896     0.188
                                                    Sum (F) =   0.242
Area averaged mean soil loss (F) (In/Hr) =  0.242
Minimum soil loss rate ((In/Hr)) =  0.121
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.900
--------------------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                      FOOTHILL S-Curve
--------------------------------------------------------------------------------
                    Unit Hydrograph Data
--------------------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
    (hrs)                           Graph %           (CFS)
--------------------------------------------------------------------------------
    1   0.250          55.654          4.998             83.034
    2   0.500         111.309         26.859            446.222
    3   0.750         166.963         36.143            600.478
    4   1.000         222.617         13.228            219.760
    5   1.250         278.271          7.651            127.110
    6   1.500         333.926          4.833             80.291
    7   1.750         389.580          2.918             48.473
    8   2.000         445.234          1.465             24.333
    9   2.250         500.889          0.637             10.581
   10   2.500         556.543          0.443              7.358
   11   2.750         612.197          0.397              6.588
   12   3.000         667.851          0.285              4.731
   13   3.250         723.506          0.146              2.419
                                Sum = 100.000    Sum=    1661.379
--------------------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain    Loss rate(In./Hr)      Effective
     (Hr.)   Percent    (In/Hr)      Max   |   Low           (In/Hr)
  1   0.25      3.70       0.279      0.242   (  0.251)         0.037
  2   0.50      4.80       0.362      0.242   (  0.326)         0.120
  3   0.75      5.10       0.385      0.242   (  0.346)         0.143
  4   1.00      4.90       0.370      0.242   (  0.333)         0.128
  5   1.25      6.60       0.498      0.242   (  0.448)         0.256
  6   1.50      7.30       0.551      0.242   (  0.496)         0.309
  7   1.75      8.40       0.634      0.242   (  0.570)         0.392
  8   2.00      9.00       0.679      0.242   (  0.611)         0.437
  9   2.25     12.30       0.928      0.242   (  0.835)         0.686
 10   2.50     17.60       1.328      0.242   (  1.195)         1.086
 11   2.75     16.10       1.215      0.242   (  1.093)         0.973
 12   3.00      4.20       0.317      0.242   (  0.285)         0.075
            (Loss Rate Not Used)
   Sum =     100.0                                Sum =      4.6
    Flood volume = Effective rainfall      1.16(In)
     times area    1648.5(Ac.)/[(In)/(Ft.)] =      159.5(Ac.Ft)
    Total soil loss =      0.73(In)
    Total soil loss =     99.638(Ac.Ft)
    Total rainfall =      1.89(In)
    Flood volume =     6947474.3 Cubic Feet
    Total soil loss =     4340229.8 Cubic Feet
--------------------------------------------------------------------------------
 Peak flow rate of this hydrograph =   1355.820(CFS)
--------------------------------------------------------------------------------
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3 - H O U R  S T O R M
R u n o f f  H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 350.0 | 700.0 | 1050.0 | 1400.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0642 | 3.11 | Q | | | | |
| 0+30 | 0.6159 | 26.70 | Q | | | | |
| 0+45 | 2.4364 | 88.11 | V Q | | | | |
| 1+ 0 | 5.6399 | 155.05 | V Q | | | | |
| 1+15 | 9.6807 | 195.57 | V Q | | | | |
| 1+30 | 15.1910 | 266.70 | V Q | | | | |
| 1+45 | 23.0893 | 382.28 | V Q | | | | |
| 2+ 0 | 33.1691 | 487.86 | V Q | | | | |
| 2+15 | 45.7487 | 608.85 | V Q | | | | |
| 2+30 | 62.6222 | 816.68 | V Q | | | | |
| 2+45 | 86.7358 | 1167.10 | V Q | | | | |
| 3+ 0 | 114.7487 | 1355.82 | V Q | | | | |
| 3+15 | 135.6400 | 1011.14 | V Q | | | | |
| 3+30 | 145.7654 | 490.07 | V Q | | | | |
| 3+45 | 151.5611 | 280.51 | Q V | | | | |
| 4+ 0 | 155.0359 | 168.18 | Q V | | | | |
| 4+15 | 156.9950 | 94.82 | Q V | | | | |
| 4+30 | 158.0151 | 49.37 | Q V | | | | |
| 4+45 | 158.5867 | 27.67 | Q V | | | | |
| 5+ 0 | 158.9881 | 19.43 | Q V | | | | |
| 5+15 | 159.2726 | 13.77 | Q V | | | | |
| 5+30 | 159.4323 | 7.73 | Q V | | | | |
| 5+45 | 159.4883 | 2.71 | Q V | | | | |
| 6+ 0 | 159.4921 | 0.18 | Q V | | | | |



U n i t  H y d r o g r a p h  A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

Watershed E, Offsite E2
Proposed Condition
100-year, 3-hour

Drainage Area = 780.80(Ac.) = 1.220 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 780.80(Ac.) = 1.220 Sq. Mi.
Length along longest watercourse = 14080.00(Ft.)
Length along longest watercourse measured to centroid = 8100.00(Ft.)
Length along longest watercourse = 2.667 Mi.
Length along longest watercourse measured to centroid = 1.534 Mi.
Difference in elevation = 877.00(Ft.)
Slope along watercourse = 328.8750 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.409 Hr.
Lag time = 24.53 Min.
25% of lag time = 6.13 Min.
40% of lag time = 9.81 Min.
Unit time = 15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 780.80 | 0.85 | 663.68 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 780.80 | 1.90 | 1483.52 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.850(In)
Area Averaged 100-Year Rainfall = 1.900(In)

Point rain (area averaged) = 1.900(In)
Areal adjustment factor = 99.66 %
Adjusted average point rain = 1.894(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 62.200 | 46.00 | 0.000 |
| 11.200 | 66.00 | 0.000 |
| 4.800 | 77.00 | 0.000 |

```
   702.600          83.00          0.000
 Total Area Entered =     780.80(Ac.)

 RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
 AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)        (Dec.)    (In/Hr)
 46.0  46.0      0.611      0.000       0.611          0.080     0.049
 66.0  66.0      0.405      0.000       0.405          0.014     0.006
 77.0  77.0      0.279      0.000       0.279          0.006     0.002
 83.0  83.0      0.210      0.000       0.210          0.900     0.189
                                                     Sum (F) =   0.245
 Area averaged mean soil loss (F) (In/Hr) =  0.245
 Minimum soil loss rate ((In/Hr)) =  0.123
 (for 24 hour storm duration)
 Soil low loss rate (decimal) =   0.900
 ------------------------------------------------------------------------

                    U n i t   H y d r o g r a p h
                          FOOTHILL S-Curve
 ------------------------------------------------------------------------
                    Unit Hydrograph Data
 ------------------------------------------------------------------------
 Unit time period    Time % of lag   Distribution    Unit Hydrograph
     (hrs)                           Graph %           (CFS)
 ------------------------------------------------------------------------
     1   0.250          61.144          5.754            45.282
     2   0.500         122.287         32.815           258.222
     3   0.750         183.431         33.484           263.483
     4   1.000         244.575         12.198            95.988
     5   1.250         305.719          7.029            55.312
     6   1.500         366.862          4.194            33.004
     7   1.750         428.006          2.244            17.661
     8   2.000         489.150          0.859             6.758
     9   2.250         550.293          0.537             4.223
    10   2.500         611.437          0.428             3.369
    11   2.750         672.581          0.317             2.495
    12   3.000         733.725          0.140             1.104
                                 Sum = 100.000   Sum=     786.900
 ------------------------------------------------------------------------

 The following loss rate calculations reflect use of the minimum calculated loss
 rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain    Loss rate(In./Hr)      Effective
      (Hr.)  Percent   (In/Hr)       Max   |   Low          (In/Hr)
  1   0.25     3.70      0.280        0.245    (  0.252)        0.035
  2   0.50     4.80      0.364        0.245    (  0.327)        0.119
  3   0.75     5.10      0.386        0.245    (  0.348)        0.141
  4   1.00     4.90      0.371        0.245    (  0.334)        0.126
  5   1.25     6.60      0.500        0.245    (  0.450)        0.255
  6   1.50     7.30      0.553        0.245    (  0.498)        0.308
  7   1.75     8.40      0.636        0.245    (  0.573)        0.391
  8   2.00     9.00      0.682        0.245    (  0.613)        0.437
  9   2.25    12.30      0.932        0.245    (  0.838)        0.687
 10   2.50    17.60      1.333        0.245    (  1.200)        1.088
 11   2.75    16.10      1.219        0.245    (  1.097)        0.974
 12   3.00     4.20      0.318        0.245    (  0.286)        0.073
           (Loss Rate Not Used)
    Sum =    100.0                                Sum =     4.6
     Flood volume = Effective rainfall      1.16(In)
       times area     780.8(Ac.)/[(In)/(Ft.)] =      75.4(Ac.Ft)
     Total soil loss =      0.74(In)
     Total soil loss =     47.825(Ac.Ft)
     Total rainfall =      1.89(In)
     Flood volume =      3283508.7 Cubic Feet
     Total soil loss =     2083273.1 Cubic Feet
     ------------------------------------------------------------------
      Peak flow rate of this hydrograph =     653.411(CFS)
     ------------------------------------------------------------------
     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
```



```
                    R u n o f f     H y d r o g r a p h
 ------------------------------------------------------------------------
                 Hydrograph in  15  Minute intervals ((CFS))
 ------------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        175.0      350.0      525.0      700.0
 ------------------------------------------------------------------------
   0+15      0.0330        1.60   Q        |          |          |          |
   0+30      0.3320       14.47   Q        |          |          |          |
   0+45      1.2889       46.32   V Q      |          |          |          |
   1+ 0      2.8767       76.85    V  Q    |          |          |          |
   1+15      4.8334       94.71    | V  Q   |          |          |          |
   1+30      7.6090      134.34    |   V  Q |          |          |          |
   1+45     11.5125      188.93    |     V    Q       |          |          |
   2+ 0     16.4811      240.48    |       V  |  Q     |          |          |
   2+15     22.6450      298.34    |          |  V    Q|          |          |
   2+30     31.0876      408.62    |          |     V  |  Q       |          |
   2+45     43.2041      586.44    |          |        |  V       |  Q       |
   3+ 0     56.7043      653.41    |          |        |          V     Q    |
   3+15     65.8706      443.65    |          |        |    Q     |  V    Q  |
   3+30     70.1831      208.73    |          |  Q     |          |     V    |
   3+45     72.5679      115.42    |          |     Q  |          |        V |
   4+ 0     73.8965       64.30    |   Q      |        |          |          V
   4+15     74.5716       32.68    |Q         |        |          |          V
   4+30     74.9087       16.31    Q          |        |          |          V
   4+45     75.1251       10.47    Q          |        |          |          V
   5+ 0     75.2711        7.07    Q          |        |          |          V
   5+15     75.3513        3.88    Q          |        |          |          V
   5+30     75.3773        1.26    Q          |        |          |          V
   5+45     75.3790        0.08    Q          |        |          |          V|
 ------------------------------------------------------------------------
```

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        U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Watershed E, Offsite E3
Proposed Condition
100-year, 3-hour

------------------------------------------------------------------
Drainage Area =      17.50(Ac.)  =     0.027 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      17.50(Ac.)  =     0.027 Sq. Mi.
Length along longest watercourse =    1610.00(Ft.)
Length along longest watercourse measured to centroid =     650.00(Ft.)
Length along longest watercourse =      0.305 Mi.
Length along longest watercourse measured to centroid =      0.123 Mi.
Difference in elevation =     139.00(Ft.)
Slope along watercourse =    455.8509 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.065 Hr.
Lag time =     3.88 Min.
25% of lag time =     0.97 Min.
40% of lag time =     1.55 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       17.50                0.85               14.88

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       17.50                1.90               33.25

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    1.900(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
     2.200            46.00          0.000
     2.900            66.00          0.000
    12.400            83.00          0.000
```



```
 Total Area Entered =      17.50(Ac.)


 RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
 AMC2 AMC-2      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
 46.0  46.0       0.611      0.000        0.611        0.126      0.077
 66.0  66.0       0.405      0.000        0.405        0.166      0.067
 83.0  83.0       0.210      0.000        0.210        0.709      0.149
                                                    Sum (F) =    0.293
 Area averaged mean soil loss (F) (In/Hr) =  0.293
 Minimum soil loss rate ((In/Hr)) =  0.146
 (for 24 hour storm duration)
 Soil low loss rate (decimal) =    0.900
 ------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                      FOOTHILL S-Curve
 ------------------------------------------------------------------
                     Unit Hydrograph Data
 ------------------------------------------------------------------
 Unit time period    Time % of lag   Distribution    Unit Hydrograph
      (hrs)                          Graph %           (CFS)
 ------------------------------------------------------------------
     1   0.250         386.798         66.248            11.684
     2   0.500         773.597         33.752             5.953
                                Sum = 100.000    Sum=      17.637
-------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)  Percent   (In/Hr)        Max   |   Low          (In/Hr)
  1   0.25     3.70      0.281       ( 0.293)      0.253        0.028
  2   0.50     4.80      0.365         0.293     ( 0.328)       0.072
  3   0.75     5.10      0.388         0.293     ( 0.349)       0.095
  4   1.00     4.90      0.372         0.293     ( 0.335)       0.080
  5   1.25     6.60      0.502         0.293     ( 0.451)       0.209
  6   1.50     7.30      0.555         0.293     ( 0.499)       0.262
  7   1.75     8.40      0.638         0.293     ( 0.575)       0.346
  8   2.00     9.00      0.684         0.293     ( 0.616)       0.391
  9   2.25    12.30      0.935         0.293     ( 0.841)       0.642
 10   2.50    17.60      1.337         0.293     ( 1.204)       1.045
 11   2.75    16.10      1.224         0.293     ( 1.101)       0.931
 12   3.00     4.20      0.319       ( 0.293)      0.287        0.032
           (Loss Rate Not Used)
   Sum =    100.0                                 Sum =     4.1
    Flood volume = Effective rainfall     1.03(In)
     times area     17.5(Ac.)/[(In)/(Ft.)] =      1.5(Ac.Ft)
    Total soil loss =     0.87(In)
    Total soil loss =    1.264(Ac.Ft)
    Total rainfall =     1.90(In)
    Flood volume =      65632.1 Cubic Feet
    Total soil loss =     55056.2 Cubic Feet
    ------------------------------------------------------------------
     Peak flow rate of this hydrograph =     17.105(CFS)
    ------------------------------------------------------------------
    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    3 - H O U R    S T O R M
                  R u n o f f     H y d r o g r a p h
    ------------------------------------------------------------------
              Hydrograph in  15  Minute intervals ((CFS))

    ------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0       10.0      15.0      20.0
------------------------------------------------------------------------------
  0+15      0.0068       0.33   Q        |         |         |         |
  0+30      0.0277       1.01   V Q      |         |         |         |
  0+45      0.0595       1.54   |V Q      |         |         |         |
  1+ 0      0.0904       1.50   | Q      |         |         |         |
  1+15      0.1507       2.92   |   VQ    |         |         |         |
```

```
 1+30      0.2397      4.31  |     V Q |         |         |         |
 1+45      0.3555      5.60  |       V|Q        |         |         |
 2+ 0      0.4925      6.63  |          Q        |         |         |
 2+15      0.6957      9.84  |           |    VQ |         |         |
 2+30      1.0271     16.04  |           |       |    V    | Q       |
 2+45      1.3805     17.10  |           |       |         |   Q V   |
 3+ 0      1.5028      5.92  |          Q|       |         |         |V
 3+15      1.5067      0.19  Q           |       |         |         V
---------------------------------------------------------------------
```



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        U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------------
Watershed F, Onsite E1
Proposed Condition
100-year, 3-hour

------------------------------------------------------------------------
Drainage Area =      81.47(Ac.)  =     0.127 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     81.47(Ac.)  =     0.127 Sq. Mi.
Length along longest watercourse =    1200.00(Ft.)
Length along longest watercourse measured to centroid =     600.00(Ft.)
Length along longest watercourse =      0.227 Mi.
Length along longest watercourse measured to centroid =      0.114 Mi.
Difference in elevation =      24.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.037 Hr.
Lag time =     2.22 Min.
25% of lag time =     0.56 Min.
40% of lag time =     0.89 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       81.47                 0.85                69.25

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       81.47                 1.90               154.79

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.96 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
    81.470            85.00          0.750
 Total Area Entered =     81.47(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 675.381 | 77.819 | 63.894 |
| 2 | 0.500 | 1350.763 | 22.181 | 18.212 |
| | | | Sum = 100.000 | Sum= 82.106 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.061 | ( 0.084) | 0.220 |
| 2 | 0.50 | 4.80 | 0.365 | 0.061 | ( 0.109) | 0.304 |
| 3 | 0.75 | 5.10 | 0.387 | 0.061 | ( 0.116) | 0.327 |
| 4 | 1.00 | 4.90 | 0.372 | 0.061 | ( 0.112) | 0.311 |
| 5 | 1.25 | 6.60 | 0.501 | 0.061 | ( 0.150) | 0.441 |
| 6 | 1.50 | 7.30 | 0.555 | 0.061 | ( 0.166) | 0.494 |
| 7 | 1.75 | 8.40 | 0.638 | 0.061 | ( 0.191) | 0.577 |
| 8 | 2.00 | 9.00 | 0.684 | 0.061 | ( 0.205) | 0.623 |
| 9 | 2.25 | 12.30 | 0.934 | 0.061 | ( 0.280) | 0.874 |
| 10 | 2.50 | 17.60 | 1.337 | 0.061 | ( 0.401) | 1.276 |
| 11 | 2.75 | 16.10 | 1.223 | 0.061 | ( 0.367) | 1.162 |
| 12 | 3.00 | 4.20 | 0.319 | 0.061 | ( 0.096) | 0.258 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 6.9 |

Flood volume = Effective rainfall 1.72(In)
times area 81.5(Ac.)/[(In)/(Ft.)] = 11.7(Ac.Ft)
Total soil loss = 0.18(In)
Total soil loss = 1.238(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 507778.2 Cubic Feet
Total soil loss = 53920.1 Cubic Feet

Peak flow rate of this hydrograph = 97.566(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 25.0 | 50.0 | 75.0 | 100.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.2910 | 14.08 | V Q | | | | |
| 0+30 | 0.7753 | 23.44 | V Q | | | | |
| 0+45 | 1.3212 | 26.42 | V Q | | | | |
| 1+ 0 | 1.8557 | 25.87 | V Q | | | | |
| 1+15 | 2.5549 | 33.85 | V Q | | | | |
| 1+30 | 3.3731 | 39.60 | V Q | | | | |
| 1+45 | 4.3216 | 45.91 | V Q | | | | |
| 2+ 0 | 5.3619 | 50.35 | V Q | | | | |
| 2+15 | 6.7504 | 67.20 | V Q | | | | |
| 2+30 | 8.7651 | 97.51 | V Q | | | | |
| 2+45 | 10.7809 | 97.57 | V Q | | | | |
| 3+ 0 | 11.5597 | 37.69 | Q V | | | | |
| 3+15 | 11.6570 | 4.71 | Q V | | | | |

```
                U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed E, Onsite E2
Proposed Condition
100 Yr. 3 Hr.

--------------------------------------------------------------------
Drainage Area =      17.10(Ac.)  =     0.027 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      17.10(Ac.)  =     0.027 Sq. Mi.
Length along longest watercourse =     2900.00(Ft.)
Length along longest watercourse measured to centroid =     1850.00(Ft.)
Length along longest watercourse =      0.549 Mi.
Length along longest watercourse measured to centroid =      0.350 Mi.
Difference in elevation =      53.00(Ft.)
Slope along watercourse =     96.4966 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.162 Hr.
Lag time =     9.69 Min.
25% of lag time =     2.42 Min.
40% of lag time =     3.88 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       17.10             0.85                14.54

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       17.10             1.90                32.49

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    1.900(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
    17.100             85.00          0.000
 Total Area Entered =     17.10(Ac.)
```



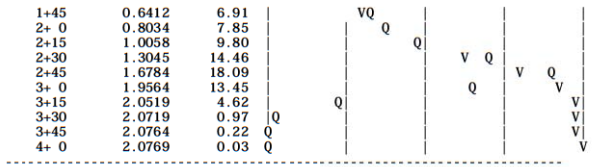
```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)     (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
85.0  85.0       0.187       0.000        0.187        1.000       0.187
                                                    Sum (F) =    0.187
Area averaged mean soil loss (F) (In/Hr) =  0.187
Minimum soil loss rate ((In/Hr)) =  0.094
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.300
--------------------------------------------------------------------------------

                U n i t   H y d r o g r a p h
                     FOOTHILL S-Curve
--------------------------------------------------------------------------------
                     Unit Hydrograph Data
--------------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution    Unit Hydrograph
    (hrs)                          Graph %           (CFS)
--------------------------------------------------------------------------------
     1   0.250        154.750          31.833             5.486
     2   0.500        309.500          53.965             9.300
     3   0.750        464.249          11.299             1.947
     4   1.000        618.999           2.163             0.373
     5   1.250        773.749           0.741             0.128
                           Sum = 100.000    Sum=       17.234
--------------------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)  Percent   (In/Hr)          Max    |   Low         (In/Hr)
  1   0.25     3.70      0.281       ( 0.187)       0.084        0.197
  2   0.50     4.80      0.365       ( 0.187)       0.109        0.255
  3   0.75     5.10      0.388       ( 0.187)       0.116        0.271
  4   1.00     4.90      0.372       ( 0.187)       0.112        0.261
  5   1.25     6.60      0.502       ( 0.187)       0.150        0.351
  6   1.50     7.30      0.555       ( 0.187)       0.166        0.388
  7   1.75     8.40      0.638          0.187    ( 0.192)        0.451
  8   2.00     9.00      0.684          0.187    ( 0.205)        0.497
  9   2.25    12.30      0.935          0.187    ( 0.280)        0.748
 10   2.50    17.60      1.337          0.187    ( 0.401)        1.150
 11   2.75    16.10      1.224          0.187    ( 0.367)        1.037
 12   3.00     4.20      0.319       ( 0.187)       0.096        0.223
            (Loss Rate Not Used)
    Sum =    100.0                                 Sum =      5.8
      Flood volume = Effective rainfall      1.46(In)
       times area      17.1(Ac.)/[(In)/(Ft.)] =       2.1(Ac.Ft)
      Total soil loss =      0.44(In)
      Total soil loss =     0.630(Ac.Ft)
      Total rainfall =      1.90(In)
      Flood volume =       90471.6 Cubic Feet
      Total soil loss =       27458.3 Cubic Feet
      --------------------------------------------------------------------------
       Peak flow rate of this hydrograph =     18.094(CFS)
      --------------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R    S T O R M
                    R u n o f f     H y d r o g r a p h
      --------------------------------------------------------------------------
                  Hydrograph in  15   Minute intervals ((CFS))

      --------------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0       10.0      15.0      20.0
--------------------------------------------------------------------------------
  0+15       0.0223       1.08  V Q        |         |         |         |
  0+30       0.0891       3.23   V    Q    |         |         |         |
  0+45       0.1769       4.25   |  V    Q  |         |         |         |
  1+ 0       0.2704       4.53   |    V   Q|         |         |         |
  1+15       0.3737       5.00   |      V  Q         |         |         |
  1+30       0.4985       6.04   |        V| Q       |         |         |
```


1+45 0.6412 6.91
2+ 0 0.8034 7.85
2+15 1.0058 9.80
2+30 1.3045 14.46
2+45 1.6784 18.09
3+ 0 1.9564 13.45
3+15 2.0519 4.62
3+30 2.0719 0.97
3+45 2.0764 0.22
4+ 0 2.0769 0.03

```
                FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                    Study date: 09/18/13

------------------------------------------------------------------------


Line E, Routed
Proposed Condition
100yr, 24hr

------------------------------------------------------------------------


Program License Serial Number 6097

------------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

            From study/file name: OffsiteE124100.rte
****************************HYDROGRAPH DATA****************************
            Number of intervals =   108
            Time interval =   15.0 (Min.)
            Maximum/Peak flow rate =      575.561 (CFS)
            Total volume =     202.681 (Ac.Ft)
      Status of hydrographs being held in storage
              Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)      0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
***********************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       71.000 to Point/Station       72.000
**** STREAM ROUTING SCS CONVEX METHOD ****
------------------------------------------------------------------------
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   1070.00 (Ft.)
Elevation difference =   51.00 (Ft.)
Slope of channel =  0.047664 (Vert/Horiz)
Channel type - Improved Channel


Channel length =  1070.00(Ft.)     Elevation difference =  51.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width  =   20.000(Ft.)
Slope or 'Z' of left channel bank =   2.000
Slope or 'Z' of right channel bank =   2.000
Manning's 'N'    = 0.030
Maximum depth of channel  =   10.000(Ft.)
Flow(q) thru subarea =    139.636(CFS)
Depth of flow =     0.761(Ft.)
Average velocity =     8.525(Ft/s)
Total flow rate =   139.636(CFS)
Channel flow top width =   23.044(Ft.)
Depth of flow in channel =   0.76(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =    8.52(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  139.636(CFS)
Total capacity of improved channels =    139.636(CFS)
Critical Depth in Channel =    1.11(Ft.)


Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea =    575.561(CFS)
Depth of flow =     1.747(Ft.)
Average velocity =    14.019(Ft/s)
Total flow rate =   575.561(CFS)
```



```
Channel flow top width =   26.990(Ft.)
Depth of flow in channel =   1.75(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity =   14.02(Ft/s)
Travel time  =    0.00 min.
Individual channel flow =  575.561(CFS)
Total capacity of improved channels =    575.561(CFS)
Critical Depth in Channel =    2.69(Ft.)


********************** SCS CONVEX CHANNEL ROUTING ********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.8919   Travel time =   1.27 (min.)
        dt*(unit time interval) =  15.00(min.),  e=   9.1478
        dt(routing time-step) =   1.13 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                  P R I N T  O F  S T O R M
                  R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------
             Hydrograph in  15   Minute intervals (CFS)

------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0      143.9     287.8     431.7     575.6
------------------------------------------------------------------------
  0+15       0.2756      0.30  0|        |         |         |         |
  0+30       1.9168      2.05  0|        |         |         |         |
  0+45       4.7825      5.01  0|        |         |         |         |
  1+ 0       6.8696      7.02  0|        |         |         |         |
  1+15       8.4113      8.52  0|        |         |         |         |
  1+30       9.2583      9.32  0|        |         |         |         |
  1+45       8.9806      8.95  0|        |         |         |         |
  2+ 0       9.0983      9.11  0|        |         |         |         |
  2+15       9.8484      9.91  0|        |         |         |         |
  2+30      10.8944     10.98  0|        |         |         |         |
  2+45      11.4715     11.51  0|        |         |         |         |
  3+ 0      12.4673     12.55  0|        |         |         |         |
  3+15      13.6856     13.78  0|        |         |         |         |
  3+30      14.2267     14.26  0|        |         |         |         |
  3+45      14.5116     14.53  |0       |         |         |         |
  4+ 0      14.8166     14.84  |0       |         |         |         |
  4+15      15.6690     15.74  |0       |         |         |         |
  4+30      16.9223     17.02  |0       |         |         |         |
  4+45      18.1499     18.24  |0       |         |         |         |
  5+ 0      19.6037     19.72  |0       |         |         |         |
  5+15      20.6888     20.77  |0       |         |         |         |
  5+30      20.7210     20.72  |0       |         |         |         |
  5+45      20.1448     20.10  |0       |         |         |         |
  6+ 0      21.4144     21.52  |0       |         |         |         |
  6+15      22.7849     22.89  |0       |         |         |         |
  6+30      24.0467     24.14  |0       |         |         |         |
  6+45      25.5195     25.63  |0       |         |         |         |
  7+ 0      26.9027     27.01  |0       |         |         |         |
  7+15      28.3198     28.43  |0       |         |         |         |
  7+30      29.1113     29.17  | 0      |         |         |         |
  7+45      30.3526     30.45  | 0      |         |         |         |
  8+ 0      32.5093     32.68  | 0      |         |         |         |
  8+15      35.1637     35.37  | 0      |         |         |         |
  8+30      38.4844     38.74  | 0      |         |         |         |
  8+45      41.6114     41.85  | 0      |         |         |         |
  9+ 0      44.1133     44.30  |  0     |         |         |         |
  9+15      50.9313     51.47  |  0     |         |         |         |
  9+30      72.8673     74.62  |    0   |         |         |         |
  9+45     108.7062    111.50  |      0 |         |         |         |
 10+ 0     143.0730    145.66  |        0I        |         |         |
 10+15     167.7000    169.50  |         |0       |         |         |
```

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10+30 | 145.8407 | 143.90 | \| | 0 | \| | \| | \| | \| |
| 10+45 | 99.2566 | 95.60 | \| | 0 | \| | \| | \| | \| |
| 11+ 0 | 115.0222 | 116.61 | \| | 0I | \| | \| | \| | \| |
| 11+15 | 155.3946 | 158.57 | \| | 0I | \| | \| | \| | \| |
| 11+30 | 166.1709 | 166.79 | \| | \|0 | \| | \| | \| | \| |
| 11+45 | 164.7787 | 164.61 | \| | \|0 | \| | \| | \| | \| |
| 12+ 0 | 156.9223 | 156.29 | \| | 0 | \| | \| | \| | \| |
| 12+15 | 159.5662 | 159.83 | \| | \|0 | \| | \| | \| | \| |
| 12+30 | 220.9635 | 225.97 | \| | \| | 0 | \| | \| | \| |
| 12+45 | 309.9514 | 316.82 | \| | \| | \| | 0I | \| | \| |
| 13+ 0 | 372.8097 | 377.39 | \| | \| | \| | \| | 0I | \| |
| 13+15 | 434.9324 | 439.64 | \| | \| | \| | \| | \| | 0 |
| 13+30 | 510.6529 | 516.46 | \| | \| | \| | \| | \| | \| |
| 13+45 | 571.0909 | 575.56 | \| | \| | \| | \| | \| | \| |
| 14+ 0 | 525.5470 | 521.45 | \| | \| | \| | \| | \| | \| |
| 14+15 | 437.2259 | 430.33 | \| | \| | \| | \| | I0 | \| |
| 14+30 | 432.5354 | 432.72 | \| | \| | \| | \| | 0 | \| |
| 14+45 | 452.3819 | 453.99 | \| | \| | \| | \| | \|0 | \| |
| 15+ 0 | 450.4061 | 450.11 | \| | \| | \| | \| | \|0 | \| |
| 15+15 | 443.4736 | 442.93 | \| | \| | \| | \| | 0 | \| |
| 15+30 | 428.4353 | 427.25 | \| | \| | \| | \| | 0\| | \| |
| 15+45 | 405.8701 | 404.12 | \| | \| | \| | \| | 0 | \| |
| 16+ 0 | 363.1036 | 359.75 | \| | \| | \| | 0 | \| | \| |
| 16+15 | 304.3178 | 299.78 | \| | \| | \| | I0 | \| | \| |
| 16+30 | 219.2740 | 212.69 | \| | \| | I0 | \| | \| | \| |
| 16+45 | 116.6089 | 108.75 | \| | I0 | \| | \| | \| | \| |
| 17+ 0 | 70.7578 | 67.65 | \| | 0 | \| | \| | \| | \| |
| 17+15 | 45.3220 | 43.50 | \| | 0 | \| | \| | \| | \| |
| 17+30 | 31.2925 | 30.29 | \| | 0 | \| | \| | \| | \| |
| 17+45 | 24.2496 | 23.76 | \|0 | \| | \| | \| | \| | \| |
| 18+ 0 | 20.0857 | 19.79 | \|0 | \| | \| | \| | \| | \| |
| 18+15 | 17.3661 | 17.17 | \|0 | \| | \| | \| | \| | \| |
| 18+30 | 15.0226 | 14.85 | \|0 | \| | \| | \| | \| | \| |
| 18+45 | 13.3997 | 13.28 | 0 | \| | \| | \| | \| | \| |
| 19+ 0 | 11.5875 | 11.45 | 0 | \| | \| | \| | \| | \| |
| 19+15 | 9.3934 | 9.23 | 0 | \| | \| | \| | \| | \| |
| 19+30 | 8.6785 | 8.63 | 0 | \| | \| | \| | \| | \| |
| 19+45 | 9.6347 | 9.72 | 0 | \| | \| | \| | \| | \| |
| 20+ 0 | 9.8534 | 9.86 | 0 | \| | \| | \| | \| | \| |
| 20+15 | 8.6233 | 8.52 | 0 | \| | \| | \| | \| | \| |
| 20+30 | 8.1135 | 8.08 | 0 | \| | \| | \| | \| | \| |
| 20+45 | 8.6488 | 8.70 | 0 | \| | \| | \| | \| | \| |
| 21+ 0 | 8.6651 | 8.66 | 0 | \| | \| | \| | \| | \| |
| 21+15 | 8.0920 | 8.05 | 0 | \| | \| | \| | \| | \| |
| 21+30 | 7.6750 | 7.64 | 0 | \| | \| | \| | \| | \| |
| 21+45 | 7.7075 | 7.71 | 0 | \| | \| | \| | \| | \| |
| 22+ 0 | 7.4981 | 7.48 | 0 | \| | \| | \| | \| | \| |
| 22+15 | 7.5936 | 7.60 | 0 | \| | \| | \| | \| | \| |
| 22+30 | 7.4130 | 7.40 | 0 | \| | \| | \| | \| | \| |
| 22+45 | 7.4056 | 7.41 | 0 | \| | \| | \| | \| | \| |
| 23+ 0 | 6.6431 | 6.58 | 0 | \| | \| | \| | \| | \| |
| 23+15 | 6.3431 | 6.32 | 0 | \| | \| | \| | \| | \| |
| 23+30 | 6.1896 | 6.18 | 0 | \| | \| | \| | \| | \| |
| 23+45 | 6.0939 | 6.09 | 0 | \| | \| | \| | \| | \| |
| 24+ 0 | 6.0345 | 6.03 | 0 | \| | \| | \| | \| | \| |
| 24+15 | 5.7267 | 5.70 | 0 | \| | \| | \| | \| | \| |
| 24+30 | 4.2085 | 4.09 | 0 | \| | \| | \| | \| | \| |
| 24+45 | 2.0884 | 1.92 | 0 | \| | \| | \| | \| | \| |
| 25+ 0 | 1.1885 | 1.13 | 0 | \| | \| | \| | \| | \| |
| 25+15 | 0.7026 | 0.67 | 0 | \| | \| | \| | \| | \| |
| 25+30 | 0.3973 | 0.38 | 0 | \| | \| | \| | \| | \| |
| 25+45 | 0.2143 | 0.20 | 0 | \| | \| | \| | \| | \| |
| 26+ 0 | 0.1203 | 0.11 | 0 | \| | \| | \| | \| | \| |
| 26+15 | 0.0786 | 0.08 | 0 | \| | \| | \| | \| | \| |
| 26+30 | 0.0513 | 0.05 | 0 | \| | \| | \| | \| | \| |
| 26+45 | 0.0275 | 0.03 | 0 | \| | \| | \| | \| | \| |
| 27+ 0 | 0.0100 | 0.01 | 0 | \| | \| | \| | \| | \| |
| 27+15 | 0.0000 | 0.00 | 0 | \| | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 109
Time interval = 15.0 (Min.)



Maximum/Peak flow rate = 571.091 (CFS)
Total volume = 202.681 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 71.000 to Point/Station 72.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****

Current stream hydrograph of 15.0 minute
intervals has been stored as stream number 1 with
a starting time of 0.00 hours and ending time of 100.00 hours
With a total volume of 202.68(Ac.Ft)

**********HYDROGRAPH DATA**********

Number of intervals = 0
Time interval = 0.0 (Min.)
Maximum/Peak flow rate = 0.000 (CFS)
Total volume = 0.000 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 571.091 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 202.681 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 0.000 to Point/Station 0.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: OffsiteE224100.rte

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 68.9 | 137.9 | 206.8 | 275.7 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.1628 | 0.16 | Q | \| | \| | \| | \| |
| 0+30 | 1.1729 | 1.17 | Q | \| | \| | \| | \| |
| 0+45 | 2.5848 | 2.58 | Q | \| | \| | \| | \| |
| 1+ 0 | 3.4853 | 3.49 | Q | \| | \| | \| | \| |
| 1+15 | 4.2397 | 4.24 | Q | \| | \| | \| | \| |
| 1+30 | 4.4673 | 4.47 | Q | \| | \| | \| | \| |
| 1+45 | 4.2890 | 4.29 | Q | \| | \| | \| | \| |
| 2+ 0 | 4.3533 | 4.35 | Q | \| | \| | \| | \| |
| 2+15 | 4.8049 | 4.80 | Q | \| | \| | \| | \| |
| 2+30 | 5.2708 | 5.27 | Q | \| | \| | \| | \| |
| 2+45 | 5.5203 | 5.52 | Q | \| | \| | \| | \| |
| 3+ 0 | 6.0879 | 6.09 | Q | \| | \| | \| | \| |
| 3+15 | 6.6215 | 6.62 | Q | \| | \| | \| | \| |
| 3+30 | 6.8243 | 6.82 | Q | \| | \| | \| | \| |
| 3+45 | 6.9334 | 6.93 | \|Q | \| | \| | \| | \| |
| 4+ 0 | 7.0798 | 7.08 | \|Q | \| | \| | \| | \| |
| 4+15 | 7.5820 | 7.58 | \|Q | \| | \| | \| | \| |
| 4+30 | 8.1538 | 8.15 | \|Q | \| | \| | \| | \| |
| 4+45 | 8.8003 | 8.80 | \|Q | \| | \| | \| | \| |
| 5+ 0 | 9.4611 | 9.46 | \|Q | \| | \| | \| | \| |
| 5+15 | 9.9990 | 10.00 | \|Q | \| | \| | \| | \| |
| 5+30 | 9.7587 | 9.76 | \|Q | \| | \| | \| | \| |
| 5+45 | 9.6010 | 9.60 | \|Q | \| | \| | \| | \| |

| | | | |
|---|---|---|---|
| 6+ 0 | 10.3327 | 10.33 | Q |
| 6+15 | 10.9392 | 10.94 | Q |
| 6+30 | 11.6007 | 11.60 | Q |
| 6+45 | 12.2714 | 12.27 | Q |
| 7+ 0 | 12.9873 | 12.99 | Q |
| 7+15 | 13.5973 | 13.60 | Q |
| 7+30 | 13.9228 | 13.92 | Q |
| 7+45 | 14.6064 | 14.61 | Q |
| 8+ 0 | 15.7040 | 15.70 | Q |
| 8+15 | 17.0234 | 17.02 | Q |
| 8+30 | 18.7181 | 18.72 | Q |
| 8+45 | 20.0906 | 20.09 | Q |
| 9+ 0 | 21.1802 | 21.18 | Q |
| 9+15 | 24.2129 | 24.21 | Q |
| 9+30 | 36.2164 | 36.22 | Q |
| 9+45 | 53.6100 | 53.61 | Q |
| 10+ 0 | 69.9752 | 69.98 | Q |
| 10+15 | 80.8304 | 80.83 | Q |
| 10+30 | 63.2151 | 63.22 | Q |
| 10+45 | 43.1599 | 43.16 | Q |
| 11+ 0 | 57.1170 | 57.12 | Q |
| 11+15 | 74.8872 | 74.89 | Q |
| 11+30 | 77.5129 | 77.51 | Q |
| 11+45 | 76.6535 | 76.65 | Q |
| 12+ 0 | 71.3041 | 71.30 | Q |
| 12+15 | 74.9975 | 75.00 | Q |
| 12+30 | 111.9695 | 111.97 | Q |
| 12+45 | 153.6109 | 153.61 | Q |
| 13+ 0 | 183.0431 | 183.04 | Q |
| 13+15 | 212.6569 | 212.66 | Q |
| 13+30 | 251.9398 | 251.94 | Q |
| 13+45 | 275.7224 | 275.72 | Q |
| 14+ 0 | 239.1216 | 239.12 | Q |
| 14+15 | 199.6150 | 199.61 | Q |
| 14+30 | 204.9154 | 204.92 | Q |
| 14+45 | 212.9999 | 213.00 | Q |
| 15+ 0 | 211.2396 | 211.24 | Q |
| 15+15 | 207.4840 | 207.48 | Q |
| 15+30 | 200.0768 | 200.08 | Q |
| 15+45 | 188.1214 | 188.12 | Q |
| 16+ 0 | 163.9786 | 163.98 | Q |
| 16+15 | 136.5762 | 136.58 | Q |
| 16+30 | 89.4509 | 89.45 | Q |
| 16+45 | 44.6561 | 44.66 | Q |
| 17+ 0 | 26.9557 | 26.96 | Q |
| 17+15 | 16.8010 | 16.80 | Q |
| 17+30 | 11.9246 | 11.92 | Q |
| 17+45 | 9.6838 | 9.68 | Q |
| 18+ 0 | 8.5756 | 8.58 | Q |
| 18+15 | 7.4506 | 7.45 | Q |
| 18+30 | 6.4969 | 6.50 | Q |
| 18+45 | 5.9189 | 5.92 | Q |
| 19+ 0 | 5.1224 | 5.12 | Q |
| 19+15 | 4.2170 | 4.22 | Q |
| 19+30 | 4.0948 | 4.09 | Q |
| 19+45 | 4.6762 | 4.68 | Q |
| 20+ 0 | 4.6144 | 4.61 | Q |
| 20+15 | 3.9326 | 3.93 | Q |
| 20+30 | 3.8610 | 3.86 | Q |
| 20+45 | 4.1321 | 4.13 | Q |
| 21+ 0 | 4.0947 | 4.09 | Q |
| 21+15 | 3.7294 | 3.73 | Q |
| 21+30 | 3.6611 | 3.66 | Q |
| 21+45 | 3.6000 | 3.60 | Q |
| 22+ 0 | 3.5872 | 3.59 | Q |
| 22+15 | 3.5446 | 3.54 | Q |
| 22+30 | 3.5541 | 3.55 | Q |
| 22+45 | 3.4531 | 3.45 | Q |
| 23+ 0 | 3.0866 | 3.09 | Q |
| 23+15 | 2.9753 | 2.98 | Q |
| 23+30 | 2.9095 | 2.91 | Q |
| 23+45 | 2.8738 | 2.87 | Q |



| | | | |
|---|---|---|---|
| 24+ 0 | 2.8502 | 2.85 | Q |
| 24+15 | 2.6792 | 2.68 | Q |
| 24+30 | 1.7465 | 1.75 | Q |
| 24+45 | 0.7954 | 0.80 | Q |
| 25+ 0 | 0.4477 | 0.45 | Q |
| 25+15 | 0.2468 | 0.25 | Q |
| 25+30 | 0.1281 | 0.13 | Q |
| 25+45 | 0.0646 | 0.06 | Q |
| 26+ 0 | 0.0402 | 0.04 | Q |
| 26+15 | 0.0251 | 0.03 | Q |
| 26+30 | 0.0129 | 0.01 | Q |
| 26+45 | 0.0040 | 0.00 | Q |

**********HYDROGRAPH DATA**********

Number of intervals = 107
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 275.722 (CFS)
Total volume = 95.034 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 571.091 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 202.681 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 0.000 to Point/Station 1.000
**** STREAM ROUTING SCS CONVEX METHOD ****

HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 1200.00 (Ft.)
Elevation difference = 24.00 (Ft.)
Slope of channel = 0.020000 (Vert/Horiz)
Channel type - Improved Channel

Channel length = 1200.00(Ft.) Elevation difference = 24.00(Ft.)
Channel evaluation using mean flow rate of hydrograph
Channel base width = 12.000(Ft.)
Slope or 'Z' of left channel bank = 1.000
Slope or 'Z' of right channel bank = 1.000
Manning's 'N' = 0.015
Maximum depth of channel = 6.000(Ft.)
Flow(q) thru subarea = 64.850(CFS)
Depth of flow = 0.567(Ft.)
Average velocity = 9.103(Ft/s)
Total flow rate = 64.850(CFS)
Channel flow top width = 13.134(Ft.)
Depth of flow in channel = 0.57(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 9.10(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 64.850(CFS)
Total capacity of improved channels = 64.850(CFS)
Critical Depth in Channel = 0.94(Ft.)

Channel evaluation using maximum flow rate of hydrograph
Flow(q) thru subarea = 275.722(CFS)
Depth of flow = 1.351(Ft.)
Average velocity = 15.288(Ft/s)
Total flow rate = 275.722(CFS)
Channel flow top width = 14.702(Ft.)
Depth of flow in channel = 1.35(Ft.)
Total number of channels (same dimensions) = 1
Flow Velocity = 15.29(Ft/s)
Travel time = 0.00 min.
Individual channel flow = 275.722(CFS)
Total capacity of improved channels = 275.722(CFS)
Critical Depth in Channel = 2.38(Ft.)

********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.8999 Travel time = 1.31 (min.)
dt*(unit time interval) = 15.00(min.), e= 8.8276
dt(routing time-step) = 1.18 (min.), c* = 1.0000

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 68.9 | 137.9 | 206.8 | 275.7 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.1501 | 0.16 | 0 | | | | |
| 0+30 | 1.0937 | 1.17 | 0 | | | | |
| 0+45 | 2.4740 | 2.58 | 0 | | | | |
| 1+ 0 | 3.4146 | 3.49 | 0 | | | | |
| 1+15 | 4.1805 | 4.24 | 0 | | | | |
| 1+30 | 4.4495 | 4.47 | 0 | | | | |
| 1+45 | 4.3030 | 4.29 | 0 | | | | |
| 2+ 0 | 4.3483 | 4.35 | 0 | | | | |
| 2+15 | 4.7695 | 4.80 | 0 | | | | |
| 2+30 | 5.2342 | 5.27 | 0 | | | | |
| 2+45 | 5.5007 | 5.52 | 0 | | | | |
| 3+ 0 | 6.0434 | 6.09 | 0 | | | | |
| 3+15 | 6.5797 | 6.62 | 0 | | | | |
| 3+30 | 6.8084 | 6.82 | 0 | | | | |
| 3+45 | 6.9249 | 6.93 | I0 | | | | |
| 4+ 0 | 7.0683 | 7.08 | I0 | | | | |
| 4+15 | 7.5426 | 7.58 | I0 | | | | |
| 4+30 | 8.1089 | 8.15 | I0 | | | | |
| 4+45 | 8.7496 | 8.80 | I0 | | | | |
| 5+ 0 | 9.4092 | 9.46 | I0 | | | | |
| 5+15 | 9.9568 | 10.00 | I0 | | | | |
| 5+30 | 9.7776 | 9.76 | I0 | | | | |
| 5+45 | 9.6134 | 9.60 | I0 | | | | |
| 6+ 0 | 10.2753 | 10.33 | I0 | | | | |
| 6+15 | 10.8916 | 10.94 | I0 | | | | |
| 6+30 | 11.5488 | 11.60 | I0 | | | | |
| 6+45 | 12.2188 | 12.27 | I0 | | | | |
| 7+ 0 | 12.9311 | 12.99 | I0 | | | | |
| 7+15 | 13.5494 | 13.60 | I0 | | | | |
| 7+30 | 13.8972 | 13.92 | I 0 | | | | |
| 7+45 | 14.5527 | 14.61 | I 0 | | | | |
| 8+ 0 | 15.6179 | 15.70 | I 0 | | | | |
| 8+15 | 16.9199 | 17.02 | I 0 | | | | |
| 8+30 | 18.5851 | 18.72 | I 0 | | | | |
| 8+45 | 19.9829 | 20.09 | I 0 | | | | |
| 9+ 0 | 21.0947 | 21.18 | I 0 | | | | |
| 9+15 | 23.9749 | 24.21 | I 0 | | | | |
| 9+30 | 35.2743 | 36.22 | I 0 | | | | |
| 9+45 | 52.2449 | 53.61 | I 0 | | | | |
| 10+ 0 | 68.6908 | 69.98 | I 0I | | | | |
| 10+15 | 79.9785 | 80.83 | I 0 | | | | |
| 10+30 | 64.5976 | 63.22 | I 0 | | | | |
| 10+45 | 44.7339 | 43.16 | I 0 | | | | |
| 11+ 0 | 56.0215 | 57.12 | I 0 | | | | |
| 11+15 | 73.4925 | 74.89 | I 0 | | | | |
| 11+30 | 77.3068 | 77.51 | I 0 | | | | |
| 11+45 | 76.7210 | 76.65 | I 0 | | | | |
| 12+ 0 | 71.7240 | 71.30 | I 0 | | | | |
| 12+15 | 74.7076 | 75.00 | I 0 | | | | |
| 12+30 | 109.0678 | 111.97 | I 0I | | | | |
| 12+45 | 150.3427 | 153.61 | I 0I | | | | |
| 13+ 0 | 180.7331 | 183.04 | I 0 | | | | |
| 13+15 | 210.3327 | 212.66 | I 0 | | | | |
| 13+30 | 248.8567 | 251.94 | I 0 | | | | |
| 13+45 | 273.8558 | 275.72 | I 0I | | | | |
| 14+ 0 | 241.9942 | 239.12 | I 0I | | | | |
| 14+15 | 202.7157 | 199.61 | I 0I | | | | |
| 14+30 | 204.4994 | 204.92 | I 0 | | | | |
| 14+45 | 212.3654 | 213.00 | I 0 | | | | |
| 15+ 0 | 211.3778 | 211.24 | I 0 | | | | |
| 15+15 | 207.7787 | 207.48 | I 0 | | | | |
| 15+30 | 200.6581 | 200.08 | I 0 | | | | |
| 15+45 | 189.0597 | 188.12 | I 0 | | | | |
| 16+ 0 | 165.8734 | 163.98 | I 0 | | | | |
| 16+15 | 138.7269 | 136.58 | I 0 | | | | |
| 16+30 | 93.1495 | 89.45 | I 0 | | | | |
| 16+45 | 48.1718 | 44.66 | I 0 | | | | |
| 17+ 0 | 28.3449 | 26.96 | I 0 | | | | |
| 17+15 | 17.5980 | 16.80 | I 0 | | | | |
| 17+30 | 12.3073 | 11.92 | I 0 | | | | |
| 17+45 | 9.8597 | 9.68 | I 0 | | | | |
| 18+ 0 | 8.6626 | 8.58 | I 0 | | | | |
| 18+15 | 7.5389 | 7.45 | I 0 | | | | |
| 18+30 | 6.5717 | 6.50 | I 0 | | | | |
| 18+45 | 5.9642 | 5.92 | I 0 | | | | |
| 19+ 0 | 5.1849 | 5.12 | I 0 | | | | |
| 19+15 | 4.2881 | 4.22 | I 0 | | | | |
| 19+30 | 4.1044 | 4.09 | I 0 | | | | |
| 19+45 | 4.6306 | 4.68 | I 0 | | | | |
| 20+ 0 | 4.6193 | 4.61 | I 0 | | | | |
| 20+15 | 3.9862 | 3.93 | I 0 | | | | |
| 20+30 | 3.8666 | 3.86 | I 0 | | | | |
| 20+45 | 4.1108 | 4.13 | I 0 | | | | |
| 21+ 0 | 4.0977 | 4.09 | I 0 | | | | |
| 21+15 | 3.7580 | 3.73 | I 0 | | | | |
| 21+30 | 3.6665 | 3.66 | I 0 | | | | |
| 21+45 | 3.6048 | 3.60 | I 0 | | | | |
| 22+ 0 | 3.5882 | 3.59 | I 0 | | | | |
| 22+15 | 3.5480 | 3.54 | I 0 | | | | |
| 22+30 | 3.5533 | 3.55 | I 0 | | | | |
| 22+45 | 3.4611 | 3.45 | I 0 | | | | |
| 23+ 0 | 3.1154 | 3.09 | I 0 | | | | |
| 23+15 | 2.9840 | 2.98 | I 0 | | | | |
| 23+30 | 2.9147 | 2.91 | I 0 | | | | |
| 23+45 | 2.8766 | 2.87 | I 0 | | | | |
| 24+ 0 | 2.8520 | 2.85 | I 0 | | | | |
| 24+15 | 2.6926 | 2.68 | I 0 | | | | |
| 24+30 | 1.8197 | 1.75 | I 0 | | | | |
| 24+45 | 0.8700 | 0.80 | I 0 | | | | |
| 25+ 0 | 0.4750 | 0.45 | I 0 | | | | |
| 25+15 | 0.2625 | 0.25 | I 0 | | | | |
| 25+30 | 0.1374 | 0.13 | I 0 | | | | |
| 25+45 | 0.0695 | 0.06 | I 0 | | | | |
| 26+ 0 | 0.0422 | 0.04 | I 0 | | | | |
| 26+15 | 0.0263 | 0.03 | I 0 | | | | |
| 26+30 | 0.0139 | 0.01 | I 0 | | | | |
| 26+45 | 0.0047 | 0.00 | I 0 | | | | |
| 27+ 0 | 0.0000 | 0.00 | I 0 | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 108
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 273.856 (CFS)
Total volume = 95.034 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 571.091 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 202.681 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 1.000 to Point/Station 1.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

********** HYDROGRAPH INFORMATION **********

From study/file name: OffsiteE324100.rte

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 69.5 | 139.0 | 208.5 | 277.9 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0421 | 0.19 | Q | | | | |
| 0+30 | 0.0846 | 1.18 | Q | | | | |
| 0+45 | 0.0953 | 2.57 | Q | | | | |
| 1+ 0 | 0.1163 | 3.53 | Q | | | | |
| 1+15 | 0.1060 | 4.29 | Q | | | | |
| 1+30 | 0.0953 | 4.54 | Q | | | | |
| 1+45 | 0.0953 | 4.40 | Q | | | | |
| 2+ 0 | 0.1163 | 4.46 | Q | | | | |
| 2+15 | 0.1270 | 4.90 | Q | | | | |
| 2+30 | 0.1270 | 5.36 | Q | | | | |
| 2+45 | 0.1481 | 5.65 | Q | | | | |
| 3+ 0 | 0.1588 | 6.20 | Q | | | | |
| 3+15 | 0.1588 | 6.74 | Q | | | | |
| 3+30 | 0.1588 | 6.97 | qQ | | | | |
| 3+45 | 0.1588 | 7.08 | qQ | | | | |
| 4+ 0 | 0.1798 | 7.25 | qQ | | | | |
| 4+15 | 0.1906 | 7.73 | qQ | | | | |
| 4+30 | 0.2116 | 8.32 | qQ | | | | |
| 4+45 | 0.2223 | 8.97 | qQ | | | | |
| 5+ 0 | 0.2434 | 9.65 | qQ | | | | |
| 5+15 | 0.2120 | 10.17 | qQ | | | | |
| 5+30 | 0.2116 | 9.99 | qQ | | | | |
| 5+45 | 0.2434 | 9.86 | qQ | | | | |
| 6+ 0 | 0.2541 | 10.53 | qQ | | | | |
| 6+15 | 0.2751 | 11.17 | qQ | | | | |
| 6+30 | 0.2859 | 11.83 | qQ | | | | |
| 6+45 | 0.3069 | 12.53 | qQ | | | | |
| 7+ 0 | 0.3176 | 13.25 | qQ | | | | |
| 7+15 | 0.3176 | 13.87 | qQ | | | | |
| 7+30 | 0.3387 | 14.24 | q Q | | | | |
| 7+45 | 0.3704 | 14.92 | q Q | | | | |
| 8+ 0 | 0.4022 | 16.02 | q Q | | | | |
| 8+15 | 0.4550 | 17.37 | q Q | | | | |
| 8+30 | 0.4764 | 19.06 | q Q | | | | |
| 8+45 | 0.4975 | 20.48 | q Q | | | | |
| 9+ 0 | 0.5292 | 21.62 | q Q | | | | |
| 9+15 | 0.5820 | 24.56 | q Q | | | | |
| 9+30 | 0.6755 | 35.95 | q Q | | | | |
| 9+45 | 0.9760 | 53.22 | q Q | | | | |
| 10+ 0 | 1.3738 | 70.06 | q Q | | | | |
| 10+15 | 0.8246 | 80.80 | q Q | | | | |
| 10+30 | 0.4764 | 65.07 | q Q | | | | |
| 10+45 | 0.8946 | 45.63 | q Q | | | | |
| 11+ 0 | 1.1585 | 57.18 | q Q | | | | |
| 11+15 | 1.0243 | 74.52 | q Q | | | | |
| 11+30 | 0.9925 | 78.30 | q Q | | | | |
| 11+45 | 0.7013 | 77.42 | q Q | | | | |
| 12+ 0 | 0.7441 | 72.47 | q Q | | | | |
| 12+15 | 2.3691 | 77.08 | q Q | | | | |
| 12+30 | 3.4021 | 112.47 | q | Q | | | |
| 12+45 | 4.0014 | 154.34 | q | | Q | | |
| 13+ 0 | 4.4966 | 185.23 | q | | Q | | |
| 13+15 | 5.7255 | 216.06 | q | | | Q | |
| 13+30 | 6.3302 | 255.19 | q | | | Q | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13+45 | 4.0835 | 277.94 | q | | | | Q |
| 14+ 0 | 2.9712 | 244.97 | q | | | Q | |
| 14+15 | 3.8789 | 206.59 | q | | Q | | |
| 14+30 | 4.1624 | 208.66 | q | | Q | | |
| 14+45 | 4.1194 | 216.48 | q | | Q | | |
| 15+ 0 | 3.9723 | 215.35 | q | | Q | | |
| 15+15 | 3.7171 | 211.50 | q | | Q | | |
| 15+30 | 3.4608 | 204.12 | q | | Q | | |
| 15+45 | 2.5724 | 191.63 | q | | Q | | |
| 16+ 0 | 2.2031 | 168.08 | q | | Q | | |
| 16+15 | 0.8345 | 139.56 | q | Q | | | |
| 16+30 | 0.1270 | 93.28 | q | Q | | | |
| 16+45 | 0.1060 | 48.28 | q Q | | | | |
| 17+ 0 | 0.0953 | 28.44 | q Q | | | | |
| 17+15 | 0.1374 | 17.74 | q Q | | | | |
| 17+30 | 0.1588 | 12.47 | qQ | | | | |
| 17+45 | 0.1588 | 10.02 | qQ | | | | |
| 18+ 0 | 0.1378 | 8.80 | qQ | | | | |
| 18+15 | 0.1270 | 7.67 | qQ | | | | |
| 18+30 | 0.1270 | 6.70 | Q | | | | |
| 18+45 | 0.1060 | 6.07 | Q | | | | |
| 19+ 0 | 0.0742 | 5.26 | Q | | | | |
| 19+15 | 0.0846 | 4.37 | Q | | | | |
| 19+30 | 0.1163 | 4.22 | Q | | | | |
| 19+45 | 0.1060 | 4.74 | Q | | | | |
| 20+ 0 | 0.0742 | 4.69 | Q | | | | |
| 20+15 | 0.0846 | 4.07 | Q | | | | |
| 20+30 | 0.0953 | 3.96 | Q | | | | |
| 20+45 | 0.0953 | 4.21 | Q | | | | |
| 21+ 0 | 0.0742 | 4.17 | Q | | | | |
| 21+15 | 0.0846 | 3.84 | Q | | | | |
| 21+30 | 0.0742 | 3.74 | Q | | | | |
| 21+45 | 0.0846 | 3.69 | Q | | | | |
| 22+ 0 | 0.0742 | 3.66 | Q | | | | |
| 22+15 | 0.0846 | 3.63 | Q | | | | |
| 22+30 | 0.0742 | 3.63 | Q | | | | |
| 22+45 | 0.0635 | 3.52 | Q | | | | |
| 23+ 0 | 0.0635 | 3.18 | Q | | | | |
| 23+15 | 0.0635 | 3.05 | Q | | | | |
| 23+30 | 0.0635 | 2.98 | Q | | | | |
| 23+45 | 0.0635 | 2.94 | Q | | | | |
| 24+ 0 | 0.0635 | 2.92 | Q | | | | |
| 24+15 | 0.0214 | 2.71 | Q | | | | |
| 24+30 | 0.0000 | 1.82 | Q | | | | |
| 24+45 | 0.0000 | 0.87 | Q | | | | |
| 25+ 0 | 0.0000 | 0.47 | Q | | | | |
| 25+15 | 0.0000 | 0.26 | Q | | | | |
| 25+30 | 0.0000 | 0.14 | Q | | | | |
| 25+45 | 0.0000 | 0.07 | Q | | | | |
| 26+ 0 | 0.0000 | 0.04 | Q | | | | |
| 26+15 | 0.0000 | 0.03 | Q | | | | |
| 26+30 | 0.0000 | 0.01 | Q | | | | |
| 26+45 | 0.0000 | 0.00 | Q | | | | |
| 27+ 0 | 0.0000 | 0.00 | Q | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 108
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 277.939 (CFS)
Total volume = 96.770 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 571.091 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 202.681 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 1.000 to Point/Station 2.000
**** STREAM ROUTING SCS CONVEX METHOD ****

HYDROGRAPH STREAM ROUTING DATA:
Length of stream = 1500.00 (Ft.)
Elevation difference = 30.00 (Ft.)
Slope of channel = 0.020000 (Vert/Horiz)
Channel type - Pipe

Pipe length = 1500.00(Ft.) Elevation difference = 30.00(Ft.)
Manning's N = 0.013 No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow = 67.036(CFS)
Given pipe size = 96.00(In.)
Calculated individual pipe flow = 67.036(CFS)
Normal flow depth in pipe = 14.87(In.)
Flow top width inside pipe = 69.47(In.)
Critical Depth = 2.01(Ft.)
Pipe flow velocity = 13.53(Ft/s)
Travel time through pipe = 1.85 min.

Pipe length = 1500.00(Ft.) Elevation difference = 30.00(Ft.)
Manning's N = 0.013 No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow = 277.939(CFS)
Given pipe size = 96.00(In.)
Calculated individual pipe flow = 277.939(CFS)
Normal flow depth in pipe = 30.26(In.)
Flow top width inside pipe = 89.20(In.)
Critical Depth = 4.21(Ft.)
Pipe flow velocity = 20.46(Ft/s)
Travel time through pipe = 1.22 min.

********** SCS CONVEX CHANNEL ROUTING **********
Convex method of stream routing data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
where c* = 1 - (1-c)^e and dt = c(length)/velocity
c(v/v+1.7) = 0.9233 Travel time = 1.22 (min.)
dt*(unit time interval) = 15.00(min.), e= 9.1971
dt(routing time-step) = 1.13 (min.), c* = 1.0000

Output hydrograph delayed by 0 unit time increments

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h
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Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Out = O(CFS) | In = I | 0 | 69.5 | 139.0 | 208.5 | 277.9 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.1777 | 0.19 | 0 | | | | |
| 0+30 | 1.1041 | 1.18 | 0 | | | | |
| 0+45 | 2.4647 | 2.57 | 0 | | | | |
| 1+ 0 | 3.4586 | 3.53 | 0 | | | | |
| 1+15 | 4.2297 | 4.29 | 0 | | | | |
| 1+30 | 4.5253 | 4.54 | 0 | | | | |
| 1+45 | 4.4093 | 4.40 | 0 | | | | |
| 2+ 0 | 4.4596 | 4.46 | 0 | | | | |
| 2+15 | 4.8640 | 4.90 | 0 | | | | |
| 2+30 | 5.3263 | 5.36 | 0 | | | | |
| 2+45 | 5.6271 | 5.65 | 0 | | | | |
| 3+ 0 | 6.1606 | 6.20 | 0 | | | | |
| 3+15 | 6.6981 | 6.74 | 0 | | | | |
| 3+30 | 6.9500 | 6.97 | \|0 | | | | |
| 3+45 | 7.0749 | 7.08 | \|0 | | | | |
| 4+ 0 | 7.2358 | 7.25 | \|0 | | | | |
| 4+15 | 7.6966 | 7.73 | \|0 | | | | |



| | | | |
|---|---|---|---|
| 4+30 | 8.2764 | 8.32 | \|0 |
| 4+45 | 8.9229 | 8.97 | \|0 |
| 5+ 0 | 9.6014 | 9.65 | \|0 |
| 5+15 | 10.1299 | 10.17 | \|0 |
| 5+30 | 10.0027 | 9.99 | \|0 |
| 5+45 | 9.8667 | 9.86 | \|0 |
| 6+ 0 | 10.4788 | 10.53 | \|0 |
| 6+15 | 11.1188 | 11.17 | \|0 |
| 6+30 | 11.7844 | 11.83 | \|0 |
| 6+45 | 12.4737 | 12.53 | \|0 |
| 7+ 0 | 13.1943 | 13.25 | \|0 |
| 7+15 | 13.8205 | 13.87 | \|0 |
| 7+30 | 14.2081 | 14.24 | 0 |
| 7+45 | 14.8715 | 14.92 | 0 |
| 8+ 0 | 15.9376 | 16.02 | 0 |
| 8+15 | 17.2730 | 17.37 | 0 |
| 8+30 | 18.9347 | 19.06 | 0 |
| 8+45 | 20.3737 | 20.48 | 0 |
| 9+ 0 | 21.5379 | 21.62 | 0 |
| 9+15 | 24.3363 | 24.56 | 0 |
| 9+30 | 35.0929 | 35.95 | 0 |
| 9+45 | 51.9219 | 53.22 | 0 |
| 10+ 0 | 68.7977 | 70.06 | OI |
| 10+15 | 79.9954 | 80.80 | \|0 |
| 10+30 | 66.2571 | 65.07 | 0 |
| 10+45 | 47.0911 | 45.63 | 0 |
| 11+ 0 | 56.3113 | 57.18 | 0 |
| 11+15 | 73.2129 | 74.52 | 0 |
| 11+30 | 78.0149 | 78.30 | \|0 |
| 11+45 | 77.4882 | 77.42 | \|0 |
| 12+ 0 | 72.8407 | 72.47 | 0 |
| 12+15 | 76.7301 | 77.08 | \|0 |
| 12+30 | 109.8079 | 112.47 | OI |
| 12+45 | 151.1947 | 154.34 | OI |
| 13+ 0 | 182.9068 | 185.23 | 0 |
| 13+15 | 213.7395 | 216.06 | OI |
| 13+30 | 252.2439 | 255.19 | 0 |
| 13+45 | 276.2280 | 277.94 | OI |
| 14+ 0 | 247.4454 | 244.97 | 0 |
| 14+15 | 209.4805 | 206.59 | IO |
| 14+30 | 208.5063 | 208.66 | O |
| 14+45 | 215.8964 | 216.48 | \|O |
| 15+ 0 | 215.4354 | 215.35 | IO |
| 15+15 | 211.7857 | 211.50 | O |
| 15+30 | 204.6738 | 204.12 | O\| |
| 15+45 | 192.5713 | 191.63 | 0 |
| 16+ 0 | 169.8482 | 168.08 | 0 |
| 16+15 | 141.7061 | 139.56 | 0 |
| 16+30 | 96.7577 | 93.28 | 0 |
| 16+45 | 51.6623 | 48.28 | IO |
| 17+ 0 | 29.9322 | 28.44 | 0 |
| 17+15 | 18.5405 | 17.74 | 0 |
| 17+30 | 12.8624 | 12.47 | \|0 |
| 17+45 | 10.2026 | 10.02 | \|0 |
| 18+ 0 | 8.8920 | 8.80 | \|0 |
| 18+15 | 7.7513 | 7.67 | \|0 |
| 18+30 | 6.7715 | 6.70 | 0 |
| 18+45 | 6.1175 | 6.07 | 0 |
| 19+ 0 | 5.3201 | 5.26 | 0 |
| 19+15 | 4.4393 | 4.37 | 0 |
| 19+30 | 4.2321 | 4.22 | 0 |
| 19+45 | 4.6978 | 4.74 | 0 |
| 20+ 0 | 4.6968 | 4.69 | 0 |
| 20+15 | 4.1176 | 4.07 | 0 |
| 20+30 | 3.9701 | 3.96 | 0 |
| 20+45 | 4.1877 | 4.21 | 0 |
| 21+ 0 | 4.1745 | 4.17 | 0 |
| 21+15 | 3.8674 | 3.84 | 0 |
| 21+30 | 3.7484 | 3.74 | 0 |
| 21+45 | 3.6932 | 3.69 | 0 |
| 22+ 0 | 3.6645 | 3.66 | 0 |
| 22+15 | 3.6348 | 3.63 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 22+30 | 3.6279 | 3.63 | 0 | \| | \| | \| | \| |
| 22+45 | 3.5323 | 3.52 | 0 | \| | \| | \| | \| |
| 23+ 0 | 3.2049 | 3.18 | 0 | \| | \| | \| | \| |
| 23+15 | 3.0574 | 3.05 | 0 | \| | \| | \| | \| |
| 23+30 | 2.9834 | 2.98 | 0 | \| | \| | \| | \| |
| 23+45 | 2.9430 | 2.94 | 0 | \| | \| | \| | \| |
| 24+ 0 | 2.9174 | 2.92 | 0 | \| | \| | \| | \| |
| 24+15 | 2.7292 | 2.71 | 0 | \| | \| | \| | \| |
| 24+30 | 1.8870 | 1.82 | 0 | \| | \| | \| | \| |
| 24+45 | 0.9415 | 0.87 | 0 | \| | \| | \| | \| |
| 25+ 0 | 0.5047 | 0.47 | 0 | \| | \| | \| | \| |
| 25+15 | 0.2785 | 0.26 | 0 | \| | \| | \| | \| |
| 25+30 | 0.1468 | 0.14 | 0 | \| | \| | \| | \| |
| 25+45 | 0.0746 | 0.07 | 0 | \| | \| | \| | \| |
| 26+ 0 | 0.0442 | 0.04 | 0 | \| | \| | \| | \| |
| 26+15 | 0.0274 | 0.03 | 0 | \| | \| | \| | \| |
| 26+30 | 0.0148 | 0.01 | 0 | \| | \| | \| | \| |
| 26+45 | 0.0054 | 0.00 | 0 | \| | \| | \| | \| |
| 27+ 0 | 0.0004 | 0.00 | 0 | \| | \| | \| | \| |
| 27+15 | 0.0000 | 0.00 | 0 | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 109
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 276.228 (CFS)
Total volume = 96.770 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 571.091 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 202.681 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 2.000 to Point/Station 2.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: SubE124100.rte

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

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| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 77.4 | 154.8 | 232.2 | 309.6 |
|---|---|---|---|---|---|---|---|
| 0+15 | 1.6107 | 1.79 | Q | \| | \| | \| | \| |
| 0+30 | 2.8752 | 3.98 | Q | \| | \| | \| | \| |
| 0+45 | 3.1047 | 5.57 | Q | \| | \| | \| | \| |
| 1+ 0 | 3.9101 | 7.37 | Q | \| | \| | \| | \| |
| 1+15 | 3.3343 | 7.56 | Q | \| | \| | \| | \| |
| 1+30 | 3.1047 | 7.63 | Q | \| | \| | \| | \| |
| 1+45 | 3.1047 | 7.51 | Q | \| | \| | \| | \| |
| 2+ 0 | 3.9101 | 8.37 | qQ | \| | \| | \| | \| |
| 2+15 | 4.1396 | 9.00 | qQ | \| | \| | \| | \| |
| 2+30 | 4.1396 | 9.47 | qQ | \| | \| | \| | \| |
| 2+45 | 4.9450 | 10.57 | qQ | \| | \| | \| | \| |
| 3+ 0 | 5.1746 | 11.34 | qQ | \| | \| | \| | \| |
| 3+15 | 5.1746 | 11.87 | qQ | \| | \| | \| | \| |
| 3+30 | 5.1746 | 12.12 | qQ | \| | \| | \| | \| |
| 3+45 | 5.1746 | 12.25 | qQ | \| | \| | \| | \| |
| 4+ 0 | 5.9799 | 13.22 | qQ | \| | \| | \| | \| |
| 4+15 | 6.2095 | 13.91 | qQ | \| | \| | \| | \| |
| 4+30 | 7.0148 | 15.29 | qQ | \| | \| | \| | \| |
| 4+45 | 7.2444 | 16.17 | q Q | \| | \| | \| | \| |
| 5+ 0 | 8.0497 | 17.65 | \|qQ | \| | \| | \| | \| |
| 5+15 | 6.6686 | 16.80 | q Q | \| | \| | \| | \| |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5+30 | 7.0148 | 17.02 | q Q | \| | \| | \| | \| |
| 5+45 | 8.0497 | 17.92 | \|qQ | \| | \| | \| | \| |
| 6+ 0 | 8.2793 | 18.76 | \|qQ | \| | \| | \| | \| |
| 6+15 | 9.0846 | 20.20 | \|qQ | \| | \| | \| | \| |
| 6+30 | 9.3142 | 21.10 | \|qQ | \| | \| | \| | \| |
| 6+45 | 10.1196 | 22.59 | \|qQ | \| | \| | \| | \| |
| 7+ 0 | 10.3491 | 23.54 | \|q Q | \| | \| | \| | \| |
| 7+15 | 10.3491 | 24.17 | \|q Q | \| | \| | \| | \| |
| 7+30 | 11.1545 | 25.36 | \|q Q | \| | \| | \| | \| |
| 7+45 | 12.1894 | 27.06 | \|q Q | \| | \| | \| | \| |
| 8+ 0 | 13.2243 | 29.16 | \|q Q | \| | \| | \| | \| |
| 8+15 | 15.6865 | 32.96 | \| q Q | \| | \| | \| | \| |
| 8+30 | 16.3864 | 35.32 | \| q Q | \| | \| | \| | \| |
| 8+45 | 17.6180 | 37.99 | \| q Q | \| | \| | \| | \| |
| 9+ 0 | 19.1767 | 40.71 | \| q Q | \| | \| | \| | \| |
| 9+15 | 21.8853 | 46.22 | \| q Q | \| | \| | \| | \| |
| 9+30 | 23.7705 | 58.86 | \| q Q | \| | \| | \| | \| |
| 9+45 | 25.3271 | 77.25 | \| q Q | \| | \| | \| | \| |
| 10+ 0 | 26.8830 | 95.68 | \| q Q | \| | \| | \| | \| |
| 10+15 | 19.2340 | 99.23 | \| q Q | \| | \| | \| | \| |
| 10+30 | 17.0143 | 83.27 | \| q Q | \| | \| | \| | \| |
| 10+45 | 22.8420 | 69.93 | \| q Q | \| | \| | \| | \| |
| 11+ 0 | 24.5560 | 80.87 | \| q Q | \| | \| | \| | \| |
| 11+15 | 23.4791 | 96.69 | \| q Q | \| | \| | \| | \| |
| 11+30 | 23.2240 | 101.24 | \| q Q | \| | \| | \| | \| |
| 11+45 | 20.9950 | 98.48 | \| q Q | \| | \| | \| | \| |
| 12+ 0 | 21.5609 | 94.40 | \| q Q | \| | \| | \| | \| |
| 12+15 | 30.0128 | 106.74 | \| q Q | \| | \| | \| | \| |
| 12+30 | 33.5285 | 143.34 | \| q Q | \| | \| | \| | \| |
| 12+45 | 36.2263 | 187.42 | \| q Q | \| | \| | \| | \| |
| 13+ 0 | 38.1007 | 221.01 | \| q Q | \| | \| | \| | \| |
| 13+15 | 44.2483 | 257.99 | \| q Q | \| | \| | \| | \| |
| 13+30 | 45.9543 | 298.20 | \| q Q | \| | \| | \| | \| |
| 13+45 | 33.3642 | 309.59 | \| q Q | \| | \| | \| | \| |
| 14+ 0 | 29.8215 | 277.27 | \| q Q | \| | \| | \| | \| |
| 14+15 | 34.4873 | 243.97 | \| q Q | \| | \| | \| | \| |
| 14+30 | 34.7114 | 243.22 | \| q Q | \| | \| | \| | \| |
| 14+45 | 34.4455 | 250.34 | \| q Q | \| | \| | \| | \| |
| 15+ 0 | 33.3561 | 248.79 | \| q Q | \| | \| | \| | \| |
| 15+15 | 31.9378 | 243.72 | \| q Q | \| | \| | \| | \| |
| 15+30 | 30.5186 | 235.19 | \| q Q | \| | \| | \| | \| |
| 15+45 | 25.6470 | 218.22 | \| q Q | \| | \| | \| | \| |
| 16+ 0 | 24.3926 | 194.24 | \| q Q | \| | \| | \| | \| |
| 16+15 | 8.6348 | 150.34 | \|q Q | \| | \| | \| | \| |
| 16+30 | 4.1396 | 100.90 | q Q | \| | \| | \| | \| |
| 16+45 | 3.3343 | 55.00 | q Q | \| | \| | \| | \| |
| 17+ 0 | 3.1047 | 33.04 | q Q | \| | \| | \| | \| |
| 17+15 | 4.7154 | 23.26 | q Q | \| | \| | \| | \| |
| 17+30 | 5.1746 | 18.04 | q Q | \| | \| | \| | \| |
| 17+45 | 5.1746 | 15.38 | qQ | \| | \| | \| | \| |
| 18+ 0 | 4.3692 | 13.26 | qQ | \| | \| | \| | \| |
| 18+15 | 4.1396 | 11.89 | qQ | \| | \| | \| | \| |
| 18+30 | 4.1396 | 10.91 | qQ | \| | \| | \| | \| |
| 18+45 | 3.3343 | 9.45 | qQ | \| | \| | \| | \| |
| 19+ 0 | 2.2994 | 7.62 | Q | \| | \| | \| | \| |
| 19+15 | 2.8752 | 7.31 | Q | \| | \| | \| | \| |
| 19+30 | 3.9101 | 8.14 | qQ | \| | \| | \| | \| |
| 19+45 | 3.3343 | 8.03 | qQ | \| | \| | \| | \| |
| 20+ 0 | 2.2994 | 7.00 | Q | \| | \| | \| | \| |
| 20+15 | 2.8752 | 6.99 | Q | \| | \| | \| | \| |
| 20+30 | 3.1047 | 7.07 | Q | \| | \| | \| | \| |
| 20+45 | 3.1047 | 7.29 | Q | \| | \| | \| | \| |
| 21+ 0 | 2.2994 | 6.47 | Q | \| | \| | \| | \| |
| 21+15 | 2.8752 | 6.74 | Q | \| | \| | \| | \| |
| 21+30 | 2.2994 | 6.05 | Q | \| | \| | \| | \| |
| 21+45 | 2.8752 | 6.57 | Q | \| | \| | \| | \| |
| 22+ 0 | 2.2994 | 5.96 | Q | \| | \| | \| | \| |
| 22+15 | 2.8752 | 6.51 | Q | \| | \| | \| | \| |
| 22+30 | 2.2994 | 5.93 | Q | \| | \| | \| | \| |
| 22+45 | 2.0698 | 5.60 | Q | \| | \| | \| | \| |
| 23+ 0 | 2.0698 | 5.27 | Q | \| | \| | \| | \| |
| 23+15 | 2.0698 | 5.13 | Q | \| | \| | \| | \| |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 23+30 | 2.0698 | 5.05 | Q | | | | |
| 23+45 | 2.0698 | 5.01 | Q | | | | |
| 24+ 0 | 2.0698 | 4.99 | Q | | | | |
| 24+15 | 0.4591 | 3.19 | Q | | | | |
| 24+30 | 0.0000 | 1.89 | Q | | | | |
| 24+45 | 0.0000 | 0.94 | Q | | | | |
| 25+ 0 | 0.0000 | 0.50 | Q | | | | |
| 25+15 | 0.0000 | 0.28 | Q | | | | |
| 25+30 | 0.0000 | 0.15 | Q | | | | |
| 25+45 | 0.0000 | 0.07 | Q | | | | |
| 26+ 0 | 0.0000 | 0.04 | Q | | | | |
| 26+15 | 0.0000 | 0.03 | Q | | | | |
| 26+30 | 0.0000 | 0.01 | Q | | | | |
| 26+45 | 0.0000 | 0.01 | Q | | | | |
| 27+ 0 | 0.0000 | 0.00 | Q | | | | |
| 27+15 | 0.0000 | 0.00 | Q | | | | |

**********HYDROGRAPH DATA**********

Number of intervals = 109
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 309.592 (CFS)
Total volume = 121.447 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 571.091 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 202.681 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 2.000 to Point/Station 2.000

**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 109
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

| Basin Depth (Ft.) | Storage (Ac.Ft) | Outflow (CFS) | (S-O*dt/2) (Ac.Ft) | (S+O*dt/2) (Ac.Ft) |
|---|---|---|---|---|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1.000 | 0.001 | 0.001 | 0.001 | 0.001 |
| 2.000 | 0.002 | 0.002 | 0.002 | 0.002 |
| 3.000 | 10.000 | 200.000 | 7.934 | 12.066 |
| 4.000 | 26.000 | 550.000 | 20.318 | 31.682 |

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

| Time (Hours) | Inflow (CFS) | Outflow (CFS) | Storage (Ac.Ft) | .0 | 77.4 | 154.80 | 232.19 | 309.59 | Depth (Ft.) |
|---|---|---|---|---|---|---|---|---|---|
| 0.250 | 1.79 | 0.27 | 0.016 | O | \| | \| | \| | \| | 2.00 |
| 0.500 | 3.98 | 1.17 | 0.060 | O | \| | \| | \| | \| | 2.01 |
| 0.750 | 5.57 | 2.40 | 0.122 | O | \| | \| | \| | \| | 2.01 |
| 1.000 | 7.37 | 3.80 | 0.192 | O | \| | \| | \| | \| | 2.02 |
| 1.250 | 7.56 | 5.05 | 0.255 | O | \| | \| | \| | \| | 2.03 |
| 1.500 | 7.63 | 5.92 | 0.298 | O | \| | \| | \| | \| | 2.03 |
| 1.750 | 7.51 | 6.49 | 0.326 | O | \| | \| | \| | \| | 2.03 |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2.000 | 8.37 | 6.99 | 0.351 | O | \| | \| | \| | \| | 2.03 |
| 2.250 | 9.00 | 7.57 | 0.380 | O | \| | \| | \| | \| | 2.04 |
| 2.500 | 9.47 | 8.14 | 0.409 | O | \| | \| | \| | \| | 2.04 |
| 2.750 | 10.57 | 8.78 | 0.441 | OI | \| | \| | \| | \| | 2.04 |
| 3.000 | 11.34 | 9.53 | 0.478 | OI | \| | \| | \| | \| | 2.05 |
| 3.250 | 11.87 | 10.24 | 0.514 | O\| | \| | \| | \| | \| | 2.05 |
| 3.500 | 12.12 | 10.84 | 0.544 | O | \| | \| | \| | \| | 2.05 |
| 3.750 | 12.25 | 11.30 | 0.567 | O | \| | \| | \| | \| | 2.06 |
| 4.000 | 13.22 | 11.79 | 0.591 | O | \| | \| | \| | \| | 2.06 |
| 4.250 | 13.91 | 12.40 | 0.622 | O | \| | \| | \| | \| | 2.06 |
| 4.500 | 15.29 | 13.15 | 0.659 | O | \| | \| | \| | \| | 2.07 |
| 4.750 | 16.17 | 14.03 | 0.703 | O | \| | \| | \| | \| | 2.07 |
| 5.000 | 17.65 | 15.02 | 0.753 | O | \| | \| | \| | \| | 2.08 |
| 5.250 | 16.80 | 15.77 | 0.790 | O | \| | \| | \| | \| | 2.08 |
| 5.500 | 17.02 | 16.16 | 0.810 | O | \| | \| | \| | \| | 2.08 |
| 5.750 | 17.92 | 16.61 | 0.832 | O | \| | \| | \| | \| | 2.08 |
| 6.000 | 18.76 | 17.20 | 0.862 | O | \| | \| | \| | \| | 2.09 |
| 6.250 | 20.20 | 17.98 | 0.901 | OI | \| | \| | \| | \| | 2.09 |
| 6.500 | 21.10 | 18.90 | 0.947 | OI | \| | \| | \| | \| | 2.09 |
| 6.750 | 22.59 | 19.91 | 0.997 | O | \| | \| | \| | \| | 2.10 |
| 7.000 | 23.54 | 20.99 | 1.051 | O | \| | \| | \| | \| | 2.10 |
| 7.250 | 24.17 | 21.97 | 1.100 | O | \| | \| | \| | \| | 2.11 |
| 7.500 | 25.36 | 22.93 | 1.148 | O | \| | \| | \| | \| | 2.11 |
| 7.750 | 27.06 | 24.05 | 1.204 | O | \| | \| | \| | \| | 2.12 |
| 8.000 | 29.16 | 25.44 | 1.274 | OI | \| | \| | \| | \| | 2.13 |
| 8.250 | 32.96 | 27.37 | 1.370 | OI | \| | \| | \| | \| | 2.14 |
| 8.500 | 35.32 | 29.69 | 1.486 | O | \| | \| | \| | \| | 2.15 |
| 8.750 | 37.99 | 32.07 | 1.605 | O | \| | \| | \| | \| | 2.16 |
| 9.000 | 40.71 | 34.57 | 1.730 | OI | \| | \| | \| | \| | 2.17 |
| 9.250 | 46.22 | 37.62 | 1.882 | OI | \| | \| | \| | \| | 2.19 |
| 9.500 | 58.86 | 42.73 | 2.138 | O I | \| | \| | \| | \| | 2.21 |
| 9.750 | 77.25 | 51.40 | 2.572 | O I | \| | \| | \| | \| | 2.26 |
| 10.000 | 95.68 | 63.41 | 3.172 | O \| I | \| | \| | \| | \| | 2.32 |
| 10.250 | 99.23 | 75.07 | 3.755 | O\| I | \| | \| | \| | \| | 2.38 |
| 10.500 | 83.27 | 80.61 | 4.032 | O | \| | \| | \| | \| | 2.40 |
| 10.750 | 69.93 | 79.24 | 3.963 | IO | \| | \| | \| | \| | 2.40 |
| 11.000 | 80.87 | 77.92 | 3.897 | O | \| | \| | \| | \| | 2.39 |
| 11.250 | 96.69 | 81.64 | 4.083 | OI | \| | \| | \| | \| | 2.41 |
| 11.500 | 101.24 | 87.58 | 4.380 | \|OI | \| | \| | \| | \| | 2.44 |
| 11.750 | 98.48 | 91.78 | 4.590 | \|OI | \| | \| | \| | \| | 2.46 |
| 12.000 | 94.40 | 93.38 | 4.670 | \|O | \| | \| | \| | \| | 2.47 |
| 12.250 | 106.74 | 95.84 | 4.793 | \|O I | \| | \| | \| | \| | 2.48 |
| 12.500 | 143.34 | 105.84 | 5.293 | \| O I | \| | \| | \| | \| | 2.53 |
| 12.750 | 187.42 | 126.24 | 6.312 | \| O \| I | \| | \| | \| | \| | 2.63 |
| 13.000 | 221.01 | 152.94 | 7.648 | \| O \| I | \| | \| | \| | \| | 2.76 |
| 13.250 | 257.99 | 182.59 | 9.130 | \| O \| I | \| | \| | \| | \| | 2.91 |
| 13.500 | 298.20 | 216.47 | 10.753 | \| O \| I | \| | \| | \| | \| | 3.05 |
| 13.750 | 309.59 | 248.70 | 12.226 | \| O \| I | \| | \| | \| | \| | 3.14 |
| 14.000 | 277.27 | 265.19 | 12.980 | \| O\| I | \| | \| | \| | \| | 3.19 |
| 14.250 | 243.97 | 263.50 | 12.903 | \| I O | \| | \| | \| | \| | 3.18 |
| 14.500 | 243.22 | 256.16 | 12.567 | \| IO | \| | \| | \| | \| | 3.16 |
| 14.750 | 250.34 | 252.70 | 12.409 | \| IO | \| | \| | \| | \| | 3.15 |
| 15.000 | 248.79 | 251.55 | 12.356 | \| IO | \| | \| | \| | \| | 3.15 |
| 15.250 | 243.72 | 249.60 | 12.267 | \| O | \| | \| | \| | \| | 3.14 |
| 15.500 | 235.19 | 245.86 | 12.096 | \| IO | \| | \| | \| | \| | 3.13 |
| 15.750 | 218.22 | 238.80 | 11.774 | \| I O | \| | \| | \| | \| | 3.11 |
| 16.000 | 194.24 | 226.79 | 11.225 | \| I O\| | \| | \| | \| | \| | 3.08 |
| 16.250 | 150.34 | 206.70 | 10.306 | \| I \| O | \| | \| | \| | \| | 3.02 |
| 16.500 | 100.90 | 178.45 | 8.923 | \| I \| O | \| | \| | \| | \| | 2.89 |
| 16.750 | 55.00 | 144.03 | 7.202 | \| I \| O | \| | \| | \| | \| | 2.72 |
| 17.000 | 33.04 | 109.77 | 5.489 | \| I \| O | \| | \| | \| | \| | 2.55 |
| 17.250 | 23.26 | 81.81 | 4.092 | \| I \| O | \| | \| | \| | \| | 2.41 |
| 17.500 | 18.04 | 60.86 | 3.044 | \|I \| O | \| | \| | \| | \| | 2.30 |
| 17.750 | 15.38 | 45.74 | 2.288 | \|I O | \| | \| | \| | \| | 2.23 |
| 18.000 | 13.26 | 34.98 | 1.750 | \|I O | \| | \| | \| | \| | 2.17 |
| 18.250 | 11.89 | 27.30 | 1.367 | \|IO | \| | \| | \| | \| | 2.14 |
| 18.500 | 10.91 | 21.86 | 1.095 | \|IO | \| | \| | \| | \| | 2.11 |
| 18.750 | 9.45 | 17.86 | 0.895 | IO | \| | \| | \| | \| | 2.09 |
| 19.000 | 7.62 | 14.66 | 0.735 | IO | \| | \| | \| | \| | 2.07 |
| 19.250 | 7.31 | 12.20 | 0.612 | IO | \| | \| | \| | \| | 2.06 |
| 19.500 | 8.14 | 10.67 | 0.535 | IO | \| | \| | \| | \| | 2.05 |
| 19.750 | 8.03 | 9.78 | 0.491 | IO | \| | \| | \| | \| | 2.05 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20.000 | 7.00 | 9.01 | 0.452 | 0 | \| | \| | \| | \| | 2.05 |
| 20.250 | 6.99 | 8.32 | 0.418 | 0 | \| | \| | \| | \| | 2.04 |
| 20.500 | 7.07 | 7.88 | 0.396 | 0 | \| | \| | \| | \| | 2.04 |
| 20.750 | 7.29 | 7.64 | 0.384 | 0 | \| | \| | \| | \| | 2.04 |
| 21.000 | 6.47 | 7.38 | 0.371 | 0 | \| | \| | \| | \| | 2.04 |
| 21.250 | 6.74 | 7.12 | 0.358 | 0 | \| | \| | \| | \| | 2.04 |
| 21.500 | 6.05 | 6.87 | 0.345 | 0 | \| | \| | \| | \| | 2.03 |
| 21.750 | 6.57 | 6.68 | 0.336 | 0 | \| | \| | \| | \| | 2.03 |
| 22.000 | 5.96 | 6.54 | 0.329 | 0 | \| | \| | \| | \| | 2.03 |
| 22.250 | 6.51 | 6.43 | 0.324 | 0 | \| | \| | \| | \| | 2.03 |
| 22.500 | 5.93 | 6.36 | 0.320 | 0 | \| | \| | \| | \| | 2.03 |
| 22.750 | 5.60 | 6.16 | 0.310 | 0 | \| | \| | \| | \| | 2.03 |
| 23.000 | 5.27 | 5.91 | 0.297 | 0 | \| | \| | \| | \| | 2.03 |
| 23.250 | 5.13 | 5.67 | 0.285 | 0 | \| | \| | \| | \| | 2.03 |
| 23.500 | 5.05 | 5.47 | 0.275 | 0 | \| | \| | \| | \| | 2.03 |
| 23.750 | 5.01 | 5.32 | 0.268 | 0 | \| | \| | \| | \| | 2.03 |
| 24.000 | 4.99 | 5.21 | 0.262 | 0 | \| | \| | \| | \| | 2.03 |
| 24.250 | 3.19 | 4.83 | 0.243 | 0 | \| | \| | \| | \| | 2.02 |
| 24.500 | 1.89 | 4.04 | 0.204 | 0 | \| | \| | \| | \| | 2.02 |
| 24.750 | 0.94 | 3.14 | 0.159 | 0 | \| | \| | \| | \| | 2.02 |
| 25.000 | 0.50 | 2.31 | 0.118 | 0 | \| | \| | \| | \| | 2.01 |
| 25.250 | 0.28 | 1.66 | 0.085 | 0 | \| | \| | \| | \| | 2.01 |
| 25.500 | 0.15 | 1.16 | 0.060 | 0 | \| | \| | \| | \| | 2.01 |
| 25.750 | 0.07 | 0.80 | 0.042 | 0 | \| | \| | \| | \| | 2.00 |
| 26.000 | 0.04 | 0.55 | 0.029 | 0 | \| | \| | \| | \| | 2.00 |
| 26.250 | 0.03 | 0.37 | 0.020 | 0 | \| | \| | \| | \| | 2.00 |
| 26.500 | 0.01 | 0.25 | 0.014 | 0 | \| | \| | \| | \| | 2.00 |
| 26.750 | 0.01 | 0.17 | 0.010 | 0 | \| | \| | \| | \| | 2.00 |
| 27.000 | 0.00 | 0.11 | 0.008 | 0 | \| | \| | \| | \| | 2.00 |
| 27.250 | 0.00 | 0.07 | 0.006 | 0 | \| | \| | \| | \| | 2.00 |
| 27.500 | 0.00 | 0.05 | 0.004 | 0 | \| | \| | \| | \| | 2.00 |
| 27.750 | 0.00 | 0.03 | 0.003 | 0 | \| | \| | \| | \| | 2.00 |
| 28.000 | 0.00 | 0.02 | 0.003 | 0 | \| | \| | \| | \| | 2.00 |
| 28.250 | 0.00 | 0.01 | 0.003 | 0 | \| | \| | \| | \| | 2.00 |
| 28.500 | 0.00 | 0.01 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 28.750 | 0.00 | 0.01 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 29.000 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 29.250 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 2.00 |
| 29.500 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.98 |
| 29.750 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.94 |
| 30.000 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.90 |
| 30.250 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.86 |
| 30.500 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.82 |
| 30.750 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.79 |
| 31.000 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.75 |
| 31.250 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.71 |
| 31.500 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.68 |
| 31.750 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.65 |
| 32.000 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.61 |
| 32.250 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.58 |
| 32.500 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.55 |
| 32.750 | 0.00 | 0.00 | 0.002 | 0 | \| | \| | \| | \| | 1.51 |
| 33.000 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.48 |
| 33.250 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.45 |
| 33.500 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.42 |
| 33.750 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.39 |
| 34.000 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.37 |
| 34.250 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.34 |
| 34.500 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.31 |
| 34.750 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.28 |
| 35.000 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.26 |
| 35.250 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.23 |
| 35.500 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.21 |
| 35.750 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.18 |
| 36.000 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.16 |
| 36.250 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.13 |
| 36.500 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.11 |
| 36.750 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.09 |
| 37.000 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.07 |
| 37.250 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.04 |
| 37.500 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.02 |
| 37.750 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 1.00 |



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 38.000 | 0.00 | 0.00 | 0.001 | 0 | \| | \| | \| | \| | 0.98 |

```
**************************HYDROGRAPH DATA**************************
                Number of intervals =   152
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      265.189 (CFS)
                Total volume =     121.446 (Ac.Ft)
        Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)    571.091     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)   202.681     0.000     0.000     0.000     0.000
*******************************************************************


-------------------------------------------------------------------


+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       2.000 to Point/Station       72.000
**** STREAM ROUTING SCS CONVEX METHOD ****
___________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   2500.00 (Ft.)
Elevation difference =   50.00 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  2500.00(Ft.)   Elevation difference =  50.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =    79.058(CFS)
Given pipe size =     90.00(In.)
Calculated individual pipe flow  =    79.058(CFS)
Normal flow depth in pipe =   17.64(In.)
Flow top width inside pipe =   71.45(In.)
Critical Depth =    2.23(Ft.)
Pipe flow velocity =     12.94(Ft/s)
Travel time through pipe =    3.22 min.


Pipe length  =  2500.00(Ft.)   Elevation difference =  50.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =   265.189(CFS)
Given pipe size =     90.00(In.)
Calculated individual pipe flow  =   265.189(CFS)
Normal flow depth in pipe =   32.67(In.)
Flow top width inside pipe =   86.56(In.)
Critical Depth =    4.18(Ft.)
Pipe flow velocity =     18.30(Ft/s)
Travel time through pipe =    2.28 min.


********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.9150   Travel time =   2.28 (min.)
        dt*(unit time interval) =  15.00(min.),  e=   5.1337
        dt(routing time-step) =   2.08 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
-------------------------------------------------------------------
           Hydrograph in  15   Minute intervals (CFS)

-------------------------------------------------------------------
```

| Time(h+m) | Out = O(CFS) | In = I | 0 | 66.3 | 132.6 | 198.9 | 265.2 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.2366 | 0.27 | O | \| | \| | \| | \| |
| 0+30 | 1.0443 | 1.17 | O | \| | \| | \| | \| |
| 0+45 | 2.2320 | 2.40 | O | \| | \| | \| | \| |
| 1+ 0 | 3.6027 | 3.80 | O | \| | \| | \| | \| |
| 1+15 | 4.8786 | 5.05 | O | \| | \| | \| | \| |
| 1+30 | 5.8035 | 5.92 | O | \| | \| | \| | \| |
| 1+45 | 6.4104 | 6.49 | O | \| | \| | \| | \| |
| 2+ 0 | 6.9174 | 6.99 | O\| | \| | \| | \| | \| |
| 2+15 | 7.4880 | 7.57 | O\| | \| | \| | \| | \| |
| 2+30 | 8.0602 | 8.14 | O\| | \| | \| | \| | \| |
| 2+45 | 8.6939 | 8.78 | O\| | \| | \| | \| | \| |
| 3+ 0 | 9.4234 | 9.53 | O\| | \| | \| | \| | \| |
| 3+15 | 10.1393 | 10.24 | O\| | \| | \| | \| | \| |
| 3+30 | 10.7574 | 10.84 | O\| | \| | \| | \| | \| |
| 3+45 | 11.2381 | 11.30 | O\| | \| | \| | \| | \| |
| 4+ 0 | 11.7241 | 11.79 | O\| | \| | \| | \| | \| |
| 4+15 | 12.3138 | 12.40 | O\| | \| | \| | \| | \| |
| 4+30 | 13.0471 | 13.15 | O\| | \| | \| | \| | \| |
| 4+45 | 13.9120 | 14.03 | O\| | \| | \| | \| | \| |
| 5+ 0 | 14.8825 | 15.02 | O\| | \| | \| | \| | \| |
| 5+15 | 15.6698 | 15.77 | O\| | \| | \| | \| | \| |
| 5+30 | 16.1090 | 16.16 | O\| | \| | \| | \| | \| |
| 5+45 | 16.5475 | 16.61 | O\| | \| | \| | \| | \| |
| 6+ 0 | 17.1192 | 17.20 | O\| | \| | \| | \| | \| |
| 6+15 | 17.8737 | 17.98 | O\| | \| | \| | \| | \| |
| 6+30 | 18.7693 | 18.90 | O\| | \| | \| | \| | \| |
| 6+45 | 19.7663 | 19.91 | O\| | \| | \| | \| | \| |
| 7+ 0 | 20.8392 | 20.99 | \| O | \| | \| | \| | \| |
| 7+15 | 21.8352 | 21.97 | \| O | \| | \| | \| | \| |
| 7+30 | 22.7958 | 22.93 | \| O | \| | \| | \| | \| |
| 7+45 | 23.8971 | 24.05 | \| O | \| | \| | \| | \| |
| 8+ 0 | 25.2502 | 25.44 | \| O | \| | \| | \| | \| |
| 8+15 | 27.1001 | 27.37 | \| O | \| | \| | \| | \| |
| 8+30 | 29.3650 | 29.69 | \| O | \| | \| | \| | \| |
| 8+45 | 31.7427 | 32.07 | \| O | \| | \| | \| | \| |
| 9+ 0 | 34.2212 | 34.57 | \| O | \| | \| | \| | \| |
| 9+15 | 37.1927 | 37.62 | \| O | \| | \| | \| | \| |
| 9+30 | 42.0186 | 42.73 | \| O | \| | \| | \| | \| |
| 9+45 | 50.1991 | 51.40 | \| O | \| | \| | \| | \| |
| 10+ 0 | 61.7451 | 63.41 | \| O | \| | \| | \| | \| |
| 10+15 | 73.4537 | 75.07 | \| O | \| | \| | \| | \| |
| 10+30 | 79.8445 | 80.61 | \| O | \| | \| | \| | \| |
| 10+45 | 79.4308 | 79.24 | \| O | \| | \| | \| | \| |
| 11+ 0 | 78.1074 | 77.92 | \| O | \| | \| | \| | \| |
| 11+15 | 81.1264 | 81.64 | \| O | \| | \| | \| | \| |
| 11+30 | 86.7521 | 87.58 | \| O | \| | \| | \| | \| |
| 11+45 | 91.1996 | 91.78 | \| O | \| | \| | \| | \| |
| 12+ 0 | 93.1580 | 93.38 | \| O | \| | \| | \| | \| |
| 12+15 | 95.5011 | 95.84 | \| O | \| | \| | \| | \| |
| 12+30 | 104.4547 | 105.84 | \| O | \| | \| | \| | \| |
| 12+45 | 123.4035 | 126.24 | \| OI | \| | \| | \| | \| |
| 13+ 0 | 149.2353 | 152.94 | \| OI | \| | \| | \| | \| |
| 13+15 | 178.4735 | 182.59 | \| OI | \| | \| | \| | \| |
| 13+30 | 211.7646 | 216.47 | \| OI | \| | \| | \| | \| |
| 13+45 | 244.2234 | 248.70 | \| OI | \| | \| | \| | \| |
| 14+ 0 | 262.8993 | 265.19 | \| OI | \| | \| | \| | \| |
| 14+15 | 263.7380 | 263.50 | \| O | \| | \| | \| | \| |
| 14+30 | 257.1831 | 256.16 | \| O | \| | \| | \| | \| |
| 14+45 | 253.1847 | 252.70 | \| O | \| | \| | \| | \| |
| 15+ 0 | 251.7082 | 251.55 | \| O | \| | \| | \| | \| |
| 15+15 | 249.8682 | 249.60 | \| O | \| | \| | \| | \| |
| 15+30 | 246.3786 | 245.86 | \| O | \| | \| | \| | \| |
| 15+45 | 239.7789 | 238.80 | \| O | \| | \| | \| | \| |
| 16+ 0 | 228.4591 | 226.79 | \| O | \| | \| | \| | \| |
| 16+15 | 209.4901 | 206.70 | \| O | \| | \| | \| | \| |
| 16+30 | 182.3760 | 178.45 | \| IO | \| | \| | \| | \| |
| 16+45 | 148.8088 | 144.03 | \| IO | \| | \| | \| | \| |
| 17+ 0 | 114.5295 | 109.77 | \| IO | \| | \| | \| | \| |
| 17+15 | 85.6966 | 81.81 | \| O | \| | \| | \| | \| |
| 17+30 | 63.7724 | 60.86 | \| O | \| | \| | \| | \| |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17+45 | 47.8390 | 45.74 | \| IO | \| | \| | \| | \| |
| 18+ 0 | 36.4714 | 34.98 | \| O | \| | \| | \| | \| |
| 18+15 | 28.3697 | 27.30 | \| O | \| | \| | \| | \| |
| 18+30 | 22.6135 | 21.86 | \| O | \| | \| | \| | \| |
| 18+45 | 18.4133 | 17.86 | \| O | \| | \| | \| | \| |
| 19+ 0 | 15.1083 | 14.66 | \| O | \| | \| | \| | \| |
| 19+15 | 12.5418 | 12.20 | O\| | \| | \| | \| | \| |
| 19+30 | 10.8807 | 10.67 | O\| | \| | \| | \| | \| |
| 19+45 | 9.9068 | 9.78 | O\| | \| | \| | \| | \| |
| 20+ 0 | 9.1145 | 9.01 | O\| | \| | \| | \| | \| |
| 20+15 | 8.4131 | 8.32 | O\| | \| | \| | \| | \| |
| 20+30 | 7.9388 | 7.88 | O\| | \| | \| | \| | \| |
| 20+45 | 7.6730 | 7.64 | O\| | \| | \| | \| | \| |
| 21+ 0 | 7.4168 | 7.38 | O\| | \| | \| | \| | \| |
| 21+15 | 7.1529 | 7.12 | O\| | \| | \| | \| | \| |
| 21+30 | 6.9035 | 6.87 | O\| | \| | \| | \| | \| |
| 21+45 | 6.7037 | 6.68 | O\| | \| | \| | \| | \| |
| 22+ 0 | 6.5558 | 6.54 | O | \| | \| | \| | \| |
| 22+15 | 6.4480 | 6.43 | O | \| | \| | \| | \| |
| 22+30 | 6.3703 | 6.36 | O | \| | \| | \| | \| |
| 22+45 | 6.1845 | 6.16 | O | \| | \| | \| | \| |
| 23+ 0 | 5.9444 | 5.91 | O | \| | \| | \| | \| |
| 23+15 | 5.7011 | 5.67 | O | \| | \| | \| | \| |
| 23+30 | 5.4971 | 5.47 | O | \| | \| | \| | \| |
| 23+45 | 5.3409 | 5.32 | O | \| | \| | \| | \| |
| 24+ 0 | 5.2257 | 5.21 | O | \| | \| | \| | \| |
| 24+15 | 4.8793 | 4.83 | O | \| | \| | \| | \| |
| 24+30 | 4.1510 | 4.04 | O | \| | \| | \| | \| |
| 24+45 | 3.2670 | 3.14 | O | \| | \| | \| | \| |
| 25+ 0 | 2.4286 | 2.31 | O | \| | \| | \| | \| |
| 25+15 | 1.7466 | 1.66 | O | \| | \| | \| | \| |
| 25+30 | 1.2297 | 1.16 | O | \| | \| | \| | \| |
| 25+45 | 0.8513 | 0.80 | O | \| | \| | \| | \| |
| 26+ 0 | 0.5825 | 0.55 | O | \| | \| | \| | \| |
| 26+15 | 0.3964 | 0.37 | O | \| | \| | \| | \| |
| 26+30 | 0.2685 | 0.25 | O | \| | \| | \| | \| |
| 26+45 | 0.1805 | 0.17 | O | \| | \| | \| | \| |
| 27+ 0 | 0.1200 | 0.11 | O | \| | \| | \| | \| |
| 27+15 | 0.0791 | 0.07 | O | \| | \| | \| | \| |
| 27+30 | 0.0520 | 0.05 | O | \| | \| | \| | \| |
| 27+45 | 0.0342 | 0.03 | O | \| | \| | \| | \| |
| 28+ 0 | 0.0225 | 0.02 | O | \| | \| | \| | \| |
| 28+15 | 0.0148 | 0.01 | O | \| | \| | \| | \| |
| 28+30 | 0.0097 | 0.01 | O | \| | \| | \| | \| |
| 28+45 | 0.0064 | 0.01 | O | \| | \| | \| | \| |
| 29+ 0 | 0.0042 | 0.00 | O | \| | \| | \| | \| |
| 29+15 | 0.0028 | 0.00 | O | \| | \| | \| | \| |
| 29+30 | 0.0021 | 0.00 | O | \| | \| | \| | \| |
| 29+45 | 0.0019 | 0.00 | O | \| | \| | \| | \| |
| 30+ 0 | 0.0019 | 0.00 | O | \| | \| | \| | \| |
| 30+15 | 0.0019 | 0.00 | O | \| | \| | \| | \| |
| 30+30 | 0.0018 | 0.00 | O | \| | \| | \| | \| |
| 30+45 | 0.0018 | 0.00 | O | \| | \| | \| | \| |
| 31+ 0 | 0.0018 | 0.00 | O | \| | \| | \| | \| |
| 31+15 | 0.0017 | 0.00 | O | \| | \| | \| | \| |
| 31+30 | 0.0017 | 0.00 | O | \| | \| | \| | \| |
| 31+45 | 0.0017 | 0.00 | O | \| | \| | \| | \| |
| 32+ 0 | 0.0016 | 0.00 | O | \| | \| | \| | \| |
| 32+15 | 0.0016 | 0.00 | O | \| | \| | \| | \| |
| 32+30 | 0.0016 | 0.00 | O | \| | \| | \| | \| |
| 32+45 | 0.0015 | 0.00 | O | \| | \| | \| | \| |
| 33+ 0 | 0.0015 | 0.00 | O | \| | \| | \| | \| |
| 33+15 | 0.0015 | 0.00 | O | \| | \| | \| | \| |
| 33+30 | 0.0014 | 0.00 | O | \| | \| | \| | \| |
| 33+45 | 0.0014 | 0.00 | O | \| | \| | \| | \| |
| 34+ 0 | 0.0014 | 0.00 | O | \| | \| | \| | \| |
| 34+15 | 0.0013 | 0.00 | O | \| | \| | \| | \| |
| 34+30 | 0.0013 | 0.00 | O | \| | \| | \| | \| |
| 34+45 | 0.0013 | 0.00 | O | \| | \| | \| | \| |
| 35+ 0 | 0.0013 | 0.00 | O | \| | \| | \| | \| |
| 35+15 | 0.0012 | 0.00 | O | \| | \| | \| | \| |
| 35+30 | 0.0012 | 0.00 | O | \| | \| | \| | \| |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 35+45 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| |
| 36+ 0 | 0.0012 | 0.00 | 0 | \| | \| | \| | \| |
| 36+15 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 36+30 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 36+45 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 37+ 0 | 0.0011 | 0.00 | 0 | \| | \| | \| | \| |
| 37+15 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 37+30 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 37+45 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 38+ 0 | 0.0010 | 0.00 | 0 | \| | \| | \| | \| |
| 38+15 | 0.0000 | 0.00 | 0 | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 153
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 263.738 (CFS)
Total volume = 121.446 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 571.091 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 202.681 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 71.000 to Point/Station 72.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

From stored stream number 1 the total
volume of 202.68 (Ac.Ft) is being added to the
current hydrograph at its original rate from user
with a delay time to start of addition of 0.00 hours.

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 | 203.8 | 407.7 | 611.5 | 815.3 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.2756 | 0.51 | Q | \| | \| | \| | \| |
| 0+30 | 1.9168 | 2.96 | Q | \| | \| | \| | \| |
| 0+45 | 4.7825 | 7.01 | Q | \| | \| | \| | \| |
| 1+ 0 | 6.8696 | 10.47 | Q | \| | \| | \| | \| |
| 1+15 | 8.4113 | 13.29 | Q | \| | \| | \| | \| |
| 1+30 | 9.2583 | 15.06 | Q | \| | \| | \| | \| |
| 1+45 | 8.9806 | 15.39 | Q | \| | \| | \| | \| |
| 2+ 0 | 9.0983 | 16.02 | Q | \| | \| | \| | \| |
| 2+15 | 9.8484 | 17.34 | Q | \| | \| | \| | \| |
| 2+30 | 10.8944 | 18.95 | Q | \| | \| | \| | \| |
| 2+45 | 11.4715 | 20.17 | Q | \| | \| | \| | \| |
| 3+ 0 | 12.4673 | 21.89 | qQ | \| | \| | \| | \| |
| 3+15 | 13.6856 | 23.82 | qQ | \| | \| | \| | \| |
| 3+30 | 14.2267 | 24.98 | qQ | \| | \| | \| | \| |
| 3+45 | 14.5116 | 25.75 | qQ | \| | \| | \| | \| |
| 4+ 0 | 14.8166 | 26.54 | qQ | \| | \| | \| | \| |
| 4+15 | 15.6690 | 27.98 | qQ | \| | \| | \| | \| |
| 4+30 | 16.9223 | 29.97 | qQ | \| | \| | \| | \| |
| 4+45 | 18.1499 | 32.06 | qQ | \| | \| | \| | \| |
| 5+ 0 | 19.6037 | 34.49 | qQ | \| | \| | \| | \| |
| 5+15 | 20.6888 | 36.36 | \|Q | \| | \| | \| | \| |
| 5+30 | 20.7210 | 36.83 | \|Q | \| | \| | \| | \| |
| 5+45 | 20.1448 | 36.69 | qQ | \| | \| | \| | \| |
| 6+ 0 | 21.4144 | 38.53 | \|Q | \| | \| | \| | \| |
| 6+15 | 22.7849 | 40.66 | \|Q | \| | \| | \| | \| |
| 6+30 | 24.0467 | 42.82 | \|qQ | \| | \| | \| | \| |
| 6+45 | 25.5195 | 45.29 | \|qQ | \| | \| | \| | \| |
| 7+ 0 | 26.9027 | 47.74 | \|qQ | \| | \| | \| | \| |
| 7+15 | 28.3198 | 50.15 | \|qQ | \| | \| | \| | \| |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7+30 | 29.1113 | 51.91 | \|qQ | \| | \| | \| | \| |
| 7+45 | 30.3526 | 54.25 | \|qQ | \| | \| | \| | \| |
| 8+ 0 | 32.5093 | 57.76 | \|qQ | \| | \| | \| | \| |
| 8+15 | 35.1637 | 62.26 | \|q Q | \| | \| | \| | \| |
| 8+30 | 38.4844 | 67.85 | \|q Q | \| | \| | \| | \| |
| 8+45 | 41.6114 | 73.35 | \| qQ | \| | \| | \| | \| |
| 9+ 0 | 44.1133 | 78.33 | \| qQ | \| | \| | \| | \| |
| 9+15 | 50.9313 | 88.12 | \| q Q | \| | \| | \| | \| |
| 9+30 | 72.8673 | 114.89 | \| q Q | \| | \| | \| | \| |
| 9+45 | 108.7062 | 158.91 | \| q Q | \| | \| | \| | \| |
| 10+ 0 | 143.0730 | 204.82 | \| q Q | \| | \| | \| | \| |
| 10+15 | 167.7000 | 241.15 | \| q \|Q | \| | \| | \| | \| |
| 10+30 | 145.8407 | 225.69 | \| q \|Q | \| | \| | \| | \| |
| 10+45 | 99.2566 | 178.69 | \| q Q | \| | \| | \| | \| |
| 11+ 0 | 115.0222 | 193.13 | \| q Q | \| | \| | \| | \| |
| 11+15 | 155.3946 | 236.52 | \| q \|Q | \| | \| | \| | \| |
| 11+30 | 166.1709 | 252.92 | \| q \|Q | \| | \| | \| | \| |
| 11+45 | 164.7787 | 255.98 | \| q \|Q | \| | \| | \| | \| |
| 12+ 0 | 156.9223 | 250.08 | \| q \|Q | \| | \| | \| | \| |
| 12+15 | 159.5662 | 255.07 | \| q \|Q | \| | \| | \| | \| |
| 12+30 | 220.9635 | 325.42 | \| q Q | \| | \| | \| | \| |
| 12+45 | 309.9514 | 433.35 | \| q \| Q | \| | \| | \| | \| |
| 13+ 0 | 372.8097 | 522.05 | \| q \| Q | \| | \| | \| | \| |
| 13+15 | 434.9324 | 613.41 | \| q \| Q | \| | \| | \| | \| |
| 13+30 | 510.6529 | 722.42 | \| q \| Q | \| | \| | \| | \| |
| 13+45 | 571.0909 | 815.31 | \| q \| Q | \| | \| | \| | \| |
| 14+ 0 | 525.5470 | 788.45 | \| q \| Q | \| | \| | \| | \| |
| 14+15 | 437.2259 | 700.96 | \| q \| Q | \| | \| | \| | \| |
| 14+30 | 432.5354 | 689.72 | \| q \| Q | \| | \| | \| | \| |
| 14+45 | 452.3819 | 705.57 | \| q \| Q | \| | \| | \| | \| |
| 15+ 0 | 450.4061 | 702.11 | \| q \| Q | \| | \| | \| | \| |
| 15+15 | 443.4736 | 693.34 | \| q \| Q | \| | \| | \| | \| |
| 15+30 | 428.4353 | 674.81 | \| q \| Q | \| | \| | \| | \| |
| 15+45 | 405.8701 | 645.65 | \| q \| Q | \| | \| | \| | \| |
| 16+ 0 | 363.1036 | 591.56 | \| q \| Q | \| | \| | \| | \| |
| 16+15 | 304.3178 | 513.81 | \| q \| Q | \| | \| | \| | \| |
| 16+30 | 219.2740 | 401.65 | \| q \| Q | \| | \| | \| | \| |
| 16+45 | 116.6089 | 265.42 | \| q \| Q | \| | \| | \| | \| |
| 17+ 0 | 70.7578 | 185.29 | \| q \| Q | \| | \| | \| | \| |
| 17+15 | 45.3220 | 131.02 | \| q Q | \| | \| | \| | \| |
| 17+30 | 31.2925 | 95.06 | \|q Q | \| | \| | \| | \| |
| 17+45 | 24.2496 | 72.09 | \|q Q | \| | \| | \| | \| |
| 18+ 0 | 20.0857 | 56.56 | q Q | \| | \| | \| | \| |
| 18+15 | 17.3661 | 45.74 | q Q | \| | \| | \| | \| |
| 18+30 | 15.0226 | 37.64 | qQ | \| | \| | \| | \| |
| 18+45 | 13.3997 | 31.81 | qQ | \| | \| | \| | \| |
| 19+ 0 | 11.5875 | 26.70 | qQ | \| | \| | \| | \| |
| 19+15 | 9.3934 | 21.94 | qQ | \| | \| | \| | \| |
| 19+30 | 8.6785 | 19.56 | Q | \| | \| | \| | \| |
| 19+45 | 9.6347 | 19.54 | Q | \| | \| | \| | \| |
| 20+ 0 | 9.8534 | 18.97 | Q | \| | \| | \| | \| |
| 20+15 | 8.6233 | 17.04 | Q | \| | \| | \| | \| |
| 20+30 | 8.1135 | 16.05 | Q | \| | \| | \| | \| |
| 20+45 | 8.6488 | 16.32 | Q | \| | \| | \| | \| |
| 21+ 0 | 8.6651 | 16.08 | Q | \| | \| | \| | \| |
| 21+15 | 8.0920 | 15.24 | Q | \| | \| | \| | \| |
| 21+30 | 7.6750 | 14.58 | Q | \| | \| | \| | \| |
| 21+45 | 7.7075 | 14.41 | Q | \| | \| | \| | \| |
| 22+ 0 | 7.4981 | 14.05 | Q | \| | \| | \| | \| |
| 22+15 | 7.5936 | 14.04 | Q | \| | \| | \| | \| |
| 22+30 | 7.4130 | 13.78 | Q | \| | \| | \| | \| |
| 22+45 | 7.4056 | 13.59 | Q | \| | \| | \| | \| |
| 23+ 0 | 6.6431 | 12.59 | Q | \| | \| | \| | \| |
| 23+15 | 6.3431 | 12.04 | Q | \| | \| | \| | \| |
| 23+30 | 6.1896 | 11.69 | Q | \| | \| | \| | \| |
| 23+45 | 6.0939 | 11.43 | Q | \| | \| | \| | \| |
| 24+ 0 | 6.0345 | 11.26 | Q | \| | \| | \| | \| |
| 24+15 | 5.7267 | 10.61 | Q | \| | \| | \| | \| |
| 24+30 | 4.2085 | 8.36 | Q | \| | \| | \| | \| |
| 24+45 | 2.0884 | 5.36 | Q | \| | \| | \| | \| |
| 25+ 0 | 1.1885 | 3.62 | Q | \| | \| | \| | \| |
| 25+15 | 0.7026 | 2.45 | Q | \| | \| | \| | \| |

```
25+30      0.3973      1.63  Q          |          |          |          |
25+45      0.2143      1.07  Q          |          |          |          |
26+ 0      0.1203      0.70  Q          |          |          |          |
26+15      0.0786      0.47  Q          |          |          |          |
26+30      0.0513      0.32  Q          |          |          |          |
26+45      0.0275      0.21  Q          |          |          |          |
27+ 0      0.0100      0.13  Q          |          |          |          |
27+15      0.0000      0.08  Q          |          |          |          |
27+30      0.0000      0.05  Q          |          |          |          |
27+45      0.0000      0.03  Q          |          |          |          |
28+ 0      0.0000      0.02  Q          |          |          |          |
28+15      0.0000      0.01  Q          |          |          |          |
28+30      0.0000      0.01  Q          |          |          |          |
28+45      0.0000      0.01  Q          |          |          |          |
29+ 0      0.0000      0.00  Q          |          |          |          |
29+15      0.0000      0.00  Q          |          |          |          |
29+30      0.0000      0.00  Q          |          |          |          |
29+45      0.0000      0.00  Q          |          |          |          |
30+ 0      0.0000      0.00  Q          |          |          |          |
30+15      0.0000      0.00  Q          |          |          |          |
30+30      0.0000      0.00  Q          |          |          |          |
30+45      0.0000      0.00  Q          |          |          |          |
31+ 0      0.0000      0.00  Q          |          |          |          |
31+15      0.0000      0.00  Q          |          |          |          |
31+30      0.0000      0.00  Q          |          |          |          |
31+45      0.0000      0.00  Q          |          |          |          |
32+ 0      0.0000      0.00  Q          |          |          |          |
32+15      0.0000      0.00  Q          |          |          |          |
32+30      0.0000      0.00  Q          |          |          |          |
32+45      0.0000      0.00  Q          |          |          |          |
33+ 0      0.0000      0.00  Q          |          |          |          |
33+15      0.0000      0.00  Q          |          |          |          |
33+30      0.0000      0.00  Q          |          |          |          |
33+45      0.0000      0.00  Q          |          |          |          |
34+ 0      0.0000      0.00  Q          |          |          |          |
34+15      0.0000      0.00  Q          |          |          |          |
34+30      0.0000      0.00  Q          |          |          |          |
34+45      0.0000      0.00  Q          |          |          |          |
35+ 0      0.0000      0.00  Q          |          |          |          |
35+15      0.0000      0.00  Q          |          |          |          |
35+30      0.0000      0.00  Q          |          |          |          |
35+45      0.0000      0.00  Q          |          |          |          |
36+ 0      0.0000      0.00  Q          |          |          |          |
36+15      0.0000      0.00  Q          |          |          |          |
36+30      0.0000      0.00  Q          |          |          |          |
36+45      0.0000      0.00  Q          |          |          |          |
37+ 0      0.0000      0.00  Q          |          |          |          |
37+15      0.0000      0.00  Q          |          |          |          |
37+30      0.0000      0.00  Q          |          |          |          |
37+45      0.0000      0.00  Q          |          |          |          |
38+ 0      0.0000      0.00  Q          |          |          |          |
38+15      0.0000      0.00  Q          |          |          |          |
-------------------------------------------------------------------------
      ***************************HYDROGRAPH DATA**************************
                Number of intervals =   153
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =      815.314 (CFS)
                Total volume =     324.127 (Ac.Ft)
          Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)      0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
      ********************************************************************

      ---------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       72.000 to Point/Station       73.000
      **** STREAM ROUTING SCS CONVEX METHOD ****
      ____________________________________________________________________
      HYDROGRAPH STREAM ROUTING DATA:
```



```
      Length of stream =   2900.00 (Ft.)
      Elevation difference =   53.00 (Ft.)
      Slope of channel =  0.018276 (Vert/Horiz)
      Channel type - Improved Channel


      Channel length =  2900.00(Ft.)     Elevation difference =  53.00(Ft.)
      Channel evaluation using mean flow rate of hydrograph
      Channel base width  =   20.000(Ft.)
      Slope or 'Z' of left channel bank =   2.000
      Slope or 'Z' of right channel bank =   2.000
      Manning's 'N'    = 0.030
      Maximum depth of channel  =   10.000(Ft.)
      Flow(q) thru subarea =    215.375(CFS)
      Depth of flow =     1.303(Ft.)
      Average velocity =     7.310(Ft/s)
      Total flow rate =   215.375(CFS)
      Channel flow top width =   25.213(Ft.)
      Depth of flow in channel =   1.30(Ft.)
      Total number of channels (same dimensions) = 1
      Flow Velocity =    7.31(Ft/s)
      Travel time  =    2.28 min.
      Individual channel flow =  215.375(CFS)
      Total capacity of improved channels =    215.375(CFS)
      Critical Depth in Channel =    1.45(Ft.)


      Channel evaluation using maximum flow rate of hydrograph
      Flow(q) thru subarea =    815.314(CFS)
      Depth of flow =     2.805(Ft.)
      Average velocity =    11.351(Ft/s)
      Total flow rate =   815.314(CFS)
      Channel flow top width =   31.219(Ft.)
      Depth of flow in channel =   2.80(Ft.)
      Total number of channels (same dimensions) = 1
      Flow Velocity =   11.35(Ft/s)
      Travel time  =    2.28 min.
      Individual channel flow =  815.314(CFS)
      Total capacity of improved channels =    815.314(CFS)
      Critical Depth in Channel =    3.31(Ft.)


      ********************** SCS CONVEX CHANNEL ROUTING ********************
      Convex method of stream routing  data items:
      Using equation: Outflow =
      O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
               where c* = 1 - (1-c)^e and dt = c(length)/velocity
               c(v/v+1.7) =   0.8697   Travel time =   4.26 (min.)
             dt*(unit time interval) =  15.00(min.),  e=   3.0336
             dt(routing time-step) =   3.70 (min.),   c* =   0.9979

      Output hydrograph delayed by 0  unit time increments


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        P R I N T  O F  S T O R M
                      R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                   Hydrograph in  15   Minute intervals (CFS)

      ---------------------------------------------------------------------
Time(h+m) Out = 0(CFS) In = I  0      203.8     407.7     611.5     815.3
---------------------------------------------------------------------------
   0+15       0.3849      0.51  0          |         |         |         |
   0+30       2.3524      2.96  0          |         |         |         |
   0+45       6.0062      7.01  0          |         |         |         |
   1+ 0       9.6112     10.47  0          |         |         |         |
   1+15      12.5881     13.29  0          |         |         |         |
   1+30      14.6201     15.06  0          |         |         |         |
   1+45      15.3084     15.39  0          |         |         |         |
   2+ 0      15.8603     16.02  0          |         |         |         |
   2+15      17.0079     17.34  0          |         |         |         |
```

| | | | |
|---|---|---|---|
| 2+30 | 18.5519 | 18.95 | 0 |
| 2+45 | 19.8637 | 20.17 | 0 |
| 3+ 0 | 21.4614 | 21.89 | 0 |
| 3+15 | 23.3435 | 23.82 | 0 |
| 3+30 | 24.6952 | 24.98 | 0 |
| 3+45 | 25.5589 | 25.75 | 0 |
| 4+ 0 | 26.3438 | 26.54 | 0 |
| 4+15 | 27.6241 | 27.98 | 0 |
| 4+30 | 29.4751 | 29.97 | 0 |
| 4+45 | 31.5410 | 32.06 | 0 |
| 5+ 0 | 33.8828 | 34.49 | 0 |
| 5+15 | 35.8921 | 36.36 | 0 |
| 5+30 | 36.7119 | 36.83 | 0 |
| 5+45 | 36.7262 | 36.69 | 0 |
| 6+ 0 | 38.0762 | 38.53 | 0 |
| 6+15 | 40.1297 | 40.66 | 0 |
| 6+30 | 42.2790 | 42.82 | 0 |
| 6+45 | 44.6710 | 45.29 | 0 |
| 7+ 0 | 47.1304 | 47.74 | 0 |
| 7+15 | 49.5542 | 50.15 | 0 |
| 7+30 | 51.4706 | 51.91 | 0 |
| 7+45 | 53.6668 | 54.25 | 0 |
| 8+ 0 | 56.8863 | 57.76 | 0 |
| 8+15 | 61.1429 | 62.26 | 0I |
| 8+30 | 66.4594 | 67.85 | 0 |
| 8+45 | 71.9837 | 73.35 | 0 |
| 9+ 0 | 77.0943 | 78.33 | 0 |
| 9+15 | 85.6893 | 88.12 | 0 |
| 9+30 | 108.2322 | 114.89 | 0 |
| 9+45 | 147.9553 | 158.91 | 0 |
| 10+ 0 | 193.3889 | 204.82 | 0I |
| 10+15 | 232.1029 | 241.15 | 0 |
| 10+30 | 229.5096 | 225.69 | 0 |
| 10+45 | 190.3715 | 178.69 | IO |
| 11+ 0 | 189.5657 | 193.13 | 0 |
| 11+15 | 225.7335 | 236.52 | 0 |
| 11+30 | 248.8258 | 252.92 | 0 |
| 11+45 | 255.2107 | 255.98 | 0 |
| 12+ 0 | 251.5440 | 250.08 | 0 |
| 12+15 | 253.8313 | 255.07 | 0 |
| 12+30 | 307.9376 | 325.42 | 0 |
| 12+45 | 406.5030 | 433.35 | 0 I |
| 13+ 0 | 499.9554 | 522.05 | OI |
| 13+15 | 590.6626 | 613.41 | 0 I |
| 13+30 | 695.2876 | 722.42 | OI |
| 13+45 | 792.1789 | 815.31 | 0 I |
| 14+ 0 | 795.0737 | 788.45 | IO |
| 14+15 | 722.7118 | 700.96 | IO |
| 14+30 | 692.5572 | 689.72 | 0 |
| 14+45 | 701.6351 | 705.57 | 0 |
| 15+ 0 | 702.9639 | 702.11 | 0 |
| 15+15 | 695.5230 | 693.34 | 0 |
| 15+30 | 679.4214 | 674.81 | 0 |
| 15+45 | 652.9043 | 645.65 | IO |
| 16+ 0 | 605.0149 | 591.56 | 0 |
| 16+15 | 533.1532 | 513.81 | IO |
| 16+30 | 429.5545 | 401.65 | I 0 |
| 16+45 | 299.3210 | 265.42 | IO |
| 17+ 0 | 205.2650 | 185.29 | IO |
| 17+15 | 144.5424 | 131.02 | IO |
| 17+30 | 104.0252 | 95.06 | IO |
| 17+45 | 77.8154 | 72.09 | 0 |
| 18+ 0 | 60.4276 | 56.56 | 0 |
| 18+15 | 48.4322 | 45.74 | 0 |
| 18+30 | 39.6539 | 37.64 | 0 |
| 18+45 | 33.2639 | 31.81 | 0 |
| 19+ 0 | 27.9701 | 26.70 | 0 |
| 19+15 | 23.1206 | 21.94 | 0 |
| 19+30 | 20.1519 | 19.56 | 0 |
| 19+45 | 19.5471 | 19.54 | 0 |
| 20+ 0 | 19.1105 | 18.97 | 0 |
| 20+15 | 17.5165 | 17.04 | 0 |



| | | | |
|---|---|---|---|
| 20+30 | 16.2978 | 16.05 | 0 |
| 20+45 | 16.2554 | 16.32 | 0 |
| 21+ 0 | 16.1413 | 16.08 | 0 |
| 21+15 | 15.4530 | 15.24 | 0 |
| 21+30 | 14.7445 | 14.58 | 0 |
| 21+45 | 14.4531 | 14.41 | 0 |
| 22+ 0 | 14.1427 | 14.05 | 0 |
| 22+15 | 14.0448 | 14.04 | 0 |
| 22+30 | 13.8475 | 13.78 | 0 |
| 22+45 | 13.6382 | 13.59 | 0 |
| 23+ 0 | 12.8367 | 12.59 | 0 |
| 23+15 | 12.1797 | 12.04 | 0 |
| 23+30 | 11.7758 | 11.69 | 0 |
| 23+45 | 11.4976 | 11.43 | 0 |
| 24+ 0 | 11.3037 | 11.26 | 0 |
| 24+15 | 10.7686 | 10.61 | 0 |
| 24+30 | 8.9180 | 8.36 | 0 |
| 24+45 | 6.1029 | 5.36 | 0 |
| 25+ 0 | 4.0505 | 3.62 | 0 |
| 25+15 | 2.7402 | 2.45 | 0 |
| 25+30 | 1.8318 | 1.63 | 0 |
| 25+45 | 1.2055 | 1.07 | 0 |
| 26+ 0 | 0.7932 | 0.70 | 0 |
| 26+15 | 0.5318 | 0.47 | 0 |
| 26+30 | 0.3585 | 0.32 | 0 |
| 26+45 | 0.2359 | 0.21 | 0 |
| 27+ 0 | 0.1494 | 0.13 | 0 |
| 27+15 | 0.0918 | 0.08 | 0 |
| 27+30 | 0.0588 | 0.05 | 0 |
| 27+45 | 0.0386 | 0.03 | 0 |
| 28+ 0 | 0.0254 | 0.02 | 0 |
| 28+15 | 0.0167 | 0.01 | 0 |
| 28+30 | 0.0110 | 0.01 | 0 |
| 28+45 | 0.0072 | 0.01 | 0 |
| 29+ 0 | 0.0047 | 0.00 | 0 |
| 29+15 | 0.0031 | 0.00 | 0 |
| 29+30 | 0.0022 | 0.00 | 0 |
| 29+45 | 0.0020 | 0.00 | 0 |
| 30+ 0 | 0.0019 | 0.00 | 0 |
| 30+15 | 0.0019 | 0.00 | 0 |
| 30+30 | 0.0018 | 0.00 | 0 |
| 30+45 | 0.0018 | 0.00 | 0 |
| 31+ 0 | 0.0018 | 0.00 | 0 |
| 31+15 | 0.0017 | 0.00 | 0 |
| 31+30 | 0.0017 | 0.00 | 0 |
| 31+45 | 0.0017 | 0.00 | 0 |
| 32+ 0 | 0.0016 | 0.00 | 0 |
| 32+15 | 0.0016 | 0.00 | 0 |
| 32+30 | 0.0016 | 0.00 | 0 |
| 32+45 | 0.0015 | 0.00 | 0 |
| 33+ 0 | 0.0015 | 0.00 | 0 |
| 33+15 | 0.0015 | 0.00 | 0 |
| 33+30 | 0.0014 | 0.00 | 0 |
| 33+45 | 0.0014 | 0.00 | 0 |
| 34+ 0 | 0.0014 | 0.00 | 0 |
| 34+15 | 0.0013 | 0.00 | 0 |
| 34+30 | 0.0013 | 0.00 | 0 |
| 34+45 | 0.0013 | 0.00 | 0 |
| 35+ 0 | 0.0013 | 0.00 | 0 |
| 35+15 | 0.0012 | 0.00 | 0 |
| 35+30 | 0.0012 | 0.00 | 0 |
| 35+45 | 0.0012 | 0.00 | 0 |
| 36+ 0 | 0.0012 | 0.00 | 0 |
| 36+15 | 0.0011 | 0.00 | 0 |
| 36+30 | 0.0011 | 0.00 | 0 |
| 36+45 | 0.0011 | 0.00 | 0 |
| 37+ 0 | 0.0011 | 0.00 | 0 |
| 37+15 | 0.0011 | 0.00 | 0 |
| 37+30 | 0.0010 | 0.00 | 0 |
| 37+45 | 0.0010 | 0.00 | 0 |
| 38+ 0 | 0.0010 | 0.00 | 0 |
| 38+15 | 0.0002 | 0.00 | 0 |

```
 38+30      0.0000      0.00  0        |         |         |         |
----------------------------------------------------------------------
      ***************************HYDROGRAPH DATA**************************
                  Number of intervals =   154
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =      795.074 (CFS)
                  Total volume =     324.127 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ********************************************************************


      ----------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       72.000 to Point/Station       73.000
      **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
      ______________________________________________________________________
      ********************* HYDROGRAPH INFORMATION **********************

                  From study/file name: SubE224100.rte
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                     P R I N T  O F  S T O R M
                     R u n o f f     H y d r o g r a p h
      ----------------------------------------------------------------
                  Hydrograph in  15  Minute intervals (CFS)

      ----------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0       200.4     400.9     601.3     801.8
----------------------------------------------------------------------
  0+15      0.1383      0.52  Q        |         |         |         |
  0+30      0.4419      2.79  Q        |         |         |         |
  0+45      0.6083      6.61  Q        |         |         |         |
  1+ 0      0.7114     10.32  Q        |         |         |         |
  1+15      0.7674     13.36  Q        |         |         |         |
  1+30      0.6763     15.30  Q        |         |         |         |
  1+45      0.6564     15.96  Q        |         |         |         |
  2+ 0      0.7225     16.58  Q        |         |         |         |
  2+15      0.8381     17.85  Q        |         |         |         |
  2+30      0.8627     19.41  Q        |         |         |         |
  2+45      0.9365     20.80  qQ       |         |         |         |
  3+ 0      1.0554     22.52  qQ       |         |         |         |
  3+15      1.0799     24.42  qQ       |         |         |         |
  3+30      1.0846     25.78  qQ       |         |         |         |
  3+45      1.0862     26.65  qQ       |         |         |         |
  4+ 0      1.1554     27.50  qQ       |         |         |         |
  4+15      1.2726     28.90  qQ       |         |         |         |
  4+30      1.3663     30.84  qQ       |         |         |         |
  4+45      1.4883     33.03  qQ       |         |         |         |
  5+ 0      1.5836     35.47  qQ       |         |         |         |
  5+15      1.5672     37.46  qQ       |         |         |         |
  5+30      1.4280     38.14  qQ       |         |         |         |
  5+45      1.5700     38.30  qQ       |         |         |         |
  6+ 0      1.7040     39.78  qQ       |         |         |         |
  6+15      1.7992     41.93  q Q      |         |         |         |
  6+30      1.9228     44.20  q Q      |         |         |         |
  6+45      2.0181     46.69  q Q      |         |         |         |
  7+ 0      2.1400     49.27  q Q      |         |         |         |
  7+15      2.1662     51.72  q Q      |         |         |         |
  7+30      2.2400     53.71  q Q      |         |         |         |
  7+45      2.4280     56.09  q Q      |         |         |         |
  8+ 0      2.6390     59.53  q Q      |         |         |         |
  8+15      2.9772     64.12  q  Q     |         |         |         |
  8+30      3.3386     69.80  q  Q     |         |         |         |
  8+45      3.5265     75.51  q  Q     |         |         |         |
  9+ 0      3.8238     80.92  q   Q    |         |         |         |
  9+15      4.2451     89.93  q   Q    |         |         |         |
  9+30      4.7373    112.97  q    Q   |         |         |         |
  9+45      5.0992    153.05  q     Q  |         |         |         |
 10+ 0      5.4326    198.82  q      Q |         |         |         |
```



```
 10+15      4.9711    237.07  q        |Q        |         |         |
 10+30      3.8588    233.37  q        |Q        |         |         |
 10+45      4.1322    194.50  q       Q|         |         |         |
 11+ 0      4.9407    194.51  q       Q|         |         |         |
 11+15      5.0167    230.75  q        Q        |         |         |
 11+30      4.8981    253.72  q         Q       |         |         |
 11+45      4.6922    259.90  q         Q       |         |         |
 12+ 0      4.4644    256.01  q         Q       |         |         |
 12+15      5.2659    259.10  q         Q       |         |         |
 12+30      6.5734    314.51  q           Q     |         |         |
 12+45      7.2006    413.70  q             Q   |         |         |
 13+ 0      7.7331    507.69  q               Q |         |         |
 13+15      8.5017    599.16  q                 Q         |         |
 13+30      9.4039    704.69  q                  |Q       |         |
 13+45      8.5177    800.70  q                  |        Q|         |
 14+ 0      6.7249    801.80  q                  |         |Q        |
 14+15      6.7594    729.47  q                  |         |  Q      |
 14+30      7.2700    699.83  q                  |         |   Q     |
 14+45      7.2306    708.87  q                  |         |   Q     |
 15+ 0      7.1365    710.10  q                  |         |   Q     |
 15+15      6.8855    702.41  q                  |         |   Q     |
 15+30      6.5944    686.02  q                  |         |  Q      |
 15+45      6.0023    658.91  q                  |         | Q       |
 16+ 0      5.3005    610.32  q                  |        Q|         |
 16+15      3.8052    536.96  q                  |       Q |         |
 16+30      1.4819    431.04  q                  |Q        |         |
 16+45      0.9233    300.24  q           Q     |         |         |
 17+ 0      0.7141    205.98  q         Q       |         |         |
 17+15      0.7964    145.34  q       Q |       |         |         |
 17+30      1.0261    105.05  q     Q   |       |         |         |
 17+45      1.0736     78.89  q  Q      |       |         |         |
 18+ 0      1.0139     61.44  q  Q      |       |         |         |
 18+15      0.8998     49.33  q Q       |       |         |         |
 18+30      0.8753     40.53  q Q       |       |         |         |
 18+45      0.8014     34.07  qQ        |       |         |         |
 19+ 0      0.6134     28.58  qQ        |       |         |         |
 19+15      0.5408     23.66  qQ        |       |         |         |
 19+30      0.6980     20.85  qQ        |       |         |         |
 19+45      0.7643     20.31  qQ        |       |         |         |
 20+ 0      0.6055     19.72  Q         |       |         |         |
 20+15      0.5392     18.06  Q         |       |         |         |
 20+30      0.6288     16.93  Q         |       |         |         |
 20+45      0.6470     16.90  Q         |       |         |         |
 21+ 0      0.5810     16.72  Q         |       |         |         |
 21+15      0.5345     15.99  Q         |       |         |         |
 21+30      0.5580     15.30  Q         |       |         |         |
 21+45      0.5298     14.98  Q         |       |         |         |
 22+ 0      0.5564     14.70  Q         |       |         |         |
 22+15      0.5298     14.57  Q         |       |         |         |
 22+30      0.5564     14.40  Q         |       |         |         |
 22+45      0.4607     14.10  Q         |       |         |         |
 23+ 0      0.4392     13.28  Q         |       |         |         |
 23+15      0.4361     12.62  Q         |       |         |         |
 23+30      0.4345     12.21  Q         |       |         |         |
 23+45      0.4345     11.93  Q         |       |         |         |
 24+ 0      0.4345     11.74  Q         |       |         |         |
 24+15      0.2962     11.06  Q         |       |         |         |
 24+30      0.0617      8.98  Q         |       |         |         |
 24+45      0.0126      6.12  Q         |       |         |         |
 25+ 0      0.0032      4.05  Q         |       |         |         |
 25+15      0.0000      2.74  Q         |       |         |         |
 25+30      0.0000      1.83  Q         |       |         |         |
 25+45      0.0000      1.21  Q         |       |         |         |
 26+ 0      0.0000      0.79  Q         |       |         |         |
 26+15      0.0000      0.53  Q         |       |         |         |
 26+30      0.0000      0.36  Q         |       |         |         |
 26+45      0.0000      0.24  Q         |       |         |         |
 27+ 0      0.0000      0.15  Q         |       |         |         |
 27+15      0.0000      0.09  Q         |       |         |         |
 27+30      0.0000      0.06  Q         |       |         |         |
 27+45      0.0000      0.04  Q         |       |         |         |
 28+ 0      0.0000      0.03  Q         |       |         |         |
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 28+15 | 0.0000 | 0.02 | Q | | | | |
| 28+30 | 0.0000 | 0.01 | Q | | | | |
| 28+45 | 0.0000 | 0.01 | Q | | | | |
| 29+ 0 | 0.0000 | 0.00 | Q | | | | |
| 29+15 | 0.0000 | 0.00 | Q | | | | |
| 29+30 | 0.0000 | 0.00 | Q | | | | |
| 29+45 | 0.0000 | 0.00 | Q | | | | |
| 30+ 0 | 0.0000 | 0.00 | Q | | | | |
| 30+15 | 0.0000 | 0.00 | Q | | | | |
| 30+30 | 0.0000 | 0.00 | Q | | | | |
| 30+45 | 0.0000 | 0.00 | Q | | | | |
| 31+ 0 | 0.0000 | 0.00 | Q | | | | |
| 31+15 | 0.0000 | 0.00 | Q | | | | |
| 31+30 | 0.0000 | 0.00 | Q | | | | |
| 31+45 | 0.0000 | 0.00 | Q | | | | |
| 32+ 0 | 0.0000 | 0.00 | Q | | | | |
| 32+15 | 0.0000 | 0.00 | Q | | | | |
| 32+30 | 0.0000 | 0.00 | Q | | | | |
| 32+45 | 0.0000 | 0.00 | Q | | | | |
| 33+ 0 | 0.0000 | 0.00 | Q | | | | |
| 33+15 | 0.0000 | 0.00 | Q | | | | |
| 33+30 | 0.0000 | 0.00 | Q | | | | |
| 33+45 | 0.0000 | 0.00 | Q | | | | |
| 34+ 0 | 0.0000 | 0.00 | Q | | | | |
| 34+15 | 0.0000 | 0.00 | Q | | | | |
| 34+30 | 0.0000 | 0.00 | Q | | | | |
| 34+45 | 0.0000 | 0.00 | Q | | | | |
| 35+ 0 | 0.0000 | 0.00 | Q | | | | |
| 35+15 | 0.0000 | 0.00 | Q | | | | |
| 35+30 | 0.0000 | 0.00 | Q | | | | |
| 35+45 | 0.0000 | 0.00 | Q | | | | |
| 36+ 0 | 0.0000 | 0.00 | Q | | | | |
| 36+15 | 0.0000 | 0.00 | Q | | | | |
| 36+30 | 0.0000 | 0.00 | Q | | | | |
| 36+45 | 0.0000 | 0.00 | Q | | | | |
| 37+ 0 | 0.0000 | 0.00 | Q | | | | |
| 37+15 | 0.0000 | 0.00 | Q | | | | |
| 37+30 | 0.0000 | 0.00 | Q | | | | |
| 37+45 | 0.0000 | 0.00 | Q | | | | |
| 38+ 0 | 0.0000 | 0.00 | Q | | | | |
| 38+15 | 0.0000 | 0.00 | Q | | | | |
| 38+30 | 0.0000 | 0.00 | Q | | | | |

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**********HYDROGRAPH DATA**********

Number of intervals = 154
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 801.799 (CFS)
Total volume = 329.307 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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Process from Point/Station 72.000 to Point/Station 73.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****

Current stream hydrograph saved in file LineE3hr.rte

**********HYDROGRAPH DATA**********

Number of intervals = 0
Time interval = 0.0 (Min.)
Maximum/Peak flow rate = 0.000 (CFS)
Total volume = 0.000 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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U n i t  H y d r o g r a p h  A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
Study date 09/11/13 File: OffsiteE124100.out

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| | | | | | | |
|---|---|---|---|---|---|---|
| 26 | 6.50 | 0.90 | 0.161 | ( 0.312) | 0.145 | 0.016 |
| 27 | 6.75 | 1.00 | 0.179 | ( 0.308) | 0.161 | 0.018 |
| 28 | 7.00 | 1.00 | 0.179 | ( 0.304) | 0.161 | 0.018 |
| 29 | 7.25 | 1.00 | 0.179 | ( 0.300) | 0.161 | 0.018 |
| 30 | 7.50 | 1.10 | 0.197 | ( 0.296) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.215 | ( 0.291) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.233 | ( 0.287) | 0.210 | 0.023 |
| 33 | 8.25 | 1.50 | 0.269 | ( 0.283) | 0.242 | 0.027 |
| 34 | 8.50 | 1.50 | 0.269 | ( 0.280) | 0.242 | 0.027 |
| 35 | 8.75 | 1.60 | 0.287 | ( 0.276) | 0.258 | 0.029 |
| 36 | 9.00 | 1.70 | 0.305 | 0.272 | ( 0.275) | 0.033 |
| 37 | 9.25 | 1.90 | 0.341 | 0.268 | ( 0.307) | 0.073 |
| 38 | 9.50 | 2.00 | 0.359 | 0.264 | ( 0.323) | 0.095 |
| 39 | 9.75 | 2.10 | 0.377 | 0.260 | ( 0.339) | 0.116 |
| 40 | 10.00 | 2.20 | 0.395 | 0.257 | ( 0.355) | 0.138 |
| 41 | 10.25 | 1.50 | 0.269 | ( 0.253) | 0.242 | 0.027 |
| 42 | 10.50 | 1.50 | 0.269 | ( 0.249) | 0.242 | 0.027 |
| 43 | 10.75 | 2.00 | 0.359 | 0.246 | ( 0.323) | 0.113 |
| 44 | 11.00 | 2.00 | 0.359 | 0.242 | ( 0.323) | 0.117 |
| 45 | 11.25 | 1.90 | 0.341 | 0.238 | ( 0.307) | 0.103 |
| 46 | 11.50 | 1.90 | 0.341 | 0.235 | ( 0.307) | 0.106 |
| 47 | 11.75 | 1.70 | 0.305 | 0.231 | ( 0.275) | 0.074 |
| 48 | 12.00 | 1.80 | 0.323 | 0.228 | ( 0.291) | 0.095 |
| 49 | 12.25 | 2.50 | 0.449 | 0.225 | ( 0.404) | 0.224 |
| 50 | 12.50 | 2.60 | 0.466 | 0.221 | ( 0.420) | 0.245 |
| 51 | 12.75 | 2.80 | 0.502 | 0.218 | ( 0.452) | 0.285 |
| 52 | 13.00 | 2.90 | 0.520 | 0.215 | ( 0.468) | 0.306 |
| 53 | 13.25 | 3.40 | 0.610 | 0.211 | ( 0.549) | 0.399 |
| 54 | 13.50 | 3.40 | 0.610 | 0.208 | ( 0.549) | 0.402 |
| 55 | 13.75 | 2.30 | 0.413 | 0.205 | ( 0.371) | 0.208 |
| 56 | 14.00 | 2.30 | 0.413 | 0.202 | ( 0.371) | 0.211 |
| 57 | 14.25 | 2.70 | 0.484 | 0.199 | ( 0.436) | 0.286 |
| 58 | 14.50 | 2.60 | 0.466 | 0.196 | ( 0.420) | 0.271 |
| 59 | 14.75 | 2.60 | 0.466 | 0.193 | ( 0.420) | 0.274 |
| 60 | 15.00 | 2.50 | 0.449 | 0.190 | ( 0.404) | 0.259 |
| 61 | 15.25 | 2.40 | 0.431 | 0.187 | ( 0.388) | 0.244 |
| 62 | 15.50 | 2.30 | 0.413 | 0.184 | ( 0.371) | 0.229 |
| 63 | 15.75 | 1.90 | 0.341 | 0.181 | ( 0.307) | 0.160 |
| 64 | 16.00 | 1.90 | 0.341 | 0.178 | ( 0.307) | 0.162 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.176) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.173) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.170) | 0.048 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.168) | 0.048 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.165) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.163) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.160) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.158) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.156) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.153) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.151) | 0.048 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.149) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.147) | 0.048 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.145) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.143) | 0.048 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.141) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.139) | 0.048 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.137) | 0.048 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.136) | 0.048 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.134) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.132) | 0.048 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.131) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.129) | 0.048 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.128) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.127) | 0.048 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.126) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.125) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.124) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.123) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.122) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.121) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.121) | 0.032 | 0.004 |

(Loss Rate Not Used)



Sum = 100.0 Sum = 5.9

Flood volume = Effective rainfall 1.48(In)
times area 1648.5(Ac.)/[(In)/(Ft.)] = 202.7(Ac.Ft)
Total soil loss = 3.01(In)
Total soil loss = 413.516(Ac.Ft)
Total rainfall = 4.49(In)
Flood volume = 8828781.1 Cubic Feet
Total soil loss = 18012764.8 Cubic Feet

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Peak flow rate of this hydrograph = 575.561(CFS)

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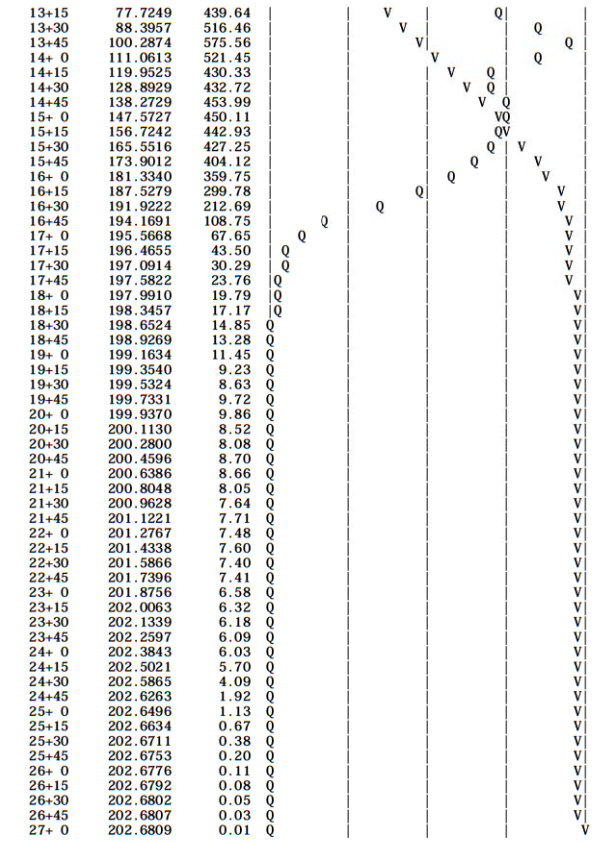
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

---

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 150.0 | 300.0 | 450.0 | 600.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0062 | 0.30 | Q | | | | |
| 0+30 | 0.0485 | 2.05 | Q | | | | |
| 0+45 | 0.1519 | 5.01 | Q | | | | |
| 1+ 0 | 0.2970 | 7.02 | Q | | | | |
| 1+15 | 0.4732 | 8.52 | Q | | | | |
| 1+30 | 0.6657 | 9.32 | Q | | | | |
| 1+45 | 0.8507 | 8.95 | Q | | | | |
| 2+ 0 | 1.0389 | 9.11 | Q | | | | |
| 2+15 | 1.2436 | 9.91 | Q | | | | |
| 2+30 | 1.4704 | 10.98 | Q | | | | |
| 2+45 | 1.7082 | 11.51 | Q | | | | |
| 3+ 0 | 1.9674 | 12.55 | Q | | | | |
| 3+15 | 2.2521 | 13.78 | Q | | | | |
| 3+30 | 2.5468 | 14.26 | Q | | | | |
| 3+45 | 2.8471 | 14.53 | Q | | | | |
| 4+ 0 | 3.1537 | 14.84 | Q | | | | |
| 4+15 | 3.4788 | 15.74 | VQ | | | | |
| 4+30 | 3.8304 | 17.02 | VQ | | | | |
| 4+45 | 4.2074 | 18.24 | VQ | | | | |
| 5+ 0 | 4.6147 | 19.72 | VQ | | | | |
| 5+15 | 5.0438 | 20.77 | VQ | | | | |
| 5+30 | 5.4718 | 20.72 | \|Q | | | | |
| 5+45 | 5.8871 | 20.10 | \|Q | | | | |
| 6+ 0 | 6.3317 | 21.52 | \|Q | | | | |
| 6+15 | 6.8046 | 22.89 | \|Q | | | | |
| 6+30 | 7.3034 | 24.14 | \|Q | | | | |
| 6+45 | 7.8330 | 25.63 | \|Q | | | | |
| 7+ 0 | 8.3910 | 27.01 | \|Q | | | | |
| 7+15 | 8.9784 | 28.43 | \|Q | | | | |
| 7+30 | 9.5810 | 29.17 | \|Q | | | | |
| 7+45 | 10.2101 | 30.45 | \| Q | | | | |
| 8+ 0 | 10.8853 | 32.68 | \| Q | | | | |
| 8+15 | 11.6160 | 35.37 | \| Q | | | | |
| 8+30 | 12.4164 | 38.74 | \| Q | | | | |
| 8+45 | 13.2810 | 41.85 | \| Q | | | | |
| 9+ 0 | 14.1963 | 44.30 | \| Q | | | | |
| 9+15 | 15.2598 | 51.47 | \| Q | | | | |
| 9+30 | 16.8015 | 74.62 | \| VQ | | | | |
| 9+45 | 19.1051 | 111.50 | \| V Q | | | | |
| 10+ 0 | 22.1145 | 145.66 | \| V Q | | | | |
| 10+15 | 25.6167 | 169.50 | \| V \| Q | | | | |
| 10+30 | 28.5899 | 143.90 | \| V Q\| | | | | |
| 10+45 | 30.5652 | 95.60 | \| Q \| | | | | |
| 11+ 0 | 32.9745 | 116.61 | \| VQ \| | | | | |
| 11+15 | 36.2507 | 158.57 | \| V Q | | | | |
| 11+30 | 39.6968 | 166.79 | \| V \|Q | | | | |
| 11+45 | 43.0979 | 164.61 | \| V Q | | | | |
| 12+ 0 | 46.3271 | 156.29 | \| VQ | | | | |
| 12+15 | 49.6295 | 159.83 | \| VQ | | | | |
| 12+30 | 54.2982 | 225.97 | \| V Q | | | | |
| 12+45 | 60.8441 | 316.82 | \| V \|Q | | | | |
| 13+ 0 | 68.6415 | 377.39 | \| V \| Q | | | | |



| | | | |
|---|---|---|---|
| 13+15 | 77.7249 | 439.64 | V Q |
| 13+30 | 88.3957 | 516.46 | V Q |
| 13+45 | 100.2874 | 575.56 | V Q |
| 14+ 0 | 111.0613 | 521.45 | V Q |
| 14+15 | 119.9525 | 430.33 | V Q |
| 14+30 | 128.8929 | 432.72 | V Q |
| 14+45 | 138.2729 | 453.99 | V Q |
| 15+ 0 | 147.5727 | 450.11 | VQ |
| 15+15 | 156.7242 | 442.93 | QV |
| 15+30 | 165.5516 | 427.25 | Q V |
| 15+45 | 173.9012 | 404.12 | Q V |
| 16+ 0 | 181.3340 | 359.75 | Q V |
| 16+15 | 187.5279 | 299.78 | Q V |
| 16+30 | 191.9222 | 212.69 | Q V |
| 16+45 | 194.1691 | 108.75 | Q V |
| 17+ 0 | 195.5668 | 67.65 | Q V |
| 17+15 | 196.4655 | 43.50 | Q V |
| 17+30 | 197.0914 | 30.29 | Q V |
| 17+45 | 197.5822 | 23.76 | Q V |
| 18+ 0 | 197.9910 | 19.79 | Q V |
| 18+15 | 198.3457 | 17.17 | Q V |
| 18+30 | 198.6524 | 14.85 | Q V |
| 18+45 | 198.9269 | 13.28 | Q V |
| 19+ 0 | 199.1634 | 11.45 | Q V |
| 19+15 | 199.3540 | 9.23 | Q V |
| 19+30 | 199.5324 | 8.63 | Q V |
| 19+45 | 199.7331 | 9.72 | Q V |
| 20+ 0 | 199.9370 | 9.86 | Q V |
| 20+15 | 200.1130 | 8.52 | Q V |
| 20+30 | 200.2800 | 8.08 | Q V |
| 20+45 | 200.4596 | 8.70 | Q V |
| 21+ 0 | 200.6386 | 8.66 | Q V |
| 21+15 | 200.8048 | 8.05 | Q V |
| 21+30 | 200.9628 | 7.64 | Q V |
| 21+45 | 201.1221 | 7.71 | Q V |
| 22+ 0 | 201.2767 | 7.48 | Q V |
| 22+15 | 201.4338 | 7.60 | Q V |
| 22+30 | 201.5866 | 7.40 | Q V |
| 22+45 | 201.7396 | 7.41 | Q V |
| 23+ 0 | 201.8756 | 6.58 | Q V |
| 23+15 | 202.0063 | 6.32 | Q V |
| 23+30 | 202.1339 | 6.18 | Q V |
| 23+45 | 202.2597 | 6.09 | Q V |
| 24+ 0 | 202.3843 | 6.03 | Q V |
| 24+15 | 202.5021 | 5.70 | Q V |
| 24+30 | 202.5865 | 4.09 | Q V |
| 24+45 | 202.6263 | 1.92 | Q V |
| 25+ 0 | 202.6496 | 1.13 | Q V |
| 25+15 | 202.6634 | 0.67 | Q V |
| 25+30 | 202.6711 | 0.38 | Q V |
| 25+45 | 202.6753 | 0.20 | Q V |
| 26+ 0 | 202.6776 | 0.11 | Q V |
| 26+15 | 202.6792 | 0.08 | Q V |
| 26+30 | 202.6802 | 0.05 | Q V |
| 26+45 | 202.6807 | 0.03 | Q V |
| 27+ 0 | 202.6809 | 0.01 | Q V |



```
                U n i t   H y d r o g r a p h   A n a l y s i s

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                      Study date  09/11/13 File: OffsiteE224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Watershed E, Offsite E2
Proposed Condition
100-yr, 24-hr

------------------------------------------------------------------
Drainage Area =     780.80(Ac.)  =      1.220 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =     780.80(Ac.)  =      1.220 Sq. Mi.
Length along longest watercourse =   14080.00(Ft.)
Length along longest watercourse measured to centroid =    8100.00(Ft.)
Length along longest watercourse =      2.667 Mi.
Length along longest watercourse measured to centroid =      1.534 Mi.
Difference in elevation =     877.00(Ft.)
Slope along watercourse =    328.8750 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.409 Hr.
Lag time =    24.53 Min.
25% of lag time =     6.13 Min.
40% of lag time =     9.81 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      780.80             1.80               1405.44

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
      780.80             4.50               3513.60

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.85 %
Adjusted average point rain =    4.493(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
    62.200            46.00          0.000
    11.200            66.00          0.000
     4.800            77.00          0.000
```

| | | |
|---|---|---|
| 702.600 | 83.00 | 0.000 |

Total Area Entered = 780.80(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.080 | 0.049 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.014 | 0.006 |
| 77.0 | 77.0 | 0.279 | 0.000 | 0.279 | 0.006 | 0.002 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.900 | 0.189 |
| | | | | | Sum (F) = | 0.245 |

Area averaged mean soil loss (F) (In/Hr) = 0.245
Minimum soil loss rate ((In/Hr)) = 0.123
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

---

U n i t H y d r o g r a p h
FOOTHILL S-Curve

---

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 61.144 | 5.754 | 45.282 |
| 2 | 0.500 | 122.287 | 32.815 | 258.222 |
| 3 | 0.750 | 183.431 | 33.484 | 263.483 |
| 4 | 1.000 | 244.575 | 12.198 | 95.988 |
| 5 | 1.250 | 305.719 | 7.029 | 55.312 |
| 6 | 1.500 | 366.862 | 4.194 | 33.004 |
| 7 | 1.750 | 428.006 | 2.244 | 17.661 |
| 8 | 2.000 | 489.150 | 0.859 | 6.758 |
| 9 | 2.250 | 550.293 | 0.537 | 4.223 |
| 10 | 2.500 | 611.437 | 0.428 | 3.369 |
| 11 | 2.750 | 672.581 | 0.317 | 2.495 |
| 12 | 3.000 | 733.725 | 0.140 | 1.104 |
| | | | Sum = 100.000 | Sum= 786.900 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.433) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.428) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.423) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.418) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.413) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.408) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.403) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.398) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.393) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.389) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.384) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.379) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.374) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.370) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.365) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.360) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.356) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.351) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.347) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.342) | 0.129 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.338) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.334) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.329) | 0.129 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.325) | 0.129 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.321) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.316) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.312) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.308) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.304) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.299) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.295) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.291) | 0.210 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.287) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.283) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.279) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.275) | 0.275 | 0.031 |
| 37 | 9.25 | 1.90 | 0.341 | 0.271 | ( 0.307) | 0.070 |
| 38 | 9.50 | 2.00 | 0.359 | 0.268 | ( 0.324) | 0.092 |
| 39 | 9.75 | 2.10 | 0.377 | 0.264 | ( 0.340) | 0.114 |
| 40 | 10.00 | 2.20 | 0.395 | 0.260 | ( 0.356) | 0.135 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.256) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.253) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.359 | 0.249 | ( 0.324) | 0.111 |
| 44 | 11.00 | 2.00 | 0.359 | 0.245 | ( 0.324) | 0.114 |
| 45 | 11.25 | 1.90 | 0.341 | 0.242 | ( 0.307) | 0.100 |
| 46 | 11.50 | 1.90 | 0.341 | 0.238 | ( 0.307) | 0.103 |
| 47 | 11.75 | 1.70 | 0.306 | 0.234 | ( 0.275) | 0.071 |
| 48 | 12.00 | 1.80 | 0.324 | 0.231 | ( 0.291) | 0.092 |
| 49 | 12.25 | 2.50 | 0.449 | 0.228 | ( 0.404) | 0.222 |
| 50 | 12.50 | 2.60 | 0.467 | 0.224 | ( 0.421) | 0.243 |
| 51 | 12.75 | 2.80 | 0.503 | 0.221 | ( 0.453) | 0.282 |
| 52 | 13.00 | 2.90 | 0.521 | 0.217 | ( 0.469) | 0.304 |
| 53 | 13.25 | 3.40 | 0.611 | 0.214 | ( 0.550) | 0.397 |
| 54 | 13.50 | 3.40 | 0.611 | 0.211 | ( 0.550) | 0.400 |
| 55 | 13.75 | 2.30 | 0.413 | 0.208 | ( 0.372) | 0.206 |
| 56 | 14.00 | 2.30 | 0.413 | 0.205 | ( 0.372) | 0.209 |
| 57 | 14.25 | 2.70 | 0.485 | 0.201 | ( 0.437) | 0.284 |
| 58 | 14.50 | 2.60 | 0.467 | 0.198 | ( 0.421) | 0.269 |
| 59 | 14.75 | 2.60 | 0.467 | 0.195 | ( 0.421) | 0.272 |
| 60 | 15.00 | 2.50 | 0.449 | 0.192 | ( 0.404) | 0.257 |
| 61 | 15.25 | 2.40 | 0.431 | 0.189 | ( 0.388) | 0.242 |
| 62 | 15.50 | 2.30 | 0.413 | 0.187 | ( 0.372) | 0.227 |
| 63 | 15.75 | 1.90 | 0.341 | 0.184 | ( 0.307) | 0.158 |
| 64 | 16.00 | 1.90 | 0.341 | 0.181 | ( 0.307) | 0.161 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.178) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.175) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.173) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.170) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.168) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.165) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.163) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.160) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.158) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.155) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.153) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.151) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.149) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.147) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.145) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.143) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.141) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.139) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.137) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.136) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.134) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.133) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.131) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.130) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.129) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.127) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.126) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.125) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.124) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.124) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.123) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.123) | 0.032 | 0.004 |
| | | | (Loss Rate Not Used) | | | |
| Sum = | | 100.0 | | | Sum = | 5.8 |

```
 Flood volume = Effective rainfall      1.46(In)
  times area     780.8(Ac.)/[(In)/(Ft.)] =      95.0(Ac.Ft)
 Total soil loss =      3.03(In)
 Total soil loss =   197.319(Ac.Ft)
 Total rainfall =      4.49(In)
 Flood volume =     4139699.7 Cubic Feet
 Total soil loss =     8595217.9 Cubic Feet
 ---------------------------------------------------------------
  Peak flow rate of this hydrograph =    275.722(CFS)
 ---------------------------------------------------------------
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R    S T O R M
                 R u n o f f     H y d r o g r a p h
 ---------------------------------------------------------------
              Hydrograph in  15   Minute intervals ((CFS))
 ---------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        75.0       150.0      225.0      300.0
-------------------------------------------------------------------------------
  0+15       0.0034      0.16  Q          |          |          |          |
  0+30       0.0276      1.17  Q          |          |          |          |
  0+45       0.0810      2.58  Q          |          |          |          |
  1+ 0       0.1530      3.49  Q          |          |          |          |
  1+15       0.2406      4.24  Q          |          |          |          |
  1+30       0.3329      4.47  Q          |          |          |          |
  1+45       0.4215      4.29  Q          |          |          |          |
  2+ 0       0.5115      4.35  Q          |          |          |          |
  2+15       0.6107      4.80  Q          |          |          |          |
  2+30       0.7196      5.27  Q          |          |          |          |
  2+45       0.8337      5.52  Q          |          |          |          |
  3+ 0       0.9595      6.09  Q          |          |          |          |
  3+15       1.0963      6.62  Q          |          |          |          |
  3+30       1.2373      6.82  Q          |          |          |          |
  3+45       1.3805      6.93  Q          |          |          |          |
  4+ 0       1.5268      7.08  Q          |          |          |          |
  4+15       1.6835      7.58  VQ         |          |          |          |
  4+30       1.8519      8.15  VQ         |          |          |          |
  4+45       2.0338      8.80  VQ         |          |          |          |
  5+ 0       2.2292      9.46  VQ         |          |          |          |
  5+15       2.4358     10.00   Q         |          |          |          |
  5+30       2.6375      9.76  |Q         |          |          |          |
  5+45       2.8358      9.60  |Q         |          |          |          |
  6+ 0       3.0493     10.33  |Q         |          |          |          |
  6+15       3.2753     10.94  |Q         |          |          |          |
  6+30       3.5150     11.60  |Q         |          |          |          |
  6+45       3.7686     12.27  |Q         |          |          |          |
  7+ 0       4.0369     12.99  |Q         |          |          |          |
  7+15       4.3178     13.60  |Q         |          |          |          |
  7+30       4.6055     13.92  |Q         |          |          |          |
  7+45       4.9073     14.61  |QV        |          |          |          |
  8+ 0       5.2317     15.70   Q         |          |          |          |
  8+15       5.5835     17.02   Q         |          |          |          |
  8+30       5.9702     18.72   Q         |          |          |          |
  8+45       6.3853     20.09   Q         |          |          |          |
  9+ 0       6.8229     21.18   Q         |          |          |          |
  9+15       7.3232     24.21   Q         |          |          |          |
  9+30       8.0714     36.22   VQ        |          |          |          |
  9+45       9.1791     53.61   V  Q      |          |          |          |
 10+ 0      10.6249     69.98    V   Q|    |          |          |          |
 10+15      12.2949     80.83    V    Q     |          |          |          |
 10+30      13.6010     63.22    V  Q  |     |          |          |          |
 10+45      14.4927     43.16    QV    |     |          |          |          |
 11+ 0      15.6728     57.12    VQ    |     |          |          |          |
 11+15      17.2201     74.89     V Q|       |          |          |          |
 11+30      18.8216     77.51     V  Q       |          |          |          |
 11+45      20.4053     76.65     V Q        |          |          |          |
 12+ 0      21.8786     71.30      Q|        |          |          |          |
 12+15      23.4281     75.00      Q|        |          |          |          |
 12+30      25.7415    111.97       V  Q     |          |          |          |
 12+45      28.9153    153.61       | V      Q          |          |          |
 13+ 0      32.6972    183.04       |  V     |  Q       |          |          |
 13+15      37.0909    212.66       |    V   |     Q    |          |          |
```



```
 13+30      42.2963    251.94       |          |     V  |          |  Q       |
 13+45      47.9930    275.72       |          |        V          |     Q    |
 14+ 0      52.9336    239.12       |          |           V       |Q         |
 14+15      57.0578    199.61       |          |             |  V Q|          |
 14+30      61.2916    204.92       |          |             |   V Q          |
 14+45      65.6925    213.00       |          |             |     VQ         |
 15+ 0      70.0569    211.24       |          |             |      QV|       |
 15+15      74.3438    207.48       |          |             |       Q  V     |
 15+30      78.4776    200.08       |          |             |        Q |  V  |
 15+45      82.3644    188.12       |          |             |        Q    V  |
 16+ 0      85.7524    163.98       |          |             |Q          V    |
 16+15      88.5742    136.58       |          |          Q  |           V    |
 16+30      90.4224     89.45       |          |Q            |            V   |
 16+45      91.3450     44.66       |     Q    |             |            V   |
 17+ 0      91.9020     26.96       |  Q       |             |            V   |
 17+15      92.2491     16.80       |Q         |             |            V   |
 17+30      92.4955     11.92       |Q         |             |            V   |
 17+45      92.6955      9.68       |Q         |             |            V|
 18+ 0      92.8727      8.58       |Q         |             |            V|
 18+15      93.0267      7.45       Q         |             |            V|
 18+30      93.1609      6.50       Q         |             |            V|
 18+45      93.2832      5.92       Q         |             |            V|
 19+ 0      93.3890      5.12       Q         |             |            V|
 19+15      93.4761      4.22       Q         |             |            V|
 19+30      93.5607      4.09       Q         |             |            V|
 19+45      93.6574      4.68       Q         |             |            V|
 20+ 0      93.7527      4.61       Q         |             |            V|
 20+15      93.8340      3.93       Q         |             |            V|
 20+30      93.9137      3.86       Q         |             |            V|
 20+45      93.9991      4.13       Q         |             |            V|
 21+ 0      94.0837      4.09       Q         |             |            V|
 21+15      94.1608      3.73       Q         |             |            V|
 21+30      94.2364      3.66       Q         |             |            V|
 21+45      94.3108      3.60       Q         |             |            V|
 22+ 0      94.3849      3.59       Q         |             |            V|
 22+15      94.4581      3.54       Q         |             |            V|
 22+30      94.5316      3.55       Q         |             |            V|
 22+45      94.6029      3.45       Q         |             |            V|
 23+ 0      94.6667      3.09       Q         |             |            V|
 23+15      94.7281      2.98       Q         |             |            V|
 23+30      94.7883      2.91       Q         |             |            V|
 23+45      94.8476      2.87       Q         |             |            V|
 24+ 0      94.9065      2.85       Q         |             |            V|
 24+15      94.9619      2.68       Q         |             |            V|
 24+30      94.9980      1.75       Q         |             |            V|
 24+45      95.0144      0.80       Q         |             |            V|
 25+ 0      95.0237      0.45       Q         |             |            V|
 25+15      95.0287      0.25       Q         |             |            V|
 25+30      95.0314      0.13       Q         |             |            V|
 25+45      95.0327      0.06       Q         |             |            V|
 26+ 0      95.0336      0.04       Q         |             |            V|
 26+15      95.0341      0.03       Q         |             |            V|
 26+30      95.0343      0.01       Q         |             |            V|
 26+45      95.0344      0.00       Q         |             |            V
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U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 09/11/13 File: OffsiteE324100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

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English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

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Watershed E, Offsite E3
Proposed Condition
100-year, 24-hour

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Drainage Area = 17.50(Ac.) = 0.027 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 17.50(Ac.) = 0.027 Sq. Mi.
Length along longest watercourse = 1610.00(Ft.)
Length along longest watercourse measured to centroid = 650.00(Ft.)
Length along longest watercourse = 0.305 Mi.
Length along longest watercourse measured to centroid = 0.123 Mi.
Difference in elevation = 139.00(Ft.)
Slope along watercourse = 455.8509 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.065 Hr.
Lag time = 3.88 Min.
25% of lag time = 0.97 Min.
40% of lag time = 1.55 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 17.50 | 1.80 | 31.50 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 17.50 | 4.50 | 78.75 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 2.200 | 46.00 | 0.000 |
| 2.900 | 66.00 | 0.000 |
| 12.400 | 83.00 | 0.000 |



Total Area Entered = 17.50(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.126 | 0.077 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.166 | 0.067 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.709 | 0.149 |
| | | | | | Sum (F) = | 0.293 |

Area averaged mean soil loss (F) (In/Hr) = 0.293
Minimum soil loss rate ((In/Hr)) = 0.146
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t  H y d r o g r a p h
FOOTHILL S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 386.798 | 66.248 | 11.684 |
| 2 | 0.500 | 773.597 | 33.752 | 5.953 |
| | | | Sum = 100.000 Sum= | 17.637 |

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The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.517) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.511) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.505) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.499) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.493) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.487) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.481) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.476) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.470) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.464) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.458) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.453) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.447) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.442) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.436) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.431) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.425) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.420) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.414) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.409) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.404) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.398) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.393) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.388) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.383) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.378) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.373) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.368) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.363) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.358) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.353) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.348) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.343) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.338) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.334) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.329) | 0.275 | 0.031 |
| 37 | 9.25 | 1.90 | 0.342 | ( 0.324) | 0.308 | 0.034 |
| 38 | 9.50 | 2.00 | 0.360 | 0.320 | ( 0.324) | 0.040 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 39 | 9.75 | 2.10 | 0.378 | 0.315 | ( 0.340) | 0.063 |
| 40 | 10.00 | 2.20 | 0.396 | 0.311 | ( 0.356) | 0.085 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.306) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.302) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.297 | ( 0.324) | 0.063 |
| 44 | 11.00 | 2.00 | 0.360 | 0.293 | ( 0.324) | 0.067 |
| 45 | 11.25 | 1.90 | 0.342 | 0.289 | ( 0.308) | 0.053 |
| 46 | 11.50 | 1.90 | 0.342 | 0.284 | ( 0.308) | 0.058 |
| 47 | 11.75 | 1.70 | 0.306 | ( 0.280) | 0.275 | 0.031 |
| 48 | 12.00 | 1.80 | 0.324 | 0.276 | ( 0.292) | 0.048 |
| 49 | 12.25 | 2.50 | 0.450 | 0.272 | ( 0.405) | 0.178 |
| 50 | 12.50 | 2.60 | 0.468 | 0.268 | ( 0.421) | 0.200 |
| 51 | 12.75 | 2.80 | 0.504 | 0.264 | ( 0.454) | 0.240 |
| 52 | 13.00 | 2.90 | 0.522 | 0.260 | ( 0.470) | 0.262 |
| 53 | 13.25 | 3.40 | 0.612 | 0.256 | ( 0.551) | 0.356 |
| 54 | 13.50 | 3.40 | 0.612 | 0.252 | ( 0.551) | 0.360 |
| 55 | 13.75 | 2.30 | 0.414 | 0.248 | ( 0.373) | 0.166 |
| 56 | 14.00 | 2.30 | 0.414 | 0.244 | ( 0.373) | 0.170 |
| 57 | 14.25 | 2.70 | 0.486 | 0.241 | ( 0.437) | 0.245 |
| 58 | 14.50 | 2.60 | 0.468 | 0.237 | ( 0.421) | 0.231 |
| 59 | 14.75 | 2.60 | 0.468 | 0.233 | ( 0.421) | 0.235 |
| 60 | 15.00 | 2.50 | 0.450 | 0.230 | ( 0.405) | 0.220 |
| 61 | 15.25 | 2.40 | 0.432 | 0.226 | ( 0.389) | 0.206 |
| 62 | 15.50 | 2.30 | 0.414 | 0.223 | ( 0.373) | 0.191 |
| 63 | 15.75 | 1.90 | 0.342 | 0.219 | ( 0.308) | 0.123 |
| 64 | 16.00 | 1.90 | 0.342 | 0.216 | ( 0.308) | 0.126 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.213) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.209) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.206) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.203) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.200) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.197) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.194) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.191) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.188) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.186) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.183) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.180) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.178) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.175) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.173) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.171) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.168) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.166) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.164) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.162) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.160) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.158) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.157) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.155) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.154) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.152) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.151) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.150) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.149) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.148) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.147) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.146) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 4.8

Flood volume = Effective rainfall 1.19(In)
times area 17.5(Ac.)/[(In)/(Ft.)] = 1.7(Ac.Ft)
Total soil loss = 3.31(In)
Total soil loss = 4.826(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 75617.2 Cubic Feet
Total soil loss = 210235.6 Cubic Feet

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Peak flow rate of this hydrograph = 6.330(CFS)

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24 - H O U R S T O R M



R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 2.5 5.0 7.5 10.0 |
|---|---|---|---|
| 0+15 | 0.0009 | 0.04 | Q |
| 0+30 | 0.0026 | 0.08 | Q |
| 0+45 | 0.0046 | 0.10 | Q |
| 1+ 0 | 0.0070 | 0.12 | Q |
| 1+15 | 0.0092 | 0.11 | Q |
| 1+30 | 0.0111 | 0.10 | Q |
| 1+45 | 0.0131 | 0.10 | Q |
| 2+ 0 | 0.0155 | 0.12 | Q |
| 2+15 | 0.0181 | 0.13 | Q |
| 2+30 | 0.0208 | 0.13 | Q |
| 2+45 | 0.0238 | 0.15 | Q |
| 3+ 0 | 0.0271 | 0.16 | Q |
| 3+15 | 0.0304 | 0.16 | Q |
| 3+30 | 0.0337 | 0.16 | Q |
| 3+45 | 0.0370 | 0.16 | Q |
| 4+ 0 | 0.0407 | 0.18 | Q |
| 4+15 | 0.0446 | 0.19 | QV |
| 4+30 | 0.0490 | 0.21 | QV |
| 4+45 | 0.0536 | 0.22 | QV |
| 5+ 0 | 0.0586 | 0.24 | QV |
| 5+15 | 0.0630 | 0.21 | QV |
| 5+30 | 0.0674 | 0.21 | QV |
| 5+45 | 0.0724 | 0.24 | QV |
| 6+ 0 | 0.0776 | 0.25 | Q |
| 6+15 | 0.0833 | 0.28 | Q |
| 6+30 | 0.0892 | 0.29 | QV |
| 6+45 | 0.0956 | 0.31 | QV |
| 7+ 0 | 0.1021 | 0.32 | QV |
| 7+15 | 0.1087 | 0.32 | QV |
| 7+30 | 0.1157 | 0.34 | QV |
| 7+45 | 0.1233 | 0.37 | QV |
| 8+ 0 | 0.1316 | 0.40 | Q V |
| 8+15 | 0.1410 | 0.45 | Q V |
| 8+30 | 0.1509 | 0.48 | Q V |
| 8+45 | 0.1612 | 0.50 | Q V |
| 9+ 0 | 0.1721 | 0.53 | QV |
| 9+15 | 0.1841 | 0.58 | Q V |
| 9+30 | 0.1981 | 0.68 | Q V |
| 9+45 | 0.2183 | 0.98 | Q V |
| 10+ 0 | 0.2466 | 1.37 | Q |
| 10+15 | 0.2637 | 0.82 | Q V |
| 10+30 | 0.2735 | 0.48 | Q V |
| 10+45 | 0.2920 | 0.89 | Q V |
| 11+ 0 | 0.3159 | 1.16 | Q V |
| 11+15 | 0.3371 | 1.02 | Q V |
| 11+30 | 0.3576 | 0.99 | Q V |
| 11+45 | 0.3721 | 0.70 | Q V |
| 12+ 0 | 0.3875 | 0.74 | Q V |
| 12+15 | 0.4364 | 2.37 | QV |
| 12+30 | 0.5067 | 3.40 | V Q |
| 12+45 | 0.5894 | 4.00 | V Q |
| 13+ 0 | 0.6823 | 4.50 | V Q |
| 13+15 | 0.8006 | 5.73 | V Q |
| 13+30 | 0.9314 | 6.33 | V Q |
| 13+45 | 1.0157 | 4.08 | Q V |
| 14+ 0 | 1.0771 | 2.97 | Q V |
| 14+15 | 1.1573 | 3.88 | Q V |
| 14+30 | 1.2433 | 4.16 | Q V |
| 14+45 | 1.3284 | 4.12 | Q V |
| 15+ 0 | 1.4105 | 3.97 | Q V |
| 15+15 | 1.4873 | 3.72 | Q V |
| 15+30 | 1.5588 | 3.46 | Q V |
| 15+45 | 1.6119 | 2.57 | Q V |
| 16+ 0 | 1.6574 | 2.20 | Q V |
| 16+15 | 1.6747 | 0.83 | Q V |

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 16+30     1.6773     0.13  Q        |         |         |         V |
 16+45     1.6795     0.11  Q        |         |         |         V |
 17+ 0     1.6815     0.10  Q        |         |         |         V |
 17+15     1.6843     0.14  Q        |         |         |         V |
 17+30     1.6876     0.16  Q        |         |         |         V |
 17+45     1.6909     0.16  Q        |         |         |         V |
 18+ 0     1.6937     0.14  Q        |         |         |         V|
 18+15     1.6963     0.13  Q        |         |         |         V|
 18+30     1.6990     0.13  Q        |         |         |         V|
 18+45     1.7011     0.11  Q        |         |         |         V|
 19+ 0     1.7027     0.07  Q        |         |         |         V|
 19+15     1.7044     0.08  Q        |         |         |         V|
 19+30     1.7068     0.12  Q        |         |         |         V|
 19+45     1.7090     0.11  Q        |         |         |         V|
 20+ 0     1.7106     0.07  Q        |         |         |         V|
 20+15     1.7123     0.08  Q        |         |         |         V|
 20+30     1.7143     0.10  Q        |         |         |         V|
 20+45     1.7162     0.10  Q        |         |         |         V|
 21+ 0     1.7178     0.07  Q        |         |         |         V|
 21+15     1.7195     0.08  Q        |         |         |         V|
 21+30     1.7211     0.07  Q        |         |         |         V|
 21+45     1.7228     0.08  Q        |         |         |         V|
 22+ 0     1.7243     0.07  Q        |         |         |         V|
 22+15     1.7261     0.08  Q        |         |         |         V|
 22+30     1.7276     0.07  Q        |         |         |         V|
 22+45     1.7289     0.06  Q        |         |         |         V|
 23+ 0     1.7302     0.06  Q        |         |         |         V|
 23+15     1.7316     0.06  Q        |         |         |         V|
 23+30     1.7329     0.06  Q        |         |         |         V|
 23+45     1.7342     0.06  Q        |         |         |         V|
 24+ 0     1.7355     0.06  Q        |         |         |         V|
 24+15     1.7359     0.02  Q        |         |         |         V|
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        U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Watershed E, Onsite E1
Proposed Condition
100-year, 24-hour

----------------------------------------------------------------------
Drainage Area =      81.47(Ac.)  =     0.127 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      81.47(Ac.)  =      0.127 Sq. Mi.
Length along longest watercourse =    1200.00(Ft.)
Length along longest watercourse measured to centroid =     600.00(Ft.)
Length along longest watercourse =      0.227 Mi.
Length along longest watercourse measured to centroid =      0.114 Mi.
Difference in elevation =      24.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.037 Hr.
Lag time =     2.22 Min.
25% of lag time =     0.56 Min.
40% of lag time =     0.89 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       81.47                 1.80              146.65

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       81.47                 4.50              366.62

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.98 %
Adjusted average point rain =    4.499(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
    81.470            85.00          0.750
 Total Area Entered =     81.47(Ac.)
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| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 675.381 | 77.819 | 63.894 |
| 2 | 0.500 | 1350.763 | 22.181 | 18.212 |
| | | | Sum = 100.000 | Sum= 82.106 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| | Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.275 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.294 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.313 |
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |
| 42 | 10.50 | 1.50 | 0.270 | 0.063 | ( 0.081) | 0.207 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 43 | 10.75 | 2.00 | 0.360 | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | 0.052 | ( 0.184) | 0.560 |
| 55 | 13.75 | 2.30 | 0.414 | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 81.5(Ac.)/[(In)/(Ft.)] = 24.7(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 5.870(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 1074896.8 Cubic Feet
Total soil loss = 255703.9 Cubic Feet

Peak flow rate of this hydrograph = 45.954(CFS)

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 12.5 | 25.0 | 37.5 | 50.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0333 | 1.61 | VQ | | | | |
| 0+30 | 0.0927 | 2.88 | V Q | | | | |
| 0+45 | 0.1568 | 3.10 | V Q | | | | |
| 1+ 0 | 0.2376 | 3.91 | V Q | | | | |
| 1+15 | 0.3065 | 3.33 | V Q | | | | |
| 1+30 | 0.3707 | 3.10 | V Q | | | | |
| 1+45 | 0.4348 | 3.10 | V Q | | | | |
| 2+ 0 | 0.5156 | 3.91 | V Q | | | | |
| 2+15 | 0.6011 | 4.14 | V Q | | | | |
| 2+30 | 0.6866 | 4.14 | V Q | | | | |
| 2+45 | 0.7888 | 4.95 | V Q | | | | |
| 3+ 0 | 0.8957 | 5.17 | V Q | | | | |
| 3+15 | 1.0026 | 5.17 | V Q | | | | |
| 3+30 | 1.1096 | 5.17 | V Q | | | | |
| 3+45 | 1.2165 | 5.17 | V Q | | | | |
| 4+ 0 | 1.3400 | 5.98 | V Q | | | | |
| 4+15 | 1.4683 | 6.21 | V Q | | | | |
| 4+30 | 1.6132 | 7.01 | V Q | | | | |
| 4+45 | 1.7629 | 7.24 | V Q | | | | |
| 5+ 0 | 1.9292 | 8.05 | V Q | | | | |
| 5+15 | 2.0670 | 6.67 | V Q | | | | |
| 5+30 | 2.2120 | 7.01 | V Q | | | | |
| 5+45 | 2.3783 | 8.05 | V Q | | | | |
| 6+ 0 | 2.5493 | 8.28 | V Q | | | | |
| 6+15 | 2.7370 | 9.08 | V Q | | | | |
| 6+30 | 2.9295 | 9.31 | V Q | | | | |
| 6+45 | 3.1386 | 10.12 | V Q | | | | |
| 7+ 0 | 3.3524 | 10.35 | V Q | | | | |
| 7+15 | 3.5662 | 10.35 | V Q | | | | |
| 7+30 | 3.7967 | 11.15 | V Q | | | | |
| 7+45 | 4.0485 | 12.19 | V Q | | | | |
| 8+ 0 | 4.3217 | 13.22 | V Q | | | | |
| 8+15 | 4.6459 | 15.69 | V Q | | | | |
| 8+30 | 4.9844 | 16.39 | V Q | | | | |
| 8+45 | 5.3484 | 17.62 | V Q | | | | |
| 9+ 0 | 5.7446 | 19.18 | V Q | | | | |
| 9+15 | 6.1968 | 21.89 | V Q | | | | |
| 9+30 | 6.6879 | 23.77 | V Q | | | | |
| 9+45 | 7.2112 | 25.33 | V Q | | | | |
| 10+ 0 | 7.7667 | 26.88 | V Q | | | | |
| 10+15 | 8.1641 | 19.23 | V Q | | | | |
| 10+30 | 8.5156 | 17.01 | V Q | | | | |
| 10+45 | 8.9875 | 22.84 | V Q | | | | |
| 11+ 0 | 9.4949 | 24.56 | V Q | | | | |
| 11+15 | 9.9800 | 23.48 | V Q | | | | |
| 11+30 | 10.4598 | 23.22 | V Q | | | | |
| 11+45 | 10.8936 | 21.00 | V Q | | | | |
| 12+ 0 | 11.3391 | 21.56 | V Q | | | | |
| 12+15 | 11.9592 | 30.01 | V Q | | | | |
| 12+30 | 12.6519 | 33.53 | V Q | | | | |
| 12+45 | 13.4004 | 36.23 | V Q | | | | |
| 13+ 0 | 14.1876 | 38.10 | V Q | | | | |
| 13+15 | 15.1018 | 44.25 | V Q | | | | |
| 13+30 | 16.0513 | 45.95 | V Q | | | | |
| 13+45 | 16.7406 | 33.36 | V Q | | | | |
| 14+ 0 | 17.3568 | 29.82 | V Q | | | | |
| 14+15 | 18.0693 | 34.49 | V Q | | | | |
| 14+30 | 18.7865 | 34.71 | V Q | | | | |
| 14+45 | 19.4982 | 34.45 | V Q | | | | |
| 15+ 0 | 20.1874 | 33.36 | V Q | | | | |
| 15+15 | 20.8472 | 31.94 | V Q | | | | |
| 15+30 | 21.4778 | 30.52 | V Q | | | | |
| 15+45 | 22.0077 | 25.65 | V Q | | | | |
| 16+ 0 | 22.5117 | 24.39 | V Q | | | | |
| 16+15 | 22.6901 | 8.63 | Q | V | | | |
| 16+30 | 22.7756 | 4.14 | Q | V | | | |
| 16+45 | 22.8445 | 3.33 | Q | V | | | |
| 17+ 0 | 22.9086 | 3.10 | Q | V | | | |
| 17+15 | 23.0061 | 4.72 | Q | V | | | |
| 17+30 | 23.1130 | 5.17 | Q | V | | | |
| 17+45 | 23.2199 | 5.17 | Q | V | | | |
| 18+ 0 | 23.3102 | 4.37 | Q | V | | | |
| 18+15 | 23.3957 | 4.14 | Q | V | | | |
| 18+30 | 23.4812 | 4.14 | Q | V | | | |
| 18+45 | 23.5501 | 3.33 | Q | V | | | |
| 19+ 0 | 23.5976 | 2.30 | Q | V | | | |
| 19+15 | 23.6570 | 2.88 | Q | V | | | |
| 19+30 | 23.7378 | 3.91 | Q | V | | | |
| 19+45 | 23.8067 | 3.33 | Q | V | | | |
| 20+ 0 | 23.8542 | 2.30 | Q | V | | | |
| 20+15 | 23.9136 | 2.88 | Q | V | | | |
| 20+30 | 23.9778 | 3.10 | Q | V | | | |
| 20+45 | 24.0419 | 3.10 | Q | V | | | |
| 21+ 0 | 24.0894 | 2.30 | Q | V | | | |
| 21+15 | 24.1488 | 2.88 | Q | V | | | |
| 21+30 | 24.1963 | 2.30 | Q | V | | | |
| 21+45 | 24.2557 | 2.88 | Q | V | | | |
| 22+ 0 | 24.3032 | 2.30 | Q | V | | | |
| 22+15 | 24.3627 | 2.88 | Q | V | | | |
| 22+30 | 24.4102 | 2.30 | Q | V | | | |
| 22+45 | 24.4529 | 2.07 | Q | V | | | |
| 23+ 0 | 24.4957 | 2.07 | Q | V | | | |
| 23+15 | 24.5385 | 2.07 | Q | V | | | |
| 23+30 | 24.5812 | 2.07 | Q | V | | | |
| 23+45 | 24.6240 | 2.07 | Q | V | | | |
| 24+ 0 | 24.6667 | 2.07 | Q | V | | | |
| 24+15 | 24.6762 | 0.46 | Q | V | | | |

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 09/11/13 File: SubE224100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6097

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English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

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Watershed E, Onsite E2
Proposed Conditions
100 Yr. 24 Hr.

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Drainage Area = 17.10(Ac.) = 0.027 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 17.10(Ac.) = 0.027 Sq. Mi.
Length along longest watercourse = 2900.00(Ft.)
Length along longest watercourse measured to centroid = 1850.00(Ft.)
Length along longest watercourse = 0.549 Mi.
Length along longest watercourse measured to centroid = 0.350 Mi.
Difference in elevation = 53.00(Ft.)
Slope along watercourse = 96.4966 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.162 Hr.
Lag time = 9.69 Min.
25% of lag time = 2.42 Min.
40% of lag time = 3.88 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 17.10 | 1.80 | 30.78 |

100 YEAR Area rainfall data:

| Area(Ac.)[1] | Rainfall(In)[2] | Weighting[1*2] |
|---|---|---|
| 17.10 | 4.50 | 76.95 |

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

| Area(Ac.) | Runoff Index | Impervious % |
|---|---|---|
| 17.100 | 85.00 | 0.750 |

Total Area Entered = 17.10(Ac.)



| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

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U n i t  H y d r o g r a p h
FOOTHILL S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 154.750 | 31.833 | 5.486 |
| 2 | 0.500 | 309.500 | 53.965 | 9.300 |
| 3 | 0.750 | 464.249 | 11.299 | 1.947 |
| 4 | 1.000 | 618.999 | 2.163 | 0.373 |
| 5 | 1.250 | 773.749 | 0.741 | 0.128 |
| | | | Sum = 100.000 | Sum= 17.234 |

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The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.275 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.294 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.313 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | 10.00 | 2.20 | 0.396 | | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | | 0.064 | ( 0.081) | 0.206 |
| 42 | 10.50 | 1.50 | 0.270 | | 0.063 | ( 0.081) | 0.207 |
| 43 | 10.75 | 2.00 | 0.360 | | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | | 0.056 | ( 0.135) | 0.394 |
| 50 | 12.50 | 2.60 | 0.468 | | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | | 0.052 | ( 0.184) | 0.560 |
| 55 | 13.75 | 2.30 | 0.414 | | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | | 0.048 | ( 0.140) | 0.420 |
| 60 | 15.00 | 2.50 | 0.450 | | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( | 0.044) | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( | 0.044) | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( | 0.043) | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( | 0.042) | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( | 0.042) | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( | 0.041) | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( | 0.040) | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( | 0.040) | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( | 0.039) | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( | 0.039) | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( | 0.038) | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( | 0.037) | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( | 0.037) | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( | 0.036) | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( | 0.036) | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( | 0.035) | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( | 0.035) | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( | 0.035) | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( | 0.034) | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( | 0.034) | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( | 0.033) | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( | 0.033) | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( | 0.033) | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( | 0.032) | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( | 0.032) | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( | 0.032) | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( | 0.031) | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( | 0.031) | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( | 0.031) | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( | 0.031) | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( | 0.031) | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( | 0.030) | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.64(In)
times area 17.1(Ac.)/[(In)/(Ft.)] = 5.2(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 1.232(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 225645.5 Cubic Feet
Total soil loss = 53673.7 Cubic Feet

---

Peak flow rate of this hydrograph = 9.404(CFS)

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h



---

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 2.5 5.0 7.5 10.0 |
|---|---|---|---|
| 0+15 | 0.0029 | 0.14 | Q |
| 0+30 | 0.0120 | 0.44 | VQ |
| 0+45 | 0.0246 | 0.61 | V Q |
| 1+ 0 | 0.0393 | 0.71 | V Q |
| 1+15 | 0.0551 | 0.77 | V Q |
| 1+30 | 0.0691 | 0.68 | V Q |
| 1+45 | 0.0826 | 0.66 | V Q |
| 2+ 0 | 0.0976 | 0.72 | V Q |
| 2+15 | 0.1149 | 0.84 | V Q |
| 2+30 | 0.1327 | 0.86 | V Q |
| 2+45 | 0.1521 | 0.94 | V Q |
| 3+ 0 | 0.1739 | 1.06 | V Q |
| 3+15 | 0.1962 | 1.08 | V Q |
| 3+30 | 0.2186 | 1.08 | V Q |
| 3+45 | 0.2410 | 1.09 | V Q |
| 4+ 0 | 0.2649 | 1.16 | V Q |
| 4+15 | 0.2912 | 1.27 | V Q |
| 4+30 | 0.3194 | 1.37 | V Q |
| 4+45 | 0.3502 | 1.49 | V Q |
| 5+ 0 | 0.3829 | 1.58 | V Q |
| 5+15 | 0.4153 | 1.57 | V Q |
| 5+30 | 0.4448 | 1.43 | V Q |
| 5+45 | 0.4772 | 1.57 | V Q |
| 6+ 0 | 0.5124 | 1.70 | V Q |
| 6+15 | 0.5496 | 1.80 | V Q |
| 6+30 | 0.5893 | 1.92 | V Q |
| 6+45 | 0.6310 | 2.02 | V Q |
| 7+ 0 | 0.6752 | 2.14 | V Q |
| 7+15 | 0.7200 | 2.17 | V Q |
| 7+30 | 0.7663 | 2.24 | V Q |
| 7+45 | 0.8164 | 2.43 | V Q |
| 8+ 0 | 0.8710 | 2.64 | V Q |
| 8+15 | 0.9325 | 2.98 | V Q |
| 8+30 | 1.0015 | 3.34 | V Q |
| 8+45 | 1.0743 | 3.53 | V Q |
| 9+ 0 | 1.1533 | 3.82 | V Q |
| 9+15 | 1.2410 | 4.25 | V Q |
| 9+30 | 1.3389 | 4.74 | V Q |
| 9+45 | 1.4443 | 5.10 | V Q |
| 10+ 0 | 1.5565 | 5.43 | V Q |
| 10+15 | 1.6592 | 4.97 | V Q |
| 10+30 | 1.7390 | 3.86 | V Q |
| 10+45 | 1.8243 | 4.13 | V Q |
| 11+ 0 | 1.9264 | 4.94 | V Q |
| 11+15 | 2.0301 | 5.02 | V Q |
| 11+30 | 2.1313 | 4.90 | V Q |
| 11+45 | 2.2282 | 4.69 | VQ |
| 12+ 0 | 2.3204 | 4.46 | Q |
| 12+15 | 2.4292 | 5.27 | V Q |
| 12+30 | 2.5651 | 6.57 | V Q |
| 12+45 | 2.7138 | 7.20 | V Q |
| 13+ 0 | 2.8736 | 7.73 | V Q |
| 13+15 | 3.0493 | 8.50 | V Q |
| 13+30 | 3.2436 | 9.40 | V Q |
| 13+45 | 3.4195 | 8.52 | V Q |
| 14+ 0 | 3.5585 | 6.72 | QV |
| 14+15 | 3.6981 | 6.76 | QV |
| 14+30 | 3.8483 | 7.27 | Q |
| 14+45 | 3.9977 | 7.23 | Q V |
| 15+ 0 | 4.1452 | 7.14 | Q V |
| 15+15 | 4.2875 | 6.89 | Q V |
| 15+30 | 4.4237 | 6.59 | Q V |
| 15+45 | 4.5477 | 6.00 | Q V |
| 16+ 0 | 4.6572 | 5.30 | Q V |
| 16+15 | 4.7358 | 3.81 | Q V |
| 16+30 | 4.7665 | 1.48 | Q V |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 16+45 | 4.7855 | 0.92 | Q | \| | \| | \| | V \| |
| 17+ 0 | 4.8003 | 0.71 | Q | \| | \| | \| | V \| |
| 17+15 | 4.8168 | 0.80 | Q | \| | \| | \| | V \| |
| 17+30 | 4.8380 | 1.03 | Q | \| | \| | \| | V \| |
| 17+45 | 4.8601 | 1.07 | Q | \| | \| | \| | V \| |
| 18+ 0 | 4.8811 | 1.01 | Q | \| | \| | \| | V \| |
| 18+15 | 4.8997 | 0.90 | Q | \| | \| | \| | V \| |
| 18+30 | 4.9178 | 0.88 | Q | \| | \| | \| | V \| |
| 18+45 | 4.9343 | 0.80 | Q | \| | \| | \| | V \| |
| 19+ 0 | 4.9470 | 0.61 | Q | \| | \| | \| | V \| |
| 19+15 | 4.9582 | 0.54 | Q | \| | \| | \| | V \| |
| 19+30 | 4.9726 | 0.70 | Q | \| | \| | \| | V \| |
| 19+45 | 4.9884 | 0.76 | Q | \| | \| | \| | V \| |
| 20+ 0 | 5.0009 | 0.61 | Q | \| | \| | \| | V \| |
| 20+15 | 5.0120 | 0.54 | Q | \| | \| | \| | V \| |
| 20+30 | 5.0250 | 0.63 | Q | \| | \| | \| | V \| |
| 20+45 | 5.0384 | 0.65 | Q | \| | \| | \| | V \| |
| 21+ 0 | 5.0504 | 0.58 | Q | \| | \| | \| | V \| |
| 21+15 | 5.0614 | 0.53 | Q | \| | \| | \| | V \| |
| 21+30 | 5.0730 | 0.56 | Q | \| | \| | \| | V \| |
| 21+45 | 5.0839 | 0.53 | Q | \| | \| | \| | V \| |
| 22+ 0 | 5.0954 | 0.56 | Q | \| | \| | \| | V \| |
| 22+15 | 5.1064 | 0.53 | Q | \| | \| | \| | V \| |
| 22+30 | 5.1179 | 0.56 | Q | \| | \| | \| | V \| |
| 22+45 | 5.1274 | 0.46 | Q \| | \| | \| | \| | V \| |
| 23+ 0 | 5.1364 | 0.44 | Q \| | \| | \| | \| | V \| |
| 23+15 | 5.1455 | 0.44 | Q \| | \| | \| | \| | V \| |
| 23+30 | 5.1544 | 0.43 | Q \| | \| | \| | \| | V \| |
| 23+45 | 5.1634 | 0.43 | Q \| | \| | \| | \| | V \| |
| 24+ 0 | 5.1724 | 0.43 | Q \| | \| | \| | \| | V \| |
| 24+15 | 5.1785 | 0.30 | Q \| | \| | \| | \| | V \| |
| 24+30 | 5.1798 | 0.06 | Q | \| | \| | \| | V \| |
| 24+45 | 5.1800 | 0.01 | Q | \| | \| | \| | V \| |
| 25+ 0 | 5.1801 | 0.00 | Q | \| | \| | \| | V \| |

```
                FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                    Study date: 09/18/13

---------------------------------------------------------------------


Line F, Routed
Proposed Condition
100-year, 3-hour

---------------------------------------------------------------------


Program License Serial Number 6097

---------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

              From study/file name: OffsiteF23100.rte
**************************HYDROGRAPH DATA**************************
              Number of intervals =    15
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =       54.380 (CFS)
              Total volume =       4.956 (Ac.Ft)
      Status of hydrographs being held in storage
                Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)       0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
*********************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        3.000
**** STREAM ROUTING SCS CONVEX METHOD ****
_____________________________________________________________________
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   1200.00 (Ft.)
Elevation difference =   24.00 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  1200.00(Ft.)   Elevation difference =  24.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =    19.552(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =    19.552(CFS)
Normal flow depth in pipe =    9.55(In.)
Flow top width inside pipe =   48.84(In.)
Critical depth could not be calculated.
Pipe flow velocity =      8.79(Ft/s)
Travel time through pipe =    2.27 min.


Pipe length  =  1200.00(Ft.)   Elevation difference =  24.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =    54.380(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =    54.380(CFS)
Normal flow depth in pipe =   15.74(In.)
Flow top width inside pipe =   59.51(In.)
Critical Depth =    1.96(Ft.)
Pipe flow velocity =     11.90(Ft/s)
Travel time through pipe =    1.68 min.
```



```
********************** SCS CONVEX CHANNEL ROUTING ********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.8750   Travel time =   1.68 (min.)
        dt*(unit time interval) =  15.00(min.),  e=   7.1333
        dt(routing time-step) =   1.47 (min.),   c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                P R I N T  O F  S T O R M
              R u n o f f     H y d r o g r a p h
---------------------------------------------------------------------
            Hydrograph in  15   Minute intervals (CFS)
---------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0       13.6      27.2      40.8      54.4
---------------------------------------------------------------------
  0+15       0.6286      0.70  0       |         |         |         |
  0+30       2.8136      3.04  | 0     |         |         |         |
  0+45       5.1864      5.42  |  0    |         |         |         |
  1+ 0       5.8206      5.86  |   0   |         |         |         |
  1+15       8.4736      8.76  |     0 |         |         |         |
  1+30      13.0415     13.51  |       0|         |         |         |
  1+45      17.0150     17.40  |        0|        |         |         |
  2+ 0      20.6393     20.99  |         |0       |         |         |
  2+15      27.9549     28.71  |         |  I     |         |         |
  2+30      43.9475     45.60  |         |        |         |  O      |
  2+45      53.5192     54.38  |         |        |         |        I|
  3+ 0      32.6202     30.26  |         |        |      I  O       |
  3+15       7.1638      4.65  |  I 0    |        |         |         |
  3+30       0.9737      0.57  0         |        |         |         |
  3+45       0.0753      0.02  0         |        |         |         |
  4+ 0       0.0021      0.00  0         |        |         |         |
  4+15       0.0000      0.00  0         |        |         |         |
---------------------------------------------------------------------
              **************************HYDROGRAPH DATA**************************
                      Number of intervals =    17
                      Time interval =   15.0 (Min.)
                      Maximum/Peak flow rate =       53.519 (CFS)
                      Total volume =       4.956 (Ac.Ft)
              Status of hydrographs being held in storage
                        Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
              Peak (CFS)       0.000     0.000     0.000     0.000     0.000
              Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
              *********************************************************************


              ---------------------------------------------------------------------


              ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
              Process from Point/Station        2.000 to Point/Station        3.000
              **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
              _____________________________________________________________________
              ******************** HYDROGRAPH INFORMATION **********************

                        From study/file name: SubF13100.rte
              ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        P R I N T  O F  S T O R M
                      R u n o f f     H y d r o g r a p h
              ---------------------------------------------------------------------
                    Hydrograph in  15   Minute intervals (CFS)
              ---------------------------------------------------------------------
              Time(h+m) Add q(CFS)  Tot. Q  0       39.9      79.9      119.8     159.7
              ---------------------------------------------------------------------
                0+15      15.3323     15.96  | Q     |         |         |         |
                0+30      25.5183     28.33  |    qQ |         |         |         |
                0+45      28.7621     33.95  |     qQ|         |         |         |
```

```
 1+ 0      28.1568      33.98  |      qQ |         |         |         |
 1+15      36.8433      45.32  |        q|Q        |         |         |
 1+30      43.1061      56.15  |         q   Q     |         |         |
 1+45      49.9766      66.99  |           q   Q   |         |         |
 2+ 0      54.8065      75.45  |             q   Q |         |         |
 2+15      73.1577     101.11  |               |   q     Q |         |
 2+30     106.1518     150.10  |               |         |   q       Q |
 2+45     106.2084     159.73  |               |         |   q         |       Q
 3+ 0      41.0329      73.65  |         q     |       Q |         |         |
 3+15       5.1238      12.29  |q Q            |         |         |         |
 3+30       0.0000       0.97  Q               |         |         |         |
 3+45       0.0000       0.08  Q               |         |         |         |
 4+ 0       0.0000       0.00  Q               |         |         |         |
 4+15       0.0000       0.00  Q               |         |         |         |
-------------------------------------------------------------------------------
      **************************HYDROGRAPH DATA**************************
                  Number of intervals =    17
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =      159.728 (CFS)
                  Total volume =      17.646 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      *******************************************************************


      ---------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       2.000 to Point/Station       3.000
      **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
      ---------------------------------------------------------------------
      ******************** HYDROGRAPH INFORMATION **********************

                  From study/file name: OffsiteF33100.rte
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        P R I N T  O F  S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in  15   Minute intervals (CFS)

      ---------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0        75.0      150.0      224.9      299.9
---------------------------------------------------------------------------
 0+15       1.0253      16.99  q Q       |         |         |         |
 0+30       5.8903      34.22  q   Q     |         |         |         |
 0+45      13.0704      47.02  |q    Q    |         |         |         |
 1+ 0      16.0290      50.01   q   Q     |         |         |         |
 1+15      20.4211      65.74   q     Q   |         |         |         |
 1+30      32.9180      89.07   |   q     |Q        |         |         |
 1+45      43.0541     110.05   |     q   |  Q      |         |         |
 2+ 0      53.4511     128.90   |       q |    Q    |         |         |
 2+15      68.6023     169.71   |         q|      Q |         |         |
 2+30     105.5165     255.62   |          |   q     |         |   Q     |
 2+45     140.1782     299.91   |          |     q   |         |       Q |
 3+ 0     107.9002     181.55   |          |   q     |   Q     |         |
 3+15      32.0037      44.29   |   qQ     |         |         |         |
 3+30       8.7502       9.72  |Q         |         |         |         |
 3+45       2.4819       2.56  Q          |         |         |         |
 4+ 0       0.7152       0.72  Q          |         |         |         |
 4+15       0.0349       0.03  Q          |         |         |         |
---------------------------------------------------------------------------
      **************************HYDROGRAPH DATA**************************
                  Number of intervals =    17
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =      299.906 (CFS)
                  Total volume =      31.118 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
```



```
      *******************************************************************


      ---------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       2.000 to Point/Station       3.000
      **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
      ---------------------------------------------------------------------
      ******************** HYDROGRAPH INFORMATION **********************

                  From study/file name: OffsiteF43100.rte
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        P R I N T  O F  S T O R M
                     R u n o f f     H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in  15   Minute intervals (CFS)

      ---------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0        92.0      183.9      275.9      367.9
---------------------------------------------------------------------------
 0+15       0.7716      17.76  qQ        |         |         |         |
 0+30       3.3201      37.54  q   Q     |         |         |         |
 0+45       6.1181      53.14  q    Q    |         |         |         |
 1+ 0       6.8633      56.87  q     Q   |         |         |         |
 1+15      10.0466      75.78  |q      Q  |         |         |         |
 1+30      16.0967     105.16  |q        Q|         |         |         |
 1+45      21.0112     131.06   q         Q        |         |         |
 2+ 0      25.7029     154.60   q          Q       |         |         |
 2+15      34.7483     204.46   |q         |  Q    |         |         |
 2+30      55.1717     310.79   |  q       |       |    Q    |         |
 2+45      67.9917     367.90   |    q     |       |         |       Q |
 3+ 0      41.5773     223.13   |  q       |       |  Q      |         |
 3+15       7.7414      52.03  q   Q       |       |         |         |
 3+30       1.1909      10.91  qQ          |       |         |         |
 3+45       0.0399       2.60  Q           |       |         |         |
 4+ 0       0.0000       0.72  Q           |       |         |         |
 4+15       0.0000       0.03  Q           |       |         |         |
---------------------------------------------------------------------------
      **************************HYDROGRAPH DATA**************************
                  Number of intervals =    17
                  Time interval =   15.0 (Min.)
                  Maximum/Peak flow rate =      367.898 (CFS)
                  Total volume =      37.283 (Ac.Ft)
            Status of hydrographs being held in storage
                     Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
            Peak (CFS)       0.000     0.000     0.000     0.000     0.000
            Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      *******************************************************************


      ---------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station       3.000 to Point/Station       3.000
      **** RETARDING BASIN ROUTING ****
      ---------------------------------------------------------------------

      User entry of depth-outflow-storage data
      ---------------------------------------------------------------------
      Total number of inflow hydrograph intervals = 17
      Hydrograph time unit = 15.000 (Min.)
      Initial depth in storage basin =   0.00(Ft.)
      ---------------------------------------------------------------------
      ---------------------------------------------------------------------
      Initial basin depth =   0.00 (Ft.)
      Initial basin storage =       0.00 (Ac.Ft)
      Initial basin outflow =   0.00 (CFS)
      ---------------------------------------------------------------------
      ---------------------------------------------------------------------
      Depth vs. Storage and Depth vs. Discharge data:
       Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
```

```
      (Ft.)     (Ac.Ft)     (CFS)      (Ac.Ft)     (Ac.Ft)
-------------------------------------------------------------------
     0.000       0.000      0.000       0.000       0.000
     1.000       5.000    650.000      -1.715      11.715
     2.000      10.000    800.000       1.736      18.264
     3.000      18.000   1200.000       5.603      30.397
-------------------------------------------------------------------
                  Hydrograph Detention Basin Routing
-------------------------------------------------------------------

     Graph values: 'I'= unit inflow; 'O'=outflow at time shown
     ------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                  Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0      92.0  183.95  275.92  367.90 (Ft.)
 0.250   17.76   10.18      0.078  OI      |       |       |       |     0.02
 0.500   37.54   30.21      0.232  | OI    |       |       |       |     0.05
 0.750   53.14   47.55      0.366  |   O   |       |       |       |     0.07
 1.000   56.87   56.09      0.431  |   O   |       |       |       |     0.09
 1.250   75.78   67.83      0.522  |    OI |       |       |       |     0.10
 1.500  105.16   93.79      0.721  |       OI      |       |       |     0.14
 1.750  131.06  121.67      0.936  |       | OI    |       |       |     0.19
 2.000  154.60  145.93      1.123  |       |   OI  |       |       |     0.22
 2.250  204.46  184.45      1.419  |       |     OI|       |       |     0.28
 2.500  310.79  268.34      2.064  |       |       |     O |  I    |     0.41
 2.750  367.90  349.74      2.690  |       |       |       |     O I     0.54
 3.000  223.13  287.58      2.212  |       |       |  I    | O     |     0.44
 3.250   52.03  115.62      0.889  |   I   |  O    |       |       |     0.18
 3.500   10.91   19.16      0.147  IO      |       |       |       |     0.03
 3.750    2.60    4.94      0.038  O       |       |       |       |     0.01
 4.000    0.72    1.18      0.009  O       |       |       |       |     0.00
 4.250    0.03    0.26      0.002  O       |       |       |       |     0.00
 4.500    0.00    0.00      0.000  O       |       |       |       |     0.00

     ***************************HYDROGRAPH DATA**************************
                 Number of intervals =     18
                 Time interval =   15.0 (Min.)
                 Maximum/Peak flow rate =       349.737 (CFS)
                 Total volume =      37.283 (Ac.Ft)
           Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
           Peak (CFS)       0.000     0.000     0.000     0.000     0.000
           Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
     ********************************************************************

     ------------------------------------------------------------------


     ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
     Process from Point/Station       1.000 to Point/Station       3.000
     **** STORE OR DELETE CURRENT HYDROGRAPH ****
     ____________________________________________________________________
     Current stream hydrograph saved in file LineF3hr.rte
     ***************************HYDROGRAPH DATA**************************
                 Number of intervals =      0
                 Time interval =    0.0 (Min.)
                 Maximum/Peak flow rate =         0.000 (CFS)
                 Total volume =       0.000 (Ac.Ft)
           Status of hydrographs being held in storage
                    Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
           Peak (CFS)       0.000     0.000     0.000     0.000     0.000
           Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
     ********************************************************************

     ------------------------------------------------------------------
```



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                    U n i t   H y d r o g r a p h   A n a l y s i s

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                          Study date  04/27/12 File: OffsiteF23100.out

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
------------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Watershed F, Offsite F2
Proposed Condition
100-year, 3-hour

------------------------------------------------------------------
Drainage Area =      54.70(Ac.)  =      0.085 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      54.70(Ac.)  =      0.085 Sq. Mi.
Length along longest watercourse =    3200.00(Ft.)
Length along longest watercourse measured to centroid =    1700.00(Ft.)
Length along longest watercourse =       0.606 Mi.
Length along longest watercourse measured to centroid =       0.322 Mi.
Difference in elevation =     330.00(Ft.)
Slope along watercourse =    544.5000 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.117 Hr.
Lag time =     7.01 Min.
25% of lag time =     1.75 Min.
40% of lag time =     2.81 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       54.70                0.85                46.50

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       54.70                1.90               103.93

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.98 %
Adjusted average point rain =    1.900(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
      4.000            46.00           0.000
      9.300            66.00           0.000
     41.400            83.00           0.000
```

Total Area Entered = 54.70(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.073 | 0.045 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.170 | 0.069 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.757 | 0.159 |
| | | | | | Sum (F) = | 0.272 |

Area averaged mean soil loss (F) (In/Hr) = 0.272
Minimum soil loss rate ((In/Hr)) = 0.136
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 213.856 | 44.943 | 24.776 |
| 2 | 0.500 | 427.712 | 48.675 | 26.833 |
| 3 | 0.750 | 641.568 | 5.562 | 3.066 |
| 4 | 1.000 | 855.424 | 0.820 | 0.452 |
| | | | Sum = 100.000 | Sum= 55.127 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | ( 0.272) | 0.253 | 0.028 |
| 2 | 0.50 | 4.80 | 0.365 | 0.272 | ( 0.328) | 0.092 |
| 3 | 0.75 | 5.10 | 0.388 | 0.272 | ( 0.349) | 0.115 |
| 4 | 1.00 | 4.90 | 0.372 | 0.272 | ( 0.335) | 0.100 |
| 5 | 1.25 | 6.60 | 0.501 | 0.272 | ( 0.451) | 0.229 |
| 6 | 1.50 | 7.30 | 0.555 | 0.272 | ( 0.499) | 0.282 |
| 7 | 1.75 | 8.40 | 0.638 | 0.272 | ( 0.574) | 0.366 |
| 8 | 2.00 | 9.00 | 0.684 | 0.272 | ( 0.615) | 0.411 |
| 9 | 2.25 | 12.30 | 0.935 | 0.272 | ( 0.841) | 0.662 |
| 10 | 2.50 | 17.60 | 1.337 | 0.272 | ( 1.204) | 1.065 |
| 11 | 2.75 | 16.10 | 1.223 | 0.272 | ( 1.101) | 0.951 |
| 12 | 3.00 | 4.20 | 0.319 | 0.272 | ( 0.287) | 0.047 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 4.3 |

Flood volume = Effective rainfall 1.09(In)
times area 54.7(Ac.)/[(In)/(Ft.)] = 5.0(Ac.Ft)
Total soil loss = 0.81(In)
Total soil loss = 3.703(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 215887.6 Cubic Feet
Total soil loss = 161288.0 Cubic Feet

Peak flow rate of this hydrograph = 54.380(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 15.0 | 30.0 | 45.0 | 60.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0144 | 0.70 | Q | \| | \| | \| | \| |
| 0+30 | 0.0773 | 3.04 | V Q | \| | \| | \| | \| |
| 0+45 | 0.1893 | 5.42 | V Q | \| | \| | \| | \| |
| 1+ 0 | 0.3104 | 5.86 | VQ | \| | \| | \| | \| |
| 1+15 | 0.4913 | 8.76 | V Q | \| | \| | \| | \| |
| 1+30 | 0.7704 | 13.51 | V Q | \| | \| | \| | \| |
| 1+45 | 1.1298 | 17.40 | V Q | \| | \| | \| | \| |
| 2+ 0 | 1.5636 | 20.99 | VQ | \| | \| | \| | \| |
| 2+15 | 2.1568 | 28.71 | V Q | \| | \| | \| | \| |
| 2+30 | 3.0990 | 45.60 | V Q | \| | \| | \| | \| |
| 2+45 | 4.2225 | 54.38 | V Q | \| | \| | \| | \| |
| 3+ 0 | 4.8477 | 30.26 | Q | \| | \| | \| | V\| |
| 3+15 | 4.9438 | 4.65 | Q | \| | \| | \| | V\| |
| 3+30 | 4.9557 | 0.57 | Q | \| | \| | \| | V\| |
| 3+45 | 4.9561 | 0.02 | Q | \| | \| | \| | V\| |

U n i t  H y d r o g r a p h  A n a l y s i s

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Study date 04/27/12 File: OffsiteF33100.out

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0+30      0.1429      5.89  VQ        |         |         |         |
0+45      0.4129     13.07   VQ       |         |         |         |
1+ 0      0.7441     16.03  | VQ       |         |         |         |
1+15      1.1660     20.42  |  VQ      |         |         |         |
1+30      1.8462     32.92  |    VQ    |         |         |         |
1+45      2.7357     43.05  |       Q  |         |         |         |
2+ 0      3.8401     53.45  |          QV        |         |         |
2+15      5.2575     68.60  |          |  Q V    |         |         |
2+30      7.4376    105.52  |          |         |QV       |         |
2+45     10.3338    140.18  |          |         |       Q V         |
3+ 0     12.5631    107.90  |          |         |Q        |       V |
3+15     13.2244     32.00  |      Q   |         |         |         V|
3+30     13.4052      8.75  |Q         |         |         |         V|
3+45     13.4565      2.48  Q          |         |         |         V|
4+ 0     13.4712      0.72  Q          |         |         |         V|
4+15     13.4719      0.03  Q          |         |         |          V
-------------------------------------------------------------------------
```



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        U n i t   H y d r o g r a p h   A n a l y s i s

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              Study date  04/27/12 File: OffsiteF43100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



------------------------------------------------------------------
Watershed F, Offsite F4
Proposed Condition
100-year, 3-hour

--------------------------------------------------------------------
Drainage Area =      69.50(Ac.)  =      0.109 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      69.50(Ac.)  =      0.109 Sq. Mi.
Length along longest watercourse =    3750.00(Ft.)
Length along longest watercourse measured to centroid =    1820.00(Ft.)
Length along longest watercourse =      0.710 Mi.
Length along longest watercourse measured to centroid =      0.345 Mi.
Difference in elevation =     285.00(Ft.)
Slope along watercourse =    401.2800 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.135 Hr.
Lag time =     8.10 Min.
25% of lag time =     2.03 Min.
40% of lag time =     3.24 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       69.50              0.85               59.07

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       69.50              1.90              132.05

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.97 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
     5.300             46.00           0.000
    14.300             66.00           0.000
    49.900             83.00           0.000
```

Total Area Entered = 69.50(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.076 | 0.047 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.206 | 0.083 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.718 | 0.151 |
| | | | | | Sum (F) = | 0.281 |

Area averaged mean soil loss (F) (In/Hr) = 0.281
Minimum soil loss rate ((In/Hr)) = 0.140
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 185.142 | 39.169 | 27.435 |
| 2 | 0.500 | 370.284 | 51.389 | 35.994 |
| 3 | 0.750 | 555.426 | 7.965 | 5.579 |
| 4 | 1.000 | 740.569 | 1.478 | 1.035 |
| | | | Sum = 100.000 | Sum= 70.043 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | ( 0.281) | 0.253 | 0.028 |
| 2 | 0.50 | 4.80 | 0.365 | 0.281 | ( 0.328) | 0.084 |
| 3 | 0.75 | 5.10 | 0.387 | 0.281 | ( 0.349) | 0.107 |
| 4 | 1.00 | 4.90 | 0.372 | 0.281 | ( 0.335) | 0.092 |
| 5 | 1.25 | 6.60 | 0.501 | 0.281 | ( 0.451) | 0.221 |
| 6 | 1.50 | 7.30 | 0.555 | 0.281 | ( 0.499) | 0.274 |
| 7 | 1.75 | 8.40 | 0.638 | 0.281 | ( 0.574) | 0.358 |
| 8 | 2.00 | 9.00 | 0.684 | 0.281 | ( 0.615) | 0.403 |
| 9 | 2.25 | 12.30 | 0.935 | 0.281 | ( 0.841) | 0.654 |
| 10 | 2.50 | 17.60 | 1.337 | 0.281 | ( 1.203) | 1.057 |
| 11 | 2.75 | 16.10 | 1.223 | 0.281 | ( 1.101) | 0.943 |
| 12 | 3.00 | 4.20 | 0.319 | 0.281 | ( 0.287) | 0.038 |
| | (Loss Rate Not Used) | | | | | |
| Sum = | | 100.0 | | | Sum = | 4.3 |

Flood volume = Effective rainfall 1.06(In)
times area 69.5(Ac.)/[(In)/(Ft.)] = 6.2(Ac.Ft)
Total soil loss = 0.83(In)
Total soil loss = 4.836(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 268552.4 Cubic Feet
Total soil loss = 210643.3 Cubic Feet

Peak flow rate of this hydrograph = 67.992(CFS)

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 17.5 | 35.0 | 52.5 | 70.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0159 | 0.77 | Q | | | | |
| 0+30 | 0.0845 | 3.32 | VQ | | | | |
| 0+45 | 0.2109 | 6.12 | V Q | | | | |
| 1+ 0 | 0.3528 | 6.86 | VQ | | | | |
| 1+15 | 0.5603 | 10.05 | V Q | | | | |
| 1+30 | 0.8929 | 16.10 | V Q | | | | |
| 1+45 | 1.3270 | 21.01 | V Q | | | | |
| 2+ 0 | 1.8581 | 25.70 | V Q | | | | |
| 2+15 | 2.5760 | 34.75 | V Q | | | | |
| 2+30 | 3.7159 | 55.17 | V | Q | | | |
| 2+45 | 5.1207 | 67.99 | V | Q | | | |
| 3+ 0 | 5.9797 | 41.58 | Q | V | | | |
| 3+15 | 6.1397 | 7.74 | Q | V | | | |
| 3+30 | 6.1643 | 1.19 | Q | V | | | |
| 3+45 | 6.1651 | 0.04 | Q | V | | | |

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        U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  09/12/13 File: SubF13100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed F, Onsite F1
Proposed Condition
100-year, 3-hour

--------------------------------------------------------------------
Drainage Area =      88.69(Ac.)  =      0.139 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      88.69(Ac.)  =      0.139 Sq. Mi.
Length along longest watercourse =    1200.00(Ft.)
Length along longest watercourse measured to centroid =     600.00(Ft.)
Length along longest watercourse =      0.227 Mi.
Length along longest watercourse measured to centroid =      0.114 Mi.
Difference in elevation =      24.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.037 Hr.
Lag time =     2.22 Min.
25% of lag time =     0.56 Min.
40% of lag time =     0.89 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       88.69             0.85                75.39

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       88.69             1.90               168.51

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.96 %
Adjusted average point rain =    1.899(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
    88.690            85.00          0.750
 Total Area Entered =      88.69(Ac.)
```



```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)     (In/Hr)
85.0  85.0       0.187      0.750         0.061        1.000       0.061
                                                   Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.300
--------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                      VALLEY S-Curve
--------------------------------------------------------------------
                   Unit Hydrograph Data
--------------------------------------------------------------------
Unit time period   Time % of lag   Distribution    Unit Hydrograph
    (hrs)                          Graph %           (CFS)
--------------------------------------------------------------------
    1   0.250        675.381         77.819             69.557
    2   0.500       1350.763         22.181             19.826
                              Sum = 100.000    Sum=      89.383
--------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
    (Hr.)   Percent    (In/Hr)       Max   |   Low          (In/Hr)
 1   0.25      3.70       0.281        0.061    (  0.084)        0.220
 2   0.50      4.80       0.365        0.061    (  0.109)        0.304
 3   0.75      5.10       0.387        0.061    (  0.116)        0.327
 4   1.00      4.90       0.372        0.061    (  0.112)        0.311
 5   1.25      6.60       0.501        0.061    (  0.150)        0.441
 6   1.50      7.30       0.555        0.061    (  0.166)        0.494
 7   1.75      8.40       0.638        0.061    (  0.191)        0.577
 8   2.00      9.00       0.684        0.061    (  0.205)        0.623
 9   2.25     12.30       0.934        0.061    (  0.280)        0.874
10   2.50     17.60       1.337        0.061    (  0.401)        1.276
11   2.75     16.10       1.223        0.061    (  0.367)        1.162
12   3.00      4.20       0.319        0.061    (  0.096)        0.258
             (Loss Rate Not Used)
   Sum =    100.0                                 Sum =     6.9
    Flood volume = Effective rainfall      1.72(In)
     times area      88.7(Ac.)/[(In)/(Ft.)] =      12.7(Ac.Ft)
    Total soil loss =      0.18(In)
    Total soil loss =     1.348(Ac.Ft)
    Total rainfall =      1.90(In)
    Flood volume =      552759.0 Cubic Feet
    Total soil loss =       58698.6 Cubic Feet
    --------------------------------------------------------------------
     Peak flow rate of this hydrograph =    106.208(CFS)
    --------------------------------------------------------------------
    ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        3 - H O U R   S T O R M
                    R u n o f f   H y d r o g r a p h
    --------------------------------------------------------------------
                  Hydrograph in  15  Minute intervals ((CFS))

    --------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       50.0      100.0     150.0     200.0
--------------------------------------------------------------------------
  0+15       0.3168      15.33  V  Q     |         |         |         |
  0+30       0.8440      25.52  | V  Q    |         |         |         |
  0+45       1.4383      28.76  |   VQ    |         |         |         |
  1+ 0       2.0200      28.16  |    QV   |         |         |         |
  1+15       2.7813      36.84  |      QV |         |         |         |
  1+30       3.6719      43.11  |        Q  V       |         |         |
  1+45       4.7045      49.98  |         Q|  V     |         |         |
  2+ 0       5.8368      54.81  |          Q     V  |         |         |
  2+15       7.3483      73.16  |          |  Q     |  V      |         |
```

```
 2+30      9.5416    106.15 |          |          |Q         V         |
 2+45     11.7360    106.21 |          |          |Q         |    V    |
 3+ 0     12.5837     41.03 |        Q |          |          |         V|
 3+15     12.6896      5.12 |Q         |          |          |         V|
-------------------------------------------------------------------------
```



```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
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                       Study date: 09/17/13

 ---------------------------------------------------------------------

 Watershed F, Basin F2
 Proposed Condition
 100-year, 3-hour

 ---------------------------------------------------------------------

 Program License Serial Number 6097

 ---------------------------------------------------------------------
 ********************* HYDROGRAPH INFORMATION **********************

              From study/file name: SubF23100.rte
 ***************************HYDROGRAPH DATA*****************************
              Number of intervals =    13
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =       46.922 (CFS)
              Total volume =       5.580 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
 ***********************************************************************



 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station        1.000 to Point/Station        2.000
 **** RETARDING BASIN ROUTING ****
 _____________________________________________________________________

 User entry of depth-outflow-storage data
 ---------------------------------------------------------------------
 Total number of inflow hydrograph intervals = 13
 Hydrograph time unit = 15.000 (Min.)
 Initial depth in storage basin =    0.10(Ft.)
 ---------------------------------------------------------------------
 ---------------------------------------------------------------------
 Initial basin depth =    0.10 (Ft.)
 Initial basin storage =       0.20 (Ac.Ft)
 Initial basin outflow =    5.00 (CFS)
 ---------------------------------------------------------------------
 ---------------------------------------------------------------------
 Depth vs. Storage and Depth vs. Discharge data:
  Basin Depth  Storage    Outflow    (S-O*dt/2)    (S+O*dt/2)
      (Ft.)    (Ac.Ft)     (CFS)      (Ac.Ft)      (Ac.Ft)
 ---------------------------------------------------------------------
    0.000       0.000       0.000       0.000         0.000
    1.000       2.000      50.000       1.483         2.517
    2.000       4.000     100.000       2.967         5.033
    3.000       7.000     200.000       4.934         9.066
 ---------------------------------------------------------------------
                 Hydrograph Detention Basin Routing
 ---------------------------------------------------------------------

 Graph values: 'I'= unit inflow; 'O'=outflow at time shown
 ---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                 Depth
(Hours) (CFS)   (CFS)      (Ac.Ft) .0      12.5    25.00   37.50   50.00 (Ft.)
 0.250    6.32    3.22       0.129 | 0 I    |       |       |       |     0.06
 0.500   11.06    5.46       0.219 |  0    I|       |       |       |     0.11
 0.750   12.60    8.08       0.323 |    0  I|       |       |       |     0.16
 1.000   12.41    9.90       0.396 |     0I|       |       |       |     0.20
```

```
1.250   15.95   11.66    0.466  |      0| I     |       |       |       |      0.23
1.500   18.85   14.01    0.561  |       0   I   |       |       |       |      0.28
1.750   21.82   16.61    0.664  |       | 0  I  |       |       |       |      0.33
2.000   24.01   19.20    0.768  |       |   0  I|       |       |       |      0.38
2.250   31.69   22.75    0.910  |       |      0|   I   |       |       |      0.45
2.500   45.90   29.34    1.173  |       |       | 0     |       |   I   |      0.59
2.750   46.92   36.35    1.454  |       |       |       |    0  |    I  |      0.73
3.000   19.79   35.12    1.405  |       |   I   |       |  0    |       |      0.70
3.250    2.75   25.33    1.013  |I      |       |  0    |       |       |      0.51
3.500    0.00   15.49    0.620  I       |0      |       |       |       |      0.31
3.750    0.00    9.13    0.365  I    0  |       |       |       |       |      0.18
4.000    0.00    5.38    0.215  I  0    |       |       |       |       |      0.11
4.250    0.00    3.17    0.127  I 0     |       |       |       |       |      0.06
4.500    0.00    1.87    0.075  I0      |       |       |       |       |      0.04
4.750    0.00    1.10    0.044  0       |       |       |       |       |      0.02
5.000    0.00    0.65    0.026  0       |       |       |       |       |      0.01
5.250    0.00    0.38    0.015  0       |       |       |       |       |      0.01
5.500    0.00    0.23    0.009  0       |       |       |       |       |      0.00
5.750    0.00    0.13    0.005  0       |       |       |       |       |      0.00
6.000    0.00    0.08    0.003  0       |       |       |       |       |      0.00
6.250    0.00    0.05    0.002  0       |       |       |       |       |      0.00

****************************HYDROGRAPH DATA****************************
              Number of intervals =    25
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =       36.345 (CFS)
              Total volume =       5.675 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************

----------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
______________________________________________________________________
Current stream hydrograph saved in file lineF3hrBsnF3.rte
****************************HYDROGRAPH DATA****************************
              Number of intervals =     0
              Time interval =    0.0 (Min.)
              Maximum/Peak flow rate =         0.000 (CFS)
              Total volume =         0.000 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)       0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************

----------------------------------------------------------------------
```



```
        U n i t   H y d r o g r a p h   A n a l y s i s

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
              Study date  09/12/13 File: SubF23100.out

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
----------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

----------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



----------------------------------------------------------------------
Watershed, Onsite F2
Proposed Condition
100-year, 3-hour

----------------------------------------------------------------------
Drainage Area =      38.99(Ac.)  =      0.061 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      38.99(Ac.)  =      0.061 Sq. Mi.
Length along longest watercourse =    1600.00(Ft.)
Length along longest watercourse measured to centroid =     800.00(Ft.)
Length along longest watercourse =      0.303 Mi.
Length along longest watercourse measured to centroid =      0.152 Mi.
Difference in elevation =      32.00(Ft.)
Slope along watercourse =    105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.046 Hr.
Lag time =     2.76 Min.
25% of lag time =     0.69 Min.
40% of lag time =     1.11 Min.
Unit time =    15.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       38.99                0.85                33.14

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       38.99                1.90                74.08

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.850(In)
Area Averaged 100-Year Rainfall =    1.900(In)

Point rain (area averaged) =    1.900(In)
Areal adjustment factor =   99.98 %
Adjusted average point rain =    1.900(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
    38.990            85.00           0.750
 Total Area Entered =     38.99(Ac.)
```

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 85.0 | 85.0 | 0.187 | 0.750 | 0.061 | 1.000 | 0.061 |
| | | | | | Sum (F) = | 0.061 |

Area averaged mean soil loss (F) (In/Hr) = 0.061
Minimum soil loss rate ((In/Hr)) = 0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.300

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

| Unit time period | (hrs) | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 542.745 | 72.919 | 28.653 |
| 2 | 0.500 | 1085.490 | 27.081 | 10.641 |
| | | | Sum = 100.000 Sum= | 39.295 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time | (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 3.70 | 0.281 | 0.061 | ( 0.084) | 0.220 |
| 2 | 0.50 | 4.80 | 0.365 | 0.061 | ( 0.109) | 0.304 |
| 3 | 0.75 | 5.10 | 0.388 | 0.061 | ( 0.116) | 0.327 |
| 4 | 1.00 | 4.90 | 0.372 | 0.061 | ( 0.112) | 0.312 |
| 5 | 1.25 | 6.60 | 0.502 | 0.061 | ( 0.150) | 0.441 |
| 6 | 1.50 | 7.30 | 0.555 | 0.061 | ( 0.166) | 0.494 |
| 7 | 1.75 | 8.40 | 0.638 | 0.061 | ( 0.191) | 0.578 |
| 8 | 2.00 | 9.00 | 0.684 | 0.061 | ( 0.205) | 0.623 |
| 9 | 2.25 | 12.30 | 0.935 | 0.061 | ( 0.280) | 0.874 |
| 10 | 2.50 | 17.60 | 1.337 | 0.061 | ( 0.401) | 1.277 |
| 11 | 2.75 | 16.10 | 1.223 | 0.061 | ( 0.367) | 1.163 |
| 12 | 3.00 | 4.20 | 0.319 | 0.061 | ( 0.096) | 0.258 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 6.9 |

Flood volume = Effective rainfall 1.72(In)
times area 39.0(Ac.)/[(In)/(Ft.)] = 5.6(Ac.Ft)
Total soil loss = 0.18(In)
Total soil loss = 0.592(Ac.Ft)
Total rainfall = 1.90(In)
Flood volume = 243063.0 Cubic Feet
Total soil loss = 25805.1 Cubic Feet

Peak flow rate of this hydrograph = 46.922(CFS)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 12.5 | 25.0 | 37.5 | 50.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.1305 | 6.32 | V Q | | | | |
| 0+30 | 0.3591 | 11.06 | V Q | | | | |
| 0+45 | 0.6195 | 12.60 | V Q | | | | |
| 1+ 0 | 0.8759 | 12.41 | V Q | | | | |
| 1+15 | 1.2055 | 15.95 | V Q | | | | |
| 1+30 | 1.5950 | 18.85 | V Q | | | | |
| 1+45 | 2.0457 | 21.82 | V Q | | | | |
| 2+ 0 | 2.5418 | 24.01 | VQ | | | | |
| 2+15 | 3.1965 | 31.69 | V Q | | | | |
| 2+30 | 4.1449 | 45.90 | V | | | Q | |
| 2+45 | 5.1143 | 46.92 | V | | | Q | |
| 3+ 0 | 5.5231 | 19.79 | Q | | | V | |
| 3+15 | 5.5800 | 2.75 | Q | | | V | |

```
                FLOOD HYDROGRAPH ROUTING PROGRAM
          Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                    Study date: 09/18/13

------------------------------------------------------------------------


Line F, Routed
Proposed Condition
100 yr, 24 hr

------------------------------------------------------------------------


Program License Serial Number 6097

------------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

            From study/file name: OffsiteF224100.rte
**************************HYDROGRAPH DATA****************************
            Number of intervals =    99
            Time interval =   15.0 (Min.)
            Maximum/Peak flow rate =       20.369 (CFS)
            Total volume =       5.944 (Ac.Ft)
      Status of hydrographs being held in storage
               Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)       0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
************************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        3.000
**** STREAM ROUTING SCS CONVEX METHOD ****
------------------------------------------------------------------------
HYDROGRAPH STREAM ROUTING DATA:
Length of stream =   1200.00 (Ft.)
Elevation difference =   24.00 (Ft.)
Slope of channel =  0.020000 (Vert/Horiz)
Channel type - Pipe


Pipe length  =  1200.00(Ft.)   Elevation difference =  24.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using mean flow rate of hydrograph
Required pipe flow  =     4.161(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =     4.161(CFS)
Normal flow depth in pipe =    4.58(In.)
Flow top width inside pipe =   35.14(In.)
Critical Depth =    0.53(Ft.)
Pipe flow velocity =      5.51(Ft/s)
Travel time through pipe =    3.63 min.


Pipe length  =  1200.00(Ft.)   Elevation difference =  24.00(Ft.)
Manning's N = 0.015   No. of pipes = 1
Pipe evaluation using maximum flow rate of hydrograph
Required pipe flow  =    20.369(CFS)
Given pipe size =     72.00(In.)
Calculated individual pipe flow  =    20.369(CFS)
Normal flow depth in pipe =    9.74(In.)
Flow top width inside pipe =   49.25(In.)
Critical Depth =    1.18(Ft.)
Pipe flow velocity =      8.90(Ft/s)
Travel time through pipe =    2.25 min.
```



```
********************** SCS CONVEX CHANNEL ROUTING *********************
Convex method of stream routing  data items:
Using equation: Outflow =
O(t+dt) = (1-c*)O(t+dt-dt*) + Input(c*)
          where c* = 1 - (1-c)^e and dt = c(length)/velocity
          c(v/v+1.7) =   0.8396   Travel time =   2.25 (min.)
        dt*(unit time interval) =  15.00(min.),   e=   5.6334
        dt(routing time-step) =   1.89 (min.),    c* =   1.0000

Output hydrograph delayed by 0  unit time increments


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    P R I N T   O F   S T O R M
                  R u n o f f     H y d r o g r a p h
------------------------------------------------------------------------
               Hydrograph in  15   Minute intervals (CFS)
------------------------------------------------------------------------
Time(h+m) Out = O(CFS) In = I  0        5.1       10.2       15.3       20.4
------------------------------------------------------------------------
  0+15       0.0780      0.09  0          |          |          |          |
  0+30       0.2127      0.23  0          |          |          |          |
  0+45       0.2824      0.29  0          |          |          |          |
  1+ 0       0.3351      0.34  0          |          |          |          |
  1+15       0.3456      0.35  0          |          |          |          |
  1+30       0.3087      0.30  0          |          |          |          |
  1+45       0.2992      0.30  0          |          |          |          |
  2+ 0       0.3369      0.34  0          |          |          |          |
  2+15       0.3847      0.39  0          |          |          |          |
  2+30       0.3956      0.40  0          |          |          |          |
  2+45       0.4360      0.44  0          |          |          |          |
  3+ 0       0.4839      0.49  0          |          |          |          |
  3+15       0.4948      0.50  0          |          |          |          |
  3+30       0.4962      0.50  0          |          |          |          |
  3+45       0.4963      0.50  0          |          |          |          |
  4+ 0       0.5354      0.54  |0         |          |          |          |
  4+15       0.5832      0.59  |0         |          |          |          |
  4+30       0.6331      0.64  |0         |          |          |          |
  4+45       0.6824      0.69  |0         |          |          |          |
  5+ 0       0.7324      0.74  |0         |          |          |          |
  5+15       0.7036      0.70  |0         |          |          |          |
  5+30       0.6579      0.65  |0         |          |          |          |
  5+45       0.7244      0.73  |0         |          |          |          |
  6+ 0       0.7804      0.79  |0         |          |          |          |
  6+15       0.8315      0.84  |0         |          |          |          |
  6+30       0.8809      0.89  |0         |          |          |          |
  6+45       0.9309      0.94  |0         |          |          |          |
  7+ 0       0.9802      0.99  |0         |          |          |          |
  7+15       0.9912      0.99  |0         |          |          |          |
  7+30       1.0316      1.04  | 0        |          |          |          |
  7+45       1.1186      1.13  | 0        |          |          |          |
  8+ 0       1.2163      1.23  | 0        |          |          |          |
  8+15       1.3545      1.37  | 0        |          |          |          |
  8+30       1.4626      1.48  | 0        |          |          |          |
  8+45       1.5249      1.53  | OI       |          |          |          |
  9+ 0       1.6147      1.63  |  0       |          |          |          |
  9+15       1.8813      1.92  |  0       |          |          |          |
  9+30       2.6315      2.73  |    0     |          |          |          |
  9+45       3.7660      3.91  |      0   |          |          |          |
 10+ 0       4.9816      5.14  |        OI|          |          |          |
 10+15       3.9927      3.83  |      0   |          |          |          |
 10+30       2.0206      1.76  |  0       |          |          |          |
 10+45       2.7756      2.92  |    0     |          |          |          |
 11+ 0       4.2999      4.50  |      0   |          |          |          |
 11+15       4.4411      4.43  |      0   |          |          |          |
 11+30       4.2236      4.19  |      0   |          |          |          |
 11+45       3.5554      3.46  |    0     |          |          |          |
 12+ 0       3.1899      3.15  |    0     |          |          |          |
 12+15       6.3927      6.86  |          | OI       |          |          |
 12+30      10.4242     10.94  |          |          |OI        |          |
 12+45      12.6665     12.92  |          |          |   OI     |          |
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13+ 0 | 14.4280 | 14.65 | \| | \| | \| | 0 \| | \| | \| |
| 13+15 | 17.2994 | 17.68 | \| | \| | \| | \| | OI | \| |
| 13+30 | 20.0312 | 20.37 | \| | \| | \| | \| | \| | OI |
| 13+45 | 16.5008 | 15.94 | \| | \| | \| | \| | IO | \| |
| 14+ 0 | 11.5041 | 10.87 | \| | \| | \| | IO \| | \| | \| |
| 14+15 | 12.0628 | 12.24 | \| | \| | \| | OI \| | \| | \| |
| 14+30 | 13.6228 | 13.82 | \| | \| | \| | OI \| | \| | \| |
| 14+45 | 13.7572 | 13.75 | \| | \| | \| | IO \| | \| | \| |
| 15+ 0 | 13.4996 | 13.46 | \| | \| | \| | 0 \| | \| | \| |
| 15+15 | 12.8036 | 12.71 | \| | \| | \| | IO \| | \| | \| |
| 15+30 | 12.0048 | 11.90 | \| | \| | \| | 0 \| | \| | \| |
| 15+45 | 10.0200 | 9.75 | \| | \| | 0 \| | \| | \| | \| |
| 16+ 0 | 8.1559 | 7.93 | \| | \| | IO \| | \| | \| | \| |
| 16+15 | 4.9118 | 4.48 | \| | IO \| | \| | \| | \| | \| |
| 16+30 | 1.3207 | 0.87 | IO \| | \| | \| | \| | \| | \| |
| 16+45 | 0.4700 | 0.41 | 0 \| | \| | \| | \| | \| | \| |
| 17+ 0 | 0.3178 | 0.30 | 0 \| | \| | \| | \| | \| | \| |
| 17+15 | 0.3773 | 0.39 | 0 \| | \| | \| | \| | \| | \| |
| 17+30 | 0.4716 | 0.48 | 0 \| | \| | \| | \| | \| | \| |
| 17+45 | 0.4933 | 0.49 | 0 \| | \| | \| | \| | \| | \| |
| 18+ 0 | 0.4571 | 0.45 | 0 \| | \| | \| | \| | \| | \| |
| 18+15 | 0.4095 | 0.40 | 0 \| | \| | \| | \| | \| | \| |
| 18+30 | 0.3986 | 0.40 | 0 \| | \| | \| | \| | \| | \| |
| 18+45 | 0.3582 | 0.35 | 0 \| | \| | \| | \| | \| | \| |
| 19+ 0 | 0.2712 | 0.26 | 0 \| | \| | \| | \| | \| | \| |
| 19+15 | 0.2515 | 0.25 | 0 \| | \| | \| | \| | \| | \| |
| 19+30 | 0.3260 | 0.34 | 0 \| | \| | \| | \| | \| | \| |
| 19+45 | 0.3443 | 0.35 | 0 \| | \| | \| | \| | \| | \| |
| 20+ 0 | 0.2696 | 0.26 | 0 \| | \| | \| | \| | \| | \| |
| 20+15 | 0.2514 | 0.25 | 0 \| | \| | \| | \| | \| | \| |
| 20+30 | 0.2870 | 0.29 | 0 \| | \| | \| | \| | \| | \| |
| 20+45 | 0.2964 | 0.30 | 0 \| | \| | \| | \| | \| | \| |
| 21+ 0 | 0.2587 | 0.25 | 0 \| | \| | \| | \| | \| | \| |
| 21+15 | 0.2500 | 0.25 | 0 \| | \| | \| | \| | \| | \| |
| 21+30 | 0.2479 | 0.25 | 0 \| | \| | \| | \| | \| | \| |
| 21+45 | 0.2485 | 0.25 | 0 \| | \| | \| | \| | \| | \| |
| 22+ 0 | 0.2478 | 0.25 | 0 \| | \| | \| | \| | \| | \| |
| 22+15 | 0.2485 | 0.25 | 0 \| | \| | \| | \| | \| | \| |
| 22+30 | 0.2478 | 0.25 | 0 \| | \| | \| | \| | \| | \| |
| 22+45 | 0.2095 | 0.20 | 0 \| | \| | \| | \| | \| | \| |
| 23+ 0 | 0.1999 | 0.20 | 0 \| | \| | \| | \| | \| | \| |
| 23+15 | 0.1986 | 0.20 | 0 \| | \| | \| | \| | \| | \| |
| 23+30 | 0.1985 | 0.20 | 0 \| | \| | \| | \| | \| | \| |
| 23+45 | 0.1985 | 0.20 | 0 \| | \| | \| | \| | \| | \| |
| 24+ 0 | 0.1985 | 0.20 | 0 \| | \| | \| | \| | \| | \| |
| 24+15 | 0.1205 | 0.11 | 0 \| | \| | \| | \| | \| | \| |
| 24+30 | 0.0248 | 0.01 | 0 \| | \| | \| | \| | \| | \| |
| 24+45 | 0.0030 | 0.00 | 0 \| | \| | \| | \| | \| | \| |
| 25+ 0 | 0.0000 | 0.00 | 0 \| | \| | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 100
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 20.031 (CFS)
Total volume = 5.944 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

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Process from Point/Station 2.000 to Point/Station 3.000
**** ADD/COMBINE/RECOVER HYDROGRAPHS ****

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********** HYDROGRAPH INFORMATION **********

From study/file name: SubF124100.rte

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P R I N T O F S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals (CFS)

| Time(h+m) | Add q(CFS) | Tot. Q | 0 17.5 35.0 52.5 70.1 |
|---|---|---|---|
| 0+15 | 1.7534 | 1.83 | \|Q \| \| \| \| \| |
| 0+30 | 3.1299 | 3.34 | \|Q \| \| \| \| \| |
| 0+45 | 3.3798 | 3.66 | \|qQ \| \| \| \| \| |
| 1+ 0 | 4.2565 | 4.59 | \| Q \| \| \| \| \| |
| 1+15 | 3.6297 | 3.98 | \| Q \| \| \| \| \| |
| 1+30 | 3.3798 | 3.69 | \|qQ \| \| \| \| \| |
| 1+45 | 3.3798 | 3.68 | \|qQ \| \| \| \| \| |
| 2+ 0 | 4.2565 | 4.59 | \| Q \| \| \| \| \| |
| 2+15 | 4.5064 | 4.89 | \| Q \| \| \| \| \| |
| 2+30 | 4.5064 | 4.90 | \| Q \| \| \| \| \| |
| 2+45 | 5.3832 | 5.82 | \| Q \| \| \| \| \| |
| 3+ 0 | 5.6331 | 6.12 | \| Q \| \| \| \| \| |
| 3+15 | 5.6331 | 6.13 | \| Q \| \| \| \| \| |
| 3+30 | 5.6331 | 6.13 | \| Q \| \| \| \| \| |
| 3+45 | 5.6331 | 6.13 | \| Q \| \| \| \| \| |
| 4+ 0 | 6.5098 | 7.05 | \| qQ \| \| \| \| \| |
| 4+15 | 6.7597 | 7.34 | \| qQ \| \| \| \| \| |
| 4+30 | 7.6364 | 8.27 | \| Q \| \| \| \| \| |
| 4+45 | 7.8863 | 8.57 | \| Q \| \| \| \| \| |
| 5+ 0 | 8.7630 | 9.50 | \| Q \| \| \| \| \| |
| 5+15 | 7.2595 | 7.96 | \| Q \| \| \| \| \| |
| 5+30 | 7.6364 | 8.29 | \| Q \| \| \| \| \| |
| 5+45 | 8.7630 | 9.49 | \| Q \| \| \| \| \| |
| 6+ 0 | 9.0129 | 9.79 | \| Q \| \| \| \| \| |
| 6+15 | 9.8896 | 10.72 | \| qQ \| \| \| \| \| |
| 6+30 | 10.1395 | 11.02 | \| qQ \| \| \| \| \| |
| 6+45 | 11.0162 | 11.95 | \| Q \| \| \| \| \| |
| 7+ 0 | 11.2661 | 12.25 | \| Q \| \| \| \| \| |
| 7+15 | 11.2661 | 12.26 | \| Q \| \| \| \| \| |
| 7+30 | 12.1428 | 13.17 | \| qQ \| \| \| \| \| |
| 7+45 | 13.2694 | 14.39 | \| qQ \| \| \| \| \| |
| 8+ 0 | 14.3960 | 15.61 | \| Q \| \| \| \| \| |
| 8+15 | 17.0764 | 18.43 | \| qQ \| \| \| \| \| |
| 8+30 | 17.8383 | 19.30 | \| qQ \| \| \| \| \| |
| 8+45 | 19.1790 | 20.70 | \| qQ \| \| \| \| \| |
| 9+ 0 | 20.8758 | 22.49 | \| qQ \| \| \| \| \| |
| 9+15 | 23.8244 | 25.71 | \| qQ \| \| \| \| \| |
| 9+30 | 25.8767 | 28.51 | \| q Q \| \| \| \| \| |
| 9+45 | 27.5712 | 31.34 | \| q Q \| \| \| \| \| |
| 10+ 0 | 29.2649 | 34.25 | \| q Q \| \| \| \| \| |
| 10+15 | 20.9382 | 24.93 | \| q Q \| \| \| \| \| |
| 10+30 | 18.5218 | 20.54 | \| qQ \| \| \| \| \| |
| 10+45 | 24.8659 | 27.64 | \| qQ \| \| \| \| \| |
| 11+ 0 | 26.7318 | 31.03 | \| q Q \| \| \| \| \| |
| 11+15 | 25.5595 | 30.00 | \| q Q \| \| \| \| \| |
| 11+30 | 25.2817 | 29.51 | \| q Q \| \| \| \| \| |
| 11+45 | 22.8553 | 26.41 | \| q Q \| \| \| \| \| |
| 12+ 0 | 23.4713 | 26.66 | \| q Q \| \| \| \| \| |
| 12+15 | 32.6721 | 39.06 | \| q \| Q \| \| \| \| |
| 12+30 | 36.4993 | 46.92 | \| q Q \| \| \| \| |
| 12+45 | 39.4361 | 52.10 | \| q Q \| \| \| |
| 13+ 0 | 41.4766 | 55.90 | \| q Q \| \| |
| 13+15 | 48.1689 | 65.47 | \| q Q \| |
| 13+30 | 50.0261 | 70.06 | \| q Q \| |
| 13+45 | 36.3205 | 52.82 | \| q Q \| \| |
| 14+ 0 | 32.4638 | 43.97 | \| q \| Q \| \| \| |
| 14+15 | 37.5430 | 49.61 | \| q Q \| \| \| |
| 14+30 | 37.7870 | 51.41 | \| q Q \| \| \| |
| 14+45 | 37.4975 | 51.25 | \| q Q \| \| \| |
| 15+ 0 | 36.3116 | 49.81 | \| q Q \| \| \| |
| 15+15 | 34.7676 | 47.57 | \| q Q \| \| \| |
| 15+30 | 33.2227 | 45.23 | \| q \| Q \| \| \| |
| 15+45 | 27.9194 | 37.94 | \| q Q \| \| \| |
| 16+ 0 | 26.5539 | 34.71 | \| q Q \| \| \| |

```
 16+15      9.3999     14.31 |    q  Q |        |        |        |
 16+30      4.5064      5.83 |  qQ      |        |        |        |
 16+45      3.6297      4.10 |  Q       |        |        |        |
 17+ 0      3.3798      3.70 |qQ        |        |        |        |
 17+15      5.1333      5.51 |  qQ      |        |        |        |
 17+30      5.6331      6.10 |   Q      |        |        |        |
 17+45      5.6331      6.13 |   Q      |        |        |        |
 18+ 0      4.7563      5.21 |  Q       |        |        |        |
 18+15      4.5064      4.92 |  Q       |        |        |        |
 18+30      4.5064      4.91 |  Q       |        |        |        |
 18+45      3.6297      3.99 |  Q       |        |        |        |
 19+ 0      2.5031      2.77 |Q         |        |        |        |
 19+15      3.1299      3.38 |Q         |        |        |        |
 19+30      4.2565      4.58 |  Q       |        |        |        |
 19+45      3.6297      3.97 |  Q       |        |        |        |
 20+ 0      2.5031      2.77 |Q         |        |        |        |
 20+15      3.1299      3.38 |Q         |        |        |        |
 20+30      3.3798      3.67 |qQ        |        |        |        |
 20+45      3.3798      3.68 |qQ        |        |        |        |
 21+ 0      2.5031      2.76 |Q         |        |        |        |
 21+15      3.1299      3.38 |Q         |        |        |        |
 21+30      2.5031      2.75 |Q         |        |        |        |
 21+45      3.1299      3.38 |Q         |        |        |        |
 22+ 0      2.5031      2.75 |Q         |        |        |        |
 22+15      3.1299      3.38 |Q         |        |        |        |
 22+30      2.5031      2.75 |Q         |        |        |        |
 22+45      2.2532      2.46 |Q         |        |        |        |
 23+ 0      2.2532      2.45 |Q         |        |        |        |
 23+15      2.2532      2.45 |Q         |        |        |        |
 23+30      2.2532      2.45 |Q         |        |        |        |
 23+45      2.2532      2.45 |Q         |        |        |        |
 24+ 0      2.2532      2.45 |Q         |        |        |        |
 24+15      0.4998      0.62 Q          |        |        |        |
 24+30      0.0000      0.02 Q          |        |        |        |
 24+45      0.0000      0.00 Q          |        |        |        |
 25+ 0      0.0000      0.00 Q          |        |        |        |
--------------------------------------------------------------------
      ***************************HYDROGRAPH DATA**************************
                Number of intervals =   100
                Time interval =   15.0 (Min.)
                Maximum/Peak flow rate =       70.057 (CFS)
                Total volume =      32.806 (Ac.Ft)
          Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
          Peak (CFS)      0.000     0.000     0.000     0.000     0.000
          Vol (Ac.Ft)       0.000     0.000     0.000     0.000     0.000
      ********************************************************************


      ---------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        2.000 to Point/Station        3.000
      **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
      _____________________________________________________________________
      ********************* HYDROGRAPH INFORMATION **********************

                From study/file name: OffsiteF324100.rte
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                   P R I N T  O F  S T O R M
                   R u n o f f    H y d r o g r a p h
      ---------------------------------------------------------------------
              Hydrograph in  15  Minute intervals (CFS)

      ---------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q   0        30.8       61.6       92.4      123.2
---------------------------------------------------------------------------
  0+15      0.1313      1.96  Q         |          |          |          |
  0+30      0.4930      3.84  qQ        |          |          |          |
  0+45      0.7168      4.38  qQ        |          |          |          |
  1+ 0      0.8413      5.43  qQ        |          |          |          |
  1+15      0.9397      4.91  qQ        |          |          |          |
```



```
  1+30      0.8348      4.52  qQ        |          |          |          |
  1+45      0.8085      4.49  qQ        |          |          |          |
  2+ 0      0.8664      5.46  qQ        |          |          |          |
  2+15      1.0129      5.90  qQ        |          |          |          |
  2+30      1.0496      5.95  qQ        |          |          |          |
  2+45      1.1257      6.94  q Q       |          |          |          |
  3+ 0      1.2765      7.39  q Q       |          |          |          |
  3+15      1.3156      7.44  q Q       |          |          |          |
  3+30      1.3261      7.46  q Q       |          |          |          |
  3+45      1.3288      7.46  q Q       |          |          |          |
  4+ 0      1.3957      8.44  q Q       |          |          |          |
  4+15      1.5437      8.89  q Q       |          |          |          |
  4+30      1.6473      9.92  q  Q       |          |          |          |
  4+45      1.8057     10.37  q  Q       |          |          |          |
  5+ 0      1.9121     11.41  q  Q       |          |          |          |
  5+15      1.9404      9.90  q  Q       |          |          |          |
  5+30      1.7508     10.05  q  Q       |          |          |          |
  5+45      1.9002     11.39  q  Q       |          |          |          |
  6+ 0      2.0680     11.86  q  Q       |          |          |          |
  6+15      2.1777     12.90  q   Q       |          |          |          |
  6+30      2.3365     13.36  q   Q       |          |          |          |
  6+45      2.4441     14.39  q   Q       |          |          |          |
  7+ 0      2.6037     14.85  q   Q       |          |          |          |
  7+15      2.6444     14.90  q   Q       |          |          |          |
  7+30      2.7217     15.90  q    Q       |          |          |          |
  7+45      2.9381     17.33  q    Q       |          |          |          |
  8+ 0      3.1909     18.80 |q    Q       |          |          |          |
  8+15      3.5186     21.95  q     Q       |          |          |          |
  8+30      3.8658     23.17  q     Q       |          |          |          |
  8+45      4.0217     24.73  q      Q       |          |          |          |
  9+ 0      4.2602     26.75  q      Q       |          |          |          |
  9+15      5.0391     30.74  q       Q       |          |          |          |
  9+30      7.2210     35.73   q       Q       |          |          |          |
  9+45     10.2068     41.54    q        Q       |          |          |          |
 10+ 0     13.4013     47.65    q         Q       |          |          |          |
 10+15     12.6994     37.63    q        Q       |          |          |          |
 10+30      6.2553     26.80  q      Q       |          |          |          |
 10+45      6.8886     34.53  q       Q       |          |          |          |
 11+ 0     11.7022     42.73   q       Q       |          |          |          |
 11+15     12.7098     42.71    q      Q       |          |          |          |
 11+30     12.0819     41.59   q       Q       |          |          |          |
 11+45     11.0493     37.46   q       Q       |          |          |          |
 12+ 0      9.2471     35.91   q       Q       |          |          |          |
 12+15     15.0975     54.16    q             Q       |          |          |          |
 12+30     26.8264     73.75          q             Q       |          |          |
 12+45     32.8727     84.98           q             Q       |          |          |
 13+ 0     38.1461     94.05            q             Q       |          |          |
 13+15     44.5125    109.98             q             Q       |          |          |
 13+30     53.1405    123.20              q             Q       |          |          |
 13+45     48.5088    101.33             q             Q       |          |          |
 14+ 0     33.3191     77.29          q             Q       |          |          |
 14+15     32.4305     82.04          q             Q       |          |          |
 14+30     37.1045     88.51           q             Q       |          |          |
 14+45     37.3332     88.59           q             Q       |          |          |
 15+ 0     37.0719     86.88           q             Q       |          |          |
 15+15     35.4218     82.99          q             Q       |          |          |
 15+30     33.3994     78.63          q             Q       |          |          |
 15+45     29.2633     67.20         q|             Q       |          |          |
 16+ 0     23.2907     58.00        q  |             Q       |          |          |
 16+15     16.9351     31.25      q    Q       |          |          |          |
 16+30      5.2159     11.04 |q Q       |          |          |          |          |
 16+45      2.1428      6.24 q Q       |          |          |          |          |
 17+ 0      1.1515      4.85 qQ        |          |          |          |          |
 17+15      1.0353      6.55 q Q       |          |          |          |          |
 17+30      1.2293      7.33 q Q       |          |          |          |          |
 17+45      1.3024      7.43 q Q       |          |          |          |          |
 18+ 0      1.2565      6.47 q Q       |          |          |          |          |
 18+15      1.1140      6.03 qQ        |          |          |          |          |
 18+30      1.0784      5.98 qQ        |          |          |          |          |
 18+45      1.0023      4.99 qQ        |          |          |          |          |
 19+ 0      0.7859      3.56 qQ        |          |          |          |          |
 19+15      0.6644      4.05 qQ        |          |          |          |          |
```

```
 19+30     0.8297      5.41  qQ      |         |         |         |
 19+45     0.9367      4.91  qQ      |         |         |         |
 20+ 0     0.7675      3.54  qQ      |         |         |         |
 20+15     0.6593      4.04  qQ      |         |         |         |
 20+30     0.7628      4.43  qQ      |         |         |         |
 20+45     0.7887      4.46  qQ      |         |         |         |
 21+ 0     0.7296      3.49  qQ      |         |         |         |
 21+15     0.6488      4.03  qQ      |         |         |         |
 21+30     0.6944      3.45  qQ      |         |         |         |
 21+45     0.6396      4.02  qQ      |         |         |         |
 22+ 0     0.6917      3.44  qQ      |         |         |         |
 22+15     0.6384      4.02  qQ      |         |         |         |
 22+30     0.6917      3.44  qQ      |         |         |         |
 22+45     0.5727      3.04  Q       |         |         |         |
 23+ 0     0.5437      3.00  Q       |         |         |         |
 23+15     0.5348      2.99  Q       |         |         |         |
 23+30     0.5332      2.98  Q       |         |         |         |
 23+45     0.5320      2.98  Q       |         |         |         |
 24+ 0     0.5320      2.98  Q       |         |         |         |
 24+15     0.4007      1.02  Q       |         |         |         |
 24+30     0.1047      0.13  Q       |         |         |         |
 24+45     0.0288      0.03  Q       |         |         |         |
 25+ 0     0.0079      0.01  Q       |         |         |         |
 25+15     0.0024      0.00  Q       |         |         |         |
--------------------------------------------------------------------

      ***************************HYDROGRAPH DATA**************************
                    Number of intervals =   101
                    Time interval =   15.0 (Min.)
                    Maximum/Peak flow rate =      123.198 (CFS)
                    Total volume =      49.153 (Ac.Ft)
              Status of hydrographs being held in storage
                      Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
              Peak (CFS)       0.000     0.000     0.000     0.000     0.000
              Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
      ********************************************************************

      --------------------------------------------------------------------


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Process from Point/Station        2.000 to Point/Station         3.000
      **** ADD/COMBINE/RECOVER HYDROGRAPHS ****
      ____________________________________________________________________
      ********************* HYDROGRAPH INFORMATION **********************

                    From study/file name: OffsiteF424100.rte
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                      P R I N T  O F  S T O R M
                      R u n o f f     H y d r o g r a p h
      --------------------------------------------------------------------
                  Hydrograph in  15  Minute intervals (CFS)
      --------------------------------------------------------------------
Time(h+m) Add q(CFS)  Tot. Q  0       37.1      74.2      111.3     148.3
--------------------------------------------------------------------------
  0+15      0.0988      2.06  Q       |         |         |         |
  0+30      0.2778      4.11  qQ      |         |         |         |
  0+45      0.3627      4.74  qQ      |         |         |         |
  1+ 0      0.4259      5.86  qQ      |         |         |         |
  1+15      0.4432      5.36  qQ      |         |         |         |
  1+30      0.3884      4.91  qQ      |         |         |         |
  1+45      0.3802      4.87  qQ      |         |         |         |
  2+ 0      0.4278      5.89  qQ      |         |         |         |
  2+15      0.4926      6.40  qQ      |         |         |         |
  2+30      0.5026      6.45  qQ      |         |         |         |
  2+45      0.5539      7.50  q Q     |         |         |         |
  3+ 0      0.6187      8.01  q Q     |         |         |         |
  3+15      0.6288      8.07  q Q     |         |         |         |
  3+30      0.6306      8.09  q Q     |         |         |         |
  3+45      0.6306      8.09  q Q     |         |         |         |
  4+ 0      0.6800      9.12  q Q     |         |         |         |
  4+15      0.7448      9.63  q Q     |         |         |         |
```



```
  4+30      0.8043     10.72  q Q     |         |         |         |
  4+45      0.8710     11.25  q  Q    |         |         |         |
  5+ 0      0.9304     12.34  q  Q    |         |         |         |
  5+15      0.8983     10.80  q Q     |         |         |         |
  5+30      0.8281     10.87  q Q     |         |         |         |
  5+45      0.9241     12.31  q  Q    |         |         |         |
  6+ 0      0.9952     12.86  q  Q    |         |         |         |
  6+15      1.0565     13.96  q  Q    |         |         |         |
  6+30      1.1232     14.48  q  Q    |         |         |         |
  6+45      1.1827     15.57  q   Q   |         |         |         |
  7+ 0      1.2493     16.10  q   Q   |         |         |         |
  7+15      1.2594     16.16  q   Q   |         |         |         |
  7+30      1.3107     17.21  q   Q   |         |         |         |
  7+45      1.4249     18.75  q    Q  |         |         |         |
  8+ 0      1.5491     20.35  q    Q  |         |         |         |
  8+15      1.7247     23.67  q     Q |         |         |         |
  8+30      1.8662     25.03  q     Q |         |         |         |
  8+45      1.9376     26.66  q      Q|         |         |         |
  9+ 0      2.0555     28.81  q      Q|         |         |         |
  9+15      2.2292     32.97  q       Q         |         |         |
  9+30      2.8995     38.63  q        Q        |         |         |
  9+45      4.2296     45.77  |q        Q       |         |         |
 10+ 0      5.7600     53.41  |q         Q      |         |         |
 10+15      4.7554     42.39  |q        Q       |         |         |
 10+30      2.3398     29.14  q      Q         |         |         |
 10+45      3.2819     37.81  q       Q        |         |         |
 11+ 0      5.0497     47.78  |q        Q       |         |         |
 11+15      5.0869     47.80  |q        Q       |         |         |
 11+30      4.7724     46.36  |q        Q       |         |         |
 11+45      3.9691     41.43  |q       Q        |         |         |
 12+ 0      3.4304     39.34  q       Q        |         |         |
 12+15      7.6147     61.78  | q           Q   |         |         |
 12+30     12.9848     86.73  |  q              |  Q      |         |
 12+45     15.6155    100.59  |   q             |    Q    |         |
 13+ 0     17.9061    111.96  |   q             |     Q   |         |
 13+15     21.5101    131.49  |    q            |       Q |         |
 13+30     25.1514    148.35  |     q           |         |  Q      |
 13+45     20.4977    121.83  |    q            |       Q |         |
 14+ 0     13.7174     91.00  |  q              |  Q      |         |
 14+15     14.8413     96.88  |   q             |    Q    |         |
 14+30     16.9843    105.50  |   q             |     Q   |         |
 14+45     16.9838    105.57  |   q             |     Q   |         |
 15+ 0     16.7063    103.59  |   q             |    Q    |         |
 15+15     15.7843     98.78  |   q             |   Q     |         |
 15+30     14.7769     93.40  |  q              |  Q      |         |
 15+45     12.2652     79.47  |  q              | Q       |         |
 16+ 0      9.7814     67.78  | q           Q   |         |         |
 16+15      5.9951     37.24  |q         Q      |         |         |
 16+30      1.3457     12.39  q  Q     |         |         |         |
 16+45      0.5873      6.83  qQ      |         |         |         |
 17+ 0      0.3903      5.24  qQ      |         |         |         |
 17+15      0.4790      7.02  qQ      |         |         |         |
 17+30      0.6068      7.94  q Q     |         |         |         |
 17+45      0.6269      8.06  q Q     |         |         |         |
 18+ 0      0.5812      7.05  qQ      |         |         |         |
 18+15      0.5164      6.55  qQ      |         |         |         |
 18+30      0.5064      6.49  qQ      |         |         |         |
 18+45      0.4551      5.45  qQ      |         |         |         |
 19+ 0      0.3409      3.90  qQ      |         |         |         |
 19+15      0.3154      4.36  qQ      |         |         |         |
 19+30      0.4177      5.83  qQ      |         |         |         |
 19+45      0.4413      5.35  qQ      |         |         |         |
 20+ 0      0.3390      3.88  qQ      |         |         |         |
 20+15      0.3154      4.36  qQ      |         |         |         |
 20+30      0.3683      4.80  qQ      |         |         |         |
 20+45      0.3765      4.84  qQ      |         |         |         |
 21+ 0      0.3290      3.82  qQ      |         |         |         |
 21+15      0.3136      4.34  qQ      |         |         |         |
 21+30      0.3189      3.76  qQ      |         |         |         |
 21+45      0.3117      4.33  qQ      |         |         |         |
 22+ 0      0.3189      3.76  qQ      |         |         |         |
 22+15      0.3117      4.33  qQ      |         |         |         |
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 22+30 | 0.3189 | 3.76 | qQ | \| | \| | \| | \| |
| 22+45 | 0.2623 | 3.30 | Q | \| | \| | \| | \| |
| 23+ 0 | 0.2541 | 3.25 | Q | \| | \| | \| | \| |
| 23+15 | 0.2523 | 3.24 | Q | \| | \| | \| | \| |
| 23+30 | 0.2523 | 3.24 | Q | \| | \| | \| | \| |
| 23+45 | 0.2523 | 3.24 | Q | \| | \| | \| | \| |
| 24+ 0 | 0.2523 | 3.24 | Q | \| | \| | \| | \| |
| 24+15 | 0.1534 | 1.17 | Q | \| | \| | \| | \| |
| 24+30 | 0.0238 | 0.15 | Q | \| | \| | \| | \| |
| 24+45 | 0.0037 | 0.04 | Q | \| | \| | \| | \| |
| 25+ 0 | 0.0000 | 0.01 | Q | \| | \| | \| | \| |
| 25+15 | 0.0000 | 0.00 | Q | \| | \| | \| | \| |

**********HYDROGRAPH DATA**********

Number of intervals = 101
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 148.349 (CFS)
Total volume = 56.429 (Ac.Ft)

Status of hydrographs being held in storage

| | Stream 1 | Stream 2 | Stream 3 | Stream 4 | Stream 5 |
|---|---|---|---|---|---|
| Peak (CFS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Vol (Ac.Ft) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**********

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

Process from Point/Station 3.000 to Point/Station 3.000

**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 101
Hydrograph time unit = 15.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

| Basin Depth (Ft.) | Storage (Ac.Ft) | Outflow (CFS) | (S-O*dt/2) (Ac.Ft) | (S+O*dt/2) (Ac.Ft) |
|---|---|---|---|---|
| 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1.000 | 5.000 | 650.000 | -1.715 | 11.715 |
| 2.000 | 10.000 | 800.000 | 1.736 | 18.264 |
| 3.000 | 18.000 | 1200.000 | 5.603 | 30.397 |

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

| Time (Hours) | Inflow (CFS) | Outflow (CFS) | Storage (Ac.Ft) | .0 37.1 74.17 111.26 148.35 (Ft.) | Depth |
|---|---|---|---|---|---|
| 0.250 | 2.06 | 1.18 | 0.009 | O | 0.00 |
| 0.500 | 4.11 | 3.37 | 0.026 | O | 0.01 |
| 0.750 | 4.74 | 4.58 | 0.035 | OI | 0.01 |
| 1.000 | 5.86 | 5.41 | 0.042 | \|O | 0.01 |
| 1.250 | 5.36 | 5.64 | 0.043 | \|O | 0.01 |
| 1.500 | 4.91 | 5.06 | 0.039 | \|O | 0.01 |
| 1.750 | 4.87 | 4.86 | 0.037 | \|O | 0.01 |
| 2.000 | 5.89 | 5.45 | 0.042 | \|O | 0.01 |
| 2.250 | 6.40 | 6.24 | 0.048 | \|O | 0.01 |
| 2.500 | 6.45 | 6.45 | 0.050 | \|O | 0.01 |
| 2.750 | 7.50 | 7.05 | 0.054 | \|O | 0.01 |
| 3.000 | 8.01 | 7.86 | 0.060 | \|O | 0.01 |



| | | | | | |
|---|---|---|---|---|---|
| 3.250 | 8.07 | 8.07 | 0.062 | \|O | 0.01 |
| 3.500 | 8.09 | 8.08 | 0.062 | \|O | 0.01 |
| 3.750 | 8.09 | 8.09 | 0.062 | \|O | 0.01 |
| 4.000 | 9.12 | 8.68 | 0.067 | \|O | 0.01 |
| 4.250 | 9.63 | 9.48 | 0.073 | O | 0.01 |
| 4.500 | 10.72 | 10.28 | 0.079 | O | 0.02 |
| 4.750 | 11.25 | 11.09 | 0.085 | O | 0.02 |
| 5.000 | 12.34 | 11.89 | 0.091 | O | 0.02 |
| 5.250 | 10.80 | 11.52 | 0.089 | O | 0.02 |
| 5.500 | 10.87 | 10.74 | 0.083 | O | 0.02 |
| 5.750 | 12.31 | 11.72 | 0.090 | O | 0.02 |
| 6.000 | 12.86 | 12.71 | 0.098 | O | 0.02 |
| 6.250 | 13.96 | 13.51 | 0.104 | OI | 0.02 |
| 6.500 | 14.48 | 14.32 | 0.110 | O | 0.02 |
| 6.750 | 15.57 | 15.13 | 0.116 | O | 0.02 |
| 7.000 | 16.10 | 15.94 | 0.123 | O | 0.02 |
| 7.250 | 16.16 | 16.16 | 0.124 | O | 0.02 |
| 7.500 | 17.21 | 16.76 | 0.129 | O | 0.03 |
| 7.750 | 18.75 | 18.16 | 0.140 | OI | 0.03 |
| 8.000 | 20.35 | 19.76 | 0.152 | O | 0.03 |
| 8.250 | 23.67 | 22.34 | 0.172 | OI | 0.03 |
| 8.500 | 25.03 | 24.65 | 0.190 | O | 0.04 |
| 8.750 | 26.66 | 26.02 | 0.200 | O | 0.04 |
| 9.000 | 28.81 | 27.99 | 0.215 | O | 0.04 |
| 9.250 | 32.97 | 31.32 | 0.241 | OI | 0.05 |
| 9.500 | 38.63 | 36.46 | 0.280 | OI | 0.06 |
| 9.750 | 45.77 | 43.04 | 0.331 | \|O | 0.07 |
| 10.000 | 53.41 | 50.55 | 0.389 | OI | 0.08 |
| 10.250 | 42.39 | 47.51 | 0.365 | IO | 0.07 |
| 10.500 | 29.14 | 34.04 | 0.262 | IO\| | 0.05 |
| 10.750 | 37.81 | 33.39 | 0.257 | OI | 0.05 |
| 11.000 | 47.78 | 44.17 | 0.340 | \|OI | 0.07 |
| 11.250 | 47.80 | 48.32 | 0.372 | O | 0.07 |
| 11.500 | 46.36 | 46.90 | 0.361 | O | 0.07 |
| 11.750 | 41.43 | 43.45 | 0.334 | IO | 0.07 |
| 12.000 | 39.34 | 39.93 | 0.307 | O | 0.06 |
| 12.250 | 61.78 | 52.11 | 0.401 | O I | 0.08 |
| 12.500 | 86.73 | 77.50 | 0.596 | O I | 0.12 |
| 12.750 | 100.59 | 96.03 | 0.739 | OI | 0.15 |
| 13.000 | 111.96 | 107.77 | 0.829 | OI | 0.17 |
| 13.250 | 131.49 | 123.77 | 0.952 | O I | 0.19 |
| 13.500 | 148.35 | 142.28 | 1.094 | O I | 0.22 |
| 13.750 | 121.83 | 134.04 | 1.031 | I O | 0.21 |
| 14.000 | 91.00 | 102.37 | 0.787 | I O | 0.16 |
| 14.250 | 96.88 | 92.71 | 0.713 | OI | 0.14 |
| 14.500 | 105.50 | 102.43 | 0.788 | O | 0.16 |
| 14.750 | 105.57 | 105.99 | 0.815 | O | 0.16 |
| 15.000 | 103.59 | 104.37 | 0.803 | O | 0.16 |
| 15.250 | 98.78 | 100.72 | 0.775 | O | 0.15 |
| 15.500 | 93.40 | 95.41 | 0.734 | O | 0.15 |
| 15.750 | 79.47 | 85.12 | 0.655 | IO | 0.13 |
| 16.000 | 67.78 | 71.94 | 0.553 | IO\| | 0.11 |
| 16.250 | 37.24 | 49.67 | 0.382 | I O | 0.08 |
| 16.500 | 12.39 | 21.18 | 0.163 | I O | 0.03 |
| 16.750 | 6.83 | 7.92 | 0.061 | \|O | 0.01 |
| 17.000 | 5.24 | 5.76 | 0.044 | \|O | 0.01 |
| 17.250 | 7.02 | 6.19 | 0.048 | \|O | 0.01 |
| 17.500 | 7.94 | 7.67 | 0.059 | \|O | 0.01 |
| 17.750 | 8.06 | 8.05 | 0.062 | \|O | 0.01 |
| 18.000 | 7.05 | 7.48 | 0.058 | \|O | 0.01 |
| 18.250 | 6.55 | 6.70 | 0.052 | \|O | 0.01 |
| 18.500 | 6.49 | 6.49 | 0.050 | \|O | 0.01 |
| 18.750 | 5.45 | 5.89 | 0.045 | \|O | 0.01 |
| 19.000 | 3.90 | 4.49 | 0.035 | O | 0.01 |
| 19.250 | 4.36 | 4.08 | 0.031 | O | 0.01 |
| 19.500 | 5.83 | 5.24 | 0.040 | \|O | 0.01 |
| 19.750 | 5.35 | 5.64 | 0.043 | \|O | 0.01 |
| 20.000 | 3.88 | 4.47 | 0.034 | O | 0.01 |
| 20.250 | 4.36 | 4.07 | 0.031 | O | 0.01 |
| 20.500 | 4.80 | 4.65 | 0.036 | \|O | 0.01 |
| 20.750 | 4.84 | 4.84 | 0.037 | \|O | 0.01 |
| 21.000 | 3.82 | 4.26 | 0.033 | O | 0.01 |

```
21.250    4.34    4.06     0.031  0       |       |       |       |      0.01
21.500    3.76    4.05     0.031  0       |       |       |       |      0.01
21.750    4.33    4.05     0.031  0       |       |       |       |      0.01
22.000    3.76    4.05     0.031  0       |       |       |       |      0.01
22.250    4.33    4.04     0.031  0       |       |       |       |      0.01
22.500    3.76    4.05     0.031  0       |       |       |       |      0.01
22.750    3.30    3.45     0.027  0       |       |       |       |      0.01
23.000    3.25    3.25     0.025  0       |       |       |       |      0.00
23.250    3.24    3.24     0.025  0       |       |       |       |      0.00
23.500    3.24    3.24     0.025  0       |       |       |       |      0.00
23.750    3.24    3.24     0.025  0       |       |       |       |      0.00
24.000    3.24    3.24     0.025  0       |       |       |       |      0.00
24.250    1.17    2.05     0.016  0       |       |       |       |      0.00
24.500    0.15    0.46     0.004  0       |       |       |       |      0.00
24.750    0.04    0.04     0.000  0       |       |       |       |      0.00
25.000    0.01    0.02     0.000  0       |       |       |       |      0.00
25.250    0.00    0.00     0.000  0       |       |       |       |      0.00
25.500    0.00    0.00     0.000  0       |       |       |       |      0.00

**************************HYDROGRAPH DATA**************************
              Number of intervals =   102
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =      142.285 (CFS)
              Total volume =      56.429 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
*******************************************************************

-------------------------------------------------------------------


+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       1.000 to Point/Station       3.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
___________________________________________________________________
Current stream hydrograph saved in file LineF24hr.rte
**************************HYDROGRAPH DATA**************************
              Number of intervals =     0
              Time interval =    0.0 (Min.)
              Maximum/Peak flow rate =        0.000 (CFS)
              Total volume =       0.000 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
*******************************************************************

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        U n i t   H y d r o g r a p h   A n a l y s i s

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
              Study date  07/31/13 File: OffsiteF224100.out

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--------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



-------------------------------------------------------------------
Watershed F, Offsite F2
Proposed Condition
100 yr, 24 hr

--------------------------------------------------------------------
Drainage Area =      54.70(Ac.)  =      0.085 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      54.70(Ac.)  =      0.085 Sq. Mi.
Length along longest watercourse =    3200.00(Ft.)
Length along longest watercourse measured to centroid =    1700.00(Ft.)
Length along longest watercourse =       0.606 Mi.
Length along longest watercourse measured to centroid =       0.322 Mi.
Difference in elevation =     330.00(Ft.)
Slope along watercourse =    544.5000 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.117 Hr.
Lag time =     7.01 Min.
25% of lag time =     1.75 Min.
40% of lag time =     2.81 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       54.70                 1.80                98.46

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       54.70                 4.50               246.15

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    4.500(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
     4.000             46.00          0.000
     9.300             66.00          0.000
    41.400             83.00          0.000
```

Total Area Entered = 54.70(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.073 | 0.045 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.170 | 0.069 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.757 | 0.159 |
| | | | | | Sum (F) = | 0.272 |

Area averaged mean soil loss (F) (In/Hr) = 0.272
Minimum soil loss rate ((In/Hr)) = 0.136
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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U n i t H y d r o g r a p h
FOOTHILL S-Curve

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Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | | Unit Hydrograph (CFS) |
|---|---|---|---|---|---|
| 1 | 0.250 | 213.856 | 44.943 | | 24.776 |
| 2 | 0.500 | 427.712 | 48.675 | | 26.833 |
| 3 | 0.750 | 641.568 | 5.562 | | 3.066 |
| 4 | 1.000 | 855.424 | 0.820 | | 0.452 |
| | | | Sum = 100.000 | Sum= | 55.127 |

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The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.481) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.475) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.470) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.464) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.459) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.453) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.448) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.443) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.437) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.432) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.427) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.421) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.416) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.411) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.406) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.401) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.396) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.391) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.386) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.381) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.376) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.371) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.366) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.361) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.356) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.352) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.347) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.342) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.338) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.333) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.328) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.324) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.319) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.315) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.310) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.306) | 0.275 | 0.031 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 37 | 9.25 | 1.90 | 0.342 | 0.302 | ( 0.308) | 0.040 |
| 38 | 9.50 | 2.00 | 0.360 | 0.297 | ( 0.324) | 0.062 |
| 39 | 9.75 | 2.10 | 0.378 | 0.293 | ( 0.340) | 0.085 |
| 40 | 10.00 | 2.20 | 0.396 | 0.289 | ( 0.356) | 0.107 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.285) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.281) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.277 | ( 0.324) | 0.083 |
| 44 | 11.00 | 2.00 | 0.360 | 0.273 | ( 0.324) | 0.087 |
| 45 | 11.25 | 1.90 | 0.342 | 0.269 | ( 0.308) | 0.073 |
| 46 | 11.50 | 1.90 | 0.342 | 0.265 | ( 0.308) | 0.077 |
| 47 | 11.75 | 1.70 | 0.306 | 0.261 | ( 0.275) | 0.045 |
| 48 | 12.00 | 1.80 | 0.324 | 0.257 | ( 0.292) | 0.067 |
| 49 | 12.25 | 2.50 | 0.450 | 0.253 | ( 0.405) | 0.197 |
| 50 | 12.50 | 2.60 | 0.468 | 0.249 | ( 0.421) | 0.219 |
| 51 | 12.75 | 2.80 | 0.504 | 0.245 | ( 0.454) | 0.258 |
| 52 | 13.00 | 2.90 | 0.522 | 0.242 | ( 0.470) | 0.280 |
| 53 | 13.25 | 3.40 | 0.612 | 0.238 | ( 0.551) | 0.374 |
| 54 | 13.50 | 3.40 | 0.612 | 0.234 | ( 0.551) | 0.377 |
| 55 | 13.75 | 2.30 | 0.414 | 0.231 | ( 0.373) | 0.183 |
| 56 | 14.00 | 2.30 | 0.414 | 0.227 | ( 0.373) | 0.187 |
| 57 | 14.25 | 2.70 | 0.486 | 0.224 | ( 0.437) | 0.262 |
| 58 | 14.50 | 2.60 | 0.468 | 0.221 | ( 0.421) | 0.247 |
| 59 | 14.75 | 2.60 | 0.468 | 0.217 | ( 0.421) | 0.251 |
| 60 | 15.00 | 2.50 | 0.450 | 0.214 | ( 0.405) | 0.236 |
| 61 | 15.25 | 2.40 | 0.432 | 0.211 | ( 0.389) | 0.221 |
| 62 | 15.50 | 2.30 | 0.414 | 0.207 | ( 0.373) | 0.207 |
| 63 | 15.75 | 1.90 | 0.342 | 0.204 | ( 0.308) | 0.138 |
| 64 | 16.00 | 1.90 | 0.342 | 0.201 | ( 0.308) | 0.141 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.198) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.195) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.192) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.189) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.186) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.183) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.181) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.178) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.175) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.173) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.170) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.168) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.166) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.163) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.161) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.159) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.157) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.155) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.153) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.151) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.149) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.147) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.146) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.144) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.143) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.142) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.140) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.139) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.138) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.137) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.137) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.136) | 0.032 | 0.004 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 5.2 |

Flood volume = Effective rainfall 1.30(In)
times area 54.7(Ac.)/[(In)/(Ft.)] = 5.9(Ac.Ft)
Total soil loss = 3.20(In)
Total soil loss = 14.567(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 258907.3 Cubic Feet
Total soil loss = 634521.7 Cubic Feet

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Peak flow rate of this hydrograph = 20.369(CFS)

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24 - H O U R  S T O R M
R u n o f f  H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 7.5 | 15.0 | 22.5 | 30.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0018 | 0.09 | Q | | | | |
| 0+30 | 0.0066 | 0.23 | Q | | | | |
| 0+45 | 0.0126 | 0.29 | Q | | | | |
| 1+ 0 | 0.0197 | 0.34 | Q | | | | |
| 1+15 | 0.0268 | 0.35 | Q | | | | |
| 1+30 | 0.0331 | 0.30 | Q | | | | |
| 1+45 | 0.0392 | 0.30 | Q | | | | |
| 2+ 0 | 0.0463 | 0.34 | Q | | | | |
| 2+15 | 0.0544 | 0.39 | Q | | | | |
| 2+30 | 0.0626 | 0.40 | Q | | | | |
| 2+45 | 0.0717 | 0.44 | Q | | | | |
| 3+ 0 | 0.0818 | 0.49 | Q | | | | |
| 3+15 | 0.0921 | 0.50 | Q | | | | |
| 3+30 | 0.1023 | 0.50 | Q | | | | |
| 3+45 | 0.1126 | 0.50 | Q | | | | |
| 4+ 0 | 0.1238 | 0.54 | Q | | | | |
| 4+15 | 0.1359 | 0.59 | Q | | | | |
| 4+30 | 0.1491 | 0.64 | QV | | | | |
| 4+45 | 0.1634 | 0.69 | QV | | | | |
| 5+ 0 | 0.1786 | 0.74 | QV | | | | |
| 5+15 | 0.1931 | 0.70 | QV | | | | |
| 5+30 | 0.2065 | 0.65 | QV | | | | |
| 5+45 | 0.2217 | 0.73 | QV | | | | |
| 6+ 0 | 0.2380 | 0.79 | Q | | | | |
| 6+15 | 0.2553 | 0.84 | Q | | | | |
| 6+30 | 0.2736 | 0.89 | Q | | | | |
| 6+45 | 0.2930 | 0.94 | Q | | | | |
| 7+ 0 | 0.3134 | 0.99 | QV | | | | |
| 7+15 | 0.3339 | 0.99 | QV | | | | |
| 7+30 | 0.3553 | 1.04 | QV | | | | |
| 7+45 | 0.3786 | 1.13 | QV | | | | |
| 8+ 0 | 0.4040 | 1.23 | QV | | | | |
| 8+15 | 0.4324 | 1.37 | QV | | | | |
| 8+30 | 0.4629 | 1.48 | Q V | | | | |
| 8+45 | 0.4945 | 1.53 | QV | | | | |
| 9+ 0 | 0.5281 | 1.63 | QV | | | | |
| 9+15 | 0.5678 | 1.92 | QV | | | | |
| 9+30 | 0.6243 | 2.73 | QV | | | | |
| 9+45 | 0.7051 | 3.91 | VQ | | | | |
| 10+ 0 | 0.8112 | 5.14 | VQ | | | | |
| 10+15 | 0.8903 | 3.83 | Q | | | | |
| 10+30 | 0.9267 | 1.76 | Q V | | | | |
| 10+45 | 0.9871 | 2.92 | Q V | | | | |
| 11+ 0 | 1.0800 | 4.50 | Q V | | | | |
| 11+15 | 1.1716 | 4.43 | Q V | | | | |
| 11+30 | 1.2582 | 4.19 | Q V | | | | |
| 11+45 | 1.3298 | 3.46 | Q V | | | | |
| 12+ 0 | 1.3949 | 3.15 | Q V | | | | |
| 12+15 | 1.5366 | 6.86 | QV | | | | |
| 12+30 | 1.7626 | 10.94 | V Q | | | | |
| 12+45 | 2.0294 | 12.92 | V Q | | | | |
| 13+ 0 | 2.3320 | 14.65 | V Q | | | | |
| 13+15 | 2.6973 | 17.68 | V Q | | | | |
| 13+30 | 3.1182 | 20.37 | V Q | | | | |
| 13+45 | 3.4476 | 15.94 | Q V | | | | |
| 14+ 0 | 3.6721 | 10.87 | Q V | | | | |
| 14+15 | 3.9249 | 12.24 | Q V | | | | |
| 14+30 | 4.2105 | 13.82 | Q V | | | | |
| 14+45 | 4.4945 | 13.75 | Q V | | | | |
| 15+ 0 | 4.7727 | 13.46 | Q V | | | | |
| 15+15 | 5.0353 | 12.71 | Q V | | | | |
| 15+30 | 5.2812 | 11.90 | Q V | | | | |
| 15+45 | 5.4827 | 9.75 | Q V | | | | |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 16+ 0 | 5.6464 | 7.93 | Q V | | | | |
| 16+15 | 5.7389 | 4.48 | Q V | | | | |
| 16+30 | 5.7568 | 0.87 | Q V | | | | |
| 16+45 | 5.7654 | 0.41 | Q V | | | | |
| 17+ 0 | 5.7717 | 0.30 | Q V | | | | |
| 17+15 | 5.7797 | 0.39 | Q V | | | | |
| 17+30 | 5.7897 | 0.48 | Q V | | | | |
| 17+45 | 5.7999 | 0.49 | Q V | | | | |
| 18+ 0 | 5.8092 | 0.45 | Q V | | | | |
| 18+15 | 5.8176 | 0.40 | Q V | | | | |
| 18+30 | 5.8258 | 0.40 | Q V | | | | |
| 18+45 | 5.8331 | 0.35 | Q V | | | | |
| 19+ 0 | 5.8384 | 0.26 | Q V | | | | |
| 19+15 | 5.8436 | 0.25 | Q V | | | | |
| 19+30 | 5.8506 | 0.34 | Q V | | | | |
| 19+45 | 5.8577 | 0.35 | Q V | | | | |
| 20+ 0 | 5.8630 | 0.26 | Q V | | | | |
| 20+15 | 5.8682 | 0.25 | Q V | | | | |
| 20+30 | 5.8742 | 0.29 | Q V | | | | |
| 20+45 | 5.8804 | 0.30 | Q V | | | | |
| 21+ 0 | 5.8856 | 0.25 | Q V | | | | |
| 21+15 | 5.8908 | 0.25 | Q V | | | | |
| 21+30 | 5.8959 | 0.25 | Q V | | | | |
| 21+45 | 5.9010 | 0.25 | Q V | | | | |
| 22+ 0 | 5.9061 | 0.25 | Q V | | | | |
| 22+15 | 5.9113 | 0.25 | Q V | | | | |
| 22+30 | 5.9164 | 0.25 | Q V | | | | |
| 22+45 | 5.9206 | 0.20 | Q V | | | | |
| 23+ 0 | 5.9247 | 0.20 | Q V | | | | |
| 23+15 | 5.9288 | 0.20 | Q V | | | | |
| 23+30 | 5.9329 | 0.20 | Q V | | | | |
| 23+45 | 5.9370 | 0.20 | Q V | | | | |
| 24+ 0 | 5.9411 | 0.20 | Q V | | | | |
| 24+15 | 5.9434 | 0.11 | Q V | | | | |
| 24+30 | 5.9437 | 0.01 | Q V | | | | |
| 24+45 | 5.9437 | 0.00 | Q V | | | | |

U n i t  H y d r o g r a p h  A n a l y s i s

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| | | | | | | |
|---|---|---|---|---|---|---|
| 35 | 8.75 | 1.60 | 0.288 | ( 0.304) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.299) | 0.275 | 0.031 |
| 37 | 9.25 | 1.90 | 0.342 | 0.295 | ( 0.308) | 0.047 |
| 38 | 9.50 | 2.00 | 0.360 | 0.291 | ( 0.324) | 0.069 |
| 39 | 9.75 | 2.10 | 0.378 | 0.287 | ( 0.340) | 0.091 |
| 40 | 10.00 | 2.20 | 0.396 | 0.283 | ( 0.356) | 0.113 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.279) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.275) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.271 | ( 0.324) | 0.089 |
| 44 | 11.00 | 2.00 | 0.360 | 0.267 | ( 0.324) | 0.093 |
| 45 | 11.25 | 1.90 | 0.342 | 0.263 | ( 0.308) | 0.079 |
| 46 | 11.50 | 1.90 | 0.342 | 0.259 | ( 0.308) | 0.083 |
| 47 | 11.75 | 1.70 | 0.306 | 0.255 | ( 0.275) | 0.051 |
| 48 | 12.00 | 1.80 | 0.324 | 0.251 | ( 0.292) | 0.073 |
| 49 | 12.25 | 2.50 | 0.450 | 0.248 | ( 0.405) | 0.202 |
| 50 | 12.50 | 2.60 | 0.468 | 0.244 | ( 0.421) | 0.224 |
| 51 | 12.75 | 2.80 | 0.504 | 0.240 | ( 0.453) | 0.264 |
| 52 | 13.00 | 2.90 | 0.522 | 0.237 | ( 0.470) | 0.285 |
| 53 | 13.25 | 3.40 | 0.612 | 0.233 | ( 0.551) | 0.379 |
| 54 | 13.50 | 3.40 | 0.612 | 0.229 | ( 0.551) | 0.382 |
| 55 | 13.75 | 2.30 | 0.414 | 0.226 | ( 0.372) | 0.188 |
| 56 | 14.00 | 2.30 | 0.414 | 0.222 | ( 0.372) | 0.191 |
| 57 | 14.25 | 2.70 | 0.486 | 0.219 | ( 0.437) | 0.267 |
| 58 | 14.50 | 2.60 | 0.468 | 0.216 | ( 0.421) | 0.252 |
| 59 | 14.75 | 2.60 | 0.468 | 0.212 | ( 0.421) | 0.255 |
| 60 | 15.00 | 2.50 | 0.450 | 0.209 | ( 0.405) | 0.241 |
| 61 | 15.25 | 2.40 | 0.432 | 0.206 | ( 0.389) | 0.226 |
| 62 | 15.50 | 2.30 | 0.414 | 0.203 | ( 0.372) | 0.211 |
| 63 | 15.75 | 1.90 | 0.342 | 0.200 | ( 0.308) | 0.142 |
| 64 | 16.00 | 1.90 | 0.342 | 0.197 | ( 0.308) | 0.145 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.194) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.191) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.188) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.185) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.182) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.179) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.177) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.174) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.172) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.169) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.167) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.164) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.162) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.160) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.158) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.155) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.153) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.151) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.149) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.148) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.146) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.144) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.143) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.141) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.140) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.138) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.137) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.136) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.135) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.134) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.134) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.133) | 0.032 | 0.004 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 5.4

Flood volume = Effective rainfall 1.34(In)
times area 146.6(Ac.)/[(In)/(Ft.)] = 16.3(Ac.Ft)
Total soil loss = 3.16(In)
Total soil loss = 38.613(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 712062.5 Cubic Feet
Total soil loss = 1681962.8 Cubic Feet

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Peak flow rate of this hydrograph = 53.141(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))

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| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 15.0 | 30.0 | 45.0 | 60.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0027 | 0.13 | Q | | | | |
| 0+30 | 0.0129 | 0.49 | Q | | | | |
| 0+45 | 0.0277 | 0.72 | Q | | | | |
| 1+ 0 | 0.0451 | 0.84 | Q | | | | |
| 1+15 | 0.0645 | 0.94 | Q | | | | |
| 1+30 | 0.0818 | 0.83 | Q | | | | |
| 1+45 | 0.0985 | 0.81 | Q | | | | |
| 2+ 0 | 0.1164 | 0.87 | Q | | | | |
| 2+15 | 0.1373 | 1.01 | Q | | | | |
| 2+30 | 0.1590 | 1.05 | Q | | | | |
| 2+45 | 0.1822 | 1.13 | Q | | | | |
| 3+ 0 | 0.2086 | 1.28 | Q | | | | |
| 3+15 | 0.2358 | 1.32 | Q | | | | |
| 3+30 | 0.2632 | 1.33 | Q | | | | |
| 3+45 | 0.2906 | 1.33 | Q | | | | |
| 4+ 0 | 0.3195 | 1.40 | Q | | | | |
| 4+15 | 0.3514 | 1.54 | VQ | | | | |
| 4+30 | 0.3854 | 1.65 | VQ | | | | |
| 4+45 | 0.4227 | 1.81 | Q | | | | |
| 5+ 0 | 0.4622 | 1.91 | Q | | | | |
| 5+15 | 0.5023 | 1.94 | Q | | | | |
| 5+30 | 0.5385 | 1.75 | Q | | | | |
| 5+45 | 0.5777 | 1.90 | Q | | | | |
| 6+ 0 | 0.6205 | 2.07 | Q | | | | |
| 6+15 | 0.6655 | 2.18 | Q | | | | |
| 6+30 | 0.7137 | 2.34 | Q | | | | |
| 6+45 | 0.7642 | 2.44 | Q | | | | |
| 7+ 0 | 0.8180 | 2.60 | QV | | | | |
| 7+15 | 0.8727 | 2.64 | QV | | | | |
| 7+30 | 0.9289 | 2.72 | QV | | | | |
| 7+45 | 0.9896 | 2.94 | QV | | | | |
| 8+ 0 | 1.0555 | 3.19 | Q | | | | |
| 8+15 | 1.1282 | 3.52 | Q | | | | |
| 8+30 | 1.2081 | 3.87 | Q | | | | |
| 8+45 | 1.2912 | 4.02 | QV | | | | |
| 9+ 0 | 1.3792 | 4.26 | QV | | | | |
| 9+15 | 1.4833 | 5.04 | Q | | | | |
| 9+30 | 1.6325 | 7.22 | VQ | | | | |
| 9+45 | 1.8434 | 10.21 | V Q | | | | |
| 10+ 0 | 2.1203 | 13.40 | V Q | | | | |
| 10+15 | 2.3827 | 12.70 | V Q | | | | |
| 10+30 | 2.5119 | 6.26 | Q V | | | | |
| 10+45 | 2.6543 | 6.89 | Q V | | | | |
| 11+ 0 | 2.8960 | 11.70 | Q | | | | |
| 11+15 | 3.1586 | 12.71 | VQ | | | | |
| 11+30 | 3.4083 | 12.08 | Q | | | | |
| 11+45 | 3.6365 | 11.05 | QV | | | | |
| 12+ 0 | 3.8276 | 9.25 | Q V | | | | |
| 12+15 | 4.1395 | 15.10 | Q | | | | |
| 12+30 | 4.6938 | 26.83 | V Q | | | | |
| 12+45 | 5.3730 | 32.87 | V Q | | | | |
| 13+ 0 | 6.1611 | 38.15 | V Q | | | | |
| 13+15 | 7.0808 | 44.51 | V Q | | | | |
| 13+30 | 8.1788 | 53.14 | V Q | | | | |
| 13+45 | 9.1810 | 48.51 | V Q | | | | |
| 14+ 0 | 9.8694 | 33.32 | Q V | | | | |
| 14+15 | 10.5395 | 32.43 | Q V | | | | |
| 14+30 | 11.3061 | 37.10 | Q V | | | | |
| 14+45 | 12.0774 | 37.33 | Q V | | | | |
| 15+ 0 | 12.8434 | 37.07 | Q V | | | | |
| 15+15 | 13.5752 | 35.42 | Q V | | | | |

```
   15+30      14.2653     33.40  |          |          | Q        |    V     |
   15+45      14.8699     29.26  |          |          Q|          |     V    |
   16+ 0      15.3511     23.29  |          |     Q    |          |      V   |
   16+15      15.7010     16.94  |          |Q         |          |       V  |
   16+30      15.8088      5.22  |  Q       |          |          |       V  |
   16+45      15.8531      2.14  |Q         |          |          |       V  |
   17+ 0      15.8769      1.15  Q          |          |          |       V  |
   17+15      15.8983      1.04  Q          |          |          |       V  |
   17+30      15.9237      1.23  Q          |          |          |       V  |
   17+45      15.9506      1.30  Q          |          |          |        V |
   18+ 0      15.9765      1.26  Q          |          |          |        V |
   18+15      15.9995      1.11  Q          |          |          |        V |
   18+30      16.0218      1.08  Q          |          |          |        V |
   18+45      16.0425      1.00  Q          |          |          |        V |
   19+ 0      16.0588      0.79  Q          |          |          |        V |
   19+15      16.0725      0.66  Q          |          |          |        V |
   19+30      16.0896      0.83  Q          |          |          |        V |
   19+45      16.1090      0.94  Q          |          |          |        V |
   20+ 0      16.1249      0.77  Q          |          |          |        V |
   20+15      16.1385      0.66  Q          |          |          |        V |
   20+30      16.1542      0.76  Q          |          |          |        V |
   20+45      16.1705      0.79  Q          |          |          |        V |
   21+ 0      16.1856      0.73  Q          |          |          |        V |
   21+15      16.1990      0.65  Q          |          |          |        V |
   21+30      16.2134      0.69  Q          |          |          |        V |
   21+45      16.2266      0.64  Q          |          |          |        V |
   22+ 0      16.2409      0.69  Q          |          |          |        V |
   22+15      16.2541      0.64  Q          |          |          |        V |
   22+30      16.2683      0.69  Q          |          |          |        V |
   22+45      16.2802      0.57  Q          |          |          |        V |
   23+ 0      16.2914      0.54  Q          |          |          |        V |
   23+15      16.3025      0.53  Q          |          |          |        V |
   23+30      16.3135      0.53  Q          |          |          |        V |
   23+45      16.3245      0.53  Q          |          |          |        V |
   24+ 0      16.3355      0.53  Q          |          |          |        V |
   24+15      16.3437      0.40  Q          |          |          |        V |
   24+30      16.3459      0.10  Q          |          |          |        V |
   24+45      16.3465      0.03  Q          |          |          |        V |
   25+ 0      16.3467      0.01  Q          |          |          |        V |
   25+15      16.3467      0.00  Q          |          |          |         V
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        U n i t   H y d r o g r a p h   A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed F, Offsite F4
Proposed Condition
100-year, 24-hour

--------------------------------------------------------------------
Drainage Area =      69.50(Ac.)  =      0.109 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      69.50(Ac.)  =      0.109 Sq. Mi.
Length along longest watercourse =    3750.00(Ft.)
Length along longest watercourse measured to centroid =    1820.00(Ft.)
Length along longest watercourse =      0.710 Mi.
Length along longest watercourse measured to centroid =      0.345 Mi.
Difference in elevation =     285.00(Ft.)
Slope along watercourse =    401.2800 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time =    0.135 Hr.
Lag time =     8.10 Min.
25% of lag time =     2.03 Min.
40% of lag time =     3.24 Min.
Unit time =    15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       69.50                 1.80              125.10

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
       69.50                 4.50              312.75

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.800(In)
Area Averaged 100-Year Rainfall =    4.500(In)

Point rain (area averaged) =    4.500(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    4.499(In)

Sub-Area Data:
Area(Ac.)          Runoff Index   Impervious %
     5.300             46.00          0.000
    14.300             66.00          0.000
    49.900             83.00          0.000
```

Total Area Entered = 69.50(Ac.)

| RI AMC2 | RI AMC-2 | Infil. Rate (In/Hr) | Impervious (Dec.%) | Adj. Infil. Rate (In/Hr) | Area% (Dec.) | F (In/Hr) |
|---|---|---|---|---|---|---|
| 46.0 | 46.0 | 0.611 | 0.000 | 0.611 | 0.076 | 0.047 |
| 66.0 | 66.0 | 0.405 | 0.000 | 0.405 | 0.206 | 0.083 |
| 83.0 | 83.0 | 0.210 | 0.000 | 0.210 | 0.718 | 0.151 |
| | | | | | Sum (F) = | 0.281 |

Area averaged mean soil loss (F) (In/Hr) = 0.281
Minimum soil loss rate ((In/Hr)) = 0.140
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
FOOTHILL S-Curve

Unit Hydrograph Data

| Unit time period (hrs) | | Time % of lag | Distribution Graph % | Unit Hydrograph (CFS) |
|---|---|---|---|---|
| 1 | 0.250 | 185.142 | 39.169 | 27.435 |
| 2 | 0.500 | 370.284 | 51.389 | 35.994 |
| 3 | 0.750 | 555.426 | 7.965 | 5.579 |
| 4 | 1.000 | 740.569 | 1.478 | 1.035 |
| | | | Sum = 100.000 | Sum= 70.043 |

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit | Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.496) | 0.032 | 0.004 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.490) | 0.049 | 0.005 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.484) | 0.049 | 0.005 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.478) | 0.065 | 0.007 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.473) | 0.049 | 0.005 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.467) | 0.049 | 0.005 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.462) | 0.049 | 0.005 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.456) | 0.065 | 0.007 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.450) | 0.065 | 0.007 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.445) | 0.065 | 0.007 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.440) | 0.081 | 0.009 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.434) | 0.081 | 0.009 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.429) | 0.081 | 0.009 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.423) | 0.081 | 0.009 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.418) | 0.081 | 0.009 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.413) | 0.097 | 0.011 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.408) | 0.097 | 0.011 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.402) | 0.113 | 0.013 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.397) | 0.113 | 0.013 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.392) | 0.130 | 0.014 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.387) | 0.097 | 0.011 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.382) | 0.113 | 0.013 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.377) | 0.130 | 0.014 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.372) | 0.130 | 0.014 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.367) | 0.146 | 0.016 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.362) | 0.146 | 0.016 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.357) | 0.162 | 0.018 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.353) | 0.162 | 0.018 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.348) | 0.162 | 0.018 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.343) | 0.178 | 0.020 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.338) | 0.194 | 0.022 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.334) | 0.211 | 0.023 |
| 33 | 8.25 | 1.50 | 0.270 | ( 0.329) | 0.243 | 0.027 |
| 34 | 8.50 | 1.50 | 0.270 | ( 0.324) | 0.243 | 0.027 |
| 35 | 8.75 | 1.60 | 0.288 | ( 0.320) | 0.259 | 0.029 |
| 36 | 9.00 | 1.70 | 0.306 | ( 0.315) | 0.275 | 0.031 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 37 | 9.25 | 1.90 | 0.342 | ( 0.311) | 0.308 | 0.034 |
| 38 | 9.50 | 2.00 | 0.360 | 0.306 | ( 0.324) | 0.053 |
| 39 | 9.75 | 2.10 | 0.378 | 0.302 | ( 0.340) | 0.076 |
| 40 | 10.00 | 2.20 | 0.396 | 0.298 | ( 0.356) | 0.098 |
| 41 | 10.25 | 1.50 | 0.270 | ( 0.293) | 0.243 | 0.027 |
| 42 | 10.50 | 1.50 | 0.270 | ( 0.289) | 0.243 | 0.027 |
| 43 | 10.75 | 2.00 | 0.360 | 0.285 | ( 0.324) | 0.075 |
| 44 | 11.00 | 2.00 | 0.360 | 0.281 | ( 0.324) | 0.079 |
| 45 | 11.25 | 1.90 | 0.342 | 0.277 | ( 0.308) | 0.065 |
| 46 | 11.50 | 1.90 | 0.342 | 0.273 | ( 0.308) | 0.069 |
| 47 | 11.75 | 1.70 | 0.306 | 0.269 | ( 0.275) | 0.037 |
| 48 | 12.00 | 1.80 | 0.324 | 0.265 | ( 0.292) | 0.059 |
| 49 | 12.25 | 2.50 | 0.450 | 0.261 | ( 0.405) | 0.189 |
| 50 | 12.50 | 2.60 | 0.468 | 0.257 | ( 0.421) | 0.211 |
| 51 | 12.75 | 2.80 | 0.504 | 0.253 | ( 0.454) | 0.251 |
| 52 | 13.00 | 2.90 | 0.522 | 0.249 | ( 0.470) | 0.273 |
| 53 | 13.25 | 3.40 | 0.612 | 0.245 | ( 0.551) | 0.367 |
| 54 | 13.50 | 3.40 | 0.612 | 0.242 | ( 0.551) | 0.370 |
| 55 | 13.75 | 2.30 | 0.414 | 0.238 | ( 0.373) | 0.176 |
| 56 | 14.00 | 2.30 | 0.414 | 0.234 | ( 0.373) | 0.180 |
| 57 | 14.25 | 2.70 | 0.486 | 0.231 | ( 0.437) | 0.255 |
| 58 | 14.50 | 2.60 | 0.468 | 0.227 | ( 0.421) | 0.241 |
| 59 | 14.75 | 2.60 | 0.468 | 0.224 | ( 0.421) | 0.244 |
| 60 | 15.00 | 2.50 | 0.450 | 0.220 | ( 0.405) | 0.230 |
| 61 | 15.25 | 2.40 | 0.432 | 0.217 | ( 0.389) | 0.215 |
| 62 | 15.50 | 2.30 | 0.414 | 0.214 | ( 0.373) | 0.200 |
| 63 | 15.75 | 1.90 | 0.342 | 0.210 | ( 0.308) | 0.132 |
| 64 | 16.00 | 1.90 | 0.342 | 0.207 | ( 0.308) | 0.135 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.204) | 0.065 | 0.007 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.201) | 0.065 | 0.007 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.198) | 0.049 | 0.005 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.195) | 0.049 | 0.005 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.192) | 0.081 | 0.009 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.189) | 0.081 | 0.009 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.186) | 0.081 | 0.009 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.183) | 0.065 | 0.007 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.181) | 0.065 | 0.007 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.178) | 0.065 | 0.007 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.176) | 0.049 | 0.005 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.173) | 0.032 | 0.004 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.171) | 0.049 | 0.005 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.168) | 0.065 | 0.007 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.166) | 0.049 | 0.005 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.164) | 0.032 | 0.004 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.162) | 0.049 | 0.005 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.159) | 0.049 | 0.005 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.157) | 0.049 | 0.005 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.156) | 0.032 | 0.004 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.154) | 0.049 | 0.005 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.152) | 0.032 | 0.004 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.150) | 0.049 | 0.005 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.149) | 0.032 | 0.004 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.147) | 0.049 | 0.005 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.146) | 0.032 | 0.004 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.145) | 0.032 | 0.004 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.143) | 0.032 | 0.004 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.142) | 0.032 | 0.004 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.142) | 0.032 | 0.004 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.141) | 0.032 | 0.004 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.140) | 0.032 | 0.004 |
| | | (Loss Rate Not Used) | | | | |
| Sum = | | 100.0 | | | Sum = | 5.0 |

Flood volume = Effective rainfall 1.26(In)
times area 69.5(Ac.)/[(In)/(Ft.)] = 7.3(Ac.Ft)
Total soil loss = 3.24(In)
Total soil loss = 18.783(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 316923.9 Cubic Feet
Total soil loss = 818204.5 Cubic Feet

Peak flow rate of this hydrograph = 25.151(CFS)

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R    S T O R M
                  R u n o f f      H y d r o g r a p h
--------------------------------------------------------------------------------
                Hydrograph in  15  Minute intervals ((CFS))
--------------------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        7.5       15.0       22.5       30.0
--------------------------------------------------------------------------------
  0+15       0.0020      0.10  Q          |          |          |          |
  0+30       0.0078      0.28  Q          |          |          |          |
  0+45       0.0153      0.36  Q          |          |          |          |
  1+ 0       0.0241      0.43  Q          |          |          |          |
  1+15       0.0332      0.44  Q          |          |          |          |
  1+30       0.0413      0.39  Q          |          |          |          |
  1+45       0.0491      0.38  Q          |          |          |          |
  2+ 0       0.0580      0.43  Q          |          |          |          |
  2+15       0.0681      0.49  Q          |          |          |          |
  2+30       0.0785      0.50  Q          |          |          |          |
  2+45       0.0900      0.55  Q          |          |          |          |
  3+ 0       0.1027      0.62  Q          |          |          |          |
  3+15       0.1157      0.63  Q          |          |          |          |
  3+30       0.1288      0.63  Q          |          |          |          |
  3+45       0.1418      0.63  Q          |          |          |          |
  4+ 0       0.1558      0.68  Q          |          |          |          |
  4+15       0.1712      0.74  Q          |          |          |          |
  4+30       0.1879      0.80   Q         |          |          |          |
  4+45       0.2058      0.87  |Q         |          |          |          |
  5+ 0       0.2251      0.93  |Q         |          |          |          |
  5+15       0.2436      0.90  |Q         |          |          |          |
  5+30       0.2607      0.83  |Q         |          |          |          |
  5+45       0.2798      0.92  |Q         |          |          |          |
  6+ 0       0.3004      1.00  |Q         |          |          |          |
  6+15       0.3222      1.06  |Q         |          |          |          |
  6+30       0.3454      1.12  |Q         |          |          |          |
  6+45       0.3699      1.18  |QV        |          |          |          |
  7+ 0       0.3957      1.25  |QV        |          |          |          |
  7+15       0.4217      1.26  |QV        |          |          |          |
  7+30       0.4488      1.31  |QV        |          |          |          |
  7+45       0.4782      1.42  |QV        |          |          |          |
  8+ 0       0.5102      1.55   Q         |          |          |          |
  8+15       0.5459      1.72   QV        |          |          |          |
  8+30       0.5844      1.87   QV        |          |          |          |
  8+45       0.6244      1.94   QV        |          |          |          |
  9+ 0       0.6669      2.06   QV        |          |          |          |
  9+15       0.7130      2.23   QV        |          |          |          |
  9+30       0.7729      2.90    QV       |          |          |          |
  9+45       0.8603      4.23     VQ      |          |          |          |
 10+ 0       0.9793      5.76      V Q    |          |          |          |
 10+15       1.0775      4.76      VQ     |          |          |          |
 10+30       1.1259      2.34    Q  V     |          |          |          |
 10+45       1.1937      3.28    Q V      |          |          |          |
 11+ 0       1.2980      5.05       QV    |          |          |          |
 11+15       1.4031      5.09       QV    |          |          |          |
 11+30       1.5017      4.77       Q V   |          |          |          |
 11+45       1.5837      3.97      Q  V   |          |          |          |
 12+ 0       1.6546      3.43     Q    V  |          |          |          |
 12+15       1.8119      7.61         VQ  |          |          |          |
 12+30       2.0802     12.98           V     Q      |          |          |
 12+45       2.4028     15.62           |  V       Q |          |          |
 13+ 0       2.7728     17.91           |     V    |  Q       |          |
 13+15       3.2172     21.51           |        V |       Q  |          |
 13+30       3.7369     25.15           |          |  V       |        Q |
 13+45       4.1604     20.50           |          |     V    Q          |
 14+ 0       4.4438     13.72           |          |  Q     V   |          |
 14+15       4.7504     14.84           |          |  Q       V |          |
 14+30       5.1014     16.98           |          |     Q       V       |
 14+45       5.4523     16.98           |          |     Q         V|    |
 15+ 0       5.7974     16.71           |          |     Q          V    |
 15+15       6.1236     15.78           |          |    Q           |  V |
 15+30       6.4289     14.78           |          |  Q             |    V
 15+45       6.6823     12.27           |          |     Q          |      V
```



```
 16+ 0       6.8844      9.78           |          |  Q       |          |       V  |
 16+15       7.0082      6.00           |          |     Q    |          |          V |
 16+30       7.0360      1.35          |Q          |          |          |          V |
 16+45       7.0482      0.59          Q          |          |          |          V |
 17+ 0       7.0562      0.39          Q          |          |          |          V |
 17+15       7.0661      0.48          Q          |          |          |          V |
 17+30       7.0787      0.61          Q          |          |          |          V |
 17+45       7.0916      0.63          Q          |          |          |          V |
 18+ 0       7.1036      0.58          Q          |          |          |          V|
 18+15       7.1143      0.52          Q          |          |          |          V|
 18+30       7.1248      0.51          Q          |          |          |          V|
 18+45       7.1342      0.46          Q          |          |          |          V|
 19+ 0       7.1412      0.34          Q          |          |          |          V|
 19+15       7.1477      0.32          Q          |          |          |          V|
 19+30       7.1564      0.42          Q          |          |          |          V|
 19+45       7.1655      0.44          Q          |          |          |          V|
 20+ 0       7.1725      0.34          Q          |          |          |          V|
 20+15       7.1790      0.32          Q          |          |          |          V|
 20+30       7.1866      0.37          Q          |          |          |          V|
 20+45       7.1944      0.38          Q          |          |          |          V|
 21+ 0       7.2012      0.33          Q          |          |          |          V|
 21+15       7.2077      0.31          Q          |          |          |          V|
 21+30       7.2143      0.32          Q          |          |          |          V|
 21+45       7.2207      0.31          Q          |          |          |          V|
 22+ 0       7.2273      0.32          Q          |          |          |          V|
 22+15       7.2337      0.31          Q          |          |          |          V|
 22+30       7.2403      0.32          Q          |          |          |          V|
 22+45       7.2457      0.26          Q          |          |          |          V|
 23+ 0       7.2510      0.25          Q          |          |          |          V|
 23+15       7.2562      0.25          Q          |          |          |          V|
 23+30       7.2614      0.25          Q          |          |          |          V|
 23+45       7.2666      0.25          Q          |          |          |          V|
 24+ 0       7.2718      0.25          Q          |          |          |          V|
 24+15       7.2750      0.15          Q          |          |          |          V|
 24+30       7.2755      0.02          Q          |          |          |          V|
 24+45       7.2756      0.00          Q          |          |          |          V|
--------------------------------------------------------------------------------
```

Offsitef424100.Out 1 of 5 8/2/2013 10:29 AM

```
                U n i t   H y d r o g r a p h   A n a l y s i s

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
                Study date  09/12/13 File: SubF124100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed F, Onsite F1
Proposed Condition
100-year, 24-hour

---------------------------------------------------------------------
Drainage Area =      88.69(Ac.)  =      0.139 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      88.69(Ac.)  =      0.139 Sq. Mi.
Length along longest watercourse =     1200.00(Ft.)
Length along longest watercourse measured to centroid =      600.00(Ft.)
Length along longest watercourse =       0.227 Mi.
Length along longest watercourse measured to centroid =       0.114 Mi.
Difference in elevation =       24.00(Ft.)
Slope along watercourse =     105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.037 Hr.
Lag time =      2.22 Min.
25% of lag time =      0.56 Min.
40% of lag time =      0.89 Min.
Unit time =     15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
       88.69             1.80                  159.64

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
       88.69             4.50                  399.11

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     1.800(In)
Area Averaged 100-Year Rainfall =     4.500(In)

Point rain (area averaged) =     4.500(In)
Areal adjustment factor =    99.98 %
Adjusted average point rain =     4.499(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
    88.690             85.00          0.750
 Total Area Entered =      88.69(Ac.)
```



```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
85.0  85.0       0.187      0.750         0.061        1.000      0.061
                                                    Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =    0.300
--------------------------------------------------------------------------------

                    U n i t   H y d r o g r a p h
                          VALLEY S-Curve
--------------------------------------------------------------------
                      Unit Hydrograph Data
--------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
    (hrs)                           Graph %           (CFS)
--------------------------------------------------------------------
     1    0.250        675.381        77.819            69.557
     2    0.500       1350.763        22.181            19.826
                                Sum = 100.000    Sum=     89.383
--------------------------------------------------------------------------------
```

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

| Unit Time (Hr.) | Pattern Percent | Storm Rain (In/Hr) | Loss rate(In./Hr) Max | Low | Effective (In/Hr) |
|---|---|---|---|---|---|
| 1 | 0.25 | 0.20 | 0.036 | ( 0.107) | 0.011 | 0.025 |
| 2 | 0.50 | 0.30 | 0.054 | ( 0.106) | 0.016 | 0.038 |
| 3 | 0.75 | 0.30 | 0.054 | ( 0.105) | 0.016 | 0.038 |
| 4 | 1.00 | 0.40 | 0.072 | ( 0.104) | 0.022 | 0.050 |
| 5 | 1.25 | 0.30 | 0.054 | ( 0.102) | 0.016 | 0.038 |
| 6 | 1.50 | 0.30 | 0.054 | ( 0.101) | 0.016 | 0.038 |
| 7 | 1.75 | 0.30 | 0.054 | ( 0.100) | 0.016 | 0.038 |
| 8 | 2.00 | 0.40 | 0.072 | ( 0.099) | 0.022 | 0.050 |
| 9 | 2.25 | 0.40 | 0.072 | ( 0.098) | 0.022 | 0.050 |
| 10 | 2.50 | 0.40 | 0.072 | ( 0.096) | 0.022 | 0.050 |
| 11 | 2.75 | 0.50 | 0.090 | ( 0.095) | 0.027 | 0.063 |
| 12 | 3.00 | 0.50 | 0.090 | ( 0.094) | 0.027 | 0.063 |
| 13 | 3.25 | 0.50 | 0.090 | ( 0.093) | 0.027 | 0.063 |
| 14 | 3.50 | 0.50 | 0.090 | ( 0.092) | 0.027 | 0.063 |
| 15 | 3.75 | 0.50 | 0.090 | ( 0.091) | 0.027 | 0.063 |
| 16 | 4.00 | 0.60 | 0.108 | ( 0.089) | 0.032 | 0.076 |
| 17 | 4.25 | 0.60 | 0.108 | ( 0.088) | 0.032 | 0.076 |
| 18 | 4.50 | 0.70 | 0.126 | ( 0.087) | 0.038 | 0.088 |
| 19 | 4.75 | 0.70 | 0.126 | ( 0.086) | 0.038 | 0.088 |
| 20 | 5.00 | 0.80 | 0.144 | ( 0.085) | 0.043 | 0.101 |
| 21 | 5.25 | 0.60 | 0.108 | ( 0.084) | 0.032 | 0.076 |
| 22 | 5.50 | 0.70 | 0.126 | ( 0.083) | 0.038 | 0.088 |
| 23 | 5.75 | 0.80 | 0.144 | ( 0.082) | 0.043 | 0.101 |
| 24 | 6.00 | 0.80 | 0.144 | ( 0.081) | 0.043 | 0.101 |
| 25 | 6.25 | 0.90 | 0.162 | ( 0.080) | 0.049 | 0.113 |
| 26 | 6.50 | 0.90 | 0.162 | ( 0.078) | 0.049 | 0.113 |
| 27 | 6.75 | 1.00 | 0.180 | ( 0.077) | 0.054 | 0.126 |
| 28 | 7.00 | 1.00 | 0.180 | ( 0.076) | 0.054 | 0.126 |
| 29 | 7.25 | 1.00 | 0.180 | ( 0.075) | 0.054 | 0.126 |
| 30 | 7.50 | 1.10 | 0.198 | ( 0.074) | 0.059 | 0.139 |
| 31 | 7.75 | 1.20 | 0.216 | ( 0.073) | 0.065 | 0.151 |
| 32 | 8.00 | 1.30 | 0.234 | ( 0.072) | 0.070 | 0.164 |
| 33 | 8.25 | 1.50 | 0.270 | 0.071 | ( 0.081) | 0.199 |
| 34 | 8.50 | 1.50 | 0.270 | 0.070 | ( 0.081) | 0.200 |
| 35 | 8.75 | 1.60 | 0.288 | 0.069 | ( 0.086) | 0.219 |
| 36 | 9.00 | 1.70 | 0.306 | 0.068 | ( 0.092) | 0.238 |
| 37 | 9.25 | 1.90 | 0.342 | 0.067 | ( 0.103) | 0.275 |
| 38 | 9.50 | 2.00 | 0.360 | 0.066 | ( 0.108) | 0.294 |
| 39 | 9.75 | 2.10 | 0.378 | 0.065 | ( 0.113) | 0.313 |
| 40 | 10.00 | 2.20 | 0.396 | 0.064 | ( 0.119) | 0.331 |
| 41 | 10.25 | 1.50 | 0.270 | 0.064 | ( 0.081) | 0.206 |
| 42 | 10.50 | 1.50 | 0.270 | 0.063 | ( 0.081) | 0.207 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 43 | 10.75 | 2.00 | 0.360 | | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | | 0.056 | ( 0.135) | 0.393 |
| 50 | 12.50 | 2.60 | 0.468 | | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | | 0.052 | ( 0.184) | 0.560 |
| 55 | 13.75 | 2.30 | 0.414 | | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | | 0.048 | ( 0.140) | 0.419 |
| 60 | 15.00 | 2.50 | 0.450 | | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 88.7(Ac.)/[(In)/(Ft.)] = 26.9(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 6.390(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 1170137.3 Cubic Feet
Total soil loss = 278362.9 Cubic Feet

---

Peak flow rate of this hydrograph = 50.026(CFS)

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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))



| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 15.0 | 30.0 | 45.0 | 60.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0362 | 1.75 | VQ | | | | |
| 0+30 | 0.1009 | 3.13 | V Q | | | | |
| 0+45 | 0.1707 | 3.38 | V Q | | | | |
| 1+ 0 | 0.2587 | 4.26 | V Q | | | | |
| 1+15 | 0.3337 | 3.63 | V Q | | | | |
| 1+30 | 0.4035 | 3.38 | V Q | | | | |
| 1+45 | 0.4733 | 3.38 | V Q | | | | |
| 2+ 0 | 0.5613 | 4.26 | V Q | | | | |
| 2+15 | 0.6544 | 4.51 | V Q | | | | |
| 2+30 | 0.7475 | 4.51 | V Q | | | | |
| 2+45 | 0.8587 | 5.38 | V Q | | | | |
| 3+ 0 | 0.9751 | 5.63 | V Q | | | | |
| 3+15 | 1.0915 | 5.63 | V Q | | | | |
| 3+30 | 1.2079 | 5.63 | V Q | | | | |
| 3+45 | 1.3243 | 5.63 | V Q | | | | |
| 4+ 0 | 1.4588 | 6.51 | V Q | | | | |
| 4+15 | 1.5984 | 6.76 | V Q | | | | |
| 4+30 | 1.7562 | 7.64 | V Q | | | | |
| 4+45 | 1.9191 | 7.89 | V Q | | | | |
| 5+ 0 | 2.1002 | 8.76 | V Q | | | | |
| 5+15 | 2.2502 | 7.26 | VQ | | | | |
| 5+30 | 2.4080 | 7.64 | V Q | | | | |
| 5+45 | 2.5890 | 8.76 | V Q | | | | |
| 6+ 0 | 2.7752 | 9.01 | V Q | | | | |
| 6+15 | 2.9796 | 9.89 | V Q | | | | |
| 6+30 | 3.1890 | 10.14 | V Q | | | | |
| 6+45 | 3.4167 | 11.02 | V Q | | | | |
| 7+ 0 | 3.6494 | 11.27 | V Q | | | | |
| 7+15 | 3.8822 | 11.27 | V Q | | | | |
| 7+30 | 4.1331 | 12.14 | V Q | | | | |
| 7+45 | 4.4072 | 13.27 | V Q | | | | |
| 8+ 0 | 4.7047 | 14.40 | V Q | | | | |
| 8+15 | 5.0575 | 17.08 | V Q | | | | |
| 8+30 | 5.4261 | 17.84 | V Q | | | | |
| 8+45 | 5.8223 | 19.18 | V Q | | | | |
| 9+ 0 | 6.2536 | 20.88 | V Q | | | | |
| 9+15 | 6.7459 | 23.82 | V Q | | | | |
| 9+30 | 7.2805 | 25.88 | V Q | | | | |
| 9+45 | 7.8502 | 27.57 | V Q | | | | |
| 10+ 0 | 8.4548 | 29.26 | V Q | | | | |
| 10+15 | 8.8874 | 20.94 | Q | | | | |
| 10+30 | 9.2701 | 18.52 | QV | | | | |
| 10+45 | 9.7839 | 24.87 | V Q | | | | |
| 11+ 0 | 10.3362 | 26.73 | V Q | | | | |
| 11+15 | 10.8643 | 25.56 | VQ | | | | |
| 11+30 | 11.3866 | 25.28 | Q | | | | |
| 11+45 | 11.8588 | 22.86 | Q V | | | | |
| 12+ 0 | 12.3438 | 23.47 | Q V | | | | |
| 12+15 | 13.0188 | 32.67 | V Q | | | | |
| 12+30 | 13.7729 | 36.50 | V Q | | | | |
| 12+45 | 14.5877 | 39.44 | V Q | | | | |
| 13+ 0 | 15.4447 | 41.48 | V Q | | | | |
| 13+15 | 16.4399 | 48.17 | V Q | | | | |
| 13+30 | 17.4735 | 50.03 | V Q | | | | |
| 13+45 | 18.2239 | 36.32 | Q V | | | | |
| 14+ 0 | 18.8947 | 32.46 | Q V | | | | |
| 14+15 | 19.6704 | 37.54 | Q V | | | | |
| 14+30 | 20.4511 | 37.79 | Q V | | | | |
| 14+45 | 21.2258 | 37.50 | Q V | | | | |
| 15+ 0 | 21.9761 | 36.31 | Q V | | | | |
| 15+15 | 22.6944 | 34.77 | Q V | | | | |
| 15+30 | 23.3808 | 33.22 | Q V | | | | |
| 15+45 | 23.9577 | 27.92 | Q V | | | | |
| 16+ 0 | 24.5063 | 26.55 | Q V | | | | |
| 16+15 | 24.7005 | 9.40 | Q V | | | | |
| 16+30 | 24.7936 | 4.51 | Q V | | | | |
| 16+45 | 24.8686 | 3.63 | Q V | | | | |
| 17+ 0 | 24.9384 | 3.38 | Q V | | | | |
| 17+15 | 25.0445 | 5.13 | Q V | | | | |

```
17+30     25.1609     5.63  |   Q     |         |         |      V  |
17+45     25.2773     5.63  |   Q     |         |         |      V  |
18+ 0     25.3755     4.76  |   Q     |         |         |      V  |
18+15     25.4687     4.51  |   Q     |         |         |      V  |
18+30     25.5618     4.51  |   Q     |         |         |       V |
18+45     25.6368     3.63  |  Q      |         |         |       V |
19+ 0     25.6885     2.50  |Q        |         |         |       V |
19+15     25.7531     3.13  |  Q      |         |         |       V |
19+30     25.8411     4.26  |  Q      |         |         |       V |
19+45     25.9161     3.63  |  Q      |         |         |       V |
20+ 0     25.9678     2.50  |Q        |         |         |       V |
20+15     26.0325     3.13  |  Q      |         |         |       V |
20+30     26.1023     3.38  |  Q      |         |         |       V |
20+45     26.1721     3.38  |  Q      |         |         |       V |
21+ 0     26.2238     2.50  |Q        |         |         |       V |
21+15     26.2885     3.13  |  Q      |         |         |       V |
21+30     26.3402     2.50  |Q        |         |         |       V |
21+45     26.4049     3.13  |  Q      |         |         |       V |
22+ 0     26.4566     2.50  |Q        |         |         |       V |
22+15     26.5213     3.13  |  Q      |         |         |       V |
22+30     26.5730     2.50  |Q        |         |         |       V |
22+45     26.6196     2.25  |Q        |         |         |       V |
23+ 0     26.6661     2.25  |Q        |         |         |       V |
23+15     26.7127     2.25  |Q        |         |         |       V |
23+30     26.7592     2.25  |Q        |         |         |       V |
23+45     26.8058     2.25  |Q        |         |         |       V |
24+ 0     26.8523     2.25  |Q        |         |         |       V |
24+15     26.8627     0.50  Q         |         |         |       V |
-------------------------------------------------------------------------
```



```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
                  Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                          Study date: 09/17/13

 ---------------------------------------------------------------------


 Watershed F, Bsn F2
 Proposed Condition
 100-year, 24-hour

 ---------------------------------------------------------------------


 Program License Serial Number 6097

 ---------------------------------------------------------------------
 ********************* HYDROGRAPH INFORMATION **********************

              From study/file name: SubF224100.rte
 ***************************HYDROGRAPH DATA*****************************
              Number of intervals =    97
              Time interval =   15.0 (Min.)
              Maximum/Peak flow rate =       21.993 (CFS)
              Total volume =      11.811 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
 ***********************************************************************



 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 Process from Point/Station        1.000 to Point/Station        2.000
 **** RETARDING BASIN ROUTING ****
 _____________________________________________________________________

 User entry of depth-outflow-storage data
 ---------------------------------------------------------------------
 Total number of inflow hydrograph intervals = 97
 Hydrograph time unit = 15.000 (Min.)
 Initial depth in storage basin =   0.10(Ft.)
 ---------------------------------------------------------------------
 ---------------------------------------------------------------------
 Initial basin depth =   0.10 (Ft.)
 Initial basin storage =      0.20 (Ac.Ft)
 Initial basin outflow =   5.00 (CFS)
 ---------------------------------------------------------------------
 ---------------------------------------------------------------------
 Depth vs. Storage and Depth vs. Discharge data:
  Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
      (Ft.)    (Ac.Ft)     (CFS)     (Ac.Ft)     (Ac.Ft)
 ---------------------------------------------------------------------
    0.000       0.000       0.000       0.000       0.000
    1.000       2.000      50.000       1.483       2.517
    2.000       4.000     100.000       2.967       5.033
    3.000       7.000     200.000       4.934       9.066
 ---------------------------------------------------------------------
              Hydrograph Detention Basin Routing
 ---------------------------------------------------------------------

 Graph values: 'I'= unit inflow; 'O'=outflow at time shown
 ---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                 Depth
(Hours) (CFS)   (CFS)      (Ac.Ft) .0      12.5    25.00    37.50    50.00 (Ft.)
 0.250    0.72    2.07      0.083  IO      |        |        |        |     0.04
 0.500    1.35    1.65      0.066  IO      |        |        |        |     0.03
 0.750    1.49    1.55      0.062  O       |        |        |        |     0.03
 1.000    1.85    1.60      0.064  |O      |        |        |        |     0.03
```

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1.250 | 1.62 | 1.65 | 0.066 | \|0 | \| | \| | \| | 0.03 |
| 1.500 | 1.49 | 1.61 | 0.065 | I0 | \| | \| | \| | 0.03 |
| 1.750 | 1.49 | 1.56 | 0.062 | 0 | \| | \| | \| | 0.03 |
| 2.000 | 1.85 | 1.60 | 0.064 | \|0 | \| | \| | \| | 0.03 |
| 2.250 | 1.98 | 1.73 | 0.069 | \|0 | \| | \| | \| | 0.03 |
| 2.500 | 1.98 | 1.83 | 0.073 | \|0 | \| | \| | \| | 0.04 |
| 2.750 | 2.34 | 1.97 | 0.079 | \|0 | \| | \| | \| | 0.04 |
| 3.000 | 2.48 | 2.15 | 0.086 | \|0 | \| | \| | \| | 0.04 |
| 3.250 | 2.48 | 2.28 | 0.091 | \|0 | \| | \| | \| | 0.05 |
| 3.500 | 2.48 | 2.36 | 0.095 | \|0 | \| | \| | \| | 0.05 |
| 3.750 | 2.48 | 2.41 | 0.096 | \|0 | \| | \| | \| | 0.05 |
| 4.000 | 2.84 | 2.51 | 0.100 | \|0 | \| | \| | \| | 0.05 |
| 4.250 | 2.97 | 2.67 | 0.107 | \|0 | \| | \| | \| | 0.05 |
| 4.500 | 3.33 | 2.87 | 0.115 | \|0I | \| | \| | \| | 0.06 |
| 4.750 | 3.47 | 3.09 | 0.124 | 0I | \| | \| | \| | 0.06 |
| 5.000 | 3.83 | 3.32 | 0.133 | \| 0 | \| | \| | \| | 0.07 |
| 5.250 | 3.24 | 3.41 | 0.136 | \| 0 | \| | \| | \| | 0.07 |
| 5.500 | 3.33 | 3.36 | 0.134 | \| 0 | \| | \| | \| | 0.07 |
| 5.750 | 3.83 | 3.45 | 0.138 | \| 0 | \| | \| | \| | 0.07 |
| 6.000 | 3.96 | 3.63 | 0.145 | \| 0 | \| | \| | \| | 0.07 |
| 6.250 | 4.32 | 3.84 | 0.154 | \| 0 | \| | \| | \| | 0.08 |
| 6.500 | 4.46 | 4.07 | 0.163 | \| 0 | \| | \| | \| | 0.08 |
| 6.750 | 4.82 | 4.30 | 0.172 | \| 0I | \| | \| | \| | 0.09 |
| 7.000 | 4.95 | 4.54 | 0.182 | \| 0I | \| | \| | \| | 0.09 |
| 7.250 | 4.95 | 4.71 | 0.188 | \| 0 | \| | \| | \| | 0.09 |
| 7.500 | 5.31 | 4.88 | 0.195 | \| 0 | \| | \| | \| | 0.10 |
| 7.750 | 5.81 | 5.16 | 0.207 | \| 0 | \| | \| | \| | 0.10 |
| 8.000 | 6.31 | 5.53 | 0.221 | \| 0I | \| | \| | \| | 0.11 |
| 8.250 | 7.44 | 6.08 | 0.243 | \| 0I | \| | \| | \| | 0.12 |
| 8.500 | 7.84 | 6.72 | 0.269 | \| 0I | \| | \| | \| | 0.13 |
| 8.750 | 8.40 | 7.30 | 0.292 | \| 0I | \| | \| | \| | 0.15 |
| 9.000 | 9.14 | 7.90 | 0.316 | \| 0 | \| | \| | \| | 0.16 |
| 9.250 | 10.40 | 8.67 | 0.347 | \| 0I | \| | \| | \| | 0.17 |
| 9.500 | 11.34 | 9.57 | 0.383 | \| 0I | \| | \| | \| | 0.19 |
| 9.750 | 12.09 | 10.45 | 0.418 | \| 0I | \| | \| | \| | 0.21 |
| 10.000 | 12.83 | 11.28 | 0.451 | \| 0I | \| | \| | \| | 0.23 |
| 10.250 | 9.45 | 11.22 | 0.449 | \| I0 | \| | \| | \| | 0.22 |
| 10.500 | 8.14 | 10.22 | 0.409 | \| I0 | \| | \| | \| | 0.20 |
| 10.750 | 10.76 | 9.91 | 0.396 | \| 0 | \| | \| | \| | 0.20 |
| 11.000 | 11.75 | 10.46 | 0.418 | \| 0I | \| | \| | \| | 0.21 |
| 11.250 | 11.27 | 10.89 | 0.436 | \| 0I | \| | \| | \| | 0.22 |
| 11.500 | 11.11 | 11.01 | 0.441 | \| 0 | \| | \| | \| | 0.22 |
| 11.750 | 10.12 | 10.85 | 0.434 | \| 0 | \| | \| | \| | 0.22 |
| 12.000 | 10.28 | 10.58 | 0.423 | \| 0 | \| | \| | \| | 0.21 |
| 12.250 | 14.12 | 11.25 | 0.450 | \| 0 I | \| | \| | \| | 0.22 |
| 12.500 | 16.01 | 12.82 | 0.513 | \| 0 I | \| | \| | \| | 0.26 |
| 12.750 | 17.27 | 14.39 | 0.575 | \| 0 I | \| | \| | \| | 0.29 |
| 13.000 | 18.20 | 15.76 | 0.630 | \| 0I | \| | \| | \| | 0.32 |
| 13.250 | 21.00 | 17.34 | 0.693 | \| 0 I | \| | \| | \| | 0.35 |
| 13.500 | 21.99 | 19.05 | 0.762 | \| 0 I | \| | \| | \| | 0.38 |
| 13.750 | 16.35 | 19.10 | 0.764 | \| I 0 | \| | \| | \| | 0.38 |
| 14.000 | 14.27 | 17.54 | 0.702 | \| I 0 | \| | \| | \| | 0.35 |
| 14.250 | 16.37 | 16.63 | 0.665 | \| 0 | \| | \| | \| | 0.33 |
| 14.500 | 16.65 | 16.58 | 0.663 | \| 0 | \| | \| | \| | 0.33 |
| 14.750 | 16.49 | 16.57 | 0.663 | \| 0 | \| | \| | \| | 0.33 |
| 15.000 | 16.00 | 16.44 | 0.657 | \| 0 | \| | \| | \| | 0.33 |
| 15.250 | 15.32 | 16.12 | 0.645 | \| I0 | \| | \| | \| | 0.32 |
| 15.500 | 14.64 | 15.65 | 0.626 | \| I0 | \| | \| | \| | 0.31 |
| 15.750 | 12.41 | 14.78 | 0.591 | \| I \|0 | \| | \| | \| | 0.30 |
| 16.000 | 11.67 | 13.66 | 0.546 | \| I0 | \| | \| | \| | 0.27 |
| 16.250 | 4.61 | 11.39 | 0.456 | \| I 0\| | \| | \| | \| | 0.23 |
| 16.500 | 1.98 | 8.07 | 0.323 | \|I 0 | \| | \| | \| | 0.16 |
| 16.750 | 1.62 | 5.50 | 0.220 | \|I 0 | \| | \| | \| | 0.11 |
| 17.000 | 1.49 | 3.88 | 0.155 | I 0 | \| | \| | \| | 0.08 |
| 17.250 | 2.21 | 3.04 | 0.122 | \|0 | \| | \| | \| | 0.06 |
| 17.500 | 2.48 | 2.76 | 0.110 | \|0 | \| | \| | \| | 0.06 |
| 17.750 | 2.48 | 2.64 | 0.106 | \|0 | \| | \| | \| | 0.05 |
| 18.000 | 2.12 | 2.50 | 0.100 | \|0 | \| | \| | \| | 0.05 |
| 18.250 | 1.98 | 2.31 | 0.093 | \|0 | \| | \| | \| | 0.05 |
| 18.500 | 1.98 | 2.18 | 0.087 | \|0 | \| | \| | \| | 0.04 |
| 18.750 | 1.62 | 2.02 | 0.081 | \|0 | \| | \| | \| | 0.04 |
| 19.000 | 1.12 | 1.76 | 0.070 | I0 | \| | \| | \| | 0.04 |



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 19.250 | 1.35 | 1.54 | 0.062 | 0 | \| | \| | \| | 0.03 |
| 19.500 | 1.85 | 1.57 | 0.063 | \|0 | \| | \| | \| | 0.03 |
| 19.750 | 1.62 | 1.64 | 0.065 | \|0 | \| | \| | \| | 0.03 |
| 20.000 | 1.12 | 1.53 | 0.061 | 0 | \| | \| | \| | 0.03 |
| 20.250 | 1.35 | 1.41 | 0.056 | 0 | \| | \| | \| | 0.03 |
| 20.500 | 1.49 | 1.41 | 0.057 | 0 | \| | \| | \| | 0.03 |
| 20.750 | 1.49 | 1.44 | 0.058 | 0 | \| | \| | \| | 0.03 |
| 21.000 | 1.12 | 1.39 | 0.055 | 0 | \| | \| | \| | 0.03 |
| 21.250 | 1.35 | 1.33 | 0.053 | 0 | \| | \| | \| | 0.03 |
| 21.500 | 1.12 | 1.29 | 0.052 | 0 | \| | \| | \| | 0.03 |
| 21.750 | 1.35 | 1.27 | 0.051 | 0 | \| | \| | \| | 0.03 |
| 22.000 | 1.12 | 1.26 | 0.050 | 0 | \| | \| | \| | 0.03 |
| 22.250 | 1.35 | 1.25 | 0.050 | 0 | \| | \| | \| | 0.02 |
| 22.500 | 1.12 | 1.24 | 0.050 | 0 | \| | \| | \| | 0.02 |
| 22.750 | 0.99 | 1.17 | 0.047 | 0 | \| | \| | \| | 0.02 |
| 23.000 | 0.99 | 1.10 | 0.044 | 0 | \| | \| | \| | 0.02 |
| 23.250 | 0.99 | 1.05 | 0.042 | 0 | \| | \| | \| | 0.02 |
| 23.500 | 0.99 | 1.03 | 0.041 | 0 | \| | \| | \| | 0.02 |
| 23.750 | 0.99 | 1.01 | 0.040 | 0 | \| | \| | \| | 0.02 |
| 24.000 | 0.99 | 1.00 | 0.040 | 0 | \| | \| | \| | 0.02 |
| 24.250 | 0.27 | 0.85 | 0.034 | 0 | \| | \| | \| | 0.02 |
| 24.500 | 0.00 | 0.56 | 0.022 | 0 | \| | \| | \| | 0.01 |
| 24.750 | 0.00 | 0.33 | 0.013 | 0 | \| | \| | \| | 0.01 |
| 25.000 | 0.00 | 0.19 | 0.008 | 0 | \| | \| | \| | 0.00 |
| 25.250 | 0.00 | 0.11 | 0.005 | 0 | \| | \| | \| | 0.00 |
| 25.500 | 0.00 | 0.07 | 0.003 | 0 | \| | \| | \| | 0.00 |
| 25.750 | 0.00 | 0.04 | 0.002 | 0 | \| | \| | \| | 0.00 |

```
**************************HYDROGRAPH DATA**************************
            Number of intervals =   103
            Time interval =   15.0 (Min.)
            Maximum/Peak flow rate =       19.097 (CFS)
            Total volume =      11.906 (Ac.Ft)
      Status of hydrographs being held in storage
            Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)      0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
*******************************************************************

-------------------------------------------------------------------


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       1.000 to Point/Station       2.000
**** STORE OR DELETE CURRENT HYDROGRAPH ****
___________________________________________________________________
Current stream hydrograph saved in file LineF24hrBsnF3.rte
**************************HYDROGRAPH DATA**************************
            Number of intervals =    0
            Time interval =    0.0 (Min.)
            Maximum/Peak flow rate =       0.000 (CFS)
            Total volume =      0.000 (Ac.Ft)
      Status of hydrographs being held in storage
            Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)      0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)     0.000     0.000     0.000     0.000     0.000
*******************************************************************

-------------------------------------------------------------------
```

```
        U n i t   H y d r o g r a p h   A n a l y s i s

        Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
                Study date  09/12/13 File: SubF224100.out

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
--------------------------------------------------------------------------------

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978


Program License Serial Number 6097

--------------------------------------------------------------------
 English (in-lb) Input Units Used
 English Rainfall Data (Inches) Input Values Used

 English Units used in output format



--------------------------------------------------------------------
Watershed F, Onsite F2
Proposed Condition
100-year, 24-hour

--------------------------------------------------------------------
Drainage Area =      38.99(Ac.)  =      0.061 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =      38.99(Ac.)  =      0.061 Sq. Mi.
Length along longest watercourse =     1600.00(Ft.)
Length along longest watercourse measured to centroid =      800.00(Ft.)
Length along longest watercourse =       0.303 Mi.
Length along longest watercourse measured to centroid =       0.152 Mi.
Difference in elevation =       32.00(Ft.)
Slope along watercourse =     105.6000 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =     0.046 Hr.
Lag time =      2.76 Min.
25% of lag time =      0.69 Min.
40% of lag time =      1.11 Min.
Unit time =     15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow =      0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
       38.99             1.80                  70.18

100 YEAR Area rainfall data:


Area(Ac.)[1]        Rainfall(In)[2]       Weighting[1*2]
       38.99             4.50                 175.46

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =     1.800(In)
Area Averaged 100-Year Rainfall =     4.500(In)

Point rain (area averaged) =     4.500(In)
Areal adjustment factor =    99.99 %
Adjusted average point rain =     4.500(In)

Sub-Area Data:
Area(Ac.)          Runoff Index    Impervious %
    38.990             85.00           0.750
 Total Area Entered =      38.99(Ac.)
```



```
RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2      (In/Hr)    (Dec.%)      (In/Hr)       (Dec.)    (In/Hr)
85.0  85.0       0.187      0.750         0.061        1.000      0.061
                                                   Sum (F) =    0.061
Area averaged mean soil loss (F) (In/Hr) =  0.061
Minimum soil loss rate ((In/Hr)) =  0.030
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.300
--------------------------------------------------------------------

                U n i t  H y d r o g r a p h
                     VALLEY S-Curve
-------------------------------------------------------------------
                  Unit Hydrograph Data
-------------------------------------------------------------------
Unit time period    Time % of lag   Distribution    Unit Hydrograph
    (hrs)                           Graph %           (CFS)
-------------------------------------------------------------------
     1   0.250        542.745         72.919            28.653
     2   0.500       1085.490         27.081            10.641
                              Sum = 100.000    Sum=      39.295
-------------------------------------------------------------------

The following loss rate calculations reflect use of the minimum calculated loss
rate subtracted from the Storm Rain to produce the maximum Effective Rain value

 Unit Time   Pattern   Storm Rain     Loss rate(In./Hr)      Effective
      (Hr.)  Percent   (In/Hr)        Max    |   Low          (In/Hr)
  1   0.25     0.20      0.036      (  0.107)      0.011         0.025
  2   0.50     0.30      0.054      (  0.106)      0.016         0.038
  3   0.75     0.30      0.054      (  0.105)      0.016         0.038
  4   1.00     0.40      0.072      (  0.104)      0.022         0.050
  5   1.25     0.30      0.054      (  0.102)      0.016         0.038
  6   1.50     0.30      0.054      (  0.101)      0.016         0.038
  7   1.75     0.30      0.054      (  0.100)      0.016         0.038
  8   2.00     0.40      0.072      (  0.099)      0.022         0.050
  9   2.25     0.40      0.072      (  0.098)      0.022         0.050
 10   2.50     0.40      0.072      (  0.096)      0.022         0.050
 11   2.75     0.50      0.090      (  0.095)      0.027         0.063
 12   3.00     0.50      0.090      (  0.094)      0.027         0.063
 13   3.25     0.50      0.090      (  0.093)      0.027         0.063
 14   3.50     0.50      0.090      (  0.092)      0.027         0.063
 15   3.75     0.50      0.090      (  0.091)      0.027         0.063
 16   4.00     0.60      0.108      (  0.089)      0.032         0.076
 17   4.25     0.60      0.108      (  0.088)      0.032         0.076
 18   4.50     0.70      0.126      (  0.087)      0.038         0.088
 19   4.75     0.70      0.126      (  0.086)      0.038         0.088
 20   5.00     0.80      0.144      (  0.085)      0.043         0.101
 21   5.25     0.60      0.108      (  0.084)      0.032         0.076
 22   5.50     0.70      0.126      (  0.083)      0.038         0.088
 23   5.75     0.80      0.144      (  0.082)      0.043         0.101
 24   6.00     0.80      0.144      (  0.081)      0.043         0.101
 25   6.25     0.90      0.162      (  0.080)      0.049         0.113
 26   6.50     0.90      0.162      (  0.078)      0.049         0.113
 27   6.75     1.00      0.180      (  0.077)      0.054         0.126
 28   7.00     1.00      0.180      (  0.076)      0.054         0.126
 29   7.25     1.00      0.180      (  0.075)      0.054         0.126
 30   7.50     1.10      0.198      (  0.074)      0.059         0.139
 31   7.75     1.20      0.216      (  0.073)      0.065         0.151
 32   8.00     1.30      0.234      (  0.072)      0.070         0.164
 33   8.25     1.50      0.270         0.071    (  0.081)       0.199
 34   8.50     1.50      0.270         0.070    (  0.081)       0.200
 35   8.75     1.60      0.288         0.069    (  0.086)       0.219
 36   9.00     1.70      0.306         0.068    (  0.092)       0.238
 37   9.25     1.90      0.342         0.067    (  0.103)       0.275
 38   9.50     2.00      0.360         0.066    (  0.108)       0.294
 39   9.75     2.10      0.378         0.065    (  0.113)       0.313
 40  10.00     2.20      0.396         0.064    (  0.119)       0.331
 41  10.25     1.50      0.270         0.064    (  0.081)       0.206
 42  10.50     1.50      0.270         0.063    (  0.081)       0.207
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 43 | 10.75 | 2.00 | 0.360 | | 0.062 | ( 0.108) | 0.298 |
| 44 | 11.00 | 2.00 | 0.360 | | 0.061 | ( 0.108) | 0.299 |
| 45 | 11.25 | 1.90 | 0.342 | | 0.060 | ( 0.103) | 0.282 |
| 46 | 11.50 | 1.90 | 0.342 | | 0.059 | ( 0.103) | 0.283 |
| 47 | 11.75 | 1.70 | 0.306 | | 0.058 | ( 0.092) | 0.248 |
| 48 | 12.00 | 1.80 | 0.324 | | 0.057 | ( 0.097) | 0.267 |
| 49 | 12.25 | 2.50 | 0.450 | | 0.056 | ( 0.135) | 0.394 |
| 50 | 12.50 | 2.60 | 0.468 | | 0.056 | ( 0.140) | 0.412 |
| 51 | 12.75 | 2.80 | 0.504 | | 0.055 | ( 0.151) | 0.449 |
| 52 | 13.00 | 2.90 | 0.522 | | 0.054 | ( 0.157) | 0.468 |
| 53 | 13.25 | 3.40 | 0.612 | | 0.053 | ( 0.184) | 0.559 |
| 54 | 13.50 | 3.40 | 0.612 | | 0.052 | ( 0.184) | 0.560 |
| 55 | 13.75 | 2.30 | 0.414 | | 0.052 | ( 0.124) | 0.362 |
| 56 | 14.00 | 2.30 | 0.414 | | 0.051 | ( 0.124) | 0.363 |
| 57 | 14.25 | 2.70 | 0.486 | | 0.050 | ( 0.146) | 0.436 |
| 58 | 14.50 | 2.60 | 0.468 | | 0.049 | ( 0.140) | 0.419 |
| 59 | 14.75 | 2.60 | 0.468 | | 0.048 | ( 0.140) | 0.420 |
| 60 | 15.00 | 2.50 | 0.450 | | 0.048 | ( 0.135) | 0.402 |
| 61 | 15.25 | 2.40 | 0.432 | | 0.047 | ( 0.130) | 0.385 |
| 62 | 15.50 | 2.30 | 0.414 | | 0.046 | ( 0.124) | 0.368 |
| 63 | 15.75 | 1.90 | 0.342 | | 0.046 | ( 0.103) | 0.296 |
| 64 | 16.00 | 1.90 | 0.342 | | 0.045 | ( 0.103) | 0.297 |
| 65 | 16.25 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 66 | 16.50 | 0.40 | 0.072 | ( 0.044) | | 0.022 | 0.050 |
| 67 | 16.75 | 0.30 | 0.054 | ( 0.043) | | 0.016 | 0.038 |
| 68 | 17.00 | 0.30 | 0.054 | ( 0.042) | | 0.016 | 0.038 |
| 69 | 17.25 | 0.50 | 0.090 | ( 0.042) | | 0.027 | 0.063 |
| 70 | 17.50 | 0.50 | 0.090 | ( 0.041) | | 0.027 | 0.063 |
| 71 | 17.75 | 0.50 | 0.090 | ( 0.040) | | 0.027 | 0.063 |
| 72 | 18.00 | 0.40 | 0.072 | ( 0.040) | | 0.022 | 0.050 |
| 73 | 18.25 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 74 | 18.50 | 0.40 | 0.072 | ( 0.039) | | 0.022 | 0.050 |
| 75 | 18.75 | 0.30 | 0.054 | ( 0.038) | | 0.016 | 0.038 |
| 76 | 19.00 | 0.20 | 0.036 | ( 0.037) | | 0.011 | 0.025 |
| 77 | 19.25 | 0.30 | 0.054 | ( 0.037) | | 0.016 | 0.038 |
| 78 | 19.50 | 0.40 | 0.072 | ( 0.036) | | 0.022 | 0.050 |
| 79 | 19.75 | 0.30 | 0.054 | ( 0.036) | | 0.016 | 0.038 |
| 80 | 20.00 | 0.20 | 0.036 | ( 0.035) | | 0.011 | 0.025 |
| 81 | 20.25 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 82 | 20.50 | 0.30 | 0.054 | ( 0.035) | | 0.016 | 0.038 |
| 83 | 20.75 | 0.30 | 0.054 | ( 0.034) | | 0.016 | 0.038 |
| 84 | 21.00 | 0.20 | 0.036 | ( 0.034) | | 0.011 | 0.025 |
| 85 | 21.25 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 86 | 21.50 | 0.20 | 0.036 | ( 0.033) | | 0.011 | 0.025 |
| 87 | 21.75 | 0.30 | 0.054 | ( 0.033) | | 0.016 | 0.038 |
| 88 | 22.00 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 89 | 22.25 | 0.30 | 0.054 | ( 0.032) | | 0.016 | 0.038 |
| 90 | 22.50 | 0.20 | 0.036 | ( 0.032) | | 0.011 | 0.025 |
| 91 | 22.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 92 | 23.00 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 93 | 23.25 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 94 | 23.50 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 95 | 23.75 | 0.20 | 0.036 | ( 0.031) | | 0.011 | 0.025 |
| 96 | 24.00 | 0.20 | 0.036 | ( 0.030) | | 0.011 | 0.025 |

(Loss Rate Not Used)

Sum = 100.0 Sum = 14.5

Flood volume = Effective rainfall 3.63(In)
times area 39.0(Ac.)/[(In)/(Ft.)] = 11.8(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 2.809(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 514473.3 Cubic Feet
Total soil loss = 122379.8 Cubic Feet

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Peak flow rate of this hydrograph = 21.993(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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Hydrograph in 15 Minute intervals ((CFS))



| Time(h+m) | Volume Ac.Ft | Q(CFS) | 0 | 7.5 | 15.0 | 22.5 | 30.0 |
|---|---|---|---|---|---|---|---|
| 0+15 | 0.0149 | 0.72 | Q | | | | |
| 0+30 | 0.0429 | 1.35 | VQ | | | | |
| 0+45 | 0.0736 | 1.49 | VQ | | | | |
| 1+ 0 | 0.1117 | 1.85 | V Q | | | | |
| 1+15 | 0.1452 | 1.62 | V Q | | | | |
| 1+30 | 0.1759 | 1.49 | VQ | | | | |
| 1+45 | 0.2066 | 1.49 | VQ | | | | |
| 2+ 0 | 0.2448 | 1.85 | V Q | | | | |
| 2+15 | 0.2857 | 1.98 | V Q | | | | |
| 2+30 | 0.3266 | 1.98 | VQ | | | | |
| 2+45 | 0.3750 | 2.34 | V Q | | | | |
| 3+ 0 | 0.4262 | 2.48 | V Q | | | | |
| 3+15 | 0.4774 | 2.48 | V Q | | | | |
| 3+30 | 0.5285 | 2.48 | V Q | | | | |
| 3+45 | 0.5797 | 2.48 | V Q | | | | |
| 4+ 0 | 0.6384 | 2.84 | VQ | | | | |
| 4+15 | 0.6998 | 2.97 | VQ | | | | |
| 4+30 | 0.7686 | 3.33 | V Q | | | | |
| 4+45 | 0.8403 | 3.47 | V Q | | | | |
| 5+ 0 | 0.9194 | 3.83 | V Q | | | | |
| 5+15 | 0.9863 | 3.24 | VQ | | | | |
| 5+30 | 1.0552 | 3.33 | VQ | | | | |
| 5+45 | 1.1343 | 3.83 | V Q | | | | |
| 6+ 0 | 1.2162 | 3.96 | VQ | | | | |
| 6+15 | 1.3055 | 4.32 | VQ | | | | |
| 6+30 | 1.3976 | 4.46 | VQ | | | | |
| 6+45 | 1.4972 | 4.82 | VQ | | | | |
| 7+ 0 | 1.5995 | 4.95 | VQ | | | | |
| 7+15 | 1.7018 | 4.95 | VQ | | | | |
| 7+30 | 1.8117 | 5.31 | VQ | | | | |
| 7+45 | 1.9317 | 5.81 | VQ | | | | |
| 8+ 0 | 2.0620 | 6.31 | V Q | | | | |
| 8+15 | 2.2157 | 7.44 | V Q | | | | |
| 8+30 | 2.3777 | 7.84 | V Q | | | | |
| 8+45 | 2.5512 | 8.40 | V Q | | | | |
| 9+ 0 | 2.7401 | 9.14 | V Q | | | | |
| 9+15 | 2.9550 | 10.40 | V Q | | | | |
| 9+30 | 3.1893 | 11.34 | V Q | | | | |
| 9+45 | 3.4390 | 12.09 | V Q | | | | |
| 10+ 0 | 3.7041 | 12.83 | V Q | | | | |
| 10+15 | 3.8993 | 9.45 | QV | | | | |
| 10+30 | 4.0675 | 8.14 | Q V | | | | |
| 10+45 | 4.2898 | 10.76 | Q | | | | |
| 11+ 0 | 4.5326 | 11.75 | Q | | | | |
| 11+15 | 4.7655 | 11.27 | QV | | | | |
| 11+30 | 4.9951 | 11.11 | Q V | | | | |
| 11+45 | 5.2041 | 10.12 | Q V | | | | |
| 12+ 0 | 5.4166 | 10.28 | Q V | | | | |
| 12+15 | 5.7083 | 14.12 | QV | | | | |
| 12+30 | 6.0391 | 16.01 | VQ | | | | |
| 12+45 | 6.3959 | 17.27 | V Q | | | | |
| 13+ 0 | 6.7719 | 18.20 | V Q | | | | |
| 13+15 | 7.2059 | 21.00 | V Q | | | | |
| 13+30 | 7.6603 | 21.99 | V Q | | | | |
| 13+45 | 7.9981 | 16.35 | Q V | | | | |
| 14+ 0 | 8.2930 | 14.27 | Q V | | | | |
| 14+15 | 8.6311 | 16.37 | Q V | | | | |
| 14+30 | 8.9751 | 16.65 | Q V | | | | |
| 14+45 | 9.3157 | 16.49 | Q V | | | | |
| 15+ 0 | 9.6462 | 16.00 | Q V | | | | |
| 15+15 | 9.9627 | 15.32 | Q V | | | | |
| 15+30 | 10.2652 | 14.64 | Q V | | | | |
| 15+45 | 10.5217 | 12.41 | Q V | | | | |
| 16+ 0 | 10.7629 | 11.67 | Q V | | | | |
| 16+15 | 10.8581 | 4.61 | Q V | | | | |
| 16+30 | 10.8990 | 1.98 | Q V | | | | |
| 16+45 | 10.9325 | 1.62 | Q V | | | | |
| 17+ 0 | 10.9632 | 1.49 | Q V | | | | |
| 17+15 | 11.0088 | 2.21 | Q V | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17+30 | 11.0600 | 2.48 | \| Q | \| | \| | \| | V \| |
| 17+45 | 11.1111 | 2.48 | \| Q | \| | \| | \| | V \| |
| 18+ 0 | 11.1548 | 2.12 | \| Q | \| | \| | \| | V \| |
| 18+15 | 11.1958 | 1.98 | \| Q | \| | \| | \| | V \| |
| 18+30 | 11.2367 | 1.98 | \| Q | \| | \| | \| | V \| |
| 18+45 | 11.2702 | 1.62 | \| Q | \| | \| | \| | V \| |
| 19+ 0 | 11.2934 | 1.12 | \|Q | \| | \| | \| | V \| |
| 19+15 | 11.3214 | 1.35 | \|Q | \| | \| | \| | V \| |
| 19+30 | 11.3595 | 1.85 | \| Q | \| | \| | \| | V \| |
| 19+45 | 11.3930 | 1.62 | \| Q | \| | \| | \| | V \| |
| 20+ 0 | 11.4162 | 1.12 | \|Q | \| | \| | \| | V \| |
| 20+15 | 11.4442 | 1.35 | \|Q | \| | \| | \| | V \| |
| 20+30 | 11.4749 | 1.49 | \|Q | \| | \| | \| | V \| |
| 20+45 | 11.5056 | 1.49 | \|Q | \| | \| | \| | V \| |
| 21+ 0 | 11.5288 | 1.12 | \|Q | \| | \| | \| | V \| |
| 21+15 | 11.5567 | 1.35 | \|Q | \| | \| | \| | V \| |
| 21+30 | 11.5800 | 1.12 | \|Q | \| | \| | \| | V \| |
| 21+45 | 11.6079 | 1.35 | \|Q | \| | \| | \| | V \| |
| 22+ 0 | 11.6312 | 1.12 | \|Q | \| | \| | \| | V \| |
| 22+15 | 11.6591 | 1.35 | \|Q | \| | \| | \| | V \| |
| 22+30 | 11.6823 | 1.12 | \|Q | \| | \| | \| | V \| |
| 22+45 | 11.7028 | 0.99 | \|Q | \| | \| | \| | V \| |
| 23+ 0 | 11.7233 | 0.99 | \|Q | \| | \| | \| | V \| |
| 23+15 | 11.7437 | 0.99 | \|Q | \| | \| | \| | V \| |
| 23+30 | 11.7642 | 0.99 | \|Q | \| | \| | \| | V \| |
| 23+45 | 11.7847 | 0.99 | \|Q | \| | \| | \| | V \| |
| 24+ 0 | 11.8051 | 0.99 | \|Q | \| | \| | \| | V \| |
| 24+15 | 11.8107 | 0.27 | Q | \| | \| | \| | V |

# Appendix B
# FIRMs 06065C0760G, 06065C0770G, and 06065C0790G

## NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NNGS12
National Geodetic Survey
SSMC-3 #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

**Base map** information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1994 or later.

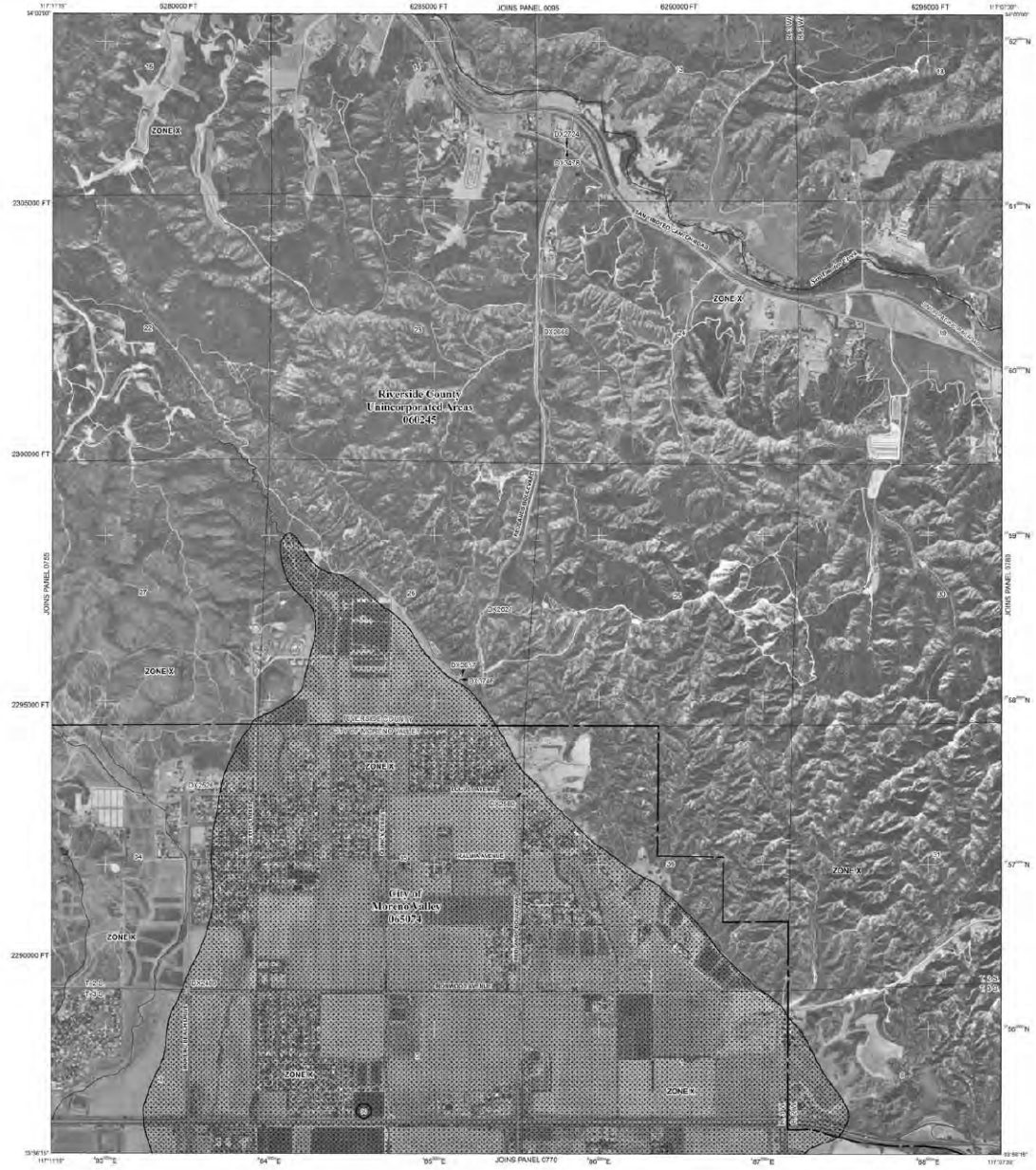
This map may reflect more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.


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JOINS PANEL 0075
JOINS PANEL 0080
JOINS PANEL 0770
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Unincorporated Areas
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City of
Moreno Valley
065074
ALESSANDRO BOULEVARD
EUCALYPTUS AVENUE
HEACOCK STREET
PERRIS BOULEVARD
MORRISON STREET
MORENO BEACH DRIVE
NASON STREET
ELSWORTH STREET
HIDDEN SPRINGS ROAD
SUNNYMEAD RANCH PARKWAY
DAY CREEK
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NGS Information Services
NOAA, NNGS12
National Geodetic Survey
SSMC-3 #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

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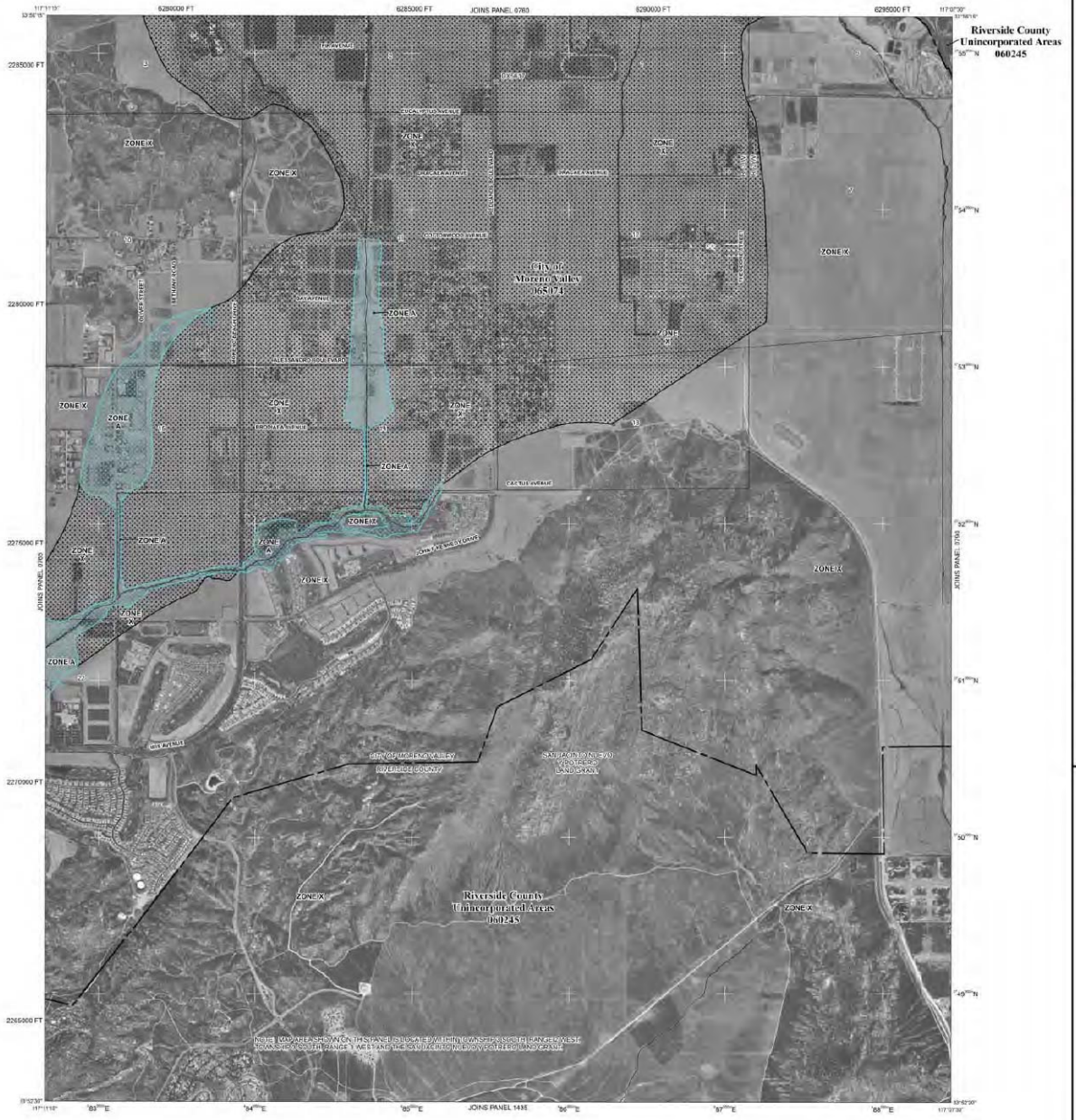
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## LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** — No Base Flood Elevations determined.
- **ZONE AE** — Base Flood Elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- (A)—(A) — Cross section line
- (B)—(B) — Transect line
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western hemisphere
- 1000-meter Universal Transverse Mercator grid values, zone 11S
- 6000000 FT — 1000-foot grid ticks: California State Plane coordinate system, zone VI (FIPSZONE 0406), Lambert Conformal Conic projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
August 28, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0770G

# FIRM
## FLOOD INSURANCE RATE MAP

**RIVERSIDE COUNTY, CALIFORNIA**
**AND INCORPORATED AREAS**

**PANEL 770 OF 3805**
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| MORENO VALLEY, CITY OF | 060174 | 0770 | G |
| RIVERSIDE COUNTY | 060245 | 0770 | G |

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

**MAP NUMBER**
**06065C0770G**

**EFFECTIVE DATE**
**AUGUST 28, 2008**

Federal Emergency Management Agency

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NOAA, NMDS12
National Geodetic Survey
SSMC-3 #9202
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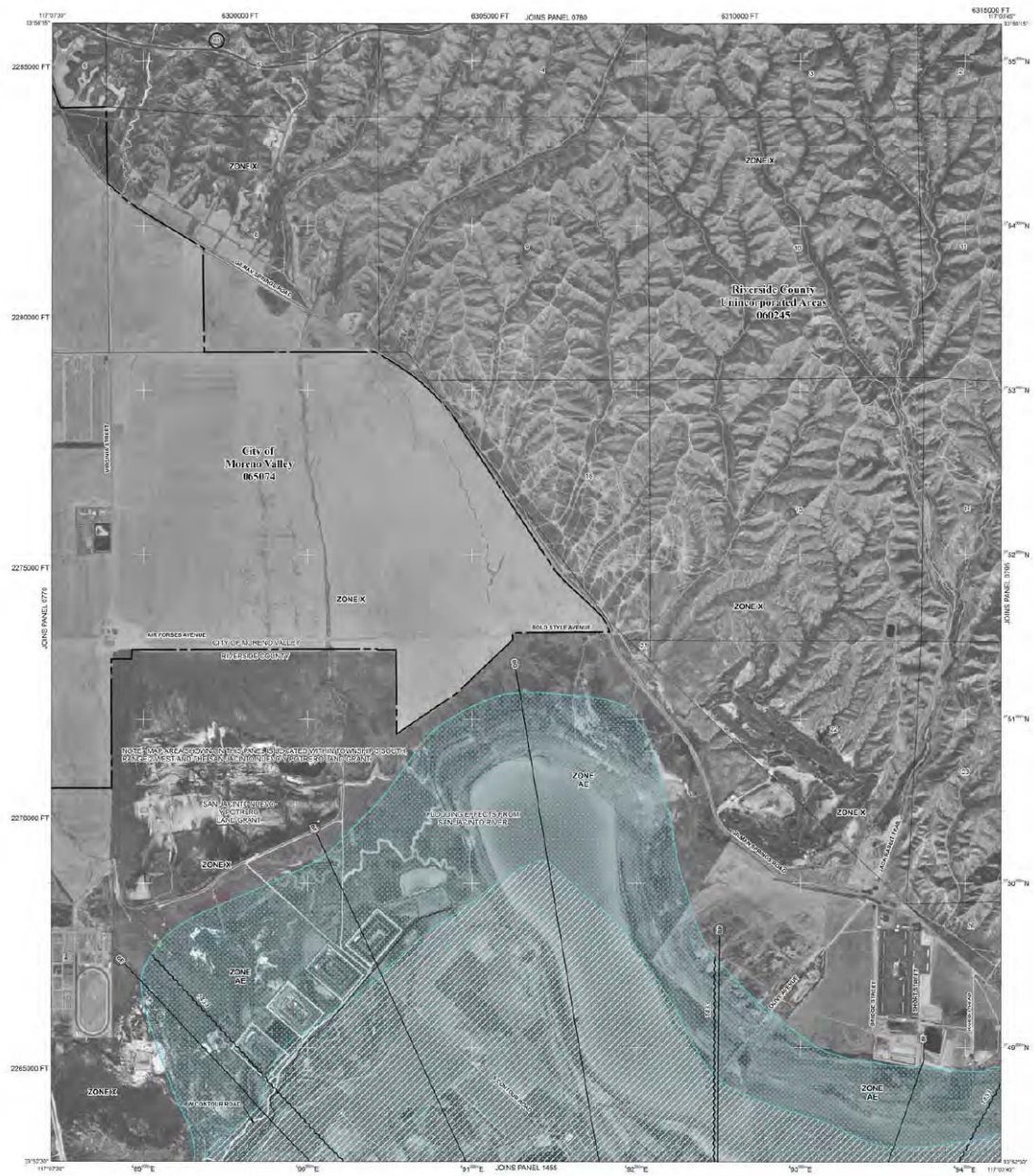
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6300000 FT
6305000 FT
JOINS PANEL 0780
6310000 FT
6315000 FT
2285000 FT
2280000 FT
2275000 FT
2270000 FT
2265000 FT
ZONE X
Riverside County
Unincorporated Areas
060245
City of
Moreno Valley
060074
ZONE AE
ZONE A
JOINS PANEL 0779
JOINS PANEL 0795
JOINS PANEL 1455
AIR FORCE AVENUE
CITY OF MORENO VALLEY
RIVERSIDE COUNTY
BOLD STYLE AVENUE
NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TWO TOWNSHIPS (SOUTH OF 3RD STANDARD PARALLEL NORTH AND NORTH OF 2ND STANDARD PARALLEL NORTH)
SAN JACINTO RIVER-VICTORIA AVE. GRADE
SAN JACINTO RIVER
ZONE AE
ZONE X
ZONE AE
ZONE X
ZONE AE
ZONE X
ZONE X
ZONE X

# Appendix C
# Bulking Factor (Fb) Calculations and Pipe Sizing

**Bulking Factor (Fb) Calculations**

| Watershed | Tributary Area | P(in) | PX100 | A (ac) | A (mi2) | Elev Diff (ft) | L (ft) | L (mi) | RR (ft/mi) | FF | Log(Dy) | Unit Dy (cy/mi2) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| "A" | A1 | 1.2 | 120 | 872.6 | 1.36 | 850 | 15000 | 2.835 | 299.82 | 4 | 3.896 | 7879.005 |
| | A2 | 1.2 | 120 | 248.3 | 0.39 | 460 | 5000 | 0.945 | 486.77 | 4 | 3.929 | 8486.053 |
| | A3 | 1.2 | 120 | 521.4 | 0.81 | 470 | 7200 | 1.3608 | 345.39 | 4 | 3.894 | 7839.833 |
| | A4 | 1.2 | 120 | 841.7 | 1.32 | 120 | 12000 | 2.268 | 52.91 | 4 | 3.427 | 2670.483 |
| "B" | B1 | 1.2 | 120 | 397.8 | 0.62 | 212 | 9460 | 1.78794 | 118.57 | 4 | 3.585 | 3848.371 |
| | B2 | 1.2 | 120 | 104.5 | 0.16 | 30 | 2120 | 0.40068 | 74.87 | 4 | 3.357 | 2275.042 |
| | B3 | 1.2 | 120 | 92.1 | 0.14 | 226 | 3800 | 0.7182 | 314.68 | 4 | 3.734 | 5416.386 |
| | B4 | 1.2 | 120 | 765 | 1.20 | 239 | 11400 | 2.1546 | 110.93 | 4 | 3.618 | 4153.806 |
| "C" | C1 | 1.2 | 120 | 403.1 | 0.63 | 700 | 9900 | 1.8711 | 374.11 | 4 | 3.896 | 7865.073 |
| | C2-C8, C22, C42, C52 | 1.2 | 120 | 420.2 | 0.66 | 122 | 5100 | 0.9639 | 126.57 | 4 | 3.607 | 4047.000 |
| | C21 | 1.2 | 120 | 180.1 | 0.28 | 547 | 5800 | 1.0962 | 499.00 | 4 | 3.910 | 8133.561 |
| | C41 | 1.2 | 120 | 61.6 | 0.10 | 219 | 2300 | 0.4347 | 503.80 | 4 | 3.829 | 6745.127 |
| | C51 | 1.2 | 120 | 12.7 | 0.02 | 129 | 1160 | 0.21924 | 588.40 | 4 | 3.747 | 5589.177 |
| "D" | D1 | 1.2 | 120 | 443.5 | 0.69 | 857 | 13900 | 2.6271 | 326.22 | 4 | 3.866 | 7349.897 |
| | D2 | 1.2 | 120 | 183.8 | 0.29 | 461 | 4950 | 0.93555 | 492.76 | 4 | 3.908 | 8099.963 |
| | D3 | 1.2 | 120 | 139.2 | 0.22 | 74 | 4340 | 0.82026 | 90.22 | 4 | 3.430 | 2689.036 |
| | D4 | 1.2 | 120 | 231.3 | 0.36 | 110 | 4400 | 0.8316 | 132.28 | 4 | 3.572 | 3735.390 |
| "E" | E1 | 1.2 | 120 | 1648.5 | 2.58 | 815 | 14430 | 2.72727 | 298.83 | 4 | 3.945 | **8816.782** |
| | E21 | 1.2 | 120 | 780.8 | 1.22 | 877 | 14080 | 2.66112 | 329.56 | 4 | 3.913 | 8189.262 |
| | E2, E3, E22 | 1.2 | 120 | 80.4 | 0.13 | 53 | 1850 | 0.34965 | 151.58 | 4 | 3.526 | 3360.564 |
| "F" | F1,F3,F32,F4, F6, F8 | 1.2 | 120 | 144.2 | 0.23 | 85 | 3020 | 0.57078 | 148.92 | 4 | 3.567 | 3692.416 |
| | F2 | 1.2 | 120 | 54.7 | 0.09 | 330 | 3200 | 0.6048 | 545.63 | 4 | 3.841 | 6937.210 |
| | F31 | 1.2 | 120 | 17.5 | 0.03 | 139 | 1610 | 0.30429 | 456.80 | 4 | 3.704 | 5061.106 |
| | F5 | 1.2 | 120 | 146.6 | 0.23 | 408 | 5600 | 1.0584 | 385.49 | 4 | 3.825 | 6678.798 |
| | F7 | 1.2 | 120 | 69.5 | 0.11 | 285 | 3750 | 0.70875 | 402.12 | 4 | 3.778 | 5994.089 |

Pick the Max Unit Dy from above 9578.778 as input to equation Fb= 1+ (Dy/120,000)

| | |
|---|---|
| Bulking Factor | 1.073 |
| Safety Factor | 50% |
| Final Bulking Factor | **1.6** |

# Worksheet for LineA_01

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Bottom Width | 12.00 | ft |
| Discharge | 3386.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 8.66 | ft |
| Flow Area | 103.96 | $ft^2$ |
| Wetted Perimeter | 29.33 | ft |
| Hydraulic Radius | 3.54 | ft |
| Top Width | 12.00 | ft |
| Critical Depth | 13.53 | ft |
| Critical Slope | 0.00664 | ft/ft |
| Velocity | 32.57 | ft/s |
| Velocity Head | 16.49 | ft |
| Specific Energy | 25.15 | ft |
| Froude Number | 1.95 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 8.66 | ft |
| Critical Depth | 13.53 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.00664 | ft/ft |

# Worksheet for LineA_02

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Bottom Width | 12.00 | ft |
| Discharge | 2166.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 6.15 | ft |
| Flow Area | 73.74 | $ft^2$ |
| Wetted Perimeter | 24.29 | ft |
| Hydraulic Radius | 3.04 | ft |
| Top Width | 12.00 | ft |
| Critical Depth | 10.04 | ft |
| Critical Slope | 0.00564 | ft/ft |
| Velocity | 29.37 | ft/s |
| Velocity Head | 13.41 | ft |
| Specific Energy | 19.55 | ft |
| Froude Number | 2.09 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 6.15 | ft |
| Critical Depth | 10.04 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.00564 | ft/ft |

# Worksheet for LineB_01

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Diameter | 6.00 | ft |
| Discharge | 344.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 3.57 | ft |
| Flow Area | 17.53 | $ft^2$ |
| Wetted Perimeter | 10.57 | ft |
| Hydraulic Radius | 1.66 | ft |
| Top Width | 5.89 | ft |
| Critical Depth | 5.03 | ft |
| Percent Full | 59.5 | % |
| Critical Slope | 0.00845 | ft/ft |
| Velocity | 19.63 | ft/s |
| Velocity Head | 5.99 | ft |
| Specific Energy | 9.56 | ft |
| Froude Number | 2.01 | |
| Maximum Discharge | 558.34 | $ft^3/s$ |
| Discharge Full | 519.05 | $ft^3/s$ |
| Slope Full | 0.00878 | ft/ft |
| Flow Type | SuperCritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Average End Depth Over Rise | 0.00 | % |
| Normal Depth Over Rise | 59.47 | % |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 3.57 | ft |
| Critical Depth | 5.03 | ft |

# Worksheet for LineB_01

## GVF Output Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.00845 | ft/ft |

# Worksheet for LineB_02

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Diameter | 6.00 | ft |
| Discharge | 463.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 4.42 | ft |
| Flow Area | 22.31 | $ft^2$ |
| Wetted Perimeter | 12.38 | ft |
| Hydraulic Radius | 1.80 | ft |
| Top Width | 5.29 | ft |
| Critical Depth | 5.57 | ft |
| Percent Full | 73.6 | % |
| Critical Slope | 0.01377 | ft/ft |
| Velocity | 20.75 | ft/s |
| Velocity Head | 6.69 | ft |
| Specific Energy | 11.11 | ft |
| Froude Number | 1.78 | |
| Maximum Discharge | 558.34 | $ft^3/s$ |
| Discharge Full | 519.05 | $ft^3/s$ |
| Slope Full | 0.01591 | ft/ft |
| Flow Type | SuperCritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Average End Depth Over Rise | 0.00 | % |
| Normal Depth Over Rise | 73.62 | % |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 4.42 | ft |
| Critical Depth | 5.57 | ft |

# Worksheet for LineB_02

## GVF Output Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.01377 | ft/ft |

# Worksheet for LineB_03

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Diameter | 8.00 | ft |
| Discharge | 975.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 5.78 | ft |
| Flow Area | 38.91 | $ft^2$ |
| Wetted Perimeter | 16.26 | ft |
| Hydraulic Radius | 2.39 | ft |
| Top Width | 7.16 | ft |
| Critical Depth | 7.48 | ft |
| Percent Full | 72.3 | % |
| Critical Slope | 0.01315 | ft/ft |
| Velocity | 25.06 | ft/s |
| Velocity Head | 9.76 | ft |
| Specific Energy | 15.54 | ft |
| Froude Number | 1.90 | |
| Maximum Discharge | 1202.46 | $ft^3/s$ |
| Discharge Full | 1117.83 | $ft^3/s$ |
| Slope Full | 0.01522 | ft/ft |
| Flow Type | SuperCritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Average End Depth Over Rise | 0.00 | % |
| Normal Depth Over Rise | 72.28 | % |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 5.78 | ft |
| Critical Depth | 7.48 | ft |

# Worksheet for LineB_03

## GVF Output Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.01315 | ft/ft |

# Worksheet for LineC_01

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Bottom Width | 8.00 | ft |
| Discharge | 1495.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 7.12 | ft |
| Flow Area | 57.00 | $ft^2$ |
| Wetted Perimeter | 22.25 | ft |
| Hydraulic Radius | 2.56 | ft |
| Top Width | 8.00 | ft |
| Critical Depth | 10.28 | ft |
| Critical Slope | 0.00823 | ft/ft |
| Velocity | 26.23 | ft/s |
| Velocity Head | 10.69 | ft |
| Specific Energy | 17.82 | ft |
| Froude Number | 1.73 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 7.12 | ft |
| Critical Depth | 10.28 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.00823 | ft/ft |

# Worksheet for LineC_02

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Bottom Width | 8.00 | ft |
| Discharge | 1360.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 6.60 | ft |
| Flow Area | 52.83 | $ft^2$ |
| Wetted Perimeter | 21.21 | ft |
| Hydraulic Radius | 2.49 | ft |
| Top Width | 8.00 | ft |
| Critical Depth | 9.65 | ft |
| Critical Slope | 0.00791 | ft/ft |
| Velocity | 25.74 | ft/s |
| Velocity Head | 10.30 | ft |
| Specific Energy | 16.90 | ft |
| Froude Number | 1.77 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 6.60 | ft |
| Critical Depth | 9.65 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.00791 | ft/ft |

# Worksheet for LineD_01

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Diameter | 8.00 | ft |
| Discharge | 1012.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 5.96 | ft |
| Flow Area | 40.18 | $ft^2$ |
| Wetted Perimeter | 16.67 | ft |
| Hydraulic Radius | 2.41 | ft |
| Top Width | 6.97 | ft |
| Critical Depth | 7.54 | ft |
| Percent Full | 74.5 | % |
| Critical Slope | 0.01417 | ft/ft |
| Velocity | 25.19 | ft/s |
| Velocity Head | 9.86 | ft |
| Specific Energy | 15.82 | ft |
| Froude Number | 1.85 | |
| Maximum Discharge | 1202.46 | $ft^3/s$ |
| Discharge Full | 1117.83 | $ft^3/s$ |
| Slope Full | 0.01639 | ft/ft |
| Flow Type | SuperCritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Average End Depth Over Rise | 0.00 | % |
| Normal Depth Over Rise | 74.54 | % |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 5.96 | ft |
| Critical Depth | 7.54 | ft |

# Worksheet for LineD_01

## GVF Output Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.01417 | ft/ft |

# Worksheet for LineD_02

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Diameter | 8.00 | ft |
| Discharge | 1068.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 6.26 | ft |
| Flow Area | 42.19 | $ft^2$ |
| Wetted Perimeter | 17.36 | ft |
| Hydraulic Radius | 2.43 | ft |
| Top Width | 6.60 | ft |
| Critical Depth | 7.62 | ft |
| Percent Full | 78.2 | % |
| Critical Slope | 0.01583 | ft/ft |
| Velocity | 25.32 | ft/s |
| Velocity Head | 9.96 | ft |
| Specific Energy | 16.22 | ft |
| Froude Number | 1.77 | |
| Maximum Discharge | 1202.46 | $ft^3/s$ |
| Discharge Full | 1117.83 | $ft^3/s$ |
| Slope Full | 0.01826 | ft/ft |
| Flow Type | SuperCritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Average End Depth Over Rise | 0.00 | % |
| Normal Depth Over Rise | 78.22 | % |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 6.26 | ft |
| Critical Depth | 7.62 | ft |

# Worksheet for LineD_02

## GVF Output Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.01583 | ft/ft |

# Worksheet for LineE_USofBasin

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.00450 | ft/ft |
| Left Side Slope | 1.00 | ft/ft (H:V) |
| Right Side Slope | 1.00 | ft/ft (H:V) |
| Bottom Width | 12.00 | ft |
| Discharge | 1085.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 4.64 | ft |
| Flow Area | 77.23 | $ft^2$ |
| Wetted Perimeter | 25.13 | ft |
| Hydraulic Radius | 3.07 | ft |
| Top Width | 21.28 | ft |
| Critical Depth | 5.41 | ft |
| Critical Slope | 0.00260 | ft/ft |
| Velocity | 14.05 | ft/s |
| Velocity Head | 3.07 | ft |
| Specific Energy | 7.71 | ft |
| Froude Number | 1.30 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 4.64 | ft |
| Critical Depth | 5.41 | ft |
| Channel Slope | 0.00450 | ft/ft |
| Critical Slope | 0.00260 | ft/ft |

# Worksheet for LineE01_DSofBasin

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Diameter | 7.50 | ft |
| Discharge | 893.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 5.83 | ft |
| Flow Area | 36.84 | $ft^2$ |
| Wetted Perimeter | 16.19 | ft |
| Hydraulic Radius | 2.28 | ft |
| Top Width | 6.24 | ft |
| Critical Depth | 7.12 | ft |
| Percent Full | 77.7 | % |
| Critical Slope | 0.01559 | ft/ft |
| Velocity | 24.24 | ft/s |
| Velocity Head | 9.13 | ft |
| Specific Energy | 14.96 | ft |
| Froude Number | 1.76 | |
| Maximum Discharge | 1012.34 | $ft^3/s$ |
| Discharge Full | 941.09 | $ft^3/s$ |
| Slope Full | 0.01801 | ft/ft |
| Flow Type | SuperCritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Average End Depth Over Rise | 0.00 | % |
| Normal Depth Over Rise | 77.72 | % |
| Downstream Velocity | Infinity | ft/s |

# Worksheet for LineE01_DSofBasin

## GVF Output Data

| | | |
|---|---|---|
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 5.83 | ft |
| Critical Depth | 7.12 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.01559 | ft/ft |

# Worksheet for LineE_RCB

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Bottom Width | 12.00 | ft |
| Discharge | 2957.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 7.79 | ft |
| Flow Area | 93.53 | $ft^2$ |
| Wetted Perimeter | 27.59 | ft |
| Hydraulic Radius | 3.39 | ft |
| Top Width | 12.00 | ft |
| Critical Depth | 12.36 | ft |
| Critical Slope | 0.00630 | ft/ft |
| Velocity | 31.61 | ft/s |
| Velocity Head | 15.53 | ft |
| Specific Energy | 23.33 | ft |
| Froude Number | 2.00 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 7.79 | ft |
| Critical Depth | 12.36 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.00630 | ft/ft |

# Worksheet for LineF

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.015 | |
| Channel Slope | 0.02000 | ft/ft |
| Diameter | 6.00 | ft |
| Discharge | 527.00 | $ft^3/s$ |

## Results

| | | |
|---|---|---|
| Normal Depth | 5.01 | ft |
| Flow Area | 25.20 | $ft^2$ |
| Wetted Perimeter | 13.82 | ft |
| Hydraulic Radius | 1.82 | ft |
| Top Width | 4.46 | ft |
| Critical Depth | 5.73 | ft |
| Percent Full | 83.4 | % |
| Critical Slope | 0.01790 | ft/ft |
| Velocity | 20.91 | ft/s |
| Velocity Head | 6.80 | ft |
| Specific Energy | 11.80 | ft |
| Froude Number | 1.55 | |
| Maximum Discharge | 558.34 | $ft^3/s$ |
| Discharge Full | 519.05 | $ft^3/s$ |
| Slope Full | 0.02062 | ft/ft |
| Flow Type | SuperCritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Average End Depth Over Rise | 0.00 | % |
| Normal Depth Over Rise | 83.42 | % |
| Downstream Velocity | Infinity | ft/s |

# Worksheet for LineF

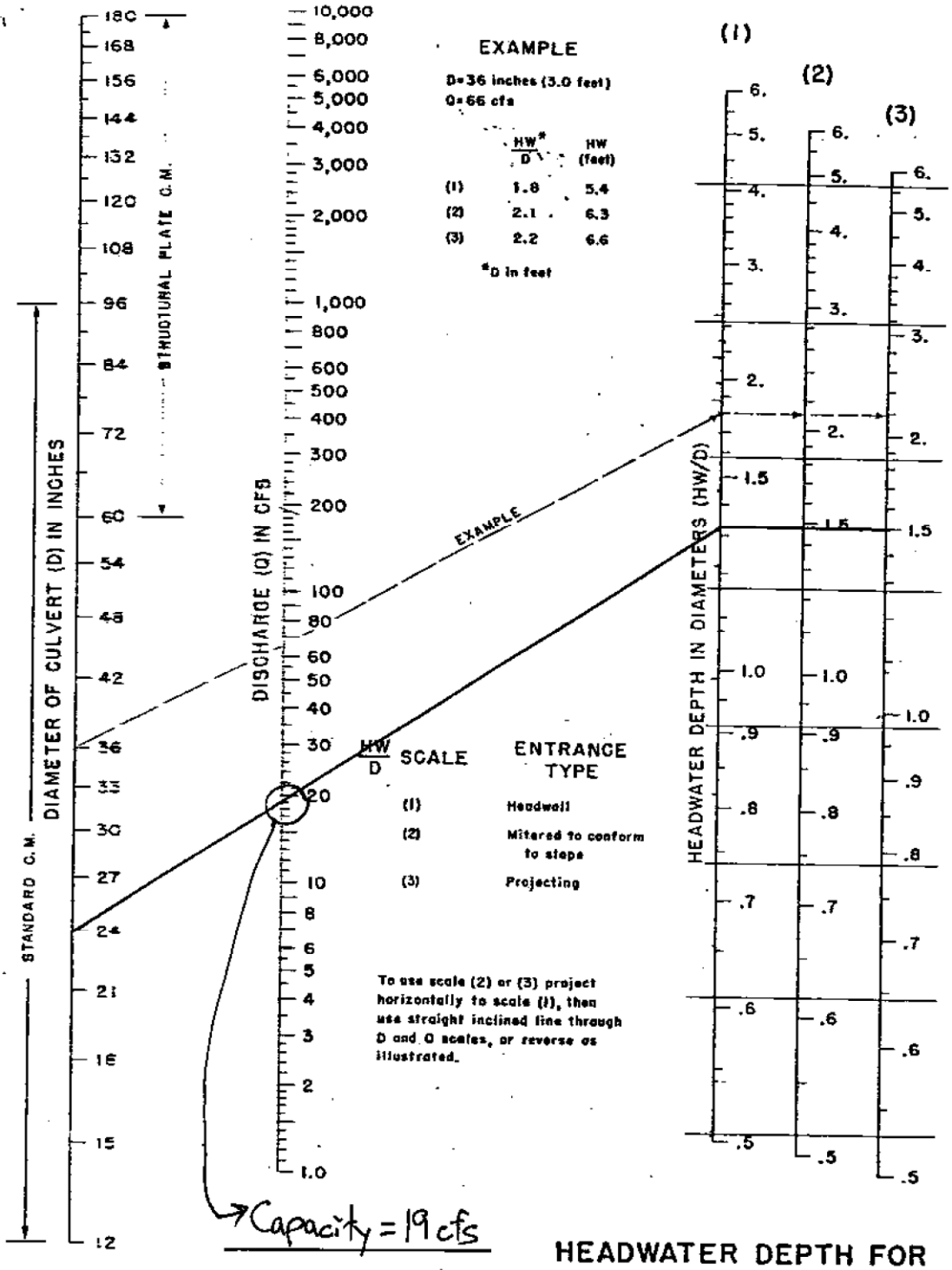
## GVF Output Data

| | | |
|---|---|---|
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 5.01 | ft |
| Critical Depth | 5.73 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.01790 | ft/ft |

# Appendix D
# Gilman Springs Road Culvert Capacity Analysis

Culvert #1
Node #341 - 24" CMP
$H_w = 3' \Rightarrow Hw/D = 1.5$

# CHART 5

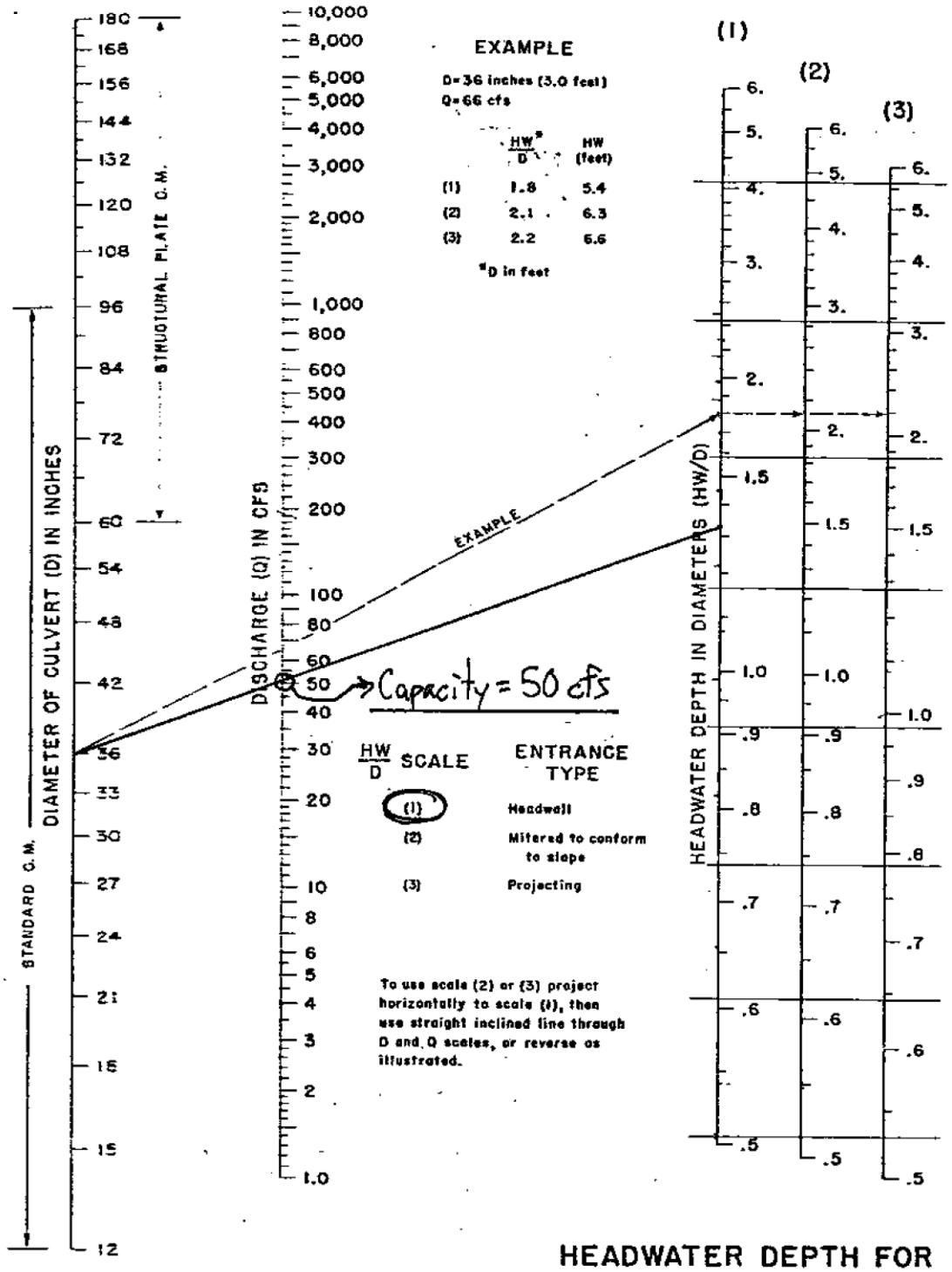



HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN 1963

Culvert #2
Node #351 - 36" CMP
$H_w = 4' \Rightarrow H_w/D = 1.33$

# CHART 5




HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

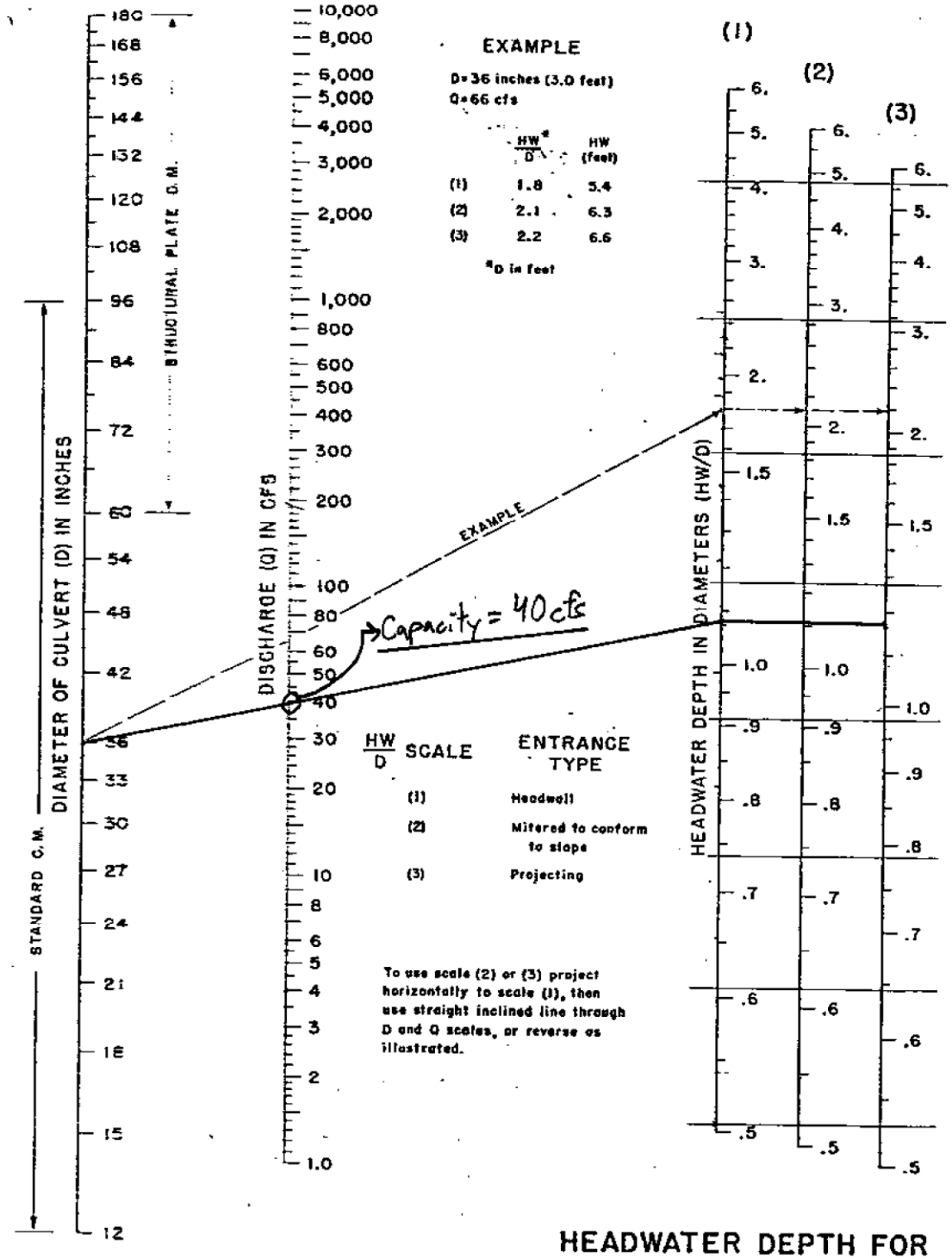
BUREAU OF PUBLIC ROADS JAN. 1963

Culvert #3

Node #51 - 36" CMP

Hw = 3.5 ⇒ Hw/D = 1.17

# CHART 5

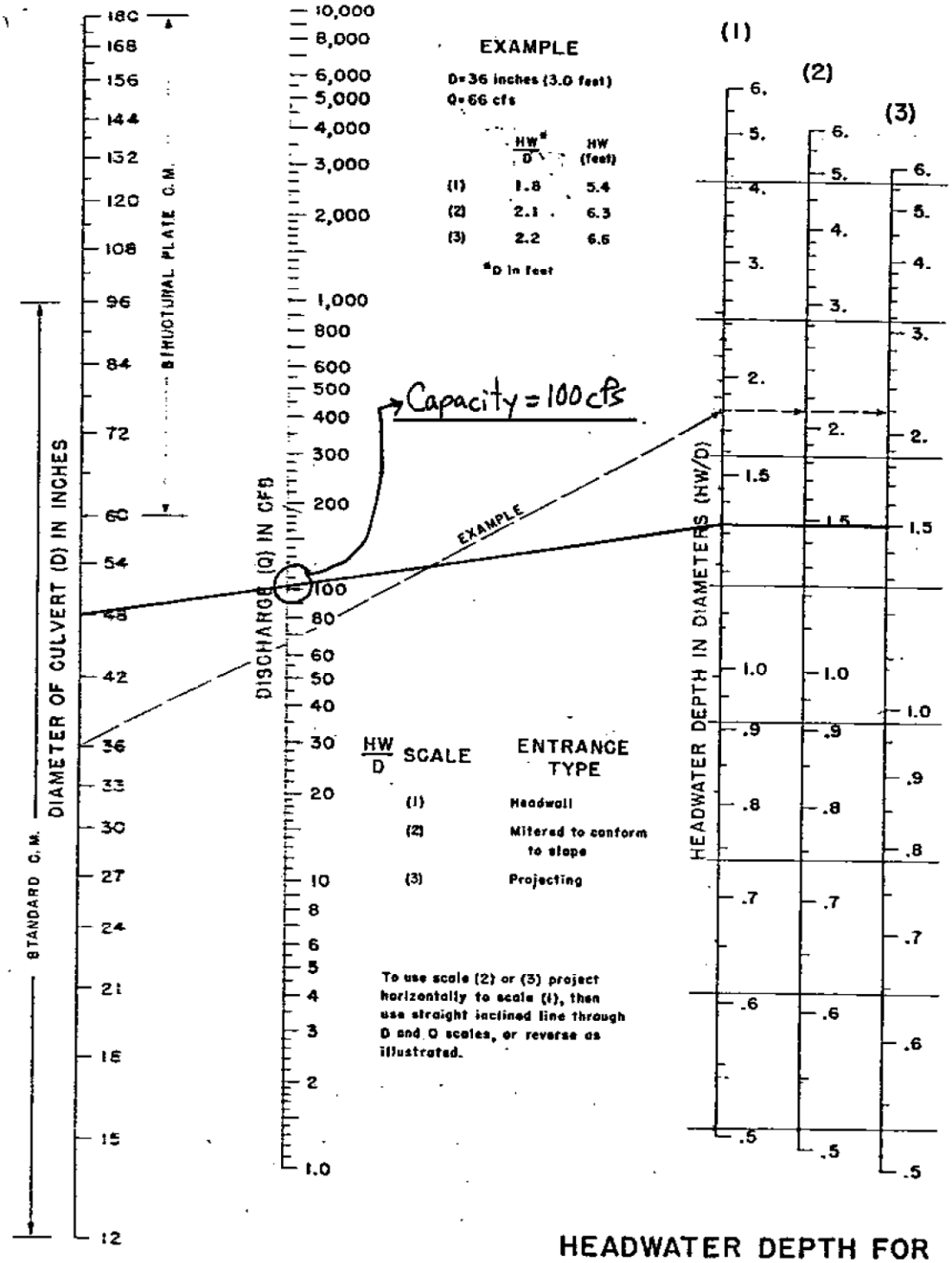



BUREAU OF PUBLIC ROADS JAN 1963

## HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

Culvert #4
Node #52 - 48" CMP
$H_w = 6' \Rightarrow H_w/D = 1.5$

# CHART 5




HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

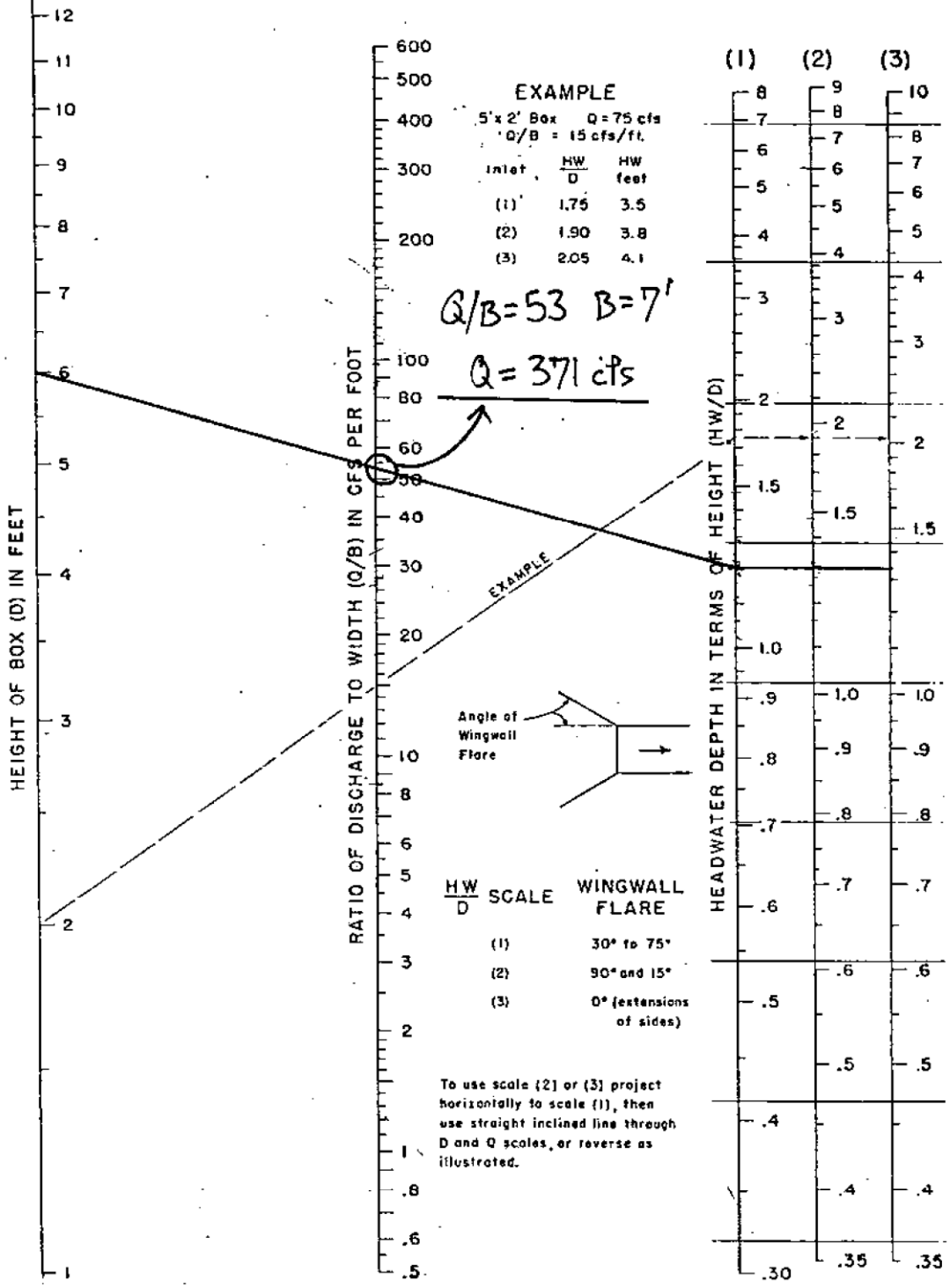
BUREAU OF PUBLIC ROADS JAN. 1963

Culvert # 5

Node #71 - 7'(w) x 6'(h)

$H_w = 8' \Rightarrow H_w/D = 1.33$

CHART I




HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

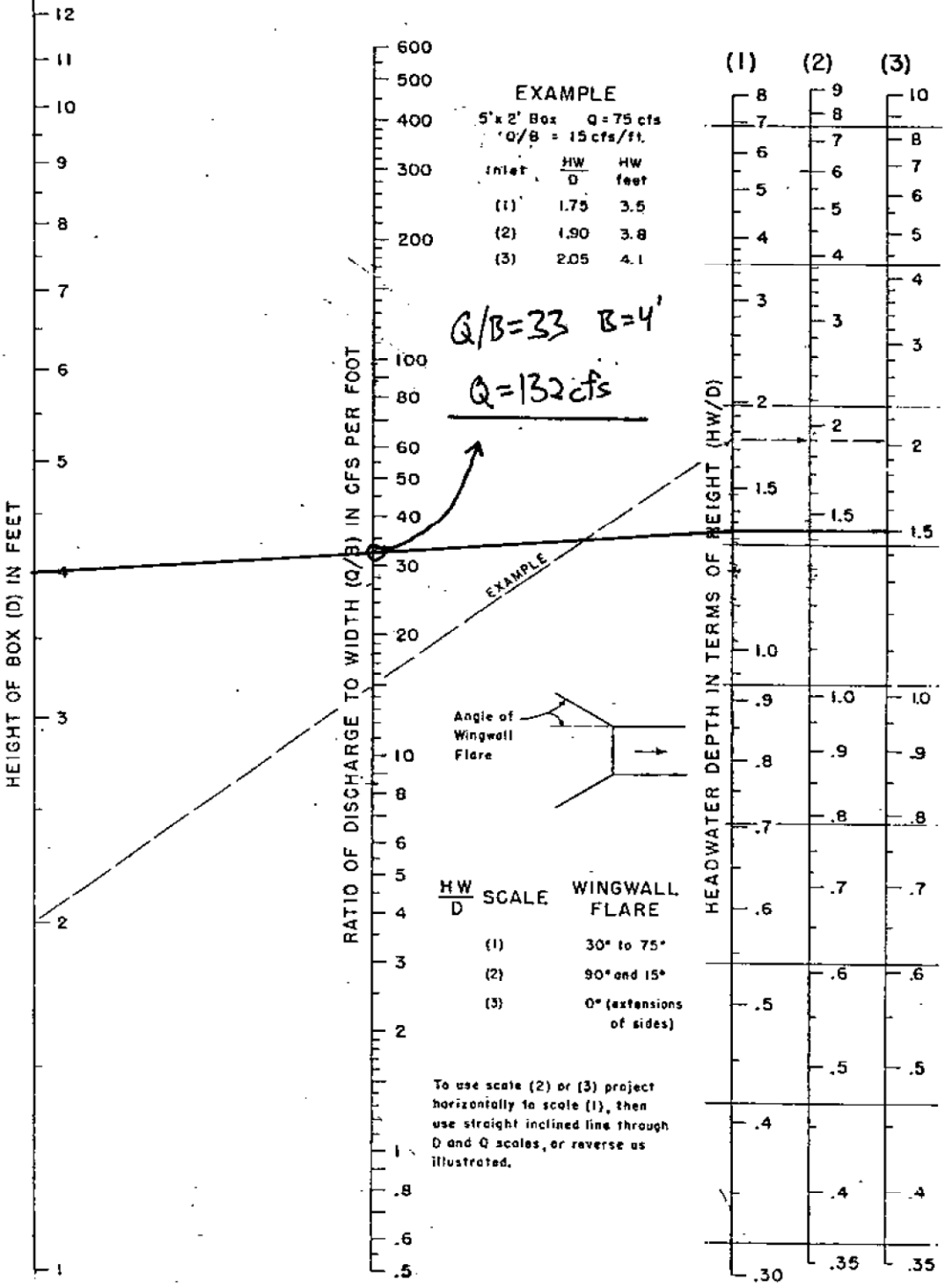
BUREAU OF PUBLIC ROADS JAN. 1963

Culvert #6

Node # 721 - 4'x4' RCB

$H_w = 6' \Rightarrow H_w/D = 1.5$

CHART 1




HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

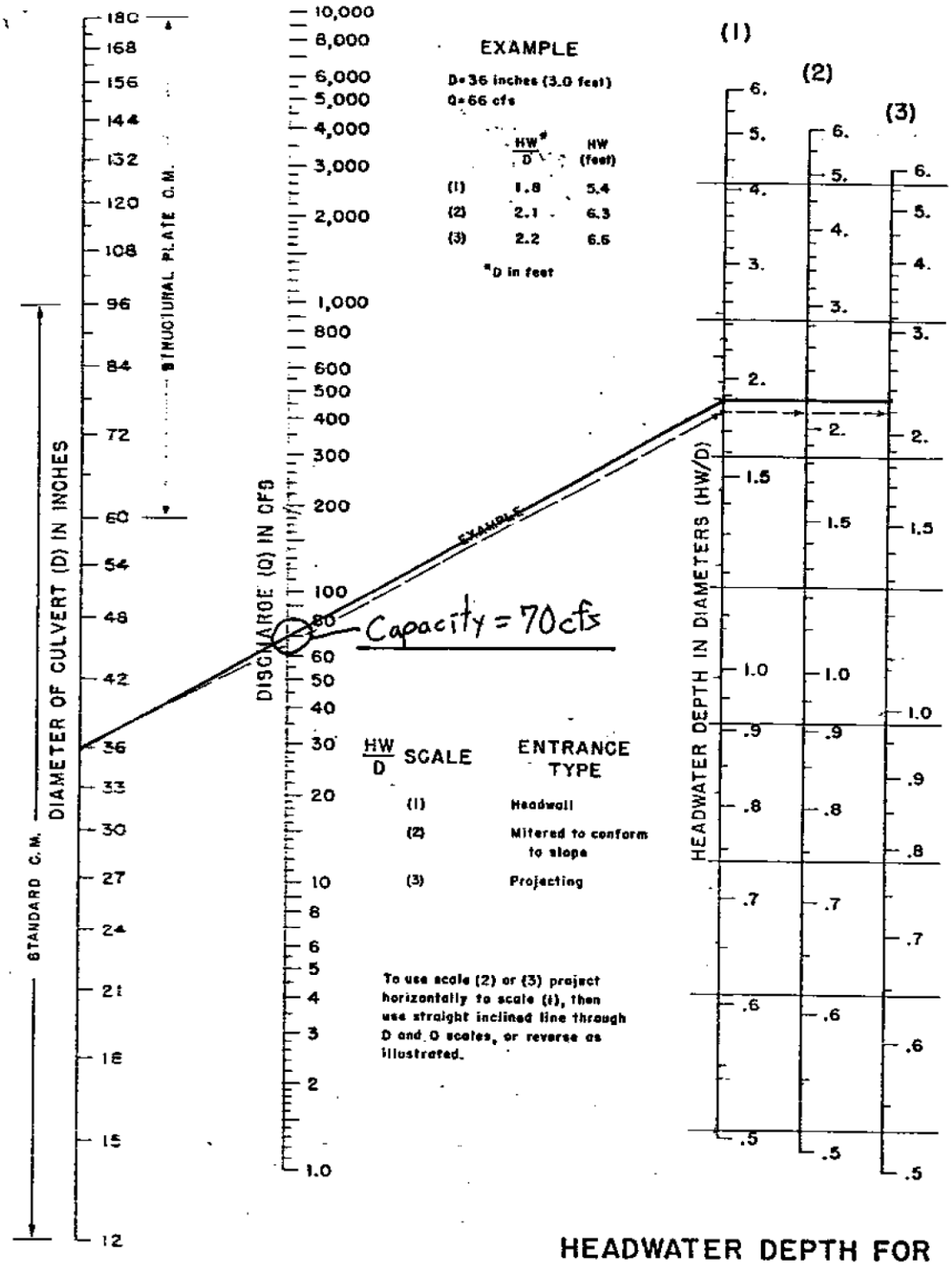
BUREAU OF PUBLIC ROADS JAN. 1963

Culvert #7

Node # 921 - 36" CMP

$H_w = 7' \Rightarrow H_w/D = 2.33$

# CHART 5

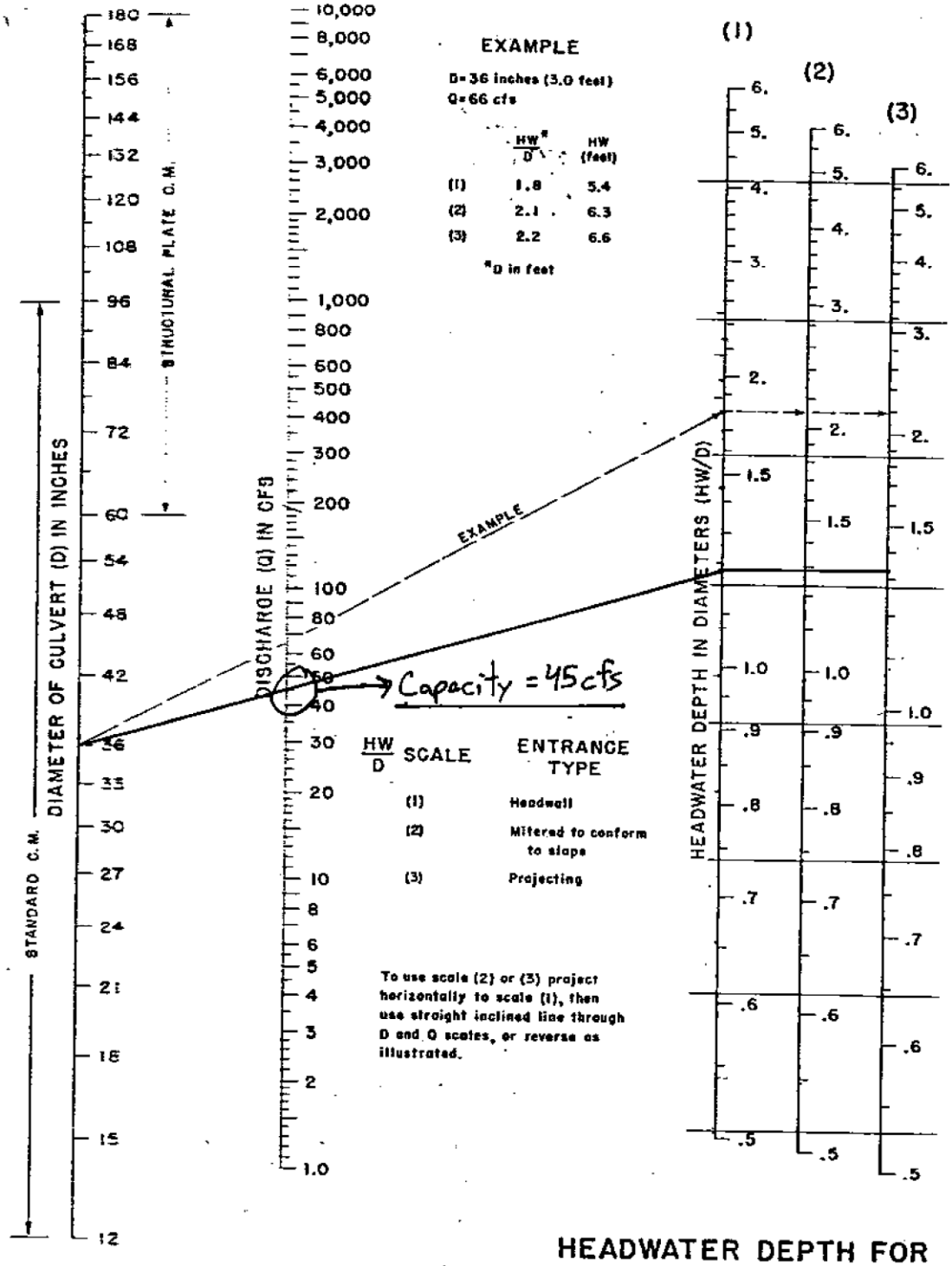



BUREAU OF PUBLIC ROADS JAN. 1963

## HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

Culvert #8
Node #91 - 36" CMP
Hw = 4' ⇒ Hw/D = 1.33

# CHART 5



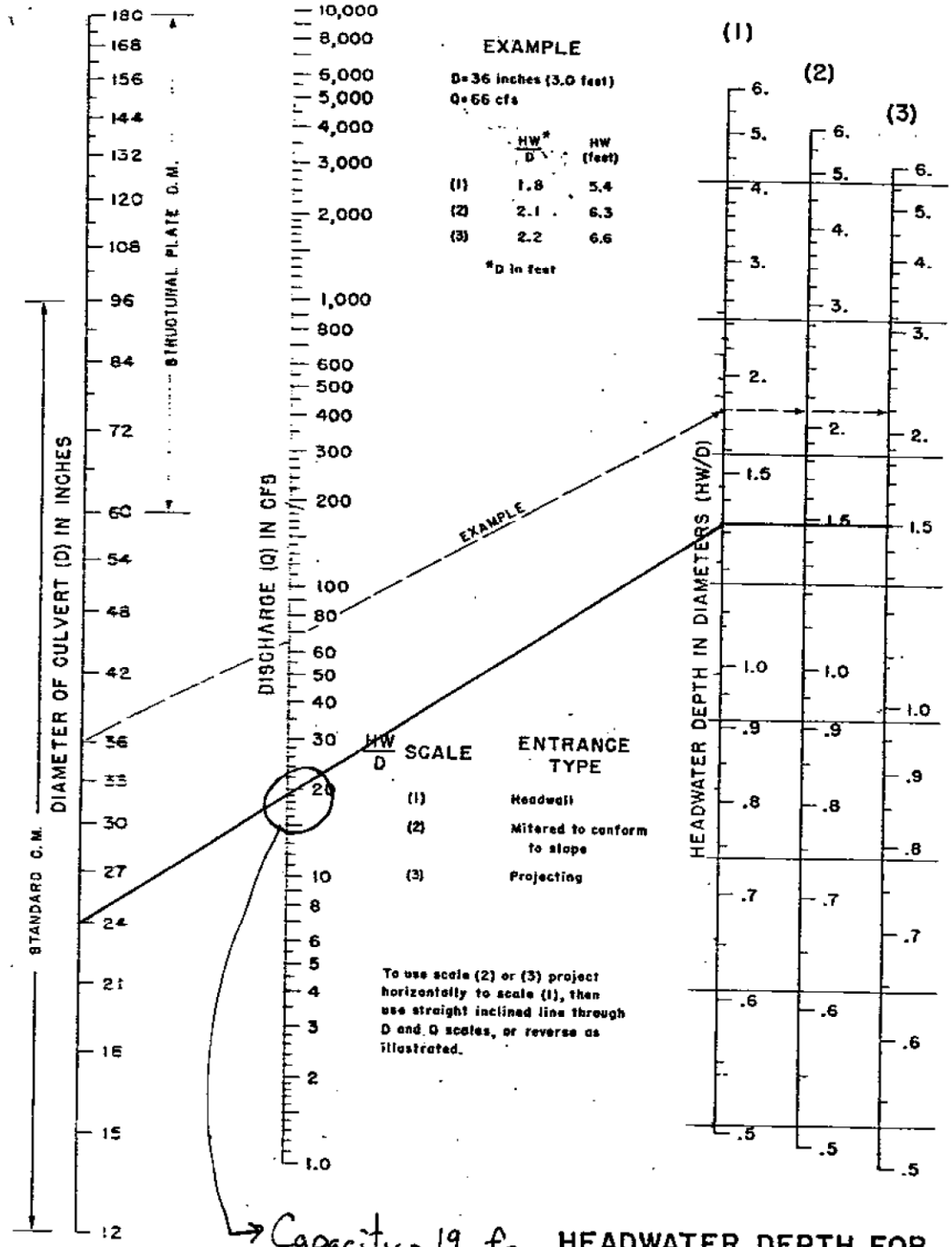

## HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN 1963

Culvert # 9
Node # 101 - 24" CMP

$H_w = 3' \Rightarrow H_w/D = 1.5$

# CHART 5




Capacity = 19 cfs

HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

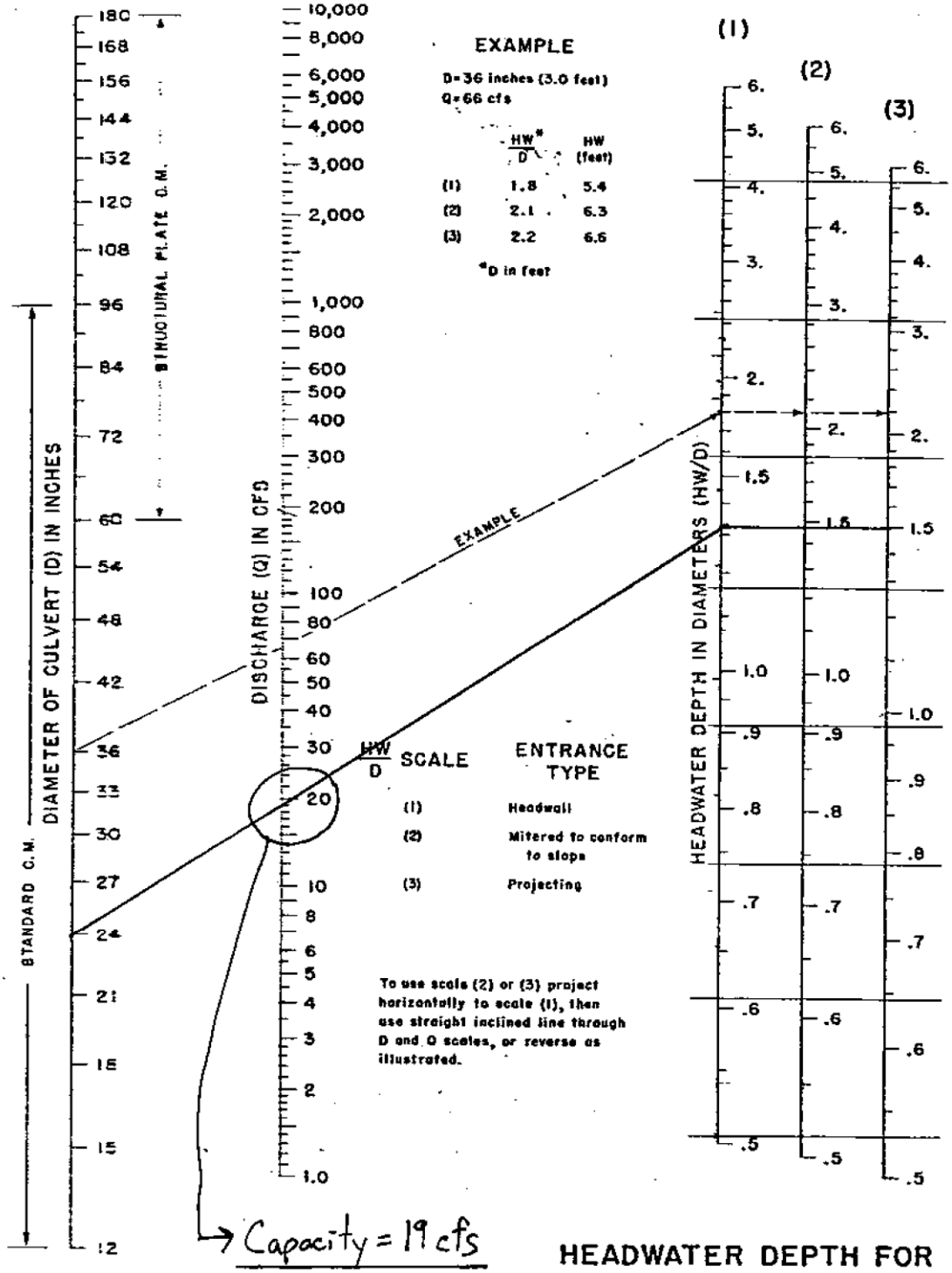
BUREAU OF PUBLIC ROADS JAN 1963

Culvert #10

Node #111 - 24" CMP

Hw = 3' ⇒ Hw/D = 1.5

# CHART 5




HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

## Gilman Springs Road Flow Analysis

| Culvert | Size/Material | Node | Culvert Capacity * (cfs) | Tributary 100-yr Flow (cfs) | Adequate to Convey 100-year flow | Delta Overflow (cfs) | Flow to Nside of Rd (cfs) | Flow to Sside of Rd (cfs) | Weir Flow over Road (cfs) | Assumed L (FT) | Calculated H (FT) | Distance to Previouse Culvert FT | Road Slope at Culvert % | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 24" CMP | 341 | 20 | 60 | No | 40 | - | - | 40 | 30 | 0.57 | | 1.85 | No defanite drainage ditch alongeither side of road at Culvert #1 |
| 2 | 36" CMP | 351 | 50 | 15 | Yes | -35 | - | - | 0 | - | - | 230 | 2.43 | No defanite drainage ditch along road at Culvert #2 |
| 3 | 36" CMP | 51 | 40 | 370 | No | 330 | 330 | - | 0 | 30 | 0.00 | 2770 | 3.03 | No ditch at south side. Flow will fill ditch at north side and flow down stream to Culvert #4 before weiring over Gilman Springs Rd |
| 4 | 48" CMP | 52 | 100 | 170 | No | 70 | - | - | 400 | 200 | 0.75 | 690 | 0.00 | Gilmin Springs in a sump condition. All excess flow from #3 and #4 overtops Gilman Springs @ #4 |
| 5 | 7'x6' RCB | 71 | 370 | 1360 | No | 990 | 52 | 43 | 895 | 500 | 0.69 | 2620 | 1.01 | Flow must weir over main road and connecting road before entering drainage ditches |
| 6 | 4'X4' RCB | 721 | 130 | 650 | No | 520 | 24 | - | 548 | 270 | 0.75 | 1407 | 1.76 | Flows pass through culvert and over road A portion of overflow from #5 overflows the ditch on the north side at #6 |
| 7 | 36" CMP | 921 | 70 | 20 | Yes | -50 | 24 | - | 0 | - | - | 210 | 3.10 | Flows Pass through Culvert. Excess flow from #6 utilize excess capacity in #7 |
| 8 | 36" CMP | 91 | 45 | 55 | No | 10 | - | - | 10 | 20 | 0.30 | 1937 | 1.57 | Flows pass through culvert and over road. No promanate ditches along road |
| 9 | 24" CMP | 101 | 20 | 140 | No | 120 | 112 | - | 8 | 20 | 0.26 | 1000 | 2.92 | Flows pass through culvert and over road leaving 112 cfs flowing along road |
| 10 | 24" CMP | 111 | 20 | 70 | No | 50 | 0 | 6 | 156 | 40 | 1.17 | 730 | 2.75 | Flows pass through culvert and overroad. No flow from #10 enters the ditch on the north side because it is filled by flow from #9 |

Ref: Handbook of Hydraulics
Weir Equation

$Q = C \cdot L \cdot H^{3/2}$ (Eq. 5.10)

$C = 3.1$ (EQ 5-53)

| Culvert | Location | N | Slope % | Channel Depth FT | LZ H:V | RZ H:V | B FT | Qn (cfs) |
|---|---|---|---|---|---|---|---|---|
| 3 | Northside | 0.025 | 0.029 | 3 | 1 | 0.8 | 13 | 814 |
| 5 | Northside | 0.025 | 0.016 | 1.2 | 11.3 | 2.5 | 0 | 53 |
| | Southside | 0.025 | 0.0091 | 1.4 | 3.4 | 6.7 | 0 | 44 |
| 6 | Northside | 0.025 | 0.038 | 0.5 | 20 | 6.8 | 0 | 24 |
| 9 | Northside | 0.025 | 0.056 | 1 | 10 | 10 | 2 | 112 |
| 10 | Northside | 0.025 | 0.056 | 1 | 10 | 10 | 2 | 112 |
| 10 | Southside | 0.025 | 0.036 | 0.5 | 3 | 8 | 0 | 6 |

| Culvert | Upstream Node | Downstream Node | N | Slope % | Channel Depth FT | LZ H:V | RZ H:V | B FT | Qn (cfs) | Tributary 100-yr Flow (cfs) | Actual 100-yr Flow* (cfs) | Delta Overflow (cfs) | Adequate to Convey 100-year flow | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 341 | 34 | 0.025 | 4.3% | 2.0 | 4.7 | 5.1 | 16.0 | 808 | 60 | 60 | - | Yes | |
| 2 | 350 | 351 | 0.025 | 11.2% | 3.0 | 6.8 | 3.2 | 1.7 | 1333 | 15 | 15 | - | Yes | |
| 3 | 51 | 52 | 0.025 | 2.0% | 1.2 | 3.7 | 1.6 | 6.4 | 62 | 370 | 40 | - | Yes | Overflows Natural Chanel at South Bank and flow overland to next natural drainage channel |
| 4 | 52 | 53 | 0.025 | 1.5% | 1.8 | 10.5 | 11.8 | 8.5 | 365 | 170 | 500 | 135 | No | Overflows from Natural Chanel are directed back into the chanel futher down stream |
| 5 | 71 | 72 | 0.025 | 0.3% | 2.0 | 1.3 | 6.0 | 18.9 | 330 | 1360 | 1265 | 935 | No | Breaks out of channel North of Alasandro. Channel adaquate to convey flow further down stream |
| 6 | 721 | 72 | 0.025 | 0.5% | 0.5 | 7.9 | 32.0 | 3.5 | 13 | 650 | 678 | 665 | No | Excess flow floods over Alasandro Blvd |
| 7 | 921 | 92 | 0.025 | 3.2% | 2.0 | 13.8 | 18.7 | 17.9 | 1219 | 20 | 44 | - | Yes | |
| 8 | 91 | 92 | 0.025 | 2.4% | 0.3 | 55.0 | 27.8 | 29.6 | 75 | 55 | 55 | - | Yes | |
| 9 | 101 | 102 | 0.025 | 2.7% | 3.0 | 12.1 | 12.0 | 4.1 | 1597 | 140 | 28 | - | Yes | |
| 10 | 111 | 112 | 0.025 | 4.2% | 2.0 | 19.0 | 11.4 | 7.9 | 1001 | 70 | 176 | - | Yes | |

* Actual 100-yr flow is the amount of flow that passes through the culvert plus the amount that flows over the road. This is different than the Tributary 100-yr flow because it acounts for the flows between culverts along Gilman Springs road

# Worksheet for #3 @NSide of Rd

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 2.90000 | % |
| Normal Depth | 3.00 | ft |
| Left Side Slope | 1.00 | ft/ft (H:V) |
| Right Side Slope | 0.80 | ft/ft (H:V) |
| Bottom Width | 13.00 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 814.67 | $ft^3/s$ |
| Flow Area | 47.10 | $ft^2$ |
| Wetted Perimeter | 21.08 | ft |
| Hydraulic Radius | 2.23 | ft |
| Top Width | 18.40 | ft |
| Critical Depth | 4.45 | ft |
| Critical Slope | 0.00749 | ft/ft |
| Velocity | 17.30 | ft/s |
| Velocity Head | 4.65 | ft |
| Specific Energy | 7.65 | ft |
| Froude Number | 1.91 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 3.00 | ft |
| Critical Depth | 4.45 | ft |
| Channel Slope | 2.90000 | % |

# Worksheet for #3 @NSide of Rd

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.00749 | ft/ft |

# Worksheet for #5 @NSide of Rd

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 1.60000 | % |
| Normal Depth | 1.20 | ft |
| Left Side Slope | 11.30 | ft/ft (H:V) |
| Right Side Slope | 2.50 | ft/ft (H:V) |
| Bottom Width | 0.00 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 52.54 | $ft^3/s$ |
| Flow Area | 9.94 | $ft^2$ |
| Wetted Perimeter | 16.84 | ft |
| Hydraulic Radius | 0.59 | ft |
| Top Width | 16.56 | ft |
| Critical Depth | 1.29 | ft |
| Critical Slope | 0.01078 | ft/ft |
| Velocity | 5.29 | ft/s |
| Velocity Head | 0.43 | ft |
| Specific Energy | 1.63 | ft |
| Froude Number | 1.20 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.20 | ft |
| Critical Depth | 1.29 | ft |
| Channel Slope | 1.60000 | % |

# Worksheet for #5 @NSide of Rd

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01078 | ft/ft |

# Worksheet for #5 @SSide of Rd

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 0.91000 | % |
| Normal Depth | 1.40 | ft |
| Left Side Slope | 3.40 | ft/ft (H:V) |
| Right Side Slope | 6.70 | ft/ft (H:V) |
| Bottom Width | 0.00 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 43.62 | $ft^3/s$ |
| Flow Area | 9.90 | $ft^2$ |
| Wetted Perimeter | 14.45 | ft |
| Hydraulic Radius | 0.69 | ft |
| Top Width | 14.14 | ft |
| Critical Depth | 1.36 | ft |
| Critical Slope | 0.01066 | ft/ft |
| Velocity | 4.41 | ft/s |
| Velocity Head | 0.30 | ft |
| Specific Energy | 1.70 | ft |
| Froude Number | 0.93 | |
| Flow Type | Subcritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.40 | ft |
| Critical Depth | 1.36 | ft |
| Channel Slope | 0.91000 | % |

# Worksheet for #5 @SSide of Rd

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01066 | ft/ft |

# Worksheet for #6 @NSide of Rd

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 3.80000 | % |
| Normal Depth | 0.50 | ft |
| Left Side Slope | 20.00 | ft/ft (H:V) |
| Right Side Slope | 6.80 | ft/ft (H:V) |
| Bottom Width | 2.60 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 23.59 | $ft^3/s$ |
| Flow Area | 4.65 | $ft^2$ |
| Wetted Perimeter | 16.05 | ft |
| Hydraulic Radius | 0.29 | ft |
| Top Width | 16.00 | ft |
| Critical Depth | 0.63 | ft |
| Critical Slope | 0.01289 | ft/ft |
| Velocity | 5.07 | ft/s |
| Velocity Head | 0.40 | ft |
| Specific Energy | 0.90 | ft |
| Froude Number | 1.66 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 0.50 | ft |
| Critical Depth | 0.63 | ft |
| Channel Slope | 3.80000 | % |

# Worksheet for #6 @NSide of Rd

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01289 | ft/ft |

# Worksheet for #10 @NSide of Rd

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 5.60000 | % |
| Normal Depth | 1.00 | ft |
| Left Side Slope | 10.00 | ft/ft (H:V) |
| Right Side Slope | 10.00 | ft/ft (H:V) |
| Bottom Width | 2.00 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 112.34 | $ft^3/s$ |
| Flow Area | 12.00 | $ft^2$ |
| Wetted Perimeter | 22.10 | ft |
| Hydraulic Radius | 0.54 | ft |
| Top Width | 22.00 | ft |
| Critical Depth | 1.41 | ft |
| Critical Slope | 0.01007 | ft/ft |
| Velocity | 9.36 | ft/s |
| Velocity Head | 1.36 | ft |
| Specific Energy | 2.36 | ft |
| Froude Number | 2.23 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.00 | ft |
| Critical Depth | 1.41 | ft |
| Channel Slope | 5.60000 | % |

# Worksheet for #10 @NSide of Rd

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01007 | ft/ft |

# Worksheet for #10 @SSide of Rd

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 3.60000 | % |
| Normal Depth | 0.50 | ft |
| Left Side Slope | 3.00 | ft/ft (H:V) |
| Right Side Slope | 8.00 | ft/ft (H:V) |
| Bottom Width | 0.00 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 6.07 | $ft^3/s$ |
| Flow Area | 1.38 | $ft^2$ |
| Wetted Perimeter | 5.61 | ft |
| Hydraulic Radius | 0.24 | ft |
| Top Width | 5.50 | ft |
| Critical Depth | 0.60 | ft |
| Critical Slope | 0.01400 | ft/ft |
| Velocity | 4.42 | ft/s |
| Velocity Head | 0.30 | ft |
| Specific Energy | 0.80 | ft |
| Froude Number | 1.56 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 0.50 | ft |
| Critical Depth | 0.60 | ft |
| Channel Slope | 3.60000 | % |

# Worksheet for #10 @SSide of Rd

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01400 | ft/ft |

# Worksheet for EXIST_C_@Node341

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 4.30000 | % |
| Normal Depth | 2.00 | ft |
| Left Side Slope | 4.70 | ft/ft (H:V) |
| Right Side Slope | 5.10 | ft/ft (H:V) |
| Bottom Width | 16.00 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 808.41 | $ft^3/s$ |
| Flow Area | 51.60 | $ft^2$ |
| Wetted Perimeter | 36.00 | ft |
| Hydraulic Radius | 1.43 | ft |
| Top Width | 35.60 | ft |
| Critical Depth | 3.13 | ft |
| Critical Slope | 0.00724 | ft/ft |
| Velocity | 15.67 | ft/s |
| Velocity Head | 3.81 | ft |
| Specific Energy | 5.81 | ft |
| Froude Number | 2.29 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 2.00 | ft |
| Critical Depth | 3.13 | ft |
| Channel Slope | 4.30000 | % |

# Worksheet for EXIST_C_@Node341

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.00724 | ft/ft |

# Worksheet for EXIST_C_@Node351

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 11.20000 | % |
| Normal Depth | 3.00 | ft |
| Left Side Slope | 6.80 | ft/ft (H:V) |
| Right Side Slope | 3.20 | ft/ft (H:V) |
| Bottom Width | 1.70 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 1333.22 | $ft^3/s$ |
| Flow Area | 50.10 | $ft^2$ |
| Wetted Perimeter | 32.38 | ft |
| Hydraulic Radius | 1.55 | ft |
| Top Width | 31.70 | ft |
| Critical Depth | 5.19 | ft |
| Critical Slope | 0.00675 | ft/ft |
| Velocity | 26.61 | ft/s |
| Velocity Head | 11.01 | ft |
| Specific Energy | 14.01 | ft |
| Froude Number | 3.73 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 3.00 | ft |
| Critical Depth | 5.19 | ft |
| Channel Slope | 11.20000 | % |

# Worksheet for EXIST_C_@Node351

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.00675 | ft/ft |

# Worksheet for EXIST_D_@Node51

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 2.00000 | % |
| Normal Depth | 1.00 | ft |
| Left Side Slope | 3.66 | ft/ft (H:V) |
| Right Side Slope | 1.55 | ft/ft (H:V) |
| Bottom Width | 6.40 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 62.37 | $ft^3/s$ |
| Flow Area | 9.01 | $ft^2$ |
| Wetted Perimeter | 12.04 | ft |
| Hydraulic Radius | 0.75 | ft |
| Top Width | 11.61 | ft |
| Critical Depth | 1.21 | ft |
| Critical Slope | 0.00992 | ft/ft |
| Velocity | 6.93 | ft/s |
| Velocity Head | 0.75 | ft |
| Specific Energy | 1.75 | ft |
| Froude Number | 1.39 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.00 | ft |
| Critical Depth | 1.21 | ft |
| Channel Slope | 2.00000 | % |

# Worksheet for EXIST_D_@Node51

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.00992 | ft/ft |

# Worksheet for EXIST_D_@Node52

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 1.51000 | % |
| Normal Depth | 1.75 | ft |
| Left Side Slope | 10.50 | ft/ft (H:V) |
| Right Side Slope | 11.80 | ft/ft (H:V) |
| Bottom Width | 8.50 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 364.72 | $ft^3/s$ |
| Flow Area | 49.02 | $ft^2$ |
| Wetted Perimeter | 47.68 | ft |
| Hydraulic Radius | 1.03 | ft |
| Top Width | 47.53 | ft |
| Critical Depth | 1.97 | ft |
| Critical Slope | 0.00874 | ft/ft |
| Velocity | 7.44 | ft/s |
| Velocity Head | 0.86 | ft |
| Specific Energy | 2.61 | ft |
| Froude Number | 1.29 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.75 | ft |
| Critical Depth | 1.97 | ft |
| Channel Slope | 1.51000 | % |

# Worksheet for EXIST_D_@Node52

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.00874 | ft/ft |

# Worksheet for EXIST_E_NorthNode72

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 0.33000 | % |
| Normal Depth | 2.40 | ft |
| Left Side Slope | 1.20 | ft/ft (H:V) |
| Right Side Slope | 6.00 | ft/ft (H:V) |
| Bottom Width | 18.90 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 330.78 | $ft^3/s$ |
| Flow Area | 66.10 | $ft^2$ |
| Wetted Perimeter | 37.25 | ft |
| Hydraulic Radius | 1.77 | ft |
| Top Width | 36.18 | ft |
| Critical Depth | 1.87 | ft |
| Critical Slope | 0.00826 | ft/ft |
| Velocity | 5.00 | ft/s |
| Velocity Head | 0.39 | ft |
| Specific Energy | 2.79 | ft |
| Froude Number | 0.65 | |
| Flow Type | Subcritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 2.40 | ft |
| Critical Depth | 1.87 | ft |
| Channel Slope | 0.33000 | % |

# Worksheet for EXIST_E_NorthNode72

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.00826 | ft/ft |

# Worksheet for EXIST_E_@Node721

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 0.50000 | % |
| Normal Depth | 0.50 | ft |
| Left Side Slope | 7.88 | ft/ft (H:V) |
| Right Side Slope | 33.00 | ft/ft (H:V) |
| Bottom Width | 3.50 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 12.52 | $ft^3/s$ |
| Flow Area | 6.86 | $ft^2$ |
| Wetted Perimeter | 23.98 | ft |
| Hydraulic Radius | 0.29 | ft |
| Top Width | 23.94 | ft |
| Critical Depth | 0.40 | ft |
| Critical Slope | 0.01484 | ft/ft |
| Velocity | 1.82 | ft/s |
| Velocity Head | 0.05 | ft |
| Specific Energy | 0.55 | ft |
| Froude Number | 0.60 | |
| Flow Type | Subcritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 0.50 | ft |
| Critical Depth | 0.40 | ft |
| Channel Slope | 0.50000 | % |

# Worksheet for EXIST_E_@Node721

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01484 | ft/ft |

# Worksheet for EXIST_F_@Node921

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 3.20000 | % |
| Normal Depth | 2.00 | ft |
| Left Side Slope | 13.80 | ft/ft (H:V) |
| Right Side Slope | 18.70 | ft/ft (H:V) |
| Bottom Width | 17.90 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 1219.71 | $ft^3/s$ |
| Flow Area | 100.80 | $ft^2$ |
| Wetted Perimeter | 83.03 | ft |
| Hydraulic Radius | 1.21 | ft |
| Top Width | 82.90 | ft |
| Critical Depth | 2.73 | ft |
| Critical Slope | 0.00781 | ft/ft |
| Velocity | 12.10 | ft/s |
| Velocity Head | 2.28 | ft |
| Specific Energy | 4.28 | ft |
| Froude Number | 1.93 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 2.00 | ft |
| Critical Depth | 2.73 | ft |
| Channel Slope | 3.20000 | % |

# Worksheet for EXIST_F_@Node921

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.00781 | ft/ft |

# Worksheet for EXIST_F_@Node92

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 2.40000 | % |
| Normal Depth | 0.40 | ft |
| Left Side Slope | 55.00 | ft/ft (H:V) |
| Right Side Slope | 28.00 | ft/ft (H:V) |
| Bottom Width | 29.60 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 75.27 | $ft^3/s$ |
| Flow Area | 18.48 | $ft^2$ |
| Wetted Perimeter | 62.81 | ft |
| Hydraulic Radius | 0.29 | ft |
| Top Width | 62.80 | ft |
| Critical Depth | 0.47 | ft |
| Critical Slope | 0.01311 | ft/ft |
| Velocity | 4.07 | ft/s |
| Velocity Head | 0.26 | ft |
| Specific Energy | 0.66 | ft |
| Froude Number | 1.32 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 0.40 | ft |
| Critical Depth | 0.47 | ft |
| Channel Slope | 2.40000 | % |

# Worksheet for EXIST_F_@Node92

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01311 | ft/ft |

# Worksheet for EXIST_F_@Node101

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 2.70000 | % |
| Normal Depth | 3.00 | ft |
| Left Side Slope | 12.10 | ft/ft (H:V) |
| Right Side Slope | 12.00 | ft/ft (H:V) |
| Bottom Width | 4.10 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 1596.66 | $ft^3/s$ |
| Flow Area | 120.75 | $ft^2$ |
| Wetted Perimeter | 76.65 | ft |
| Hydraulic Radius | 1.58 | ft |
| Top Width | 76.40 | ft |
| Critical Depth | 3.89 | ft |
| Critical Slope | 0.00723 | ft/ft |
| Velocity | 13.22 | ft/s |
| Velocity Head | 2.72 | ft |
| Specific Energy | 5.72 | ft |
| Froude Number | 1.85 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 3.00 | ft |
| Critical Depth | 3.89 | ft |
| Channel Slope | 2.70000 | % |

# Worksheet for EXIST_F_@Node101

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.00723 | ft/ft |

# Worksheet for EXIST_F_@Node112

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.025 | |
| Channel Slope | 4.20000 | % |
| Normal Depth | 2.00 | ft |
| Left Side Slope | 19.00 | ft/ft (H:V) |
| Right Side Slope | 11.40 | ft/ft (H:V) |
| Bottom Width | 7.90 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 1001.92 | $ft^3/s$ |
| Flow Area | 76.60 | $ft^2$ |
| Wetted Perimeter | 68.84 | ft |
| Hydraulic Radius | 1.11 | ft |
| Top Width | 68.70 | ft |
| Critical Depth | 2.82 | ft |
| Critical Slope | 0.00793 | ft/ft |
| Velocity | 13.08 | ft/s |
| Velocity Head | 2.66 | ft |
| Specific Energy | 4.66 | ft |
| Froude Number | 2.18 | |
| Flow Type | Supercritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 2.00 | ft |
| Critical Depth | 2.82 | ft |
| Channel Slope | 4.20000 | % |

# Worksheet for EXIST_F_@Node112

## GVF Output Data

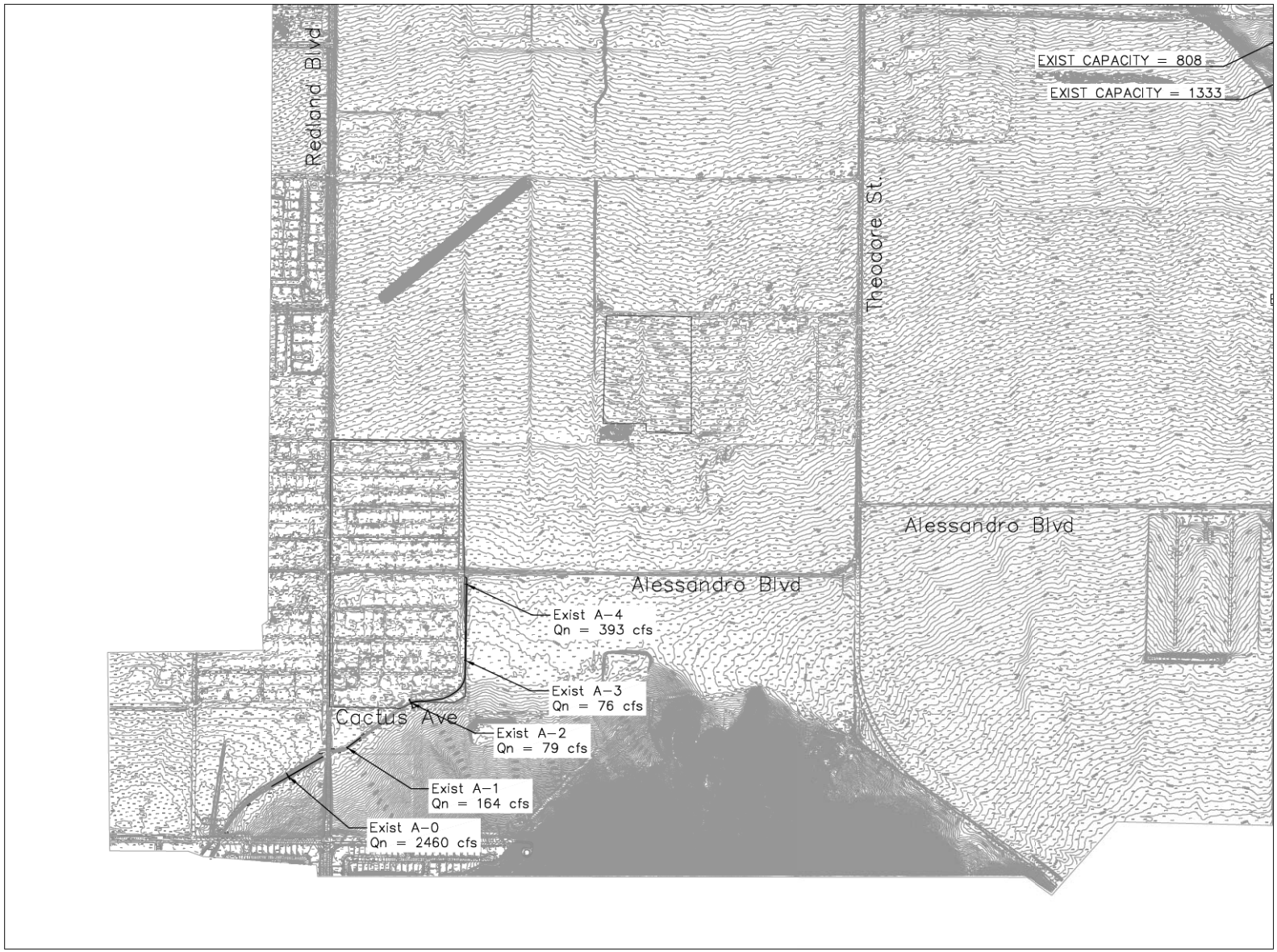
| | | |
|---|---|---|
| Critical Slope | 0.00793 | ft/ft |

# Appendix E
# Sediment Yield Calculations

**Sediment Yield Calculations**

| Watershed | Tributary Area | P(in) | PX100 | A (ac) | A (mi2) | Elev Diff (ft) | L (ft) | L (mi) | RR (ft/mi) | FF | Adjustment Factor | Log(Dy) | Unit Dy (cy/mi2) | Adjusted Unit Dy | Debris (cy) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| "A" | A1 | 1.2 | 120 | 872.6 | 1.36 | 850 | 15000 | 2.835 | 299.82 | 4 | 0.5 | 3.896 | 7879.005 | 3939.503 | 5373 |
| | A2 | 1.2 | 120 | 248.3 | 0.39 | 460 | 5000 | 0.945 | 486.77 | 4 | 0.5 | 3.929 | 8486.053 | 4243.027 | 1647 |
| | A3 | 1.2 | 120 | 521.4 | 0.81 | 470 | 7200 | 1.3608 | 345.39 | 4 | 0.5 | 3.894 | 7839.833 | 3919.916 | 3195 |
| | A4 | 1.2 | 120 | 841.7 | 1.32 | 120 | 12000 | 2.268 | 52.91 | 4 | 1 | 3.427 | 2670.483 | 2670.483 | 3513 |
| | | | | | | | | | | | | | | Sub Total | 13727 |
| "B" | B1 | 1.2 | 120 | 397.8 | 0.62 | 212 | 9460 | 1.78794 | 118.57 | 4 | 1 | 3.585 | 3848.371 | 3848.371 | 2393 |
| | B2 | 1.2 | 120 | 104.5 | 0.16 | 30 | 2120 | 0.40068 | 74.87 | 4 | 1 | 3.357 | 2275.042 | 2275.042 | 372 |
| | B3 | 1.2 | 120 | 92.1 | 0.14 | 226 | 3800 | 0.7182 | 314.68 | 4 | 0.5 | 3.734 | 5416.386 | 2708.193 | 390 |
| | B4 | 1.2 | 120 | 765 | 1.20 | 239 | 11400 | 2.1546 | 110.93 | 4 | 1 | 3.618 | 4153.806 | 4153.806 | 4967 |
| | | | | | | | | | | | | | | Sub Total | 8121 |
| "C" | C1 | 1.2 | 120 | 403.1 | 0.63 | 700 | 9900 | 1.8711 | 374.11 | 4 | 0.5 | 3.896 | 7865.073 | 3932.537 | 2478 |
| | C2-C8, C22, C42, C52 | 1.2 | 120 | 420.2 | 0.66 | 122 | 5100 | 0.9639 | 126.57 | 4 | 1 | 3.607 | 4047.000 | 4047.000 | 2658 |
| | C21 | 1.2 | 120 | 180.1 | 0.28 | 547 | 5800 | 1.0962 | 499.00 | 4 | 0.5 | 3.910 | 8133.561 | 4066.781 | 1145 |
| | C41 | 1.2 | 120 | 61.6 | 0.10 | 219 | 2300 | 0.4347 | 503.80 | 4 | 0.5 | 3.829 | 6745.127 | 3372.563 | 325 |
| | C51 | 1.2 | 120 | 12.7 | 0.02 | 129 | 1160 | 0.21924 | 588.40 | 4 | 0.5 | 3.747 | 5589.177 | 2794.588 | 55 |
| | | | | | | | | | | | | | | Sub Total | 380 |
| "D" | D1 | 1.2 | 120 | 443.5 | 0.69 | 857 | 13900 | 2.6271 | 326.22 | 4 | 0.5 | 3.866 | 7349.897 | 3674.949 | 2547 |
| | D2 | 1.2 | 120 | 183.8 | 0.29 | 461 | 4950 | 0.93555 | 492.76 | 4 | 0.5 | 3.908 | 8099.963 | 4049.981 | 1163 |
| | D3 | 1.2 | 120 | 139.2 | 0.22 | 74 | 4340 | 0.82026 | 90.22 | 4 | 1 | 3.430 | 2689.036 | 2689.036 | 585 |
| | D4 | 1.2 | 120 | 231.3 | 0.36 | 110 | 4400 | 0.8316 | 132.28 | 4 | 1 | 3.572 | 3735.390 | 3735.390 | 1350 |
| | | | | | | | | | | | | | | Sub Total | 5646 |
| "E" | E1 | 1.2 | 120 | 1648.5 | 2.58 | 815 | 14430 | 2.72727 | 298.83 | 4 | 0.5 | 3.945 | **8816.782** | 4408.391 | 11359 |
| | E21 | 1.2 | 120 | 780.8 | 1.22 | 877 | 14080 | 2.66112 | 329.56 | 4 | 0.5 | 3.913 | 8189.262 | 4094.631 | 4997 |
| | E2, E3, E22 | 1.2 | 120 | 80.4 | 0.13 | 53 | 1850 | 0.34965 | 151.58 | 4 | 1 | 3.526 | 3360.564 | 3360.564 | 422 |
| | | | | | | | | | | | | | | Sub Total | 16778 |
| "F" | F1,F3,F32,F4, F6, F8 | 1.2 | 120 | 144.2 | 0.23 | 85 | 3020 | 0.57078 | 148.92 | 4 | 1 | 3.567 | 3692.416 | 3692.416 | 832 |
| | F2 | 1.2 | 120 | 54.7 | 0.09 | 330 | 3200 | 0.6048 | 545.63 | 4 | 0.5 | 3.841 | 6937.210 | 3468.605 | 297 |
| | F31 | 1.2 | 120 | 17.5 | 0.03 | 139 | 1610 | 0.30429 | 456.80 | 4 | 0.5 | 3.704 | 5061.106 | 2530.553 | 69 |
| | F5 | 1.2 | 120 | 146.6 | 0.23 | 408 | 5600 | 1.0584 | 385.49 | 4 | 0.5 | 3.825 | 6678.798 | 3339.399 | 765 |
| | F7 | 1.2 | 120 | 69.5 | 0.11 | 285 | 3750 | 0.70875 | 402.12 | 4 | 0.5 | 3.778 | 5994.089 | 2997.044 | 326 |
| | | | | | | | | | | | | | | Sub Total | 2289 |
| | **Total** | | | | | | | | | | | | | | 46942 |

# Appendix F
# Existing Line "A" (Near Alessandro Blvd) Channel Capacity Analysis




Existing Line "A" (near Alessandro Blvd) Channel Capacity Analysis

# Worksheet for ExistA-1_160' Upsream of RedlandsBlvd

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.030 | |
| Channel Slope | 0.00600 | ft/ft |
| Normal Depth | 3.00 | ft |
| Left Side Slope | 3.12 | ft/ft (H:V) |
| Right Side Slope | 4.29 | ft/ft (H:V) |
| Bottom Width | 0.00 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 163.67 | $ft^3/s$ |
| Flow Area | 33.35 | $ft^2$ |
| Wetted Perimeter | 23.04 | ft |
| Hydraulic Radius | 1.45 | ft |
| Top Width | 22.23 | ft |
| Critical Depth | 2.61 | ft |
| Critical Slope | 0.01259 | ft/ft |
| Velocity | 4.91 | ft/s |
| Velocity Head | 0.37 | ft |
| Specific Energy | 3.37 | ft |
| Froude Number | 0.71 | |
| Flow Type | Subcritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 3.00 | ft |
| Critical Depth | 2.61 | ft |
| Channel Slope | 0.00600 | ft/ft |

# Worksheet for ExistA-1_160' Upsream of RedlandsBlvd

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01259 | ft/ft |

# Worksheet for ExistA-2chn_930' Upstream of RedlandsBlvd

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.030 | |
| Channel Slope | 0.00700 | ft/ft |
| Normal Depth | 2.00 | ft |
| Left Side Slope | 4.00 | ft/ft (H:V) |
| Right Side Slope | 4.40 | ft/ft (H:V) |
| Bottom Width | 1.00 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 79.41 | $ft^3/s$ |
| Flow Area | 18.80 | $ft^2$ |
| Wetted Perimeter | 18.27 | ft |
| Hydraulic Radius | 1.03 | ft |
| Top Width | 17.80 | ft |
| Critical Depth | 1.74 | ft |
| Critical Slope | 0.01392 | ft/ft |
| Velocity | 4.22 | ft/s |
| Velocity Head | 0.28 | ft |
| Specific Energy | 2.28 | ft |
| Froude Number | 0.72 | |
| Flow Type | Subcritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 2.00 | ft |
| Critical Depth | 1.74 | ft |
| Channel Slope | 0.00700 | ft/ft |

# Worksheet for ExistA-2chn_930' Upstream of RedlandsBlvd

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01392 | ft/ft |

# Worksheet for ExistA-3_1750' Upstream of RedlansBlvd

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.030 | |
| Channel Slope | 0.00400 | ft/ft |
| Normal Depth | 2.00 | ft |
| Left Side Slope | 3.70 | ft/ft (H:V) |
| Right Side Slope | 3.12 | ft/ft (H:V) |
| Bottom Width | 4.00 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 76.03 | $ft^3/s$ |
| Flow Area | 21.64 | $ft^2$ |
| Wetted Perimeter | 18.22 | ft |
| Hydraulic Radius | 1.19 | ft |
| Top Width | 17.64 | ft |
| Critical Depth | 1.50 | ft |
| Critical Slope | 0.01383 | ft/ft |
| Velocity | 3.51 | ft/s |
| Velocity Head | 0.19 | ft |
| Specific Energy | 2.19 | ft |
| Froude Number | 0.56 | |
| Flow Type | Subcritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 2.00 | ft |
| Critical Depth | 1.50 | ft |
| Channel Slope | 0.00400 | ft/ft |

# Worksheet for ExistA-3_1750' Upstream of RedlansBlvd

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01383 | ft/ft |

# Worksheet for ExistA-4_2507' Upstream of RedlansBlvd

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.030 | |
| Channel Slope | 0.00400 | ft/ft |
| Normal Depth | 4.00 | ft |
| Left Side Slope | 2.18 | ft/ft (H:V) |
| Right Side Slope | 2.28 | ft/ft (H:V) |
| Bottom Width | 8.26 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 393.45 | $ft^3/s$ |
| Flow Area | 68.72 | $ft^2$ |
| Wetted Perimeter | 27.81 | ft |
| Hydraulic Radius | 2.47 | ft |
| Top Width | 26.10 | ft |
| Critical Depth | 3.12 | ft |
| Critical Slope | 0.01100 | ft/ft |
| Velocity | 5.73 | ft/s |
| Velocity Head | 0.51 | ft |
| Specific Energy | 4.51 | ft |
| Froude Number | 0.62 | |
| Flow Type | Subcritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 4.00 | ft |
| Critical Depth | 3.12 | ft |
| Channel Slope | 0.00400 | ft/ft |

# Worksheet for ExistA-4_2507' Upstream of RedlansBlvd

## GVF Output Data

| | | |
|---|---|---|
| Critical Slope | 0.01100 | ft/ft |

# Appendix G
# Velocity Calculations at the Project Boundary

# Worksheet for Watershed B-St1

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Discharge | 430.00 | $ft^3/s$ |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00 | 1540.00 |
| 0+02 | 1539.00 |
| 0+04 | 1538.00 |
| 0+07 | 1537.00 |
| 0+30 | 1537.00 |
| 0+33 | 1538.00 |
| 0+54 | 1538.50 |
| 0+77 | 1538.00 |
| 1+02 | 1539.00 |
| 1+36 | 1539.50 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00, 1540.00) | (0+04, 1538.00) | 0.040 |
| (0+04, 1538.00) | (0+33, 1538.00) | 0.030 |
| (0+33, 1538.00) | (1+36, 1539.50) | 0.040 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | |
|---|---|---|
| Normal Depth | 1.81 | ft |

# Worksheet for Watershed B-St1

## Results

| | | | |
|---|---|---|---|
| Elevation Range | 1537.00 to 1540.00 ft | | |
| Flow Area | | 83.38 | ft² |
| Wetted Perimeter | | 95.53 | ft |
| Hydraulic Radius | | 0.87 | ft |
| Top Width | | 94.98 | ft |
| Normal Depth | | 1.81 | ft |
| Critical Depth | | 1.79 | ft |
| Critical Slope | | 0.02136 | ft/ft |
| Velocity | | 5.16 | ft/s |
| Velocity Head | | 0.41 | ft |
| Specific Energy | | 2.23 | ft |
| Froude Number | | 0.97 | |
| Flow Type | Subcritical | | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.81 | ft |
| Critical Depth | 1.79 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.02136 | ft/ft |

# Worksheet for Watershed B-St2

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Discharge | 700.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00 | 1540.00 |
| 0+34 | 1539.00 |
| 0+94 | 1538.00 |
| 1+09 | 1537.30 |
| 1+48 | 1538.00 |
| 2+29 | 1539.00 |
| 3+50 | 1540.00 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00, 1540.00) | (0+94, 1538.00) | 0.040 |
| (0+94, 1538.00) | (1+48, 1538.00) | 0.040 |
| (1+48, 1538.00) | (3+50, 1540.00) | 0.040 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | |
|---|---|---|
| Normal Depth | 1.78 | ft |
| Elevation Range | 1537.30 to 1540.00 ft | |
| Flow Area | 158.93 | ft² |
| Wetted Perimeter | 207.02 | ft |

# Worksheet for Watershed B-St2

## Results

| | | | |
|---|---|---|---|
| Hydraulic Radius | | 0.77 | ft |
| Top Width | | 206.98 | ft |
| Normal Depth | | 1.78 | ft |
| Critical Depth | | 1.70 | ft |
| Critical Slope | | 0.02583 | ft/ft |
| Velocity | | 4.40 | ft/s |
| Velocity Head | | 0.30 | ft |
| Specific Energy | | 2.08 | ft |
| Froude Number | | 0.89 | |
| Flow Type | Subcritical | | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.78 | ft |
| Critical Depth | 1.70 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.02583 | ft/ft |

# Worksheet for Watershed C-St1

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Discharge | 705.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00 | 1531.00 |
| 0+25 | 1529.00 |
| 0+41 | 1526.00 |
| 0+44 | 1526.00 |
| 0+60 | 1529.00 |
| 0+72 | 1530.00 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00, 1531.00) | (0+25, 1529.00) | 0.040 |
| (0+25, 1529.00) | (0+60, 1529.00) | 0.030 |
| (0+60, 1529.00) | (0+72, 1530.00) | 0.040 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | |
|---|---|---|
| Normal Depth | 3.55 | ft |
| Elevation Range | 1526.00 to 1531.00 ft | |
| Flow Area | 80.11 | ft² |
| Wetted Perimeter | 49.16 | ft |
| Hydraulic Radius | 1.63 | ft |

# Worksheet for Watershed C-St1

## Results

| | | | |
|---|---|---|---|
| Top Width | | 48.56 | ft |
| Normal Depth | | 3.55 | ft |
| Critical Depth | | 3.84 | ft |
| Critical Slope | | 0.01353 | ft/ft |
| Velocity | | 8.80 | ft/s |
| Velocity Head | | 1.20 | ft |
| Specific Energy | | 4.76 | ft |
| Froude Number | | 1.21 | |
| Flow Type | Supercritical | | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 3.55 | ft |
| Critical Depth | 3.84 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.01353 | ft/ft |

# Worksheet for Watershed C-St2

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Discharge | 115.00 | $ft^3/s$ |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00 | 1540.00 |
| 0+30 | 1539.00 |
| 0+34 | 1538.50 |
| 0+35 | 1538.50 |
| 0+39 | 1539.00 |
| 0+67 | 1540.00 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00, 1540.00) | (0+30, 1539.00) | 0.040 |
| (0+30, 1539.00) | (0+39, 1539.00) | 0.030 |
| (0+39, 1539.00) | (0+67, 1540.00) | 0.040 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | |
|---|---|---|
| Normal Depth | 1.36 | ft |
| Elevation Range | 1538.50 to 1540.00 ft | |
| Flow Area | 31.92 | $ft^2$ |
| Wetted Perimeter | 59.20 | ft |
| Hydraulic Radius | 0.54 | ft |

# Worksheet for Watershed C-St2

## Results

| | | | |
|---|---|---|---|
| Top Width | | 59.11 | ft |
| Normal Depth | | 1.36 | ft |
| Critical Depth | | 1.30 | ft |
| Critical Slope | | 0.02727 | ft/ft |
| Velocity | | 3.60 | ft/s |
| Velocity Head | | 0.20 | ft |
| Specific Energy | | 1.57 | ft |
| Froude Number | | 0.86 | |
| Flow Type | Subcritical | | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.36 | ft |
| Critical Depth | 1.30 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.02727 | ft/ft |

# Worksheet for Watershed D-St1

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Discharge | 600.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00 | 1546.00 |
| 0+40 | 1545.00 |
| 0+48 | 1543.00 |
| 0+51 | 1543.00 |
| 0+59 | 1545.00 |
| 1+33 | 1546.00 |
| 1+70 | 1546.40 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00, 1546.00) | (0+40, 1545.00) | 0.040 |
| (0+40, 1545.00) | (0+59, 1545.00) | 0.030 |
| (0+59, 1545.00) | (1+70, 1546.40) | 0.040 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | | |
|---|---|---|---|
| Normal Depth | | 3.20 | ft |
| Elevation Range | 1543.00 to 1546.40 ft | | |
| Flow Area | | 125.77 | ft² |
| Wetted Perimeter | | 151.80 | ft |

# Worksheet for Watershed D-St1

## Results

| | | | |
|---|---|---|---|
| Hydraulic Radius | | 0.83 | ft |
| Top Width | | 151.09 | ft |
| Normal Depth | | 3.20 | ft |
| Critical Depth | | 3.14 | ft |
| Critical Slope | | 0.02378 | ft/ft |
| Velocity | | 4.77 | ft/s |
| Velocity Head | | 0.35 | ft |
| Specific Energy | | 3.55 | ft |
| Froude Number | | 0.92 | |
| Flow Type | Subcritical | | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 3.20 | ft |
| Critical Depth | 3.14 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.02378 | ft/ft |

# Worksheet for Watershed D-St2

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Discharge | 215.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00 | 1536.00 |
| 0+35 | 1535.00 |
| 0+43 | 1533.00 |
| 0+45 | 1533.00 |
| 0+53 | 1535.00 |
| 0+93 | 1536.00 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00, 1536.00) | (0+35, 1535.00) | 0.040 |
| (0+35, 1535.00) | (0+53, 1535.00) | 0.030 |
| (0+53, 1535.00) | (0+93, 1536.00) | 0.040 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | |
|---|---|---|
| Normal Depth | 2.66 | ft |
| Elevation Range | 1533.00 to 1536.00 ft | |
| Flow Area | 48.31 | ft² |
| Wetted Perimeter | 68.11 | ft |
| Hydraulic Radius | 0.71 | ft |

# Worksheet for Watershed D-St2

## Results

| | | | |
|---|---|---|---|
| Top Width | | 67.60 | ft |
| Normal Depth | | 2.66 | ft |
| Critical Depth | | 2.61 | ft |
| Critical Slope | | 0.02333 | ft/ft |
| Velocity | | 4.45 | ft/s |
| Velocity Head | | 0.31 | ft |
| Specific Energy | | 2.97 | ft |
| Froude Number | | 0.93 | |
| Flow Type | Subcritical | | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 2.66 | ft |
| Critical Depth | 2.61 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.02333 | ft/ft |

# Worksheet for Watershed F-St1

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Discharge | 100.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00 | 1523.00 |
| 0+52 | 1522.00 |
| 0+60 | 1521.00 |
| 0+62 | 1521.00 |
| 0+70 | 1522.00 |
| 1+08 | 1523.00 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00, 1523.00) | (0+60, 1521.00) | 0.040 |
| (0+60, 1521.00) | (0+70, 1522.00) | 0.030 |
| (0+70, 1522.00) | (1+08, 1523.00) | 0.040 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | |
|---|---|---|
| Normal Depth | 1.50 | ft |
| Elevation Range | 1521.00 to 1523.00 ft | |
| Flow Area | 30.02 | ft² |
| Wetted Perimeter | 62.81 | ft |
| Hydraulic Radius | 0.48 | ft |

# Worksheet for Watershed F-St1

## Results

| | | | |
|---|---|---|---|
| Top Width | | 62.68 | ft |
| Normal Depth | | 1.50 | ft |
| Critical Depth | | 1.43 | ft |
| Critical Slope | | 0.02819 | ft/ft |
| Velocity | | 3.33 | ft/s |
| Velocity Head | | 0.17 | ft |
| Specific Energy | | 1.67 | ft |
| Froude Number | | 0.85 | |
| Flow Type | Subcritical | | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.50 | ft |
| Critical Depth | 1.43 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.02819 | ft/ft |

# Worksheet for Watershed F-St2

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Discharge | 120.00 | $ft^3/s$ |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00 | 1501.00 |
| 0+30 | 1500.00 |
| 0+38 | 1498.00 |
| 0+42 | 1498.00 |
| 0+50 | 1500.00 |
| 1+00 | 1501.00 |
| 1+30 | 1501.50 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00, 1501.00) | (0+38, 1498.00) | 0.040 |
| (0+38, 1498.00) | (0+50, 1500.00) | 0.030 |
| (0+50, 1500.00) | (1+30, 1501.50) | 0.040 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | |
|---|---|---|
| Normal Depth | 1.74 | ft |
| Elevation Range | 1498.00 to 1501.50 ft | |
| Flow Area | 19.07 | $ft^2$ |
| Wetted Perimeter | 18.35 | ft |

# Worksheet for Watershed F-St2

## Results

| | | | |
|---|---|---|---|
| Hydraulic Radius | | 1.04 | ft |
| Top Width | | 17.92 | ft |
| Normal Depth | | 1.74 | ft |
| Critical Depth | | 1.80 | ft |
| Critical Slope | | 0.01712 | ft/ft |
| Velocity | | 6.29 | ft/s |
| Velocity Head | | 0.62 | ft |
| Specific Energy | | 2.36 | ft |
| Froude Number | | 1.08 | |
| Flow Type | Supercritical | | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.74 | ft |
| Critical Depth | 1.80 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.01712 | ft/ft |

# Worksheet for Watershed F-St3

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Discharge | 140.00 | $ft^3/s$ |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00 | 1501.00 |
| 0+30 | 1500.00 |
| 0+34 | 1499.00 |
| 0+35 | 1499.00 |
| 0+39 | 1500.00 |
| 0+79 | 1501.00 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00, 1501.00) | (0+34, 1499.00) | 0.040 |
| (0+34, 1499.00) | (0+39, 1500.00) | 0.030 |
| (0+39, 1500.00) | (0+79, 1501.00) | 0.040 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | |
|---|---|---|
| Normal Depth | 1.86 | ft |
| Elevation Range | 1499.00 to 1501.00 ft | |
| Flow Area | 38.74 | $ft^2$ |
| Wetted Perimeter | 69.59 | ft |
| Hydraulic Radius | 0.56 | ft |

# Worksheet for Watershed F-St3

## Results

| | | | |
|---|---|---|---|
| Top Width | | 69.31 | ft |
| Normal Depth | | 1.86 | ft |
| Critical Depth | | 1.79 | ft |
| Critical Slope | | 0.02807 | ft/ft |
| Velocity | | 3.61 | ft/s |
| Velocity Head | | 0.20 | ft |
| Specific Energy | | 2.06 | ft |
| Froude Number | | 0.85 | |
| Flow Type | Subcritical | | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.86 | ft |
| Critical Depth | 1.79 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.02807 | ft/ft |

# Worksheet for Watershed F-St4

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Discharge | 135.00 | $ft^3/s$ |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00 | 1500.00 |
| 0+28 | 1499.00 |
| 0+36 | 1498.00 |
| 0+37 | 1498.00 |
| 0+45 | 1499.00 |
| 0+79 | 1500.00 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00, 1500.00) | (0+36, 1498.00) | 0.040 |
| (0+36, 1498.00) | (0+45, 1499.00) | 0.030 |
| (0+45, 1499.00) | (0+79, 1500.00) | 0.040 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | |
|---|---|---|
| Normal Depth | 1.69 | ft |
| Elevation Range | 1498.00 to 1500.00 ft | |
| Flow Area | 35.27 | $ft^2$ |
| Wetted Perimeter | 59.69 | ft |
| Hydraulic Radius | 0.59 | ft |

# Worksheet for Watershed F-St4

## Results

| | | | |
|---|---|---|---|
| Top Width | | 59.55 | ft |
| Normal Depth | | 1.69 | ft |
| Critical Depth | | 1.62 | ft |
| Critical Slope | | 0.02637 | ft/ft |
| Velocity | | 3.83 | ft/s |
| Velocity Head | | 0.23 | ft |
| Specific Energy | | 1.91 | ft |
| Froude Number | | 0.88 | |
| Flow Type | Subcritical | | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Downstream Velocity | Infinity | ft/s |
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 1.69 | ft |
| Critical Depth | 1.62 | ft |
| Channel Slope | 0.02000 | ft/ft |
| Critical Slope | 0.02637 | ft/ft |

CH2MHILL

Sheet No.

Calculation No

PROJECT TITLE : World Logistics Center Project

Project No.

Proposed Condition

Calc By Date 10/1/2013

SUBJECT / FEATURE: BROAD-CRESTED WEIR FLOW EQUATIONS

Checked By Date

Estimate the Q over a broad-crested weir extending over the full width of a rectangular channel (or spillway).

**Watershed "B"**

| Given: | | | | | | | |
|---|---|---|---|---|---|---|---|
| Head above Weir (H) | = | | m | or | 0.5 | ft | |
| Weir Length (L) | = | | m | or | 800 | ft | |
| C | = | | | or | 3.1 | (english) | |

Find Weir Flow (Q)

| | | | | | | |
|---|---|---|---|---|---|---|
| Q | = | $C \cdot L \cdot H^{3/2}$ | | | | (Eq. 5.10) |
| Q | = | 0.000 | cms | or | 876.8 | cfs |

Find Flow Velocity (V)

| | | | | | |
|---|---|---|---|---|---|
| Q | = | A . V | | | |
| V | = | Q / A | = | 2.19 | fps |

**Watershed "C"**

| Given: | | | | | | | |
|---|---|---|---|---|---|---|---|
| Head above Weir (H) | = | | m | or | 0.42 | ft | |
| Weir Length (L) | = | | m | or | 700 | ft | |
| C | = | | | or | 3.1 | (english) | |

Find Weir Flow (Q)

| | | | | | | |
|---|---|---|---|---|---|---|
| Q | = | $C \cdot L \cdot H^{3/2}$ | | | | (Eq. 5.10) |
| Q | = | 0.000 | cms | or | 590.7 | cfs |

Find Flow Velocity (V)

| | | | | | |
|---|---|---|---|---|---|
| Q | = | A . V | | | |
| V | = | Q / A | = | 2.01 | fps |

**Watershed "D"**

| Given: | | | | | | | |
|---|---|---|---|---|---|---|---|
| Head above Weir (H) | = | | m | or | 0.46 | ft | |
| Weir Length (L) | = | | m | or | 770 | ft | |
| C | = | | | or | 3.1 | (english) | |

Find Weir Flow (Q)

| | | | | | | |
|---|---|---|---|---|---|---|
| Q | = | $C \cdot L \cdot H^{3/2}$ | | | | (Eq. 5.10) |
| Q | = | 0.000 | cms | or | 744.7 | cfs |

Find Flow Velocity (V)

| | | | | | |
|---|---|---|---|---|---|
| Q | = | A . V | | | |
| V | = | Q / A | = | 2.10 | fps |

**Watershed "F"**

| Given: | | | | | | | |
|---|---|---|---|---|---|---|---|
| Head above Weir (H) | = | | m | or | 0.33 | ft | |
| Weir Length (L) | = | | m | or | 550 | ft | |
| C | = | | | or | 3.1 | (english) | |

Find Weir Flow (Q)

| | | | | | | |
|---|---|---|---|---|---|---|
| Q | = | $C \cdot L \cdot H^{3/2}$ | | | | (Eq. 5.10) |
| Q | = | 0.000 | cms | or | 323.2 | cfs |

Find Flow Velocity (V)

| | | | | | |
|---|---|---|---|---|---|
| Q | = | A . V | | | |
| V | = | Q / A | = | 1.78 | fps |

# Appendix H
# Runoff and Infiltration Volume Analysis

# World Logistics Center Specific Plan Runoff and Infiltration Volume Analysis

**PREPARED FOR:** Highland Fairview

**PREPARED BY:** CH2M HILL

**DATE:** October 21, 2013

## Introduction

The proposed World Logistics Center Specific Plan (WLC) is a master plan for the development of logistics warehouse distribution facilities on approximately 2,610 acres of land in the Rancho Belago area of eastern Moreno Valley. The Specific Plan proposes the development of 40.4 million square feet of high-cube logistics facilities on 2,382.8 acres, 200,000 square feet of light logistics facilities on 37.1 acres, an in-project fueling station, 115.8 acres of street right-of-way and 74.3 acres of permanent open space.

The Specific Plan area is situated southerly of State Route 60, generally between Redlands Boulevard and Gilman Springs Road (the easterly City limit). The Specific Plan extends to, but does not include, the San Jacinto Wildlife Area (SJWA). The General Plan Amendment and Zone Change which accompany the Specific Plan includes a portion of the SJWA property in order to designate that land for open space use.

The purpose of this technical memorandum is to identify changes in overall surface runoff volumes and infiltration due to the implementation of the World Logistics Center Specific Plan (Project). Any change in infiltration (positive or negative) could result in an associated change of groundwater recharge. The results of this study will be included in the Project's Environmental Impact Report (EIR).

## Background

A water balance model was developed to estimate potential changes in site runoff, evapotranspiration and infiltration at the project site due to the development of the project.

The current land use for the project area is predominantly agricultural. It is estimated that runoff will increase at the project site due to increases in of impervious areas after development. This increased runoff will be properly managed with storm water Best Management Projects (BMPs) to minimize the change in infiltration and runoff under post project conditions.

The evaluation of change in site runoff and infiltration was based on pre (Baseline) and post-project (Scenarios 1 and 2) project conditions. The analysis was based in a continuous rainfall-runoff model and the use of historical precipitation and evapotranspiration data. The model runoff results for the pre-project scenario was compared against available model results from the Mosaic LSM Model, available via Nasa's Giovanni's North American Land Data Assimilation System (NLDAS) (Acker and Leptoukh, 2007). Monthly Mosaic LSM runoff model results are available at a 0.125 degree resolution scale, which represents

approximately 39,000 acres on the proximities of the project area. The comparison was made in order to validate the model results because no historical runoff data are available for the project location.

# Data Collection

A range of data sources were used to support the development of the water balance model. Collected data include historical precipitation, historical reference evapotranspiration ($ET_0$), crop coefficients, crop growth information for dry wheat, land use, hydrological soil groups, and final project land use and landscape configuration.

Historical daily rainfall data were available for three stations located between 12 to 20 miles from the project site. Those stations presented in Table 1 are UC Riverside (CIMIS, 2013), San Jacinto (NCDC, 2013) and Hemet (NCDC, 2013). The UC Riverside station was chosen for use in the model because of its proximity to the project site and also because the station has records for reference evapotranspiration. The project location receives an average of nine inches of rain per year with most of the rain happening during the months of December, January and February. The average $ET_0$ for the site is 57 in/yr.

TABLE 1
**Climate Station Location and with Approximate Distance from Project Site**

| Station Number | Name | Latitude (Decimal Degrees) | Longitude (Decimal Degrees) | Approx. Distance from the Site (miles) |
|---|---|---|---|---|
| CIMIS #44 | UC RIVERSIDE | 33.970 | -117.340 | 12 |
| GHCND:USC00043896 | HEMET CA US | 33.750 | -116.950 | 19 |
| GHCND:USC00047813 | SAN JACINTO R S CA US | 33.787 | -116.958 | 14 |

Current land use data were available from the USDA geospatial Data Gateway (USDA, 2012a). Land use is predominantly identified as cultivated crops, assumed to be non-irrigated winter wheat. Information about the crop coefficient (kc) that defines the crop evapotranspiration (ET) and growth patterns were available at the Food and Agriculture Organization of the United Nations website (FAO, 2013) and is summarized in Table 2.

TABLE 2
**Evapotranspiration Crop Coefficient (KC) for Wheat During Different Growth Seasons**

| Month | Kc Coefficient | Stage of Development |
|---|---|---|
| JAN | 1.15 | Crop development |
| FEB | 1.15 | Crop development |
| MAR | 1.15 | Mid Season |
| APR | 1.15 | Mid Season |
| MAY | 0.4 | Late Season |
| JUN | 0.25 | Dormant |
| JUL | 0.25 | Dormant |

TABLE 2
**Evapotranspiration Crop Coefficient (KC) for Wheat During Different Growth Seasons**

| Month | Kc Coefficient | Stage of Development |
|---|---|---|
| AUG | 0.25 | Dormant |
| SEP | 0.25 | Dormant |
| OCT | 0.25 | Dormant |
| NOV | 0.25 | Dormant |
| DEC | 0.7 | Initial |

Post development conditions are those given in the proposed Specific Plan. A key element that will define site infiltration and runoff exiting the site is the capacity and infiltration rates of the detention basins to be implemented by the project. Table 3 presents the estimated minimum infiltration rates expected from different hydrological soil groups (Mays, 2005). The majority of the project site soil is categorized as hydrological soil B and its minimum infiltration rates are expected to be between the 0.15 and 0.3 inches per hour.

TABLE 3
**Estimated Infiltration for Different Hydrological Soil Types from Mays (2005)**

| Hydrological Soil Group | Minimum Infiltration Rate (in/hr) |
|---|---|
| A | 0.3-0.45 |
| B | 0.15-0.3 |
| C | 0-0.05 |

Table 4 presents the estimated sizes of the detention basins and the estimated lower range of infiltration assuming hydrological soil group B. Note that bioretention areas will collect runoff from impervious areas (land and buildings) and assumes the same infiltration capacity as the detention basins.

TABLE 4
**Proposed Sizes for the Stormwater Detention Basins and the Associated Range of Infiltration Rates**

| Basin Name | Volume (ac-ft) | Depth (ft) | Area (acres) | Dead Storage (ac-ft) | Infiltration Lower Range[1] | |
|---|---|---|---|---|---|---|
| | | | | | cfs | cfs |
| A1 | 129 | 8 | 35 | 32 | 5.25 | 10.50 |
| B1 | 16 | 8 | 3 | 4 | 0.45 | 0.90 |
| B2 | 55 | 8 | 6 | 14 | 0.95 | 1.90 |
| B3 | 75 | 5 | 21 | 30 | 3.15 | 6.30 |
| C1 | 107 | 8 | 10 | 27 | 1.50 | 3.00 |
| C2 | 122 | 5 | 17 | 49 | 2.55 | 5.10 |
| D1 | 56 | 6 | 13 | 14 | 2.00 | 4.00 |
| D2 | 46 | 5 | 7 | 18 | 1.02 | 2.03 |
| E1 | 34 | 6 | 11 | 8 | 1.60 | 3.20 |
| F1 | 30 | 5 | 6 | 12 | 0.95 | 1.90 |
| F2 | 11 | 5 | 2 | 4 | 0.35 | 0.70 |
| | | | | Total | 19.77 | 39.53 |

[1] Assuming Hydrological soil Type B with infiltration rates of 0.15-0.3 in/hr.

Post-development conditions also include the new site configuration in terms of land use. Significant portions of the land use will be buildings (932 acres), however, it is expected that bioretention, detention basins and open areas will also cover significant areas (678 acres). Table 5 presents the expected land use areas after project implementation.

TABLE 5
**Proposed Post Development Land Use Types and Areas**

| Land Use | Area (acres) |
|---|---|
| Buildings | 932 |
| Bioretention | 144 |
| Detention Basins | 131 |
| Roads | 200 |
| Truck Loading | 400 |
| Parking Areas | 400 |
| Open Areas | 403 |
| Total: | 2610 |

The Bioretention area size is estimated as 1/12 of the impervious areas which includes buildings plus docking and parking areas. Roads, truck loading and parking areas are approximate values and open areas are the balance of the total project area.

# Methodology

A simplified water balance model was developed based on a soil-moisture accounting equation. The goal of a water budged model is to balance water inputs and outputs to and from the plant root zone (CIMIS, 2013). A detailed water balance equation is given by Equation 1:

$$S = IR + P + C - ET - DP - R \quad (1)$$

Where:

S= Soil Storage

IR=Irrigation

P=Precipitation

C=Capillary Rise

ET=Evapotranspiration

DP=Deep Percolation

R=Runoff

As the goal of this analysis was to identify changes to runoff and infiltration, Equation 1 can be simplified to Equation 2:

$$I = P - R - ET \quad (2)$$

Where:

I= Infiltration

Irrigation (IR) is nonexistent and Infiltration accounts for the terms S, C and DP.

Daily precipitation and reference ET are available from 1985 to 2012 from the UC Riverside CIMIS station, leaving the runoff and infiltration terms to be calculated.

Rainfall runoff is that part of the total rainfall that is not lost to interception, infiltration, and depression or storage. The method selected to estimate runoff is the USDA Soil Conservation Service (SCS) runoff curve number model, which is one of the most commonly used options to estimate rainfall runoff and is widely used for estimating floods on small to medium sized drainage basins (Maidment, 1992). The SCS curve number (CN) method is described in detail in Chapter 4 of the National Engineering Handbook (USDA, 2012b).

Curve Numbers (CN) are defined on the basis of land use cover soil type and antecedent moisture content (AMC) groups. The CN value indicates the runoff potential of a defined area during periods when the soil is not frozen. A higher CN indicates a higher potential for runoff, with a value of 100 equal to 100 percent runoff (i.e., all rainfall is excess and there are no losses). The methodology is described in detail in Chapters 9 and 10 of the National Engineering Handbook (USDA, 2012a). For continuous model simulations the CN value is

adjusted accordingly to the season of the crop (dormant or growing) and the last 5-day antecedent rainfall.

The representation of the CN values for pre-project conditions was done by identifying all those areas in the project site with individual combinations of hydrological soil types and land uses. Combinations of hydrological soil type and land use defines the CN values for each specific land use/soil type area. For the pre-project conditions, a total of 608 areas were identified with different combinations of land use and hydrological soil type. Precipitation was then applied to each one of those areas to estimate runoff based on the SCS method. Estimated ET for dry wheat and calculated runoff were subtracted from precipitation, so the infiltration (I) could be estimated. In reality, part of the infiltration will be later consumed by vegetation through evapotranspiration, be stored in the soil or become deep percolation, i.e., groundwater recharge. The current analysis is not concerned with those quantities and only estimates the changes in total infiltration during precipitation events. However, any changes in infiltration are expected to have impacts to groundwater recharges, with increases in infiltration likely resulting in more groundwater recharge and decreases in infiltration potentially resulting in less groundwater recharge.

The same water budget model methodology was applied to the post-project conditions except that only those seven areas presented on Table 5 are considered in the model computations. Also, the post-project condition assumes that runoff generated within the project area will be collected at bioretention areas and detention basins. The model assumes that all runoff within the project area flows first to bioretention areas. If the runoff flow exceeds the bioretention infiltration and storage capacity, then those excess flows are directed to detention basins. The model simplifies the bioretention and detention basins into two model elements, each with a specified infiltration capacity that is a function of the user defined infiltration rate multiplied by the sum of bioretention and detention basin areas.

The detention basins under post-project conditions are drained up to dead storage at a rate of current storage divided by 3 days. After reaching dead storage, basins still can empty by evaporation or through infiltration, if infiltration rates are greater than zero. All flow out of the detention basins occurring above dead storage is considered to flow offsite and is computed as runoff exiting the project area footprint. All infiltration basin or biorention areas is counted as infiltration within the project area.

## Assumptions and Limitations

This analysis is based on a daily continuous rainfall-runoff model results. The selection of 23 years of daily precipitation data (1990-2012) was based on data availability; that is, it includes wet and dry periods, and is sufficient for the current analysis, which focuses on changes between current and future conditions. The rainfall-runoff model uses the SCS method to estimate daily runoff from daily precipitation totals, and is adjusted by the antecedent moisture condition coefficient, which is a function of the last 5 days of precipitation and crop-growth stage.

Historical daily precipitation is equally applied for the entire area. There is no spatial variation of rainfall. Historical daily $ET_0$ values are also applied for the entire area but vary depending on the kc coefficient from every sub area with different combinations of hydrological soil types and land uses.

Infiltration is considered the remainder of precipitation after Runoff and ET are taken out. In reality, after a storm, any precipitation that infiltrates will move into soil storage (percolation) and will be later consumed by plant ET or become deep percolation (and ultimately, groundwater recharge). The project is not concerned with those terms but only concerned about the impact that the project will bring to runoff and infiltration after a storm event, as changes to infiltration may result in changes to groundwater recharge.

The size and infiltration capacity of the detention basins and bioretention areas are key to the comparison of pre- and post-project conditions. Minimum and maximum infiltration rate scenarios are considered in this study in order to bracket any potential impacts on infiltration in the project area. In addition, identification of monitoring and mitigation measures under a range of infiltration rates are key to maintaining infiltration post-project implementation.

Landscape vegetation kc values are based on the proposed landscape plan for the site, which includes for most part includes plant species with low ET consumption rates.

Due to the limited 23 years of climate data and lack of disaggregation of the Infiltration component of the water balance equation, the model results are not suitable for past or future direct estimates of groundwater recharge; however, decreases in infiltration may result in decreases in groundwater recharge and increases in infiltration will likely result in increases in groundwater recharge. The reason decreases in infiltration may result in decreases in groundwater recharge is that for pre-project conditions it is not known how much infiltration is consumed by evapotranspiration. Infiltration in pre-project conditions occurs over large areas, which typically results in only partially saturating the soil column in after most rainfall events. Then, plants draw this wisely dispersed infiltrated water from storage in the soil column, further reducing soil moisture storage, such that infiltrated water does not percolate beyond the root depth. Therefore, only a fraction of infiltrated water becomes groundwater recharge. On the other hand, for the post-project conditions, increases in infiltration are occurring at focused areas with volumes of water that can easily fill the soil column beyond root zone depths, so much of that infiltrated water will percolate and contribute to groundwater recharge.

The model also does not consider any climate change projections since the change in infiltration and runoff would happen independently of the project development. The analysis is concerned with long term changes in runoff and evaporation and do not capture daily peak flow events.

# Model Validation

Model validation was based on comparison to a large-scale soil moisture water budget model, Mosaic LSM (Koster and Suarez 1996). Monthly values of precipitation, runoff and evapotranspiration were used to estimate monthly infiltration values. The infiltration considered only months where precipitation was higher than evapotranspiration plus runoff. This approach was consistent with the modeling approach described above.

The comparison of model generated runoff comparison between the Mosaic LSM and the model developed for this project is presented in Figure 1 and the comparison for Infiltration is presented in Figure 2.

It is not surprising that the Mosaic model results show higher runoff values. The larger Mosaic model domain comprises developed land uses with higher runoff coefficients,

Mosaic precipitation is generally higher than the one reported by the UC Riverside station and the monthly time step averaged results of the Mosaic model results might hide peak events of rainfall/runoff that are verified in a daily model (2010 difference).

The comparison is satisfactory and indicates that the model developed for the site is within the estimated regional ranges for runoff and infiltration.

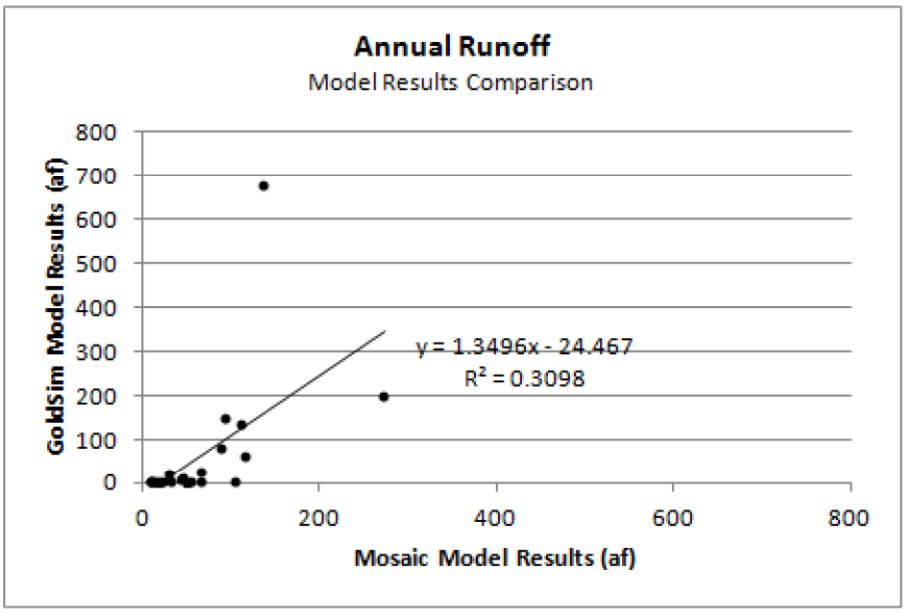



*Figure 1: Total Annual Runoff Comparison between Baseline Conditions Computed for this Project and the Estimated Values from the Mosaic LSM Model*

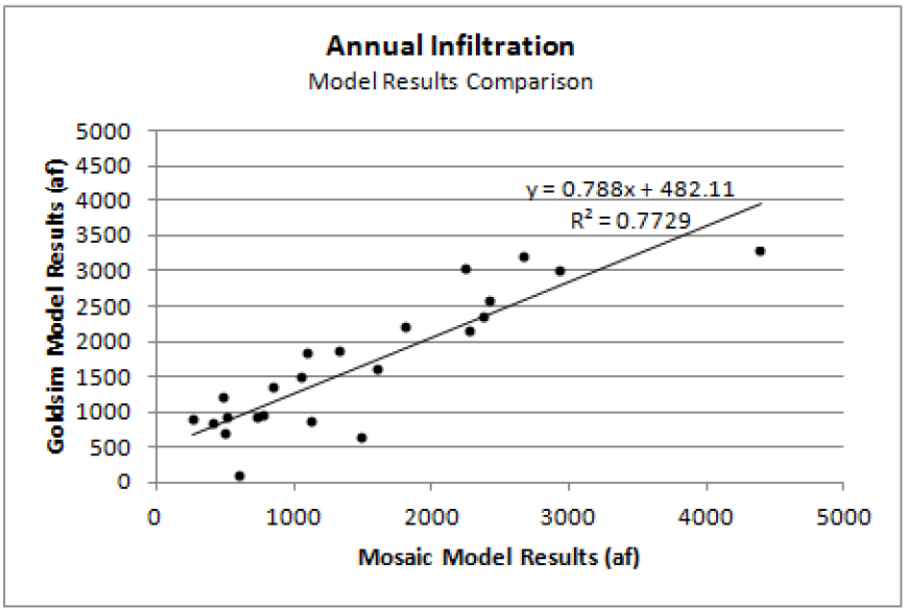



*Figure 2: Total Annual Runoff Comparison between Baseline Conditions Computed for this Project and the Estimated Values from the Mosaic LSM Model*

# Water Balance Study

A total of three scenarios were considered in the water balance study, a baseline plus two scenarios. The scenarios and are briefly described below:

1. Baseline or pre-project conditions, where most of the land use is agricultural and the crop is considered to be dry wheat.
2. Scenarios or post-project conditions, where the development of the site will happen and impervious areas will increase. Two scenarios were considered under the post development conditions, those are:

    Scenario 1: Detention basins and bioretention areas with 0.15 in/hr infiltration rate. This scenario considers the use of detention basins not only for storm peak attenuation but also for infiltration. The lower end of the minimum infiltration rate for soil type B is considered. The detention basins are assumed to take 3 days to empty and total dead storage currently assumed at 212 AF. In reality the amount of dead storage needed will be a function of the infiltration rate at the site.

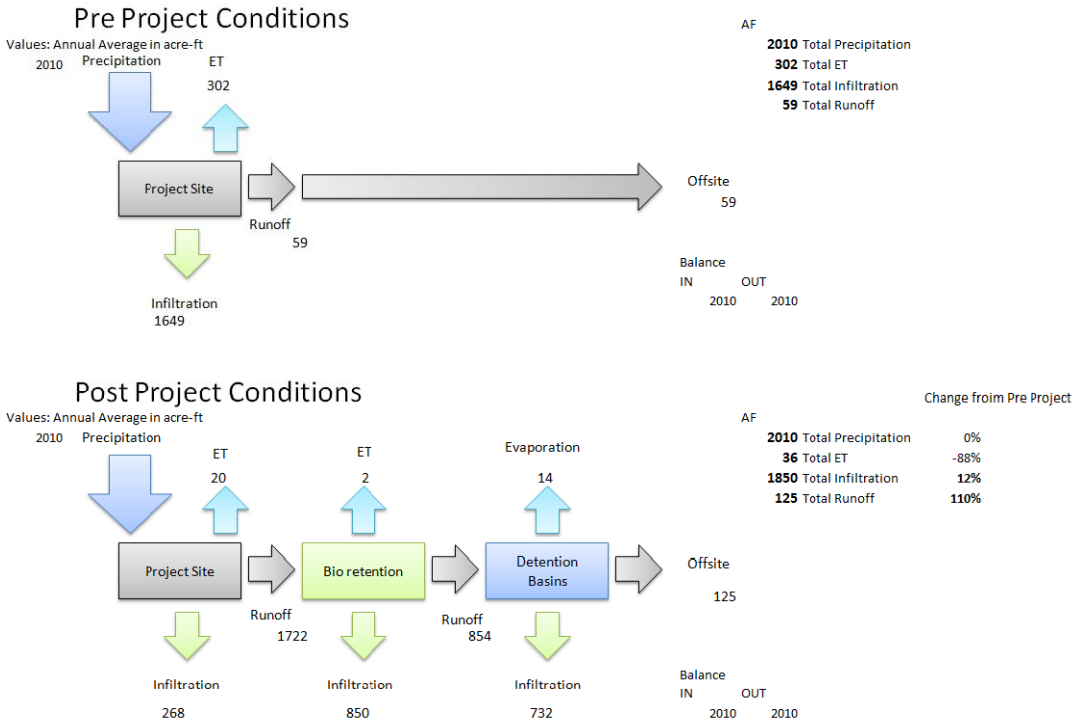
    Scenario 2: Detention basins and bioretention areas with 0.3 in/hr infiltration rate. This scenario considers the use of detention basins not only for storm peak attenuation but also for infiltration. The higher end of the minimum infiltration rate for soil type B is considered. The detention basins are assumed to take 3 days to empty and dead storage is assumed at 212 AF.

Figure 3 shows a summary comparison of the water balance between pre project conditions and post project scenario 1. The water balance shows the annual average volumes for all the water balance components considered in the model. Figure 4 shows a summary comparison of the water balance between pre-project conditions and post project scenario 2.

The main differences between pre-and post-project conditions presented in Figures 3 and 4 are, 1) a shift between runoff and infiltration and, 2) a reduction in evapotranspiration. Under pre-project conditions, most of the precipitation becomes infiltration ( 82% of precipitation or ~1654 AF/yr). Post-project conditions results in a reduction of infiltration to approximately 13% of the precipitation (~268AF/yr). A reduction in direct infiltration will be compensated by:

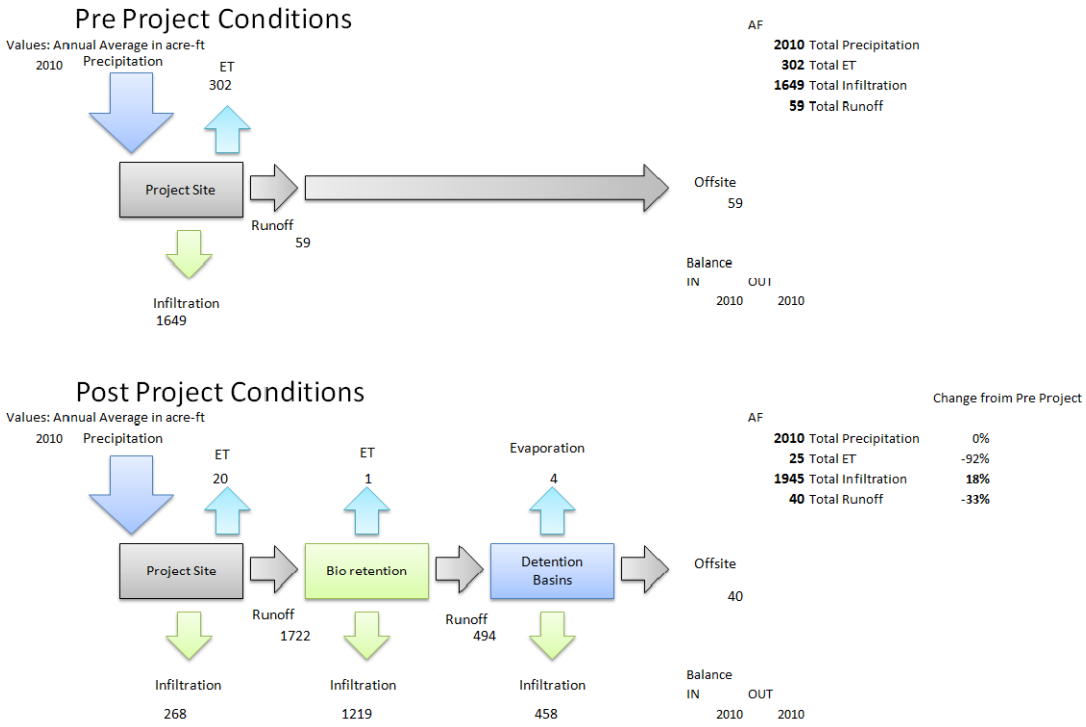
- A reduction in evapotranspiration to approximately 2% of the total precipitation from an original 15% or ~303AF/yr by installing drought-tolerant landscaping.
- An increase in infiltration through implementation of bioretention and detention basins that together will infiltrate between 79% and 83% of total precipitation.

Reduction of evapotranspiration and implementation of bioretention and detention basins will not only offset those losses in infiltration when compared to baseline, but increases the infiltration by 12% to 18%.




Post Project Assuming minimum Infiltration rate for soil group B=0.15 in/hr for Bio retention areas and detention Basins.
Dead storage for detention basins assumed to be 212 AF. Less dead storage will imply faster basin drainage which equals to higher runoff exiting the site

*Figure 3: Pre-Project and Post Project Scenario 1 Water Balance Summary*




Post Project Assuming minimum Infiltration rate for soil group B=0.3 in/hr for Bio retention areas and detention Basins.
Dead storage for detention basins assumed to be 212 AF. Less dead storage will imply faster basin drainage which equals to higher runoff exiting the site

*Figure 4: Pre-Project and Post Project Scenario 2 Water Balance Summary*

## Summary of Results

The model scenarios assumptions are summarized in Table 6 and model results are summarized in Table 7.

TABLE 6
**Summary of Model Assumptions**

| Scenario | Detention Basin Total Storage Volume/Dead Storage (AF) | Basin Infiltration Rate (in/hr) | Bioretention Areas Infiltration Rate (in/hr) |
|---|---|---|---|
| Baseline[1] | NA | NA | NA |
| Scenario 1 | 681/212 | 0.15 | 0.15 |
| Scenario 2 | 681/212 | 0.3 | 0.3 |

[1] Baseline infiltration conditions are a function of current soils and crop.

TABLE 7
**Model Results for Runoff and Infiltration and the Percentage Change from Baseline Conditions**

| | Runoff | | Infiltration | |
|---|---|---|---|---|
| Scenario | 1990-2012 Average(AF/yr) | Percent Change from Baseline | 1990-2012 Average(AF/yr) | Percent Change from Baseline |
| Baseline | 59 | - | 1649 | - |
| Scenario 1 | 125 | 110% | 1850 | 12% |
| Scenario 2 | 40 | -33% | 1945 | 18% |

Figures 5 and 6 show the annual changes in runoff and infiltration from Baseline conditions for those two scenarios for the time period 1990 through 2012, inclusive. Year of 2010 stands out as a year of high runoff and lower infiltration when compared to baseline. This outcome is due to a high precipitation event in December of 2010. This event, which lasted a few days, resulted in significant short term (4 days) runoff releases from the project site for scenario 1. The considerably higher flows out of the detention basins did not give the chance for the water to infiltrate on the days following the storm, therefore, scenario 1 shows higher runoff with lower infiltration when compared to Baseline.

Both scenarios 1 and 2 (minimum range of infiltration rates) will result in higher infiltration than pre-project conditions. This fact is due to mainly the reduction in ET (removal of the crops) and implementation of bioretention areas and detentions basins. The change in runoff will be a function of how the runoff stored at the basins will be discharged to the environment. This discharge is a function of the basin discharge capacity, infiltration rate of the basin and dead storage size. An increase of dead storage keeps water at the site for longer periods and provides an opportunity for that water to either evaporate or be infiltrated. Figure 7 presents how the runoff exiting the site is impacted by dead storage size and infiltration rate assumptions. This figure also shows the pre project average annual runoff exiting the site (59 AF/yr) and those results for scenarios 1 and 2.

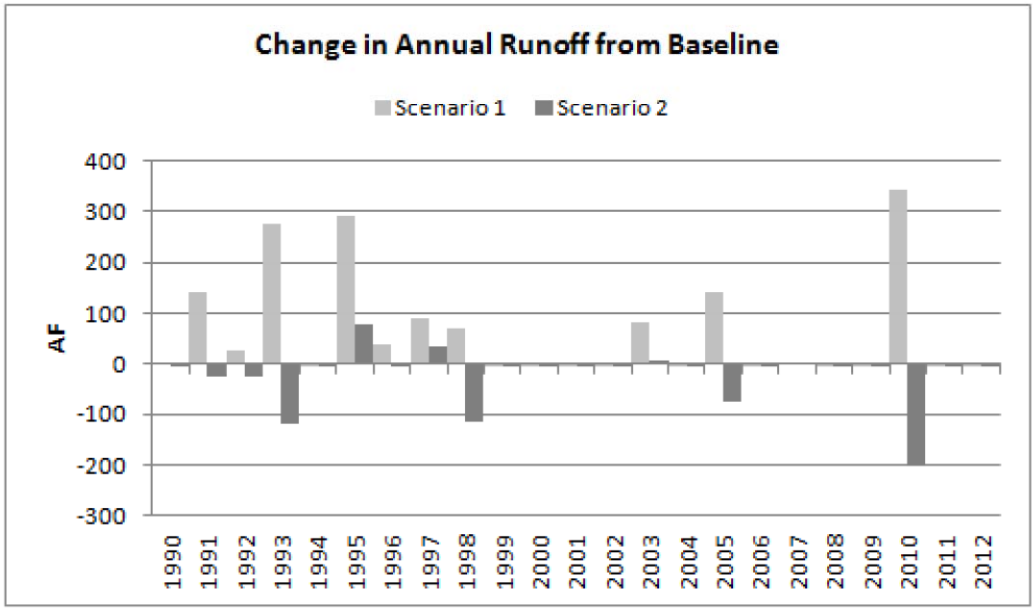



*Figure 5: Change in Runoff from Baseline Conditions for the Two Project Scenarios*

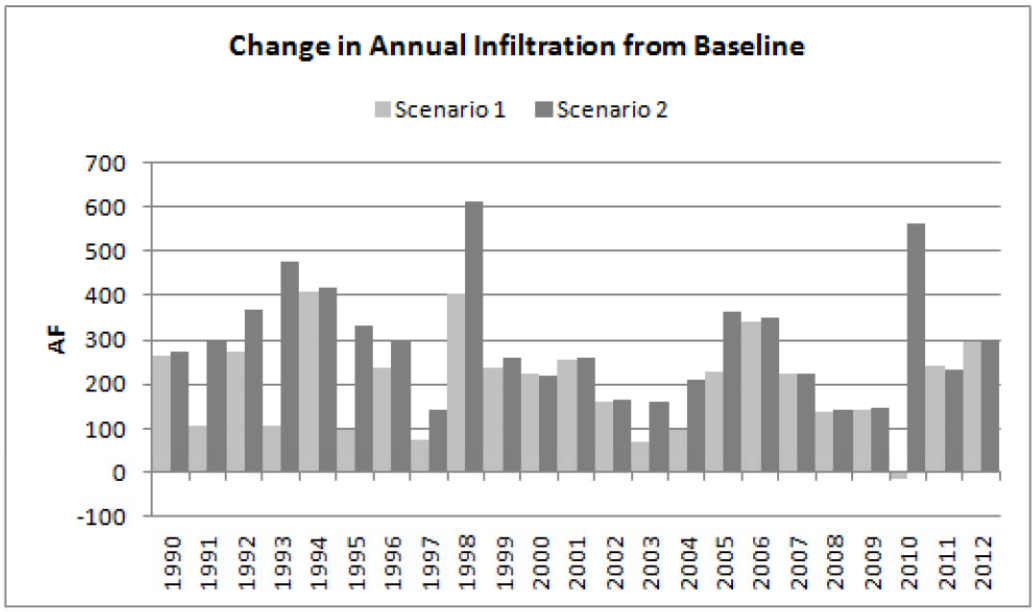



*Figure 6: Change in Infiltration from Baseline Conditions for the Two Project Scenarios*

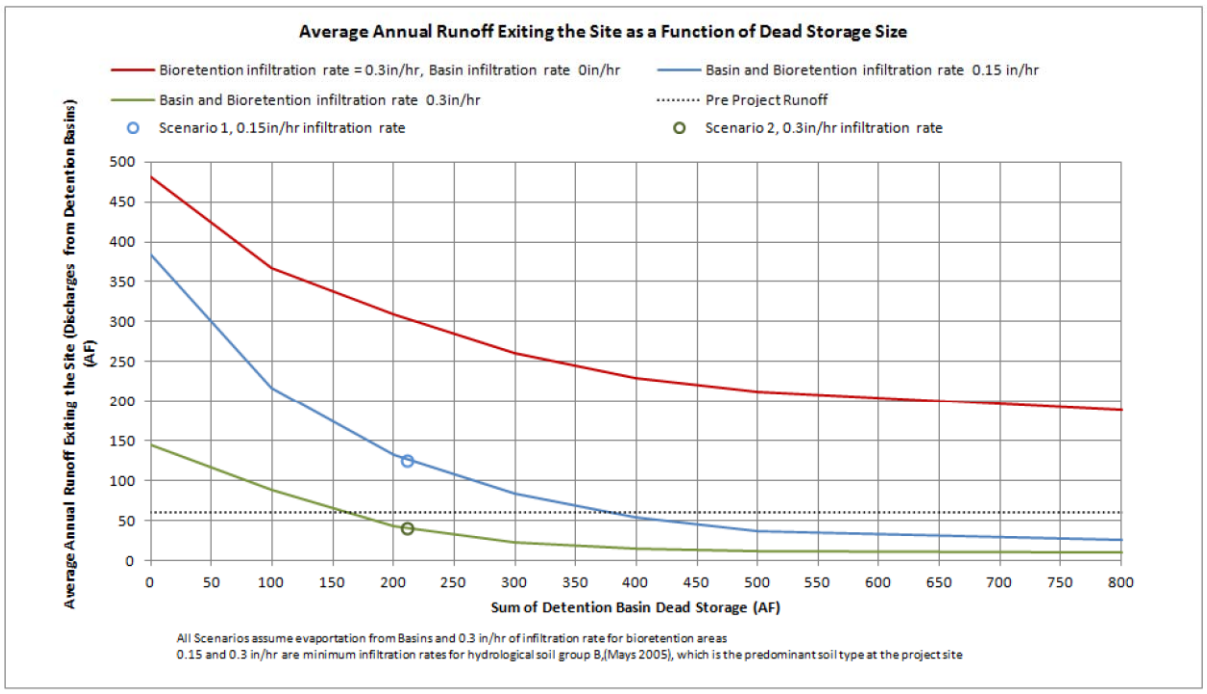



*Figure 7: Impact of Dead Storage Size and Infiltration Rates on Runoff Exiting the Project Site*

# Mitigation

The following mitigation measures will need to be implemented to assure that infiltration of precipitation will not be adversely impacted:

- Bioretention areas and detention basins will be located and designed to capture runoff and create infiltration at least equal to pre-project conditions as assessed in the water balance model for the site-specific soil conditions encountered at the project location
- Field investigations will be conducted to determine the infiltration rate of soils underlying the proposed locations of bioretention areas and detention basins. Infiltration rate of the underlying soils will be used to properly size these bioretention areas and detention basins to ensure that adequate volumes of runoff, in cumulative total for all bioretention areas and detention basins, will be captured and infiltrated. The water balance model will be updated and rerun for the site-specific conditions encountered to confirm the water balance.

It will be necessary to monitor and inspect the bioswales and detention basins assuring minimal infiltrations rates. The monitoring plan will follow the guidelines presented by the California Storm water Quality Association (CASQA).

For the bioretention areas, as needed maintenance activities will be conducted to remove accumulated sediment that may obstruct flow through the swales. Bioretention areas will be monitored at the beginning and end of each wet season to assess any degradation in infiltration rates. The maintenance activities should occur when sediment on channels and culverts builds up to more than 3 inches (CASQA 2003). The swales will need to be cultivated or rototilled if drawdown takes more than 48 hours.

For the detention/infiltration basins, a 3-5 year maintenance program will be implemented mainly to keep infiltration rates close to original values because sediment accumulation could reduce original infiltration rate by 25-50%. Infiltration rates in detention basins will be monitored at the beginning and end of each wet season to assess any degradation in infiltration rates. If cumulative infiltration rates of all detention basins drops below the minimum required rates, then the detention basins will be reconditioned to improve infiltration capacity by scraping the bottom of the detention basin, seed or sod to restore groundcover, aerate bottom and detach basin bottom (CASQA 2003).

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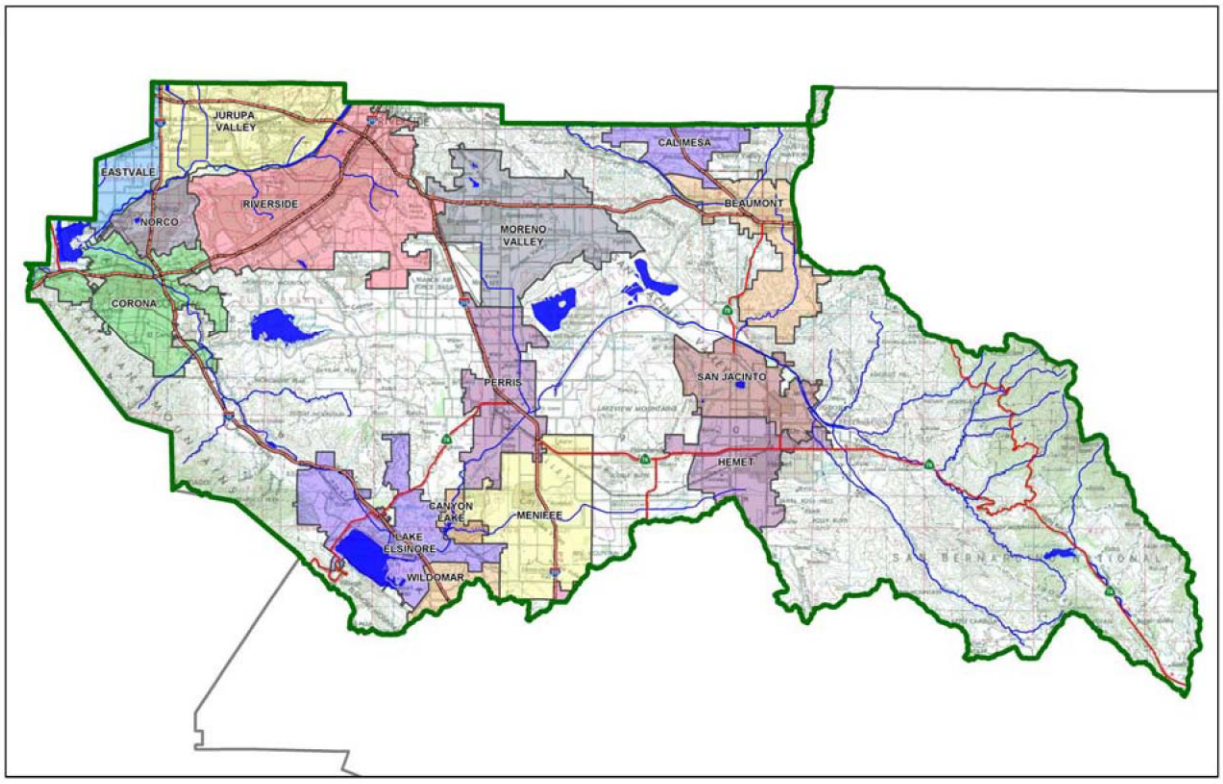
# Project Specific Water Quality Management Plan

*A Template for projects located within the **Santa Ana Watershed** Region of Riverside County*

**Project Title:** World Logistics Center Specific Plan

**Development No:** TBD

**Design Review/Case No:** TBD




**Contact Information:**

**Prepared for:**
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☒ **Preliminary**
☐ **Final**

**Original Date Prepared**: November 2012

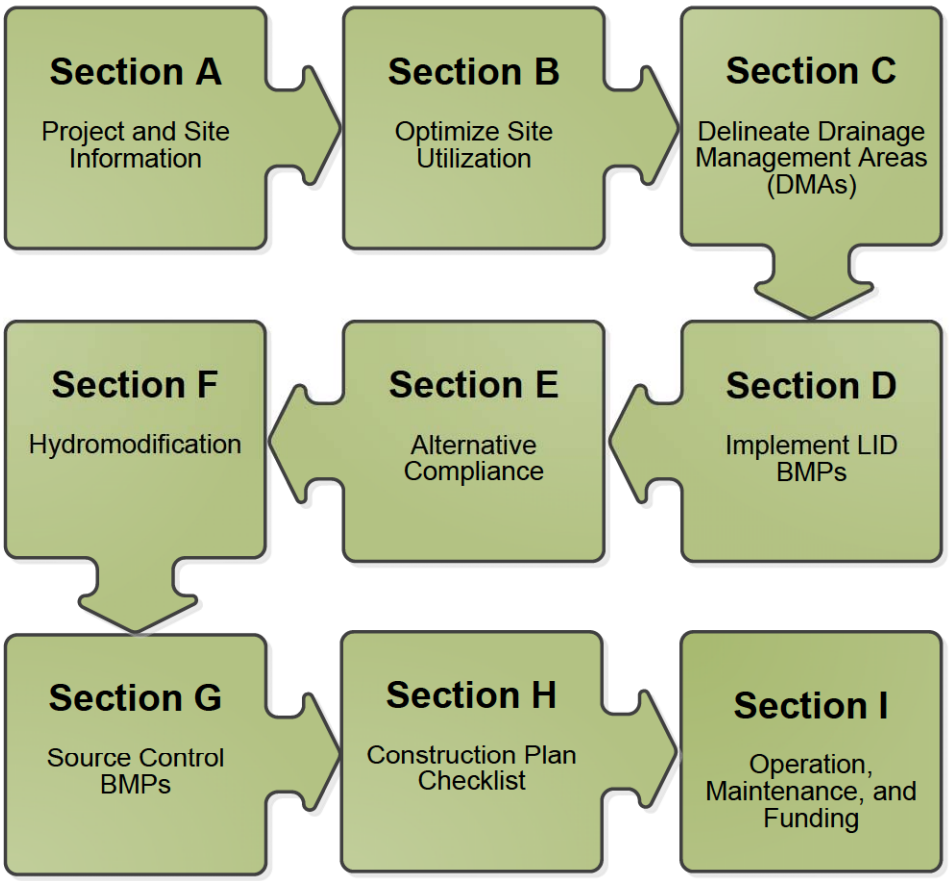
**Revision Date(s)**: September 2014

*Prepared for Compliance with*
*Regional Board Order No.* **R8-2010-0033**

**Prepared by:** CH2M HILL
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Santa Ana, California 92707
(714) 429-2000
Wilfred Hsu, Project Manager

## A Brief Introduction

This Project-Specific WQMP Template for the **Santa Ana Region** has been prepared to help guide you in documenting compliance for your project. Because this document has been designed to specifically document compliance, you will need to utilize the WQMP Guidance Document as your "how-to" manual to help guide you through this process. Both the Template and Guidance Document go hand-in-hand, and will help facilitate a well prepared Project-Specific WQMP. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



## OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for Highland Fairview by CH2M HILL for the World Logistics Center Specific Plan project.

This WQMP is intended to comply with the requirements of the City of Moreno Valley for Municipal Code Section 8.10 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under the City of Moreno Valley Water Quality Ordinance Water Quality Ordinance (Municipal Code Section 8.10).

At the time of the Final WQMP, the undersigned will be authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under City of Moreno Valley Water Quality Ordinance (Municipal Code Section 8.10).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

| | |
|---|---|
| Owner's Signature | Date |
| Owner's Printed Name | Owner's Title/Position |

## PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

| | |
|---|---|
| Preparer's Signature | Date |
| Preparer's Printed Name | Preparer's Title/Position |

Preparer's Licensure:

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# Section A: Project and Site Information

The proposed World Logistics Center Specific Plan (WLC) is a master plan for the development of logistics warehouse distribution facilities on approximately 2,610 acres of land in the Rancho Belago area of eastern Moreno Valley. The Specific Plan proposes the development of 40.4 million square feet of high-cube logistics facilities on 2,382.8 acres, 200,000 square feet of light logistics facilities on 37.1 acres, an in-project fueling station, 115.8 acres of street right-of-way and 74.3 acres of permanent open space.

The Specific Plan area is situated southerly of State Route 60, generally between Redlands Boulevard and Gilman Springs Road (the easterly City limit). The Specific Plan extends to, but does not include, the San Jacinto Wildlife Area (SJWA) on the southern boundary. The General Plan Amendment and Zone Change which accompany the Specific Plan includes a portion of the SJWA property in order to designate that land for open space use.

Within the Specific Plan the primary land use category will be "Logistics Development". This use will provide for high-cube logistics warehouse space consisting of buildings of 500,000 square feet or larger. Warehousing and logistics activities consistent with the storage of manufactured goods and materials prior to their distribution to other facilities and retail outlets will be permitted within this category. Ancillary office and maintenance space will be permitted, along with the outdoor storage of trucks, trailers, and shipping containers. The "Light Logistics" land use category provides for general warehouse, self-storage and vehicle storage uses. Figure A.1 depicts the proposed Land Use Plan.




| Planning Area (PA) | Land Use | Area | Building SF |
|---|---|---|---|
| **Logistics Development** | | | |
| 1 | LD | 77.8 | 1,100,000 |
| 2 | LD | 193.5 | 4,200,000 |
| 3 | LD | 120.3 | 1,600,000 |
| 4 | LD | 301.5 | 5,600,000 |
| 5 | LD | 64.2 | 1,100,000 |
| 6 | LD | 115.3 | 500,000 |
| 7 | LD | 10.3 | 50,000 |
| 8 | LD | 142.9 | 2,150,000 |
| 9 | LD | 485.8 | 10,400,000 |
| 10 | LD | 139.9 | 2,200,000 |
| 11 | LD | 500 | 8,000,000 |
| 12 | LD | 231.3 | 3,500,000 |
| | | **2,382.8** | **40,400,000** |
| **Light Logistics** | | | |
| 20 | LL | 16.1 | 45,500 |
| 21 | LL | 10.5 | 77,250 |
| 22 | LL | 10.5 | 77,250 |
| | | **37.1** | **200,000** |
| **Open Space** | | | |
| 30 | OS | 74.3 | |
| | | **74.3** | |
| **Right of Way** | | | |
| ROW | | 115.8 | |
| | | **115.8** | |
| **Grand Total** | | **2,610.0** | **40,600,000** |

**Figure A.1** Land Use Map

| PROJECT INFORMATION | | |
|---|---|---|
| Type of Project: | Logistics Development | |
| Planning Area: | World Logistics Center | |
| Community Name: | World Logistics Center | |
| Development Name: | World Logistics Center | |
| **PROJECT LOCATION** | | |
| Latitude & Longitude (DMS): 33°55'58"N, 117° 8'23"W | | |
| Project Watershed and Sub-Watershed: Santa Ana Watershed and San Jacinto Watershed | | |
| APN(s): N/A | | |
| Map Book and Page No.: Riverside County Page 718: Grids F, G, H, J, 2, 3, 4, 5, 6; Page 719: Grids A, B, C, D, 3, 4, 5, 6 | | |
| **PROJECT CHARACTERISTICS** | | |
| Proposed or Potential Land Use(s) | | Logistics, Light Logistics |
| Proposed or Potential SIC Code(s) | | 1541 – General Contractors – Industrial Buildings and Warehouses |
| Area of Impervious Project Footprint (SF) | | TBD during final WQMP |
| Total Area of proposed Impervious Surfaces within the Project Limits (SF)/or Replacement | | TBD during final WQMP |
| Does the project consist of offsite road improvements? | | ☒ Y ☐ N |
| Does the project propose to construct unpaved roads? | | ☐ Y ☒ N |
| Is the project part of a larger common plan of development (phased project)? | | ☒ Y ☐ N |
| **EXISTING SITE CHARACTERISTICS** | | |
| Total area of existing Impervious Surfaces within the project limits (SF) | | TBD during final WQMP |
| Is the project located within any MSHCP Criteria Cell? | | ☒ Y ☐ N |
| If so, identify the Cell number: | | 1297, 1204, 1364 |
| Are there any natural hydrologic features on the project site? | | ☒ Y ☐ N |
| Is a Geotechnical Report attached? | | ☒ Y ☐ N |
| If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D) | | |
| What is the Water Quality Design Storm Depth for the project? | | 0.68 inch |

## A.1 Maps and Site Plans

Appendix 1 of this Project-Specific WQMP includes:

1. A Vicinity Map identifying the project site and surrounding planning areas in sufficient detail to allow the project site to be plotted on Co-Permittee base mapping;
2. A Receiving Waters Map identifying the locations of receiving waters to which the project directly or indirectly discharges; and
3. A Site Plan for the project. The following project features are not depicted in the current World Logistics Center Specific Plan Site Plan, but will be included in each final Project-Specific WQMP:

    - Drainage Management Areas
    - Drainage Path
    - Drainage Infrastructure, Inlets, Overflows
    - Location and identification of all structural BMPs, including LID and Treatment Control and Source Control BMPs;

- Landscaped areas;
- Impervious surfaces including paved areas and intended uses (i.e., parking, outdoor work area, outdoor material storage area, sidewalks, patios, tennis courts, etc.);
- Number and type of structures and intended uses (i.e., buildings, rooflines and downspouts, tenant spaces, dwelling units, community facilities such as pools, recreation facilities, tot lots, etc.);
- Infrastructure (i.e., streets, storm drains, etc.) that will revert to public agency ownership and operation;
- Location of existing and proposed public and private storm drainage facilities (i.e., storm drains, channels, basins, etc.), including catch basins and other inlets/outlet structures. Existing and proposed drainage facilities should be clearly differentiated;
- Location of points where onsite (or tributary offsite) flows exit the property/project site;
- Proposed drainage areas boundaries, including tributary offsite areas, for each location where flows exits the property/project site. Each tributary area should be clearly denoted;
- Pre- and post-project topography.

## A.2 Identify Receiving Waters

The World Logistics Center Specific Plan project is immediately tributary to the Perris Valley (802.11) and Gilman Hot Springs (802.21) hydrologic subareas. Flows from the project site eventually drain south to the San Jacinto River. The San Jacinto River flows southwest and has been dammed to form Canyon Lake, which drains to Lake Elsinore. The Table A.1 lists each of the successive receiving waters and the pollutants for which the receiving waters are impaired, according to the Clean Water Act Section 303(d) list (2010).

**Table A.1** Identification of Receiving Waters

| Receiving Waters | EPA Approved 303(d) List Impairments | Designated Beneficial Uses | Proximity to RARE Beneficial Use |
|---|---|---|---|
| San Jacinto River | None | All uses considered Intermittent<br>MUN, AGR, GWR, REC1, REC2, WARM, WILD | Approx. 2 miles to RARE-designated San Jacinto Wildlife Preserve |
| Canyon Lake (Railroad Canyon Reservoir) | Nutrients, Pathogens | MUN, AGR, GWR, REC1, REC2, WARM, WILD | Not RARE |
| Lake Elsinore | Nutrients, Organic Enrichment/Low Dissolved Oxygen, PCBs, Sediment Toxicity, Unknown Toxicity | MUN, REC1, REC2, WARM, WILD | Not RARE |

## A.3 Additional Permits/Approvals required for the Project:

**Table A.2** Other Applicable Permits

| Agency | Permit Required | |
|---|---|---|
| State Department of Fish and Game, 1602 Streambed Alteration Agreement | ☒ Y | ☐ N |
| State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert. | ☒ Y | ☐ N |
| US Army Corps of Engineers, CWA Section 404 Permit | ☐ TBD | ☐ |
| US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion | ☐ TBD | ☐ |
| Statewide Construction General Permit Coverage | ☒ Y | ☐ N |
| Statewide Industrial General Permit Coverage | ☐ Y | ☒ N |
| Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP) | ☒ Y | ☐ N |
| Other *(please list in the space below as required)*<br>State Water Resources Control Board General Permit – Construction<br>City of Moreno Valley Building Permit<br>City of Moreno Valley Grading Permit | <br><br>☒ Y<br>☒ Y<br>☒ Y | <br><br>☐ N<br>☐ N<br>☐ N |

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

# Section B: Optimize Site Utilization (LID Principles)

During preparation of the final WQMP a review of the information collected in Section 'A' will be made to identify the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, constraints might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. Opportunities might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). A brief narrative for each of the site optimization strategies is described below and will be included in the final WQMP. This narrative helps with the LID design and explains the design decisions.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, the narrative in the final WQMP will identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Opportunities that exist which will be utilized during project design will be noted. Upon completion of identifying Constraints and Opportunities as part of the final WQMP, they will be included on the WQMP Site plan in Appendix 1 in the final WQMP.

## Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will also be used in preparation of each final Project-Specific WQMP to determine how best to optimize the final site layout and subsequently identify opportunities and/or constraints, and document compliance.

**Did you identify and preserve existing drainage patterns? If so, how? If not, why?**

The majority of the project site is agricultural and currently sheet flows to earthen ditches. Under the proposed project which will require mass grading, most of these ditches will be removed, with the exception of one natural drainage course, Line E, located at the eastern portion of the project as shown on Figure 1 of the Master Plan of Drainage Report. Portions of this natural drainage course south of Alessandro Boulevard will remain in a natural condition with the proposed project.

**Did you identify and protect existing vegetation? If so, how? If not, why?**

There are 74 acres of natural areas that will be conserved as undisturbed open space. Although most of the project area is agricultural and will require mass grading, where possible existing native trees and shrubs will be preserved in areas where there is no grading.

**Did you identify and preserve natural infiltration capacity? If so, how? If not, why?**

LID BMPs that promote infiltration and evapotranspiration will be incorporated in specific projects throughout the project site. Infiltration BMPs will be preferred, but may not be feasible on sites with low infiltration rates, or located on compacted engineered fill. In situations where infiltration BMPs are not appropriate, bioretention and/or biotreatment BMPs that provide opportunity for evapotranspiration and incidental infiltration will be implemented. The locations of these facilities will be shown in each final Project-Specific WQMP.

**Did you identify and minimize impervious area? If so, how? If not, why?**

A significant portion of the project will remain pervious for the purposes of landscaping, water quality treatment, and flood detention. The use of impervious surfaces for decorative purposes will be minimized where possible. Street, sidewalk, and parking design will incorporate or keep minimum street widths that still meet City requirements and emergency access requirements.

**Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?**

Runoff from impervious areas will sheet flow or be directed to LID or Treatment Control BMPs. Streets, sidewalks, and parking lots will sheet flow to landscaping/bioretention areas. All flows, including first flush and high flows, will sheet flow or be directed to LID or Treatment Control BMPs.

## Site Optimization BMPs

Site Optimization BMPs are intended to create a hydrologically functional project design that attempts to mimic the natural hydrologic regime. In accordance with the Riverside County WQMP, project proponents shall implement Site Design concepts that achieve each of the following:

1) Minimize Urban Runoff
2) Minimize Impervious Footprint
3) Conserve Natural Areas
4) Minimize Directly Connected Impervious Areas (DCIAs)

Each Site Optimization concept is presented below, with a discussion of whether the design concept will be incorporated in the project. Site Optimization BMPs will be shown in each final Project-Specific WQMP.

**Minimize Urban Runoff**

The project will be designed to minimize urban runoff using the following Site Design concepts.

- Maximize the permeable area. A significant portion of the project will remain pervious for the purposes of landscaping, water quality treatment, and flood detention. By incorporating more pervious, lower Runoff Coefficient (C factor) surfaces into the project, lower volumes of runoff will be produced.
- Incorporate landscaped buffer areas between sidewalks and streets. Bioretention areas between sidewalks and streets will be incorporated and serve the dual purpose of landscaping and water quality treatment.
- Maximize canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs. Although most of the project area will require mass grading, where possible existing native trees and shrubs will be preserved in areas where there is no grading. The planting and landscape will be designed to maximize water conservation, including the use of drought-tolerant and native planting.
- Use natural drainage systems. The majority of the project site is agricultural and currently sheet flows to earthen ditches. Under the proposed project which will require mass grading, most of these ditches will be removed, with the exception of one natural drainage course, Line E, located at the eastern portion of the project as shown on Figure 1 of the Master Plan of

Drainage Report. Portions of this natural drainage course south of Alessandro Boulevard will remain in a natural condition with the proposed project.

- Where soils conditions are suitable, use perforated pipe or gravel filtration pits for low flow infiltration. Infiltration basins will be proposed where soil conditions are appropriate.
- Construct onsite ponding areas or retention facilities to increase opportunities for infiltration consistent with vector control objectives. Flows from the project will be treated first by LID BMPs where most of the flow will infiltrate or evapotranspire. The treated flows will then be reduced to below or equal to pre-development conditions by routing the on-site storm water flows through on-site detention and infiltration basins before flows are released off site. These basins will provide incidental infiltration and secondary treatment downstream of the LID BMPs. The locations of these facilities will be shown in each final Project-Specific WQMP.

**Minimize Impervious Footprint**

Each project will be designed to minimize impervious footprint using the following Site Optimization concepts.

- Maximize the permeable area. A significant portion of the project will remain pervious for the purposes of landscaping, water quality treatment, and flood control. By incorporating the aforementioned pervious, lower Runoff Coefficient (C factor) surfaces into the project, lower volumes of runoff will be produced.
- Construct streets, sidewalks and parking lot aisles to the minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised. Street, sidewalk, and parking design will incorporate minimum street widths that still meet City requirements and emergency access requirements.
- Reduce widths of street where off-street parking is available. Street design will incorporate minimum street widths that still meet City requirements and emergency access requirements.
- Minimize the use of impervious surfaces, such as decorative concrete, in the landscape design. The use of impervious surfaces for decorative purposes will be minimized where possible.

**Conserve Natural Areas**

The project will be designed to conserve natural areas using the following Site Optimization concepts.

- Conserve natural areas. There are 74 acres of natural areas that will be conserved as undisturbed open space.
- Maximize canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs. Although most of the project area will require mass grading, where possible existing native trees and shrubs will be preserved in areas where there is no grading. The planting and landscape will be designed to maximize water conservation, including the use of drought-tolerant or native planting.
- Use natural drainage systems. The majority of the project site is agricultural and currently sheet flows to earthen ditches. Under the proposed project which will require mass grading, most of these ditches will be removed, with the exception of one natural drainage course, Line E, located at the eastern portion of the project as shown on Figure 1 of the Master Plan of Drainage Report. Portions of this natural drainage course south of Alessandro Boulevard will remain in a natural condition with the proposed project.

**Minimize Directly Connected Impervious Areas**

The project will be designed to minimize directly connected impervious areas using the following Site Optimization concepts.

- Residential and commercial sites must be designed to contain and infiltrate roof runoff, or direct roof runoff to vegetative swales or buffer areas, where feasible. Runoff from impervious areas will sheet flow or be directed to LID BMPs.
- Where landscaping is proposed, drain impervious sidewalks, walkways, trails, and patios into adjacent landscaping. Streets, sidewalks, and parking lots will sheet flow to landscaping/bioretention areas.
- Increase the use of vegetated drainage swales in lieu of underground piping or imperviously lined swales. Runoff from impervious areas will sheet flow to vegetated swales, bioretention areas, infiltration basins, and/or detention basins.
- Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings. Streets will sheet flow to adjacent landscaping/ bioretention areas.
- Urban curb/swale system: street slopes to curb; periodic swale inlets drain to vegetated swale/biofilter. Streets will sheet flow to adjacent landscaping/bioretention areas.
- Design driveways with shared access, flared (single lane at street) or wheel strips (paving only under tires); or, drain into landscaping prior to discharging to the MS4. Driveways will sheet flow to adjacent landscaping/bioretention areas.
- Uncovered temporary or guest parking on private residential lots may be paved with a permeable surface, or designed to drain into landscaping prior to discharging to the MS4. Parking lots will sheet flow to adjacent landscaping/bioretention areas.
- Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design. Parking lots will sheet flow to adjacent landscaping/bioretention areas.

# Section C: Delineate Drainage Management Areas (DMAs)

**To be completed as part of each final Project Specific WQMP.**

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

**Table C.1** DMA Classifications

| DMA Name or ID | Surface Type(s)[1] | Area (Sq. Ft.) | DMA Type |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

[1] *Reference Table 2-1 in the WQMP Guidance Document to populate this column*

**Table C.2** Type 'A', Self-Treating Areas

| **DMA Name or ID** | **Area (Sq. Ft.)** | **Stabilization Type** | **Irrigation Type (if any)** |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

**Table C.3** Type 'B', Self-Retaining Areas

| **Self-Retaining Area** | | | | **Type 'C' DMAs that are draining to the Self-Retaining Area** | | |
|---|---|---|---|---|---|---|
| DMA Name/ ID | Post-project surface type | Area (square feet) | Storm Depth (inches) | DMA Name / ID | [C] from Table C.4 = | Required Retention Depth (inches) |
| | | [A] | [B] | [C] | | [D] |
| | | | | | | |
| | | | | | | |
| | | | | | | |

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

**Table C.4** Type 'C', Areas that Drain to Self-Retaining Areas

| DMA | | | | | Receiving Self-Retaining DMA | | |
|---|---|---|---|---|---|---|---|
| DMA Name/ ID | Area (square feet) | Post-project surface type | Runoff factor | Product | | Area (square feet) | Ratio |
| | [A] | | [B] | [C] = [A] x [B] | DMA name /ID | [D] | [C]/[D] |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Table C.5** Type 'D', Areas Draining to BMPs

| DMA Name or ID | BMP Name or ID |
|---|---|
| | |
| | |
| | |
| | |
| | |

*Note: More than one drainage management area can drain to a single LID BMP; however, one drainage management area may not drain to more than one BMP.*

# Section D: Implement LID BMPs

The project will comply with the WQMP Guidance Document for the Santa Ana Region of Riverside County, which requires the use of LID BMPs that maximize infiltration, harvest and use, evapotranspiration and/or bio-treatment. Page 19 of the WQMP Guidance Document states:

"LID BMPs have been shown in studies throughout the country to be effective and reliable at treating a wide range of Pollutants that can be found in urban runoff, including those listed above [sediments, nutrients, metals, toxic organic compounds, trash, oxygen-demanding substances, oil and grease, bacteria and viruses, and pesticides], and those subject to adopted TMDLs in the Santa Ana Region of Riverside County (Bacteria and Nutrients). As such, the LID BMPs required in this WQMP are expected to treat discharges of urban-sourced 303(d) listed Pollutants from subject projects to an impaired waterbody on the 303(d) list such that the discharge from the project would not cause or contribute to an exceedance of Receiving Water Quality Objectives."

By complying with the WQMP and implementing LID-based BMPs, the project is mitigating water quality impacts. The BMP strategy for the project is to select Low Impact Development (LID) BMPs that promote infiltration and evapotranspiration, including infiltration basins, bioretention facilities, and extended detention basins. Generally infiltration BMPs have advantages over other types of BMPs, including reduction of the volume and rate of runoff, as well as full treatment of all potential pollutants potentially contained in the stormwater runoff. It is recognized however that infiltration may not be feasible on sites with low infiltration rates, or located on compacted engineered fill. If the BMP is considered in a fill condition, and the infiltration surface of the BMP cannot extend down into native soils, or if the BMP is considered in a cut condition, and there is no practicable way to verify infiltration rates at the final BMP elevation, infiltration BMPs will not be used. Prior to final design, infiltration tests shall be performed within the boundaries of the proposed infiltration BMP and at the bottom elevation (infiltration surface) of the proposed infiltration BMP to confirm the suitability of infiltration. In situations where infiltration BMPs are not appropriate, bioretention and/or biotreatment BMPs (including extended detention basins, bioswales, and constructed wetlands) that provide opportunity for evapotranspiration and incidental infiltration will be considered. Harvest and use BMPs will also be considered as an LID BMP to store runoff for later non-potable uses. Ponds may be used to collect storm water runoff for harvest and use.

The locations of the LID BMPs will be shown in each final Project-Specific WQMP. In order to meet Regional Water Quality Control Board (RWQCB) requirements, in the Santa Ana Watershed the design capture volume (VBMP) is based on capturing the volume of runoff generated from an 85th percentile, 24-hour storm event. The sizing and design criteria for the LID BMPs will follow the Riverside County Design Handbook for Low Impact Development Best Management Practices (Riverside County LID Design Handbook) (RCFCWCD, 2011). The Design Storm Depth (D85) was determined to be 0.68 inches per the Isohyetal Map for the 85th Percentile 24-hour Storm Event. Supporting engineering calculations and LID BMP design details will be provided in each final Project-Specific WQMP.

## D.1 Infiltration Applicability

While infiltration testing has not been performed on the site, a preliminary review of the feasibility of infiltration has been conducted. According to the Riverside County Hydrology Manual, the majority of the study area consists of Hydrologic Soil Group (HSG) Type B, which is considered appropriate for infiltration. The HSG map within the study area is included in Appendix 3. A geotechnical evaluation has been performed for the World Logistics Center Specific Plan area, and the geotechnical report is contained in the EIR as a technical appendix. The geotechnical field explorations included 80 test pits,

over 50 borings, and seven cone penetration tests. Based on the laboratory test data, the site mainly consists of silty sands (SM) with zones of silt (ML) beds. The silt beds range anywhere from 5 to 15 feet below ground surface (bgs). In some of the areas, the beds appear to be continuous from boring/pit to boring/pit. Based on the lab data, total fines (silt and clay) range from 36 percent (SM) to 80 percent (ML). Soils in the southeast portion of the site appear to be more granular, however. Based on the geotechnical report, most of the site is considered to be on the borderline between HSG Type B and C soils, with localized areas classified as HSG Type C. Infiltration testing will be performed prior to final design, and infiltration test reports will be included in each final Project-Specific WQMP. The determination of LID BMPs will be based on the results of the infiltration testing.

**The remainder of this section will be completed as part of each final Project Specific WQMP.**

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ Y ☐ N

If yes has been checked, Infiltration BMPs shall not be used for the site. If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream 'Highest and Best Use' feature.

### Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Co-permittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. Both reports have been prepared for the Specific Plan area and are included in the EIR as technical appendices. A project-specific geotechnical report will be prepared at a later date for each project. .

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

### Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

**Table D.1** Infiltration Feasibility

| Does the project site… | YES | NO |
|---|---|---|
| …have any DMAs with a seasonal high groundwater mark shallower than 10 feet? | | |
| If Yes, list affected DMAs: | | |
| …have any DMAs located within 100 feet of a water supply well? | | |
| If Yes, list affected DMAs: | | |
| …have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact? | | |
| If Yes, list affected DMAs: | | |
| …have measured in-situ infiltration rates of less than 1.6 inches / hour? | | |
| If Yes, list affected DMAs: | | |
| …have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface? | | |
| If Yes, list affected DMAs: | | |
| …geotechnical report identify other site-specific factors that would preclude effective and safe infiltration? | | |
| Describe here: | | |

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

## D.2 Harvest and Use Assessment

Please check what applies*:*

☒ Reclaimed water will be used for the non-potable water demands for the project if it is available.

☐ Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Co-permittee).

☐ The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If neither of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

**To be completed as part of each final Project Specific WQMP if reclaimed water is unavailable.**

### Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

*Total Area of Irrigated Landscape*:

*Type of Landscaping (Conservation Design or Active Turf)*:

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

*Total Area of Impervious Surfaces:*

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

*Enter your EIATIA factor*:

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

*Minimum required irrigated area*:

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

| Minimum required irrigated area (Step 4) | Available Irrigated Landscape (Step 1) |
|---|---|
| | |

## Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

*Projected Number of Daily Toilet Users:*

*Project Type:*

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

*Total Area of Impervious Surfaces:*

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-1 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

*Enter your TUTIA factor:*

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

*Minimum number of toilet users:*

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

| Minimum required Toilet Users (Step 4) | Projected number of toilet users (Step 1) |
|---|---|
| | |

## Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

*Average Daily Demand:*

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

*Total Area of Impervious Surfaces:*

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-3 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

*Enter the factor from Table 2-3:*

Step 4: Multiply the unit value obtained from Step 4 by the total of impervious areas from Step 3 to develop the minimum number of gallons per day of non-potable use that would be required.

*Minimum required use:*

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

| **Minimum required non-potable use (Step 4)** | **Projected average daily use (Step 1)** |
|---|---|
| | |

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment, unless a site-specific analysis has been completed that demonstrates technical infeasibility as noted in D.3 below.

## D.3 Bioretention and Biotreatment Assessment

*Select one of the following:*

☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Co-permittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

## D.4 Feasibility Assessment Summaries

There is an existing 2% slope across the project site from north to south, which will require mass grading and significant cut and fill. The fill condition and/or native soil characteristics may preclude the implementation of infiltration basins at some BMP sites. Thus, while infiltration BMPs are preferred, the final BMPs will likely consist of infiltration basins where appropriate, and bioretention and biotreatment BMPs as the primary means for water quality treatment. A preliminary review of BMP sizing has been conducted, and the project will provide sufficient space to accommodate a combination of bioretention facilities and detention/infiltration basins. Bioretention facilities will be proposed in landscaped spaces, like parking islands, medians, walkways, and site entrances. The goal will be to design landscaped areas on the site as bioretention facilities. The project site will be graded to direct runoff from impervious surfaces into landscaped bioretention facilities. Flows will then be directed to the detention/infiltration basins.

**The remainder of this section will be completed as part of each final Project Specific WQMP.**

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

**Table D.2** LID Prioritization Summary Matrix

| DMA Name/ID | LID BMP Hierarchy | | | | No LID (Alternative Compliance) |
|---|---|---|---|---|---|
| | 1. Infiltration | 2. Harvest and use | 3. Bioretention | 4. Biotreatment | |
| | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | ☐ |

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

**Narrative description to be included as part of each final Project Specific WQMP**

## D.5 LID BMP Sizing

**This section will be completed as part of each final Project Specific WQMP.**

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First, calculate the Design Capture Volume for each LID BMP using the $V_{BMP}$ worksheet in Appendix F of the LID BMP Design Handbook. Second, design the LID BMP to meet the required $V_{BMP}$ using a method approved by the Co-permittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Co-permittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

**Table D.3** DCV Calculations for LID BMPs

| DMA Type/ID | DMA Area (square feet) | Post-Project Surface Type | Effective Impervious Fraction, $I_f$ | DMA Runoff Factor | DMA Areas x Runoff Factor | *Enter BMP Name / Identifier Here* | | |
|---|---|---|---|---|---|---|---|---|
| | [A] | | [B] | [C] | [A] x [C] | | | |
| | | | | | | *Design Storm Depth (in)* | *Design Capture Volume,* $\mathbf{V_{BMP}}$ *(cubic feet)* | *Proposed Volume on Plans (cubic feet)* |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | $A_T = \Sigma[A]$ | | | | $\Sigma = [D]$ | [E] | $[F] = \frac{[D]x[E]}{12}$ | [G] |

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

# Section E: Alternative Compliance (LID Waiver Program)

**This section will be completed as part of each final Project Specific WQMP.**

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Co-permittee). Check one of the following Boxes:

☐ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

List DMAs here.

# E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted the project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference has been done with this information with that of the selected Priority Development Project Category in Table E.1 below.

The potential pollutants associated with the project are metals, nutrients, pesticides, toxic organic compounds, sediments, trash & debris, and oil & grease. The potential pollutants associated with the project that are also present in impaired Receiving Waters are bacterial indicators, nutrients, pesticides, sediments, and toxic organic compounds. There are no anticipated legacy pollutants as a result of past uses. A Phase I Environmental Site Assessment for the World Logistics Center Specific Plan has revealed no evidence of recognized environmental conditions (RECs) indicative of releases or threatened releases of hazardous substances on, at, in, or to the subject site.

The identified General Pollutant Categories that are the same as those listed for the receiving waters are the Pollutants of Concern and the appropriate boxes are checked on the last row. The purpose of this is to document compliance and to help appropriately plan for mitigating the Pollutants of Concern in lieu of implementing LID BMPs which will be determined in each final Project-Specific WQMP.

**Table E.1** Potential Pollutants by Land Use Type

| Priority Development Project Categories and/or Project Features (check those that apply) | General Pollutant Categories | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Bacterial Indicators | Metals | Nutrients | Pesticides | Toxic Organic Compounds | Sediments | Trash & Debris | Oil & Grease |
| ☐ Detached Residential Development | P | N | P | P | N | P | P | P |
| ☐ Attached Residential Development | P | N | P | P | N | P | P | P[(2)] |
| ☒ Commercial/Industrial Development | P[(3)] | P | P[(1)] | P[(1)] | P[(5)] | P[(1)] | P | P |
| ☐ Automotive Repair Shops | N | P | N | N | P[(4, 5)] | N | P | P |
| ☐ Restaurants (>5,000 ft$^2$) | P | N | N | N | N | N | P | P |
| ☐ Hillside Development (>5,000 ft$^2$) | P | N | P | P | N | P | P | P |
| ☒ Parking Lots (>5,000 ft$^2$) | P[(6)] | P | P[(1)] | P[(1)] | P[(4)] | P[(1)] | P | P |
| ☒ Retail Gasoline Outlets | N | P | N | N | P | N | P | P |
| **Project Priority Pollutant(s) of Concern** | ☒ | ☐ | ☒ | ☒ | ☒ | ☒ | ☐ | ☐ |

*P = Potential*

*N = Not Potential*

*(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected*

*(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected*

*(3) A potential Pollutant is land use involving animal waste*

*(4) Specifically petroleum hydrocarbons*

*(5) Specifically solvents*

*(6) Bacterial indicators are routinely detected in pavement runoff*

## E.2 Stormwater Credits

**This section will be completed as part of each final Project Specific WQMP.**

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

**Table E.2** Water Quality Credits

| Qualifying Project Categories | Credit Percentage[2] |
|---|---|
| | |
| | |
| | |
| *Total Credit Percentage*[1] | |

[1] *Cannot Exceed 50%*
[2] *Obtain corresponding data from Table 3-8 in the WQMP Guidance Document*

## E.3 Sizing Criteria

**This section will be completed as part of each final Project Specific WQMP.**

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

**Table E.3** Treatment Control BMP Sizing

| DMA Type/ID | DMA Area (square feet) | Post-Project Surface Type | Effective Impervious Fraction, $I_f$ | DMA Runoff Factor | DMA Area x Runoff Factor | | *Enter BMP Name / Identifier Here* | | |
|---|---|---|---|---|---|---|---|---|---|
| | [A] | | [B] | [C] | [A] x [C] | | | | |
| | | | | | | *Design Storm Depth (in)* | *Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)* | *Total Storm Water Credit % Reduction* | *Proposed Volume or Flow on Plans (cubic feet or cfs)* |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | $A_T$ = Σ[A] | | | | Σ= [D] | [E] | $[F] = \frac{[D]x[E]}{[G]}$ | [F] X (1-[H]) | [I] |

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document
[E] is obtained from Exhibit A in the WQMP Guidance Document
[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12
[H] is from the Total Credit Percentage as Calculated from Table E.2 above
[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

## E.4 Treatment Control BMP Selection

**This section will be completed as part of each final Project Specific WQMP.**

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 **Treatment Control BMP Selection**

| Selected Treatment Control BMP Name or ID[1] | Priority Pollutant(s) of Concern to Mitigate2 | Removal Efficiency Percentage[3] |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

[1] *Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.*

[2] *Cross Reference Table E.1 above to populate this column.*

[3] *As documented in a Co-Permittee Approved Study and provided in Appendix 6.*

# Section F: Hydromodification

### F.1 Hydrologic Conditions of Concern (HCOC) Analysis

If the project meets one of the following criteria which will be indicated by the check boxes below, hydromodification does not need to be addressed at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria.

**HCOC EXEMPTION 1**: The Priority Development Project disturbs less than one acre. The Co-permittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply.

**HCOC EXEMPTION 2**: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

| | 2 year – 24 hour | | |
|---|---|---|---|
| | **Pre-condition** | **Post-condition** | **% Difference** |
| **Time of Concentration** | | | |
| **Volume (Cubic Feet)** | | | |

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

**HCOC EXEMPTION 3**: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will

be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

### F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

This project proposes to direct runoff to LID BMPs, where the flows will either be infiltrated, evapotranspired, or be treated. The treated flows will then be reduced to below or equal to pre-development conditions by routing the on-site storm water flows through on-site detention and infiltration basins before flows are released off site. The LID BMPs and detention/infiltration basins proposed at each drainage area will store increased runoff volume for a limited period of a time and release the outflow at a rate that does not exceed the pre-development condition identified in item c. above. As a result, the LID BMPs and detention/infiltration basins will mitigate the impacts of increased peak runoff and reduced time of concentration by attenuating the flows. Riprap or flow blocks will be used in the entrance spillways to reduce the runoff velocity and dissipate the flow energy. Basins with the outflow risers and pipe structures at the downstream end of the watershed will be directed to a spreading area and limit and spread the outflow so that the flow exiting the project boundary will be consistent with the pre-project condition. The sheet flow exiting the southerly boundary will not exceed the flow velocity or the peak flow rate, and will not reduce the overall time of concentration at the most downstream end of the project site compared to the pre-development condition.

The proposed LID BMPs, detention/infiltration basins and outflow structures along with open space will allow flows to infiltrate. The ability of sediment to be conveyed through the existing drainage courses was determined. The majority of the drainage courses deposit sediment in the existing condition and this will occur in the proposed condition through the use of the basins. Runoff leaving the project site via the spreading areas will mimic the sheet flow of the pre-existing condition to maintain the sediment carrying capacity of the existing condition. Thus, the amount of sediment for transport will be in balance

with the storm flows, and no additional erosion is expected at the downstream project boundary. Therefore, there will be no significant impacts on the downstream watershed and the project will not degrade the downstream water quality.

By implementing the items above, the project will address the hydrologic conditions of concern. At the time of final design for each project, detailed hydrologic and hydraulic calculations in accordance with Item c, above will be performed to ensure that the mitigation is appropriately implemented.

Preliminary supporting engineering studies and calculations are contained in the Draft Drainage Report for the World Logistics Center Project, and final studies and calculations will be included in Appendix 7 of each final Project-Specific WQMP.

# Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and "housekeeping", that must be implemented by the site's occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, the following procedure was used to specify Source Control BMPs for the site:

1. **Identify Pollutant Sources:** Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.

2. **Note Locations on Project-Specific WQMP Exhibit:** Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1. **This will be provided as part of each final Project Specific WQMP.**

3. **Prepare a Table and Narrative:** Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. Add additional narrative in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.

4. **Identify Operational Source Control BMPs:** To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Co-permittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Source Control BMPs reduce the potential for stormwater runoff and pollutants from coming into contact with one another. Each Source Control BMP that is incorporated into the project is presented in the table below. The locations of the structural Source Control BMPs are not shown in the current Specific Plan phase, but will be shown in each final Project-Specific WQMP.

**Table G.1** Permanent and Operational Source Control Measures

| Potential Sources of Runoff pollutants | Permanent Structural Source Control BMPs | Operational Source Control BMPs |
|---|---|---|
| A. On-site storm drain inlets | Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify. | • Maintain and periodically repaint or replace inlet markings.<br>• Provide stormwater pollution prevention information to new site owners, lessees, or operators.<br>• See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |

| | | |
|---|---|---|
| | | • Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains." |
| D2. Landscape/<br>Outdoor Pesticide Use | State that final landscape plans will accomplish all of the following.<br>• Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.<br>• Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.<br>• Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.<br>• Consider using pest-resistant plants, especially adjacent to hardscape.<br>• To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions. | • Maintain landscaping using minimum or no pesticides.<br>• See applicable operational BMPs in "What you should know for…..Landscape and Gardening" at http://rcflood.org/stormwater/<br>• Provide IPM information to new owners, lessees and operators. |
| E. Pools, spas, ponds, decorative fountains, and other water features. | If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements. | See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/ |
| G. Refuse areas | • State how site refuse will be handled and provide supporting detail to what is shown on plans.<br>• State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar. | • State how the following will be implemented:<br>Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |
| I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.) | Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.<br>Where appropriate, reference | See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |

| | | |
|---|---|---|
| | documentation of compliance with the requirements of Hazardous Materials Programs for:<br>• Hazardous Waste Generation<br>• Hazardous Materials Release Response and Inventory<br>• California Accidental Release (CalARP)<br>• Aboveground Storage Tank<br>• Uniform Fire Code Article 80 Section 103(b) & (c) 1991<br>• Underground Storage Tank<br>www.cchealth.org/groups/hazmat/ | |
| L. Fuel Dispensing Areas | | The property owner shall dry sweep the fueling area routinely. See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |
| M. Loading Docks | | • Move loaded and unloaded items indoors as soon as possible.<br>• See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |
| N. Fire Sprinkler Test Water | | See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |
| O. Miscellaneous Drain or Wash Water or Other Sources:<br>• Condensate drain lines<br>• Rooftop equipment<br>• Roofing, gutters, and trim. | • Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.<br>• Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.<br>• Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. | N/A |
| P. Plazas, sidewalks, and parking lots. | | Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain. |

**Non-Structural Source Control BMPs**

The project will be designed with the following non-structural Source Control BMPs.

- Education for Property Owners, Operators, Tenants, Occupants, or Employees. Practical informational materials to promote the prevention of Urban Runoff pollution will be provided to educate employees/users of the project site. These materials shall include general housekeeping practices that contribute to the protection of stormwater quality. The project owner will request copies of these materials from http://www.floodcontrol.co.riverside.ca.us/YouCanHelp.asp at least 30 days prior to distribution, as required by the Riverside County WQMP

- Activity Restrictions. The project owner will enforce activity restrictions. Activity restrictions for water quality protection will include:

    - Prohibit vehicle washing, maintenance, or repair. No car wash racks or maintenance bays will be allowed within the project.

    - Prohibit outdoor work areas and processing areas within the project.

    - Prohibit the blowing, sweeping, or hosing of debris (leaf litter, grass clippings, litter, etc.) into streets, storm drain inlets, or other conveyances.

    - Require dumpster lids to be closed at all times.

- Irrigation System and Landscape Maintenance. The irrigation system and landscaping shall be consistent with the County's water conservation policy. Fertilizer and pesticide usage shall be consistent with the instructions contained on product labels and with regulations administered by California's Department of Pesticide Regulation. Additionally, landscape maintenance must address replacement of dead vegetation, repair of erosion rills, proper disposal of green waste, etc. Irrigation system maintenance must address periodic testing and observation of the irrigation system to detect overspray, broken sprinkler heads, and other system failures.

- Common Area Litter Control. Trash receptacles will be provided at appropriate locations throughout the project area. Trash receptacles will be emptied weekly, or as needed.

- Street Sweeping Private Streets and Parking Lots. The project owner shall provide sweeping of the parking lots on a monthly basis.

- Drainage Facility Inspection and Maintenance. The project owner shall be responsible for having privately owned catch basins inspected and cleaned annually. Ownership of all offsite drainage facilities will be turned over to the City of Moreno Valley at project completion. The City will be responsible for maintaining and inspecting all public drainage facilities.

# Section H: Construction Plan Checklist

**This section will be completed as part of each final Project Specific WQMP.**

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

**Table H.1** Construction Plan Cross-reference

| BMP No. or ID | BMP Identifier and Description | Corresponding Plan Sheet(s) |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

# Section I: Operation, Maintenance and Funding

The Co-permittee will periodically verify that Stormwater BMPs on the site are maintained and continue to operate as designed. To make this possible, the following will be included in Appendix 9 of each final Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

A detailed Stormwater BMP Operation and Maintenance Plan will be prepared as part of each final Project-Specific WQMP that sets forth a maintenance schedule for each of the Stormwater BMPs built on the site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required. Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document and will be included in each final Project-Specific WQMP.

The table below describes the preliminary inspection and maintenance activities for each BMP. At the time of final design, an Operation and Maintenance (O&M) Plan will be prepared clearly stating the maintenance activities highlighted in the table, including the designated party to manage the BMPs, self-inspections and record-keeping requirements for BMPs, start-up dates, operating schedule, maintenance frequency, routine service schedule, specific maintenance activities, and any other necessary activities.

### Operation and Maintenance Plan

| BMP Requiring Maintenance | Visual Inspection Frequency | Responsible Party | Maintenance Frequency | Maintenance Tasks |
|---|---|---|---|---|
| Infiltration Basins | Ongoing, including just before wet season | Project owner | As needed | • Maintain vegetation.<br>• Remove debris and litter.<br>• Check for erosion and sediment laden areas.<br>• Revegetate side slopes where needed. |
| | Within 72 hours following storm event | Project owner | As needed | • Check for standing water. No water should be present 72 hours after an event. Correct problem as needed. |

| BMP Requiring Maintenance | Visual Inspection Frequency | Responsible Party | Maintenance Frequency | Maintenance Tasks |
|---|---|---|---|---|
| | Annually | Project owner | Annually | • Inspect hydraulic and structural facilities.<br>• Check for erosion, slumping and overgrowth.<br>• Check for sediment build up. Scrape bottom as needed and remove sediment. Replant basin vegetation. |
| Bioretention Facilities | Ongoing, including just before wet season | Project owner | As needed | • Maintain vegetation.<br>• Remove debris and litter.<br>• Replace damaged grass and/or plants.<br>• Replace surface mulch layer as needed to maintain a 2-3 inch soil cover. |
| | Within 72 hours following storm event | Project owner | As needed | • Check for standing water. No water should be present 72 hours after an event. Correct problem as needed. |
| | Annually | Project owner | Annually | • Inspect/clean inlets and outlets. |
| Extended Detention Basins | Ongoing, including just before wet season | Project owner | As needed | • Maintain vegetation.<br>• Remove debris and litter. |
| | Within 72 hours following storm event | Project owner | As needed | • Check for standing water. No water should be present 72 hours after an event. Correct problem as needed. |
| | Annually | Project owner | Annually | • Inspect hydraulic and structural facilities.<br>• Check for erosion, slumping and overgrowth.<br>• Inspect sand media at the filter drain. Scarify top 3 inches by raking the filter drain's sand surface.<br>• Check media filter underdrains (via the cleanout) for damage or clogging.<br>• Remove accumulated sediment and debris from the forebay.<br>• Check gravel filled low flow and collector trenches for sediment buildup and repair as needed. |
| Irrigation System | Weekly as part of landscape maintenance activities | Project owner | As needed | • Repair broken sprinkler heads<br>• Redirect heads where needed<br>• Adjust irrigation interval and schedule as needed |
| Landscaped Areas | Weekly as part of landscape maintenance activities | Project owner | Weekly | • Mow, weed, trim, and remove accumulated dead vegetation, pet waste, trash and debris. |
| Parking Lot Sweeping | Monthly | Project owner | Monthly | • Sweep parking lots to remove litter, dust, and debris. |

| BMP Requiring Maintenance | Visual Inspection Frequency | Responsible Party | Maintenance Frequency | Maintenance Tasks |
|---|---|---|---|---|
| Catch Basin Signage | Annually | Project owner | As needed | • Refresh or replace as needed. |

Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

☒ Y ☐ N

Only those BMPs proposed in common areas will be maintained by a HOA or POA. Otherwise, the BMPs will be maintained by the Leasee or Owner. The Operation and Maintenance Plan and Maintenance Mechanism will be included in Appendix 9 of each final Project-Specific WQMP. Pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP are included in Appendix 10.

**Operation and Maintenance Responsibility**

Until construction is completed, the project owner will be responsible for the operation and maintenance for all structural Source Control and Treatment Control BMPs. Contact information for the project owner is as follows:

Highland Fairview
14225 Corporate Way
Moreno Valley, California 92553
(951) 867-5300
Contact: Brian Hixson

**Funding**

A funding source or sources for the O&M of each BMP identified in each Project-Specific WQMP must be identified. By certifying each Project-Specific WQMP, the Project applicant is certifying that the funding responsibilities have been addressed and will be transferred to future owners. One example of how to adhere to the requirement to transfer O&M responsibilities is to record the Project-Specific WQMP against the title to the property.

The project owner certifies that a funding source will be made available to support the operation and maintenance of each Treatment Control BMP included in the project. The O&M funding will be determined at a future date in the entitlement process. The project owner will have ultimate responsibility for funding all operation and maintenance.

# Appendix 1: Maps and Site Plans

*Location Map, WQMP Site Plan and Receiving Waters Map*

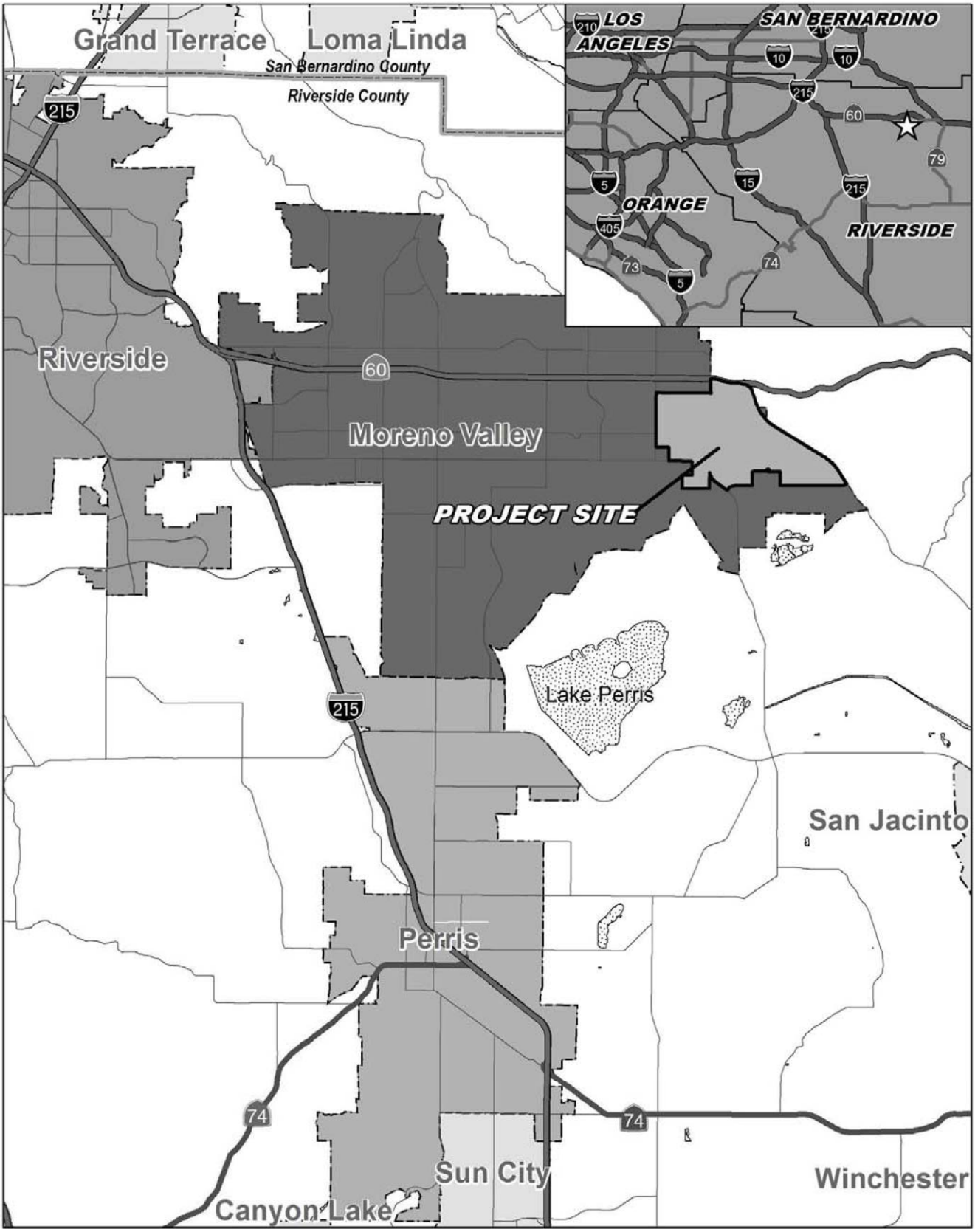
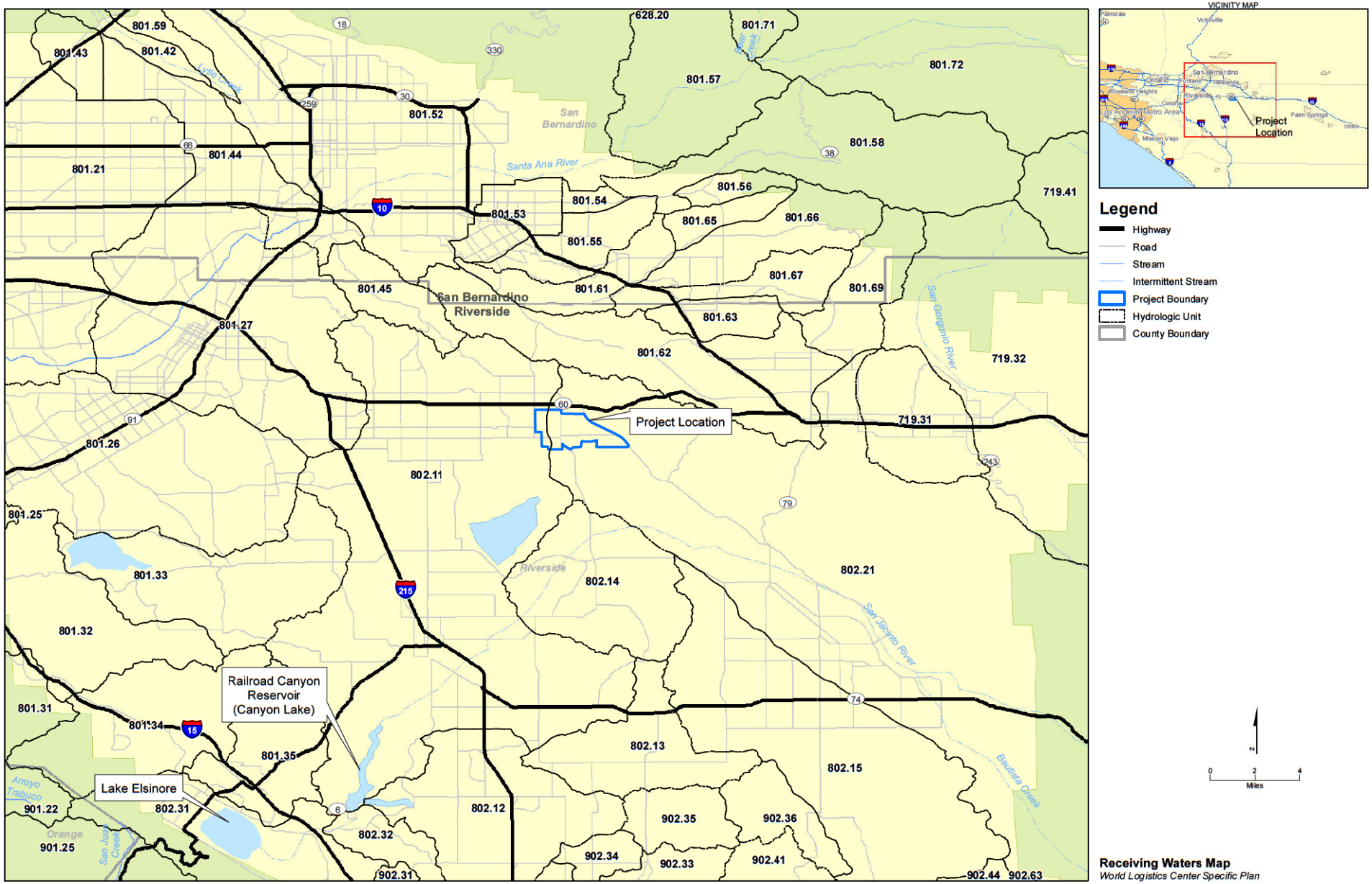



FIGURE 1
**Vicinity Map**
*World Logistics Center Specific Plan*
*Moreno Valley, CA*




| Planning Area (PA) | Land Use | Area | Building SF |
|---|---|---|---|
| **Logistics Development** | | | |
| 1 | LD | 77.8 | 1,100,000 |
| 2 | LD | 193.5 | 4,200,000 |
| 3 | LD | 120.3 | 1,600,000 |
| 4 | LD | 301.5 | 5,600,000 |
| 5 | LD | 64.2 | 1,100,000 |
| 6 | LD | 115.3 | 500,000 |
| 7 | LD | 10.3 | 50,000 |
| 8 | LD | 142.9 | 2,150,000 |
| 9 | LD | 485.8 | 10,400,000 |
| 10 | LD | 139.9 | 2,200,000 |
| 11 | LD | 500 | 8,000,000 |
| 12 | LD | 231.3 | 3,500,000 |
| | | **2,382.8** | **40,400,000** |
| **Light Logistics** | | | |
| 20 | LL | 16.1 | 45,500 |
| 21 | LL | 10.5 | 77,250 |
| 22 | LL | 10.5 | 77,250 |
| | | **37.1** | **200,000** |
| **Open Space** | | | |
| 30 | OS | 74.3 | |
| | | **74.3** | |
| **Right of Way** | | | |
| ROW | | 115.8 | |
| | | **115.8** | |
| **Grand Total** | | **2,610.0** | **40,600,000** |




**Receiving Waters Map**
*World Logistics Center Specific Plan*

SCO K:\HIGHLAND_FAIRVIEW\418273_HIGHLANDSP\MAPFILES\WATERSHED_BOUNDARIES.MXD DDODS 12/14/2011 9:41:10 AM

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# Appendix 2: Construction Plans

*Grading and Drainage Plans*

**This appendix will be completed as part of each final Project Specific WQMP.**

# Appendix 3: Soils Information

*Geotechnical Study and Other Infiltration Testing Data*

**Hydrologic Soils Group Map is included in this Appendix.**

**Geotechnical Report is included in the EIR as a technical appendix.**

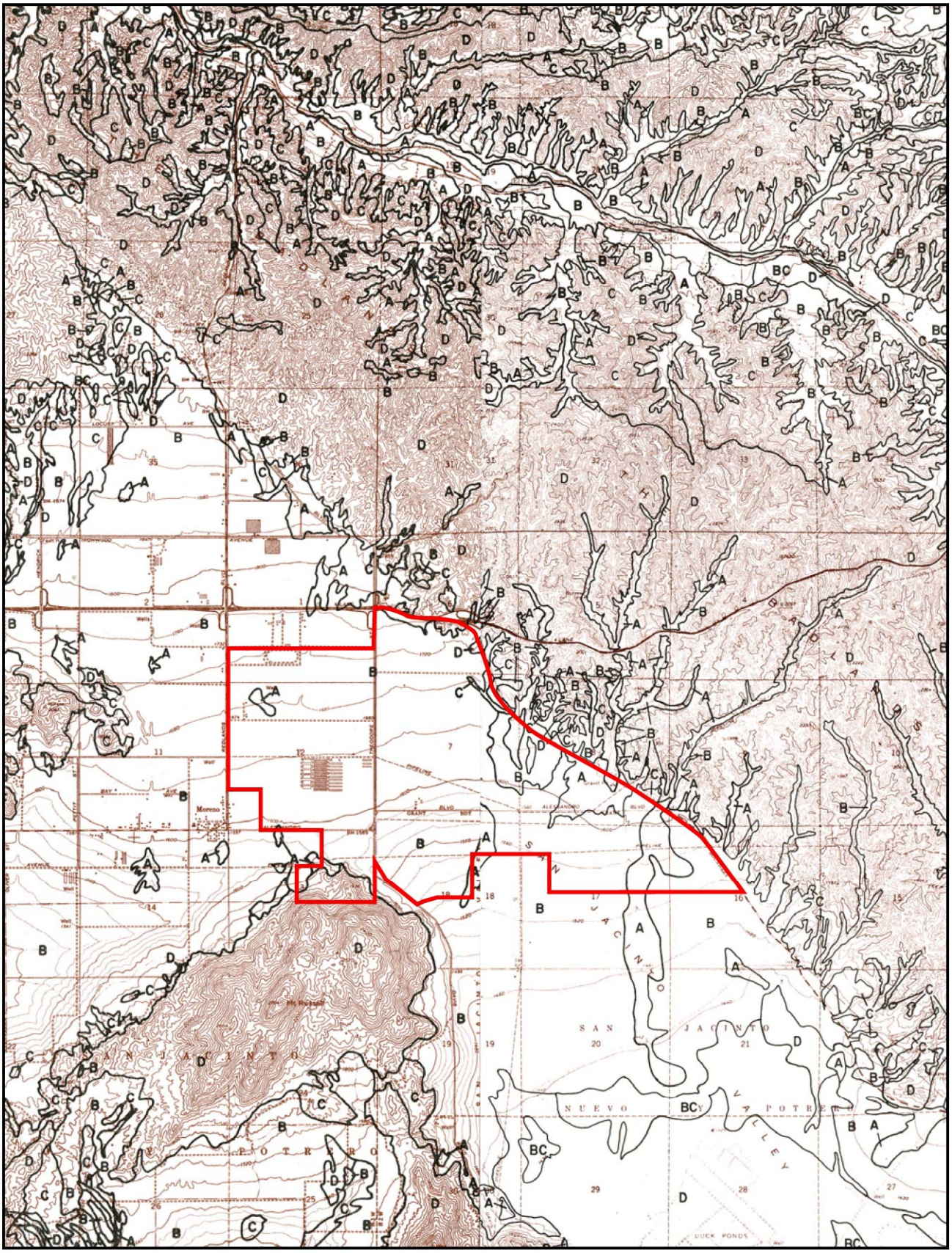



FIGURE 1
**Hydrologic Soil Groups Within Study Area**
*World Logistics Center Specific Plan*
*Moreno Valley, CA*



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# Appendix 4: Historical Site Conditions

*Phase I Environmental Site Assessment or Other Information on Past Site Use*

**Phase 1 Environmental Site Assessment is included in the EIR as a technical appendix.**

# Appendix 5: LID Infeasibility

*LID Technical Infeasibility Analysis*

**This appendix will be completed as part of each final Project Specific WQMP.**

# Appendix 6: BMP Design Details

*BMP Sizing, Design Details and other Supporting Documentation*

**This appendix will be completed as part of each final Project Specific WQMP.**

# Appendix 7: Hydromodification

*Supporting Detail Relating to Hydrologic Conditions of Concern*

**This appendix will be completed as part of each final Project Specific WQMP.**

# Appendix 8: Source Control

*Pollutant Sources/Source Control Checklist*

## STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

**How to use this worksheet (also see instructions in Section G of the WQMP Template):**

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

| **IF THESE SOURCES WILL BE ON THE PROJECT SITE ...** | **... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE** | | |
|---|---|---|---|
| **1**<br>**Potential Sources of Runoff Pollutants** | **2**<br>**Permanent Controls—Show on WQMP Drawings** | **3**<br>**Permanent Controls—List in WQMP Table and Narrative** | **4**<br>**Operational BMPs—Include in WQMP Table and Narrative** |
| ☑ **A.** On-site storm drain inlets | ☐ Locations of inlets. | ☐ Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify. | ☐ Maintain and periodically repaint or replace inlet markings.<br>☐ Provide stormwater pollution prevention information to new site owners, lessees, or operators.<br>☐ See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com<br>☐ Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains." |
| ☐ **B.** Interior floor drains and elevator shaft sump pumps | | ☐ State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer. | ☐ Inspect and maintain drains to prevent blockages and overflow. |
| ☐ **C.** Interior parking garages | | ☐ State that parking garage floor drains will be plumbed to the sanitary sewer. | ☐ Inspect and maintain drains to prevent blockages and overflow. |

## STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

| IF THESE SOURCES WILL BE ON THE PROJECT SITE ... | ... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE | | |
|---|---|---|---|
| 1<br>**Potential Sources of Runoff Pollutants** | 2<br>**Permanent Controls—Show on WQMP Drawings** | 3<br>**Permanent Controls—List in WQMP Table and Narrative** | 4<br>**Operational BMPs—Include in WQMP Table and Narrative** |
| ☐ **D1.** Need for future indoor & structural pest control | | ☐ Note building design features that discourage entry of pests. | ☐ Provide Integrated Pest Management information to owners, lessees, and operators. |
| ☑ **D2.** Landscape/ Outdoor Pesticide Use | ☐ Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.<br>☐ Show self-retaining landscape areas, if any.<br>☐ Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.) | State that final landscape plans will accomplish all of the following.<br>☐ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.<br>☐ Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.<br>☐ Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.<br>☐ Consider using pest-resistant plants, especially adjacent to hardscape.<br>To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions. | ☐ Maintain landscaping using minimum or no pesticides.<br>☐ See applicable operational BMPs in "What you should know for.....Landscape and Gardening" at http://rcflood.org/stormwater/Error! Hyperlink reference not valid.<br>☐ Provide IPM information to new owners, lessees and operators. |

## STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

| IF THESE SOURCES WILL BE ON THE PROJECT SITE ... | ... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE | | |
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| **1**<br>**Potential Sources of Runoff Pollutants** | **2**<br>**Permanent Controls—Show on WQMP Drawings** | **3**<br>**Permanent Controls—List in WQMP Table and Narrative** | **4**<br>**Operational BMPs—Include in WQMP Table and Narrative** |
| ☑ **E.** Pools, spas, ponds, decorative fountains, and other water features. | ☐ Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.) | If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements. | ☐ See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/ |
| ☐ **F.** Food service | ☐ For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment.<br>☐ On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer. | ☐ Describe the location and features of the designated cleaning area.<br>☐ Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated. | ☐ See the brochure, "The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/<br>Provide this brochure to new site owners, lessees, and operators. |
| ☑ **G.** Refuse areas | ☐ Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas.<br>☐ If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area.<br>☐ Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer. | ☐ State how site refuse will be handled and provide supporting detail to what is shown on plans.<br>☐ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar. | ☐ State how the following will be implemented:<br>Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |

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| ☐ **H.** Industrial processes. | ☐ Show process area. | ☐ If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system." | ☐ See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com<br>See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at http://rcflood.org/stormwater/ |

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| ☑ **I.** Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.) | ☐ Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area.<br>☐ Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults.<br>☐ Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site. | Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.<br>Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for:<br>▪ Hazardous Waste Generation<br>▪ Hazardous Materials Release Response and Inventory<br>▪ California Accidental Release (CalARP)<br>▪ Aboveground Storage Tank<br>▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991<br>▪ Underground Storage Tank<br>www.cchealth.org/groups/hazmat/ | ☐ See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |

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| ☐ **J.** Vehicle and Equipment Cleaning | ☐ Show on drawings as appropriate:<br>(1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.<br>(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use).<br>(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.<br>(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed. | ☐ If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced. | Describe operational measures to implement the following (if applicable):<br>☐ Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/<br>☐ Car dealerships and similar may rinse cars with water only. |

# STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

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| ☐ **K.** Vehicle/Equipment Repair and Maintenance | ☐ Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater.<br>☐ Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas.<br>☐ Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained. | ☐ State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.<br>☐ State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.<br>☐ State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. | In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:<br>☐ No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains.<br>☐ No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately.<br>☐ No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.<br>Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/<br>Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ |

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| ☑ L. Fuel Dispensing Areas | ☐ Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable.<br>☐ Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area. | | ☐ The property owner shall dry sweep the fueling area routinely.<br>☐ See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |

[6] The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

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| ☑ **M.** Loading Docks | ☐ Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer.<br>☐ Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation.<br>☐ Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer. | | ☐ Move loaded and unloaded items indoors as soon as possible.<br>☐ See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |

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| ☑ **N.** Fire Sprinkler Test Water | | ☐ Provide a means to drain fire sprinkler test water to the sanitary sewer. | ☐ See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com |
| **O.** Miscellaneous Drain or Wash Water or Other Sources<br>☐ Boiler drain lines<br>☑ Condensate drain lines<br>☑ Rooftop equipment<br>☐ Drainage sumps<br>☑ Roofing, gutters, and trim.<br>☐ Other sources | | ☐ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.<br>☐ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.<br>☐ Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.<br>☐ Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.<br>☐ Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.<br>Include controls for other sources as specified by local reviewer. | |

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| ☑ **P.** Plazas, sidewalks, and parking lots. | | | ☐ Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain. |

# Appendix 9: O&M

*Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms*

**This appendix will be completed as part of each final Project Specific WQMP.**

# Appendix 10: Educational Materials

*BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information*

**Sample educational materials are included in this Appendix.**

**Educational materials may be ordered at http://www.floodcontrol.co.riverside.ca.us/stormwater/.**

## Resources

State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento CA 95814
(916) 341-5455
www.swrcb.ca.gov/stormwtr/

Colorado River Basin Regional Water
Quality Control Board - Region 7
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
(760) 346-7491
www.swrcb.ca.gov/~rwqcb7/

Santa Ana Regional Water
Quality Control Board - Region 8
3737 Main Street, Suite 500
Riverside, CA 92501-3348
(909) 782-4130
www.swrcb.ca.gov/~rwqcb8/

San Diego Regional Water
Quality Control Board - Region 9
9771 Clairemont Mesa Blvd., Suite A
San Diego, CA 92124
(858) 467-2952
www.swrcb.ca.gov/~rwqcb9/

The StormWater/CleanWater Protection Program gratefully acknowledges the Santa Clara Valley Nonpoint Pollution Control Program, Alameda Countywide CleanWater Program and the City of Los Angeles Stormwater Management Division for information provided in this brochure.

Storm Water Clean Water
PROTECTION PROGRAM

To order additional brochures or to obtain information on other pollution prevention activities, please call (909) 955-1200 or visit the StormWater/CleanWater Protection Program website at:
www.co.riverside.ca.us/depts/flood/waterquality/npdes.asp

**1-800-506-2555**

**To report an illegal dumping or a clogged storm drain, call:**

**(909) 358-5055**

**For recycling and hazardous waste disposal, call:**

In an emergency call: **911**

Riverside County Hazardous Materials
Emergency Response Team
**(909) 358-5055** 8:00 a.m. – 5:00 p.m.
**(909) 358-5245** after 5:00 p.m.

**To report a hazardous materials spill, call:**

# StormWater Pollution

*What you should know for...*

## GENERAL CONSTRUCTION & SITE SUPERVISION



## Best Management Practices (BMPs) for:

- Developers
- General Contractors
- Home Builders
- Construction Inspectors
- Anyone in the construction business

## StormWater Pollution . . . What You Should Know

Riverside County has two drainage systems - sewers and storm drains. The storm drain system was designed to reduce flooding by carrying excess rainwater away from streets and developed areas. Since the storm drain system does not provide for water treatment, it also serves the *unintended* function of transporting pollutants directly to our local waterways.



*Unlike sanitary sewers, storm drains are not connected to a wastewater treatment plant – they flow directly to our local streams, rivers and lakes.*

Stormwater runoff is a part of the natural hydrologic process. However, land development and construction activities can significantly alter natural drainage processes and introduce pollutants into stormwater runoff. Polluted stormwater runoff from construction sites has been identified as a major source of water pollution in California. It jeopardizes the quality of our local waterways and can pose a serious threat to the health of our aquatic ecosystems.

## The Cities and County of Riverside StormWater/CleanWater Protection Program




Because preventing pollution is much easier and less costly than cleaning up "after the fact," the Cities and County of Riverside StormWater/CleanWater Protection Program informs residents and businesses on pollution prevention activities. This pamphlet describes various Best Management Practices (BMPs) that construction site operators can use to prevent stormwater pollution.

In accordance with applicable federal and state law, the Cities and County of Riverside have adopted ordinances for stormwater management and discharge control that **prohibit** the discharge of pollutants into the storm drain system or local surface water. This includes discharges from construction sites containing sediment, concrete, mortar, paint, solvents, lubricants, vehicle fluids, fuel, pesticides, and construction debris.

**PLEASE NOTE:** The Federal, State and local regulations strictly prohibit the discharge of sediment and pollutants into the streets, the storm drain system or waterways. As an owner, operator or supervisor of a construction site, you may be held financially responsible for any environmental damage caused by your subcontractors or employees.

## Stormwater Pollution from Construction Activities

The two most common sources of stormwater pollution problems associated with construction activities are ***erosion*** and ***sedimentation***. Failure to maintain adequate erosion and sediment controls at construction sites often results in sediment discharges into the storm drain system, creating multiple problems once it enters local waterways.

Construction vehicles and heavy equipment can also track significant amounts of mud and sediment onto adjacent streets. Additionally, wind may transport construction materials and wastes into streets storm drains, or directly into our local waterways.

## What Should You Do?
## Advance Planning to Prevent Pollution

- ❑ Remove existing vegetation only as needed.
- ❑ Schedule excavation, grading, and paving operations for dry weather periods, if possible.
- ❑ Designate a specific area of the construction site, well away from storm drain inlets or watercourses, for material storage and equipment maintenance.
- ❑ Develop and implement an effective combination of erosion and sediment controls for the construction site.
- ❑ Practice source reduction by ordering only the amount of materials that are needed to finish the project.
- ❑ Educate your employees and subcontractors about stormwater management requirements and their pollution prevention responsibilities.
- ❑ Control the amount of surface runoff at the construction site by impeding internally generated flows and using berms or drainage ditches to direct incoming offsite flows to go around the site. ***Note:*** *Consult local drainage policies for more information.*

# Best Management Practices

The following Best Management Practices (BMPs) can significantly reduce pollutant discharges from your construction site. Compliance with stormwater regulations can be as simple as minimizing stormwater contact with potential pollutants by providing covers and secondary containment for construction materials, designating areas away from storm drain systems for storing equipment and materials and implementing good housekeeping practices at the construction site.

- ❑ Protect all storm drain inlets and streams located near the construction site to prevent sediment-laden water from entering the storm drain system.
- ❑ Limit access to and from the site. Stabilize construction entrances/exits to minimize the track out of dirt and mud onto adjacent streets. Conduct frequent street sweeping.
- ❑ Protect stockpiles and construction materials from winds and rain by storing them under a roof, secured impermeable tarp or plastic sheeting.
- ❑ Avoid storing or stockpiling materials near storm drain inlets, gullies or streams.
- ❑ Phase grading operations to limit disturbed areas and duration of exposure.
- ❑ Perform major maintenance and repairs of vehicles and equipment offsite.
- ❑ Wash out concrete mixers only in designated washout areas at the construction site.
- ❑ Set-up and operate small concrete mixers on tarps or heavy plastic drop cloths.
- ❑ Keep construction sites clean by removing trash, debris, wastes, etc. on a regular basis.
- ❑ Clean-up spills immediately using dry clean-up methods (e.g., absorbent materials such as cat litter, sand or rags for liquid spills; sweeping for dry spills such as cement, mortar or fertilizer) and by removing the contaminated soil from spills on dirt areas. .
- ❑ Prevent erosion by implementing any or a combination of soil stabilization practices such as mulching, surface roughening, permanent or temporary seeding.
- ❑ Maintain all vehicles and equipment in good working condition. Inspect frequently for leaks, and repair promptly.
- ❑ Practice proper waste disposal. Many construction materials and wastes, including solvents, water-based paint, vehicle fluids, broken asphalt and concrete, wood, and cleared vegetation can be recycled. Materials that cannot be recycled must be taken to an appropriate landfill or disposed of as hazardous waste.
- ❑ Cover open dumpsters with secured tarps or plastic sheeting. Never clean out a dumpster by washing it down on the construction site.
- ❑ Arrange for an adequate debris disposal schedule to insure that dumpsters do not overflow.

# General Construction Activities Stormwater Permit

## *(Construction Activities General Permit)*

The State Water Resources Control Board (SWRCB) adopted a new Construction Activities General Permit (WQ Order No. 99-08DWQ) on August 19, 1999, superseding the now expired SWRCB statewide General Permit (WQ Order No. 92-08DWQ). This permit is administered and enforced by the SWRCB and the local Regional Water Quality Control Boards (RWQCB). The updated Construction Activities General Permit establishes a number of new stormwater management requirements for construction site operator.

***NOTE:*** *Some construction activies stormwater permits are issued on a regional basis. Consult your local RWQCB to find out if your project requires coverage under any of these permits.*

## Frequently Asked Questions:

### *Does my construction site require coverage under the Construction Activities General Permit?*

Yes, if construction activity results in the disturbance of five or more acres of total land area or is part of a common plan of development that results in the disturbance of five or more acres.

### *How do I obtain coverage under the Construction Activities General Permit?*

Obtain the permit package and submit the completed Notice of Intent (NOI) form to the SWRCB prior to grading or disturbing soil at the construction site. For ongoing construction activity involving a change of ownership, the new owner must submit a new NOI within 30 days of the date of change of ownership. The completed NOI along with the required fee should be mailed to the SWRCB.

### *What must I do to comply with the requirements of the Construction Activities General Permit?*

- ● Implement BMPs for non-stormwater discharges year-round.
- ● Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) prior to commencing construction activities.
- ● Keep a copy of the SWPPP at the construction site for the entire duration of the project.
- ● Calculate the anticipated stormwater run-off.
- ● Implement an effective combination of erosion and sediment control on all soil disturbed areas.
- ● Conduct site inspections prior to anticipated storm events, every 24-hours during extended storm events, and after actual storm event.
- ● Perform repair and maintenance of BMPs as soon as possible after storm events depending upon worker safety.
- ● Update the SWPPP as needed, to manage pollutants or reflect changes in site conditions.
- ● Include description of post construction BMPs at the construction site, including parties responsible for long-term maintenance.

***NOTE:*** *Please refer to the Construction Activities General Permit for detailed information. You may contact the SWRCB, your local RWQCB, or visit the SWRCB website at www.swrcb.ca.gov/stormwtr/ to obtain a State Construction Activities Stormwater General Permit packet.*

### *How long is this Construction Activities General Permit in effect?*

The Permit coverage stays in effect untilyou submit a Notice of Termination (NOT) to the SWRCB. For the purpose of submitting a NOT, all soil disturbing activities have to be completed and one of the three following criteria has to be met:

1. Change of ownership;
2. A uniform vegetative cover with 70 percent coverage has been established; or,
3. Equivalent stabilization measures such as the use of reinforced channel liners, soil cement, fiber matrices, geotextiles, etc., have been employed.

## Helpful telephone numbers and links:

### Riverside County Water Agencies

| | |
|---|---|
| City of Banning | (951) 922-3130 |
| City of Beaumont/Cherry Valley | (951) 845-9581 |
| City of Blythe | (760) 922-6161 |
| City of Coachella | (760) 398-3502 |
| City of Corona | (951) 736-2263 |
| City of Hemet | (951) 765-3710 |
| City of Norco | (951) 270 5607 |
| City of Riverside Public Works | (951) 351-6140 |
| City of San Jacinto | (951) 654-4041 |
| Coachella Valley Water District | (760) 398-2651 |
| Desert Water Agency (Palm Springs) | (760) 323-4971 |
| Eastern Municipal Water District | (951) 928-3777 |
| Elsinore Valley Municipal Water District | (951) 674 3146 |
| Elsinore Water District | (951) 674-2168 |
| Farm Mutual Water Company | (951) 244-4198 |
| Idyllwild Water District | (951) 659-2143 |
| Indio Water Authority | (760) 391-4129 |
| Jurupa Community Services District | (951) 685-7434 |
| Lee Lake Water | (951) 658-3241 |
| Mission Springs Water | (760) 329-6448 |
| Rancho California Water District | (951) 296-6900 |
| Ripley, CSA #62 | (760) 922-4951 |
| Riverside Co. Service Area #51 | (760) 227-3203 |
| Rubidoux Community Services District | (951) 684-7580 |
| Valley Sanitary District | (760) 347-2356 |
| Western Municipal Water District | (951) 789-5000 |
| Yucaipa Valley Water District | (909) 797-5117 |

**REPORT ILLEGAL STORM DRAIN DISPOSAL**
1-800-506-2555 or e-mail us at
fcnpdes@rcflood.org

- Riverside County Flood Control and Water Conservation District
  www.rcflood.org

Online resources include:

- California Storm Water Quality Association
  www.casqa.org
- State Water Resources Control Board
  www.waterboards.ca.gov
- Power Washers of North America
  www.thepwna.org

# Stormwater Pollution

*What you should know for...*

## Outdoor Cleaning Activities and Professional Mobile Service Providers



**Storm drain pollution prevention information for:**

- Car Washing / Mobile Detailers
- Window and Carpet Cleaners
- Power Washers
- Waterproofers / Street Sweepers
- Equipment cleaners or degreasers and all mobile service providers

## Do you know where street flows actually go?

**Storm drains are NOT connected to sanitary sewer systems and treatment plants!**




The primary purpose of storm drains is to carry rain water away from developed areas to prevent flooding. Pollutants discharged to storm drains are transported directly into rivers, lakes and streams. Soaps, degreasers, automotive fluids, litter and a host of materials are washed off buildings, sidewalks, plazas and parking areas. Vehicles and equipment must be properly managed to prevent the pollution of local waterways.

Unintentional spills by mobile service operators can flow into storm drains and pollute our waterways. **Avoid mishaps.** *Always* have a **Spill Response Kit** on hand to clean up unintentional spills. Only emergency **Mechanical** repairs should be done in City streets, using drip pans for spills. **Plumbing** should be done on private property. Always store chemicals in a leak-proof container and keep covered when not in use. **Window/Power Washing** waste water shouldn't be released into the streets, but should be disposed of in a sanitary sewer, landscaped area or in the soil. Soiled **Carpet Cleaning** wash water should be filtered before being discharged into the sanitary sewer. Dispose of all filter debris properly. **Car Washing/Detailing** operators should wash cars on private property and use a regulated hose nozzle for water flow control and runoff prevention. Capture and dispose of waste water and chemicals properly. Remember, storm drains are for receiving rain water runoff only.

**REPORT ILLEGAL STORM DRAIN DISPOSAL 1-800-506-2555**



# Help Protect Our Waterways!

## Use these guidelines for Outdoor Cleaning Activities and Wash Water Disposal

**Did you know that disposing of pollutants into the street, gutter, storm drain or body of water is *PROHIBITED* by law and can result in stiff penalties?**

## Best Management Practices

Waste wash water from Mechanics, Plumbers, Window/Power Washers, Carpet Cleaners, Car Washing and Mobile Detailing activities may contain significant quantities of motor oil, grease, chemicals, dirt, detergents, brake pad dust, litter and other materials.

Best Management Practices, or BMPs as they are known, are guides to prevent pollutants from entering the storm drains. ***Each of us*** can do our part to keep storm water clean by using the suggested BMPs below:

## Simple solutions for both light and heavy duty jobs:

**Do...**consider dry cleaning methods first such as a mop, broom, rag or wire brush. Always keep a spill response kit on site.

**Do...**prepare the work area before power cleaning by using sand bags, rubber mats, vacuum booms, containment pads or temporary berms to keep wash water away from the gutters and storm drains.

**Do...**use vacuums or other machines to remove and collect loose debris or litter before applying water.

**Do...**obtain the property owner's permission to dispose of ***small amounts*** of power washing waste water on to landscaped, gravel or unpaved surfaces.

**Do...**check your local sanitary sewer agency's policies on wash water disposal regulations before disposing wash water to the sewer. (See list on reverse side)

**Do...**be aware that if discharging to landscape areas, soapy wash water may damage landscaping. Residual wash water may remain on paved surfaces to evaporate. Sweep up solid residuals and dispose of properly. Vacuum booms are another option for capturing and collecting wash water.

**Do...**check to see if local ordinances prevent certain activities.

**Do not let...**wash or waste water from sidewalk, plaza or building cleaning go into a street or storm drain.




**Report illegal storm drain disposal,**
**Call Toll Free**
**1-800-506-2555**

## Using Cleaning Agents

Try using biodegradable/phosphate-free products. They are easier on the environment, but don't confuse them for being toxic free. Soapy water entering the storm drain system can impact the delicate aquatic environment.



When cleaning surfaces with a ***high-pressure washer*** or ***steam cleaner***, additional precautions should be taken to prevent the discharge of pollutants into the storm drain system. These two methods of surface cleaning can loosen additional material that can contaminate local waterways.

## Think Water Conservation

Minimize water use by using high pressure, low volume nozzles. Be sure to check all hoses for leaks. Water is a precious resource, don't let it flow freely and be sure to shut it off in between uses.

## Screening Wash Water

Conduct thorough dry cleanup before washing exterior surfaces, such as buildings and decks ***with loose paint***, sidewalks or plaza areas. Keep debris from entering the storm drain after cleaning by first passing the wash water through a "20 mesh" or finer screen to catch the solid materials, then dispose of the mesh in a refuse container. Do not let the remaining wash water enter a street, gutter or storm drain.

## Drain Inlet Protection & Collection of Wash Water

- Prior to any washing, block all storm drains with an impervious barrier such as sandbags or berms, or seal the storm drain with plugs or other appropriate materials.
- Create a containment area with berms and traps or take advantage of a low spot to keep wash water contained.
- Wash vehicles and equipment on grassy or gravel areas so that the wash water can seep into the ground.
- Pump or vacuum up all wash water in the contained area.

## Concrete/Coring/Saw Cutting and Drilling Projects

Protect any down-gradient inlet by using dry activity techniques whenever possible. If water is used, minimize the amount of water used during the coring/drilling or saw cutting process. Place a barrier of sandbags and/or absorbent berms to protect the storm drain inlet or watercourse. Use a shovel or wet vacuum to remove the residue from the pavement. Do not wash residue or particulate matter into a storm drain inlet or watercourse.

# Stormwater and the Construction Industry

## Protect Natural Features



Bad

Good

- Minimize clearing.
- Minimize the amount of exposed soil.
- Identify and protect areas where existing vegetation, such as trees, will not be disturbed by construction activity.
- Protect streams, stream buffers, wild woodlands, wetlands, or other sensitive areas from any disturbance or construction activity by fencing or otherwise clearly marking these areas.

## Construction Phasing



- Sequence construction activities so that the soil is not exposed for long periods of time.
- Schedule or limit grading to small areas.
- Install key sediment control practices before site grading begins.
- Schedule site stabilization activities, such as landscaping, to be completed immediately after the land has been graded to its final contour.

## Vegetative Buffers



Bad

Good

- Protect and install vegetative buffers along waterbodies to slow and filter stormwater runoff.
- Maintain buffers by mowing or replanting periodically to ensure their effectiveness.

## Silt Fencing



Bad

Good

- Inspect and maintain silt fences after each rainstorm.
- Make sure the bottom of the silt fence is buried in the ground.
- Securely attach the material to the stakes.
- Don't place silt fences in the middle of a waterway or use them as a check dam.
- Make sure stormwater is not flowing around the silt fence.

# Maintain your BMPs!

**IN RIVERSIDE COUNTY....Call 1-800-506-2555**

**TO REPORT ILLEGAL STORMDRAIN DISPOSAL**

E-mail: Flood.fcnpdes@co.riverside.ca.us

Visit our website: www.floodcontrol.co.riverside.ca.us

Brought to you by the Storm Water/Clean Water Pollution Protection Program.....

**REMEMBER, ONLY RAIN IN THE STORMDRAIN!**

## Site Stabilization



Bad

Good

- Vegetate, mulch, or otherwise stabilize all exposed areas as soon as land alterations have been completed.

## Construction Entrances



Bad

Good

- Remove mud and dirt from the tires of construction vehicles before they enter a paved roadway.
- Properly size entrance BMPs for all anticipated vehicles.
- Make sure that the construction entrance does not become buried in soil.

## Slopes



Bad

Good

- Rough grade or terrace slopes.
- Break up long slopes with sediment barriers, or under drain, or divert stormwater away from slopes.

## Dirt Stockpiles



Bad

Good

- Cover or seed all dirt stockpiles.

## Storm Drain Inlet Protection



Bad

Good

- Use rock or other appropriate material to cover the storm drain inlet to filter out trash and debris.
- Make sure the rock size is appropriate (usually 1 to 2 inches in diameter).
- If you use inlet filters, maintain them regularly.

*www.epa.gov/npdes/menuofbmps*

# Stormwater and the Construction Industry

## *Planning and Implementing Erosion and Sediment Control Practices*

The construction industry is a critical participant in the nation's efforts to protect streams, rivers, lakes, wetlands, and oceans. Through the use of best management practices (BMPs), construction site operators are the key defense against erosion and sedimentation.

As stormwater flows over a construction site, it picks up pollutants like sediment, debris, and chemicals. High volumes of stormwater can also cause stream bank erosion, and destroy downstream aquatic habitat. Preventing soil erosion and sedimentation is an important responsibility at all construction sites.

In addition to the environmental impact, uncontrolled erosion can have a significant financial impact on a construction project. It costs money and time to repair gullies, replace vegetation, clean sediment-clogged storm drains, replace poorly installed BMPs, and mitigate damage to other people's property or to natural resources.

**Best Management Practice (BMP)**
A BMP is a method used to prevent or control stormwater runoff and the discharge of pollutants, including sediment, into local waterbodies. Silt fences, inlet protection, and site-stabilization techniques are typical BMPs on a construction site.

**Operator**
An operator is someone who has control over and the ability to modify construction plans and specifications (e.g. owner, general contractor)

or

Someone who has control over the day-to-day operations at a site (e.g., owner, general contractor) that are necessary to ensure compliance with the permit requirements. It is the responsibility of a construction site owner or operator to contain stormwater runoff and prevent erosion during **all** stages of a project.

There may be more than one person at a site who meets these definitions and must apply for permit coverage. (States may have different definitions of the term "operator.")

### So what's being done about polluted runoff?

The Clean Water Act includes the National Pollutant Discharge Elimination System (NPDES) permitting program. As of January 2003, 44 states and territories are authorized to issue NPDES stormwater permits. If your state isn't authorized to operate the NPDES stormwater permit program, EPA issues the permits. Permits vary from state to state, so contact your state or EPA for specific information. Your permitting authority has specific information on your state's NPDES stormwater permit program. In general, construction permits require construction operators to do all of the following:

- Develop and implement a stormwater pollution prevention plan
- Submit a permit application or notice of intent (NOI)
- Comply with the permit, including maintaining BMPs and inspecting the site

Under the NPDES program, construction activities that disturb 1 or more acres are required to obtain stormwater permit coverage. States have different names for the plans that construction operators must develop, such as

- Stormwater pollution prevention plan
- Erosion and sediment control plan
- Erosion control and stormwater management plan
- Stormwater management plan
- Water pollution control plan
- Pollution prevention plan

This document uses the term "*Plan*."

### I think I need a permit... Where do I start?

All land-disturbing activities, including clearing, grading, and excavation, that disturb **1 or more acres** are required to be covered under a state or EPA-issued NPDES construction stormwater permit **prior to land disturbance**. Permit requirements vary by state. Begin by researching the specific requirements in your state. You might already be subject to local erosion and sediment control requirements, but that doesn't release you from the requirements of the NPDES program at the state or EPA level. Although you must comply with both sets of requirements, in most cases they have been designed to be complementary. Contact your permitting authority to find out exactly what you need to do. A good place to start your search is the Construction Industry Compliance Assistance web site at http://www.envcap.org/cica.

The NPDES permit requirements include small construction activities that are part of a larger common plan of development or sale, such as a single lot within a larger subdivision. For developments with multiple operators, all operators must have permit coverage for their individual parts of the larger development, no matter how large or small each operation happens to be. When there are multiple operators at one site, they're encouraged to develop and share one comprehensive Plan and obtain permit coverage as co-permitees.

The **owner or operator** of the construction site is responsible for complying with the requirements of the permit. Responsibilities include developing a Plan, obtaining permit coverage, implementing BMPs, and stabilizing the site at the end of the construction activity.

**Construction sites that discharge unpermitted stormwater are in violation of the Clean Water Act and may be subject to fines of up to $27,500 a day per violation.**

#### Determine your eligibility
All construction activity that disturbs 1 or more acres of land, as well as activity that disturbs less than 1 acre but is part of a larger common plan of development, must obtain permit coverage.

#### Read and understand your stormwater permit requirements
Get a copy of the permit for construction activities and a permit application (or notice of intent form) from your state or EPA permitting authority.

#### Develop a Plan
Most states do not require you to submit your Plan. However, you do need to keep the Plan on site. If that's impractical, you may post a notice that tells where the Plan is kept so it can be accessed by the permitting authority and other interested parties.

You'll need to post a copy of your completed application on site. Put it in a place where the public can see it so they'll know your site is covered by an NPDES permit!

#### Apply for permit coverage
Once you understand your permit requirements and have developed a Plan, you can submit a stormwater permit application (or notice of intent) to your permitting authority. This must be done before beginning any land disturbance on the site. Some states require a few days of lead time, so check with your permitting authority. Once you've submitted the application, you must satisfy the conditions of the permit.

#### Implement the Plan
Be prepared to implement the BMPs in your Plan before construction begins. Ensure that BMPs are properly maintained, and upgrade and repair them as necessary.

## Developing and Implementing a Plan

You must have a Plan that includes erosion and sediment control and pollution prevention BMPs. These Plans require

- Advance planning and training to ensure proper implementation of the BMPs
- Erosion and sediment control BMPs in place until the area is permanently stabilized
- Pollution prevention BMPs to keep the construction site "clean"
- Regular inspection of the construction site to ensure proper installation and maintenance of BMPs

Fortunately, the practices and measures that must be included in your Plan are already part of the standard operating procedures at many construction sites.

Six steps are associated with developing and implementing a stormwater Plan. There's a wealth of information available on developing pollution prevention plans. Please contact your permitting authority for help in finding additional guidance materials, or visit www.epa.gov/npdes/stormwater. A sample construction plan is available at www.epa.gov/npdes/pubs/sample_swppp.pdf.

### *1. Site Evaluation and Design Development*

- **Collect site information**
- **Develop site plan design**
- **Prepare pollution prevention site map**

The first step in preparing a Plan is to define the characteristics of the site and the type of construction that will occur. This involves collecting site information, identifying natural features that should be protected, developing a site plan design, describing the nature of the construction activity, and preparing a pollution prevention site map.

### *2. Assessment*

- **Measure the site area**
- **Determine the drainage areas**
- **Calculate the runoff coefficient**

The next step is assessing the impact the project will have on stormwater runoff. Determine the drainage areas and estimate the runoff amounts and velocities. For more information on calculating the runoff coefficient, go to www.epa.gov/npdes/pubs/chap02_conguide.pdf, page 11.

### *3. Control Selection and Plan Design*

- **Review and incorporate state or local requirements**
- **Select erosion and sediment controls**
- **Select other controls**
- **Select stormwater management controls**
- **Indicate the location of controls on the site map**
- **Prepare an inspection and maintenance plan**
- **Coordinate controls with construction activity**
- **Prepare sequence of major activities**

In the third step you'll actually document your procedures to prevent and control polluted stormwater runoff. You must delineate areas that will not be disturbed, including critical natural areas like streamside areas, floodplains, and trees. You must also identify the measures (or BMPs) you'll use to protect these areas.

**Soil erosion control tips...**

- Design the site to infiltrate stormwater into the ground and to keep it out of storm drains. Eliminate or minimize the use of stormwater collection and conveyance systems while maximizing the use of stormwater infiltration and homestention techniques.
- Minimize the amount of exposed soil on site.
  - To the extent possible, plan the project in stages to minimize the amount of area that is bare and subject to erosion. The less soil exposed, the easier and cheaper it will be to control erosion.
  - Vegetate disturbed areas with permanent or temporary seeding immediately upon reaching final grade.
  - Vegetate or cover stockpiles that will not be used immediately.
- Reduce the velocity of stormwater both onto and away from the project area.
  - Interceptors, diversions, vegetated buffers, and check dams are a few of the BMPs that can be used to slow down stormwater as it travels across and away from the project site.
  - Diversion measures can also be used to direct flow away from exposed areas toward stable portions of the site.
  - Silt fences and other types of perimeter filters should never be used to reduce the velocity of runoff.
- Protect defined channels immediately with measures adequate to handle the storm flows expected.
  - Sod, geotextile, natural fiber, riprap, or other stabilization measures should be used to allow the channels to carry water without causing erosion. Use softer measures like geotextile or vegetation where possible to prevent downstream impacts.
- Keep sediment on site.
  - Place aggregate or stone at construction site vehicle exits to accommodate at least two tire revolutions of large construction vehicles. Much of the dirt on the tires will fall off before the vehicle gets to the street.
  - Regular street sweeping at the construction entrance will prevent dirt from entering storm drains. Do not hose paved areas.
  - Sediment traps and basins are temporary structures and should be used in conjunction with other measures to reduce the amount of erosion.
- Maintaining all BMPs is critical to ensure their effectiveness during the life of the project.
  - Regularly remove collected sediment from silt fences, berms, traps, and other BMPs.
  - Ensure that geotextiles and mulch remain in place until vegetation is well established.
  - Maintain fences that protect sensitive areas, silt fences, diversion structures, and other BMPs.

Phasing your project to minimize the amount of exposed soil at any given time is a highly effective way to prevent erosion. Erosion control measures designed to prevent soil from being mobilized include diversions to route stormwater away from exposed soils and stabilization with vegetation, mulch, and geotextiles. Sedimentation control measures designed to remove sediment from stormwater or prevent it from leaving the site include silt fences, sediment traps, and diversions.

You'll need to select erosion and sediment controls—including stabilization measures for protecting disturbed areas and structural controls for diverting run-off and removing sediment—that are appropriate for your particular site. The appropriateness of the control measures will depend on several factors, but will be influenced most directly by the site characteristics. Some stabilization measures you might consider are temporary seeding, permanent seeding, and mulching. Structural control measures include earth dikes, silt fences, and sediment traps. No single BMP will meet all of the erosion and sedimentation control needs of a construction site. A combination of BMPs is necessary. For more information on the types of BMPs appropriate for your construction site, see the BMP fact sheet series available at www.epa.gov/npdes/menuofbmps.

**Other BMPs and Activities to Control Polluted Runoff**
You'll need to select other controls to address potential pollutant sources on your site. Construction materials, debris, trash, fuel, paint, and stockpiles become pollution sources when it rains. Basic pollution prevention practices can significantly reduce the amount of pollution leaving construction sites. The following are some simple practices that should be included in the Plan and implemented on site:

- Keep potential sources of pollution out of the rain as practicable (e.g., inside a building, covered with plastic or tarps, or sealed tightly in a leak-proof container).
- Clearly identify a protected, lined area for concrete truck washouts. This area should be located away from streams, storm drain inlets, or ditches and should be cleaned out periodically.
- Park, refuel, and maintain vehicles and equipment in one area of the site to minimize the area exposed to possible spills and fuel storage. This area should be well away from streams, storm drain inlets, or ditches. Keep spill kits close by and clean up any spills or leaks immediately, including spills on pavement or earthen surfaces.
- Practice good housekeeping. Keep the construction site free of litter, construction debris, and leaking containers. Keep all waste in one area to minimize cleaning.
- Never hose down paved surfaces to clean dust, debris, or trash. This water could wash directly into storm drains or streams. Sweep up materials and dispose of them in the trash. Never bury trash or debris!
- Dispose of hazardous materials properly.

### *4. Certification and Notification*

- **Certify the Plan**
- **Submit permit application or notice of intent**

Once the Plan has been developed, an authorized representative must sign it. Now is the time to submit the permit application or notice of intent. Your permit might require that the Plan be kept on site, so be sure to keep it available for the staff implementing the Plan.

***Erosion and sedimentation control practices are only as good as their installation and maintenance.***

### *5. Implementing and Maintaining a Plan*

- **Implement controls**
- **Inspect and maintain controls**
- **Update/change the Plan**
- **Report releases of hazardous materials**

A Plan describes the practices and activities you'll use to prevent stormwater contamination and meet the NPDES permit requirements. Make sure that the Plan is implemented and that the Plan is updated as necessary to reflect changes on the site.

Erosion and sedimentation control practices are only as good as their installation and maintenance. Train the contractors that will install the BMPs and inspect immediately to ensure that the BMPs have been installed correctly.

Regularly inspect the BMPs (especially before and after rain events) and perform any necessary repairs or maintenance immediately. Many BMPs are designed to handle a limited amount of sediment. If not maintained, they'll become ineffective and a source of sediment pollution.

It's also important to keep records of BMP installation, implementation, and maintenance. Keep track of major grading activities that occur on the site, when construction activities cease (temporarily or permanently), and when a site is temporarily or permanently stabilized.

If construction plans change at any time, or if more appropriate BMPs are chosen for the site, update the Plan accordingly.

### *6. Completing the Project: Final Stabilization and Termination of the Permit*

- **Final stabilization**
- **Notice of Termination**
- **Record retention**

Many states and EPA require a Notice of Termination (NOT) or other notification signifying that the construction activity is completed. An NOT is required when

- Final stabilization has been achieved on all portions of the site for which the permittee is responsible.
- Another operator has assumed control over all areas of the site that have not been finally stabilized. That operator would need to submit a new permit application to the permitting authority.
- For residential construction only, temporary stabilization of a lot has been completed prior to transference of ownership to the homeowner, with the homeowner being made aware of the need to perform final stabilization.

Permittees must keep a copy of their permit application and their Plan for at least 3 years following final stabilization. This period may be longer depending on state and local requirements.

**Preconstruction Checklist**

- A site description, including
  - Nature of the activity
  - Intended sequence of major construction activities
  - Total area of the site
  - Existing soil type and rainfall runoff data
  - A site map with:
    - Drainage patterns
    - Approximate slopes after major grading
    - Area of soil disturbance
    - Outline of areas which will not be disturbed
    - Location of major structural and nonstructural soil erosion controls
    - Areas where stabilization practices are expected to occur
    - Surface waters
    - Stormwater discharge locations
  - Name of the receiving water(s)
- A description of controls:
  - Erosion and sediment controls, including
    - Stabilization practices for all areas disturbed by construction
    - Structural practices for all drainage/discharge locations
  - Stormwater management controls, including
    - Measures used to control pollutants occurring in stormwater discharges after construction activities are complete
    - Velocity dissipation devices to provide nonerosive flow conditions from the discharge point along the length of any outfall channel
  - Other controls, including
    - Waste disposal practices that prevent discharge of solid materials
    - Measures to minimize offsite tracking of sediments by construction vehicles
    - Measures to ensure compliance with state or local waste disposal, sanitary sewer, or septic system regulations
  - Description of the timing during the construction when measures will be implemented
- State or local requirements incorporated into the Plan
- Inspection and maintenance procedures for control measures identified in the Plan
- Contractor certification and Plan certification

**Implementation Checklist**

- Maintain records of construction activities, including
  - Dates when major grading activities occur
  - Dates when construction activities temporarily cease on the site or a portion of the site
  - Dates when construction activities permanently cease on the site or a portion of the site
  - Dates when stabilization measures are completed on the site
- Prepare inspection reports summarizing
  - Name of person conducting BMP inspections
  - Qualifications of person conducting BMP inspections
  - BMPs/areas inspected
  - Observed conditions
  - Necessary changes to the Plan
- Report releases of reportable quantities of oil or hazardous materials
  - Notify the National Response Center at 800-424-8802 immediately
  - Report releases to your permitting authority immediately, or as specified in your permit. You must also provide a written report within 14 days.
  - Modify the Plan to include
    - The date of release
    - Circumstances leading to the release
    - Steps taken to prevent reoccurrence of the release
- Modify Plan as necessary
  - Incorporate requests of the permitting authority to bring the Plan into compliance
  - Address changes in design, construction operation, or maintenance that affect the potential for discharge of pollutants

***An ounce of prevention is worth a pound of cure! It's far more efficient and cost-effective to prevent pollution than it is to try to correct problems later. Installing and maintaining simple BMPs and pollution prevention techniques on site can greatly reduce the potential for stormwater pollution and can also save you money!***

***Visit www.epa.gov/npdes/stormwater for more information.***

StormWater CleanWater PROTECTION PROGRAM

# After the Storm



## A Citizen's Guide to Understanding Stormwater

WHEN IT RAINS IT DRAINS

THE YEAR OF CLEAN WATER

EPA United States Environmental Protection Agency

EPA 833-B-03-002

January 2003

Internet Address (URL) • HTTP://www.epa.gov
Recycled/Recyclable • Printed With Vegetable Oil Based Inks on 100% Postconsumer, Process Chlorine Free Recycled Paper

**For more information contact:**

**or visit**
**www.epa.gov/npdes/stormwater**
**www.epa.gov/nps**

## What is stormwater runoff?



Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

## Why is stormwater runoff a problem?



Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

## The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.



- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.



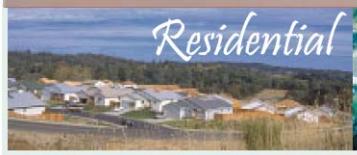
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

# Stormwater Pollution Solutions




*Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.*

## Residential



*Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.*

### Auto care




Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

### Lawn care



Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

### Septic systems



Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

### Pet waste



Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

### Residential landscaping

**Permeable Pavement**—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

**Rain Barrels**—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.



**Rain Gardens and Grassy Swales**—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.



**Vegetated Filter Strips**—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

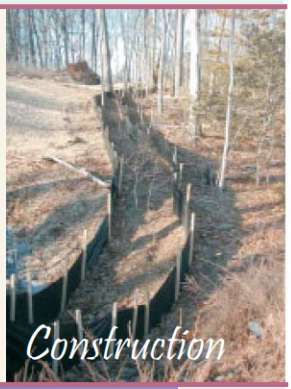
## Commercial



Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

## Construction



Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.

## Agriculture

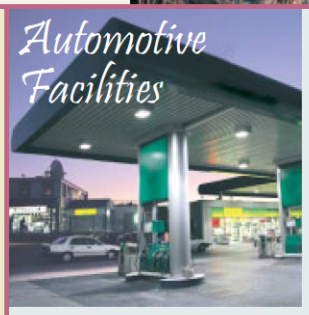


Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.



- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

## Automotive Facilities



Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

## Forestry



Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.

## 6 What can a business expect when inspected by the city?

The inspection will include a meeting with the business representative, a walk-through of the facility, evaluation of current storm water best management practices and recommendations for additional measures that may be required to comply with the 2002 MS4 Permit and the city's storm water ordinance. Educational material will also be provided to the business representative. If a follow-up inspection is required the city's inspector will schedule one for a later date.

## 7 What will happen if I do not comply with the city inspector's recommendations?

The city is mandated by the State to establish sanctions for non-compliance. Sanctions may include:

- Verbal or written warnings
- Notice of violation or non-compliance
- Administrative Order
- Stop work or Cease and Desist Order
- Imposition of monetary penalties or criminal prosecution (infraction or misdemeanor)

## 8 Will the city charge a fee for these inspections?

The State of California has not provided any funding to Moreno Valley for this mandated inspection program, therefore the city is required to charge a fee to recover its costs. If the city ignores the State mandate it will be subject to significant monetary penalties, potentially up to and possibly greater than $27,500 per day. The city has adopted inspection fees for restaurants, commercial and industrial businesses and will be evaluating them this fiscal year.

## 9 Businesses are not the only cause of storm water and non-storm water pollution. What is the city doing in those other areas?

Storm water and non-storm water pollution comes from a variety of sources. The city is committed to improving water quality and reducing the amount of pollutants that enter our precious waterways. For example, the city already performs construction site inspections to address erosion and prevent sediment from entering our streets and storm drains. Also, the city is enforcing urban runoff requirements on new and significant redevelopment projects whereby developers must incorporate a variety of BMPs into their projects.

**The City of Moreno Valley looks forward to working with you to help keep our waterways clean.**

**For more information or assistance,**

**please call 951.413.3497.**

9/2004

MORENO VALLEY

City of Moreno Valley

# Pollution Abatement

## Business Inspection Program

National Pollutant Discharge Elimination System Permit

In order to comply with the 2002 Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit for the Santa Ana River Watershed Region issued by the Santa Ana Regional Water Quality Control Board for the State of California, the

**City of Moreno Valley**

**is mandated**

to perform storm water and non-storm water compliance inspections of local businesses to ensure the businesses are complying with the MS4 Permit and the city's storm water ordinance.



# Questions & Answers

Below are some frequently asked questions about the NPDES Pollution Abatement Program

## 1 *Runoff from my business goes to a storm drain inlet in my parking lot or it flows to the city street. Doesn't this runoff eventually go the sewer treatment plant to be cleaned?*

The water that drains down the sink or toilet drains to the sanitary sewer and is treated at the sewer treatment plant, but storm water and non-storm water runoff from parking lots and landscape areas enter our streets and storm drains. This water does not receive any treatment and flows directly to our channels, rivers, lakes and finally the ocean. It is essential that this urban runoff be cleaned to the *"maximum extent practicable."*

## 2 *The County Department of Environmental Health Compliance Assistance Program (CAP) already comes to my business and performs a storm water compliance survey. Does this mean I will not be inspected by the city?*

The city is responsible for the inspection program. CAP provides a valuable service that the city will utilize. The city will evaluate the results of the most recent CAP survey to determine if the facility is in compliance with the MS4 Permit and its storm water ordinance. If the facility is in compliance, the city will not perform the currently scheduled inspection. If the facility is not in compliance, the city will contact the business and schedule a follow-up inspection using a city inspector.

## 3 *What businesses will be inspected?*

All food service facilities, and many existing commercial and industrial businesses must be inspected. If you are already being inspected by CAP you fall under this program. Other businesses not being inspected by CAP will fall under this program if they are the following types of businesses:

- Nurseries and green houses
- Mobile automobile or other vehicle washing - (base of operations)
- Mobile carpet and drapery cleaners - (base of operations)
- Mobile high pressure or steam cleaning - (base of operations)
- Landscape and hardscape installation - (base of operations)
- Painting and coating
- Pool, lake and fountain cleaning - (base of operations)
- Automotive related businesses
- Others that the city determines may contribute a significant pollutant load to the streets and storm drains

## 4 *How often will a business be inspected?*

Businesses will be prioritized according to their threat to water quality. A number of factors will be used to set the priority. Once the priority is set a business will be inspected annually, bi-annually or once every five years (city inspections may or may not coincide with the county's CAP inspections).

## 5 *What can I do before the inspection?*

There are many things you can do. Best Management Practices (BMPs) are procedures and practices you can implement with little or no cost to prevent pollutants and other hazardous materials from leaving your site. The city has a number of free brochures that address storm water and non-storm water pollution BMPs.

### Some BMPs include:

- Good Housekeeping
- Safe Materials & Handling
- Preventative Maintenance
- Employee Training

# Noise Assessment For The
# **WORLD LOGISTIC CENTER**
# CITY OF MORENO VALLEY

Prepared For:

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March 26, 2014-B
Updated September 29, 2014
Project #527701

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# *PREFACE – CHANGES SINCE THE DRAFT NOISE ASSESSMENT*

*Since the draft Noise Assessment that was issued in January 2013, comments were received from various public and private groups and individuals. The report has been modified in response to these comments and to clarify the descriptions of the analysis. In addition, some modifications were made to the project. Readers of the draft report will find that a number of updates and clarifications have been made, the most important of which are:*

- *The WLC implementation schedule was revised so that Phase 1 is scheduled for completion in 2022 rather than in 2017, as was assumed in the draft report. The scenarios for 2017 were therefore dropped and the scenario for 2022 was revised to analyze Phase 1 only, not full build-out of the WLC.*
- *A new analysis was added to analyze Existing Plus Phase 1 Only conditions.*
- *An area of land in the southwest corner of the WLC site is no longer part of the WLC project and instead will maintain its current zoning for residential development. This update reduces the planned amount of high-cube warehouse development in the WLC by one million square feet and increases the amount of background (i.e., non-project related development in 2035 by 220 dwelling units.*
- *The traffic noise analysis was completely revised to reflect the updated Traffic Impact Analysis which is based on the reduced project. Many areas that were previously identified as being impacted are no longer impacted (refer to Sections 2.3.1 and 2.3.2).*
- *Various grammatical corrections were made, and in places the text and tables were revised to provide greater clarity to readers.*

# 1.0 EXISTING SETTING

## 1.1 Project Description

The World Logistic Center project site covers 3,818 acres in the Rancho Belago area of the City of Moreno Valley. It includes 3,714 acres of land which is the subject of various entitlements, plus 104 acres of land affected by off-site improvements needed to support the proposed development. Exhibit 1 depicts the location of the proposed project in the region. The proposed entitlements are summarized below.

A General Plan Amendment is proposed covering 3,714 acres which redesignates approximately 70% of the area (2,610 acres) for logistics warehousing (the World Logistics Center project), and the remaining 30% (1,104 acres) for permanent open space and public facilities. The following elements of the General Plan are included in the proposed Amendment: Community Development (land use), Circulation, Parks, Recreation, and Open Space, Safety, Conservation, and the General Plan Goals and Objectives.

A new Specific Plan (Exhibit 2) will be adopted to govern development of the World Logistics Center for the 2,610 acres that will be governed by the Specific Plan. The Specific Plan permits the construction of up to 40.6 million square feet of building area within the World Logistics Center. A separate zoning amendment will also be processed and adopted to re-zone 1,104 acres for open space and public facilities uses and to incorporate the Specific Plan into the City's Zoning Map.

In addition to the General Plan Amendment, Specific Plan, and Zone Change, the project includes a development agreement and a Tentative Parcel Map covering a 1,539-acre site (property owned by the project applicant, Highland Fairview) within the project site. This subdivision map is for financing purposes only and will not confer any development rights to the property owner. The project includes pre-annexation zoning for an 85-acre parcel of land within the project area.

## 1.2 Background Information on Noise

### *1.2.1 Noise Criteria Background*

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dB higher than another is judged to be twice as loud; and 20 dB higher four times as loud; and so forth. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud).

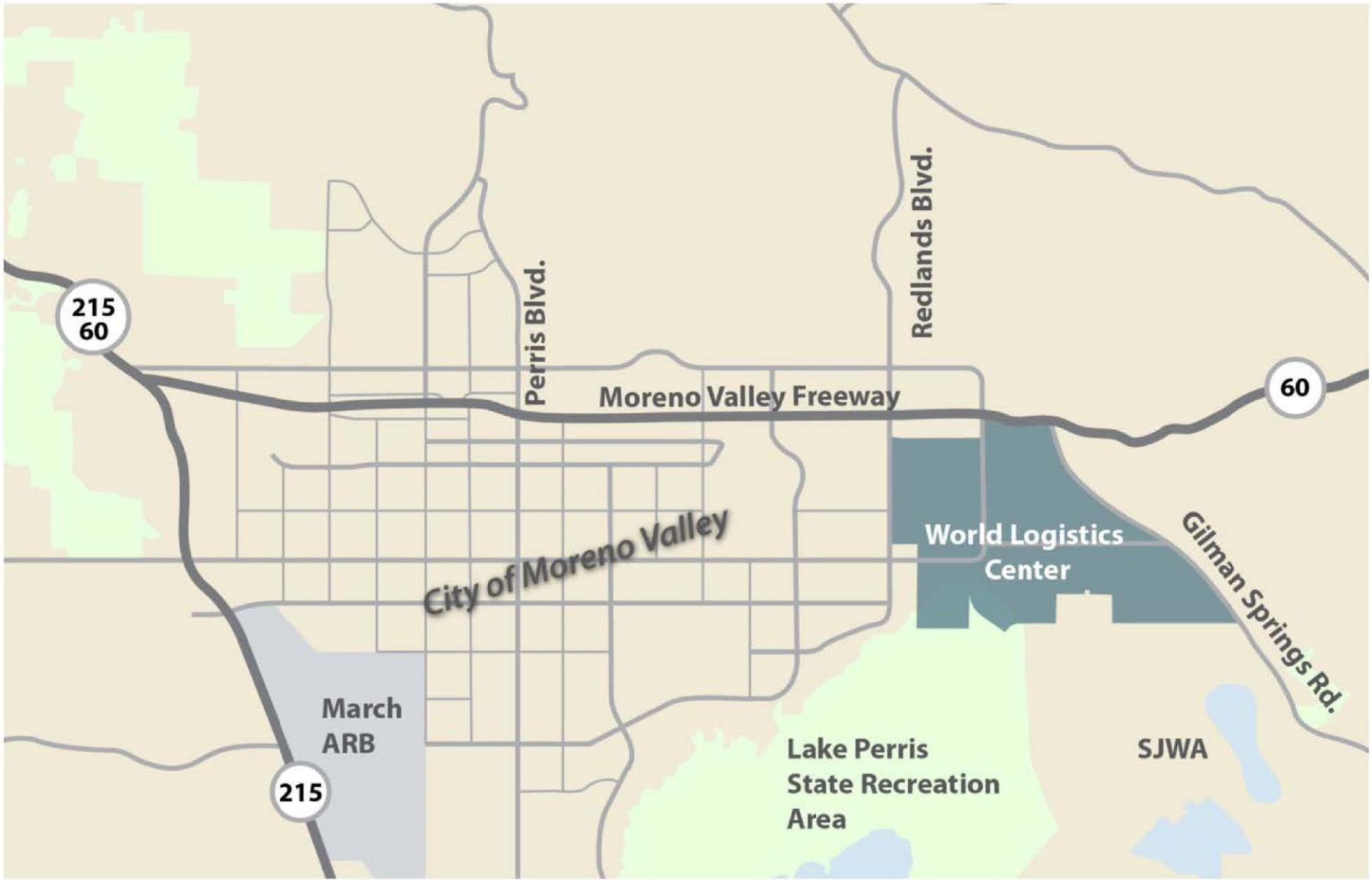



*Exhibit 1*

# Vicinity Map

*Mestre Greve Associates*
*Division of Landrum & Brown*

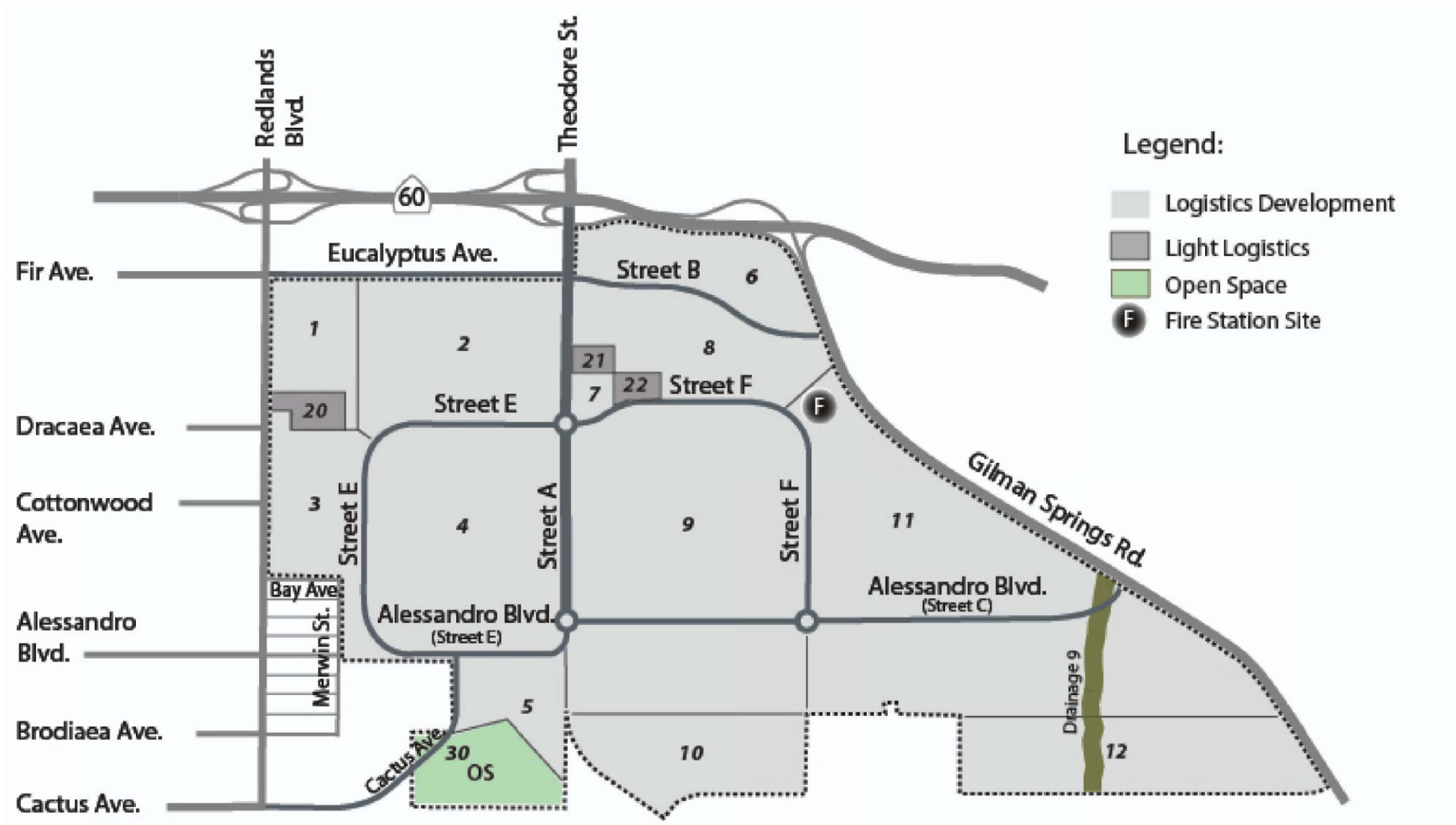



*Exhibit 2*

# Land Use Plan

*Mestre Greve Associates*
*Division of Landrum & Brown*

Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Community noise levels are measured in terms of the "A-weighted decibel," abbreviated dBA. Exhibit 3 provides examples of various noises and their typical A-weighted noise level.

Sound levels decrease as a function of distance from the source as a result of wave divergence, atmospheric absorption and ground attenuation. As the sound wave form travels away from the source, the sound energy is dispersed over a greater area, thereby dispersing the sound power of the wave. Atmospheric absorption also influences the levels that are received by the observer. The greater the distance traveled, the greater the influence and the resultant fluctuations. The degree of absorption is a function of the frequency of the sound as well as the humidity and temperature of the air. Turbulence and gradients of wind, temperature and humidity also play a significant role in determining the degree of attenuation. Intervening topography can also have a substantial effect on the effective perceived noise levels.

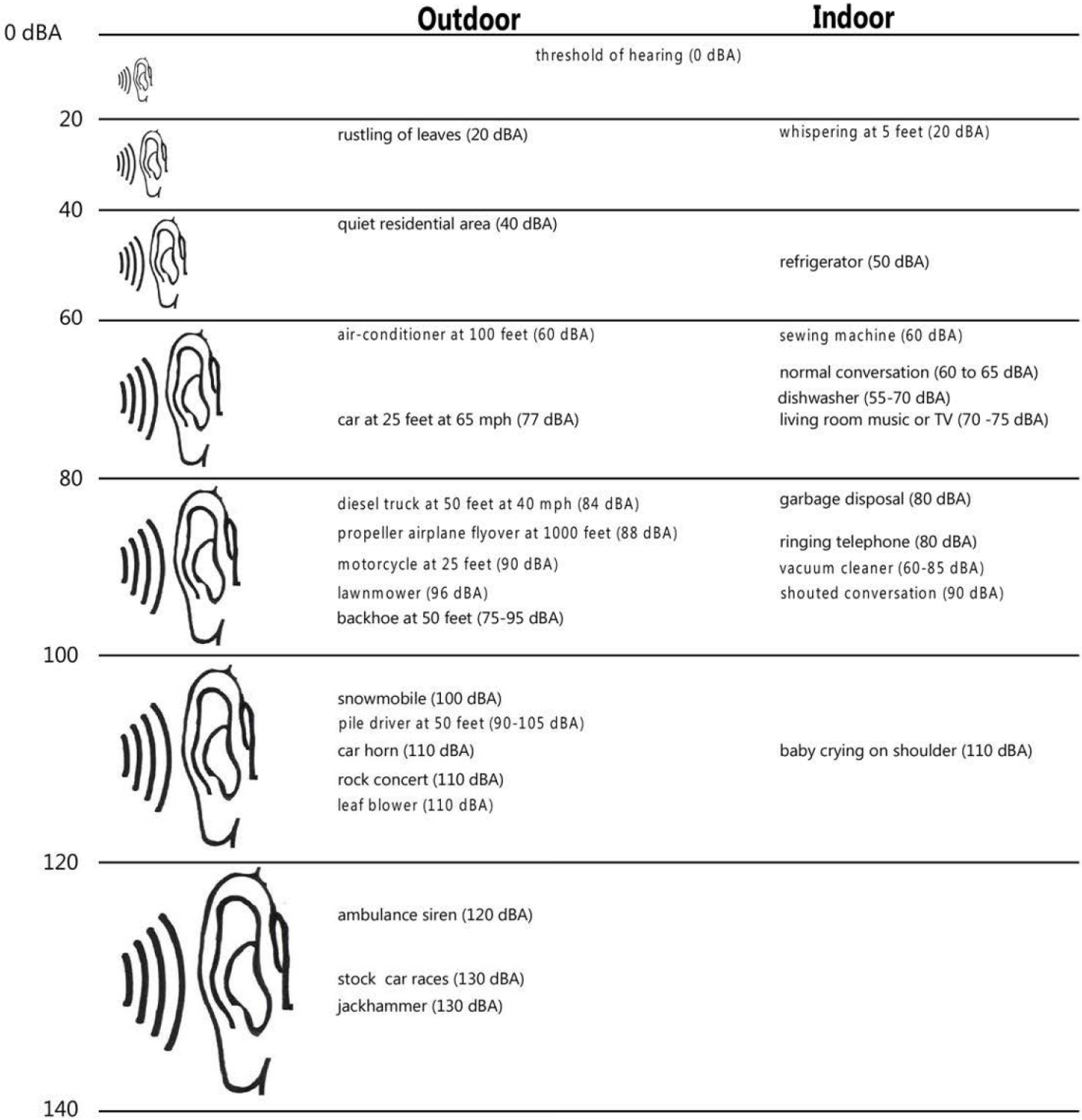
Noise has been defined as unwanted sound and it is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. This criteria is based on such known impacts of noise on people as hearing loss, speech interference, sleep interference, physiological responses and annoyance. Each of these potential noise impacts on people are briefly discussed in the following narratives:

**HEARING LOSS** is not a concern in community noise situations of this type. The potential for noise induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud to cause hearing loss.

**SPEECH INTERFERENCE** is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 to 65 dBA and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level.

**SLEEP INTERFERENCE** is a major noise concern for traffic noise. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Note that sleep disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep.

**PHYSIOLOGICAL RESPONSES** are those measurable effects of noise on people that are realized as changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent is not known to which these physiological responses cause harm or are sign of harm.




Sources: League For The Hard Of Hearing, www.lhh.org
**Handbook of Noise Control, McGraw Hill, Edited byCyril Harris, 1979**
**Measurements by Mestre Greve Associates**

*Exhibit 3*

# Typical A-Weighted Noise Levels

*Mestre Greve Associates*
*Division of Landrum & Brown*

**ANNOYANCE** is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability.

### *1.2.2 Noise Assessment Metrics*

The description, analysis and reporting of community noise levels around communities is made difficult by the complexity of human response to noise and the myriad of noise metrics that have been developed for describing noise impacts. Each of these metrics attempts to quantify noise levels with respect to community response. Most of the metrics use the A-Weighted noise level to quantify noise impacts on humans. A-Weighting is a frequency weighting that accounts for human sensitivity to different frequencies.

Noise metrics can be divided into two categories: single event and cumulative. Single-event metrics describe the noise levels from an individual event such as an aircraft fly over or perhaps a heavy equipment pass-by. Cumulative metrics average the total noise over a specific time period, which is typically 1 or 24-hours for community noise problems. For this type of analysis, cumulative noise metrics will be used.

Several rating scales have been developed for measurement of community noise. These account for: (1) the parameters of noise that have been shown to contribute to the effects of noise on man, (2) the variety of noises found in the environment, (3) the variations in noise levels that occur as a person moves through the environment, and (4) the variations associated with the time of day. They are designed to account for the known health effects of noise on people described previously. Based on these effects, the observation has been made that the potential for a noise to impact people is dependent on the total acoustical energy content of the noise. A number of noise scales have been developed to account for this observation. Two of the predominate noise scales are the: Equivalent Noise Level (Leq) and the Community Noise Equivalent Level (CNEL). These scales are described in the following paragraphs.

**Leq** is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. Leq is the "energy" average noise level during the time period of the sample. Leq can be measured for any time period, but is typically measured for 1 hour. This 1-hour noise level can also be referred to as the Hourly Noise Level (HNL). It is the energy sum of all the events and background noise levels that occur during that time period.

**CNEL**, Community Noise Equivalent Level, is the predominant rating scale now in use in California for land use compatibility assessment. The CNEL scale represents a time weighted 24-hour average noise level based on the A-weighted decibel. Time weighted refers to the fact that noise that occurs during certain sensitive time periods is penalized for occurring at these times. The evening time period (7 p.m. to 10 p.m.) penalizes noises by 5 dBA, while nighttime (10 p.m. to 7 a.m.) noises are penalized by 10 dBA. These time periods and penalties were

selected to reflect people's increased sensitivity to noise during these time periods. A CNEL noise level may be reported as a "CNEL of 60 dBA," "60 dBA CNEL," or simply "60 CNEL."

**L(%)** is a statistical method of describing noise which accounts for variance in noise levels throughout a given measurement period. L(%) is a way of expressing the noise level exceeded for a percentage of time in a given measurement period. For example, since 5 minutes is 25% of 20 minutes, L(25) is the noise level that is equal to or exceeded for five minutes in a twenty-minute measurement period. It is L(%) that is used for most Noise Ordinance standards. For example most daytime County, state and City noise ordinances use a standard of 55 dBA for 30 minutes per hour, or an L(50) level of 55 dBA. In other words, the noise ordinance may state that no noise level should exceed 55 dBA for more that fifty percent of a given period.

## 1.3 Noise Criteria

The Noise Element of the General Plan and City's Noise Ordinance contain the City's policies on noise. The Noise Element of the General Plan presents limits on noise levels from transportation noise sources, vehicles on public roadways, railroads and aircraft. These limits are imposed on new developments. The new developments must incorporate measures to ensure that the limits are not exceeded.

The Noise Ordinance applies to noise on one property impacting a neighboring property. It sets limits on noise levels that can be experienced at the neighboring property. The Noise Ordinance is part of the City's Municipal Code (Chapter 11.80 Noise Regulation) and is enforceable throughout the City. The City Noise Ordinance and Noise Element policies are presented below.

### *1.3.1 Noise Element*

The City of Moreno Valley has not adopted noise standards for public noise sources (e.g., roadway, railroad, and aircraft noise). The City, as part of their Safety Element of the General Plan, does include a discussion of noise and projections of noise in the City. However, the document does not contain specific noise standards or significance thresholds. When a City has not adopted specific development noise standards, the County's criteria is often consulted to determine relevant criteria that is reflective of appropriate standards for the area for use in the environmental assessment. The County of Riverside Plan Noise Element specifies outdoor and indoor noise standards for various land uses impacted by transportation noise sources. The County's noise standards are consistent with the State of California's noise standards. The interior and exterior noise standards are in terms of the Community Noise Equivalent Level (CNEL). The standards state that for residential land use, the exterior noise exposure level shall not exceed 65 dBA and the interior noise exposure level shall not exceed 45 dBA.

### *1.3.2 City of Moreno Valley Noise Ordinance*

A noise ordinance is designed to control unnecessary, excessive and annoying sounds from stationary (non-transportation) noise sources. Noise ordinance requirements cannot be applied to mobile noise sources such as heavy trucks when traveling on public roadways. Federal and state laws preempt control of mobile noise sources on public roads. Noise ordinance standards

typically apply to industrial and commercial noise sources impacting residential areas. They are also applicable to noise generated at parks and schools impacting residential areas.

The City of Moreno Valley has established a noise ordinance as a part of its Municipal Code. Table 1 and Table 2 show the maximum sound levels that are permitted in the city for continuous and impulsive sounds respectively.

**Table 1**
**City of Moreno Valley Maximum Continuous Sound Levels (dBA)**

| Duration Per Day Continuous Hours | Sound Level (dBA) |
|---|---|
| 8 | 90 |
| 6 | 92 |
| 4 | 95 |
| 3 | 97 |
| 2 | 100 |
| 1.5 | 102 |
| 1 | 105 |
| 0.5 | 110 |
| 0.25 | 115 |

**Table 2**
**City of Moreno Valley Maximum Impulsive Sound Levels (dBA)**

| Number Of Repetitions Per 24 Hour Period | Sound Level (dBA) |
|---|---|
| 1 | 145 |
| 10 | 135 |
| 100 | 125 |

The City also restricts the sound levels for non-impulsive sound on lands designated for residential and commercial land uses during the daytime and nighttime time periods. These levels are shown in Table 3. Section 11.80.050 (3) identifies the measurement as an "average" noise level, and therefore, the noise limits shown in the table below are interpreted as the Leq noise level.

**Table 3 Maximum Non-impulsive Sound Levels (dBA)**

| Land Use | Daytime 8 am – 10 pm | Nighttime 10:01 pm – 7:59 am |
|---|---|---|
| Residential | 60 dBA | 55 dBA |
| Commercial | 65 dBA | 60 dBA |

For all construction activities, Moreno Valley prohibits construction during the hours of 8:00 p.m. to 7:00 a.m. the following day that creates a noise disturbance (i.e. disturbs a reasonable person of normal sensitivities, or exceeds the sound level limits, or is plainly audible at a distance of 200 feet from the property line or the source of the sound if the sound occurs on private or public property respectively).

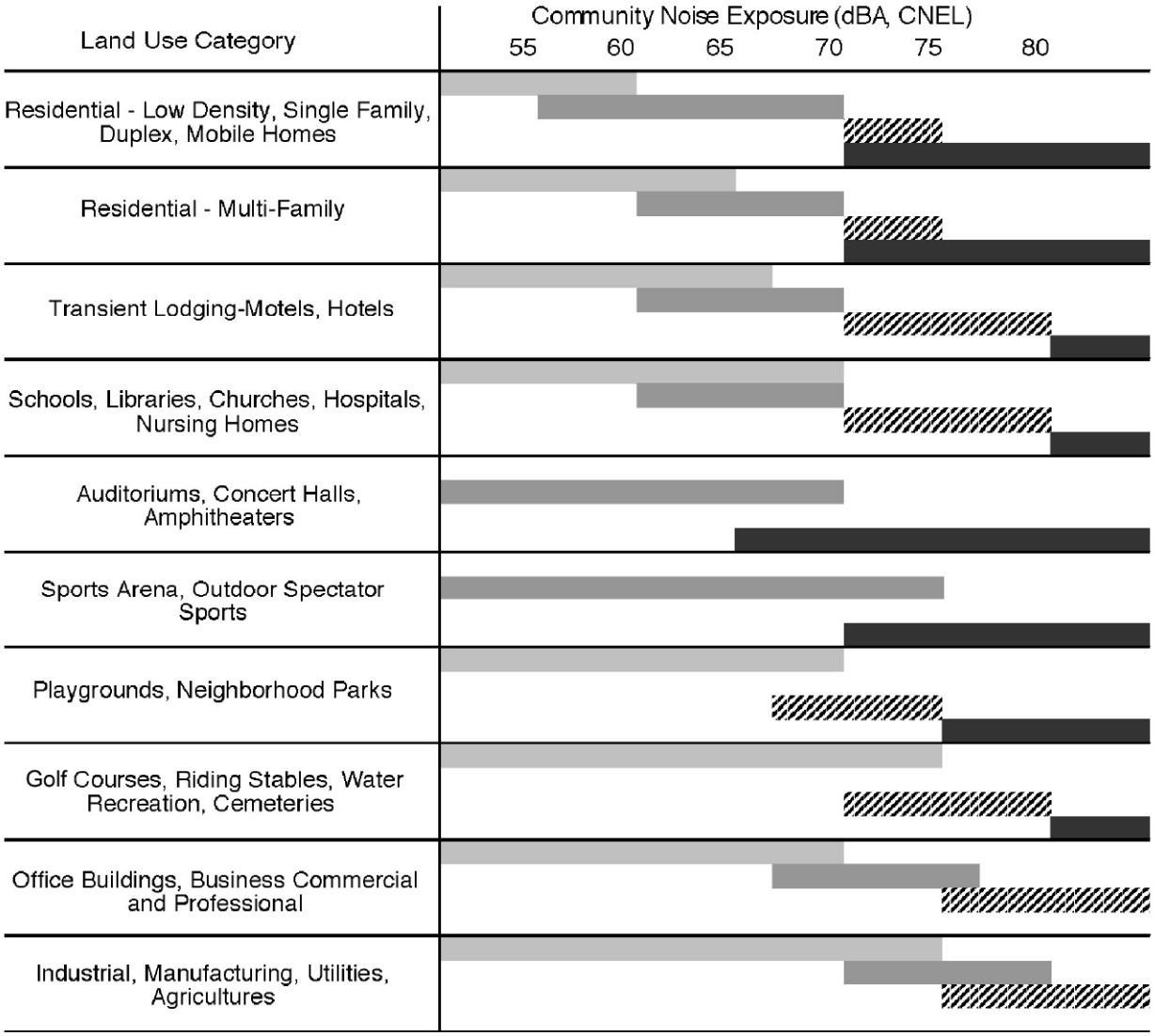
### *1.3.3 State Compatibility Guidelines*

The City of Moreno Valley General Plan has not established any compatibility guidelines for land uses impacted by transportation noise sources. The State of California Guidelines, published by the Department of Health, provide guidance for the acceptability of different land uses. The compatibility guidelines are reproduced here in Exhibit 4. The guidelines will be used to evaluate the compatibility of the proposed land uses with the noise environment. The guidelines show compatibility of various land uses with different noise environments. The guidelines show that industrial uses are normally acceptable in noise environments up to 75 CNEL.

## 1.4 Existing Noise Measurements

The existing noise levels in the vicinity of the World Logistic Center project are determined to establish current baseline noise levels in key areas. A noise measurement survey of the project site and the surrounding area was conducted in March 2012. The sites were selected to provide coverage of the project area including those most likely to be affected by traffic generated by the project. The measurement sites are displayed in Exhibit 5. In addition to these noise measurement sites, noise levels have been determined for roadways and freeways potentially affected by the project. These traffic noise levels are presented in Section 1.5.

## Land Use/Noise Compatibility Guidelines




**Normally Acceptable** Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

**Conditionally Acceptable**- New construction or development shall be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply system of air conditioning, will normally suffice.

**Normally Unacceptable** New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

**Clearly Unacceptable** New construction or development should generally not be undertaken.

*Exhibit 4*
# State Compatibility Guidelines

*Mestre Greve Associates*
*Division of Landrum & Brown*

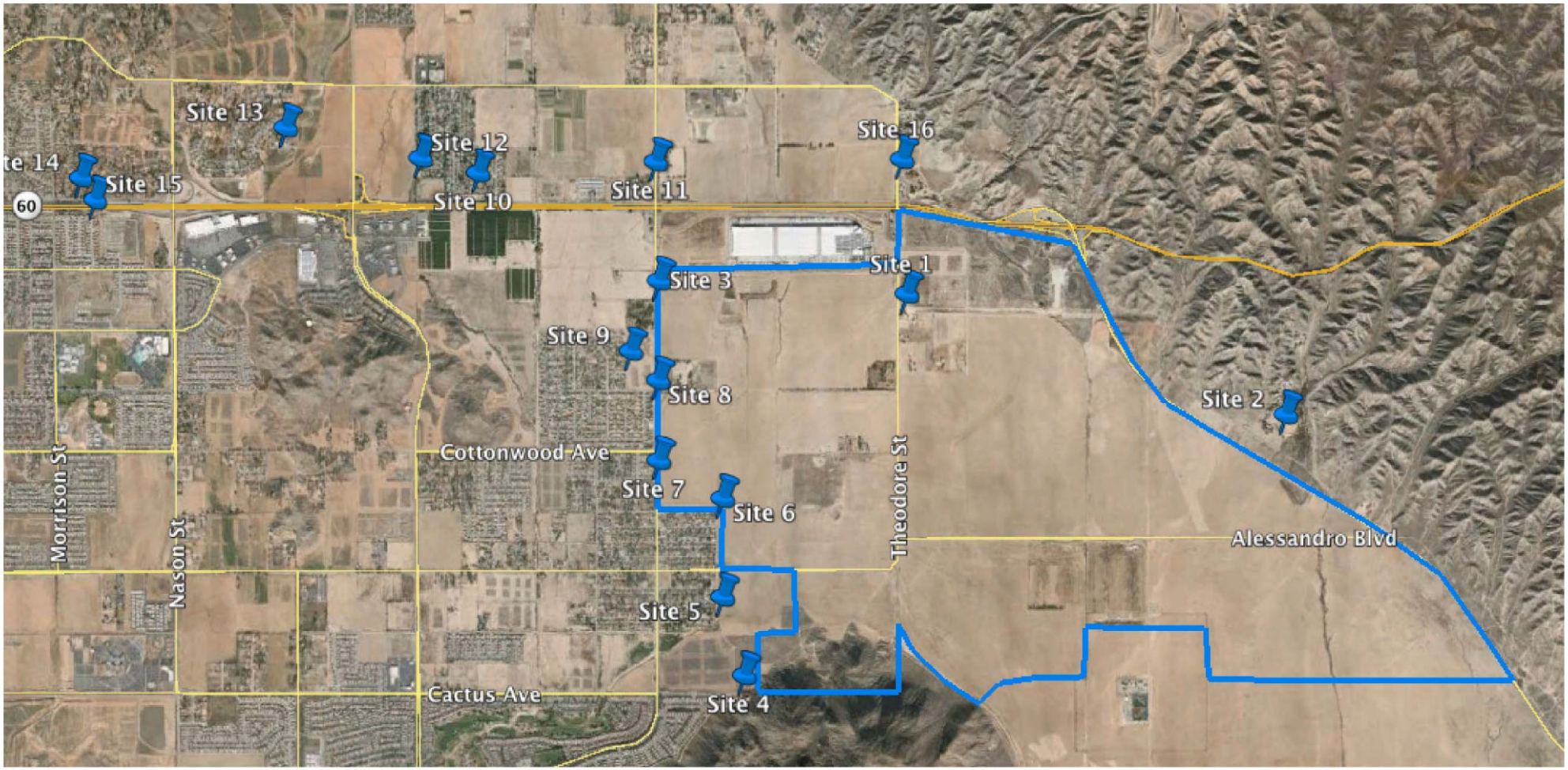



*Exhibit 5*

# Noise Measurement Locations

*Mestre Greve Associates*
*Division of Landrum & Brown*

Short-term noise measurements were taken at sixteen sites in the project vicinity. The measurements were taken during the daytime hours (between 7 a.m. and 10 p.m.), and were repeated during nighttime hours (between 10 p.m. and 7 a.m.). All the measurements were performed using a Brüel & Kjær Model 2236 sound level meter mounted on a tripod. During the measurements, a large windscreen covered the microphone to reduce the effect of unwanted wind-generated noise. For each measurement site, noise levels were measured for 15 minutes. Before and after the measurements were taken, a Brüel & Kjær 4231 calibrator with certification traceable to the National Institute of Standards and Technology was used to calibrate the sound meter to ensure that the measured sound level readings were accurate. At the conclusion of each set of measurements, the Leq, Lmin, Lmax, L1.7, L8.3, L25 and L50 values for the full time period were recorded on a data sheet. The average noise level (Leq), the maximum sound level (Lmax), and the minimum sound level (Lmin) are probably the most useful in understanding the noise environment. The other noise metrics are commonly reported and can be useful in understanding in more detail the noise environment. Table 4 shows the results for the daytime measurements, and Table 5 presents the nighttime measurements.

**Table 4 Existing Daytime Noise Measurements (dBA)**

| Site | Date | Start Time | Leq | Lmax | L1.7 | L8.3 | L25 | L50 | Lmin |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1-25-12 | 9:38 a.m. | 55.4 | 72.0 | 63.0 | 56.5 | 54.0 | 53.0 | 48.7 |
| 2 | 1-25-12 | 10:15 a.m. | 53.6 | 68.8 | 61.0 | 57.0 | 53.5 | 50.5 | 44.0 |
| 3 | 1-25-12 | 10:42 a.m. | 66.3 | 73.7 | 73.0 | 71.5 | 68.0 | 61.5 | 43.5 |
| 4 | 1-25-12 | 11:04 a.m. | 40.8 | 50.3 | 46.0 | 43.5 | 41.0 | 39.5 | 35.9 |
| 5 | 1-25-12 | 11:27 a.m. | 40.4 | 56.9 | 48.0 | 44.5 | 39.5 | 36.0 | 31.4 |
| 6 | 1-25-12 | 11:48 a.m. | 46.1 | 68.3 | 51.5 | 41.0 | 37.5 | 34.0 | 30.0 |
| 7 | 1-25-12 | 12:08 p.m. | 57.7 | 75.3 | 66.5 | 63.0 | 55.5 | 47.5 | 34.8 |
| 8 | 1-25-12 | 12:30 p.m. | 65.1 | 85.5 | 73.5 | 70.0 | 63.0 | 56.5 | 39.0 |
| 9 | 1-25-12 | 12:50 p.m. | 42.9 | 55.8 | 53.0 | 46.0 | 41.5 | 37.5 | 33.5 |
| 10 | 1-25-12 | 1:48 p.m. | 49.2 | 68.0 | 56.0 | 48.0 | 46.5 | 45.0 | 40.5 |
| 11 | 1-25-12 | 2:10 p.m. | 60.4 | 73.0 | 66.5 | 64.5 | 61.0 | 58.0 | 47.2 |
| 12 | 1-25-12 | 2:32 p.m. | 51.2 | 58.4 | 55.5 | 53.5 | 51.5 | 50.5 | 44.7 |
| 13 | 1-25-12 | 2:52 p.m. | 45.8 | 59.8 | 52.0 | 48.0 | 45.5 | 44.0 | 39.9 |
| 14 | 1-25-12 | 3:15 p.m. | 65.5 | 73.3 | 70.0 | 68.5 | 66.5 | 64.5 | 54.4 |
| 15 | 1-25-12 | 3:39 p.m. | 52.6 | 72.1 | 59.5 | 55.5 | 51.5 | 49.5 | 42.9 |
| 16 | 1-25-12 | 4:08 p.m. | 58.7 | 75.2 | 67.0 | 59.0 | 57.0 | 55.0 | 50.5 |

**Table 5 Existing Nighttime Noise Measurements (dBA)**

| Site | Date | Start Time | Leq | Lmax | L1.7 | L8.3 | L25 | L50 | Lmin |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2-8-12 | 11:51 p.m. | 50.6 | 64.5 | 59.0 | 54.5 | 50.5 | 45.5 | 36.0 |
| 2 | 2-6-12 | 10:30 p.m. | 47.4 | 65.1 | 52.5 | 50.0 | 48.0 | 45.5 | 37.5 |
| 3 | 2-6-12 | 10:55 p.m. | 61.8 | 75.9 | 71.0 | 67.5 | 58.0 | 54.0 | 45.9 |
| 4 | 2-6-12 | 11:33 p.m. | 35.8 | 51.1 | 44.0 | 39.0 | 34.5 | 32.0 | 30.0 |
| 5 | 2-9-12 | 12:15 a.m. | 36.4 | 46.6 | 42.5 | 39.5 | 36.0 | 35.0 | 31.5 |
| 6 | 2-7-12 | 12:15 a.m. | 43.2 | 51.0 | 49.5 | 46.5 | 44.0 | 41.5 | 35.3 |
| 7 | 2-7-12 | 12:35 a.m. | 51.5 | 66.9 | 64.0 | 54.0 | 41.5 | 37.5 | 32.6 |
| 8 | 2-7-12 | 12:55 a.m. | 56.0 | 74.1 | 68.0 | 57.0 | 42.5 | 38.5 | 33.6 |
| 9 | 2-9-12 | 12:35 a.m. | 41.5 | 57.1 | 50.5 | 44.5 | 38.0 | 36.0 | 30.4 |
| 10 | 2-9-12 | 1:01 a.m. | 46.7 | 63.8 | 50.5 | 48.5 | 46.5 | 45.0 | 38.1 |
| 11 | 2-9-12 | 1:25 a.m. | 59.6 | 68.3 | 67.5 | 64.5 | 60.5 | 54.0 | 46.3 |
| 12 | 2-9-12 | 1:48 a.m. | 51.8 | 63.9 | 58.0 | 55.0 | 52.0 | 50.0 | 39.2 |
| 13 | 2-9-12 | 2:09 a.m. | 48.0 | 59.7 | 55.5 | 52.0 | 47.5 | 45.0 | 38.6 |
| 14 | 2-9-12 | 2:33 a.m. | 60.8 | 72.3 | 68.0 | 65.5 | 61.0 | 57.5 | 44.9 |
| 15 | 2-9-12 | 2:56 a.m. | 48.2 | 59.9 | 54.5 | 52.5 | 49.0 | 45.0 | 35.4 |
| 16 | 2-9-12 | 3:20 a.m. | 54.3 | 62.7 | 60.0 | 58.5 | 55.5 | 52.0 | 38.8 |

**Site 1: Near Corner of Theodore Street and Eucalyptus Street**

Site 1 is located on the south side of the eastern extension of Eucalyptus Street, approximately 74 feet from the centerline of Theodore Street. This site is representative of an area with scattered rural residences that initially will be non-conforming uses. The primary noise source was the traffic on Theodore Street. Traffic on State Route 60 (SR-60) was also audible in the distance. The daytime Lmax was 72.0 dBA, and the nighttime Lmax was 64.5 dBA. These noise levels were caused by traffic. The daytime L50 at this site measured 53.0 dBA, and the nighttime L50 measured 45.5 dBA. These levels are representative of a residential area.

**Site 2: Home Northeast of Gilman Springs Road**

There are a few scattered rural residences located northeasterly of Gilman Springs Road. Site 2 is located approximately 700 feet east of Gilman Springs Road, on the west side of McGehee Drive, just north of Jerry Street. The primary noise source at this location was the traffic on Gilman Springs Road. The daytime Lmax was 68.8 dBA, and the nighttime Lmax was 65.1 dBA. These noise levels were caused by traffic. The daytime L50 at this site measured 50.5

dBA, and the nighttime L50 measured 45.5 dBA. These levels are representative of a residential area.

**Site 3: Residence Along Redlands Boulevard North of Eucalyptus Avenue**

Site 3 is located on the west side of Redlands Boulevard, approximately 37 feet from the centerline of the roadway. This site is representative of the few scattered residences along Redlands Boulevard between Eucalyptus Avenue and the freeway to the north. The primary noise source was the traffic on Redlands Boulevard. The daytime Lmax was 73.7 dBA, and the nighttime Lmax was 75.9 dBA. These noise levels were caused primarily by traffic on Redlands Boulevard. The daytime L50 at this site measured 61.5 dBA, and the nighttime L50 measured 54.0 dBA. These levels are representative of a residential area fairly close to a roadway.

**Site 4: Near Current Eastern Terminus of Cactus Avenue**

Site 4 is located on the south side of Cactus Avenue, approximately 28 feet from the centerline of the roadway. The measurement location is at the east end of the roadway, just before the street dead-ends at an EMWD water tank site. This location is near the southwest corner of the project site. The primary noise source was the distant traffic on Redlands Boulevard, Theodore Street, and SR-60. The daytime Lmax was 50.3 dBA, and the nighttime Lmax was 51.1 dBA. The daytime Lmax was caused by traffic. The nighttime Lmax was due to a jet passing overhead. The daytime L50 at this site measured 39.5 dBA, and the nighttime L50 measured 32.0 dBA. These levels are representative of a quiet residential area.

**Site 5: Southwest Corner of Project Site**

Site 5 is located on Merwin Street, just north of Campbell Avenue, near the east edge of the roadway. The primary noise source was the traffic on Redlands Boulevard. Aircraft noise and distant dogs barking were also heard. The daytime Lmax was 56.9 dBA, and the nighttime Lmax was 46.6 dBA. These noise levels were caused by traffic. The daytime L50 at this site measured 36.0 dBA, and the nighttime L50 measured 35.0 dBA. These levels are representative of a residential area.

**Site 6: Western Edge of Project Site Along Merwin Street**

Site 6 is located on Merwin Street, just south of Bay Avenue, near the east edge of the roadway. The primary noise source was the traffic on Redlands Boulevard. Aircraft noise and distant dogs barking were also heard. The daytime Lmax was 68.3 dBA, and the nighttime Lmax was 51.0 dBA. These noise levels were caused by traffic. The daytime L50 at this site measured 34.0 dBA, and the nighttime L50 measured 41.5 dBA. These levels are representative of a quiet residential area.

**Site 7: Western Edge of Project Site Along Redlands Boulevard**

Site 7 is located on the west side of Redlands Boulevard, south of Cottonwood Avenue, approximately 61 feet from the centerline of the roadway. The primary noise source was the traffic on Redlands Boulevard. Aircraft noise was also heard. The daytime Lmax was 75.3 dBA, and the nighttime Lmax was 66.9 dBA. These noise levels were caused by traffic. The

daytime L50 at this site measured 47.5 dBA, and the nighttime L50 measured 37.5 dBA. These levels are representative of a quiet residential area.

**Site 8: Western Edge of Project Site Along Redlands Boulevard**

Site 8 is located on the west side of Redlands Boulevard, south of Dracaea Avenue, approximately 63 feet from the centerline of the roadway. This site is about a 1/3 mile north of Site 7. The primary noise source was the traffic on Redlands Boulevard. The daytime Lmax was 85.5 dBA, and the nighttime Lmax was 74.1 dBA. These noise levels were caused by traffic. The daytime L50 at this site measured 56.5 dBA, and the nighttime L50 measured 38.5 dBA. These levels are representative of a residential area fairly close to a roadway.

**Site 9: Residences Along Shubert Street**

Site 9 is located on the west side of Shubert Street, just south of Brahms Lane near the west side of the project. This site is representative of the residential homes between Eucalyptus Avenue and Dracaea Avenue. These homes are setback from Redlands Boulevard by about 700 feet. The primary noise source was distant traffic on Redlands Boulevard. Aircraft noise was also heard. The daytime Lmax was 55.8 dBA, and the nighttime Lmax was 57.1 dBA. These noise levels were caused by traffic. The daytime L50 at this site measured 37.5 dBA, and the nighttime L50 measured 36.0 dBA. These levels are representative of a quiet residential area.

**Site 10: Homes Along Mesa Top Trail**

Site 10 is located on the south side of Mesa Top Trail, just west of Cloudburst Trail, approximately 310 feet from the centerline of SR-60 (with a row of homes intervening). The primary noise source was the traffic on SR-60. Aircraft noise was also heard. The daytime Lmax was 68.0 dBA, and the nighttime Lmax was 63.8 dBA. These noise levels were caused by traffic. The daytime L50 at this site measured 45.0 dBA, and the nighttime L50 also measured 45.0 dBA. These levels are representative of a residential area fairly close to a major roadway.

**Site 11: Residence Along Spruce Avenue North of Freeway**

Site 11 is located on the west side of Spruce Avenue, approximately 554 feet from the centerline of SR-60 (with some homes intervening). The measurement location is also approximately 120 feet from the centerline of Redlands Boulevard. The primary noise sources were the traffic on SR-60 and Redlands Boulevard. The daytime Lmax was 73.0 dBA, and the nighttime Lmax was 68.3 dBA. These noise levels were caused by traffic. The daytime L50 at this site measured 58.0 dBA, and the nighttime L50 measured 54.0 dBA. These levels are representative of a residential area fairly close to a freeway.

**Site 12: Residence Near South End of Pettit Street North of SR-60**

Site 12 is located at the south end of Pettit Street, south of Ironwood, approximately 630 feet from the centerline of SR-60. This site has a clear line of sight to the freeway. The primary noise source was the traffic on SR-60. The daytime Lmax was 58.4 dBA, and the nighttime Lmax was 63.9 dBA. These noise levels were caused by traffic. The daytime L50 at this site

measured 50.5 dBA, and the nighttime L50 measured 50.0 dBA. These levels are representative of a residential area fairly close to a freeway.

**Site 13: Residence on Carol Place North of SR-60**

Site 13 is located on the north side of Carol Place, west of Oliver Street, approximately 1,295 feet from the centerline of SR-60. The primary noise source was the traffic on SR-60. The daytime Lmax was 59.8 dBA, and the nighttime Lmax was 59.7 dBA. These noise levels were caused by traffic. The daytime L50 at this site measured 44.0 dBA, and the nighttime L50 measured 45.0 dBA. These levels are representative of a residential area fairly close to a freeway.

**Site 14: Residence on Sage Grouse Lane North of SR-60**

Site 14 is located on the east side of Sage Grouse Lane, just north of Elder Avenue, approximately 224 feet from the centerline of SR-60. The location has a clear line of sight to the freeway. The primary noise source was the traffic on SR-60. The daytime Lmax was 73.3 dBA, and the nighttime Lmax was 72.3 dBA. These noise levels were caused by traffic. The daytime L50 at this site measured 64.5 dBA, and the nighttime L50 measured 57.5 dBA. These levels are representative of a residential area fairly close to a freeway.

**Site 15: Residence on Primrose Way South of SR-60**

Site 15 is located on the north side of Primrose Way, just west of Willowbrook Lane, approximately 268 feet from the centerline of SR-60 (with a row of homes intervening). The homes in this area are substantially depressed with respect to the freeway grade and a soundwall is present along the freeway. The primary noise source was the traffic on SR-60. The daytime Lmax was 72.1 dBA, and the nighttime Lmax was 59.9 dBA. The daytime Lmax was caused by a neighbor yelling at his dog. The nighttime Lmax was caused by traffic on the freeway. The daytime L50 at this site measured 49.5 dBA, and the nighttime L50 measured 45.0 dBA. Although close to the freeway, these levels are representative of a quiet residential area.

**Site 16: Area Along Theodore Street North of SR-60**

Site 16 is located on the west side of Theodore Street, just north of SR-60, approximately 600 feet from the centerline of SR-60. There is a residence about 430 feet from this site. The primary noise source was the traffic on SR-60. The daytime Lmax was 75.2 dBA, and the nighttime Lmax was 62.7 dBA. These noise levels were caused by traffic. The daytime L50 at this site measured 55.0 dBA, and the nighttime L50 measured 52.0 dBA.

## 1.5 Existing Roadway Noise Levels

The highway noise levels projected in this report were computed using the Highway Noise Model published by the Federal Highway Administration ("FHWA Highway Traffic Noise Prediction Model," FHWA-RD-77-108, December, 1978). The FHWA Model uses traffic volume, vehicle mix, vehicle speed, and roadway geometry to compute the "equivalent noise level." A computer code has been written which computes equivalent noise levels for each of the time periods used in the calculation of CNEL. Weighting these noise levels and summing

them results in the CNEL for the traffic projections used. CNEL contours are found by iterating over many distances until the distances to the 60, 65, and 70 CNEL contours are found. Traffic volumes and estimated speeds were used with the FHWA Model to estimate the noise levels in terms of CNEL. Existing traffic volumes were provided by the traffic consultants to the project. The data provided included the splits between autos, medium trucks, and heavy trucks. (The data used for the projections are provided in the Appendix.)

The CNEL noise levels for receptors along critical roadways are given in Table 6. Three hundred and thirty nine (339) arterial roadway links and eighty nine (89) freeway segments were provided for the noise analysis by the traffic engineer. The 44 most critical links from a noise impact perspective are presented below. Essentially, the 44 roadway links represent areas with noise sensitive land uses adjacent to them with traffic noise increases sufficient to be considered as a possible significant noise impact. (See Sections 2.3.1 and 2.3.2 for more discussion on the selection of critical links.) The noise levels for all roadway links can be found in the Appendix. These CNEL noise levels represent the noise levels at the residential receptors along the roadway link. The distance to the receptors was measured on Google Earth maps. The values given in Table 6 account for the effect of any noise barriers that may reduce existing traffic noise levels. (The usage of the name "Street D" in the following table and the rest of the report is consistent with the traffic data and report upon which this study is based. However, in other parts of the EIR Street D is also referred to as the Cactus Avenue Extension.)

**Table 6 Existing Traffic Noise Levels**

| ID | Arterial | From | Soundwall? | Existing CNEL |
|---|---|---|---|---|
| 196 | Alessandro Rd | Crescent Ave to Sunset Dr | N | 63.3 |
| 200 | Alessandro Rd | Sunset Dr to San Timoteo Canyon Rd | N | 63.3 |
| 32 | Cactus Ave | west of Redlands Blvd | Y | 60.5 |
| 50 | Cactus Ave | Redlands Blvd to Street D (Cactus Ave Ext) | N | 51.3 |
| 70 | Cactus Ave | Oliver St to Moreno Beach Dr | Y | 58.2 |
| 194 | Crescent Ave | West of Alessandro Rd | N | 57.1 |
| 62 | Fir Ave | Quincy Dr to Redlands Blvd | N | 0.0 |
| 30 | Gilman Springs Rd | Eucalyptus Ave to Street C | N | 49.6 |
| 190 | Gilman Springs Rd | Jack Rabbit Trail to Bridge St | N | 62.7 |
| 191 | Gilman Springs Rd | Bridge St to Beaumont Ave | N | 61.0 |
| 358 | Gilman Springs Rd | Bridge St to SR-79 SB Ramps | N | 72.7 |
| 73 | Iris Ave | Nason St to Oliver St | N | 63.0 |
| 162 | Iris Ave | Kitching St to Lasselle St | Y | 60.1 |
| 165 | Iris Ave | Lasselle St to Nason St | Y | 60.0 |
| 36 | Ironwood Ave | Redlands Blvd to Highland Blvd | N | 46.3 |
| 9 | John F Kennedy Dr | south of Cactus Ave | N | 61.5 |
| 168 | Krameria Ave | Perris Blvd to Lasselle St | Y | 57.5 |
| 172 | Lasselle St | Krameria Ave to Arroyo Park Dr | Y | 56.4 |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | N | 63.2 |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd to I-10 | N | 56.5 |

**Table 6 Existing Traffic Noise Levels (Continued)**

| ID | Arterial | From | Soundwall? | Existing CNEL |
|---|---|---|---|---|
| 54 | Locust Ave | Moreno Beach Dr to Smiley Blvd | Y | 46.2 |
| 55 | Locust Ave | Moreno Beach Dr to Redlands Blvd | N | 55.7 |
| 52 | Moreno Beach Dr | John F Kennedy Dr to Oliver St | Y | 55.2 |
| 56 | Moreno Beach Dr | Locust Ave to Ironwood Ave | N | 55.3 |
| 67 | Oliver St | Alessandro Blvd to Cactus Ave | N | 54.1 |
| 12 | Redlands Blvd | Eucalyptus Ave to Dracaea Ave | N | 47.1 |
| 13 | Redlands Blvd | State Route 60 to Eucalyptus Ave | N | 60.9 |
| 35 | Redlands Blvd | Ironwood Ave to State Route 60 | N | 68.3 |
| 42 | Redlands Blvd | Ironwood Ave to San Timoteo Canyon Rd | N | 67.8 |
| 177 | San Timoteo Canyon Rd | Alessandro Rd to Live Oak Canyon Rd | N | 62.0 |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd to Redlands Blvd | N | 62.7 |
| 2 | Street A | Eucalyptus Ave to Street F | N | 50.2 |
| 8 | Street D (Cactus Ave Ext) | Street E to Cactus Ave | N | 0.0 |
| 4 | Street E | north of Alessandro Blvd | N | 0.0 |
| 19 | Street F | east of Street A | N | 0.0 |
| 198 | Sunset Dr | Crown St to Alessandro Rd | N | 49.0 |
| 199 | Sunset Dr | Alessandro Rd to Cameo Dr | N | 52.5 |
| 38 | Theodore St | State Route 60 to Highland Blvd | N | 57.8 |
| ***FREEWAYS*** | | | | |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | Y | 66.5 |
| 30 | SR-60 | Heacock St to Perris Blvd | Y | 65.2 |
| 31 | SR-60 | Perris Blvd to Nason St | Y | 64.6 |
| 32 | SR-60 | Nason St to Moreno Beach Dr | Y | 52.0 |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | Y | 62.5 |
| 34 | SR-60 | Redlands Blvd to Theodore St | N | 60.2 |

## 1.6 SDG&E and SCG Facilities

The following section summarizes the existing noise conditions generated by the San Diego Gas and Electric Company (SDG&E) Compressor Station and Southern California Gas Company (SCG) facilities which are located within the project area, immediately south of the proposed development area in the World Logistic Center. More complete information can be found in the "SDG&E and SCG Facilities Noise Impact Assessment for the World Logistics Center," (prepared by Mestre Greve Associates, updated December 17, 2012), which is included as an appendix to this report.

These facilities are located as shown in Exhibit 6. The SDG&E Compressor Station takes in natural gas from interstate gas pipelines and recompresses the gas into new pipelines to deliver the gas to customers in Southern California. The two SCG facilities house flow valve and metering facilities as well as maintenance functions at the southern facility. There are gas

pipeline blow-down facilities at the compressor station and at the two SCG locations where exhaust stacks allow for the venting of high pressure gas to the atmosphere that only occur during emergencies, maintenance, and testing of the blow-down systems.

The SDG&E and SCG facilities represent three different noise sources that potentially impact the World Logistics Center project; (1) the operation of the compressor station, (2) blow-down events at the compressor station, and (3) blow-downs at the SCG facilities. The blow-down events generate infrequent high noise levels for short periods. The operation of the compressor station generates a relatively constant noise level with levels varying slightly as compressors are turned on and off as needed to supply natural gas to Southern California.

Compressors in the SDG&E facility are the primary source of typical operational noise generated by the station. There are two sets of three reciprocating natural gas combustion engines and one set of four natural gas fired turbines for a total of ten compressor units with power ranging from 995 to 3,400 horsepower each. The reciprocating engines and compressors are located within acoustically treated structures and are equipped with intake and exhaust mufflers. The turbines are housed in weather protection shelters. At times the facility operates at maximum capacity 24 hours per day. Demand on the compressor station will increase in the future.

The CNEL levels for the compressor station are presented in Exhibit 7, and assume the compressor station is in full operation 24 hours a day. Exhibit 8 presents the average (Leq) noise levels generated by the compressor station during full operation. Both the CNEL and Leq metrics are use to assess the noise impacts from the facility.

There are three blow-down points within the SDG&E Compressor Station. These blow-down points allow for the release of pressurized gas during emergency events. These systems are also tested on an annual basis. Blow-downs at the SDG&E Station vent gas within the facility and last between 30 and 90 seconds. The maximum sound levels (Lmax dBA) generated by the blow-down events is presented in Exhibit 9.

There are also four blow-down points in the SCG facilities, three in the southern facility and one in the northern facility. Blow-downs at the SCG facilities vent gas from miles of pipeline and can last up to 90 minutes. These events are much longer than the blow-downs at the SDG&E Compressor Station. An average of four blow-down events occur annually at the SCG facility. Lmax noise levels (dBA) are shown in Exhibit 10. The noise level will be at or near the Lmax level during the entire blow-down event.

SCG and SDG&E have a portable silencer that they use for blow-down events near sensitive receptors. The silencer is located in Beaumont, and additional silencers can be brought in from other areas when needed. The silencer is hauled on a dedicated truck. A crane accompanies the truck to aid in the installation of the silencer. The silencers are used for all planned blow-downs and even most un-planned blow-downs when located near sensitive receptors. Currently, silencers are not used at the Moreno Valley facilities due to the lack of sensitive receptors in the area. However, the silencers would be used as development gets close to the blow-down points.

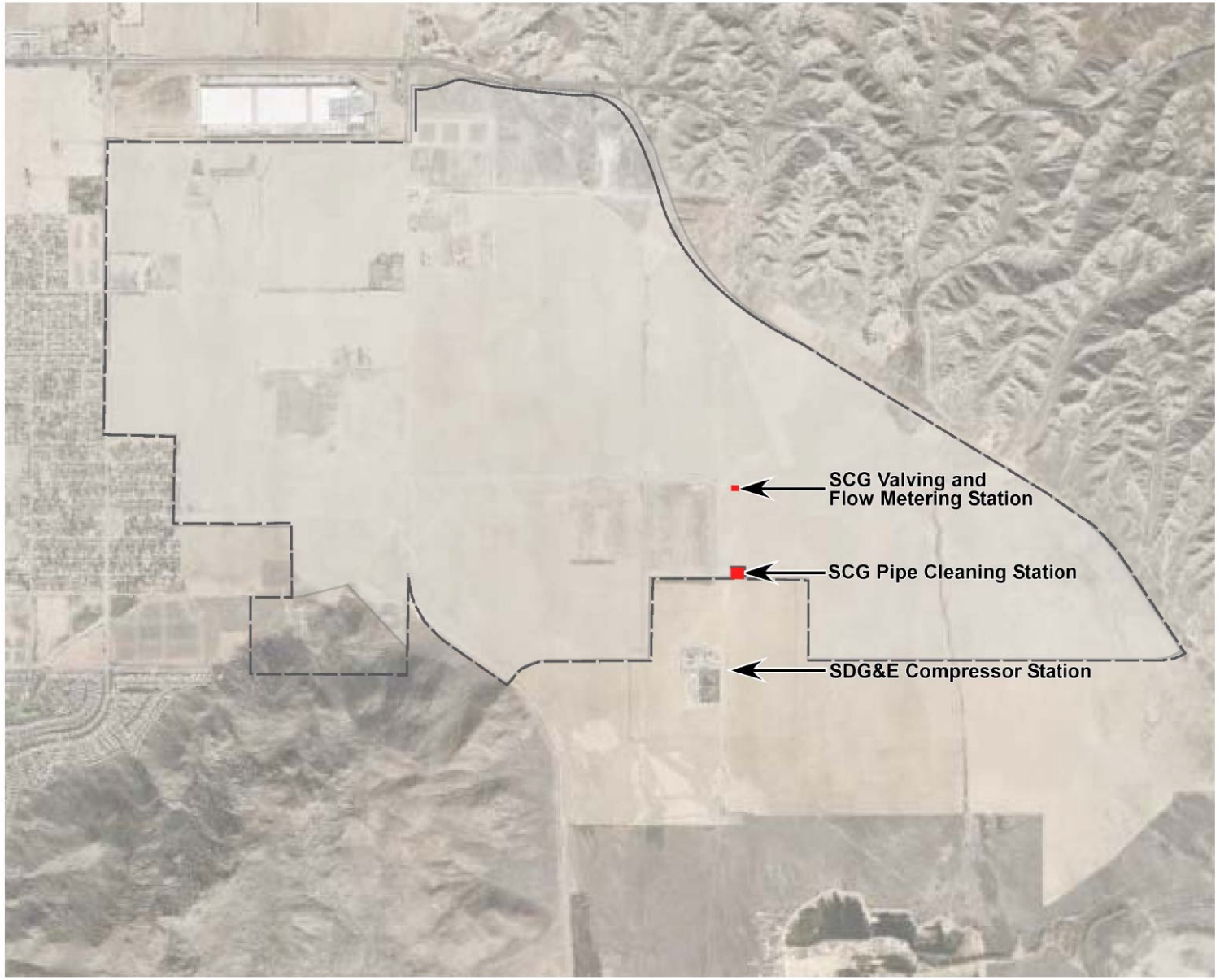



*Exhibit 6*

Natural Gas Facility Locations

*Mestre Greve Associates*
*Division of Landrum & Brown*




*Exhibit 7*
CNEL Noise Contours for Compressor Station

*Mestre Greve Associates*
*Division of Landrum & Brown*

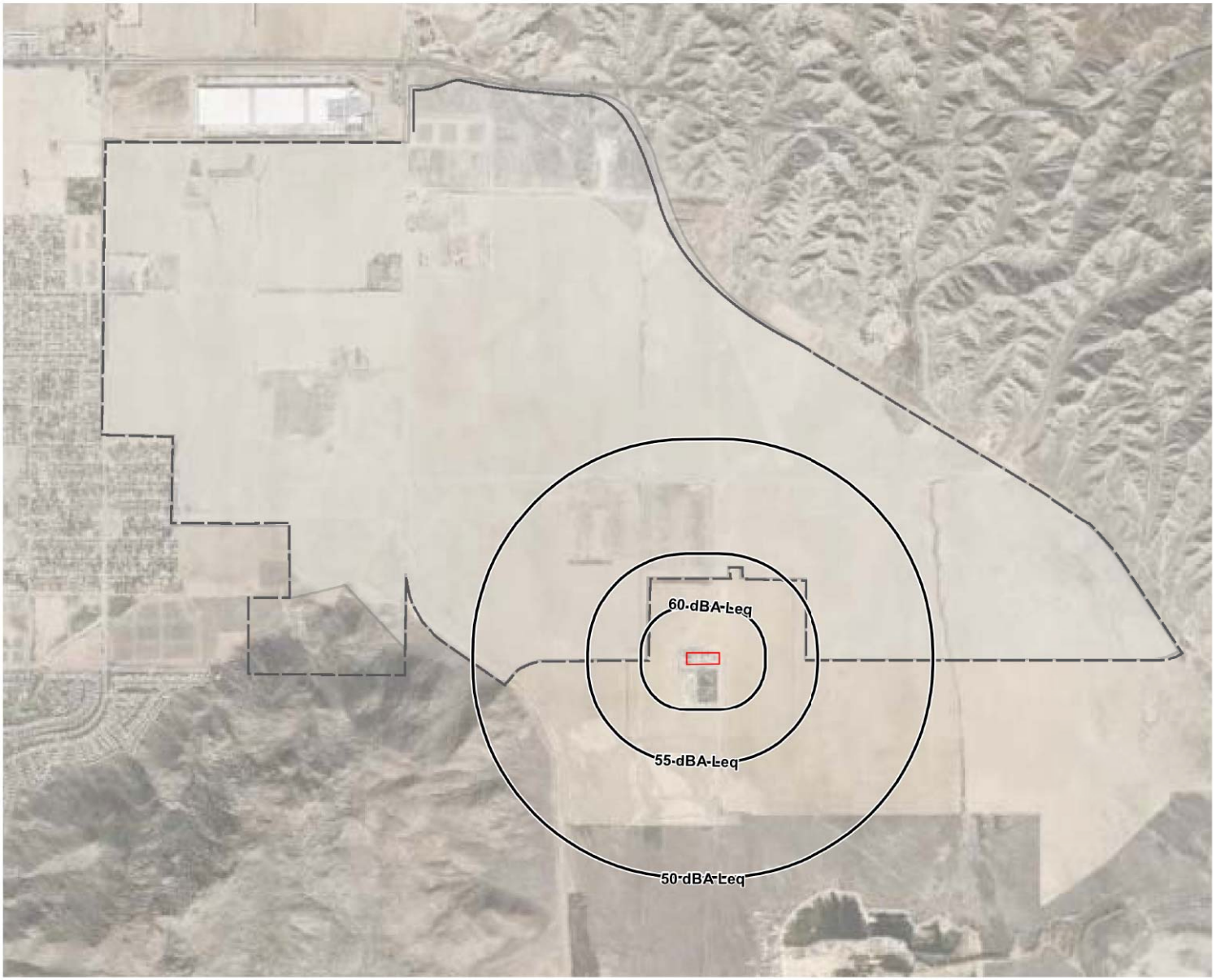



*Exhibit 8*

Leq Noise Levels for Compressor Station

*Mestre Greve Associates*
*Division of Landrum & Brown*

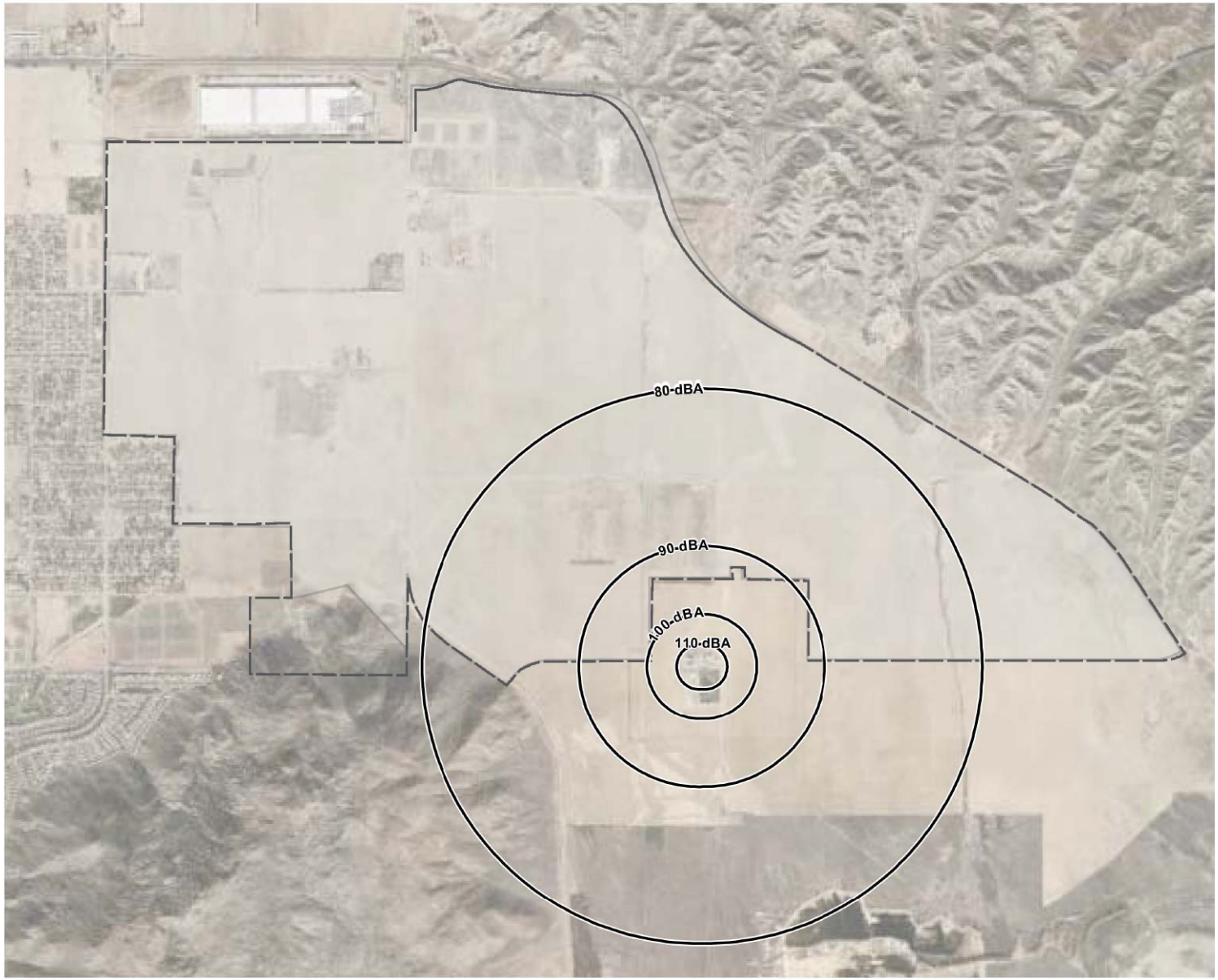



*Exhibit 9*

Lmax Levels for SDG&E Blow-Down

*Mestre Greve Associates*
*Division of Landrum & Brown*

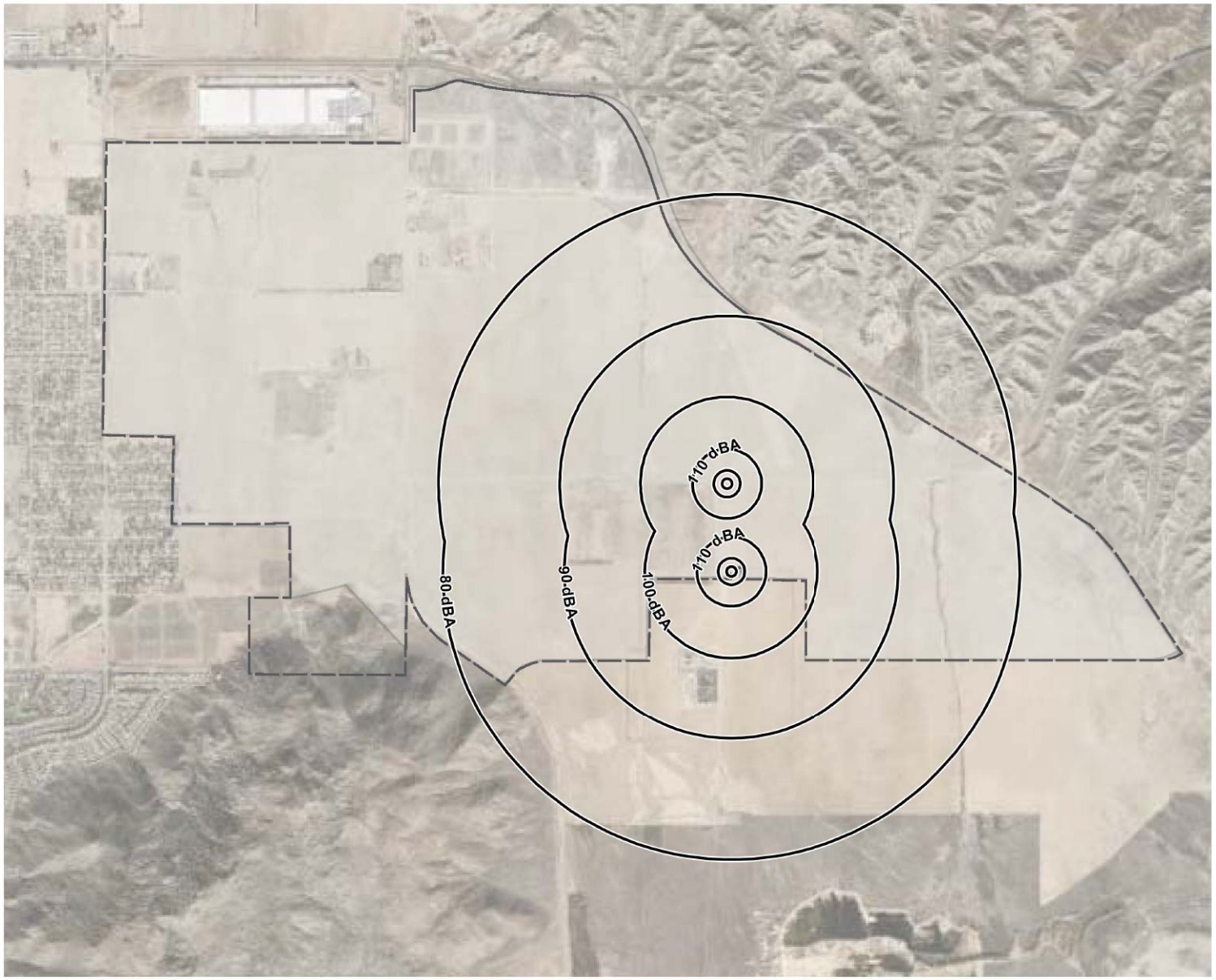



*Exhibit 10*

Lmax Levels for SCG Blow-Down

*Mestre Greve Associates*
*Division of Landrum & Brown*

# 2.0 POTENTIAL NOISE IMPACTS

Potential noise impacts are commonly divided into two groups; temporary and long term. Temporary impacts are usually associated with noise generated by construction activities. Long-term impacts are impacts on surrounding land uses generated by the operation of the proposed project. This may include noise generated on-site by trucking and loading activities, as well as off-site by project generated traffic on public roadways. Additionally, the compatibility of the proposed uses with the existing and future noise environment is assessed.

## 2.1 Noise Impact Criteria

Off-site impacts due to construction are measured against the Noise Ordinance criteria discussed in Section 1.3.2. Construction activities for the proposed project will be required to meet the Noise Ordinance standards or a significant impact will occur.

The following thresholds are based on the Federal Transit Authority's impact criteria ("Transit Noise and Vibration Impact Assessment") and have been used on at least one other project that has withstood a court challenge. Long-term impacts from the project's traffic noise that affect existing sensitive land uses are considered to be substantial, and therefore, constitute a significant noise impact if it would:

- Increase noise levels by 5 dB or more where the no project noise level is less than 60 CNEL;
- Increase noise level by 3 dB or more where the no project noise level is 60 CNEL to 65 CNEL; or
- Increase noise levels by 1.5 dB or more where the no project noise level is greater than 65 CNEL.

The project's incremental contribution to a cumulative noise increase would normally be considered cumulatively considerable and significant when ambient noise levels affect noise sensitive land uses and when the following occurs:

A project increase of the ambient (cumulative without project) noise level by 1 dB or more, and the predicted future cumulative with project noise levels cause the following cumulative increases:

- Increase noise levels by 5 dB or more where the existing noise level is less than 60 CNEL;
- Increase noise levels by 3 dB or more where the existing noise level is 60 to 65 CNEL; or
- Increase noise levels by 1.5 dB or more where the existing noise level is greater than 65 CNEL.

Off-site impacts due to on-site activities (i.e., loading yards) are measured against the Noise Ordinance criteria discussed in Section 1.3.2. Loading yard activities for the proposed project will be required to meet the Noise Ordinance standards or a significant impact will occur.

Proposed land uses in high noise impact zones that are not compatible per the State Guidelines (Section 1.3.3) will be identified as a significant impact. In other words, if a proposed land use is in an area that is identified as being "normally unacceptable" or "clearly unacceptable" then it must be shown how that land use can be made compatible with the noise environment. Possible approaches may be to construct noise barriers to reduce the noise environment or to provide a high level of sound insulation. If mitigation is not feasible then this would be identified as a land use conflict with the proposed land use, and a significant impact would result.

## 2.2 Construction Noise

Construction noise often represents a short-term impact on ambient noise levels. However, due to the magnitude of this project, construction will occur on a routine basis from 2015 through 2030. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators can reach high levels.

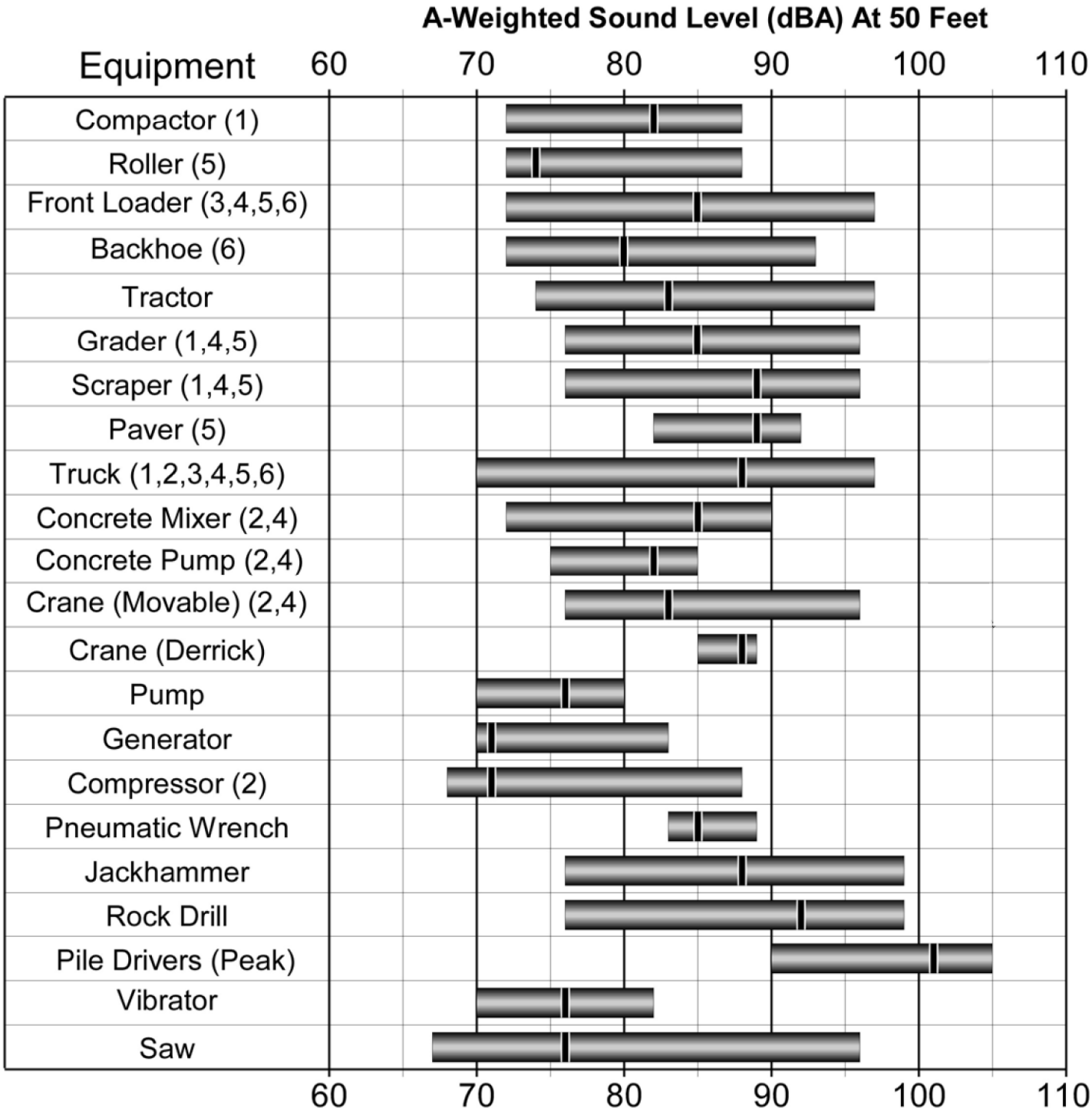
Worst-case examples of construction noise at 50 feet are presented in Exhibit 11. The peak noise level for most of the equipment that will be used during the construction is 70 to 95 dBA at a distance of 50 feet. Noise levels at further distances are less. For example, at 200 feet, the peak construction noise levels range from 58 to 83 dBA. Note that these noise levels are based upon worst-case conditions. Noise measurements made by Mestre Greve Associates demonstrate that the noise levels generated by commonly used grading equipment (i.e. loaders, graders and trucks) generate noise levels that typically do not exceed the middle of the range shown in Exhibit 11. However, the noise levels shown in Exhibit 11 will be used as the basis for the estimates presented here and represent a worst-case estimate. Also included in Exhibit 11 is an indication of which phases of construction will use what equipment. For example, Exhibit 11 indicates that front loaders will be used in constructing utilities, interchange improvements, and paving/curbing, and landscaping. This is a preliminary estimate of the equipment to be used and may be modified when construction is underway.

Construction operations will occur in two general areas; on-site and off-site. The on-site construction activities will be more intense. Some phases of the on-site construction are expected to occur for 24 hours a day, 7 days per week. The on-site construction will occur periodically over a 15-year period possibly beginning in 2015. Off-site construction will be much less intense and consist of some minor grading, drainage, interchange, utility and roadway improvements. The off-site construction will be of shorter duration and will only occur during the daytime weekday hours. Both on-site and off-site construction are discussed in more detail below.

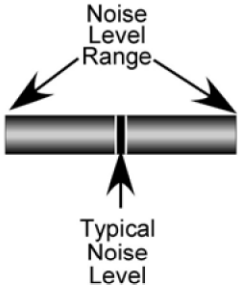
### *2.2.1 On-Site Construction*

Work within the project site will consist of mass grading, fine grading, building construction, utilities installation, interchange improvements, paving and curbing, and landscaping. Work within the project area may be done on a 24-hour/7-days per week schedule. Construction activities would occur at varying locations on-site, but may last for an extended period of time. For instance, grading activities for each phase are anticipated to last one year. However, the

grading may be concentrated in one area for a while and then move on to another area, and so on. In other words, grading noise will not impact one area for an entire year. Building construction will occur from time to time over a 15-year period lasting from 2015 through 2030.




LEGEND




**Construction Phases**

1 - Grading
2 - Building
3 - Utilities
4 - Interchange
5 - Curbing and Paving
6 - Landscaping

*Exhibit 11*

# Construction Noise Levels

*Mestre Greve Associates*
*Division of Landrum & Brown*

Construction noise levels at a receptor are primarily due to how close the equipment operates to a receptor. For example, one scraper operating 50 feet from a receptor will have about the same noise level as four scrapers operating at 100 feet from the receptor or sixteen scrapers operating at 200 feet from the receptor. Another important factor, is that the louder types of equipment are much more important than the quieter pieces of equipment. For example, a scraper will have a typical noise level of 89 dBA (see Exhibit 11) at 50 feet. Four compactors, which have typical noise levels of 83 dBA at 50 feet, will result in the same noise level as one scraper at the same distance. Therefore, a construction noise analysis usually focuses on the loudest pieces of equipment that are going to operate near the receptor.

**Residences north of the freeway.** Homes are located on the north side of State Route 60. For homes on the north side of the freeway, noise generated by the freeway will dominate the noise environment and construction noise generated on the project site will be inconsequential. Even at night, the peak noise levels due to trucks traveling on State Route 60 will be louder than peak noise levels generated by project construction. Certain conditions at night, such as low inversions and very calm conditions, can increase the ability of construction noise to travel to the residences north of the freeway. However, these same conditions would also amplify the traffic noise generated on the freeway. The residents north of the freeway will not be significantly impacted by project construction noise because the freeway noise will continue to dominate the immediate noise environment.

**Residences within the Specific Plan area.** Three pockets of homes are located within the Specific Plan area, and construction noise will be an issue for occupants of these residences. While these areas are to be designated for Light Logistics development under the proposed Specific Plan, they may remain in residential use indefinitely. Future Light Logistics uses would not be sensitive to noise, but as long as these sites remain in residential use, they will need to be considered as noise sensitive uses. These homes may be located adjacent to areas where intense construction activities could occur. These homes may experience worst-case unmitigated peak construction noise levels (Lmax) up to 97 dBA. The average noise levels are typically 5 to 15 dB lower than the peak noise levels. Average noise levels (Leq) at 50 feet from the residence could be in the range of 82 to 92 dBA during most phases of construction.

The City of Moreno Valley Municipal Code does not include any exemptions for construction noise. Therefore, construction would be subject to the limitations of 60 dBA during the daytime and 55 dBA at the nighttime measured at occupied residential locations. Exceeding these limits would result in a significant noise impact. Based on information in the previous paragraph these noise levels would regularly be exceeded during the daytime and nighttime hours at residences within the Specific Plan area. Based on an Leq noise level of 90 dBA at 50 feet, an observer would need to be 1580 feet from the construction to experience a noise level of 60 dBA (Leq), or 2,800 feet for a noise level of 55 dBA (Leq). A residence within 1,580 feet during active construction during the daytime would be impacted, or within 2,800 feet during the nighttime would be impacted. Mitigation is discussed in Section 3.1.1.

**Residences Adjacent to the Specific Plan area.** Residences are located adjacent to the project in the areas along Redlands Boulevard, Merwin Street, Bay Avenue, Cactus Avenue, and Gilman

Springs Road. The potential for noise impacts will be similar to those impacts for residents within the Specific Plan area. Specifically, a receptor would need to be more than 1,580 feet from the construction to experience a noise level less than 60 dBA (Leq), or more than 2,800 feet for a noise level less than 55 dBA (Leq). A residence within 1,580 feet during active construction during the daytime would be impacted, or within 2,800 feet during the nighttime would be impacted. Mitigation is discussed in Section 3.1.1.

### *2.2.2 Off-Site Construction*

Off-site construction will be necessary for the project. Off-site improvements include road improvements along Cactus Avenue and Redlands Boulevard, water and utility improvements, construction of detention basins, debris basins, and interchange improvements. Areas of off-site construction are shown in Exhibit 12. At this time the duration of construction and the equipment to be used for these improvements are not known.

Roadway and interchange improvements are planned along Cactus Avenue, Redlands Boulevard, and State Route 60. Often the loudest pieces of equipment associated with this type of construction are the graders/scrapers. Peak noise levels at 50 feet can reach 96 dBA, with average noise levels (Leq) in the 85 dBA range. Noise levels of 60 dBA (Leq) could be exceeded for up to 900 feet from the construction area. Residences are commonly located within 900 feet of these areas and are exposed to noise levels in exceedance of the Moreno Valley noise criteria. Mitigation measures are recommended in Section 3.1.2.

Drainage improvements, sewer improvements, water and utility improvements, and construction of detention/debris basins are other off-site construction activities that will be a part of the project. Construction of these improvements generally use fewer and smaller pieces of equipment, which results in lower noise levels. For example, at these construction a single backhoe may likely be loudest piece of equipment. A backhoe may have a peak noise level that exceeds 90 dBA at 50 feet, but has an average noise level around 80 dBA (Leq) at 50 feet. At this noise level one would need to be more than 500 feet away to experience a noise level (Leq) of less than 60 dBA. This noise level exceed the City's daytime criteria and therefore, even for these construction activities significant noise impacts could occur. Mitigation measures are recommended in Section 3.1.2.

## 2.3 Long-Term Off-Site Impacts

This section examines the long-term off-site noise impacts from the proposed project. Specifically traffic noise increases due to the project and its cumulative impacts are examined. Increased traffic caused by the project will result in increased traffic noise levels along the roadways in the vicinity of the project. Noise impacts generated on-site by truck circulation and loading/unloading activities are also assessed. Finally, although not specifically proposed as part of this project, the interchange with State Route 60 at Theodore Street will be improved at some point in the future. The noise constraints of this work, particularly as they relate to the California Department of Transportation (Caltrans) requirements are discussed.

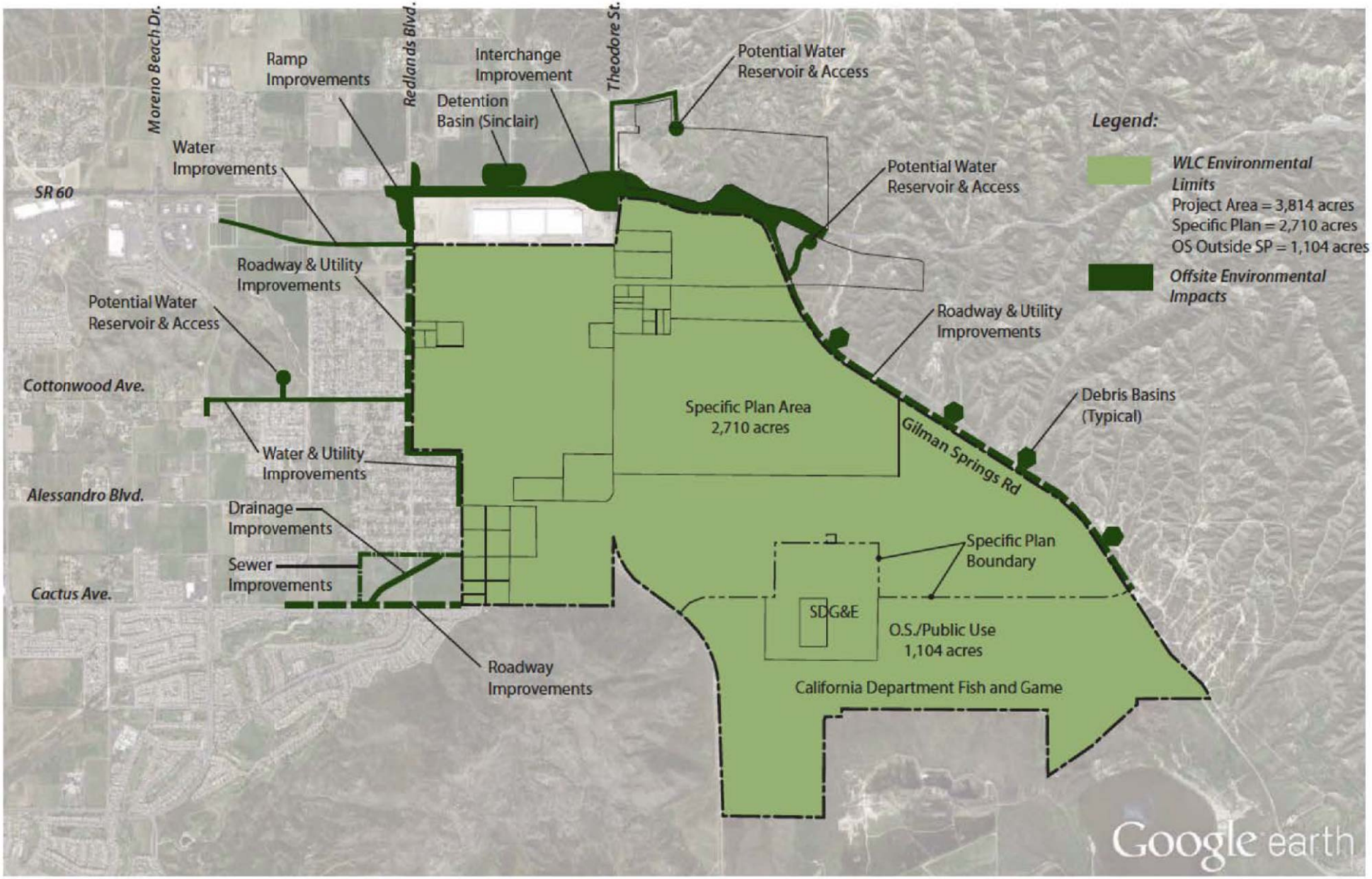



*Exhibit 12*

# Off-Site Construction Areas

*Mestre Greve Associates*
*Division of Landrum & Brown*

### *2.3.1 Traffic Noise Impacts Due To The Project*

The project will generate significant traffic, particularly truck traffic, and therefore, has the potential to generate noise impacts along the roadways serving the project site. The traffic study for the project provided the project data for the noise analysis. The traffic study area for surface streets covered all intersections in Moreno Valley of a collector or higher classification street with another collector or higher classification street, at which the proposed project will add 50 or more peak hour trips. The study area also included the main routes between the project and the neighboring communities of Riverside, Perris, Beaumont, San Jacinto, and Redlands. The study area for freeways was selected to cover the freeway routes radiating from the project site to the north, south, east, and west. The analysis covered SR-60 from SR-62 (Twenty-nine Palms Highway) in the east to SR-71 (Chino Valley Freeway) in the west, SR-91 from I-215 in the east to I-15 in the west, and I-215 from SR-210 in the north to the Scott Road interchange in the south. Additional analysis was done by the traffic engineer to confirm that significant truck impacts would not occur extending all of the way to the Ports of Los Angeles and Long Beach. Beyond these limits project traffic would be so small in absolute terms or as a percentage of background traffic that it would no longer be discernable from random error in modeling protocols or the normal daily variation in traffic, and routing of the small amounts of remaining traffic would be influenced by minor local factors (e.g. stop signs, lane widths) that cannot practicably be represented in a regional model.

Three hundred and thirty nine (339) arterial roadway links and eighty (89) freeway segments were provided for the noise analysis. The noise increase (or decrease) for each roadway link due to the project was calculated for every link and can be found in the Appendix. The change in noise level was calculated for all 428 roadway links with and without the project for the existing case (2012), 2022, and 2035. Additionally, Phase 1 plus existing traffic was evaluated. Based on the threshold criteria presented in Section 2.1, roadway links with noise increases less than 1.5 dB would not have a substantial noise increase and are not presented in the main body of the this report. Similarly, any roadway links that do not have sensitive receptors (e.g., residential, schools, and churches) are also not presented in the main body of this report. Therefore, of the the 428 links analyzed, 44 links have sensitive receptors and an increase of 1.5 dB for at least one case, and are presented in the following exhibits.

Exhibit 13 presents noise data for 2012 for the 44 links. The table shows a roadway ID number which corresponds to the traffic study ID number. The roadway name and roadway segment are then presented, followed by whether a soundwall is present or not. The CNEL noise level at the residential property is shown for the No Project and With Project cases. The change in noise level and whether it is a substantial increase are presented in the final two columns. The significance thresholds for project impacts presented previously in Section 2.1 were used to determine whether the increase was a substantial increase or not. Fourteen (14) links are identified as having a substantial increase and these represent potentially significant impacts.

The noise increases in Exhibit 13 represent the noise increase directly caused by the project. Exhibit 13 represents the hypothetical existing plus entire project case, and essentially represents the entire project placed into existence in the 2012 timeframe. Exhibits 14, 15, and 16 present the noise levels and whether a substantial increase will occur for 2012 with Phase 1, 2022 with

Phase 1, and 2035 with entire project. The noise increases shown in these three exhibits represents the increase that is directly attributable to the project.

Note that there are some roadway links listed with a "0.0" traffic noise level. These links represent roadway links that are not yet constructed and therefore, there is no traffic noise generated yet on these roadway links.

| ID | Roadway | Segment | Soundwall? | Traffic Noise Level (CNEL) | | | Substantial Increase? |
|---|---|---|---|---|---|---|---|
| | | | | No Project | With Project | Change | |
| 196 | Alessandro Rd | Crescent Ave to Sunset Dr | No | 63.3 | 65.1 | 1.8 | No |
| 200 | Alessandro Rd | Sunset Dr to San Timoteo Canyon Rd | No | 63.3 | 65.3 | 2.0 | No |
| 32 | Cactus Ave | west of Redlands Blvd | Yes | 60.5 | 62.7 | 2.2 | No |
| 50 | Cactus Ave | Redlands Blvd to Street D | No | 51.3 | 68.3 | 17.0 | Yes |
| 70 | Cactus Ave | Oliver St to Moreno Beach Dr | Yes | 58.2 | 59.7 | 1.5 | No |
| 194 | Crescent Ave | West of Alessandro Rd | No | 57.1 | 59.6 | 2.6 | No |
| 62 | Fir Ave | Quincy Dr to Redlands Blvd | No | 0.0 | 0.0 | 0.0 | No |
| 30 | Gilman Springs Rd | Eucalyptus Ave to Street C | No | 49.6 | 55.0 | 5.4 | Yes |
| 190 | Gilman Springs Rd | Jack Rabbit Trail to Bridge St | No | 62.7 | 63.9 | 1.2 | No |
| 191 | Gilman Springs Rd | Bridge St to Beaumont Ave | No | 61.0 | 62.2 | 1.2 | No |
| 358 | Gilman Springs Rd | Bridge St to SR-79 SB Ramps | No | 72.7 | 73.9 | 1.2 | No |
| 73 | Iris Ave | Nason St to Oliver St | No | 63.0 | 65.9 | 2.9 | No |
| 162 | Iris Ave | Kitching St to Lasselle St | Yes | 60.1 | 61.6 | 1.6 | No |
| 165 | Iris Ave | Lasselle St to Nason St | Yes | 60.0 | 62.4 | 2.4 | No |
| 36 | Ironwood Ave | Redlands Blvd to Highland Blvd | No | 46.3 | 57.3 | 11.0 | Yes |
| 9 | John F Kennedy Dr | south of Cactus Ave | No | 61.5 | 66.9 | 5.4 | Yes |
| 168 | Krameria Ave | Perris Blvd to Lasselle St | Yes | 57.5 | 60.6 | 3.1 | No |
| 172 | Lasselle St | Krameria Ave to Arroyo Park Dr | Yes | 56.4 | 58.9 | 2.5 | No |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | No | 63.2 | 65.2 | 2.1 | No |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd to I-10 | No | 56.5 | 58.5 | 2.0 | No |
| 54 | Locust Ave | Moreno Beach Dr to Smiley Blvd | Yes | 46.2 | 46.2 | 0.1 | No |
| 55 | Locust Ave | Moreno Beach Dr to Redlands Blvd | No | 55.7 | 58.9 | 3.2 | No |
| 52 | Moreno Beach Dr | John F Kennedy Dr to Oliver St | Yes | 55.2 | 58.7 | 3.5 | No |
| 56 | Moreno Beach Dr | Locust Ave to Ironwood Ave | No | 55.3 | 57.2 | 1.9 | No |
| 67 | Oliver St | Alessandro Blvd to Cactus Ave | No | 54.1 | 56.4 | 2.2 | No |
| 12 | Redlands Blvd | Eucalyptus Ave to Dracaea Ave | No | 47.1 | 48.8 | 1.7 | No |
| 13 | Redlands Blvd | State Route 60 to Eucalyptus Ave | No | 60.9 | 64.4 | 3.4 | Yes |
| 35 | Redlands Blvd | Ironwood Ave to State Route 60 | No | 68.3 | 71.0 | 2.7 | Yes |
| 42 | Redlands Blvd | Ironwood Ave to San Timoteo Canyon Rd | No | 67.8 | 70.0 | 2.2 | Yes |
| 177 | San Timoteo Canyon Rd | Alessandro Rd to Live Oak Canyon Rd | No | 62.0 | 65.1 | 3.1 | Yes |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd to Redlands Blvd | No | 62.7 | 65.7 | 3.0 | Yes |
| 2 | Street A | Eucalyptus Ave to Street F | No | 50.2 | 73.2 | 22.9 | Yes |
| 8 | Street D | Street E to Cactus Ave | No | 0.0 | 69.5 | 69.5 | Yes |
| 4 | Street E | north of Alessandro Blvd | No | 0.0 | 65.4 | 65.4 | Yes |
| 19 | Street F | east of Street A | No | 0.0 | 68.4 | 68.4 | Yes |
| 198 | Sunset Dr | Crown St to Alessandro Rd | No | 49.0 | 51.4 | 2.3 | No |
| 199 | Sunset Dr | Alessandro Rd to Cameo Dr | No | 52.5 | 55.2 | 2.7 | No |
| 38 | Theodore St | State Route 60 to Highland Blvd | No | 57.8 | 65.0 | 7.1 | Yes |
| ***FREEWAY*** | | | | | | | |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | Yes | 66.5 | 68.0 | 1.5 | Yes |
| 30 | SR-60 | Heacock St to Perris Blvd | Yes | 65.2 | 66.9 | 1.7 | Yes |
| 31 | SR-60 | Perris Blvd to Nason St | Yes | 64.6 | 66.7 | 2.1 | No |
| 32 | SR-60 | Nason St to Moreno Beach Dr | Yes | 52.0 | 54.3 | 2.3 | No |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | Yes | 62.5 | 65.5 | 3.1 | Yes |
| 34 | SR-60 | Redlands Blvd to Theodore St | No | 60.2 | 63.5 | 3.4 | Yes |

*Exhibit 13*

# Traffic Noise Levels for 2012

*Mestre Greve Associates*
*Division of Landrum & Brown*

| ID | Roadway | Segment | Soundwall? | Traffic Noise Level (CNEL) No Project | With Project | Change | Substantial Increase? |
|---|---|---|---|---|---|---|---|
| 196 | Alessandro Rd | Crescent Ave to Sunset Dr | No | 63.3 | 64.4 | 1.2 | No |
| 200 | Alessandro Rd | Sunset Dr to San Timoteo Canyon Rd | No | 63.3 | 64.6 | 1.3 | No |
| 32 | Cactus Ave | west of Redlands Blvd | Yes | 60.5 | 61.2 | 0.7 | No |
| 50 | Cactus Ave | Redlands Blvd to Street D | No | 51.3 | 66.3 | 15.0 | Yes |
| 70 | Cactus Ave | Oliver St to Moreno Beach Dr | Yes | 58.2 | 59.1 | 0.9 | No |
| 194 | Crescent Ave | West of Alessandro Rd | No | 57.1 | 58.8 | 1.7 | No |
| 62 | Fir Ave | Quincy Dr to Redlands Blvd | No | 0.0 | 0.0 | 0.0 | No |
| 30 | Gilman Springs Rd | Eucalyptus Ave to Street C | No | 49.6 | 49.6 | 0.0 | No |
| 190 | Gilman Springs Rd | Jack Rabbit Trail to Bridge St | No | 62.7 | 63.3 | 0.6 | No |
| 191 | Gilman Springs Rd | Bridge St to Beaumont Ave | No | 61.0 | 61.5 | 0.6 | No |
| 358 | Gilman Springs Rd | Bridge St to SR-79 SB Ramps | No | 72.7 | 73.3 | 0.6 | No |
| 73 | Iris Ave | Nason St to Oliver St | No | 63.0 | 65.0 | 2.0 | No |
| 162 | Iris Ave | Kitching St to Lasselle St | Yes | 60.1 | 61.1 | 1.0 | No |
| 165 | Iris Ave | Lasselle St to Nason St | Yes | 60.0 | 61.6 | 1.6 | No |
| 36 | Ironwood Ave | Redlands Blvd to Highland Blvd | No | 46.3 | 55.6 | 9.3 | Yes |
| 9 | John F Kennedy Dr | south of Cactus Ave | No | 61.5 | 65.7 | 4.1 | Yes |
| 168 | Krameria Ave | Perris Blvd to Lasselle St | Yes | 57.5 | 60.0 | 2.6 | No |
| 172 | Lasselle St | Krameria Ave to Arroyo Park Dr | Yes | 56.4 | 58.1 | 1.7 | No |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | No | 63.2 | 64.5 | 1.4 | No |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd to I-10 | No | 56.5 | 58.2 | 1.7 | No |
| 54 | Locust Ave | Moreno Beach Dr to Smiley Blvd | Yes | 46.2 | 46.2 | 0.1 | No |
| 55 | Locust Ave | Moreno Beach Dr to Redlands Blvd | No | 55.7 | 57.1 | 1.4 | No |
| 52 | Moreno Beach Dr | John F Kennedy Dr to Oliver St | Yes | 55.2 | 57.6 | 2.5 | No |
| 56 | Moreno Beach Dr | Locust Ave to Ironwood Ave | No | 55.3 | 55.9 | 0.7 | No |
| 67 | Oliver St | Alessandro Blvd to Cactus Ave | No | 54.1 | 55.8 | 1.6 | No |
| 12 | Redlands Blvd | Eucalyptus Ave to Dracaea Ave | No | 47.1 | 48.7 | 1.5 | No |
| 13 | Redlands Blvd | State Route 60 to Eucalyptus Ave | No | 60.9 | 63.4 | 2.5 | No |
| 35 | Redlands Blvd | Ironwood Ave to State Route 60 | No | 68.3 | 68.3 | 0.0 | No |
| 42 | Redlands Blvd | Ironwood Ave to San Timoteo Canyon Rd | No | 67.8 | 69.4 | 1.6 | Yes |
| 177 | San Timoteo Canyon Rd | Alessandro Rd to Live Oak Canyon Rd | No | 62.0 | 64.3 | 2.4 | No |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd to Redlands Blvd | No | 62.7 | 65.0 | 2.3 | No |
| 2 | Street A | Eucalyptus Ave to Street F | No | 50.2 | 71.8 | 21.6 | Yes |
| 8 | Street D | Street E to Cactus Ave | No | 0.0 | 67.5 | 67.5 | Yes |
| 4 | Street E | north of Alessandro Blvd | No | 0.0 | 65.9 | 65.9 | Yes |
| 19 | Street F | east of Street A | No | 0.0 | 44.0 | 44.0 | Yes |
| 198 | Sunset Dr | Crown St to Alessandro Rd | No | 49.0 | 50.7 | 1.7 | No |
| 199 | Sunset Dr | Alessandro Rd to Cameo Dr | No | 52.5 | 54.4 | 1.9 | No |
| 38 | Theodore St | State Route 60 to Highland Blvd | No | 57.8 | 63.5 | 5.7 | Yes |
| ***FREEWAY*** | | | | | | | |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | Yes | 66.5 | 67.5 | 0.9 | No |
| 30 | SR-60 | Heacock St to Perris Blvd | Yes | 65.2 | 66.2 | 1.0 | No |
| 31 | SR-60 | Perris Blvd to Nason St | Yes | 64.6 | 65.9 | 1.3 | No |
| 32 | SR-60 | Nason St to Moreno Beach Dr | Yes | 52.0 | 53.4 | 1.5 | No |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | Yes | 62.5 | 64.5 | 2.0 | No |
| 34 | SR-60 | Redlands Blvd to Theodore St | No | 60.2 | 62.4 | 2.2 | No |

*Exhibit 14*

# Traffic Noise Levels for Phase 1 Plus Existing

*Mestre Greve Associates*
*Division of Landrum & Brown*

| ID | Roadway | Segment | Soundwall? | Traffic Noise Level (CNEL) | | | Substantial Increase? |
|---|---|---|---|---|---|---|---|
| | | | | No Project | With Project | Change | |
| 196 | Alessandro Rd | Crescent Ave to Sunset Dr | No | 64.6 | 65.4 | 0.8 | No |
| 200 | Alessandro Rd | Sunset Dr to San Timoteo Canyon Rd | No | 65.0 | 65.8 | 0.8 | No |
| 32 | Cactus Ave | west of Redlands Blvd | Yes | 61.3 | 62.5 | 1.2 | No |
| 50 | Cactus Ave | Redlands Blvd to Street D | No | 51.3 | 66.8 | 15.5 | Yes |
| 70 | Cactus Ave | Oliver St to Moreno Beach Dr | Yes | 58.9 | 59.8 | 0.9 | No |
| 194 | Crescent Ave | West of Alessandro Rd | No | 58.5 | 59.8 | 1.3 | No |
| 62 | Fir Ave | Quincy Dr to Redlands Blvd | No | 0.0 | 0.0 | 0.0 | No |
| 30 | Gilman Springs Rd | Eucalyptus Ave to Street C | No | 49.9 | 49.9 | 0.0 | No |
| 190 | Gilman Springs Rd | Jack Rabbit Trail to Bridge St | No | 63.0 | 63.9 | 1.0 | No |
| 191 | Gilman Springs Rd | Bridge St to Beaumont Ave | No | 61.2 | 62.1 | 0.9 | No |
| 358 | Gilman Springs Rd | Bridge St to SR-79 SB Ramps | No | 72.9 | 73.8 | 0.9 | No |
| 73 | Iris Ave | Nason St to Oliver St | No | 63.8 | 65.5 | 1.6 | No |
| 162 | Iris Ave | Kitching St to Lasselle St | Yes | 61.0 | 61.7 | 0.7 | No |
| 165 | Iris Ave | Lasselle St to Nason St | Yes | 61.1 | 62.3 | 1.2 | No |
| 36 | Ironwood Ave | Redlands Blvd to Highland Blvd | No | 51.9 | 56.1 | 4.2 | No |
| 9 | John F Kennedy Dr | south of Cactus Ave | No | 62.8 | 66.1 | 3.3 | Yes |
| 168 | Krameria Ave | Perris Blvd to Lasselle St | Yes | 60.5 | 61.2 | 0.7 | No |
| 172 | Lasselle St | Krameria Ave to Arroyo Park Dr | Yes | 59.2 | 60.1 | 0.9 | No |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | No | 64.9 | 65.7 | 0.9 | No |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd to I-10 | No | 58.0 | 59.2 | 1.2 | No |
| 54 | Locust Ave | Moreno Beach Dr to Smiley Blvd | Yes | 46.2 | 46.2 | 0.0 | No |
| 55 | Locust Ave | Moreno Beach Dr to Redlands Blvd | No | 60.7 | 61.4 | 0.7 | No |
| 52 | Moreno Beach Dr | John F Kennedy Dr to Oliver St | Yes | 56.1 | 58.2 | 2.1 | No |
| 56 | Moreno Beach Dr | Locust Ave to Ironwood Ave | No | 58.8 | 59.3 | 0.5 | No |
| 67 | Oliver St | Alessandro Blvd to Cactus Ave | No | 58.9 | 59.1 | 0.2 | No |
| 12 | Redlands Blvd | Eucalyptus Ave to Dracaea Ave | No | 49.1 | 47.1 | -2.0 | No |
| 13 | Redlands Blvd | State Route 60 to Eucalyptus Ave | No | 62.9 | 65.3 | 2.4 | No |
| 35 | Redlands Blvd | Ironwood Ave to State Route 60 | No | 69.2 | 70.7 | 1.5 | No |
| 42 | Redlands Blvd | Ironwood Ave to San Timoteo Canyon Rd | No | 69.1 | 70.5 | 1.4 | No |
| 177 | San Timoteo Canyon Rd | Alessandro Rd to Live Oak Canyon Rd | No | 63.4 | 65.3 | 1.9 | No |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd to Redlands Blvd | No | 64.2 | 66.0 | 1.8 | No |
| 2 | Street A | Eucalyptus Ave to Street F | No | 52.5 | 72.1 | 19.6 | Yes |
| 8 | Street D | Street E to Cactus Ave | No | 0.0 | 68.0 | 68.0 | Yes |
| 4 | Street E | north of Alessandro Blvd | No | 0.0 | 65.9 | 65.9 | Yes |
| 19 | Street F | east of Street A | No | 0.0 | 43.6 | 43.6 | Yes |
| 198 | Sunset Dr | Crown St to Alessandro Rd | No | 49.0 | 49.0 | 0.0 | No |
| 199 | Sunset Dr | Alessandro Rd to Cameo Dr | No | 55.3 | 56.3 | 1.0 | No |
| 38 | Theodore St | State Route 60 to Highland Blvd | No | 60.7 | 63.8 | 3.1 | Yes |
| ***FREEWAY*** | | | | | | | |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | Yes | 67.2 | 67.9 | 0.7 | No |
| 30 | SR-60 | Heacock St to Perris Blvd | Yes | 66.1 | 66.9 | 0.8 | No |
| 31 | SR-60 | Perris Blvd to Nason St | Yes | 65.6 | 66.6 | 1.0 | No |
| 32 | SR-60 | Nason St to Moreno Beach Dr | Yes | 53.1 | 54.2 | 1.1 | No |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | Yes | 63.8 | 65.3 | 1.5 | No |
| 34 | SR-60 | Redlands Blvd to Theodore St | No | 61.7 | 63.2 | 1.5 | No |

*Exhibit 15*

# Traffic Noise Levels for 2022 (Phase 1 Only)

*Mestre Greve Associates*
*Division of Landrum & Brown*

| ID | Roadway | Segment | Soundwall? | Traffic Noise Level (CNEL) | | | |
|---|---|---|---|---|---|---|---|
| | | | | No Project | With Project | Change | Substantial Increase? |
| 196 | Alessandro Rd | Crescent Ave to Sunset Dr | No | 64.6 | 65.4 | 0.9 | No |
| 200 | Alessandro Rd | Sunset Dr to San Timoteo Canyon Rd | No | 65.0 | 66.0 | 1.0 | No |
| 32 | Cactus Ave | west of Redlands Blvd | Yes | 62.0 | 66.2 | 4.2 | Yes |
| 50 | Cactus Ave | Redlands Blvd to Street D | No | 55.1 | 69.2 | 14.1 | Yes |
| 70 | Cactus Ave | Oliver St to Moreno Beach Dr | Yes | 60.5 | 62.0 | 1.5 | No |
| 194 | Crescent Ave | West of Alessandro Rd | No | 58.9 | 60.1 | 1.2 | No |
| 62 | Fir Ave | Quincy Dr to Redlands Blvd | No | 64.7 | 67.1 | 2.4 | No |
| 30 | Gilman Springs Rd | Eucalyptus Ave to Street C | No | 55.2 | 57.6 | 2.4 | No |
| 190 | Gilman Springs Rd | Jack Rabbit Trail to Bridge St | No | 65.8 | 67.6 | 1.8 | Yes |
| 191 | Gilman Springs Rd | Bridge St to Beaumont Ave | No | 63.5 | 65.2 | 1.7 | No |
| 358 | Gilman Springs Rd | Bridge St to SR-79 SB Ramps | No | 75.4 | 77.1 | 1.6 | Yes |
| 73 | Iris Ave | Nason St to Oliver St | No | 64.7 | 66.6 | 2.0 | No |
| 162 | Iris Ave | Kitching St to Lasselle St | Yes | 63.2 | 64.1 | 0.9 | No |
| 165 | Iris Ave | Lasselle St to Nason St | Yes | 63.1 | 64.3 | 1.2 | No |
| 36 | Ironwood Ave | Redlands Blvd to Highland Blvd | No | 58.7 | 60.8 | 2.1 | No |
| 9 | John F Kennedy Dr | south of Cactus Ave | No | 64.5 | 67.5 | 3.0 | Yes |
| 168 | Krameria Ave | Perris Blvd to Lasselle St | Yes | 57.6 | 58.5 | 0.9 | No |
| 172 | Lasselle St | Krameria Ave to Arroyo Park Dr | Yes | 60.0 | 61.0 | 0.9 | No |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | No | 64.9 | 65.9 | 1.0 | No |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd to I-10 | No | 57.5 | 59.0 | 1.5 | No |
| 54 | Locust Ave | Moreno Beach Dr to Smiley Blvd | Yes | 65.4 | 66.9 | 1.5 | Yes |
| 55 | Locust Ave | Moreno Beach Dr to Redlands Blvd | No | 60.9 | 62.9 | 2.0 | No |
| 52 | Moreno Beach Dr | John F Kennedy Dr to Oliver St | Yes | 56.9 | 59.4 | 2.6 | No |
| 56 | Moreno Beach Dr | Locust Ave to Ironwood Ave | No | 63.4 | 65.1 | 1.7 | No |
| 67 | Oliver St | Alessandro Blvd to Cactus Ave | No | 54.1 | 54.3 | 0.2 | No |
| 12 | Redlands Blvd | Eucalyptus Ave to Dracaea Ave | No | 46.5 | 48.1 | 1.6 | No |
| 13 | Redlands Blvd | State Route 60 to Eucalyptus Ave | No | 63.8 | 67.4 | 3.6 | Yes |
| 35 | Redlands Blvd | Ironwood Ave to State Route 60 | No | 69.5 | 71.0 | 1.5 | Yes |
| 42 | Redlands Blvd | Ironwood Ave to San Timoteo Canyon Rd | No | 68.8 | 70.9 | 2.1 | Yes |
| 177 | San Timoteo Canyon Rd | Alessandro Rd to Live Oak Canyon Rd | No | 63.6 | 66.2 | 2.7 | No |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd to Redlands Blvd | No | 64.2 | 66.7 | 2.5 | No |
| 2 | Street A | Eucalyptus Ave to Street F | No | 57.2 | 73.1 | 16.0 | Yes |
| 8 | Street D | Street E to Cactus Ave | No | 0.0 | 70.6 | 70.6 | Yes |
| 4 | Street E | north of Alessandro Blvd | No | 0.0 | 65.7 | 65.7 | Yes |
| 19 | Street F | east of Street A | No | 0.0 | 69.1 | 69.1 | Yes |
| 198 | Sunset Dr | Crown St to Alessandro Rd | No | 50.7 | 51.3 | 0.6 | No |
| 199 | Sunset Dr | Alessandro Rd to Cameo Dr | No | 57.0 | 58.2 | 1.2 | No |
| 38 | Theodore St | State Route 60 to Highland Blvd | No | 65.2 | 66.3 | 1.2 | No |
| ***FREEWAY*** | | | | | | | |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | Yes | 67.6 | 68.6 | 1.0 | No |
| 30 | SR-60 | Heacock St to Perris Blvd | Yes | 66.6 | 67.7 | 1.1 | No |
| 31 | SR-60 | Perris Blvd to Nason St | Yes | 66.5 | 67.8 | 1.3 | No |
| 32 | SR-60 | Nason St to Moreno Beach Dr | Yes | 54.3 | 55.6 | 1.3 | No |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | Yes | 65.5 | 67.1 | 1.6 | Yes |
| 34 | SR-60 | Redlands Blvd to Theodore St | No | 63.7 | 65.1 | 1.4 | No |

*Exhibit 16*

# Traffic Noise Levels for 2035

*Mestre Greve Associates*
*Division of Landrum & Brown*

Twenty-one (21) roadway segments are identified in Exhibits 13, 14, 15, and 16 where a significant noise impact will occur for at least one case. Each area is discussed below. Some contiguous roadway segments are grouped into one discussion. Link ID numbers are provided in parenthesis so that the roadway segments can be correlated with the traffic study. Unless mitigated, a significant noise impact will occur along all 21 roadway segments. Mitigation for each area is discussed in Section 3.2.1.

**Cactus Avenue West of Redlands Boulevard (32).** This area is identified in the traffic analysis as "Cactus Avenue West of Redlands Boulevard," but would extend from Redlands Boulevard to Moreno Beach Drive at which point the traffic would disperse further. This area shows noise increases ranging from 0.7 dB to 4.2 dB depending on the study year. Only the 2035 case results in a significant noise increase. Single-family residences back up to this street with rear yards adjacent to Cactus Avenue. Soundwalls are located along the residences that are approximately 6 foot high. Rear yard areas are approximately 60 feet from the centerline of the roadway. In 2035, the noise levels projected for the yard area, including the effects of the soundwall, will be 66.2 CNEL.

**Cactus Avenue Redlands Boulevard to Cactus Avenue Extension (50).** This area is a small group of single-family homes along Cactus Avenue between the future Cactus Avenue Extension (Street D) and Redlands Boulevard. A significant noise increase is projected for all four case years. Currently there is no soundwall in this area.

**Gilman Springs Road between Eucalyptus Avenue and Street C (30) and Jack Rabbit Trail and Bridge Street (191).** There are three single-family homes scattered along these roadway segments. All of the houses are setback from the roadway, and none have soundwalls.

**Ironwood Avenue between Redlands Boulevard and Highland Boulevard (36).** A significant noise increase is projected for 2012 with Phase 1 and with full project study years. In 2035, the noise level is projected to be 60.8 CNEL. There are two single-family homes that front onto Ironwood Avenue. There are also two churches along this roadway.

**John F. Kennedy Drive South of Cactus Avenue (9).** The homes along John F. Kennedy Drive south of Cactus Avenue will experience significant noise increases for all four study years. Similar to the area along Cactus Avenue, this noise increase will be due to cars and light vehicles, and not heavy trucks. The homes along the west side of the roadway are generally depressed with respect to the road and have a roughly 6 foot soundwall. The homes on the east side of the roadway do not have any soundwalls and are elevated with respect to the roadway. Rear yards areas on both sides of the street generally are in the range of 60 to 90 feet from the centerline of the roadway. Without any sound barrier, the noise levels at the residences along John F. Kennedy Drive will be 67.5 CNEL. The homes on the west side of the roadway have soundwalls and slope conditions that will reduce noise levels 6 to 10 dB, putting these homes under the City criteria. Homes on the west side of the street will not be impacted. Homes on the east side of the street do not have soundwalls, and there will be a significant impact unless adequately mitigated.

**Locust Avenue between Moreno Beach Drive and Smiley Boulevard (54).** Only the 2035 case results in a significant noise increase for this area. In 2035, the project will result in a 1.5 dB increase raising the noise level to 66.9 CNEL. There are three single-family homes along this roadway and they front onto the roadway.

**Redlands Boulevard from Eucalyptus Avenue to State Route 60 (13).** The noise analysis shows significant noise increases along this roadway segment for the 2012 and 2035 cases. There are scattered homes in this area that face Redlands Boulevard.

**Redlands Boulevard from State Route 60 to San Timoteo Canyon Road (35, 42).** The noise analysis shows significant noise increases along this roadway segment for the 2012 and 2035 cases. The increases in noise are approximately 2 dB with a resultant noise level around 71 CNEL range. There are 28 homes along this roadway that would be affected. The single-family homes are scattered and generally front the roadway.

**San Timoteo Canyon Road from Alessandro Road to Live Oak Canyon Road to Redlands Boulevard (177, 179).** The roadways impacts only show a significant noise impact in the existing (2012) to existing plus project comparison. The noise increases by about 3 dB with resultant noise levels in the 65 to 66 CNEL range. There are four scattered residences along the is roadway that would be impacted.

**Theodore Street from State Route 60 to Highland Boulevard (38).** The noise analysis indicates that with project in the year 2035 the resulting noise level will be 65.2 CNEL. There are four homes on Theodore Street that front onto the roadway.

**Street A from Eucalyptus Avenue to Street F; Street E north of Alessandro Boulevard; and Street F east of Street A (2, 4, 19).** There are three groups of homes that may remain within the project area. The analysis shows significant noise increases for all four cases. The proposed Specific Plan designates these properties for Light Logistics uses, but the residences may remain indefinitely. The future Light Logistics use is not sensitive to noise. However, the existing residences, as long as they remain as a non-conforming use, must be considered as a sensitive land use. The first group of homes is east of Redlands Boulevard north of the intersection with Brodiaea Avenue. Street E will be constructed west of these homes. It is likely that there will be intervening buildings and that the distance from Street E will be so great that these homes will not experience significant noise from public roadways.

The second group of homes is on the east side of Street A (Theodore Street) midway between the future Street B and Street F. There are two homes in this area. Their noise environment will be changed significantly. The exact alignment of the roadway is to be determined, but noise levels could exceed 70 CNEL at the residences. The noise levels at these homes would be unacceptable to the residents, and a significant impact would occur.

The third area is a single home and lies east of Street A and along Street F. Currently there is essentially no traffic on this street. There is one residence in this area. Depending on the alignment for the street noise levels could exceed 70 CNEL. Since this home will experience a substantial noise increase, this is considered a significant impact.

**Cactus Avenue Extension from Street E to Cactus Avenue (8).** Cactus Avenue Extension (Street D), as shown in the Specific Plan, serves as a connection between the project's westerly loop street (Street E) and Cactus Avenue. The road will come down the western side of the project parallel to Merwin Street and roughly 1,250 feet east of Merwin Street. It then merges with Cactus Avenue traveling to the west until Redlands Boulevard. A specific alignment has not been determined for this roadway. There would be essentially no heavy trucks using this roadway. There are approximately 14 homes that side-on to Merwin Street that could be affected by traffic on Cactus Avenue Extension. There are no soundwalls along these homes. The noise forecast shows that the 65 CNEL contour will lie 114 feet from the centerline of Cactus Avenue Extension. If the centerline of Cactus Avenue Extension is located closer than 114 feet to the property line of the residences, then a significant impact would occur. However, this appears to be unlikely since the current plan shows Cactus Avenue Extension more than 1,000 feet from the homes.

**State Route 60 from Pigeon Pass Road to Perris Boulevard (29, 30).** This area will only have a substantial noise increase in the 2012 case. The noise levels are projected to increase by 1.5 to 1.7 dB in this area with resultant noise levels in the 66.9 to 68.0 CNEL range. All residential areas along this stretch of freeway have soundwalls in place.

**State Route 60 from Moreno Beach Drive to Redlands Boulevard (33).** A substantial increase is shown for the existing case and for 2035. There are soundwalls in place for all residences in this area. Noise levels will reach 67.1 CNEL by 2035.

**State Route 60 from Redlands Boulevard to Theodore Street (34).** A substantial noise increase is identified for this roadway for the existing case only. The resultant noise level will be 63.5 CNEL with an increase due to the project of 3.4 dB. No soundwalls are present in this area. The residential area is setback from the freeway and is clustered along Redlands Boulevard north of the freeway.

#### *2.3.1.1 Changes from January 24, 2013 Noise Analysis*

The traffic analysis was revised to reflect a downsizing of the project and other factors. Most significantly was the fact that the project was reduced by one million square feet of high-cube warehousing. The updated traffic assessment was of course used for this analysis. In the January 2013 noise analysis, 33 roadway segments were identified where a significant noise impact directly attributable to the project would occur for at least one of the impact scenarios. In this analysis 21 roadway segments have been identified as having a potentially significant noise impact that is directly attributable to the project. The reduction in impacted areas is a direct result of the revised traffic analysis which reflects a downsizing of the project. The noise analysis procedures and significance thresholds have not been changed from the January 2013 noise assessment. The roadway links that were previously identified as being impacted and are not now impacted are listed below.

- Day Street between Cottonwood Avenue and Alessandro Boulevard (109)
- Fir Avenue between Quincy Drive and Redlands Boulevard (62)

- Moreno Beach Drive between Locust Avenue and Ironwood Avenue (56)
- Perris Boulevard between John F. Kennedy Drive and Iris Avenue (303)
- Placentia Avenue from El Nido Avenue to Evans Road and on to Water Avenue (431, 432)
- Quincy Drive from Cactus Avenue to Alessandro Boulevard and to Cottonwood Avenue (502, 503)
- Reche Canyon Road from Keissel Road to Reche Vista Drive and on to High Country Drive (205, 206)
- Redlands Boulevard from Eucalyptus Avenue to Dracaea Avenue (12)
- State Route 60 from Perris Boulevard to Nason Street (31)

There are five roadway segments that do not now have a direct impact but still have a cumulative impact. These roadways are as follows.

- Fir Avenue between Quincy Drive and Redlands Boulevard (62)
- Gilman Springs Road between Eucalyptus Avenue and Street C (31) and Jack Rabbit Trail and Bridge Street (191)
- Moreno Beach Drive between Locust Avenue and Ironwood Avenue (56)
- State Route 60 from Perris Boulevard to Nason Street (31)

Additionally, the following roadway was previously identified as being impacted, and mitigation was identified as not being feasible. Now mitigation for this roadway is considered feasible, mitigation is proposed that will reduce the impact to less than significant.

- Cactus Avenue west of Redlands Boulevard (32)

### *2.3.2 Cumulative Noise Impacts*

The cumulative noise increases represent the increase that will occur due to the project plus the other projects in the area and general growth in the region. Three hundred and thirty nine (339) arterial roadway links and eighty (89) freeway segments were provided for the noise analysis; a total of 428 roadway links. The noise levels for each roadway link can be found in the Appendix.

The project's incremental contribution to a cumulative noise increase would be considered cumulatively considerable and significant when ambient noise levels affect noise sensitive land uses and when the following occurs:

A project increase of the ambient (cumulative without project) noise level by 1 dB or more, and the predicted future cumulative with project noise levels cause the following cumulative increases:

- Increase noise levels by 5 dB or more where the existing noise level is less than 60 CNEL;
- Increase noise levels by 3 dB or more where the existing noise level is 60 to 65 CNEL; or

- Increase noise levels by 1.5 dB or more where the existing noise level is greater than 65 CNEL.

The change in noise level was calculated for all 428 roadway links to determine the increase in ambient noise level (2035 No Project compared to 2035 With Project). Roadway links with noise increases less than 1.0 dB would not have a substantial noise increase and are not presented in the main body of the this report. (Noise levels for all roadways can be found in the appendix.) Similarly, any roadway links that do not have sensitive receptors (e.g., residential, schools, and churches) are also not presented in the main body of this report, because without sensitive receptors there cannot be a significant impact. Therefore, of the 428 links analyzed, 44 links have sensitive receptors and an increase in the ambient of 1.0 dB or more are presented in the following exhibits.

Exhibit 17 presents noise data for 44 links. The table shows a roadway ID number which corresponds to the traffic study ID number. The roadway name and roadway segment are then presented, followed by whether a soundwall is present or not. The baseline CNEL noise level at the residential property is shown for the Existing case (2012), followed by 2035 No Project, and 2035 With Project cases. The change in noise level from baseline is presented in the following column. That is, the noise level difference between Existing (2012) and With Project (2035) is presented. Next the change from No Project (2035) is presented which represents the difference in noise level between the No Project and With Project cases. The last column identifies whether it is a substantial increase based on the thresholds listed above. Thirty (30) links are identified as having a substantial increase and these represent potentially significant cumulative impacts. All of these areas represent residential areas. Mitigation is discussed in Section 3.2.2.

Note that there are some roadway links listed with a “N/A” for the traffic noise level. These links represent roadway links that are not yet constructed for the timeframe being considered, and therefore, there is no traffic noise generated yet on these roadway links.

| ID | Arterial | From | Soundwall? | Baseline | No Project | With Project | Change from Baseline | Change from No Project | Substantial Increase? |
|---|---|---|---|---|---|---|---|---|---|
| 196 | Alessandro Rd | Crescent Ave to Sunset Dr | No | 63.3 | 64.5 | 65.4 | 2.1 | 0.9 | No |
| 200 | Alessandro Rd | Sunset Dr to San Timoteo Canyon Rd | No | 63.3 | 65.0 | 66.0 | 2.7 | 1.0 | No |
| 32 | Cactus Ave | west of Redlands Blvd | Yes | 60.5 | 62.0 | 66.2 | 5.7 | 4.2 | Yes |
| 50 | Cactus Ave | Redlands Blvd to Street D | No | 51.3 | 55.1 | 69.2 | 17.9 | 14.1 | Yes |
| 70 | Cactus Ave | Oliver St to Moreno Beach Dr | Yes | 58.2 | 60.5 | 62.0 | 3.8 | 1.5 | No |
| 194 | Crescent Ave | West of Alessandro Rd | No | 57.1 | 58.9 | 60.1 | 3.1 | 1.2 | No |
| 62 | Fir Ave | Quincy Dr to Redlands Blvd | No | N/A | 64.7 | 67.1 | N/A | 2.4 | Yes |
| 30 | Gilman Springs Rd | Eucalyptus Ave to Street C | No | 49.6 | 55.2 | 57.6 | 8.0 | 2.4 | Yes |
| 190 | Gilman Springs Rd | Jack Rabbit Trail to Bridge St | No | 62.7 | 65.8 | 67.5 | 4.9 | 1.8 | Yes |
| 191 | Gilman Springs Rd | Bridge St to Beaumont Ave | No | 61.0 | 63.5 | 65.2 | 4.2 | 1.7 | Yes |
| 358 | Gilman Springs Rd | Bridge St to SR-79 SB Ramps | No | 72.7 | 75.4 | 77.1 | 4.4 | 1.6 | Yes |
| 73 | Iris Ave | Nason St to Oliver St | No | 63.0 | 64.7 | 66.6 | 3.7 | 2.0 | Yes |
| 162 | Iris Ave | Kitching St to Lasselle St | Yes | 60.1 | 63.2 | 64.1 | 4.1 | 0.9 | Yes |
| 165 | Iris Ave | Lasselle St to Nason St | Yes | 60.0 | 63.1 | 64.3 | 4.3 | 1.2 | No |
| 36 | Ironwood Ave | Redlands Blvd to Highland Blvd | No | 46.3 | 58.7 | 60.8 | 14.5 | 2.1 | Yes |
| 9 | John F Kennedy Dr | south of Cactus Ave | No | 61.5 | 64.5 | 67.5 | 5.9 | 3.0 | Yes |
| 168 | Krameria Ave | Perris Blvd to Lasselle St | Yes | 57.5 | 57.6 | 58.5 | 1.0 | 0.9 | No |
| 172 | Lasselle St | Krameria Ave to Arroyo Park Dr | Yes | 56.4 | 60.0 | 61.0 | 4.6 | 0.9 | No |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | No | 63.2 | 64.9 | 65.9 | 2.8 | 1.0 | No |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd to I-10 | No | 56.5 | 57.5 | 59.0 | 2.5 | 1.5 | No |
| 54 | Locust Ave | Moreno Beach Dr to Smiley Blvd | Yes | 46.2 | 65.4 | 66.9 | 20.8 | 1.5 | Yes |
| 55 | Locust Ave | Moreno Beach Dr to Redlands Blvd | No | 55.7 | 60.9 | 62.9 | 7.2 | 2.0 | Yes |
| 52 | Moreno Beach Dr | John F Kennedy Dr to Oliver St | Yes | 55.2 | 56.9 | 59.4 | 4.3 | 2.6 | No |
| 56 | Moreno Beach Dr | Locust Ave to Ironwood Ave | No | 55.3 | 63.4 | 65.1 | 9.8 | 1.7 | Yes |
| 67 | Oliver St | Alessandro Blvd to Cactus Ave | No | 54.1 | 54.1 | 54.3 | 0.2 | 0.2 | No |
| 12 | Redlands Blvd | Eucalyptus Ave to Dracaea Ave | No | 47.1 | 46.5 | 48.1 | 0.9 | 1.6 | No |
| 13 | Redlands Blvd | State Route 60 to Eucalyptus Ave | No | 60.9 | 63.8 | 67.4 | 6.5 | 3.6 | Yes |
| 35 | Redlands Blvd | Ironwood Ave to State Route 60 | No | 68.3 | 69.5 | 71.0 | 2.7 | 1.5 | Yes |
| 42 | Redlands Blvd | Ironwood Ave to San Timoteo Canyon Rd | No | 67.8 | 68.8 | 70.9 | 3.1 | 2.1 | Yes |
| 177 | San Timoteo Canyon Rd | Alessandro Rd to Live Oak Canyon Rd | No | 62.0 | 63.6 | 66.2 | 4.2 | 2.7 | Yes |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd to Redlands Blvd | No | 62.7 | 64.2 | 66.7 | 4.0 | 2.5 | Yes |
| 2 | Street A | Eucalyptus Ave to Street F | No | 50.2 | 57.2 | 73.1 | 22.9 | 16.0 | Yes |
| 8 | Street D | Street E to Cactus Ave | No | N/A | N/A | 70.6 | N/A | N/A | Yes |
| 4 | Street E | north of Alessandro Blvd | No | N/A | N/A | 65.7 | N/A | N/A | Yes |
| 19 | Street F | east of Street A | No | N/A | N/A | 69.1 | N/A | N/A | Yes |
| 198 | Sunset Dr | Crown St to Alessandro Rd | No | 49.0 | 50.7 | 51.3 | 2.3 | 0.6 | No |
| 199 | Sunset Dr | Alessandro Rd to Cameo Dr | No | 52.5 | 57.0 | 58.2 | 5.6 | 1.2 | Yes |
| 38 | Theodore St | State Route 60 to Highland Blvd | No | 57.8 | 65.2 | 66.3 | 8.5 | 1.2 | Yes |
| ***FREEWAYS*** | | | | | | | | | |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | Yes | 66.5 | 67.6 | 68.6 | 2.1 | 1.0 | Yes |
| 30 | SR-60 | Heacock St to Perris Blvd | Yes | 65.2 | 66.6 | 67.7 | 2.5 | 1.1 | Yes |
| 31 | SR-60 | Perris Blvd to Nason St | Yes | 64.6 | 66.5 | 67.8 | 3.2 | 1.3 | Yes |
| 32 | SR-60 | Nason St to Moreno Beach Dr | Yes | 52.0 | 54.3 | 55.6 | 3.6 | 1.3 | No |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | Yes | 62.5 | 65.5 | 67.1 | 4.6 | 1.6 | Yes |
| 34 | SR-60 | Redlands Blvd to Theodore St | No | 60.2 | 63.7 | 65.1 | 4.9 | 1.4 | Yes |

*Exhibit 17*

# Cumulative Noise Increases

### *2.3.3 Off-Site Impacts From Warehousing Activities*

The project is proposing warehouse uses that would have loading docks and other accessory equipment operating on-site. In addition to loading dock activities, the project site will have air conditioning systems for the offices and parking lot activities associated with the warehouse uses. When directly adjacent to residential and other sensitive land uses, these activities can result in noise impacts.

Noise levels were measured at similar facilities to determine representative noise levels that might be generated by this type of activity. Noise measurements were made at two facilities; specifically, Lowes Distribution Center (3984 Indian Avenue, Perris, CA) and Ross Distribution Center (3404 Indian Avenue, Perris, CA). The Lowes facility is over 1.6 million square feet and the Ross facility is over 1.3 million square feet. The Lowes facility was very busy during the time of our measurements while the Ross facility had much less activity. Therefore, only the Lowes facility measurements are presented in this report and used for the analysis since they represent a worst case.

Noise measurements were taken 30 feet outside the property line of the Lowe's facility and 300 feet from the warehousing building. The measurement site was elevated with a clear line of sight into the warehousing area. The measurements were taken during the afternoon hours of March 13, 2012. All the measurements were performed using a Brüel & Kjær Model 2236 sound level meter mounted on a tripod. During the measurements, a large windscreen covered the microphone to eliminate the effect of unwanted wind-generated noise. Three 15-minute noise measurements were taken. Before and after the measurements were taken, a Brüel & Kjær 4231 calibrator with certification traceable to the National Institute of Standards and Technology was used to calibrate the sound meter to ensure that the measured sound level readings were accurate. At the conclusion of each set of measurements, the Leq, Lmin, and Lmax values were recorded on a data sheet. Table 7 shows the results of the measurements.

**Table 7**
**Warehousing Activity Noise (dBA)**

| Site | Lmax | Leq | Lmin |
|---|---|---|---|
| 1 | 69.0 | 56.0 | 45.4 |
| 2 | 68.9 | 55.2 | 45.9 |
| 3 | 74.2 | 57.3 | 46.4 |

The noise meter was facing the side of the Lowe's distribution center where approximately 111 loading bays were counted. Between the loading bays and the property line, truck trailers were parked. Almost all of the loading bays had trailers backed up to them, and forklifts loading the trailers could be heard. A truck would backup to a trailer once it was loaded and move it to the parking area between the building and the property line. It would then unhitch. Trucks would also move empty trailers to the loading docks, and other trucks would hitch to loaded trailers and drive them away.

The average noise level (Leq) was consistent for each of the three measurement periods, indicating that the activity level is about the same for each period. The minimum noise levels (Lmin) represent the ambient noise level in the area when no activity could be heard from Lowe's. The Lmax noise level for each of the three periods was due to truck activity. A truck air brake caused the Lmax in the first period, a truck hauling away a loaded trailer caused the Lmax in the second period, and a truck hitching into a trailer caused the Lmax in the third period.

Using the measurement from the third period, which had the highest noise levels, potential noise exposure levels can be calculated for various distances. Table 8 shows the noise levels for various distances from the warehouse property line with no noise barrier in place and with an assumed 12 foot noise barrier.

**Table 8**
**Noise Levels for Warehousing Activities**

| Distance from Facility (ft.) | Noise Level (dBA Leq) No Barrier | With 12' Barrier |
|---|---|---|
| 50 | 56.9 | 48.6 |
| 100 | 54.9 | 47.8 |
| 250 | 50.8 | 44.7 |
| 500 | 46.6 | 40.9 |

The City of Moreno Valley Noise Ordinance requires that noise levels remain below 55 dBA (Leq) during nighttime hours. To achieve this noise level the warehouse property line would only need to be 100 feet from the nearest residential property and no soundwall would need to be present.

Another consideration is whether the proposed activity will be substantially higher than current ambient conditions. No matter what is developed in the area, ambient conditions will be higher in future years due to higher levels of traffic and activity. Ambient noise levels were measured at seven sites that could border the World Logistics Center (i.e., Measurement Sites 3 through 9). The nighttime ambient noise levels (Leq) ranged from 35.8 to 61.8 dBA with an average for the sites of 46.6 dBA. To keep the noise levels at nearby residential areas less than typical ambient conditions, the warehousing property line should be located a minimum 250 feet and a 12 foot soundwall should be located along the perimeter of the property that faces any residential areas. This would include the approximately 220 residential units that are zoned for development near the southwest corner of the World Logistics Center. This would keep the warehouse noise to less than 45 dBA (Leq) at the residences. This would completely eliminate any conflicts between warehousing operations and residential land uses, and is recommended as a mitigation measure (see Section 3.2.3).

Another consideration for the warehousing activities are the potential noise impacts on the open space to the south of the project. Wildlife impacts are covered in the biological assessment and

are not addressed here. However, the open space area may be used by the public for walking and other leisurely activities. The State compatibility guidelines were presented previously in Exhibit 4. Open space is not specifically called out in the guidelines. However, playgrounds and neighborhood parks are identified as being "normally acceptable" for noise levels up to 65 CNEL. The warehousing activity will be less than 57 dBA at 50 feet and will be much less than 65 CNEL at 50 feet and less without mitigation. Therefore, the warehousing activities will be compatible with the open space area south of the project, and no mitigation is needed.

### *2.3.4 Interchange Improvements*

Interchange improvements will be needed for the interchange of State Route 60 at Theodore Street. Caltrans has completed a Project Study Report for the interchange and is underway with planning and environmental phase of the interchange. At this time the intersection designs and funding sources are not known, both of which will affect the future noise analysis requirements for these improvements.

Although the interchange design has not been undertaken, preliminary or conceptual designs have been considered. The most likely configuration would eliminate the existing westbound ramps in the northeast quadrant. The only sensitive receptors are in the northeast quadrant, and therefore, removing these ramps would have beneficial noise impact on this receptor. New ramps would be constructed in the northwest quadrant (westbound on-ramp and a loop off-ramp). The existing eastbound ramps would be removed in the southwest quadrant and replaced with new eastbound off-ramp and eastbound loop on-ramp. Currently, no ramps are located in the southeast quadrant; however, an eastbound on-ramp would be added under the most likely configuration. Since all the construction would occur in quadrants not occupied by sensitive receptors, construction impacts would be insignificant. The traffic noise from the SR-60 will be louder than the construction noise at the sensitive receptor in the northeast quadrant. Noise from traffic ramps is usually insignificant in comparison to the mainline traffic noise generation. Elimination of the ramp in the northeast quadrant would have a benefit to the sensitive receptor, but it would only be a minimal benefit. Opening ramps in the other quadrants would not have any noise impact on the sensitive receptor in the northeast quadrant.

Noise analysis requirements are identified in the California Department of Transportation document "Traffic Noise Analysis Protocol," (May 2011). Projects defined as "Type 1" require a full noise analysis per Caltrans protocol. If federal funds are also involved, then the Federal Highway Administration under 23CFR772.13 also requires that noise abatement be considered and evaluated for feasibility and reasonableness. In general, projects that add a through traffic lane (not an auxiliary lane) to the freeway will be considered as a Type 1 project. Projects that also substantially modify the horizontal or vertical alignment of the freeway would be considered a Type 1 project. For interchange projects, per the Caltrans Protocol and 23CFR772, a project would be considered as Type 1 when there is an "addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange…" Although there is no proposed final design for the interchange improvements available at this time, it is likely that the project will be classified as a Type 1 project since ramps are being added. A full noise analysis will likely be required based on the final design of the ramp. However, given the lack of

receptors in the affected quadrants it is highly unlikely that there would be a noise impact nor mitigation (e.g., soundwalls) required.

### *2.3.5 Ground Borne Vibration*

Vibration is a trembling, quivering, or oscillating motion of the earth. Vibration is similar to noise in its transmission. Vibration is transmitted in noise-like waves through the earth and solid objects.

There are several ways to categorize vibration sources. One way is to divide vibration into natural and human sources. Natural sources include earthquakes, volcanic eruptions, sea waves, and landslides. Human sources of vibration include explosions, machinery, traffic, trains, and construction equipment. However, vibration sources can also be described as continuous, such as operating factory machinery, or transient, such as explosions.

As with noise, vibrations can be described by amplitude and frequency. The vibration amplitude in the earth is characterized in three ways: displacement, velocity, and acceleration. Particle displacement is the distance the soil particles travel from their original location in inches or millimeters. Particle velocity is the velocity of the soil particles in inches per second or millimeters per second. Particle acceleration is the acceleration of the soil particles in inches per second per second or millimeters per second per second. Typically, particle velocity is used to describe vibration. Table 9 presents the human reaction to various levels of peak particle velocity. Vibrations also vary in frequency. Traffic vibrations generally range in frequencies from 10 to 30 Hz, and tend to average around 15 Hz. However, due to their suspension systems, city buses often generate frequencies around 3 Hz at high vehicle speeds. It is more uncommon, but possible, to measure traffic frequencies above 30 Hz.

**Table 9**
**Human Reaction to Typical Vibration Levels**

| Vibration Level Peak Particle Velocity (inches/second) | Human Reaction |
|---|---|
| 0.0059 - 0.0188 | Threshold of perception, possibility of intrusion. |
| 0.0787 | Vibrations readily perceptible. |
| 0.0984 | Level at which continuous vibrations begin to annoy people. |
| 0.1968 | Vibrations annoying to people in buildings. |
| 0.3937 - 0.5905 | Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges. |

Source: Caltrans 1992.

The way vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated because of the endless variations in the soil through which waves travel. As vibration waves propagate from a source, the energy is spread over an ever-increasing area. The spreading of energy over an ever-increasing area is called geometric

spreading or geometric attenuation. Geometric attenuation reduces the amplitude of the vibration wave with distance. Material damping also results in amplitude reduction due to internal friction, soil layering, and voids. The amount of attenuation by material damping varies with soil type, condition, and frequency of the source.

There are no Federal Highway Administration (FHWA), state, or local standards for vibration. According to the FHWA, highway traffic and construction vibrations pose no threat to buildings and structures; annoyance to people is not considered any worse than other discomforts experienced from living near highways. However, a substantial amount of research has been completed to compare vibrations from single events such as dynamite blasts with architectural and structural damage. The U.S. Bureau of Mines has set a safe limit of 0.5 inches per second peak particle velocity to avoid structure damage in residential structures (U.S. Bureau of Mines 1980). Below this level, there is virtually no risk of building damage.

Typical ambient vibration sources consist primarily of roadway traffic on major roadways. With normal roadway traffic, heavy trucks and buses generate the highest earthborn vibrations. Vibrations from these vary with pavement conditions. Potholes, pavement joints, and differences in the settlement of pavement all increase vibration levels from traffic. Well maintained, roads typically do not result in substantial vibration levels. Even roads with irregularities typically only generate substantial levels of vibration very near, less than 50 feet from the irregularity.

Roadway vibrations are typically not perceptible more than 50 feet from the roadway except in very unusual circumstances. Generally, the interface between the soft tire of a truck or automobile will not generate significant vibration unless the road is in poor shape (e.g., potholes, pavement joints, etc.) Therefore, the project is not projected to generate significant levels of vibration.

## 2.4 Compatibility of Proposed Uses With Noise Environment

### *2.4.1 Traffic Noise*

Compatibility with traffic noise is based on the CNEL noise scale. The State compatibility matrix, presented previously as Exhibit 4, shows that industrial uses are compatible with noise environments up to 75 CNEL. (The industrial category is the closest to the proposed Logistics Development and Light Logistics shown in the matrix.) Noise zones of 75 CNEL or greater would only occur right next to State Route 60. For ultimate traffic noise levels, the 75 CNEL contour lies 140 feet from the centerline of the State Route 60, which falls just past the shoulder of the current alignment. Therefore, none of the area proposed for Logistics Development or Light Logistics would be exposed to noise levels greater than 75 CNEL, and there would be no incompatibilities between the traffic noise environment and the proposed land uses.

### *2.4.2 SDG&E and SCG Operations*

Exhibit 7 shows that the worst-case compressor station operational characteristics will result in a maximum noise level just above 65 CNEL within the project area proposed for development

(i.e., not open space). Typical commercial construction results in buildings that achieve at least a 20 dB reduction of outdoor noise levels. Therefore, an office use exposed to the highest noise level from the compressor station will be just above 45 CNEL and below the 50 CNEL limit prescribed by the City's General Plan. Exhibit 8 shows that the Leq noise level generated by the compressor station does not exceed 60 dBA Leq beyond the property lines of the facility. Therefore, the compressor station is not considered a noise disturbance based on City criteria. Operation of the compressor station will not result in any interior noise levels exceeding the limits established by the City in the General Plan. Further, operation of the compressor station is not considered a noise disturbance. Therefore, the project will not be significantly impacted by the operation of the compressor station.

Exhibit 9 shows that the maximum noise level from a blow-down at the SDG&E compressor station within the area proposed for development (i.e., the Logistics Development land use) is 100 dBA. A person would need to be exposed to this level for more than a cumulative two hours in a day before permanent hearing loss would be expected. As discussed above, blow-down events at the SDG&E compressor station typically do not last longer than 90 seconds. Therefore, the SDG&E blow-down events will not significantly impact the proposed project.

Exhibit 10 shows that the SCG blow-down events will result in noise levels as high as 130 dBA just outside the fence line of the southern facility and noise levels in excess of 135 dB just outside the fence line of the northern facility. In fact, observers within approximately 250 feet of the blow-down points would be exposed to noise levels greater than 115 dBA which would likely cause permanent hearing damage regardless of the exposure time. The SCG blow-downs could last as long as 90 minutes. Observers exposed to noise levels greater than 102 dBA, within approximately 1,300 feet from the blow-down point could experience permanent hearing loss based on this event duration.

Because noise generated by SCG blow-down events could result in permanent hearing damage in areas proposed for development by the project, the project will be significantly impacted by the SCG blow-downs. Mitigation is discussed in Section 3.3.

# 3.0 MITIGATION MEASURES

## 3.1 Construction Noise

### *3.1.1 Impacts Due to On-Site Construction*

The analysis presented in Section 2.2 shows that on-site project construction could result in significant noise impacts to nearby residences if uncontrolled. The usual method of controlling construction noise is through limiting construction hours to daytime and weekday time periods only. However, the proposed project includes construction that could occur 24 hours per day for 7 days per week for these construction activities.

Elimination of nighttime construction within 2,800 feet of residences would lower the noise levels to 55 dBA (Leq) at the closest residences. The noise levels would meet the 55 dBA (Leq) nighttime criteria contained in the Moreno Valley Noise Ordinance. The Noise Ordinance identifies the nighttime period as the hours between 10 p.m. and 8 a.m. This restriction should only be applied to residential areas south of State Route 60. Residences north of the freeway experience high enough noise levels due to the freeway that the freeway would remain the dominant noise source and construction noise would be masked by the freeway noise.

The following mitigation measures are identified for significant construction noise impacts:

**N-1. No Construction Vehicles on Redlands Boulevard South of Fir Avenue.** No construction vehicles of any type for on-site construction shall be permitted on Redlands Boulevard south of Fern Avenue. The prohibition for construction traffic should occur for all phases of the proposed project. This measure will eliminate any construction traffic impact on the residential areas adjacent to Redlands Boulevard.

**N-2. No Nighttime Grading Within 2800 Feet of Residences South of the Freeway.** Construction grading shall not be allowed within 2,800 feet of residences south of SR-60 between 8 p.m. and 7 a.m. Prior to the issuance of a grading permit, the developer shall submit a Noise Reduction Compliance Plan (NRCP) to the City as part of the grading permit submittal showing the limits of nighttime construction based on the currently occupied residential dwellings. The limits of nighttime grading shall be shown on the NRCP and grading plan submitted to the City. The limits of construction allowed at night shall be staked or posted on site, and contractors will be provided with a copy of the plan showing the limits of nighttime construction.

With the implementation of this mitigation measure the loudest noise level that would be experienced at any developed residential parcel would be less than 55 dBA (Leq) during the nighttime and these levels would be consistent with the limits established in the City's Noise Ordinance.

If grading is to occur at night within 2,800 feet of residences south of SR-60, then construction of a 12 foot temporary sound barrier will be required. A temporary barrier will reduce noise levels by approximately 10 dB. If an appropriate temporary sound barrier is constructed, then

the buffer area can be reduced from 2,800 feet to 1,580 feet. The temporary sound barrier may be constructed of plywood with a total thickness of 1-1//2 inches, or a sound blanket wall may be used. If sound blankets are used the curtains must have a Sound Transmission Class (STC) rating of 27. Examples of acceptable blankets can be found at the following websites; www.enoisecontrol.com/outdoor-sound-blankets.html and www.acousticalsurfaces.com/curtan_stop/curt_absorb.htm?d=12. Other blankets are acceptable as long as they have the required STC rating. Many unrated blankets are available, but their acoustic performance is generally unacceptable.

Noise measurements of construction activities often reveal that the construction noise levels are less than predicted. At the discretion of the builder, a Registered Professional Engineer can be hired to measure construction noise. Noise measurements over a three hour period on two consecutive nights can be used to modify the required buffer area. A Registered Professional Engineer with an expertise in acoustics shall prepare a report documenting the noise measurements and recommending a specific buffer distance. Once the report is submitted to and approved by the City, the buffer distance may be reduced to the distance recommended in the report.

**N-3. Install temporary sound barrier.** Construction within 1,580 feet of residential areas south of the freeway has the potential to exceed the daytime Moreno Valley Noise Ordinance criteria of 60 dBA (Leq). Any construction within 1,580 feet of a residence should be shielded from the residence with a 12 foot temporary sound barrier. A sound barrier will reduce the noise levels by about 10 dB. Residences within 500 feet may still be exposed to noise levels greater than 60 dBA (Leq), but the noise levels for residences greater than 500 feet from the construction area will experience noise levels consistent with the City's ordinance.

**N-4. Require Residential Grade Mufflers.** The grading contractor shall be required to certify that all equipment to be used will have residential grade mufflers or better on their equipment. All stationary construction equipment shall be placed so that emitted noise is directed away from noise sensitive receptors nearest the site. Additionally, stationary construction equipment if standardly fitted with an acoustic cover by the manufacturer shall have the acoustic cover in place during operation. This measure will eliminate any unnecessary construction equipment noise generation due to the use of sub-standard equipment.

**N-5. Locate Material Stockpiles 1,200 Feet from Residences South of the Freeway.** Material stockpiles shall be located at least 1,200 feet from the residences. Remotely locating the stockpiles reduces the noise at the residences from equipment traveling to and from the stockpiles, and the noise that is sometimes associated with stacking materials.

With these measures in place the impacts from on-site construction will be reduced to an extent. Specifically, nighttime impacts from on-site construction will be completely eliminated. However, daytime impacts to residents within 500 feet of construction will remain significant. Unavoidable adverse impacts due to construction that cannot be mitigated are identified in Section 4.0.

### *3.1.2 Impacts Due To Off-Site Construction*

Off-site construction generally is shorter term than on-site construction, uses smaller/quieter equipment, and will only operate during daytime hours. Due to the short-term nature of off-site construction, it generally is not feasible to construct temporary sound barriers.

**N-6. Limit off-site construction to daytime hours.** All off-site construction shall be limited to daytime hours between 7 a.m. and 8 p.m. on weekdays only. Weekend construction and construction during City holidays shall not be permitted.

**N-7. Install temporary sound barriers for off-site construction lasting more than 1 month.** Any off-site construction area that is anticipated to last one month or longer and within 900 feet of any residence shall have a 12 foot temporary sound barrier installed. The sound barrier will reduce noise levels by approximately 10 dB. The temporary sound barrier may be constructed of plywood with a total thickness of 1-1//2 inches, or a sound blanket wall may be used. If sound blankets are used the curtains must have a Sound Transmission Class (STC) rating of 27. Examples of acceptable blankets can be found at the following websites; www.enoisecontrol.com/outdoor-sound-blankets.html and www.acousticalsurfaces.com/curtan_stop/curt_absorb.htm?d=12. Other blankets are acceptable as long as they have the required STC rating. Many unrated blankets are available, but their acoustic performance is generally unacceptable.

With the above measures in place, residences within 500 to 900 feet (depending on the loudness of the construction equipment) could experience noise levels greater than 60 dBA (Leq) for off-site construction lasting less than one month. For construction lasting more than one month the potentially impacted area would be reduced to 160 to 300 feet. These impacts would only occur during weekday, daytime hours. No off-site construction would be allowed during nighttime or anytime during weekends and City holidays except for emergencies.

## 3.2 Long Term Impacts

### *3.2.1 Traffic Noise Impacts Due to Project*

Nineteen (19) roadway segments were identified in Section 2.3.1 where a significant noise impact will occur. *[Note: The traffic data has been revised since the previous study. In many areas the traffic noise impacts decreased in comparison to the previous study. The project has been reduced in size since the previous report. Fewer areas of impact are identified in this study due to the changes in the traffic forecasts.]* As described below many, but not all, of the impacted areas can be mitigated with a soundwall. The measure below recommends that the City establish a fair share plan, similar to that employed for traffic mitigation, to collect fees and to install the needed soundwalls.

**N-8. Provide Soundwalls As Mitigation.** When processing future individual buildings under the World Logistics Center Specific Plan, as part of the City's approval process, the City shall require the Applicant to take the following three actions for each building prior to the issuance of certificate of occupancy for the requested development:

***Action 1:*** Perform a building-specific noise study to ensure that the assumptions set forth in the FEIR prepared for the programmatic level entitlement remain valid. These procedure used to conduct these noise analyses shall be consistent with the noise analysis conducted in the programmatic FEIR and shall be used to impose building-specific mitigation on the individually-proposed buildings.

***Action 2:*** If the building-specific analyses identify that the proposed development triggers the need for mitigation from the proposed building, including all preceding developments in the specific plan area, the Applicant shall implement the mitigation identified in the WLC FEIR. Prior to implementing the mitigation, the Applicant shall send letters by registered mail to all property owners and non-owner occupants of properties that would benefit from the proposed mitigation asking them to provide a position either in favor of or in opposition to the proposed noise abatement mitigation within 45 days. Each property shall be entitled to one vote on behalf of owners and one vote per dwelling on behalf of non-owner occupants.

If more than 50% of the votes from responding benefited receptors oppose the abatement, the abatement will not be considered reasonable. Additionally, for noise abatement to be located on private property, 100% of owners of property upon which the abatement is to be placed must support the proposed abatement. In the case of proposed noise abatement on private property, no response from a property owner, after three attempts by registered mail, is considered a *no* vote.

At the completion of the vote at the end of the 45 day period, the Applicant shall provide the tentative results of the vote to all property owners by registered mail. During the next 15 calendar days following the date of the mailing, property owners may change their vote. Following the 15-day period, the results of the vote will be finalized and made public.

***Action 3:*** Upon consent from benefited receptors and property owners, the Applicant shall post a bond for the cost of the construction of the necessary mitigation as estimated by the City Engineer to ensure completion of the mitigation. The certificate of occupancy permits shall be issued upon posting of the bond or demonstration that 50% of the votes from responding benefited receptors oppose the abatement or, if the abatement is located on private property, any property owners oppose the abatement.

Mitigation is considered for each of the 19 areas identified in Section 2.3.1 and is discussed below. (Some contiguous roadway segments are grouped into one discussion.) In general mitigation by way of a soundwall is not feasible for certain types of cases. Where homes front onto a street a soundwall will not be effective. The driveway will cause a large gap in the soundwall making it ineffective. It should also be noted that for homes facing a roadway, the homes will usually have a backyard space on the rear side of the home that will be protected from noise since the house acts as a large noise barrier. These rear yards will experience noise levels less than 65 CNEL. A second case that is usually considered infeasible is an isolated single family that is not adjacent to any other lots with houses. A soundwall would have to extend across their property and onto adjacent lots to be effective. Otherwise the noise will wrap around the ends of the soundwall. Generally it is not feasible to construct a soundwall on

adjacent undeveloped parcels, and therefore, this case is also considered infeasible. A discussion of the feasibility of mitigation for each area is presented below.

**Cactus Avenue from Redlands Boulevard to Cactus Avenue Extension (50).** This area is a small group of single-family homes along Cactus Avenue between the future Cactus Avenue Extension (Street D) and Redlands Boulevard. A significant noise increase is projected for all studies. Currently there is no soundwall along these homes. The homes along Cactus Avenue are elevated above the roadway. A soundwall will need to be located at the top of the slope along the residents rear yards. At the top of slope the residents currently have wrought iron fencing. The wrought iron fencing would need to be replaced with a masonry wall or retrofitted with a glass barrier. The walls would need to be 6 feet tall with respect to the rear yard. Roughly 1,000 feet of barrier would need to be provided depending on where Cactus Avenue Extension intersects Cactus Avenue. With the retrofit the noise levels would drop at least 5 dB, with the resultant noise levels around 63 CNEL in rear yard areas. A new 6 foot high wall at the top of slope for the existing residences that are on the south side of Cactus Avenue between Cactus Avenue Extension and Redlands Boulevard is needed for mitigation. The 6 foot wall will need to extend roughly 1,000 feet. Prior to the opening of Cactus Avenue Extension, the soundwall should be in place.

**Cactus Avenue West of Redlands Boulevard (32).** This area shows noise increases ranging from 1.5 dB to 5.1 dB depending on the study year. Only the 2035 case results in a significant noise increase. Single-family residences back up to this street with rear yards facing Cactus Avenue. Soundwalls are located along the residences that are approximately 6 foot high. Rear yard areas are approximately 60 feet from the centerline of the roadway. In 2035, the noise levels projected for the yard area, including the effects of the soundwall, will be 66.2 CNEL which will be above the City standard of 65 CNEL. The significant impact is creating noise levels above the noise standard. It will be necessary to increase the height of the existing residential block wall, or to remove and replace the wall to lower the increase in project generated noise. The final wall height needs to be approximately 8 feet. (Calculations should be done specifically for this area when the measure is implemented.) With an approximately 8 foot noise barrier in place the noise impacts will be mitigated to less than significant. The impacted area extends from Redlands Boulevard to Moreno Beach Drive, and this entire area would need to be mitigated.

**Gilman Springs Road between Eucalyptus Avenue and Street C (30) and Jack Rabbit Trail and Bridge Street (190).** There are three single-family homes scattered along these roadway segments. All of the houses are setback from the roadway, but none have soundwalls. As discussed above, homes that are widely separated from other homes cannot be effectively mitigated with a soundwall. *Therefore, this potentially significant impact feasibly cannot be mitigated.*

**Ironwood Avenue between Redlands Boulevard and Highland Boulevard (36).** A significant noise increase is projected for 2012 on this roadway link. In 2035, the noise level will be 60.8 CNEL. There are two single-family homes that front onto Ironwood Avenue. There are also two churches along this roadway, however, the churches are setback from the roadway far enough that no significant impacts will occur. Although the noise levels remain below the

City's 65 CNEL standard, the noise levels will increase substantially above those without the project. As discussed above, homes that front onto a street cannot be effectively mitigated with a soundwall. *Therefore, this potentially significant impact feasibly cannot be mitigated.*

**John F. Kennedy Drive South of Cactus Avenue (9).** The homes along John F. Kennedy Drive south of Cactus Avenue will experience significant noise increases for all four studies. Similar to the area along Cactus Avenue, this noise increase will be due to cars and light trucks, and not heavy trucks. The homes along the west side of the roadway are generally lower than the adjacent roadway have a roughly 6 foot soundwall. The homes on the east side of the roadway do not have any soundwalls and are elevated with respect to the roadway. Rear yards areas on both sides of the street generally are in the range of 60 to 90 feet from the centerline of the roadway. Without any sound barrier exterior noise levels at the residences along John F. Kennedy Drive will be 67.5 CNEL. The residential noise criteria for traffic noise is 65 CNEL. The homes on the west side of the roadway have soundwalls and slope conditions that will reduce noise levels 6 to 10 dB, putting these homes well under the City criteria. Homes on the west side of the street will not be impacted. Homes on the east side of the street do not have soundwalls, and there will be a significant impact unless adequately mitigated.

The homes on the east side of John F. Kennedy Drive are elevated with respect to the road. Their rear yard area sits above the roadway, so there is a slope going up to their yards. At the top of slope the residents have wrought iron fencing. The wrought iron fencing would need to be replaced with a masonry wall or retrofitted with a glass barrier. The walls would need to 6 feet tall with respect to the rear yard. Roughly 5,000 feet of barrier would need to be provided. With the retrofit the noise levels would drop at least 5 dB, with the resultant noise levels around 62.5 CNEL in rear yard areas. A new 6 foot high wall at the top of slope for the existing residences that are on the east side of John F. Kennedy Drive between Cactus Avenue and Bay Hill Drive will be needed for mitigation. The 6 foot wall will need to extend roughly 5,000 feet.

**Locust Avenue between Moreno Beach Drive and Smiley Boulevard (54).** Only the 2035 case results in a significant noise increase for this area. In 2035 the project will result in a 1.5 dB increase raising the noise level up to 66.9 CNEL. There are three single-family homes along this roadway and they front onto the roadway. As discussed above, homes that front onto a street cannot be effectively mitigated with a soundwall. *Therefore, this potentially significant impact feasibly cannot be mitigated.*

**Redlands Boulevard from Eucalyptus Avenue to State Route 60 (13).** The noise analysis shows significant noise increases along this roadway segment for the 2012 and 2035 cases. There are scattered homes in this area that either face Redlands Boulevard (actually on Shubert Street) or are on Redlands Boulevard. As discussed above, homes that front onto a street cannot be effectively mitigated with a soundwall. *Therefore, this potentially significant impact feasibly cannot be mitigated.*

**Redlands Boulevard from State Route 60 to San Timoteo Canyon Road (35, 42).** The noise analysis shows significant noise increases along this roadway segment for the 2012 and 2035 cases. The increases in noise are around 2 dB with a resultant noise level in the 71 CNEL range. There are 28 homes along this roadway that would be affected. The single-family homes are

scattered and generally front the roadway. As discussed above, homes that front onto a street cannot be effectively mitigated with a soundwall. *Therefore, this potentially significant impact feasibly cannot be mitigated.*

**San Timoteo Canyon Road from Alessandro Road to Live Oak Canyon Road to Redlands Boulevard (177, 179).** The noise analysis shows a significant impact in the existing (2012) to existing plus project comparison. The noise increases by a little over 3 dB with resultant noise levels in the 65 to 66 CNEL range. There are four scattered residences along the roadway that would be impacted. As discussed above, homes that are scattered cannot be effectively mitigated with a soundwall. *Therefore, this potentially significant impact feasibly cannot be mitigated.*

**Theodore Street from State Route 60 to Highland Boulevard (38).** The noise analysis indicates that the project will cause a 1.2 dB increase in the year 2035 with a resulting noise level of 66.3 CNEL. There are 4 homes on Theodore Street that front onto the roadway. As discussed above, homes that front onto a street cannot be effectively mitigated with a soundwall. *Therefore, this potentially significant impact feasibly cannot be mitigated.*

**Street A from Eucalyptus Avenue to Street F; Street E north of Alessandro Boulevard; and Street F east of Street A (2, 4, 19).** There are three groups of homes that may remain within the project area. The analysis shows significant noise increases for all four cases. The project would rezone these residences as Light Logistics, but the residences may remain for some time. The Light Logistics use is not sensitive to noise. However, the existing residences, as long as they remain, must be considered as a sensitive land use. The first homes are east of Redlands Boulevard north of the intersection with Brodiaea Avenue. Street E will be constructed west of these homes. It is likely that there will be intervening buildings and that the distance from Street E will be so great that these homes will not experience significant noise from public roadways.

The second group of homes is on the east side of Street A (Theodore Street) midway between the future Street B and Street F. There are two homes in this area. Their noise environment will be changed significantly. The exact alignment of the roadway is to be determined. The noise levels at these homes would be unacceptable to the residents, and a significant impact would occur.

The third area is a single home and lies east of Street A and along Street F. Currently there is essentially no traffic on this street. There is one residence in this area. Since this home will experience a substantial noise increase, this is considered a significant impact.

All of these homes will either front onto the roadway or are scattered. As discussed above homes that front onto a street or scattered homes cannot be effectively mitigated with a soundwall. *Therefore, this potentially significant impact feasibly cannot be mitigated.*

**Cactus Avenue Extension (Street D) from Street E to Cactus Avenue (8).** Cactus Avenue Extension, as shown in the Specific Plan, will come down the western side of the project parallel to Merwin Street and roughly 1,250 feet from Merwin Street. It then merges with Cactus Avenue traveling to the west until Redlands Boulevard. A specific alignment has not been determined for this roadway. There would be essentially no heavy trucks using this roadway. There are approximately 14 homes that side-on to Merwin Street that could be affected by traffic

on Cactus Avenue Extension. There are no soundwalls along these homes. The noise forecast shows that the 65 CNEL contour will lie 114 feet from the centerline of Cactus Avenue Extension. If the centerline of Cactus Avenue Extension is located closer than 114 feet to the residences, then a significant impact would occur. Outdoor living spaces for homes along Merwin Street would experience noise levels greater than 65 CNEL, and this would not be consistent with City criteria. Due to the distance from the currently envisioned between Merwin Street and Cactus Avenue Extension, it is most likely that no soundwall will be needed. If a soundwall was needed, a preliminary estimate indicates that the soundwall along Cactus Avenue Extension would need to be roughly 2,000 feet. The following mitigation strategy could be used:

> *Locate the centerline of Cactus Avenue Extension (Street D) no closer than 114 feet to the residential property lines along Merwin Street. (Locating the roadway more than 114 feet from the residences is the most likely alternative.) An alternative is to locate the roadway closer to the residences and provide a soundwall along* Cactus Avenue Extension. *The soundwall location and height should be determined by a Registered Engineer, and the soundwall shall be designed to reduce noise levels to less than 65 CNEL at the residences. The Engineer shall provide calculations and supporting information in a report that will be required to be submitted and approved by the City prior to issuing permits to construct the road.*

**State Route 60 from Pigeon Pass Road to Perris Boulevard (29, 30).** This area will only have a substantial noise increase in the 2012 case. The noise levels are projected to increase by 1.5 to 1.7 dB in this area with resultant noise levels in the 66.9 to 68.0 CNEL range. All residential areas along this stretch of freeway have soundwalls in place. It is not feasible to modify the existing residential block wall to lower the increase in project generated noise because block walls are designed for the height that they are built. It is also infeasible for the Lead Agency to demolish the existing walls on private property and build new ones of increased height so that the noise level increases are lowered. *Therefore, this potentially significant impact feasibly cannot be mitigated.*

**State Route 60 from Perris Boulevard to Nason Street (31).** The area along the freeway is only projected to have a significant noise increase for the 2022 case. The noise level will go up by 1.6 dB with the project up to a level of 67.2 CNEL. There is a soundwall in place for residences in this area. The existing residential block wall will need to be modified, or removed and replaced to lower the noise levels to acceptable levels.

**State Route 60 from Moreno Beach Drive to Redlands Boulevard (33).** A significant increase is shown for the existing case and for 2035. There are soundwalls in place for all residences in this area. Noise levels will reach 67.1 CNEL by 2035. It is not feasible to modify the existing residential block wall to lower the increase in project generated noise because block walls are designed for the height that they are built. It is also infeasible for the Lead Agency to demolish the existing walls on private property and build new ones of increased height so that the noise level increases are lowered. *Therefore, this potentially significant impact feasibly cannot be mitigated.*

**State Route 60 from Redlands Boulevard to Theodore Street (34).** A substantial noise increase is identified for this roadway for the existing case only. The resultant noise level will be 63.5 CNEL with an increase due to the project of 3.4 dB. No soundwalls are present in this area. The residential area is setback from the freeway and is clustered along Redlands Boulevard north of the freeway. Although the projected noise levels are less than the City criteria of 65 CNEL, and the impact only occurs for the existing compared to the existing plus project case, it is still considered an impact based on the significance thresholds being employed. The soundwall would need to be 6 feet tall with respect to the rear yard. Roughly 580 feet of barrier would need to be provided as shown in Exhibit 18. With the soundwall the noise levels would drop at least 5 dB, with the resultant noise levels around 59 CNEL in rear yard areas. A new 6 foot high wall is needed for mitigation as shown in Exhibit 18. The 6 foot wall will need to extend roughly 580 feet.




*Exhibit 18*

# Potential Soundwall Along SR-60

*Mestre Greve Associates*
*Division of Landrum & Brown*

**Use of Specialty Asphalts for Noise Reduction.** The use of rubberized asphalts and other asphalts received considerable attention for reducing noise levels along roadways instead of the use of soundwalls. The City may want to monitor the use of quieter asphalts as the soundwall fee plan progress. Although, rubberized asphalt is not widely accepted for mitigation, the science is progressing and it may be a more cost-effective mitigation solution in future years. Early studies indicated that the effectiveness of alternate asphalts may have a short span of effectiveness. However, two studies were released last year that shed additional light on the potential for noise reduction.

The first study is the "I-80 Davis OGAC Pavement Noise Study, Traffic Noise Levels Associated With Aging Open Grade Asphalt Concrete Overlay," (by Illingworth and Rodkin, Inc., for the California Department of Transportation, May 13, 2011). Two asphalt types were used for this study; an open grade asphalt concrete (OGAC) pavement overlay and an aged dense graded asphalt concrete (DGAC). The OGAC pavement resulted in noise levels that were about 6 to 7 dBA below those measured for the baseline DGAC pavement. This is roughly equivalent to the noise reduction achieved with an 8 foot high noise barrier. The OGAC has continued to maintain its acoustical characteristics and performance after a period of 10 years with only a slight 1.5 dB loss in performance.

The second study, which was also sponsored by Caltrans, is the "Eight Year Evaluation of the Noise Performance of the Caltrans Asphalt Research Pavements on LA 138," (by Illingworth & Rodkin, Inc., May 2, 2011. This study compared five pavements; dense grade asphalt concrete (DGAC), two overlay sections of open graded asphalt (OGAC) (75 mm in thickness and 30 mm in thickness), a rubberized asphalt concrete open graded Type O pavement (RAC(O)), and a bonded wearing course (BWC). Initially the both of the OGAC and the RAC(O) were about 4 dB quieter than the DGAC. The BWC was only about 1 dB quieter. Over 6 years the noise levels generated by the DGAC have remained fairly constant. However, the OGACs and RAC(O) have steadily increased in noise levels. After 6 years the OGACs and the RAC(O) are all about 1 to 2 dB quieter than the DGAC.

Caltrans has not used specialty asphalt for mitigation on their projects. The Federal Highway Administration has also not allowed the use of specialty asphalts for mitigation. However, the research to date does show that noise levels can be reduced by 4 to 7 dB in the early years. Any program that uses a specialty asphalt for mitigation should be monitored, at least on an annual basis, to confirm its continual effectiveness. Once the noise benefits of the specialty asphalt is lost, the road will need to be repaved to restore its noise mitigation properties.

### *3.2.2 Cumulative Traffic Noise Impacts*

The analysis presented in Section 2.3.2 shows that the project will result in significant cumulative traffic noise impacts. Thirty (30) areas were identified that could have significant cumulative impacts unless properly mitigated. Exhibit 19 lists all 30 links and identifies if there is an existing soundwall or not in the fourth column. Column 5 identifies the 2035 CNEL noise level with the project. The next column identifies whether this area was also identified as an area directly impacted by the project in which case it would have been discussed in more depth in Section 2.3.1 and Section 3.2.1. Column 7 identifies whether mitigation is feasible and either why mitigation is not feasible or what the appropriate mitigation will be. The final column identifies whether there will be an unavoidable adverse impact or not. Twenty-three (23) areas are identified as having a significant cumulative impact as identified by a "Yes" in the final column.

Mitigation may not be feasible for many locations due to homes fronting the roadway or homes that are isolated (see Section 3.2.1 for a more detailed discussion). One additional location, that was not impacted directly due to the project, can be mitigated with soundwalls. The area that would eliminate the cumulative noise impacts would be Iris Avenue from Nason Street to Oliver Street. Six (6) foot walls are recommended for this area. Approximately 3,000 feet of soundwall would be needed along Iris Avenue. Cumulative impacts typically not fully realized until the out years of the project. Therefore, construction of the soundwalls is not required until 2022.

**N-9. Include cumulative impacted areas in soundwall mitigation program.** Include the residential areas identified above in the fee plan for soundwall mitigation identified in Mitigation Measures N-9 and N-10.

### *3.2.3 On-Site Warehousing Activities*

The following mitigation measure is designed to eliminate noise impacts on residential areas due to warehousing activities.

**N-10. Maintain buffer with soundwall at residential/warehousing interface.** To keep the noise levels at nearby residential areas less than typical ambient conditions, the warehousing property line should be located a minimum of 250 feet from residential property lines, and a 12 foot noise barrier should be located along the perimeter of the property that faces any residential areas. The 12 foot noise barrier may be a soundwall, berm, or combination of the two. The height should be measured relative to the pad of the warehouse. This requirement should be implemented anytime residential areas are within 600 feet of the warehousing property line to insure that a noise level of 45 dBA (Leq) will not be exceeded at the residential zone.

This requirement is consistent with Item 10 of Municipal Code Section 9.16.160 Business park/industrial that states, "All manufacturing and industrial uses adjacent to residential land uses shall include a buffer zone and/or noise attenuation wall to reduce outside noise levels."

| ID | Arterial | From | Existing Soundwall? | CNEL With Project | Project Impact? | Mitigation Feasible? | Adverse Impact? |
|---|---|---|---|---|---|---|---|
| 32 | Cactus Ave | west of Redlands Blvd | Yes | 66.2 | Yes | Yes, modify existing soundwall | No |
| 50 | Cactus Ave | Redlands Blvd to Street D | No | 69.2 | Yes | Yes, construct soundwall | No |
| 62 | Fir Ave | Quincy Dr to Redlands Blvd | No | 67.1 | No | No, homes front on street | Yes |
| 30 | Gilman Springs Rd | Eucalyptus Ave to Street C | No | 57.6 | Yes | No, homes widely separated | Yes |
| 190 | Gilman Springs Rd | Jack Rabbit Trail to Bridge St | No | 67.5 | Yes | No, homes widely separated | Yes |
| 191 | Gilman Springs Rd | Bridge St to Beaumont Ave | No | 65.2 | No | No, homes widely separated | Yes |
| 358 | Gilman Springs Rd | Bridge St to SR-79 SB Ramps | No | 77.1 | Yes | No, homes widely separated | Yes |
| 73 | Iris Ave | Nason St to Oliver St | No | 66.6 | No | Yes, construct 3000' of new soundwall | No |
| 162 | Iris Ave | Kitching St to Lasselle St | Yes | 64.1 | No | No, existing soundwall cannot be modified | Yes |
| 36 | Ironwood Ave | Redlands Blvd to Highland Blvd | No | 60.8 | Yes | No, existing soundwall cannot be modified | Yes |
| 9 | John F Kennedy Dr | south of Cactus Ave | No | 67.5 | Yes | Yes, construct soundwall | No |
| 54 | Locust Ave | Moreno Beach Dr to Smiley Blvd | Yes | 66.9 | Yes | No, homes front on street | Yes |
| 55 | Locust Ave | Moreno Beach Dr to Redlands Blvd | No | 62.9 | No | No, homes front on street | Yes |
| 56 | Moreno Beach Dr | Locust Ave to Ironwood Ave | No | 65.1 | No | Yes, construct soundwall | No |
| 13 | Redlands Blvd | State Route 60 to Eucalyptus Ave | No | 67.4 | Yes | No, homes front on street | Yes |
| 35 | Redlands Blvd | Ironwood Ave to State Route 60 | No | 71.0 | Yes | No, homes front on street | Yes |
| 42 | Redlands Blvd | Ironwood Ave to San Timoteo Canyon Rd | No | 70.9 | Yes | No, homes front on street | Yes |
| 177 | San Timoteo Canyon Rd | Alessandro Rd to Live Oak Canyon Rd | No | 66.2 | Yes | No, homes widely separated | Yes |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd to Redlands Blvd | No | 66.7 | Yes | No, homes widely separated | Yes |
| 2 | Street A | Eucalyptus Ave to Street F | No | 73.1 | Yes | No, on-site home(s) front on roadway | Yes |
| 8 | Street D | Street E to Cactus Ave | No | 70.6 | Yes | Yes, setback or construct soundwall | No |
| 4 | Street E | north of Alessandro Blvd | No | 65.7 | Yes | No, on-site home(s) front on roadway | Yes |
| 19 | Street F | east of Street A | No | 69.1 | Yes | No, on-site home(s) front on roadway | Yes |
| 199 | Sunset Dr | Alessandro Rd to Cameo Dr | No | 58.2 | No | No, homes front on street | Yes |
| 38 | Theodore St | State Route 60 to Highland Blvd | No | 66.3 | Yes | No, homes front on street | Yes |
| FREEWAYS | | | | | | | |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | Yes | 68.6 | Yes | No, existing soundwall cannot be modified | Yes |
| 30 | SR-60 | Heacock St to Perris Blvd | Yes | 67.7 | Yes | No, existing soundwall cannot be modified | Yes |
| 31 | SR-60 | Perris Blvd to Nason St | Yes | 67.8 | No | No, existing soundwall cannot be modified | Yes |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | Yes | 67.1 | Yes | No, existing soundwall cannot be modified | Yes |
| 34 | SR-60 | Redlands Blvd to Theodore St | No | 65.1 | Yes | Yes, construct soundwall | No |

*Exhibit 19*

# Cumulative Noise Mitigation Feasibility

## 3.3 Long Term On-Site Impacts

The analysis presented in Section 2.4.2 showed that neither the operation of the SDG&E Compressor Station nor the blow-down events from that facility generate noise levels that will significantly impact the proposed project. However, noise generated by SCG blow-down events has the potential to cause permanent hearing loss in persons within 1,300 feet of SCG blow-down points. This is a significant impact and mitigation is required.

The SCG blow-down equipment does not currently utilizer a silencer system. However, SCG does have silencers that reduce noise that will be fitted for planned and most un-planned blow-down events. The reduction provided by the SCG silencers is not known at this time. However, the silencers seem to be effective given the anecdotal information that they tend to eliminate residential complaints during blow-down events.

With a silencer system providing 40 dB of noise reduction, blow-down noise levels would be less than 102 dBA approximately 30 feet from the blow-down point which is within the fence line of these facilities. One hundred and two (102) dBA is the noise level that could be experienced for up to 90 minutes without causing permanent hearing loss. Therefore, while occupants of the project in the vicinity of the SCG facilities would be subject to high noise levels during these infrequent noise events, they would not be subject to any permanent hearing damage. Exhibit 20 presents the Lmax noise contours when the SCG blow-downs are mitigated with silencers. Highland Fairview has reportedly agreed to provide silencers on the SCG blowdown equipment at the two blow-down locations.

**N-11. Develop blow-down event plan.** The project applicant shall provide to the City a written agreement with SCG to provide silencers on the two blow-down locations. The agreement should be provided to the City and the silencers installed prior to the issuance of any building permits for parcels within 1,300 feet of the SCG blow-down points.

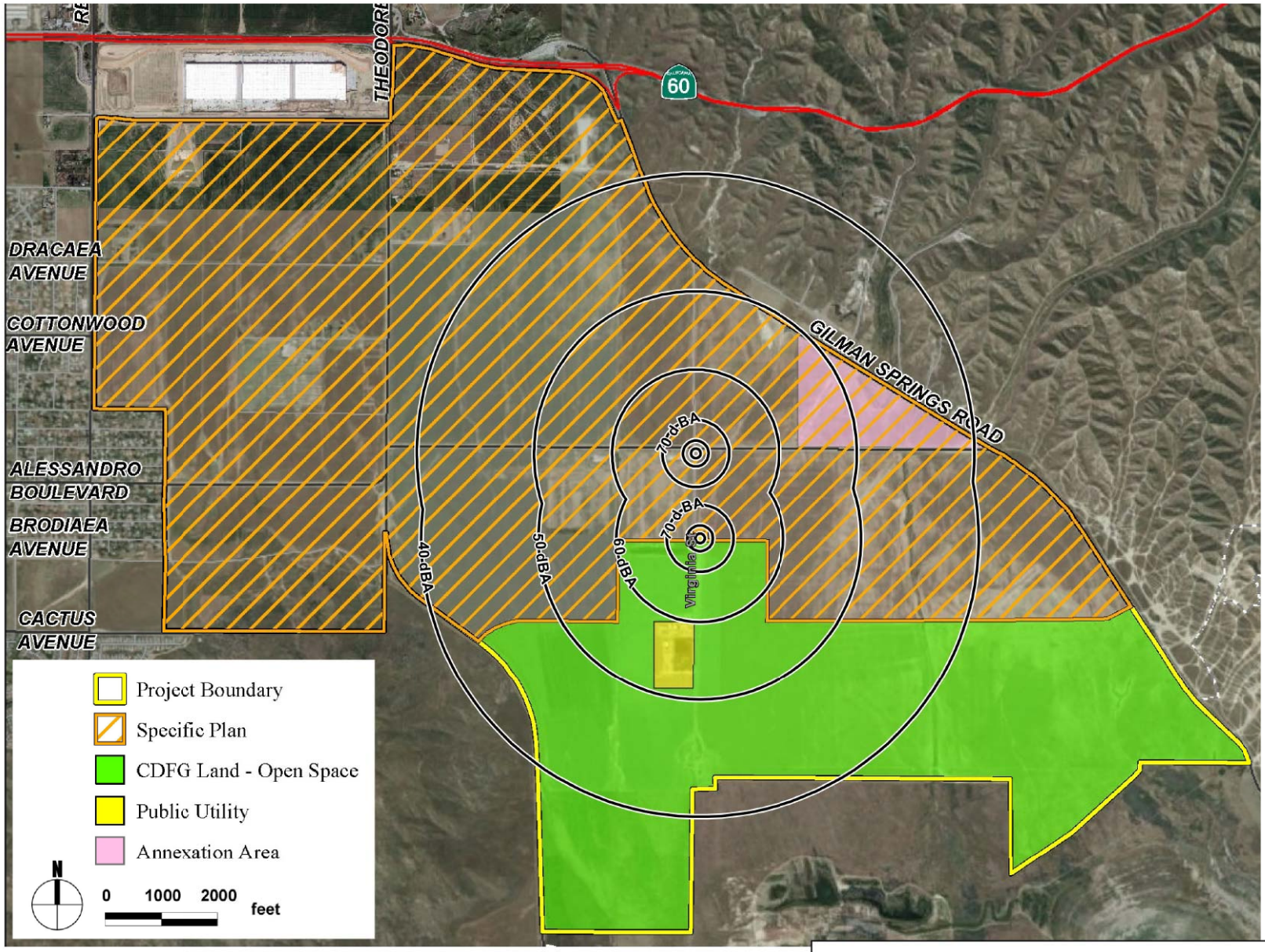



*Exhibit 20*

Mitigated Lmax Levels for SCG Blow-Down

*Mestre Greve Associates*
*Division of Landrum & Brown*

# 4.0 UNAVOIDABLE SIGNIFICANT IMPACTS

The mitigation measures described above will mitigate impacts to some extent, but the following significant impacts will remain.

1. On-site construction noise may still exceed 60 dBA (Leq) for residences within 500 feet of the construction zone during daytime hours.
2. Short term (i.e., less than 1 month) off-site construction may cause noise levels to exceed 60 dBA (Leq) during daytime hours at residences within 500 to 900 feet. This impact could only occur during non-holiday weekdays. Off-site construction noise impacts would not occur during nighttime, weekends, and City holidays.
3. Longer term (i.e., 1 month or more) off-site construction could potentially impact residences within 160 to 300 feet. Residences in this zone may experience noise levels greater than 60 dBA (Leq). No off-site construction noise impacts would occur during nighttime, weekends, and City holidays.
4. Significant traffic noise impacts due to the project will occur in the following areas:
    a. Gilman Springs Road between Eucalyptus Avenue and Street C (30) and Jack Rabbit Trail and Bridge Street (190)
    b. Ironwood Avenue between Redlands Boulevard and Highland Boulevard (36)
    c. Locust Avenue between Moreno Beach Drive and Smiley Boulevard (54)
    d. Redlands Boulevard from Eucalyptus Avenue to State Route 60 (13)
    e. Redlands Boulevard from State Route 60 to San Timoteo Canyon Road (35, 42)
    f. San Timoteo Canyon Road from Alessandro Road to Live Oak Canyon Road to Redlands Boulevard (177, 179)
    g. Theodore Street from State Route 60 to Highland Boulevard (38)
    h. Street A from Eucalyptus Avenue to Street F; Street E north of Alessandro Boulevard; and Street F east of Street A (2, 4, 19).
    i. State Route 60 from Pigeon Pass Road to Perris Boulevard (29, 30)
    j. State Route 60 from Moreno Beach Drive to Redlands Boulevard (33)
5. Significant cumulative traffic noise impacts with the project substantially contributing that cannot be adequately mitigated will occur along 36 roadway links. The links have been identified previously in Exhibit 19.

# Appendix

## Traffic Noise Calculation Sheets

## and

## SDG&E and SCG Facilities Noise Impact Assessment

**Existing Noise Levels**

| ID | Arterial | From | To | Existing Counts | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | Street A | State Route 60 | Eucalyptus Ave | 1,876 | 40 | 130 | 45 | 0 | 0 | 59.6 | 55.0 | 10 | 21 | 46 | 100 |
| 2 | Street A | Eucalyptus Ave | Street F | 610 | 13 | 18 | 45 | 0 | 0 | 54.5 | 49.9 | 4 | 9 | 21 | 45 |
| 3 | Street E | west of Street A | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 4 | Street E | north of Alessandro Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 5 | Street E | Street D | Street A | 2,500 | 18 | 19 | 45 | 0 | 0 | 60.0 | 55.4 | 10 | 22 | 49 | 106 |
| 6 | Street A | Street F | Street C | 610 | 13 | 18 | 45 | 0 | 0 | 54.5 | 49.9 | 4 | 9 | 21 | 45 |
| 7 | Street A | south of Street C | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 8 | Street D | Street E | Cactus Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 9 | John F Kennedy Dr | south of Cactus Ave | 0 | 5,588 | 12 | 0 | 45 | 0 | 0 | 63.4 | 58.7 | 17 | 38 | 82 | 177 |
| 10 | Redlands Blvd | Alessandro Blvd | Cactus Ave | 6,729 | 4 | 53 | 45 | 0 | 0 | 64.1 | 59.5 | 19 | 43 | 92 | 199 |
| 11 | Redlands Blvd | Dracaea Ave | Alessandro Blvd | 6,729 | 4 | 53 | 45 | 0 | 0 | 64.1 | 59.5 | 19 | 43 | 92 | 199 |
| 12 | Redlands Blvd | Eucalyptus Ave | Dracaea Ave | 7,267 | 7 | 64 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 97 | 210 |
| 13 | Redlands Blvd | State Route 60 | Eucalyptus Ave | 7,267 | 7 | 64 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 97 | 210 |
| 14 | Eucalyptus Ave | east of Redlands Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 15 | Eucalyptus Ave | west of Street A | 0 | 1,161 | 9 | 169 | 45 | 0 | 0 | 58.3 | 53.6 | 8 | 17 | 37 | 81 |
| 18 | Street B | east of Street A | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 18a | Street B | west of Gilman Springs Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 19 | Street F | east of Street A | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 20 | Street F | north of Street C | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 21 | Street C | east of Street A | 0 | 1,890 | 5 | 1 | 45 | 0 | 0 | 58.7 | 54.0 | 8 | 18 | 40 | 86 |
| 22 | Street C | west of Street F | 0 | 1,890 | 5 | 1 | 45 | 0 | 0 | 58.7 | 54.0 | 8 | 18 | 40 | 86 |
| 23 | Street F | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 24 | Street C | Street F | Street H | 1,890 | 5 | 1 | 45 | 0 | 0 | 58.7 | 54.0 | 8 | 18 | 40 | 86 |
| 25 | Street C | Street H | Gilman Springs Rd | 2,490 | 0 | 0 | 45 | 0 | 0 | 59.8 | 55.2 | 10 | 22 | 47 | 102 |
| 26 | Street H | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 27 | Street G | east of Street H | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 28 | Street G | Street F | Street H | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 29 | Gilman Springs Rd | State Route 60 | Eucalyptus Ave | 11,618 | 39 | 316 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 63 | 136 | 293 |
| 30 | Gilman Springs Rd | Eucalyptus Ave | Street C | 11,618 | 39 | 316 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 63 | 136 | 293 |
| 31 | Gilman Springs Rd | south of Street C | 0 | 13,919 | 40 | 448 | 45 | 0 | 0 | 67.4 | 62.8 | 33 | 71 | 154 | 331 |
| 32 | Cactus Ave | west of Redlands Blvd | 0 | 2,962 | 6 | 6 | 45 | 0 | 0 | 60.6 | 56.0 | 11 | 25 | 53 | 116 |
| 33 | Alessandro Blvd | west of Redlands Blvd | 0 | 3,871 | 0 | 6 | 45 | 0 | 0 | 61.7 | 57.1 | 13 | 29 | 63 | 137 |
| 35 | Redlands Blvd | Ironwood Ave | State Route 60 | 13,405 | 12 | 41 | 55 | 0 | 0 | 69.6 | 65.0 | 46 | 100 | 215 | 464 |
| 36 | Ironwood Ave | Redlands Blvd | Highland Blvd | 437 | 0 | 0 | 35 | 0 | 0 | 49.1 | 44.5 | 1 | 4 | 9 | 19 |
| 37 | San Timoteo Canyon Rd | West Live Oak Canyon | 0 | 8,035 | 0 | 24 | 45 | 0 | 0 | 64.9 | 60.2 | 22 | 48 | 103 | 223 |
| 38 | Theodore St | State Route 60 | Highland Blvd | 562 | 15 | 194 | 45 | 0 | 0 | 58.6 | 53.9 | 8 | 18 | 39 | 84 |
| 42 | Redlands Blvd | Ironwood Ave | San Timoteo Canyon Rd | 15,066 | 3 | 12 | 55 | 0 | 0 | 70.1 | 65.5 | 50 | 107 | 232 | 500 |
| 43 | Moreno Beach Dr | Alessandro Blvd | SR 60 | 19,098 | 12 | 59 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 86 | 185 | 399 |
| 46 | Moreno Beach Dr | State Route 60 | Ironwood Ave | 10,143 | 0 | 47 | 45 | 0 | 0 | 65.9 | 61.3 | 26 | 56 | 121 | 261 |
| 47 | Ironwood Ave | Moreno Beach Dr | Redlands Blvd | 3,670 | 24 | 12 | 45 | 6 | 0 | 55.7 | 51.0 | 5 | 11 | 25 | 54 |
| 48 | Alessandro Blvd | Lasselle St | Morrison St | 8,785 | 12 | 395 | 45 | 6 | 0 | 59.5 | 54.9 | 9 | 21 | 45 | 97 |
| 50 | Cactus Ave | Redlands Blvd | Street D | 469 | 1 | 2 | 45 | 0 | 0 | 52.6 | 48.0 | 3 | 7 | 15 | 34 |

| ID | Arterial | From | To | Existing Counts | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 51 | Moreno Beach Dr | John F Kennedy Dr | Cactus Ave | 13,629 | 0 | 18 | 45 | 6 | 0 | 61.2 | 56.5 | 12 | 27 | 58 | 126 |
| 52 | Moreno Beach Dr | John F Kennedy Dr | Oliver St | 13,257 | 6 | 6 | 35 | 6 | 0 | 57.9 | 53.3 | 7 | 16 | 35 | 77 |
| 53 | John F Kennedy Dr | Oliver St | Moreno Beach Dr | 2,313 | 0 | 12 | 45 | 6 | 0 | 53.5 | 48.8 | 3 | 8 | 18 | 38 |
| 54 | Locust Ave | Moreno Beach Dr | Smiley Blvd | 106 | 0 | 0 | 35 | 0 | 0 | 42.9 | 38.3 | 0 | 1 | 3 | 7 |
| 55 | Locust Ave | Moreno Beach Dr | Redlands Blvd | 991 | 0 | 0 | 45 | 0 | 0 | 55.8 | 51.2 | 5 | 11 | 25 | 55 |
| 56 | Moreno Beach Dr | Locust Ave | Ironwood Ave | 1,871 | 0 | 0 | 35 | 0 | 0 | 55.4 | 50.8 | 5 | 11 | 24 | 52 |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | 0 | 5,558 | 0 | 0 | 45 | 0 | 0 | 63.3 | 58.6 | 17 | 37 | 81 | 175 |
| 58 | SR 60 EB Ramps | west of Moreno Beach Dr | 0 | 12,862 | 0 | 71 | 45 | | | 66.9 | 62.3 | 30 | 66 | 142 | 306 |
| 59 | Eucalyptus Ave | Moreno Beach Dr | Quincy Dr | 2,620 | 12 | 0 | 45 | | | 60.1 | 55.5 | 10 | 23 | 50 | 108 |
| 60 | SR 60 WB Ramps | east of Redlands Blvd | 0 | 4,685 | 12 | 12 | 45 | | | 62.6 | 58.0 | 15 | 34 | 73 | 158 |
| 61 | SR 60 EB Ramps | west of Redlands Blvd | 0 | 5,948 | 0 | 12 | 45 | | | 63.6 | 58.9 | 18 | 39 | 85 | 183 |
| 62 | Fir Ave | Quincy Dr | Redlands Blvd | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 65 | Alessandro Blvd | Nason St | Oliver St | 7,411 | 6 | 0 | 45 | | | 64.5 | 59.9 | 21 | 45 | 98 | 212 |
| 66 | Alessandro Blvd | Oliver St | Moreno Beach Dr | 6,455 | 0 | 0 | 45 | | | 63.9 | 59.3 | 19 | 41 | 89 | 193 |
| 67 | Oliver St | Alessandro Blvd | Cactus Ave | 1,434 | 0 | 0 | 35 | | | 54.2 | 49.6 | 4 | 9 | 20 | 43 |
| 68 | Moreno Beach Dr | Alessandro Blvd | Cactus Ave | 15,446 | 6 | 35 | 45 | | | 67.7 | 63.1 | 34 | 74 | 160 | 346 |
| 69 | Cactus Ave | Nason St | Oliver St | 7,174 | 12 | 4 | 45 | | | 64.4 | 59.8 | 20 | 45 | 97 | 209 |
| 70 | Cactus Ave | Oliver St | Moreno Beach Dr | 6,938 | 6 | 0 | 45 | 6 | | 58.3 | 53.6 | 8 | 17 | 37 | 81 |
| 71 | Oliver St | Cactus Ave | John F Kennedy Dr | 4,921 | 0 | 0 | 45 | | | 62.7 | 58.1 | 16 | 34 | 74 | 161 |
| 72 | Oliver St | John F Kennedy Dr | Iris Ave | 3,281 | 0 | 0 | 45 | | | 61.0 | 56.4 | 12 | 26 | 57 | 123 |
| 73 | Iris Ave | Nason St | Oliver St | 15,010 | 12 | 0 | 45 | | | 67.6 | 63.0 | 34 | 73 | 158 | 340 |
| 74 | Heacock St | Manzanita Ave | Ironwood Ave | 21,193 | 0 | 12 | 45 | | | 69.1 | 64.5 | 42 | 92 | 198 | 427 |
| 75 | Ironwood Ave | Graham St | Heacock St | 14,254 | 12 | 0 | 45 | | | 67.4 | 62.8 | 32 | 70 | 152 | 329 |
| 76 | Ironwood Ave | Heacock St | Indian Ave | 11,363 | 0 | 0 | 45 | | | 66.4 | 61.8 | 28 | 60 | 130 | 282 |
| 77 | Heacock St | Ironwood Ave | Hemlock Ave | 22,409 | 12 | 12 | 45 | | | 69.3 | 64.7 | 44 | 95 | 206 | 444 |
| 80 | Heacock St | Hemlock Ave | SR 60 WB Ramps | 26,337 | 24 | 0 | 45 | | | 70.1 | 65.4 | 49 | 106 | 230 | 495 |
| 81 | SR 60 WB Ramps | west of Heacock St | 0 | 18,644 | 0 | 71 | 45 | | | 68.5 | 63.9 | 39 | 84 | 182 | 392 |
| 82 | SR 60 WB Ramps | east of Heacock St | 0 | 7,222 | 24 | 47 | 45 | | | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 83 | Heacock St | SR 60 WB Ramps | SR 60 EB Ramps | 27,128 | 18 | 30 | 45 | | | 70.2 | 65.6 | 50 | 108 | 234 | 505 |
| 85 | SR 60 WB Onramp | west of Perris Blvd | 0 | 17,771 | 0 | 47 | 45 | | | 68.3 | 63.7 | 38 | 81 | 176 | 380 |
| 86 | SR 60 WB Offramp | east of Perris Blvd | 0 | 5,900 | 0 | 0 | 45 | | | 63.5 | 58.9 | 18 | 39 | 84 | 182 |
| 87 | Eucalyptus Ave | Indian St | Perris Blvd | 5,110 | 0 | 0 | 45 | | | 62.9 | 58.3 | 16 | 35 | 76 | 165 |
| 88 | Eucalyptus Ave | Perris Blvd | Kitching St | 6,396 | 0 | 12 | 45 | | | 63.9 | 59.3 | 19 | 41 | 89 | 192 |
| 95 | W 6th St | I-10 | N California Ave | 10,301 | 12 | 24 | 45 | | | 66.0 | 61.4 | 26 | 57 | 123 | 265 |
| 96 | N California Ave | W 6th St | E 8th St | 1,593 | 0 | 0 | 45 | | | 57.8 | 53.2 | 7 | 16 | 35 | 76 |
| 97 | E 6th St | N California Ave | Beaumont Ave | 7,676 | 24 | 6 | 45 | | | 64.8 | 60.1 | 22 | 47 | 102 | 220 |
| 98 | N California Ave | W 6th St | I-10 | 5,912 | 0 | 24 | 45 | | | 63.5 | 58.9 | 18 | 39 | 84 | 182 |
| 99 | Beaumont Ave | E 6th St | E 8th St | 10,667 | 24 | 35 | 45 | | | 66.2 | 61.5 | 27 | 58 | 126 | 273 |
| 100 | I-215 SB Ramps | north of Alessandro Blvd | 0 | 7,387 | 12 | 35 | 45 | | | 64.6 | 59.9 | 21 | 45 | 99 | 213 |
| 101 | Alessandro Blvd | Sycamore Canyon Blvd | I-215 SB Ramps | 35,058 | 30 | 30 | 45 | | | 71.3 | 66.7 | 59 | 129 | 278 | 599 |
| 102 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 12,366 | 24 | 0 | 45 | | | 66.8 | 62.2 | 30 | 64 | 139 | 300 |
| 103 | I-215 NB Ramps | north of Alessandro Blvd | 0 | 14,089 | 47 | 142 | 45 | | | 67.4 | 62.8 | 33 | 71 | 153 | 331 |
| 104 | Alessandro Blvd | I-215 NB Ramps | Old 215 Frontage Rd | 25,376 | 12 | 136 | 45 | | | 69.9 | 65.3 | 48 | 104 | 224 | 483 |

| ID | Arterial | From | To | Existing Counts | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 105 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 11,375 | 0 | 47 | 45 | | | 66.4 | 61.8 | 28 | 60 | 131 | 282 |
| 106 | Old 215 Frontage Rd | Eucalyptus Ave | Alessandro Blvd | 6,726 | 0 | 24 | 45 | | | 64.1 | 59.5 | 19 | 42 | 92 | 198 |
| 107 | Alessandro Blvd | Old 215 Frontage Rd | Day St | 22,862 | 12 | 118 | 45 | | | 69.4 | 64.8 | 45 | 97 | 209 | 450 |
| 108 | Old 215 Frontage Rd | Alessandro Blvd | Cactus Ave | 1,398 | 6 | 77 | 45 | | | 57.8 | 53.1 | 7 | 16 | 34 | 75 |
| 109 | Day St | Cottonwood Ave | Alessandro Blvd | 1,758 | 0 | 0 | 35 | | | 55.1 | 50.5 | 5 | 10 | 23 | 50 |
| 110 | Alessandro Blvd | Day St | Elsworth St | 23,813 | 24 | 59 | 45 | | | 69.6 | 65.0 | 46 | 99 | 215 | 463 |
| 111 | Elsworth St | Cottonwood Ave | Alessandro Blvd | 7,552 | 12 | 0 | 35 | | | 61.5 | 56.9 | 13 | 28 | 62 | 133 |
| 112 | Alessandro Blvd | Elsworth St | Frederick St | 25,789 | 24 | 65 | 45 | | | 70.0 | 65.3 | 48 | 105 | 227 | 489 |
| 113 | Elsworth St | Alessandro Blvd | Cactus Ave | 7,222 | 0 | 35 | 45 | | | 64.4 | 59.8 | 20 | 44 | 96 | 208 |
| 114 | Frederick St | Cottonwood Ave | Alessandro Blvd | 16,426 | 0 | 12 | 45 | | | 68.0 | 63.4 | 36 | 77 | 167 | 360 |
| 115 | Alessandro Blvd | Frederick St | Graham St | 27,848 | 24 | 41 | 45 | | | 70.3 | 65.7 | 51 | 110 | 238 | 514 |
| 116 | Frederick St | Alessandro Blvd | Cactus Ave | 9,257 | 0 | 12 | 45 | | | 65.5 | 60.9 | 24 | 53 | 114 | 246 |
| 117 | Graham St | Cottonwood Ave | Alessandro Blvd | 6,985 | 0 | 12 | 45 | | | 64.3 | 59.6 | 20 | 43 | 94 | 203 |
| 118 | Alessandro Blvd | Graham St | Heacock St | 26,880 | 24 | 12 | 45 | | | 70.1 | 65.5 | 50 | 108 | 233 | 502 |
| 119 | Graham St | Alessandro Blvd | Cactus Ave | 6,697 | 0 | 35 | 45 | | | 64.1 | 59.5 | 19 | 42 | 92 | 198 |
| 120 | Heacock St | Cottonwood Ave | Alessandro Blvd | 14,974 | 24 | 0 | 45 | | | 67.6 | 63.0 | 34 | 73 | 158 | 341 |
| 121 | Alessandro Blvd | Heacock St | Indian St | 23,860 | 24 | 53 | 45 | | | 69.6 | 65.0 | 46 | 100 | 215 | 464 |
| 122 | Heacock St | Alessandro Blvd | Cactus Ave | 11,458 | 18 | 12 | 45 | 6 | | 60.5 | 55.8 | 11 | 24 | 52 | 113 |
| 123 | Indian St | Cottonwood Ave | Alessandro Blvd | 12,036 | 24 | 47 | 45 | | | 66.7 | 62.1 | 29 | 63 | 137 | 295 |
| 124 | Alessandro Blvd | Indian St | Perris Blvd | 23,405 | 59 | 47 | 45 | | | 69.6 | 65.0 | 46 | 99 | 214 | 461 |
| 125 | Indian St | Alessandro Blvd | Cactus Ave | 10,449 | 12 | 24 | 45 | 6 | | 60.0 | 55.4 | 10 | 22 | 49 | 106 |
| 126 | Alessandro Blvd | Perris Blvd | Kitching St | 17,488 | 30 | 18 | 45 | | | 68.3 | 63.7 | 37 | 81 | 175 | 378 |
| 127 | Perris Blvd | Alessandro Blvd | Cactus Ave | 19,523 | 59 | 12 | 45 | 6 | | 62.8 | 58.2 | 16 | 35 | 75 | 163 |
| 128 | Kitching St | Cottonwood Ave | Alessandro Blvd | 7,434 | 0 | 12 | 45 | | | 64.5 | 59.9 | 21 | 45 | 98 | 212 |
| 129 | Alessandro Blvd | Kitching St | Lasselle St | 12,160 | 0 | 59 | 45 | | | 66.7 | 62.1 | 29 | 63 | 137 | 295 |
| 130 | Kitching St | Alessandro Blvd | Cactus Ave | 7,092 | 0 | 0 | 45 | 6 | | 58.3 | 53.7 | 8 | 17 | 38 | 81 |
| 131 | Lasselle St | Cottonwood Ave | Alessandro Blvd | 7,410 | 0 | 12 | 45 | | | 64.5 | 59.9 | 21 | 45 | 98 | 212 |
| 133 | Lasselle St | Alessandro Blvd | Cactus Ave | 11,971 | 0 | 94 | 45 | | | 66.6 | 62.0 | 29 | 62 | 135 | 292 |
| 134 | Morrison St | Cottonwood Ave | Alessandro Blvd | 2,088 | 0 | 0 | 45 | | | 59.0 | 54.4 | 9 | 19 | 42 | 91 |
| 135 | Alessandro Blvd | Morrison St | Nason St | 8,077 | 18 | 277 | 50 | 6 | | 60.4 | 55.7 | 11 | 24 | 51 | 112 |
| 136 | Nason St | Cottonwood Ave | Alessandro Blvd | 8,083 | 0 | 0 | 45 | | | 64.9 | 60.3 | 22 | 48 | 104 | 224 |
| 137 | Nason St | Alessandro Blvd | Cactus Ave | 7,918 | 6 | 0 | 45 | | | 64.8 | 60.2 | 22 | 47 | 103 | 222 |
| 138 | I-215 SB Ramps | north of Cactus Ave | 0 | 968 | 24 | 47 | 45 | | | 56.7 | 52.1 | 6 | 13 | 29 | 64 |
| 139 | Cactus Ave | Meridian Pkwy | I-215 SB Ramps | 6,077 | 35 | 94 | 45 | | | 63.9 | 59.2 | 19 | 41 | 88 | 191 |
| 140 | I-215 SB Ramps | south of Cactus Ave | 0 | 18,668 | 47 | 24 | 45 | | | 68.6 | 64.0 | 39 | 85 | 184 | 397 |
| 141 | Cactus Ave | I-215 NB Ramps | Elsworth St | 23,243 | 27 | 192 | 45 | | | 69.5 | 64.9 | 45 | 98 | 212 | 457 |
| 142 | I-215 NB Ramps | south of Cactus Ave | 0 | 1,298 | 0 | 71 | 45 | | | 57.3 | 52.7 | 7 | 15 | 32 | 70 |
| 143 | Cactus Ave | Elsworth St | Frederick St | 30,468 | 24 | 201 | 45 | | | 70.7 | 66.1 | 54 | 117 | 253 | 546 |
| 144 | Cactus Ave | Frederick St | Graham St | 33,666 | 71 | 148 | 45 | | | 71.2 | 66.5 | 58 | 126 | 272 | 587 |
| 145 | Cactus Ave | Graham St | Heacock St | 27,388 | 24 | 100 | 45 | | | 70.2 | 65.6 | 50 | 109 | 236 | 509 |
| 146 | Riverside Dr | Cactus Ave | Meyer Dr | 8,779 | 35 | 0 | 45 | | | 65.4 | 60.7 | 24 | 52 | 112 | 241 |
| 147 | Cactus Ave | Heacock St | Indian St | 17,293 | 0 | 30 | 45 | | | 68.2 | 63.6 | 37 | 80 | 173 | 373 |
| 148 | Heacock St | Cactus Ave | John F Kennedy Dr | 19,246 | 12 | 94 | 45 | 6 | | 62.7 | 58.1 | 16 | 34 | 74 | 160 |

| ID | Arterial | From | To | Existing Counts | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 149 | Cactus Ave | Indian St | Perris Blvd | 15,606 | 0 | 18 | 45 | | | 67.8 | 63.1 | 34 | 75 | 161 | 348 |
| 150 | Indian St | Cactus Ave | John F Kennedy Dr | 9,192 | 0 | 12 | 45 | 6 | | 59.5 | 54.8 | 9 | 21 | 45 | 97 |
| 151 | Cactus Ave | Perris Blvd | Kitching St | 15,175 | 0 | 0 | 45 | | | 67.6 | 63.0 | 34 | 73 | 158 | 341 |
| 152 | Perris Blvd | Cactus Ave | John F Kennedy Dr | 16,709 | 35 | 30 | 45 | 6 | | 62.1 | 57.5 | 14 | 31 | 68 | 146 |
| 153 | Cactus Ave | Kitching St | Lasselle St | 11,865 | 6 | 0 | 45 | | | 66.6 | 62.0 | 29 | 62 | 135 | 290 |
| 154 | Kitching St | Cactus Ave | John F Kennedy Dr | 8,307 | 0 | 0 | 35 | 6 | | 55.9 | 51.2 | 5 | 12 | 26 | 56 |
| 155 | Cactus Ave | Lasselle St | Morrison St | 14,715 | 12 | 0 | 45 | | | 67.5 | 62.9 | 33 | 72 | 156 | 336 |
| 156 | Lasselle St | Cactus Ave | John F Kennedy Dr | 20,060 | 0 | 0 | 45 | | | 68.8 | 64.2 | 41 | 88 | 191 | 411 |
| 157 | Cactus Ave | Morrison St | Nason St | 10,195 | 12 | 0 | 45 | | | 65.9 | 61.3 | 26 | 56 | 122 | 263 |
| 158 | E 6th St | Beaumont Ave | Pennsylvania Ave | 9,935 | 35 | 12 | 45 | | | 65.9 | 61.3 | 26 | 56 | 121 | 261 |
| 159 | Beaumont Ave | E 6th St | I-10 | 8,331 | 0 | 47 | 45 | | | 65.0 | 60.4 | 22 | 49 | 106 | 229 |
| 160 | Kitching St | Gentian Ave | Iris Ave | 5,558 | 0 | 12 | 45 | | | 63.3 | 58.6 | 17 | 37 | 81 | 175 |
| 161 | Iris Ave | Perris Blvd | Kitching St | 16,786 | 30 | 30 | 45 | 6 | | 62.1 | 57.5 | 14 | 31 | 68 | 146 |
| 162 | Iris Ave | Kitching St | Lasselle St | 17,877 | 12 | 0 | 45 | 6 | | 62.4 | 57.7 | 15 | 32 | 70 | 152 |
| 163 | Kitching St | Iris Ave | Ivory Ave | 13,689 | 0 | 0 | 45 | 6 | | 61.2 | 56.6 | 12 | 27 | 58 | 127 |
| 164 | Lasselle St | Gentian Ave | Iris Ave | 19,529 | 0 | 0 | 45 | | | 68.7 | 64.1 | 40 | 87 | 187 | 404 |
| 165 | Iris Ave | Lasselle St | Nason St | 19,612 | 0 | 0 | 45 | 6 | | 62.7 | 58.1 | 16 | 34 | 74 | 161 |
| 168 | Krameria Ave | Perris Blvd | Lasselle St | 6,750 | 18 | 0 | 45 | 6 | | 58.2 | 53.6 | 8 | 17 | 37 | 80 |
| 169 | Krameria Ave | Kitching St | Lasselle St | 4,366 | 0 | 0 | 45 | | | 62.2 | 57.6 | 14 | 32 | 69 | 149 |
| 170 | Kitching St | Krameria Ave | Lurin Ave | 21,370 | 12 | 0 | 45 | 6 | | 63.1 | 58.5 | 17 | 36 | 79 | 171 |
| 171 | Lasselle St | Cahuilla Dr | Krameria Ave | 17,741 | 0 | 0 | 45 | 6 | | 62.3 | 57.7 | 15 | 32 | 70 | 151 |
| 172 | Lasselle St | Krameria Ave | Arroyo Park Dr | 6,832 | 0 | 12 | 45 | 6 | | 58.2 | 53.5 | 7 | 17 | 37 | 79 |
| 173 | Oleander Ave | Perris Blvd | Lasselle St | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 174 | Oleander Ave | Lasselle St | Lake Perris Dr | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 177 | San Timoteo Canyon Rd | Alessandro Rd | Live Oak Canyon Rd | 11,948 | 0 | 12 | 45 | | | 66.6 | 62.0 | 29 | 62 | 135 | 291 |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd | I-10 | 3,386 | 0 | 12 | 45 | | | 61.1 | 56.5 | 12 | 27 | 58 | 125 |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd | Redlands Blvd | 14,036 | 0 | 6 | 45 | | | 67.3 | 62.7 | 32 | 69 | 150 | 324 |
| 180 | San Timoteo Canyon Rd | Redlands Blvd | Woodhouse Rd | 2,030 | 0 | 0 | 45 | | | 58.9 | 54.3 | 8 | 19 | 41 | 89 |
| 181 | Potrero Blvd | north of SR 60 WB Ramps | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 182 | SR 60 WB Onramp | west of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 183 | SR 60 WB Offramp | east of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 184 | SR 60 EB Offramp | west of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 185 | SR 60 EB Onramp | east of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 186 | Potrero Blvd | south of SR 60 EB Ramps | W 4th St | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 190 | Gilman Springs Rd | Jack Rabbit Trail | Bridge St | 12,744 | 47 | 35 | 45 | | | 67.0 | 62.4 | 30 | 66 | 143 | 309 |
| 191 | Gilman Springs Rd | Bridge St | Beaumont Ave | 12,095 | 47 | 35 | 45 | | | 66.8 | 62.1 | 29 | 64 | 138 | 299 |
| 192 | Bridge St | Gilman Springs Rd | Marvin Rd | 1,097 | 0 | 24 | 45 | | | 56.3 | 51.7 | 6 | 13 | 28 | 60 |
| 194 | Crescent Ave | West of Alessandro Rd | 0 | 2,018 | 0 | 0 | 35 | | | 55.7 | 51.1 | 5 | 11 | 25 | 54 |
| 195 | Crescent Ave | Alessandro Rd | Center St | 5,983 | 0 | 0 | 45 | | | 63.6 | 59.0 | 18 | 39 | 85 | 183 |
| 196 | Alessandro Rd | Crescent Ave | Sunset Dr | 5,729 | 0 | 0 | 45 | | | 63.4 | 58.8 | 17 | 38 | 82 | 178 |
| 198 | Sunset Dr | Crown St | Alessandro Rd | 260 | 0 | 0 | 35 | | | 46.8 | 42.2 | 1 | 3 | 6 | 14 |
| 199 | Sunset Dr | Alessandro Rd | Cameo Dr | 460 | 0 | 0 | 35 | | | 49.3 | 44.7 | 2 | 4 | 9 | 20 |
| 200 | Alessandro Rd | Sunset Dr | San Timoteo Canyon Rd | 5,758 | 0 | 0 | 45 | | | 63.4 | 58.8 | 17 | 38 | 83 | 179 |

| ID | Arterial | From | To | Existing Counts | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 205 | Reche Canyon Rd | Keissel Rd | Reche Vista Dr | 18,667 | 0 | 0 | 45 | | | 68.5 | 63.9 | 39 | 84 | 182 | 392 |
| 206 | Reche Canyon Rd | Reche Vista Dr | High Country Dr | 272 | 0 | 0 | 45 | | | 50.2 | 45.5 | 2 | 5 | 10 | 23 |
| 207 | Reche Vista Dr | Heacock St | Reche Canyon Rd | 18,656 | 0 | 0 | 35 | | | 65.4 | 60.8 | 24 | 52 | 112 | 242 |
| 215 | Mission Grove Pkwy | Cannon Rd | Alessandro Blvd | 7,116 | 0 | 0 | 35 | | | 61.2 | 56.6 | 12 | 27 | 59 | 127 |
| 216 | Alessandro Blvd | Trautwein Rd | Vista Grande Dr | 43,125 | 12 | 8 | 45 | | | 72.2 | 67.6 | 68 | 148 | 318 | 687 |
| 217 | Mission Grove Pkwy | Alessandro Blvd | Northrop Dr | 14,101 | 0 | 0 | 45 | 6 | | 61.3 | 56.7 | 12 | 27 | 60 | 129 |
| 218 | Alessandro Blvd | Canyon Crest Dr | Trautwein Rd | 49,943 | 12 | 6 | 45 | | | 72.8 | 68.2 | 75 | 163 | 351 | 757 |
| 219 | Trautwein Rd | Alessandro Blvd | Orange Terrace Pkwy | 10,608 | 0 | 0 | 45 | | | 66.1 | 61.5 | 26 | 58 | 125 | 269 |
| 221 | Canyon Crest Dr | Central Ave | Alessandro Blvd | 11,210 | 0 | 0 | 45 | | | 66.3 | 61.7 | 27 | 60 | 129 | 279 |
| 223 | Canyon Crest Dr | Alessandro Blvd | Sandtrack Rd | 389 | 0 | 0 | 35 | 6 | | 42.6 | 38.0 | 0 | 1 | 3 | 7 |
| 225 | Via Vista Dr | Alessandro Blvd | Canyon Crest Dr | 2,502 | 0 | 0 | 45 | | | 59.8 | 55.2 | 10 | 22 | 47 | 102 |
| 226 | Alessandro Blvd | Century Ave | Canyon Crest Dr | 48,159 | 8 | 4 | 45 | | | 72.6 | 68.0 | 73 | 159 | 343 | 739 |
| 227 | Via Vista Dr | Alessandro Blvd | Canyon Hill Dr | 3,434 | 0 | 0 | 45 | | | 61.2 | 56.6 | 12 | 27 | 58 | 126 |
| 229 | Century Ave | Alessandro Blvd | Claridge Dr | 1,333 | 0 | 0 | 45 | | | 57.1 | 52.4 | 6 | 14 | 31 | 67 |
| 230 | Century Ave | Trafalgar Ave | Alessandro Blvd | 1,003 | 0 | 0 | 45 | | | 55.8 | 51.2 | 5 | 12 | 25 | 55 |
| 231 | Alessandro Blvd | Victoria Ave | Arlington Ave/Chicago Ave | 34,904 | 59 | 71 | 45 | | | 71.3 | 66.7 | 60 | 129 | 278 | 600 |
| 232 | Chicago Ave | Alessandro Blvd | Central Ave | 28,745 | 9 | 18 | 45 | | | 70.4 | 65.8 | 52 | 112 | 243 | 524 |
| 233 | Alessandro Blvd | Arlington Ave/Chicago Ave | Century Ave | 50,540 | 31 | 31 | 45 | | | 72.9 | 68.3 | 76 | 164 | 354 | 764 |
| 236 | Victoria Ave | Central Ave | Arlington Ave | 6,950 | 24 | 0 | 45 | | | 64.3 | 59.7 | 20 | 44 | 95 | 206 |
| 237 | Arlington Ave | Victoria Ave | Alessandro Blvd | 34,639 | 30 | 30 | 45 | | | 71.2 | 66.6 | 59 | 128 | 276 | 595 |
| 238 | Victoria Ave | Arlington Ave | Maude St | 12,661 | 24 | 0 | 45 | | | 66.9 | 62.3 | 30 | 65 | 141 | 305 |
| 239 | Arlington Ave | Maude St | Victoria Ave | 30,246 | 12 | 6 | 45 | | | 70.6 | 66.0 | 54 | 116 | 251 | 542 |
| 240 | Durango Rd | Laramie Rd | Arlington Ave | 1,876 | 0 | 0 | 45 | | | 58.6 | 53.9 | 8 | 18 | 39 | 84 |
| 241 | Horace St | Arlington Ave | Victoria Ave | 3,835 | 0 | 0 | 45 | | | 61.7 | 57.0 | 13 | 29 | 63 | 136 |
| 242 | Arlington Ave | Magnolia Ave | SR-91 WB On-Ramps | 32,930 | 0 | 16 | 45 | | | 71.0 | 66.4 | 57 | 123 | 266 | 573 |
| 243 | Riverside Dr | SR-91 WB Off-Ramps | Arlington Ave | 10,667 | 6 | 0 | 45 | | | 66.1 | 61.5 | 27 | 58 | 125 | 271 |
| 244 | SR-91 WB On-Ramps | Arlington Ave | SR-91 | 17,559 | 0 | 0 | 45 | | | 68.3 | 63.6 | 37 | 81 | 174 | 376 |
| 245 | SR-91 EB On-Ramps | SR-91 | Arlington Ave | 20,745 | 0 | 71 | 45 | | | 69.0 | 64.4 | 42 | 90 | 195 | 421 |
| 246 | Indiana Ave | Arlington Ave | SR-91 EB Off-Ramps | 15,682 | 12 | 12 | 45 | | | 67.8 | 63.2 | 35 | 75 | 162 | 350 |
| 247 | Arlington Ave | SR-91 WB On-Ramps | SR-91 EB On-Ramps | 35,141 | 12 | 24 | 45 | | | 71.3 | 66.7 | 59 | 129 | 278 | 599 |
| 250 | Country Club Dr | Chicago Ave | Canyon Crest Dr | 2,207 | 0 | 0 | 35 | | | 56.1 | 51.5 | 5 | 12 | 27 | 58 |
| 252 | Central Ave | Chicago Ave | Canyon Crest Dr | 20,680 | 0 | 9 | 45 | | | 69.0 | 64.4 | 42 | 90 | 195 | 420 |
| 254 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 16,980 | 24 | 24 | 45 | | | 68.2 | 63.5 | 37 | 79 | 172 | 370 |
| 256 | Canyon Crest Dr | Central Ave | Country Club Dr | 17,476 | 24 | 24 | 45 | | | 68.3 | 63.7 | 37 | 81 | 175 | 378 |
| 258 | El Cerrito Dr | Canyon Crest Dr | Central Ave | 6,160 | 0 | 12 | 45 | | | 63.7 | 59.1 | 18 | 40 | 87 | 187 |
| 260 | Central Ave | Canyon Crest Dr | I-215 | 19,959 | 0 | 9 | 45 | | | 68.8 | 64.2 | 41 | 88 | 190 | 410 |
| 261 | Lochmoor Dr | Central Ave | Fair Isle Dr | 3,540 | 0 | 0 | 35 | 6 | | 52.2 | 47.5 | 3 | 6 | 14 | 31 |
| 262 | Sycamore Canyon Blvd | Central Ave | College Blvd | 10,596 | 0 | 0 | 35 | | | 62.9 | 58.3 | 16 | 35 | 77 | 166 |
| 263 | Central Ave | Sycamore Canyon Blvd | I-215 SB Ramps | 14,803 | 6 | 6 | 45 | | | 67.5 | 62.9 | 33 | 72 | 156 | 337 |
| 264 | I-215 SB Off-Ramps | I-215 | Central Ave | 2,525 | 24 | 0 | 45 | | | 60.1 | 55.5 | 10 | 23 | 50 | 107 |
| 265 | Central Ave | I-215 SB Ramps | I-215 NB Ramps | 14,638 | 24 | 12 | 45 | | | 67.5 | 62.9 | 33 | 72 | 156 | 336 |
| 266 | I-215 SB On-Ramps | Central Ave | I-215 | 21,358 | 0 | 24 | 45 | | | 69.1 | 64.5 | 42 | 92 | 199 | 429 |
| 267 | Watkins Dr | I-215 NB On-Ramp | I-215 NB Off-Ramp | 12,673 | 12 | 0 | 45 | | | 66.9 | 62.3 | 30 | 65 | 141 | 304 |

| ID | Arterial | From | To | Existing Counts | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 268 | I-215 NB Off-Ramp | Watkins Dr | I-215 | 10,313 | 24 | 24 | 45 | | | 66.0 | 61.4 | 26 | 57 | 124 | 267 |
| 269 | Martin Luther King Blvd | SR-91 | Chicago Ave | 29,665 | 12 | 12 | 45 | | | 70.6 | 65.9 | 53 | 115 | 248 | 535 |
| 270 | Chicago Ave | University Ave | Martin Luther King Blvd | 23,151 | 0 | 12 | 45 | | | 69.5 | 64.8 | 45 | 97 | 210 | 453 |
| 271 | Martin Luther King Blvd | Chicago Ave | Iowa Ave | 25,901 | 6 | 0 | 45 | | | 70.0 | 65.3 | 48 | 105 | 226 | 488 |
| 272 | Chicago Ave | Martin Luther King Blvd | Central Ave | 24,107 | 0 | 6 | 45 | | | 69.6 | 65.0 | 46 | 100 | 216 | 465 |
| 273 | Iowa Ave | University Ave | Martin Luther King Blvd | 13,559 | 0 | 0 | 45 | | | 67.1 | 62.5 | 31 | 68 | 147 | 317 |
| 274 | Martin Luther King Blvd | Iowa Ave | Canyon Crest Dr | 32,131 | 12 | 0 | 45 | | | 70.9 | 66.3 | 56 | 121 | 262 | 564 |
| 275 | Canyon Crest Dr | Campus Dr | Martin Luther King Blvd | 11,458 | 0 | 0 | 45 | | | 66.4 | 61.8 | 28 | 61 | 131 | 283 |
| 276 | Martin Luther King Blvd | Canyon Crest Dr | I-215 SB Ramps | 26,580 | 18 | 0 | 45 | | | 70.1 | 65.5 | 49 | 107 | 231 | 498 |
| 277 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 22,892 | 0 | 0 | 45 | | | 69.4 | 64.8 | 44 | 96 | 208 | 449 |
| 278 | I-215 SB Off-Ramp | I-215 | Martin Luther King Blvd | 5,995 | 0 | 0 | 45 | | | 63.6 | 59.0 | 18 | 39 | 85 | 184 |
| 279 | Martin Luther King Blvd | I-215 SB Ramps | I-215 NB Ramps | 8,732 | 0 | 0 | 45 | | | 65.2 | 60.6 | 23 | 50 | 109 | 236 |
| 280 | I-215 SB On-Ramp | Martin Luther King Blvd | I-215 | 29,854 | 24 | 0 | 45 | | | 70.6 | 66.0 | 53 | 116 | 250 | 538 |
| 281 | I-215 NB On-Ramp | I-215 | Martin Luther King Blvd | 9,464 | 0 | 0 | 45 | | | 65.6 | 61.0 | 24 | 53 | 115 | 249 |
| 282 | I-215 NB Off-Ramp | Martin Luther King Blvd | I-215 | 7,953 | 0 | 0 | 45 | | | 64.8 | 60.2 | 22 | 47 | 103 | 222 |
| 283 | SR-60 EB Off-Ramp | SR-60 | Heacock St | 22,538 | 24 | 24 | 45 | | | 69.4 | 64.8 | 44 | 96 | 207 | 447 |
| 284 | SR-60 EB On-Ramp | Heacock St | SR-60 | 7,765 | 0 | 47 | 45 | | | 64.7 | 60.1 | 21 | 47 | 101 | 218 |
| 285 | Heacock St | SR-60 EB Ramps | Sunnymead Blvd | 25,701 | 12 | 35 | 45 | | | 69.9 | 65.3 | 48 | 104 | 226 | 486 |
| 286 | Perris Blvd | Hemlock Ave | SR-60 WB Ramps | 29,311 | 24 | 12 | 45 | | | 70.5 | 65.9 | 53 | 114 | 247 | 532 |
| 287 | Perris Blvd | SR-60 WB Ramps | Sunnymead Blvd | 32,426 | 71 | 35 | 45 | | | 71.0 | 66.4 | 57 | 123 | 265 | 572 |
| 288 | Sunnymead Blvd | SR-60 WB Off-Ramp | Perris Blvd | 22,762 | 153 | 118 | 45 | | | 69.6 | 65.0 | 46 | 99 | 214 | 461 |
| 289 | Sunnymead Blvd | Perris Blvd | SR-60 WB On-Ramp | 17,192 | 35 | 35 | 45 | | | 68.2 | 63.6 | 37 | 80 | 174 | 375 |
| 290 | Perris Blvd | Sunnymead Blvd | Fir Ave | 27,152 | 142 | 118 | 45 | | | 70.3 | 65.7 | 51 | 111 | 239 | 516 |
| 294 | Via Del Lago | South of Iris Ave | 0 | 815 | 0 | 0 | 45 | | | 54.9 | 50.3 | 4 | 10 | 22 | 48 |
| 301 | John F. Kennedy Dr | Indian St | Perris Blvd | 9,487 | 0 | 0 | 45 | | | 65.6 | 61.0 | 25 | 53 | 116 | 250 |
| 302 | John F. Kennedy Dr | Perris Blvd | Kitching St | 9,428 | 0 | 0 | 45 | | | 65.6 | 60.9 | 24 | 53 | 115 | 249 |
| 303 | Perris Blvd | John F. Kennedy Dr | Iris Ave | 15,612 | 94 | 83 | 45 | | | 67.9 | 63.3 | 35 | 77 | 166 | 358 |
| 304 | Iris Ave | Indian St | Perris Blvd | 12,886 | 12 | 47 | 45 | | | 66.9 | 62.3 | 30 | 66 | 142 | 308 |
| 306 | Perris Blvd | Iris Ave | Krameria Ave | 16,131 | 89 | 71 | 45 | 6 | | 62.1 | 57.4 | 14 | 31 | 67 | 145 |
| 307 | Perris Blvd | Krameria Ave | Harley Know Blvd | 15,835 | 94 | 47 | 45 | 6 | | 62.0 | 57.4 | 14 | 30 | 66 | 143 |
| 324 | Ramona Expy | Warren Rd | Sanderson Ave | 13,995 | 83 | 271 | 45 | | | 67.5 | 62.9 | 33 | 72 | 155 | 334 |
| 325 | Sanderson Ave | Gilman Springs Rd | Ramona Expy | 27,671 | 35 | 519 | 45 | | | 70.3 | 65.7 | 51 | 111 | 239 | 515 |
| 326 | Ramona Expy | Sanderson Ave | State St | 15,257 | 71 | 165 | 45 | | | 67.8 | 63.2 | 35 | 75 | 163 | 351 |
| 327 | Sanderson Ave | Ramona Expy | Ramona Blvd | 17,889 | 24 | 177 | 45 | | | 68.4 | 63.8 | 38 | 82 | 178 | 384 |
| 340 | Alessandro Blvd | South of San Timoteo Canyon R | 0 | 366 | 0 | 0 | 45 | | | 51.5 | 46.8 | 2 | 6 | 13 | 28 |
| 351 | Live Oak Canyon Rd | South of San Timoteo Canyon R | 0 | 236 | 0 | 0 | 45 | | | 49.5 | 44.9 | 2 | 4 | 9 | 21 |
| 358 | Gilman Springs Rd | Bridge St | SR-79 SB Ramps | 12,402 | 35 | 35 | 45 | | | 66.8 | 62.2 | 30 | 65 | 140 | 302 |
| 359 | SR-79 SB Off-Ramp | SR-79 | Gilman Springs Rd | 5,286 | 0 | 0 | 45 | | | 63.0 | 58.4 | 16 | 36 | 78 | 169 |
| 360 | Gilman Springs Rd | SR-79 SB Ramps | SR-79 NB Ramps | 11,205 | 35 | 18 | 45 | | | 66.4 | 61.8 | 28 | 61 | 131 | 283 |
| 361 | SR-79 SB On-Ramp | Gilman Springs Rd | SR-79 | 7,410 | 24 | 24 | 45 | | | 64.6 | 60.0 | 21 | 46 | 99 | 215 |
| 362 | SR-79 NB On-Ramp | SR-79 | Gilman Springs Rd | 4,508 | 24 | 71 | 45 | | | 62.5 | 57.9 | 15 | 33 | 72 | 156 |
| 363 | Gilman Springs Rd | SR-79 NB Ramps | Record Rd | 11,398 | 35 | 12 | 45 | | | 66.5 | 61.9 | 28 | 61 | 132 | 286 |
| 364 | SR-79 NB Off-Ramp | Gilman Springs Rd | SR-79 | 3,611 | 0 | 24 | 45 | | | 61.4 | 56.8 | 13 | 28 | 61 | 131 |

| ID | Arterial | From | To | Existing Counts | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 365 | Alessandro Blvd | Sycamore Canyon Blvd | Vista Grande Dr | 38,409 | 24 | 24 | 45 | | | 71.7 | 67.1 | 63 | 137 | 295 | 636 |
| 366 | Sycamore Canyon Blvd | Eastridge Ave | Alessandro Blvd | 6,372 | 24 | 59 | 45 | | | 64.0 | 59.4 | 19 | 42 | 90 | 195 |
| 367 | Meridian Pkwy | Alessandro Blvd | Cactus Ave | 4,401 | 0 | 35 | 45 | | | 62.3 | 57.6 | 15 | 32 | 69 | 150 |
| 375 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 376 | 3rd St | Marvin Rd | Mid County Pkwy WB Ran | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 377 | Mid County Pkwy WB Off-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 378 | 3rd St | Mid County Pkwy EB Ramps | Mid County Pkwy WB Ran | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 379 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 380 | Mid County Pkwy EB On-Ramp | 3rd St | Mid County Pkwy | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 381 | 3rd St | Mid County Pkwy EB Ramps | MM Blvd | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 386 | Harley Know Blvd | Indian St | Perris Blvd | 4,532 | 71 | 142 | 45 | | | 62.9 | 58.3 | 16 | 35 | 77 | 166 |
| 387 | Perris Blvd | Krameria Ave | Harley Know Blvd | 13,924 | 47 | 307 | 45 | 6 | | 61.4 | 56.8 | 13 | 28 | 61 | 131 |
| 388 | Krameria Ave | Lasselle St | Spirit Rd | 1,947 | 0 | 0 | 45 | | | 58.7 | 54.1 | 8 | 18 | 40 | 86 |
| 389 | El Cerrito Dr | South of Central Ave | 0 | 2,596 | 0 | 0 | 45 | | | 60.0 | 55.3 | 10 | 22 | 48 | 105 |
| 390 | Ramona Expy | Webster Ave | Indian St | 27,411 | 106 | 861 | 45 | | | 70.4 | 65.8 | 52 | 112 | 242 | 523 |
| 392 | Ramona Expy | Indian St | Perris Blvd | 27,234 | 118 | 490 | 45 | | | 70.3 | 65.7 | 51 | 111 | 240 | 517 |
| 393 | Indian St | Ramona Expy | Morgan St | 3,020 | 59 | 413 | 45 | | | 62.4 | 57.8 | 15 | 33 | 71 | 153 |
| 394 | Perris Blvd | Harley Know Blvd | Ramona Expy | 14,142 | 77 | 254 | 45 | | | 67.5 | 62.9 | 33 | 72 | 156 | 336 |
| 396 | Perris Blvd | Ramona Expy | Rider St | 15,372 | 30 | 89 | 45 | | | 67.7 | 63.1 | 34 | 75 | 161 | 348 |
| 397 | Ramona Expy | Perris Blvd | Evans Rd | 24,302 | 89 | 307 | 45 | | | 69.8 | 65.2 | 47 | 102 | 221 | 477 |
| 398 | Evans Rd | Marbella Gate | Ramona Expy | 18,290 | 12 | 0 | 45 | 6 | | 62.5 | 57.8 | 15 | 33 | 71 | 154 |
| 399 | Ramona Expy | Evans Rd | Rider St | 17,205 | 59 | 224 | 55 | 6 | | 64.8 | 60.2 | 22 | 47 | 102 | 220 |
| 400 | Evans Rd | Ramona Expy | Rider St | 12,089 | 9 | 6 | 45 | | | 66.7 | 62.0 | 29 | 63 | 136 | 294 |
| 401 | Morgan St | Indian St | Perris Blvd | 744 | 35 | 71 | 45 | | | 56.7 | 52.1 | 6 | 13 | 29 | 63 |
| 402 | Morgan St | Perris Blvd | Silver Creek Industries | 814 | 24 | 0 | 45 | | | 55.7 | 51.1 | 5 | 11 | 25 | 54 |
| 404 | Morgan St | Morgan Park | Evans Rd | 3,198 | 12 | 0 | 45 | | | 61.0 | 56.4 | 12 | 26 | 57 | 123 |
| 405 | Morgan St | Evans Rd | Bradley Rd | 3,163 | 0 | 12 | 45 | | | 60.8 | 56.2 | 12 | 25 | 55 | 120 |
| 406 | Ironwood Ave | East of Thedore St | 0 | 319 | 12 | 0 | 45 | | | 51.8 | 47.2 | 3 | 6 | 14 | 30 |
| 407 | Rider St | Indian St | Perris Blvd | 2,832 | 0 | 24 | 45 | | | 60.4 | 55.7 | 11 | 24 | 51 | 111 |
| 408 | Rider St | Perris Blvd | Redlands Ave | 8,224 | 0 | 0 | 45 | | | 65.0 | 60.3 | 22 | 48 | 105 | 227 |
| 409 | Ironwood Ave | Nason St | Moreno Beach Dr | 5,074 | 47 | 0 | 45 | | | 63.1 | 58.5 | 17 | 36 | 79 | 171 |
| 410 | Rider St | Wilson Ave | Evans Rd | 11,776 | 0 | 12 | 45 | | | 66.5 | 61.9 | 28 | 62 | 134 | 288 |
| 411 | Rider St | Evans Rd | Ramona Expy | 6,148 | 0 | 24 | 45 | | | 63.7 | 59.1 | 18 | 40 | 86 | 187 |
| 412 | Maude St | North of Arlington Ave | 0 | 212 | 0 | 0 | 45 | | | 49.1 | 44.5 | 1 | 4 | 9 | 19 |
| 413 | Placentia Ave | Indian St | Perris Blvd | 1,203 | 0 | 0 | 45 | | | 56.6 | 52.0 | 6 | 13 | 29 | 63 |
| 414 | Placentia Ave | Perris Blvd | Redlands Ave | 3,458 | 0 | 0 | 45 | | | 61.2 | 56.6 | 12 | 27 | 59 | 127 |
| 415 | Perris Blvd | Placentia Ave | Orange Ave | 16,087 | 4 | 12 | 45 | | | 67.9 | 63.3 | 35 | 76 | 165 | 355 |
| 416 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | Perris Blvd | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 417 | Mid County Pkwy WB Off-Ramp | Perris Blvd | Mid County Pkwy | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 419 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | Perris Blvd | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 420 | Mid County Pkwy EB On-Ramp | Perris Blvd | Mid County Pkwy | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 421 | Via Del Lago | South of Iris Ave | 0 | 378 | 0 | 0 | 45 | | | 51.6 | 47.0 | 2 | 6 | 13 | 29 |
| 424 | Perris Blvd | Alessandro Blvd | Cottonwood Ave | 21,134 | 118 | 24 | 45 | 6 | | 63.2 | 58.6 | 17 | 37 | 80 | 174 |

| ID | Arterial | From | To | Existing Counts | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 425 | Mid County Pkwy WB On-Ramp | West of Evan | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 426 | Mid County Pkwy WB Off-Ramp | East of Evan | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 427 | Day St | south of Alessandro Blvd | 0 | 578 | 0 | 59 | 45 | | | 54.6 | 50.0 | 4 | 10 | 21 | 46 |
| 428 | Mid County Pkwy EB Off-Ramp | West of Evan | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 429 | Mid County Pkwy EB On-Ramp | East of Evan | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 430 | Alessandro Blvd | SR-215 NB Ramp | SR-215 SB Ramp | 27,859 | 12 | 77 | 45 | | | 70.3 | 65.7 | 51 | 110 | 238 | 513 |
| 431 | Placentia Ave | Water Ave | Evans Rd | 0 | 0 | 0 | 35 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 432 | Placentia Ave | Evans Rd | El Nido Ave | 0 | 0 | 0 | 35 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 433 | Evans Rd | Rider St | Orange Ave | 6,029 | 0 | 0 | 45 | | | 63.6 | 59.0 | 18 | 39 | 85 | 184 |
| 434 | Orange Ave | Wilson Ave | Evans Rd | 4,850 | 0 | 12 | 45 | | | 62.7 | 58.1 | 15 | 34 | 74 | 159 |
| 435 | Orange Ave | Evans Rd | Foothill Dr | 2,762 | 0 | 12 | 35 | | | 57.1 | 52.5 | 6 | 14 | 31 | 67 |
| 436 | Elsworth St | south of Cactus Ave | 0 | 9,452 | 0 | 35 | 45 | | | 65.6 | 61.0 | 24 | 53 | 115 | 249 |
| 441 | Nuevo Rd | Wilson Ave | Evans Rd | 13,924 | 24 | 59 | 45 | | | 67.3 | 62.7 | 32 | 70 | 151 | 325 |
| 442 | Evans Rd | Orange Ave | Nuevo Rd | 5,127 | 0 | 6 | 45 | | | 62.9 | 58.3 | 16 | 35 | 77 | 165 |
| 443 | Nuevo Rd | Evans Rd | Foothill Dr | 10,761 | 24 | 47 | 45 | | | 66.2 | 61.6 | 27 | 59 | 127 | 274 |
| 444 | Evans Rd | Nuevo Rd | San Jacinto Ave | 0 | 0 | 0 | 45 | 6 | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 452 | San Jacinto Ave | West of Evan Rd | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 453 | Evans Rd | North of San Jancito Ave | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 454 | San Jacinto Ave | East of Evan Rd | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 455 | Evans Rd | South of San Jancito Ave | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 458 | Nason St | South of Cactus Ave | 0 | 1,133 | 0 | 0 | 45 | | | 56.4 | 51.7 | 6 | 13 | 28 | 60 |
| 464 | Quincy | South of Eucalyptus | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 477 | Ellis Ave | West of Evan Rd | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 478 | Evans Rd | North of Ellis Ave | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 479 | Oliver St | South of Irris Ave | 0 | 2,644 | 12 | 0 | 45 | | | 60.2 | 55.6 | 10 | 23 | 50 | 108 |
| 480 | Ellis Ave | Evans Rd | SR-215 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 481 | SR-215 SB Off-ramp | SR-215 | Ellis Ave | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 482 | Ellis Ave | East of SR-215 | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 483 | SR-215 SB On-ramp | Ellis Ave | SR-215 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 484 | SR-215 NB On-ramp | Ellis Ave | SR-215 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 485 | SR-215 NB Off-ramp | SR-215 | Ellis Ave | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 488 | Nason St | North of Iris Ave | 0 | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 494 | Evans Rd | North of Harley Knox Blvd | 0 | 0 | 0 | 0 | 45 | 6 | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 498 | Morrison St | Alessandro Blvd | Cactus Ave | 0 | 0 | 0 | 45 | | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 499 | Perris Blvd | Eucalyptus Ave | Cottonwood Ave | 24,674 | 12 | 0 | 45 | | | 69.8 | 65.1 | 47 | 102 | 219 | 473 |
| 500 | Perris Blvd | North of Eucalyptus Ave | 0 | 25,842 | 12 | 12 | 45 | | | 70.0 | 65.3 | 48 | 105 | 226 | 488 |
| 502 | Quincy | Cottonwood Ave | Alessandro Blvd | 0 | 0 | 0 | 35 | 6 | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 503 | Quincy | Alessandro Blvd | Cactus Ave | 0 | 0 | 0 | 35 | 6 | | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 504 | Krameria Ave | west of Perris Blvd | 0 | 3,563 | 24 | 0 | 45 | | | 61.5 | 56.9 | 13 | 28 | 62 | 134 |

**Existing Noise Levels**

| ID | Freeway | From | Existing Counts | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | SR-60 | SR-71/S Garey Ave to S Reservoir Rd | 198,530 | 4,010 | 15,970 | 65 | 0 | 0 | 85.1 | 80.5 | 497 | 1072 | 2311 | 4978 |
| 2 | SR-60 | S Reservoir Rd to Ramona Ave | 202,420 | 4,220 | 16,810 | 65 | 0 | 0 | 85.2 | 80.6 | 506 | 1091 | 2350 | 5064 |
| 3 | SR-60 | Ramona Ave to Central Ave | 190,920 | 4,090 | 16,210 | 65 | 0 | 0 | 85.0 | 80.3 | 488 | 1052 | 2267 | 4886 |
| 4 | SR-60 | Central Ave to Mountain Ave | 200,200 | 4,360 | 17,150 | 65 | 0 | 0 | 85.2 | 80.5 | 505 | 1088 | 2344 | 5051 |
| 5 | SR-60 | Mountain Ave to Euclid Ave | 193,930 | 4,260 | 16,700 | 65 | 0 | 0 | 85.0 | 80.4 | 494 | 1066 | 2297 | 4949 |
| 6 | SR-60 | Euclid Ave to Grove Ave | 211,690 | 4,680 | 18,420 | 65 | 0 | 0 | 85.4 | 80.8 | 525 | 1131 | 2438 | 5253 |
| 7 | SR-60 | Grove Ave to Vineyard Ave | 207,530 | 4,430 | 17,470 | 65 | 0 | 0 | 85.3 | 80.7 | 516 | 1111 | 2395 | 5161 |
| 8 | SR-60 | Vineyard Ave to Archibald Ave | 207,330 | 4,480 | 17,480 | 65 | 0 | 0 | 85.3 | 80.7 | 516 | 1112 | 2396 | 5162 |
| 9 | SR-60 | Archibald Ave to Haven Ave | 195,090 | 4,290 | 16,140 | 65 | 0 | 0 | 85.0 | 80.4 | 495 | 1067 | 2300 | 4955 |
| 10 | SR-60 | Haven Ave to Miliken Ave | 176,750 | 3,890 | 14,530 | 65 | 0 | 0 | 84.6 | 80.0 | 463 | 999 | 2152 | 4637 |
| 11 | SR-60 | Miliken Ave to SR-15 | 145,570 | 3,860 | 14,530 | 65 | 0 | 0 | 84.0 | 79.3 | 419 | 903 | 1945 | 4192 |
| 12 | SR-60 | I-15 to Etiwanda Ave | 105,040 | 2,890 | 9,900 | 65 | 0 | 0 | 82.5 | 77.9 | 336 | 724 | 1561 | 3363 |
| 13 | SR-60 | Etiwanda Ave to Mission Blvd/Country Village Rd | 115,930 | 2,870 | 9,980 | 65 | 0 | 0 | 82.9 | 78.2 | 353 | 762 | 1642 | 3539 |
| 14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 106,780 | 2,620 | 9,100 | 65 | 0 | 0 | 82.5 | 77.9 | 334 | 720 | 1553 | 3346 |
| 15 | SR-60 | Pedley Rd to Pyrite St | 98,450 | 2,360 | 8,340 | 65 | 0 | 0 | 82.1 | 77.5 | 316 | 681 | 1468 | 3163 |
| 16 | SR-60 | Pyrite St to Valley Way | 94,920 | 2,320 | 8,140 | 65 | 0 | 0 | 82.0 | 77.4 | 309 | 666 | 1436 | 3094 |
| 17 | SR-60 | Valley Way to Rubidoux Blvd | 130,260 | 3,080 | 10,560 | 65 | 0 | 0 | 83.3 | 78.7 | 379 | 818 | 1762 | 3797 |
| 18 | SR-60 | Rubidoux Blvd to Market St | 127,590 | 3,020 | 10,020 | 65 | 0 | 0 | 83.2 | 78.6 | 373 | 805 | 1734 | 3737 |
| 19 | SR-60 | Market St to Main St | 152,230 | 3,810 | 11,920 | 65 | 0 | 0 | 84.0 | 79.4 | 421 | 908 | 1958 | 4218 |
| 20 | SR-60 | Main St to SR-91 | 175,810 | 4,500 | 13,200 | 65 | 0 | 0 | 84.6 | 80.0 | 463 | 999 | 2153 | 4638 |
| 21 | SR-60 | SR-91 to W Blaine St/3rd St | 201,090 | 4,520 | 16,330 | 65 | 0 | 0 | 85.2 | 80.6 | 505 | 1089 | 2346 | 5056 |
| 22 | SR-60 | W Blaine St/3rd St to University Ave | 187,150 | 4,060 | 14,330 | 65 | 0 | 0 | 84.8 | 80.2 | 479 | 1032 | 2223 | 4791 |
| 23 | SR-60 | University Ave to Martin Luther King Blvd | 193,640 | 4,230 | 14,770 | 65 | 0 | 0 | 85.0 | 80.4 | 490 | 1056 | 2275 | 4901 |
| 24 | SR-60 | Martin Luther King Blvd to Central Ave | 238,830 | 5,450 | 19,280 | 65 | 0 | 0 | 85.9 | 81.3 | 567 | 1222 | 2633 | 5673 |
| 25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs Rd | 217,620 | 4,810 | 16,700 | 65 | 0 | 0 | 85.5 | 80.9 | 530 | 1142 | 2462 | 5304 |
| 26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 217,960 | 4,570 | 16,710 | 65 | 0 | 0 | 85.5 | 80.9 | 529 | 1140 | 2456 | 5293 |
| 27 | SR-60 | I-215 to Day St | 129,150 | 3,220 | 13,740 | 65 | 0 | 0 | 83.5 | 78.8 | 387 | 835 | 1800 | 3879 |
| 28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 130,580 | 3,150 | 14,870 | 65 | 0 | 0 | 83.5 | 78.9 | 393 | 846 | 1824 | 3930 |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | 110,910 | 2,620 | 12,660 | 65 | 0 | 0 | 82.8 | 78.2 | 352 | 758 | 1634 | 3521 |
| 30 | SR-60 | Heacock St to Perris Blvd | 94,630 | 2,220 | 10,840 | 65 | 0 | 0 | 82.1 | 77.5 | 316 | 682 | 1470 | 3167 |
| 31 | SR-60 | Perris Blvd to Nason St | 77,630 | 1,670 | 8,590 | 65 | 0 | 0 | 81.2 | 76.6 | 275 | 592 | 1276 | 2750 |
| 32 | SR-60 | Nason St to Moreno Beach Dr | 68,770 | 1,380 | 7,440 | 65 | 0 | 0 | 80.6 | 76.0 | 252 | 543 | 1169 | 2520 |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 49,330 | 860 | 4,720 | 65 | 0 | 0 | 79.1 | 74.5 | 198 | 426 | 919 | 1980 |
| 34 | SR-60 | Redlands Blvd to Theodore St | 40,190 | 1,000 | 5,820 | 65 | 0 | 0 | 78.7 | 74.0 | 186 | 400 | 863 | 1860 |
| 35 | SR-60 | Theodore St to Gilman Springs Rd | 39,900 | 1,000 | 5,810 | 65 | 0 | 0 | 78.6 | 74.0 | 185 | 399 | 860 | 1853 |
| 36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 31,030 | 730 | 4,630 | 65 | 0 | 0 | 77.6 | 72.9 | 156 | 337 | 728 | 1568 |
| 37 | SR-60 | Jack Rabbit Trail to I-10 | 31,020 | 730 | 4,630 | 65 | 0 | 0 | 77.6 | 72.9 | 156 | 337 | 728 | 1568 |
| 75 | SR-91 | I-15 to McKinley St | 199,750 | 3,020 | 9,640 | 65 | 0 | 0 | 84.9 | 80.2 | 481 | 1037 | 2235 | 4816 |
| 76 | SR-91 | McKinley St to Pierce St | 182,620 | 2,780 | 8,780 | 65 | 0 | 0 | 84.5 | 79.9 | 453 | 977 | 2106 | 4537 |
| 77 | SR-91 | Pierce St to Magnolia Ave | 172,440 | 2,520 | 8,420 | 65 | 0 | 0 | 84.2 | 79.6 | 436 | 939 | 2024 | 4362 |

**Existing Noise Levels**

| ID | Freeway | From | Existing Counts | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 78 | SR-91 | Magnolia Ave to La Sierra Ave | 184,260 | 2,970 | 9,980 | 65 | 0 | 0 | 84.6 | 79.9 | 459 | 989 | 2132 | 4593 |
| 79 | SR-91 | La Sierra Ave to Tyler St | 165,110 | 2,700 | 9,120 | 65 | 0 | 0 | 84.1 | 79.5 | 427 | 921 | 1984 | 4275 |
| 80 | SR-91 | Tyler St to Van Buren Blvd | 198,370 | 1,940 | 6,550 | 65 | 0 | 0 | 84.7 | 80.1 | 468 | 1009 | 2175 | 4687 |
| 81 | SR-91 | Van Buren Blvd to Adam St | 184,110 | 1,730 | 5,990 | 65 | 0 | 0 | 84.4 | 79.7 | 445 | 959 | 2067 | 4454 |
| 82 | SR-91 | Adam St to Madison St | 171,290 | 1,500 | 5,320 | 65 | 0 | 0 | 84.0 | 79.4 | 423 | 912 | 1965 | 4234 |
| 83 | SR-91 | Madison St to Indiana Ave (off-ramp) | 164,770 | 1,390 | 4,850 | 65 | 0 | 0 | 83.8 | 79.2 | 412 | 887 | 1912 | 4120 |
| 84 | SR-91 | Arlington Ave to Central Ave | 136,900 | 1,390 | 4,910 | 65 | 0 | 0 | 83.1 | 78.5 | 366 | 790 | 1703 | 3669 |
| 85 | SR-91 | Central Ave to 14th St | 163,730 | 1,670 | 5,860 | 65 | 0 | 0 | 83.9 | 79.2 | 413 | 890 | 1919 | 4134 |
| 86 | SR-91 | 14th St to University Ave | 150,400 | 1,560 | 5,340 | 65 | 0 | 0 | 83.5 | 78.9 | 390 | 842 | 1814 | 3908 |
| 87 | SR-91 | University Ave to Spruce St (off-ramp) | 194,070 | 2,020 | 6,860 | 65 | 0 | 0 | 84.6 | 80.0 | 463 | 997 | 2150 | 4632 |
| 101 | I-10 | SR-60 to Beaumont Ave | 105,670 | 2,220 | 14,110 | 65 | 0 | 0 | 82.7 | 78.1 | 345 | 745 | 1605 | 3458 |
| 102 | I-10 | Beaumont Ave to Pennsylvania Ave | 107,360 | 2,260 | 14,380 | 65 | 0 | 0 | 82.8 | 78.2 | 349 | 753 | 1623 | 3497 |
| 103 | I-10 | Pennsylvania Ave to Highland Springs Ave | 112,590 | 2,400 | 15,010 | 65 | 0 | 0 | 83.0 | 78.4 | 361 | 777 | 1675 | 3610 |
| 104 | I-10 | Highland Springs Ave to Sunset Ave | 108,210 | 2,280 | 14,510 | 65 | 0 | 0 | 82.8 | 78.2 | 351 | 757 | 1632 | 3516 |
| 105 | I-10 | Sunset Ave to 22nd St | 105,580 | 2,210 | 14,220 | 65 | 0 | 0 | 82.7 | 78.1 | 346 | 745 | 1606 | 3460 |
| 106 | I-10 | 22nd St to S 8th St | 103,830 | 2,160 | 14,010 | 65 | 0 | 0 | 82.6 | 78.0 | 342 | 737 | 1588 | 3422 |
| 107 | I-10 | S 8th St to S Hargrave St | 103,800 | 2,140 | 14,070 | 65 | 0 | 0 | 82.6 | 78.0 | 342 | 737 | 1588 | 3422 |
| 108 | I-10 | S Hargrave St to Field Rd | 93,420 | 1,940 | 12,640 | 65 | 0 | 0 | 82.2 | 77.6 | 319 | 687 | 1481 | 3190 |
| 109 | I-10 | Field Rd to Main St (Cabazon) | 89,080 | 1,780 | 12,140 | 65 | 0 | 0 | 82.0 | 77.3 | 308 | 665 | 1433 | 3088 |
| 110 | I-10 | Main St (Cabazon) to Main St | 78,690 | 1,580 | 10,740 | 65 | 0 | 0 | 81.4 | 76.8 | 284 | 612 | 1320 | 2844 |
| 111 | I-10 | Main St to Haugen-Lehmann Way | 78,690 | 1,590 | 10,720 | 65 | 0 | 0 | 81.4 | 76.8 | 284 | 612 | 1320 | 2844 |
| 112 | I-10 | Haugen-Lehmann Way to SR-111 | 78,690 | 1,590 | 10,730 | 65 | 0 | 0 | 81.4 | 76.8 | 284 | 612 | 1320 | 2845 |
| 113 | I-10 | SR-111 to Tipton Rd | 68,290 | 1,360 | 9,350 | 65 | 0 | 0 | 80.8 | 76.2 | 258 | 557 | 1201 | 2588 |
| 114 | I-10 | Tipton Rd to SR-62 | 68,290 | 1,360 | 9,350 | 65 | 0 | 0 | 80.8 | 76.2 | 258 | 557 | 1201 | 2588 |
| 129 | SR-215 | Scott Rd to Newport Rd | 80,090 | 1,540 | 3,720 | 65 | 0 | 0 | 81.0 | 76.3 | 264 | 570 | 1228 | 2646 |
| 130 | SR-215 | Newport Rd to MacCall Blvd | 68,810 | 1,320 | 3,170 | 65 | 0 | 0 | 80.3 | 75.7 | 239 | 515 | 1109 | 2390 |
| 131 | SR-215 | MacCall Blvd to Ethanac Rd | 75,170 | 1,470 | 3,340 | 65 | 0 | 0 | 80.7 | 76.1 | 253 | 546 | 1177 | 2536 |
| 132 | SR-215 | Ethanac Rd to SR-74/Case | 98,030 | 1,890 | 4,420 | 65 | 0 | 0 | 81.8 | 77.2 | 302 | 651 | 1404 | 3025 |
| 133 | SR-215 | SR-74/Case Rd to Redlands Blvd | 113,550 | 3,660 | 8,740 | 65 | 0 | 0 | 82.8 | 78.2 | 353 | 761 | 1639 | 3533 |
| 167 | SR-215 | Redlands Blvd to D St | 96,790 | 3,080 | 7,880 | 65 | 0 | 0 | 82.2 | 77.5 | 318 | 686 | 1478 | 3184 |
| 168 | SR-215 | D St to Nuevo St/Harvil Ave | 97,780 | 3,240 | 7,580 | 65 | 0 | 0 | 82.2 | 77.6 | 320 | 690 | 1488 | 3207 |
| 169 | SR-215 | Nuevo St/Harvil Ave to Ramona Expy/Cajalco Exp | 95,820 | 3,140 | 7,460 | 65 | 0 | 0 | 82.1 | 77.5 | 316 | 681 | 1467 | 3161 |
| 171 | SR-215 | Ramona Expy/Cajalco Expy to Harley Knox Blvd | 108,690 | 3,590 | 8,550 | 65 | 0 | 0 | 82.7 | 78.1 | 344 | 741 | 1598 | 3443 |
| 172 | SR-215 | Harley Knox Blvd to Van Buren Blvd | 114,850 | 3,820 | 8,960 | 65 | 0 | 0 | 82.9 | 78.3 | 357 | 769 | 1658 | 3572 |
| 173 | SR-215 | Van Buren Blvd to Cactus Ave | 111,090 | 3,650 | 8,730 | 65 | 0 | 0 | 82.8 | 78.1 | 349 | 752 | 1621 | 3492 |
| 174 | SR-215 | Cactus Ave to Alessandro Blvd | 118,470 | 3,200 | 7,600 | 65 | 0 | 0 | 82.9 | 78.3 | 354 | 764 | 1647 | 3549 |
| 175 | SR-215 | Alessandro Blvd to Eucalyptus Ave | 115,840 | 3,050 | 7,570 | 65 | 0 | 0 | 82.8 | 78.1 | 349 | 752 | 1621 | 3493 |
| 176 | SR-215 | Eucalyptus Ave to SR-60 | 122,670 | 3,180 | 8,110 | 65 | 0 | 0 | 83.0 | 78.4 | 362 | 781 | 1683 | 3627 |
| 134 | SR-215 | SR-60 to Columbia Ave | 180,770 | 3,470 | 7,520 | 65 | 0 | 0 | 84.5 | 79.9 | 454 | 978 | 2107 | 4540 |
| 135 | SR-215 | Columbia Ave to Center St | 151,810 | 2,920 | 6,210 | 65 | 0 | 0 | 83.7 | 79.1 | 404 | 870 | 1875 | 4040 |

**Existing Noise Levels**

| ID | Freeway | From | Existing Counts | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 136 | SR-215 | Center St to Iowa Ave/La Cadena Dr | 151,120 | 2,900 | 6,200 | 65 | 0 | 0 | 83.7 | 79.1 | 402 | 867 | 1869 | 4027 |
| 137 | SR-215 | Iowa Ave/La Cadena Dr to Barton Rd | 147,880 | 2,960 | 6,250 | 65 | 0 | 0 | 83.6 | 79.0 | 398 | 857 | 1848 | 3981 |
| 138 | SR-215 | Barton Rd to Mt Vernon Ave/Washington St | 154,470 | 3,090 | 6,530 | 65 | 0 | 0 | 83.8 | 79.2 | 409 | 883 | 1902 | 4098 |
| 139 | SR-215 | Mt Vernon Ave/Washington St to I-10 | 155,740 | 3,160 | 6,720 | 65 | 0 | 0 | 83.9 | 79.2 | 412 | 889 | 1915 | 4126 |
| 140 | SR-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 124,940 | 1,790 | 5,190 | 65 | 0 | 0 | 82.8 | 78.2 | 350 | 754 | 1625 | 3502 |
| 141 | SR-215 | Auto Plaza Dr/Orange Show Rd to Mill St | 114,190 | 1,570 | 4,720 | 65 | 0 | 0 | 82.4 | 77.8 | 329 | 709 | 1528 | 3292 |
| 142 | SR-215 | Mill St to 2rd St | 130,330 | 2,030 | 6,010 | 65 | 0 | 0 | 83.0 | 78.4 | 362 | 780 | 1681 | 3623 |
| 143 | SR-215 | 2rd St to Baseline Rd | 111,920 | 1,900 | 5,460 | 65 | 0 | 0 | 82.4 | 77.8 | 329 | 709 | 1527 | 3291 |
| 144 | SR-215 | Baseline Rd to Highland Ave/SR-210 | 118,520 | 2,520 | 9,520 | 65 | 0 | 0 | 82.9 | 78.2 | 354 | 762 | 1643 | 3540 |

| 2012 Plus Phase 1 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2012 + Phase 1 | | | | | | | | Distance from Centerline (ft) | | | |
| ID | Arterial | From | To | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | Street A | State Route 60 | Eucalyptus Ave | 17,352 | 2,291 | 6,889 | 45 | 0 | 0 | 75.9 | 71.3 | 122 | 263 | 566 | 1221 |
| 2 | Street A | Eucalyptus Ave | Street F | 18,143 | 2,411 | 7,329 | 45 | 0 | 0 | 76.1 | 71.5 | 126 | 271 | 585 | 1261 |
| 3 | Street E | west of Street A | 0 | 9,187 | 1,255 | 3,798 | 45 | 0 | 0 | 73.3 | 68.7 | 81 | 175 | 377 | 813 |
| 4 | Street E | north of Alessandro Blvd | 0 | 6,127 | 283 | 74 | 45 | 0 | 0 | 66.0 | 61.4 | 26 | 57 | 123 | 265 |
| 5 | Street E | Street D | Street A | 5,431 | 237 | 93 | 45 | 0 | 0 | 65.1 | 60.5 | 23 | 49 | 107 | 231 |
| 6 | Street A | Street F | Street C | 7,870 | 796 | 1,777 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 110 | 239 | 515 |
| 7 | Street A | south of Street C | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 8 | Street D | Street E | Cactus Ave | 8,785 | 465 | 0 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 159 | 342 |
| 9 | John F Kennedy Dr | south of Cactus Ave | 0 | 10,026 | 395 | 0 | 45 | 0 | 0 | 67.5 | 62.9 | 33 | 71 | 154 | 333 |
| 10 | Redlands Blvd | Alessandro Blvd | Cactus Ave | 3,361 | 54 | 0 | 45 | 0 | 0 | 60.9 | 56.3 | 12 | 26 | 56 | 122 |
| 11 | Redlands Blvd | Dracaea Ave | Alessandro Blvd | 4,108 | 38 | 0 | 45 | 0 | 0 | 61.6 | 57.0 | 13 | 29 | 63 | 136 |
| 12 | Redlands Blvd | Eucalyptus Ave | Dracaea Ave | 9,243 | 25 | 47 | 45 | 0 | 0 | 66.0 | 61.4 | 26 | 57 | 123 | 266 |
| 13 | Redlands Blvd | State Route 60 | Eucalyptus Ave | 9,044 | 95 | 495 | 45 | 0 | 0 | 66.9 | 62.3 | 30 | 66 | 142 | 307 |
| 14 | Eucalyptus Ave | east of Redlands Blvd | 0 | 3,372 | 140 | 431 | 45 | 0 | 0 | 64.4 | 59.7 | 20 | 44 | 96 | 207 |
| 15 | Eucalyptus Ave | west of Street A | 0 | 1,563 | 93 | 446 | 45 | 0 | 0 | 64.0 | 59.4 | 19 | 42 | 90 | 195 |
| 18 | Street B | east of Street A | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 18a | Street B | west of Gilman Springs Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 19 | Street F | east of Street A | 0 | 53 | 0 | 0 | 45 | 0 | 0 | 44.1 | 39.5 | 0 | 1 | 4 | 9 |
| 20 | Street F | north of Street C | 0 | 33 | 0 | 0 | 45 | 0 | 0 | 42.1 | 37.4 | 0 | 1 | 3 | 6 |
| 21 | Street C | east of Street A | 0 | 3,625 | 188 | 193 | 45 | 0 | 0 | 64.0 | 59.4 | 19 | 42 | 91 | 197 |
| 22 | Street C | west of Street F | 0 | 4,283 | 183 | 204 | 45 | 0 | 0 | 64.4 | 59.8 | 20 | 45 | 97 | 209 |
| 23 | Street F | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 24 | Street C | Street F | Street H | 3,444 | 182 | 173 | 45 | 0 | 0 | 63.8 | 59.2 | 19 | 40 | 88 | 190 |
| 25 | Street C | Street H | Gilman Springs Rd | 4,297 | 185 | 209 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 26 | Street H | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 27 | Street G | east of Street H | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 28 | Street G | Street F | Street H | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 29 | Gilman Springs Rd | State Route 60 | Eucalyptus Ave | 11,618 | 39 | 316 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 63 | 136 | 293 |
| 30 | Gilman Springs Rd | Eucalyptus Ave | Street C | 11,618 | 39 | 316 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 63 | 136 | 293 |
| 31 | Gilman Springs Rd | south of Street C | 0 | 14,286 | 169 | 515 | 45 | 0 | 0 | 68.1 | 63.4 | 36 | 78 | 169 | 365 |
| 32 | Cactus Ave | west of Redlands Blvd | 0 | 3,060 | 53 | 0 | 45 | 0 | 0 | 61.3 | 56.7 | 12 | 27 | 60 | 129 |
| 33 | Alessandro Blvd | west of Redlands Blvd | 0 | 3,338 | 23 | 6 | 45 | 0 | 0 | 61.7 | 57.1 | 13 | 29 | 63 | 137 |
| 35 | Redlands Blvd | Ironwood Ave | State Route 60 | 13,405 | 33 | 454 | 55 | 0 | 0 | 69.6 | 65.0 | 46 | 100 | 215 | 464 |
| 36 | Ironwood Ave | Redlands Blvd | Highland Blvd | 1,337 | 176 | 0 | 35 | 0 | 0 | 58.4 | 53.7 | 8 | 17 | 38 | 82 |
| 37 | San Timoteo Canyon Rd | West Live Oak Canyon | 0 | 8,068 | 142 | 377 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 82 | 178 | 384 |
| 38 | Theodore St | State Route 60 | Highland Blvd | 2,149 | 366 | 194 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 94 | 202 |
| 42 | Redlands Blvd | Ironwood Ave | San Timoteo Canyon Rd | 15,532 | 273 | 424 | 55 | 0 | 0 | 71.7 | 67.1 | 64 | 137 | 297 | 640 |
| 43 | Moreno Beach Dr | Alessandro Blvd | SR 60 | 19,098 | 14 | 88 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 86 | 185 | 399 |
| 46 | Moreno Beach Dr | State Route 60 | Ironwood Ave | 10,285 | 1 | 60 | 45 | 0 | 0 | 66.0 | 61.4 | 26 | 57 | 123 | 266 |
| 47 | Ironwood Ave | Moreno Beach Dr | Redlands Blvd | 3,712 | 24 | 12 | 45 | 6 | 0 | 55.7 | 51.1 | 5 | 11 | 25 | 54 |
| 48 | Alessandro Blvd | Lasselle St | Morrison St | 8,786 | 14 | 418 | 45 | 6 | 0 | 60.1 | 55.5 | 10 | 23 | 50 | 108 |
| 50 | Cactus Ave | Redlands Blvd | Street D | 8,785 | 465 | 0 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 158 | 340 |

| ID | Arterial | From | To | 2012 + Phase 1 | | | | | | | | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 51 | Moreno Beach Dr | John F Kennedy Dr | Cactus Ave | 14,010 | 0 | 18 | 45 | 6 | 0 | 61.3 | 56.7 | 12 | 27 | 60 | 129 |
| 52 | Moreno Beach Dr | John F Kennedy Dr | Oliver St | 17,927 | 358 | 6 | 35 | 6 | 0 | 60.4 | 55.8 | 11 | 24 | 52 | 112 |
| 53 | John F Kennedy Dr | Oliver St | Moreno Beach Dr | 2,556 | 6 | 12 | 45 | 6 | 0 | 54.1 | 49.5 | 4 | 9 | 19 | 42 |
| 54 | Locust Ave | Moreno Beach Dr | Smiley Blvd | 107 | 0 | 0 | 35 | 0 | 0 | 43.0 | 38.4 | 0 | 1 | 3 | 7 |
| 55 | Locust Ave | Moreno Beach Dr | Redlands Blvd | 1,276 | 2 | 0 | 45 | 0 | 0 | 57.2 | 52.6 | 6 | 14 | 31 | 68 |
| 56 | Moreno Beach Dr | Locust Ave | Ironwood Ave | 2,100 | 1 | 0 | 35 | 0 | 0 | 56.1 | 51.4 | 5 | 12 | 26 | 57 |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | 0 | 6,021 | 170 | 0 | 45 | 0 | 0 | 64.6 | 60.0 | 21 | 46 | 100 | 215 |
| 58 | SR 60 EB Ramps | west of Moreno Beach Dr | 0 | 13,098 | 8 | 94 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 67 | 146 | 314 |
| 59 | Eucalyptus Ave | Moreno Beach Dr | Quincy Dr | 2,619 | 12 | 6 | 45 | 0 | 0 | 60.1 | 55.5 | 10 | 23 | 50 | 108 |
| 60 | SR 60 WB Ramps | east of Redlands Blvd | 0 | 5,542 | 88 | 389 | 45 | 0 | 0 | 65.8 | 61.2 | 25 | 55 | 120 | 259 |
| 61 | SR 60 EB Ramps | west of Redlands Blvd | 0 | 6,361 | 16 | 292 | 45 | 0 | 0 | 65.8 | 61.2 | 25 | 55 | 119 | 257 |
| 62 | Fir Ave | Quincy Dr | Redlands Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 65 | Alessandro Blvd | Nason St | Oliver St | 7,856 | 10 | 24 | 45 | 0 | 0 | 64.9 | 60.3 | 22 | 48 | 104 | 225 |
| 66 | Alessandro Blvd | Oliver St | Moreno Beach Dr | 6,466 | 13 | 25 | 45 | 0 | 0 | 64.6 | 60.0 | 21 | 46 | 100 | 215 |
| 67 | Oliver St | Alessandro Blvd | Cactus Ave | 1,944 | 0 | 0 | 35 | 0 | 0 | 55.9 | 51.2 | 5 | 12 | 26 | 56 |
| 68 | Moreno Beach Dr | Alessandro Blvd | Cactus Ave | 15,446 | 6 | 36 | 45 | 0 | 0 | 67.7 | 63.1 | 34 | 74 | 160 | 346 |
| 69 | Cactus Ave | Nason St | Oliver St | 7,400 | 34 | 4 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 47 | 101 | 218 |
| 70 | Cactus Ave | Oliver St | Moreno Beach Dr | 7,973 | 50 | 0 | 45 | 6 | 0 | 59.2 | 54.6 | 9 | 20 | 43 | 93 |
| 71 | Oliver St | Cactus Ave | John F Kennedy Dr | 4,921 | 0 | 0 | 45 | 0 | 0 | 62.7 | 58.1 | 16 | 34 | 74 | 161 |
| 72 | Oliver St | John F Kennedy Dr | Iris Ave | 3,292 | 0 | 0 | 45 | 0 | 0 | 61.0 | 56.4 | 12 | 26 | 57 | 123 |
| 73 | Iris Ave | Nason St | Oliver St | 19,607 | 356 | 0 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 99 | 215 | 463 |
| 74 | Heacock St | Manzanita Ave | Ironwood Ave | 21,193 | 6 | 12 | 45 | 0 | 0 | 69.1 | 64.5 | 42 | 92 | 198 | 427 |
| 75 | Ironwood Ave | Graham St | Heacock St | 14,358 | 24 | 4 | 45 | 0 | 0 | 67.5 | 62.8 | 33 | 71 | 154 | 333 |
| 76 | Ironwood Ave | Heacock St | Indian Ave | 11,365 | 4 | 0 | 45 | 0 | 0 | 66.4 | 61.8 | 28 | 60 | 131 | 282 |
| 77 | Heacock St | Ironwood Ave | Hemlock Ave | 22,413 | 25 | 17 | 45 | 0 | 0 | 69.4 | 64.8 | 45 | 97 | 209 | 450 |
| 80 | Heacock St | Hemlock Ave | SR 60 WB Ramps | 26,401 | 41 | 5 | 45 | 0 | 0 | 70.1 | 65.5 | 49 | 107 | 232 | 499 |
| 81 | SR 60 WB Ramps | west of Heacock St | 0 | 18,644 | 0 | 70 | 45 | 0 | 0 | 68.5 | 63.9 | 39 | 84 | 182 | 392 |
| 82 | SR 60 WB Ramps | east of Heacock St | 0 | 7,806 | 54 | 94 | 45 | 0 | 0 | 65.2 | 60.5 | 23 | 50 | 108 | 234 |
| 83 | Heacock St | SR 60 WB Ramps | SR 60 EB Ramps | 27,411 | 38 | 53 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 110 | 238 | 513 |
| 85 | SR 60 WB Onramp | west of Perris Blvd | 0 | 17,772 | 0 | 48 | 45 | 0 | 0 | 68.5 | 63.8 | 38 | 83 | 180 | 387 |
| 86 | SR 60 WB Offramp | east of Perris Blvd | 0 | 6,514 | 84 | 148 | 45 | 0 | 0 | 65.2 | 60.5 | 23 | 50 | 108 | 233 |
| 87 | Eucalyptus Ave | Indian St | Perris Blvd | 5,110 | 0 | 0 | 45 | 0 | 0 | 62.9 | 58.3 | 16 | 35 | 76 | 165 |
| 88 | Eucalyptus Ave | Perris Blvd | Kitching St | 6,412 | 2 | 12 | 45 | 0 | 0 | 63.9 | 59.3 | 19 | 41 | 89 | 193 |
| 95 | W 6th St | I-10 | N California Ave | 10,399 | 20 | 34 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 125 | 271 |
| 96 | N California Ave | W 6th St | E 8th St | 1,724 | 0 | 0 | 45 | 0 | 0 | 58.3 | 53.7 | 8 | 17 | 37 | 81 |
| 97 | E 6th St | N California Ave | Beaumont Ave | 7,677 | 25 | 7 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 48 | 105 | 227 |
| 98 | N California Ave | W 6th St | I-10 | 5,932 | 0 | 28 | 45 | 0 | 0 | 63.7 | 59.1 | 18 | 40 | 86 | 187 |
| 99 | Beaumont Ave | E 6th St | E 8th St | 10,769 | 24 | 36 | 45 | 0 | 0 | 66.2 | 61.6 | 27 | 59 | 127 | 275 |
| 100 | I-215 SB Ramps | north of Alessandro Blvd | 0 | 7,449 | 19 | 46 | 45 | 0 | 0 | 64.8 | 60.1 | 21 | 47 | 102 | 219 |
| 101 | Alessandro Blvd | Sycamore Canyon Blvd | I-215 SB Ramps | 35,137 | 38 | 72 | 45 | 0 | 0 | 71.4 | 66.8 | 61 | 131 | 283 | 610 |
| 102 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 12,368 | 24 | 0 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 64 | 139 | 301 |
| 103 | I-215 NB Ramps | north of Alessandro Blvd | 0 | 14,948 | 76 | 200 | 45 | 0 | 0 | 67.9 | 63.2 | 35 | 76 | 164 | 354 |
| 104 | Alessandro Blvd | I-215 NB Ramps | Old 215 Frontage Rd | 25,376 | 12 | 158 | 45 | 0 | 0 | 69.9 | 65.3 | 48 | 104 | 224 | 483 |

| ID | Arterial | From | To | 2012 + Phase 1 | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 105 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 11,654 | 0 | 48 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 62 | 133 | 288 |
| 106 | Old 215 Frontage Rd | Eucalyptus Ave | Alessandro Blvd | 6,726 | 0 | 24 | 45 | 0 | 0 | 64.1 | 59.5 | 19 | 42 | 92 | 198 |
| 107 | Alessandro Blvd | Old 215 Frontage Rd | Day St | 23,040 | 12 | 140 | 45 | 0 | 0 | 69.5 | 64.9 | 45 | 98 | 211 | 456 |
| 108 | Old 215 Frontage Rd | Alessandro Blvd | Cactus Ave | 1,399 | 6 | 77 | 45 | 0 | 0 | 57.8 | 53.1 | 7 | 16 | 34 | 75 |
| 109 | Day St | Cottonwood Ave | Alessandro Blvd | 1,759 | 3 | 0 | 35 | 0 | 0 | 55.2 | 50.6 | 5 | 10 | 23 | 50 |
| 110 | Alessandro Blvd | Day St | Elsworth St | 23,952 | 26 | 84 | 45 | 0 | 0 | 69.7 | 65.1 | 46 | 101 | 218 | 469 |
| 111 | Elsworth St | Cottonwood Ave | Alessandro Blvd | 7,568 | 13 | 0 | 35 | 0 | 0 | 61.5 | 56.9 | 13 | 28 | 62 | 134 |
| 112 | Alessandro Blvd | Elsworth St | Frederick St | 25,889 | 34 | 115 | 45 | 0 | 0 | 70.1 | 65.5 | 50 | 108 | 232 | 501 |
| 113 | Elsworth St | Alessandro Blvd | Cactus Ave | 7,224 | 6 | 48 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 49 | 105 | 227 |
| 114 | Frederick St | Cottonwood Ave | Alessandro Blvd | 16,440 | 9 | 38 | 45 | 0 | 0 | 68.3 | 63.6 | 37 | 81 | 174 | 376 |
| 115 | Alessandro Blvd | Frederick St | Graham St | 27,965 | 26 | 68 | 45 | 0 | 0 | 70.4 | 65.7 | 52 | 112 | 241 | 520 |
| 116 | Frederick St | Alessandro Blvd | Cactus Ave | 9,261 | 0 | 15 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 54 | 118 | 254 |
| 117 | Graham St | Cottonwood Ave | Alessandro Blvd | 7,059 | 0 | 12 | 45 | 0 | 0 | 64.3 | 59.7 | 20 | 44 | 95 | 205 |
| 118 | Alessandro Blvd | Graham St | Heacock St | 26,984 | 26 | 41 | 45 | 0 | 0 | 70.2 | 65.6 | 50 | 109 | 236 | 509 |
| 119 | Graham St | Alessandro Blvd | Cactus Ave | 6,776 | 1 | 37 | 45 | 0 | 0 | 64.2 | 59.5 | 20 | 43 | 93 | 201 |
| 120 | Heacock St | Cottonwood Ave | Alessandro Blvd | 14,974 | 25 | 24 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 158 | 341 |
| 121 | Alessandro Blvd | Heacock St | Indian St | 24,121 | 28 | 83 | 45 | 0 | 0 | 69.7 | 65.1 | 47 | 101 | 218 | 471 |
| 122 | Heacock St | Alessandro Blvd | Cactus Ave | 11,459 | 19 | 24 | 45 | 6 | 0 | 60.9 | 56.3 | 12 | 26 | 56 | 121 |
| 123 | Indian St | Cottonwood Ave | Alessandro Blvd | 12,049 | 24 | 47 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 63 | 137 | 296 |
| 124 | Alessandro Blvd | Indian St | Perris Blvd | 23,556 | 64 | 77 | 45 | 0 | 0 | 69.7 | 65.1 | 46 | 101 | 217 | 468 |
| 125 | Indian St | Alessandro Blvd | Cactus Ave | 10,521 | 13 | 24 | 45 | 6 | 0 | 60.1 | 55.5 | 10 | 23 | 49 | 107 |
| 126 | Alessandro Blvd | Perris Blvd | Kitching St | 17,488 | 30 | 49 | 45 | 0 | 0 | 68.3 | 63.7 | 37 | 81 | 175 | 378 |
| 127 | Perris Blvd | Alessandro Blvd | Cactus Ave | 19,523 | 60 | 100 | 45 | 6 | 0 | 62.8 | 58.2 | 16 | 35 | 75 | 163 |
| 128 | Kitching St | Cottonwood Ave | Alessandro Blvd | 7,525 | 0 | 12 | 45 | 0 | 0 | 64.6 | 60.0 | 21 | 46 | 99 | 214 |
| 129 | Alessandro Blvd | Kitching St | Lasselle St | 12,169 | 1 | 85 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 68 | 146 | 315 |
| 130 | Kitching St | Alessandro Blvd | Cactus Ave | 7,154 | 1 | 0 | 45 | 6 | 0 | 58.4 | 53.8 | 8 | 17 | 38 | 82 |
| 131 | Lasselle St | Cottonwood Ave | Alessandro Blvd | 7,411 | 0 | 12 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 212 |
| 133 | Lasselle St | Alessandro Blvd | Cactus Ave | 11,971 | 0 | 95 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 62 | 135 | 292 |
| 134 | Morrison St | Cottonwood Ave | Alessandro Blvd | 2,090 | 0 | 0 | 45 | 0 | 0 | 59.0 | 54.4 | 9 | 19 | 42 | 91 |
| 135 | Alessandro Blvd | Morrison St | Nason St | 8,078 | 21 | 302 | 50 | 6 | 0 | 61.0 | 56.4 | 12 | 26 | 57 | 123 |
| 136 | Nason St | Cottonwood Ave | Alessandro Blvd | 8,083 | 0 | 0 | 45 | 0 | 0 | 64.9 | 60.3 | 22 | 48 | 104 | 224 |
| 137 | Nason St | Alessandro Blvd | Cactus Ave | 7,918 | 6 | 0 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 47 | 103 | 222 |
| 138 | I-215 SB Ramps | north of Cactus Ave | 0 | 1,080 | 30 | 50 | 45 | 0 | 0 | 56.7 | 52.1 | 6 | 13 | 29 | 64 |
| 139 | Cactus Ave | Meridian Pkwy | I-215 SB Ramps | 6,113 | 38 | 96 | 45 | 0 | 0 | 63.9 | 59.3 | 19 | 41 | 90 | 194 |
| 140 | I-215 SB Ramps | south of Cactus Ave | 0 | 18,808 | 48 | 24 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 86 | 185 | 399 |
| 141 | Cactus Ave | I-215 NB Ramps | Elsworth St | 23,290 | 29 | 192 | 45 | 0 | 0 | 69.5 | 64.9 | 45 | 98 | 212 | 458 |
| 142 | I-215 NB Ramps | south of Cactus Ave | 0 | 1,381 | 3 | 71 | 45 | 0 | 0 | 57.7 | 53.1 | 7 | 16 | 34 | 74 |
| 143 | Cactus Ave | Elsworth St | Frederick St | 30,605 | 28 | 201 | 45 | 0 | 0 | 70.7 | 66.1 | 54 | 118 | 254 | 549 |
| 144 | Cactus Ave | Frederick St | Graham St | 33,779 | 76 | 148 | 45 | 0 | 0 | 71.2 | 66.6 | 58 | 127 | 273 | 589 |
| 145 | Cactus Ave | Graham St | Heacock St | 27,499 | 32 | 100 | 45 | 0 | 0 | 70.3 | 65.6 | 51 | 110 | 237 | 511 |
| 146 | Riverside Dr | Cactus Ave | Meyer Dr | 8,779 | 36 | 0 | 45 | 0 | 0 | 65.4 | 60.7 | 24 | 52 | 112 | 241 |
| 147 | Cactus Ave | Heacock St | Indian St | 17,410 | 9 | 30 | 45 | 0 | 0 | 68.3 | 63.6 | 37 | 81 | 174 | 376 |
| 148 | Heacock St | Cactus Ave | John F Kennedy Dr | 19,245 | 12 | 100 | 45 | 6 | 0 | 62.7 | 58.1 | 16 | 34 | 74 | 160 |

| ID | Arterial | From | To | 2012 + Phase 1 | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 149 | Cactus Ave | Indian St | Perris Blvd | 15,783 | 12 | 18 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 76 | 164 | 353 |
| 150 | Indian St | Cactus Ave | John F Kennedy Dr | 9,192 | 0 | 12 | 45 | 6 | 0 | 59.5 | 54.8 | 9 | 21 | 45 | 97 |
| 151 | Cactus Ave | Perris Blvd | Kitching St | 15,405 | 15 | 0 | 45 | 0 | 0 | 67.7 | 63.1 | 34 | 75 | 161 | 348 |
| 152 | Perris Blvd | Cactus Ave | John F Kennedy Dr | 16,709 | 36 | 114 | 45 | 6 | 0 | 62.1 | 57.5 | 14 | 31 | 68 | 146 |
| 153 | Cactus Ave | Kitching St | Lasselle St | 12,245 | 24 | 0 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 64 | 139 | 301 |
| 154 | Kitching St | Cactus Ave | John F Kennedy Dr | 8,317 | 0 | 0 | 35 | 6 | 0 | 55.9 | 51.3 | 5 | 12 | 26 | 56 |
| 155 | Cactus Ave | Lasselle St | Morrison St | 15,604 | 43 | 0 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 76 | 165 | 357 |
| 156 | Lasselle St | Cactus Ave | John F Kennedy Dr | 20,061 | 11 | 0 | 45 | 0 | 0 | 68.9 | 64.2 | 41 | 89 | 191 | 413 |
| 157 | Cactus Ave | Morrison St | Nason St | 11,037 | 41 | 0 | 45 | 0 | 0 | 66.5 | 61.8 | 28 | 61 | 132 | 285 |
| 158 | E 6th St | Beaumont Ave | Pennsylvania Ave | 9,935 | 36 | 15 | 45 | 0 | 0 | 65.9 | 61.3 | 26 | 56 | 121 | 261 |
| 159 | Beaumont Ave | E 6th St | I-10 | 8,483 | 0 | 49 | 45 | 0 | 0 | 65.1 | 60.5 | 23 | 50 | 108 | 233 |
| 160 | Kitching St | Gentian Ave | Iris Ave | 5,558 | 0 | 12 | 45 | 0 | 0 | 63.3 | 58.6 | 17 | 37 | 81 | 175 |
| 161 | Iris Ave | Perris Blvd | Kitching St | 17,336 | 151 | 30 | 45 | 6 | 0 | 62.5 | 57.9 | 15 | 33 | 72 | 156 |
| 162 | Iris Ave | Kitching St | Lasselle St | 19,986 | 232 | 0 | 45 | 6 | 0 | 63.3 | 58.7 | 17 | 38 | 82 | 177 |
| 163 | Kitching St | Iris Ave | Ivory Ave | 14,513 | 96 | 0 | 45 | 6 | 0 | 61.7 | 57.1 | 13 | 29 | 64 | 138 |
| 164 | Lasselle St | Gentian Ave | Iris Ave | 19,529 | 2 | 0 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 87 | 187 | 404 |
| 165 | Iris Ave | Lasselle St | Nason St | 24,067 | 337 | 0 | 45 | 6 | 0 | 64.3 | 59.7 | 20 | 44 | 95 | 205 |
| 168 | Krameria Ave | Perris Blvd | Lasselle St | 10,325 | 136 | 0 | 45 | 6 | 0 | 60.8 | 56.2 | 11 | 25 | 55 | 119 |
| 169 | Krameria Ave | Kitching St | Lasselle St | 4,378 | 4 | 0 | 45 | 0 | 0 | 62.3 | 57.6 | 15 | 32 | 69 | 150 |
| 170 | Kitching St | Krameria Ave | Lurin Ave | 21,370 | 12 | 0 | 45 | 6 | 0 | 63.1 | 58.5 | 17 | 36 | 79 | 171 |
| 171 | Lasselle St | Cahuilla Dr | Krameria Ave | 19,623 | 109 | 0 | 45 | 6 | 0 | 63.1 | 58.4 | 16 | 36 | 78 | 169 |
| 172 | Lasselle St | Krameria Ave | Arroyo Park Dr | 8,718 | 104 | 12 | 45 | 6 | 0 | 59.9 | 55.3 | 10 | 22 | 48 | 104 |
| 173 | Oleander Ave | Perris Blvd | Lasselle St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 174 | Oleander Ave | Lasselle St | Lake Perris Dr | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 177 | San Timoteo Canyon Rd | Alessandro Rd | Live Oak Canyon Rd | 12,445 | 313 | 366 | 45 | 0 | 0 | 68.9 | 64.3 | 41 | 90 | 194 | 418 |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd | I-10 | 3,462 | 39 | 69 | 45 | 0 | 0 | 62.8 | 58.2 | 16 | 34 | 75 | 162 |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd | Redlands Blvd | 14,635 | 353 | 418 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 99 | 214 | 461 |
| 180 | San Timoteo Canyon Rd | Redlands Blvd | Woodhouse Rd | 2,051 | 0 | 0 | 45 | 0 | 0 | 58.9 | 54.3 | 9 | 19 | 41 | 90 |
| 181 | Potrero Blvd | north of SR 60 WB Ramps | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 182 | SR 60 WB Onramp | west of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 183 | SR 60 WB Offramp | east of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 184 | SR 60 EB Offramp | west of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 185 | SR 60 EB Onramp | east of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 186 | Potrero Blvd | south of SR 60 EB Ramps | W 4th St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 190 | Gilman Springs Rd | Jack Rabbit Trail | Bridge St | 13,124 | 157 | 94 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 157 | 340 |
| 191 | Gilman Springs Rd | Bridge St | Beaumont Ave | 12,235 | 143 | 79 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 151 | 326 |
| 192 | Bridge St | Gilman Springs Rd | Marvin Rd | 1,418 | 16 | 41 | 45 | 0 | 0 | 58.3 | 53.7 | 8 | 17 | 37 | 81 |
| 194 | Crescent Ave | West of Alessandro Rd | 0 | 2,210 | 63 | 0 | 35 | 0 | 0 | 57.5 | 52.9 | 7 | 15 | 33 | 71 |
| 195 | Crescent Ave | Alessandro Rd | Center St | 6,077 | 95 | 0 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 94 | 202 |
| 196 | Alessandro Rd | Crescent Ave | Sunset Dr | 6,035 | 157 | 0 | 45 | 0 | 0 | 64.6 | 59.9 | 21 | 45 | 98 | 213 |
| 198 | Sunset Dr | Crown St | Alessandro Rd | 300 | 6 | 0 | 35 | 0 | 0 | 48.5 | 43.9 | 1 | 3 | 8 | 18 |
| 199 | Sunset Dr | Alessandro Rd | Cameo Dr | 579 | 8 | 0 | 35 | 0 | 0 | 51.2 | 46.6 | 2 | 5 | 12 | 27 |
| 200 | Alessandro Rd | Sunset Dr | San Timoteo Canyon Rd | 6,223 | 170 | 0 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 47 | 101 | 219 |

| ID | Arterial | From | To | 2012 + Phase 1 | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 205 | Reche Canyon Rd | Keissel Rd | Reche Vista Dr | 18,683 | 28 | 0 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 85 | 183 | 396 |
| 206 | Reche Canyon Rd | Reche Vista Dr | High Country Dr | 272 | 0 | 0 | 45 | 0 | 0 | 50.2 | 45.5 | 2 | 5 | 10 | 23 |
| 207 | Reche Vista Dr | Heacock St | Reche Canyon Rd | 18,681 | 28 | 0 | 35 | 0 | 0 | 65.5 | 60.8 | 24 | 52 | 113 | 245 |
| 215 | Mission Grove Pkwy | Cannon Rd | Alessandro Blvd | 7,119 | 0 | 0 | 35 | 0 | 0 | 61.2 | 56.6 | 12 | 27 | 59 | 127 |
| 216 | Alessandro Blvd | Trautwein Rd | Vista Grande Dr | 43,156 | 12 | 17 | 45 | 0 | 0 | 72.2 | 67.6 | 69 | 148 | 320 | 690 |
| 217 | Mission Grove Pkwy | Alessandro Blvd | Northrop Dr | 14,435 | 15 | 21 | 45 | 6 | 0 | 61.5 | 56.9 | 13 | 28 | 62 | 133 |
| 218 | Alessandro Blvd | Canyon Crest Dr | Trautwein Rd | 49,944 | 12 | 7 | 45 | 0 | 0 | 72.9 | 68.2 | 76 | 164 | 354 | 763 |
| 219 | Trautwein Rd | Alessandro Blvd | Orange Terrace Pkwy | 10,614 | 0 | 0 | 45 | 0 | 0 | 66.1 | 61.5 | 26 | 58 | 125 | 269 |
| 221 | Canyon Crest Dr | Central Ave | Alessandro Blvd | 11,288 | 0 | 0 | 45 | 0 | 0 | 66.4 | 61.7 | 28 | 60 | 130 | 281 |
| 223 | Canyon Crest Dr | Alessandro Blvd | Sandtrack Rd | 390 | 0 | 0 | 35 | 6 | 0 | 42.6 | 38.0 | 0 | 1 | 3 | 7 |
| 225 | Via Vista Dr | Alessandro Blvd | Canyon Crest Dr | 2,501 | 0 | 0 | 45 | 0 | 0 | 59.8 | 55.2 | 10 | 22 | 47 | 102 |
| 226 | Alessandro Blvd | Century Ave | Canyon Crest Dr | 48,159 | 8 | 5 | 45 | 0 | 0 | 72.6 | 68.0 | 73 | 159 | 343 | 739 |
| 227 | Via Vista Dr | Alessandro Blvd | Canyon Hill Dr | 3,434 | 0 | 0 | 45 | 0 | 0 | 61.2 | 56.6 | 12 | 27 | 58 | 126 |
| 229 | Century Ave | Alessandro Blvd | Claridge Dr | 1,334 | 0 | 0 | 45 | 0 | 0 | 57.1 | 52.4 | 6 | 14 | 31 | 67 |
| 230 | Century Ave | Trafalgar Ave | Alessandro Blvd | 1,003 | 0 | 0 | 45 | 0 | 0 | 55.8 | 51.2 | 5 | 12 | 25 | 55 |
| 231 | Alessandro Blvd | Victoria Ave | Arlington Ave/Chicago Ave | 35,007 | 63 | 85 | 45 | 0 | 0 | 71.3 | 66.7 | 60 | 130 | 280 | 604 |
| 232 | Chicago Ave | Alessandro Blvd | Central Ave | 28,793 | 33 | 102 | 45 | 0 | 0 | 70.7 | 66.1 | 55 | 118 | 256 | 551 |
| 233 | Alessandro Blvd | Arlington Ave/Chicago Ave | Century Ave | 50,540 | 31 | 32 | 45 | 0 | 0 | 72.9 | 68.3 | 76 | 164 | 354 | 764 |
| 236 | Victoria Ave | Central Ave | Arlington Ave | 6,954 | 24 | 1 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 97 | 210 |
| 237 | Arlington Ave | Victoria Ave | Alessandro Blvd | 34,661 | 46 | 111 | 45 | 0 | 0 | 71.5 | 66.9 | 62 | 134 | 289 | 623 |
| 238 | Victoria Ave | Arlington Ave | Maude St | 12,741 | 34 | 15 | 45 | 0 | 0 | 67.0 | 62.4 | 31 | 67 | 145 | 312 |
| 239 | Arlington Ave | Maude St | Victoria Ave | 30,246 | 16 | 69 | 45 | 0 | 0 | 70.6 | 66.0 | 54 | 116 | 251 | 542 |
| 240 | Durango Rd | Laramie Rd | Arlington Ave | 1,877 | 0 | 0 | 45 | 0 | 0 | 58.6 | 53.9 | 8 | 18 | 39 | 84 |
| 241 | Horace St | Arlington Ave | Victoria Ave | 3,835 | 0 | 0 | 45 | 0 | 0 | 61.7 | 57.0 | 13 | 29 | 63 | 136 |
| 242 | Arlington Ave | Magnolia Ave | SR-91 WB On-Ramps | 32,939 | 4 | 66 | 45 | 0 | 0 | 71.2 | 66.6 | 59 | 128 | 276 | 595 |
| 243 | Riverside Dr | SR-91 WB Off-Ramps | Arlington Ave | 10,671 | 6 | 4 | 45 | 0 | 0 | 66.4 | 61.7 | 28 | 60 | 130 | 281 |
| 244 | SR-91 WB On-Ramps | Arlington Ave | SR-91 | 17,558 | 2 | 112 | 45 | 0 | 0 | 68.3 | 63.6 | 37 | 81 | 174 | 376 |
| 245 | SR-91 EB On-Ramps | SR-91 | Arlington Ave | 20,744 | 0 | 74 | 45 | 0 | 0 | 69.0 | 64.4 | 42 | 90 | 195 | 421 |
| 246 | Indiana Ave | Arlington Ave | SR-91 EB Off-Ramps | 15,682 | 12 | 12 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 75 | 162 | 350 |
| 247 | Arlington Ave | SR-91 WB On-Ramps | SR-91 EB On-Ramps | 35,141 | 15 | 95 | 45 | 0 | 0 | 71.3 | 66.7 | 59 | 129 | 278 | 599 |
| 250 | Country Club Dr | Chicago Ave | Canyon Crest Dr | 2,207 | 0 | 0 | 35 | 0 | 0 | 56.1 | 51.5 | 5 | 12 | 27 | 58 |
| 252 | Central Ave | Chicago Ave | Canyon Crest Dr | 20,979 | 40 | 102 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 95 | 205 | 442 |
| 254 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 16,980 | 24 | 24 | 45 | 0 | 0 | 68.2 | 63.5 | 37 | 79 | 172 | 370 |
| 256 | Canyon Crest Dr | Central Ave | Country Club Dr | 17,555 | 24 | 25 | 45 | 0 | 0 | 68.3 | 63.7 | 37 | 81 | 176 | 379 |
| 258 | El Cerrito Dr | Canyon Crest Dr | Central Ave | 6,184 | 0 | 12 | 45 | 0 | 0 | 63.7 | 59.1 | 18 | 40 | 87 | 188 |
| 260 | Central Ave | Canyon Crest Dr | I-215 | 20,638 | 46 | 113 | 45 | 0 | 0 | 69.2 | 64.6 | 43 | 93 | 202 | 435 |
| 261 | Lochmoor Dr | Central Ave | Fair Isle Dr | 3,541 | 2 | 0 | 35 | 6 | 0 | 52.2 | 47.6 | 3 | 6 | 14 | 31 |
| 262 | Sycamore Canyon Blvd | Central Ave | College Blvd | 11,014 | 3 | 2 | 35 | 0 | 0 | 63.2 | 58.5 | 17 | 37 | 79 | 172 |
| 263 | Central Ave | Sycamore Canyon Blvd | I-215 SB Ramps | 15,044 | 36 | 96 | 45 | 0 | 0 | 68.0 | 63.3 | 36 | 77 | 167 | 360 |
| 264 | I-215 SB Off-Ramps | I-215 | Central Ave | 2,526 | 24 | 16 | 45 | 0 | 0 | 61.9 | 57.3 | 14 | 30 | 66 | 142 |
| 265 | Central Ave | I-215 SB Ramps | I-215 NB Ramps | 14,639 | 48 | 109 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 83 | 179 | 386 |
| 266 | I-215 SB On-Ramps | Central Ave | I-215 | 22,100 | 40 | 56 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 208 | 448 |
| 267 | Watkins Dr | I-215 NB On-Ramp | I-215 NB Off-Ramp | 12,674 | 12 | 11 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 69 | 150 | 324 |

| ID | Arterial | From | To | 2012 + Phase 1 | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 268 | I-215 NB Off-Ramp | Watkins Dr | I-215 | 10,314 | 76 | 208 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 77 | 166 | 357 |
| 269 | Martin Luther King Blvd | SR-91 | Chicago Ave | 29,794 | 74 | 243 | 45 | 0 | 0 | 71.3 | 66.6 | 59 | 128 | 276 | 596 |
| 270 | Chicago Ave | University Ave | Martin Luther King Blvd | 23,152 | 0 | 12 | 45 | 0 | 0 | 69.5 | 64.8 | 45 | 97 | 210 | 453 |
| 271 | Martin Luther King Blvd | Chicago Ave | Iowa Ave | 25,970 | 69 | 231 | 45 | 0 | 0 | 70.8 | 66.2 | 56 | 120 | 260 | 560 |
| 272 | Chicago Ave | Martin Luther King Blvd | Central Ave | 24,107 | 0 | 6 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 100 | 216 | 465 |
| 273 | Iowa Ave | University Ave | Martin Luther King Blvd | 13,558 | 0 | 0 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 68 | 147 | 317 |
| 274 | Martin Luther King Blvd | Iowa Ave | Canyon Crest Dr | 32,152 | 74 | 231 | 45 | 0 | 0 | 71.7 | 67.1 | 63 | 137 | 296 | 639 |
| 275 | Canyon Crest Dr | Campus Dr | Martin Luther King Blvd | 11,588 | 0 | 1 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 61 | 132 | 286 |
| 276 | Martin Luther King Blvd | Canyon Crest Dr | I-215 SB Ramps | 26,649 | 62 | 225 | 45 | 0 | 0 | 70.9 | 66.3 | 56 | 121 | 262 | 565 |
| 277 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 22,892 | 0 | 0 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 208 | 449 |
| 278 | I-215 SB Off-Ramp | I-215 | Martin Luther King Blvd | 5,994 | 0 | 0 | 45 | 0 | 0 | 63.6 | 59.0 | 18 | 39 | 85 | 184 |
| 279 | Martin Luther King Blvd | I-215 SB Ramps | I-215 NB Ramps | 8,985 | 36 | 155 | 45 | 0 | 0 | 66.4 | 61.8 | 28 | 60 | 130 | 282 |
| 280 | I-215 SB On-Ramp | Martin Luther King Blvd | I-215 | 29,876 | 88 | 206 | 45 | 0 | 0 | 71.4 | 66.8 | 60 | 131 | 282 | 608 |
| 281 | I-215 NB On-Ramp | I-215 | Martin Luther King Blvd | 9,464 | 0 | 10 | 45 | 0 | 0 | 65.6 | 61.0 | 24 | 53 | 115 | 249 |
| 282 | I-215 NB Off-Ramp | Martin Luther King Blvd | I-215 | 8,458 | 72 | 300 | 45 | 0 | 0 | 66.9 | 62.2 | 30 | 65 | 140 | 303 |
| 283 | SR-60 EB Off-Ramp | SR-60 | Heacock St | 22,538 | 24 | 70 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 207 | 447 |
| 284 | SR-60 EB On-Ramp | Heacock St | SR-60 | 8,500 | 44 | 154 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 54 | 117 | 253 |
| 285 | Heacock St | SR-60 EB Ramps | Sunnymead Blvd | 25,702 | 22 | 68 | 45 | 0 | 0 | 70.2 | 65.6 | 50 | 109 | 235 | 508 |
| 286 | Perris Blvd | Hemlock Ave | SR-60 WB Ramps | 29,577 | 69 | 17 | 45 | 0 | 0 | 70.6 | 66.0 | 54 | 116 | 251 | 541 |
| 287 | Perris Blvd | SR-60 WB Ramps | Sunnymead Blvd | 32,787 | 107 | 109 | 45 | 0 | 0 | 71.2 | 66.5 | 58 | 126 | 273 | 588 |
| 288 | Sunnymead Blvd | SR-60 WB Off-Ramp | Perris Blvd | 22,794 | 162 | 121 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 100 | 215 | 464 |
| 289 | Sunnymead Blvd | Perris Blvd | SR-60 WB On-Ramp | 17,716 | 79 | 86 | 45 | 0 | 0 | 68.6 | 63.9 | 39 | 84 | 182 | 393 |
| 290 | Perris Blvd | Sunnymead Blvd | Fir Ave | 27,153 | 153 | 225 | 45 | 0 | 0 | 70.8 | 66.2 | 55 | 120 | 259 | 559 |
| 294 | Via Del Lago | South of Iris Ave | 0 | 815 | 0 | 0 | 45 | 0 | 0 | 54.9 | 50.3 | 4 | 10 | 22 | 48 |
| 301 | John F. Kennedy Dr | Indian St | Perris Blvd | 9,531 | 6 | 0 | 45 | 0 | 0 | 65.6 | 61.0 | 25 | 54 | 116 | 251 |
| 302 | John F. Kennedy Dr | Perris Blvd | Kitching St | 9,429 | 2 | 0 | 45 | 0 | 0 | 65.6 | 61.0 | 24 | 53 | 115 | 249 |
| 303 | Perris Blvd | John F. Kennedy Dr | Iris Ave | 15,612 | 95 | 166 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 77 | 166 | 358 |
| 304 | Iris Ave | Indian St | Perris Blvd | 12,933 | 27 | 47 | 45 | 0 | 0 | 67.0 | 62.4 | 31 | 67 | 144 | 311 |
| 306 | Perris Blvd | Iris Ave | Krameria Ave | 16,379 | 171 | 153 | 45 | 6 | 0 | 62.6 | 57.9 | 15 | 33 | 72 | 156 |
| 307 | Perris Blvd | Krameria Ave | Harley Know Blvd | 16,815 | 243 | 129 | 45 | 6 | 0 | 62.7 | 58.1 | 16 | 34 | 74 | 160 |
| 324 | Ramona Expy | Warren Rd | Sanderson Ave | 14,270 | 83 | 290 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 158 | 341 |
| 325 | Sanderson Ave | Gilman Springs Rd | Ramona Expy | 28,089 | 35 | 584 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 113 | 244 | 526 |
| 326 | Ramona Expy | Sanderson Ave | State St | 15,478 | 71 | 165 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 76 | 164 | 355 |
| 327 | Sanderson Ave | Ramona Expy | Ramona Blvd | 18,128 | 24 | 255 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 86 | 185 | 399 |
| 340 | Alessandro Blvd | South of San Timoteo Canyon R | 0 | 366 | 0 | 0 | 45 | 0 | 0 | 51.5 | 46.8 | 2 | 6 | 13 | 28 |
| 351 | Live Oak Canyon Rd | South of San Timoteo Canyon R | 0 | 236 | 0 | 0 | 45 | 0 | 0 | 49.5 | 44.9 | 2 | 4 | 9 | 21 |
| 358 | Gilman Springs Rd | Bridge St | SR-79 SB Ramps | 12,544 | 131 | 79 | 45 | 0 | 0 | 67.4 | 62.8 | 32 | 70 | 152 | 329 |
| 359 | SR-79 SB Off-Ramp | SR-79 | Gilman Springs Rd | 5,286 | 0 | 0 | 45 | 0 | 0 | 63.0 | 58.4 | 16 | 36 | 78 | 169 |
| 360 | Gilman Springs Rd | SR-79 SB Ramps | SR-79 NB Ramps | 11,305 | 86 | 42 | 45 | 0 | 0 | 66.8 | 62.1 | 29 | 64 | 138 | 299 |
| 361 | SR-79 SB On-Ramp | Gilman Springs Rd | SR-79 | 7,412 | 80 | 70 | 45 | 0 | 0 | 65.7 | 61.0 | 25 | 54 | 117 | 252 |
| 362 | SR-79 NB On-Ramp | SR-79 | Gilman Springs Rd | 4,508 | 24 | 70 | 45 | 0 | 0 | 62.5 | 57.9 | 15 | 33 | 72 | 156 |
| 363 | Gilman Springs Rd | SR-79 NB Ramps | Record Rd | 11,399 | 42 | 12 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 61 | 133 | 287 |
| 364 | SR-79 NB Off-Ramp | Gilman Springs Rd | SR-79 | 3,712 | 54 | 66 | 45 | 0 | 0 | 62.8 | 58.1 | 16 | 34 | 75 | 161 |

| ID | Arterial | From | To | 2012 + Phase 1 | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 365 | Alessandro Blvd | Sycamore Canyon Blvd | Vista Grande Dr | 38,597 | 33 | 57 | 45 | 0 | 0 | 71.8 | 67.1 | 64 | 138 | 298 | 643 |
| 366 | Sycamore Canyon Blvd | Eastridge Ave | Alessandro Blvd | 6,372 | 24 | 66 | 45 | 0 | 0 | 64.0 | 59.4 | 19 | 42 | 90 | 195 |
| 367 | Meridian Pkwy | Alessandro Blvd | Cactus Ave | 4,402 | 0 | 36 | 45 | 0 | 0 | 62.8 | 58.2 | 16 | 35 | 75 | 162 |
| 375 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 376 | 3rd St | Marvin Rd | Mid County Pkwy WB Ran | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 377 | Mid County Pkwy WB Off-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 378 | 3rd St | Mid County Pkwy EB Ramps | Mid County Pkwy WB Ran | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 379 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 380 | Mid County Pkwy EB On-Ramp | 3rd St | Mid County Pkwy | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 381 | 3rd St | Mid County Pkwy EB Ramps | MM Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 386 | Harley Know Blvd | Indian St | Perris Blvd | 4,531 | 71 | 142 | 45 | 0 | 0 | 62.9 | 58.3 | 16 | 35 | 77 | 166 |
| 387 | Perris Blvd | Krameria Ave | Harley Know Blvd | 14,446 | 174 | 371 | 45 | 6 | 0 | 62.0 | 57.4 | 14 | 31 | 67 | 144 |
| 388 | Krameria Ave | Lasselle St | Spirit Rd | 1,947 | 0 | 0 | 45 | 0 | 0 | 58.7 | 54.1 | 8 | 18 | 40 | 86 |
| 389 | El Cerrito Dr | South of Central Ave | 0 | 2,597 | 0 | 0 | 45 | 0 | 0 | 60.0 | 55.3 | 10 | 22 | 48 | 105 |
| 390 | Ramona Expy | Webster Ave | Indian St | 27,447 | 109 | 865 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 113 | 243 | 525 |
| 392 | Ramona Expy | Indian St | Perris Blvd | 27,236 | 142 | 505 | 45 | 0 | 0 | 70.5 | 65.9 | 52 | 113 | 245 | 529 |
| 393 | Indian St | Ramona Expy | Morgan St | 3,139 | 108 | 446 | 45 | 0 | 0 | 63.3 | 58.7 | 17 | 38 | 82 | 177 |
| 394 | Perris Blvd | Harley Know Blvd | Ramona Expy | 14,365 | 203 | 314 | 45 | 0 | 0 | 68.1 | 63.5 | 36 | 79 | 171 | 368 |
| 396 | Perris Blvd | Ramona Expy | Rider St | 16,039 | 108 | 119 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 172 | 372 |
| 397 | Ramona Expy | Perris Blvd | Evans Rd | 24,587 | 116 | 311 | 45 | 0 | 0 | 69.9 | 65.3 | 48 | 104 | 225 | 484 |
| 398 | Evans Rd | Marbella Gate | Ramona Expy | 19,675 | 110 | 0 | 45 | 6 | 0 | 63.0 | 58.4 | 16 | 36 | 78 | 168 |
| 399 | Ramona Expy | Evans Rd | Rider St | 17,269 | 59 | 229 | 55 | 6 | 0 | 64.8 | 60.2 | 22 | 47 | 103 | 221 |
| 400 | Evans Rd | Ramona Expy | Rider St | 12,579 | 19 | 6 | 45 | 0 | 0 | 66.9 | 62.3 | 30 | 65 | 142 | 306 |
| 401 | Morgan St | Indian St | Perris Blvd | 744 | 35 | 71 | 45 | 0 | 0 | 56.7 | 52.1 | 6 | 13 | 29 | 63 |
| 402 | Morgan St | Perris Blvd | Silver Creek Industries | 814 | 24 | 0 | 45 | 0 | 0 | 55.7 | 51.1 | 5 | 11 | 25 | 54 |
| 404 | Morgan St | Morgan Park | Evans Rd | 3,199 | 12 | 0 | 45 | 0 | 0 | 61.0 | 56.4 | 12 | 26 | 57 | 123 |
| 405 | Morgan St | Evans Rd | Bradley Rd | 3,162 | 0 | 12 | 45 | 0 | 0 | 60.8 | 56.2 | 12 | 25 | 55 | 120 |
| 406 | Ironwood Ave | East of Thedore St | 0 | 319 | 13 | 0 | 45 | 0 | 0 | 51.8 | 47.2 | 3 | 6 | 14 | 30 |
| 407 | Rider St | Indian St | Perris Blvd | 2,833 | 0 | 24 | 45 | 0 | 0 | 60.4 | 55.7 | 11 | 24 | 51 | 112 |
| 408 | Rider St | Perris Blvd | Redlands Ave | 8,246 | 0 | 2 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 49 | 106 | 229 |
| 409 | Ironwood Ave | Nason St | Moreno Beach Dr | 5,371 | 52 | 0 | 45 | 0 | 0 | 63.5 | 58.8 | 18 | 38 | 83 | 180 |
| 410 | Rider St | Wilson Ave | Evans Rd | 11,941 | 0 | 13 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 62 | 135 | 292 |
| 411 | Rider St | Evans Rd | Ramona Expy | 6,156 | 0 | 25 | 45 | 0 | 0 | 63.8 | 59.2 | 19 | 40 | 88 | 190 |
| 412 | Maude St | North of Arlington Ave | 0 | 212 | 0 | 0 | 45 | 0 | 0 | 49.1 | 44.5 | 1 | 4 | 9 | 19 |
| 413 | Placentia Ave | Indian St | Perris Blvd | 1,205 | 0 | 2 | 45 | 0 | 0 | 58.3 | 53.7 | 8 | 17 | 38 | 81 |
| 414 | Placentia Ave | Perris Blvd | Redlands Ave | 3,458 | 0 | 0 | 45 | 0 | 0 | 61.2 | 56.6 | 12 | 27 | 59 | 127 |
| 415 | Perris Blvd | Placentia Ave | Orange Ave | 16,692 | 64 | 31 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 174 | 375 |
| 416 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | Perris Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 417 | Mid County Pkwy WB Off-Ramp | Perris Blvd | Mid County Pkwy | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 419 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | Perris Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 420 | Mid County Pkwy EB On-Ramp | Perris Blvd | Mid County Pkwy | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 421 | Via Del Lago | South of Iris Ave | 0 | 378 | 0 | 0 | 45 | 0 | 0 | 51.6 | 47.0 | 2 | 6 | 13 | 29 |
| 424 | Perris Blvd | Alessandro Blvd | Cottonwood Ave | 21,134 | 118 | 124 | 45 | 6 | 0 | 63.2 | 58.6 | 17 | 37 | 80 | 174 |

| ID | Arterial | From | To | 2012 + Phase 1 | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 425 | Mid County Pkwy WB On-Ramp | West of Evan | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 426 | Mid County Pkwy WB Off-Ramp | East of Evan | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 427 | Day St | south of Alessandro Blvd | 0 | 626 | 2 | 61 | 45 | 0 | 0 | 55.3 | 50.7 | 5 | 11 | 23 | 51 |
| 428 | Mid County Pkwy EB Off-Ramp | West of Evan | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 429 | Mid County Pkwy EB On-Ramp | East of Evan | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 430 | Alessandro Blvd | SR-215 NB Ramp | SR-215 SB Ramp | 27,861 | 23 | 101 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 114 | 246 | 530 |
| 431 | Placentia Ave | Water Ave | Evans Rd | 0 | 0 | 0 | 35 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 432 | Placentia Ave | Evans Rd | El Nido Ave | 0 | 0 | 0 | 35 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 433 | Evans Rd | Rider St | Orange Ave | 6,219 | 5 | 0 | 45 | 0 | 0 | 63.8 | 59.2 | 19 | 41 | 88 | 190 |
| 434 | Orange Ave | Wilson Ave | Evans Rd | 4,925 | 0 | 12 | 45 | 0 | 0 | 62.8 | 58.1 | 16 | 34 | 75 | 162 |
| 435 | Orange Ave | Evans Rd | Foothill Dr | 2,808 | 0 | 12 | 35 | 0 | 0 | 57.2 | 52.6 | 6 | 14 | 31 | 68 |
| 436 | Elsworth St | south of Cactus Ave | 0 | 9,452 | 0 | 36 | 45 | 0 | 0 | 65.6 | 61.0 | 24 | 53 | 115 | 249 |
| 441 | Nuevo Rd | Wilson Ave | Evans Rd | 13,924 | 24 | 59 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 151 | 325 |
| 442 | Evans Rd | Orange Ave | Nuevo Rd | 5,195 | 1 | 6 | 45 | 0 | 0 | 63.0 | 58.4 | 16 | 36 | 77 | 167 |
| 443 | Nuevo Rd | Evans Rd | Foothill Dr | 10,828 | 24 | 47 | 45 | 0 | 0 | 66.2 | 61.6 | 27 | 59 | 128 | 276 |
| 444 | Evans Rd | Nuevo Rd | San Jacinto Ave | 0 | 0 | 0 | 45 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 452 | San Jacinto Ave | West of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 453 | Evans Rd | North of San Jancito Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 454 | San Jacinto Ave | East of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 455 | Evans Rd | South of San Jancito Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 458 | Nason St | South of Cactus Ave | 0 | 1,133 | 0 | 0 | 45 | 0 | 0 | 56.4 | 51.7 | 6 | 13 | 28 | 60 |
| 464 | Quincy | South of Eucalyptus | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 477 | Ellis Ave | West of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 478 | Evans Rd | North of Ellis Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 479 | Oliver St | South of Irris Ave | 0 | 2,644 | 12 | 0 | 45 | 0 | 0 | 60.2 | 55.6 | 10 | 23 | 50 | 108 |
| 480 | Ellis Ave | Evans Rd | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 481 | SR-215 SB Off-ramp | SR-215 | Ellis Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 482 | Ellis Ave | East of SR-215 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 483 | SR-215 SB On-ramp | Ellis Ave | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 484 | SR-215 NB On-ramp | Ellis Ave | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 485 | SR-215 NB Off-ramp | SR-215 | Ellis Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 488 | Nason St | North of Iris Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 494 | Evans Rd | North of Harley Knox Blvd | 0 | 0 | 0 | 0 | 45 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 498 | Morrison St | Alessandro Blvd | Cactus Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 499 | Perris Blvd | Eucalyptus Ave | Cottonwood Ave | 24,674 | 17 | 104 | 45 | 0 | 0 | 69.8 | 65.1 | 47 | 102 | 219 | 473 |
| 500 | Perris Blvd | North of Eucalyptus Ave | 0 | 25,843 | 18 | 116 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 114 | 247 | 532 |
| 502 | Quincy | Cottonwood Ave | Alessandro Blvd | 0 | 0 | 0 | 35 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 503 | Quincy | Alessandro Blvd | Cactus Ave | 0 | 0 | 0 | 35 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 504 | Krameria Ave | west of Perris Blvd | 0 | 3,601 | 30 | 0 | 45 | 0 | 0 | 61.6 | 57.0 | 13 | 29 | 63 | 136 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |

**2012 Plus Phase 1** **Total Noise Levels**

| ID | Freeway | From | 2012 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | SR-60 | SR-71/S Garey Ave to S Reservoir Rd | 196,670 | 4,010 | 15,970 | 65 | 0 | 0 | 85.3 | 80.7 | 495 | 1067 | 2299 | 4953 |
| 2 | SR-60 | S Reservoir Rd to Ramona Ave | 200,660 | 4,220 | 16,810 | 65 | 0 | 0 | 85.4 | 80.8 | 504 | 1085 | 2339 | 5040 |
| 3 | SR-60 | Ramona Ave to Central Ave | 189,130 | 4,090 | 16,210 | 65 | 0 | 0 | 85.2 | 80.6 | 486 | 1047 | 2256 | 4861 |
| 4 | SR-60 | Central Ave to Mountain Ave | 198,400 | 4,360 | 17,150 | 65 | 0 | 0 | 85.4 | 80.8 | 502 | 1083 | 2333 | 5027 |
| 5 | SR-60 | Mountain Ave to Euclid Ave | 192,040 | 4,260 | 16,700 | 65 | 0 | 0 | 85.3 | 80.7 | 492 | 1060 | 2285 | 4924 |
| 6 | SR-60 | Euclid Ave to Grove Ave | 209,770 | 4,680 | 18,420 | 65 | 0 | 0 | 85.7 | 81.0 | 522 | 1126 | 2426 | 5228 |
| 7 | SR-60 | Grove Ave to Vineyard Ave | 205,610 | 4,430 | 17,470 | 65 | 0 | 0 | 85.5 | 80.9 | 513 | 1106 | 2383 | 5135 |
| 8 | SR-60 | Vineyard Ave to Archibald Ave | 205,320 | 4,480 | 17,480 | 65 | 0 | 0 | 85.5 | 80.9 | 513 | 1106 | 2383 | 5135 |
| 9 | SR-60 | Archibald Ave to Haven Ave | 192,850 | 4,290 | 16,140 | 65 | 0 | 0 | 85.3 | 80.7 | 492 | 1061 | 2285 | 4924 |
| 10 | SR-60 | Haven Ave to Miliken Ave | 174,490 | 3,890 | 14,530 | 65 | 0 | 0 | 84.9 | 80.3 | 460 | 992 | 2137 | 4605 |
| 11 | SR-60 | Miliken Ave to SR-15 | 143,390 | 3,860 | 14,530 | 65 | 0 | 0 | 84.3 | 79.7 | 416 | 896 | 1931 | 4160 |
| 12 | SR-60 | I-15 to Etiwanda Ave | 102,720 | 2,890 | 9,900 | 65 | 0 | 0 | 83.0 | 78.4 | 332 | 716 | 1543 | 3326 |
| 13 | SR-60 | Etiwanda Ave to Mission Blvd/Country Village R | 113,430 | 2,870 | 9,980 | 65 | 0 | 0 | 83.3 | 78.7 | 349 | 753 | 1624 | 3499 |
| 14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 104,130 | 2,620 | 9,100 | 65 | 0 | 0 | 83.0 | 78.4 | 330 | 711 | 1532 | 3302 |
| 15 | SR-60 | Pedley Rd to Pyrite St | 95,880 | 2,360 | 8,340 | 65 | 0 | 0 | 82.7 | 78.1 | 312 | 672 | 1448 | 3120 |
| 16 | SR-60 | Pyrite St to Valley Way | 92,320 | 2,320 | 8,140 | 65 | 0 | 0 | 82.6 | 78.0 | 304 | 657 | 1415 | 3049 |
| 17 | SR-60 | Valley Way to Rubidoux Blvd | 127,560 | 3,080 | 10,560 | 65 | 0 | 0 | 83.8 | 79.1 | 375 | 809 | 1743 | 3755 |
| 18 | SR-60 | Rubidoux Blvd to Market St | 124,740 | 3,020 | 10,020 | 65 | 0 | 0 | 83.7 | 79.0 | 369 | 795 | 1713 | 3692 |
| 19 | SR-60 | Market St to Main St | 149,170 | 3,810 | 11,920 | 65 | 0 | 0 | 84.4 | 79.8 | 417 | 899 | 1937 | 4173 |
| 20 | SR-60 | Main St to SR-91 | 172,200 | 4,500 | 13,200 | 65 | 0 | 0 | 85.0 | 80.3 | 458 | 988 | 2129 | 4587 |
| 21 | SR-60 | SR-91 to W Blaine St/3rd St | 195,140 | 4,520 | 16,330 | 65 | 0 | 0 | 85.6 | 81.0 | 497 | 1072 | 2309 | 4976 |
| 22 | SR-60 | W Blaine St/3rd St to University Ave | 180,990 | 4,060 | 14,330 | 65 | 0 | 0 | 85.3 | 80.7 | 470 | 1013 | 2183 | 4704 |
| 23 | SR-60 | University Ave to Martin Luther King Blvd | 187,710 | 4,230 | 14,770 | 65 | 0 | 0 | 85.5 | 80.9 | 482 | 1038 | 2237 | 4820 |
| 24 | SR-60 | Martin Luther King Blvd to Central Ave | 232,940 | 5,450 | 19,280 | 65 | 0 | 0 | 86.4 | 81.7 | 559 | 1206 | 2598 | 5598 |
| 25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs Rd | 211,520 | 4,810 | 16,700 | 65 | 0 | 0 | 86.0 | 81.3 | 522 | 1125 | 2424 | 5223 |
| 26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 212,020 | 4,570 | 16,710 | 65 | 0 | 0 | 85.9 | 81.3 | 521 | 1123 | 2420 | 5214 |
| 27 | SR-60 | I-215 to Day St | 123,310 | 3,220 | 13,740 | 65 | 0 | 0 | 84.2 | 79.6 | 379 | 817 | 1760 | 3793 |
| 28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 124,830 | 3,150 | 14,870 | 65 | 0 | 0 | 84.3 | 79.7 | 384 | 828 | 1785 | 3846 |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | 105,180 | 2,620 | 12,660 | 65 | 0 | 0 | 83.7 | 79.1 | 343 | 739 | 1593 | 3433 |
| 30 | SR-60 | Heacock St to Perris Blvd | 88,860 | 2,220 | 10,840 | 65 | 0 | 0 | 83.2 | 78.6 | 307 | 662 | 1427 | 3074 |
| 31 | SR-60 | Perris Blvd to Nason St | 72,540 | 1,670 | 8,590 | 65 | 0 | 0 | 82.5 | 77.9 | 266 | 573 | 1235 | 2661 |
| 32 | SR-60 | Nason St to Moreno Beach Dr | 63,990 | 1,380 | 7,440 | 65 | 0 | 0 | 82.1 | 77.5 | 243 | 524 | 1129 | 2432 |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 44,970 | 860 | 4,720 | 65 | 0 | 0 | 81.1 | 76.4 | 188 | 406 | 876 | 1888 |
| 34 | SR-60 | Redlands Blvd to Theodore St | 35,980 | 1,000 | 5,820 | 65 | 0 | 0 | 80.9 | 76.2 | 177 | 382 | 825 | 1777 |
| 35 | SR-60 | Theodore St to Gilman Springs Rd | 36,440 | 1,000 | 5,810 | 65 | 0 | 0 | 79.1 | 74.5 | 178 | 384 | 828 | 1785 |
| 36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 29,710 | 730 | 4,630 | 65 | 0 | 0 | 78.0 | 73.3 | 154 | 331 | 715 | 1540 |
| 37 | SR-60 | Jack Rabbit Trail to I-10 | 29,700 | 730 | 4,630 | 65 | 0 | 0 | 78.0 | 73.3 | 154 | 331 | 715 | 1540 |
| 75 | SR-91 | I-15 to McKinley St | 198,300 | 3,020 | 9,640 | 65 | 0 | 0 | 85.0 | 80.4 | 479 | 1033 | 2225 | 4795 |
| 76 | SR-91 | McKinley St to Pierce St | 181,040 | 2,780 | 8,780 | 65 | 0 | 0 | 84.6 | 80.0 | 451 | 972 | 2095 | 4514 |
| 77 | SR-91 | Pierce St to Magnolia Ave | 170,890 | 2,520 | 8,420 | 65 | 0 | 0 | 84.4 | 79.8 | 433 | 934 | 2013 | 4338 |
| 78 | SR-91 | Magnolia Ave to La Sierra Ave | 182,640 | 2,970 | 9,980 | 65 | 0 | 0 | 84.7 | 80.1 | 456 | 984 | 2121 | 4569 |
| 79 | SR-91 | La Sierra Ave to Tyler St | 163,440 | 2,700 | 9,120 | 65 | 0 | 0 | 84.3 | 79.6 | 424 | 915 | 1972 | 4249 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80 | SR-91 | Tyler St to Van Buren Blvd | 196,590 | 1,940 | 6,550 | 65 | 0 | 0 | 84.8 | 80.2 | 466 | 1004 | 2163 | 4661 |
| 81 | SR-91 | Van Buren Blvd to Adam St | 182,340 | 1,730 | 5,990 | 65 | 0 | 0 | 84.5 | 79.9 | 442 | 953 | 2055 | 4427 |
| 82 | SR-91 | Adam St to Madison St | 169,390 | 1,500 | 5,320 | 65 | 0 | 0 | 84.2 | 79.6 | 420 | 906 | 1951 | 4205 |
| 83 | SR-91 | Madison St to Indiana Ave (off-ramp) | 162,800 | 1,390 | 4,850 | 65 | 0 | 0 | 84.0 | 79.4 | 408 | 881 | 1898 | 4089 |
| 84 | SR-91 | Arlington Ave to Central Ave | 134,970 | 1,390 | 4,910 | 65 | 0 | 0 | 83.3 | 78.7 | 363 | 783 | 1688 | 3636 |
| 85 | SR-91 | Central Ave to 14th St | 161,730 | 1,670 | 5,860 | 65 | 0 | 0 | 84.1 | 79.4 | 410 | 883 | 1904 | 4102 |
| 86 | SR-91 | 14th St to University Ave | 148,210 | 1,560 | 5,340 | 65 | 0 | 0 | 83.7 | 79.1 | 387 | 834 | 1797 | 3872 |
| 87 | SR-91 | University Ave to Spruce St (off-ramp) | 191,850 | 2,020 | 6,860 | 65 | 0 | 0 | 84.7 | 80.1 | 459 | 990 | 2134 | 4599 |
| 101 | I-10 | SR-60 to Beaumont Ave | 104,960 | 2,220 | 14,110 | 65 | 0 | 0 | 82.8 | 78.2 | 344 | 742 | 1600 | 3448 |
| 102 | I-10 | Beaumont Ave to Pennsylvania Ave | 106,600 | 2,260 | 14,380 | 65 | 0 | 0 | 82.9 | 78.3 | 348 | 751 | 1618 | 3486 |
| 103 | I-10 | Pennsylvania Ave to Highland Springs Ave | 111,720 | 2,400 | 15,010 | 65 | 0 | 0 | 83.1 | 78.5 | 359 | 775 | 1669 | 3597 |
| 104 | I-10 | Highland Springs Ave to Sunset Ave | 107,390 | 2,280 | 14,510 | 65 | 0 | 0 | 82.9 | 78.3 | 350 | 755 | 1626 | 3504 |
| 105 | I-10 | Sunset Ave to 22nd St | 104,810 | 2,210 | 14,220 | 65 | 0 | 0 | 82.8 | 78.2 | 344 | 743 | 1601 | 3449 |
| 106 | I-10 | 22nd St to S 8th St | 103,090 | 2,160 | 14,010 | 65 | 0 | 0 | 82.7 | 78.1 | 341 | 734 | 1583 | 3411 |
| 107 | I-10 | S 8th St to S Hargrave St | 103,070 | 2,140 | 14,070 | 65 | 0 | 0 | 82.7 | 78.1 | 341 | 734 | 1583 | 3411 |
| 108 | I-10 | S Hargrave St to Field Rd | 92,690 | 1,940 | 12,640 | 65 | 0 | 0 | 82.3 | 77.7 | 317 | 684 | 1475 | 3179 |
| 109 | I-10 | Field Rd  to Main St (Cabazon) | 88,380 | 1,780 | 12,140 | 65 | 0 | 0 | 82.1 | 77.5 | 307 | 662 | 1428 | 3077 |
| 110 | I-10 | Main St (Cabazon) to Main St | 78,070 | 1,580 | 10,740 | 65 | 0 | 0 | 81.6 | 76.9 | 283 | 610 | 1315 | 2834 |
| 111 | I-10 | Main St to Haugen-Lehmann Way | 78,070 | 1,590 | 10,720 | 65 | 0 | 0 | 81.6 | 76.9 | 283 | 610 | 1315 | 2834 |
| 112 | I-10 | Haugen-Lehmann Way to SR-111 | 78,070 | 1,590 | 10,730 | 65 | 0 | 0 | 81.6 | 76.9 | 283 | 610 | 1315 | 2835 |
| 113 | I-10 | SR-111 to Tipton Rd | 67,820 | 1,360 | 9,350 | 65 | 0 | 0 | 81.0 | 76.3 | 258 | 555 | 1197 | 2580 |
| 114 | I-10 | Tipton Rd to SR-62 | 67,860 | 1,360 | 9,350 | 65 | 0 | 0 | 81.0 | 76.3 | 258 | 556 | 1198 | 2581 |
| 129 | SR-215 | Scott Rd to Newport Rd | 78,870 | 1,540 | 3,720 | 65 | 0 | 0 | 81.0 | 76.4 | 262 | 565 | 1217 | 2622 |
| 130 | SR-215 | Newport Rd to MacCall Blvd | 67,520 | 1,320 | 3,170 | 65 | 0 | 0 | 80.4 | 75.7 | 236 | 509 | 1097 | 2364 |
| 131 | SR-215 | MacCall Blvd to Ethanac Rd | 73,740 | 1,470 | 3,340 | 65 | 0 | 0 | 80.8 | 76.1 | 250 | 540 | 1163 | 2507 |
| 132 | SR-215 | Ethanac Rd to SR-74/Case | 96,600 | 1,890 | 4,420 | 65 | 0 | 0 | 81.9 | 77.3 | 299 | 646 | 1392 | 2999 |
| 133 | SR-215 | SR-74/Case Rd to Redlands Blvd | 112,210 | 3,660 | 8,740 | 65 | 0 | 0 | 82.9 | 78.3 | 351 | 756 | 1629 | 3511 |
| 167 | SR-215 | Redlands Blvd to D St | 96,100 | 3,080 | 7,880 | 65 | 0 | 0 | 82.2 | 77.6 | 317 | 683 | 1472 | 3173 |
| 168 | SR-215 | D St to Nuevo St/Harvil Ave | 96,930 | 3,240 | 7,580 | 65 | 0 | 0 | 82.3 | 77.7 | 319 | 687 | 1481 | 3192 |
| 169 | SR-215 | Nuevo St/Harvil Ave to Ramona Expy/Cajalco Ex | 95,060 | 3,140 | 7,460 | 65 | 0 | 0 | 82.2 | 77.6 | 314 | 678 | 1461 | 3149 |
| 171 | SR-215 | Ramona Expy/Cajalco Expy to Harley Knox Blvd | 107,690 | 3,590 | 8,550 | 65 | 0 | 0 | 82.7 | 78.1 | 342 | 738 | 1590 | 3427 |
| 172 | SR-215 | Harley Knox Blvd to Van Buren Blvd | 113,810 | 3,820 | 8,960 | 65 | 0 | 0 | 83.0 | 78.3 | 355 | 766 | 1650 | 3556 |
| 173 | SR-215 | Van Buren Blvd to Cactus Ave | 109,860 | 3,650 | 8,730 | 65 | 0 | 0 | 82.8 | 78.2 | 347 | 748 | 1611 | 3472 |
| 174 | SR-215 | Cactus Ave to Alessandro Blvd | 117,150 | 3,200 | 7,600 | 65 | 0 | 0 | 82.9 | 78.3 | 352 | 759 | 1637 | 3527 |
| 175 | SR-215 | Alessandro Blvd to Eucalyptus Ave | 114,350 | 3,050 | 7,570 | 65 | 0 | 0 | 82.8 | 78.2 | 346 | 747 | 1609 | 3468 |
| 176 | SR-215 | Eucalyptus Ave to SR-60 | 121,320 | 3,180 | 8,110 | 65 | 0 | 0 | 83.1 | 78.4 | 360 | 776 | 1673 | 3605 |
| 134 | SR-215 | SR-60 to Columbia Ave | 180,140 | 3,470 | 7,520 | 65 | 0 | 0 | 84.5 | 79.9 | 453 | 976 | 2103 | 4530 |
| 135 | SR-215 | Columbia Ave to Center St | 151,250 | 2,920 | 6,210 | 65 | 0 | 0 | 83.8 | 79.2 | 403 | 868 | 1871 | 4031 |
| 136 | SR-215 | Center St to Iowa Ave/La Cadena Dr | 150,570 | 2,900 | 6,200 | 65 | 0 | 0 | 83.7 | 79.1 | 401 | 865 | 1865 | 4019 |
| 137 | SR-215 | Iowa Ave/La Cadena Dr to Barton Rd | 147,430 | 2,960 | 6,250 | 65 | 0 | 0 | 83.6 | 79.0 | 397 | 856 | 1844 | 3974 |
| 138 | SR-215 | Barton Rd to Mt Vernon Ave/Washington St | 154,080 | 3,090 | 6,530 | 65 | 0 | 0 | 83.8 | 79.2 | 409 | 881 | 1899 | 4092 |
| 139 | SR-215 | Mt Vernon Ave/Washington St to I-10 | 155,380 | 3,160 | 6,720 | 65 | 0 | 0 | 83.8 | 79.2 | 412 | 887 | 1912 | 4120 |
| 140 | SR-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 124,270 | 1,790 | 5,190 | 65 | 0 | 0 | 82.8 | 78.1 | 349 | 752 | 1620 | 3490 |
| 141 | SR-215 | Auto Plaza Dr/Orange Show Rd to Mill St | 113,650 | 1,570 | 4,720 | 65 | 0 | 0 | 82.4 | 77.7 | 328 | 707 | 1523 | 3283 |
| 142 | SR-215 | Mill St to 2rd St | 129,820 | 2,030 | 6,010 | 65 | 0 | 0 | 83.0 | 78.4 | 361 | 778 | 1678 | 3615 |
| 143 | SR-215 | 2rd St to Baseline Rd | 111,530 | 1,900 | 5,460 | 65 | 0 | 0 | 82.4 | 77.7 | 328 | 707 | 1524 | 3284 |
| 144 | SR-215 | Baseline Rd to Highland Ave/SR-210 | 118,190 | 2,520 | 9,520 | 65 | 0 | 0 | 82.8 | 78.2 | 353 | 761 | 1640 | 3535 |

| 2012 Plus Project Case | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2012 + Project | | | | | | | | Distance from Centerline (ft) | | | |
| ID | Arterial | From | To | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | Street A | State Route 60 | Eucalyptus Ave | 22,666 | 3,097 | 9,375 | 45 | 0 | 0 | 77.3 | 72.6 | 149 | 322 | 695 | 1498 |
| 2 | Street A | Eucalyptus Ave | Street F | 23,663 | 3,202 | 9,941 | 45 | 0 | 0 | 77.4 | 72.8 | 154 | 332 | 716 | 1543 |
| 3 | Street E | west of Street A | 0 | 8,688 | 1,154 | 3,477 | 45 | 0 | 0 | 72.9 | 68.3 | 76 | 164 | 354 | 764 |
| 4 | Street E | north of Alessandro Blvd | 0 | 5,579 | 247 | 32 | 45 | 0 | 0 | 65.5 | 60.9 | 24 | 53 | 114 | 246 |
| 5 | Street E | Street D | Street A | 10,084 | 525 | 51 | 45 | 0 | 0 | 68.1 | 63.4 | 36 | 78 | 169 | 365 |
| 6 | Street A | Street F | Street C | 11,250 | 1,408 | 3,983 | 45 | 0 | 0 | 73.5 | 68.9 | 84 | 182 | 392 | 844 |
| 7 | Street A | south of Street C | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 8 | Street D | Street E | Cactus Ave | 13,661 | 765 | 0 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 100 | 215 | 464 |
| 9 | John F Kennedy Dr | south of Cactus Ave | 0 | 12,474 | 604 | 0 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 87 | 188 | 405 |
| 10 | Redlands Blvd | Alessandro Blvd | Cactus Ave | 3,132 | 78 | 0 | 45 | 0 | 0 | 60.9 | 56.2 | 12 | 26 | 56 | 120 |
| 11 | Redlands Blvd | Dracaea Ave | Alessandro Blvd | 3,994 | 43 | 0 | 45 | 0 | 0 | 61.5 | 56.9 | 13 | 28 | 62 | 134 |
| 12 | Redlands Blvd | Eucalyptus Ave | Dracaea Ave | 9,412 | 39 | 47 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 126 | 272 |
| 13 | Redlands Blvd | State Route 60 | Eucalyptus Ave | 9,501 | 137 | 769 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 77 | 165 | 357 |
| 14 | Eucalyptus Ave | east of Redlands Blvd | 0 | 4,442 | 192 | 705 | 45 | 0 | 0 | 66.0 | 61.3 | 26 | 57 | 123 | 265 |
| 15 | Eucalyptus Ave | west of Street A | 0 | 2,151 | 174 | 811 | 45 | 0 | 0 | 66.6 | 61.9 | 29 | 62 | 134 | 290 |
| 18 | Street B | east of Street A | 0 | 1,852 | 179 | 382 | 45 | 0 | 0 | 63.8 | 59.2 | 18 | 40 | 87 | 189 |
| 18a | Street B | west of Gilman Springs Rd | 0 | 854 | 69 | 84 | 45 | 0 | 0 | 59.0 | 54.4 | 9 | 19 | 42 | 91 |
| 19 | Street F | east of Street A | 0 | 2,939 | 393 | 1,255 | 45 | 0 | 0 | 68.5 | 63.8 | 38 | 83 | 180 | 389 |
| 20 | Street F | north of Street C | 0 | 1,972 | 126 | 50 | 45 | 0 | 0 | 61.5 | 56.9 | 13 | 28 | 62 | 134 |
| 21 | Street C | east of Street A | 0 | 11,952 | 1,085 | 2,179 | 45 | 0 | 0 | 71.5 | 66.9 | 62 | 133 | 288 | 621 |
| 22 | Street C | west of Street F | 0 | 12,611 | 1,080 | 2,190 | 45 | 0 | 0 | 71.6 | 66.9 | 62 | 134 | 290 | 624 |
| 23 | Street F | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 24 | Street C | Street F | Street H | 8,520 | 675 | 1,200 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 207 | 447 |
| 25 | Street C | Street H | Gilman Springs Rd | 9,661 | 770 | 1,858 | 45 | 0 | 0 | 70.7 | 66.1 | 54 | 117 | 253 | 546 |
| 26 | Street H | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 27 | Street G | east of Street H | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 28 | Street G | Street F | Street H | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 29 | Gilman Springs Rd | State Route 60 | Eucalyptus Ave | 13,278 | 597 | 2,104 | 45 | 0 | 0 | 72.3 | 67.7 | 70 | 152 | 327 | 705 |
| 30 | Gilman Springs Rd | Eucalyptus Ave | Street C | 12,056 | 427 | 1,642 | 45 | 0 | 0 | 72.1 | 67.5 | 67 | 146 | 314 | 677 |
| 31 | Gilman Springs Rd | south of Street C | 0 | 14,289 | 307 | 584 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 86 | 185 | 399 |
| 32 | Cactus Ave | west of Redlands Blvd | 0 | 3,879 | 101 | 0 | 45 | 0 | 0 | 62.8 | 58.2 | 16 | 35 | 75 | 163 |
| 33 | Alessandro Blvd | west of Redlands Blvd | 0 | 4,184 | 52 | 6 | 45 | 0 | 0 | 62.6 | 57.9 | 15 | 33 | 72 | 156 |
| 35 | Redlands Blvd | Ironwood Ave | State Route 60 | 13,410 | 59 | 668 | 55 | 0 | 0 | 72.3 | 67.7 | 69 | 150 | 324 | 698 |
| 36 | Ironwood Ave | Redlands Blvd | Highland Blvd | 2,025 | 254 | 0 | 35 | 0 | 0 | 60.1 | 55.5 | 10 | 23 | 49 | 107 |
| 37 | San Timoteo Canyon Rd | West Live Oak Canyon | 0 | 8,117 | 212 | 575 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 208 | 448 |
| 38 | Theodore St | State Route 60 | Highland Blvd | 3,300 | 521 | 196 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 54 | 118 | 254 |
| 42 | Redlands Blvd | Ironwood Ave | San Timoteo Canyon Rd | 15,781 | 415 | 639 | 55 | 0 | 0 | 72.3 | 67.7 | 70 | 151 | 326 | 703 |
| 43 | Moreno Beach Dr | Alessandro Blvd | SR 60 | 19,153 | 19 | 87 | 45 | 0 | 0 | 68.8 | 64.2 | 41 | 88 | 190 | 410 |
| 46 | Moreno Beach Dr | State Route 60 | Ironwood Ave | 10,434 | 4 | 64 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 125 | 270 |
| 47 | Ironwood Ave | Moreno Beach Dr | Redlands Blvd | 3,832 | 27 | 12 | 45 | 6 | 0 | 55.9 | 51.3 | 5 | 12 | 26 | 56 |
| 48 | Alessandro Blvd | Lasselle St | Morrison St | 8,912 | 23 | 416 | 45 | 6 | 0 | 59.7 | 55.1 | 10 | 21 | 47 | 101 |
| 50 | Cactus Ave | Redlands Blvd | Street D | 13,616 | 765 | 0 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 99 | 214 | 462 |

| ID | Arterial | From | To | 2012 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 51 | Moreno Beach Dr | John F Kennedy Dr | Cactus Ave | 14,780 | 9 | 18 | 45 | 6 | 0 | 61.6 | 57.0 | 13 | 29 | 63 | 136 |
| 52 | Moreno Beach Dr | John F Kennedy Dr | Oliver St | 20,948 | 573 | 6 | 35 | 6 | 0 | 61.4 | 56.8 | 13 | 28 | 61 | 132 |
| 53 | John F Kennedy Dr | Oliver St | Moreno Beach Dr | 2,627 | 10 | 12 | 45 | 6 | 0 | 54.3 | 49.7 | 4 | 9 | 20 | 44 |
| 54 | Locust Ave | Moreno Beach Dr | Smiley Blvd | 107 | 0 | 0 | 35 | 0 | 0 | 43.0 | 38.4 | 0 | 1 | 3 | 7 |
| 55 | Locust Ave | Moreno Beach Dr | Redlands Blvd | 1,786 | 8 | 0 | 45 | 0 | 0 | 59.0 | 54.4 | 9 | 19 | 42 | 90 |
| 56 | Moreno Beach Dr | Locust Ave | Ironwood Ave | 2,623 | 6 | 0 | 35 | 0 | 0 | 57.3 | 52.7 | 7 | 15 | 32 | 70 |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | 0 | 6,401 | 267 | 0 | 45 | 0 | 0 | 65.3 | 60.7 | 24 | 51 | 111 | 240 |
| 58 | SR 60 EB Ramps | west of Moreno Beach Dr | 0 | 13,135 | 9 | 92 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 67 | 146 | 315 |
| 59 | Eucalyptus Ave | Moreno Beach Dr | Quincy Dr | 2,619 | 12 | 8 | 45 | 0 | 0 | 60.1 | 55.5 | 10 | 23 | 50 | 108 |
| 60 | SR 60 WB Ramps | east of Redlands Blvd | 0 | 5,512 | 145 | 583 | 45 | 0 | 0 | 67.2 | 62.6 | 32 | 69 | 148 | 320 |
| 61 | SR 60 EB Ramps | west of Redlands Blvd | 0 | 6,130 | 27 | 339 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 64 | 138 | 297 |
| 62 | Fir Ave | Quincy Dr | Redlands Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 65 | Alessandro Blvd | Nason St | Oliver St | 8,396 | 21 | 23 | 45 | 0 | 0 | 65.3 | 60.7 | 23 | 51 | 111 | 239 |
| 66 | Alessandro Blvd | Oliver St | Moreno Beach Dr | 6,697 | 33 | 24 | 45 | 0 | 0 | 64.4 | 59.8 | 20 | 45 | 96 | 208 |
| 67 | Oliver St | Alessandro Blvd | Cactus Ave | 2,183 | 0 | 0 | 35 | 0 | 0 | 56.5 | 51.8 | 6 | 13 | 28 | 61 |
| 68 | Moreno Beach Dr | Alessandro Blvd | Cactus Ave | 15,688 | 10 | 36 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 75 | 163 | 351 |
| 69 | Cactus Ave | Nason St | Oliver St | 7,693 | 61 | 4 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 49 | 106 | 229 |
| 70 | Cactus Ave | Oliver St | Moreno Beach Dr | 8,692 | 91 | 0 | 45 | 6 | 0 | 59.8 | 55.2 | 10 | 22 | 47 | 102 |
| 71 | Oliver St | Cactus Ave | John F Kennedy Dr | 4,921 | 0 | 0 | 45 | 0 | 0 | 62.7 | 58.1 | 16 | 34 | 74 | 161 |
| 72 | Oliver St | John F Kennedy Dr | Iris Ave | 3,291 | 0 | 0 | 45 | 0 | 0 | 61.0 | 56.4 | 12 | 26 | 57 | 123 |
| 73 | Iris Ave | Nason St | Oliver St | 22,606 | 570 | 0 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 115 | 247 | 533 |
| 74 | Heacock St | Manzanita Ave | Ironwood Ave | 21,195 | 9 | 12 | 45 | 0 | 0 | 69.1 | 64.5 | 42 | 92 | 198 | 428 |
| 75 | Ironwood Ave | Graham St | Heacock St | 14,422 | 26 | 7 | 45 | 0 | 0 | 67.5 | 62.9 | 33 | 72 | 155 | 335 |
| 76 | Ironwood Ave | Heacock St | Indian Ave | 11,367 | 8 | 0 | 45 | 0 | 0 | 66.4 | 61.8 | 28 | 61 | 131 | 283 |
| 77 | Heacock St | Ironwood Ave | Hemlock Ave | 22,413 | 24 | 19 | 45 | 0 | 0 | 69.4 | 64.8 | 45 | 97 | 209 | 452 |
| 80 | Heacock St | Hemlock Ave | SR 60 WB Ramps | 26,393 | 50 | 8 | 45 | 0 | 0 | 70.1 | 65.5 | 50 | 108 | 232 | 501 |
| 81 | SR 60 WB Ramps | west of Heacock St | 0 | 18,644 | 0 | 70 | 45 | 0 | 0 | 68.5 | 63.9 | 39 | 84 | 182 | 392 |
| 82 | SR 60 WB Ramps | east of Heacock St | 0 | 7,895 | 83 | 125 | 45 | 0 | 0 | 65.5 | 60.8 | 24 | 52 | 113 | 244 |
| 83 | Heacock St | SR 60 WB Ramps | SR 60 EB Ramps | 27,373 | 42 | 68 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 239 | 515 |
| 85 | SR 60 WB Onramp | west of Perris Blvd | 0 | 17,772 | 0 | 48 | 45 | 0 | 0 | 68.5 | 63.8 | 38 | 83 | 180 | 387 |
| 86 | SR 60 WB Offramp | east of Perris Blvd | 0 | 6,377 | 136 | 230 | 45 | 0 | 0 | 66.0 | 61.4 | 26 | 57 | 123 | 265 |
| 87 | Eucalyptus Ave | Indian St | Perris Blvd | 5,110 | 0 | 0 | 45 | 0 | 0 | 62.9 | 58.3 | 16 | 35 | 76 | 165 |
| 88 | Eucalyptus Ave | Perris Blvd | Kitching St | 6,478 | 2 | 12 | 45 | 0 | 0 | 64.0 | 59.3 | 19 | 41 | 90 | 194 |
| 95 | W 6th St | I-10 | N California Ave | 10,424 | 39 | 46 | 45 | 0 | 0 | 66.3 | 61.6 | 27 | 59 | 128 | 277 |
| 96 | N California Ave | W 6th St | E 8th St | 1,791 | 2 | 4 | 45 | 0 | 0 | 58.6 | 54.0 | 8 | 18 | 39 | 85 |
| 97 | E 6th St | N California Ave | Beaumont Ave | 7,677 | 28 | 8 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 48 | 105 | 227 |
| 98 | N California Ave | W 6th St | I-10 | 5,948 | 2 | 35 | 45 | 0 | 0 | 63.8 | 59.2 | 19 | 40 | 88 | 190 |
| 99 | Beaumont Ave | E 6th St | E 8th St | 10,843 | 24 | 36 | 45 | 0 | 0 | 66.3 | 61.6 | 27 | 59 | 128 | 277 |
| 100 | I-215 SB Ramps | north of Alessandro Blvd | 0 | 7,487 | 25 | 54 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 48 | 103 | 222 |
| 101 | Alessandro Blvd | Sycamore Canyon Blvd | I-215 SB Ramps | 35,220 | 54 | 88 | 45 | 0 | 0 | 71.4 | 66.8 | 61 | 132 | 284 | 612 |
| 102 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 12,368 | 24 | 0 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 64 | 139 | 301 |
| 103 | I-215 NB Ramps | north of Alessandro Blvd | 0 | 15,157 | 97 | 244 | 45 | 0 | 0 | 68.0 | 63.4 | 36 | 78 | 168 | 363 |
| 104 | Alessandro Blvd | I-215 NB Ramps | Old 215 Frontage Rd | 25,429 | 16 | 172 | 45 | 0 | 0 | 70.0 | 65.4 | 49 | 106 | 229 | 494 |

| ID | Arterial | From | To | 2012 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 105 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 11,565 | 0 | 48 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 61 | 132 | 286 |
| 106 | Old 215 Frontage Rd | Eucalyptus Ave | Alessandro Blvd | 6,816 | 1 | 24 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 93 | 201 |
| 107 | Alessandro Blvd | Old 215 Frontage Rd | Day St | 23,302 | 19 | 154 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 99 | 213 | 460 |
| 108 | Old 215 Frontage Rd | Alessandro Blvd | Cactus Ave | 1,399 | 6 | 77 | 45 | 0 | 0 | 57.8 | 53.1 | 7 | 16 | 34 | 75 |
| 109 | Day St | Cottonwood Ave | Alessandro Blvd | 1,759 | 5 | 0 | 35 | 0 | 0 | 55.3 | 50.7 | 5 | 11 | 23 | 51 |
| 110 | Alessandro Blvd | Day St | Elsworth St | 24,182 | 33 | 92 | 45 | 0 | 0 | 69.7 | 65.1 | 47 | 101 | 219 | 473 |
| 111 | Elsworth St | Cottonwood Ave | Alessandro Blvd | 7,555 | 12 | 0 | 35 | 0 | 0 | 61.5 | 56.9 | 13 | 28 | 62 | 133 |
| 112 | Alessandro Blvd | Elsworth St | Frederick St | 26,120 | 42 | 136 | 45 | 0 | 0 | 70.1 | 65.5 | 50 | 108 | 233 | 503 |
| 113 | Elsworth St | Alessandro Blvd | Cactus Ave | 7,224 | 9 | 56 | 45 | 0 | 0 | 65.1 | 60.5 | 23 | 50 | 107 | 232 |
| 114 | Frederick St | Cottonwood Ave | Alessandro Blvd | 16,430 | 9 | 47 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 82 | 178 | 384 |
| 115 | Alessandro Blvd | Frederick St | Graham St | 28,235 | 33 | 79 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 112 | 243 | 524 |
| 116 | Frederick St | Alessandro Blvd | Cactus Ave | 9,288 | 0 | 16 | 45 | 0 | 0 | 65.6 | 60.9 | 24 | 53 | 115 | 249 |
| 117 | Graham St | Cottonwood Ave | Alessandro Blvd | 7,025 | 0 | 12 | 45 | 0 | 0 | 64.3 | 59.7 | 20 | 44 | 95 | 204 |
| 118 | Alessandro Blvd | Graham St | Heacock St | 27,211 | 33 | 52 | 45 | 0 | 0 | 70.3 | 65.6 | 51 | 110 | 237 | 511 |
| 119 | Graham St | Alessandro Blvd | Cactus Ave | 6,831 | 1 | 39 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 94 | 202 |
| 120 | Heacock St | Cottonwood Ave | Alessandro Blvd | 14,974 | 24 | 35 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 158 | 341 |
| 121 | Alessandro Blvd | Heacock St | Indian St | 24,332 | 34 | 90 | 45 | 0 | 0 | 69.8 | 65.2 | 47 | 102 | 220 | 475 |
| 122 | Heacock St | Alessandro Blvd | Cactus Ave | 11,473 | 20 | 31 | 45 | 6 | 0 | 60.8 | 56.2 | 11 | 25 | 55 | 119 |
| 123 | Indian St | Cottonwood Ave | Alessandro Blvd | 12,065 | 24 | 47 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 63 | 137 | 296 |
| 124 | Alessandro Blvd | Indian St | Perris Blvd | 23,801 | 71 | 84 | 45 | 0 | 0 | 69.7 | 65.1 | 47 | 101 | 219 | 472 |
| 125 | Indian St | Alessandro Blvd | Cactus Ave | 10,518 | 13 | 24 | 45 | 6 | 0 | 60.1 | 55.5 | 10 | 23 | 49 | 107 |
| 126 | Alessandro Blvd | Perris Blvd | Kitching St | 17,575 | 36 | 46 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 83 | 179 | 387 |
| 127 | Perris Blvd | Alessandro Blvd | Cactus Ave | 19,523 | 60 | 144 | 45 | 6 | 0 | 62.8 | 58.2 | 16 | 35 | 75 | 163 |
| 128 | Kitching St | Cottonwood Ave | Alessandro Blvd | 7,504 | 0 | 12 | 45 | 0 | 0 | 64.6 | 60.0 | 21 | 46 | 99 | 214 |
| 129 | Alessandro Blvd | Kitching St | Lasselle St | 12,263 | 9 | 83 | 45 | 0 | 0 | 66.9 | 62.2 | 30 | 65 | 141 | 303 |
| 130 | Kitching St | Alessandro Blvd | Cactus Ave | 7,184 | 1 | 0 | 45 | 6 | 0 | 58.4 | 53.8 | 8 | 17 | 38 | 82 |
| 131 | Lasselle St | Cottonwood Ave | Alessandro Blvd | 7,411 | 0 | 12 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 212 |
| 133 | Lasselle St | Alessandro Blvd | Cactus Ave | 11,971 | 0 | 95 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 62 | 135 | 292 |
| 134 | Morrison St | Cottonwood Ave | Alessandro Blvd | 2,099 | 1 | 2 | 45 | 0 | 0 | 59.4 | 54.8 | 9 | 20 | 44 | 96 |
| 135 | Alessandro Blvd | Morrison St | Nason St | 8,236 | 31 | 301 | 50 | 6 | 0 | 60.6 | 56.0 | 11 | 25 | 54 | 116 |
| 136 | Nason St | Cottonwood Ave | Alessandro Blvd | 8,083 | 0 | 0 | 45 | 0 | 0 | 64.9 | 60.3 | 22 | 48 | 104 | 224 |
| 137 | Nason St | Alessandro Blvd | Cactus Ave | 7,918 | 6 | 0 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 47 | 103 | 222 |
| 138 | I-215 SB Ramps | north of Cactus Ave | 0 | 966 | 28 | 48 | 45 | 0 | 0 | 56.7 | 52.1 | 6 | 13 | 29 | 64 |
| 139 | Cactus Ave | Meridian Pkwy | I-215 SB Ramps | 6,201 | 39 | 97 | 45 | 0 | 0 | 64.0 | 59.4 | 19 | 42 | 90 | 196 |
| 140 | I-215 SB Ramps | south of Cactus Ave | 0 | 18,967 | 50 | 26 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 86 | 187 | 402 |
| 141 | Cactus Ave | I-215 NB Ramps | Elsworth St | 23,437 | 32 | 192 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 99 | 214 | 461 |
| 142 | I-215 NB Ramps | south of Cactus Ave | 0 | 1,490 | 6 | 72 | 45 | 0 | 0 | 58.2 | 53.5 | 7 | 17 | 37 | 79 |
| 143 | Cactus Ave | Elsworth St | Frederick St | 30,781 | 43 | 202 | 45 | 0 | 0 | 70.8 | 66.1 | 55 | 119 | 256 | 553 |
| 144 | Cactus Ave | Frederick St | Graham St | 33,948 | 91 | 148 | 45 | 0 | 0 | 71.2 | 66.6 | 59 | 127 | 275 | 593 |
| 145 | Cactus Ave | Graham St | Heacock St | 27,666 | 47 | 100 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 239 | 515 |
| 146 | Riverside Dr | Cactus Ave | Meyer Dr | 8,779 | 36 | 0 | 45 | 0 | 0 | 65.4 | 60.7 | 24 | 52 | 112 | 241 |
| 147 | Cactus Ave | Heacock St | Indian St | 17,606 | 26 | 30 | 45 | 0 | 0 | 68.4 | 63.7 | 38 | 82 | 177 | 382 |
| 148 | Heacock St | Cactus Ave | John F Kennedy Dr | 19,342 | 15 | 102 | 45 | 6 | 0 | 62.7 | 58.1 | 16 | 34 | 74 | 161 |

| ID | Arterial | From | To | 2012 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 149 | Cactus Ave | Indian St | Perris Blvd | 16,040 | 33 | 18 | 45 | 0 | 0 | 68.0 | 63.4 | 36 | 77 | 167 | 360 |
| 150 | Indian St | Cactus Ave | John F Kennedy Dr | 9,192 | 0 | 12 | 45 | 6 | 0 | 59.5 | 54.8 | 9 | 21 | 45 | 97 |
| 151 | Cactus Ave | Perris Blvd | Kitching St | 15,710 | 38 | 0 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 76 | 165 | 357 |
| 152 | Perris Blvd | Cactus Ave | John F Kennedy Dr | 16,709 | 36 | 159 | 45 | 6 | 0 | 62.1 | 57.5 | 14 | 31 | 68 | 146 |
| 153 | Cactus Ave | Kitching St | Lasselle St | 12,622 | 49 | 0 | 45 | 0 | 0 | 67.0 | 62.4 | 31 | 67 | 144 | 312 |
| 154 | Kitching St | Cactus Ave | John F Kennedy Dr | 8,314 | 0 | 0 | 35 | 6 | 0 | 55.9 | 51.3 | 5 | 12 | 26 | 56 |
| 155 | Cactus Ave | Lasselle St | Morrison St | 16,261 | 83 | 0 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 173 | 374 |
| 156 | Lasselle St | Cactus Ave | John F Kennedy Dr | 20,120 | 23 | 0 | 45 | 0 | 0 | 68.9 | 64.3 | 41 | 89 | 192 | 415 |
| 157 | Cactus Ave | Morrison St | Nason St | 11,655 | 83 | 0 | 45 | 0 | 0 | 66.9 | 62.3 | 30 | 65 | 141 | 304 |
| 158 | E 6th St | Beaumont Ave | Pennsylvania Ave | 9,944 | 38 | 19 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 125 | 270 |
| 159 | Beaumont Ave | E 6th St | I-10 | 8,576 | 0 | 52 | 45 | 0 | 0 | 65.2 | 60.6 | 23 | 50 | 109 | 235 |
| 160 | Kitching St | Gentian Ave | Iris Ave | 5,558 | 0 | 12 | 45 | 0 | 0 | 63.3 | 58.6 | 17 | 37 | 81 | 175 |
| 161 | Iris Ave | Perris Blvd | Kitching St | 17,662 | 216 | 30 | 45 | 6 | 0 | 62.8 | 58.1 | 16 | 34 | 75 | 162 |
| 162 | Iris Ave | Kitching St | Lasselle St | 21,503 | 370 | 0 | 45 | 6 | 0 | 63.9 | 59.3 | 19 | 41 | 89 | 193 |
| 163 | Kitching St | Iris Ave | Ivory Ave | 15,236 | 165 | 0 | 45 | 6 | 0 | 62.1 | 57.5 | 14 | 31 | 68 | 147 |
| 164 | Lasselle St | Gentian Ave | Iris Ave | 19,528 | 2 | 0 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 87 | 187 | 404 |
| 165 | Iris Ave | Lasselle St | Nason St | 27,001 | 548 | 0 | 45 | 6 | 0 | 65.1 | 60.5 | 23 | 49 | 107 | 232 |
| 168 | Krameria Ave | Perris Blvd | Lasselle St | 11,173 | 194 | 0 | 45 | 6 | 0 | 61.3 | 56.7 | 12 | 27 | 59 | 129 |
| 169 | Krameria Ave | Kitching St | Lasselle St | 4,376 | 3 | 0 | 45 | 0 | 0 | 62.3 | 57.6 | 14 | 32 | 69 | 149 |
| 170 | Kitching St | Krameria Ave | Lurin Ave | 21,370 | 12 | 0 | 45 | 6 | 0 | 63.1 | 58.5 | 17 | 36 | 79 | 171 |
| 171 | Lasselle St | Cahuilla Dr | Krameria Ave | 20,769 | 180 | 0 | 45 | 6 | 0 | 63.5 | 58.8 | 18 | 38 | 83 | 180 |
| 172 | Lasselle St | Krameria Ave | Arroyo Park Dr | 9,854 | 172 | 12 | 45 | 6 | 0 | 60.7 | 56.1 | 11 | 25 | 54 | 117 |
| 173 | Oleander Ave | Perris Blvd | Lasselle St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 174 | Oleander Ave | Lasselle St | Lake Perris Dr | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 177 | San Timoteo Canyon Rd | Alessandro Rd | Live Oak Canyon Rd | 12,873 | 478 | 563 | 45 | 0 | 0 | 69.7 | 65.1 | 47 | 101 | 219 | 472 |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd | I-10 | 3,484 | 55 | 87 | 45 | 0 | 0 | 63.1 | 58.5 | 17 | 36 | 79 | 171 |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd | Redlands Blvd | 15,093 | 534 | 632 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 240 | 517 |
| 180 | San Timoteo Canyon Rd | Redlands Blvd | Woodhouse Rd | 2,054 | 0 | 0 | 45 | 0 | 0 | 59.0 | 54.3 | 9 | 19 | 41 | 90 |
| 181 | Potrero Blvd | north of SR 60 WB Ramps | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 182 | SR 60 WB Onramp | west of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 183 | SR 60 WB Offramp | east of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 184 | SR 60 EB Offramp | west of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 185 | SR 60 EB Onramp | east of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 186 | Potrero Blvd | south of SR 60 EB Ramps | W 4th St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 190 | Gilman Springs Rd | Jack Rabbit Trail | Bridge St | 13,164 | 284 | 156 | 45 | 0 | 0 | 68.2 | 63.5 | 37 | 79 | 172 | 371 |
| 191 | Gilman Springs Rd | Bridge St | Beaumont Ave | 12,106 | 252 | 121 | 45 | 0 | 0 | 68.0 | 63.4 | 36 | 77 | 168 | 361 |
| 192 | Bridge St | Gilman Springs Rd | Marvin Rd | 1,834 | 33 | 62 | 45 | 0 | 0 | 59.8 | 55.1 | 10 | 22 | 47 | 102 |
| 194 | Crescent Ave | West of Alessandro Rd | 0 | 2,364 | 98 | 0 | 35 | 0 | 0 | 58.3 | 53.7 | 8 | 17 | 37 | 81 |
| 195 | Crescent Ave | Alessandro Rd | Center St | 6,181 | 147 | 0 | 45 | 0 | 0 | 64.6 | 59.9 | 21 | 46 | 99 | 213 |
| 196 | Alessandro Rd | Crescent Ave | Sunset Dr | 6,310 | 246 | 0 | 45 | 0 | 0 | 65.2 | 60.5 | 23 | 50 | 108 | 233 |
| 198 | Sunset Dr | Crown St | Alessandro Rd | 328 | 8 | 0 | 35 | 0 | 0 | 49.1 | 44.5 | 2 | 4 | 9 | 20 |
| 199 | Sunset Dr | Alessandro Rd | Cameo Dr | 656 | 12 | 0 | 35 | 0 | 0 | 52.0 | 47.4 | 3 | 6 | 14 | 31 |
| 200 | Alessandro Rd | Sunset Dr | San Timoteo Canyon Rd | 6,602 | 267 | 0 | 45 | 0 | 0 | 65.4 | 60.8 | 24 | 52 | 113 | 243 |

| ID | Arterial | From | To | 2012 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 205 | Reche Canyon Rd | Keissel Rd | Reche Vista Dr | 18,766 | 51 | 0 | 45 | 0 | 0 | 68.7 | 64.0 | 40 | 86 | 185 | 400 |
| 206 | Reche Canyon Rd | Reche Vista Dr | High Country Dr | 272 | 0 | 0 | 45 | 0 | 0 | 50.2 | 45.5 | 2 | 5 | 10 | 23 |
| 207 | Reche Vista Dr | Heacock St | Reche Canyon Rd | 18,764 | 51 | 0 | 35 | 0 | 0 | 65.6 | 60.9 | 24 | 53 | 115 | 248 |
| 215 | Mission Grove Pkwy | Cannon Rd | Alessandro Blvd | 7,121 | 0 | 0 | 35 | 0 | 0 | 61.2 | 56.6 | 12 | 27 | 59 | 127 |
| 216 | Alessandro Blvd | Trautwein Rd | Vista Grande Dr | 43,220 | 16 | 20 | 45 | 0 | 0 | 72.2 | 67.6 | 69 | 148 | 320 | 690 |
| 217 | Mission Grove Pkwy | Alessandro Blvd | Northrop Dr | 14,649 | 27 | 34 | 45 | 6 | 0 | 61.6 | 57.0 | 13 | 29 | 63 | 136 |
| 218 | Alessandro Blvd | Canyon Crest Dr | Trautwein Rd | 49,944 | 12 | 7 | 45 | 0 | 0 | 72.9 | 68.2 | 76 | 164 | 354 | 763 |
| 219 | Trautwein Rd | Alessandro Blvd | Orange Terrace Pkwy | 10,714 | 0 | 1 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 126 | 271 |
| 221 | Canyon Crest Dr | Central Ave | Alessandro Blvd | 11,232 | 0 | 0 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 60 | 129 | 279 |
| 223 | Canyon Crest Dr | Alessandro Blvd | Sandtrack Rd | 391 | 0 | 0 | 35 | 6 | 0 | 42.6 | 38.0 | 0 | 1 | 3 | 7 |
| 225 | Via Vista Dr | Alessandro Blvd | Canyon Crest Dr | 2,501 | 0 | 0 | 45 | 0 | 0 | 59.8 | 55.2 | 10 | 22 | 47 | 102 |
| 226 | Alessandro Blvd | Century Ave | Canyon Crest Dr | 48,159 | 8 | 5 | 45 | 0 | 0 | 72.6 | 68.0 | 73 | 159 | 343 | 739 |
| 227 | Via Vista Dr | Alessandro Blvd | Canyon Hill Dr | 3,434 | 0 | 0 | 45 | 0 | 0 | 61.2 | 56.6 | 12 | 27 | 58 | 126 |
| 229 | Century Ave | Alessandro Blvd | Claridge Dr | 1,334 | 0 | 0 | 45 | 0 | 0 | 57.1 | 52.4 | 6 | 14 | 31 | 67 |
| 230 | Century Ave | Trafalgar Ave | Alessandro Blvd | 1,003 | 0 | 0 | 45 | 0 | 0 | 55.8 | 51.2 | 5 | 12 | 25 | 55 |
| 231 | Alessandro Blvd | Victoria Ave | Arlington Ave/Chicago Ave | 34,905 | 64 | 102 | 45 | 0 | 0 | 71.5 | 66.9 | 61 | 133 | 287 | 619 |
| 232 | Chicago Ave | Alessandro Blvd | Central Ave | 28,962 | 50 | 80 | 45 | 0 | 0 | 70.6 | 66.0 | 54 | 116 | 250 | 540 |
| 233 | Alessandro Blvd | Arlington Ave/Chicago Ave | Century Ave | 50,540 | 31 | 32 | 45 | 0 | 0 | 72.9 | 68.3 | 76 | 164 | 354 | 764 |
| 236 | Victoria Ave | Central Ave | Arlington Ave | 6,962 | 25 | 3 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 97 | 211 |
| 237 | Arlington Ave | Victoria Ave | Alessandro Blvd | 34,640 | 55 | 59 | 45 | 0 | 0 | 71.4 | 66.8 | 61 | 131 | 284 | 612 |
| 238 | Victoria Ave | Arlington Ave | Maude St | 12,795 | 42 | 26 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 68 | 146 | 315 |
| 239 | Arlington Ave | Maude St | Victoria Ave | 30,246 | 15 | 8 | 45 | 0 | 0 | 70.6 | 66.0 | 54 | 116 | 251 | 542 |
| 240 | Durango Rd | Laramie Rd | Arlington Ave | 1,876 | 0 | 0 | 45 | 0 | 0 | 58.6 | 53.9 | 8 | 18 | 39 | 84 |
| 241 | Horace St | Arlington Ave | Victoria Ave | 3,835 | 0 | 0 | 45 | 0 | 0 | 61.7 | 57.0 | 13 | 29 | 63 | 136 |
| 242 | Arlington Ave | Magnolia Ave | SR-91 WB On-Ramps | 32,983 | 9 | 31 | 45 | 0 | 0 | 71.1 | 66.4 | 57 | 124 | 268 | 578 |
| 243 | Riverside Dr | SR-91 WB Off-Ramps | Arlington Ave | 10,674 | 6 | 6 | 45 | 0 | 0 | 66.3 | 61.7 | 28 | 60 | 130 | 280 |
| 244 | SR-91 WB On-Ramps | Arlington Ave | SR-91 | 17,558 | 0 | 0 | 45 | 0 | 0 | 68.3 | 63.6 | 37 | 81 | 174 | 376 |
| 245 | SR-91 EB On-Ramps | SR-91 | Arlington Ave | 20,744 | 0 | 82 | 45 | 0 | 0 | 69.0 | 64.4 | 42 | 90 | 195 | 421 |
| 246 | Indiana Ave | Arlington Ave | SR-91 EB Off-Ramps | 15,682 | 12 | 12 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 75 | 162 | 350 |
| 247 | Arlington Ave | SR-91 WB On-Ramps | SR-91 EB On-Ramps | 35,155 | 22 | 47 | 45 | 0 | 0 | 71.4 | 66.8 | 61 | 131 | 283 | 611 |
| 250 | Country Club Dr | Chicago Ave | Canyon Crest Dr | 2,207 | 0 | 0 | 35 | 0 | 0 | 56.1 | 51.5 | 5 | 12 | 27 | 58 |
| 252 | Central Ave | Chicago Ave | Canyon Crest Dr | 21,169 | 56 | 79 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 95 | 204 | 441 |
| 254 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 16,980 | 24 | 24 | 45 | 0 | 0 | 68.2 | 63.5 | 37 | 79 | 172 | 370 |
| 256 | Canyon Crest Dr | Central Ave | Country Club Dr | 17,581 | 24 | 26 | 45 | 0 | 0 | 68.3 | 63.7 | 38 | 81 | 176 | 380 |
| 258 | El Cerrito Dr | Canyon Crest Dr | Central Ave | 6,194 | 0 | 12 | 45 | 0 | 0 | 63.7 | 59.1 | 18 | 40 | 87 | 188 |
| 260 | Central Ave | Canyon Crest Dr | I-215 | 20,896 | 65 | 95 | 45 | 0 | 0 | 69.3 | 64.6 | 43 | 94 | 203 | 439 |
| 261 | Lochmoor Dr | Central Ave | Fair Isle Dr | 3,541 | 4 | 1 | 35 | 6 | 0 | 52.5 | 47.9 | 3 | 7 | 15 | 33 |
| 262 | Sycamore Canyon Blvd | Central Ave | College Blvd | 10,955 | 6 | 1 | 35 | 0 | 0 | 63.1 | 58.5 | 17 | 36 | 79 | 171 |
| 263 | Central Ave | Sycamore Canyon Blvd | I-215 SB Ramps | 15,359 | 61 | 87 | 45 | 0 | 0 | 68.0 | 63.4 | 36 | 78 | 168 | 362 |
| 264 | I-215 SB Off-Ramps | I-215 | Central Ave | 2,526 | 24 | 0 | 45 | 0 | 0 | 60.1 | 55.5 | 10 | 23 | 50 | 107 |
| 265 | Central Ave | I-215 SB Ramps | I-215 NB Ramps | 14,639 | 54 | 70 | 45 | 0 | 0 | 68.2 | 63.5 | 37 | 80 | 172 | 371 |
| 266 | I-215 SB On-Ramps | Central Ave | I-215 | 22,008 | 82 | 132 | 45 | 0 | 0 | 69.6 | 64.9 | 45 | 98 | 213 | 459 |
| 267 | Watkins Dr | I-215 NB On-Ramp | I-215 NB Off-Ramp | 12,674 | 19 | 20 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 150 | 325 |

| ID | Arterial | From | To | 2012 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 268 | I-215 NB Off-Ramp | Watkins Dr | I-215 | 10,314 | 73 | 114 | 45 | 0 | 0 | 67.2 | 62.6 | 32 | 69 | 148 | 320 |
| 269 | Martin Luther King Blvd | SR-91 | Chicago Ave | 29,982 | 120 | 388 | 45 | 0 | 0 | 71.5 | 66.9 | 62 | 133 | 288 | 620 |
| 270 | Chicago Ave | University Ave | Martin Luther King Blvd | 23,152 | 0 | 12 | 45 | 0 | 0 | 69.5 | 64.8 | 45 | 97 | 210 | 453 |
| 271 | Martin Luther King Blvd | Chicago Ave | Iowa Ave | 26,217 | 114 | 377 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 124 | 268 | 578 |
| 272 | Chicago Ave | Martin Luther King Blvd | Central Ave | 24,107 | 0 | 6 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 100 | 216 | 465 |
| 273 | Iowa Ave | University Ave | Martin Luther King Blvd | 13,585 | 0 | 1 | 45 | 0 | 0 | 67.2 | 62.5 | 31 | 68 | 147 | 318 |
| 274 | Martin Luther King Blvd | Iowa Ave | Canyon Crest Dr | 32,440 | 120 | 378 | 45 | 0 | 0 | 71.8 | 67.2 | 64 | 139 | 301 | 649 |
| 275 | Canyon Crest Dr | Campus Dr | Martin Luther King Blvd | 11,531 | 0 | 0 | 45 | 0 | 0 | 66.4 | 61.8 | 28 | 61 | 132 | 285 |
| 276 | Martin Luther King Blvd | Canyon Crest Dr | I-215 SB Ramps | 26,959 | 108 | 369 | 45 | 0 | 0 | 71.1 | 66.4 | 57 | 124 | 268 | 578 |
| 277 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 22,892 | 0 | 0 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 208 | 449 |
| 278 | I-215 SB Off-Ramp | I-215 | Martin Luther King Blvd | 5,994 | 0 | 0 | 45 | 0 | 0 | 63.6 | 59.0 | 18 | 39 | 85 | 184 |
| 279 | Martin Luther King Blvd | I-215 SB Ramps | I-215 NB Ramps | 9,297 | 59 | 226 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 63 | 136 | 294 |
| 280 | I-215 SB On-Ramp | Martin Luther King Blvd | I-215 | 29,860 | 130 | 332 | 45 | 0 | 0 | 71.8 | 67.2 | 64 | 139 | 301 | 649 |
| 281 | I-215 NB On-Ramp | I-215 | Martin Luther King Blvd | 9,464 | 0 | 10 | 45 | 0 | 0 | 65.6 | 61.0 | 24 | 53 | 115 | 249 |
| 282 | I-215 NB Off-Ramp | Martin Luther King Blvd | I-215 | 9,081 | 118 | 442 | 45 | 0 | 0 | 67.4 | 62.7 | 32 | 70 | 152 | 328 |
| 283 | SR-60 EB Off-Ramp | SR-60 | Heacock St | 22,538 | 24 | 28 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 207 | 447 |
| 284 | SR-60 EB On-Ramp | Heacock St | SR-60 | 8,557 | 45 | 130 | 45 | 0 | 0 | 65.6 | 61.0 | 25 | 54 | 116 | 251 |
| 285 | Heacock St | SR-60 EB Ramps | Sunnymead Blvd | 25,707 | 30 | 84 | 45 | 0 | 0 | 70.3 | 65.6 | 51 | 110 | 237 | 511 |
| 286 | Perris Blvd | Hemlock Ave | SR-60 WB Ramps | 29,751 | 103 | 19 | 45 | 0 | 0 | 70.7 | 66.1 | 54 | 118 | 254 | 547 |
| 287 | Perris Blvd | SR-60 WB Ramps | Sunnymead Blvd | 32,816 | 132 | 150 | 45 | 0 | 0 | 71.3 | 66.6 | 59 | 128 | 277 | 597 |
| 288 | Sunnymead Blvd | SR-60 WB Off-Ramp | Perris Blvd | 22,805 | 168 | 122 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 100 | 216 | 465 |
| 289 | Sunnymead Blvd | Perris Blvd | SR-60 WB On-Ramp | 17,791 | 106 | 115 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 86 | 186 | 401 |
| 290 | Perris Blvd | Sunnymead Blvd | Fir Ave | 27,154 | 157 | 284 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 124 | 267 | 576 |
| 294 | Via Del Lago | South of Iris Ave | 0 | 815 | 2 | 0 | 45 | 0 | 0 | 54.9 | 50.3 | 4 | 10 | 22 | 48 |
| 301 | John F. Kennedy Dr | Indian St | Perris Blvd | 9,816 | 12 | 0 | 45 | 0 | 0 | 65.8 | 61.2 | 25 | 55 | 120 | 259 |
| 302 | John F. Kennedy Dr | Perris Blvd | Kitching St | 9,649 | 9 | 0 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 55 | 118 | 255 |
| 303 | Perris Blvd | John F. Kennedy Dr | Iris Ave | 15,612 | 95 | 209 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 77 | 166 | 358 |
| 304 | Iris Ave | Indian St | Perris Blvd | 13,037 | 35 | 47 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 67 | 145 | 314 |
| 306 | Perris Blvd | Iris Ave | Krameria Ave | 16,482 | 224 | 195 | 45 | 6 | 0 | 62.8 | 58.2 | 16 | 35 | 75 | 162 |
| 307 | Perris Blvd | Krameria Ave | Harley Know Blvd | 17,654 | 350 | 171 | 45 | 6 | 0 | 63.2 | 58.5 | 17 | 37 | 79 | 172 |
| 324 | Ramona Expy | Warren Rd | Sanderson Ave | 14,548 | 83 | 312 | 45 | 0 | 0 | 67.7 | 63.1 | 34 | 74 | 161 | 347 |
| 325 | Sanderson Ave | Gilman Springs Rd | Ramona Expy | 27,855 | 35 | 623 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 115 | 248 | 534 |
| 326 | Ramona Expy | Sanderson Ave | State St | 15,374 | 71 | 165 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 76 | 164 | 353 |
| 327 | Sanderson Ave | Ramona Expy | Ramona Blvd | 18,328 | 53 | 301 | 45 | 0 | 0 | 68.8 | 64.2 | 40 | 88 | 190 | 409 |
| 340 | Alessandro Blvd | South of San Timoteo Canyon R | 0 | 366 | 0 | 0 | 45 | 0 | 0 | 51.5 | 46.8 | 2 | 6 | 13 | 28 |
| 351 | Live Oak Canyon Rd | South of San Timoteo Canyon R | 0 | 236 | 0 | 0 | 45 | 0 | 0 | 49.5 | 44.9 | 2 | 4 | 9 | 21 |
| 358 | Gilman Springs Rd | Bridge St | SR-79 SB Ramps | 12,414 | 241 | 121 | 45 | 0 | 0 | 68.1 | 63.4 | 36 | 78 | 169 | 365 |
| 359 | SR-79 SB Off-Ramp | SR-79 | Gilman Springs Rd | 5,286 | 0 | 0 | 45 | 0 | 0 | 63.0 | 58.4 | 16 | 36 | 78 | 169 |
| 360 | Gilman Springs Rd | SR-79 SB Ramps | SR-79 NB Ramps | 11,209 | 165 | 60 | 45 | 0 | 0 | 67.2 | 62.6 | 32 | 69 | 149 | 321 |
| 361 | SR-79 SB On-Ramp | Gilman Springs Rd | SR-79 | 7,516 | 146 | 120 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 125 | 270 |
| 362 | SR-79 NB On-Ramp | SR-79 | Gilman Springs Rd | 4,569 | 24 | 70 | 45 | 0 | 0 | 62.6 | 58.0 | 15 | 34 | 73 | 158 |
| 363 | Gilman Springs Rd | SR-79 NB Ramps | Record Rd | 11,448 | 100 | 21 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 64 | 139 | 300 |
| 364 | SR-79 NB Off-Ramp | Gilman Springs Rd | SR-79 | 3,614 | 104 | 79 | 45 | 0 | 0 | 63.7 | 59.1 | 18 | 40 | 87 | 188 |

| ID | Arterial | From | To | 2012 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 365 | Alessandro Blvd | Sycamore Canyon Blvd | Vista Grande Dr | 38,854 | 50 | 76 | 45 | 0 | 0 | 71.8 | 67.2 | 64 | 139 | 301 | 648 |
| 366 | Sycamore Canyon Blvd | Eastridge Ave | Alessandro Blvd | 6,372 | 24 | 64 | 45 | 0 | 0 | 64.0 | 59.4 | 19 | 42 | 90 | 195 |
| 367 | Meridian Pkwy | Alessandro Blvd | Cactus Ave | 4,402 | 0 | 36 | 45 | 0 | 0 | 62.8 | 58.2 | 16 | 35 | 75 | 162 |
| 375 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 376 | 3rd St | Marvin Rd | Mid County Pkwy WB Ran | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 377 | Mid County Pkwy WB Off-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 378 | 3rd St | Mid County Pkwy EB Ramps | Mid County Pkwy WB Ran | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 379 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 380 | Mid County Pkwy EB On-Ramp | 3rd St | Mid County Pkwy | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 381 | 3rd St | Mid County Pkwy EB Ramps | MM Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 386 | Harley Know Blvd | Indian St | Perris Blvd | 4,542 | 71 | 142 | 45 | 0 | 0 | 63.0 | 58.3 | 16 | 35 | 77 | 166 |
| 387 | Perris Blvd | Krameria Ave | Harley Know Blvd | 14,913 | 266 | 402 | 45 | 6 | 0 | 62.4 | 57.8 | 15 | 33 | 71 | 153 |
| 388 | Krameria Ave | Lasselle St | Spirit Rd | 1,947 | 0 | 0 | 45 | 0 | 0 | 58.7 | 54.1 | 8 | 18 | 40 | 86 |
| 389 | El Cerrito Dr | South of Central Ave | 0 | 2,597 | 0 | 0 | 45 | 0 | 0 | 60.0 | 55.3 | 10 | 22 | 48 | 105 |
| 390 | Ramona Expy | Webster Ave | Indian St | 27,867 | 129 | 884 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 115 | 247 | 533 |
| 392 | Ramona Expy | Indian St | Perris Blvd | 27,236 | 187 | 535 | 45 | 0 | 0 | 70.6 | 66.0 | 54 | 116 | 251 | 542 |
| 393 | Indian St | Ramona Expy | Morgan St | 3,059 | 138 | 463 | 45 | 0 | 0 | 64.0 | 59.4 | 19 | 42 | 90 | 195 |
| 394 | Perris Blvd | Harley Know Blvd | Ramona Expy | 14,751 | 295 | 344 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 83 | 179 | 387 |
| 396 | Perris Blvd | Ramona Expy | Rider St | 16,760 | 193 | 135 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 85 | 184 | 396 |
| 397 | Ramona Expy | Perris Blvd | Evans Rd | 24,884 | 156 | 331 | 45 | 0 | 0 | 70.0 | 65.4 | 49 | 106 | 229 | 495 |
| 398 | Evans Rd | Marbella Gate | Ramona Expy | 20,599 | 175 | 0 | 45 | 6 | 0 | 63.4 | 58.8 | 17 | 38 | 82 | 178 |
| 399 | Ramona Expy | Evans Rd | Rider St | 17,424 | 59 | 250 | 55 | 6 | 0 | 64.9 | 60.3 | 22 | 48 | 104 | 224 |
| 400 | Evans Rd | Ramona Expy | Rider St | 12,845 | 29 | 6 | 45 | 0 | 0 | 67.1 | 62.4 | 31 | 67 | 145 | 313 |
| 401 | Morgan St | Indian St | Perris Blvd | 744 | 35 | 71 | 45 | 0 | 0 | 56.7 | 52.1 | 6 | 13 | 29 | 63 |
| 402 | Morgan St | Perris Blvd | Silver Creek Industries | 818 | 24 | 0 | 45 | 0 | 0 | 55.7 | 51.1 | 5 | 11 | 25 | 55 |
| 404 | Morgan St | Morgan Park | Evans Rd | 3,202 | 12 | 0 | 45 | 0 | 0 | 61.0 | 56.4 | 12 | 26 | 57 | 123 |
| 405 | Morgan St | Evans Rd | Bradley Rd | 3,162 | 0 | 12 | 45 | 0 | 0 | 60.8 | 56.2 | 12 | 25 | 55 | 120 |
| 406 | Ironwood Ave | East of Thedore St | 0 | 320 | 14 | 2 | 45 | 0 | 0 | 55.3 | 50.7 | 5 | 11 | 24 | 51 |
| 407 | Rider St | Indian St | Perris Blvd | 2,853 | 0 | 24 | 45 | 0 | 0 | 60.4 | 55.8 | 11 | 24 | 52 | 112 |
| 408 | Rider St | Perris Blvd | Redlands Ave | 8,225 | 0 | 3 | 45 | 0 | 0 | 65.4 | 60.8 | 24 | 52 | 112 | 243 |
| 409 | Ironwood Ave | Nason St | Moreno Beach Dr | 5,704 | 54 | 0 | 45 | 0 | 0 | 63.8 | 59.2 | 18 | 40 | 87 | 189 |
| 410 | Rider St | Wilson Ave | Evans Rd | 11,990 | 0 | 14 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 63 | 136 | 293 |
| 411 | Rider St | Evans Rd | Ramona Expy | 6,149 | 0 | 26 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 94 | 202 |
| 412 | Maude St | North of Arlington Ave | 0 | 212 | 0 | 0 | 45 | 0 | 0 | 49.1 | 44.5 | 1 | 4 | 9 | 19 |
| 413 | Placentia Ave | Indian St | Perris Blvd | 1,205 | 4 | 4 | 45 | 0 | 0 | 58.3 | 53.6 | 8 | 17 | 37 | 81 |
| 414 | Placentia Ave | Perris Blvd | Redlands Ave | 3,458 | 0 | 0 | 45 | 0 | 0 | 61.2 | 56.6 | 12 | 27 | 59 | 127 |
| 415 | Perris Blvd | Placentia Ave | Orange Ave | 17,344 | 141 | 41 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 85 | 184 | 397 |
| 416 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | Perris Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 417 | Mid County Pkwy WB Off-Ramp | Perris Blvd | Mid County Pkwy | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 419 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | Perris Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 420 | Mid County Pkwy EB On-Ramp | Perris Blvd | Mid County Pkwy | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 421 | Via Del Lago | South of Iris Ave | 0 | 378 | 0 | 0 | 45 | 0 | 0 | 51.6 | 47.0 | 2 | 6 | 13 | 29 |
| 424 | Perris Blvd | Alessandro Blvd | Cottonwood Ave | 21,134 | 118 | 180 | 45 | 6 | 0 | 63.2 | 58.6 | 17 | 37 | 80 | 174 |

| ID | Arterial | From | To | 2012 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 425 | Mid County Pkwy WB On-Ramp | West of Evan | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 426 | Mid County Pkwy WB Off-Ramp | East of Evan | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 427 | Day St | south of Alessandro Blvd | 0 | 669 | 1 | 62 | 45 | 0 | 0 | 55.5 | 50.9 | 5 | 11 | 24 | 52 |
| 428 | Mid County Pkwy EB Off-Ramp | West of Evan | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 429 | Mid County Pkwy EB On-Ramp | East of Evan | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 430 | Alessandro Blvd | SR-215 NB Ramp | SR-215 SB Ramp | 27,861 | 30 | 104 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 114 | 246 | 531 |
| 431 | Placentia Ave | Water Ave | Evans Rd | 0 | 0 | 0 | 35 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 432 | Placentia Ave | Evans Rd | El Nido Ave | 0 | 0 | 0 | 35 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 433 | Evans Rd | Rider St | Orange Ave | 6,334 | 7 | 0 | 45 | 0 | 0 | 63.9 | 59.3 | 19 | 41 | 90 | 193 |
| 434 | Orange Ave | Wilson Ave | Evans Rd | 4,887 | 0 | 12 | 45 | 0 | 0 | 62.7 | 58.1 | 16 | 34 | 74 | 160 |
| 435 | Orange Ave | Evans Rd | Foothill Dr | 2,828 | 0 | 12 | 35 | 0 | 0 | 57.2 | 52.6 | 6 | 14 | 32 | 69 |
| 436 | Elsworth St | south of Cactus Ave | 0 | 9,452 | 0 | 36 | 45 | 0 | 0 | 65.6 | 61.0 | 24 | 53 | 115 | 249 |
| 441 | Nuevo Rd | Wilson Ave | Evans Rd | 13,924 | 24 | 59 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 151 | 325 |
| 442 | Evans Rd | Orange Ave | Nuevo Rd | 5,239 | 2 | 6 | 45 | 0 | 0 | 63.1 | 58.4 | 16 | 36 | 78 | 169 |
| 443 | Nuevo Rd | Evans Rd | Foothill Dr | 10,829 | 24 | 47 | 45 | 0 | 0 | 66.2 | 61.6 | 27 | 59 | 128 | 276 |
| 444 | Evans Rd | Nuevo Rd | San Jacinto Ave | 0 | 0 | 0 | 45 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 452 | San Jacinto Ave | West of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 453 | Evans Rd | North of San Jancito Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 454 | San Jacinto Ave | East of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 455 | Evans Rd | South of San Jancito Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 458 | Nason St | South of Cactus Ave | 0 | 1,133 | 0 | 0 | 45 | 0 | 0 | 56.4 | 51.7 | 6 | 13 | 28 | 60 |
| 464 | Quincy | South of Eucalyptus | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 477 | Ellis Ave | West of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 478 | Evans Rd | North of Ellis Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 479 | Oliver St | South of Irris Ave | 0 | 2,644 | 12 | 0 | 45 | 0 | 0 | 60.2 | 55.6 | 10 | 23 | 50 | 108 |
| 480 | Ellis Ave | Evans Rd | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 481 | SR-215 SB Off-ramp | SR-215 | Ellis Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 482 | Ellis Ave | East of SR-215 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 483 | SR-215 SB On-ramp | Ellis Ave | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 484 | SR-215 NB On-ramp | Ellis Ave | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 485 | SR-215 NB Off-ramp | SR-215 | Ellis Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 488 | Nason St | North of Iris Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 494 | Evans Rd | North of Harley Knox Blvd | 0 | 0 | 0 | 0 | 45 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 498 | Morrison St | Alessandro Blvd | Cactus Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 499 | Perris Blvd | Eucalyptus Ave | Cottonwood Ave | 24,674 | 16 | 162 | 45 | 0 | 0 | 69.8 | 65.1 | 47 | 102 | 219 | 473 |
| 500 | Perris Blvd | North of Eucalyptus Ave | 0 | 25,843 | 19 | 174 | 45 | 0 | 0 | 70.7 | 66.1 | 54 | 118 | 255 | 549 |
| 502 | Quincy | Cottonwood Ave | Alessandro Blvd | 0 | 0 | 0 | 35 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 503 | Quincy | Alessandro Blvd | Cactus Ave | 0 | 0 | 0 | 35 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 504 | Krameria Ave | west of Perris Blvd | 0 | 3,677 | 34 | 0 | 45 | 0 | 0 | 61.8 | 57.2 | 13 | 30 | 64 | 139 |

**2012 Plus Project Case** **Total Noise Levels**

| ID | Freeway | From | 2012 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | SR-60 | SR-71/S Garey Ave to S Reservoir Rd | 195,230 | 4,010 | 15,970 | 65 | 0 | 0 | 85.0 | 80.4 | 85.5 | 80.9 | 493 | 1062 | 2290 | 4933 |
| 2 | SR-60 | S Reservoir Rd to Ramona Ave | 199,300 | 4,220 | 16,810 | 65 | 0 | 0 | 85.1 | 80.5 | 85.6 | 81.0 | 502 | 1081 | 2331 | 5022 |
| 3 | SR-60 | Ramona Ave to Central Ave | 187,740 | 4,090 | 16,210 | 65 | 0 | 0 | 84.9 | 80.3 | 85.4 | 80.8 | 484 | 1043 | 2247 | 4842 |
| 4 | SR-60 | Central Ave to Mountain Ave | 197,000 | 4,360 | 17,150 | 65 | 0 | 0 | 85.1 | 80.5 | 85.6 | 81.0 | 500 | 1079 | 2324 | 5008 |
| 5 | SR-60 | Mountain Ave to Euclid Ave | 190,580 | 4,260 | 16,700 | 65 | 0 | 0 | 85.0 | 80.4 | 85.5 | 80.8 | 490 | 1056 | 2276 | 4904 |
| 6 | SR-60 | Euclid Ave to Grove Ave | 208,290 | 4,680 | 18,420 | 65 | 0 | 0 | 85.4 | 80.7 | 85.8 | 81.2 | 520 | 1122 | 2417 | 5209 |
| 7 | SR-60 | Grove Ave to Vineyard Ave | 204,130 | 4,430 | 17,470 | 65 | 0 | 0 | 85.3 | 80.6 | 85.7 | 81.1 | 511 | 1102 | 2374 | 5115 |
| 8 | SR-60 | Vineyard Ave to Archibald Ave | 203,770 | 4,480 | 17,480 | 65 | 0 | 0 | 85.3 | 80.6 | 85.7 | 81.1 | 511 | 1101 | 2374 | 5114 |
| 9 | SR-60 | Archibald Ave to Haven Ave | 191,110 | 4,290 | 16,140 | 65 | 0 | 0 | 85.0 | 80.4 | 85.5 | 80.9 | 490 | 1055 | 2274 | 4901 |
| 10 | SR-60 | Haven Ave to Miliken Ave | 172,750 | 3,890 | 14,530 | 65 | 0 | 0 | 84.5 | 79.9 | 85.2 | 80.6 | 458 | 987 | 2126 | 4581 |
| 11 | SR-60 | Miliken Ave to SR-15 | 141,710 | 3,860 | 14,530 | 65 | 0 | 0 | 83.9 | 79.2 | 84.5 | 79.9 | 413 | 891 | 1920 | 4136 |
| 12 | SR-60 | I-15 to Etiwanda Ave | 100,930 | 2,890 | 9,900 | 65 | 0 | 0 | 82.4 | 77.8 | 83.4 | 78.8 | 329 | 710 | 1530 | 3297 |
| 13 | SR-60 | Etiwanda Ave to Mission Blvd/Country Village R | 111,500 | 2,870 | 9,980 | 65 | 0 | 0 | 82.7 | 78.1 | 83.7 | 79.1 | 346 | 747 | 1609 | 3468 |
| 14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 102,090 | 2,620 | 9,100 | 65 | 0 | 0 | 82.3 | 77.7 | 83.4 | 78.8 | 326 | 704 | 1517 | 3268 |
| 15 | SR-60 | Pedley Rd to Pyrite St | 93,880 | 2,360 | 8,340 | 65 | 0 | 0 | 82.0 | 77.3 | 83.1 | 78.5 | 308 | 664 | 1432 | 3086 |
| 16 | SR-60 | Pyrite St to Valley Way | 90,310 | 2,320 | 8,140 | 65 | 0 | 0 | 81.8 | 77.2 | 83.0 | 78.4 | 301 | 649 | 1399 | 3015 |
| 17 | SR-60 | Valley Way to Rubidoux Blvd | 125,480 | 3,080 | 10,560 | 65 | 0 | 0 | 83.2 | 78.6 | 84.1 | 79.4 | 372 | 802 | 1727 | 3722 |
| 18 | SR-60 | Rubidoux Blvd to Market St | 122,540 | 3,020 | 10,020 | 65 | 0 | 0 | 83.1 | 78.4 | 84.0 | 79.3 | 365 | 788 | 1697 | 3657 |
| 19 | SR-60 | Market St to Main St | 146,800 | 3,810 | 11,920 | 65 | 0 | 0 | 83.9 | 79.3 | 84.6 | 80.0 | 413 | 891 | 1920 | 4138 |
| 20 | SR-60 | Main St to SR-91 | 169,420 | 4,500 | 13,200 | 65 | 0 | 0 | 84.5 | 79.9 | 85.2 | 80.6 | 454 | 979 | 2110 | 4547 |
| 21 | SR-60 | SR-91 to W Blaine St/3rd St | 190,550 | 4,520 | 16,330 | 65 | 0 | 0 | 85.0 | 80.4 | 86.0 | 81.4 | 491 | 1058 | 2280 | 4913 |
| 22 | SR-60 | W Blaine St/3rd St to University Ave | 176,230 | 4,060 | 14,330 | 65 | 0 | 0 | 84.6 | 80.0 | 85.7 | 81.1 | 463 | 999 | 2152 | 4638 |
| 23 | SR-60 | University Ave to Martin Luther King Blvd | 183,130 | 4,230 | 14,770 | 65 | 0 | 0 | 84.8 | 80.2 | 85.8 | 81.2 | 475 | 1024 | 2207 | 4756 |
| 24 | SR-60 | Martin Luther King Blvd to Central Ave | 228,400 | 5,450 | 19,280 | 65 | 0 | 0 | 85.8 | 81.2 | 86.7 | 82.0 | 554 | 1193 | 2571 | 5540 |
| 25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs Rd | 206,800 | 4,810 | 16,700 | 65 | 0 | 0 | 85.3 | 80.7 | 86.3 | 81.7 | 516 | 1111 | 2395 | 5160 |
| 26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 207,420 | 4,570 | 16,710 | 65 | 0 | 0 | 85.3 | 80.7 | 86.2 | 81.6 | 515 | 1110 | 2391 | 5152 |
| 27 | SR-60 | I-215 to Day St | 118,800 | 3,220 | 13,740 | 65 | 0 | 0 | 83.2 | 78.6 | 84.8 | 80.1 | 372 | 802 | 1729 | 3726 |
| 28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 120,390 | 3,150 | 14,870 | 65 | 0 | 0 | 83.3 | 78.7 | 84.8 | 80.2 | 378 | 814 | 1755 | 3782 |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | 100,750 | 2,620 | 12,660 | 65 | 0 | 0 | 82.5 | 77.9 | 84.3 | 79.7 | 336 | 725 | 1562 | 3365 |
| 30 | SR-60 | Heacock St to Perris Blvd | 84,400 | 2,220 | 10,840 | 65 | 0 | 0 | 81.8 | 77.2 | 83.8 | 79.2 | 300 | 646 | 1393 | 3002 |
| 31 | SR-60 | Perris Blvd to Nason St | 68,600 | 1,670 | 8,590 | 65 | 0 | 0 | 80.8 | 76.2 | 83.3 | 78.7 | 259 | 558 | 1203 | 2592 |
| 32 | SR-60 | Nason St to Moreno Beach Dr | 60,310 | 1,380 | 7,440 | 65 | 0 | 0 | 80.2 | 75.6 | 83.0 | 78.4 | 236 | 509 | 1097 | 2365 |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 41,590 | 860 | 4,720 | 65 | 0 | 0 | 78.5 | 73.9 | 82.2 | 77.5 | 181 | 391 | 842 | 1816 |
| 34 | SR-60 | Redlands Blvd to Theodore St | 32,730 | 1,000 | 5,820 | 65 | 0 | 0 | 78.1 | 73.5 | 82.0 | 77.4 | 171 | 369 | 796 | 1715 |
| 35 | SR-60 | Theodore St to Gilman Springs Rd | 33,760 | 1,000 | 5,810 | 65 | 0 | 0 | 78.2 | 73.6 | 79.4 | 74.8 | 173 | 373 | 805 | 1734 |
| 36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 28,690 | 730 | 4,630 | 65 | 0 | 0 | 77.3 | 72.7 | 78.2 | 73.6 | 151 | 327 | 705 | 1519 |
| 37 | SR-60 | Jack Rabbit Trail to I-10 | 28,680 | 730 | 4,630 | 65 | 0 | 0 | 77.3 | 72.7 | 78.2 | 73.6 | 151 | 327 | 705 | 1518 |
| 75 | SR-91 | I-15 to McKinley St | 197,190 | 3,020 | 9,640 | 65 | 0 | 0 | 84.8 | 80.2 | 85.1 | 80.5 | 477 | 1029 | 2218 | 4779 |
| 76 | SR-91 | McKinley St to Pierce St | 179,820 | 2,780 | 8,780 | 65 | 0 | 0 | 84.4 | 79.8 | 84.8 | 80.1 | 449 | 968 | 2087 | 4496 |
| 77 | SR-91 | Pierce St to Magnolia Ave | 169,700 | 2,520 | 8,420 | 65 | 0 | 0 | 84.2 | 79.5 | 84.5 | 79.9 | 432 | 930 | 2005 | 4320 |
| 78 | SR-91 | Magnolia Ave to La Sierra Ave | 181,390 | 2,970 | 9,980 | 65 | 0 | 0 | 84.5 | 79.9 | 84.8 | 80.2 | 455 | 980 | 2112 | 4551 |
| 79 | SR-91 | La Sierra Ave to Tyler St | 162,160 | 2,700 | 9,120 | 65 | 0 | 0 | 84.0 | 79.4 | 84.4 | 79.8 | 423 | 911 | 1963 | 4230 |
| 80 | SR-91 | Tyler St to Van Buren Blvd | 195,210 | 1,940 | 6,550 | 65 | 0 | 0 | 84.6 | 80.0 | 85.0 | 80.3 | 464 | 999 | 2153 | 4640 |
| 81 | SR-91 | Van Buren Blvd to Adam St | 180,970 | 1,730 | 5,990 | 65 | 0 | 0 | 84.3 | 79.7 | 84.7 | 80.0 | 440 | 949 | 2045 | 4406 |
| 82 | SR-91 | Adam St to Madison St | 167,920 | 1,500 | 5,320 | 65 | 0 | 0 | 83.9 | 79.3 | 84.3 | 79.7 | 418 | 901 | 1941 | 4182 |

**2012 Plus Project Case** **Total Noise Levels**

| ID | Freeway | From | 2012 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 83 | SR-91 | Madison St to Indiana Ave (off-ramp) | 161,290 | 1,390 | 4,850 | 65 | 0 | 0 | 83.8 | 79.1 | 84.2 | 79.6 | 406 | 875 | 1886 | 4065 |
| 84 | SR-91 | Arlington Ave to Central Ave | 133,490 | 1,390 | 4,910 | 65 | 0 | 0 | 83.0 | 78.4 | 83.5 | 78.9 | 361 | 778 | 1676 | 3612 |
| 85 | SR-91 | Central Ave to 14th St | 160,190 | 1,670 | 5,860 | 65 | 0 | 0 | 83.8 | 79.2 | 84.2 | 79.6 | 407 | 878 | 1893 | 4078 |
| 86 | SR-91 | 14th St to University Ave | 146,520 | 1,560 | 5,340 | 65 | 0 | 0 | 83.4 | 78.8 | 83.8 | 79.2 | 384 | 828 | 1784 | 3845 |
| 87 | SR-91 | University Ave to Spruce St (off-ramp) | 190,140 | 2,020 | 6,860 | 65 | 0 | 0 | 84.5 | 79.9 | 84.9 | 80.2 | 457 | 985 | 2122 | 4573 |
| 101 | I-10 | SR-60 to Beaumont Ave | 104,420 | 2,220 | 14,110 | 65 | 0 | 0 | 82.7 | 78.0 | 82.9 | 78.3 | 344 | 741 | 1596 | 3440 |
| 102 | I-10 | Beaumont Ave to Pennsylvania Ave | 106,010 | 2,260 | 14,380 | 65 | 0 | 0 | 82.7 | 78.1 | 82.9 | 78.3 | 347 | 749 | 1614 | 3477 |
| 103 | I-10 | Pennsylvania Ave to Highland Springs Ave | 111,050 | 2,400 | 15,010 | 65 | 0 | 0 | 82.9 | 78.3 | 83.1 | 78.5 | 358 | 772 | 1665 | 3587 |
| 104 | I-10 | Highland Springs Ave to Sunset Ave | 106,760 | 2,280 | 14,510 | 65 | 0 | 0 | 82.8 | 78.2 | 83.0 | 78.4 | 349 | 753 | 1622 | 3495 |
| 105 | I-10 | Sunset Ave to 22nd St | 104,220 | 2,210 | 14,220 | 65 | 0 | 0 | 82.7 | 78.0 | 82.9 | 78.3 | 344 | 741 | 1596 | 3440 |
| 106 | I-10 | 22nd St to S 8th St | 102,510 | 2,160 | 14,010 | 65 | 0 | 0 | 82.6 | 78.0 | 82.8 | 78.2 | 340 | 733 | 1579 | 3402 |
| 107 | I-10 | S 8th St to S Hargrave St | 102,510 | 2,140 | 14,070 | 65 | 0 | 0 | 82.6 | 78.0 | 82.8 | 78.2 | 340 | 733 | 1579 | 3403 |
| 108 | I-10 | S Hargrave St to Field Rd | 92,120 | 1,940 | 12,640 | 65 | 0 | 0 | 82.1 | 77.5 | 82.4 | 77.7 | 317 | 683 | 1471 | 3170 |
| 109 | I-10 | Field Rd to Main St (Cabazon) | 87,840 | 1,780 | 12,140 | 65 | 0 | 0 | 81.9 | 77.3 | 82.2 | 77.5 | 306 | 661 | 1424 | 3068 |
| 110 | I-10 | Main St (Cabazon) to Main St | 77,590 | 1,580 | 10,740 | 65 | 0 | 0 | 81.4 | 76.8 | 81.7 | 77.0 | 282 | 609 | 1312 | 2826 |
| 111 | I-10 | Main St to Haugen-Lehmann Way | 77,590 | 1,590 | 10,720 | 65 | 0 | 0 | 81.4 | 76.8 | 81.7 | 77.0 | 282 | 609 | 1312 | 2826 |
| 112 | I-10 | Haugen-Lehmann Way to SR-111 | 77,590 | 1,590 | 10,730 | 65 | 0 | 0 | 81.4 | 76.8 | 81.7 | 77.0 | 282 | 609 | 1312 | 2827 |
| 113 | I-10 | SR-111 to Tipton Rd | 67,450 | 1,360 | 9,350 | 65 | 0 | 0 | 80.8 | 76.2 | 81.1 | 76.4 | 257 | 554 | 1194 | 2574 |
| 114 | I-10 | Tipton Rd to SR-62 | 67,530 | 1,360 | 9,350 | 65 | 0 | 0 | 80.8 | 76.2 | 81.1 | 76.4 | 257 | 554 | 1195 | 2575 |
| 129 | SR-215 | Scott Rd to Newport Rd | 77,920 | 1,540 | 3,720 | 65 | 0 | 0 | 80.9 | 76.2 | 81.0 | 76.4 | 260 | 561 | 1208 | 2604 |
| 130 | SR-215 | Newport Rd to MacCall Blvd | 66,520 | 1,320 | 3,170 | 65 | 0 | 0 | 80.2 | 75.5 | 80.4 | 75.8 | 234 | 504 | 1087 | 2343 |
| 131 | SR-215 | MacCall Blvd to Ethanac Rd | 72,640 | 1,470 | 3,340 | 65 | 0 | 0 | 80.6 | 75.9 | 80.8 | 76.2 | 248 | 535 | 1153 | 2485 |
| 132 | SR-215 | Ethanac Rd to SR-74/Case | 95,500 | 1,890 | 4,420 | 65 | 0 | 0 | 81.7 | 77.1 | 81.9 | 77.3 | 297 | 641 | 1383 | 2979 |
| 133 | SR-215 | SR-74/Case Rd to Redlands Blvd | 111,170 | 3,660 | 8,740 | 65 | 0 | 0 | 82.8 | 78.1 | 82.9 | 78.3 | 349 | 752 | 1622 | 3494 |
| 167 | SR-215 | Redlands Blvd to D St | 95,560 | 3,080 | 7,880 | 65 | 0 | 0 | 82.1 | 77.5 | 82.3 | 77.6 | 316 | 681 | 1468 | 3164 |
| 168 | SR-215 | D St to Nuevo St/Harvil Ave | 96,270 | 3,240 | 7,580 | 65 | 0 | 0 | 82.2 | 77.5 | 82.3 | 77.7 | 318 | 685 | 1476 | 3181 |
| 169 | SR-215 | Nuevo St/Harvil Ave to Ramona Expy/Cajalco Ex | 94,480 | 3,140 | 7,460 | 65 | 0 | 0 | 82.1 | 77.5 | 82.2 | 77.6 | 313 | 676 | 1457 | 3139 |
| 171 | SR-215 | Ramona Expy/Cajalco Expy to Harley Knox Blvd | 106,920 | 3,590 | 8,550 | 65 | 0 | 0 | 82.6 | 78.0 | 82.8 | 78.1 | 341 | 735 | 1585 | 3414 |
| 172 | SR-215 | Harley Knox Blvd to Van Buren Blvd | 113,010 | 3,820 | 8,960 | 65 | 0 | 0 | 82.9 | 78.2 | 83.0 | 78.4 | 354 | 763 | 1644 | 3543 |
| 173 | SR-215 | Van Buren Blvd to Cactus Ave | 108,910 | 3,650 | 8,730 | 65 | 0 | 0 | 82.7 | 78.1 | 82.8 | 78.2 | 345 | 744 | 1604 | 3457 |
| 174 | SR-215 | Cactus Ave to Alessandro Blvd | 116,140 | 3,200 | 7,600 | 65 | 0 | 0 | 82.8 | 78.2 | 82.9 | 78.3 | 351 | 756 | 1629 | 3510 |
| 175 | SR-215 | Alessandro Blvd to Eucalyptus Ave | 113,200 | 3,050 | 7,570 | 65 | 0 | 0 | 82.7 | 78.1 | 82.9 | 78.2 | 344 | 743 | 1601 | 3449 |
| 176 | SR-215 | Eucalyptus Ave to SR-60 | 120,270 | 3,180 | 8,110 | 65 | 0 | 0 | 82.9 | 78.3 | 83.1 | 78.5 | 358 | 773 | 1665 | 3588 |
| 134 | SR-215 | SR-60 to Columbia Ave | 179,660 | 3,470 | 7,520 | 65 | 0 | 0 | 84.5 | 79.8 | 84.6 | 80.0 | 452 | 974 | 2099 | 4523 |
| 135 | SR-215 | Columbia Ave to Center St | 150,820 | 2,920 | 6,210 | 65 | 0 | 0 | 83.7 | 79.1 | 83.8 | 79.2 | 402 | 867 | 1868 | 4024 |
| 136 | SR-215 | Center St to Iowa Ave/La Cadena Dr | 150,140 | 2,900 | 6,200 | 65 | 0 | 0 | 83.7 | 79.0 | 83.7 | 79.0 | 401 | 864 | 1862 | 4012 |
| 137 | SR-215 | Iowa Ave/La Cadena Dr to Barton Rd | 147,090 | 2,960 | 6,250 | 65 | 0 | 0 | 83.6 | 79.0 | 83.6 | 79.0 | 396 | 855 | 1842 | 3969 |
| 138 | SR-215 | Barton Rd to Mt Vernon Ave/Washington St | 153,780 | 3,090 | 6,530 | 65 | 0 | 0 | 83.8 | 79.2 | 83.8 | 79.2 | 408 | 880 | 1897 | 4088 |
| 139 | SR-215 | Mt Vernon Ave/Washington St to I-10 | 155,110 | 3,160 | 6,720 | 65 | 0 | 0 | 83.8 | 79.2 | 83.8 | 79.2 | 411 | 886 | 1910 | 4116 |
| 140 | SR-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 123,760 | 1,790 | 5,190 | 65 | 0 | 0 | 82.7 | 78.1 | 82.7 | 78.1 | 348 | 750 | 1616 | 3482 |
| 141 | SR-215 | Auto Plaza Dr/Orange Show Rd to Mill St | 113,220 | 1,570 | 4,720 | 65 | 0 | 0 | 82.3 | 77.7 | 82.3 | 77.7 | 327 | 705 | 1520 | 3275 |
| 142 | SR-215 | Mill St to 2rd St | 129,420 | 2,030 | 6,010 | 65 | 0 | 0 | 83.0 | 78.4 | 83.0 | 78.4 | 360 | 777 | 1674 | 3608 |
| 143 | SR-215 | 2rd St to Baseline Rd | 111,230 | 1,900 | 5,460 | 65 | 0 | 0 | 82.4 | 77.7 | 82.4 | 77.7 | 327 | 706 | 1522 | 3279 |
| 144 | SR-215 | Baseline Rd to Highland Ave/SR-210 | 117,930 | 2,520 | 9,520 | 65 | 0 | 0 | 82.8 | 78.2 | 82.8 | 78.2 | 353 | 760 | 1638 | 3530 |

**2022 No Project**

| ID | Arterial | From | To | 2022 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | Street A | State Route 60 | Eucalyptus Ave | 6,201 | 146 | 342 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 46 | 101 | 217 |
| 2 | Street A | Eucalyptus Ave | Street F | 1,076 | 22 | 18 | 45 | 0 | 0 | 56.8 | 52.2 | 6 | 13 | 30 | 64 |
| 3 | Street E | west of Street A | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 4 | Street E | north of Alessandro Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 5 | Street E | Street D | Street A | 3,722 | 33 | 23 | 45 | 0 | 0 | 61.8 | 57.2 | 13 | 30 | 64 | 139 |
| 6 | Street A | Street F | Street C | 1,076 | 22 | 18 | 45 | 0 | 0 | 56.8 | 52.2 | 6 | 13 | 30 | 64 |
| 7 | Street A | south of Street C | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 8 | Street D | Street E | Cactus Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 9 | John F Kennedy Dr | south of Cactus Ave | 0 | 7,329 | 47 | 0 | 45 | 0 | 0 | 64.7 | 60.0 | 21 | 46 | 100 | 216 |
| 10 | Redlands Blvd | Alessandro Blvd | Cactus Ave | 8,491 | 39 | 53 | 45 | 0 | 0 | 65.2 | 60.6 | 23 | 51 | 110 | 237 |
| 11 | Redlands Blvd | Dracaea Ave | Alessandro Blvd | 8,334 | 29 | 53 | 45 | 0 | 0 | 65.1 | 60.5 | 23 | 50 | 108 | 233 |
| 12 | Redlands Blvd | Eucalyptus Ave | Dracaea Ave | 10,869 | 109 | 64 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 61 | 132 | 286 |
| 13 | Redlands Blvd | State Route 60 | Eucalyptus Ave | 10,869 | 109 | 64 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 61 | 132 | 286 |
| 14 | Eucalyptus Ave | east of Redlands Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 15 | Eucalyptus Ave | west of Street A | 0 | 6,032 | 127 | 383 | 45 | 0 | 0 | 64.6 | 60.0 | 21 | 46 | 99 | 213 |
| 18 | Street B | east of Street A | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 18a | Street B | west of Gilman Springs Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 19 | Street F | east of Street A | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 20 | Street F | north of Street C | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 21 | Street C | east of Street A | 0 | 2,315 | 5 | 1 | 45 | 0 | 0 | 59.5 | 54.9 | 9 | 21 | 45 | 98 |
| 22 | Street C | west of Street F | 0 | 2,315 | 5 | 1 | 45 | 0 | 0 | 59.5 | 54.9 | 9 | 21 | 45 | 98 |
| 23 | Street F | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 24 | Street C | Street F | Street H | 2,898 | 1 | 4 | 45 | 0 | 0 | 60.5 | 55.8 | 11 | 24 | 52 | 113 |
| 25 | Street C | Street H | Gilman Springs Rd | 2,898 | 1 | 4 | 45 | 0 | 0 | 60.5 | 55.8 | 11 | 24 | 52 | 113 |
| 26 | Street H | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 27 | Street G | east of Street H | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 28 | Street G | Street F | Street H | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 29 | Gilman Springs Rd | State Route 60 | Eucalyptus Ave | 12,464 | 39 | 316 | 45 | 0 | 0 | 66.9 | 62.3 | 30 | 66 | 142 | 307 |
| 30 | Gilman Springs Rd | Eucalyptus Ave | Street C | 12,464 | 39 | 316 | 45 | 0 | 0 | 66.9 | 62.3 | 30 | 66 | 142 | 307 |
| 31 | Gilman Springs Rd | south of Street C | 0 | 15,024 | 40 | 448 | 45 | 0 | 0 | 67.7 | 63.1 | 34 | 75 | 161 | 348 |
| 32 | Cactus Ave | west of Redlands Blvd | 0 | 3,552 | 9 | 6 | 45 | 0 | 0 | 61.4 | 56.8 | 13 | 28 | 60 | 131 |
| 33 | Alessandro Blvd | west of Redlands Blvd | 0 | 4,786 | 4 | 6 | 45 | 0 | 0 | 62.6 | 58.0 | 15 | 34 | 73 | 159 |
| 35 | Redlands Blvd | Ironwood Ave | State Route 60 | 15,925 | 80 | 125 | 55 | 0 | 0 | 70.5 | 65.8 | 52 | 113 | 245 | 528 |
| 36 | Ironwood Ave | Redlands Blvd | Highland Blvd | 1,389 | 19 | 0 | 35 | 0 | 0 | 54.6 | 50.0 | 4 | 10 | 21 | 46 |
| 37 | San Timoteo Canyon Rd | West Live Oak Canyon | 0 | 9,732 | 44 | 102 | 45 | 0 | 0 | 65.8 | 61.2 | 26 | 56 | 120 | 260 |
| 38 | Theodore St | State Route 60 | Highland Blvd | 2,869 | 58 | 206 | 45 | 0 | 0 | 61.4 | 56.8 | 13 | 28 | 61 | 132 |
| 42 | Redlands Blvd | Ironwood Ave | San Timoteo Canyon Rd | 19,693 | 107 | 95 | 55 | 0 | 0 | 71.4 | 66.8 | 60 | 131 | 282 | 609 |
| 43 | Moreno Beach Dr | Alessandro Blvd | SR 60 | 20,765 | 42 | 97 | 45 | 0 | 0 | 69.1 | 64.4 | 42 | 91 | 197 | 425 |
| 46 | Moreno Beach Dr | State Route 60 | Ironwood Ave | 16,957 | 117 | 310 | 45 | 0 | 0 | 68.3 | 63.7 | 38 | 82 | 177 | 381 |
| 47 | Ironwood Ave | Moreno Beach Dr | Redlands Blvd | 4,246 | 25 | 12 | 45 | 6 | 0 | 56.3 | 51.7 | 5 | 12 | 27 | 59 |
| 48 | Alessandro Blvd | Lasselle St | Morrison St | 10,343 | 35 | 435 | 45 | 6 | 0 | 60.2 | 55.6 | 10 | 23 | 50 | 109 |
| 50 | Cactus Ave | Redlands Blvd | Street D | 469 | 1 | 2 | 45 | 0 | 0 | 52.6 | 48.0 | 3 | 7 | 15 | 34 |

**2022 No Project**

| ID | Arterial | From | To | 2022 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 51 | Moreno Beach Dr | John F Kennedy Dr | Cactus Ave | 16,013 | 44 | 18 | 45 | 6 | 0 | 61.9 | 57.3 | 14 | 30 | 66 | 142 |
| 52 | Moreno Beach Dr | John F Kennedy Dr | Oliver St | 15,638 | 79 | 6 | 35 | 6 | 0 | 58.8 | 54.2 | 8 | 19 | 41 | 88 |
| 53 | John F Kennedy Dr | Oliver St | Moreno Beach Dr | 4,386 | 6 | 12 | 45 | 6 | 0 | 56.3 | 51.7 | 5 | 12 | 27 | 59 |
| 54 | Locust Ave | Moreno Beach Dr | Smiley Blvd | 107 | 0 | 0 | 35 | 0 | 0 | 43.0 | 38.3 | 0 | 1 | 3 | 7 |
| 55 | Locust Ave | Moreno Beach Dr | Redlands Blvd | 3,049 | 17 | 0 | 45 | 0 | 0 | 60.8 | 56.2 | 12 | 25 | 55 | 120 |
| 56 | Moreno Beach Dr | Locust Ave | Ironwood Ave | 4,036 | 18 | 0 | 35 | 0 | 0 | 58.9 | 54.3 | 8 | 19 | 41 | 89 |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | 0 | 7,869 | 55 | 0 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 49 | 105 | 227 |
| 58 | SR 60 EB Ramps | west of Moreno Beach Dr | 0 | 14,802 | 14 | 71 | 45 | 0 | 0 | 67.6 | 62.9 | 33 | 72 | 156 | 337 |
| 59 | Eucalyptus Ave | Moreno Beach Dr | Quincy Dr | 7,616 | 172 | 442 | 45 | 0 | 0 | 65.6 | 61.0 | 24 | 53 | 115 | 249 |
| 60 | SR 60 WB Ramps | east of Redlands Blvd | 0 | 5,967 | 43 | 54 | 45 | 0 | 0 | 63.8 | 59.2 | 18 | 40 | 88 | 189 |
| 61 | SR 60 EB Ramps | west of Redlands Blvd | 0 | 7,535 | 27 | 56 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 47 | 101 | 218 |
| 62 | Fir Ave | Quincy Dr | Redlands Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 65 | Alessandro Blvd | Nason St | Oliver St | 13,083 | 46 | 27 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 67 | 146 | 314 |
| 66 | Alessandro Blvd | Oliver St | Moreno Beach Dr | 7,669 | 10 | 25 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 47 | 101 | 218 |
| 67 | Oliver St | Alessandro Blvd | Cactus Ave | 4,261 | 7 | 0 | 35 | 0 | 0 | 59.0 | 54.4 | 9 | 19 | 42 | 91 |
| 68 | Moreno Beach Dr | Alessandro Blvd | Cactus Ave | 18,529 | 54 | 36 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 85 | 183 | 395 |
| 69 | Cactus Ave | Nason St | Oliver St | 8,714 | 14 | 4 | 45 | 0 | 0 | 65.3 | 60.6 | 23 | 51 | 110 | 237 |
| 70 | Cactus Ave | Oliver St | Moreno Beach Dr | 8,214 | 10 | 0 | 45 | 6 | 0 | 59.0 | 54.4 | 9 | 19 | 42 | 90 |
| 71 | Oliver St | Cactus Ave | John F Kennedy Dr | 8,128 | 0 | 0 | 45 | 0 | 0 | 64.9 | 60.3 | 22 | 48 | 104 | 225 |
| 72 | Oliver St | John F Kennedy Dr | Iris Ave | 4,673 | 0 | 0 | 45 | 0 | 0 | 62.5 | 57.9 | 15 | 33 | 72 | 155 |
| 73 | Iris Ave | Nason St | Oliver St | 17,564 | 116 | 0 | 45 | 0 | 0 | 68.5 | 63.8 | 38 | 83 | 180 | 388 |
| 74 | Heacock St | Manzanita Ave | Ironwood Ave | 25,062 | 29 | 19 | 45 | 0 | 0 | 69.8 | 65.2 | 48 | 103 | 222 | 480 |
| 75 | Ironwood Ave | Graham St | Heacock St | 17,318 | 25 | 13 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 174 | 375 |
| 76 | Ironwood Ave | Heacock St | Indian Ave | 13,491 | 8 | 3 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 68 | 147 | 317 |
| 77 | Heacock St | Ironwood Ave | Hemlock Ave | 26,177 | 39 | 31 | 45 | 0 | 0 | 70.0 | 65.4 | 49 | 106 | 229 | 495 |
| 80 | Heacock St | Hemlock Ave | SR 60 WB Ramps | 31,791 | 59 | 29 | 45 | 0 | 0 | 70.9 | 66.3 | 56 | 121 | 262 | 564 |
| 81 | SR 60 WB Ramps | west of Heacock St | 0 | 21,034 | 30 | 148 | 45 | 0 | 0 | 69.1 | 64.5 | 42 | 92 | 198 | 428 |
| 82 | SR 60 WB Ramps | east of Heacock St | 0 | 11,220 | 64 | 168 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 62 | 133 | 288 |
| 83 | Heacock St | SR 60 WB Ramps | SR 60 EB Ramps | 33,944 | 77 | 139 | 45 | 0 | 0 | 71.2 | 66.6 | 59 | 127 | 274 | 591 |
| 85 | SR 60 WB Onramp | west of Perris Blvd | 0 | 21,400 | 98 | 152 | 45 | 0 | 0 | 69.3 | 64.6 | 43 | 94 | 203 | 439 |
| 86 | SR 60 WB Offramp | east of Perris Blvd | 0 | 8,986 | 50 | 28 | 45 | 0 | 0 | 65.5 | 60.9 | 24 | 53 | 114 | 247 |
| 87 | Eucalyptus Ave | Indian St | Perris Blvd | 6,937 | 7 | 0 | 45 | 0 | 0 | 64.3 | 59.6 | 20 | 43 | 94 | 203 |
| 88 | Eucalyptus Ave | Perris Blvd | Kitching St | 9,010 | 14 | 12 | 45 | 0 | 0 | 65.4 | 60.8 | 24 | 52 | 112 | 243 |
| 95 | W 6th St | I-10 | N California Ave | 14,690 | 78 | 136 | 45 | 0 | 0 | 67.7 | 63.0 | 34 | 73 | 159 | 343 |
| 96 | N California Ave | W 6th St | E 8th St | 5,408 | 11 | 16 | 45 | 0 | 0 | 63.2 | 58.6 | 17 | 37 | 80 | 173 |
| 97 | E 6th St | N California Ave | Beaumont Ave | 10,097 | 44 | 60 | 45 | 0 | 0 | 66.0 | 61.4 | 26 | 57 | 123 | 266 |
| 98 | N California Ave | W 6th St | I-10 | 10,223 | 76 | 107 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 126 | 272 |
| 99 | Beaumont Ave | E 6th St | E 8th St | 13,129 | 35 | 47 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 67 | 145 | 314 |
| 100 | I-215 SB Ramps | north of Alessandro Blvd | 0 | 8,614 | 50 | 98 | 45 | 0 | 0 | 65.4 | 60.7 | 24 | 51 | 111 | 241 |
| 101 | Alessandro Blvd | Sycamore Canyon Blvd | I-215 SB Ramps | 47,659 | 232 | 261 | 45 | 0 | 0 | 72.7 | 68.1 | 74 | 161 | 348 | 749 |
| 102 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 14,474 | 56 | 40 | 45 | 0 | 0 | 67.5 | 62.9 | 33 | 72 | 156 | 337 |
| 103 | I-215 NB Ramps | north of Alessandro Blvd | 0 | 14,638 | 120 | 306 | 45 | 0 | 0 | 67.8 | 63.1 | 34 | 75 | 161 | 348 |

**2022 No Project**

| ID | Arterial | From | To | 2022 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 104 | Alessandro Blvd | I-215 NB Ramps | Old 215 Frontage Rd | 37,630 | 234 | 416 | 45 | 0 | 0 | 71.8 | 67.1 | 64 | 139 | 299 | 645 |
| 105 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 13,992 | 46 | 86 | 45 | 0 | 0 | 67.4 | 62.8 | 32 | 70 | 152 | 329 |
| 106 | Old 215 Frontage Rd | Eucalyptus Ave | Alessandro Blvd | 9,269 | 23 | 24 | 45 | 0 | 0 | 65.6 | 60.9 | 24 | 53 | 115 | 249 |
| 107 | Alessandro Blvd | Old 215 Frontage Rd | Day St | 35,966 | 202 | 398 | 45 | 0 | 0 | 71.6 | 66.9 | 62 | 134 | 289 | 624 |
| 108 | Old 215 Frontage Rd | Alessandro Blvd | Cactus Ave | 6,293 | 80 | 77 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 93 | 201 |
| 109 | Day St | Cottonwood Ave | Alessandro Blvd | 5,811 | 34 | 0 | 35 | 0 | 0 | 60.5 | 55.9 | 11 | 24 | 53 | 115 |
| 110 | Alessandro Blvd | Day St | Elsworth St | 33,123 | 144 | 267 | 45 | 0 | 0 | 71.2 | 66.5 | 58 | 126 | 272 | 587 |
| 111 | Elsworth St | Cottonwood Ave | Alessandro Blvd | 9,036 | 23 | 0 | 35 | 0 | 0 | 62.3 | 57.7 | 15 | 32 | 70 | 151 |
| 112 | Alessandro Blvd | Elsworth St | Frederick St | 34,958 | 148 | 287 | 45 | 0 | 0 | 71.4 | 66.8 | 60 | 131 | 282 | 608 |
| 113 | Elsworth St | Alessandro Blvd | Cactus Ave | 9,534 | 35 | 63 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 55 | 118 | 255 |
| 114 | Frederick St | Cottonwood Ave | Alessandro Blvd | 24,824 | 57 | 64 | 45 | 0 | 0 | 69.8 | 65.2 | 47 | 103 | 222 | 479 |
| 115 | Alessandro Blvd | Frederick St | Graham St | 36,246 | 147 | 251 | 45 | 0 | 0 | 71.5 | 66.9 | 62 | 134 | 289 | 622 |
| 116 | Frederick St | Alessandro Blvd | Cactus Ave | 18,003 | 54 | 50 | 45 | 0 | 0 | 68.5 | 63.8 | 38 | 83 | 180 | 388 |
| 117 | Graham St | Cottonwood Ave | Alessandro Blvd | 11,769 | 15 | 12 | 45 | 0 | 0 | 66.6 | 61.9 | 29 | 62 | 134 | 290 |
| 118 | Alessandro Blvd | Graham St | Heacock St | 37,874 | 141 | 173 | 45 | 0 | 0 | 71.7 | 67.1 | 64 | 137 | 297 | 640 |
| 119 | Graham St | Alessandro Blvd | Cactus Ave | 15,313 | 40 | 53 | 45 | 0 | 0 | 67.7 | 63.1 | 34 | 75 | 161 | 348 |
| 120 | Heacock St | Cottonwood Ave | Alessandro Blvd | 22,838 | 96 | 182 | 45 | 0 | 0 | 69.5 | 64.9 | 45 | 98 | 212 | 458 |
| 121 | Alessandro Blvd | Heacock St | Indian St | 32,894 | 83 | 108 | 45 | 0 | 0 | 71.1 | 66.4 | 57 | 124 | 268 | 579 |
| 122 | Heacock St | Alessandro Blvd | Cactus Ave | 17,278 | 100 | 255 | 45 | 6 | 0 | 62.4 | 57.8 | 15 | 32 | 70 | 152 |
| 123 | Indian St | Cottonwood Ave | Alessandro Blvd | 14,221 | 34 | 47 | 45 | 0 | 0 | 67.4 | 62.8 | 33 | 71 | 153 | 331 |
| 124 | Alessandro Blvd | Indian St | Perris Blvd | 31,806 | 111 | 92 | 45 | 0 | 0 | 70.9 | 66.3 | 56 | 122 | 264 | 569 |
| 125 | Indian St | Alessandro Blvd | Cactus Ave | 12,574 | 25 | 24 | 45 | 6 | 0 | 60.9 | 56.3 | 12 | 26 | 56 | 121 |
| 126 | Alessandro Blvd | Perris Blvd | Kitching St | 21,877 | 53 | 75 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 95 | 204 | 441 |
| 127 | Perris Blvd | Alessandro Blvd | Cactus Ave | 28,193 | 170 | 72 | 45 | 6 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 128 | Kitching St | Cottonwood Ave | Alessandro Blvd | 8,938 | 6 | 12 | 45 | 0 | 0 | 65.4 | 60.7 | 24 | 51 | 111 | 241 |
| 129 | Alessandro Blvd | Kitching St | Lasselle St | 15,090 | 17 | 102 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 159 | 342 |
| 130 | Kitching St | Alessandro Blvd | Cactus Ave | 8,341 | 4 | 0 | 45 | 6 | 0 | 59.0 | 54.4 | 9 | 19 | 42 | 91 |
| 131 | Lasselle St | Cottonwood Ave | Alessandro Blvd | 9,036 | 10 | 12 | 45 | 0 | 0 | 65.4 | 60.8 | 24 | 52 | 112 | 243 |
| 133 | Lasselle St | Alessandro Blvd | Cactus Ave | 16,171 | 26 | 95 | 45 | 0 | 0 | 68.0 | 63.3 | 35 | 77 | 166 | 359 |
| 134 | Morrison St | Cottonwood Ave | Alessandro Blvd | 3,976 | 18 | 20 | 45 | 0 | 0 | 62.0 | 57.3 | 14 | 30 | 66 | 143 |
| 135 | Alessandro Blvd | Morrison St | Nason St | 8,953 | 26 | 304 | 50 | 6 | 0 | 60.8 | 56.2 | 12 | 25 | 55 | 120 |
| 136 | Nason St | Cottonwood Ave | Alessandro Blvd | 16,928 | 50 | 0 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 172 | 372 |
| 137 | Nason St | Alessandro Blvd | Cactus Ave | 15,514 | 57 | 0 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 76 | 163 | 352 |
| 138 | I-215 SB Ramps | north of Cactus Ave | 0 | 5,204 | 192 | 434 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 212 |
| 139 | Cactus Ave | Meridian Pkwy | I-215 SB Ramps | 14,370 | 140 | 246 | 45 | 0 | 0 | 67.7 | 63.1 | 34 | 74 | 160 | 346 |
| 140 | I-215 SB Ramps | south of Cactus Ave | 0 | 29,064 | 156 | 202 | 45 | 0 | 0 | 70.6 | 66.0 | 54 | 116 | 250 | 540 |
| 141 | Cactus Ave | I-215 NB Ramps | Elsworth St | 42,287 | 338 | 690 | 45 | 0 | 0 | 72.3 | 67.7 | 70 | 151 | 327 | 704 |
| 142 | I-215 NB Ramps | south of Cactus Ave | 0 | 6,463 | 94 | 306 | 45 | 0 | 0 | 64.6 | 59.9 | 21 | 45 | 98 | 213 |
| 143 | Cactus Ave | Elsworth St | Frederick St | 47,944 | 261 | 834 | 45 | 0 | 0 | 72.8 | 68.2 | 75 | 163 | 351 | 757 |
| 144 | Cactus Ave | Frederick St | Graham St | 57,164 | 331 | 772 | 45 | 0 | 0 | 73.6 | 69.0 | 85 | 183 | 395 | 852 |
| 145 | Cactus Ave | Graham St | Heacock St | 31,657 | 107 | 713 | 45 | 0 | 0 | 71.0 | 66.3 | 57 | 123 | 265 | 571 |
| 146 | Riverside Dr | Cactus Ave | Meyer Dr | 37,866 | 239 | 0 | 45 | 0 | 0 | 71.8 | 67.2 | 64 | 139 | 300 | 646 |

**2022 No Project**

| ID | Arterial | From | To | 2022 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 147 | Cactus Ave | Heacock St | Indian St | 22,852 | 29 | 97 | 45 | 0 | 0 | 69.4 | 64.8 | 45 | 97 | 209 | 452 |
| 148 | Heacock St | Cactus Ave | John F Kennedy Dr | 27,185 | 154 | 1,002 | 45 | 6 | 0 | 64.4 | 59.8 | 20 | 45 | 97 | 209 |
| 149 | Cactus Ave | Indian St | Perris Blvd | 19,680 | 23 | 84 | 45 | 0 | 0 | 68.8 | 64.2 | 40 | 88 | 189 | 409 |
| 150 | Indian St | Cactus Ave | John F Kennedy Dr | 12,001 | 20 | 12 | 45 | 6 | 0 | 60.7 | 56.0 | 11 | 25 | 54 | 117 |
| 151 | Cactus Ave | Perris Blvd | Kitching St | 17,749 | 8 | 0 | 45 | 0 | 0 | 68.3 | 63.7 | 38 | 81 | 176 | 380 |
| 152 | Perris Blvd | Cactus Ave | John F Kennedy Dr | 28,355 | 165 | 147 | 45 | 6 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 212 |
| 153 | Cactus Ave | Kitching St | Lasselle St | 13,173 | 9 | 0 | 45 | 0 | 0 | 67.0 | 62.4 | 31 | 67 | 144 | 312 |
| 154 | Kitching St | Cactus Ave | John F Kennedy Dr | 8,866 | 1 | 0 | 35 | 6 | 0 | 56.2 | 51.5 | 5 | 12 | 27 | 58 |
| 155 | Cactus Ave | Lasselle St | Morrison St | 22,955 | 34 | 0 | 45 | 0 | 0 | 69.5 | 64.8 | 45 | 97 | 210 | 453 |
| 156 | Lasselle St | Cactus Ave | John F Kennedy Dr | 26,135 | 36 | 0 | 45 | 0 | 0 | 70.0 | 65.4 | 49 | 106 | 229 | 494 |
| 157 | Cactus Ave | Morrison St | Nason St | 18,714 | 32 | 0 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 85 | 183 | 396 |
| 158 | E 6th St | Beaumont Ave | Pennsylvania Ave | 15,999 | 78 | 188 | 45 | 0 | 0 | 68.0 | 63.4 | 36 | 78 | 168 | 362 |
| 159 | Beaumont Ave | E 6th St | I-10 | 15,279 | 44 | 196 | 45 | 0 | 0 | 67.8 | 63.1 | 34 | 75 | 161 | 348 |
| 160 | Kitching St | Gentian Ave | Iris Ave | 6,265 | 6 | 12 | 45 | 0 | 0 | 63.8 | 59.2 | 19 | 41 | 88 | 190 |
| 161 | Iris Ave | Perris Blvd | Kitching St | 19,094 | 57 | 30 | 45 | 6 | 0 | 62.7 | 58.1 | 16 | 34 | 74 | 160 |
| 162 | Iris Ave | Kitching St | Lasselle St | 21,853 | 79 | 0 | 45 | 6 | 0 | 63.3 | 58.7 | 17 | 38 | 81 | 176 |
| 163 | Kitching St | Iris Ave | Ivory Ave | 18,440 | 61 | 0 | 45 | 6 | 0 | 62.6 | 58.0 | 15 | 33 | 73 | 157 |
| 164 | Lasselle St | Gentian Ave | Iris Ave | 22,239 | 15 | 0 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 95 | 205 | 442 |
| 165 | Iris Ave | Lasselle St | Nason St | 24,080 | 156 | 0 | 45 | 6 | 0 | 63.8 | 59.2 | 19 | 41 | 88 | 190 |
| 168 | Krameria Ave | Perris Blvd | Lasselle St | 13,055 | 98 | 0 | 45 | 6 | 0 | 61.2 | 56.6 | 12 | 27 | 59 | 127 |
| 169 | Krameria Ave | Kitching St | Lasselle St | 7,258 | 16 | 0 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 170 | Kitching St | Krameria Ave | Lurin Ave | 21,370 | 12 | 0 | 45 | 6 | 0 | 63.1 | 58.5 | 17 | 36 | 79 | 171 |
| 171 | Lasselle St | Cahuilla Dr | Krameria Ave | 24,234 | 62 | 0 | 45 | 6 | 0 | 63.7 | 59.1 | 18 | 40 | 87 | 188 |
| 172 | Lasselle St | Krameria Ave | Arroyo Park Dr | 12,638 | 59 | 12 | 45 | 6 | 0 | 61.0 | 56.3 | 12 | 26 | 57 | 123 |
| 173 | Oleander Ave | Perris Blvd | Lasselle St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 174 | Oleander Ave | Lasselle St | Lake Perris Dr | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 177 | San Timoteo Canyon Rd | Alessandro Rd | Live Oak Canyon Rd | 15,958 | 100 | 90 | 45 | 0 | 0 | 68.0 | 63.4 | 36 | 78 | 168 | 363 |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd | I-10 | 4,675 | 21 | 29 | 45 | 0 | 0 | 62.7 | 58.0 | 15 | 34 | 73 | 159 |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd | Redlands Blvd | 19,235 | 122 | 101 | 45 | 0 | 0 | 68.8 | 64.2 | 41 | 88 | 191 | 412 |
| 180 | San Timoteo Canyon Rd | Redlands Blvd | Woodhouse Rd | 3,602 | 13 | 32 | 45 | 0 | 0 | 61.5 | 56.9 | 13 | 28 | 62 | 133 |
| 181 | Potrero Blvd | north of SR 60 WB Ramps | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 182 | SR 60 WB Onramp | west of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 183 | SR 60 WB Offramp | east of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 184 | SR 60 EB Offramp | west of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 185 | SR 60 EB Onramp | east of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 186 | Potrero Blvd | south of SR 60 EB Ramps | W 4th St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 190 | Gilman Springs Rd | Jack Rabbit Trail | Bridge St | 13,557 | 48 | 36 | 45 | 0 | 0 | 67.2 | 62.6 | 32 | 69 | 149 | 322 |
| 191 | Gilman Springs Rd | Bridge St | Beaumont Ave | 12,674 | 48 | 36 | 45 | 0 | 0 | 67.0 | 62.3 | 30 | 66 | 143 | 308 |
| 192 | Bridge St | Gilman Springs Rd | Marvin Rd | 1,624 | 9 | 38 | 45 | 0 | 0 | 58.2 | 53.6 | 8 | 17 | 37 | 80 |
| 194 | Crescent Ave | West of Alessandro Rd | 0 | 2,669 | 13 | 0 | 35 | 0 | 0 | 57.1 | 52.5 | 6 | 14 | 31 | 68 |
| 195 | Crescent Ave | Alessandro Rd | Center St | 7,531 | 34 | 0 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 47 | 101 | 218 |
| 196 | Alessandro Rd | Crescent Ave | Sunset Dr | 7,502 | 48 | 0 | 45 | 0 | 0 | 64.8 | 60.1 | 21 | 47 | 102 | 219 |

**2022 No Project**

| ID | Arterial | From | To | 2022 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 198 | Sunset Dr | Crown St | Alessandro Rd | 259 | 0 | 0 | 35 | 0 | 0 | 46.8 | 42.2 | 1 | 3 | 6 | 13 |
| 199 | Sunset Dr | Alessandro Rd | Cameo Dr | 829 | 4 | 0 | 35 | 0 | 0 | 52.1 | 47.4 | 3 | 6 | 14 | 31 |
| 200 | Alessandro Rd | Sunset Dr | San Timoteo Canyon Rd | 8,070 | 55 | 0 | 45 | 0 | 0 | 65.1 | 60.5 | 23 | 49 | 107 | 231 |
| 205 | Reche Canyon Rd | Keissel Rd | Reche Vista Dr | 21,953 | 73 | 0 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 95 | 206 | 443 |
| 206 | Reche Canyon Rd | Reche Vista Dr | High Country Dr | 302 | 0 | 0 | 45 | 0 | 0 | 50.6 | 46.0 | 2 | 5 | 11 | 25 |
| 207 | Reche Vista Dr | Heacock St | Reche Canyon Rd | 21,921 | 73 | 0 | 35 | 0 | 0 | 66.2 | 61.6 | 27 | 59 | 127 | 275 |
| 215 | Mission Grove Pkwy | Cannon Rd | Alessandro Blvd | 8,614 | 4 | 4 | 35 | 0 | 0 | 62.0 | 57.4 | 14 | 31 | 67 | 145 |
| 216 | Alessandro Blvd | Trautwein Rd | Vista Grande Dr | 53,038 | 205 | 235 | 45 | 0 | 0 | 73.2 | 68.6 | 80 | 172 | 372 | 801 |
| 217 | Mission Grove Pkwy | Alessandro Blvd | Northrop Dr | 17,721 | 29 | 24 | 45 | 6 | 0 | 62.4 | 57.7 | 15 | 32 | 70 | 152 |
| 218 | Alessandro Blvd | Canyon Crest Dr | Trautwein Rd | 59,704 | 214 | 247 | 45 | 0 | 0 | 73.7 | 69.1 | 86 | 186 | 402 | 866 |
| 219 | Trautwein Rd | Alessandro Blvd | Orange Terrace Pkwy | 11,127 | 3 | 3 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 59 | 129 | 278 |
| 221 | Canyon Crest Dr | Central Ave | Alessandro Blvd | 12,951 | 21 | 34 | 45 | 0 | 0 | 67.0 | 62.4 | 31 | 66 | 143 | 310 |
| 223 | Canyon Crest Dr | Alessandro Blvd | Sandtrack Rd | 850 | 0 | 0 | 35 | 6 | 0 | 46.0 | 41.3 | 1 | 2 | 5 | 12 |
| 225 | Via Vista Dr | Alessandro Blvd | Canyon Crest Dr | 2,580 | 0 | 0 | 45 | 0 | 0 | 59.9 | 55.3 | 10 | 22 | 48 | 104 |
| 226 | Alessandro Blvd | Century Ave | Canyon Crest Dr | 57,174 | 203 | 228 | 45 | 0 | 0 | 73.5 | 68.9 | 84 | 181 | 390 | 841 |
| 227 | Via Vista Dr | Alessandro Blvd | Canyon Hill Dr | 3,434 | 0 | 0 | 45 | 0 | 0 | 61.2 | 56.6 | 12 | 27 | 58 | 126 |
| 229 | Century Ave | Alessandro Blvd | Claridge Dr | 2,131 | 3 | 3 | 45 | 0 | 0 | 59.1 | 54.5 | 9 | 20 | 43 | 93 |
| 230 | Century Ave | Trafalgar Ave | Alessandro Blvd | 1,855 | 0 | 0 | 45 | 0 | 0 | 58.5 | 53.9 | 8 | 18 | 39 | 84 |
| 231 | Alessandro Blvd | Victoria Ave | Arlington Ave/Chicago Ave | 41,747 | 152 | 194 | 45 | 0 | 0 | 72.1 | 67.5 | 68 | 147 | 316 | 682 |
| 232 | Chicago Ave | Alessandro Blvd | Central Ave | 36,507 | 147 | 202 | 45 | 0 | 0 | 71.6 | 66.9 | 62 | 134 | 290 | 625 |
| 233 | Alessandro Blvd | Arlington Ave/Chicago Ave | Century Ave | 59,998 | 227 | 255 | 45 | 0 | 0 | 73.7 | 69.1 | 86 | 187 | 403 | 869 |
| 236 | Victoria Ave | Central Ave | Arlington Ave | 8,583 | 37 | 11 | 45 | 0 | 0 | 65.3 | 60.7 | 23 | 51 | 110 | 238 |
| 237 | Arlington Ave | Victoria Ave | Alessandro Blvd | 41,129 | 213 | 264 | 45 | 0 | 0 | 72.1 | 67.5 | 68 | 146 | 316 | 680 |
| 238 | Victoria Ave | Arlington Ave | Maude St | 16,078 | 77 | 35 | 45 | 0 | 0 | 68.0 | 63.4 | 36 | 78 | 168 | 363 |
| 239 | Arlington Ave | Maude St | Victoria Ave | 34,765 | 147 | 212 | 45 | 0 | 0 | 71.4 | 66.7 | 60 | 130 | 281 | 606 |
| 240 | Durango Rd | Laramie Rd | Arlington Ave | 2,693 | 10 | 10 | 45 | 0 | 0 | 60.2 | 55.6 | 10 | 23 | 51 | 109 |
| 241 | Horace St | Arlington Ave | Victoria Ave | 5,255 | 10 | 14 | 45 | 0 | 0 | 63.1 | 58.5 | 17 | 36 | 78 | 170 |
| 242 | Arlington Ave | Magnolia Ave | SR-91 WB On-Ramps | 39,129 | 129 | 196 | 45 | 0 | 0 | 71.8 | 67.2 | 65 | 140 | 303 | 652 |
| 243 | Riverside Dr | SR-91 WB Off-Ramps | Arlington Ave | 12,696 | 33 | 33 | 45 | 0 | 0 | 66.9 | 62.3 | 30 | 66 | 142 | 307 |
| 244 | SR-91 WB On-Ramps | Arlington Ave | SR-91 | 18,858 | 82 | 152 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 86 | 187 | 403 |
| 245 | SR-91 EB On-Ramps | SR-91 | Arlington Ave | 23,512 | 46 | 138 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 99 | 214 | 462 |
| 246 | Indiana Ave | Arlington Ave | SR-91 EB Off-Ramps | 17,785 | 86 | 137 | 45 | 0 | 0 | 68.5 | 63.8 | 38 | 83 | 180 | 388 |
| 247 | Arlington Ave | SR-91 WB On-Ramps | SR-91 EB On-Ramps | 42,286 | 133 | 180 | 45 | 0 | 0 | 72.2 | 67.6 | 68 | 148 | 318 | 687 |
| 250 | Country Club Dr | Chicago Ave | Canyon Crest Dr | 3,057 | 2 | 2 | 35 | 0 | 0 | 57.6 | 52.9 | 7 | 15 | 33 | 72 |
| 252 | Central Ave | Chicago Ave | Canyon Crest Dr | 26,314 | 116 | 172 | 45 | 0 | 0 | 70.2 | 65.5 | 50 | 108 | 233 | 503 |
| 254 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 19,125 | 49 | 64 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 86 | 187 | 403 |
| 256 | Canyon Crest Dr | Central Ave | Country Club Dr | 20,621 | 47 | 64 | 45 | 0 | 0 | 69.0 | 64.4 | 42 | 91 | 196 | 423 |
| 258 | El Cerrito Dr | Canyon Crest Dr | Central Ave | 6,806 | 8 | 26 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 93 | 201 |
| 260 | Central Ave | Canyon Crest Dr | I-215 | 26,002 | 102 | 173 | 45 | 0 | 0 | 70.1 | 65.5 | 49 | 107 | 231 | 498 |
| 261 | Lochmoor Dr | Central Ave | Fair Isle Dr | 9,798 | 104 | 180 | 35 | 6 | 0 | 57.1 | 52.4 | 6 | 14 | 31 | 67 |
| 262 | Sycamore Canyon Blvd | Central Ave | College Blvd | 16,510 | 118 | 251 | 35 | 0 | 0 | 65.2 | 60.6 | 23 | 50 | 108 | 234 |
| 263 | Central Ave | Sycamore Canyon Blvd | I-215 SB Ramps | 22,067 | 117 | 176 | 45 | 0 | 0 | 69.4 | 64.8 | 45 | 96 | 208 | 450 |

**2022 No Project**

| ID | Arterial | From | To | 2022 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 264 | I-215 SB Off-Ramps | I-215 | Central Ave | 2,990 | 34 | 8 | 45 | 0 | 0 | 60.9 | 56.3 | 12 | 26 | 56 | 121 |
| 265 | Central Ave | I-215 SB Ramps | I-215 NB Ramps | 19,626 | 135 | 140 | 45 | 0 | 0 | 69.0 | 64.3 | 41 | 90 | 194 | 418 |
| 266 | I-215 SB On-Ramps | Central Ave | I-215 | 27,194 | 146 | 254 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 240 | 517 |
| 267 | Watkins Dr | I-215 NB On-Ramp | I-215 NB Off-Ramp | 18,205 | 155 | 168 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 86 | 186 | 401 |
| 268 | I-215 NB Off-Ramp | Watkins Dr | I-215 | 12,934 | 92 | 96 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 68 | 147 | 317 |
| 269 | Martin Luther King Blvd | SR-91 | Chicago Ave | 35,982 | 115 | 253 | 45 | 0 | 0 | 71.5 | 66.9 | 61 | 133 | 286 | 617 |
| 270 | Chicago Ave | University Ave | Martin Luther King Blvd | 27,159 | 45 | 53 | 45 | 0 | 0 | 70.2 | 65.6 | 50 | 109 | 235 | 507 |
| 271 | Martin Luther King Blvd | Chicago Ave | Iowa Ave | 31,890 | 113 | 243 | 45 | 0 | 0 | 71.0 | 66.3 | 57 | 122 | 264 | 570 |
| 272 | Chicago Ave | Martin Luther King Blvd | Central Ave | 27,876 | 39 | 41 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 239 | 516 |
| 273 | Iowa Ave | University Ave | Martin Luther King Blvd | 15,393 | 26 | 25 | 45 | 0 | 0 | 67.7 | 63.1 | 34 | 74 | 161 | 347 |
| 274 | Martin Luther King Blvd | Iowa Ave | Canyon Crest Dr | 40,295 | 139 | 261 | 45 | 0 | 0 | 72.0 | 67.4 | 66 | 143 | 309 | 666 |
| 275 | Canyon Crest Dr | Campus Dr | Martin Luther King Blvd | 14,836 | 103 | 229 | 45 | 0 | 0 | 67.8 | 63.1 | 34 | 75 | 161 | 348 |
| 276 | Martin Luther King Blvd | Canyon Crest Dr | I-215 SB Ramps | 32,586 | 113 | 282 | 45 | 0 | 0 | 71.1 | 66.4 | 57 | 124 | 268 | 578 |
| 277 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 25,777 | 30 | 47 | 45 | 0 | 0 | 70.0 | 65.3 | 48 | 105 | 227 | 489 |
| 278 | I-215 SB Off-Ramp | I-215 | Martin Luther King Blvd | 6,334 | 0 | 22 | 45 | 0 | 0 | 63.8 | 59.2 | 19 | 41 | 88 | 191 |
| 279 | Martin Luther King Blvd | I-215 SB Ramps | I-215 NB Ramps | 9,538 | 16 | 49 | 45 | 0 | 0 | 65.7 | 61.0 | 25 | 54 | 117 | 253 |
| 280 | I-215 SB On-Ramp | Martin Luther King Blvd | I-215 | 36,122 | 102 | 236 | 45 | 0 | 0 | 71.5 | 66.9 | 61 | 133 | 286 | 617 |
| 281 | I-215 NB On-Ramp | I-215 | Martin Luther King Blvd | 10,204 | 12 | 42 | 45 | 0 | 0 | 65.9 | 61.3 | 26 | 56 | 122 | 264 |
| 282 | I-215 NB Off-Ramp | Martin Luther King Blvd | I-215 | 10,204 | 44 | 100 | 45 | 0 | 0 | 66.0 | 61.4 | 26 | 57 | 124 | 268 |
| 283 | SR-60 EB Off-Ramp | SR-60 | Heacock St | 25,078 | 108 | 460 | 45 | 0 | 0 | 70.0 | 65.3 | 48 | 105 | 227 | 489 |
| 284 | SR-60 EB On-Ramp | Heacock St | SR-60 | 13,128 | 96 | 442 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 151 | 326 |
| 285 | Heacock St | SR-60 EB Ramps | Sunnymead Blvd | 34,720 | 98 | 254 | 45 | 0 | 0 | 71.3 | 66.7 | 60 | 129 | 279 | 601 |
| 286 | Perris Blvd | Hemlock Ave | SR-60 WB Ramps | 37,727 | 109 | 39 | 45 | 0 | 0 | 71.7 | 67.0 | 63 | 136 | 295 | 635 |
| 287 | Perris Blvd | SR-60 WB Ramps | Sunnymead Blvd | 41,192 | 189 | 106 | 45 | 0 | 0 | 72.1 | 67.5 | 67 | 146 | 315 | 679 |
| 288 | Sunnymead Blvd | SR-60 WB Off-Ramp | Perris Blvd | 26,054 | 204 | 176 | 45 | 0 | 0 | 70.2 | 65.6 | 50 | 109 | 235 | 508 |
| 289 | Sunnymead Blvd | Perris Blvd | SR-60 WB On-Ramp | 20,518 | 81 | 68 | 45 | 0 | 0 | 69.1 | 64.4 | 42 | 91 | 197 | 425 |
| 290 | Perris Blvd | Sunnymead Blvd | Fir Ave | 33,529 | 241 | 226 | 45 | 0 | 0 | 71.3 | 66.7 | 59 | 129 | 278 | 599 |
| 294 | Via Del Lago | South of Iris Ave | 0 | 1,697 | 4 | 0 | 45 | 0 | 0 | 58.2 | 53.6 | 8 | 17 | 37 | 80 |
| 301 | John F. Kennedy Dr | Indian St | Perris Blvd | 16,464 | 32 | 0 | 45 | 0 | 0 | 68.0 | 63.4 | 36 | 78 | 169 | 364 |
| 302 | John F. Kennedy Dr | Perris Blvd | Kitching St | 15,844 | 32 | 0 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 76 | 164 | 355 |
| 303 | Perris Blvd | John F. Kennedy Dr | Iris Ave | 27,336 | 214 | 197 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 113 | 243 | 524 |
| 304 | Iris Ave | Indian St | Perris Blvd | 13,630 | 30 | 47 | 45 | 0 | 0 | 67.2 | 62.6 | 32 | 69 | 149 | 321 |
| 306 | Perris Blvd | Iris Ave | Krameria Ave | 24,788 | 181 | 182 | 45 | 6 | 0 | 64.0 | 59.4 | 19 | 42 | 90 | 195 |
| 307 | Perris Blvd | Krameria Ave | Harley Know Blvd | 25,595 | 198 | 158 | 45 | 6 | 0 | 64.1 | 59.5 | 19 | 43 | 92 | 199 |
| 324 | Ramona Expy | Warren Rd | Sanderson Ave | 13,994 | 83 | 272 | 45 | 0 | 0 | 67.5 | 62.9 | 33 | 72 | 155 | 334 |
| 325 | Sanderson Ave | Gilman Springs Rd | Ramona Expy | 36,045 | 120 | 1,023 | 45 | 0 | 0 | 71.6 | 66.9 | 62 | 134 | 290 | 624 |
| 326 | Ramona Expy | Sanderson Ave | State St | 15,257 | 71 | 165 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 75 | 163 | 351 |
| 327 | Sanderson Ave | Ramona Expy | Ramona Blvd | 17,889 | 24 | 177 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 82 | 178 | 384 |
| 340 | Alessandro Blvd | South of San Timoteo Canyon R | 0 | 366 | 0 | 0 | 45 | 0 | 0 | 51.5 | 46.8 | 2 | 6 | 13 | 28 |
| 351 | Live Oak Canyon Rd | South of San Timoteo Canyon R | 0 | 711 | 2 | 2 | 45 | 0 | 0 | 54.4 | 49.8 | 4 | 9 | 20 | 45 |
| 358 | Gilman Springs Rd | Bridge St | SR-79 SB Ramps | 12,985 | 36 | 36 | 45 | 0 | 0 | 67.0 | 62.4 | 31 | 67 | 144 | 312 |
| 359 | SR-79 SB Off-Ramp | SR-79 | Gilman Springs Rd | 10,422 | 100 | 224 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 60 | 129 | 279 |

**2022 No Project**

| ID | Arterial | From | To | 2022 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 360 | Gilman Springs Rd | SR-79 SB Ramps | SR-79 NB Ramps | 13,674 | 47 | 18 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 69 | 150 | 323 |
| 361 | SR-79 SB On-Ramp | Gilman Springs Rd | SR-79 | 8,964 | 36 | 24 | 45 | 0 | 0 | 65.5 | 60.8 | 24 | 52 | 113 | 245 |
| 362 | SR-79 NB On-Ramp | SR-79 | Gilman Springs Rd | 11,002 | 144 | 366 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 64 | 138 | 297 |
| 363 | Gilman Springs Rd | SR-79 NB Ramps | Record Rd | 16,599 | 65 | 12 | 45 | 0 | 0 | 68.1 | 63.5 | 36 | 79 | 171 | 369 |
| 364 | SR-79 NB Off-Ramp | Gilman Springs Rd | SR-79 | 4,382 | 12 | 24 | 45 | 0 | 0 | 62.3 | 57.7 | 15 | 32 | 70 | 151 |
| 365 | Alessandro Blvd | Sycamore Canyon Blvd | Vista Grande Dr | 53,253 | 243 | 265 | 45 | 0 | 0 | 73.2 | 68.6 | 80 | 173 | 374 | 806 |
| 366 | Sycamore Canyon Blvd | Eastridge Ave | Alessandro Blvd | 10,957 | 66 | 106 | 45 | 0 | 0 | 66.4 | 61.8 | 28 | 61 | 131 | 283 |
| 367 | Meridian Pkwy | Alessandro Blvd | Cactus Ave | 6,456 | 27 | 75 | 45 | 0 | 0 | 64.1 | 59.4 | 19 | 42 | 91 | 197 |
| 375 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 376 | 3rd St | Marvin Rd | Mid County Pkwy WB Ran | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 377 | Mid County Pkwy WB Off-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 378 | 3rd St | Mid County Pkwy EB Ramps | Mid County Pkwy WB Ran | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 379 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 380 | Mid County Pkwy EB On-Ramp | 3rd St | Mid County Pkwy | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 381 | 3rd St | Mid County Pkwy EB Ramps | MM Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 386 | Harley Know Blvd | Indian St | Perris Blvd | 4,894 | 73 | 143 | 45 | 0 | 0 | 63.2 | 58.6 | 17 | 37 | 80 | 174 |
| 387 | Perris Blvd | Krameria Ave | Harley Know Blvd | 21,195 | 116 | 354 | 45 | 6 | 0 | 63.3 | 58.6 | 17 | 37 | 81 | 175 |
| 388 | Krameria Ave | Lasselle St | Spirit Rd | 1,947 | 0 | 0 | 45 | 0 | 0 | 58.7 | 54.1 | 8 | 18 | 40 | 86 |
| 389 | El Cerrito Dr | South of Central Ave | 0 | 4,032 | 18 | 26 | 45 | 0 | 0 | 62.0 | 57.4 | 14 | 31 | 67 | 144 |
| 390 | Ramona Expy | Webster Ave | Indian St | 27,411 | 109 | 878 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 112 | 243 | 523 |
| 392 | Ramona Expy | Indian St | Perris Blvd | 27,259 | 118 | 492 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 240 | 517 |
| 393 | Indian St | Ramona Expy | Morgan St | 3,791 | 143 | 528 | 45 | 0 | 0 | 63.9 | 59.2 | 19 | 41 | 88 | 191 |
| 394 | Perris Blvd | Harley Know Blvd | Ramona Expy | 18,622 | 131 | 283 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 87 | 188 | 406 |
| 396 | Perris Blvd | Ramona Expy | Rider St | 24,005 | 130 | 90 | 45 | 0 | 0 | 69.8 | 65.2 | 47 | 102 | 220 | 475 |
| 397 | Ramona Expy | Perris Blvd | Evans Rd | 27,804 | 113 | 339 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 112 | 242 | 522 |
| 398 | Evans Rd | Marbella Gate | Ramona Expy | 23,974 | 71 | 0 | 45 | 6 | 0 | 63.7 | 59.1 | 18 | 40 | 86 | 187 |
| 399 | Ramona Expy | Evans Rd | Rider St | 17,973 | 59 | 225 | 55 | 6 | 0 | 65.0 | 60.3 | 22 | 48 | 105 | 227 |
| 400 | Evans Rd | Ramona Expy | Rider St | 12,788 | 9 | 6 | 45 | 0 | 0 | 66.9 | 62.3 | 30 | 65 | 142 | 306 |
| 401 | Morgan St | Indian St | Perris Blvd | 4,287 | 86 | 116 | 45 | 0 | 0 | 62.8 | 58.2 | 16 | 35 | 75 | 162 |
| 402 | Morgan St | Perris Blvd | Silver Creek Industries | 1,279 | 24 | 0 | 45 | 0 | 0 | 57.4 | 52.8 | 7 | 15 | 33 | 71 |
| 404 | Morgan St | Morgan Park | Evans Rd | 3,663 | 12 | 0 | 45 | 0 | 0 | 61.6 | 56.9 | 13 | 28 | 62 | 134 |
| 405 | Morgan St | Evans Rd | Bradley Rd | 6,913 | 0 | 12 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 93 | 202 |
| 406 | Ironwood Ave | East of Thedore St | 0 | 912 | 20 | 12 | 45 | 0 | 0 | 56.1 | 51.5 | 5 | 12 | 27 | 58 |
| 407 | Rider St | Indian St | Perris Blvd | 3,913 | 8 | 30 | 45 | 0 | 0 | 61.8 | 57.2 | 14 | 30 | 65 | 140 |
| 408 | Rider St | Perris Blvd | Redlands Ave | 8,226 | 0 | 0 | 45 | 0 | 0 | 65.0 | 60.3 | 22 | 48 | 105 | 227 |
| 409 | Ironwood Ave | Nason St | Moreno Beach Dr | 5,787 | 55 | 0 | 45 | 0 | 0 | 63.7 | 59.1 | 18 | 40 | 86 | 187 |
| 410 | Rider St | Wilson Ave | Evans Rd | 11,776 | 0 | 12 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 62 | 134 | 288 |
| 411 | Rider St | Evans Rd | Ramona Expy | 6,149 | 0 | 24 | 45 | 0 | 0 | 63.7 | 59.1 | 18 | 40 | 86 | 187 |
| 412 | Maude St | North of Arlington Ave | 0 | 212 | 0 | 0 | 45 | 0 | 0 | 49.1 | 44.5 | 1 | 4 | 9 | 19 |
| 413 | Placentia Ave | Indian St | Perris Blvd | 8,659 | 139 | 196 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 54 | 118 | 254 |
| 414 | Placentia Ave | Perris Blvd | Redlands Ave | 5,050 | 0 | 0 | 45 | 0 | 0 | 62.9 | 58.2 | 16 | 35 | 76 | 164 |
| 415 | Perris Blvd | Placentia Ave | Orange Ave | 28,882 | 273 | 322 | 45 | 0 | 0 | 70.7 | 66.1 | 54 | 118 | 254 | 548 |

**2022 No Project**

| ID | Arterial | From | To | 2022 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 416 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | Perris Blvd | 15,964 | 244 | 364 | 45 | 0 | 0 | 68.3 | 63.7 | 38 | 82 | 177 | 381 |
| 417 | Mid County Pkwy WB Off-Ramp | Perris Blvd | Mid County Pkwy | 12,332 | 174 | 302 | 45 | 0 | 0 | 67.2 | 62.6 | 32 | 68 | 148 | 320 |
| 419 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | Perris Blvd | 22,200 | 300 | 428 | 45 | 0 | 0 | 69.7 | 65.1 | 47 | 101 | 218 | 470 |
| 420 | Mid County Pkwy EB On-Ramp | Perris Blvd | Mid County Pkwy | 12,616 | 148 | 238 | 45 | 0 | 0 | 67.2 | 62.6 | 32 | 69 | 148 | 320 |
| 421 | Via Del Lago | South of Iris Ave | 0 | 378 | 0 | 0 | 45 | 0 | 0 | 51.6 | 47.0 | 2 | 6 | 13 | 29 |
| 424 | Perris Blvd | Alessandro Blvd | Cottonwood Ave | 27,884 | 208 | 102 | 45 | 6 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 425 | Mid County Pkwy WB On-Ramp | West of Evan | 0 | 9,692 | 40 | 42 | 45 | 0 | 0 | 65.8 | 61.2 | 25 | 55 | 119 | 258 |
| 426 | Mid County Pkwy WB Off-Ramp | East of Evan | 0 | 3,392 | 24 | 30 | 45 | 0 | 0 | 61.3 | 56.7 | 13 | 28 | 60 | 130 |
| 427 | Day St | south of Alessandro Blvd | 0 | 2,034 | 52 | 131 | 45 | 0 | 0 | 60.0 | 55.4 | 10 | 22 | 49 | 106 |
| 428 | Mid County Pkwy EB Off-Ramp | West of Evan | 0 | 10,394 | 44 | 48 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 125 | 270 |
| 429 | Mid County Pkwy EB On-Ramp | East of Evan | 0 | 3,748 | 24 | 32 | 45 | 0 | 0 | 61.8 | 57.1 | 13 | 29 | 64 | 138 |
| 430 | Alessandro Blvd | SR-215 NB Ramp | SR-215 SB Ramp | 39,694 | 220 | 324 | 45 | 0 | 0 | 72.0 | 67.4 | 66 | 143 | 309 | 666 |
| 431 | Placentia Ave | Water Ave | Evans Rd | 0 | 0 | 0 | 35 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 432 | Placentia Ave | Evans Rd | El Nido Ave | 0 | 0 | 0 | 35 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 433 | Evans Rd | Rider St | Orange Ave | 7,800 | 26 | 26 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 48 | 103 | 222 |
| 434 | Orange Ave | Wilson Ave | Evans Rd | 5,289 | 0 | 13 | 45 | 0 | 0 | 63.1 | 58.4 | 16 | 36 | 78 | 169 |
| 435 | Orange Ave | Evans Rd | Foothill Dr | 2,761 | 0 | 12 | 35 | 0 | 0 | 57.1 | 52.5 | 6 | 14 | 31 | 67 |
| 436 | Elsworth St | south of Cactus Ave | 0 | 15,870 | 160 | 36 | 45 | 0 | 0 | 68.1 | 63.5 | 36 | 79 | 170 | 368 |
| 441 | Nuevo Rd | Wilson Ave | Evans Rd | 14,145 | 24 | 59 | 45 | 0 | 0 | 67.4 | 62.8 | 32 | 70 | 152 | 328 |
| 442 | Evans Rd | Orange Ave | Nuevo Rd | 6,218 | 3 | 9 | 45 | 0 | 0 | 63.8 | 59.1 | 18 | 40 | 87 | 189 |
| 443 | Nuevo Rd | Evans Rd | Foothill Dr | 10,762 | 24 | 47 | 45 | 0 | 0 | 66.2 | 61.6 | 27 | 59 | 127 | 274 |
| 444 | Evans Rd | Nuevo Rd | San Jacinto Ave | 0 | 0 | 0 | 45 | 6 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 452 | San Jacinto Ave | West of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 453 | Evans Rd | North of San Jancito Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 454 | San Jacinto Ave | East of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 455 | Evans Rd | South of San Jancito Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 458 | Nason St | South of Cactus Ave | 0 | 6,515 | 53 | 0 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 93 | 201 |
| 464 | Quincy | South of Eucalyptus | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 477 | Ellis Ave | West of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 478 | Evans Rd | North of Ellis Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 479 | Oliver St | South of Irris Ave | 0 | 2,644 | 12 | 0 | 45 | 0 | 0 | 60.2 | 55.6 | 10 | 23 | 50 | 108 |
| 480 | Ellis Ave | Evans Rd | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 481 | SR-215 SB Off-ramp | SR-215 | Ellis Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 482 | Ellis Ave | East of SR-215 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 483 | SR-215 SB On-ramp | Ellis Ave | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 484 | SR-215 NB On-ramp | Ellis Ave | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 485 | SR-215 NB Off-ramp | SR-215 | Ellis Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 488 | Nason St | North of Iris Ave | 0 | 6,515 | 53 | 0 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 93 | 201 |
| 494 | Evans Rd | North of Harley Knox Blvd | 0 | 0 | 0 | 0 | 45 | 6 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 498 | Morrison St | Alessandro Blvd | Cactus Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 499 | Perris Blvd | Eucalyptus Ave | Cottonwood Ave | 32,021 | 112 | 96 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 265 | 571 |
| 500 | Perris Blvd | North of Eucalyptus Ave | 0 | 32,068 | 106 | 108 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 265 | 571 |

**2022 No Project**

| ID | Arterial | From | To | 2022 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 502 | Quincy | Cottonwood Ave | Alessandro Blvd | 0 | 0 | 0 | 35 | 6 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 503 | Quincy | Alessandro Blvd | Cactus Ave | 0 | 0 | 0 | 35 | 6 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 504 | Krameria Ave | west of Perris Blvd | 0 | 14,231 | 149 | 0 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 159 | 342 |

**2022 No Project Noise Levels**

| ID | Arterial | From | 2022 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | SR-60 | SR-71/S Garey Ave to S Reservoir Rd | 215,230 | 4,570 | 18,660 | 65 | 0 | 0 | 85.5 | 80.9 | 529 | 1141 | 2459 | 5298 |
| 2 | SR-60 | S Reservoir Rd to Ramona Ave | 219,330 | 4,800 | 19,560 | 65 | 0 | 0 | 85.6 | 81.0 | 538 | 1160 | 2500 | 5386 |
| 3 | SR-60 | Ramona Ave to Central Ave | 209,060 | 4,670 | 18,980 | 65 | 0 | 0 | 85.4 | 80.8 | 523 | 1127 | 2428 | 5231 |
| 4 | SR-60 | Central Ave to Mountain Ave | 219,440 | 4,980 | 20,010 | 65 | 0 | 0 | 85.6 | 81.0 | 541 | 1165 | 2511 | 5410 |
| 5 | SR-60 | Mountain Ave to Euclid Ave | 214,020 | 4,910 | 19,600 | 65 | 0 | 0 | 85.5 | 80.9 | 532 | 1147 | 2472 | 5326 |
| 6 | SR-60 | Euclid Ave to Grove Ave | 232,730 | 5,360 | 21,310 | 65 | 0 | 0 | 85.9 | 81.3 | 563 | 1213 | 2614 | 5633 |
| 7 | SR-60 | Grove Ave to Vineyard Ave | 229,220 | 5,070 | 20,220 | 65 | 0 | 0 | 85.8 | 81.2 | 554 | 1194 | 2574 | 5546 |
| 8 | SR-60 | Vineyard Ave to Archibald Ave | 228,970 | 5,180 | 20,250 | 65 | 0 | 0 | 85.8 | 81.2 | 555 | 1195 | 2576 | 5550 |
| 9 | SR-60 | Archibald Ave to Haven Ave | 217,460 | 5,050 | 19,040 | 65 | 0 | 0 | 85.6 | 80.9 | 536 | 1156 | 2491 | 5367 |
| 10 | SR-60 | Haven Ave to Miliken Ave | 199,820 | 4,700 | 17,470 | 65 | 0 | 0 | 85.2 | 80.6 | 507 | 1093 | 2356 | 5076 |
| 11 | SR-60 | Miliken Ave to SR-15 | 166,030 | 4,620 | 17,230 | 65 | 0 | 0 | 84.6 | 80.0 | 461 | 993 | 2139 | 4610 |
| 12 | SR-60 | I-15 to Etiwanda Ave | 131,720 | 3,770 | 12,550 | 65 | 0 | 0 | 83.5 | 78.9 | 392 | 846 | 1822 | 3926 |
| 13 | SR-60 | Etiwanda Ave to Mission Blvd/Country Village Rd | 145,070 | 3,780 | 12,590 | 65 | 0 | 0 | 83.9 | 79.2 | 412 | 889 | 1915 | 4127 |
| 14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 135,300 | 3,510 | 11,680 | 65 | 0 | 0 | 83.5 | 78.9 | 393 | 848 | 1827 | 3936 |
| 15 | SR-60 | Pedley Rd to Pyrite St | 125,400 | 3,210 | 10,830 | 65 | 0 | 0 | 83.2 | 78.6 | 373 | 805 | 1735 | 3739 |
| 16 | SR-60 | Pyrite St to Valley Way | 122,910 | 3,210 | 10,660 | 65 | 0 | 0 | 83.1 | 78.5 | 369 | 796 | 1715 | 3695 |
| 17 | SR-60 | Valley Way to Rubidoux Blvd | 158,640 | 3,940 | 13,000 | 65 | 0 | 0 | 84.2 | 79.6 | 434 | 936 | 2018 | 4347 |
| 18 | SR-60 | Rubidoux Blvd to Market St | 158,130 | 3,870 | 12,420 | 65 | 0 | 0 | 84.2 | 79.5 | 432 | 931 | 2005 | 4321 |
| 19 | SR-60 | Market St to Main St | 184,210 | 4,740 | 14,410 | 65 | 0 | 0 | 84.8 | 80.2 | 479 | 1034 | 2227 | 4799 |
| 20 | SR-60 | Main St to SR-91 | 209,240 | 5,490 | 15,760 | 65 | 0 | 0 | 85.4 | 80.8 | 521 | 1124 | 2422 | 5219 |
| 21 | SR-60 | SR-91 to W Blaine St/3rd St | 239,330 | 5,730 | 19,700 | 65 | 0 | 0 | 86.0 | 81.3 | 570 | 1229 | 2648 | 5706 |
| 22 | SR-60 | W Blaine St/3rd St to University Ave | 226,130 | 5,290 | 17,670 | 65 | 0 | 0 | 85.7 | 81.1 | 546 | 1177 | 2537 | 5467 |
| 23 | SR-60 | University Ave to Martin Luther King Blvd | 235,060 | 5,440 | 17,880 | 65 | 0 | 0 | 85.8 | 81.2 | 559 | 1205 | 2597 | 5596 |
| 24 | SR-60 | Martin Luther King Blvd to Central Ave | 284,000 | 6,710 | 22,540 | 65 | 0 | 0 | 86.7 | 82.1 | 637 | 1373 | 2958 | 6374 |
| 25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs Rd | 266,490 | 6,170 | 20,100 | 65 | 0 | 0 | 86.4 | 81.8 | 608 | 1310 | 2823 | 6082 |
| 26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 258,180 | 5,660 | 19,490 | 65 | 0 | 0 | 86.2 | 81.6 | 593 | 1278 | 2755 | 5935 |
| 27 | SR-60 | I-215 to Day St | 152,330 | 3,620 | 14,540 | 65 | 0 | 0 | 84.1 | 79.5 | 427 | 920 | 1982 | 4271 |
| 28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 153,220 | 3,490 | 15,670 | 65 | 0 | 0 | 84.1 | 79.5 | 430 | 927 | 1998 | 4304 |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | 134,080 | 2,960 | 13,410 | 65 | 0 | 0 | 83.5 | 78.9 | 392 | 845 | 1820 | 3922 |
| 30 | SR-60 | Heacock St to Perris Blvd | 120,010 | 2,560 | 11,590 | 65 | 0 | 0 | 83.0 | 78.4 | 362 | 780 | 1681 | 3623 |
| 31 | SR-60 | Perris Blvd to Nason St | 103,060 | 1,980 | 9,280 | 65 | 0 | 0 | 82.3 | 77.6 | 323 | 696 | 1501 | 3234 |
| 32 | SR-60 | Nason St to Moreno Beach Dr | 92,900 | 1,700 | 8,130 | 65 | 0 | 0 | 81.8 | 77.2 | 300 | 647 | 1394 | 3004 |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 70,810 | 1,030 | 5,150 | 65 | 0 | 0 | 80.5 | 75.8 | 245 | 527 | 1137 | 2450 |
| 34 | SR-60 | Redlands Blvd to Theodore St | 62,620 | 1,210 | 6,220 | 65 | 0 | 0 | 80.2 | 75.5 | 234 | 504 | 1087 | 2342 |
| 35 | SR-60 | Theodore St to Gilman Springs Rd | 61,980 | 1,180 | 6,050 | 65 | 0 | 0 | 80.1 | 75.5 | 232 | 499 | 1077 | 2320 |
| 36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 57,430 | 1,090 | 5,410 | 65 | 0 | 0 | 79.7 | 75.1 | 219 | 473 | 1020 | 2198 |
| 37 | SR-60 | Jack Rabbit Trail to I-10 | 55,350 | 1,000 | 5,300 | 65 | 0 | 0 | 79.6 | 75.0 | 214 | 461 | 994 | 2142 |
| 75 | SR-91 | I-15 to McKinley St | 231,890 | 3,830 | 11,840 | 65 | 0 | 0 | 85.5 | 80.9 | 534 | 1152 | 2483 | 5349 |
| 76 | SR-91 | McKinley St to Pierce St | 214,080 | 3,590 | 10,980 | 65 | 0 | 0 | 85.2 | 80.6 | 507 | 1093 | 2356 | 5076 |
| 77 | SR-91 | Pierce St to Magnolia Ave | 201,580 | 3,250 | 10,490 | 65 | 0 | 0 | 84.9 | 80.3 | 487 | 1049 | 2260 | 4870 |
| 78 | SR-91 | Magnolia Ave to La Sierra Ave | 212,820 | 3,710 | 12,030 | 65 | 0 | 0 | 85.2 | 80.6 | 508 | 1095 | 2359 | 5082 |
| 79 | SR-91 | La Sierra Ave to Tyler St | 193,830 | 3,470 | 11,180 | 65 | 0 | 0 | 84.8 | 80.2 | 478 | 1031 | 2221 | 4785 |
| 80 | SR-91 | Tyler St to Van Buren Blvd | 227,200 | 2,690 | 8,560 | 65 | 0 | 0 | 85.3 | 80.7 | 517 | 1114 | 2400 | 5171 |
| 81 | SR-91 | Van Buren Blvd to Adam St | 214,310 | 2,440 | 7,950 | 65 | 0 | 0 | 85.1 | 80.4 | 496 | 1069 | 2305 | 4966 |
| 82 | SR-91 | Adam St to Madison St | 201,770 | 2,170 | 7,220 | 65 | 0 | 0 | 84.8 | 80.2 | 475 | 1025 | 2209 | 4759 |
| 83 | SR-91 | Madison St to Indiana Ave (off-ramp) | 196,440 | 2,110 | 6,770 | 65 | 0 | 0 | 84.7 | 80.0 | 467 | 1006 | 2168 | 4672 |
| 84 | SR-91 | Arlington Ave to Central Ave | 170,190 | 2,060 | 6,730 | 65 | 0 | 0 | 84.1 | 79.5 | 427 | 920 | 1983 | 4272 |
| 85 | SR-91 | Central Ave to 14th St | 196,050 | 2,320 | 7,610 | 65 | 0 | 0 | 84.7 | 80.1 | 468 | 1010 | 2176 | 4689 |

**2022 No Project Noise Levels**

| ID | Arterial | From | 2022 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 86 | SR-91 | 14th St to University Ave | 179,220 | 2,140 | 6,910 | 65 | 0 | 0 | 84.3 | 79.7 | 441 | 951 | 2050 | 4418 |
| 87 | SR-91 | University Ave to Spruce St (off-ramp) | 223,480 | 2,600 | 8,420 | 65 | 0 | 0 | 85.2 | 80.6 | 511 | 1101 | 2372 | 5112 |
| 101 | I-10 | SR-60 to Beaumont Ave | 142,620 | 2,490 | 17,580 | 65 | 0 | 0 | 83.9 | 79.2 | 413 | 890 | 1919 | 4134 |
| 102 | I-10 | Beaumont Ave to Pennsylvania Ave | 144,250 | 2,560 | 18,260 | 65 | 0 | 0 | 83.9 | 79.3 | 418 | 901 | 1942 | 4185 |
| 103 | I-10 | Pennsylvania Ave to Highland Springs Ave | 152,090 | 2,750 | 19,040 | 65 | 0 | 0 | 84.2 | 79.5 | 433 | 933 | 2010 | 4332 |
| 104 | I-10 | Highland Springs Ave to Sunset Ave | 146,050 | 2,650 | 18,550 | 65 | 0 | 0 | 84.0 | 79.4 | 422 | 910 | 1961 | 4226 |
| 105 | I-10 | Sunset Ave to 22nd St | 141,520 | 2,560 | 18,190 | 65 | 0 | 0 | 83.9 | 79.3 | 414 | 893 | 1924 | 4145 |
| 106 | I-10 | 22nd St to S 8th St | 139,070 | 2,490 | 17,970 | 65 | 0 | 0 | 83.8 | 79.2 | 409 | 882 | 1902 | 4098 |
| 107 | I-10 | S 8th St to S Hargrave St | 138,390 | 2,460 | 17,960 | 65 | 0 | 0 | 83.8 | 79.2 | 408 | 880 | 1896 | 4086 |
| 108 | I-10 | S Hargrave St to Field Rd | 128,570 | 2,240 | 16,480 | 65 | 0 | 0 | 83.5 | 78.8 | 387 | 835 | 1800 | 3879 |
| 109 | I-10 | Field Rd to Main St (Cabazon) | 121,880 | 2,040 | 15,900 | 65 | 0 | 0 | 83.2 | 78.6 | 374 | 807 | 1739 | 3746 |
| 110 | I-10 | Main St (Cabazon) to Main St | 109,430 | 1,820 | 14,440 | 65 | 0 | 0 | 82.8 | 78.1 | 349 | 752 | 1620 | 3492 |
| 111 | I-10 | Main St to Haugen-Lehmann Way | 110,480 | 1,830 | 14,420 | 65 | 0 | 0 | 82.8 | 78.2 | 350 | 755 | 1628 | 3507 |
| 112 | I-10 | Haugen-Lehmann Way to SR-111 | 110,460 | 1,830 | 14,410 | 65 | 0 | 0 | 82.8 | 78.2 | 350 | 755 | 1627 | 3507 |
| 113 | I-10 | SR-111 to Tipton Rd | 97,430 | 1,520 | 12,660 | 65 | 0 | 0 | 82.2 | 77.6 | 321 | 692 | 1492 | 3215 |
| 114 | I-10 | Tipton Rd to SR-62 | 97,300 | 1,520 | 12,650 | 65 | 0 | 0 | 82.2 | 77.6 | 321 | 692 | 1491 | 3212 |
| 129 | SR-215 | Scott Rd to Newport Rd | 101,620 | 1,860 | 4,370 | 65 | 0 | 0 | 82.0 | 77.3 | 308 | 665 | 1433 | 3087 |
| 130 | SR-215 | Newport Rd to MacCall Blvd | 90,140 | 1,700 | 4,070 | 65 | 0 | 0 | 81.5 | 76.8 | 285 | 615 | 1326 | 2858 |
| 131 | SR-215 | MacCall Blvd to Ethanac Rd | 97,640 | 1,850 | 4,230 | 65 | 0 | 0 | 81.8 | 77.2 | 301 | 648 | 1398 | 3012 |
| 132 | SR-215 | Ethanac Rd to SR-74/Case | 119,680 | 2,260 | 5,260 | 65 | 0 | 0 | 82.7 | 78.1 | 345 | 743 | 1601 | 3450 |
| 133 | SR-215 | SR-74/Case Rd to Redlands Blvd | 132,690 | 3,950 | 9,390 | 65 | 0 | 0 | 83.4 | 78.8 | 387 | 834 | 1798 | 3875 |
| 167 | SR-215 | Redlands Blvd to D St | 117,450 | 3,440 | 8,660 | 65 | 0 | 0 | 82.9 | 78.3 | 357 | 770 | 1659 | 3576 |
| 168 | SR-215 | D St to Nuevo St/Harvil Ave | 124,970 | 3,630 | 8,480 | 65 | 0 | 0 | 83.2 | 78.5 | 370 | 798 | 1721 | 3707 |
| 169 | SR-215 | Nuevo St/Harvil Ave to Ramona Expy/Cajalco Exp | 125,940 | 3,560 | 8,370 | 65 | 0 | 0 | 83.2 | 78.5 | 371 | 800 | 1724 | 3715 |
| 171 | SR-215 | Ramona Expy/Cajalco Expy to Harley Knox Blvd | 146,930 | 4,120 | 9,540 | 65 | 0 | 0 | 83.8 | 79.2 | 411 | 885 | 1907 | 4110 |
| 172 | SR-215 | Harley Knox Blvd to Van Buren Blvd | 153,540 | 4,700 | 10,720 | 65 | 0 | 0 | 84.1 | 79.5 | 427 | 921 | 1985 | 4277 |
| 173 | SR-215 | Van Buren Blvd to Cactus Ave | 146,160 | 4,460 | 10,480 | 65 | 0 | 0 | 83.9 | 79.3 | 414 | 892 | 1923 | 4144 |
| 174 | SR-215 | Cactus Ave to Alessandro Blvd | 155,820 | 4,180 | 9,710 | 65 | 0 | 0 | 84.0 | 79.4 | 425 | 916 | 1973 | 4252 |
| 175 | SR-215 | Alessandro Blvd to Eucalyptus Ave | 152,250 | 4,070 | 9,790 | 65 | 0 | 0 | 84.0 | 79.3 | 419 | 903 | 1945 | 4192 |
| 176 | SR-215 | Eucalyptus Ave to SR-60 | 150,250 | 4,080 | 10,250 | 65 | 0 | 0 | 83.9 | 79.3 | 417 | 898 | 1936 | 4172 |
| 134 | SR-215 | SR-60 to Columbia Ave | 204,320 | 3,960 | 8,120 | 65 | 0 | 0 | 85.0 | 80.4 | 492 | 1060 | 2285 | 4924 |
| 135 | SR-215 | Columbia Ave to Center St | 173,440 | 3,400 | 6,770 | 65 | 0 | 0 | 84.3 | 79.7 | 441 | 951 | 2049 | 4415 |
| 136 | SR-215 | Center St to Iowa Ave/La Cadena Dr | 171,550 | 3,390 | 6,740 | 65 | 0 | 0 | 84.2 | 79.6 | 438 | 944 | 2035 | 4386 |
| 137 | SR-215 | Iowa Ave/La Cadena Dr to Barton Rd | 169,340 | 3,490 | 6,850 | 65 | 0 | 0 | 84.2 | 79.6 | 436 | 939 | 2024 | 4360 |
| 138 | SR-215 | Barton Rd to Mt Vernon Ave/Washington St | 175,510 | 3,600 | 7,130 | 65 | 0 | 0 | 84.4 | 79.7 | 446 | 962 | 2072 | 4465 |
| 139 | SR-215 | Mt Vernon Ave/Washington St to I-10 | 176,380 | 3,640 | 7,250 | 65 | 0 | 0 | 84.4 | 79.8 | 448 | 965 | 2080 | 4482 |
| 140 | SR-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 143,630 | 2,160 | 5,610 | 65 | 0 | 0 | 83.4 | 78.8 | 384 | 828 | 1785 | 3845 |
| 141 | SR-215 | Auto Plaza Dr/Orange Show Rd to Mill St | 130,150 | 1,810 | 4,900 | 65 | 0 | 0 | 82.9 | 78.3 | 358 | 772 | 1665 | 3587 |
| 142 | SR-215 | Mill St to 2rd St | 145,610 | 2,240 | 6,150 | 65 | 0 | 0 | 83.5 | 78.8 | 389 | 838 | 1806 | 3891 |
| 143 | SR-215 | 2rd St to Baseline Rd | 127,070 | 2,060 | 5,490 | 65 | 0 | 0 | 82.9 | 78.3 | 356 | 767 | 1654 | 3563 |
| 144 | SR-215 | Baseline Rd to Highland Ave/SR-210 | 129,150 | 2,560 | 9,380 | 65 | 0 | 0 | 83.2 | 78.5 | 371 | 799 | 1722 | 3710 |

**2022 With Project**

| ID | Arterial | From | To | 2022 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | Street A | State Route 60 | Eucalyptus Ave | 19,910 | 2,253 | 7,285 | 45 | 0 | 0 | 76.3 | 71.6 | 128 | 277 | 597 | 1287 |
| 2 | Street A | Eucalyptus Ave | Street F | 20,047 | 2,452 | 7,819 | 45 | 0 | 0 | 76.4 | 71.7 | 130 | 281 | 606 | 1305 |
| 3 | Street E | west of Street A | 0 | 9,702 | 1,261 | 3,945 | 45 | 0 | 0 | 73.4 | 68.8 | 82 | 178 | 383 | 826 |
| 4 | Street E | north of Alessandro Blvd | 0 | 5,305 | 393 | 115 | 45 | 0 | 0 | 66.0 | 61.4 | 26 | 57 | 123 | 266 |
| 5 | Street E | Street D | Street A | 6,614 | 321 | 291 | 45 | 0 | 0 | 66.3 | 61.7 | 28 | 60 | 130 | 280 |
| 6 | Street A | Street F | Street C | 8,344 | 822 | 1,851 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 114 | 247 | 532 |
| 7 | Street A | south of Street C | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 8 | Street D | Street E | Cactus Ave | 9,068 | 631 | 0 | 45 | 0 | 0 | 68.1 | 63.5 | 36 | 79 | 171 | 369 |
| 9 | John F Kennedy Dr | south of Cactus Ave | 0 | 10,893 | 530 | 0 | 45 | 0 | 0 | 68.0 | 63.3 | 35 | 77 | 166 | 359 |
| 10 | Redlands Blvd | Alessandro Blvd | Cactus Ave | 4,660 | 95 | 0 | 45 | 0 | 0 | 61.5 | 56.9 | 13 | 28 | 61 | 132 |
| 11 | Redlands Blvd | Dracaea Ave | Alessandro Blvd | 6,493 | 82 | 0 | 45 | 0 | 0 | 62.8 | 58.2 | 16 | 35 | 75 | 163 |
| 12 | Redlands Blvd | Eucalyptus Ave | Dracaea Ave | 10,763 | 284 | 0 | 45 | 0 | 0 | 64.4 | 59.8 | 20 | 45 | 97 | 209 |
| 13 | Redlands Blvd | State Route 60 | Eucalyptus Ave | 14,118 | 264 | 689 | 45 | 0 | 0 | 68.9 | 64.3 | 41 | 89 | 192 | 414 |
| 14 | Eucalyptus Ave | east of Redlands Blvd | 0 | 7,768 | 295 | 657 | 45 | 0 | 0 | 67.4 | 62.7 | 32 | 70 | 152 | 328 |
| 15 | Eucalyptus Ave | west of Street A | 0 | 6,430 | 212 | 592 | 45 | 0 | 0 | 59.6 | 54.9 | 9 | 21 | 46 | 99 |
| 18 | Street B | east of Street A | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 18a | Street B | west of Gilman Springs Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 19 | Street F | east of Street A | 0 | 48 | 0 | 0 | 45 | 0 | 0 | 43.7 | 39.1 | 0 | 1 | 4 | 8 |
| 20 | Street F | north of Street C | 0 | 41 | 0 | 0 | 45 | 0 | 0 | 43.0 | 38.4 | 0 | 1 | 3 | 7 |
| 21 | Street C | east of Street A | 0 | 4,382 | 172 | 214 | 45 | 0 | 0 | 64.5 | 59.8 | 21 | 45 | 97 | 210 |
| 22 | Street C | west of Street F | 0 | 4,126 | 187 | 234 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 23 | Street F | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 24 | Street C | Street F | Street H | 3,945 | 183 | 219 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 212 |
| 25 | Street C | Street H | Gilman Springs Rd | 5,111 | 170 | 231 | 45 | 0 | 0 | 64.9 | 60.3 | 22 | 48 | 104 | 225 |
| 26 | Street H | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 27 | Street G | east of Street H | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 28 | Street G | Street F | Street H | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 29 | Gilman Springs Rd | State Route 60 | Eucalyptus Ave | 12,464 | 49 | 316 | 45 | 0 | 0 | 66.9 | 62.3 | 30 | 66 | 142 | 307 |
| 30 | Gilman Springs Rd | Eucalyptus Ave | Street C | 12,464 | 49 | 316 | 45 | 0 | 0 | 66.9 | 62.3 | 30 | 66 | 142 | 307 |
| 31 | Gilman Springs Rd | south of Street C | 0 | 15,683 | 205 | 604 | 45 | 0 | 0 | 68.7 | 64.0 | 40 | 86 | 186 | 400 |
| 32 | Cactus Ave | west of Redlands Blvd | 0 | 3,902 | 95 | 0 | 45 | 0 | 0 | 62.6 | 58.0 | 15 | 34 | 73 | 158 |
| 33 | Alessandro Blvd | west of Redlands Blvd | 0 | 4,627 | 42 | 6 | 45 | 0 | 0 | 62.6 | 58.0 | 15 | 34 | 73 | 159 |
| 35 | Redlands Blvd | Ironwood Ave | State Route 60 | 16,028 | 108 | 551 | 55 | 0 | 0 | 72.0 | 67.3 | 66 | 143 | 308 | 664 |
| 36 | Ironwood Ave | Redlands Blvd | Highland Blvd | 1,924 | 177 | 0 | 35 | 0 | 0 | 58.8 | 54.2 | 8 | 19 | 41 | 88 |
| 37 | San Timoteo Canyon Rd | West Live Oak Canyon | 0 | 9,797 | 183 | 470 | 45 | 0 | 0 | 68.8 | 64.2 | 41 | 88 | 190 | 410 |
| 38 | Theodore St | State Route 60 | Highland Blvd | 3,664 | 371 | 208 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 42 | Redlands Blvd | Ironwood Ave | San Timoteo Canyon Rd | 19,950 | 358 | 521 | 55 | 0 | 0 | 72.8 | 68.1 | 75 | 161 | 348 | 751 |
| 43 | Moreno Beach Dr | Alessandro Blvd | SR 60 | 20,765 | 45 | 129 | 45 | 0 | 0 | 69.1 | 64.4 | 42 | 91 | 197 | 425 |
| 46 | Moreno Beach Dr | State Route 60 | Ironwood Ave | 17,244 | 121 | 383 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 85 | 183 | 395 |
| 47 | Ironwood Ave | Moreno Beach Dr | Redlands Blvd | 4,397 | 30 | 12 | 45 | 6 | 0 | 56.5 | 51.9 | 6 | 13 | 28 | 61 |
| 48 | Alessandro Blvd | Lasselle St | Morrison St | 10,667 | 48 | 457 | 45 | 6 | 0 | 60.5 | 55.8 | 11 | 24 | 52 | 113 |
| 50 | Cactus Ave | Redlands Blvd | Street D | 9,068 | 631 | 0 | 45 | 0 | 0 | 68.1 | 63.5 | 36 | 79 | 170 | 367 |

**2022 With Project**

| ID | Arterial | From | To | 2022 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 51 | Moreno Beach Dr | John F Kennedy Dr | Cactus Ave | 16,673 | 48 | 18 | 45 | 6 | 0 | 62.2 | 57.6 | 14 | 31 | 68 | 147 |
| 52 | Moreno Beach Dr | John F Kennedy Dr | Oliver St | 19,421 | 523 | 6 | 35 | 6 | 0 | 60.9 | 56.3 | 12 | 26 | 56 | 121 |
| 53 | John F Kennedy Dr | Oliver St | Moreno Beach Dr | 4,752 | 20 | 12 | 45 | 6 | 0 | 56.8 | 52.2 | 6 | 14 | 30 | 65 |
| 54 | Locust Ave | Moreno Beach Dr | Smiley Blvd | 107 | 0 | 0 | 35 | 0 | 0 | 43.0 | 38.3 | 0 | 1 | 3 | 7 |
| 55 | Locust Ave | Moreno Beach Dr | Redlands Blvd | 3,407 | 25 | 0 | 45 | 0 | 0 | 61.5 | 56.9 | 13 | 28 | 61 | 133 |
| 56 | Moreno Beach Dr | Locust Ave | Ironwood Ave | 4,350 | 25 | 0 | 35 | 0 | 0 | 59.4 | 54.8 | 9 | 20 | 44 | 96 |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | 0 | 8,236 | 208 | 0 | 45 | 0 | 0 | 65.8 | 61.2 | 25 | 55 | 120 | 259 |
| 58 | SR 60 EB Ramps | west of Moreno Beach Dr | 0 | 15,408 | 28 | 71 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 75 | 163 | 351 |
| 59 | Eucalyptus Ave | Moreno Beach Dr | Quincy Dr | 7,616 | 172 | 554 | 45 | 0 | 0 | 65.6 | 61.0 | 24 | 53 | 115 | 249 |
| 60 | SR 60 WB Ramps | east of Redlands Blvd | 0 | 8,334 | 140 | 477 | 45 | 0 | 0 | 66.7 | 62.0 | 29 | 63 | 136 | 294 |
| 61 | SR 60 EB Ramps | west of Redlands Blvd | 0 | 8,903 | 69 | 287 | 45 | 0 | 0 | 66.2 | 61.6 | 27 | 59 | 127 | 274 |
| 62 | Fir Ave | Quincy Dr | Redlands Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 65 | Alessandro Blvd | Nason St | Oliver St | 13,498 | 58 | 55 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 151 | 326 |
| 66 | Alessandro Blvd | Oliver St | Moreno Beach Dr | 7,902 | 32 | 54 | 45 | 0 | 0 | 65.1 | 60.5 | 23 | 49 | 107 | 231 |
| 67 | Oliver St | Alessandro Blvd | Cactus Ave | 4,388 | 7 | 0 | 35 | 0 | 0 | 59.2 | 54.6 | 9 | 20 | 43 | 93 |
| 68 | Moreno Beach Dr | Alessandro Blvd | Cactus Ave | 18,529 | 54 | 36 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 85 | 183 | 395 |
| 69 | Cactus Ave | Nason St | Oliver St | 9,227 | 69 | 4 | 45 | 0 | 0 | 65.8 | 61.2 | 25 | 55 | 119 | 257 |
| 70 | Cactus Ave | Oliver St | Moreno Beach Dr | 9,208 | 94 | 0 | 45 | 6 | 0 | 59.9 | 55.3 | 10 | 22 | 48 | 104 |
| 71 | Oliver St | Cactus Ave | John F Kennedy Dr | 8,128 | 0 | 0 | 45 | 0 | 0 | 64.9 | 60.3 | 22 | 48 | 104 | 225 |
| 72 | Oliver St | John F Kennedy Dr | Iris Ave | 4,673 | 0 | 0 | 45 | 0 | 0 | 62.5 | 57.9 | 15 | 33 | 72 | 155 |
| 73 | Iris Ave | Nason St | Oliver St | 21,119 | 557 | 0 | 45 | 0 | 0 | 70.1 | 65.5 | 49 | 107 | 231 | 498 |
| 74 | Heacock St | Manzanita Ave | Ironwood Ave | 25,064 | 34 | 19 | 45 | 0 | 0 | 69.8 | 65.2 | 48 | 103 | 223 | 480 |
| 75 | Ironwood Ave | Graham St | Heacock St | 17,524 | 34 | 15 | 45 | 0 | 0 | 68.3 | 63.7 | 38 | 82 | 176 | 380 |
| 76 | Ironwood Ave | Heacock St | Indian Ave | 13,564 | 14 | 3 | 45 | 0 | 0 | 67.2 | 62.6 | 31 | 68 | 148 | 319 |
| 77 | Heacock St | Ironwood Ave | Hemlock Ave | 26,209 | 45 | 34 | 45 | 0 | 0 | 70.1 | 65.5 | 49 | 107 | 230 | 497 |
| 80 | Heacock St | Hemlock Ave | SR 60 WB Ramps | 31,841 | 72 | 32 | 45 | 0 | 0 | 70.9 | 66.3 | 56 | 122 | 263 | 567 |
| 81 | SR 60 WB Ramps | west of Heacock St | 0 | 21,034 | 30 | 148 | 45 | 0 | 0 | 69.1 | 64.5 | 42 | 92 | 198 | 428 |
| 82 | SR 60 WB Ramps | east of Heacock St | 0 | 11,578 | 116 | 334 | 45 | 0 | 0 | 67.4 | 62.8 | 33 | 71 | 153 | 331 |
| 83 | Heacock St | SR 60 WB Ramps | SR 60 EB Ramps | 34,174 | 102 | 222 | 45 | 0 | 0 | 71.4 | 66.7 | 60 | 130 | 281 | 607 |
| 85 | SR 60 WB Onramp | west of Perris Blvd | 0 | 21,400 | 98 | 152 | 45 | 0 | 0 | 69.3 | 64.6 | 43 | 94 | 203 | 439 |
| 86 | SR 60 WB Offramp | east of Perris Blvd | 0 | 9,250 | 138 | 258 | 45 | 0 | 0 | 67.3 | 62.6 | 32 | 69 | 149 | 322 |
| 87 | Eucalyptus Ave | Indian St | Perris Blvd | 7,035 | 10 | 0 | 45 | 0 | 0 | 64.4 | 59.7 | 20 | 44 | 95 | 206 |
| 88 | Eucalyptus Ave | Perris Blvd | Kitching St | 9,058 | 17 | 12 | 45 | 0 | 0 | 65.5 | 60.8 | 24 | 52 | 113 | 244 |
| 95 | W 6th St | I-10 | N California Ave | 14,726 | 106 | 145 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 75 | 163 | 351 |
| 96 | N California Ave | W 6th St | E 8th St | 5,578 | 26 | 26 | 45 | 0 | 0 | 63.5 | 58.9 | 18 | 39 | 84 | 182 |
| 97 | E 6th St | N California Ave | Beaumont Ave | 10,128 | 46 | 62 | 45 | 0 | 0 | 66.0 | 61.4 | 26 | 57 | 124 | 268 |
| 98 | N California Ave | W 6th St | I-10 | 10,426 | 87 | 118 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 60 | 129 | 279 |
| 99 | Beaumont Ave | E 6th St | E 8th St | 13,252 | 38 | 50 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 68 | 147 | 317 |
| 100 | I-215 SB Ramps | north of Alessandro Blvd | 0 | 8,752 | 60 | 114 | 45 | 0 | 0 | 65.6 | 60.9 | 24 | 53 | 115 | 248 |
| 101 | Alessandro Blvd | Sycamore Canyon Blvd | I-215 SB Ramps | 48,199 | 260 | 307 | 45 | 0 | 0 | 72.8 | 68.2 | 76 | 164 | 353 | 761 |
| 102 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 14,474 | 56 | 40 | 45 | 0 | 0 | 67.5 | 62.9 | 33 | 72 | 156 | 337 |
| 103 | I-215 NB Ramps | north of Alessandro Blvd | 0 | 15,452 | 150 | 364 | 45 | 0 | 0 | 68.2 | 63.5 | 37 | 79 | 172 | 370 |

**2022 With Project**

| ID | Arterial | From | To | 2022 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 104 | Alessandro Blvd | I-215 NB Ramps | Old 215 Frontage Rd | 37,885 | 240 | 433 | 45 | 0 | 0 | 71.8 | 67.2 | 65 | 140 | 302 | 650 |
| 105 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 14,036 | 46 | 86 | 45 | 0 | 0 | 67.4 | 62.8 | 32 | 71 | 153 | 329 |
| 106 | Old 215 Frontage Rd | Eucalyptus Ave | Alessandro Blvd | 9,487 | 27 | 24 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 54 | 118 | 254 |
| 107 | Alessandro Blvd | Old 215 Frontage Rd | Day St | 36,692 | 214 | 415 | 45 | 0 | 0 | 71.7 | 67.1 | 63 | 137 | 295 | 636 |
| 108 | Old 215 Frontage Rd | Alessandro Blvd | Cactus Ave | 6,472 | 81 | 77 | 45 | 0 | 0 | 64.3 | 59.7 | 20 | 44 | 95 | 206 |
| 109 | Day St | Cottonwood Ave | Alessandro Blvd | 5,893 | 40 | 0 | 35 | 0 | 0 | 60.7 | 56.1 | 11 | 25 | 54 | 117 |
| 110 | Alessandro Blvd | Day St | Elsworth St | 33,839 | 158 | 287 | 45 | 0 | 0 | 71.3 | 66.7 | 59 | 129 | 278 | 599 |
| 111 | Elsworth St | Cottonwood Ave | Alessandro Blvd | 9,036 | 23 | 0 | 35 | 0 | 0 | 62.3 | 57.7 | 15 | 32 | 70 | 151 |
| 112 | Alessandro Blvd | Elsworth St | Frederick St | 35,535 | 168 | 333 | 45 | 0 | 0 | 71.5 | 66.9 | 62 | 133 | 288 | 620 |
| 113 | Elsworth St | Alessandro Blvd | Cactus Ave | 9,534 | 40 | 76 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 55 | 118 | 255 |
| 114 | Frederick St | Cottonwood Ave | Alessandro Blvd | 24,824 | 61 | 90 | 45 | 0 | 0 | 69.8 | 65.2 | 47 | 103 | 222 | 479 |
| 115 | Alessandro Blvd | Frederick St | Graham St | 36,803 | 160 | 277 | 45 | 0 | 0 | 71.6 | 67.0 | 63 | 136 | 293 | 632 |
| 116 | Frederick St | Alessandro Blvd | Cactus Ave | 18,003 | 54 | 52 | 45 | 0 | 0 | 68.5 | 63.8 | 38 | 83 | 180 | 388 |
| 117 | Graham St | Cottonwood Ave | Alessandro Blvd | 11,769 | 15 | 12 | 45 | 0 | 0 | 66.6 | 61.9 | 29 | 62 | 134 | 290 |
| 118 | Alessandro Blvd | Graham St | Heacock St | 38,127 | 154 | 206 | 45 | 0 | 0 | 71.8 | 67.2 | 64 | 139 | 300 | 647 |
| 119 | Graham St | Alessandro Blvd | Cactus Ave | 15,313 | 40 | 53 | 45 | 0 | 0 | 67.7 | 63.1 | 34 | 75 | 161 | 348 |
| 120 | Heacock St | Cottonwood Ave | Alessandro Blvd | 22,839 | 104 | 275 | 45 | 0 | 0 | 70.1 | 65.5 | 50 | 107 | 232 | 500 |
| 121 | Alessandro Blvd | Heacock St | Indian St | 33,240 | 96 | 134 | 45 | 0 | 0 | 71.2 | 66.5 | 58 | 126 | 272 | 587 |
| 122 | Heacock St | Alessandro Blvd | Cactus Ave | 17,439 | 107 | 335 | 45 | 6 | 0 | 62.7 | 58.1 | 16 | 34 | 74 | 160 |
| 123 | Indian St | Cottonwood Ave | Alessandro Blvd | 14,221 | 34 | 47 | 45 | 0 | 0 | 67.4 | 62.8 | 33 | 71 | 153 | 331 |
| 124 | Alessandro Blvd | Indian St | Perris Blvd | 32,020 | 124 | 119 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 124 | 267 | 576 |
| 125 | Indian St | Alessandro Blvd | Cactus Ave | 12,667 | 25 | 24 | 45 | 6 | 0 | 60.9 | 56.3 | 12 | 26 | 56 | 121 |
| 126 | Alessandro Blvd | Perris Blvd | Kitching St | 21,915 | 64 | 97 | 45 | 0 | 0 | 69.4 | 64.8 | 45 | 97 | 209 | 450 |
| 127 | Perris Blvd | Alessandro Blvd | Cactus Ave | 28,193 | 170 | 240 | 45 | 6 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 128 | Kitching St | Cottonwood Ave | Alessandro Blvd | 8,944 | 6 | 12 | 45 | 0 | 0 | 65.4 | 60.7 | 24 | 51 | 111 | 241 |
| 129 | Alessandro Blvd | Kitching St | Lasselle St | 15,150 | 29 | 123 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 75 | 163 | 351 |
| 130 | Kitching St | Alessandro Blvd | Cactus Ave | 8,357 | 5 | 0 | 45 | 6 | 0 | 59.1 | 54.4 | 9 | 19 | 42 | 91 |
| 131 | Lasselle St | Cottonwood Ave | Alessandro Blvd | 9,036 | 10 | 12 | 45 | 0 | 0 | 65.4 | 60.8 | 24 | 52 | 112 | 243 |
| 133 | Lasselle St | Alessandro Blvd | Cactus Ave | 16,171 | 26 | 95 | 45 | 0 | 0 | 68.0 | 63.3 | 35 | 77 | 166 | 359 |
| 134 | Morrison St | Cottonwood Ave | Alessandro Blvd | 3,976 | 19 | 22 | 45 | 0 | 0 | 62.0 | 57.3 | 14 | 30 | 66 | 143 |
| 135 | Alessandro Blvd | Morrison St | Nason St | 9,264 | 41 | 332 | 50 | 6 | 0 | 61.1 | 56.5 | 12 | 27 | 58 | 125 |
| 136 | Nason St | Cottonwood Ave | Alessandro Blvd | 16,928 | 52 | 0 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 172 | 372 |
| 137 | Nason St | Alessandro Blvd | Cactus Ave | 15,514 | 59 | 0 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 76 | 163 | 352 |
| 138 | I-215 SB Ramps | north of Cactus Ave | 0 | 5,454 | 192 | 436 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 47 | 101 | 218 |
| 139 | Cactus Ave | Meridian Pkwy | I-215 SB Ramps | 14,635 | 148 | 254 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 76 | 163 | 352 |
| 140 | I-215 SB Ramps | south of Cactus Ave | 0 | 29,552 | 158 | 204 | 45 | 0 | 0 | 70.7 | 66.1 | 54 | 118 | 254 | 548 |
| 141 | Cactus Ave | I-215 NB Ramps | Elsworth St | 42,643 | 343 | 691 | 45 | 0 | 0 | 72.4 | 67.8 | 70 | 152 | 329 | 709 |
| 142 | I-215 NB Ramps | south of Cactus Ave | 0 | 6,621 | 95 | 306 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 46 | 100 | 217 |
| 143 | Cactus Ave | Elsworth St | Frederick St | 47,945 | 265 | 834 | 45 | 0 | 0 | 72.8 | 68.2 | 75 | 163 | 351 | 758 |
| 144 | Cactus Ave | Frederick St | Graham St | 57,165 | 337 | 772 | 45 | 0 | 0 | 73.6 | 69.0 | 85 | 183 | 395 | 852 |
| 145 | Cactus Ave | Graham St | Heacock St | 31,856 | 123 | 713 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 267 | 575 |
| 146 | Riverside Dr | Cactus Ave | Meyer Dr | 37,866 | 239 | 0 | 45 | 0 | 0 | 71.8 | 67.2 | 64 | 139 | 300 | 646 |

**2022 With Project**

| ID | Arterial | From | To | 2022 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 147 | Cactus Ave | Heacock St | Indian St | 22,909 | 48 | 97 | 45 | 0 | 0 | 69.5 | 64.9 | 45 | 98 | 211 | 455 |
| 148 | Heacock St | Cactus Ave | John F Kennedy Dr | 27,548 | 158 | 1,058 | 45 | 6 | 0 | 64.6 | 59.9 | 21 | 46 | 99 | 213 |
| 149 | Cactus Ave | Indian St | Perris Blvd | 19,755 | 45 | 84 | 45 | 0 | 0 | 68.9 | 64.2 | 41 | 88 | 191 | 412 |
| 150 | Indian St | Cactus Ave | John F Kennedy Dr | 12,037 | 20 | 12 | 45 | 6 | 0 | 60.7 | 56.1 | 11 | 25 | 54 | 117 |
| 151 | Cactus Ave | Perris Blvd | Kitching St | 18,007 | 35 | 0 | 45 | 0 | 0 | 68.5 | 63.8 | 38 | 83 | 180 | 388 |
| 152 | Perris Blvd | Cactus Ave | John F Kennedy Dr | 28,355 | 165 | 308 | 45 | 6 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 212 |
| 153 | Cactus Ave | Kitching St | Lasselle St | 13,576 | 38 | 0 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 69 | 150 | 324 |
| 154 | Kitching St | Cactus Ave | John F Kennedy Dr | 8,873 | 1 | 0 | 35 | 6 | 0 | 56.2 | 51.5 | 5 | 12 | 27 | 58 |
| 155 | Cactus Ave | Lasselle St | Morrison St | 23,798 | 108 | 0 | 45 | 0 | 0 | 69.8 | 65.2 | 47 | 102 | 220 | 475 |
| 156 | Lasselle St | Cactus Ave | John F Kennedy Dr | 26,567 | 76 | 0 | 45 | 0 | 0 | 70.2 | 65.6 | 50 | 108 | 234 | 505 |
| 157 | Cactus Ave | Morrison St | Nason St | 19,303 | 113 | 0 | 45 | 0 | 0 | 68.9 | 64.3 | 41 | 89 | 193 | 416 |
| 158 | E 6th St | Beaumont Ave | Pennsylvania Ave | 16,095 | 88 | 192 | 45 | 0 | 0 | 68.1 | 63.5 | 36 | 79 | 170 | 366 |
| 159 | Beaumont Ave | E 6th St | I-10 | 15,664 | 58 | 210 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 77 | 166 | 358 |
| 160 | Kitching St | Gentian Ave | Iris Ave | 6,265 | 6 | 12 | 45 | 0 | 0 | 63.8 | 59.2 | 19 | 41 | 88 | 190 |
| 161 | Iris Ave | Perris Blvd | Kitching St | 19,155 | 152 | 30 | 45 | 6 | 0 | 62.9 | 58.3 | 16 | 35 | 76 | 165 |
| 162 | Iris Ave | Kitching St | Lasselle St | 23,287 | 336 | 0 | 45 | 6 | 0 | 64.0 | 59.4 | 19 | 42 | 91 | 197 |
| 163 | Kitching St | Iris Ave | Ivory Ave | 19,438 | 217 | 0 | 45 | 6 | 0 | 63.1 | 58.5 | 17 | 36 | 79 | 171 |
| 164 | Lasselle St | Gentian Ave | Iris Ave | 22,239 | 16 | 0 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 95 | 205 | 442 |
| 165 | Iris Ave | Lasselle St | Nason St | 27,603 | 597 | 0 | 45 | 6 | 0 | 65.1 | 60.4 | 23 | 49 | 106 | 230 |
| 168 | Krameria Ave | Perris Blvd | Lasselle St | 13,994 | 244 | 0 | 45 | 6 | 0 | 61.9 | 57.3 | 14 | 30 | 65 | 142 |
| 169 | Krameria Ave | Kitching St | Lasselle St | 7,258 | 16 | 0 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 170 | Kitching St | Krameria Ave | Lurin Ave | 21,370 | 12 | 0 | 45 | 6 | 0 | 63.1 | 58.5 | 17 | 36 | 79 | 171 |
| 171 | Lasselle St | Cahuilla Dr | Krameria Ave | 25,839 | 236 | 0 | 45 | 6 | 0 | 64.3 | 59.7 | 20 | 44 | 95 | 205 |
| 172 | Lasselle St | Krameria Ave | Arroyo Park Dr | 13,875 | 230 | 12 | 45 | 6 | 0 | 61.9 | 57.3 | 14 | 30 | 65 | 141 |
| 173 | Oleander Ave | Perris Blvd | Lasselle St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 174 | Oleander Ave | Lasselle St | Lake Perris Dr | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 177 | San Timoteo Canyon Rd | Alessandro Rd | Live Oak Canyon Rd | 16,305 | 392 | 458 | 45 | 0 | 0 | 69.9 | 65.3 | 48 | 105 | 226 | 488 |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd | I-10 | 4,742 | 52 | 85 | 45 | 0 | 0 | 63.8 | 59.2 | 19 | 41 | 88 | 191 |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd | Redlands Blvd | 19,633 | 446 | 525 | 45 | 0 | 0 | 70.7 | 66.0 | 54 | 117 | 252 | 544 |
| 180 | San Timoteo Canyon Rd | Redlands Blvd | Woodhouse Rd | 3,631 | 17 | 33 | 45 | 0 | 0 | 61.6 | 57.0 | 13 | 29 | 63 | 136 |
| 181 | Potrero Blvd | north of SR 60 WB Ramps | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 182 | SR 60 WB Onramp | west of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 183 | SR 60 WB Offramp | east of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 184 | SR 60 EB Offramp | west of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 185 | SR 60 EB Onramp | east of Potrero Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 186 | Potrero Blvd | south of SR 60 EB Ramps | W 4th St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 190 | Gilman Springs Rd | Jack Rabbit Trail | Bridge St | 14,219 | 202 | 185 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 173 | 374 |
| 191 | Gilman Springs Rd | Bridge St | Beaumont Ave | 12,936 | 186 | 152 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 76 | 165 | 356 |
| 192 | Bridge St | Gilman Springs Rd | Marvin Rd | 2,019 | 24 | 72 | 45 | 0 | 0 | 59.9 | 55.2 | 10 | 22 | 48 | 103 |
| 194 | Crescent Ave | West of Alessandro Rd | 0 | 2,889 | 71 | 0 | 35 | 0 | 0 | 58.4 | 53.8 | 8 | 17 | 38 | 83 |
| 195 | Crescent Ave | Alessandro Rd | Center St | 7,633 | 116 | 0 | 45 | 0 | 0 | 65.2 | 60.5 | 23 | 50 | 108 | 234 |
| 196 | Alessandro Rd | Crescent Ave | Sunset Dr | 7,754 | 189 | 0 | 45 | 0 | 0 | 65.5 | 60.9 | 24 | 53 | 115 | 247 |

**2022 With Project**

| ID | Arterial | From | To | 2022 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 198 | Sunset Dr | Crown St | Alessandro Rd | 259 | 0 | 0 | 35 | 0 | 0 | 46.8 | 42.2 | 1 | 3 | 6 | 13 |
| 199 | Sunset Dr | Alessandro Rd | Cameo Dr | 927 | 12 | 0 | 35 | 0 | 0 | 53.0 | 48.4 | 3 | 7 | 16 | 36 |
| 200 | Alessandro Rd | Sunset Dr | San Timoteo Canyon Rd | 8,437 | 208 | 0 | 45 | 0 | 0 | 65.9 | 61.3 | 26 | 56 | 122 | 262 |
| 205 | Reche Canyon Rd | Keissel Rd | Reche Vista Dr | 22,221 | 114 | 0 | 45 | 0 | 0 | 69.5 | 64.8 | 45 | 97 | 210 | 453 |
| 206 | Reche Canyon Rd | Reche Vista Dr | High Country Dr | 302 | 0 | 0 | 45 | 0 | 0 | 50.6 | 46.0 | 2 | 5 | 11 | 25 |
| 207 | Reche Vista Dr | Heacock St | Reche Canyon Rd | 22,203 | 114 | 0 | 35 | 0 | 0 | 66.4 | 61.8 | 28 | 60 | 130 | 282 |
| 215 | Mission Grove Pkwy | Cannon Rd | Alessandro Blvd | 8,639 | 4 | 4 | 35 | 0 | 0 | 62.1 | 57.4 | 14 | 31 | 67 | 145 |
| 216 | Alessandro Blvd | Trautwein Rd | Vista Grande Dr | 53,537 | 215 | 250 | 45 | 0 | 0 | 73.2 | 68.6 | 80 | 174 | 375 | 809 |
| 217 | Mission Grove Pkwy | Alessandro Blvd | Northrop Dr | 17,930 | 45 | 49 | 45 | 6 | 0 | 62.5 | 57.9 | 15 | 33 | 72 | 155 |
| 218 | Alessandro Blvd | Canyon Crest Dr | Trautwein Rd | 60,039 | 220 | 252 | 45 | 0 | 0 | 73.7 | 69.1 | 87 | 187 | 404 | 871 |
| 219 | Trautwein Rd | Alessandro Blvd | Orange Terrace Pkwy | 11,152 | 3 | 4 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 60 | 129 | 279 |
| 221 | Canyon Crest Dr | Central Ave | Alessandro Blvd | 12,951 | 21 | 34 | 45 | 0 | 0 | 67.0 | 62.4 | 31 | 66 | 143 | 310 |
| 223 | Canyon Crest Dr | Alessandro Blvd | Sandtrack Rd | 850 | 0 | 0 | 35 | 6 | 0 | 46.0 | 41.3 | 1 | 2 | 5 | 12 |
| 225 | Via Vista Dr | Alessandro Blvd | Canyon Crest Dr | 2,583 | 0 | 0 | 45 | 0 | 0 | 59.9 | 55.3 | 10 | 22 | 48 | 105 |
| 226 | Alessandro Blvd | Century Ave | Canyon Crest Dr | 57,481 | 209 | 234 | 45 | 0 | 0 | 73.5 | 68.9 | 84 | 182 | 392 | 846 |
| 227 | Via Vista Dr | Alessandro Blvd | Canyon Hill Dr | 3,434 | 0 | 0 | 45 | 0 | 0 | 61.2 | 56.6 | 12 | 27 | 58 | 126 |
| 229 | Century Ave | Alessandro Blvd | Claridge Dr | 2,159 | 4 | 3 | 45 | 0 | 0 | 59.2 | 54.6 | 9 | 20 | 43 | 94 |
| 230 | Century Ave | Trafalgar Ave | Alessandro Blvd | 1,855 | 0 | 0 | 45 | 0 | 0 | 58.5 | 53.9 | 8 | 18 | 39 | 84 |
| 231 | Alessandro Blvd | Victoria Ave | Arlington Ave/Chicago Ave | 42,191 | 156 | 197 | 45 | 0 | 0 | 72.2 | 67.6 | 68 | 148 | 319 | 689 |
| 232 | Chicago Ave | Alessandro Blvd | Central Ave | 36,760 | 189 | 279 | 45 | 0 | 0 | 71.7 | 67.1 | 64 | 138 | 298 | 642 |
| 233 | Alessandro Blvd | Arlington Ave/Chicago Ave | Century Ave | 60,260 | 233 | 261 | 45 | 0 | 0 | 73.7 | 69.1 | 87 | 188 | 405 | 873 |
| 236 | Victoria Ave | Central Ave | Arlington Ave | 8,603 | 39 | 13 | 45 | 0 | 0 | 65.3 | 60.7 | 24 | 51 | 111 | 240 |
| 237 | Arlington Ave | Victoria Ave | Alessandro Blvd | 41,251 | 252 | 359 | 45 | 0 | 0 | 72.3 | 67.7 | 70 | 151 | 326 | 703 |
| 238 | Victoria Ave | Arlington Ave | Maude St | 16,166 | 90 | 51 | 45 | 0 | 0 | 68.1 | 63.5 | 36 | 79 | 171 | 369 |
| 239 | Arlington Ave | Maude St | Victoria Ave | 34,851 | 172 | 289 | 45 | 0 | 0 | 71.6 | 66.9 | 62 | 134 | 290 | 626 |
| 240 | Durango Rd | Laramie Rd | Arlington Ave | 2,695 | 10 | 10 | 45 | 0 | 0 | 60.2 | 55.6 | 10 | 23 | 51 | 109 |
| 241 | Horace St | Arlington Ave | Victoria Ave | 5,255 | 10 | 14 | 45 | 0 | 0 | 63.1 | 58.5 | 17 | 36 | 78 | 170 |
| 242 | Arlington Ave | Magnolia Ave | SR-91 WB On-Ramps | 39,205 | 154 | 267 | 45 | 0 | 0 | 72.0 | 67.4 | 67 | 144 | 311 | 671 |
| 243 | Riverside Dr | SR-91 WB Off-Ramps | Arlington Ave | 12,701 | 34 | 36 | 45 | 0 | 0 | 67.1 | 62.4 | 31 | 67 | 145 | 313 |
| 244 | SR-91 WB On-Ramps | Arlington Ave | SR-91 | 18,858 | 82 | 152 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 86 | 187 | 403 |
| 245 | SR-91 EB On-Ramps | SR-91 | Arlington Ave | 23,514 | 50 | 150 | 45 | 0 | 0 | 69.8 | 65.2 | 47 | 102 | 220 | 475 |
| 246 | Indiana Ave | Arlington Ave | SR-91 EB Off-Ramps | 17,802 | 91 | 165 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 87 | 187 | 404 |
| 247 | Arlington Ave | SR-91 WB On-Ramps | SR-91 EB On-Ramps | 42,324 | 153 | 232 | 45 | 0 | 0 | 72.3 | 67.7 | 70 | 151 | 326 | 703 |
| 250 | Country Club Dr | Chicago Ave | Canyon Crest Dr | 3,057 | 2 | 2 | 35 | 0 | 0 | 57.6 | 52.9 | 7 | 15 | 33 | 72 |
| 252 | Central Ave | Chicago Ave | Canyon Crest Dr | 26,590 | 158 | 250 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 112 | 242 | 522 |
| 254 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 19,125 | 49 | 64 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 86 | 187 | 403 |
| 256 | Canyon Crest Dr | Central Ave | Country Club Dr | 20,622 | 48 | 67 | 45 | 0 | 0 | 69.2 | 64.6 | 43 | 93 | 201 | 433 |
| 258 | El Cerrito Dr | Canyon Crest Dr | Central Ave | 6,806 | 8 | 26 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 93 | 201 |
| 260 | Central Ave | Canyon Crest Dr | I-215 | 26,414 | 147 | 253 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 240 | 517 |
| 261 | Lochmoor Dr | Central Ave | Fair Isle Dr | 9,984 | 111 | 180 | 35 | 6 | 0 | 57.2 | 52.6 | 6 | 14 | 31 | 68 |
| 262 | Sycamore Canyon Blvd | Central Ave | College Blvd | 16,619 | 134 | 272 | 35 | 0 | 0 | 65.4 | 60.7 | 24 | 51 | 112 | 241 |
| 263 | Central Ave | Sycamore Canyon Blvd | I-215 SB Ramps | 22,703 | 163 | 247 | 45 | 0 | 0 | 69.7 | 65.1 | 47 | 101 | 218 | 470 |

**2022 With Project**

| ID | Arterial | From | To | 2022 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 264 | I-215 SB Off-Ramps | I-215 | Central Ave | 2,990 | 34 | 8 | 45 | 0 | 0 | 60.9 | 56.3 | 12 | 26 | 56 | 121 |
| 265 | Central Ave | I-215 SB Ramps | I-215 NB Ramps | 20,477 | 173 | 200 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 94 | 204 | 440 |
| 266 | I-215 SB On-Ramps | Central Ave | I-215 | 27,802 | 220 | 358 | 45 | 0 | 0 | 70.6 | 66.0 | 54 | 117 | 252 | 543 |
| 267 | Watkins Dr | I-215 NB On-Ramp | I-215 NB Off-Ramp | 18,209 | 174 | 191 | 45 | 0 | 0 | 68.9 | 64.3 | 41 | 90 | 194 | 418 |
| 268 | I-215 NB Off-Ramp | Watkins Dr | I-215 | 13,634 | 150 | 206 | 45 | 0 | 0 | 67.8 | 63.1 | 34 | 75 | 161 | 348 |
| 269 | Martin Luther King Blvd | SR-91 | Chicago Ave | 36,112 | 171 | 422 | 45 | 0 | 0 | 71.9 | 67.3 | 65 | 141 | 305 | 658 |
| 270 | Chicago Ave | University Ave | Martin Luther King Blvd | 27,208 | 46 | 53 | 45 | 0 | 0 | 70.2 | 65.6 | 50 | 109 | 236 | 508 |
| 271 | Martin Luther King Blvd | Chicago Ave | Iowa Ave | 32,007 | 170 | 413 | 45 | 0 | 0 | 71.5 | 66.8 | 61 | 132 | 285 | 615 |
| 272 | Chicago Ave | Martin Luther King Blvd | Central Ave | 27,877 | 39 | 41 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 239 | 516 |
| 273 | Iowa Ave | University Ave | Martin Luther King Blvd | 15,393 | 27 | 26 | 45 | 0 | 0 | 67.7 | 63.1 | 34 | 74 | 161 | 347 |
| 274 | Martin Luther King Blvd | Iowa Ave | Canyon Crest Dr | 40,440 | 196 | 430 | 45 | 0 | 0 | 72.3 | 67.7 | 70 | 152 | 327 | 705 |
| 275 | Canyon Crest Dr | Campus Dr | Martin Luther King Blvd | 14,999 | 107 | 239 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 76 | 164 | 353 |
| 276 | Martin Luther King Blvd | Canyon Crest Dr | I-215 SB Ramps | 32,587 | 161 | 399 | 45 | 0 | 0 | 71.6 | 66.9 | 62 | 134 | 289 | 624 |
| 277 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 25,777 | 30 | 47 | 45 | 0 | 0 | 70.0 | 65.3 | 48 | 105 | 227 | 489 |
| 278 | I-215 SB Off-Ramp | I-215 | Martin Luther King Blvd | 6,334 | 0 | 22 | 45 | 0 | 0 | 63.8 | 59.2 | 19 | 41 | 88 | 191 |
| 279 | Martin Luther King Blvd | I-215 SB Ramps | I-215 NB Ramps | 9,539 | 31 | 95 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 61 | 133 | 287 |
| 280 | I-215 SB On-Ramp | Martin Luther King Blvd | I-215 | 36,130 | 170 | 428 | 45 | 0 | 0 | 72.1 | 67.5 | 68 | 147 | 316 | 682 |
| 281 | I-215 NB On-Ramp | I-215 | Martin Luther King Blvd | 10,204 | 12 | 42 | 45 | 0 | 0 | 65.9 | 61.3 | 26 | 56 | 122 | 264 |
| 282 | I-215 NB Off-Ramp | Martin Luther King Blvd | I-215 | 10,206 | 74 | 198 | 45 | 0 | 0 | 67.3 | 62.6 | 32 | 69 | 150 | 323 |
| 283 | SR-60 EB Off-Ramp | SR-60 | Heacock St | 25,078 | 118 | 504 | 45 | 0 | 0 | 70.0 | 65.3 | 48 | 105 | 227 | 489 |
| 284 | SR-60 EB On-Ramp | Heacock St | SR-60 | 13,372 | 148 | 622 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 174 | 375 |
| 285 | Heacock St | SR-60 EB Ramps | Sunnymead Blvd | 34,723 | 117 | 366 | 45 | 0 | 0 | 71.7 | 67.1 | 64 | 138 | 298 | 643 |
| 286 | Perris Blvd | Hemlock Ave | SR-60 WB Ramps | 37,847 | 158 | 44 | 45 | 0 | 0 | 71.7 | 67.1 | 64 | 138 | 298 | 642 |
| 287 | Perris Blvd | SR-60 WB Ramps | Sunnymead Blvd | 41,408 | 228 | 221 | 45 | 0 | 0 | 72.3 | 67.7 | 70 | 151 | 325 | 701 |
| 288 | Sunnymead Blvd | SR-60 WB Off-Ramp | Perris Blvd | 26,123 | 214 | 180 | 45 | 0 | 0 | 70.2 | 65.6 | 51 | 110 | 237 | 511 |
| 289 | Sunnymead Blvd | Perris Blvd | SR-60 WB On-Ramp | 20,853 | 125 | 162 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 208 | 448 |
| 290 | Perris Blvd | Sunnymead Blvd | Fir Ave | 33,531 | 252 | 410 | 45 | 0 | 0 | 71.9 | 67.3 | 66 | 142 | 306 | 660 |
| 294 | Via Del Lago | South of Iris Ave | 0 | 1,709 | 6 | 0 | 45 | 0 | 0 | 58.3 | 53.6 | 8 | 17 | 37 | 81 |
| 301 | John F. Kennedy Dr | Indian St | Perris Blvd | 16,715 | 68 | 0 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 173 | 373 |
| 302 | John F. Kennedy Dr | Perris Blvd | Kitching St | 16,300 | 65 | 0 | 45 | 0 | 0 | 68.1 | 63.5 | 36 | 79 | 170 | 367 |
| 303 | Perris Blvd | John F. Kennedy Dr | Iris Ave | 27,336 | 214 | 357 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 113 | 243 | 524 |
| 304 | Iris Ave | Indian St | Perris Blvd | 13,633 | 43 | 47 | 45 | 0 | 0 | 67.3 | 62.6 | 32 | 69 | 150 | 323 |
| 306 | Perris Blvd | Iris Ave | Krameria Ave | 24,889 | 250 | 341 | 45 | 6 | 0 | 64.6 | 60.0 | 21 | 46 | 99 | 214 |
| 307 | Perris Blvd | Krameria Ave | Harley Know Blvd | 26,223 | 352 | 317 | 45 | 6 | 0 | 64.7 | 60.1 | 21 | 46 | 100 | 217 |
| 324 | Ramona Expy | Warren Rd | Sanderson Ave | 14,094 | 86 | 274 | 45 | 0 | 0 | 67.5 | 62.9 | 33 | 72 | 156 | 337 |
| 325 | Sanderson Ave | Gilman Springs Rd | Ramona Expy | 36,767 | 190 | 1,097 | 45 | 0 | 0 | 71.8 | 67.2 | 64 | 139 | 299 | 645 |
| 326 | Ramona Expy | Sanderson Ave | State St | 15,532 | 79 | 174 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 77 | 166 | 358 |
| 327 | Sanderson Ave | Ramona Expy | Ramona Blvd | 18,502 | 90 | 254 | 45 | 0 | 0 | 68.8 | 64.2 | 40 | 88 | 190 | 409 |
| 340 | Alessandro Blvd | South of San Timoteo Canyon R | 0 | 366 | 0 | 0 | 45 | 0 | 0 | 51.5 | 46.8 | 2 | 6 | 13 | 28 |
| 351 | Live Oak Canyon Rd | South of San Timoteo Canyon R | 0 | 711 | 2 | 2 | 45 | 0 | 0 | 54.4 | 49.8 | 4 | 9 | 20 | 45 |
| 358 | Gilman Springs Rd | Bridge St | SR-79 SB Ramps | 13,248 | 173 | 151 | 45 | 0 | 0 | 68.0 | 63.3 | 35 | 77 | 166 | 359 |
| 359 | SR-79 SB Off-Ramp | SR-79 | Gilman Springs Rd | 10,422 | 100 | 224 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 60 | 129 | 279 |

**2022 With Project**

| ID | Arterial | From | To | 2022 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 360 | Gilman Springs Rd | SR-79 SB Ramps | SR-79 NB Ramps | 13,791 | 138 | 93 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 77 | 166 | 358 |
| 361 | SR-79 SB On-Ramp | Gilman Springs Rd | SR-79 | 9,418 | 108 | 114 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 59 | 129 | 278 |
| 362 | SR-79 NB On-Ramp | SR-79 | Gilman Springs Rd | 11,002 | 144 | 366 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 64 | 138 | 297 |
| 363 | Gilman Springs Rd | SR-79 NB Ramps | Record Rd | 16,699 | 126 | 50 | 45 | 0 | 0 | 68.5 | 63.8 | 38 | 83 | 180 | 388 |
| 364 | SR-79 NB Off-Ramp | Gilman Springs Rd | SR-79 | 4,382 | 58 | 58 | 45 | 0 | 0 | 62.3 | 57.7 | 15 | 32 | 70 | 151 |
| 365 | Alessandro Blvd | Sycamore Canyon Blvd | Vista Grande Dr | 53,991 | 271 | 310 | 45 | 0 | 0 | 73.3 | 68.7 | 81 | 176 | 380 | 819 |
| 366 | Sycamore Canyon Blvd | Eastridge Ave | Alessandro Blvd | 10,957 | 66 | 110 | 45 | 0 | 0 | 66.4 | 61.8 | 28 | 61 | 131 | 283 |
| 367 | Meridian Pkwy | Alessandro Blvd | Cactus Ave | 6,543 | 28 | 78 | 45 | 0 | 0 | 64.2 | 59.5 | 20 | 43 | 93 | 200 |
| 375 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 376 | 3rd St | Marvin Rd | Mid County Pkwy WB Ran | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 377 | Mid County Pkwy WB Off-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 378 | 3rd St | Mid County Pkwy EB Ramps | Mid County Pkwy WB Ran | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 379 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | 3rd St | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 380 | Mid County Pkwy EB On-Ramp | 3rd St | Mid County Pkwy | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 381 | 3rd St | Mid County Pkwy EB Ramps | MM Blvd | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 386 | Harley Know Blvd | Indian St | Perris Blvd | 4,927 | 74 | 144 | 45 | 0 | 0 | 63.3 | 58.7 | 17 | 37 | 81 | 176 |
| 387 | Perris Blvd | Krameria Ave | Harley Know Blvd | 21,537 | 215 | 448 | 45 | 6 | 0 | 63.7 | 59.1 | 18 | 40 | 86 | 187 |
| 388 | Krameria Ave | Lasselle St | Spirit Rd | 1,947 | 0 | 0 | 45 | 0 | 0 | 58.7 | 54.1 | 8 | 18 | 40 | 86 |
| 389 | El Cerrito Dr | South of Central Ave | 0 | 4,032 | 18 | 28 | 45 | 0 | 0 | 62.0 | 57.4 | 14 | 31 | 67 | 144 |
| 390 | Ramona Expy | Webster Ave | Indian St | 27,814 | 143 | 885 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 115 | 247 | 533 |
| 392 | Ramona Expy | Indian St | Perris Blvd | 27,269 | 173 | 508 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 114 | 246 | 530 |
| 393 | Indian St | Ramona Expy | Morgan St | 3,793 | 183 | 561 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 47 | 103 | 222 |
| 394 | Perris Blvd | Harley Know Blvd | Ramona Expy | 18,801 | 226 | 365 | 45 | 0 | 0 | 69.2 | 64.6 | 43 | 94 | 202 | 437 |
| 396 | Perris Blvd | Ramona Expy | Rider St | 24,708 | 258 | 121 | 45 | 0 | 0 | 70.1 | 65.5 | 50 | 108 | 233 | 503 |
| 397 | Ramona Expy | Perris Blvd | Evans Rd | 27,966 | 223 | 348 | 45 | 0 | 0 | 70.6 | 66.0 | 53 | 115 | 249 | 538 |
| 398 | Evans Rd | Marbella Gate | Ramona Expy | 25,077 | 234 | 0 | 45 | 6 | 0 | 64.2 | 59.6 | 20 | 43 | 93 | 201 |
| 399 | Ramona Expy | Evans Rd | Rider St | 18,100 | 65 | 227 | 55 | 6 | 0 | 65.0 | 60.4 | 22 | 49 | 106 | 228 |
| 400 | Evans Rd | Ramona Expy | Rider St | 13,180 | 21 | 7 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 68 | 146 | 315 |
| 401 | Morgan St | Indian St | Perris Blvd | 4,287 | 86 | 117 | 45 | 0 | 0 | 62.8 | 58.2 | 16 | 35 | 75 | 162 |
| 402 | Morgan St | Perris Blvd | Silver Creek Industries | 1,283 | 24 | 0 | 45 | 0 | 0 | 57.4 | 52.8 | 7 | 15 | 33 | 71 |
| 404 | Morgan St | Morgan Park | Evans Rd | 3,667 | 12 | 0 | 45 | 0 | 0 | 61.6 | 56.9 | 13 | 29 | 62 | 134 |
| 405 | Morgan St | Evans Rd | Bradley Rd | 6,916 | 4 | 14 | 45 | 0 | 0 | 64.4 | 59.8 | 20 | 44 | 96 | 208 |
| 406 | Ironwood Ave | East of Thedore St | 0 | 912 | 24 | 14 | 45 | 0 | 0 | 56.1 | 51.5 | 5 | 12 | 27 | 58 |
| 407 | Rider St | Indian St | Perris Blvd | 4,035 | 9 | 31 | 45 | 0 | 0 | 62.0 | 57.4 | 14 | 31 | 66 | 144 |
| 408 | Rider St | Perris Blvd | Redlands Ave | 8,231 | 0 | 1 | 45 | 0 | 0 | 65.1 | 60.5 | 23 | 49 | 107 | 230 |
| 409 | Ironwood Ave | Nason St | Moreno Beach Dr | 5,967 | 64 | 0 | 45 | 0 | 0 | 63.9 | 59.3 | 19 | 41 | 89 | 193 |
| 410 | Rider St | Wilson Ave | Evans Rd | 11,925 | 8 | 12 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 63 | 136 | 293 |
| 411 | Rider St | Evans Rd | Ramona Expy | 6,154 | 0 | 24 | 45 | 0 | 0 | 63.7 | 59.1 | 18 | 40 | 87 | 187 |
| 412 | Maude St | North of Arlington Ave | 0 | 212 | 0 | 0 | 45 | 0 | 0 | 49.1 | 44.5 | 1 | 4 | 9 | 19 |
| 413 | Placentia Ave | Indian St | Perris Blvd | 8,673 | 142 | 198 | 45 | 0 | 0 | 65.8 | 61.2 | 25 | 55 | 119 | 257 |
| 414 | Placentia Ave | Perris Blvd | Redlands Ave | 5,050 | 0 | 0 | 45 | 0 | 0 | 62.9 | 58.2 | 16 | 35 | 76 | 164 |
| 415 | Perris Blvd | Placentia Ave | Orange Ave | 29,414 | 371 | 336 | 45 | 0 | 0 | 70.9 | 66.3 | 56 | 122 | 263 | 567 |

**2022 With Project**

| ID | Arterial | From | To | 2022 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 416 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | Perris Blvd | 16,156 | 304 | 366 | 45 | 0 | 0 | 68.5 | 63.9 | 39 | 84 | 182 | 392 |
| 417 | Mid County Pkwy WB Off-Ramp | Perris Blvd | Mid County Pkwy | 12,332 | 174 | 302 | 45 | 0 | 0 | 67.2 | 62.6 | 32 | 68 | 148 | 320 |
| 419 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | Perris Blvd | 22,542 | 344 | 428 | 45 | 0 | 0 | 69.9 | 65.2 | 48 | 103 | 223 | 480 |
| 420 | Mid County Pkwy EB On-Ramp | Perris Blvd | Mid County Pkwy | 12,616 | 148 | 238 | 45 | 0 | 0 | 67.2 | 62.6 | 32 | 69 | 148 | 320 |
| 421 | Via Del Lago | South of Iris Ave | 0 | 378 | 0 | 0 | 45 | 0 | 0 | 51.6 | 47.0 | 2 | 6 | 13 | 29 |
| 424 | Perris Blvd | Alessandro Blvd | Cottonwood Ave | 27,884 | 209 | 280 | 45 | 6 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 425 | Mid County Pkwy WB On-Ramp | West of Evan | 0 | 9,856 | 44 | 42 | 45 | 0 | 0 | 65.9 | 61.3 | 26 | 56 | 121 | 262 |
| 426 | Mid County Pkwy WB Off-Ramp | East of Evan | 0 | 3,392 | 24 | 30 | 45 | 0 | 0 | 61.3 | 56.7 | 13 | 28 | 60 | 130 |
| 427 | Day St | south of Alessandro Blvd | 0 | 2,060 | 53 | 133 | 45 | 0 | 0 | 60.2 | 55.6 | 10 | 23 | 50 | 109 |
| 428 | Mid County Pkwy EB Off-Ramp | West of Evan | 0 | 10,394 | 44 | 50 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 125 | 270 |
| 429 | Mid County Pkwy EB On-Ramp | East of Evan | 0 | 3,748 | 24 | 32 | 45 | 0 | 0 | 61.8 | 57.1 | 13 | 29 | 64 | 138 |
| 430 | Alessandro Blvd | SR-215 NB Ramp | SR-215 SB Ramp | 40,018 | 235 | 348 | 45 | 0 | 0 | 72.0 | 67.4 | 67 | 145 | 312 | 673 |
| 431 | Placentia Ave | Water Ave | Evans Rd | 0 | 0 | 0 | 35 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 432 | Placentia Ave | Evans Rd | El Nido Ave | 0 | 0 | 0 | 35 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 433 | Evans Rd | Rider St | Orange Ave | 7,959 | 31 | 27 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 49 | 105 | 227 |
| 434 | Orange Ave | Wilson Ave | Evans Rd | 5,319 | 0 | 13 | 45 | 0 | 0 | 63.1 | 58.5 | 17 | 36 | 79 | 170 |
| 435 | Orange Ave | Evans Rd | Foothill Dr | 2,791 | 0 | 12 | 35 | 0 | 0 | 57.2 | 52.5 | 6 | 14 | 31 | 68 |
| 436 | Elsworth St | south of Cactus Ave | 0 | 16,591 | 164 | 36 | 45 | 0 | 0 | 68.3 | 63.7 | 38 | 82 | 177 | 381 |
| 441 | Nuevo Rd | Wilson Ave | Evans Rd | 14,145 | 24 | 59 | 45 | 0 | 0 | 67.4 | 62.8 | 32 | 70 | 152 | 328 |
| 442 | Evans Rd | Orange Ave | Nuevo Rd | 6,262 | 5 | 9 | 45 | 0 | 0 | 63.8 | 59.2 | 19 | 41 | 88 | 190 |
| 443 | Nuevo Rd | Evans Rd | Foothill Dr | 10,787 | 25 | 47 | 45 | 0 | 0 | 66.2 | 61.6 | 27 | 59 | 127 | 275 |
| 444 | Evans Rd | Nuevo Rd | San Jacinto Ave | 0 | 0 | 0 | 45 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 452 | San Jacinto Ave | West of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 453 | Evans Rd | North of San Jancito Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 454 | San Jacinto Ave | East of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 455 | Evans Rd | South of San Jancito Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 458 | Nason St | South of Cactus Ave | 0 | 0 | 4 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 464 | Quincy | South of Eucalyptus | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 477 | Ellis Ave | West of Evan Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 478 | Evans Rd | North of Ellis Ave | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 479 | Oliver St | South of Irris Ave | 0 | 2,644 | 12 | 0 | 45 | 0 | 0 | 60.2 | 55.6 | 10 | 23 | 50 | 108 |
| 480 | Ellis Ave | Evans Rd | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 481 | SR-215 SB Off-ramp | SR-215 | Ellis Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 482 | Ellis Ave | East of SR-215 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 483 | SR-215 SB On-ramp | Ellis Ave | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 484 | SR-215 NB On-ramp | Ellis Ave | SR-215 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 485 | SR-215 NB Off-ramp | SR-215 | Ellis Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 488 | Nason St | North of Iris Ave | 0 | 6,515 | 57 | 0 | 45 | 0 | 0 | 64.2 | 59.6 | 20 | 43 | 93 | 201 |
| 494 | Evans Rd | North of Harley Knox Blvd | 0 | 0 | 0 | 0 | 45 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 498 | Morrison St | Alessandro Blvd | Cactus Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 499 | Perris Blvd | Eucalyptus Ave | Cottonwood Ave | 32,022 | 119 | 277 | 45 | 0 | 0 | 71.6 | 67.0 | 63 | 136 | 294 | 633 |
| 500 | Perris Blvd | North of Eucalyptus Ave | 0 | 32,068 | 113 | 289 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 265 | 571 |

**2022 With Project**

| ID | Arterial | From | To | 2022 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 502 | Quincy | Cottonwood Ave | Alessandro Blvd | 0 | 0 | 0 | 35 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 503 | Quincy | Alessandro Blvd | Cactus Ave | 0 | 0 | 0 | 35 | 6 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 504 | Krameria Ave | west of Perris Blvd | 0 | 14,243 | 201 | 0 | 45 | 0 | 0 | 67.8 | 63.2 | 34 | 75 | 162 | 349 |

**2022 Plus Project Case** **Total Noise Levels**

| ID | Freeway | From | 2022 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | SR-60 | SR-71/S Garey Ave to S Reservoir Rd | 214,050 | 4,530 | 18,310 | 65 | 0 | 0 | 85.7 | 81.0 | 527 | 1135 | 2447 | 5272 |
| 2 | SR-60 | S Reservoir Rd to Ramona Ave | 217,980 | 4,750 | 19,200 | 65 | 0 | 0 | 85.8 | 81.2 | 535 | 1154 | 2486 | 5357 |
| 3 | SR-60 | Ramona Ave to Central Ave | 207,650 | 4,630 | 18,610 | 65 | 0 | 0 | 85.6 | 81.0 | 520 | 1120 | 2414 | 5201 |
| 4 | SR-60 | Central Ave to Mountain Ave | 217,960 | 4,930 | 19,640 | 65 | 0 | 0 | 85.8 | 81.2 | 537 | 1158 | 2496 | 5379 |
| 5 | SR-60 | Mountain Ave to Euclid Ave | 212,480 | 4,860 | 19,220 | 65 | 0 | 0 | 85.7 | 81.1 | 529 | 1140 | 2457 | 5294 |
| 6 | SR-60 | Euclid Ave to Grove Ave | 231,090 | 5,300 | 20,910 | 65 | 0 | 0 | 86.1 | 81.4 | 560 | 1206 | 2599 | 5600 |
| 7 | SR-60 | Grove Ave to Vineyard Ave | 227,630 | 5,010 | 19,840 | 65 | 0 | 0 | 86.0 | 81.3 | 551 | 1187 | 2559 | 5513 |
| 8 | SR-60 | Vineyard Ave to Archibald Ave | 227,330 | 5,120 | 19,870 | 65 | 0 | 0 | 86.0 | 81.3 | 551 | 1188 | 2561 | 5517 |
| 9 | SR-60 | Archibald Ave to Haven Ave | 215,690 | 4,990 | 18,650 | 65 | 0 | 0 | 85.8 | 81.1 | 533 | 1148 | 2474 | 5332 |
| 10 | SR-60 | Haven Ave to Miliken Ave | 198,070 | 4,640 | 17,080 | 65 | 0 | 0 | 85.5 | 80.9 | 504 | 1085 | 2339 | 5040 |
| 11 | SR-60 | Miliken Ave to SR-15 | 164,410 | 4,560 | 16,860 | 65 | 0 | 0 | 84.8 | 80.2 | 457 | 985 | 2122 | 4573 |
| 12 | SR-60 | I-15 to Etiwanda Ave | 130,140 | 3,720 | 12,190 | 65 | 0 | 0 | 83.9 | 79.3 | 388 | 837 | 1805 | 3889 |
| 13 | SR-60 | Etiwanda Ave to Mission Blvd/Country Village R | 143,390 | 3,710 | 12,220 | 65 | 0 | 0 | 84.2 | 79.6 | 408 | 880 | 1897 | 4087 |
| 14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 133,570 | 3,450 | 11,310 | 65 | 0 | 0 | 83.9 | 79.3 | 389 | 839 | 1808 | 3896 |
| 15 | SR-60 | Pedley Rd to Pyrite St | 123,650 | 3,150 | 10,460 | 65 | 0 | 0 | 83.6 | 79.0 | 369 | 796 | 1716 | 3697 |
| 16 | SR-60 | Pyrite St to Valley Way | 121,110 | 3,140 | 10,280 | 65 | 0 | 0 | 83.5 | 78.9 | 365 | 786 | 1695 | 3651 |
| 17 | SR-60 | Valley Way to Rubidoux Blvd | 156,540 | 3,870 | 12,610 | 65 | 0 | 0 | 84.5 | 79.9 | 430 | 927 | 1997 | 4302 |
| 18 | SR-60 | Rubidoux Blvd to Market St | 155,850 | 3,790 | 12,030 | 65 | 0 | 0 | 84.5 | 79.8 | 427 | 920 | 1983 | 4273 |
| 19 | SR-60 | Market St to Main St | 181,750 | 4,660 | 14,020 | 65 | 0 | 0 | 85.1 | 80.5 | 475 | 1023 | 2205 | 4751 |
| 20 | SR-60 | Main St to SR-91 | 206,370 | 5,430 | 15,740 | 65 | 0 | 0 | 85.7 | 81.0 | 517 | 1115 | 2402 | 5176 |
| 21 | SR-60 | SR-91 to W Blaine St/3rd St | 235,150 | 5,590 | 18,980 | 65 | 0 | 0 | 86.3 | 81.7 | 562 | 1212 | 2613 | 5629 |
| 22 | SR-60 | W Blaine St/3rd St to University Ave | 221,800 | 5,140 | 16,960 | 65 | 0 | 0 | 86.1 | 81.4 | 538 | 1160 | 2500 | 5386 |
| 23 | SR-60 | University Ave to Martin Luther King Blvd | 230,950 | 5,320 | 17,270 | 65 | 0 | 0 | 86.2 | 81.6 | 552 | 1190 | 2564 | 5524 |
| 24 | SR-60 | Martin Luther King Blvd to Central Ave | 279,290 | 6,580 | 21,920 | 65 | 0 | 0 | 87.0 | 82.4 | 629 | 1356 | 2923 | 6298 |
| 25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs Rd | 261,190 | 6,040 | 19,480 | 65 | 0 | 0 | 86.7 | 82.1 | 599 | 1291 | 2783 | 5996 |
| 26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 252,950 | 5,520 | 18,810 | 65 | 0 | 0 | 86.6 | 81.9 | 584 | 1259 | 2714 | 5848 |
| 27 | SR-60 | I-215 to Day St | 146,430 | 3,470 | 14,090 | 65 | 0 | 0 | 84.7 | 80.1 | 416 | 896 | 1932 | 4162 |
| 28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 147,320 | 3,350 | 15,230 | 65 | 0 | 0 | 84.7 | 80.1 | 419 | 904 | 1948 | 4197 |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | 127,990 | 2,810 | 12,990 | 65 | 0 | 0 | 84.2 | 79.6 | 380 | 820 | 1766 | 3806 |
| 30 | SR-60 | Heacock St to Perris Blvd | 113,480 | 2,420 | 11,180 | 65 | 0 | 0 | 83.8 | 79.2 | 349 | 753 | 1623 | 3497 |
| 31 | SR-60 | Perris Blvd to Nason St | 96,830 | 1,840 | 8,890 | 65 | 0 | 0 | 83.2 | 78.6 | 310 | 669 | 1441 | 3106 |
| 32 | SR-60 | Nason St to Moreno Beach Dr | 87,200 | 1,560 | 7,740 | 65 | 0 | 0 | 82.9 | 78.2 | 288 | 620 | 1336 | 2880 |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 65,540 | 930 | 4,910 | 65 | 0 | 0 | 81.9 | 77.3 | 232 | 501 | 1080 | 2328 |
| 34 | SR-60 | Redlands Blvd to Theodore St | 56,380 | 1,090 | 6,000 | 65 | 0 | 0 | 81.7 | 77.1 | 219 | 473 | 1020 | 2199 |
| 35 | SR-60 | Theodore St to Gilman Springs Rd | 57,370 | 1,080 | 5,920 | 65 | 0 | 0 | 80.4 | 75.8 | 221 | 477 | 1028 | 2214 |
| 36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 54,830 | 1,020 | 4,990 | 65 | 0 | 0 | 79.9 | 75.3 | 212 | 457 | 985 | 2122 |
| 37 | SR-60 | Jack Rabbit Trail to I-10 | 52,820 | 930 | 4,930 | 65 | 0 | 0 | 79.8 | 75.1 | 206 | 445 | 960 | 2069 |
| 75 | SR-91 | I-15 to McKinley St | 230,760 | 3,800 | 11,630 | 65 | 0 | 0 | 85.7 | 81.0 | 532 | 1148 | 2473 | 5329 |
| 76 | SR-91 | McKinley St to Pierce St | 212,670 | 3,550 | 10,760 | 65 | 0 | 0 | 85.3 | 80.7 | 505 | 1088 | 2344 | 5050 |
| 77 | SR-91 | Pierce St to Magnolia Ave | 200,250 | 3,210 | 10,270 | 65 | 0 | 0 | 85.1 | 80.4 | 484 | 1043 | 2249 | 4845 |
| 78 | SR-91 | Magnolia Ave to La Sierra Ave | 211,580 | 3,660 | 11,810 | 65 | 0 | 0 | 85.3 | 80.7 | 505 | 1089 | 2348 | 5058 |
| 79 | SR-91 | La Sierra Ave to Tyler St | 192,580 | 3,420 | 10,970 | 65 | 0 | 0 | 84.9 | 80.3 | 476 | 1025 | 2209 | 4760 |
| 80 | SR-91 | Tyler St to Van Buren Blvd | 225,780 | 2,640 | 8,340 | 65 | 0 | 0 | 85.4 | 80.8 | 514 | 1108 | 2388 | 5146 |
| 81 | SR-91 | Van Buren Blvd to Adam St | 212,810 | 2,390 | 7,730 | 65 | 0 | 0 | 85.2 | 80.6 | 493 | 1064 | 2292 | 4939 |
| 82 | SR-91 | Adam St to Madison St | 200,180 | 2,120 | 7,000 | 65 | 0 | 0 | 84.9 | 80.3 | 473 | 1019 | 2195 | 4730 |
| 83 | SR-91 | Madison St to Indiana Ave (off-ramp) | 194,780 | 2,050 | 6,550 | 65 | 0 | 0 | 84.8 | 80.2 | 464 | 999 | 2154 | 4641 |
| 84 | SR-91 | Arlington Ave to Central Ave | 168,530 | 2,000 | 6,510 | 65 | 0 | 0 | 84.2 | 79.6 | 424 | 913 | 1968 | 4240 |
| 85 | SR-91 | Central Ave to 14th St | 194,070 | 2,260 | 7,400 | 65 | 0 | 0 | 84.8 | 80.2 | 465 | 1002 | 2160 | 4654 |

**2022 Plus Project Case** **Total Noise Levels**

| ID | Freeway | From | 2022 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 86 | SR-91 | 14th St to University Ave | 177,780 | 2,080 | 6,680 | 65 | 0 | 0 | 84.4 | 79.8 | 438 | 945 | 2037 | 4389 |
| 87 | SR-91 | University Ave to Spruce St (off-ramp) | 222,090 | 2,550 | 8,200 | 65 | 0 | 0 | 85.4 | 80.7 | 508 | 1095 | 2361 | 5086 |
| 101 | I-10 | SR-60 to Beaumont Ave | 141,160 | 2,460 | 17,430 | 65 | 0 | 0 | 83.9 | 79.3 | 410 | 884 | 1906 | 4107 |
| 102 | I-10 | Beaumont Ave to Pennsylvania Ave | 143,110 | 2,540 | 18,110 | 65 | 0 | 0 | 84.0 | 79.4 | 416 | 896 | 1932 | 4162 |
| 103 | I-10 | Pennsylvania Ave to Highland Springs Ave | 150,750 | 2,730 | 18,890 | 65 | 0 | 0 | 84.2 | 79.6 | 430 | 928 | 1999 | 4307 |
| 104 | I-10 | Highland Springs Ave to Sunset Ave | 145,050 | 2,620 | 18,400 | 65 | 0 | 0 | 84.1 | 79.4 | 420 | 906 | 1952 | 4205 |
| 105 | I-10 | Sunset Ave to 22nd St | 140,650 | 2,530 | 18,050 | 65 | 0 | 0 | 83.9 | 79.3 | 412 | 888 | 1915 | 4126 |
| 106 | I-10 | 22nd St to S 8th St | 138,260 | 2,470 | 17,830 | 65 | 0 | 0 | 83.9 | 79.3 | 408 | 879 | 1894 | 4080 |
| 107 | I-10 | S 8th St to S Hargrave St | 137,630 | 2,440 | 17,820 | 65 | 0 | 0 | 83.9 | 79.2 | 406 | 876 | 1888 | 4069 |
| 108 | I-10 | S Hargrave St to Field Rd | 127,810 | 2,230 | 16,340 | 65 | 0 | 0 | 83.5 | 78.9 | 386 | 832 | 1793 | 3863 |
| 109 | I-10 | Field Rd to Main St (Cabazon) | 121,210 | 2,030 | 15,770 | 65 | 0 | 0 | 83.3 | 78.7 | 373 | 803 | 1732 | 3731 |
| 110 | I-10 | Main St (Cabazon) to Main St | 108,840 | 1,810 | 14,310 | 65 | 0 | 0 | 82.9 | 78.2 | 347 | 749 | 1614 | 3477 |
| 111 | I-10 | Main St to Haugen-Lehmann Way | 110,010 | 1,820 | 14,290 | 65 | 0 | 0 | 82.9 | 78.3 | 349 | 753 | 1622 | 3495 |
| 112 | I-10 | Haugen-Lehmann Way to SR-111 | 109,990 | 1,820 | 14,280 | 65 | 0 | 0 | 82.9 | 78.3 | 349 | 752 | 1622 | 3494 |
| 113 | I-10 | SR-111 to Tipton Rd | 97,080 | 1,510 | 12,540 | 65 | 0 | 0 | 82.3 | 77.7 | 320 | 690 | 1487 | 3204 |
| 114 | I-10 | Tipton Rd to SR-62 | 97,000 | 1,510 | 12,530 | 65 | 0 | 0 | 82.3 | 77.7 | 320 | 690 | 1486 | 3202 |
| 129 | SR-215 | Scott Rd to Newport Rd | 100,770 | 1,840 | 4,270 | 65 | 0 | 0 | 82.0 | 77.4 | 306 | 661 | 1424 | 3068 |
| 130 | SR-215 | Newport Rd to MacCall Blvd | 89,130 | 1,670 | 3,960 | 65 | 0 | 0 | 81.5 | 76.9 | 283 | 610 | 1315 | 2834 |
| 131 | SR-215 | MacCall Blvd to Ethanac Rd | 96,440 | 1,820 | 4,120 | 65 | 0 | 0 | 81.8 | 77.2 | 298 | 643 | 1385 | 2985 |
| 132 | SR-215 | Ethanac Rd to SR-74/Case | 118,470 | 2,230 | 5,150 | 65 | 0 | 0 | 82.7 | 78.1 | 342 | 738 | 1590 | 3425 |
| 133 | SR-215 | SR-74/Case Rd to Redlands Blvd | 131,410 | 3,920 | 9,270 | 65 | 0 | 0 | 83.5 | 78.8 | 385 | 829 | 1787 | 3850 |
| 167 | SR-215 | Redlands Blvd to D St | 116,470 | 3,410 | 8,530 | 65 | 0 | 0 | 82.9 | 78.3 | 355 | 765 | 1650 | 3554 |
| 168 | SR-215 | D St to Nuevo St/Harvil Ave | 123,850 | 3,590 | 8,340 | 65 | 0 | 0 | 83.2 | 78.6 | 368 | 793 | 1709 | 3683 |
| 169 | SR-215 | Nuevo St/Harvil Ave to Ramona Expy/Cajalco Ex | 124,930 | 3,520 | 8,230 | 65 | 0 | 0 | 83.2 | 78.6 | 369 | 795 | 1714 | 3692 |
| 171 | SR-215 | Ramona Expy/Cajalco Expy to Harley Knox Blvd | 146,040 | 4,090 | 9,440 | 65 | 0 | 0 | 83.9 | 79.2 | 409 | 881 | 1899 | 4092 |
| 172 | SR-215 | Harley Knox Blvd to Van Buren Blvd | 152,810 | 4,660 | 10,580 | 65 | 0 | 0 | 84.1 | 79.5 | 426 | 917 | 1977 | 4260 |
| 173 | SR-215 | Van Buren Blvd to Cactus Ave | 145,390 | 4,430 | 10,340 | 65 | 0 | 0 | 83.9 | 79.3 | 412 | 889 | 1915 | 4127 |
| 174 | SR-215 | Cactus Ave to Alessandro Blvd | 154,930 | 4,140 | 9,570 | 65 | 0 | 0 | 84.1 | 79.5 | 423 | 912 | 1965 | 4233 |
| 175 | SR-215 | Alessandro Blvd to Eucalyptus Ave | 151,430 | 4,030 | 9,650 | 65 | 0 | 0 | 84.0 | 79.4 | 417 | 899 | 1937 | 4174 |
| 176 | SR-215 | Eucalyptus Ave to SR-60 | 149,430 | 4,040 | 10,110 | 65 | 0 | 0 | 84.0 | 79.4 | 415 | 894 | 1928 | 4154 |
| 134 | SR-215 | SR-60 to Columbia Ave | 203,840 | 3,920 | 8,060 | 65 | 0 | 0 | 85.1 | 80.4 | 491 | 1058 | 2280 | 4913 |
| 135 | SR-215 | Columbia Ave to Center St | 172,700 | 3,360 | 6,680 | 65 | 0 | 0 | 84.3 | 79.7 | 440 | 948 | 2042 | 4400 |
| 136 | SR-215 | Center St to Iowa Ave/La Cadena Dr | 170,910 | 3,350 | 6,650 | 65 | 0 | 0 | 84.2 | 79.6 | 437 | 941 | 2029 | 4372 |
| 137 | SR-215 | Iowa Ave/La Cadena Dr to Barton Rd | 168,960 | 3,450 | 6,760 | 65 | 0 | 0 | 84.2 | 79.6 | 435 | 937 | 2019 | 4351 |
| 138 | SR-215 | Barton Rd to Mt Vernon Ave/Washington St | 175,160 | 3,560 | 7,040 | 65 | 0 | 0 | 84.4 | 79.7 | 445 | 960 | 2068 | 4456 |
| 139 | SR-215 | Mt Vernon Ave/Washington St to I-10 | 176,160 | 3,610 | 7,170 | 65 | 0 | 0 | 84.4 | 79.8 | 447 | 964 | 2077 | 4476 |
| 140 | SR-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 142,930 | 2,120 | 5,460 | 65 | 0 | 0 | 83.4 | 78.7 | 382 | 825 | 1777 | 3829 |
| 141 | SR-215 | Auto Plaza Dr/Orange Show Rd to Mill St | 129,470 | 1,780 | 4,800 | 65 | 0 | 0 | 82.9 | 78.3 | 357 | 769 | 1658 | 3572 |
| 142 | SR-215 | Mill St to 2rd St | 144,990 | 2,210 | 6,070 | 65 | 0 | 0 | 83.4 | 78.8 | 387 | 835 | 1799 | 3877 |
| 143 | SR-215 | 2rd St to Baseline Rd | 126,600 | 2,030 | 5,480 | 65 | 0 | 0 | 82.9 | 78.3 | 355 | 765 | 1649 | 3553 |
| 144 | SR-215 | Baseline Rd to Highland Ave/SR-210 | 128,920 | 2,540 | 9,460 | 65 | 0 | 0 | 83.2 | 78.5 | 370 | 798 | 1720 | 3707 |

**2035 No Project**

| ID | Arterial | From | To | 2035 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | Street A | State Route 60 | Eucalyptus Ave | 8,233 | 168 | 325 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 54 | 118 | 254 |
| 2 | Street A | Eucalyptus Ave | Street F | 3,212 | 65 | 18 | 45 | 0 | 0 | 61.5 | 56.8 | 13 | 28 | 61 | 132 |
| 3 | Street E | west of Street A | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 4 | Street E | north of Alessandro Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 5 | Street E | Street D | Street A | 10,708 | 127 | 19 | 45 | 0 | 0 | 66.5 | 61.8 | 28 | 61 | 132 | 285 |
| 6 | Street A | Street F | Street C | 3,354 | 65 | 18 | 45 | 0 | 0 | 61.6 | 57.0 | 13 | 29 | 63 | 135 |
| 7 | Street A | south of Street C | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 8 | Street D | Street E | Cactus Ave | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 9 | John F Kennedy Dr | south of Cactus Ave | 0 | 10,418 | 103 | 0 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 59 | 128 | 277 |
| 10 | Redlands Blvd | Alessandro Blvd | Cactus Ave | 11,359 | 99 | 53 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 63 | 136 | 293 |
| 11 | Redlands Blvd | Dracaea Ave | Alessandro Blvd | 7,590 | 22 | 53 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 47 | 101 | 218 |
| 12 | Redlands Blvd | Eucalyptus Ave | Dracaea Ave | 5,837 | 68 | 0 | 45 | 0 | 0 | 63.8 | 59.2 | 19 | 40 | 88 | 190 |
| 13 | Redlands Blvd | State Route 60 | Eucalyptus Ave | 13,199 | 180 | 32 | 45 | 0 | 0 | 67.4 | 62.8 | 33 | 71 | 153 | 330 |
| 14 | Eucalyptus Ave | east of Redlands Blvd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 15 | Eucalyptus Ave | west of Street A | 0 | 6,337 | 131 | 379 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 47 | 101 | 219 |
| 18 | Street B | east of Street A | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 18a | Street B | west of Gilman Springs Rd | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 19 | Street F | east of Street A | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 20 | Street F | north of Street C | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 21 | Street C | east of Street A | 0 | 7,358 | 67 | 12 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 47 | 101 | 219 |
| 22 | Street C | west of Street F | 0 | 7,358 | 67 | 12 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 47 | 101 | 219 |
| 23 | Street F | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 24 | Street C | Street F | Street H | 7,952 | 58 | 41 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 49 | 106 | 229 |
| 25 | Street C | Street H | Gilman Springs Rd | 7,952 | 58 | 41 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 49 | 106 | 229 |
| 26 | Street H | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 27 | Street G | east of Street H | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 28 | Street G | Street F | Street H | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 |
| 29 | Gilman Springs Rd | State Route 60 | Eucalyptus Ave | 40,790 | 431 | 316 | 45 | 0 | 0 | 72.2 | 67.6 | 69 | 149 | 321 | 693 |
| 30 | Gilman Springs Rd | Eucalyptus Ave | Street C | 40,790 | 431 | 316 | 45 | 0 | 0 | 72.2 | 67.6 | 69 | 149 | 321 | 693 |
| 31 | Gilman Springs Rd | south of Street C | 0 | 48,501 | 485 | 448 | 45 | 0 | 0 | 73.0 | 68.4 | 77 | 167 | 360 | 776 |
| 32 | Cactus Ave | west of Redlands Blvd | 0 | 4,176 | 10 | 3 | 45 | 0 | 0 | 62.1 | 57.5 | 14 | 31 | 67 | 146 |
| 33 | Alessandro Blvd | west of Redlands Blvd | 0 | 6,329 | 41 | 3 | 45 | 0 | 0 | 64.0 | 59.4 | 19 | 42 | 91 | 196 |
| 35 | Redlands Blvd | Ironwood Ave | State Route 60 | 17,159 | 72 | 109 | 55 | 0 | 0 | 70.8 | 66.2 | 55 | 119 | 257 | 553 |
| 36 | Ironwood Ave | Redlands Blvd | Highland Blvd | 6,875 | 64 | 0 | 35 | 0 | 0 | 61.4 | 56.8 | 13 | 28 | 61 | 131 |
| 37 | San Timoteo Canyon Rd | West Live Oak Canyon | 0 | 10,337 | 56 | 130 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 126 | 272 |
| 38 | Theodore St | State Route 60 | Highland Blvd | 9,474 | 82 | 218 | 45 | 0 | 0 | 65.9 | 61.3 | 26 | 56 | 121 | 261 |
| 42 | Redlands Blvd | Ironwood Ave | San Timoteo Canyon Rd | 18,347 | 100 | 85 | 55 | 0 | 0 | 71.1 | 66.5 | 58 | 125 | 269 | 581 |
| 43 | Moreno Beach Dr | Alessandro Blvd | SR 60 | 21,026 | 30 | 84 | 45 | 0 | 0 | 69.1 | 64.5 | 42 | 92 | 198 | 427 |
| 46 | Moreno Beach Dr | State Route 60 | Ironwood Ave | 24,211 | 217 | 66 | 45 | 0 | 0 | 69.9 | 65.3 | 48 | 104 | 225 | 485 |
| 47 | Ironwood Ave | Moreno Beach Dr | Redlands Blvd | 6,218 | 51 | 12 | 45 | 6 | 0 | 58.0 | 53.4 | 7 | 16 | 36 | 77 |
| 48 | Alessandro Blvd | Lasselle St | Morrison St | 22,510 | 123 | 419 | 45 | 6 | 0 | 63.5 | 58.9 | 18 | 39 | 84 | 182 |
| 50 | Cactus Ave | Redlands Blvd | Street D | 1,141 | 1 | 2 | 45 | 0 | 0 | 56.4 | 51.8 | 6 | 13 | 28 | 61 |

**2035 No Project**

| ID | Arterial | From | To | 2035 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 51 | Moreno Beach Dr | John F Kennedy Dr | Cactus Ave | 13,859 | 7 | 18 | 45 | 6 | 0 | 61.3 | 56.6 | 12 | 27 | 59 | 128 |
| 52 | Moreno Beach Dr | John F Kennedy Dr | Oliver St | 18,629 | 114 | 6 | 35 | 6 | 0 | 59.6 | 55.0 | 10 | 21 | 46 | 100 |
| 53 | John F Kennedy Dr | Oliver St | Moreno Beach Dr | 2,313 | 0 | 12 | 45 | 6 | 0 | 53.5 | 48.8 | 3 | 8 | 18 | 38 |
| 54 | Locust Ave | Moreno Beach Dr | Smiley Blvd | 7,800 | 123 | 0 | 35 | 0 | 0 | 62.2 | 57.6 | 14 | 31 | 68 | 148 |
| 55 | Locust Ave | Moreno Beach Dr | Redlands Blvd | 3,036 | 42 | 0 | 45 | 0 | 0 | 61.0 | 56.4 | 12 | 26 | 57 | 124 |
| 56 | Moreno Beach Dr | Locust Ave | Ironwood Ave | 10,480 | 161 | 0 | 35 | 0 | 0 | 63.5 | 58.8 | 18 | 38 | 83 | 180 |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | 0 | 7,948 | 63 | 0 | 45 | 0 | 0 | 65.0 | 60.4 | 23 | 49 | 106 | 230 |
| 58 | SR 60 EB Ramps | west of Moreno Beach Dr | 0 | 18,521 | 123 | 71 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 86 | 186 | 402 |
| 59 | Eucalyptus Ave | Moreno Beach Dr | Quincy Dr | 10,596 | 190 | 0 | 45 | 0 | 0 | 66.6 | 61.9 | 29 | 62 | 134 | 290 |
| 60 | SR 60 WB Ramps | east of Redlands Blvd | 0 | 4,906 | 72 | 36 | 45 | 0 | 0 | 63.2 | 58.5 | 17 | 37 | 79 | 171 |
| 61 | SR 60 EB Ramps | west of Redlands Blvd | 0 | 6,879 | 25 | 54 | 45 | 0 | 0 | 64.3 | 59.7 | 20 | 44 | 95 | 205 |
| 62 | Fir Ave | Quincy Dr | Redlands Blvd | 6,928 | 140 | 0 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 47 | 102 | 220 |
| 65 | Alessandro Blvd | Nason St | Oliver St | 11,175 | 47 | 31 | 45 | 0 | 0 | 66.4 | 61.8 | 28 | 61 | 131 | 284 |
| 66 | Alessandro Blvd | Oliver St | Moreno Beach Dr | 9,745 | 30 | 25 | 45 | 0 | 0 | 65.8 | 61.2 | 25 | 55 | 119 | 258 |
| 67 | Oliver St | Alessandro Blvd | Cactus Ave | 1,434 | 0 | 0 | 35 | 0 | 0 | 54.2 | 49.6 | 4 | 9 | 20 | 43 |
| 68 | Moreno Beach Dr | Alessandro Blvd | Cactus Ave | 20,236 | 44 | 36 | 45 | 0 | 0 | 68.9 | 64.3 | 41 | 90 | 194 | 418 |
| 69 | Cactus Ave | Nason St | Oliver St | 11,000 | 26 | 4 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 60 | 129 | 278 |
| 70 | Cactus Ave | Oliver St | Moreno Beach Dr | 11,738 | 33 | 0 | 45 | 6 | 0 | 60.6 | 56.0 | 11 | 25 | 53 | 116 |
| 71 | Oliver St | Cactus Ave | John F Kennedy Dr | 5,009 | 0 | 0 | 45 | 0 | 0 | 62.8 | 58.2 | 16 | 35 | 75 | 163 |
| 72 | Oliver St | John F Kennedy Dr | Iris Ave | 4,670 | 6 | 0 | 45 | 0 | 0 | 62.5 | 57.9 | 15 | 33 | 72 | 156 |
| 73 | Iris Ave | Nason St | Oliver St | 21,083 | 164 | 0 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 94 | 204 | 440 |
| 74 | Heacock St | Manzanita Ave | Ironwood Ave | 21,193 | 25 | 12 | 45 | 0 | 0 | 69.1 | 64.5 | 42 | 92 | 199 | 429 |
| 75 | Ironwood Ave | Graham St | Heacock St | 15,879 | 25 | 1 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 76 | 164 | 354 |
| 76 | Ironwood Ave | Heacock St | Indian Ave | 14,450 | 20 | 6 | 45 | 0 | 0 | 67.5 | 62.8 | 33 | 71 | 154 | 333 |
| 77 | Heacock St | Ironwood Ave | Hemlock Ave | 22,409 | 34 | 12 | 45 | 0 | 0 | 69.4 | 64.7 | 44 | 96 | 207 | 446 |
| 80 | Heacock St | Hemlock Ave | SR 60 WB Ramps | 26,719 | 93 | 19 | 45 | 0 | 0 | 70.2 | 65.6 | 50 | 109 | 235 | 506 |
| 81 | SR 60 WB Ramps | west of Heacock St | 0 | 18,644 | 10 | 82 | 45 | 0 | 0 | 68.5 | 63.9 | 39 | 84 | 182 | 393 |
| 82 | SR 60 WB Ramps | east of Heacock St | 0 | 10,736 | 70 | 76 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 60 | 129 | 279 |
| 83 | Heacock St | SR 60 WB Ramps | SR 60 EB Ramps | 29,166 | 71 | 45 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 115 | 248 | 534 |
| 85 | SR 60 WB Onramp | west of Perris Blvd | 0 | 17,772 | 0 | 94 | 45 | 0 | 0 | 68.3 | 63.7 | 38 | 81 | 176 | 380 |
| 86 | SR 60 WB Offramp | east of Perris Blvd | 0 | 8,174 | 48 | 332 | 45 | 0 | 0 | 65.3 | 60.6 | 23 | 51 | 110 | 238 |
| 87 | Eucalyptus Ave | Indian St | Perris Blvd | 7,280 | 17 | 0 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 88 | Eucalyptus Ave | Perris Blvd | Kitching St | 6,748 | 5 | 12 | 45 | 0 | 0 | 64.1 | 59.5 | 19 | 43 | 92 | 199 |
| 95 | W 6th St | I-10 | N California Ave | 21,309 | 205 | 682 | 45 | 0 | 0 | 69.5 | 64.9 | 45 | 97 | 210 | 454 |
| 96 | N California Ave | W 6th St | E 8th St | 1,593 | 0 | 0 | 45 | 0 | 0 | 57.8 | 53.2 | 7 | 16 | 35 | 76 |
| 97 | E 6th St | N California Ave | Beaumont Ave | 19,524 | 197 | 604 | 45 | 0 | 0 | 69.1 | 64.5 | 42 | 92 | 199 | 429 |
| 98 | N California Ave | W 6th St | I-10 | 10,485 | 83 | 145 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 59 | 128 | 277 |
| 99 | Beaumont Ave | E 6th St | E 8th St | 26,495 | 149 | 161 | 45 | 0 | 0 | 70.2 | 65.6 | 50 | 109 | 236 | 508 |
| 100 | I-215 SB Ramps | north of Alessandro Blvd | 0 | 7,387 | 12 | 39 | 45 | 0 | 0 | 64.6 | 59.9 | 21 | 45 | 99 | 213 |
| 101 | Alessandro Blvd | Sycamore Canyon Blvd | I-215 SB Ramps | 54,066 | 348 | 311 | 45 | 0 | 0 | 73.3 | 68.7 | 82 | 176 | 381 | 821 |
| 102 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 17,888 | 154 | 186 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 85 | 184 | 397 |
| 103 | I-215 NB Ramps | north of Alessandro Blvd | 0 | 14,096 | 48 | 142 | 45 | 0 | 0 | 67.4 | 62.8 | 33 | 71 | 153 | 331 |

**2035 No Project**

| ID | Arterial | From | To | 2035 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 104 | Alessandro Blvd | I-215 NB Ramps | Old 215 Frontage Rd | 37,444 | 178 | 150 | 45 | 0 | 0 | 71.7 | 67.1 | 63 | 137 | 296 | 638 |
| 105 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 18,736 | 162 | 266 | 45 | 0 | 0 | 68.8 | 64.2 | 41 | 88 | 190 | 410 |
| 106 | Old 215 Frontage Rd | Eucalyptus Ave | Alessandro Blvd | 8,211 | 12 | 24 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 49 | 106 | 228 |
| 107 | Alessandro Blvd | Old 215 Frontage Rd | Day St | 31,265 | 124 | 120 | 45 | 0 | 0 | 70.9 | 66.3 | 56 | 121 | 261 | 563 |
| 108 | Old 215 Frontage Rd | Alessandro Blvd | Cactus Ave | 11,746 | 126 | 77 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 65 | 140 | 302 |
| 109 | Day St | Cottonwood Ave | Alessandro Blvd | 16,479 | 154 | 0 | 35 | 0 | 0 | 65.2 | 60.6 | 23 | 50 | 109 | 235 |
| 110 | Alessandro Blvd | Day St | Elsworth St | 36,852 | 233 | 300 | 45 | 0 | 0 | 71.7 | 67.1 | 63 | 137 | 295 | 636 |
| 111 | Elsworth St | Cottonwood Ave | Alessandro Blvd | 10,320 | 36 | 0 | 35 | 0 | 0 | 63.0 | 58.3 | 16 | 35 | 77 | 166 |
| 112 | Alessandro Blvd | Elsworth St | Frederick St | 35,591 | 182 | 249 | 45 | 0 | 0 | 71.5 | 66.9 | 61 | 133 | 286 | 618 |
| 113 | Elsworth St | Alessandro Blvd | Cactus Ave | 14,353 | 66 | 100 | 45 | 0 | 0 | 67.5 | 62.9 | 33 | 72 | 156 | 336 |
| 114 | Frederick St | Cottonwood Ave | Alessandro Blvd | 19,340 | 48 | 71 | 45 | 0 | 0 | 68.8 | 64.1 | 40 | 87 | 188 | 406 |
| 115 | Alessandro Blvd | Frederick St | Graham St | 34,703 | 133 | 120 | 45 | 0 | 0 | 71.3 | 66.7 | 60 | 130 | 280 | 604 |
| 116 | Frederick St | Alessandro Blvd | Cactus Ave | 9,899 | 28 | 47 | 45 | 0 | 0 | 65.9 | 61.2 | 26 | 56 | 120 | 260 |
| 117 | Graham St | Cottonwood Ave | Alessandro Blvd | 12,063 | 29 | 12 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 63 | 137 | 296 |
| 118 | Alessandro Blvd | Graham St | Heacock St | 37,900 | 132 | 42 | 45 | 0 | 0 | 71.7 | 67.1 | 63 | 137 | 296 | 639 |
| 119 | Graham St | Alessandro Blvd | Cactus Ave | 18,773 | 89 | 115 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 86 | 186 | 402 |
| 120 | Heacock St | Cottonwood Ave | Alessandro Blvd | 17,431 | 57 | 14 | 45 | 0 | 0 | 68.3 | 63.7 | 38 | 81 | 176 | 380 |
| 121 | Alessandro Blvd | Heacock St | Indian St | 34,601 | 120 | 72 | 45 | 0 | 0 | 71.3 | 66.7 | 60 | 129 | 279 | 601 |
| 122 | Heacock St | Alessandro Blvd | Cactus Ave | 11,471 | 27 | 12 | 45 | 6 | 0 | 60.5 | 55.9 | 11 | 24 | 52 | 114 |
| 123 | Indian St | Cottonwood Ave | Alessandro Blvd | 15,740 | 59 | 47 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 76 | 165 | 356 |
| 124 | Alessandro Blvd | Indian St | Perris Blvd | 35,145 | 161 | 82 | 45 | 0 | 0 | 71.4 | 66.8 | 61 | 131 | 283 | 611 |
| 125 | Indian St | Alessandro Blvd | Cactus Ave | 14,804 | 50 | 24 | 45 | 6 | 0 | 61.6 | 57.0 | 13 | 29 | 63 | 135 |
| 126 | Alessandro Blvd | Perris Blvd | Kitching St | 29,457 | 137 | 51 | 45 | 0 | 0 | 70.6 | 66.0 | 54 | 117 | 252 | 543 |
| 127 | Perris Blvd | Alessandro Blvd | Cactus Ave | 33,842 | 249 | 318 | 45 | 6 | 0 | 65.3 | 60.7 | 24 | 51 | 111 | 240 |
| 128 | Kitching St | Cottonwood Ave | Alessandro Blvd | 12,056 | 32 | 12 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 63 | 137 | 296 |
| 129 | Alessandro Blvd | Kitching St | Lasselle St | 28,665 | 135 | 88 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 114 | 247 | 533 |
| 130 | Kitching St | Alessandro Blvd | Cactus Ave | 9,398 | 12 | 0 | 45 | 6 | 0 | 59.6 | 55.0 | 9 | 21 | 46 | 99 |
| 131 | Lasselle St | Cottonwood Ave | Alessandro Blvd | 7,692 | 7 | 12 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 47 | 101 | 218 |
| 133 | Lasselle St | Alessandro Blvd | Cactus Ave | 11,974 | 0 | 95 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 62 | 135 | 292 |
| 134 | Morrison St | Cottonwood Ave | Alessandro Blvd | 7,230 | 26 | 0 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 135 | Alessandro Blvd | Morrison St | Nason St | 16,350 | 76 | 308 | 50 | 6 | 0 | 63.4 | 58.8 | 17 | 38 | 83 | 179 |
| 136 | Nason St | Cottonwood Ave | Alessandro Blvd | 24,270 | 235 | 0 | 45 | 0 | 0 | 69.9 | 65.3 | 48 | 105 | 226 | 487 |
| 137 | Nason St | Alessandro Blvd | Cactus Ave | 29,615 | 271 | 0 | 45 | 0 | 0 | 70.8 | 66.2 | 55 | 119 | 257 | 555 |
| 138 | I-215 SB Ramps | north of Cactus Ave | 0 | 16,068 | 436 | 484 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 87 | 187 | 404 |
| 139 | Cactus Ave | Meridian Pkwy | I-215 SB Ramps | 21,924 | 257 | 377 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 99 | 214 | 462 |
| 140 | I-215 SB Ramps | south of Cactus Ave | 0 | 33,402 | 248 | 162 | 45 | 0 | 0 | 71.3 | 66.7 | 59 | 128 | 277 | 598 |
| 141 | Cactus Ave | I-215 NB Ramps | Elsworth St | 52,115 | 501 | 467 | 45 | 0 | 0 | 73.3 | 68.7 | 81 | 175 | 377 | 813 |
| 142 | I-215 NB Ramps | south of Cactus Ave | 0 | 15,623 | 239 | 272 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 173 | 374 |
| 143 | Cactus Ave | Elsworth St | Frederick St | 33,515 | 112 | 279 | 45 | 0 | 0 | 71.2 | 66.6 | 58 | 126 | 273 | 589 |
| 144 | Cactus Ave | Frederick St | Graham St | 39,618 | 175 | 223 | 45 | 0 | 0 | 71.9 | 67.3 | 66 | 142 | 307 | 661 |
| 145 | Cactus Ave | Graham St | Heacock St | 31,745 | 97 | 143 | 45 | 0 | 0 | 70.9 | 66.3 | 56 | 122 | 263 | 567 |
| 146 | Riverside Dr | Cactus Ave | Meyer Dr | 17,427 | 79 | 0 | 45 | 0 | 0 | 68.4 | 63.7 | 38 | 82 | 177 | 382 |

**2035 No Project**

| ID | Arterial | From | To | 2035 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 147 | Cactus Ave | Heacock St | Indian St | 21,180 | 16 | 51 | 45 | 0 | 0 | 69.1 | 64.5 | 42 | 92 | 198 | 428 |
| 148 | Heacock St | Cactus Ave | John F Kennedy Dr | 19,245 | 56 | 94 | 45 | 6 | 0 | 62.7 | 58.1 | 16 | 34 | 75 | 161 |
| 149 | Cactus Ave | Indian St | Perris Blvd | 17,630 | 11 | 31 | 45 | 0 | 0 | 68.3 | 63.7 | 37 | 81 | 175 | 379 |
| 150 | Indian St | Cactus Ave | John F Kennedy Dr | 13,118 | 40 | 12 | 45 | 6 | 0 | 61.1 | 56.5 | 12 | 26 | 58 | 125 |
| 151 | Cactus Ave | Perris Blvd | Kitching St | 18,193 | 12 | 0 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 83 | 179 | 387 |
| 152 | Perris Blvd | Cactus Ave | John F Kennedy Dr | 32,900 | 235 | 347 | 45 | 6 | 0 | 65.2 | 60.6 | 23 | 50 | 109 | 235 |
| 153 | Cactus Ave | Kitching St | Lasselle St | 14,059 | 16 | 0 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 151 | 326 |
| 154 | Kitching St | Cactus Ave | John F Kennedy Dr | 10,267 | 11 | 0 | 35 | 6 | 0 | 56.8 | 52.2 | 6 | 14 | 30 | 65 |
| 155 | Cactus Ave | Lasselle St | Morrison St | 12,304 | 25 | 0 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 64 | 139 | 300 |
| 156 | Lasselle St | Cactus Ave | John F Kennedy Dr | 20,060 | 0 | 0 | 45 | 0 | 0 | 68.8 | 64.2 | 41 | 88 | 191 | 411 |
| 157 | Cactus Ave | Morrison St | Nason St | 17,797 | 77 | 0 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 83 | 179 | 387 |
| 158 | E 6th St | Beaumont Ave | Pennsylvania Ave | 27,292 | 240 | 694 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 114 | 246 | 531 |
| 159 | Beaumont Ave | E 6th St | I-10 | 23,354 | 142 | 257 | 45 | 0 | 0 | 69.7 | 65.1 | 46 | 101 | 217 | 469 |
| 160 | Kitching St | Gentian Ave | Iris Ave | 7,899 | 8 | 12 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 47 | 103 | 222 |
| 161 | Iris Ave | Perris Blvd | Kitching St | 21,713 | 92 | 30 | 45 | 6 | 0 | 63.3 | 58.7 | 17 | 37 | 81 | 176 |
| 162 | Iris Ave | Kitching St | Lasselle St | 35,407 | 268 | 0 | 45 | 6 | 0 | 65.5 | 60.9 | 24 | 53 | 114 | 247 |
| 163 | Kitching St | Iris Ave | Ivory Ave | 23,557 | 187 | 0 | 45 | 6 | 0 | 63.8 | 59.1 | 18 | 40 | 87 | 188 |
| 164 | Lasselle St | Gentian Ave | Iris Ave | 19,543 | 3 | 0 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 87 | 188 | 405 |
| 165 | Iris Ave | Lasselle St | Nason St | 37,930 | 369 | 0 | 45 | 6 | 0 | 65.9 | 61.3 | 26 | 56 | 121 | 261 |
| 168 | Krameria Ave | Perris Blvd | Lasselle St | 6,909 | 25 | 0 | 45 | 6 | 0 | 58.3 | 53.7 | 8 | 17 | 38 | 81 |
| 169 | Krameria Ave | Kitching St | Lasselle St | 4,367 | 0 | 0 | 45 | 0 | 0 | 62.2 | 57.6 | 14 | 32 | 69 | 149 |
| 170 | Kitching St | Krameria Ave | Lurin Ave | 38,166 | 203 | 0 | 45 | 6 | 0 | 65.8 | 61.2 | 25 | 55 | 119 | 257 |
| 171 | Lasselle St | Cahuilla Dr | Krameria Ave | 25,210 | 89 | 0 | 45 | 6 | 0 | 63.9 | 59.3 | 19 | 41 | 90 | 193 |
| 172 | Lasselle St | Krameria Ave | Arroyo Park Dr | 15,399 | 85 | 12 | 45 | 6 | 0 | 61.9 | 57.2 | 14 | 30 | 65 | 140 |
| 173 | Oleander Ave | Perris Blvd | Lasselle St | 4,877 | 35 | 6 | 45 | 0 | 0 | 62.9 | 58.3 | 16 | 35 | 76 | 165 |
| 174 | Oleander Ave | Lasselle St | Lake Perris Dr | 1,698 | 3 | 0 | 45 | 0 | 0 | 58.2 | 53.5 | 8 | 17 | 37 | 80 |
| 177 | San Timoteo Canyon Rd | Alessandro Rd | Live Oak Canyon Rd | 16,391 | 118 | 117 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 172 | 372 |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd | I-10 | 4,240 | 9 | 13 | 45 | 0 | 0 | 62.2 | 57.5 | 14 | 31 | 68 | 147 |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd | Redlands Blvd | 18,965 | 125 | 111 | 45 | 0 | 0 | 68.8 | 64.2 | 40 | 88 | 189 | 408 |
| 180 | San Timoteo Canyon Rd | Redlands Blvd | Woodhouse Rd | 3,610 | 40 | 102 | 45 | 0 | 0 | 61.8 | 57.2 | 14 | 30 | 64 | 140 |
| 181 | Potrero Blvd | north of SR 60 WB Ramps | 0 | 39,597 | 601 | 445 | 45 | 0 | 0 | 72.2 | 67.6 | 69 | 149 | 322 | 693 |
| 182 | SR 60 WB Onramp | west of Potrero Blvd | 0 | 26,934 | 520 | 480 | 45 | 0 | 0 | 70.7 | 66.1 | 54 | 118 | 254 | 547 |
| 183 | SR 60 WB Offramp | east of Potrero Blvd | 0 | 4,112 | 80 | 72 | 45 | 0 | 0 | 62.6 | 57.9 | 15 | 33 | 72 | 156 |
| 184 | SR 60 EB Offramp | west of Potrero Blvd | 0 | 26,010 | 488 | 464 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 115 | 247 | 534 |
| 185 | SR 60 EB Onramp | east of Potrero Blvd | 0 | 12,458 | 228 | 172 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 151 | 325 |
| 186 | Potrero Blvd | south of SR 60 EB Ramps | W 4th St | 31,408 | 484 | 415 | 45 | 0 | 0 | 71.2 | 66.6 | 59 | 128 | 276 | 595 |
| 190 | Gilman Springs Rd | Jack Rabbit Trail | Bridge St | 25,424 | 178 | 36 | 45 | 0 | 0 | 70.1 | 65.5 | 49 | 107 | 230 | 497 |
| 191 | Gilman Springs Rd | Bridge St | Beaumont Ave | 21,643 | 110 | 36 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 95 | 205 | 443 |
| 192 | Bridge St | Gilman Springs Rd | Marvin Rd | 7,340 | 71 | 74 | 45 | 0 | 0 | 64.8 | 60.1 | 22 | 47 | 102 | 220 |
| 194 | Crescent Ave | West of Alessandro Rd | 0 | 2,983 | 13 | 1 | 35 | 0 | 0 | 57.6 | 53.0 | 7 | 15 | 34 | 73 |
| 195 | Crescent Ave | Alessandro Rd | Center St | 7,627 | 37 | 1 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 47 | 102 | 220 |
| 196 | Alessandro Rd | Crescent Ave | Sunset Dr | 7,334 | 47 | 0 | 45 | 0 | 0 | 64.7 | 60.0 | 21 | 46 | 100 | 216 |

**2035 No Project**

| ID | Arterial | From | To | 2035 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 198 | Sunset Dr | Crown St | Alessandro Rd | 361 | 2 | 0 | 35 | 0 | 0 | 48.5 | 43.8 | 1 | 3 | 8 | 18 |
| 199 | Sunset Dr | Alessandro Rd | Cameo Dr | 1,144 | 14 | 0 | 35 | 0 | 0 | 53.7 | 49.1 | 4 | 8 | 18 | 40 |
| 200 | Alessandro Rd | Sunset Dr | San Timoteo Canyon Rd | 8,148 | 63 | 0 | 45 | 0 | 0 | 65.1 | 60.5 | 23 | 50 | 108 | 233 |
| 205 | Reche Canyon Rd | Keissel Rd | Reche Vista Dr | 30,831 | 232 | 0 | 45 | 0 | 0 | 70.9 | 66.3 | 56 | 122 | 263 | 566 |
| 206 | Reche Canyon Rd | Reche Vista Dr | High Country Dr | 8,654 | 125 | 0 | 45 | 0 | 0 | 65.6 | 61.0 | 25 | 53 | 116 | 250 |
| 207 | Reche Vista Dr | Heacock St | Reche Canyon Rd | 23,526 | 109 | 0 | 35 | 0 | 0 | 66.6 | 62.0 | 29 | 62 | 135 | 290 |
| 215 | Mission Grove Pkwy | Cannon Rd | Alessandro Blvd | 10,519 | 13 | 12 | 35 | 0 | 0 | 62.9 | 58.3 | 16 | 35 | 77 | 166 |
| 216 | Alessandro Blvd | Trautwein Rd | Vista Grande Dr | 62,397 | 373 | 410 | 45 | 0 | 0 | 73.9 | 69.3 | 90 | 194 | 418 | 902 |
| 217 | Mission Grove Pkwy | Alessandro Blvd | Northrop Dr | 17,575 | 27 | 22 | 45 | 6 | 0 | 62.3 | 57.7 | 15 | 32 | 70 | 151 |
| 218 | Alessandro Blvd | Canyon Crest Dr | Trautwein Rd | 70,049 | 392 | 435 | 45 | 0 | 0 | 74.4 | 69.8 | 97 | 209 | 451 | 972 |
| 219 | Trautwein Rd | Alessandro Blvd | Orange Terrace Pkwy | 10,689 | 0 | 0 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 125 | 270 |
| 221 | Canyon Crest Dr | Central Ave | Alessandro Blvd | 21,003 | 82 | 119 | 45 | 0 | 0 | 69.2 | 64.5 | 43 | 93 | 200 | 432 |
| 223 | Canyon Crest Dr | Alessandro Blvd | Sandtrack Rd | 14,400 | 201 | 190 | 35 | 6 | 0 | 58.8 | 54.2 | 8 | 19 | 41 | 88 |
| 225 | Via Vista Dr | Alessandro Blvd | Canyon Crest Dr | 3,519 | 4 | 2 | 45 | 0 | 0 | 61.3 | 56.7 | 12 | 27 | 60 | 129 |
| 226 | Alessandro Blvd | Century Ave | Canyon Crest Dr | 52,830 | 154 | 180 | 45 | 0 | 0 | 73.1 | 68.5 | 79 | 171 | 369 | 796 |
| 227 | Via Vista Dr | Alessandro Blvd | Canyon Hill Dr | 4,744 | 6 | 4 | 45 | 0 | 0 | 62.6 | 58.0 | 15 | 34 | 73 | 158 |
| 229 | Century Ave | Alessandro Blvd | Claridge Dr | 2,356 | 2 | 2 | 45 | 0 | 0 | 59.6 | 54.9 | 9 | 21 | 46 | 99 |
| 230 | Century Ave | Trafalgar Ave | Alessandro Blvd | 2,846 | 4 | 0 | 45 | 0 | 0 | 60.4 | 55.8 | 11 | 24 | 52 | 112 |
| 231 | Alessandro Blvd | Victoria Ave | Arlington Ave/Chicago Ave | 39,960 | 155 | 197 | 45 | 0 | 0 | 71.9 | 67.3 | 66 | 143 | 308 | 663 |
| 232 | Chicago Ave | Alessandro Blvd | Central Ave | 43,664 | 290 | 1,104 | 45 | 0 | 0 | 72.5 | 67.9 | 71 | 154 | 333 | 719 |
| 233 | Alessandro Blvd | Arlington Ave/Chicago Ave | Century Ave | 55,895 | 178 | 206 | 45 | 0 | 0 | 73.4 | 68.8 | 82 | 178 | 384 | 827 |
| 236 | Victoria Ave | Central Ave | Arlington Ave | 8,385 | 40 | 13 | 45 | 0 | 0 | 65.2 | 60.6 | 23 | 50 | 109 | 235 |
| 237 | Arlington Ave | Victoria Ave | Alessandro Blvd | 50,933 | 374 | 1,183 | 45 | 0 | 0 | 73.2 | 68.5 | 79 | 172 | 370 | 798 |
| 238 | Victoria Ave | Arlington Ave | Maude St | 12,661 | 24 | 0 | 45 | 0 | 0 | 66.9 | 62.3 | 30 | 65 | 141 | 305 |
| 239 | Arlington Ave | Maude St | Victoria Ave | 50,636 | 392 | 1,190 | 45 | 0 | 0 | 73.1 | 68.5 | 79 | 171 | 369 | 796 |
| 240 | Durango Rd | Laramie Rd | Arlington Ave | 3,396 | 28 | 34 | 45 | 0 | 0 | 61.4 | 56.8 | 13 | 28 | 60 | 131 |
| 241 | Horace St | Arlington Ave | Victoria Ave | 5,916 | 14 | 19 | 45 | 0 | 0 | 63.6 | 59.0 | 18 | 39 | 85 | 184 |
| 242 | Arlington Ave | Magnolia Ave | SR-91 WB On-Ramps | 51,285 | 322 | 893 | 45 | 0 | 0 | 73.1 | 68.5 | 79 | 171 | 369 | 795 |
| 243 | Riverside Dr | SR-91 WB Off-Ramps | Arlington Ave | 12,953 | 38 | 30 | 45 | 0 | 0 | 67.0 | 62.4 | 31 | 67 | 144 | 311 |
| 244 | SR-91 WB On-Ramps | Arlington Ave | SR-91 | 19,956 | 116 | 430 | 45 | 0 | 0 | 69.0 | 64.4 | 42 | 91 | 196 | 424 |
| 245 | SR-91 EB On-Ramps | SR-91 | Arlington Ave | 20,744 | 24 | 112 | 45 | 0 | 0 | 69.0 | 64.4 | 42 | 91 | 196 | 423 |
| 246 | Indiana Ave | Arlington Ave | SR-91 EB Off-Ramps | 20,736 | 188 | 773 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 207 | 447 |
| 247 | Arlington Ave | SR-91 WB On-Ramps | SR-91 EB On-Ramps | 55,831 | 315 | 555 | 45 | 0 | 0 | 73.5 | 68.8 | 83 | 180 | 388 | 837 |
| 250 | Country Club Dr | Chicago Ave | Canyon Crest Dr | 6,505 | 33 | 75 | 35 | 0 | 0 | 61.0 | 56.4 | 12 | 26 | 57 | 124 |
| 252 | Central Ave | Chicago Ave | Canyon Crest Dr | 32,210 | 268 | 1,053 | 45 | 0 | 0 | 71.2 | 66.6 | 59 | 128 | 276 | 595 |
| 254 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 25,749 | 107 | 140 | 45 | 0 | 0 | 70.1 | 65.4 | 49 | 106 | 230 | 495 |
| 256 | Canyon Crest Dr | Central Ave | Country Club Dr | 28,055 | 126 | 211 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 113 | 244 | 526 |
| 258 | El Cerrito Dr | Canyon Crest Dr | Central Ave | 7,883 | 17 | 32 | 45 | 0 | 0 | 64.9 | 60.2 | 22 | 48 | 103 | 223 |
| 260 | Central Ave | Canyon Crest Dr | I-215 | 32,556 | 263 | 1,054 | 45 | 0 | 0 | 71.3 | 66.7 | 59 | 128 | 277 | 598 |
| 261 | Lochmoor Dr | Central Ave | Fair Isle Dr | 5,605 | 39 | 82 | 35 | 6 | 0 | 54.5 | 49.9 | 4 | 9 | 21 | 45 |
| 262 | Sycamore Canyon Blvd | Central Ave | College Blvd | 17,235 | 101 | 146 | 35 | 0 | 0 | 65.3 | 60.7 | 23 | 51 | 110 | 238 |
| 263 | Central Ave | Sycamore Canyon Blvd | I-215 SB Ramps | 24,422 | 227 | 852 | 45 | 0 | 0 | 70.1 | 65.5 | 49 | 107 | 231 | 497 |

**2035 No Project**

| ID | Arterial | From | To | 2035 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 264 | I-215 SB Off-Ramps | I-215 | Central Ave | 4,452 | 44 | 0 | 45 | 0 | 0 | 62.6 | 58.0 | 15 | 33 | 73 | 157 |
| 265 | Central Ave | I-215 SB Ramps | I-215 NB Ramps | 23,270 | 221 | 603 | 45 | 0 | 0 | 69.8 | 65.2 | 47 | 103 | 222 | 479 |
| 266 | I-215 SB On-Ramps | Central Ave | I-215 | 33,394 | 372 | 1,440 | 45 | 0 | 0 | 71.5 | 66.9 | 62 | 134 | 289 | 623 |
| 267 | Watkins Dr | I-215 NB On-Ramp | I-215 NB Off-Ramp | 18,995 | 162 | 163 | 45 | 0 | 0 | 68.9 | 64.2 | 41 | 88 | 191 | 413 |
| 268 | I-215 NB Off-Ramp | Watkins Dr | I-215 | 12,798 | 154 | 414 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 151 | 327 |
| 269 | Martin Luther King Blvd | SR-91 | Chicago Ave | 37,443 | 162 | 396 | 45 | 0 | 0 | 71.7 | 67.1 | 63 | 137 | 296 | 637 |
| 270 | Chicago Ave | University Ave | Martin Luther King Blvd | 28,020 | 38 | 57 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 240 | 517 |
| 271 | Martin Luther King Blvd | Chicago Ave | Iowa Ave | 33,184 | 159 | 396 | 45 | 0 | 0 | 71.2 | 66.6 | 59 | 127 | 273 | 590 |
| 272 | Chicago Ave | Martin Luther King Blvd | Central Ave | 28,995 | 26 | 33 | 45 | 0 | 0 | 70.5 | 65.8 | 52 | 113 | 245 | 528 |
| 273 | Iowa Ave | University Ave | Martin Luther King Blvd | 18,444 | 53 | 39 | 45 | 0 | 0 | 68.6 | 63.9 | 39 | 85 | 183 | 394 |
| 274 | Martin Luther King Blvd | Iowa Ave | Canyon Crest Dr | 43,437 | 208 | 429 | 45 | 0 | 0 | 72.3 | 67.7 | 70 | 151 | 327 | 705 |
| 275 | Canyon Crest Dr | Campus Dr | Martin Luther King Blvd | 17,190 | 74 | 64 | 45 | 0 | 0 | 68.3 | 63.7 | 37 | 81 | 175 | 378 |
| 276 | Martin Luther King Blvd | Canyon Crest Dr | I-215 SB Ramps | 36,880 | 169 | 423 | 45 | 0 | 0 | 71.6 | 67.0 | 63 | 136 | 293 | 632 |
| 277 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 32,351 | 92 | 125 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 266 | 573 |
| 278 | I-215 SB Off-Ramp | I-215 | Martin Luther King Blvd | 9,372 | 22 | 46 | 45 | 0 | 0 | 65.6 | 61.0 | 25 | 54 | 116 | 250 |
| 279 | Martin Luther King Blvd | I-215 SB Ramps | I-215 NB Ramps | 14,565 | 82 | 214 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 158 | 342 |
| 280 | I-215 SB On-Ramp | Martin Luther King Blvd | I-215 | 35,696 | 150 | 436 | 45 | 0 | 0 | 71.5 | 66.9 | 61 | 133 | 286 | 617 |
| 281 | I-215 NB On-Ramp | I-215 | Martin Luther King Blvd | 12,994 | 32 | 92 | 45 | 0 | 0 | 67.0 | 62.4 | 31 | 67 | 144 | 312 |
| 282 | I-215 NB Off-Ramp | Martin Luther King Blvd | I-215 | 16,088 | 132 | 336 | 45 | 0 | 0 | 68.2 | 63.5 | 37 | 80 | 172 | 371 |
| 283 | SR-60 EB Off-Ramp | SR-60 | Heacock St | 22,538 | 24 | 24 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 207 | 447 |
| 284 | SR-60 EB On-Ramp | Heacock St | SR-60 | 11,302 | 38 | 48 | 45 | 0 | 0 | 66.5 | 61.8 | 28 | 61 | 132 | 285 |
| 285 | Heacock St | SR-60 EB Ramps | Sunnymead Blvd | 26,648 | 30 | 44 | 45 | 0 | 0 | 70.1 | 65.5 | 50 | 107 | 232 | 500 |
| 286 | Perris Blvd | Hemlock Ave | SR-60 WB Ramps | 40,889 | 145 | 13 | 45 | 0 | 0 | 72.0 | 67.4 | 67 | 144 | 312 | 672 |
| 287 | Perris Blvd | SR-60 WB Ramps | Sunnymead Blvd | 42,961 | 223 | 230 | 45 | 0 | 0 | 72.3 | 67.7 | 70 | 150 | 325 | 700 |
| 288 | Sunnymead Blvd | SR-60 WB Off-Ramp | Perris Blvd | 23,957 | 170 | 291 | 45 | 0 | 0 | 69.8 | 65.2 | 47 | 103 | 222 | 479 |
| 289 | Sunnymead Blvd | Perris Blvd | SR-60 WB On-Ramp | 23,400 | 110 | 209 | 45 | 0 | 0 | 69.7 | 65.0 | 46 | 100 | 216 | 466 |
| 290 | Perris Blvd | Sunnymead Blvd | Fir Ave | 32,861 | 259 | 370 | 45 | 0 | 0 | 71.2 | 66.6 | 59 | 127 | 275 | 594 |
| 294 | Via Del Lago | South of Iris Ave | 0 | 821 | 0 | 0 | 45 | 0 | 0 | 55.0 | 50.3 | 4 | 10 | 22 | 48 |
| 301 | John F. Kennedy Dr | Indian St | Perris Blvd | 9,487 | 6 | 0 | 45 | 0 | 0 | 65.6 | 61.0 | 25 | 54 | 116 | 250 |
| 302 | John F. Kennedy Dr | Perris Blvd | Kitching St | 9,429 | 0 | 0 | 45 | 0 | 0 | 65.6 | 60.9 | 24 | 53 | 115 | 249 |
| 303 | Perris Blvd | John F. Kennedy Dr | Iris Ave | 33,217 | 293 | 390 | 45 | 0 | 0 | 71.3 | 66.7 | 60 | 129 | 278 | 600 |
| 304 | Iris Ave | Indian St | Perris Blvd | 18,064 | 12 | 47 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 83 | 178 | 385 |
| 306 | Perris Blvd | Iris Ave | Krameria Ave | 37,073 | 330 | 369 | 45 | 6 | 0 | 65.8 | 61.2 | 25 | 55 | 119 | 257 |
| 307 | Perris Blvd | Krameria Ave | Harley Know Blvd | 33,523 | 293 | 345 | 45 | 6 | 0 | 65.3 | 60.7 | 24 | 51 | 111 | 240 |
| 324 | Ramona Expy | Warren Rd | Sanderson Ave | 18,710 | 83 | 272 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 86 | 186 | 402 |
| 325 | Sanderson Ave | Gilman Springs Rd | Ramona Expy | 75,019 | 1,161 | 3,996 | 45 | 0 | 0 | 75.3 | 70.6 | 110 | 237 | 511 | 1101 |
| 326 | Ramona Expy | Sanderson Ave | State St | 29,532 | 285 | 463 | 45 | 0 | 0 | 70.8 | 66.2 | 55 | 120 | 259 | 558 |
| 327 | Sanderson Ave | Ramona Expy | Ramona Blvd | 63,019 | 1,070 | 3,350 | 45 | 0 | 0 | 74.5 | 69.9 | 98 | 212 | 458 | 987 |
| 340 | Alessandro Blvd | South of San Timoteo Canyon R | 0 | 366 | 0 | 0 | 45 | 0 | 0 | 51.5 | 46.8 | 2 | 6 | 13 | 28 |
| 351 | Live Oak Canyon Rd | South of San Timoteo Canyon R | 0 | 616 | 2 | 2 | 45 | 0 | 0 | 53.8 | 49.2 | 4 | 8 | 19 | 41 |
| 358 | Gilman Springs Rd | Bridge St | SR-79 SB Ramps | 23,062 | 104 | 36 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 99 | 214 | 461 |
| 359 | SR-79 SB Off-Ramp | SR-79 | Gilman Springs Rd | 8,688 | 34 | 70 | 45 | 0 | 0 | 65.3 | 60.7 | 24 | 51 | 111 | 240 |

**2035 No Project**

| ID | Arterial | From | To | 2035 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 360 | Gilman Springs Rd | SR-79 SB Ramps | SR-79 NB Ramps | 17,682 | 67 | 18 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 82 | 178 | 385 |
| 361 | SR-79 SB On-Ramp | Gilman Springs Rd | SR-79 | 20,540 | 238 | 362 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 95 | 205 | 442 |
| 362 | SR-79 NB On-Ramp | SR-79 | Gilman Springs Rd | 11,500 | 116 | 164 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 64 | 138 | 298 |
| 363 | Gilman Springs Rd | SR-79 NB Ramps | Record Rd | 17,848 | 61 | 12 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 83 | 179 | 386 |
| 364 | SR-79 NB Off-Ramp | Gilman Springs Rd | SR-79 | 11,774 | 118 | 54 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 65 | 140 | 301 |
| 365 | Alessandro Blvd | Sycamore Canyon Blvd | Vista Grande Dr | 61,703 | 382 | 343 | 45 | 0 | 0 | 73.9 | 69.3 | 89 | 193 | 415 | 896 |
| 366 | Sycamore Canyon Blvd | Eastridge Ave | Alessandro Blvd | 14,496 | 93 | 111 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 158 | 341 |
| 367 | Meridian Pkwy | Alessandro Blvd | Cactus Ave | 7,653 | 36 | 73 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 47 | 102 | 221 |
| 375 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | 3rd St | 7,446 | 80 | 56 | 45 | 0 | 0 | 64.9 | 60.2 | 22 | 48 | 103 | 223 |
| 376 | 3rd St | Marvin Rd | Mid County Pkwy WB Ran | 9,002 | 101 | 77 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 54 | 117 | 254 |
| 377 | Mid County Pkwy WB Off-Ramp | Mid County Pkwy | 3rd St | 1,388 | 16 | 16 | 45 | 0 | 0 | 57.6 | 53.0 | 7 | 15 | 34 | 73 |
| 378 | 3rd St | Mid County Pkwy EB Ramps | Mid County Pkwy WB Ran | 5,326 | 62 | 51 | 45 | 0 | 0 | 63.4 | 58.8 | 17 | 38 | 83 | 179 |
| 379 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | 3rd St | 6,606 | 76 | 80 | 45 | 0 | 0 | 64.4 | 59.7 | 20 | 44 | 96 | 207 |
| 380 | Mid County Pkwy EB On-Ramp | 3rd St | Mid County Pkwy | 1,644 | 20 | 18 | 45 | 0 | 0 | 58.4 | 53.7 | 8 | 17 | 38 | 82 |
| 381 | 3rd St | Mid County Pkwy EB Ramps | MM Blvd | 2,238 | 26 | 16 | 45 | 0 | 0 | 59.7 | 55.0 | 10 | 21 | 46 | 100 |
| 386 | Harley Know Blvd | Indian St | Perris Blvd | 12,017 | 180 | 271 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 67 | 146 | 315 |
| 387 | Perris Blvd | Krameria Ave | Harley Know Blvd | 38,007 | 320 | 642 | 45 | 6 | 0 | 65.9 | 61.3 | 26 | 56 | 121 | 261 |
| 388 | Krameria Ave | Lasselle St | Spirit Rd | 1,947 | 0 | 0 | 45 | 0 | 0 | 58.7 | 54.1 | 8 | 18 | 40 | 86 |
| 389 | El Cerrito Dr | South of Central Ave | 0 | 4,608 | 22 | 28 | 45 | 0 | 0 | 62.6 | 58.0 | 15 | 34 | 73 | 158 |
| 390 | Ramona Expy | Webster Ave | Indian St | 37,863 | 529 | 1,163 | 45 | 0 | 0 | 72.1 | 67.5 | 67 | 146 | 314 | 678 |
| 392 | Ramona Expy | Indian St | Perris Blvd | 27,236 | 118 | 490 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 240 | 517 |
| 393 | Indian St | Ramona Expy | Morgan St | 20,324 | 512 | 790 | 45 | 0 | 0 | 69.7 | 65.1 | 47 | 101 | 219 | 473 |
| 394 | Perris Blvd | Harley Know Blvd | Ramona Expy | 42,828 | 409 | 494 | 45 | 0 | 0 | 72.4 | 67.8 | 71 | 153 | 331 | 714 |
| 396 | Perris Blvd | Ramona Expy | Rider St | 31,080 | 249 | 233 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 265 | 572 |
| 397 | Ramona Expy | Perris Blvd | Evans Rd | 24,303 | 89 | 307 | 45 | 0 | 0 | 69.8 | 65.2 | 47 | 102 | 221 | 477 |
| 398 | Evans Rd | Marbella Gate | Ramona Expy | 24,386 | 144 | 11 | 45 | 6 | 0 | 63.9 | 59.2 | 19 | 41 | 88 | 191 |
| 399 | Ramona Expy | Evans Rd | Rider St | 20,457 | 59 | 225 | 55 | 6 | 0 | 65.5 | 60.9 | 24 | 53 | 114 | 247 |
| 400 | Evans Rd | Ramona Expy | Rider St | 26,808 | 108 | 15 | 45 | 0 | 0 | 70.2 | 65.6 | 50 | 109 | 236 | 508 |
| 401 | Morgan St | Indian St | Perris Blvd | 744 | 35 | 71 | 45 | 0 | 0 | 56.7 | 52.1 | 6 | 13 | 29 | 63 |
| 402 | Morgan St | Perris Blvd | Silver Creek Industries | 813 | 24 | 0 | 45 | 0 | 0 | 55.7 | 51.1 | 5 | 11 | 25 | 54 |
| 404 | Morgan St | Morgan Park | Evans Rd | 3,198 | 12 | 0 | 45 | 0 | 0 | 61.0 | 56.4 | 12 | 26 | 57 | 123 |
| 405 | Morgan St | Evans Rd | Bradley Rd | 3,162 | 0 | 12 | 45 | 0 | 0 | 60.8 | 56.2 | 12 | 25 | 55 | 120 |
| 406 | Ironwood Ave | East of Thedore St | 0 | 5,362 | 32 | 24 | 45 | 0 | 0 | 63.3 | 58.7 | 17 | 37 | 81 | 175 |
| 407 | Rider St | Indian St | Perris Blvd | 10,230 | 83 | 75 | 45 | 0 | 0 | 66.2 | 61.5 | 27 | 58 | 126 | 272 |
| 408 | Rider St | Perris Blvd | Redlands Ave | 8,225 | 0 | 0 | 45 | 0 | 0 | 65.0 | 60.3 | 22 | 48 | 105 | 227 |
| 409 | Ironwood Ave | Nason St | Moreno Beach Dr | 7,032 | 54 | 0 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 410 | Rider St | Wilson Ave | Evans Rd | 11,776 | 0 | 12 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 62 | 134 | 288 |
| 411 | Rider St | Evans Rd | Ramona Expy | 6,149 | 0 | 24 | 45 | 0 | 0 | 63.7 | 59.1 | 18 | 40 | 86 | 187 |
| 412 | Maude St | North of Arlington Ave | 0 | 212 | 0 | 0 | 45 | 0 | 0 | 49.1 | 44.5 | 1 | 4 | 9 | 19 |
| 413 | Placentia Ave | Indian St | Perris Blvd | 16,459 | 243 | 383 | 45 | 0 | 0 | 68.5 | 63.8 | 38 | 83 | 180 | 388 |
| 414 | Placentia Ave | Perris Blvd | Redlands Ave | 12,326 | 38 | 130 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 65 | 140 | 302 |
| 415 | Perris Blvd | Placentia Ave | Orange Ave | 37,597 | 415 | 501 | 45 | 0 | 0 | 71.9 | 67.3 | 65 | 142 | 306 | 659 |

**2035 No Project**

| ID | Arterial | From | To | 2035 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 416 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | Perris Blvd | 27,166 | 392 | 720 | 45 | 0 | 0 | 70.6 | 66.0 | 54 | 116 | 252 | 543 |
| 417 | Mid County Pkwy WB Off-Ramp | Perris Blvd | Mid County Pkwy | 16,832 | 222 | 296 | 45 | 0 | 0 | 68.5 | 63.9 | 39 | 84 | 181 | 390 |
| 419 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | Perris Blvd | 18,986 | 286 | 568 | 45 | 0 | 0 | 69.1 | 64.5 | 43 | 92 | 199 | 430 |
| 420 | Mid County Pkwy EB On-Ramp | Perris Blvd | Mid County Pkwy | 17,676 | 246 | 380 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 87 | 188 | 405 |
| 421 | Via Del Lago | South of Iris Ave | 0 | 378 | 0 | 0 | 45 | 0 | 0 | 51.6 | 47.0 | 2 | 6 | 13 | 29 |
| 424 | Perris Blvd | Alessandro Blvd | Cottonwood Ave | 29,606 | 252 | 291 | 45 | 6 | 0 | 64.8 | 60.2 | 22 | 47 | 102 | 221 |
| 425 | Mid County Pkwy WB On-Ramp | West of Evan | 0 | 11,806 | 66 | 86 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 63 | 137 | 296 |
| 426 | Mid County Pkwy WB Off-Ramp | East of Evan | 0 | 6,570 | 64 | 108 | 45 | 0 | 0 | 64.3 | 59.7 | 20 | 44 | 95 | 205 |
| 427 | Day St | south of Alessandro Blvd | 0 | 8,290 | 18 | 59 | 45 | 0 | 0 | 65.1 | 60.5 | 23 | 49 | 107 | 231 |
| 428 | Mid County Pkwy EB Off-Ramp | West of Evan | 0 | 11,720 | 66 | 98 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 63 | 137 | 295 |
| 429 | Mid County Pkwy EB On-Ramp | East of Evan | 0 | 7,484 | 78 | 130 | 45 | 0 | 0 | 64.9 | 60.3 | 22 | 48 | 104 | 224 |
| 430 | Alessandro Blvd | SR-215 NB Ramp | SR-215 SB Ramp | 44,075 | 269 | 235 | 45 | 0 | 0 | 72.4 | 67.8 | 71 | 154 | 332 | 715 |
| 431 | Placentia Ave | Water Ave | Evans Rd | 2,483 | 14 | 16 | 35 | 0 | 0 | 56.9 | 52.2 | 6 | 14 | 30 | 65 |
| 432 | Placentia Ave | Evans Rd | El Nido Ave | 955 | 4 | 6 | 35 | 0 | 0 | 52.7 | 48.1 | 3 | 7 | 15 | 34 |
| 433 | Evans Rd | Rider St | Orange Ave | 22,080 | 158 | 115 | 45 | 0 | 0 | 69.5 | 64.8 | 45 | 97 | 210 | 453 |
| 434 | Orange Ave | Wilson Ave | Evans Rd | 4,850 | 0 | 12 | 45 | 0 | 0 | 62.7 | 58.1 | 15 | 34 | 74 | 159 |
| 435 | Orange Ave | Evans Rd | Foothill Dr | 4,294 | 10 | 37 | 35 | 0 | 0 | 59.1 | 54.5 | 9 | 19 | 42 | 92 |
| 436 | Elsworth St | south of Cactus Ave | 0 | 41,126 | 415 | 36 | 45 | 0 | 0 | 72.2 | 67.6 | 69 | 149 | 322 | 694 |
| 441 | Nuevo Rd | Wilson Ave | Evans Rd | 13,924 | 24 | 59 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 151 | 325 |
| 442 | Evans Rd | Orange Ave | Nuevo Rd | 20,792 | 136 | 118 | 45 | 0 | 0 | 69.2 | 64.6 | 43 | 93 | 201 | 434 |
| 443 | Nuevo Rd | Evans Rd | Foothill Dr | 12,765 | 36 | 66 | 45 | 0 | 0 | 67.0 | 62.3 | 30 | 66 | 143 | 308 |
| 444 | Evans Rd | Nuevo Rd | San Jacinto Ave | 16,846 | 133 | 93 | 45 | 6 | 0 | 62.3 | 57.7 | 15 | 32 | 70 | 151 |
| 452 | San Jacinto Ave | West of Evan Rd | 0 | 2,410 | 12 | 12 | 45 | 0 | 0 | 59.8 | 55.2 | 10 | 22 | 47 | 102 |
| 453 | Evans Rd | North of San Jancito Ave | 0 | 15,262 | 123 | 84 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 76 | 165 | 355 |
| 454 | San Jacinto Ave | East of Evan Rd | 0 | 4,112 | 24 | 14 | 45 | 0 | 0 | 62.1 | 57.5 | 14 | 31 | 68 | 147 |
| 455 | Evans Rd | South of San Jancito Ave | 0 | 12,398 | 107 | 80 | 45 | 0 | 0 | 67.0 | 62.4 | 31 | 66 | 144 | 310 |
| 458 | Nason St | South of Cactus Ave | 0 | 15,958 | 214 | 0 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 173 | 374 |
| 464 | Quincy | South of Eucalyptus | 0 | 2,786 | 29 | 0 | 45 | 0 | 0 | 60.6 | 55.9 | 11 | 24 | 53 | 115 |
| 477 | Ellis Ave | West of Evan Rd | 0 | 4,727 | 34 | 34 | 45 | 0 | 0 | 62.8 | 58.2 | 16 | 35 | 75 | 162 |
| 478 | Evans Rd | North of Ellis Ave | 0 | 16,435 | 174 | 202 | 45 | 0 | 0 | 68.3 | 63.7 | 37 | 81 | 175 | 378 |
| 479 | Oliver St | South of Irris Ave | 0 | 2,644 | 12 | 0 | 45 | 0 | 0 | 60.2 | 55.6 | 10 | 23 | 50 | 108 |
| 480 | Ellis Ave | Evans Rd | SR-215 | 10,840 | 107 | 94 | 45 | 0 | 0 | 66.5 | 61.8 | 28 | 61 | 132 | 285 |
| 481 | SR-215 SB Off-ramp | SR-215 | Ellis Ave | 5,446 | 52 | 104 | 45 | 0 | 0 | 63.5 | 58.9 | 18 | 39 | 84 | 181 |
| 482 | Ellis Ave | East of SR-215 | 0 | 7,414 | 57 | 93 | 45 | 0 | 0 | 64.8 | 60.1 | 22 | 47 | 102 | 220 |
| 483 | SR-215 SB On-ramp | Ellis Ave | SR-215 | 18,312 | 138 | 94 | 45 | 0 | 0 | 68.7 | 64.0 | 40 | 86 | 186 | 400 |
| 484 | SR-215 NB On-ramp | Ellis Ave | SR-215 | 2,602 | 22 | 44 | 45 | 0 | 0 | 60.3 | 55.6 | 11 | 23 | 51 | 110 |
| 485 | SR-215 NB Off-ramp | SR-215 | Ellis Ave | 12,324 | 136 | 108 | 45 | 0 | 0 | 67.1 | 62.4 | 31 | 67 | 145 | 312 |
| 488 | Nason St | North of Iris Ave | 0 | 15,958 | 214 | 0 | 45 | 0 | 0 | 68.2 | 63.6 | 37 | 80 | 173 | 374 |
| 494 | Evans Rd | North of Harley Knox Blvd | 0 | 15,598 | 135 | 0 | 45 | 6 | 0 | 62.0 | 57.4 | 14 | 31 | 66 | 144 |
| 498 | Morrison St | Alessandro Blvd | Cactus Ave | 9,053 | 53 | 0 | 45 | 0 | 0 | 65.6 | 60.9 | 24 | 53 | 115 | 248 |
| 499 | Perris Blvd | Eucalyptus Ave | Cottonwood Ave | 31,616 | 134 | 256 | 45 | 0 | 0 | 70.9 | 66.3 | 56 | 122 | 264 | 569 |
| 500 | Perris Blvd | North of Eucalyptus Ave | 0 | 31,981 | 137 | 268 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 266 | 573 |

**2035 No Project**

| ID | Arterial | From | To | 2035 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 502 | Quincy | Cottonwood Ave | Alessandro Blvd | 1,810 | 4 | 0 | 35 | 6 | 0 | 49.3 | 44.7 | 2 | 4 | 9 | 20 |
| 503 | Quincy | Alessandro Blvd | Cactus Ave | 491 | 0 | 0 | 35 | 6 | 0 | 43.6 | 39.0 | 0 | 1 | 3 | 8 |
| 504 | Krameria Ave | west of Perris Blvd | 0 | 16,775 | 185 | 0 | 45 | 0 | 0 | 68.4 | 63.8 | 38 | 82 | 178 | 383 |

**2035 Noise Levels - No Project**

| ID | Freeway | From | 2035 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | SR-60 | SR-71/S Garey Ave to S Reservoir Rd | 239,460 | 5,120 | 22,650 | 65 | 0 | 0 | 86.0 | 81.4 | 573 | 1234 | 2660 | 5732 |
| 2 | SR-60 | S Reservoir Rd to Ramona Ave | 241,980 | 5,360 | 23,650 | 65 | 0 | 0 | 86.1 | 81.5 | 580 | 1249 | 2692 | 5801 |
| 3 | SR-60 | Ramona Ave to Central Ave | 232,950 | 5,260 | 23,120 | 65 | 0 | 0 | 85.9 | 81.3 | 567 | 1221 | 2632 | 5671 |
| 4 | SR-60 | Central Ave to Mountain Ave | 241,640 | 5,560 | 24,110 | 65 | 0 | 0 | 86.1 | 81.5 | 582 | 1254 | 2702 | 5821 |
| 5 | SR-60 | Mountain Ave to Euclid Ave | 238,730 | 5,540 | 23,820 | 65 | 0 | 0 | 86.0 | 81.4 | 577 | 1244 | 2681 | 5777 |
| 6 | SR-60 | Euclid Ave to Grove Ave | 248,510 | 5,880 | 25,130 | 65 | 0 | 0 | 86.2 | 81.6 | 594 | 1281 | 2761 | 5949 |
| 7 | SR-60 | Grove Ave to Vineyard Ave | 244,640 | 5,640 | 24,130 | 65 | 0 | 0 | 86.1 | 81.5 | 586 | 1263 | 2721 | 5863 |
| 8 | SR-60 | Vineyard Ave to Archibald Ave | 243,680 | 5,770 | 24,190 | 65 | 0 | 0 | 86.1 | 81.5 | 586 | 1262 | 2720 | 5861 |
| 9 | SR-60 | Archibald Ave to Haven Ave | 237,150 | 5,910 | 23,460 | 65 | 0 | 0 | 86.0 | 81.4 | 577 | 1243 | 2680 | 5774 |
| 10 | SR-60 | Haven Ave to Miliken Ave | 221,150 | 5,590 | 21,940 | 65 | 0 | 0 | 85.7 | 81.1 | 551 | 1188 | 2561 | 5518 |
| 11 | SR-60 | Miliken Ave to SR-15 | 164,340 | 4,640 | 18,000 | 65 | 0 | 0 | 84.6 | 80.0 | 461 | 993 | 2140 | 4610 |
| 12 | SR-60 | I-15 to Etiwanda Ave | 136,350 | 3,830 | 13,570 | 65 | 0 | 0 | 83.7 | 79.1 | 402 | 868 | 1870 | 4029 |
| 13 | SR-60 | Etiwanda Ave to Mission Blvd/Country Village Rd | 143,860 | 3,660 | 12,990 | 65 | 0 | 0 | 83.8 | 79.2 | 411 | 885 | 1907 | 4110 |
| 14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 133,100 | 3,390 | 11,990 | 65 | 0 | 0 | 83.5 | 78.9 | 390 | 840 | 1811 | 3902 |
| 15 | SR-60 | Pedley Rd to Pyrite St | 127,100 | 3,150 | 11,240 | 65 | 0 | 0 | 83.3 | 78.6 | 377 | 812 | 1750 | 3771 |
| 16 | SR-60 | Pyrite St to Valley Way | 122,380 | 3,090 | 11,010 | 65 | 0 | 0 | 83.1 | 78.5 | 368 | 794 | 1711 | 3687 |
| 17 | SR-60 | Valley Way to Rubidoux Blvd | 172,660 | 4,170 | 13,780 | 65 | 0 | 0 | 84.5 | 79.9 | 458 | 987 | 2127 | 4583 |
| 18 | SR-60 | Rubidoux Blvd to Market St | 169,810 | 4,120 | 13,280 | 65 | 0 | 0 | 84.5 | 79.8 | 452 | 975 | 2101 | 4527 |
| 19 | SR-60 | Market St to Main St | 198,090 | 5,110 | 15,580 | 65 | 0 | 0 | 85.2 | 80.5 | 504 | 1085 | 2339 | 5040 |
| 20 | SR-60 | Main St to SR-91 | 218,690 | 5,910 | 16,970 | 65 | 0 | 0 | 85.6 | 81.0 | 539 | 1162 | 2504 | 5396 |
| 21 | SR-60 | SR-91 to W Blaine St/3rd St | 272,960 | 6,960 | 25,580 | 65 | 0 | 0 | 86.6 | 82.0 | 631 | 1361 | 2933 | 6319 |
| 22 | SR-60 | W Blaine St/3rd St to University Ave | 258,360 | 6,600 | 23,680 | 65 | 0 | 0 | 86.4 | 81.8 | 608 | 1310 | 2822 | 6081 |
| 23 | SR-60 | University Ave to Martin Luther King Blvd | 265,820 | 6,840 | 24,110 | 65 | 0 | 0 | 86.5 | 81.9 | 619 | 1334 | 2875 | 6195 |
| 24 | SR-60 | Martin Luther King Blvd to Central Ave | 314,570 | 8,160 | 28,940 | 65 | 0 | 0 | 87.2 | 82.6 | 694 | 1496 | 3223 | 6943 |
| 25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs Rd | 299,400 | 7,760 | 27,270 | 65 | 0 | 0 | 87.0 | 82.4 | 671 | 1446 | 3115 | 6712 |
| 26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 276,970 | 6,540 | 24,670 | 65 | 0 | 0 | 86.6 | 82.0 | 632 | 1362 | 2934 | 6322 |
| 27 | SR-60 | I-215 to Day St | 154,750 | 3,810 | 17,960 | 65 | 0 | 0 | 84.3 | 79.7 | 441 | 951 | 2050 | 4417 |
| 28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 157,830 | 3,790 | 19,010 | 65 | 0 | 0 | 84.4 | 79.8 | 448 | 967 | 2083 | 4489 |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | 141,240 | 3,250 | 16,570 | 65 | 0 | 0 | 83.9 | 79.3 | 414 | 892 | 1923 | 4143 |
| 30 | SR-60 | Heacock St to Perris Blvd | 132,690 | 2,890 | 14,810 | 65 | 0 | 0 | 83.5 | 78.9 | 393 | 848 | 1827 | 3937 |
| 31 | SR-60 | Perris Blvd to Nason St | 123,260 | 2,410 | 12,850 | 65 | 0 | 0 | 83.1 | 78.5 | 369 | 796 | 1716 | 3698 |
| 32 | SR-60 | Nason St to Moreno Beach Dr | 118,750 | 2,180 | 11,700 | 65 | 0 | 0 | 82.9 | 78.3 | 357 | 770 | 1659 | 3575 |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 100,910 | 1,610 | 9,030 | 65 | 0 | 0 | 82.1 | 77.5 | 315 | 680 | 1466 | 3159 |
| 34 | SR-60 | Redlands Blvd to Theodore St | 98,690 | 1,920 | 10,140 | 65 | 0 | 0 | 82.2 | 77.5 | 318 | 685 | 1477 | 3183 |
| 35 | SR-60 | Theodore St to Gilman Springs Rd | 104,310 | 1,970 | 10,020 | 65 | 0 | 0 | 82.3 | 77.7 | 327 | 705 | 1520 | 3276 |
| 36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 82,220 | 1,560 | 9,220 | 65 | 0 | 0 | 81.4 | 76.8 | 284 | 612 | 1319 | 2842 |
| 37 | SR-60 | Jack Rabbit Trail to I-10 | 84,600 | 1,600 | 9,220 | 65 | 0 | 0 | 81.5 | 76.9 | 288 | 621 | 1339 | 2886 |
| 75 | SR-91 | I-15 to McKinley St | 256,280 | 4,330 | 15,100 | 65 | 0 | 0 | 86.0 | 81.4 | 575 | 1239 | 2670 | 5753 |
| 76 | SR-91 | McKinley St to Pierce St | 233,810 | 4,060 | 14,200 | 65 | 0 | 0 | 85.6 | 81.0 | 542 | 1168 | 2518 | 5425 |
| 77 | SR-91 | Pierce St to Magnolia Ave | 221,290 | 3,670 | 13,630 | 65 | 0 | 0 | 85.4 | 80.8 | 522 | 1125 | 2423 | 5222 |
| 78 | SR-91 | Magnolia Ave to La Sierra Ave | 229,820 | 4,080 | 15,040 | 65 | 0 | 0 | 85.6 | 81.0 | 538 | 1160 | 2500 | 5387 |
| 79 | SR-91 | La Sierra Ave to Tyler St | 210,010 | 3,700 | 13,810 | 65 | 0 | 0 | 85.2 | 80.6 | 507 | 1092 | 2354 | 5072 |
| 80 | SR-91 | Tyler St to Van Buren Blvd | 242,900 | 2,940 | 11,270 | 65 | 0 | 0 | 85.6 | 81.0 | 543 | 1171 | 2522 | 5435 |
| 81 | SR-91 | Van Buren Blvd to Adam St | 230,560 | 2,700 | 10,670 | 65 | 0 | 0 | 85.4 | 80.8 | 524 | 1129 | 2433 | 5243 |
| 82 | SR-91 | Adam St to Madison St | 219,840 | 2,500 | 10,060 | 65 | 0 | 0 | 85.2 | 80.6 | 507 | 1093 | 2354 | 5073 |
| 83 | SR-91 | Madison St to Indiana Ave (off-ramp) | 209,300 | 2,350 | 9,480 | 65 | 0 | 0 | 85.0 | 80.4 | 490 | 1057 | 2277 | 4906 |
| 84 | SR-91 | Arlington Ave to Central Ave | 185,270 | 2,300 | 8,810 | 65 | 0 | 0 | 84.5 | 79.9 | 454 | 979 | 2109 | 4544 |
| 85 | SR-91 | Central Ave to 14th St | 214,390 | 2,620 | 9,790 | 65 | 0 | 0 | 85.1 | 80.5 | 500 | 1077 | 2321 | 5001 |

**2035 Noise Levels - No Project**

| ID | Freeway | From | 2035 No Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 86 | SR-91 | 14th St to University Ave | 199,480 | 2,430 | 9,080 | 65 | 0 | 0 | 84.8 | 80.2 | 476 | 1026 | 2211 | 4765 |
| 87 | SR-91 | University Ave to Spruce St (off-ramp) | 248,880 | 2,950 | 10,670 | 65 | 0 | 0 | 85.7 | 81.1 | 550 | 1187 | 2557 | 5509 |
| 101 | I-10 | SR-60 to Beaumont Ave | 180,470 | 4,040 | 27,660 | 65 | 0 | 0 | 85.2 | 80.6 | 507 | 1093 | 2356 | 5077 |
| 102 | I-10 | Beaumont Ave to Pennsylvania Ave | 179,780 | 4,120 | 28,940 | 65 | 0 | 0 | 85.3 | 80.6 | 512 | 1103 | 2376 | 5120 |
| 103 | I-10 | Pennsylvania Ave to Highland Springs Ave | 187,380 | 4,360 | 30,090 | 65 | 0 | 0 | 85.4 | 80.8 | 526 | 1134 | 2444 | 5266 |
| 104 | I-10 | Highland Springs Ave to Sunset Ave | 184,010 | 4,390 | 30,150 | 65 | 0 | 0 | 85.4 | 80.8 | 523 | 1127 | 2428 | 5232 |
| 105 | I-10 | Sunset Ave to 22nd St | 173,940 | 4,210 | 29,590 | 65 | 0 | 0 | 85.2 | 80.6 | 508 | 1095 | 2360 | 5085 |
| 106 | I-10 | 22nd St to S 8th St | 171,600 | 4,160 | 29,460 | 65 | 0 | 0 | 85.2 | 80.5 | 504 | 1087 | 2343 | 5049 |
| 107 | I-10 | S 8th St to S Hargrave St | 174,740 | 4,180 | 29,550 | 65 | 0 | 0 | 85.2 | 80.6 | 509 | 1096 | 2362 | 5090 |
| 108 | I-10 | S Hargrave St to Field Rd | 169,630 | 4,060 | 28,410 | 65 | 0 | 0 | 85.1 | 80.5 | 498 | 1072 | 2311 | 4980 |
| 109 | I-10 | Field Rd to Main St (Cabazon) | 153,790 | 3,790 | 27,690 | 65 | 0 | 0 | 84.8 | 80.1 | 475 | 1023 | 2205 | 4750 |
| 110 | I-10 | Main St (Cabazon) to Main St | 158,310 | 3,620 | 26,400 | 65 | 0 | 0 | 84.8 | 80.1 | 473 | 1020 | 2199 | 4738 |
| 111 | I-10 | Main St to Haugen-Lehmann Way | 154,210 | 3,550 | 26,030 | 65 | 0 | 0 | 84.7 | 80.0 | 467 | 1006 | 2167 | 4670 |
| 112 | I-10 | Haugen-Lehmann Way to SR-111 | 163,370 | 3,660 | 26,450 | 65 | 0 | 0 | 84.8 | 80.2 | 480 | 1034 | 2229 | 4803 |
| 113 | I-10 | SR-111 to Tipton Rd | 143,490 | 3,100 | 23,840 | 65 | 0 | 0 | 84.3 | 79.7 | 442 | 952 | 2051 | 4420 |
| 114 | I-10 | Tipton Rd to SR-62 | 143,820 | 3,100 | 23,840 | 65 | 0 | 0 | 84.3 | 79.7 | 442 | 953 | 2053 | 4424 |
| 129 | SR-215 | Scott Rd to Newport Rd | 124,430 | 2,850 | 6,780 | 65 | 0 | 0 | 83.0 | 78.3 | 360 | 776 | 1672 | 3602 |
| 130 | SR-215 | Newport Rd to MacCall Blvd | 112,870 | 2,740 | 6,530 | 65 | 0 | 0 | 82.6 | 78.0 | 339 | 731 | 1576 | 3396 |
| 131 | SR-215 | MacCall Blvd to Ethanac Rd | 118,090 | 2,870 | 6,680 | 65 | 0 | 0 | 82.8 | 78.2 | 349 | 753 | 1623 | 3497 |
| 132 | SR-215 | Ethanac Rd to SR-74/Case | 145,820 | 3,340 | 7,810 | 65 | 0 | 0 | 83.7 | 79.0 | 400 | 862 | 1857 | 4002 |
| 133 | SR-215 | SR-74/Case Rd to Redlands Blvd | 158,220 | 5,120 | 12,480 | 65 | 0 | 0 | 84.3 | 79.7 | 441 | 951 | 2049 | 4415 |
| 167 | SR-215 | Redlands Blvd to D St | 136,480 | 4,570 | 11,870 | 65 | 0 | 0 | 83.7 | 79.1 | 404 | 870 | 1875 | 4041 |
| 168 | SR-215 | D St to Nuevo St/Harvil Ave | 142,640 | 4,800 | 11,840 | 65 | 0 | 0 | 83.9 | 79.3 | 414 | 894 | 1926 | 4149 |
| 169 | SR-215 | Nuevo St/Harvil Ave to Ramona Expy/Cajalco Exp | 140,710 | 4,690 | 11,680 | 65 | 0 | 0 | 83.8 | 79.2 | 410 | 885 | 1907 | 4108 |
| 171 | SR-215 | Ramona Expy/Cajalco Expy to Harley Knox Blvd | 171,170 | 5,430 | 13,470 | 65 | 0 | 0 | 84.6 | 80.0 | 464 | 1000 | 2156 | 4645 |
| 172 | SR-215 | Harley Knox Blvd to Van Buren Blvd | 180,360 | 5,900 | 14,580 | 65 | 0 | 0 | 84.9 | 80.3 | 483 | 1040 | 2242 | 4831 |
| 173 | SR-215 | Van Buren Blvd to Cactus Ave | 173,570 | 5,730 | 14,420 | 65 | 0 | 0 | 84.7 | 80.1 | 472 | 1017 | 2191 | 4722 |
| 174 | SR-215 | Cactus Ave to Alessandro Blvd | 184,610 | 5,500 | 13,600 | 65 | 0 | 0 | 84.9 | 80.3 | 484 | 1042 | 2246 | 4840 |
| 175 | SR-215 | Alessandro Blvd to Eucalyptus Ave | 173,270 | 5,180 | 13,300 | 65 | 0 | 0 | 84.6 | 80.0 | 465 | 1002 | 2159 | 4653 |
| 176 | SR-215 | Eucalyptus Ave to SR-60 | 173,060 | 5,220 | 13,810 | 65 | 0 | 0 | 84.7 | 80.0 | 466 | 1004 | 2165 | 4664 |
| 134 | SR-215 | SR-60 to Columbia Ave | 234,540 | 4,860 | 11,870 | 65 | 0 | 0 | 85.7 | 81.0 | 545 | 1174 | 2530 | 5451 |
| 135 | SR-215 | Columbia Ave to Center St | 181,910 | 3,940 | 9,860 | 65 | 0 | 0 | 84.6 | 80.0 | 462 | 996 | 2146 | 4624 |
| 136 | SR-215 | Center St to Iowa Ave/La Cadena Dr | 200,260 | 4,260 | 10,410 | 65 | 0 | 0 | 85.0 | 80.4 | 491 | 1059 | 2282 | 4917 |
| 137 | SR-215 | Iowa Ave/La Cadena Dr to Barton Rd | 191,320 | 4,260 | 10,340 | 65 | 0 | 0 | 84.8 | 80.2 | 478 | 1031 | 2223 | 4789 |
| 138 | SR-215 | Barton Rd to Mt Vernon Ave/Washington St | 200,380 | 4,380 | 10,640 | 65 | 0 | 0 | 85.0 | 80.4 | 493 | 1062 | 2288 | 4931 |
| 139 | SR-215 | Mt Vernon Ave/Washington St to I-10 | 209,590 | 4,500 | 10,660 | 65 | 0 | 0 | 85.2 | 80.6 | 506 | 1092 | 2352 | 5068 |
| 140 | SR-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 190,340 | 3,040 | 9,450 | 65 | 0 | 0 | 84.7 | 80.1 | 467 | 1008 | 2171 | 4678 |
| 141 | SR-215 | Auto Plaza Dr/Orange Show Rd to Mill St | 168,310 | 2,680 | 8,800 | 65 | 0 | 0 | 84.1 | 79.5 | 431 | 930 | 2003 | 4316 |
| 142 | SR-215 | Mill St to 2rd St | 248,230 | 3,090 | 10,100 | 65 | 0 | 0 | 85.7 | 81.1 | 550 | 1185 | 2554 | 5503 |
| 143 | SR-215 | 2rd St to Baseline Rd | 172,510 | 2,920 | 9,780 | 65 | 0 | 0 | 84.3 | 79.7 | 441 | 950 | 2048 | 4413 |
| 144 | SR-215 | Baseline Rd to Highland Ave/SR-210 | 180,080 | 3,550 | 14,070 | 65 | 0 | 0 | 84.6 | 80.0 | 465 | 1001 | 2158 | 4650 |

**2035 With Project**

| ID | Arterial | From | To | 2035 + Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | Street A | State Route 60 | Eucalyptus Ave | 22,202 | 2,512 | 8,368 | 45 | 0 | 0 | 77.0 | 72.4 | 144 | 311 | 670 | 1443 |
| 2 | Street A | Eucalyptus Ave | Street F | 22,845 | 2,970 | 9,559 | 45 | 0 | 0 | 77.4 | 72.8 | 153 | 330 | 712 | 1533 |
| 3 | Street E | west of Street A | 0 | 9,105 | 1,143 | 3,614 | 45 | 0 | 0 | 73.0 | 68.4 | 77 | 167 | 360 | 776 |
| 4 | Street E | north of Alessandro Blvd | 0 | 4,935 | 406 | 69 | 45 | 0 | 0 | 65.8 | 61.2 | 25 | 55 | 119 | 258 |
| 5 | Street E | Street D | Street A | 12,614 | 784 | 88 | 45 | 0 | 0 | 68.9 | 64.2 | 41 | 88 | 191 | 413 |
| 6 | Street A | Street F | Street C | 8,818 | 1,071 | 3,112 | 45 | 0 | 0 | 73.0 | 68.4 | 77 | 167 | 361 | 778 |
| 7 | Street A | south of Street C | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 8 | Street D | Street E | Cactus Ave | 16,294 | 1,129 | 0 | 45 | 0 | 0 | 70.7 | 66.0 | 54 | 117 | 253 | 545 |
| 9 | John F Kennedy Dr | south of Cactus Ave | 0 | 14,023 | 859 | 0 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 95 | 204 | 440 |
| 10 | Redlands Blvd | Alessandro Blvd | Cactus Ave | 5,533 | 120 | 0 | 45 | 0 | 0 | 61.4 | 56.8 | 13 | 28 | 61 | 132 |
| 11 | Redlands Blvd | Dracaea Ave | Alessandro Blvd | 4,968 | 69 | 0 | 45 | 0 | 0 | 62.5 | 57.9 | 15 | 33 | 72 | 155 |
| 12 | Redlands Blvd | Eucalyptus Ave | Dracaea Ave | 7,781 | 108 | 0 | 45 | 0 | 0 | 65.4 | 60.8 | 24 | 52 | 113 | 243 |
| 13 | Redlands Blvd | State Route 60 | Eucalyptus Ave | 15,806 | 411 | 1,409 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 265 | 572 |
| 14 | Eucalyptus Ave | east of Redlands Blvd | 0 | 12,814 | 565 | 1,377 | 45 | 0 | 0 | 69.9 | 65.3 | 48 | 104 | 225 | 486 |
| 15 | Eucalyptus Ave | west of Street A | 0 | 8,604 | 510 | 1,399 | 45 | 0 | 0 | 69.6 | 65.0 | 46 | 99 | 213 | 460 |
| 18 | Street B | east of Street A | 0 | 5,704 | 334 | 527 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 62 | 135 | 291 |
| 18a | Street B | west of Gilman Springs Rd | 0 | 5,140 | 251 | 284 | 45 | 0 | 0 | 65.6 | 60.9 | 24 | 53 | 115 | 249 |
| 19 | Street F | east of Street A | 0 | 3,091 | 452 | 1,466 | 45 | 0 | 0 | 69.2 | 64.6 | 43 | 93 | 202 | 435 |
| 20 | Street F | north of Street C | 0 | 3,352 | 310 | 455 | 45 | 0 | 0 | 65.4 | 60.8 | 24 | 52 | 113 | 243 |
| 21 | Street C | east of Street A | 0 | 12,438 | 913 | 1,329 | 45 | 0 | 0 | 70.8 | 66.2 | 55 | 119 | 257 | 554 |
| 22 | Street C | west of Street F | 0 | 12,189 | 929 | 1,356 | 45 | 0 | 0 | 70.9 | 66.2 | 56 | 120 | 260 | 560 |
| 23 | Street F | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 24 | Street C | Street F | Street H | 13,812 | 900 | 1,630 | 45 | 0 | 0 | 71.2 | 66.6 | 59 | 127 | 275 | 592 |
| 25 | Street C | Street H | Gilman Springs Rd | 17,170 | 1,169 | 2,823 | 45 | 0 | 0 | 72.8 | 68.2 | 75 | 163 | 351 | 757 |
| 26 | Street H | Street C | Street G | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 27 | Street G | east of Street H | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 28 | Street G | Street F | Street H | 0 | 0 | 0 | 45 | 0 | 0 | 0.0 | -4.6 | 0 | 0 | 0 | 0 |
| 29 | Gilman Springs Rd | State Route 60 | Eucalyptus Ave | 41,997 | 1,165 | 2,492 | 45 | 0 | 0 | 75.3 | 70.7 | 111 | 240 | 518 | 1117 |
| 30 | Gilman Springs Rd | Eucalyptus Ave | Street C | 44,416 | 1,146 | 2,396 | 45 | 0 | 0 | 74.7 | 70.1 | 100 | 217 | 468 | 1009 |
| 31 | Gilman Springs Rd | south of Street C | 0 | 51,874 | 1,111 | 1,303 | 45 | 0 | 0 | 74.2 | 69.5 | 93 | 200 | 432 | 931 |
| 32 | Cactus Ave | west of Redlands Blvd | 0 | 8,042 | 246 | 0 | 45 | 0 | 0 | 66.3 | 61.7 | 27 | 60 | 129 | 279 |
| 33 | Alessandro Blvd | west of Redlands Blvd | 0 | 5,344 | 69 | 3 | 45 | 0 | 0 | 64.0 | 59.4 | 19 | 42 | 91 | 196 |
| 35 | Redlands Blvd | Ironwood Ave | State Route 60 | 17,663 | 165 | 715 | 55 | 0 | 0 | 72.3 | 67.7 | 70 | 151 | 325 | 702 |
| 36 | Ironwood Ave | Redlands Blvd | Highland Blvd | 7,553 | 389 | 0 | 35 | 0 | 0 | 63.6 | 58.9 | 18 | 39 | 84 | 182 |
| 37 | San Timoteo Canyon Rd | West Live Oak Canyon | 0 | 10,367 | 187 | 694 | 45 | 0 | 0 | 70.0 | 65.3 | 48 | 105 | 226 | 488 |
| 38 | Theodore St | State Route 60 | Highland Blvd | 9,632 | 413 | 222 | 45 | 0 | 0 | 67.1 | 62.4 | 31 | 67 | 145 | 313 |
| 42 | Redlands Blvd | Ironwood Ave | San Timoteo Canyon Rd | 18,477 | 442 | 690 | 55 | 0 | 0 | 73.2 | 68.6 | 80 | 172 | 372 | 801 |
| 43 | Moreno Beach Dr | Alessandro Blvd | SR 60 | 21,472 | 61 | 190 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 208 | 449 |
| 46 | Moreno Beach Dr | State Route 60 | Ironwood Ave | 25,596 | 332 | 121 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 112 | 242 | 522 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | Ironwood Ave | Moreno Beach Dr | Redlands Blvd | 6,888 | 132 | 12 | 45 | 6 | 0 | 58.9 | 54.3 | 8 | 19 | 41 | 89 |
| 48 | Alessandro Blvd | Lasselle St | Morrison St | 22,695 | 180 | 518 | 45 | 6 | 0 | 63.9 | 59.3 | 19 | 41 | 89 | 193 |
| 50 | Cactus Ave | Redlands Blvd | Street D | 15,790 | 1,126 | 0 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 114 | 247 | 533 |
| 51 | Moreno Beach Dr | John F Kennedy Dr | Cactus Ave | 15,260 | 40 | 18 | 45 | 6 | 0 | 61.9 | 57.2 | 14 | 30 | 65 | 140 |
| 52 | Moreno Beach Dr | John F Kennedy Dr | Oliver St | 23,810 | 879 | 6 | 35 | 6 | 0 | 62.2 | 57.6 | 14 | 31 | 68 | 148 |
| 53 | John F Kennedy Dr | Oliver St | Moreno Beach Dr | 2,313 | 0 | 12 | 45 | 6 | 0 | 53.5 | 48.8 | 3 | 8 | 18 | 38 |
| 54 | Locust Ave | Moreno Beach Dr | Smiley Blvd | 8,577 | 350 | 0 | 35 | 0 | 0 | 63.7 | 59.1 | 18 | 40 | 86 | 187 |
| 55 | Locust Ave | Moreno Beach Dr | Redlands Blvd | 4,385 | 67 | 0 | 45 | 0 | 0 | 63.0 | 58.4 | 16 | 36 | 78 | 168 |
| 56 | Moreno Beach Dr | Locust Ave | Ironwood Ave | 12,611 | 412 | 0 | 35 | 0 | 0 | 65.2 | 60.5 | 23 | 50 | 108 | 234 |
| 57 | Live Oak Canyon Rd | North of San Timoteo Canyon | 0 | 8,256 | 264 | 0 | 45 | 0 | 0 | 66.0 | 61.4 | 26 | 57 | 124 | 267 |
| 58 | SR 60 EB Ramps | west of Moreno Beach Dr | 0 | 21,462 | 191 | 71 | 45 | 0 | 0 | 69.6 | 64.9 | 46 | 99 | 213 | 460 |
| 59 | Eucalyptus Ave | Moreno Beach Dr | Quincy Dr | 12,741 | 311 | 0 | 45 | 0 | 0 | 67.8 | 63.1 | 34 | 75 | 162 | 349 |
| 60 | SR 60 WB Ramps | east of Redlands Blvd | 0 | 5,968 | 143 | 216 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 49 | 106 | 229 |
| 61 | SR 60 EB Ramps | west of Redlands Blvd | 0 | 7,094 | 52 | 168 | 45 | 0 | 0 | 65.4 | 60.8 | 24 | 52 | 112 | 241 |
| 62 | Fir Ave | Quincy Dr | Redlands Blvd | 10,016 | 349 | 0 | 45 | 0 | 0 | 67.2 | 62.5 | 31 | 68 | 147 | 318 |
| 65 | Alessandro Blvd | Nason St | Oliver St | 11,186 | 99 | 130 | 45 | 0 | 0 | 67.5 | 62.9 | 33 | 72 | 156 | 337 |
| 66 | Alessandro Blvd | Oliver St | Moreno Beach Dr | 9,765 | 97 | 126 | 45 | 0 | 0 | 67.1 | 62.4 | 31 | 67 | 145 | 313 |
| 67 | Oliver St | Alessandro Blvd | Cactus Ave | 1,482 | 0 | 0 | 35 | 0 | 0 | 54.4 | 49.8 | 4 | 9 | 20 | 45 |
| 68 | Moreno Beach Dr | Alessandro Blvd | Cactus Ave | 21,201 | 127 | 36 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 95 | 206 | 444 |
| 69 | Cactus Ave | Nason St | Oliver St | 12,532 | 120 | 4 | 45 | 0 | 0 | 67.3 | 62.6 | 32 | 69 | 150 | 323 |
| 70 | Cactus Ave | Oliver St | Moreno Beach Dr | 14,378 | 200 | 0 | 45 | 6 | 0 | 62.1 | 57.4 | 14 | 31 | 67 | 145 |
| 71 | Oliver St | Cactus Ave | John F Kennedy Dr | 5,321 | 25 | 0 | 45 | 0 | 0 | 63.3 | 58.7 | 17 | 38 | 81 | 176 |
| 72 | Oliver St | John F Kennedy Dr | Iris Ave | 4,670 | 6 | 0 | 45 | 0 | 0 | 62.5 | 57.9 | 15 | 33 | 72 | 156 |
| 73 | Iris Ave | Nason St | Oliver St | 26,035 | 926 | 0 | 45 | 0 | 0 | 71.3 | 66.6 | 59 | 128 | 277 | 597 |
| 74 | Heacock St | Manzanita Ave | Ironwood Ave | 21,238 | 49 | 13 | 45 | 0 | 0 | 69.2 | 64.6 | 43 | 93 | 201 | 433 |
| 75 | Ironwood Ave | Graham St | Heacock St | 15,938 | 26 | 5 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 76 | 165 | 357 |
| 76 | Ironwood Ave | Heacock St | Indian Ave | 14,487 | 20 | 6 | 45 | 0 | 0 | 67.5 | 62.9 | 33 | 71 | 154 | 333 |
| 77 | Heacock St | Ironwood Ave | Hemlock Ave | 22,485 | 60 | 16 | 45 | 0 | 0 | 69.4 | 64.8 | 45 | 97 | 209 | 451 |
| 80 | Heacock St | Hemlock Ave | SR 60 WB Ramps | 26,780 | 125 | 28 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 110 | 238 | 513 |
| 81 | SR 60 WB Ramps | west of Heacock St | 0 | 18,644 | 10 | 82 | 45 | 0 | 0 | 68.5 | 63.9 | 39 | 84 | 182 | 393 |
| 82 | SR 60 WB Ramps | east of Heacock St | 0 | 10,999 | 133 | 160 | 45 | 0 | 0 | 67.0 | 62.4 | 30 | 66 | 143 | 309 |
| 83 | Heacock St | SR 60 WB Ramps | SR 60 EB Ramps | 29,249 | 91 | 111 | 45 | 0 | 0 | 70.8 | 66.1 | 55 | 119 | 256 | 552 |
| 85 | SR 60 WB Onramp | west of Perris Blvd | 0 | 17,772 | 0 | 94 | 45 | 0 | 0 | 68.3 | 63.7 | 38 | 81 | 176 | 380 |
| 86 | SR 60 WB Offramp | east of Perris Blvd | 0 | 8,194 | 85 | 841 | 45 | 0 | 0 | 69.3 | 64.6 | 43 | 94 | 203 | 439 |
| 87 | Eucalyptus Ave | Indian St | Perris Blvd | 7,369 | 31 | 0 | 45 | 0 | 0 | 64.6 | 60.0 | 21 | 46 | 100 | 216 |
| 88 | Eucalyptus Ave | Perris Blvd | Kitching St | 6,830 | 19 | 12 | 45 | 0 | 0 | 64.3 | 59.7 | 20 | 44 | 94 | 204 |
| 95 | W 6th St | I-10 | N California Ave | 21,795 | 240 | 721 | 45 | 0 | 0 | 69.7 | 65.1 | 46 | 101 | 217 | 468 |
| 96 | N California Ave | W 6th St | E 8th St | 1,762 | 5 | 4 | 45 | 0 | 0 | 58.6 | 53.9 | 8 | 18 | 39 | 85 |
| 97 | E 6th St | N California Ave | Beaumont Ave | 19,863 | 224 | 646 | 45 | 0 | 0 | 69.3 | 64.7 | 44 | 95 | 205 | 441 |
| 98 | N California Ave | W 6th St | I-10 | 10,623 | 86 | 145 | 45 | 0 | 0 | 66.4 | 61.7 | 28 | 60 | 130 | 281 |
| 99 | Beaumont Ave | E 6th St | E 8th St | 27,086 | 162 | 174 | 45 | 0 | 0 | 70.4 | 65.7 | 51 | 112 | 241 | 519 |
| 100 | I-215 SB Ramps | north of Alessandro Blvd | 0 | 7,454 | 16 | 65 | 45 | 0 | 0 | 64.9 | 60.3 | 22 | 48 | 104 | 224 |
| 101 | Alessandro Blvd | Sycamore Canyon Blvd | I-215 SB Ramps | 54,338 | 393 | 386 | 45 | 0 | 0 | 73.5 | 68.8 | 83 | 180 | 387 | 835 |
| 102 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 17,888 | 154 | 186 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 85 | 184 | 397 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 103 | I-215 NB Ramps | north of Alessandro Blvd | 0 | 14,489 | 75 | 295 | 45 | 0 | 0 | 68.0 | 63.4 | 36 | 78 | 168 | 363 |
| 104 | Alessandro Blvd | I-215 NB Ramps | Old 215 Frontage Rd | 38,047 | 220 | 222 | 45 | 0 | 0 | 71.9 | 67.2 | 65 | 141 | 303 | 654 |
| 105 | I-215 SB Ramps | south of Alessandro Blvd | 0 | 18,736 | 162 | 266 | 45 | 0 | 0 | 68.8 | 64.2 | 41 | 88 | 190 | 410 |
| 106 | Old 215 Frontage Rd | Eucalyptus Ave | Alessandro Blvd | 8,318 | 13 | 24 | 45 | 0 | 0 | 65.1 | 60.5 | 23 | 49 | 107 | 231 |
| 107 | Alessandro Blvd | Old 215 Frontage Rd | Day St | 32,271 | 173 | 192 | 45 | 0 | 0 | 71.1 | 66.5 | 58 | 126 | 272 | 586 |
| 108 | Old 215 Frontage Rd | Alessandro Blvd | Cactus Ave | 11,746 | 127 | 77 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 65 | 140 | 302 |
| 109 | Day St | Cottonwood Ave | Alessandro Blvd | 16,640 | 163 | 0 | 35 | 0 | 0 | 65.3 | 60.7 | 23 | 51 | 110 | 238 |
| 110 | Alessandro Blvd | Day St | Elsworth St | 37,737 | 281 | 372 | 45 | 0 | 0 | 71.9 | 67.3 | 65 | 141 | 304 | 656 |
| 111 | Elsworth St | Cottonwood Ave | Alessandro Blvd | 10,367 | 36 | 0 | 35 | 0 | 0 | 63.0 | 58.4 | 16 | 36 | 77 | 167 |
| 112 | Alessandro Blvd | Elsworth St | Frederick St | 36,131 | 234 | 365 | 45 | 0 | 0 | 71.7 | 67.1 | 64 | 137 | 297 | 640 |
| 113 | Elsworth St | Alessandro Blvd | Cactus Ave | 14,365 | 71 | 122 | 45 | 0 | 0 | 67.8 | 63.2 | 35 | 75 | 163 | 352 |
| 114 | Frederick St | Cottonwood Ave | Alessandro Blvd | 19,583 | 52 | 112 | 45 | 0 | 0 | 68.9 | 64.3 | 41 | 89 | 192 | 415 |
| 115 | Alessandro Blvd | Frederick St | Graham St | 35,583 | 184 | 202 | 45 | 0 | 0 | 71.6 | 66.9 | 62 | 134 | 290 | 625 |
| 116 | Frederick St | Alessandro Blvd | Cactus Ave | 9,899 | 28 | 51 | 45 | 0 | 0 | 65.9 | 61.2 | 26 | 56 | 120 | 260 |
| 117 | Graham St | Cottonwood Ave | Alessandro Blvd | 12,063 | 29 | 12 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 63 | 137 | 296 |
| 118 | Alessandro Blvd | Graham St | Heacock St | 38,516 | 188 | 149 | 45 | 0 | 0 | 71.9 | 67.3 | 66 | 142 | 306 | 660 |
| 119 | Graham St | Alessandro Blvd | Cactus Ave | 18,773 | 89 | 123 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 86 | 186 | 402 |
| 120 | Heacock St | Cottonwood Ave | Alessandro Blvd | 17,432 | 61 | 47 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 87 | 188 | 405 |
| 121 | Alessandro Blvd | Heacock St | Indian St | 35,011 | 175 | 172 | 45 | 0 | 0 | 71.5 | 66.9 | 62 | 134 | 288 | 622 |
| 122 | Heacock St | Alessandro Blvd | Cactus Ave | 11,485 | 28 | 28 | 45 | 6 | 0 | 60.8 | 56.2 | 11 | 25 | 55 | 119 |
| 123 | Indian St | Cottonwood Ave | Alessandro Blvd | 15,740 | 59 | 47 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 76 | 165 | 356 |
| 124 | Alessandro Blvd | Indian St | Perris Blvd | 35,420 | 217 | 168 | 45 | 0 | 0 | 71.6 | 67.0 | 63 | 135 | 292 | 630 |
| 125 | Indian St | Alessandro Blvd | Cactus Ave | 14,804 | 50 | 24 | 45 | 6 | 0 | 61.6 | 57.0 | 13 | 29 | 63 | 135 |
| 126 | Alessandro Blvd | Perris Blvd | Kitching St | 29,472 | 188 | 147 | 45 | 0 | 0 | 71.1 | 66.5 | 58 | 125 | 269 | 581 |
| 127 | Perris Blvd | Alessandro Blvd | Cactus Ave | 33,842 | 249 | 922 | 45 | 6 | 0 | 65.3 | 60.7 | 24 | 51 | 111 | 240 |
| 128 | Kitching St | Cottonwood Ave | Alessandro Blvd | 12,283 | 36 | 12 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 65 | 140 | 302 |
| 129 | Alessandro Blvd | Kitching St | Lasselle St | 28,927 | 193 | 185 | 45 | 0 | 0 | 70.8 | 66.2 | 55 | 120 | 258 | 557 |
| 130 | Kitching St | Alessandro Blvd | Cactus Ave | 9,538 | 13 | 0 | 45 | 6 | 0 | 59.7 | 55.1 | 10 | 21 | 46 | 100 |
| 131 | Lasselle St | Cottonwood Ave | Alessandro Blvd | 7,769 | 7 | 12 | 45 | 0 | 0 | 64.8 | 60.1 | 22 | 47 | 102 | 220 |
| 133 | Lasselle St | Alessandro Blvd | Cactus Ave | 11,974 | 0 | 95 | 45 | 0 | 0 | 66.6 | 62.0 | 29 | 62 | 135 | 292 |
| 134 | Morrison St | Cottonwood Ave | Alessandro Blvd | 7,230 | 29 | 0 | 45 | 0 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 211 |
| 135 | Alessandro Blvd | Morrison St | Nason St | 16,365 | 136 | 407 | 50 | 6 | 0 | 64.1 | 59.5 | 19 | 42 | 92 | 198 |
| 136 | Nason St | Cottonwood Ave | Alessandro Blvd | 24,460 | 242 | 0 | 45 | 0 | 0 | 70.0 | 65.4 | 49 | 105 | 228 | 491 |
| 137 | Nason St | Alessandro Blvd | Cactus Ave | 29,615 | 274 | 0 | 45 | 0 | 0 | 70.8 | 66.2 | 55 | 119 | 257 | 555 |
| 138 | I-215 SB Ramps | north of Cactus Ave | 0 | 16,329 | 436 | 484 | 45 | 0 | 0 | 68.8 | 64.2 | 40 | 88 | 189 | 409 |
| 139 | Cactus Ave | Meridian Pkwy | I-215 SB Ramps | 22,103 | 280 | 399 | 45 | 0 | 0 | 69.7 | 65.1 | 47 | 101 | 218 | 470 |
| 140 | I-215 SB Ramps | south of Cactus Ave | 0 | 33,494 | 254 | 162 | 45 | 0 | 0 | 71.3 | 66.7 | 60 | 129 | 278 | 600 |
| 141 | Cactus Ave | I-215 NB Ramps | Elsworth St | 52,453 | 520 | 470 | 45 | 0 | 0 | 73.3 | 68.7 | 81 | 176 | 380 | 819 |
| 142 | I-215 NB Ramps | south of Cactus Ave | 0 | 15,977 | 243 | 284 | 45 | 0 | 0 | 68.4 | 63.7 | 38 | 82 | 177 | 382 |
| 143 | Cactus Ave | Elsworth St | Frederick St | 33,611 | 156 | 279 | 45 | 0 | 0 | 71.2 | 66.6 | 59 | 128 | 276 | 595 |
| 144 | Cactus Ave | Frederick St | Graham St | 39,735 | 223 | 223 | 45 | 0 | 0 | 72.0 | 67.4 | 66 | 143 | 309 | 667 |
| 145 | Cactus Ave | Graham St | Heacock St | 31,860 | 158 | 143 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 266 | 575 |
| 146 | Riverside Dr | Cactus Ave | Meyer Dr | 17,440 | 79 | 0 | 45 | 0 | 0 | 68.4 | 63.7 | 38 | 82 | 177 | 382 |
| 147 | Cactus Ave | Heacock St | Indian St | 21,751 | 91 | 52 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 207 | 446 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 148 | Heacock St | Cactus Ave | John F Kennedy Dr | 19,245 | 56 | 96 | 45 | 6 | 0 | 62.7 | 58.1 | 16 | 34 | 75 | 161 |
| 149 | Cactus Ave | Indian St | Perris Blvd | 18,241 | 91 | 32 | 45 | 0 | 0 | 68.6 | 64.0 | 39 | 86 | 185 | 399 |
| 150 | Indian St | Cactus Ave | John F Kennedy Dr | 13,118 | 40 | 12 | 45 | 6 | 0 | 61.1 | 56.5 | 12 | 26 | 58 | 125 |
| 151 | Cactus Ave | Perris Blvd | Kitching St | 18,950 | 94 | 0 | 45 | 0 | 0 | 68.8 | 64.2 | 41 | 88 | 190 | 410 |
| 152 | Perris Blvd | Cactus Ave | John F Kennedy Dr | 32,900 | 235 | 941 | 45 | 6 | 0 | 65.2 | 60.6 | 23 | 50 | 109 | 235 |
| 153 | Cactus Ave | Kitching St | Lasselle St | 15,015 | 102 | 0 | 45 | 0 | 0 | 67.9 | 63.3 | 35 | 76 | 165 | 356 |
| 154 | Kitching St | Cactus Ave | John F Kennedy Dr | 10,342 | 11 | 0 | 35 | 6 | 0 | 56.9 | 52.3 | 6 | 14 | 30 | 65 |
| 155 | Cactus Ave | Lasselle St | Morrison St | 14,741 | 140 | 0 | 45 | 0 | 0 | 68.0 | 63.4 | 36 | 78 | 168 | 362 |
| 156 | Lasselle St | Cactus Ave | John F Kennedy Dr | 20,978 | 23 | 0 | 45 | 0 | 0 | 69.1 | 64.5 | 43 | 92 | 199 | 430 |
| 157 | Cactus Ave | Morrison St | Nason St | 19,464 | 196 | 0 | 45 | 0 | 0 | 69.1 | 64.5 | 43 | 92 | 200 | 430 |
| 158 | E 6th St | Beaumont Ave | Pennsylvania Ave | 27,295 | 256 | 726 | 45 | 0 | 0 | 70.7 | 66.1 | 54 | 118 | 255 | 549 |
| 159 | Beaumont Ave | E 6th St | I-10 | 23,749 | 149 | 269 | 45 | 0 | 0 | 69.8 | 65.2 | 47 | 102 | 221 | 477 |
| 160 | Kitching St | Gentian Ave | Iris Ave | 7,899 | 8 | 12 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 47 | 103 | 222 |
| 161 | Iris Ave | Perris Blvd | Kitching St | 23,249 | 351 | 30 | 45 | 6 | 0 | 64.1 | 59.4 | 19 | 42 | 91 | 197 |
| 162 | Iris Ave | Kitching St | Lasselle St | 38,164 | 845 | 0 | 45 | 6 | 0 | 66.4 | 61.8 | 28 | 61 | 131 | 283 |
| 163 | Kitching St | Iris Ave | Ivory Ave | 24,725 | 504 | 0 | 45 | 6 | 0 | 64.4 | 59.8 | 20 | 45 | 97 | 209 |
| 164 | Lasselle St | Gentian Ave | Iris Ave | 19,863 | 9 | 0 | 45 | 0 | 0 | 68.8 | 64.2 | 41 | 88 | 190 | 411 |
| 165 | Iris Ave | Lasselle St | Nason St | 42,538 | 1,133 | 0 | 45 | 6 | 0 | 67.1 | 62.4 | 31 | 67 | 145 | 312 |
| 168 | Krameria Ave | Perris Blvd | Lasselle St | 7,614 | 110 | 0 | 45 | 6 | 0 | 59.2 | 54.6 | 9 | 20 | 43 | 94 |
| 169 | Krameria Ave | Kitching St | Lasselle St | 4,411 | 0 | 0 | 45 | 0 | 0 | 62.3 | 57.7 | 15 | 32 | 69 | 150 |
| 170 | Kitching St | Krameria Ave | Lurin Ave | 38,498 | 433 | 0 | 45 | 6 | 0 | 66.0 | 61.4 | 26 | 57 | 124 | 268 |
| 171 | Lasselle St | Cahuilla Dr | Krameria Ave | 26,999 | 266 | 0 | 45 | 6 | 0 | 64.5 | 59.9 | 21 | 45 | 98 | 212 |
| 172 | Lasselle St | Krameria Ave | Arroyo Park Dr | 17,168 | 262 | 12 | 45 | 6 | 0 | 62.8 | 58.2 | 16 | 34 | 75 | 162 |
| 173 | Oleander Ave | Perris Blvd | Lasselle St | 4,877 | 35 | 6 | 45 | 0 | 0 | 62.9 | 58.3 | 16 | 35 | 76 | 165 |
| 174 | Oleander Ave | Lasselle St | Lake Perris Dr | 1,738 | 4 | 0 | 45 | 0 | 0 | 58.3 | 53.7 | 8 | 17 | 38 | 81 |
| 177 | San Timoteo Canyon Rd | Alessandro Rd | Live Oak Canyon Rd | 16,632 | 450 | 681 | 45 | 0 | 0 | 70.8 | 66.2 | 55 | 120 | 259 | 559 |
| 178 | Live Oak Canyon Rd | San Timoteo Canyon Rd | I-10 | 4,244 | 25 | 51 | 45 | 0 | 0 | 63.6 | 59.0 | 18 | 39 | 85 | 184 |
| 179 | San Timoteo Canyon Rd | Live Oak Canyon Rd | Redlands Blvd | 19,195 | 473 | 714 | 45 | 0 | 0 | 71.3 | 66.7 | 60 | 129 | 279 | 602 |
| 180 | San Timoteo Canyon Rd | Redlands Blvd | Woodhouse Rd | 3,610 | 43 | 102 | 45 | 0 | 0 | 61.8 | 57.2 | 14 | 30 | 64 | 140 |
| 181 | Potrero Blvd | north of SR 60 WB Ramps | 0 | 40,260 | 747 | 635 | 45 | 0 | 0 | 72.6 | 68.0 | 73 | 158 | 340 | 734 |
| 182 | SR 60 WB Onramp | west of Potrero Blvd | 0 | 28,046 | 764 | 757 | 45 | 0 | 0 | 71.5 | 66.8 | 61 | 132 | 285 | 615 |
| 183 | SR 60 WB Offramp | east of Potrero Blvd | 0 | 4,151 | 80 | 72 | 45 | 0 | 0 | 62.6 | 58.0 | 15 | 34 | 73 | 157 |
| 184 | SR 60 EB Offramp | west of Potrero Blvd | 0 | 26,678 | 726 | 761 | 45 | 0 | 0 | 71.4 | 66.8 | 60 | 131 | 282 | 608 |
| 185 | SR 60 EB Onramp | east of Potrero Blvd | 0 | 12,458 | 228 | 172 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 151 | 325 |
| 186 | Potrero Blvd | south of SR 60 EB Ramps | W 4th St | 31,612 | 565 | 507 | 45 | 0 | 0 | 71.5 | 66.9 | 62 | 133 | 288 | 621 |
| 190 | Gilman Springs Rd | Jack Rabbit Trail | Bridge St | 28,007 | 614 | 815 | 45 | 0 | 0 | 71.8 | 67.2 | 65 | 140 | 302 | 652 |
| 191 | Gilman Springs Rd | Bridge St | Beaumont Ave | 22,963 | 488 | 577 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 266 | 573 |
| 192 | Bridge St | Gilman Springs Rd | Marvin Rd | 8,652 | 129 | 320 | 45 | 0 | 0 | 66.4 | 61.7 | 28 | 60 | 130 | 281 |
| 194 | Crescent Ave | West of Alessandro Rd | 0 | 3,153 | 77 | 1 | 35 | 0 | 0 | 58.8 | 54.2 | 8 | 18 | 40 | 88 |
| 195 | Crescent Ave | Alessandro Rd | Center St | 7,660 | 152 | 1 | 45 | 0 | 0 | 65.3 | 60.7 | 23 | 51 | 111 | 239 |
| 196 | Alessandro Rd | Crescent Ave | Sunset Dr | 7,481 | 228 | 0 | 45 | 0 | 0 | 65.5 | 60.9 | 24 | 53 | 115 | 248 |
| 198 | Sunset Dr | Crown St | Alessandro Rd | 371 | 6 | 0 | 35 | 0 | 0 | 49.1 | 44.5 | 1 | 4 | 9 | 19 |
| 199 | Sunset Dr | Alessandro Rd | Cameo Dr | 1,307 | 31 | 0 | 35 | 0 | 0 | 54.9 | 50.3 | 4 | 10 | 22 | 48 |
| 200 | Alessandro Rd | Sunset Dr | San Timoteo Canyon Rd | 8,456 | 264 | 0 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 125 | 270 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205 | Reche Canyon Rd | Keissel Rd | Reche Vista Dr | 31,548 | 462 | 0 | 45 | 0 | 0 | 71.3 | 66.7 | 60 | 129 | 278 | 600 |
| 206 | Reche Canyon Rd | Reche Vista Dr | High Country Dr | 9,500 | 351 | 0 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 64 | 139 | 300 |
| 207 | Reche Vista Dr | Heacock St | Reche Canyon Rd | 23,541 | 113 | 0 | 35 | 0 | 0 | 66.6 | 62.0 | 29 | 62 | 135 | 291 |
| 215 | Mission Grove Pkwy | Cannon Rd | Alessandro Blvd | 10,620 | 14 | 13 | 35 | 0 | 0 | 63.0 | 58.4 | 16 | 36 | 78 | 168 |
| 216 | Alessandro Blvd | Trautwein Rd | Vista Grande Dr | 63,009 | 398 | 437 | 45 | 0 | 0 | 74.0 | 69.4 | 91 | 196 | 423 | 912 |
| 217 | Mission Grove Pkwy | Alessandro Blvd | Northrop Dr | 17,983 | 42 | 56 | 45 | 6 | 0 | 62.5 | 57.9 | 15 | 33 | 72 | 155 |
| 218 | Alessandro Blvd | Canyon Crest Dr | Trautwein Rd | 70,711 | 412 | 447 | 45 | 0 | 0 | 74.5 | 69.9 | 98 | 211 | 455 | 982 |
| 219 | Trautwein Rd | Alessandro Blvd | Orange Terrace Pkwy | 10,701 | 0 | 1 | 45 | 0 | 0 | 66.1 | 61.5 | 27 | 58 | 126 | 272 |
| 221 | Canyon Crest Dr | Central Ave | Alessandro Blvd | 21,298 | 84 | 119 | 45 | 0 | 0 | 69.2 | 64.6 | 43 | 94 | 203 | 437 |
| 223 | Canyon Crest Dr | Alessandro Blvd | Sandtrack Rd | 14,962 | 229 | 207 | 35 | 6 | 0 | 59.1 | 54.5 | 9 | 19 | 43 | 92 |
| 225 | Via Vista Dr | Alessandro Blvd | Canyon Crest Dr | 3,519 | 4 | 2 | 45 | 0 | 0 | 61.3 | 56.7 | 12 | 27 | 60 | 129 |
| 226 | Alessandro Blvd | Century Ave | Canyon Crest Dr | 52,882 | 154 | 190 | 45 | 0 | 0 | 73.2 | 68.5 | 79 | 172 | 370 | 798 |
| 227 | Via Vista Dr | Alessandro Blvd | Canyon Hill Dr | 4,747 | 6 | 4 | 45 | 0 | 0 | 62.6 | 58.0 | 15 | 34 | 73 | 158 |
| 229 | Century Ave | Alessandro Blvd | Claridge Dr | 2,356 | 2 | 2 | 45 | 0 | 0 | 59.6 | 54.9 | 9 | 21 | 46 | 99 |
| 230 | Century Ave | Trafalgar Ave | Alessandro Blvd | 2,846 | 4 | 0 | 45 | 0 | 0 | 60.4 | 55.8 | 11 | 24 | 52 | 112 |
| 231 | Alessandro Blvd | Victoria Ave | Arlington Ave/Chicago Ave | 40,324 | 172 | 263 | 45 | 0 | 0 | 72.1 | 67.4 | 67 | 145 | 313 | 675 |
| 232 | Chicago Ave | Alessandro Blvd | Central Ave | 44,172 | 395 | 1,373 | 45 | 0 | 0 | 72.9 | 68.3 | 76 | 165 | 355 | 766 |
| 233 | Alessandro Blvd | Arlington Ave/Chicago Ave | Century Ave | 55,913 | 178 | 216 | 45 | 0 | 0 | 73.4 | 68.8 | 83 | 179 | 386 | 832 |
| 236 | Victoria Ave | Central Ave | Arlington Ave | 8,402 | 44 | 17 | 45 | 0 | 0 | 65.3 | 60.7 | 23 | 51 | 111 | 239 |
| 237 | Arlington Ave | Victoria Ave | Alessandro Blvd | 51,249 | 462 | 1,403 | 45 | 0 | 0 | 73.5 | 68.9 | 83 | 180 | 389 | 839 |
| 238 | Victoria Ave | Arlington Ave | Maude St | 12,718 | 32 | 16 | 45 | 0 | 0 | 67.1 | 62.4 | 31 | 67 | 145 | 313 |
| 239 | Arlington Ave | Maude St | Victoria Ave | 50,882 | 469 | 1,387 | 45 | 0 | 0 | 73.4 | 68.8 | 83 | 179 | 387 | 835 |
| 240 | Durango Rd | Laramie Rd | Arlington Ave | 3,396 | 28 | 34 | 45 | 0 | 0 | 61.4 | 56.8 | 13 | 28 | 60 | 131 |
| 241 | Horace St | Arlington Ave | Victoria Ave | 5,930 | 14 | 19 | 45 | 0 | 0 | 63.6 | 59.0 | 18 | 39 | 85 | 184 |
| 242 | Arlington Ave | Magnolia Ave | SR-91 WB On-Ramps | 51,419 | 385 | 1,035 | 45 | 0 | 0 | 73.4 | 68.8 | 82 | 178 | 384 | 827 |
| 243 | Riverside Dr | SR-91 WB Off-Ramps | Arlington Ave | 13,011 | 39 | 33 | 45 | 0 | 0 | 67.1 | 62.5 | 31 | 67 | 145 | 314 |
| 244 | SR-91 WB On-Ramps | Arlington Ave | SR-91 | 19,956 | 120 | 430 | 45 | 0 | 0 | 69.0 | 64.4 | 42 | 91 | 196 | 424 |
| 245 | SR-91 EB On-Ramps | SR-91 | Arlington Ave | 20,744 | 24 | 124 | 45 | 0 | 0 | 69.0 | 64.4 | 42 | 91 | 196 | 423 |
| 246 | Indiana Ave | Arlington Ave | SR-91 EB Off-Ramps | 20,815 | 217 | 926 | 45 | 0 | 0 | 70.0 | 65.4 | 49 | 106 | 228 | 493 |
| 247 | Arlington Ave | SR-91 WB On-Ramps | SR-91 EB On-Ramps | 56,074 | 361 | 598 | 45 | 0 | 0 | 73.5 | 68.9 | 84 | 182 | 393 | 847 |
| 250 | Country Club Dr | Chicago Ave | Canyon Crest Dr | 6,799 | 47 | 84 | 35 | 0 | 0 | 61.4 | 56.8 | 13 | 28 | 61 | 131 |
| 252 | Central Ave | Chicago Ave | Canyon Crest Dr | 32,555 | 368 | 1,326 | 45 | 0 | 0 | 71.8 | 67.2 | 65 | 140 | 302 | 652 |
| 254 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 26,175 | 112 | 140 | 45 | 0 | 0 | 70.1 | 65.5 | 50 | 108 | 233 | 503 |
| 256 | Canyon Crest Dr | Central Ave | Country Club Dr | 28,438 | 144 | 218 | 45 | 0 | 0 | 70.5 | 65.9 | 53 | 115 | 247 | 534 |
| 258 | El Cerrito Dr | Canyon Crest Dr | Central Ave | 7,883 | 17 | 32 | 45 | 0 | 0 | 64.9 | 60.2 | 22 | 48 | 103 | 223 |
| 260 | Central Ave | Canyon Crest Dr | I-215 | 33,809 | 382 | 1,341 | 45 | 0 | 0 | 71.8 | 67.2 | 64 | 139 | 301 | 648 |
| 261 | Lochmoor Dr | Central Ave | Fair Isle Dr | 5,782 | 49 | 98 | 35 | 6 | 0 | 54.9 | 50.2 | 4 | 10 | 22 | 48 |
| 262 | Sycamore Canyon Blvd | Central Ave | College Blvd | 18,193 | 127 | 173 | 35 | 0 | 0 | 65.7 | 61.0 | 25 | 54 | 117 | 252 |
| 263 | Central Ave | Sycamore Canyon Blvd | I-215 SB Ramps | 25,670 | 326 | 1,152 | 45 | 0 | 0 | 70.7 | 66.1 | 55 | 118 | 256 | 551 |
| 264 | I-215 SB Off-Ramps | I-215 | Central Ave | 5,513 | 71 | 63 | 45 | 0 | 0 | 64.0 | 59.3 | 19 | 41 | 90 | 194 |
| 265 | Central Ave | I-215 SB Ramps | I-215 NB Ramps | 23,947 | 292 | 799 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 240 | 517 |
| 266 | I-215 SB On-Ramps | Central Ave | I-215 | 35,205 | 574 | 2,033 | 45 | 0 | 0 | 72.4 | 67.8 | 71 | 154 | 332 | 716 |
| 267 | Watkins Dr | I-215 NB On-Ramp | I-215 NB Off-Ramp | 19,191 | 191 | 229 | 45 | 0 | 0 | 69.1 | 64.5 | 43 | 92 | 199 | 430 |
| 268 | I-215 NB Off-Ramp | Watkins Dr | I-215 | 12,806 | 215 | 542 | 45 | 0 | 0 | 68.5 | 63.9 | 38 | 83 | 180 | 389 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 269 | Martin Luther King Blvd | SR-91 | Chicago Ave | 37,757 | 241 | 665 | 45 | 0 | 0 | 72.2 | 67.6 | 69 | 148 | 320 | 691 |
| 270 | Chicago Ave | University Ave | Martin Luther King Blvd | 28,021 | 38 | 58 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 113 | 243 | 524 |
| 271 | Martin Luther King Blvd | Chicago Ave | Iowa Ave | 33,472 | 239 | 657 | 45 | 0 | 0 | 71.8 | 67.1 | 64 | 139 | 299 | 645 |
| 272 | Chicago Ave | Martin Luther King Blvd | Central Ave | 28,995 | 26 | 33 | 45 | 0 | 0 | 70.5 | 65.8 | 52 | 113 | 245 | 528 |
| 273 | Iowa Ave | University Ave | Martin Luther King Blvd | 18,452 | 61 | 56 | 45 | 0 | 0 | 68.8 | 64.2 | 40 | 87 | 189 | 407 |
| 274 | Martin Luther King Blvd | Iowa Ave | Canyon Crest Dr | 43,501 | 295 | 708 | 45 | 0 | 0 | 73.0 | 68.4 | 78 | 168 | 362 | 780 |
| 275 | Canyon Crest Dr | Campus Dr | Martin Luther King Blvd | 17,704 | 83 | 71 | 45 | 0 | 0 | 68.5 | 63.9 | 38 | 83 | 180 | 389 |
| 276 | Martin Luther King Blvd | Canyon Crest Dr | I-215 SB Ramps | 37,288 | 253 | 685 | 45 | 0 | 0 | 72.1 | 67.5 | 68 | 146 | 316 | 681 |
| 277 | Canyon Crest Dr | Martin Luther King Blvd | Central Ave | 32,526 | 94 | 125 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 124 | 267 | 576 |
| 278 | I-215 SB Off-Ramp | I-215 | Martin Luther King Blvd | 9,372 | 22 | 46 | 45 | 0 | 0 | 65.6 | 61.0 | 25 | 54 | 116 | 250 |
| 279 | Martin Luther King Blvd | I-215 SB Ramps | I-215 NB Ramps | 14,576 | 119 | 318 | 45 | 0 | 0 | 68.5 | 63.9 | 39 | 84 | 182 | 392 |
| 280 | I-215 SB On-Ramp | Martin Luther King Blvd | I-215 | 37,173 | 262 | 786 | 45 | 0 | 0 | 72.0 | 67.4 | 67 | 145 | 312 | 673 |
| 281 | I-215 NB On-Ramp | I-215 | Martin Luther King Blvd | 12,994 | 32 | 92 | 45 | 0 | 0 | 67.0 | 62.4 | 31 | 67 | 144 | 312 |
| 282 | I-215 NB Off-Ramp | Martin Luther King Blvd | I-215 | 16,110 | 207 | 544 | 45 | 0 | 0 | 69.5 | 64.9 | 45 | 98 | 211 | 455 |
| 283 | SR-60 EB Off-Ramp | SR-60 | Heacock St | 22,538 | 24 | 24 | 45 | 0 | 0 | 69.4 | 64.8 | 44 | 96 | 207 | 447 |
| 284 | SR-60 EB On-Ramp | Heacock St | SR-60 | 11,328 | 87 | 107 | 45 | 0 | 0 | 67.2 | 62.6 | 31 | 68 | 148 | 318 |
| 285 | Heacock St | SR-60 EB Ramps | Sunnymead Blvd | 26,656 | 48 | 102 | 45 | 0 | 0 | 70.4 | 65.8 | 52 | 113 | 244 | 527 |
| 286 | Perris Blvd | Hemlock Ave | SR-60 WB Ramps | 40,892 | 158 | 17 | 45 | 0 | 0 | 72.1 | 67.5 | 67 | 145 | 314 | 677 |
| 287 | Perris Blvd | SR-60 WB Ramps | Sunnymead Blvd | 42,970 | 242 | 484 | 45 | 0 | 0 | 72.9 | 68.3 | 77 | 166 | 359 | 773 |
| 288 | Sunnymead Blvd | SR-60 WB Off-Ramp | Perris Blvd | 23,959 | 176 | 291 | 45 | 0 | 0 | 69.8 | 65.2 | 48 | 103 | 223 | 480 |
| 289 | Sunnymead Blvd | Perris Blvd | SR-60 WB On-Ramp | 23,744 | 136 | 476 | 45 | 0 | 0 | 70.3 | 65.7 | 51 | 111 | 240 | 518 |
| 290 | Perris Blvd | Sunnymead Blvd | Fir Ave | 32,861 | 259 | 985 | 45 | 0 | 0 | 71.2 | 66.6 | 59 | 127 | 275 | 594 |
| 294 | Via Del Lago | South of Iris Ave | 0 | 828 | 0 | 0 | 45 | 0 | 0 | 55.0 | 50.4 | 4 | 10 | 22 | 49 |
| 301 | John F. Kennedy Dr | Indian St | Perris Blvd | 9,487 | 10 | 0 | 45 | 0 | 0 | 65.6 | 61.0 | 25 | 54 | 116 | 250 |
| 302 | John F. Kennedy Dr | Perris Blvd | Kitching St | 9,980 | 13 | 0 | 45 | 0 | 0 | 65.9 | 61.3 | 26 | 56 | 122 | 263 |
| 303 | Perris Blvd | John F. Kennedy Dr | Iris Ave | 33,217 | 293 | 980 | 45 | 0 | 0 | 71.3 | 66.7 | 60 | 129 | 278 | 600 |
| 304 | Iris Ave | Indian St | Perris Blvd | 18,075 | 52 | 47 | 45 | 0 | 0 | 68.5 | 63.9 | 39 | 84 | 181 | 390 |
| 306 | Perris Blvd | Iris Ave | Krameria Ave | 37,293 | 520 | 955 | 45 | 6 | 0 | 67.1 | 62.4 | 31 | 67 | 145 | 313 |
| 307 | Perris Blvd | Krameria Ave | Harley Know Blvd | 34,906 | 483 | 931 | 45 | 6 | 0 | 66.3 | 61.7 | 27 | 60 | 129 | 278 |
| 324 | Ramona Expy | Warren Rd | Sanderson Ave | 18,738 | 90 | 278 | 45 | 0 | 0 | 68.8 | 64.1 | 40 | 87 | 188 | 406 |
| 325 | Sanderson Ave | Gilman Springs Rd | Ramona Expy | 76,436 | 1,389 | 4,363 | 45 | 0 | 0 | 75.6 | 70.9 | 115 | 249 | 536 | 1156 |
| 326 | Ramona Expy | Sanderson Ave | State St | 29,920 | 345 | 518 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 267 | 575 |
| 327 | Sanderson Ave | Ramona Expy | Ramona Blvd | 64,034 | 1,220 | 3,666 | 45 | 0 | 0 | 74.8 | 70.2 | 103 | 222 | 479 | 1033 |
| 340 | Alessandro Blvd | South of San Timoteo Canyon R | 0 | 366 | 0 | 0 | 45 | 0 | 0 | 51.5 | 46.8 | 2 | 6 | 13 | 28 |
| 351 | Live Oak Canyon Rd | South of San Timoteo Canyon R | 0 | 616 | 2 | 2 | 45 | 0 | 0 | 53.8 | 49.2 | 4 | 8 | 19 | 41 |
| 358 | Gilman Springs Rd | Bridge St | SR-79 SB Ramps | 24,282 | 481 | 577 | 45 | 0 | 0 | 71.2 | 66.6 | 59 | 127 | 274 | 591 |
| 359 | SR-79 SB Off-Ramp | SR-79 | Gilman Springs Rd | 8,992 | 44 | 80 | 45 | 0 | 0 | 65.6 | 61.0 | 24 | 53 | 115 | 249 |
| 360 | Gilman Springs Rd | SR-79 SB Ramps | SR-79 NB Ramps | 18,632 | 306 | 353 | 45 | 0 | 0 | 69.7 | 65.1 | 47 | 101 | 219 | 473 |
| 361 | SR-79 SB On-Ramp | Gilman Springs Rd | SR-79 | 21,243 | 515 | 769 | 45 | 0 | 0 | 70.7 | 66.1 | 54 | 118 | 254 | 548 |
| 362 | SR-79 NB On-Ramp | SR-79 | Gilman Springs Rd | 11,500 | 116 | 164 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 64 | 138 | 298 |
| 363 | Gilman Springs Rd | SR-79 NB Ramps | Record Rd | 17,873 | 165 | 100 | 45 | 0 | 0 | 69.1 | 64.5 | 43 | 93 | 200 | 431 |
| 364 | SR-79 NB Off-Ramp | Gilman Springs Rd | SR-79 | 13,051 | 373 | 514 | 45 | 0 | 0 | 69.0 | 64.4 | 42 | 90 | 195 | 420 |
| 365 | Alessandro Blvd | Sycamore Canyon Blvd | Vista Grande Dr | 62,538 | 430 | 416 | 45 | 0 | 0 | 74.0 | 69.4 | 91 | 196 | 423 | 912 |
| 366 | Sycamore Canyon Blvd | Eastridge Ave | Alessandro Blvd | 14,496 | 93 | 114 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 158 | 341 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 367 | Meridian Pkwy | Alessandro Blvd | Cactus Ave | 7,653 | 36 | 73 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 47 | 102 | 221 |
| 375 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | 3rd St | 7,876 | 107 | 313 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 61 | 133 | 287 |
| 376 | 3rd St | Marvin Rd | Mid County Pkwy WB Ran | 10,131 | 152 | 319 | 45 | 0 | 0 | 67.0 | 62.3 | 30 | 66 | 143 | 308 |
| 377 | Mid County Pkwy WB Off-Ramp | Mid County Pkwy | 3rd St | 1,416 | 22 | 24 | 45 | 0 | 0 | 58.5 | 53.9 | 8 | 18 | 39 | 84 |
| 378 | 3rd St | Mid County Pkwy EB Ramps | Mid County Pkwy WB Ran | 6,099 | 94 | 159 | 45 | 0 | 0 | 64.6 | 60.0 | 21 | 46 | 99 | 215 |
| 379 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | 3rd St | 7,024 | 96 | 265 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 54 | 117 | 253 |
| 380 | Mid County Pkwy EB On-Ramp | 3rd St | Mid County Pkwy | 1,644 | 20 | 18 | 45 | 0 | 0 | 58.4 | 53.7 | 8 | 17 | 38 | 82 |
| 381 | 3rd St | Mid County Pkwy EB Ramps | MM Blvd | 2,688 | 47 | 32 | 45 | 0 | 0 | 60.9 | 56.3 | 12 | 26 | 56 | 122 |
| 386 | Harley Know Blvd | Indian St | Perris Blvd | 12,087 | 236 | 325 | 45 | 0 | 0 | 67.6 | 63.0 | 34 | 73 | 158 | 341 |
| 387 | Perris Blvd | Krameria Ave | Harley Know Blvd | 39,754 | 502 | 1,175 | 45 | 6 | 0 | 66.7 | 62.0 | 29 | 63 | 136 | 294 |
| 388 | Krameria Ave | Lasselle St | Spirit Rd | 1,947 | 0 | 0 | 45 | 0 | 0 | 58.7 | 54.1 | 8 | 18 | 40 | 86 |
| 389 | El Cerrito Dr | South of Central Ave | 0 | 4,608 | 22 | 30 | 45 | 0 | 0 | 62.6 | 58.0 | 15 | 34 | 73 | 158 |
| 390 | Ramona Expy | Webster Ave | Indian St | 38,106 | 549 | 1,166 | 45 | 0 | 0 | 72.1 | 67.5 | 68 | 147 | 317 | 683 |
| 392 | Ramona Expy | Indian St | Perris Blvd | 27,434 | 220 | 577 | 45 | 0 | 0 | 70.7 | 66.1 | 54 | 117 | 253 | 546 |
| 393 | Indian St | Ramona Expy | Morgan St | 20,366 | 561 | 835 | 45 | 0 | 0 | 70.0 | 65.4 | 49 | 106 | 229 | 493 |
| 394 | Perris Blvd | Harley Know Blvd | Ramona Expy | 43,911 | 709 | 909 | 45 | 0 | 0 | 73.1 | 68.5 | 79 | 171 | 370 | 797 |
| 396 | Perris Blvd | Ramona Expy | Rider St | 32,383 | 441 | 498 | 45 | 0 | 0 | 71.6 | 67.0 | 63 | 135 | 292 | 630 |
| 397 | Ramona Expy | Perris Blvd | Evans Rd | 24,430 | 105 | 309 | 45 | 0 | 0 | 69.9 | 65.2 | 48 | 103 | 223 | 481 |
| 398 | Evans Rd | Marbella Gate | Ramona Expy | 25,469 | 310 | 11 | 45 | 6 | 0 | 64.3 | 59.7 | 20 | 44 | 95 | 205 |
| 399 | Ramona Expy | Evans Rd | Rider St | 20,869 | 68 | 225 | 55 | 6 | 0 | 65.6 | 61.0 | 25 | 54 | 116 | 251 |
| 400 | Evans Rd | Ramona Expy | Rider St | 27,167 | 230 | 17 | 45 | 0 | 0 | 70.5 | 65.8 | 52 | 113 | 244 | 527 |
| 401 | Morgan St | Indian St | Perris Blvd | 784 | 35 | 71 | 45 | 0 | 0 | 56.9 | 52.2 | 6 | 14 | 30 | 65 |
| 402 | Morgan St | Perris Blvd | Silver Creek Industries | 853 | 24 | 0 | 45 | 0 | 0 | 55.9 | 51.3 | 5 | 12 | 26 | 56 |
| 404 | Morgan St | Morgan Park | Evans Rd | 3,238 | 12 | 0 | 45 | 0 | 0 | 61.0 | 56.4 | 12 | 26 | 57 | 124 |
| 405 | Morgan St | Evans Rd | Bradley Rd | 3,164 | 0 | 12 | 45 | 0 | 0 | 60.8 | 56.2 | 12 | 25 | 55 | 120 |
| 406 | Ironwood Ave | East of Thedore St | 0 | 5,385 | 40 | 28 | 45 | 0 | 0 | 63.5 | 58.9 | 18 | 38 | 84 | 180 |
| 407 | Rider St | Indian St | Perris Blvd | 10,230 | 83 | 76 | 45 | 0 | 0 | 66.2 | 61.5 | 27 | 58 | 126 | 272 |
| 408 | Rider St | Perris Blvd | Redlands Ave | 8,264 | 0 | 0 | 45 | 0 | 0 | 65.0 | 60.4 | 22 | 49 | 105 | 228 |
| 409 | Ironwood Ave | Nason St | Moreno Beach Dr | 7,356 | 63 | 0 | 45 | 0 | 0 | 64.8 | 60.2 | 22 | 47 | 102 | 221 |
| 410 | Rider St | Wilson Ave | Evans Rd | 11,776 | 0 | 12 | 45 | 0 | 0 | 66.5 | 61.9 | 28 | 62 | 134 | 288 |
| 411 | Rider St | Evans Rd | Ramona Expy | 6,149 | 0 | 24 | 45 | 0 | 0 | 63.7 | 59.1 | 18 | 40 | 86 | 187 |
| 412 | Maude St | North of Arlington Ave | 0 | 212 | 0 | 0 | 45 | 0 | 0 | 49.1 | 44.5 | 1 | 4 | 9 | 19 |
| 413 | Placentia Ave | Indian St | Perris Blvd | 16,487 | 254 | 392 | 45 | 0 | 0 | 68.6 | 63.9 | 39 | 85 | 183 | 394 |
| 414 | Placentia Ave | Perris Blvd | Redlands Ave | 12,326 | 38 | 133 | 45 | 0 | 0 | 66.8 | 62.2 | 30 | 65 | 140 | 302 |
| 415 | Perris Blvd | Placentia Ave | Orange Ave | 38,444 | 559 | 708 | 45 | 0 | 0 | 72.3 | 67.7 | 70 | 151 | 325 | 701 |
| 416 | Mid County Pkwy WB On-Ramp | Mid County Pkwy | Perris Blvd | 28,003 | 451 | 806 | 45 | 0 | 0 | 70.9 | 66.3 | 56 | 122 | 262 | 566 |
| 417 | Mid County Pkwy WB Off-Ramp | Perris Blvd | Mid County Pkwy | 16,832 | 222 | 359 | 45 | 0 | 0 | 68.5 | 63.9 | 39 | 84 | 181 | 390 |
| 419 | Mid County Pkwy EB Off-Ramp | Mid County Pkwy | Perris Blvd | 18,988 | 296 | 613 | 45 | 0 | 0 | 69.5 | 64.9 | 45 | 98 | 211 | 456 |
| 420 | Mid County Pkwy EB On-Ramp | Perris Blvd | Mid County Pkwy | 17,676 | 246 | 398 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 87 | 188 | 405 |
| 421 | Via Del Lago | South of Iris Ave | 0 | 378 | 0 | 0 | 45 | 0 | 0 | 51.6 | 47.0 | 2 | 6 | 13 | 29 |
| 424 | Perris Blvd | Alessandro Blvd | Cottonwood Ave | 29,606 | 252 | 900 | 45 | 6 | 0 | 64.8 | 60.2 | 22 | 47 | 102 | 221 |
| 425 | Mid County Pkwy WB On-Ramp | West of Evan | 0 | 11,806 | 66 | 86 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 63 | 137 | 296 |
| 426 | Mid County Pkwy WB Off-Ramp | East of Evan | 0 | 6,672 | 66 | 143 | 45 | 0 | 0 | 64.7 | 60.1 | 21 | 46 | 101 | 217 |
| 427 | Day St | south of Alessandro Blvd | 0 | 8,414 | 22 | 59 | 45 | 0 | 0 | 65.2 | 60.6 | 23 | 50 | 108 | 234 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 428 | Mid County Pkwy EB Off-Ramp | West of Evan | 0 | 11,720 | 68 | 98 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 63 | 137 | 295 |
| 429 | Mid County Pkwy EB On-Ramp | East of Evan | 0 | 7,519 | 78 | 161 | 45 | 0 | 0 | 65.4 | 60.7 | 24 | 52 | 112 | 241 |
| 430 | Alessandro Blvd | SR-215 NB Ramp | SR-215 SB Ramp | 44,533 | 312 | 286 | 45 | 0 | 0 | 72.6 | 67.9 | 72 | 157 | 338 | 728 |
| 431 | Placentia Ave | Water Ave | Evans Rd | 2,524 | 14 | 19 | 35 | 0 | 0 | 57.1 | 52.5 | 6 | 14 | 31 | 68 |
| 432 | Placentia Ave | Evans Rd | El Nido Ave | 956 | 4 | 6 | 35 | 0 | 0 | 52.7 | 48.1 | 3 | 7 | 16 | 34 |
| 433 | Evans Rd | Rider St | Orange Ave | 22,405 | 273 | 135 | 45 | 0 | 0 | 69.8 | 65.1 | 47 | 102 | 220 | 474 |
| 434 | Orange Ave | Wilson Ave | Evans Rd | 4,852 | 0 | 12 | 45 | 0 | 0 | 62.7 | 58.1 | 15 | 34 | 74 | 159 |
| 435 | Orange Ave | Evans Rd | Foothill Dr | 4,360 | 11 | 37 | 35 | 0 | 0 | 59.2 | 54.6 | 9 | 20 | 43 | 93 |
| 436 | Elsworth St | south of Cactus Ave | 0 | 41,311 | 415 | 36 | 45 | 0 | 0 | 72.3 | 67.6 | 69 | 150 | 323 | 697 |
| 441 | Nuevo Rd | Wilson Ave | Evans Rd | 13,924 | 24 | 59 | 45 | 0 | 0 | 67.3 | 62.7 | 32 | 70 | 151 | 325 |
| 442 | Evans Rd | Orange Ave | Nuevo Rd | 21,034 | 248 | 145 | 45 | 0 | 0 | 69.5 | 64.9 | 45 | 98 | 211 | 455 |
| 443 | Nuevo Rd | Evans Rd | Foothill Dr | 12,765 | 36 | 66 | 45 | 0 | 0 | 67.0 | 62.3 | 30 | 66 | 143 | 308 |
| 444 | Evans Rd | Nuevo Rd | San Jacinto Ave | 17,081 | 244 | 120 | 45 | 6 | 0 | 62.7 | 58.1 | 16 | 34 | 74 | 160 |
| 452 | San Jacinto Ave | West of Evan Rd | 0 | 2,410 | 12 | 12 | 45 | 0 | 0 | 59.8 | 55.2 | 10 | 22 | 47 | 102 |
| 453 | Evans Rd | North of San Jancito Ave | 0 | 15,455 | 228 | 110 | 45 | 0 | 0 | 68.3 | 63.7 | 37 | 81 | 175 | 377 |
| 454 | San Jacinto Ave | East of Evan Rd | 0 | 4,238 | 37 | 14 | 45 | 0 | 0 | 62.4 | 57.8 | 15 | 33 | 71 | 153 |
| 455 | Evans Rd | South of San Jancito Ave | 0 | 12,492 | 199 | 106 | 45 | 0 | 0 | 67.4 | 62.8 | 33 | 71 | 154 | 332 |
| 458 | Nason St | South of Cactus Ave | 0 | 16,039 | 223 | 0 | 45 | 0 | 0 | 68.3 | 63.6 | 37 | 81 | 175 | 377 |
| 464 | Quincy | South of Eucalyptus | 0 | 3,259 | 39 | 0 | 45 | 0 | 0 | 61.5 | 56.8 | 13 | 28 | 61 | 132 |
| 477 | Ellis Ave | West of Evan Rd | 0 | 4,728 | 38 | 43 | 45 | 0 | 0 | 63.5 | 58.9 | 18 | 39 | 84 | 182 |
| 478 | Evans Rd | North of Ellis Ave | 0 | 16,505 | 275 | 241 | 45 | 0 | 0 | 68.7 | 64.1 | 40 | 87 | 187 | 404 |
| 479 | Oliver St | South of Irris Ave | 0 | 2,644 | 12 | 0 | 45 | 0 | 0 | 60.2 | 55.6 | 10 | 23 | 50 | 108 |
| 480 | Ellis Ave | Evans Rd | SR-215 | 10,913 | 163 | 94 | 45 | 0 | 0 | 66.7 | 62.1 | 29 | 63 | 137 | 295 |
| 481 | SR-215 SB Off-ramp | SR-215 | Ellis Ave | 5,446 | 52 | 104 | 45 | 0 | 0 | 63.5 | 58.9 | 18 | 39 | 84 | 181 |
| 482 | Ellis Ave | East of SR-215 | 0 | 7,497 | 65 | 93 | 45 | 0 | 0 | 64.9 | 60.2 | 22 | 48 | 103 | 223 |
| 483 | SR-215 SB On-ramp | Ellis Ave | SR-215 | 18,326 | 220 | 94 | 45 | 0 | 0 | 68.8 | 64.2 | 41 | 88 | 190 | 410 |
| 484 | SR-215 NB On-ramp | Ellis Ave | SR-215 | 2,602 | 22 | 44 | 45 | 0 | 0 | 60.3 | 55.6 | 11 | 23 | 51 | 110 |
| 485 | SR-215 NB Off-ramp | SR-215 | Ellis Ave | 12,584 | 220 | 108 | 45 | 0 | 0 | 67.4 | 62.8 | 32 | 70 | 152 | 329 |
| 488 | Nason St | North of Iris Ave | 0 | 16,039 | 223 | 0 | 45 | 0 | 0 | 68.3 | 63.6 | 37 | 81 | 175 | 377 |
| 494 | Evans Rd | North of Harley Knox Blvd | 0 | 17,263 | 308 | 0 | 45 | 6 | 0 | 62.9 | 58.2 | 16 | 35 | 76 | 164 |
| 498 | Morrison St | Alessandro Blvd | Cactus Ave | 9,349 | 56 | 0 | 45 | 0 | 0 | 65.7 | 61.1 | 25 | 55 | 118 | 255 |
| 499 | Perris Blvd | Eucalyptus Ave | Cottonwood Ave | 31,616 | 134 | 868 | 45 | 0 | 0 | 70.9 | 66.3 | 56 | 122 | 264 | 569 |
| 500 | Perris Blvd | North of Eucalyptus Ave | 0 | 31,981 | 137 | 880 | 45 | 0 | 0 | 71.0 | 66.4 | 57 | 123 | 266 | 573 |
| 502 | Quincy | Cottonwood Ave | Alessandro Blvd | 1,810 | 4 | 0 | 35 | 6 | 0 | 49.3 | 44.7 | 2 | 4 | 9 | 20 |
| 503 | Quincy | Alessandro Blvd | Cactus Ave | 491 | 0 | 0 | 35 | 6 | 0 | 43.6 | 39.0 | 0 | 1 | 3 | 8 |
| 504 | Krameria Ave | west of Perris Blvd | 0 | 16,791 | 270 | 0 | 45 | 0 | 0 | 68.6 | 63.9 | 39 | 84 | 182 | 394 |

**2035 Plus Project Case** **Total Noise Levels**

| ID | Freeway | From | 2035 Non-Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 1 | SR-60 | SR-71/S Garey Ave to S Reservoir Rd | 237,260 | 5,000 | 21,860 | 65 | 0 | 0 | 86.2 | 81.6 | 567 | 1223 | 2636 | 5679 |
| 2 | SR-60 | S Reservoir Rd to Ramona Ave | 239,720 | 5,230 | 22,850 | 65 | 0 | 0 | 86.3 | 81.7 | 574 | 1238 | 2667 | 5747 |
| 3 | SR-60 | Ramona Ave to Central Ave | 230,590 | 5,120 | 22,320 | 65 | 0 | 0 | 86.2 | 81.6 | 561 | 1209 | 2605 | 5614 |
| 4 | SR-60 | Central Ave to Mountain Ave | 239,180 | 5,430 | 23,290 | 65 | 0 | 0 | 86.3 | 81.7 | 576 | 1241 | 2675 | 5763 |
| 5 | SR-60 | Mountain Ave to Euclid Ave | 236,170 | 5,410 | 23,010 | 65 | 0 | 0 | 86.3 | 81.7 | 571 | 1232 | 2654 | 5718 |
| 6 | SR-60 | Euclid Ave to Grove Ave | 246,040 | 5,750 | 24,320 | 65 | 0 | 0 | 86.5 | 81.9 | 589 | 1269 | 2734 | 5892 |
| 7 | SR-60 | Grove Ave to Vineyard Ave | 242,160 | 5,500 | 23,320 | 65 | 0 | 0 | 86.4 | 81.8 | 580 | 1250 | 2694 | 5805 |
| 8 | SR-60 | Vineyard Ave to Archibald Ave | 240,970 | 5,630 | 23,380 | 65 | 0 | 0 | 86.4 | 81.8 | 580 | 1249 | 2692 | 5800 |
| 9 | SR-60 | Archibald Ave to Haven Ave | 234,120 | 5,760 | 22,600 | 65 | 0 | 0 | 86.3 | 81.7 | 570 | 1229 | 2648 | 5706 |
| 10 | SR-60 | Haven Ave to Miliken Ave | 218,130 | 5,450 | 21,080 | 65 | 0 | 0 | 86.0 | 81.4 | 545 | 1174 | 2529 | 5450 |
| 11 | SR-60 | Miliken Ave to SR-15 | 161,720 | 4,520 | 17,200 | 65 | 0 | 0 | 85.0 | 80.3 | 454 | 978 | 2108 | 4543 |
| 12 | SR-60 | I-15 to Etiwanda Ave | 133,310 | 3,700 | 12,720 | 65 | 0 | 0 | 84.2 | 79.6 | 394 | 850 | 1833 | 3949 |
| 13 | SR-60 | Etiwanda Ave to Mission Blvd/Country Village R | 141,130 | 3,540 | 12,160 | 65 | 0 | 0 | 84.3 | 79.7 | 403 | 870 | 1874 | 4039 |
| 14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 130,140 | 3,270 | 11,170 | 65 | 0 | 0 | 84.1 | 79.4 | 382 | 824 | 1775 | 3826 |
| 15 | SR-60 | Pedley Rd to Pyrite St | 124,070 | 3,020 | 10,420 | 65 | 0 | 0 | 83.9 | 79.2 | 369 | 795 | 1713 | 3692 |
| 16 | SR-60 | Pyrite St to Valley Way | 119,200 | 2,950 | 10,150 | 65 | 0 | 0 | 83.7 | 79.1 | 360 | 776 | 1672 | 3602 |
| 17 | SR-60 | Valley Way to Rubidoux Blvd | 168,500 | 4,010 | 12,900 | 65 | 0 | 0 | 85.0 | 80.4 | 449 | 967 | 2085 | 4492 |
| 18 | SR-60 | Rubidoux Blvd to Market St | 165,470 | 3,960 | 12,400 | 65 | 0 | 0 | 84.9 | 80.3 | 443 | 955 | 2058 | 4434 |
| 19 | SR-60 | Market St to Main St | 193,150 | 4,940 | 14,690 | 65 | 0 | 0 | 85.5 | 80.9 | 494 | 1064 | 2294 | 4942 |
| 20 | SR-60 | Main St to SR-91 | 213,380 | 5,730 | 16,050 | 65 | 0 | 0 | 86.0 | 81.4 | 529 | 1141 | 2458 | 5296 |
| 21 | SR-60 | SR-91 to W Blaine St/3rd St | 264,890 | 6,690 | 24,120 | 65 | 0 | 0 | 87.1 | 82.5 | 617 | 1330 | 2866 | 6175 |
| 22 | SR-60 | W Blaine St/3rd St to University Ave | 249,760 | 6,320 | 22,220 | 65 | 0 | 0 | 86.9 | 82.3 | 592 | 1277 | 2751 | 5927 |
| 23 | SR-60 | University Ave to Martin Luther King Blvd | 257,470 | 6,550 | 22,660 | 65 | 0 | 0 | 87.0 | 82.4 | 604 | 1302 | 2806 | 6045 |
| 24 | SR-60 | Martin Luther King Blvd to Central Ave | 306,680 | 7,890 | 27,560 | 65 | 0 | 0 | 87.7 | 83.1 | 681 | 1467 | 3160 | 6810 |
| 25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs Rd | 290,480 | 7,470 | 25,860 | 65 | 0 | 0 | 87.5 | 82.9 | 656 | 1413 | 3046 | 6562 |
| 26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 268,110 | 6,350 | 23,390 | 65 | 0 | 0 | 87.1 | 82.5 | 617 | 1330 | 2867 | 6177 |
| 27 | SR-60 | I-215 to Day St | 145,090 | 3,560 | 16,800 | 65 | 0 | 0 | 85.2 | 80.6 | 422 | 911 | 1963 | 4229 |
| 28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 148,320 | 3,540 | 17,850 | 65 | 0 | 0 | 85.3 | 80.7 | 430 | 927 | 1998 | 4305 |
| 29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | 131,500 | 3,020 | 15,550 | 65 | 0 | 0 | 84.9 | 80.3 | 395 | 851 | 1835 | 3954 |
| 30 | SR-60 | Heacock St to Perris Blvd | 122,640 | 2,650 | 13,780 | 65 | 0 | 0 | 84.6 | 80.0 | 373 | 805 | 1734 | 3737 |
| 31 | SR-60 | Perris Blvd to Nason St | 113,140 | 2,160 | 11,670 | 65 | 0 | 0 | 84.4 | 79.8 | 348 | 750 | 1617 | 3484 |
| 32 | SR-60 | Nason St to Moreno Beach Dr | 109,520 | 1,930 | 10,520 | 65 | 0 | 0 | 84.3 | 79.6 | 337 | 726 | 1565 | 3372 |
| 33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 91,290 | 1,370 | 7,860 | 65 | 0 | 0 | 83.7 | 79.1 | 293 | 633 | 1363 | 2938 |
| 34 | SR-60 | Redlands Blvd to Theodore St | 86,400 | 1,600 | 8,630 | 65 | 0 | 0 | 83.5 | 78.9 | 289 | 624 | 1344 | 2897 |
| 35 | SR-60 | Theodore St to Gilman Springs Rd | 93,380 | 1,710 | 8,930 | 65 | 0 | 0 | 82.5 | 77.9 | 303 | 654 | 1409 | 3037 |
| 36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 76,830 | 1,400 | 8,320 | 65 | 0 | 0 | 81.7 | 77.1 | 270 | 581 | 1253 | 2700 |
| 37 | SR-60 | Jack Rabbit Trail to I-10 | 79,330 | 1,450 | 8,320 | 65 | 0 | 0 | 81.8 | 77.2 | 274 | 592 | 1276 | 2749 |
| 75 | SR-91 | I-15 to McKinley St | 254,240 | 4,250 | 14,750 | 65 | 0 | 0 | 86.2 | 81.6 | 571 | 1231 | 2653 | 5716 |
| 76 | SR-91 | McKinley St to Pierce St | 231,590 | 3,980 | 13,840 | 65 | 0 | 0 | 85.8 | 81.2 | 538 | 1160 | 2499 | 5385 |
| 77 | SR-91 | Pierce St to Magnolia Ave | 219,170 | 3,590 | 13,280 | 65 | 0 | 0 | 85.6 | 81.0 | 518 | 1116 | 2405 | 5182 |
| 78 | SR-91 | Magnolia Ave to La Sierra Ave | 227,360 | 4,000 | 14,690 | 65 | 0 | 0 | 85.8 | 81.2 | 534 | 1151 | 2480 | 5343 |
| 79 | SR-91 | La Sierra Ave to Tyler St | 207,360 | 3,620 | 13,470 | 65 | 0 | 0 | 85.4 | 80.8 | 502 | 1082 | 2332 | 5025 |
| 80 | SR-91 | Tyler St to Van Buren Blvd | 240,290 | 2,860 | 10,940 | 65 | 0 | 0 | 85.8 | 81.2 | 539 | 1161 | 2502 | 5390 |
| 81 | SR-91 | Van Buren Blvd to Adam St | 227,870 | 2,620 | 10,340 | 65 | 0 | 0 | 85.6 | 81.0 | 519 | 1119 | 2412 | 5197 |
| 82 | SR-91 | Adam St to Madison St | 217,120 | 2,420 | 9,730 | 65 | 0 | 0 | 85.4 | 80.8 | 502 | 1082 | 2332 | 5025 |
| 83 | SR-91 | Madison St to Indiana Ave (off-ramp) | 206,100 | 2,250 | 9,140 | 65 | 0 | 0 | 85.2 | 80.6 | 485 | 1044 | 2251 | 4850 |
| 84 | SR-91 | Arlington Ave to Central Ave | 182,080 | 2,230 | 8,530 | 65 | 0 | 0 | 84.7 | 80.1 | 448 | 966 | 2083 | 4488 |
| 85 | SR-91 | Central Ave to 14th St | 211,150 | 2,540 | 9,510 | 65 | 0 | 0 | 85.3 | 80.7 | 494 | 1065 | 2295 | 4946 |

**2035 Plus Project Case** **Total Noise Levels**

| ID | Freeway | From | 2035 Non-Project | | | Speed (mph) | Barrier Red. | Grade Adj. | Total @ 15m | CNEL @ 100ft | Distance from Centerline (ft) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Light Vehicles | Medium Trucks | Heavy Trucks & Buses | | | | | | 70 CNEL | 65 CNEL | 60 CNEL | 55 CNEL |
| 86 | SR-91 | 14th St to University Ave | 196,050 | 2,340 | 8,740 | 65 | 0 | 0 | 85.0 | 80.3 | 470 | 1013 | 2183 | 4705 |
| 87 | SR-91 | University Ave to Spruce St (off-ramp) | 245,400 | 2,850 | 10,320 | 65 | 0 | 0 | 85.9 | 81.3 | 545 | 1174 | 2530 | 5452 |
| 101 | I-10 | SR-60 to Beaumont Ave | 177,960 | 3,980 | 27,370 | 65 | 0 | 0 | 85.3 | 80.7 | 503 | 1084 | 2336 | 5033 |
| 102 | I-10 | Beaumont Ave to Pennsylvania Ave | 176,730 | 4,040 | 28,600 | 65 | 0 | 0 | 85.3 | 80.7 | 506 | 1091 | 2352 | 5067 |
| 103 | I-10 | Pennsylvania Ave to Highland Springs Ave | 184,190 | 4,280 | 29,740 | 65 | 0 | 0 | 85.5 | 80.9 | 521 | 1122 | 2419 | 5211 |
| 104 | I-10 | Highland Springs Ave to Sunset Ave | 181,560 | 4,330 | 29,840 | 65 | 0 | 0 | 85.5 | 80.8 | 518 | 1118 | 2408 | 5189 |
| 105 | I-10 | Sunset Ave to 22nd St | 172,220 | 4,160 | 29,300 | 65 | 0 | 0 | 85.3 | 80.7 | 505 | 1088 | 2344 | 5050 |
| 106 | I-10 | 22nd St to S 8th St | 169,740 | 4,110 | 29,120 | 65 | 0 | 0 | 85.2 | 80.6 | 501 | 1079 | 2326 | 5012 |
| 107 | I-10 | S 8th St to S Hargrave St | 173,110 | 4,130 | 29,280 | 65 | 0 | 0 | 85.3 | 80.7 | 505 | 1089 | 2347 | 5057 |
| 108 | I-10 | S Hargrave St to Field Rd | 168,280 | 4,020 | 28,170 | 65 | 0 | 0 | 85.2 | 80.5 | 495 | 1067 | 2298 | 4952 |
| 109 | I-10 | Field Rd to Main St (Cabazon) | 152,730 | 3,760 | 27,450 | 65 | 0 | 0 | 84.9 | 80.2 | 472 | 1018 | 2193 | 4726 |
| 110 | I-10 | Main St (Cabazon) to Main St | 157,420 | 3,590 | 26,160 | 65 | 0 | 0 | 84.8 | 80.2 | 471 | 1016 | 2189 | 4716 |
| 111 | I-10 | Main St to Haugen-Lehmann Way | 154,050 | 3,520 | 25,820 | 65 | 0 | 0 | 84.8 | 80.1 | 465 | 1003 | 2162 | 4658 |
| 112 | I-10 | Haugen-Lehmann Way to SR-111 | 162,830 | 3,630 | 26,220 | 65 | 0 | 0 | 84.9 | 80.3 | 478 | 1031 | 2221 | 4786 |
| 113 | I-10 | SR-111 to Tipton Rd | 143,060 | 3,080 | 23,630 | 65 | 0 | 0 | 84.4 | 79.8 | 440 | 949 | 2044 | 4405 |
| 114 | I-10 | Tipton Rd to SR-62 | 143,380 | 3,080 | 23,630 | 65 | 0 | 0 | 84.4 | 79.8 | 440 | 949 | 2046 | 4409 |
| 129 | SR-215 | Scott Rd to Newport Rd | 123,140 | 2,800 | 6,510 | 65 | 0 | 0 | 83.0 | 78.4 | 357 | 769 | 1658 | 3572 |
| 130 | SR-215 | Newport Rd to MacCall Blvd | 111,580 | 2,680 | 6,250 | 65 | 0 | 0 | 82.6 | 78.0 | 336 | 724 | 1561 | 3363 |
| 131 | SR-215 | MacCall Blvd to Ethanac Rd | 116,780 | 2,810 | 6,400 | 65 | 0 | 0 | 82.8 | 78.2 | 346 | 746 | 1608 | 3465 |
| 132 | SR-215 | Ethanac Rd to SR-74/Case | 144,330 | 3,280 | 7,530 | 65 | 0 | 0 | 83.7 | 79.1 | 396 | 855 | 1842 | 3969 |
| 133 | SR-215 | SR-74/Case Rd to Redlands Blvd | 157,170 | 5,060 | 12,180 | 65 | 0 | 0 | 84.3 | 79.7 | 438 | 945 | 2037 | 4389 |
| 167 | SR-215 | Redlands Blvd to D St | 135,670 | 4,520 | 11,550 | 65 | 0 | 0 | 83.7 | 79.1 | 401 | 865 | 1864 | 4017 |
| 168 | SR-215 | D St to Nuevo St/Harvil Ave | 141,730 | 4,740 | 11,480 | 65 | 0 | 0 | 83.9 | 79.3 | 412 | 888 | 1913 | 4122 |
| 169 | SR-215 | Nuevo St/Harvil Ave to Ramona Expy/Cajalco Ex | 139,840 | 4,630 | 11,330 | 65 | 0 | 0 | 83.9 | 79.2 | 408 | 879 | 1894 | 4082 |
| 171 | SR-215 | Ramona Expy/Cajalco Expy to Harley Knox Blvd | 170,740 | 5,380 | 13,190 | 65 | 0 | 0 | 84.7 | 80.0 | 462 | 997 | 2148 | 4629 |
| 172 | SR-215 | Harley Knox Blvd to Van Buren Blvd | 179,860 | 5,840 | 14,250 | 65 | 0 | 0 | 84.9 | 80.3 | 481 | 1036 | 2233 | 4812 |
| 173 | SR-215 | Van Buren Blvd to Cactus Ave | 173,020 | 5,660 | 14,100 | 65 | 0 | 0 | 84.8 | 80.1 | 470 | 1013 | 2182 | 4701 |
| 174 | SR-215 | Cactus Ave to Alessandro Blvd | 184,620 | 5,430 | 13,260 | 65 | 0 | 0 | 84.9 | 80.3 | 482 | 1040 | 2241 | 4828 |
| 175 | SR-215 | Alessandro Blvd to Eucalyptus Ave | 173,070 | 5,110 | 12,960 | 65 | 0 | 0 | 84.7 | 80.1 | 463 | 999 | 2152 | 4637 |
| 176 | SR-215 | Eucalyptus Ave to SR-60 | 172,600 | 5,150 | 13,470 | 65 | 0 | 0 | 84.7 | 80.1 | 464 | 1000 | 2156 | 4645 |
| 134 | SR-215 | SR-60 to Columbia Ave | 234,480 | 4,790 | 11,490 | 65 | 0 | 0 | 85.8 | 81.1 | 544 | 1172 | 2525 | 5440 |
| 135 | SR-215 | Columbia Ave to Center St | 181,790 | 3,880 | 9,510 | 65 | 0 | 0 | 84.7 | 80.1 | 461 | 993 | 2140 | 4612 |
| 136 | SR-215 | Center St to Iowa Ave/La Cadena Dr | 200,020 | 4,190 | 10,030 | 65 | 0 | 0 | 85.0 | 80.4 | 490 | 1056 | 2276 | 4904 |
| 137 | SR-215 | Iowa Ave/La Cadena Dr to Barton Rd | 191,590 | 4,200 | 9,990 | 65 | 0 | 0 | 84.8 | 80.2 | 478 | 1030 | 2220 | 4783 |
| 138 | SR-215 | Barton Rd to Mt Vernon Ave/Washington St | 200,440 | 4,320 | 10,280 | 65 | 0 | 0 | 85.0 | 80.4 | 492 | 1060 | 2284 | 4922 |
| 139 | SR-215 | Mt Vernon Ave/Washington St to I-10 | 209,450 | 4,430 | 10,330 | 65 | 0 | 0 | 85.2 | 80.6 | 505 | 1089 | 2347 | 5057 |
| 140 | SR-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 189,780 | 2,960 | 9,030 | 65 | 0 | 0 | 84.6 | 80.0 | 465 | 1003 | 2162 | 4659 |
| 141 | SR-215 | Auto Plaza Dr/Orange Show Rd to Mill St | 164,210 | 2,600 | 8,340 | 65 | 0 | 0 | 84.0 | 79.4 | 424 | 913 | 1968 | 4241 |
| 142 | SR-215 | Mill St to 2rd St | 247,230 | 3,030 | 9,710 | 65 | 0 | 0 | 85.7 | 81.1 | 548 | 1181 | 2544 | 5481 |
| 143 | SR-215 | 2rd St to Baseline Rd | 172,350 | 2,860 | 9,390 | 65 | 0 | 0 | 84.3 | 79.7 | 440 | 947 | 2042 | 4400 |
| 144 | SR-215 | Baseline Rd to Highland Ave/SR-210 | 180,440 | 3,500 | 13,720 | 65 | 0 | 0 | 84.6 | 80.0 | 464 | 1000 | 2155 | 4644 |

# SDG&E and SCG Facilities
# Noise Impact Assessment for the
# WORLD LOGISTICS CENTER
## City of Moreno Valley

Prepared For
**Highland Fairview Properties**
24525 Alessandro Boulevard
Moreno Valley, CA 92553

Prepared By
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# 1.0 Introduction

The purpose of this document is to assess the potential noise impacts of the San Diego Gas and Electric Company (SDG&E) Compressor Station and Southern California Gas Company (SCG) facilities on the proposed World Logistics Center Specific Plan. These facilities are located within the boundaries of the Specific Plan as shown in Exhibit 1. The SDG&E Compressor Station takes in natural gas from interstate gas pipelines and recompresses the gas into new pipelines to deliver the gas to customers in Southern California. The two SCG facilities house flow valve and metering facilities as well as maintenance functions at the southern facility. There are gas pipeline blow-down facilities at the compressor station as well as the two SCG locations where exhaust stacks allow for the venting of high pressure gas to the atmosphere that only occur during emergencies, maintenance, and testing of the blow-down systems.

The SDG&E and SCG facilities represent three different noise sources that potentially impact the World Logistics Center project; (1) the operation of the compressor station, (2) blow-down events at the compressor station, and (3) blow-downs at the SCG facilities. The blow-down events generate infrequent high noise levels for relatively short periods. The operation of the compressor station generates a relatively constant noise level with levels varying slightly as compressors are turned on and off as needed to supply natural gas to Southern California.

In 1992 a Specific Plan and EIR were prepared for the project site that analyzed the noise impacts generated by these facilities on the proposed Specific Plan. Mestre Greve Associates prepared the noise impact analysis for the EIR. The impacts from the compressor station operation and blow-down events were based on previous measurement studies of noise generated by these activities prepared by other firms.

In 2006, Mestre Greve Associates was hired by Highland Fairview to perform measurements of a demonstration blow-down event at the compressor station. The data from this event has been evaluated and is compared to the 1992 data in Section 2.2. In December 2012, Mestre Greve Associates was hired by Highland Fairview to update the noise measurements of the compressor station. The results of the measurements supported the noise projections of the compressor station previously made and are discussed in Section 2.1

Section 2.0 presents a description of the operational characteristics and noise levels generated by of each of the noise sources associated with the SDG&E and SCG operations. Section 3.0 discusses the potential impacts from noise generated by these facilities on the proposed project. Section 4.0 presents mitigation measures required to reduce potential noise impacts from these facilities to a level of insignificance.

CEQA requires an analysis of the proposed project's impacts on the existing environment; not an analysis on the existing environment's impacts on the proposed project. The occasional blow downs that occur at the Southern California Gas Company are part of the existing conditions and have been part of the existing conditions for over 30 years. Thus, for purposes of clarity, it should be noted that the impact analysis below goes beyond the requirements of CEQA but is instead provided as part of an analysis to ensure worker safety. All mitigation measures imposed in this analysis are the responsibility of future developers and not the Gas Company.

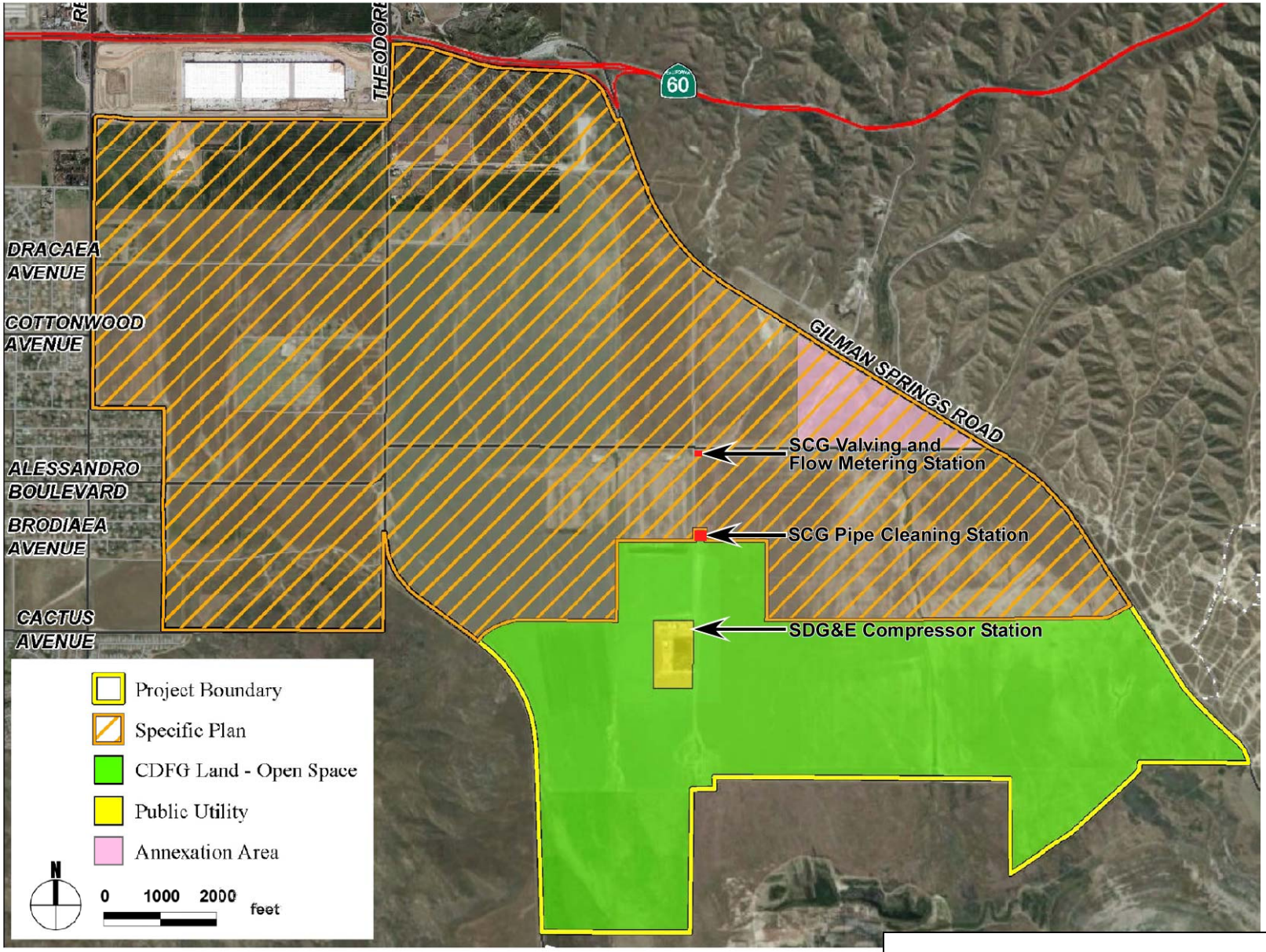



*Exhibit 1*

Natural Gas Facility Locations

*Mestre Greve Associates*
*Division of Landrum & Brown*

# 2.0 Noise Source Characteristics

The following sections describe the noise related information for the SDG&E Compressor Station and SCG facilities. Noise generated during typical operation of the Compressor Station is discussed first in Section 2.1, followed by noise generated by blow-down events at the SDG&E facility in Section 2.2 and the SCG Facilities in Section 2.3.

## 2.1 Compressor Station Operation

Compressors in the SDG&E facility are the primary source of typical operational noise generated by the station. There are two sets of three reciprocating natural gas combustion engines and one set of four natural gas fired turbines for a total of ten compressors with power ranging from 995 to 3,400 horsepower each. The reciprocating engines and compressor units are located within acoustically treated structures and are equipped with intake and exhaust mufflers. The turbines are housed in weather protected shelters. The facility operates on a demand basis. When there is a high demand of natural gas, as during wintertime, the facility operates at maximum capacity. At times the facility operates at maximum capacity 24 hours per day. Demand on the compressor station will increase in the future.

In 1992 a Specific Plan and EIR were prepared for the project site that analyzed the noise impacts generated by the Compressor Station on the proposed Specific Plan. Noise data used in the 1992 Specific Plan EIR were based on measurements of the compressor station noise and noise contours developed by Illingworth & Rodkin, Inc. who had done several studies of noise generated by activities at the compressor station. Noise contours developed by Illingworth & Rodkin, Inc. used in the 1992 EIR are shown graphically in Exhibit 2. These CNEL contours reportedly represent conditions where the facility is operating at essentially a constant noise level. Since that time one natural gas fired turbine has been added to the facility. Therefore, the 1992 contours presented in Exhibit 2 are representative of conditions with two sets of three reciprocating natural gas combustion engines and one set of three natural gas fired turbines.

Table 1 shows the estimated distances to various noise levels for the Moreno Compressor station under full operation based on a worst-case noise level of 63 dBA Leq at 500 feet and a drop off rate of 4.5 dB per doubling of distance that corresponded with the measured data. The Leq levels represent the average noise level with the station in full operation. These levels are approximately 5 dB louder than the 1992 noise measurements. The 5 dB adjustment was added because a fourth natural gas fired turbine was added and to account for all compressors operating at full capacity 24-hours per day. (Measurements were repeated in December 2012 during a busy morning at the compressor station. Noise measurements were made north, east, south and west of the compressor station. When the measurement results were normalized to 500 feet the Leq values ranged from 51.5 to 63.6 dBA with an average of 57.5 dBA. This indicates that the previous projection of 63 dBA Leq at 500 feet is still valid, and probably represents a worst case assumption for most directions around the compressor station.)

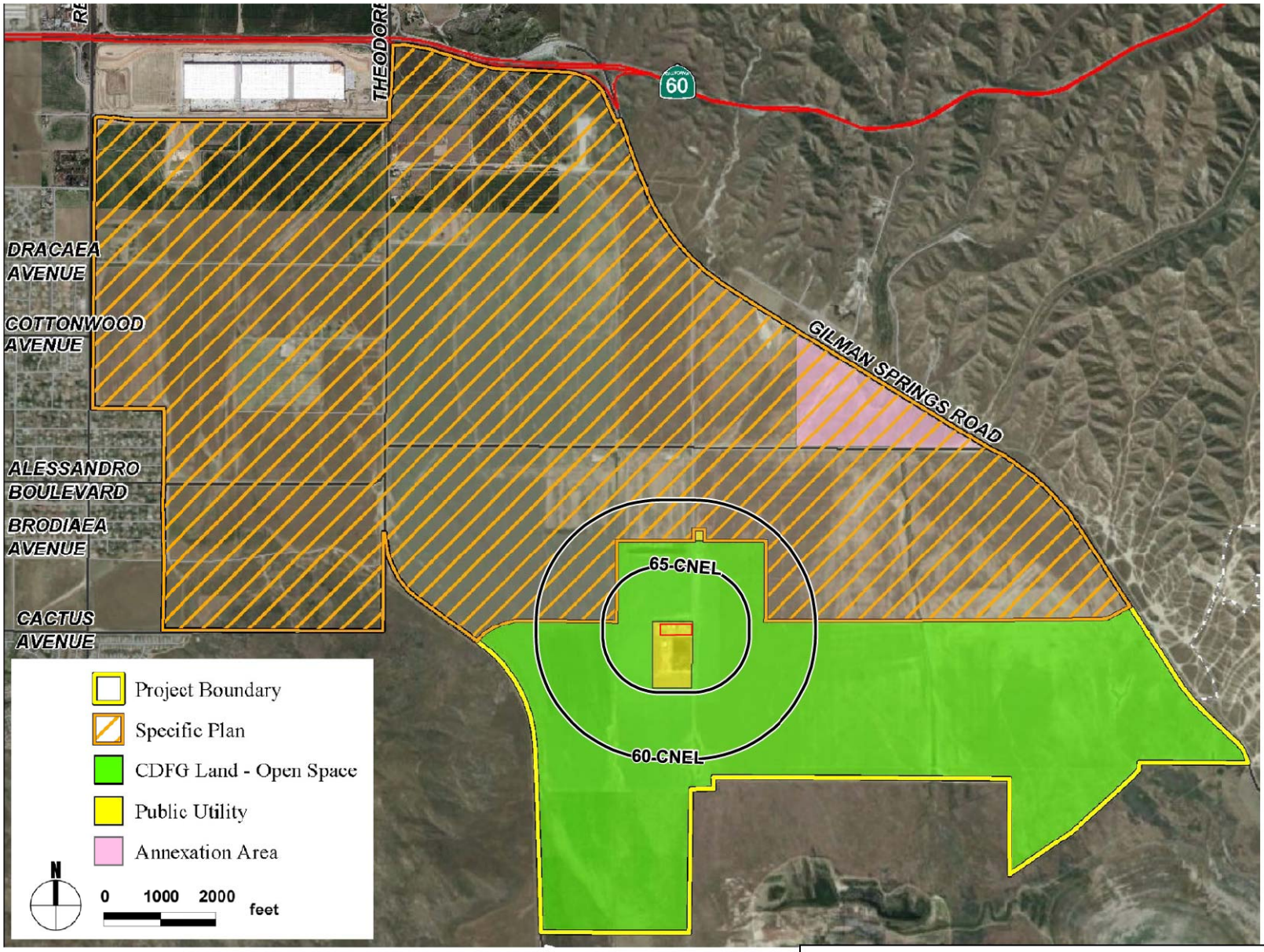



*Exhibit 2*

CNEL Noise Contours for Compressor Station

*Mestre Greve Associates*
*Division of Landrum & Brown*

The CNEL (Community Noise Equivalent Level) levels assume the compressor station is in full operation 24 hours a day. The distances are from the edge of the operational area. The operational area is the rectangle that encloses the three buildings with the compressors. These contours are represented graphically in Exhibit 2.

**Table 1**
**Estimated Worst Case Compressor Station Noise Levels**

| Leq (dBA) | CNEL | Distance* |
|---|---|---|
| 65.0 | 72.7 | 367’ |
| 60.0 | 66.7 | 794' |
| 58.3 | 65.0 | 1,031' |
| 55.0 | 61.7 | 1,714' |
| 53.3 | 60.0 | 2,228' |
| 50.0 | 56.7 | 3,703' |
| 45.0 | 51.7 | 8,000' |
| 40.0 | 46.7 | 17,281' |

* From edge of station operational area

Exhibit 3 presents the average (Leq) noise levels generated by the compressor station during full operation. As discussed in Section 3.2, both the CNEL and Leq metrics are use to assess the noise impacts from the facility.

## 2.2 SDG&E Compressor Station Blow-Downs

There are three blow-down points within the SDG&E Compressor Station. As discussed previously, these blow-down points allow for the release of pressurized gas during emergency events. These systems are also tested on an annual basis. Blow-downs at the SDG&E Station just vent gas within the facility and last between 30 and 90 seconds. The 1992 Specific Plan EIR stated that there were an average of four blow-down events annually at the compressor station and that these events could occur at any time.

Table 2 presents the distance to maximum noise level contours from the blow-down point for the SDG&E compressor station blow-down events used in the 1992 EIR. These contour distances were taken from the Illingworth & Rodkin, Inc. report that was the source for the compressor station operational noise levels discussed above. Table 2 shows that the blow-down events generate extremely high noise levels. Note that these Lmax levels are equivalent to the noise level that is sustained during the blow-down events.

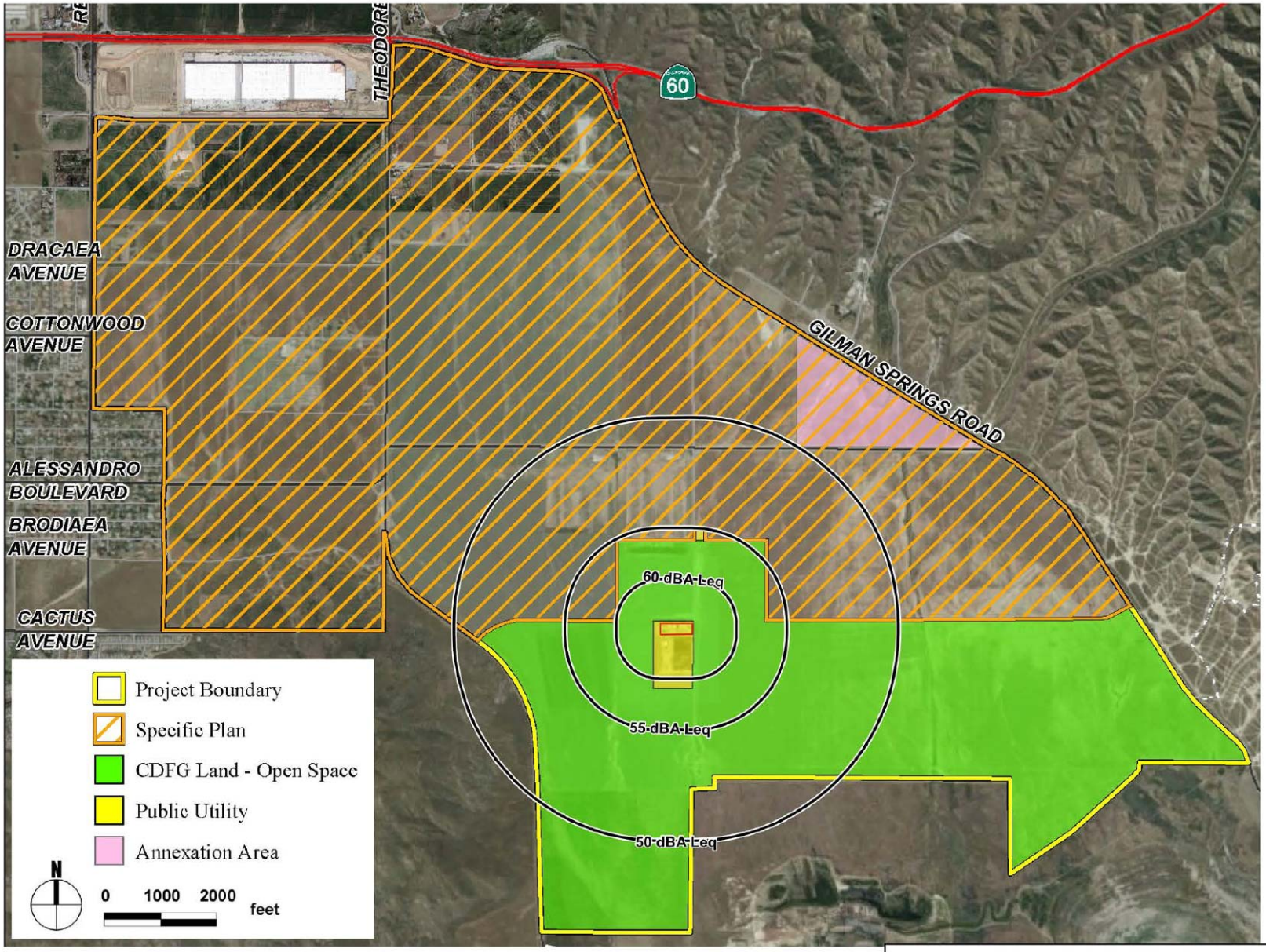



*Exhibit 3*

Leq Noise Levels for Compressor Station

*Mestre Greve Associates*
*Division of Landrum & Brown*

In 2006, Mestre Greve Associates performed noise measurements of a demonstration blow-down event at the compressor station. Noise measurements were performed at eight locations around the compressor station at distances ranging from 600 feet to 4,900 feet from the blow-down stack. Noise levels from two 30-second blow-down events in immediate succession were recorded. This data was used to determine the noise level generated by the blow-down event and how the noise level dropped off with distance. This results of the measurements and analysis is presented in Table 2.

**Table 2**
**Distance To Lmax Contours For SDG&E Compressor Station Blow-Down Events**

| Lmax Noise Level (dBA) | Distance from Blow-Down Point (Feet) 1992 EIR | 2006 Measurements | Used for Analysis |
|---|---|---|---|
| 135 | 50 | 48 | 49 |
| 130 | 76 | 72 | 74 |
| 120 | 178 | 163 | 170 |
| 110 | 416 | 370 | 393 |
| 100 | 969 | 841 | 905 |
| 90 | 2,262 | 1,910 | 2,086 |
| 80 | 5,277 | 4,340 | 4,808 |

Table 2 shows that the 2006 measurements agreed well with the 1992 EIR data near the source but showed a more rapid drop off resulting in an approximate 3 dB difference at the furthest distances assessed, approximately 5,000 feet. This difference could have been due to different atmospheric conditions during the measurements or different ground conditions. During the 2006 measurements the ground around the facility was freshly plowed dirt which absorbs sound, resulting in a more rapid drop-off in sound than hard packed soil. Because of this the average of the two data sets, shown in the last column of Table 2 will be used to analyze the potential noise impacts. The noise contours are presented graphically in Exhibit 4.

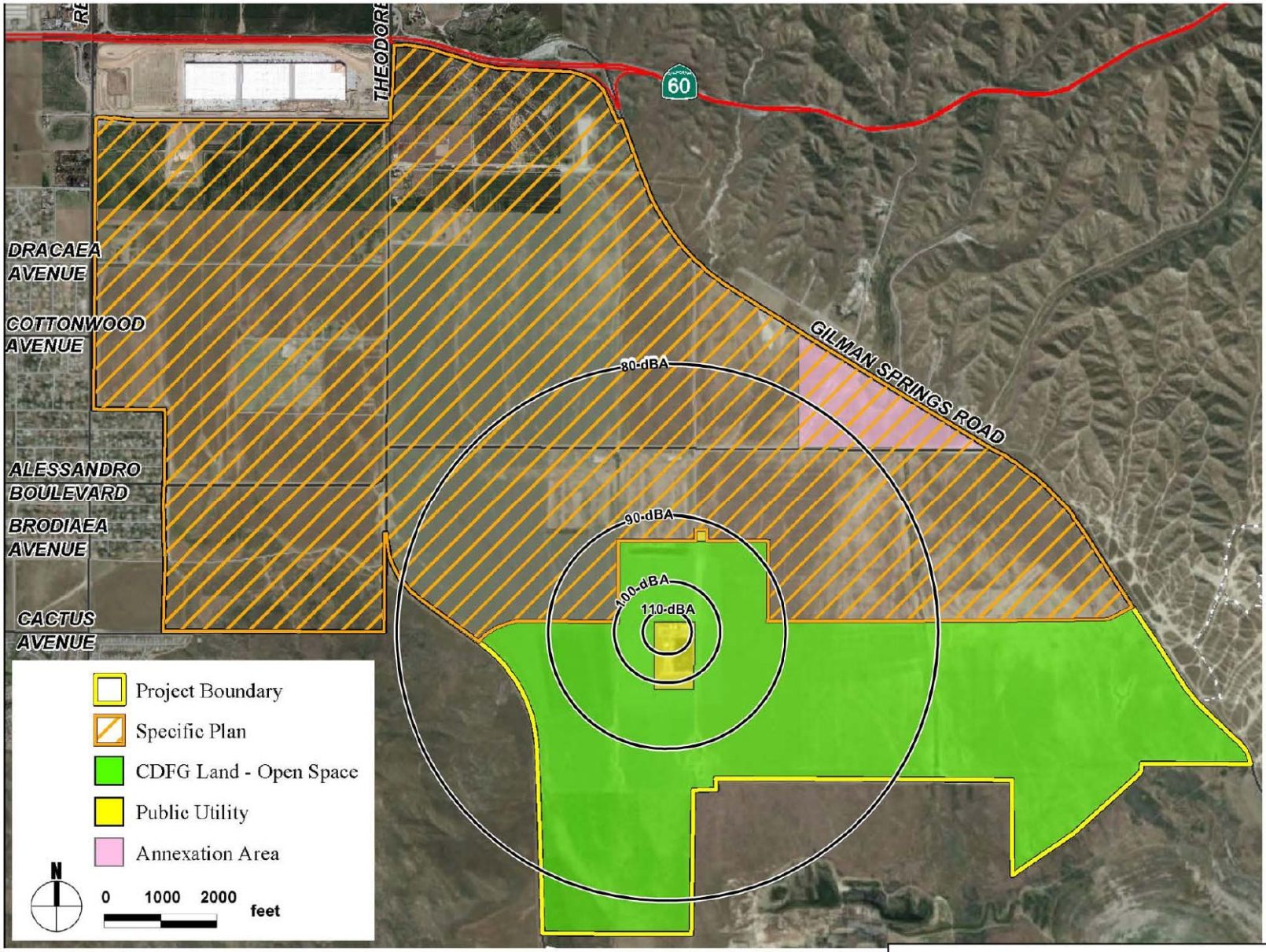



*Exhibit 4*

Lmax Levels for SDG&E Blow-Down

*Mestre Greve Associates*
*Division of Landrum & Brown*

## 2.3 SCG Blow-Downs

There are also four blow-down points in the SCG facilities, three in the southern facility and one in the northern facility. Blow-downs at the SCG facilities vent gas from miles of pipeline and can last up to 90 minutes. The 1992 Specific Plan EIR stated that there were an average of four blow-down events annually at the SCG facility.

Noise levels from the SCG blow-downs in the 1992 Specific Plan EIR were based on measurements of a demonstration SCG blow-down made by Acoustical Analysis Associates, Inc. (AAAI) and noise contours developed in the report "Moreno Highlands Specific Plan: Southern California Gas Co. and San Diego Gas & Electric Co. Operational and Blow-Down Noise Impact Assessment," dated July, 1989 (AAAI Report # 1041, Appendix G in "Screencheck Moreno Highlands Specific Plan," by Michael Brandman Associates, dated July 20, 1989.). Table 3 presents the distance to maximum noise level contours from the blow-down point for the SCG blow-down events used in the 1992 EIR. These contours are presented graphically in Exhibit 5.

Noise levels generated by the SCG and SDG&E blow-downs are the same at a distance of 50 feet but differences in drop-off rate assumptions result in slightly higher noise levels for the SDG&E blow-downs at distances between approximately 200 feet to 3,000 feet with a maximum difference of approximately 6 dB at approximately 1,000 feet. Because this difference may be due to different characteristics of the blow-downs from the two facilities and the 1992 data results in higher noise levels, this data will be used for the impact analysis.

**Table 3**
**Distance To Lmax Contours For SCG Blow-Down Events**

| Lmax Noise Level (dBA) | Distance from Blow-Down Point (Feet) |
|---|---|
| 135 | 50 |
| 130 | 85 |
| 120 | 230 |
| 110 | 600 |
| 100 | 1,500 |
| 90 | 2,900 |
| 80 | 5,000 |

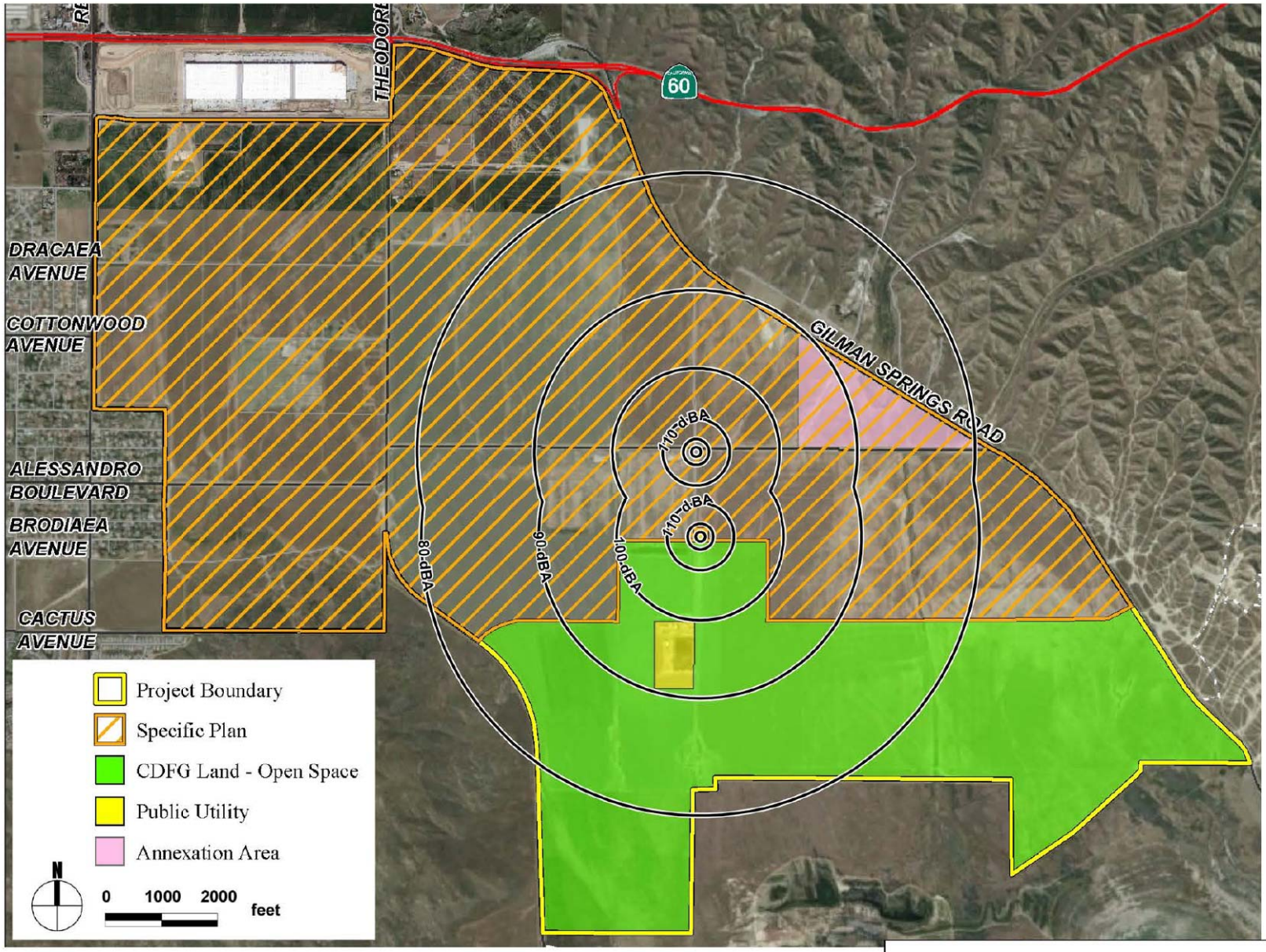



*Exhibit 5*

Lmax Levels for SCG Blow-Down

*Mestre Greve Associates*
*Division of Landrum & Brown*

# 3.0 Noise Impacts

Potential noise impacts from the SDG&E and SCG facilities on the proposed World Logistics Center are assessed below. Section 3.2 assesses the impacts from the operation of the SDG&E Compressor Station and Section 3.3 assesses the impacts from the blow-down events at both facilities. Section 3.1 discusses the criteria used to assess the impacts. Section 3.1.1 discusses the noise related objectives and policies in the City of Moreno Valley General Plan. Section 3.1.2 discusses the provision of the Moreno Valley Noise Ordinance. Significance thresholds used to assess the impacts are described in Section 3.1.3.

## 3.1 Noise Impact Criteria

### *3.1.1 City of Moreno Valley General Plan*

The City of Moreno Valley General Plan presents three objectives relative to noise. Objective 6.3 is to "provide noise compatible land use relationships by establishing noise standards utilized for design and siting purposes." There are six policies presented to achieve this objective which include the indoor noise level standards presented in Table 4.

**Table 4**
**Moreno Valley Interior Noise Standards**

| Use | Interior Noise Level Limit |
|---|---|
| Single and Multiple Family Residential, New Schools | 45 CNEL |
| New Libraries, Hospitals and Extended Medical Care Facilities, Places of Worship, and Office Uses | 50 CNEL |

Objective 6.4 is to "review noise issues during the planning process and require noise attenuation measures to minimize acoustic impacts to existing and future land uses." The only policy directed to this objective is to use site, landscape, and architectural features to mitigate noise impacts for new developments and prefer noise barriers that avoid freeway sound barrier walls.

Objective 6.5 is to "minimize noise impacts from significant noise generators such as, but not limited, to motor vehicles, trains, aircraft, commercial, industrial, construction, and other activities." Two policies are presented to support this objective. New commercial and industrial activities are to be evaluated and designed to mitigate noise impacts on adjacent uses and construction activities are to be conducted in a manner that limits noise impacts on surrounding uses.

The City's interior noise standard for offices, 50 CNEL, is the only policy directly related to the assessment of the impacts of the SDG&E and SCG operations on the proposed project. Analysis of the impacts using this standard supports all three objectives.

### *3.1.2 City of Moreno Valley Noise Ordinance*

The City of Moreno Valley Noise Ordinance is presented in Title 11, Peace, Morals and Safety, Chapter 11.80 Noise Regulation of the City's Municipal Code. Section 11.80.030(A) prohibits the generation of sound that causes a noise disturbance. A noise disturbance is defined as any sound that:

> Disturbs a reasonable person of normal sensitivities
>
> Exceeds the sound level limits set forth in Chapter 11.80 (presented below)
>
> Is clearly distinguished from ambient noise by a person using their normal hearing facilities at a distance of two hundred feet from the real property line of the source of the sound generated on private property or from the source of the sound if it occurs on the public right of way, public space, or other publically owned property.

Sections 11.80.030(B) and 11.80.030(C) present the ordinance's sound level limits. Section 11.80.030(B) prohibits sound that could cause permanent hearing loss. Hearing loss is dependent on the level of noise and duration of noise. Table 5 presents the maximum noise level and exposure durations allowed to prevent permanent hearing loss reproduced from Table 11.80.030-1 from the City's Noise Ordinance. The ordinance also presents maximum impulsive sound levels in a separate table. However, these limits on impulsive sound are not applicable to the potential impacts from the SDG&E and SCG operations.

**Table 5**
**Noise Level Limits to Prevent Hearing Loss**

| Cumulative Hours of Exposure per Day | Sound Level (dBA) |
|---|---|
| 8 | 90 |
| 6 | 92 |
| 4 | 95 |
| 3 | 97 |
| 2 | 100 |
| 1.5 | 102 |
| 1 | 105 |
| .5 | 110 |
| 0.25 or less | 115 |

Section 11.80.030(C) presents the maximum non-impulsive sound level limits from noise generated on private property when measured 200 feet or more from the real property line of the source of the sound. These sound level limits are presented in Table 6. Any sources of sound that exceed these noise levels are deemed prima facie to be a noise disturbance by the ordinance.

**Table 6**
**Maximum Sound Levels for Source Land Uses**

| Source Land Use | Maximum Sound Level 200' from Real Property Line Daytime (8:00 a.m. to 10:00 p.m.) | Nighttime (10:01 p.m. to 7:59 a.m.) |
|---|---|---|
| Residential | 60 dBA | 55 dBA |
| Commercial | 65 dBA | 60 dBA |

Section 11.080.030(D) of Moreno Valley Noise Ordinance presents source specific prohibitions and Section 11.080.030(E) presents uses and activities that are exempt from the Noise Ordinance. None of these prohibitions or exemptions are applicable to the SDG&E and SCG operations.

### *3.1.3 Thresholds of Significance*

Based on the noise criteria specified by the City of Moreno Valley, the operation of the compressor station will result in a significant impact on the project if it results in interior office noise levels at the Logistics Development greater than 50 CNEL, or if the noise levels generated by the compressor station exceed 65 dBA Leq during the daytime or 60 dBA Leq during the nighttime more than 200 feet from its property line.

Due to the infrequent nature of the blow-down events and the high noise levels generated by these events, the noise standard applicable to these events is the noise level limits to prevent hearing loss. An exceedance of the noise levels presented above in Table 5 from blow-down events within the project where persons would typically be present would result in a significant impact.

## 3.2 SDG&E Compressor Station Operational Noise Impacts

Exhibit 2 shows that the worst-case compressor station operational characteristics will result in a maximum noise level just above 65 CNEL within the project area proposed for development (i.e., not open space). Typical commercial construction results in buildings that achieve at least a 20 dB reduction of outdoor noise levels. Therefore, an office use exposed to the highest noise level from the compressor station will be just above 45 CNEL and below the 50 CNEL limit prescribed by the City's General Plan.

Exhibit 3 shows that the Leq noise level generated by the compressor station does not exceed 60 dBA Leq beyond the property lines of the facility. Therefore, the compressor station is not considered a noise disturbance based on City criteria.

Operation of the compressor station will not result in any interior noise levels exceeding the limits established by the City in the General Plan. Further, operation of the compressor station is not considered a noise disturbance. Therefore, the project will not be significantly impacted by the operation of the compressor station.

## 3.3 Blow-Down Noise Impacts

### *3.3.1 SDG&E Blow-Down Impacts*

Exhibit 4 shows that the maximum noise level from a blow-down at the SDG&E compressor station within the area proposed for development (i.e., the Logistics Development land use) is 100 dBA. A person would need to be exposed to this level for more than a cumulative two hours in a day before permanent hearing loss would be expected. As discussed above, blow-down events at the SDG&E compressor station typically do not last longer than 90 seconds. Therefore, the SDG&E blow-down events will not significantly impact the proposed project.

### *3.3.2 SCG Blow-Down Impacts*

Exhibit 5 shows that the SCG blow-down events will result in noise levels as high as approximately 130 dBA just outside the fence line of the southern facility and noise levels in excess of 135 dB just outside the fence line of the northern facility. In fact, observers within approximately 250 feet of the blow-down points would be exposed to noise levels greater than 115 dBA which would likely cause permanent hearing damage regardless of the exposure time. The SCG blow-downs could last as long as 90 minutes. Observers exposed to noise levels greater than 102 dBA, within approximately 1,300 feet from the blow-down point could experience permanent hearing loss based on this event duration.

Because noise generated by SCG blow-down events could clearly result in permanent hearing damage in areas proposed for development by the project, the project will be significantly impacted by the SCG blow-downs. Mitigation is discussed in Section 4.0.

## 4.0 Mitigation

The analysis presented above showed that neither the operation of the SDG&E Compressor Station nor the blow-down events from that facility generate noise levels that will significantly impact the proposed project. Noise generated by SCG blow-down events have the potential to cause permanent hearing loss in persons in the developed area of the project. This is a significant impact and mitigation is required.

The SCG blow-down equipment does not currently include a silencer system. A review of the literature of a leading manufacturer of specialty silencer systems (Industrial Acoustics Company) determined that a silencer system installed on the blow-down equipment could reduce noise levels by about 40 dB.

With a silencer system providing 40 dB of noise reduction, blow-down noise levels would be less than 102 dBA approximately 30 feet from the blow-down point which is within the fence line of these facilities. 102 dBA is the noise level that could be experienced for up to 90 minutes without causing permanent hearing loss. Therefore, while occupants of the project in the vicinity of the SCG facilities would be subject to high noise levels during these infrequent noise events, they would not be subject to any permanent hearing damage.

Table 7 presents the distances to the mitigated Lmax noise levels with the silencers. These contours are shown graphically in Exhibit 6.

**Table 7**
**Distance To Mitigated Lmax Contours For SCG Blow-Down Events**

| Lmax Noise Level (dBA) | Distance from Blow-Down Point (Feet) |
|---|---|
| 95 | 50 |
| 90 | 85 |
| 80 | 230 |
| 70 | 600 |
| 60 | 1,500 |
| 50 | 2,900 |

With the mitigation specified above, SCG blow-down events would not result in noise levels that could cause hearing loss and introduction of the project near the existing SCG facility would not result in significant noise impacts.

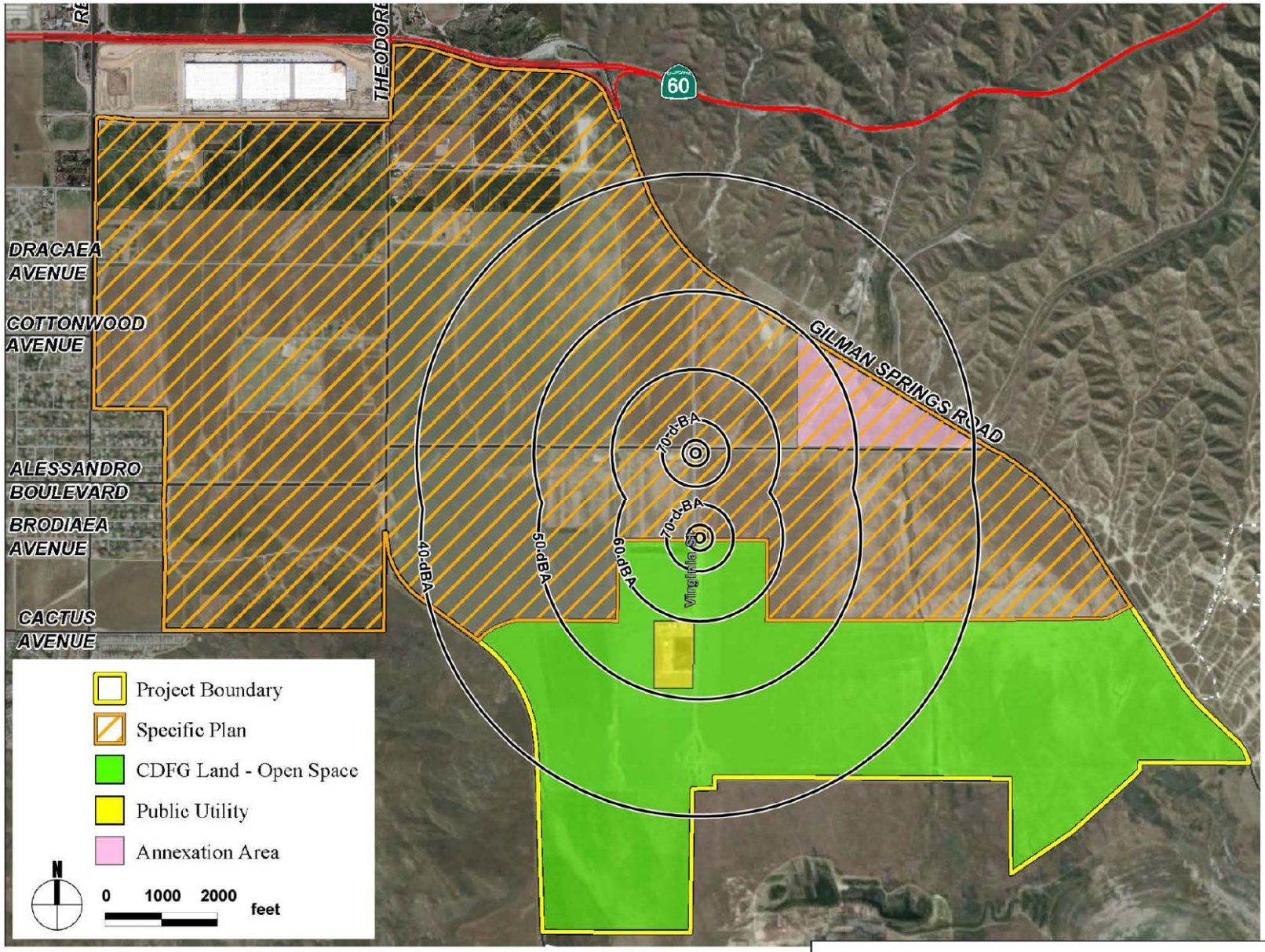



*Exhibit 6*

Mitigated Lmax Levels for SCG Blow-Down

*Mestre Greve Associates*
*Division of Landrum & Brown*

# Traffic Impact Analysis Report

*for*

# The World Logistics Center

Moreno Valley Case #P12-016




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**September 2014**

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**World Logistics Center**

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# 1. INTRODUCTION

## A. PURPOSE OF THE TRAFFIC IMPACT ANALYSIS

The purpose of this Traffic Impact Analysis (TIA) is to fully analyze the local and regional traffic impacts of the proposed World Logistics Center (WLC) located in Moreno Valley, California. The TIA identifies the specific near-term and longer-term circulation improvements that would be required to mitigate project impacts and maintain acceptable peak hour and daily levels of service (LOS) on surface streets and freeways affected by the project. As part of this comprehensive analysis special attention was paid to analyzing truck access routes, safety issues relating to trucks, and the effects of truck traffic on traffic operations.

## B. SCOPE OF STUDY

The study considers seven development scenarios, namely:

1) Existing baseline conditions (2012) without the WLC project
2) Existing baseline conditions plus Phase 1 (only) of the WLC project
3) Existing baseline conditions plus the Full Build-out of the WLC project
4) Existing baseline conditions plus other past, present, and reasonably foreseeable projects expected to be constructed by 2022, without the WLC project
5) Existing baseline conditions plus other past, present, and reasonably foreseeable projects expected to be constructed by 2022, plus Phase 1 (only) of the WLC project
6) Existing baseline conditions plus other past, present, and reasonably foreseeable projects expected to be constructed by 2035, including full build-out of the City of Moreno Valley General Plan, except that existing conditions remain on the site of the WLC project. The horizon year 2035 corresponds with the long-term planning horizon in the Southern California Association of Governments (SCAG) regional forecasts.
7) Existing baseline conditions plus other past, present, and reasonably foreseeable projects expected to be constructed by 2035, including full build-out of the City of Moreno Valley General Plan except for the WLC site, where full build-out of the WLC project was assumed.

Most of the LOS analyses focused on the morning and evening peak hours because that is when capacity problems most frequently occur. The project includes a general plan amendment that will change the configuration of some roads in and adjacent to the project site. An analysis was performed using daily

traffic volumes to determine if the proposed circulation element amendment would achieve City LOS goals.

The study area for surface streets covered all intersections in Moreno Valley of collector or higher functional classification with another collector or higher classification street, at which the proposed project would add 50 or more peak hour trips. The study area also included the main routes between the project and the neighboring communities of Riverside, Perris, Beaumont, San Jacinto, and Redlands. The study area also extended west to the nearest ramps to SR-91 and as far south as the I-215 ramps at Redlands Ave. in Perris. These limits represent the extreme range of the RivTAM model's capacity to accurately predict real differences between the No-Project and Plus-Project scenarios. Figure 1 shows the study area for surface street intersections.

The study area for freeways was selected to encompass the freeway routes extending from the project site to the north, south, east, and west. The analysis covered SR-60 from I-10 in the east to SR-71 in the west, SR-91/I-215 from I-210 in the east to I-15 in the west, I-215 from Redlands Ave. in the north to the Scott Rd. interchange in the south, and I-10 from SR-62 in the east to SR-60 in the west. (see Figure 2). These limits represent the extreme range of the RivTAM model's capacity to accurately predict differences between No-Project and Plus-Project scenarios. In addition, the two main routes to the ports of Los Angeles and Long Beach were studied (see Figure 3). For these corridors, trips from the WLC were manually added to forecasts for the No-Project condition taken from the SCAG model[1].

Any freeway ramp where the project added 100 or more peak-hour trips was also studied. These included:

- All ramps of the SR-60/Theodore Interchange
- All ramps of the SR-60/Gilman Springs Rd. Interchange
- All ramps of the SR-60/Redlands Blvd. Interchange
- Westbound off- and eastbound on-ramps to the SR-60/Central Ave. Interchange, and
- Westbound off- and eastbound on-ramps to the SR-60/Martin Luther King Blvd. interchange.

[1] The modeling data in the SCAG model is based upon modeling information originally developed by the Southern California Association of Governments (SCAG), which has been modified by Parsons Brinckerhoff. The modeling data used in this study does not necessarily reflect the official views or policies of SCAG. Parsons Brinckerhoff is wholly responsible for the modeling results and the content of the documentation.

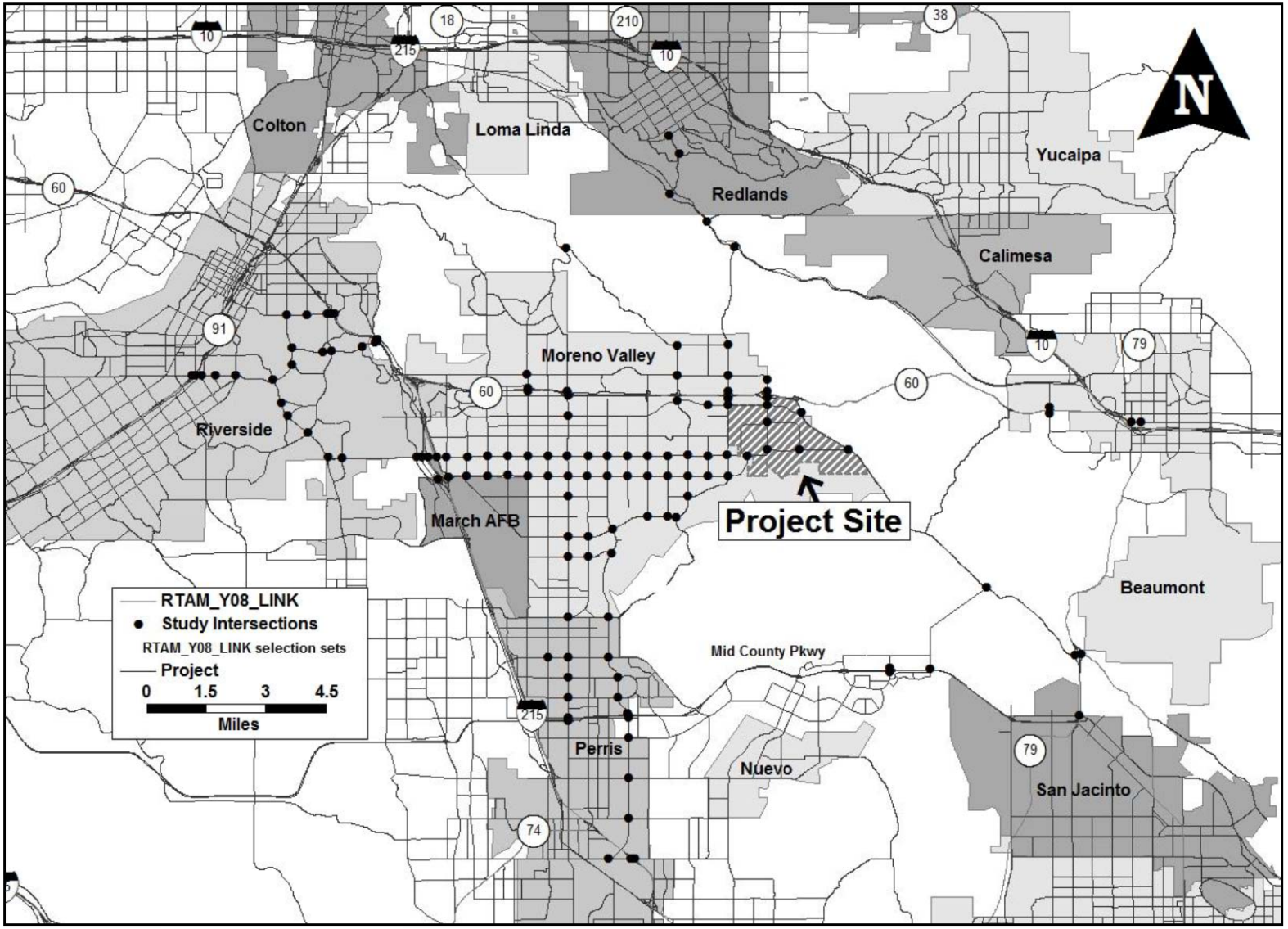



**Figure 1: Study Intersections for Surface Streets**

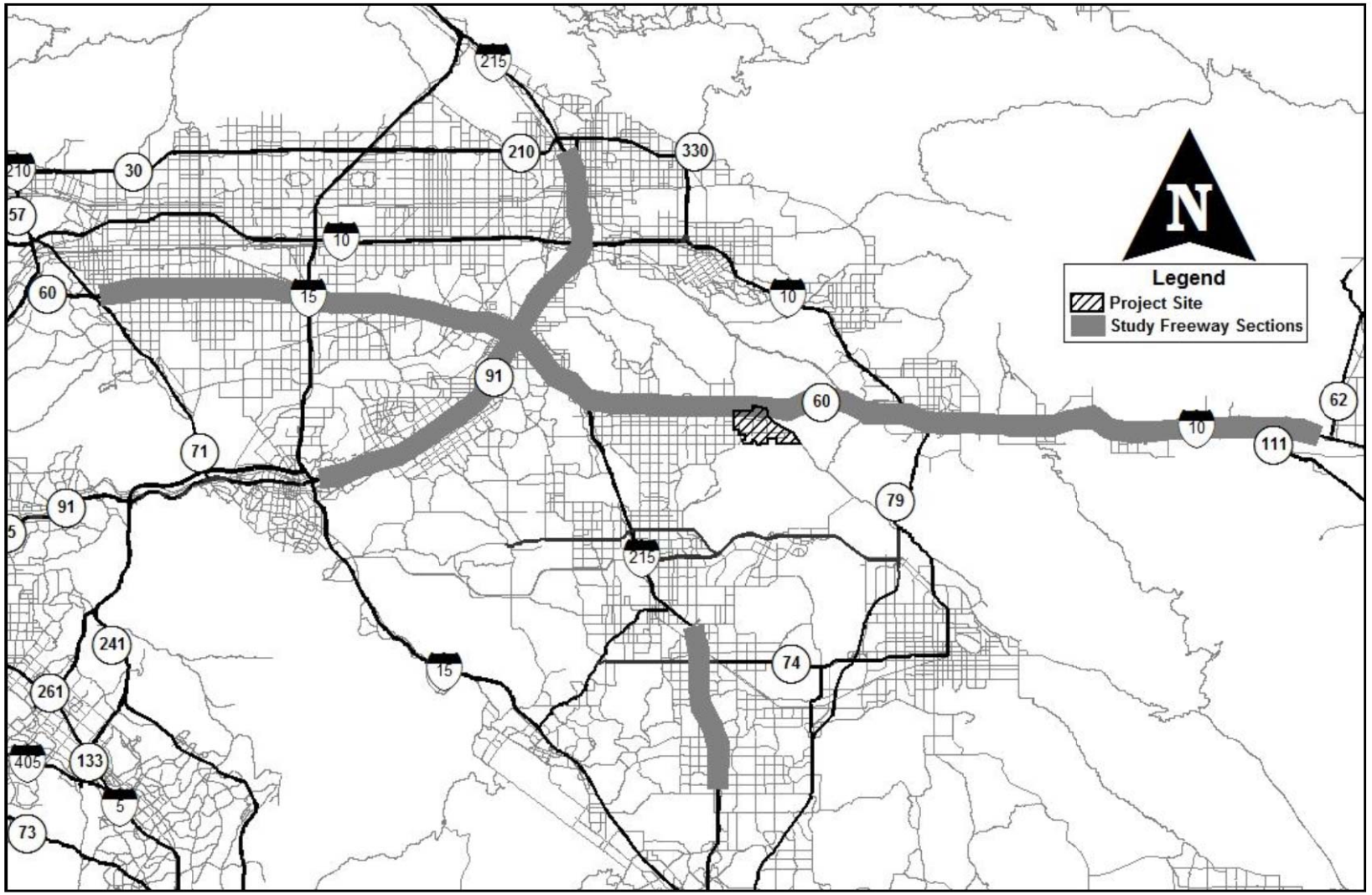



**Figure 2: Study Freeway Sections**

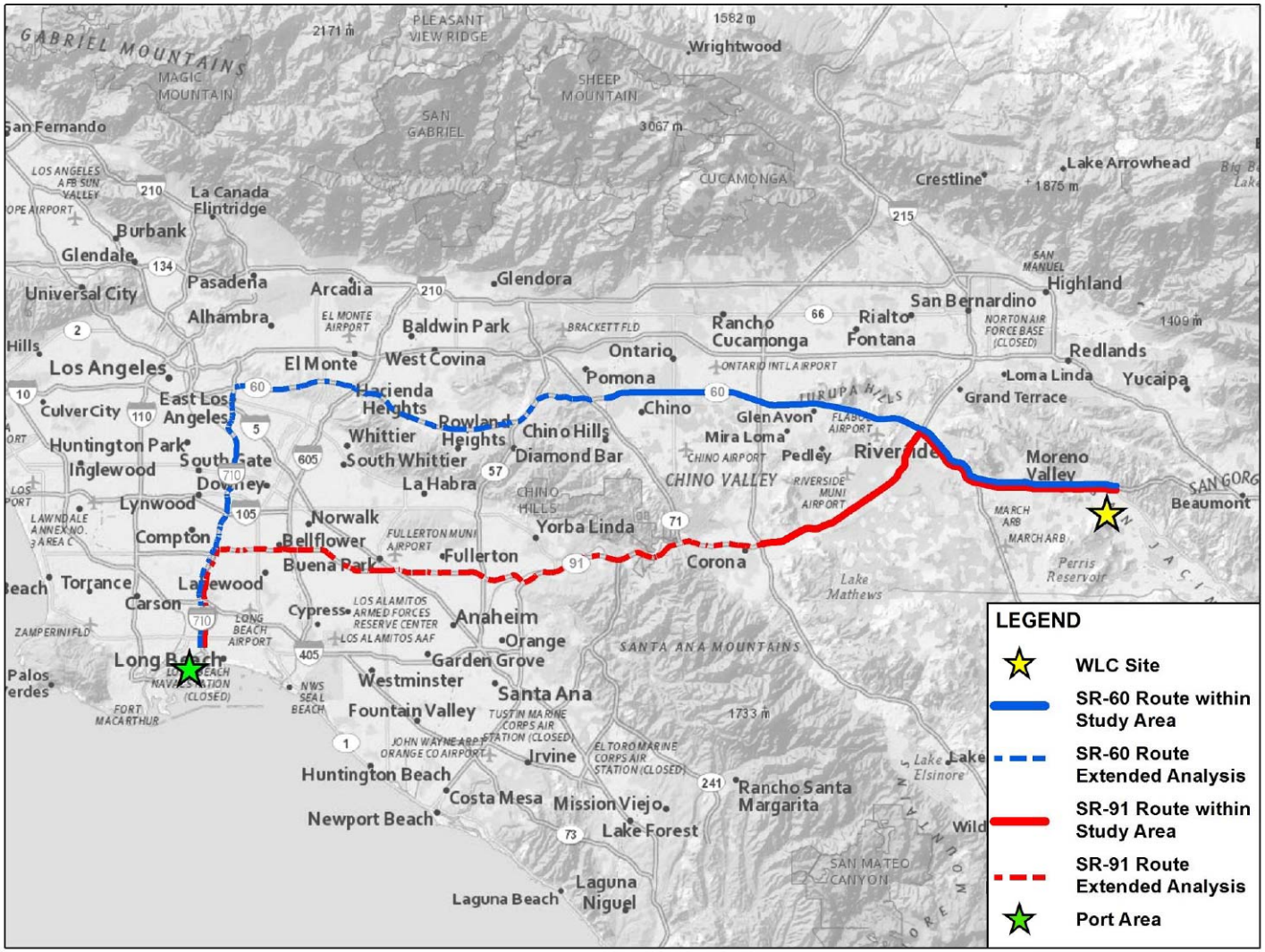



**Figure 3: Routes to the Port**

## C. CHANGES SINCE THE DRAFT TIA

Since the draft Traffic Impact Analysis (TIA) that was issued in February 2013, comments were received from various public and private groups and individuals. The report has been modified in response to these comments and to clarify the description of the analysis. In addition, some modifications were also made to the project. Readers of the draft report will find that a number of updates and clarifications have been made, the most important of which are:

- In response to comments, the analysis of freeway impacts from WLC trucks was extended to the Ports of Los Angeles and Long Beach. The extended analysis, covering more than 60 additional centerline miles of freeway, did not find any new impacts that were not already identified in the Draft TIA. See Chapter 12 Section F of this report.

- In response to comments, an analysis was performed of the feasibility of shipping cargos between the WLC and the Ports of Los Angeles and Long Beach by rail instead of by truck. The analysis found that this was not feasible for a variety of reasons, including the cost and environmental impacts of a new rail alignment, the high fixed handling costs for rail cargo that makes short hauls uneconomical, and system constraints with the rail system itself. See Chapter 4 Section F of this report.

- In response to comments, an analysis was performed of the potential safety impacts of WLC traffic on local schools. The analysis found that the project would pose little safety risk and that appropriate safety features were already present on roads near local schools. See Chapter 12 Section B of this report.

- In response to comments, a figure was added showing the designated Truck Routes in the vicinity of the WLC. See Figure 14.

- The WLC implementation schedule was revised so that Phase 1 is scheduled for completion in 2022 rather than in 2017, as was assumed in the draft report. The scenarios for 2017 were therefore dropped and the scenario for 2022 was revised to analyze Phase 1 only, not full build-out of the WLC. See Chapter 8 of this report.

- A new chapter was added to analyze Existing Plus Phase 1 (only) conditions. See Chapter 5 of this report.

- An area of land in the southwest corner of the WLC site (as described in the draft TIA) is no longer part of the WLC project and instead will maintain its current zoning for residential

development. This update reduces the planned amount of high-cube warehouse development in the WLC by one million square feet and increases the amount of background (i.e. non-project-related) development in 2035 by 220 dwelling units.

- Some internal roads were re-aligned, and a fire station has been added.
- Various grammatical and reference corrections were made, and in places the text and tables were revised to provide greater clarity to readers.
- A list of references has been added.
- Alessandro Boulevard will retain its name, ROW width, and current alignment as an undivided roadway running east-west through the World Logistics Center, intersecting with Gilman Springs Rd. on the east and the Cactus Avenue Extension on the west. An existing section of Alessandro Blvd. between Merwin Street and the Cactus Avenue Extension would be closed to vehicular traffic, except for emergency vehicles and bicycles and pedestrians access. This is to prevent project traffic from traveling through existing residential neighborhoods.

In addition to the changes listed above, a *Responses to Comments* section has been added to the FEIR that responds to traffic-related public comments and provides clarification on how the technical documents, including this traffic report, provide the information needed to enable the City to make an informed decision regarding this project.

# 2. METHODOLOGY

This chapter describes the methodology used in the traffic impact analysis.

## A. ASSUMPTIONS

***Land Use Assumptions***

The Existing Conditions scenario was based on the land uses as they existed when the Notice of Preparation was issued (February 2012). The Existing Plus Build-out scenarios were also based on the land uses as they existed at that time and with either Phase 1 or the full build-out of the WLC.

The scenarios analyzing future conditions required the use of forecasts for land use in the Inland Empire. The most well-researched and officially accepted source of longer-term land use forecasts is the Southern California Association of Governments (SCAG), which is the designated Regional Transportation Planning Agency under state law. In April 2012, SCAG adopted its 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for use in regional planning. The RTP/SCS was the result of a multi-year effort involving consultation with numerous agencies including work through the Transportation Conformity Working Group (a forum for implementing the interagency consultation requirements) as well as input from members of the public. The RTP/SCS forecasts include an update of existing land uses based on the 2010 U.S. Census and address the effects of the recent recession on employment and residential uses. The forecasts reflect regional birth, death, and migration rates, household formation, and expected changes in employment by economic sector.

The land use assumptions for the WLC 2022 scenarios were derived through interpolation of the 2020 and 2035 RTP/SCS regional population and employment forecasts. In addition, other past, present, and reasonably foreseeable projects in the study area were added to the 2022 scenario based on their likely timeline for development. These projects are listed in Table 1 with their locations shown in Figure 4 (the numbers on the figure corresponds with the identifying numbers in the table).

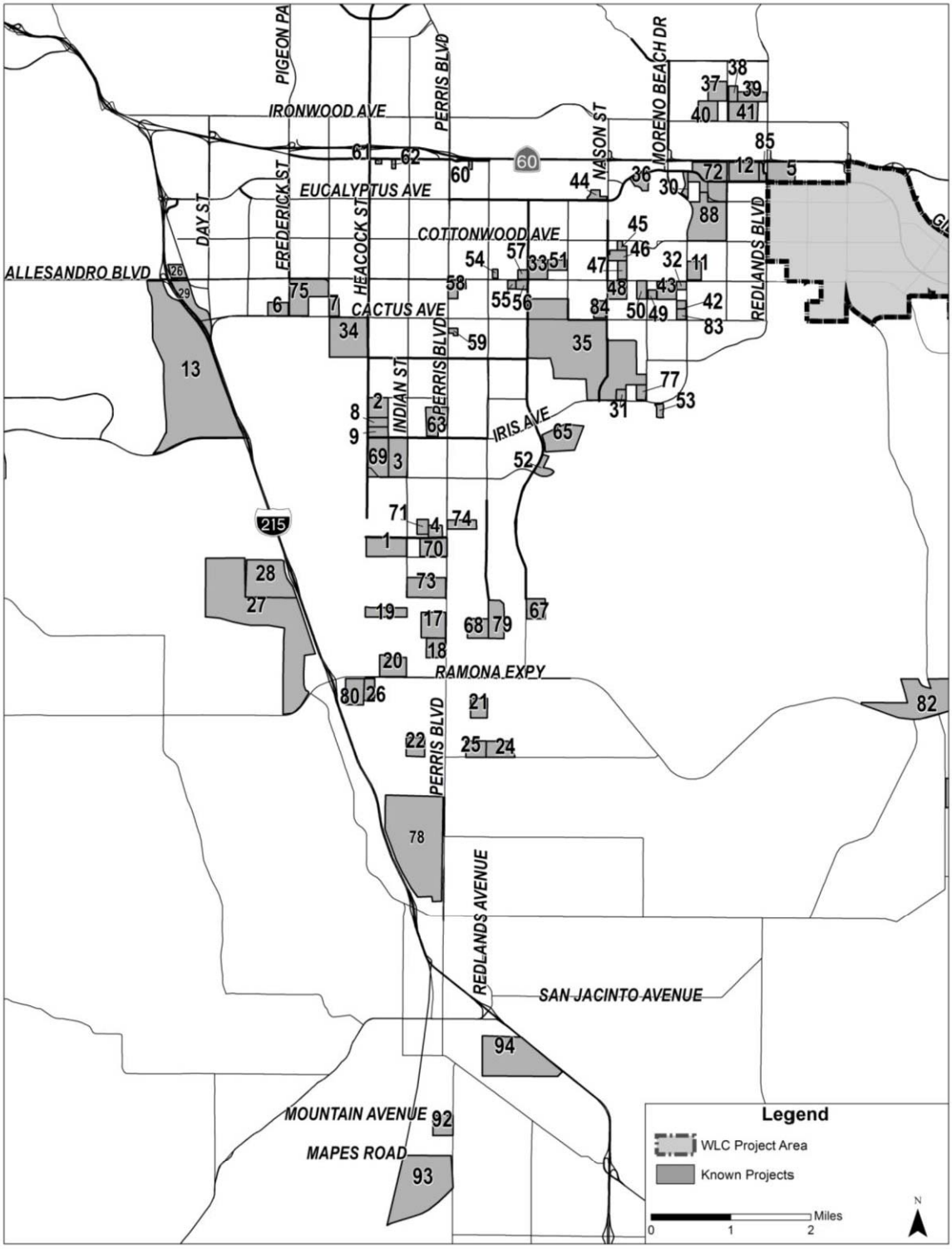



**Figure 4: Locations of Other Past, Present, and Reasonably Foreseeable Projects in the Study Area**

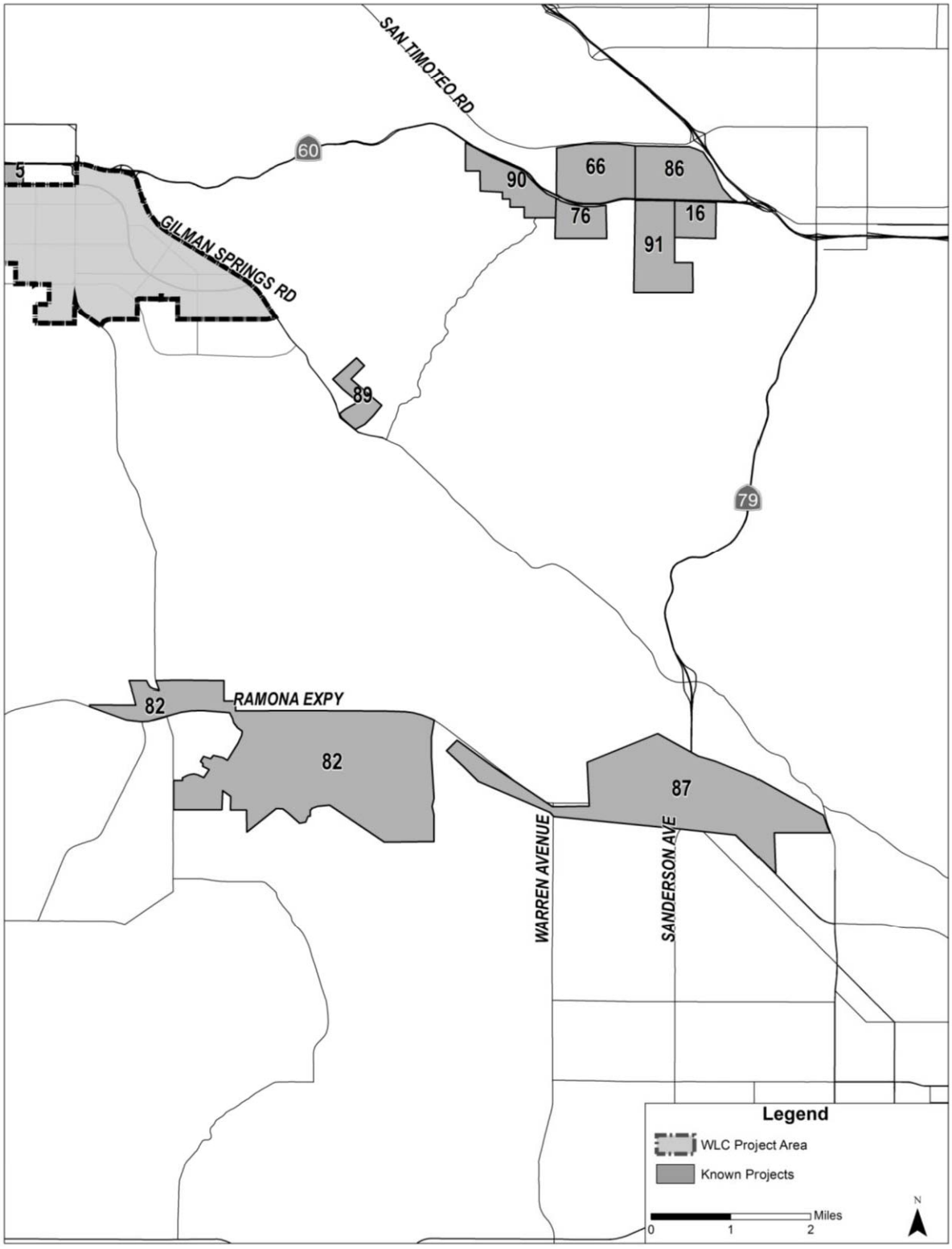



**Figure 4: Locations of Other Past, Present, and Reasonably Foreseeable Projects in the Study Area (continued)**

**Table 1: Other Development Projects Assumed to be Completed by 2022**

| Project | | Land Use Type | Square Feet (Non Residential) | Dwelling Units |
|---|---|---|---|---|
| 1 | First Industrial I & II (Industrial Area SP) | Light Industrial | 865,960 | 0 |
| 2 | Moreno Valley Industrial Park, (Industrial Area SP) | Light Industrial | 619,127 | 0 |
| 3 | Indian Business Park, (Industrial Area SP) | Business Park | 1,560,046 | 0 |
| 4 | Moreno Valley Industrial Center (Industrial Area SP) | Light Industrial | 354,810 | 0 |
| 5 | Highland Fairview, Corporate Park, (Phases 2 and 3) | Commercial | 200,000 | 0 |
| | | Logistics | 600,000 | 0 |
| 6 | Overton Moore Properties PA08-0072 | Light Industrial | 520,000 | 0 |
| 7 | Centerpointe Business Park | Light Industrial | 356,000 | 0 |
| 8 | PA07-0035 | Heavy Industrial | 207,086 | 0 |
| 9 | PA07-0039, (Industrial Area SP) | Heavy Industrial | 409,598 | 0 |
| 11 | Moreno Beach Marketplace / Lowes | Commercial | 175,000 | 0 |
| 12 | Westridge Commerce Center | Light Industrial | 937,260 | 0 |
| 13 | Meridian Business Park | Business Park | 5,985,000 | 0 |
| 16 | ProLogis/Rolling Hills Ranch Industrial | Heavy Industrial | 2,565,684 | 0 |
| 17 | P05-0113 | Logistics | 1,743,000 | 0 |
| 18 | P05-0192 | Logistics | 697,600 | 0 |
| 19 | P07-09-0018 | Heavy Industrial | 170,000 | 0 |
| 20 | P07-07-0029 | Logistics | 3,008,000 | 0 |
| 21 | P05-0493 | Logistics | 597,370 | 0 |
| 22 | Ridge II | Heavy Industrial | 2,000,000 | 0 |
| 24 | Jordan Distribution | Heavy Industrial | 378,000 | 0 |
| 25 | Aiere | Heavy Industrial | 642,000 | 0 |
| 26 | P07-1028, -0102; and P09-0416, -0418, -0419 | Light Industrial | 652,018 | 0 |
| 27 | Majestic Freeway Business Center, SP 341 | Light Industrial | 6,200,000 | 0 |
| 28 | Oleander Business Park, PP20699 | Heavy Industrial | 1,172,710 | 0 |
| | | Office | 34,000 | 0 |
| 29 | Amstar/Kaliber Development, PP22925 | Light Industrial | 42,222 | 0 |
| | | Heavy Industrial | 409,312 | 0 |
| | | Commercial | 10,000 | 0 |
| | | Office | 258,102 | 0 |
| 30 | Auto Mall Specific Plan Planning Area C | Commercial | 304,500 | 0 |
| 31 | Moreno Medical Campus | Medical Office | 80,000 | 0 |
| 32 | Convenience Store / Fueling Station | Commercial | 30,750 | 0 |
| 33 | Retail Center / Winco Foods | Commercial | 140,000 | 0 |
| 34 | March LifeCare Campus Specific Plan | Commercial | 315,000 | 0 |
| | | Medical Office | 1,990,000 | 0 |
| | | Institutional | 940,000 | 0 |
| | | Mixed Use | 310,000 | 0 |
| 35 | Aqua Bella Specific Plan | Residential | 0 | 2,922 |
| 36 | TR36340 | Residential | 0 | 275 |
| 37 | TR32460 / Sussex Capital | Residential | 0 | 58 |
| 38 | TR32459 / Sussex Capital | Residential | 0 | 11 |
| 39 | TR30411 / Pacific Communities | Residential | 0 | 24 |

**Table 1: Other Development Projects Assumed to be Completed by 2022 (continued)**

| Project | | Land Use Type | Square Feet (Non Residential) | Dwelling Units |
|---|---|---|---|---|
| 40 | TR33962 / Pacific Scene Homes | Residential | 0 | 31 |
| 41 | TR30998 / Pacific Communities | Residential | 0 | 47 |
| 42 | Senior Assisted Living | Residential | 0 | 139 |
| 43 | TR31590 / Winchester Associates | Residential | 0 | 96 |
| 44 | TR31305 / Richmond American | Residential | 0 | 87 |
| 45 | TR31771 / Sanchez | Residential | 0 | 25 |
| 46 | TR34397 / Winchester Associates | Residential | 0 | 52 |
| 47 | TR32645 / Winchester Associates | Residential | 0 | 54 |
| 48 | TR32548 / Gabel, Cook & Associates | Residential | 0 | 107 |
| 49 | 26th Corporation & Granite Capitol | Residential | 0 | 32 |
| 50 | TR32218 / Whitney | Residential | 0 | 63 |
| 51 | TR32505 / DR Horton | Residential | 0 | 71 |
| 52 | TR32917 / Empire land | Residential | 0 | 54 |
| 53 | TR34329 / Granite Capitol | Residential | 0 | 90 |
| 54 | TR34216 / Creative Design Associates | Residential | 0 | 189 |
| 55 | TR32756 / CTK, Inc. | Residential | 0 | 241 |
| 56 | TR34681 / Perris Pacific Co. | Residential | 0 | 49 |
| 57 | Alessandro Village Plaza LLC | Residential | 0 | 96 |
| 58 | TR34988 / Stratus Properties | Residential | 0 | 251 |
| 59 | TR33607 / TL Group | Residential | 0 | 52 |
| 60 | TR31814 / Moreno Valley Investors | Residential | 0 | 60 |
| 61 | TR33771 / Creative Design Associates | Residential | 0 | 12 |
| 62 | TR35663 / Kha | Residential | 0 | 12 |
| 63 | TR22180 / Young Homes | Residential | 0 | 87 |
| 64 | TR32515 | Residential | 0 | 161 |
| 65 | TR32142 | Residential | 0 | 81 |
| 66 | Heartland | Residential | 0 | 922 |
| 67 | TR32707 | Residential | 0 | 137 |
| 68 | TR34716 | Residential | 0 | 318 |
| 69 | March Business Center (Industrial Area SP) | Business Park | 1,484,497 | 0 |
| 70 | First Industrial III & IV, (Industrial Area SP) | Light Industrial | 1,182,918 | 0 |
| 71 | San Michele Industrial Center, (Industrial Area SP) | Light Industrial | 865,960 | 0 |
| 72 | ProLogis | Light Industrial | 367,000 | 0 |
| | | Logistics | 1,901,000 | 0 |
| 73 | Vogel /PA09-004 | Heavy Industrial | 1,616,133 | 0 |
| 74 | Ivan Devries / PA06-0017 | Heavy Industrial | 529,200 | 0 |
| 75 | Ridge Property Trust, PA07-0147 & PA 07-0157 | Heavy Industrial | 353,849 | 0 |
| 76 | Hidden Canyon | Light Industrial | 2,890,000 | 0 |
| 77 | Cresta Bella | Office | 30,000 | 0 |
| 78 | Harvest Landing Specific Plan | Business Park | 1,306,582 | 1,860 |
| Total | | | 50,007,294 | 8,766 |

The land use assumptions for the cumulative (2035) scenarios were taken from the RTP/SCS 2035 regional population and employment forecasts for all areas outside of the City of Moreno Valley. Within Moreno Valley, the cumulative-year analysis assumed build-out of the City's General Plan, as required by the City's TIA guidelines[2]. As with the other scenarios, other past, present, and reasonably foreseeable projects in the study area (see Table 2) were added to this scenario. Because it is unlikely that the city will fully build out by 2035, the cumulative impact analysis set forth in this TIA assumes worse background traffic than is likely to occur and is therefore conservative in the sense that it would tend to over-state project impacts.

**Table 2: Other Development Projects Assumed to be Completed by 2035**

| | Project | Land Use Type | Square Feet (Non Residential) | Dwelling Units |
|---|---|---|---|---|
| 79 | P05-0477 | Logistics | 1,725,411 | 0 |
| 80 | Starcrest, P011-0005; 08-11-0006 | Light Industrial | 454,088 | 0 |
| 82 | Moreno Marketplace | Commercial | 93,788 | 0 |
| 83 | Commercial Medical Plaza | Commercial | 311,633 | 0 |
| 84 | P06-158 / Gascon | Commercial | 116,360 | 0 |
| 85 | Mountain Bridge Regional Commercial Community | Commercial | 1,853,251 | 0 |
| 86 | Gateway Area Specific Plan | Commercial | 1,144,600 | 0 |
| | | Mixed Use | 3,051,012 | 0 |
| 87 | TR35823 / Stowe Passco Development | | 0 | 478 |
| 88 | TR35530 / Quail Ranch Specific Plan | | 20,000 | 1,251 |
| 89 | Jack Rabbit Trail | | 0 | 2,000 |
| 90 | The Preserve / Legacy Highlands SP | | 595,901 | 3,412 |
| 91 | Villages of Lakeview | | 500,000 | 11,350 |
| 92 | South Perris Industrial Phase 1 | Logistics | 787,700 | |
| 93 | South Perris Industrial Phase 2 | Logistics | 3,448,734 | |
| 94 | South Perris Industrial Phase 3 | Logistics | 3,166,857 | |
| Total | | | 17,269,335 | 18,491 |

***Network Assumptions***

The scenarios analyzing future conditions required the use of assumptions regarding changes in the road network that may occur between now and the study year. The most well-researched and officially accepted source of longer-term land use forecasts is the SCAG 2012-2035 Regional Transportation Plan (RTP), which was adopted in April 2012 along with the SCS land use forecasts. The RTP was developed through a bottom-up process where agency projects were reviewed, prioritized, and matched against federal, state, and local funding sources. The result was three lists of approved projects, namely:

- The Federal Transportation Improvement Program, which covers the first four years of the program including projects that are already funded and are either already under construction or are in an advanced stage of development.

[2] *Traffic Impact Analysis Preparation Guide*, City of Moreno Valley, August 2007

- A second project list for 2016-2035, the financially constrained project list, that includes only transportation projects that have committed, available, or reasonably available revenue sources, and thus are probable for implementation.
- The Strategic Plan, which is an illustrative list of additional transportation investments that the region would pursue if additional funding and regional commitment were secured. Such investments are potential candidates for inclusion in the constrained RTP/SCS through future amendments or updates.

For this study, only the projects in the Federal Transportation Improvement Program and the financially constrained[3] project list were assumed to be completed (see Figure 5). The projects in the Strategic Plan were not assumed completed because funding for them was considered to be too uncertain. Also, the proposed East-West Freight Corridor that was included in the financially constrained plan was not assumed to be implemented. This is because unlike the other projects which are based on funding mechanisms with a clear track record, the freight corridor is expected to be funded through tolls to be collected by a process that has not yet been established and whose future efficacy is unknown. If it is constructed, then traffic impacts would be less than those described herein.

The network for the 2035 study year was also based on the RTP. However, within the City of Moreno Valley the General Plan road network was incorporated into the study (see Figure 6). The General Plan network includes future planned improvements that are funded through the City's Development Impact Fee (DIF), Western Riverside Council of Governments' Transportation Uniform Mitigation Fee (TUMF), and improvements made directly by developers. The expectation that these improvements will be in place is therefore consistent with and based upon the assumption of build-out of the General Plan land uses, since most of the improvements will be funded through fees on the new developments. If other sites do not fully build out per the General Plan, then the LOS on the study streets and intersection would likely be better than shown in this report.

The truck routes assumed for roads in Moreno Valley were based on the current Municipal Code. They included the City's recent decision to allow truck traffic on Redlands Blvd. only on the portion north of Fir (future Eucalyptus) Ave.[4]. Within the project site all roads would be truck routes, but trucks would not be permitted to enter or leave the site through the Cactus Ave. Extension.

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[3] These are the projects for which funds are committed or reasonably available.

[4] City Council Ordinance 836, dated January 2012, rescinded the designation of Redlands Blvd. as a truck route south of Fir Avenue.Blvd..

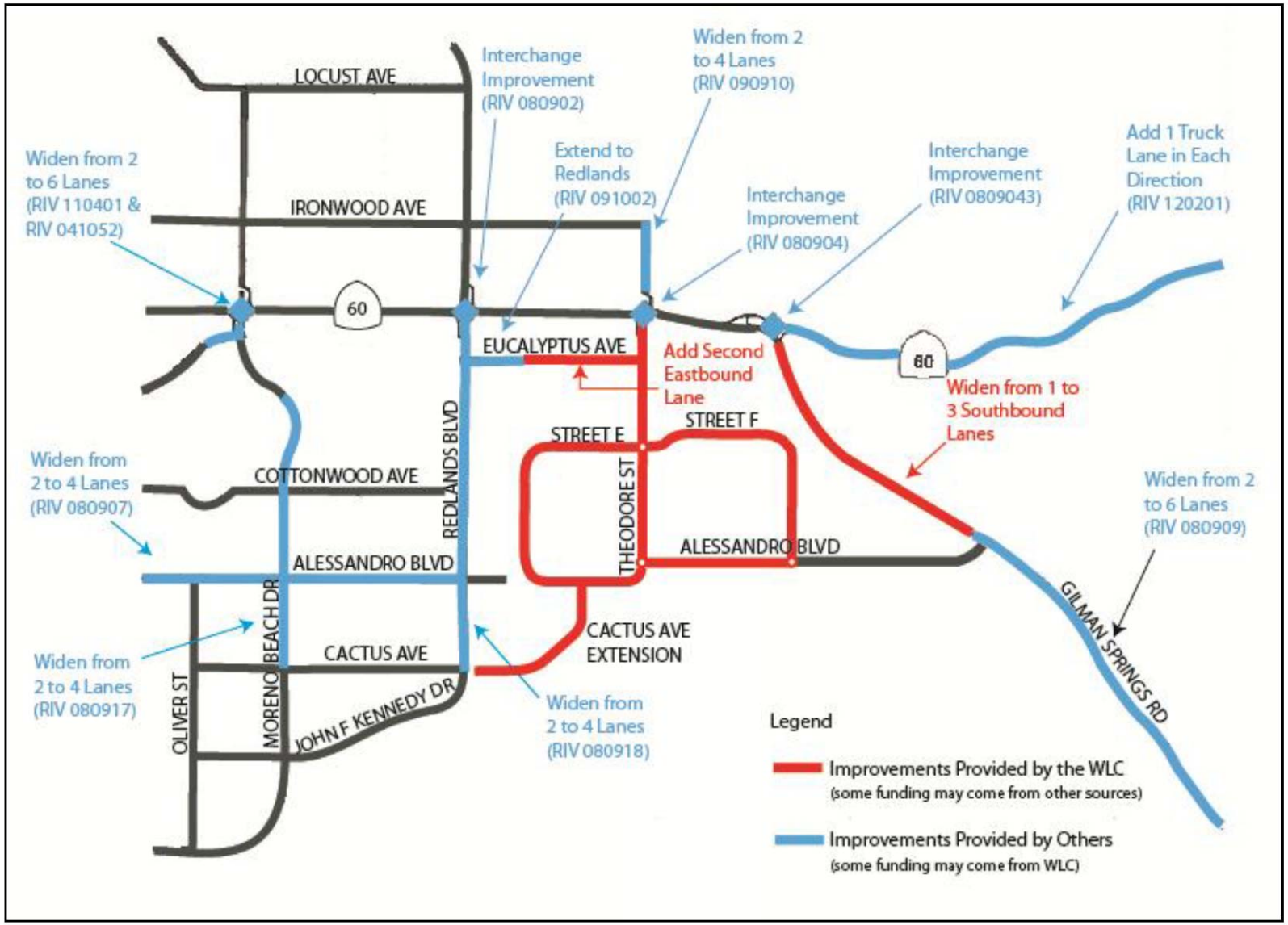



**Figure 5: Roadway Improvements Assumed for 2022**

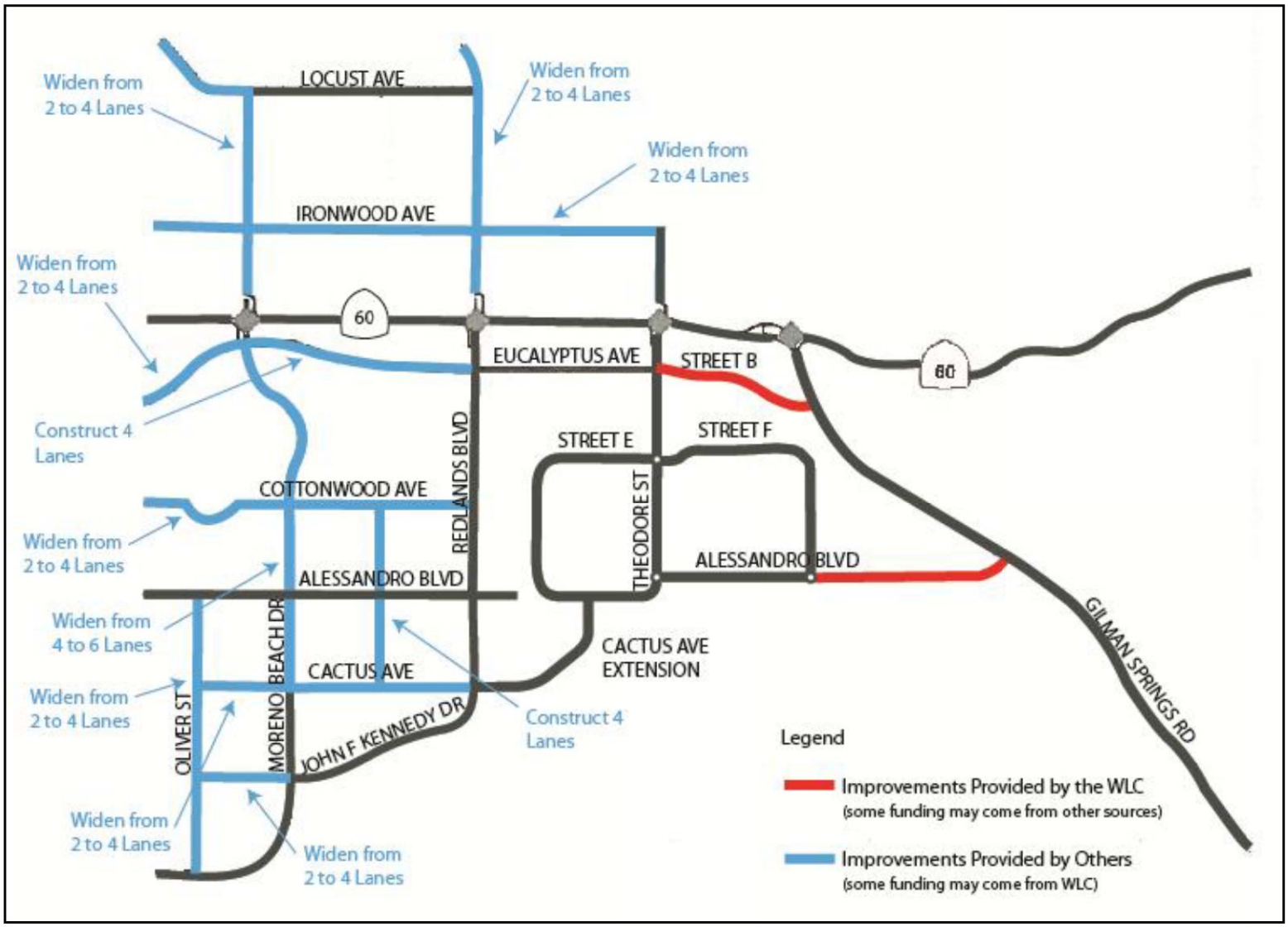



**Figure 6: Roadway Improvements Assumed for 2035**

***Trip Generation Assumptions for High-Cube Warehouses***

Based on the proposed WLC Specific Plan, high-cube logistics warehousing would comprise 99.4% of the floor space of the WLC, so a considerable amount of deliberation and study went into the selection of the most appropriate trip generation rate for this particular type of building. Four possible sources of trip generation rates were identified and evaluated, as described below. The City's TIA guidelines specify that a combination of the first two sources be used, with the Institute of Transportation Engineers (ITE) *Trip Generation Manual* being the source of the overall trip generation rate and the City of Fontana *Truck Trip Generation Study* being the source of the vehicle mix percentages.

*1. ITE Trip Generation Manual*

The most widely-recognized source for data on how much traffic various types of land uses generate is the ITE *Trip Generation Manual*. The report is a compilation of results from surveys performed at sites across the country representing different land use types. The *Trip Generation Manual* is periodically updated to include new building types as they enter the market and subdividing previous categories as the accumulated data allows for greater specificity of definition.

The 5th edition of Trip Generation, published in 1991, introduced High-Cube Warehouse (category 152) as a new land use category distinct from Warehousing (category 150). The new category was described as,

> "*High-cube warehouses are a new type of warehouse used for the storage of manufactured goods prior to their distribution to retail outlets. These facilities consist of large shells of steel buildings and large halls, often sub-divided for individual tenants, with a typical ceiling height of 24 to 26 feet; they are also characterized by a small employment count due to a high level of mechanization, truck activities frequently outside the peak hour of the adjacent street system, and good freeway access. A related land use is warehousing (land use 150).*"

The most recent, 9th, edition of the Trip Generation Manual was released in September 2012. The average trip generation rate for high-cube warehouses was estimated to be 1.680 vehicle-trips/day per 1,000 square feet of floor space (VT/KSF), 0.110 VT/KSF for the AM peak hour, and 0.120 VT/KSF for the PM peak hour.

The ITE trip generation rates are intended to represent a national average and thus do not account for regional and local variations in building age, degree of automation, and the specific operational aspects taking place in high-cube warehouses. Three studies conducted to provide guidance on local trip generation rates, described below, indicate that high-cube warehouses in the Inland Empire have significantly lower trip generation rates than those found in the ITE *Trip Generation Manual*.

*2. Fontana Truck Trip Generation Study*

In 2003, the City of Fontana commissioned a study of trip generation at warehouses and industrial sites with the stated purpose that, "*This study will be a primary tool in the preparation of Traffic Impact Analysis (TIA's) for Congestion Management Plan (CMP) compliance in southern California, since it reflects trip making with local characteristics*." (City of Fontana, page 1) This study is widely used in transportation impact studies in the Inland Empire and is cited in the City of Moreno Valley's traffic impact guidelines as a data source (City of Moreno Valley, page 10). The peak hour trip generation rates measured for large warehouses in the study are shown in Table 3 along with the ITE rates.

**Table 3: Comparison of ITE and Fontana Trip Generation Rates (per KSF)**

| Source of Trip Generation Rates | AM Peak Hour | | | PM Peak Hour | | | Daily |
|---|---|---|---|---|---|---|---|
| | In | Out | Total | In | Out | Total | |
| ITE *Trip Generation Manual* | 0.0759 | 0.0341 | 0.1100 | 0.0372 | 0.0828 | 0.1200 | 1.6800 |
| Fontana *Truck Trip Generation Study* | 0.0357 | 0.0343 | 0.0700 | 0.0224 | 0.0506 | 0.0730 | 1.9700 |
| Fontana Rate as a Percent of ITE Rate | 47% | 101% | 64% | 60% | 61% | 61% | 117% |

This source found that the overall amount of peak-hour trips generated by large warehouses in Fontana is about 36%-39% less than the ITE rates.

The Fontana study involved relatively few survey sites (five). However, this study's conclusions were later found to be supported by a much larger study, as described below.

*3. The 2011 NAIOP Trip Generation Study of High-Cube Warehouses*

The Commercial Real Estate Development Association, also known by its former acronym NAIOP, commissioned a study of high-cube warehouses in the Inland Empire focused on the type of large highly-automated warehouses that are being proposed for the WLC. The NAIOP study is particularly relevant to the WLC because it is:

- Specific – The study was focused on a narrowly-defined type of warehouse development. Like the proposed WLC buildings, the sampled buildings were at least 500,000 square feet each, had no non-warehouse tenants, did not share driveways with other buildings, had been occupied for at least a year, and had no rail access.
- Local – The NAIOP study restricted its sample sites to the Inland Empire, which strengthens the relevance to the WLC. In contrast, the studies used in ITE's general high-cube category relied on data from other parts of the country where port operations, the labor market, and the industrial base may differ markedly from those in the Inland Empire.
- Recent – Many of the studies used in the general ITE high-cube rate were based on relatively old data that do not reflect current operating practices. In contrast, the NAIOP study is based on data

collected in 2008.

- Large –The NAIOP 2011 study covered 31 sites with a very specific type of warehouse building resulting in greater statistical validity for that building type.
- Objective and Comprehensive –The greater Inland Empire region was scanned for large buildings and their locations were annotated using Google Earth. All buildings meeting the specifications described above were considered (i.e. a 100% sample), which eliminated the possibility that the sample was biased ("cherry picked") to support a pre-determined result.
- Overseen by Experts – The NAIOP study was overseen by a Technical Advisory Group with representatives from the City of Moreno Valley, the Western Riverside Council of Governments, the Riverside County Transportation Commission (RCTC), the San Bernardino (County) Associated Governments, and UC Riverside.
- Peer-Reviewed – In 2012 the consulting company Urban Crossroads (UC) was contracted to perform a peer review of the 2011 NAIOP study. Their conclusions were summarized as follows,

  *"SUMMARY OF CONCLUSIONS*

  *Based on our review of a number of trip generation rate sources used by engineers and planners throughout the Inland Empire to analyze the impacts of warehouse and light industrial type of projects, it is clear that no single trip generation rate is uniformly applicable to all warehouse projects. A number of variables affect the applicability of any particular recommended trip generation rate to any particular project. Based on our review, it appears that warehouse size and type are both important variables. The Inland Empire area also provides a unique staging opportunity for goods being shipped into, out of, and through Southern California.*

  *In this specific instance, it is our recommendation that for new high-cube warehouse distribution buildings of at least 500,000 square feet in size in the Inland Empire, the 2011 NAIOP Study provides the most comprehensive collection of survey data compiled to date, and its recommended trip generation rates can be used with confidence to analyze the transportation impacts of modern, high-cube warehouse facilities greater than 500,000 square feet. Our recommendation is based on the fact that this study was broad-based, professionally conducted, validated by an independent Technical Advisory Group (TAG) and followed the trip generation rate methodologies of the Institute of Transportation Engineers (ITE). Based on our assessment of other trip rate studies and the underlying data sources, UC also finds that none of the other trip rate studies that are either currently used by public agencies, or (at times) sought to be imposed by third parties, are appropriate with respect to providing trip generation rates for modern high-cube distribution warehouse projects greater*

*than 500,000 square feet in the Inland Empire. The data supporting these rates include numerous smaller (less than 500,000 square feet) warehouses that are not of the modern high-cube design and are also not located in the Inland Empire area."* (Urban Crossroads, page 1)

Table 4 compares the ITE trip generation rates and the rates from the NAIOP study. This large and focused study found that the trips generated by large warehouses in the Inland Empire are less than half (43%) of the national average rate in the AM peak hour, and 42% less than the ITE rates in the PM peak hour.

**Table 4: Comparison of ITE and NAIOP Trip Generation Rates (per KSF)**

| Source of Trip Generation Rates | AM Peak Hour | | | PM Peak Hour | | | Daily |
|---|---|---|---|---|---|---|---|
| | In | Out | Total | In | Out | Total | |
| ITE *Trip Generation Manual* | 0.076 | 0.034 | 0.110 | 0.037 | 0.083 | 0.120 | 1.680 |
| NAIOP 2011 *Trip Generation Study* | 0.030 | 0.017 | 0.047 | 0.022 | 0.048 | 0.070 | 0.990 |
| NAIOP Rate as a Percent of ITE Rate | 40% | 50% | 43% | 58% | 58% | 58% | 59% |

*4. Skechers Trip Generation*

The best match to the proposed WLC buildings is the existing Skechers building, a very large (1.8 million square-foot) logistics center and factory outlet store built by Highland Fairview and located directly adjacent to the WLC site. It can be considered the prototype for the type of buildings planned for the WLC, except that the WLC buildings will be prohibited from having factory outlet stores[5]. Traffic counts were conducted in November 2012 after the building had been in full operation for over a year. The counts showed that for all time periods the traffic generated by the Skechers building was only about one-third of what the ITE trip generation rates would have predicted (see Table 5)[6]. The actual truck traffic was less than half (41%) of what the methodology mandated in the City of Moreno Valley's traffic impact guidelines (ITE trip generation rates with the vehicle mix from the Fontana truck study) would have predicted (see Table 6).

**Table 5: Comparison of ITE and Skechers Trip Generation Rates (per KSF)**

| Source of Trip Generation Rates | AM Peak Hour | | | PM Peak Hour | | | Daily |
|---|---|---|---|---|---|---|---|
| | In | Out | Total | In | Out | Total | |
| ITE *Trip Generation Manual* | 0.076 | 0.034 | 0.110 | 0.037 | 0.083 | 0.120 | 1.680 |
| Skechers Traffic Counts | 0.022 | 0.013 | 0.035 | 0.004 | 0.033 | 0.037 | 0.567 |
| Skechers Rate as a Percent of ITE Rate | 29% | 38% | 32% | 11% | 40% | 31% | 34% |

[5] Skechers is located directly along the freeway and so was considered an appropriate location for retail sales.

[6] The counts were performed in a way that allowed the traffic to and from the warehouse portion of the site to be distinguished from traffic to and from the outlet store. The rates shown in the tables are for the warehouse portion only.

**Table 6: Comparison of ITE/Fontana Trip Generation Rates to Skechers Rates (per KSF)**

| Vehicle Type | ITE Trip-Gen + Fontana Vehicle Mix (City TIA Methodology) | | Skechers Warehouse Trip-Gen Rates | | Skechers Trip-Gen Rate as a % of City TIA Methodology |
|---|---|---|---|---|---|
| | Trip-Gen Rate | % of Vehicles | Trip-Gen Rate | % of Vehicles | |
| Passenger Vehicles | 1.337 | 79.6% | 0.449 | 79.2% | 34% |
| Light Trucks | 0.058 | 3.5% | 0.019 | 3.3% | 32% |
| Medium Trucks | 0.078 | 4.6% | 0.014 | 2.4% | 17% |
| Heavy Trucks | 0.207 | 12.3% | 0.086 | 15.1% | 41% |
| Total | 1.68 | 100.0% | 0.567 | 100.0% | 34% |

Some DEIR commenters noted the fact that the Fontana study found 12.3% of trips entering or leaving high-cube warehouses were heavy trucks, while some other sources have a higher percentage of heavy trucks (the NAIOP study, for example, had 20.8% heavy trucks). They wrongly concluded that this meant that the WLC analysis forecasted too few trucks. In fact, because the WLC analysis utilized a very high overall trip generation rate the number of truck trips assumed is actually slightly higher than in the NAIOP survey and much higher than the Skechers data indicates would be appropriate (see Table 7 and Figure 7). The figures used in this analysis can therefore be considered a high estimate of truck traffic and a very high estimate of car traffic compared to conditions actually found at the most comparable sites.

**Table 7: Comparison of Truck Trip Generation from Southern California Sources**

| Source | Total Vehicle Trips /Day/KSF | % trucks | Heavy Truck Trips/Day /KSF | Other Trips/Day /KSF |
|---|---|---|---|---|
| WLC | 1.68 | 12.3% | 0.207 | 1.473 |
| NAIOP | 0.99 | 20.8% | 0.206 | 0.784 |
| Skechers | 0.57 | 15.2% | 0.086 | 0.481 |

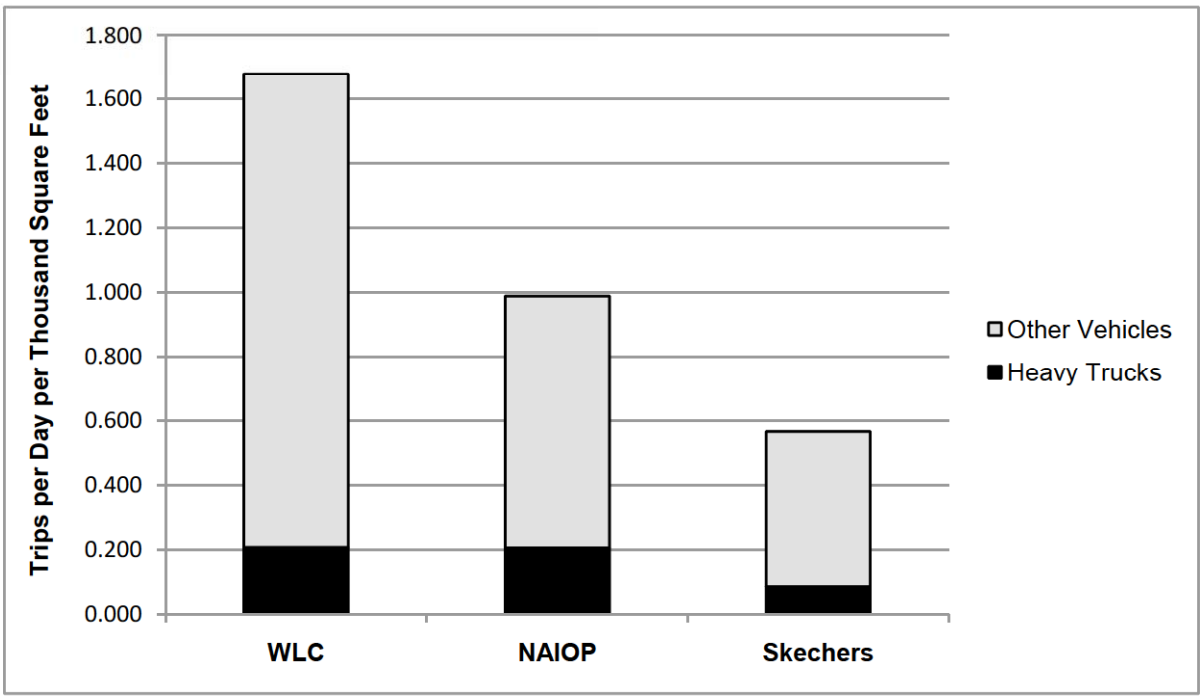



**Figure 7: Comparison of Trip Generation from Southern California Sources**

Some DEIR commenters suggested that this analysis should use a combination of a very high overall trip generation rate with a high heavy truck percentage to estimate the number of project truck trips. The problem with this approach is that the City has used it before in previous analyses and found that it produced results that were unreasonable when compared to actual field conditions. For example, this approach was used in the EIR for the Skechers high-cube warehouse building and resulted in forecasts that were three times the actual post-construction trip generation for car trips and nearly eight times the actual trip generation for trucks[7]. This approach is misleading to decision makers and could result in oversized infrastructure which itself would have environmental consequences, creates an undue burden on development, and could ultimately discredit the City's project review process in the eyes of the business community and members of the public. For these reasons it was not used in the current analysis and the formula in the City's Traffic Impact Guidelines was used instead. The results, which are quite high compared to survey data (as shown in Figure 7), thus meet CEQA's standard of substantial evidence.

[7] These figures are based on traffic counts taken at the Skechers building after it had been fully operational for over a year. See Technical Memorandum *Traffic Generated by the Skechers Warehouse*, Parsons Brinckerhoff to the City of Moreno Valley, November 14, 2012.

*City of Moreno Valley Survey of Trip Generation from High-Cube Warehouses*

Concerns over unrealistically high trip generation forecasts prompted the City of Moreno Valley Transportation Engineering Division to perform their own survey of trip generation at six warehouses in the city. This study[8] used counts collected in Fall 2013, i.e. well after the WLC DEIR had been sent out for public review. The City study confirmed that the vehicle mix for the Heavy Warehouse category in the Fontana *Truck Trip Generation Study* (i.e. the data used for the WLC TIA) produces a good, but conservative (i.e. somewhat high), estimate of truck trips percentages for high-cube warehouses while the Fontana the Truck Terminal category produces an obvious over-estimate of truck traffic (see Figure 8).

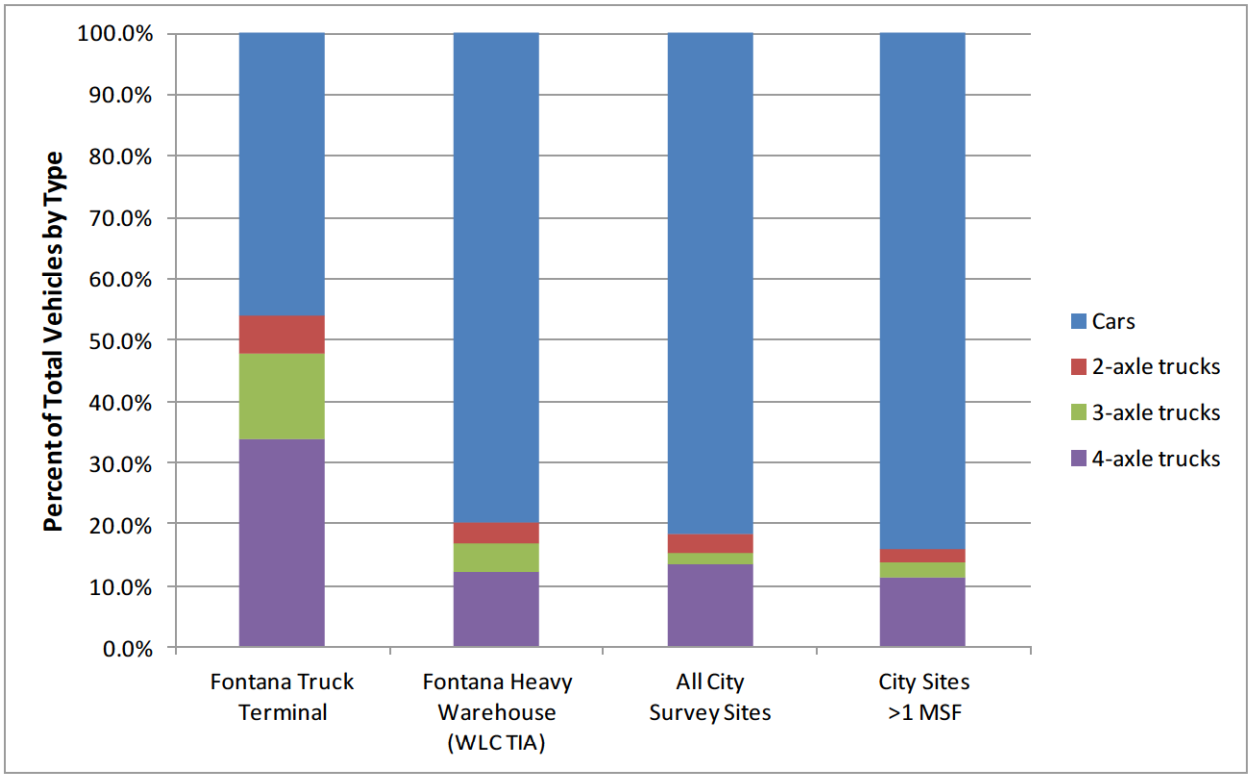



**Figure 8: Comparison of Vehicle Mixes from the City Survey and the Fontana Study**

Besides vehicle mixes, the City study data was also used to calculate the overall trip generation rates for different categories of vehicles. Figure 9 compares the assumed trip generation using the ITE trip-generation rates in combination with the Fontana vehicle mixes to the measured rates in the City survey. Figure 9 presents the same information with the heavy vehicles converted into passenger car equivalents. Figure 8 and Figure 9show the data for peak-hour conditions, which is used in the LOS analysis to identify potential traffic impacts. The data from the City's surveys confirm that the trip generation rates

[8] *Vehicle Mix Assumption for High-Cube Warehouse*, memorandum from Michael Lloyd to Eric Lewis, September 27, 2013.

used in the WLC TIA are high compared to the measured rates at existing high-cube warehouses in Moreno Valley.

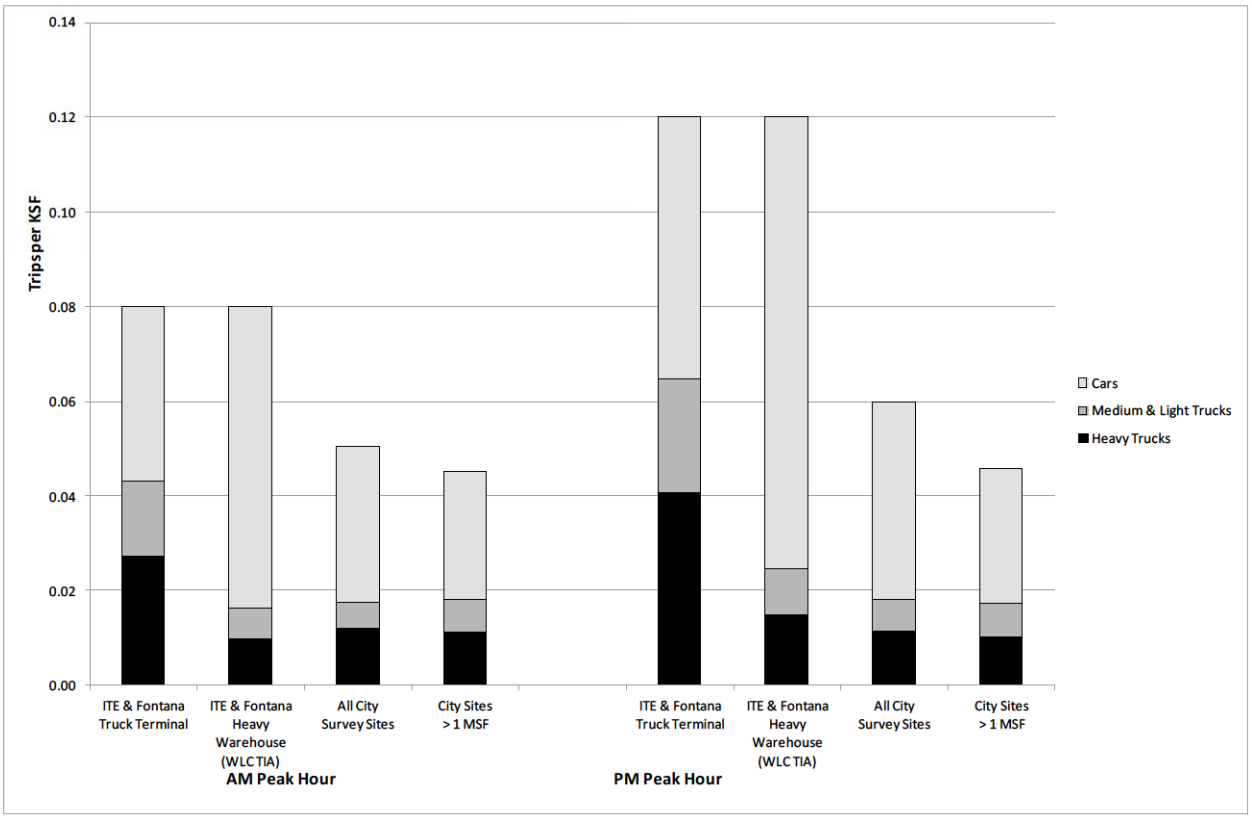



**Figure 9: Peak-Hour Trip Generation from ITE compared to City Surveys (Trips)**

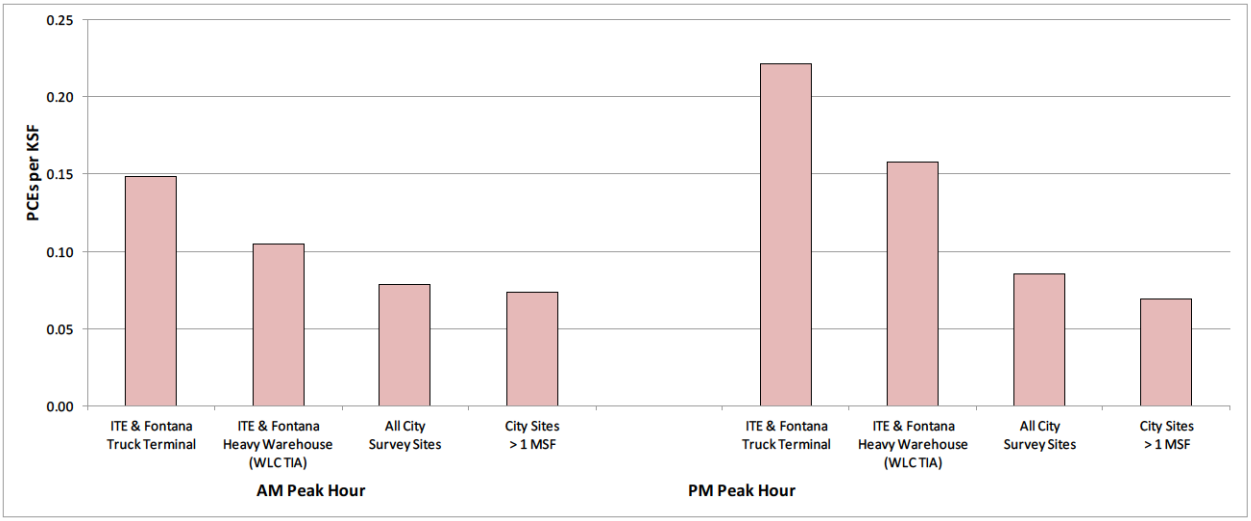



**Figure 10: Peak-Hour Trip Generation from ITE compared to City Surveys (PCEs)**

The City study data was also used to calculate the overall trip generation rates for different categories of vehicles on a daily basis (see Figure 11). This is the time period of most interest for the air quality analysis. The data from the City's surveys confirm that the overall daily trip generation rates used in the WLC TIA are accurate compared to the measured rates at existing high-cube warehouses in Moreno Valley, while the percentage of trucks used in the WLC TIA are high compared to the locally-measured rates.

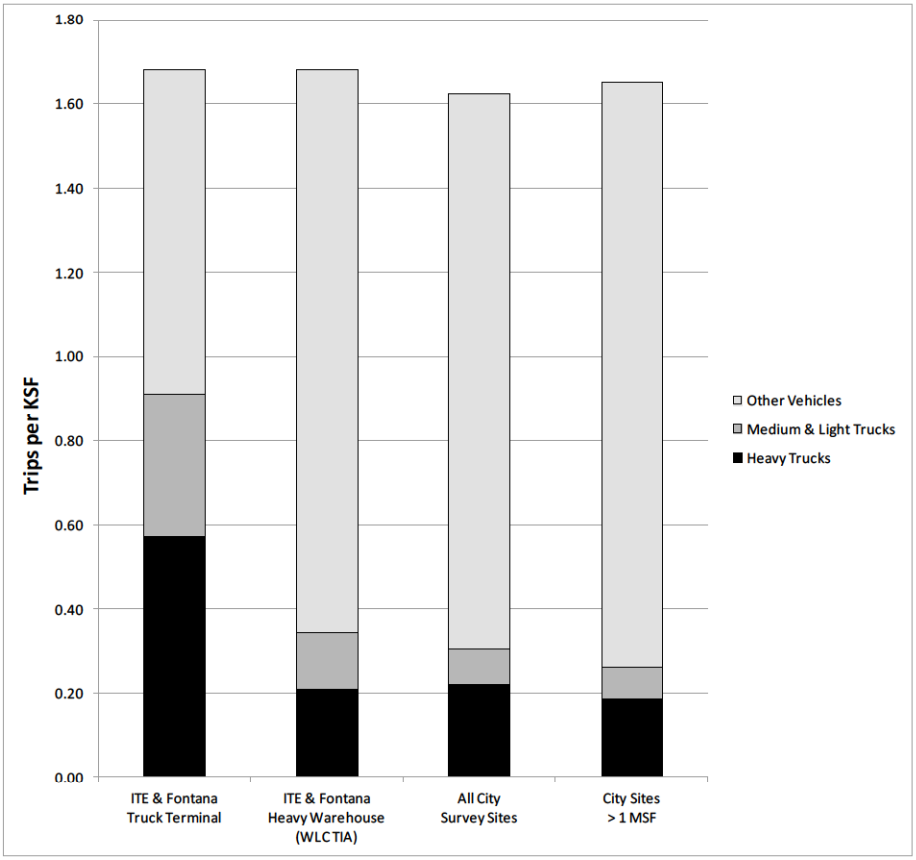



**Figure 11: Daily Trip Generation from ITE compared to City Surveys (Trips)**

*Conclusions from the Comparisons*

The trip generation rates from the ITE Trip Generation Manual and the four local sources are compared in Table 8.

**Table 8: Comparison of Trip Generation Rates for High-Cube Logistics Warehouses**

| Data Source | AM Peak Hour | As % of ITE Rate | Ratio ITE/Other | PM Peak Hour | As % of ITE Rate | Ratio ITE/Other |
|---|---|---|---|---|---|---|
| ITE 9th Edition (Code 152) | 0.110 | | | 0.120 | | |
| Fontana Truck Study | 0.070 | 64% | 1.57 | 0.073 | 61% | 1.64 |
| 2011 NAIOP Study | 0.047 | 43% | 2.34 | 0.070 | 58% | 1.71 |
| Skechers Counts | 0.035 | 32% | 3.14 | 0.037 | 31% | 3.24 |
| City Survey | 0.051 | 46% | 2.16 | 0.060 | 50% | 2.00 |

As shown in the table, the ITE trip generation rate is at a minimum 57% higher than any of the locally-measured rates, and is two or three times higher than some of the locally-measured rates. Based on this data, a decision was made to use the ITE rate as a conservative scenario for the WLC project. Readers should therefore bear in mind that because the rate used in the WLC analysis is very high in comparison with all locally-measured rates, and the Project traffic impacts analysis reflects these high rates, the actual traffic impacts of the WLC project are expected to be much less than those identified in this study.

***Trip Generation Assumptions for Other WLC Land Uses***

The trip generation rates used for other land uses on the WLC site were taken from the ITE *Trip Generation Manual*. The existing homes, which occur in the No-Project scenario, used the rates for ITE land use code 210, Single Family Dwellings. For light logistics uses, ITE code 150, Warehousing, was used, and for the existing utilities servicing stations ITE code 170, Utilities, was used. *Trip Generation Manual* does not have trip generation rates for a fire station so for that use an average rate from three studies was used[9].

***Passenger Car Equivalents (PCEs)***

The analytical methods used to forecast traffic impacts must take into account the driving characteristics of different classes of vehicles. This is typically done through the use of Passenger Car Equivalents (PCE) factors, which convert the number of heavy vehicles in the traffic stream into an equivalent number of passenger cars. The term PCE was first used in the 1965 *Highway Capacity Manual* (HCM), and was determined by comparing the number of times cars passed trucks to the number of times trucks pass cars. According to the *HCM 2000*:

[9] LLG Engineers, *Peaceful Valley Ranch*, County of San Diego, 2007. Fehr and Peers, *Loyola Marymount University Master Plan Project*, City of Los Angeles Department of Transportation, 2009. McMahon, *Upper Dublin Fire House*, Montgomery County, Pennsylvania, 2010. These were the only recent studies found that offered rates for fire stations.

*"The entry of heavy vehicles-that is, vehicles other than passenger cars (a category that includes small trucks and vans)-into the traffic stream affects the number of vehicles that can be served. Heavy vehicles are vehicles that have more than four tires touching the pavement.*

*Trucks, buses, and recreational vehicles (RVs) are the three groups of heavy vehicles addressed by the methods in this manual. Heavy vehicles adversely affect traffic in two ways:*

- *They are larger than passenger cars and occupy more roadway space; and*
- *They have poorer operating capabilities than passenger cars, particularly with respect to acceleration, deceleration, and the ability to maintain speed on upgrades.*

*The second impact is more critical. The inability of heavy vehicles to keep pace with passenger cars in many situations creates large gaps in the traffic stream, which are difficult to fill by passing maneuvers. The resulting inefficiencies in the use of roadway space cannot be completely overcome. This effect is particularly harmful on sustained, steep upgrades, where the difference in operating capabilities is most pronounced, and on two-lane highways, where passing requires use of the opposing travel lane." (*Transportation Research Board, *Highway Capacity Manual 2000*, page 2-5)

Grade is by far the most important determinant in the PCE factor to be used. The HCM's recommended PCE for trucks ranges from 1.5 for places with slopes of less than 2% up to 7.0 for places with steep grades more than a mile long[10]. HCM's recommended PCE factors were used for the WLC freeway analysis.

For the analysis of surface streets, the City's TIA guidelines mandate the use of PCE factors taken from the San Bernardino County CMP, 2003 Update. These are somewhat higher than the HCM rates; for example, HCM recommends two PCEs per heavy truck while the San Bernardino County CMP uses three. This means that the San Bernardino County CMP PCE rates used in the WLC analysis represent a deliberately conservative approach in the sense that the analysis will tend to over-state the impact of trucks on traffic conditions.

## B. ANALYTICAL TOOLS

***Regional Model***

The macro-level traffic forecasting was conducted using the Riverside County Transportation and Analysis Model (RivTAM). RivTAM is a version of the SCAG's latest six-county model with additional detail (traffic analysis zones and local roads) added within Riverside County. It was developed for TIAs in

[10] A PCE factor of 7.0 means that under the stated conditions each truck takes up 7 times as much road capacity as a car would use in level terrain.

Riverside County as a replacement for several older models that covered different portions of the county. RivTAM has both the geographic scope needed to capture all likely impacts and conformity with regional planning assumptions. There is a memorandum of understanding[11] among the jurisdictions of Riverside County that encourages the use of the RivTAM model for TIAs. The MOU reads, in part,

> *"RivTAM was designed to address most city and county level modeling needs in Riverside County. The model inputs and zone system were designed with sufficient detail to support most city/county planning applications. The modeling methodology can support evaluation of a range of highway, HOV, and transit scenarios. The Agencies encourage the use of RivTAM by Cities, other governmental jurisdictions, and private entities for their own transportation planning purposes. Universal use of RivTAM by the Agencies, Cities, other governmental jurisdictions, and private entities, and their consultants will ensure that planning decisions in Riverside County are made on accurate and consistent travel forecasts."* (*MOU for RIVTAM Model Maintenance, Update, and Usage*, page 4)

The use of RivTAM for the analysis in this TIA[12] included the following refinements:

- The traffic analysis zones (TAZs) within the project site were subdivided to allow for a detailed analysis of internal traffic patterns, and the proposed internal road network was substituted for the existing road network for all "with-project" scenarios.
- RivTAM forecasts traffic for two peak periods; a three-hour period in the morning and a four-hour period in the evening. These were converted into forecasts for single peak hours using conversion factors in the *San Bernardino County CMP Appendix H – Post Processed Traffic Volume Guidelines* in accordance with the City's TIA guidelines.
- RivTAM quantifies non-residential developments in units of employees rather than acres or square feet of building space. For developments in the City of Moreno Valley, future developments' acreage was converted into square feet of development using the existing developmental densities in Moreno Valley, and then the square footage was used to estimate the number of employees using the conversion factors in the City's General Plan. For areas outside Moreno Valley the conversion factors used in the Riverside County General Plan were used.

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11 *MOU for RIVTAM Model Maintenance, Update, and Usage*. Not dated, but signed by various parties between June and September, 2010. The signatories were Riverside County Transportation Department, Riverside County Transportation Commission, Western Riverside Council of Governments, Coachella Valley Association of Governments, Southern California Association of Governments, and Caltrans.

12 The modeling data in RIVTAM is based upon modeling information originally developed by the Southern California Association of Governments (SCAG), which has been modified by Parsons Brinckerhoff. The modeling data used in this study does not necessarily reflect the official views or policies of SCAG. Parsons Brinckerhoff is wholly responsible for the modeling results and the content of the documentation.

- In the trip distribution stage of RivTAM the model assigns destinations to the trucks trips originating in the WLC warehouses. Since WLC warehouses are attractors of truck trips as well as generators of truck trips, the model assigns approximately 10% of WLC truck trips to destinations that are other warehouses within the project site. As this does not reflect the WLC's expected operations and might result in an under-estimation of truck trips entering and leaving the WLC site, these internal trips were replaced with an equal number of external trips that were distributed among the routes available to trucks leaving the site. Since some trucks may in fact have deliveries or pick-ups at more than one warehouse within the WLC site this represents a conservative assumption.
- Like other regional travel demand models, RivTAM is designed to forecast movements along paths consisting of links between trip origins and destinations. Therefore post-processing is required to convert the link-level forecasts from RivTAM into turning movements for the intersection-level analysis. The Furness method[13] was used to allocate approach volumes among the possible turning movements based on traffic counts of existing traffic patterns.
- The RivTAM model was calibrated to ensure that its forecasts are reasonable. Nevertheless, a model covering a six-county area cannot be expected to be perfectly accurate on each of the hundreds of thousands of links in the model. For that reason, best industry practice is to use the model to forecast the change in traffic volumes and add this change to existing traffic volumes, rather than using the forecast volumes directly from the model. This technique, called the "difference method", was used in this TIA[14]. The difference method eliminates certain types of imperfections in the forecast of background traffic and so improves the accuracy of traffic forecasts.
- To ensure that vehicle trips were not under-estimated, it was also assumed that no trips would be taken by transit. This is another conservative assumption since the WLC would be designed to accommodate bus routes and it is expected that transit service would be provided once the project reaches a transit-supportable level of development.

In summary, RivTAM was used to provide accurate forecasts of project impacts on the regional road network. Several highly conservative assumptions were used to ensure that the TIA over-estimated rather than under-estimated impacts.

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[13] The Furness method is a technique for balancing the forecast turning movements in such a way as to match both the total approach volume and the total departure volume for each leg predicted in the traffic model. Furness K.P. *Time Function Interaction*. Traffic Engineering and Control, Vol. 7, No. 7, 1970, pp. 19-36

[14] This is the "difference method" described in NCHRP Report 255 *Highway Traffic Data for Urbanized Area Project Planning and Design*, Transportation Research Board, 1982.

***Manual Trip Generation and Assignment for Fueling Station***

The project includes a fueling station and convenience store intended to serve the needs of truckers picking up or delivering cargos at the WLC site. Traffic to the fueling station/convenience store was estimated using the ITE trip generation rates separately for the refueling function (ITE code 945, Gas Station with Convenience Store, measured in pumps) and the convenience store function (ITE code 851, Convenience Store, measured in square feet). In accordance with industry practice a 30% reduction was made for trips going to both the refueling pumps and the convenience store, and 84% of traffic to the facility was categorized as either pass-by trips or diverted linked trips[15]. These are trips that stop at the fueling station as a side trip during the course of a primary trip or from their primary destination in the WLC. Figure 12 shows examples of diverted linked trip paths for inbound trucks going to WLC destinations at the north and south end of the WLC site. All of the trips to and from the fueling station were manually added to the traffic forecast produced by RivTAM.

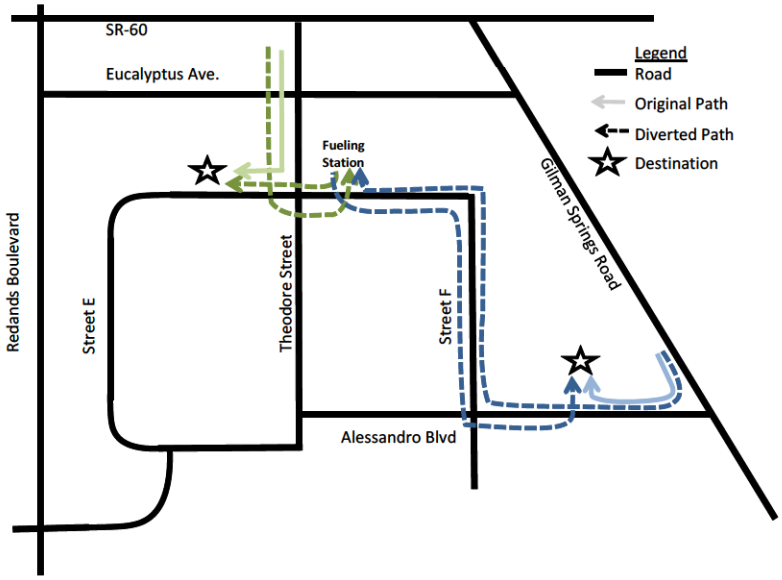



**Figure 12: Examples of Routes Taken by Diverted Linked Trips**

***Definition of LOS***

The HCM defines level of service as a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six LOS are defined for each type of facility, ranging from "A" for the best operating conditions to "F" for the worst, based on driver's perceptions of those conditions. Most jurisdictions have adopted policies that set target levels of LOS for road facilities under their control.

[15] See ITE *Trip Generation Handbook 2nd Edition*, page 29.

***Daily Roadway LOS***

For the road segments affected by the proposed General Plan amendment, a roadway segment analysis was performed consistent with the City of Moreno Valley *Traffic Impact Analysis Preparation Guide* using the daily capacity standards identified in the Guide and shown in Table 9.

**Table 9: Level of Service (LOS) Thresholds for Surface Streets in Moreno Valley**

| Type of Roadway | Level of Service* | | | | |
|---|---|---|---|---|---|
| | LOS A | LOS B | LOS C | LOS D | LOS E |
| 6-Lane Divided Arterial | 33,900 | 39,400 | 45,000 | 50,600 | 56,300 |
| 4-Lane Divided Arterial | 22,500 | 26,300 | 30,000 | 33,800 | 37,500 |
| 4-Lane Undivided Arterial | 15,000 | 17,500 | 20,000 | 22,500 | 25,000 |
| 2-Lane Industrial Collector | 7,500 | 8,800 | 10,000 | 11,300 | 12,500 |
| 2-Lane Undivided Residential | N/A | N/A | N/A | N/A | 2,000 |
| * Maximum Average Daily Traffic (ADT) | | | | | |
| Source: City of Moreno Valley *Traffic Impact Analysis Preparation Guide* , 2007 | | | | | |
| Note: These roadway capacities are "rule of thumb" estimates for planning purposes. The LOS "E" service volumes are estimated maximum daily capacity for respective classifications. Capacity is affected by such factors as intersections (spacing, configuration, and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic), and pedestrian and bicycle traffic. | | | | | |

Gilman Springs Road is a Riverside County facility and so the County LOS thresholds would apply for this study road segment. These thresholds are shown on Table 10[16].

**Table 10: Riverside County LOS Thresholds for Surface Streets**

| Type of Roadway | Level of Service(1) | | |
|---|---|---|---|
| | LOS C | LOS D | LOS E |
| 8-Lane Urban Arterial | 57,400 | 64,600 | 71,800 |
| 6-Lane Urban Arterial | 43,100 | 48,500 | 53,900 |
| 4-Lane Urban Arterial | 28,700 | 32,300 | 35,900 |
| 2-Lane Collector | 10400 | 11700 | 13,000 |
| Notes: All capacity figures are based on optimum conditions and are intended as guidelines for planning purpose only.<br>(1) Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables as defined in the Riverside County Congestion Management Program. | | | |
| Source: County of Riverside General Plan, Circulation Element, 2008 | | | |

[16] Road types not relevant to this study are not shown.

***Intersection LOS***

The LOS analysis of study intersections was performed using the methodology described in the Highway Capacity Manual (HCM) 2010 Chapter 16, for signalized intersections, and Chapter 17 for unsignalized intersections. The computations were performed using Synchro computer software with the settings specified in the City's *Traffic Impact Analysis Preparation Guide*. Synchro defaults were used as appropriate with the standard saturation flow rate of 1900 vehicles/hour and zero percent grade for the signalized intersections. Signal timings were optimized within Synchro and considered uncoordinated except for the following corridors which were identified by the City of Moreno Valley to be coordinated:

- Alessandro Blvd. from Old 215 Frontage Rd. to Kitching St.
- Cactus Ave. from SR 215 Ramps to Lasselle St.
- Ironwood Ave. from Moreno Beach Dr to Redland Blvd.
- Perris Blvd. from Iris Ave. to Krameria Ave.
- Arlington Blvd. from SR-91 WB Ramps to Victoria Ave
- Alessandro Blvd from Sycamore Canyon Blvd to SR-215 NB Ramps
- Martin Luther King Jr. Blvd. from Canyon Crest Dr to SR-60 EB Ramp
- Central Ave. from Lochmoor Dr to SR-60 WB Ramps
- The Ramona Expressway in the City of Perris
- Perris Blvd. in the City of Perris

A cycle length of 120 seconds was used for all coordinated signals. Cycle lengths were maintained at 120 seconds or less with a 3 second yellow and a one-second all red for consistency. Except for the existing conditions scenario which uses actual traffic and truck counts, all future scenario volumes were calculated in PCEs therefore the heavy truck percentage in Synchro was set to zero to avoid double-counting truck trips.

The HCM LOS thresholds for signalized and unsignalized intersections are shown in Table 11. Note that a lower boundary is defined for LOS "F" but no upper boundary is defined. In cases where the forecast delay is greater than 180 seconds drivers would tend to divert to other routes, change their time of travel, select an alternate destination (for example choose to shop at a different store) or change their behavior in other ways that are not well represented in the HCM methodology. For that reason results over 180 seconds are not meaningful and so the results are shown simply as ">180".

**Table 11: LOS Thresholds for Signalized and Unsignalized Intersections**

| Level of Service | Description | Average Control Delay (seconds/vehicle) | |
|---|---|---|---|
| | | Signalized | Unsignalized & Roundabouts |
| A | Very low control delay. Progression is very favorable; most vehicles do not stop. | ≤ 10 | ≤ 10 |
| B | Low delay with good progression and/or short cycle lengths. | > 10 to 20 | > 10 to 15 |
| C | Moderate delay resulting from fair progression and/or longer cycle times. Some vehicles may not clear intersection in one green phase. | > 20 to 35 | > 15 to 25 |
| D | Longer control delays with noticeable congestion. Many vehicles stop and the proportion not served by the first green phase rises. | > 35 to 55 | > 25 to 35 |
| E | High delay due to poor progression, long cycle lengths, or both. | > 55 to 80 | > 35 to 50 |
| F | Intersection oversaturated; arrival rates exceed intersection capacity so queues build up. | > 80 | > 50 |
| Source: *Highway Capacity Manual 2000* , Transportation Research Board, 2000 | | | |
| Note: For signalized intersections and roundabouts the LOS is based on the average for all vehicles entering the intersection. For unsignalized intersections the LOS is based on the delay for the worst-performing approach. | | | |

***Freeway LOS***

The freeway LOS was determined using the density analysis methodology in the HCM. The capacities are based on information contained in the HCM and the Caltrans Ramp Meter Design Manual. Freeway terrains were determined by comparing the grades found in Google Earth Pro to the HCM definitions for level, rolling and mountainous terrain. Existing count data were obtained from Caltrans for the freeway mainline volumes. Three types of freeway facilities were analyzed, namely:

- Freeway mainline levels of service are determined from segment density.
- Freeway weaving is defined as the crossing of two streams of traffic traveling in the same direction along a significant length of highway without the aid of traffic control devices. The weaving analysis used the most current version of the HCM to find the density for the weaving area within the freeway segment and the corresponding LOS.

- The ramp merge and diverge analysis was performed by applying Highway Capacity Software (HCS), the electronic version of the HCM for freeway-to-arterial interchanges. The HCM methodology for ramp areas focused on an influence area of 1,500 feet, including the acceleration or deceleration lane and adjacent freeway lanes.

Table 12 presents the correlation between LOS and density in terms of passenger cars per mile per lane (pc/mi/ln) for various types of freeway facilities.

**Table 12: Caltrans Freeway LOS Criteria**

| LOS | Basic Freeway Segment Denstiy | Freeway Weaving Segment Density | Freeway Ramp Density |
|---|---|---|---|
| | (pc/mi/ln) | (pc/mi/ln) | (pc/mi/ln) |
| A | 0-11.0 | ≤ 10.0 | ≤ 10.0 |
| B | 11.0 – 18.0 | > 10.0 and ≤ 20.0 | > 10.0 and ≤ 20.0 |
| C | 18.0 – 26.0 | > 20.0 and ≤ 28.0 | > 20.0 and ≤ 28.0 |
| D | 26.0 – 35.0 | > 28.0 and ≤ 35.0 | > 28.0 and ≤ 35.0 |
| E | 35.0 – 45.0 | >35.0 and ≤ 43.0 | > 35.0 |
| F | > 45.0 | > 43.0 | Demand Exceeds Capacity |

## C. PERFORMANCE CRITERIA

The study area for surface streets includes intersections located in seven jurisdictions. Each of these jurisdictions has established a target level of service for use in traffic impact studies, which are shown in Table 13.

**Table 13: Intersection LOS Standards by Jurisdiction**

| Jurisdiction | Type of Facility | # of Study Intersections | LOS Standard |
|---|---|---|---|
| Moreno Valley | Intersections adjacent to freeways or employment centers | 57 | D |
| | All other intersections | 14 | C |
| Beaumont | Most intersections | 2 | C |
| | Intersections with major highways | 2 | D |
| Perris | Intersections with SR-74, Ramona Exp, or I-215 | 5 | E |
| | Expressway/arterial intersections | 10 | D |
| | All other intersections | 6 | C |
| Redlands | Intersections currently operating at "D" or worse | 1 | Existing LOS |
| | All other intersections | 2 | C |
| Riverside (County) | Most intersections* | 7 | C |
| | Intersections with Ramona Expressway | 2 | D |
| Riverside (City) | Intersections of collectors or higher roads | 27 | D |
| San Jacinto | Arterial intersections | 1 | D |
| Caltrans | State highway facilities currently operating at LOS "E" or "F" | | Existing Density |
| | State highway facilities | | D |

* Intersections between arterials, highways, expressways, and freeway ramps within community development areas are allowed LOS "D" as an exception.

A project's impact on an intersection is considered significant if the project adds more than 50 peak-hour trips to a surface street or 100 peak-hour trips to a freeway and it would either cause the LOS to exceed the target level set by the jurisdiction or, if the LOS in the no-project condition would already exceed the target LOS level, if the project causes an increase in traffic delay beyond the no-project condition.

Caltrans has established LOS D as the threshold of significance for freeway mainline segments and freeway ramps in the corridors relevant to this study. It is Caltrans policy that if an existing state facility is operating at less than the appropriate target LOS, the existing measure of effectiveness should be maintained. Caltrans uses traffic density (passenger-cars per mile per lane) as the measure of effectiveness for freeways, so if a freeway facility currently operates at LOS "E" or "F" then a project that would increase the traffic density on that facility would be deemed to have a significant impact.

# 3. TRANSPORTATION SETTING

## A. PROJECT SITE

The World Logistics Center (WLC) project area is located in the northwestern Riverside County in the Rancho Belago area, within the eastern portion of the City of Moreno Valley. The proposed project is situated south of State Route 60 (SR-60), between Redlands Blvd. and Gilman Springs Rd. (the easterly City limit), extending to the southerly City limit. Figure 13 depicts the location of the proposed project within the region.

### *Existing Land Uses*

At the present time, the project area is largely undeveloped land. There are seven single-family homes in various locations along with associated ranch/farm buildings within the area. Most of the area has been used intermittently for dry farming since the early 1900s, and much of it continues to be used for dry farming. San Diego Gas & Electric operates a natural gas compressor station, known as the Moreno Compressor Station, on 19 acres in the southern portion of the project area. Southern California Gas Company operates a valving, metering, and pipe cleaning station on a one-acre parcel in the south-central portion of the project area.

The major roadways that currently provide access to the project area are SR-60, Redlands Blvd., Alessandro Blvd., Gilman Springs Rd. and Theodore St. SR-60 is a highway running in a 70-mile-long east-west alignment from Beaumont to Los Angeles. The portion of SR-60 that forms the northern boundary of the project currently has two lanes in each direction of travel. Redlands Blvd. and Theodore St. are north-south collector roadways that intersect with SR-60. Alessandro Blvd. is an east-west thoroughfare that runs through Moreno Valley from Interstate-215 on the west end to Gilman Springs Rd. on the east end. Gilman Springs Rd. runs in a northwesterly-southeasterly direction connecting SR-60 to the Hemet-San Jacinto area and beyond. Redlands Blvd., Theodore St., Alessandro Blvd., and Gilman Springs Rd. all currently have one lane for each direction of travel.

The areas adjacent to the east and south boundaries of the project area are mostly undeveloped. The area east of the project, commonly referred to as the Badlands, is a rugged area that separates the City of Moreno Valley from San Timoteo Canyon and the City of Beaumont. Due to its steep slopes and canyons, the Badlands area has had little development; however there are several single-family homes in this area east of Gilman Springs Rd. The Badlands Sanitary Landfill, operated by the County of Riverside Waste Management Department, is located approximately 1.5 miles northeast of the project area.

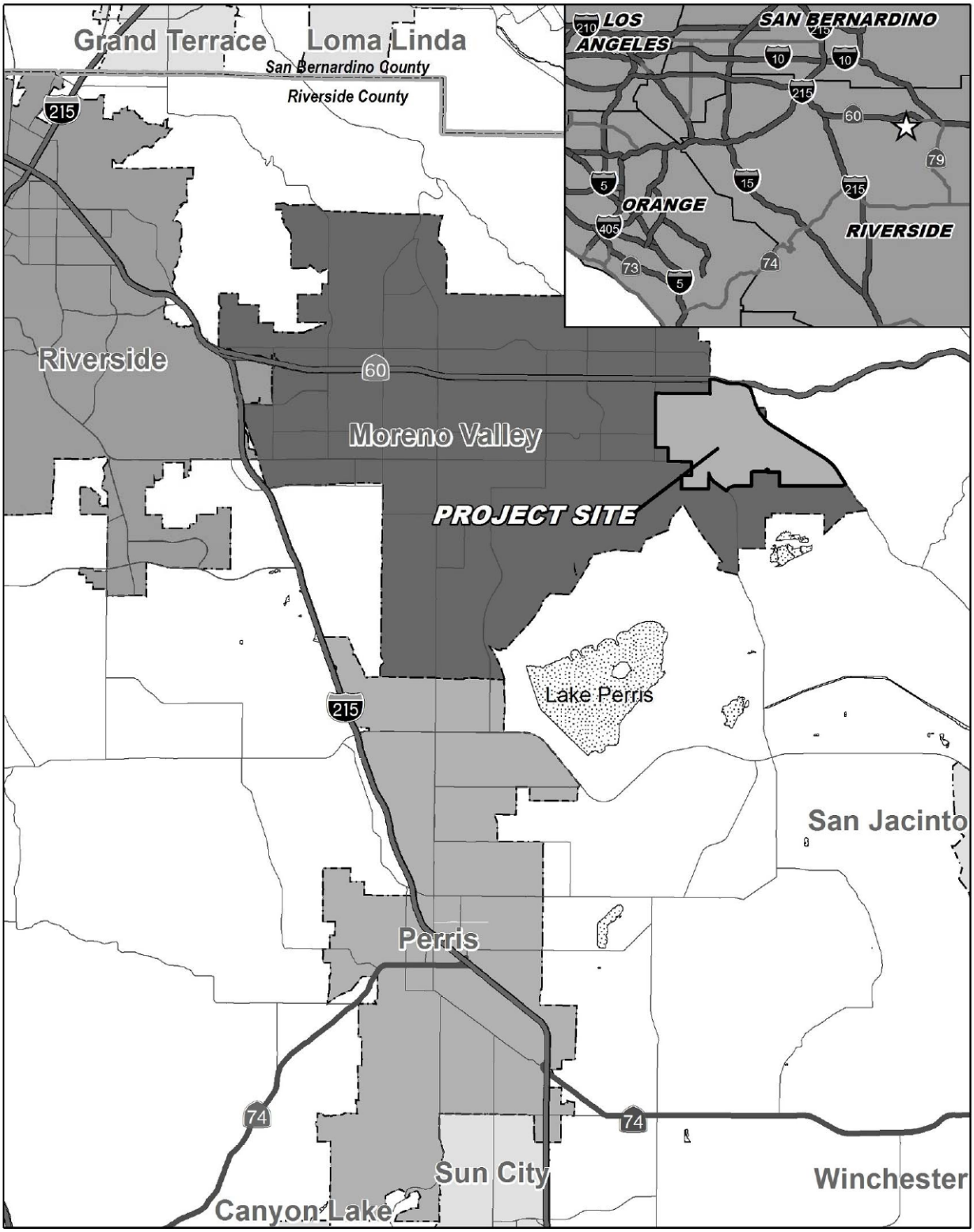



**Figure 13: Project Location**

Directly south of the proposed project is the San Jacinto Wildlife Area (SJWA), which includes the Upland Game Hunting Area and the Lake Perris State Recreation Area. These are state-owned lands and access to these areas is restricted. The SJWA is owned and operated by the California Department of Fish and Wildlife and comprises approximately 20,000 acres of restored wetland and ponds. The Lake Perris State Recreation Area is owned and operated by the California State Parks Department and comprises approximately 9,000 acres of open space land, which is used both for recreation and for the preservation of the native southern California landscape.

Highland Fairview Corporate Park (HFCP), located north and west of the project area between Redlands Blvd. and Theodore St., is currently under development, with the first phase (the Skechers building) completed in late 2011. The area north of SR-60 is largely undeveloped, with clusters of low density residential uses within the Moreno Valley city limits.

To the west of the proposed project is the more developed portion of the City of Moreno Valley. There are existing single family homes located west of Redlands Blvd. Near the southwest corner of the proposed project there is an existing residential neighborhood at the intersection of Redlands Blvd. and Alessandro Blvd.; a small market and a post office are also located near this intersection. The Moreno Valley Ranch and Golf Club residential community is approximately one mile southwest of the project area.

## B. EXISTING TRANSPORTATION FACILITIES

The analysis of existing conditions provides a basis for comparison with the forecasted future conditions with the proposed project.

The existing road system serving the project site consists of:

- Theodore St., a 2-lane undivided arterial running in a north-south direction through the center of the project.
- Alessandro Blvd., a 2-lane undivided arterial running in an east-west direction through the southern half of the project. Alessandro Blvd. has a discontinuity at Theodore St., with its eastern portion intersecting Theodore St. approximately 600 feet north of where the western section intersects Theodore St.
- State Route 60 (SR-60), which runs in a generally east-west alignment from the I-110 in Los Angeles to I-10 in Beaumont. The portion of SR-60 running along the northern edge of the project has two travel lanes per direction.

- Fir (future Eucalyptus) Ave. is part-way through the process of conversion from a 2-lane minor arterial into a portion of Eucalyptus Ave., which would ultimately be a 4-lane arterial. The westbound direction along the HFCP (Skechers) site currently has two lanes while the eastbound direction has one. Fir (future Eucalyptus) is closed between HFCP and Redlands Blvd. with a gate allowing only emergency vehicles to pass.
- Redlands Blvd. is a 2-lane minor arterial running in a north-south direction along a portion of the western edge of the project.
- Gilman Springs Rd. is a 2-lane undivided arterial running in a northwest-southeast direction alongside the eastern edge of the project.
- Dracaea Ave. is a discontinuous east-west residential street providing access to several existing houses on the project site.
- Cottonwood Ave. is a short east-west residential street providing access to several houses on the project site.
- Virginia St. is a north-south access road serving a utilities site. The portion south of Alessandro Blvd. is paved while the portion north of Alessandro Blvd. is unpaved.
- Eucalyptus Ave. is an unpaved service road running east-west between Theodore St. and Gilman Springs Rd.
- Sinclair St. is currently an unimproved right-of-way running north-south between Theodore St. and Redlands Blvd.

A short section of Redlands Blvd. from Dracaea Ave. to McAbee Ave. has sidewalks and a bicycle lane, as does the westbound portion of Fir (Eucalyptus) Ave. fronting HFCP. A class 1 mixed-use trail runs along the east side of Redlands Blvd. from McAbee Ave. to Dracaea Ave. These are the only roads with sidewalks or bicycle lanes. At the present time there is no bus or other transit service to the project site.

***Truck Routes***

Cities and counties in California have the authority to adopt codes that restrict the use of trucks on public roadways, though not all jurisdictions choose to do so. Figure 14 shows the designated truck routes in the vicinity of the WLC. The Cities of Moreno Valley and Perris have designated specific routes while the County of Riverside does not (i.e. trucks may use any County road, though truck parking restrictions may apply). The City of Riverside does not designate truck routes but instead identifies roadways where trucks are not allowed (mostly residential streets). There are no restrictions on truck usage of the state highway system.

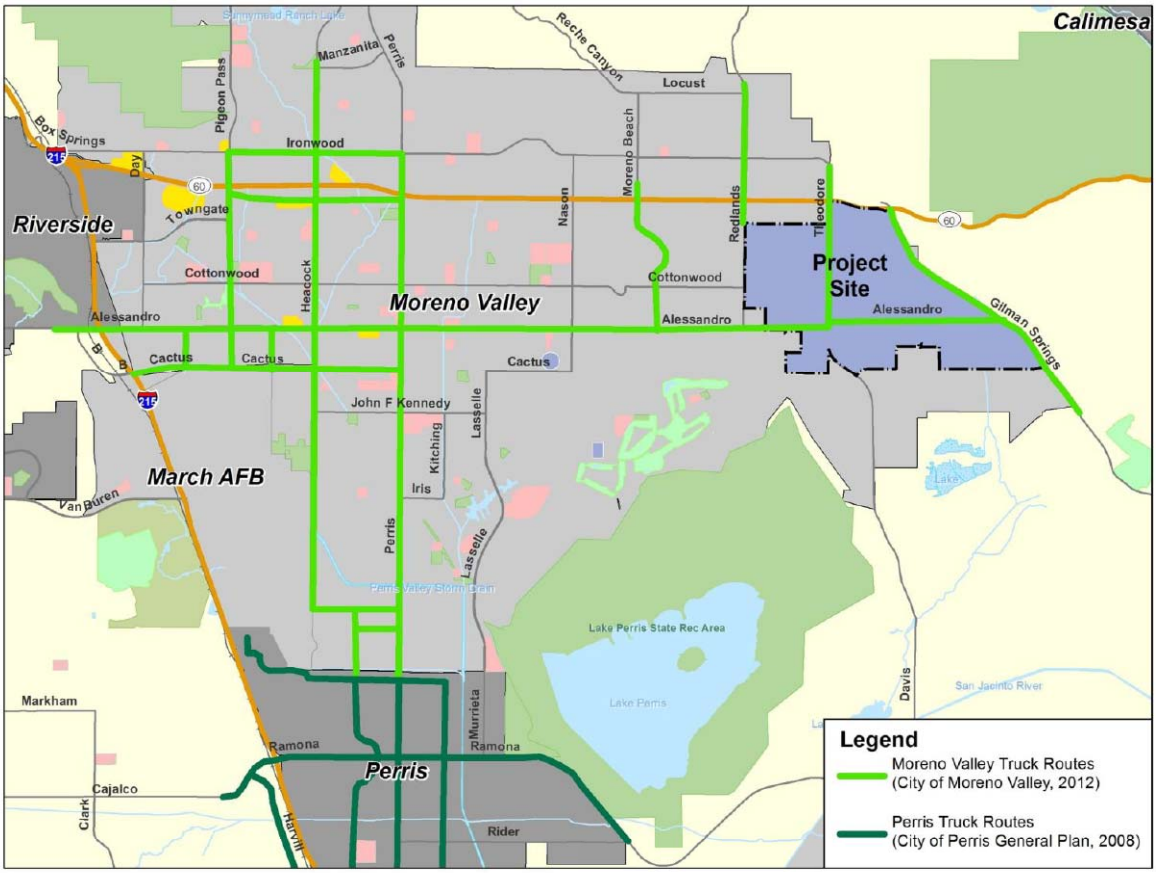



**Figure 14: Existing Designated Truck Routes**

***Transit Services***

Transit services in the area are provided by the Riverside Transit Agency, which operates several bus routes in the City of Moreno Valley. Figure 15 displays the Riverside Transit Agency's existing routes in the area. The bus routes do not currently provide service in the vicinity of the project site.




**Figure 15: Existing Transit Services in Moreno Valley**
(Source: Riverside Transit Agency System Map)

## C. EXISTING TRAFFIC VOLUMES

Traffic counts for turning movements in the AM and PM peak hours were collected for study intersections during typical workdays in 2011 and 2012. Figure 16 provides a key diagram for the location of each study intersection in the intersection turning volume graphics, including Figure 17 (and similar figures for other scenarios) which shows the turning movement volumes under Existing Conditions. The traffic counts are reported in detail in Appendix A. In situations where an intersection does not exist in the scenario the intersection is marked “Future”, if it will be built later, or “Non-Existent” if had existed but has been replaced by an intersection in a different location.

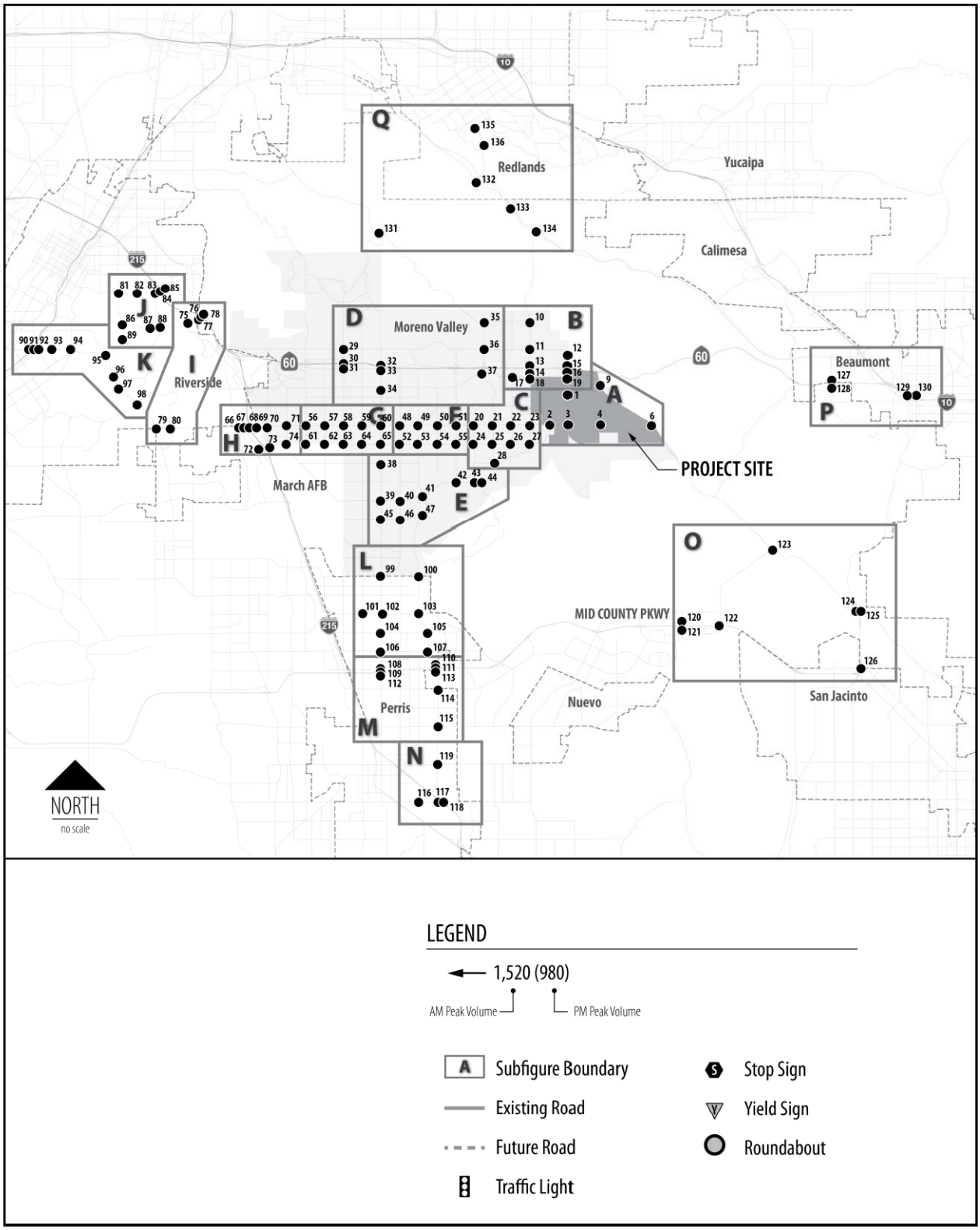



**Figure 16: Study Intersections**

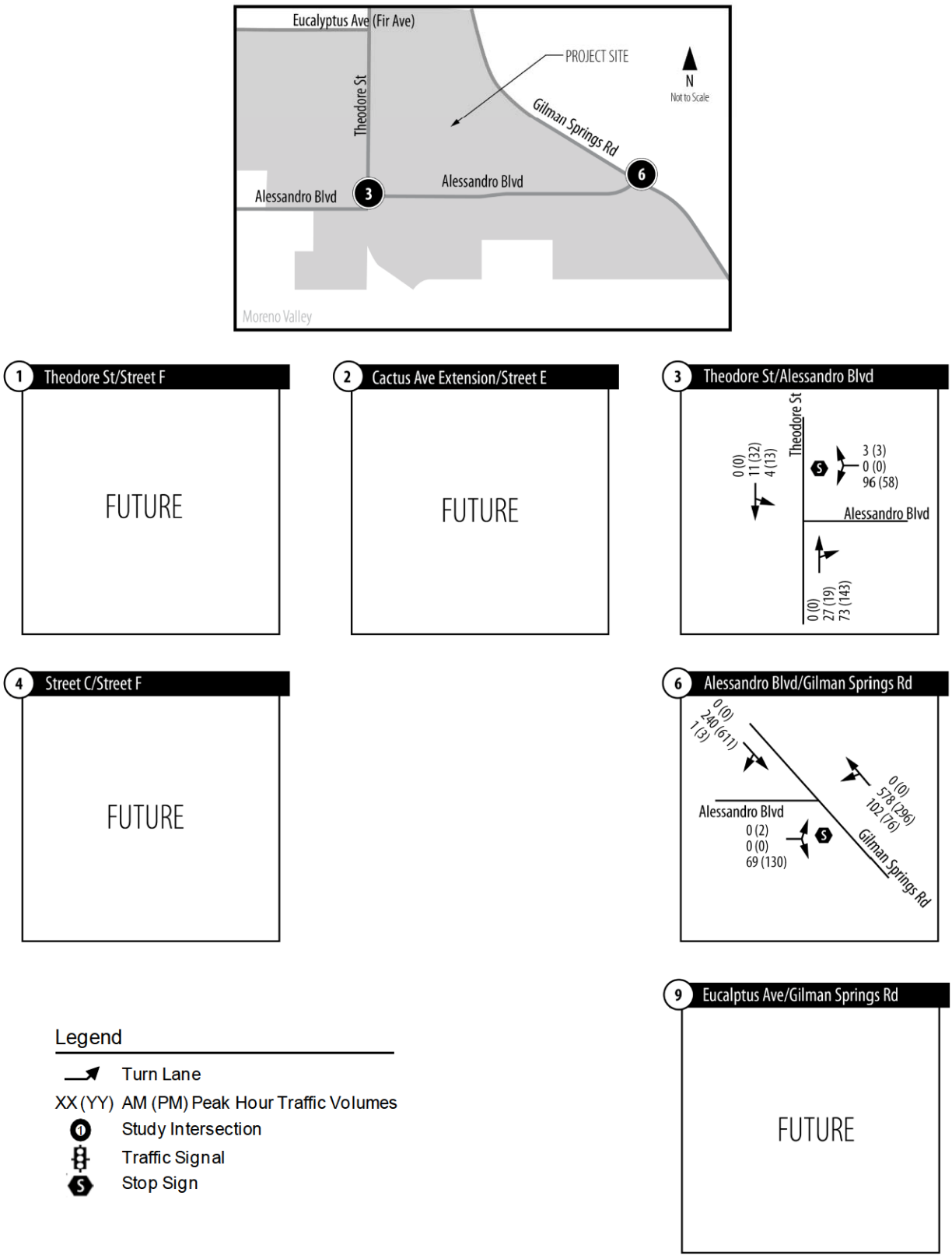



**Figure 17: Turning Movement Volumes under Existing Conditions**

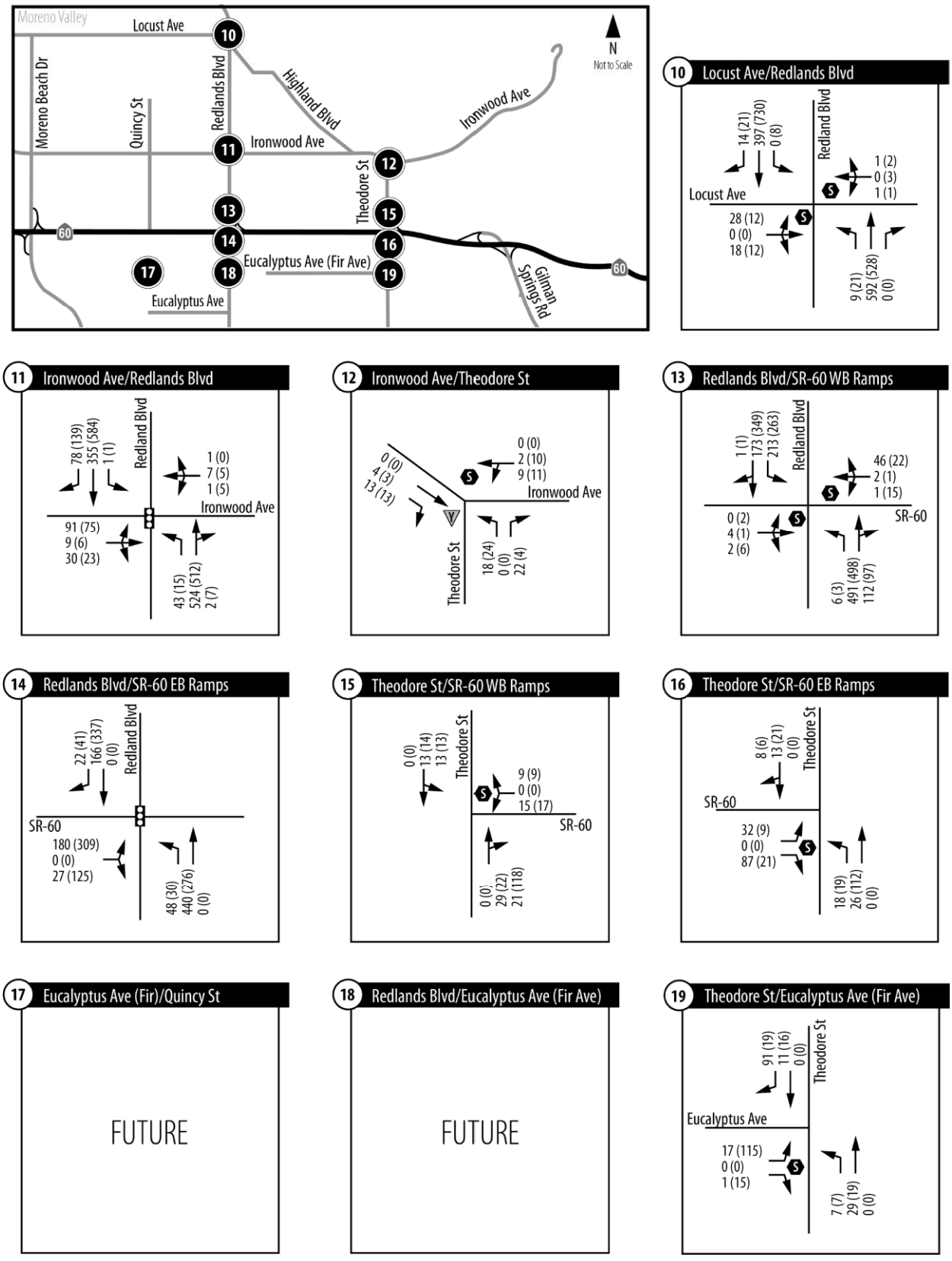



**Figure 17: Turning Movement Volumes under Existing Conditions (B)**

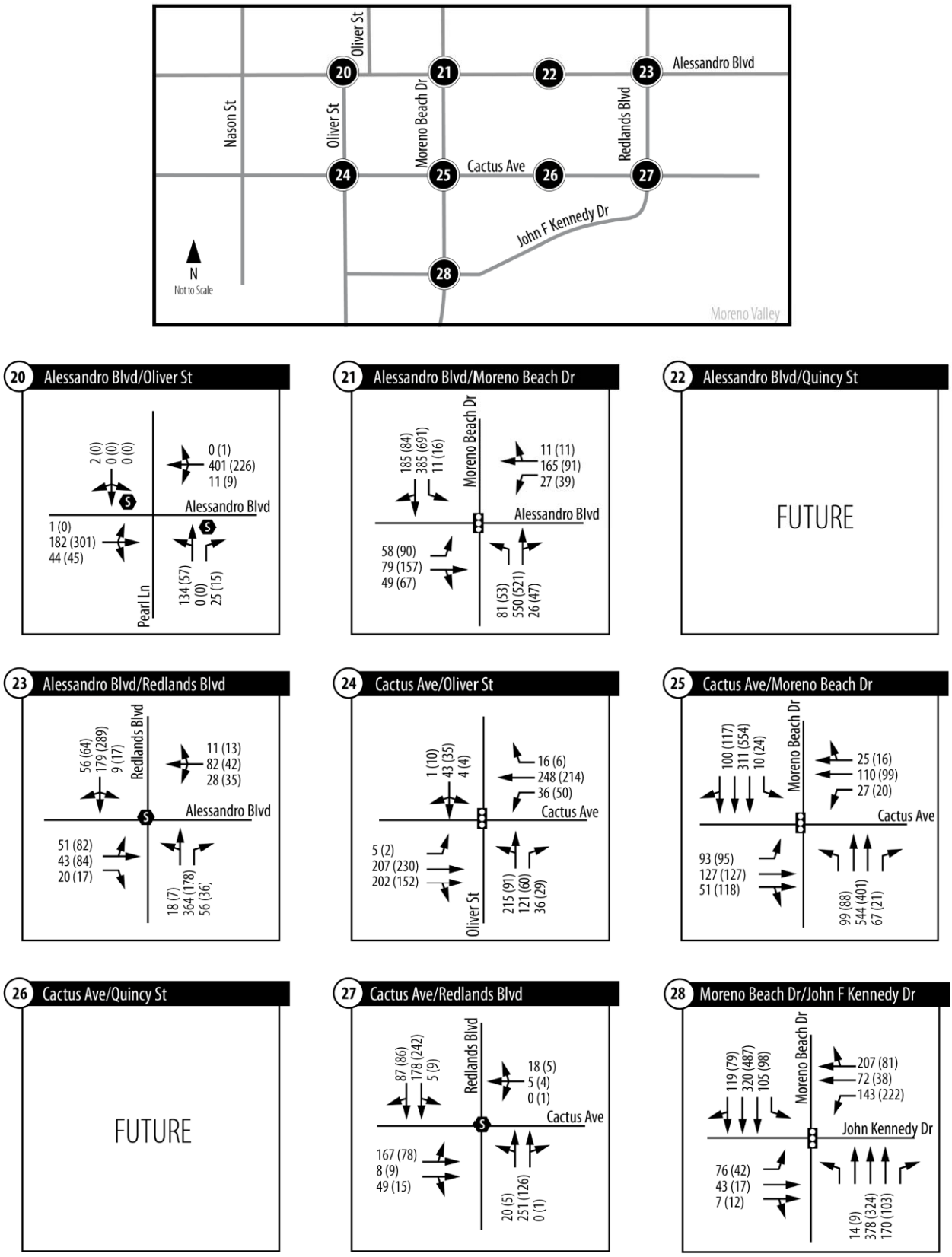



**Figure 17: Turning Movement Volumes under Existing Conditions (C)**

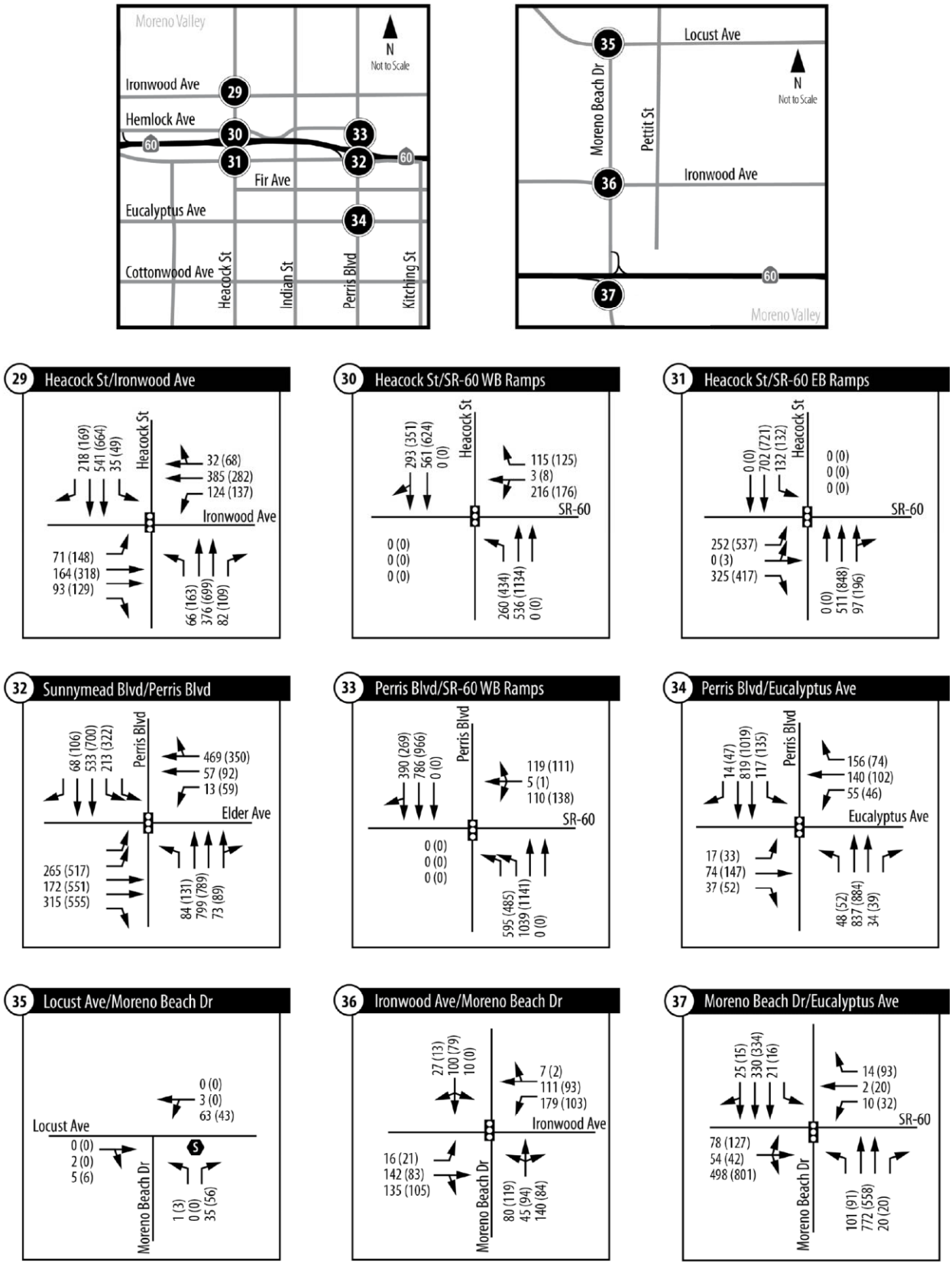



**Figure 17: Turning Movement Volumes under Existing Conditions (D)**

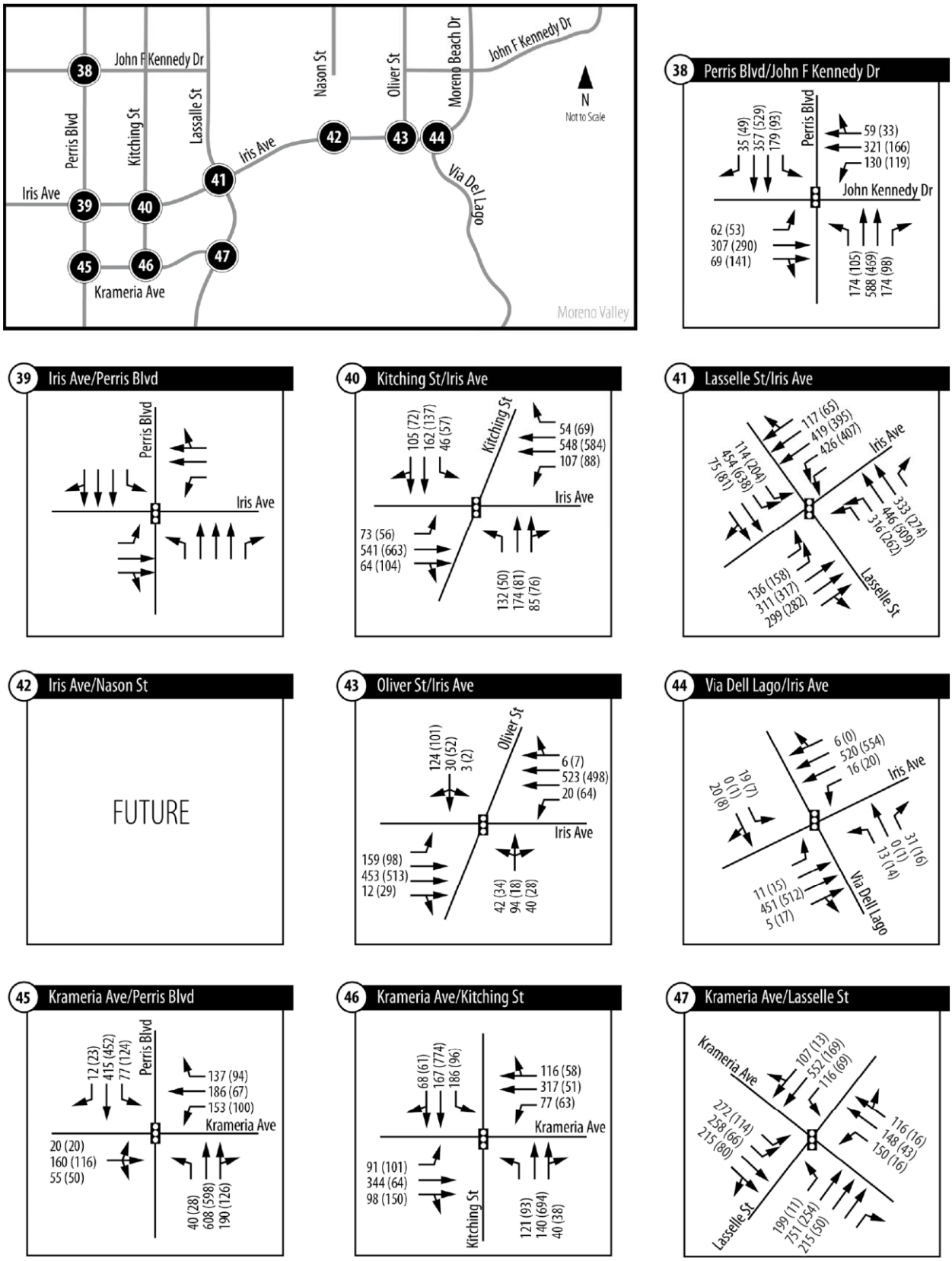



**Figure 17: Turning Movement Volumes under Existing Conditions (E)**

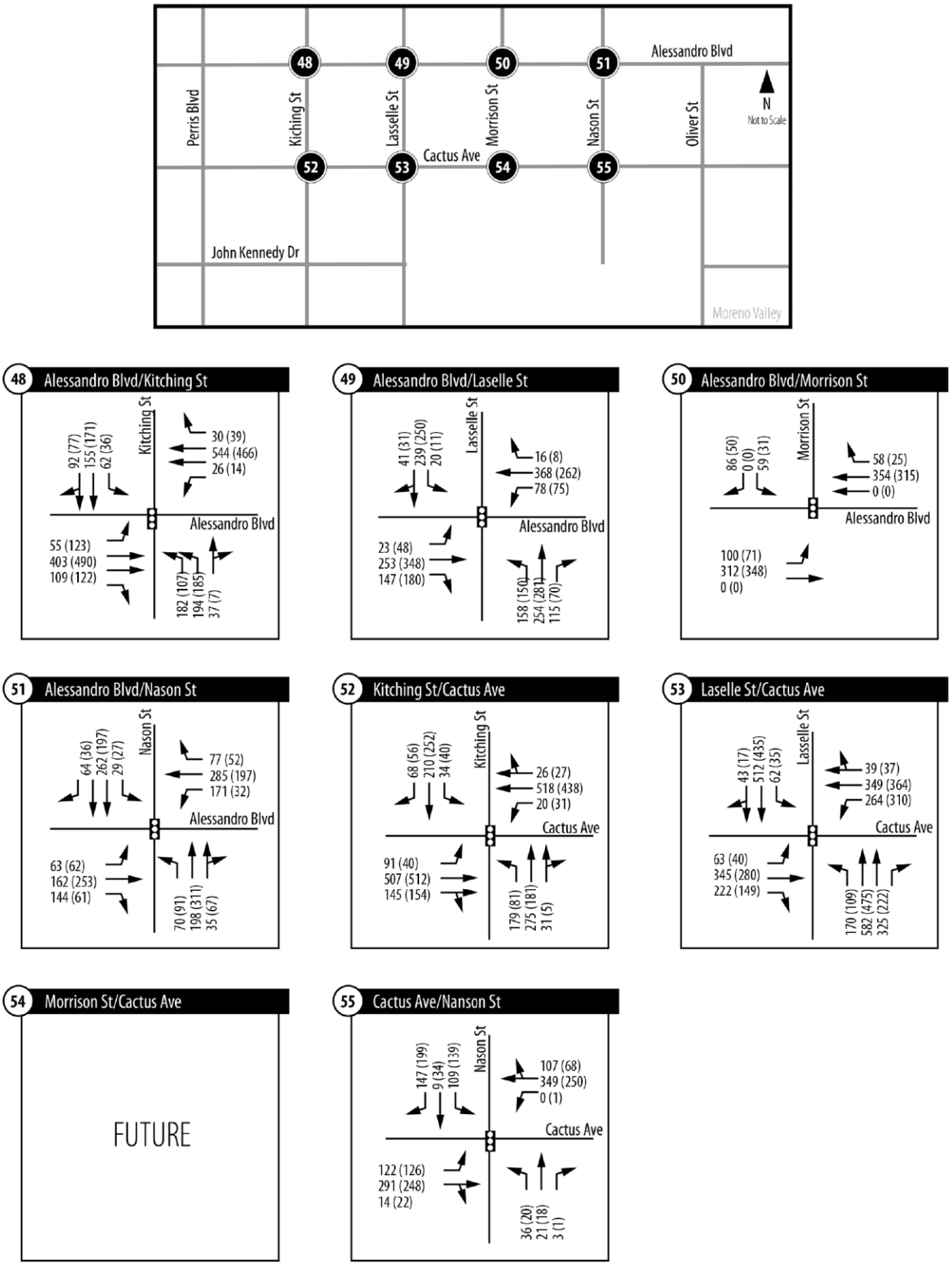



**Figure 17: Turning Movement Volumes under Existing Conditions (F)**

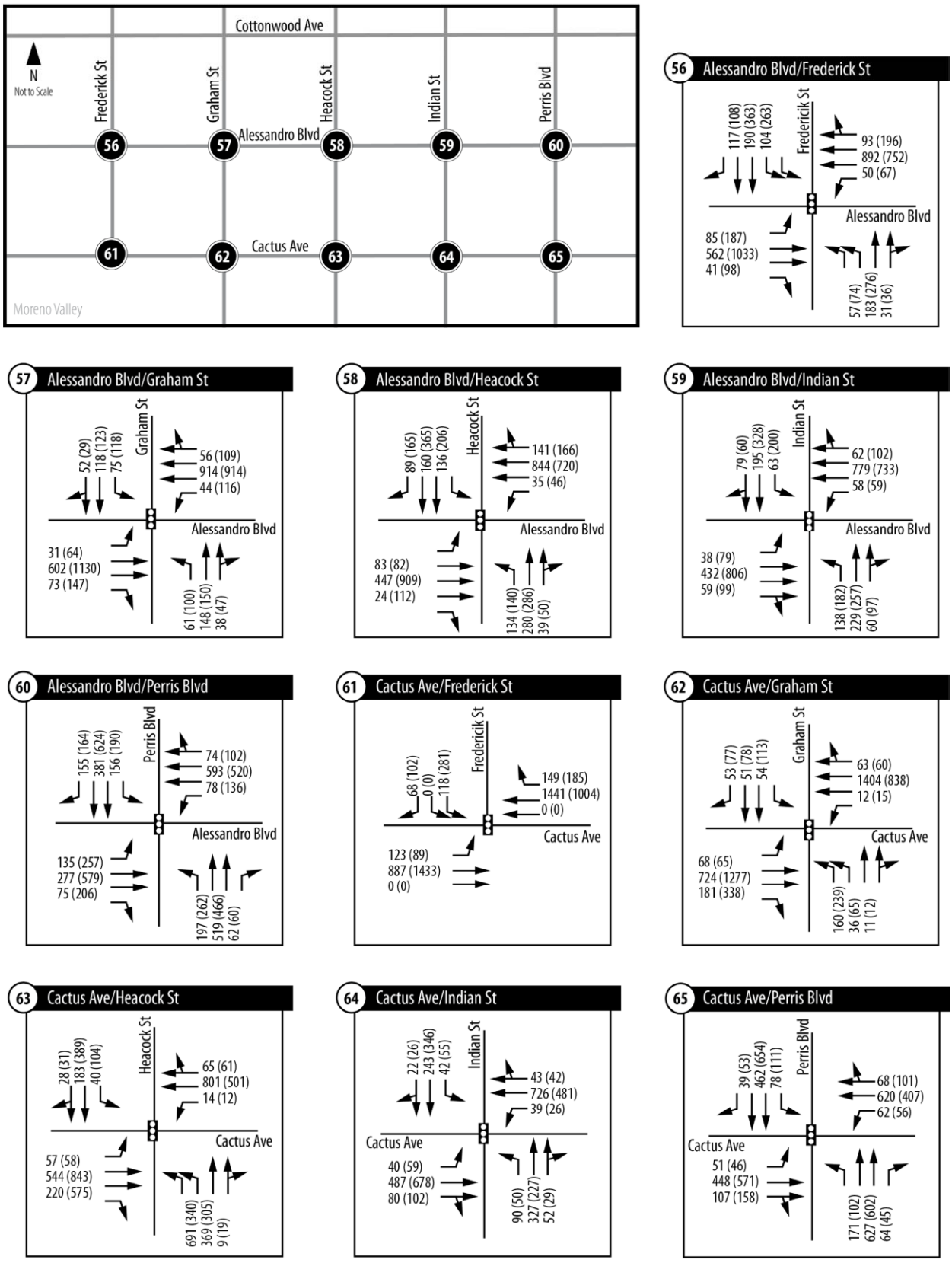



**Figure 17: Turning Movement Volumes under Existing Conditions (G)**

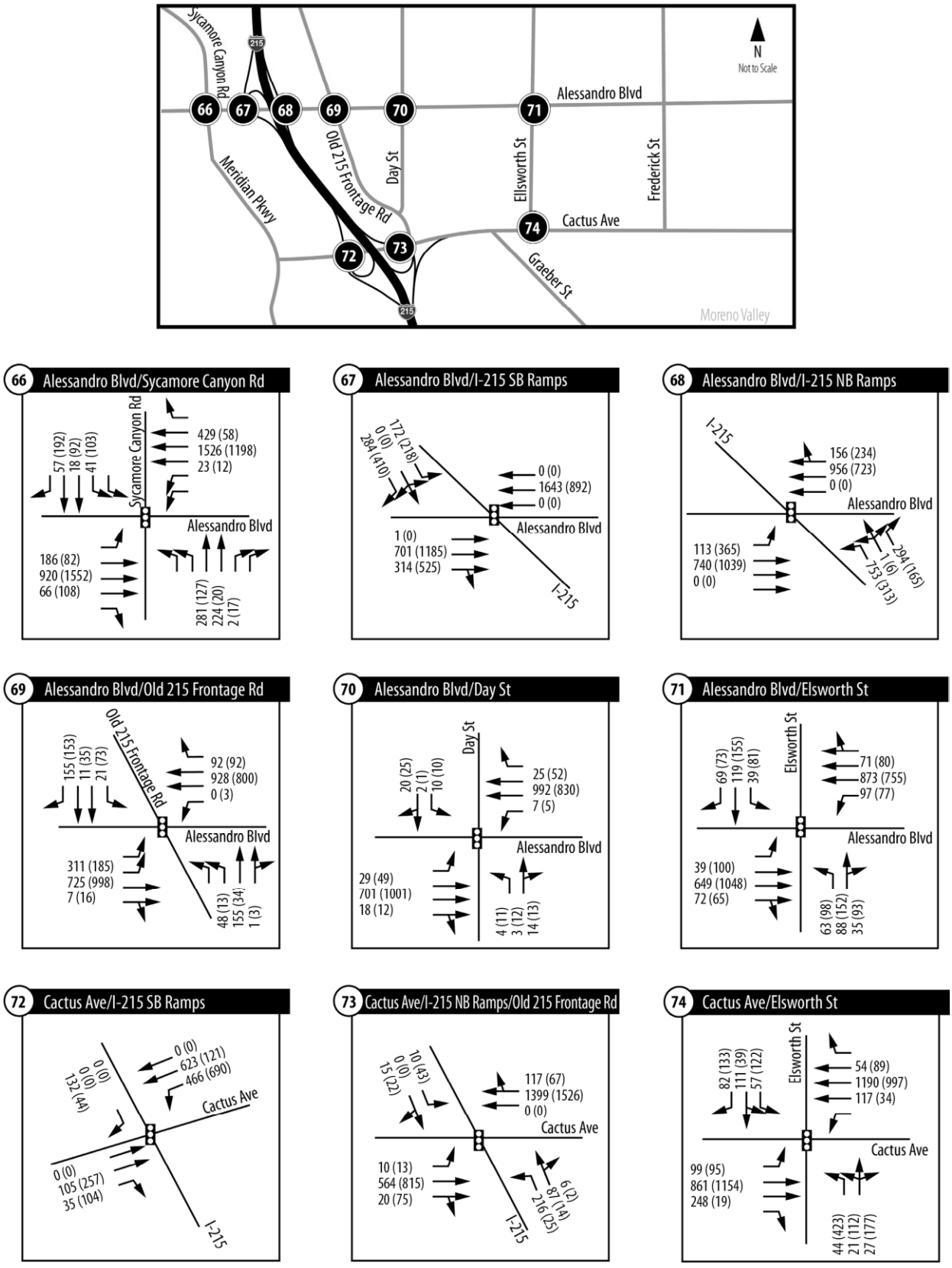



**Figure 17: Turning Movement Volumes under Existing Conditions (H)**

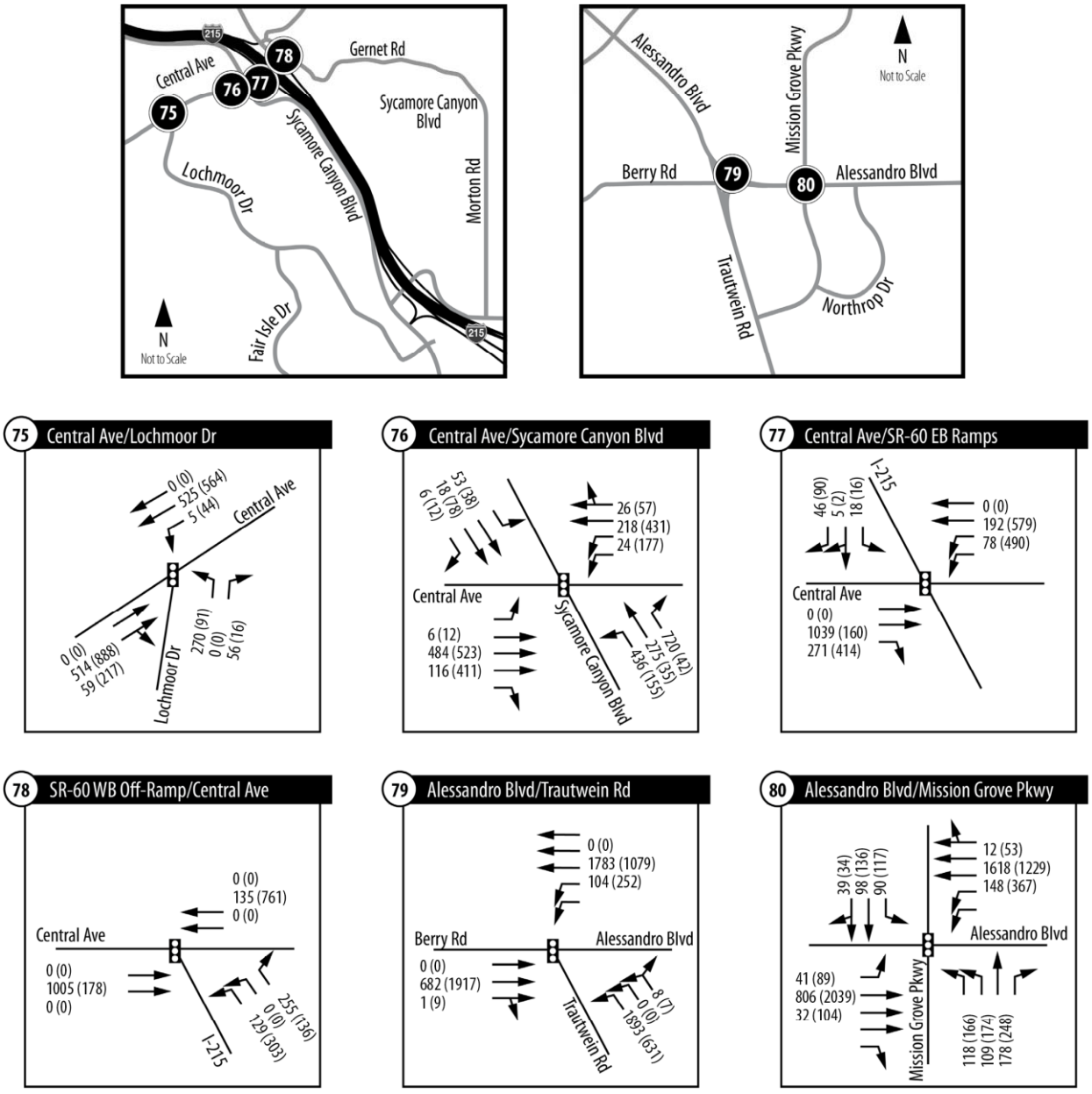



**Figure 17: Turning Movement Volumes under Existing Conditions (I)**

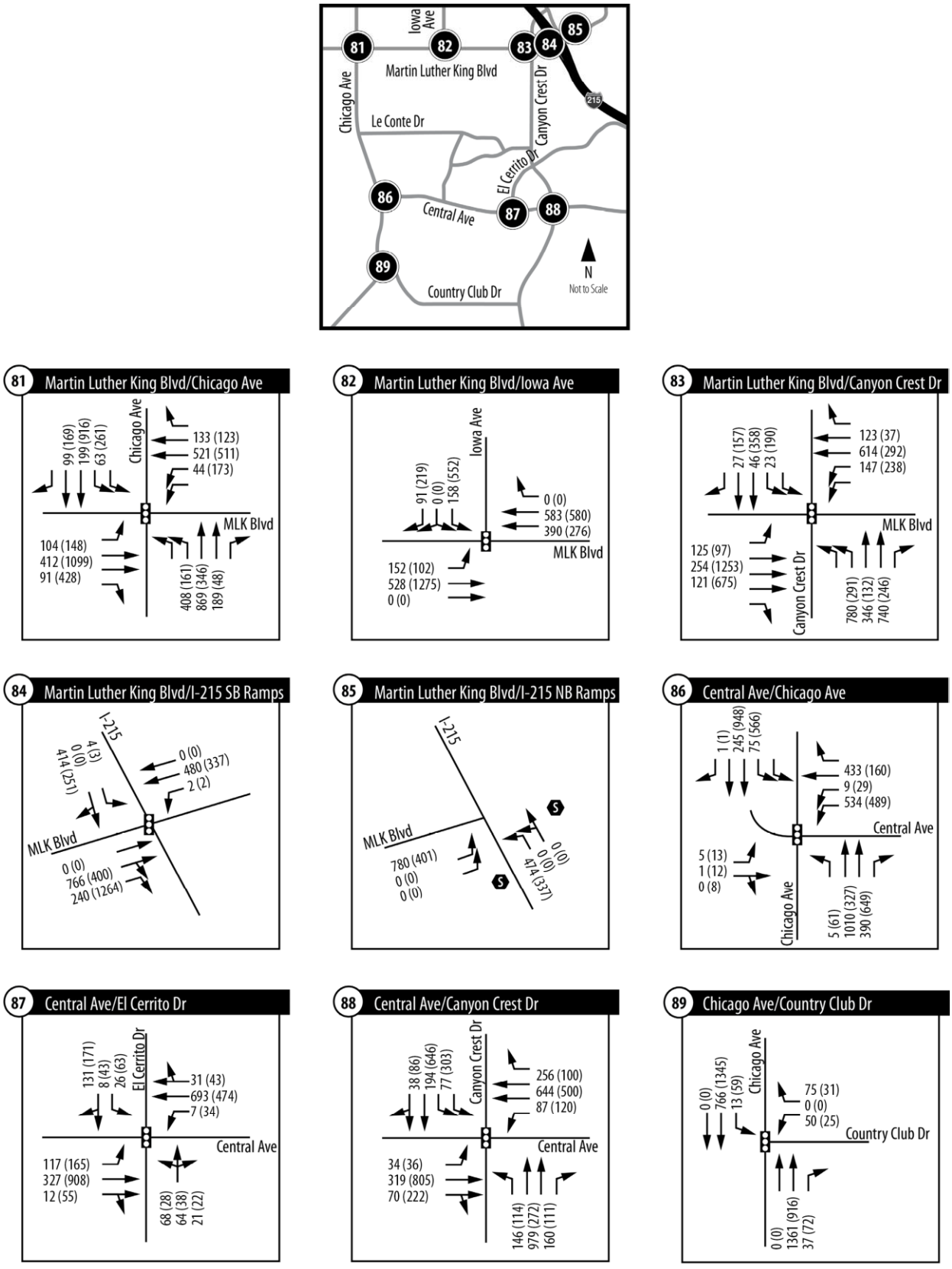



**Figure 17: Turning Movement Volumes under Existing Conditions (J)**

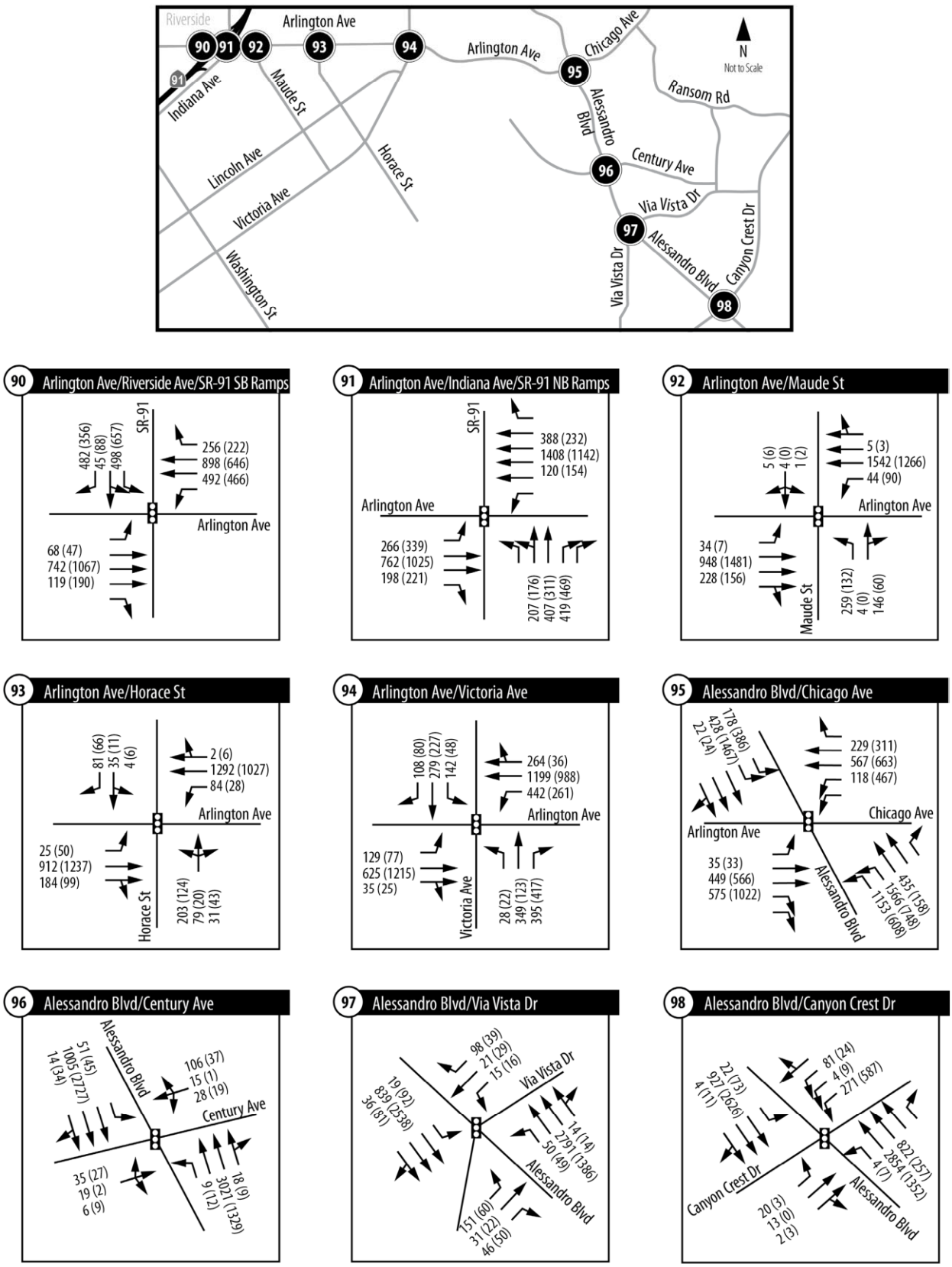



**Figure 17: Turning Movement Volumes under Existing Conditions (K)**

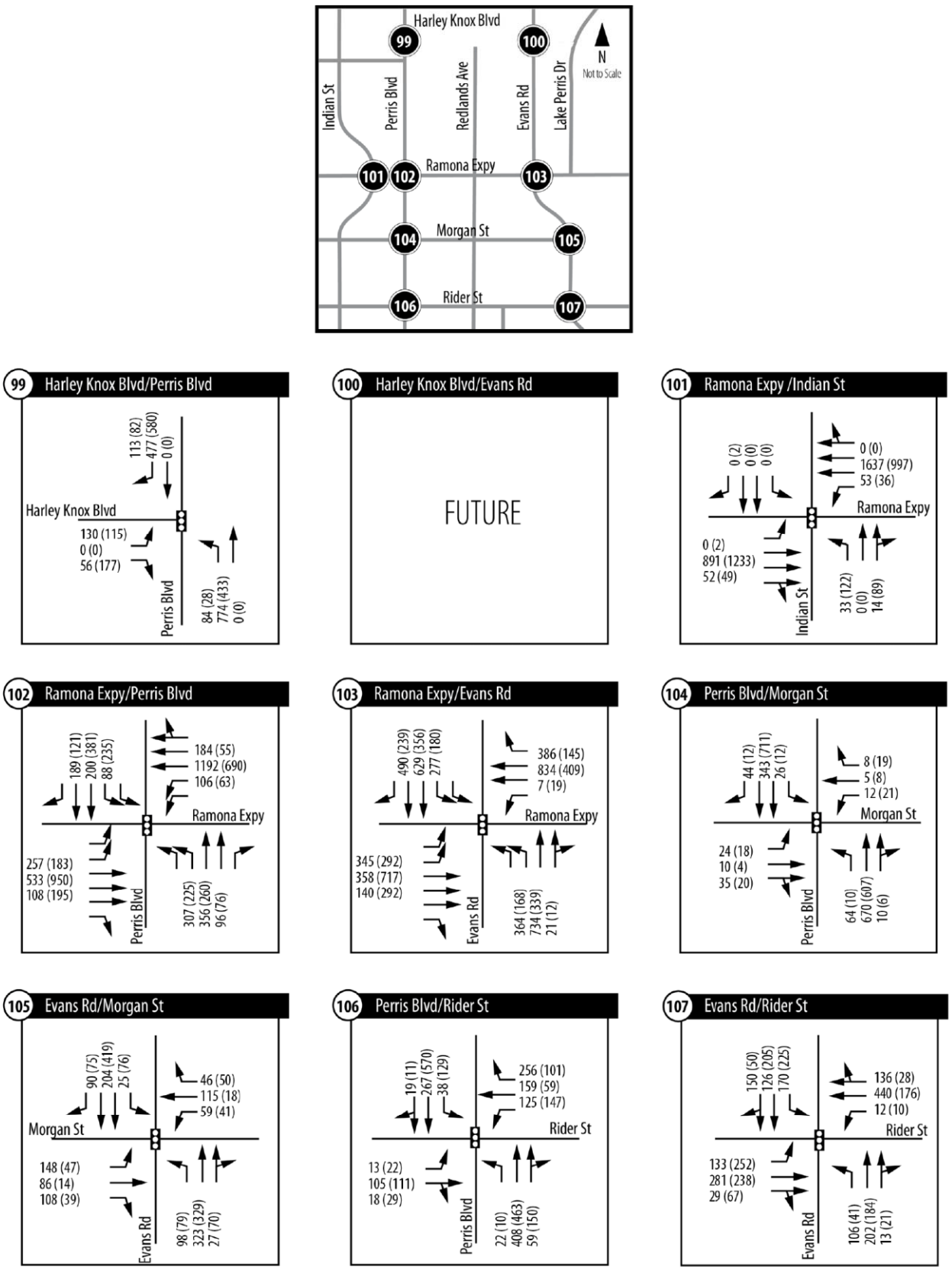



**Figure 17: Turning Movement Volumes under Existing Conditions (L)**

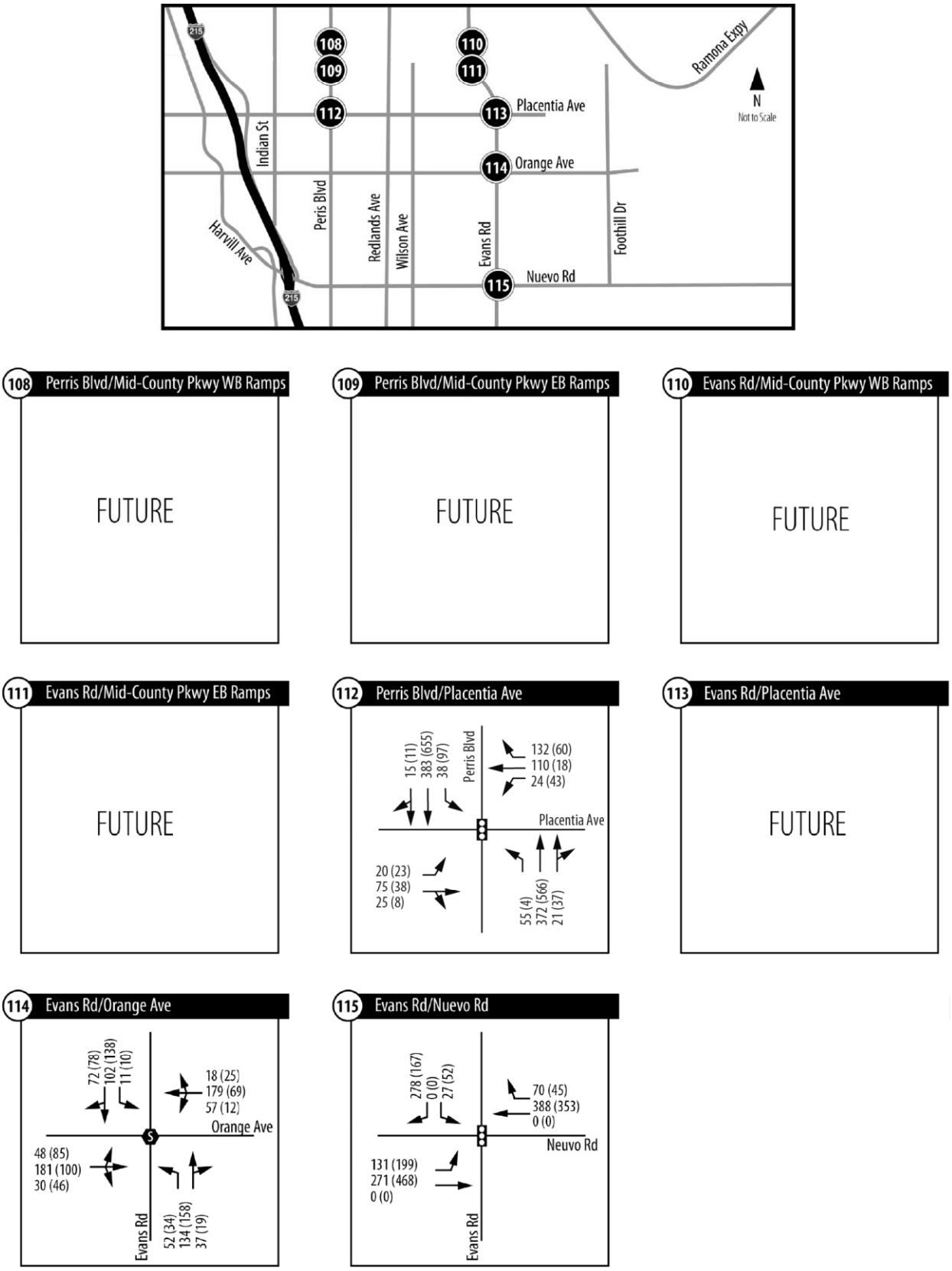



**Figure 17: Turning Movement Volumes under Existing Conditions (M)**

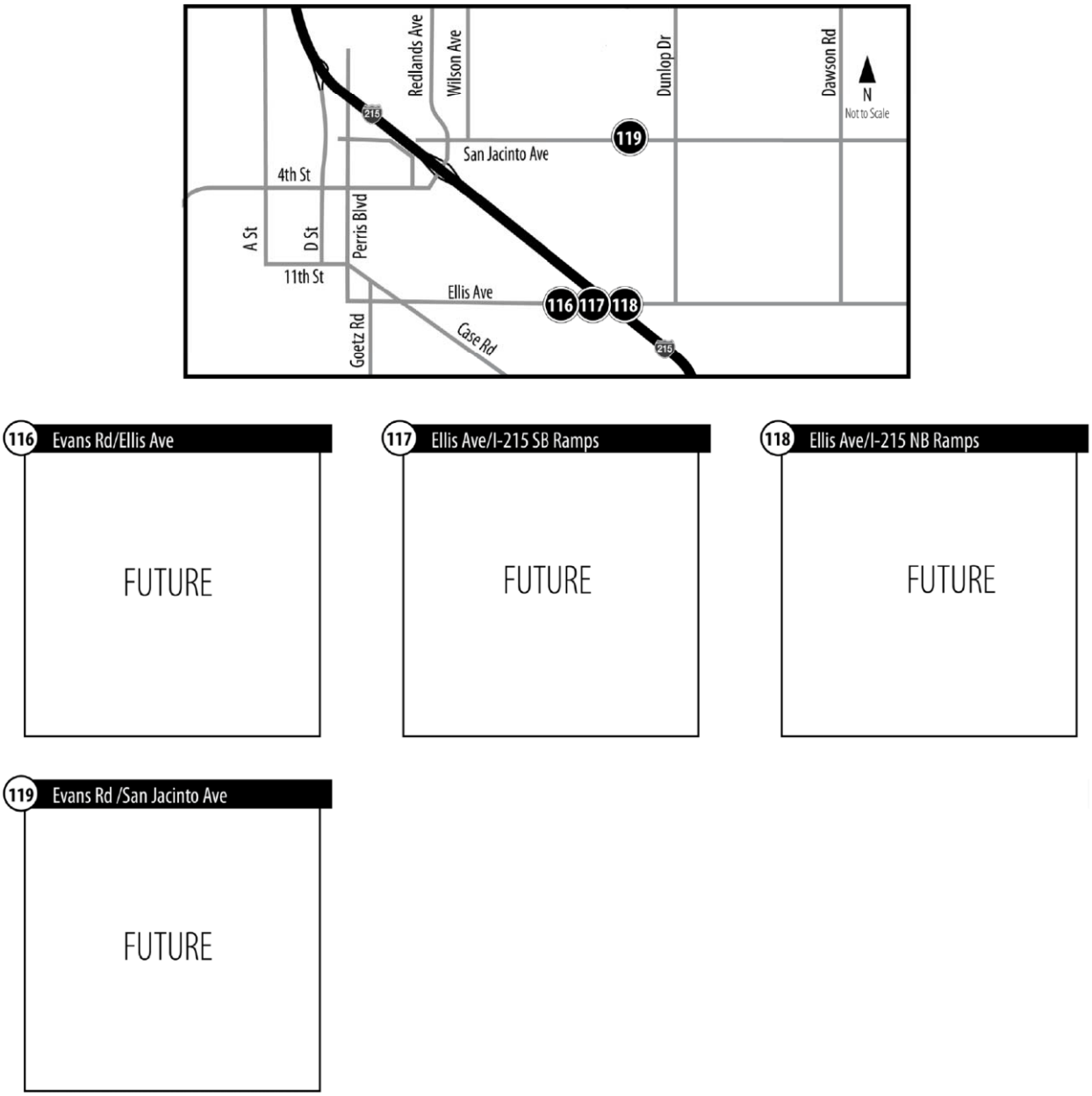



**Figure 17: Turning Movement Volumes under Existing Conditions (N)**

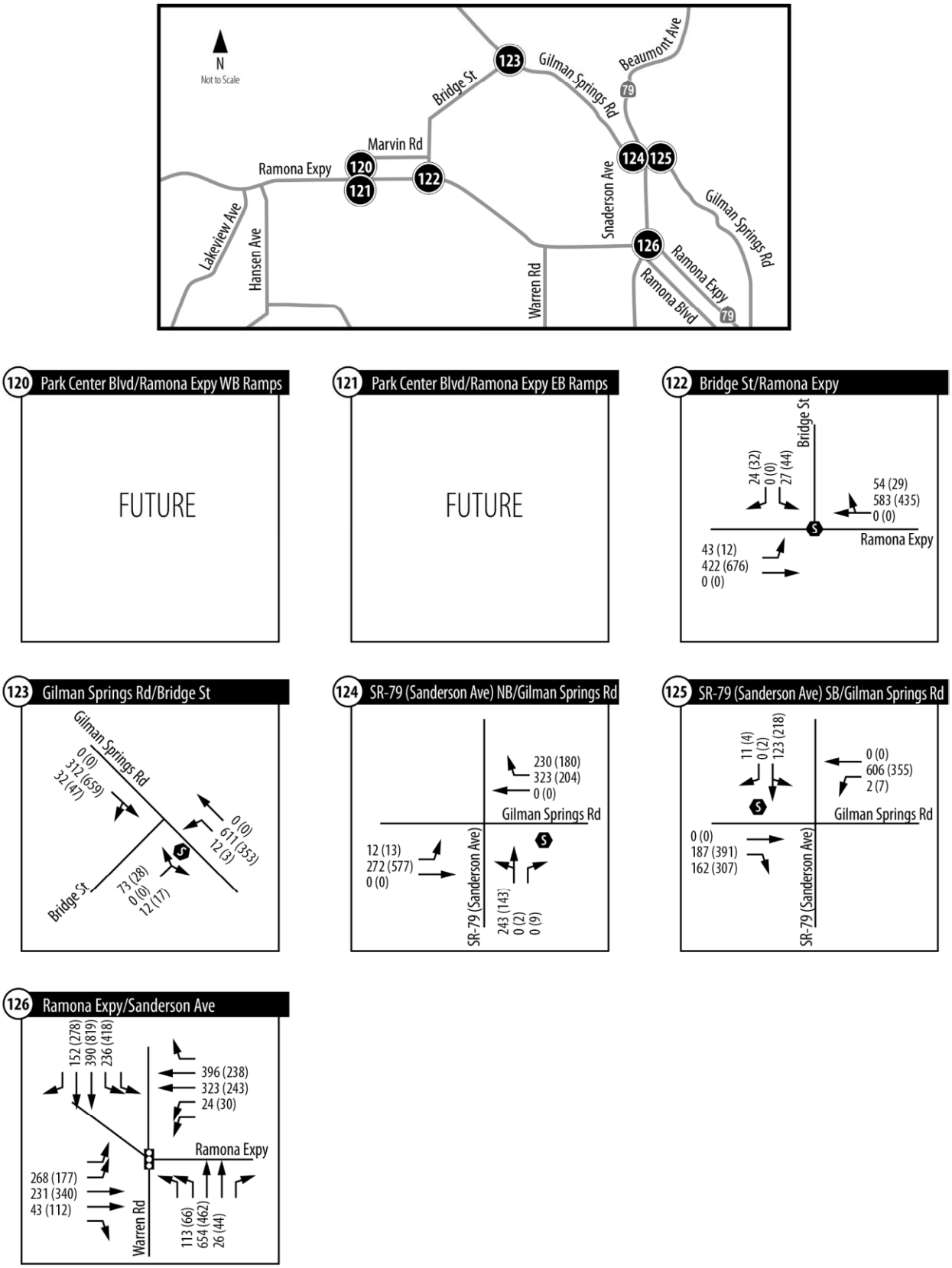



**Figure 17: Turning Movement Volumes under Existing Conditions (O)**

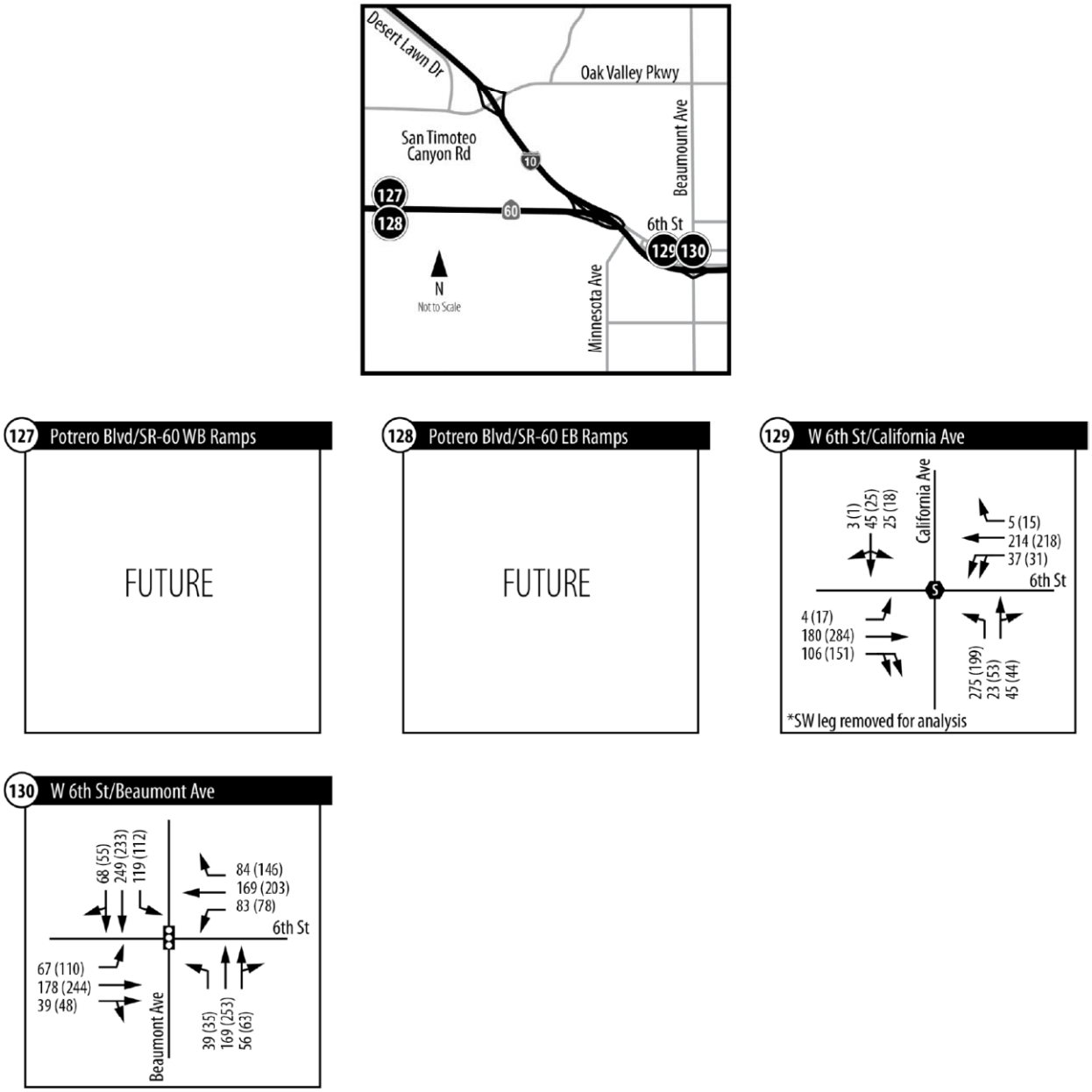



**Figure 17: Turning Movement Volumes under Existing Conditions (P)**

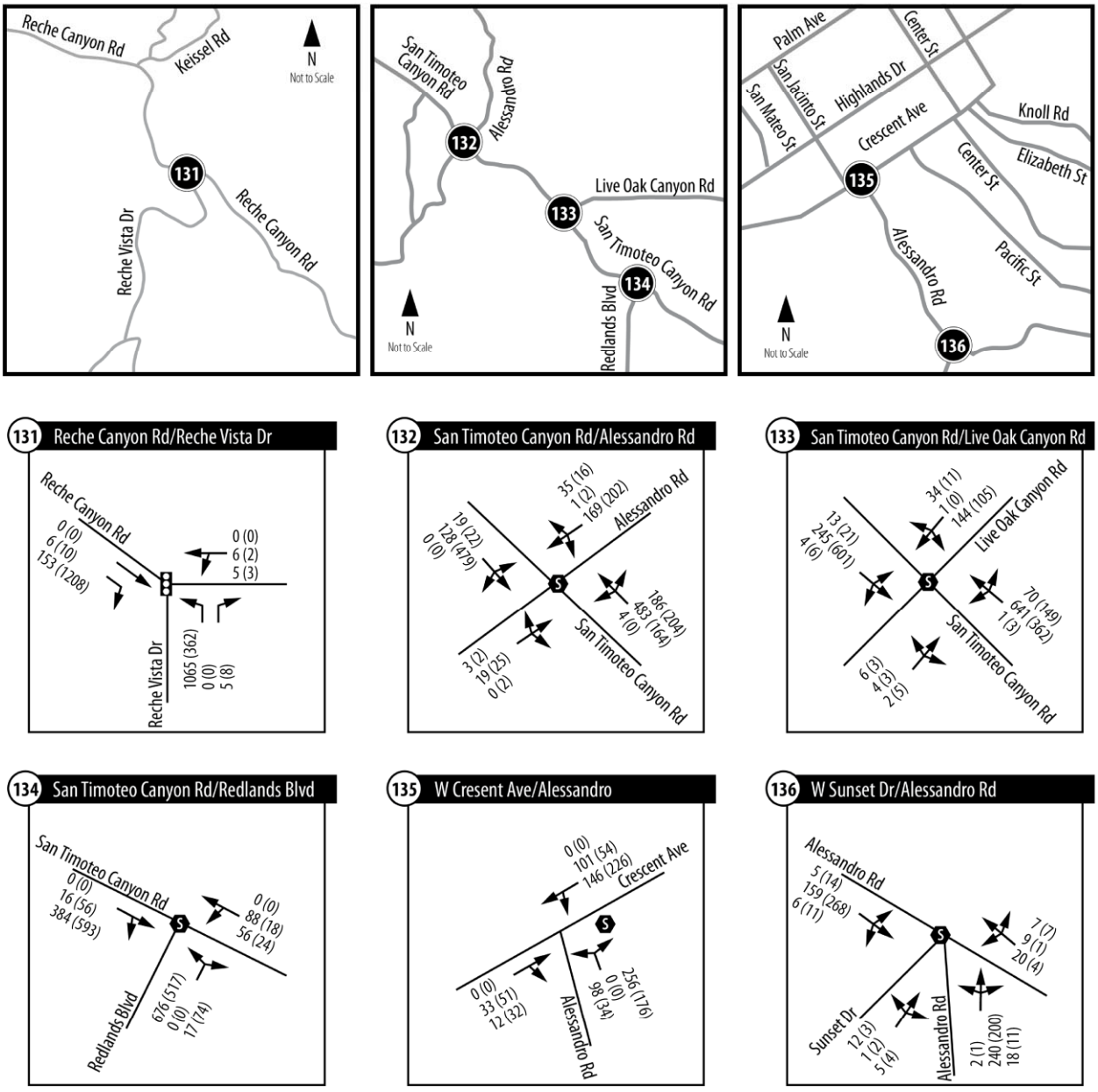



**Figure 17: Turning Movement Volumes under Existing Conditions (Q)**

## D. EXISTING LEVELS OF SERVICE

***Roadway Segment Analysis***

Part of the project involves a proposed change to the circulation element of the General Plan. The roads that would be affected by the change are shown in Figure 18, which is the key map for the tables reporting sectional traffic volumes.

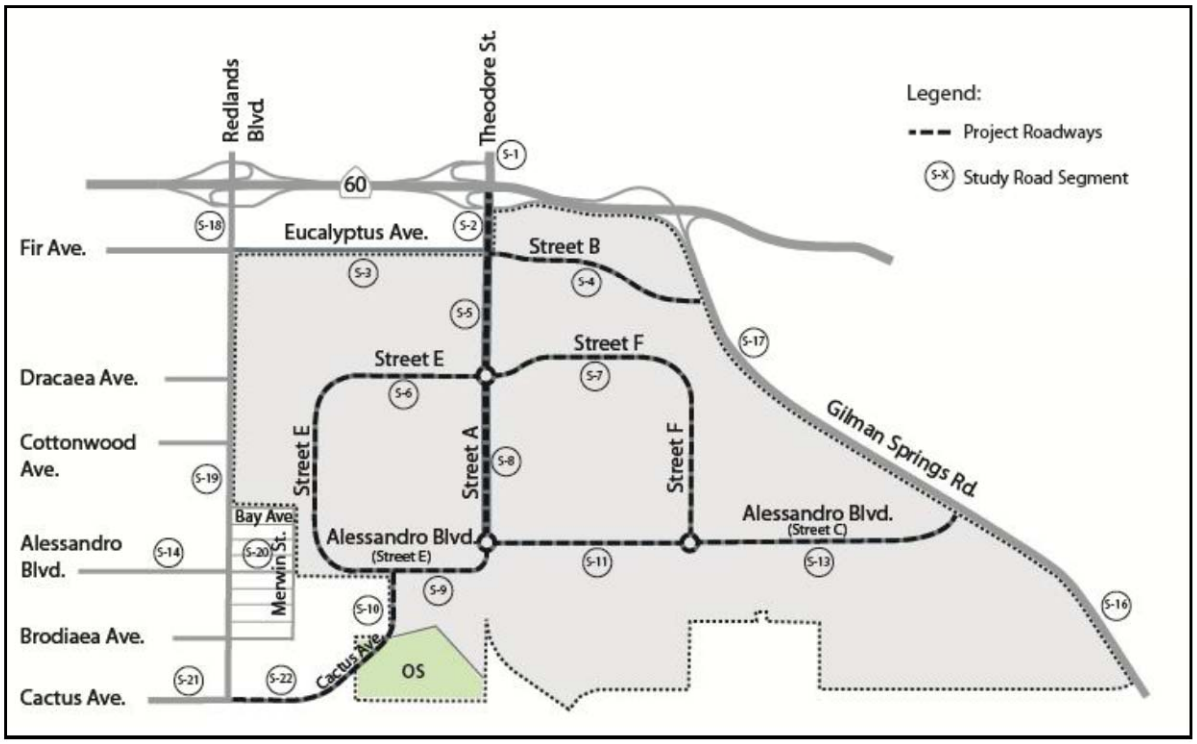



**Figure 18: Study Road Segments**

24-Hour traffic counts were collected on the study road segments. Table 14 shows the existing LOS for the study road segments. As shown in the table, Gilman Springs Rd. north and south of Alessandro Blvd. (road segments S-16 and S-17) currently exceeds the target LOS established in the General Plan. The existing traffic volumes on all other study roadway segments meet the LOS target in the General Plan.

**Table 14: LOS of Study Road Segments under Existing Conditions**

| | Roadway | From | To | LOS Standard* | Roadway Section** | Daily Volume | LOS |
|---|---|---|---|---|---|---|---|
| S-1 | Theodore Street (A) | SR-60 WB Ramps | Ironwood Avenue | D | 2U | 771 | A |
| S-2 | Theodore Street (A) | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 2,046 | A |
| S-3 | Fir (Eucalyptus) Ave. | Redlands Blvd | Theodore Street (A) | D | 2U*** | 1,339 | A |
| S-4 | Eucalyptus Ave (B) | Theodore Street (A) | Gilman Springs Rd | N/A | Future Road | | |
| S-5 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Street E | D | 2U | 641 | A |
| S-6 | Street E | Theodore Street (A) | Cactus Ave Extension | N/A | Future Road | | |
| S-7 | Street F | Theodore Street (A) | Alessandro Blvd (Street C) | N/A | Future Road | | |
| S-8 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Alessandro Blvd (Street C) | D | 2U | 641 | A |
| S-9 | Alessandro Blvd (Street E) | Merwin Street | Theodore Street (A) | D | 2U | 2,537 | A |
| S-10 | Cactus Ave Extension | Alessandro Blvd (Street E) | Cactus Ave. | N/A | Future Road | | |
| S-11 | Alessandro Blvd (Street C) | Theodore Street (A) | Street F | D | 2U | 1,896 | A |
| S-13 | Alessandro Blvd (Street C) | Street F | Gilman Springs Rd | D | 2U | 1,896 | A |
| S-14 | Alessandro Blvd | Moreno Beach Drive | Redlands Blvd | 2U | D | 3,877 | A |
| S-16 | Gilman Springs Rd | Alessandro Blvd (Street C) | Bridge Street | D | 2U | 14,407 | **F** |
| S-17 | Gilman Springs Rd | SR-60 | Alessandro Blvd (Street C) | D | 2U | 11,973 | **E** |
| S-18 | Redlands Blvd | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 7,338 | A |
| S-19 | Redlands Blvd | Fir (Eucalyptus) Ave. | Alessandro Blvd | C | 2U | 6,786 | A |
| S-20 | Alessandro Blvd | Redlands Blvd | Merwin Street | C | 2U | 2,537 | A |
| S-21 | Redlands Blvd | Alessandro Blvd | Cactus Ave. | C | 2U | 6,786 | A |
| S-22 | Cactus Ave. | Redlands Blvd | Cactus Ave Extension | C | 2U*** | 472 | A |

* LOS Standard is "C" in residential areas and "D" for roads in employment-generating areas or near freeways.
** Section is the number of lanes, with "U" for "undivided" and "D" for "Divided" roadways.
*** Road currently has 2 lanes in one direction and 1 lane in the other. The capacity shown is based on the narrower direction.
Indicates LOS exceeds the target level

***Intersection Level of Service (LOS)***

Table 15 shows the existing LOS for the study intersections in the AM and PM peak hours. Detailed worksheets are presented in Appendix B. Of the 136 study intersections that were studied, 12 intersections failed to meet the General Plan target under Existing Conditions in the AM peak hour, the PM peak hour, or both. These intersections were:

- Redlands Blvd./Locust Ave. (AM, PM)
- Redlands Blvd./SR-60 WB ramps (AM, PM)
- Oliver St./Alessandro Blvd. (AM)
- Moreno Beach Dr./SR-60 EB Ramps (PM)
- Lasselle St./Cactus Ave. (AM, PM)
- Alessandro Blvd./Chicago Ave. (PM)
- Gilman Springs Rd./Bridge St. (AM)
- SR-79 (Sanderson Ave.) NB/Gilman Springs Rd. (AM, PM)
- SR-79 (Sanderson Ave.) SB/Gilman Springs Rd. (AM, PM)
- San Timoteo Canyon Rd./Alessandro Rd. (AM)
- San Timoteo Canyon Rd./Live Oak Canyon Rd. (AM, PM)
- Redlands Blvd./San Timoteo Canyon Rd. (AM, PM)

**Table 15: Existing Conditions LOS at Study Intersections**

| ID | Study Intersection | LOS Standard | Traffic Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| IN-1 | Theodore St/Street F | - | N/A | Non-Existent | | Non-Existent | |
| IN-2 | Cactus Ave Extension/Street E | - | N/A | Non-Existent | | Non-Existent | |
| IN-3 | Theodore St/Alessandro (Str A/Str C/Str E) | D | CSS | 9.7 | A | 10.1 | B |
| IN-4 | Alessandro Blvd (Street C)/Street F | - | N/A | Non-Existent | | Non-Existent | |
| IN-6 | Alessandro Blvd (Street C)/Gilman Springs Rd | D | CSS | 10.3 | B | 15.7 | C |
| IN-9 | Gilman Springs Rd/Eucalytpus Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-10 | Redlands Blvd/Locust Ave | C | CSS | 26.7 | **D** | 42.8 | **E** |
| IN-11 | Redlands Blvd/Ironwood Ave | D | SIGNAL | 40.9 | D | 37.3 | D |
| IN-12 | Theodore Street/Ironwood Avenue | D | CSS | 9.7 | A | 9.8 | A |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | CSS | 42.2 | **E** | 54.0 | **F** |
| IN-14 | Redlands Blvd/SR-60 EB ramps | D | SIGNAL | 9.6 | A | 14.4 | B |
| IN-15 | Theodore Str/SR-60 WB ramps | D | CSS | 9.0 | A | 9.6 | A |
| IN-16 | Theodore Str/SR-60 EB ramps | D | CSS | 9.2 | A | 9.4 | A |
| IN-17 | Quincy Str/Fir Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-18 | Redlands Blvd/Eucalyptus Ave (Fir) | - | N/A | Non-Existent | | Non-Existent | |
| IN-19 | Theodore St/Fir Ave (Eucalyptus) | D | CSS | 9.2 | A | 9.8 | A |
| IN-20 | Oliver Str/Alessandro Blvd | C | CSS | 25.9 | **D** | 14.7 | B |
| IN-21 | Moreno Beach Dr/Alessandro Blvd | D | SIGNAL | 24.0 | C | 28.2 | C |
| IN-22 | Quincy Str/Alessandro Blvd | - | N/A | Non-Existent | | Non-Existent | |
| IN-23 | Redlands Blvd/Alessandro Blvd | C | AWS | 20.5 | C | 13.8 | B |
| IN-24 | Oliver Str/Cactus Ave | D | SIGNAL | 23.8 | C | 17.3 | B |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | SIGNAL | 16.0 | B | 17.0 | B |
| IN-26 | Quincy Str/Cactus Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-27 | Redlands Blvd/Cactus Ave | C | AWS | 11.4 | B | 8.2 | A |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | SIGNAL | 16.2 | B | 13.8 | B |
| IN-29 | Heacock Str/Ironwood Ave | D | SIGNAL | 29.6 | C | 31.9 | C |
| IN-30 | Heacock Str/SR-60 WB Ramps | D | SIGNAL | 22.6 | C | 21.5 | C |
| IN-31 | Heacock St/SR-60 EB Ramps | D | SIGNAL | 12.5 | B | 15.9 | B |
| IN-32 | Sunnymead Blvd & Perris Blvd | D | SIGNAL | 29.4 | C | 36.0 | D |
| IN-33 | Perris Blvd/SR-60 WB Ramps | D | SIGNAL | 22.0 | C | 19.7 | B |
| IN-34 | Perris Blvd/Eucalyptus Ave | D | SIGNAL | 22.8 | C | 23.4 | C |
| IN-35 | Moreno Beach Dr/Locust Ave | C | CSS | 8.6 | A | 8.6 | A |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | SIGNAL | 50.3 | D | 40.0 | D |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | SIGNAL | 38.0 | D | 76.6 | **E** |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | SIGNAL | 37.0 | D | 31.2 | C |
| IN-39 | Iris Ave/Perris Blvd | D | SIGNAL | 41.5 | D | 36.5 | D |
| IN-40 | Kitching St/Iris Ave | C | SIGNAL | 23.4 | C | 17.5 | B |
| IN-41 | Lasselle Str/Iris Ave | D | SIGNAL | 25.4 | C | 26.6 | C |
| IN-42 | Nason Str/Iris Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-43 | Oliver Str/Iris Ave | D | SIGNAL | 22.1 | C | 15.8 | B |
| IN-44 | Via Dell Lago/Iris Ave | C | SIGNAL | 6.7 | A | 6.5 | A |
| IN-45 | Krameria Ave/Perris Blvd | D | SIGNAL | 34.6 | C | 29.3 | C |
| IN-46 | Kitching Str/Krameria Ave | D | SIGNAL | 21.7 | C | 19.4 | B |
| IN-47 | Lasselle Str/Krameria Ave | D | SIGNAL | 37.9 | D | 13.5 | B |
| IN-48 | Kitching Str/Alessandro Blvd | D | SIGNAL | 28.8 | C | 24.7 | C |

**Table 15: Existing Conditions LOS at Study Intersections (continued)**

| ID | Study Intersection | LOS Standard | Traffic Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| IN-49 | Lasselle Str/Alessandro Blvd | D | SIGNAL | 31.7 | C | 26.6 | C |
| IN-50 | Morrison Str/Alessandro Blvd | D | SIGNAL | 8.8 | A | 7.8 | A |
| IN-51 | Nason Str/Alessandro Blvd | D | SIGNAL | 20.5 | C | 16.9 | B |
| IN-52 | Kitching Str/Cactus Ave | C | SIGNAL | 33.3 | C | 22.6 | C |
| IN-53 | Lasselle Str/Cactus Ave | C | SIGNAL | 47.2 | **D** | 38.6 | **D** |
| IN-54 | Morrison Str/Cactus Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-55 | Nason Str/Cactus Ave | D | SIGNAL | 22.5 | C | 21.0 | C |
| IN-56 | Frederick Str/Alessandro Blvd | D | SIGNAL | 19.5 | B | 25.6 | C |
| IN-57 | Graham Str/Alessandro Blvd | D | SIGNAL | 19.8 | B | 24.2 | C |
| IN-58 | Heacock Str/Alessandro Blvd | D | SIGNAL | 25.8 | C | 23.6 | C |
| IN-59 | Indian Str/Alessandro Blvd | D | SIGNAL | 17.6 | B | 27.9 | C |
| IN-60 | Perris Blvd/Alessandro Blvd | D | SIGNAL | 32.4 | C | 42.3 | D |
| IN-61 | Frederick Str/Cactus Ave | D | SIGNAL | 9.8 | A | 11.7 | B |
| IN-62 | Graham Str/Cactus Ave | D | SIGNAL | 12.9 | B | 17.4 | B |
| IN-63 | Heacock Str/Cactus Ave | D | SIGNAL | 30.1 | C | 20.3 | C |
| IN-64 | Indian Str/Cactus Ave | C | SIGNAL | 24.4 | C | 19.6 | B |
| IN-65 | Perris Blvd/Cactus Ave | D | SIGNAL | 26.9 | C | 30.7 | C |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | SIGNAL | 25.8 | C | 18.0 | B |
| IN-67 | I-215 SB Ramps/Alessandro Blvd | D | SIGNAL | 6.4 | A | 12.6 | B |
| IN-68 | I-215 NB Ramps/Alessandro Blvd | D | SIGNAL | 19.4 | B | 24.1 | C |
| IN-69 | Old 215 Frontage Rd/Alessandro Blvd | D | SIGNAL | 18.2 | B | 18.6 | B |
| IN-70 | Day Str/Alessandro Blvd | D | SIGNAL | 4.6 | A | 8.2 | A |
| IN-71 | Elsworth Str/Alessandro Blvd | D | SIGNAL | 19.2 | B | 27.6 | C |
| IN-72 | I-215 SB Ramps/Cactus Ave | D | SIGNAL | 12.1 | B | 19.7 | B |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | SIGNAL | 11.1 | B | 3.7 | A |
| IN-74 | Elsworth Str/Cactus Ave | D | SIGNAL | 26.7 | C | 29.5 | C |
| IN-75 | Central Ave/Lochmoor Dr. | D | SIGNAL | 10.9 | B | 6.7 | A |
| IN-76 | Sycamore Canyon Blvd/Central Ave | D | SIGNAL | 22.2 | C | 17.6 | B |
| IN-77 | SR-60 EB Ramps/Central Ave | D | SIGNAL | 7.3 | A | 10.3 | B |
| IN-78 | SR-60 WB Ramps/Central Ave | D | SIGNAL | 6.8 | A | 8.2 | A |
| IN-79 | Alessandro Blvd/Trautwein Rd. | D | SIGNAL | 28.4 | C | 14.8 | B |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | SIGNAL | 18.8 | B | 34.9 | C |
| IN-81 | Martin Luther King Blvd/Chicago Ave | D | SIGNAL | 43.2 | D | 36.5 | D |
| IN-82 | Martin Luther King Blvd/Iowa Ave | D | SIGNAL | 9.0 | A | 13.0 | B |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | SIGNAL | 43.2 | D | 28.0 | C |
| IN-84 | Martin Luther King Blvd/I-215 SB Ramps | D | SIGNAL | 8.6 | A | 4.7 | A |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | AWS | 24.3 | C | 12.2 | B |
| IN-86 | Central Ave/Chicago Ave | D | SIGNAL | 23.4 | C | 23.1 | C |
| IN-87 | Central Ave/El Cerrito Dr | D | SIGNAL | 11.7 | B | 12.0 | B |
| IN-88 | Central Ave/Canyon Crest Dr | D | SIGNAL | 27.8 | C | 35.2 | D |
| IN-89 | Chicago Ave/Country Club Dr | D | SIGNAL | 6.3 | A | 4.9 | A |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | SIGNAL | 31.3 | C | 30.7 | C |
| IN-91 | Arlington Ave/Indiana Ave/SR-91 NB Ramps | D | SIGNAL | 21.0 | C | 20.8 | C |
| IN-92 | Arlington Ave/Maude St | D | SIGNAL | 13.8 | B | 11.1 | B |
| IN-93 | Horace St/Arlington Ave | D | SIGNAL | 12.3 | B | 7.2 | A |

## Table 15: Existing Conditions LOS at Study Intersections (continued)

| ID | Study Intersection | LOS Standard | Traffic Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| IN-94 | Arlington Ave/Victoria Ave | D | SIGNAL | 54.8 | D | 30.9 | C |
| IN-95 | Alessandro Blvd/Chicago Ave | D | SIGNAL | 40.7 | D | 65.9 | **E** |
| IN-96 | Alessandro Blvd/Century Ave | D | SIGNAL | 16.7 | B | 7.6 | A |
| IN-97 | Alessandro Blvd/Via Vista Dr | D | SIGNAL | 30.7 | C | 18.9 | B |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | SIGNAL | 20.4 | C | 17.9 | B |
| IN-99 | Harley Knox Blvd/Perris Blvd | D | SIGNAL | 15.4 | B | 15.1 | B |
| IN-100 | Harley Knox Blvd/Evan Rd | - | N/A | Non-Existent | | Non-Existent | |
| IN-101 | Ramona Expy/Indian St | E | SIGNAL | 3.3 | A | 8.5 | A |
| IN-102 | Ramona Expy/Perris Blvd | E | SIGNAL | 31.7 | C | 34.6 | C |
| IN-103 | Ramona Expy/Evans Rd | E | SIGNAL | 54.5 | D | 28.8 | C |
| IN-104 | Perris Blvd/Morgan St | D | SIGNAL | 11.8 | B | 6.7 | A |
| IN-105 | Evans Rd/Morgan St | C | SIGNAL | 32.5 | C | 20.6 | C |
| IN-106 | Perris Blvd/Rider St | C | SIGNAL | 24.5 | C | 23.0 | C |
| IN-107 | Evans Rd/Rider St | C | SIGNAL | 34.2 | C | 28.3 | C |
| IN-108 | Perris Blvd/Mid-County Pkwy WB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-109 | Perris Blvd/Mid-County Pkwy EB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-110 | Evans Rd/Mid-County Pkwy WB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-111 | Evans Rd/Mid-County Pkwy EB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-112 | Placentia Ave/Perris Blvd | D | SIGNAL | 30.1 | C | 14.0 | B |
| IN-113 | Evans Rd/Placentia Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-114 | Evans Rd/Orange Ave | C | AWS | 12.5 | B | 10.1 | B |
| IN-115 | Evans Rd/Nuevo Rd | C | SIGNAL | 23.3 | C | 22.6 | C |
| IN-116 | Evans Rd/Ellis Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-117 | Ellis Ave/I-215 SB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-118 | Ellis Ave/SR-215 NB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-119 | Evans Rd/San Jacinto Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-120 | Park Center Blvd/Ramona Expy WB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-121 | Park Center Blvd/Ramona Expy EB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-122 | Bridge St/Ramona Expy | C | CSS | 22.4 | C | 20.6 | C |
| IN-123 | Gilman Springs Rd/Bridge Str | C | CSS | 26.6 | **D** | 20.8 | C |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | CSS | 34.7 | **D** | 30.7 | **D** |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | CSS | 29.2 | **D** | 48.2 | **E** |
| IN-126 | Ramona Expy/Sanderson Ave | D | SIGNAL | 27.1 | C | 20.8 | C |
| IN-127 | Potrero Blvd/SR-60 WB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-128 | Potrero Blvd/SR-60 EB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-129 | W 6th St/California Ave | C | AWS | 16.6 | C | 18.0 | C |
| IN-130 | W 6th St/Beaumont Ave | C | SIGNAL | 13.2 | B | 12.8 | B |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | SIGNAL | 18.9 | B | 6.3 | A |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | AWS | 77.2 | **F** | 23.9 | C |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | AWS | 50.9 | **F** | 60.2 | **F** |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | AWS | 81.8 | **F** | 80.5 | **F** |
| IN-135 | W Crescent Ave/Alessandro Rd | C | CSS | 14.0 | B | 11.5 | B |
| IN-136 | W Sunset Dr/Alessandro Rd | C | AWS | 8.9 | A | 9.0 | A |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

**Freeway LOS**

The LOS for freeway mainline sections under existing conditions is shown in Table 16 (for basic freeway sections[17]) and Table 17 (for weaving sections[18])[19]. The target LOS is currently exceeded in 17 mainline sections as follows:

North or Eastbound

- SR-60 Ramona Ave. to Central Ave. (PM)
- SR-60 Central Ave. to Mountain Ave. (PM)
- SR-60 Euclid Ave. to Grove Ave. (PM)
- SR-60 Grove Ave. to Vineyard Ave. (PM)
- SR-60 Vineyard Ave. to Archibald Ave. (PM)
- SR-60 Market St. to Main St. (PM)
- SR-60 Martin Luther King Blvd. to Central Ave. (PM)
- SR-91 I-15 to McKinley St. (PM)
- I-215 SR-74 to Redlands Ave. (PM)
- I-215 Barton Rd. to Mt. Vernon Ave./Washington St. (AM)

Southbound or Westbound

- SR-60 Reservoir St. to Ramona Ave. (AM)
- SR-60 Ramona Ave. to Central Ave. (AM)
- SR-60 I-215 to Day St. (AM)
- SR-91 Pierce St. to Magnolia Ave. (PM)
- SR-91 Magnolia Ave. to La Sierra Ave. (PM)

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[17] A basic freeway segment is one that is outside the influence of ramps and weaving areas. Basic freeway segments exist between interchanges that are not closely spaced. Note that segment numbers are not always consecutive in the table because weaving sections may occur between basic freeway segments, and because the two directions of travel may be different in terms of where ramps are provided.

[18] A weaving section occurs when one traffic movement must cross the path of another along a relatively short length of roadway without the aid of signals or other traffic control devices. Such cases typically occur where merge junction is followed closely by a diverge junction.

[19] In addition to the analysis shown here, there is a supplemental analysis of truck trips to the Ports of Los Angeles and Long Beach found in Chapter 12, Section F of this report.

- I-215 SR-74 to Redlands Ave. (AM)
- I-215 Baseline Rd. to Highland Ave. (AM, PM)

The target LOS is currently exceeded in six weave sections as follows:

North or Eastbound

- SR-60 SR-71/Garey Ave. to Reservoir St. (PM)
- SR-60 SR-91 to Blaine St./3rd St. (PM)
- SR-60 Blaine St./3rd St. to University Ave. (PM)
- SR-91 Arlington Ave. to Central Ave. (AM)

North or Eastbound

- SR-60 Central Ave. to Fair Isle Dr./Box Springs Rd. (AM)
- SR-91 14th St. to University Ave. (PM)

Of the 23 freeway sections currently exceeding the target LOS, 20 (90%) involve congestion in the peak direction. That is why regional agencies stress the importance of promoting reverse commuting; to move some traffic from the congested side of the freeway to the uncongested side. To the extent that the WLC can encourage this shift, it can help reduce congestion for all travelers, including those not directly associated with the WLC. This is discussed further in Section D of the next chapter.

Table 18 shows the existing level of service (LOS) at the study freeway ramps. One study ramp currently operates below the LOS “D” target, namely the SR-60 eastbound on-ramp from Central Ave. in the PM peak hour.

Details of the LOS calculations for freeways under Existing Conditions can be found in Appendix I.

## Table 16: Existing Freeway Mainline Level of Service

| ID | Freeway | Segment | Northbound / Eastbound | | | | | | Southbound / Westbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-2 | SR-60 | Reservoir St to Ramona Ave | 6,024 | 24.5 | C | 7,822 | 33.0 | D | 8,762 | 41.4 | E | 6,381 | 25.6 | C |
| F-3 | SR-60 | Ramona Ave to Central Ave | 5,687 | 22.8 | C | 9,400 | 47.3 | F | 8,283 | 37.1 | E | 5,925 | 23.4 | C |
| F-4 | SR-60 | Central Ave to Mountain Ave | 6,339 | 26.2 | D | 9,338 | 46.6 | F | 6,336 | 24.7 | C | 6,076 | 24.1 | C |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | 6,205 | 25.4 | C | 6,664 | 26.1 | D | 6,259 | 24.4 | C | 6,495 | 26.3 | D |
| F-6 | SR-60 | Euclid Ave to Grove Ave | 7,650 | 34.7 | D | 9,091 | 43.8 | E | 6,461 | 25.4 | C | 6,302 | 25.2 | C |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | 6,923 | 29.6 | D | 9,400 | 47.3 | F | 6,274 | 24.3 | C | 6,699 | 27.4 | D |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | 6,823 | 28.7 | D | 9,400 | 47.3 | F | 7,658 | 32.1 | D | 6,245 | 25.0 | C |
| F-9 | SR-60 | Archibald Ave to Haven Ave | 6,268 | 25.6 | C | 6,471 | 25.1 | C | See Weaving Analysis | | | See Weaving Analysis | | |
| F-10 | SR-60 | Haven Ave to Milliken Ave | 6,096 | 19.1 | C | 6,864 | 20.6 | C | 5,804 | 17.4 | B | 5,698 | 17.5 | B |
| F-11 | SR-60 | Milliken Ave to I-15 | 4,234 | 16.5 | B | 4,529 | 16.9 | B | 5,456 | 20.5 | C | 5,111 | 19.5 | C |
| F-12 | SR-60 | I-15 to Etiwanda Ave/Van Buren Blvd | 2,593 | 10.2 | A | 2,910 | 10.8 | A | 4,490 | 13.4 | B | 4,275 | 13.0 | B |
| F-13 | SR-60 | Etiwanda Ave/Van Buren Blvd to Mission | 3,026 | 11.9 | B | 3,968 | 14.8 | B | 4,220 | 15.7 | B | 3,881 | 14.8 | B |
| F-14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 2,596 | 10.2 | A | 3,061 | 11.4 | B | 4,172 | 15.5 | B | 3,963 | 15.1 | B |
| F-15 | SR-60 | Pedley Rd to Pyrite St | 2,813 | 11.1 | B | 3,334 | 12.4 | B | 3,216 | 12.0 | B | 3,068 | 11.7 | B |
| F-16 | SR-60 | Pyrite St to Valley Way | 3,348 | 13.2 | B | 3,642 | 13.6 | B | 2,653 | 9.9 | A | 2,567 | 9.8 | A |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | 4,398 | 23.7 | C | 4,252 | 21.4 | C | 4,532 | 23.1 | C | 4,725 | 24.9 | C |
| F-18 | SR-60 | Rubidoux Blvd to Market St | 4,943 | 27.6 | D | 4,706 | 24.3 | C | 3,568 | 17.7 | B | 3,868 | 19.7 | C |
| F-19 | SR-60 | Market St to Main St | 4,498 | 24.4 | C | 7,050 | 47.8 | F | 5,631 | 30.9 | D | 5,109 | 27.6 | D |
| F-20 | SR-60 | Main to SR-91 | See Weaving Analysis | | | See Weaving Analysis | | | 5,248 | 27.9 | D | 4,720 | 24.9 | C |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | 5,865 | 24.6 | C | 8,976 | 45.7 | F | 7,050 | 30.6 | D | 5,800 | 24.1 | C |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 4,332 | 16.9 | B | 6,795 | 26.6 | D | 7,461 | 31.1 | D | 6,376 | 25.6 | C |
| F-27 | SR-60 | I-215 to Day St | See Weaving Analysis | | | See Weaving Analysis | | | 7,050 | 47.9 | F | 3,093 | 15.9 | B |
| F-29 | SR-60 | Pigeon Pass Rd to Heacock St | 2,702 | 21.6 | C | 3,713 | 30.2 | D | 3,013 | 23.1 | C | 3,254 | 26.5 | D |
| F-30 | SR-60 | Heacock St to Perris Blvd | 2,349 | 18.6 | C | 3,355 | 26.1 | D | 2,638 | 19.9 | C | 2,671 | 20.8 | C |
| F-31 | SR-60 | Perris Blvd to Nason St | 1,812 | 14.3 | B | 2,344 | 17.4 | B | 1,910 | 14.3 | B | 2,045 | 15.8 | B |
| F-32 | SR-60 | Nason St to Moreno Beach Dr | 1,619 | 12.8 | B | 2,038 | 15.1 | B | See Weaving Analysis | | | See Weaving Analysis | | |
| F-33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 1,326 | 10.5 | A | 1,397 | 10.4 | A | 988 | 7.4 | A | 1,336 | 10.3 | A |
| F-34 | SR-60 | Redlands Blvd to Theodore St | 1,614 | 12.7 | B | 1,920 | 14.2 | B | 1,193 | 8.9 | A | 1,498 | 11.6 | B |
| F-35 | SR-60 | Theodore St to Gilman Springs Rd | 1,521 | 12.0 | B | 1,915 | 14.2 | B | 1,183 | 8.9 | A | 1,393 | 10.8 | A |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 1,213 | 11.2 | B | 1,484 | 12.3 | B | 837 | 7.0 | A | 1,002 | 9.1 | A |
| F-37 | SR-60 | Jack Rabbit Trail to I-10 | 1,215 | 9.6 | A | 1,482 | 11.0 | A | 837 | 6.3 | A | 1,002 | 7.7 | A |
| F-39 | SR-91 | I-15 to McKinley St | 5,914 | 22.6 | C | 9,400 | 53.3 | F | 6,402 | 25.1 | C | 5,971 | 24.1 | C |
| F-40 | SR-91 | McKinley St to Pierce St | 5,382 | 29.1 | D | 5,427 | 31.4 | D | 4,788 | 25.0 | C | 5,183 | 29.3 | D |
| F-41 | SR-91 | Pierce St to Magnolia Ave | 4,888 | 25.5 | C | 4,922 | 27.2 | D | 4,629 | 23.9 | C | 7,050 | 53.3 | F |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | See Weaving Analysis | | | See Weaving Analysis | | | 4,894 | 25.7 | C | 7,050 | 53.3 | F |
| F-43 | SR-91 | La Sierra Ave to Tyler St | 4,585 | 23.5 | C | 4,939 | 27.3 | D | 4,467 | 22.9 | C | 5,167 | 29.2 | D |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | 5,704 | 21.7 | C | 5,851 | 23.5 | C | 5,769 | 22.1 | C | 6,661 | 27.8 | D |

## Table 16: Existing Freeway Mainline Level of Service (continued)

| ID | Freeway | Segment | Northbound / Eastbound | | | | | | Southbound / Westbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-45 | SR-91 | Van Buren Blvd to Adam St | 5,841 | 22.3 | C | 4,999 | 19.6 | C | 5,342 | 20.2 | C | 6,401 | 26.3 | D |
| F-46 | SR-91 | Adam St to Madison St | 6,531 | 26.1 | D | 4,742 | 18.7 | C | 4,939 | 18.6 | C | 5,453 | 21.5 | C |
| F-47 | SR-91 | Madison St to Arlington Ave | 5,879 | 22.8 | C | 4,530 | 17.9 | B | 4,218 | 21.4 | C | 4,711 | 25.5 | C |
| F-49 | SR-91 | Central Ave to 14th St | 6,021 | 34.8 | D | 5,391 | 30.8 | D | 4,737 | 24.7 | C | 4,940 | 27.2 | D |
| F-51 | SR-91 | University Ave to Spruce St | 7,244 | 22.1 | C | 6,394 | 20.0 | C | See Weaving Analysis | | | See Weaving Analysis | | |
| F-66 | I-215 | Scott Rd to Newport Rd | 2,739 | 22.0 | C | 3,285 | 25.8 | C | 2,294 | 17.2 | B | 2,318 | 17.2 | B |
| F-68 | I-215 | Newport Rd to McCall Blvd | 1,900 | 15.0 | B | 2,047 | 15.3 | B | 2,528 | 19.0 | C | 3,111 | 23.7 | C |
| F-69 | I-215 | McCall Blvd to Ethanac Rd | 2,457 | 19.5 | C | 3,293 | 25.8 | C | 3,069 | 23.6 | C | 2,539 | 18.9 | C |
| F-70 | I-215 | Ethanac Rd to SR-74 | 3,787 | 34.5 | D | 3,150 | 24.4 | C | 2,882 | 21.9 | C | 3,854 | 32.0 | D |
| F-71 | I-215 | SR-74 to Redlands Ave | 3,350 | 28.5 | D | 4,181 | 37.4 | E | 4,539 | 44.2 | E | 3,710 | 30.1 | D |
| F-74 | I-215 | Columbia Ave to Center St | 5,587 | 33.5 | D | 5,150 | 27.3 | D | 5,191 | 27.6 | D | 4,917 | 25.4 | C |
| F-75 | I-215 | Center St to La Cadena Dr | 5,474 | 32.4 | D | 5,034 | 26.5 | D | 5,541 | 30.4 | D | 5,235 | 27.6 | D |
| F-76 | I-215 | La Cadena Dr to Barton Rd | 5,341 | 31.2 | D | 5,164 | 27.5 | D | 5,414 | 29.4 | D | 5,196 | 27.3 | D |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | 5,738 | 35.1 | E | 5,533 | 30.3 | D | 5,435 | 29.5 | D | 5,256 | 27.7 | D |
| F-78 | I-215 | Mt. Vernon Ave to I-10 | 5,582 | 22.5 | C | 5,420 | 20.5 | C | 5,776 | 22.0 | C | 5,606 | 21.0 | C |
| F-80 | I-215 | Auto Plaza Dr to Mill St | 4,319 | 17.1 | B | 4,533 | 17.0 | B | 4,022 | 15.1 | B | 4,090 | 15.2 | B |
| F-83 | I-215 | Baseline Rd to Highland Ave | 3,023 | 24.8 | C | 3,355 | 26.5 | D | 4,537 | 44.1 | E | 4,700 | 46.7 | F |
| F-52 | I-10 | SR-60 to Beaumont Ave | 3,037 | 11.9 | B | 4,252 | 16.4 | B | 4,288 | 18.1 | C | 3,675 | 13.8 | B |
| F-53 | I-10 | Beaumont Ave to Pennsylvania Ave | 3,087 | 12.1 | B | 4,322 | 16.7 | B | 4,358 | 18.4 | C | 3,736 | 14.0 | B |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs Ave | 3,236 | 12.6 | B | 4,531 | 17.5 | B | 4,569 | 19.4 | C | 3,916 | 14.7 | B |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | 3,112 | 12.2 | B | 4,357 | 16.8 | B | 4,393 | 18.6 | C | 3,766 | 14.1 | B |
| F-56 | I-10 | Sunset Ave to 22nd St | 3,037 | 11.9 | B | 4,252 | 16.4 | B | 4,288 | 18.1 | C | 3,675 | 13.8 | B |
| F-57 | I-10 | 22nd St to 8th St | 2,987 | 11.7 | B | 4,182 | 16.2 | B | 4,218 | 17.8 | B | 3,615 | 13.5 | B |
| F-58 | I-10 | 8th St to Hargrave St | 2,987 | 11.7 | B | 4,182 | 16.2 | B | 4,218 | 17.8 | B | 3,615 | 13.5 | B |
| F-59 | I-10 | Hargrave St to Fields Rd | 2,689 | 10.5 | A | 3,764 | 14.5 | B | 3,796 | 16.0 | B | 3,254 | 12.2 | B |
| F-60 | I-10 | Fields Rd to Morongo Trail | 2,564 | 10.0 | A | 3,590 | 13.9 | B | 3,620 | 15.3 | B | 3,103 | 11.6 | B |
| F-61 | I-10 | Morongo Trail to Main St | 2,265 | 8.8 | A | 3,172 | 12.3 | B | 3,198 | 13.5 | B | 2,741 | 10.3 | A |
| F-62 | I-10 | Main St to Haugen-Lehmann Way | 2,265 | 8.8 | A | 3,172 | 12.3 | B | 3,198 | 13.5 | B | 2,741 | 10.3 | A |
| F-64 | I-10 | SR-111 to Tipton Rd | 1,967 | 7.7 | A | 2,753 | 10.6 | A | 2,777 | 11.7 | B | 2,380 | 8.9 | A |
| F-65 | I-10 | Tipton Rd to SR-62 | 1,967 | 7.7 | A | 2,753 | 10.6 | A | 2,777 | 11.7 | B | 2,380 | 8.9 | A |

Indicates that the LOS exceeds the target level

## Table 17: Existing Freeway Weaving Sections Level of Service

| ID | Freeway | Weaving Segment | Northbound / Eastbound | | | | | | Southbound / Westbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | 5,985 | 24.0 | C | 8,616 | 35.7 | **E** | 6,125 | 21.4 | C | 5,892 | 20.8 | C |
| W-9 | SR-60 | Haven Ave to Archibald Ave | See Basic Analysis | | | See Basic Analysis | | | 6,288 | 23.5 | C | 6,071 | 23.5 | C |
| W-20 | SR-60 | Main St to SR-91 | 5,418 | 25.8 | C | 7,050 | 33.6 | D | See Basic Analysis | | | See Basic Analysis | | |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | 3,885 | 14.8 | B | 9,400 | 39.0 | **E** | 7,729 | 28.6 | D | 7,211 | 27.2 | C |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | 3,919 | 18.7 | B | 7,050 | 37.4 | **E** | 5,714 | 20.1 | C | 6,204 | 23.0 | C |
| W-23 | SR-60 | University Ave to Martin Luther King Blvd | 4,528 | 20.4 | C | 5,932 | 25.7 | C | 5,601 | 28.0 | C | 5,876 | 28.0 | C |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs Rd | 3,856 | 14.5 | B | 7,840 | 32.4 | D | 7,050 | 37.0 | **E** | 6,026 | 29.3 | D |
| W-27 | SR-60 | I-215 to Day St | 2,988 | 10.6 | B | 4,704 | 18.8 | B | See Basic Analysis | | | See Basic Analysis | | |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 2,995 | 12.8 | B | 4,749 | 20.7 | C | 4,700 | 31.0 | D | 4,197 | 27.2 | C |
| W-32 | SR-60 | Moreno Beach Dr to Nason St | See Basic Analysis | | | See Basic Analysis | | | 1,609 | 9.2 | A | 1,753 | 10.2 | B |
| W-42 | SR-91 | Magnolia Ave to La Sierra Ave | 5,445 | 24.6 | C | 5,684 | 27.4 | C | See Basic Analysis | | | See Basic Analysis | | |
| W-48 | SR-91 | Arlington Ave to Central Ave | 7,050 | 35.3 | **E** | 4,073 | 19.6 | B | 4,642 | 21.1 | C | 5,118 | 23.8 | C |
| W-50 | SR-91 | 14th St to University Ave | 4,643 | 21.8 | C | 4,441 | 21.9 | C | 5,179 | 24.1 | C | 7,050 | 35.5 | **E** |
| W 51 | SR 91 | SR-60 to Mission Inn Ave/University Ave | See Basic Analysis | | | See Basic Analysis | | | 5,075 | 14.4 | B | 8,804 | 26.9 | C |
| W-73 | I-215 | SR-60 to Columbia Ave | 6,260 | 34.4 | D | 5,548 | 28.0 | C | 5,877 | 26.4 | C | 5,495 | 24.5 | C |
| W-79 | I-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 4,400 | 16.3 | B | 4,147 | 14.5 | B | 4,890 | 16.8 | B | 4,591 | 16.3 | B |
| W-81 | I-215 | Mill St to 2nd St | 5,044 | 23.0 | C | 5,095 | 22.5 | C | 4,442 | 19.6 | B | 4,380 | 19.4 | B |
| W-82 | I-215 | 5th St to Baseline Rd | 3,754 | 16.5 | B | 3,590 | 14.9 | B | 3,607 | 15.6 | B | 3,481 | 15.1 | B |
| W-63 | I-10 | Haugen-Lehmann Way to SR-111 | 2,265 | 7.5 | A | 3,172 | 10.5 | B | 3,198 | 11.8 | B | 2,741 | 10.3 | B |

Indicates that the LOS exceeds the target level

## Table 18: Existing Freeway Ramp Level of Service

| ID | Freeway / Direction | Ramp Segment | Ramp No. of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS |
| R-1 | SR-60 EB | On-Ramp from Martin Luther King Blvd | 1 | 4,110 | 242 | 16.9 | B | 5,678 | 906 | 26.5 | C |
| R-2 | SR-60 EB | On-Ramp from Central Ave | 1 | 5,796 | 349 | 18.5 | B | 8,868 | 904 | 31.8 | F |
| R-3 | SR-60 EB | Off-Ramp to Redlands Blvd | 1 | 1,326 | 207 | 3.3 | A | 1,397 | 434 | 3.2 | A |
| R-4 | SR-60 EB | Loop On-Ramp from Redlands Blvd | 1 | 1,119 | 26 | 12.2 | B | 963 | 25 | 10.3 | B |
| R-5 | SR-60 EB | Direct On-Ramp from Redlands Blvd | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-6 | SR-60 EB | Off-Ramp to Theodore St | 1 | 1,614 | 119 | 17.3 | B | 1,920 | 30 | 19.1 | B |
| R-7 | SR-60 EB | Loop On-Ramp from Theodore St | 1 | 1,495 | 70 | 17.3 | B | 1,890 | 71 | 19.8 | B |
| R-8 | SR-60 EB | Direct On-Ramp from Theodore St | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-9 | SR-60 EB | Off-Ramp to Gilman Springs Rd | 1 | 1,521 | 330 | 16.4 | B | 1,915 | 385 | 19.0 | B |
| R-10 | SR-60 EB | On-Ramp from Gilman Springs Rd | 1 | 1,191 | 7 | 14.2 | B | 1,530 | 8 | 16.3 | B |
| R-11 | SR-60 WB | Off-Ramp to Gilman Springs Rd | 1 | 837 | 11 | 9.6 | A | 1,002 | 9 | 11.3 | B |
| R-12 | SR-60 WB | On-Ramp from Gilman Springs Rd | 1 | 826 | 357 | 13.5 | B | 993 | 306 | 14.6 | B |
| R-13 | SR-60 WB | Off-Ramp to Theodore St | 1 | 1,183 | 24 | 12.7 | B | 1,393 | 26 | 14.9 | B |
| R-14 | SR-60 WB | On-Ramp from Theodore St | 1 | 1,159 | 34 | 12.1 | B | 1,367 | 131 | 14.8 | B |
| R-15 | SR-60 WB | Off-Ramp to Redlands Blvd | 1 | 1,193 | 49 | 12.8 | B | 1,498 | 38 | 15.9 | B |
| R-16 | SR-60 WB | Loop On-Ramp from Redlands Blvd | 1 | 1,144 | 329 | 14.3 | B | 1,460 | 361 | 17.4 | B |
| R-17 | SR-60 WB | Direct On-Ramp from Redlands Blvd | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-18 | SR-60 WB | Off-Ramp to Central Ave | 2 | 7,050 | 384 | 32.6 | D | 6,026 | 439 | 28.5 | D |
| R-19 | SR-60 WB | Off-Ramp to Martin Luther King Blvd | 1 | 7,050 | 474 | 21.0 | C | 5,800 | 337 | 15.9 | B |

Indicates that the LOS exceeds the target level

## E. REGIONAL CONTEXT

This chapter discusses the regional context of the proposed World Logistics Center (WLC) project.

***Moreno Valley's Economy***

Moreno Valley is a predominantly residential community, with one of the lowest jobs-to-housing ratios in the six-county SCAG region[20]. More than 70%[21] of jobs in the city are in education, retail, public administration and other services with local client bases. Moreno Valley has relatively few jobs that bring in revenue from outside the city. For example, the manufacturing sector is both quite small (3.7% of jobs in Moreno Valley) and is shrinking[22] .

One consequence of the existing imbalance between jobs and housing is that a large majority (70%) of Moreno Valley workers commute to jobs outside the city, and in many cases far outside the city. According to the U.S. Census Bureau[23], 20.2% of Moreno Valley workers commute more than 50 miles one way to work, and another 22.2% drive 25 to 50 miles one way. Nearly four out of five Moreno Valley workers drive to work alone[24]. Since other Inland Empire cities have similar commute characteristics, the resulting transportation pattern is one of heavy westbound flows in the morning and eastbound flows in the evening, overwhelming the freeway system during peak commuting hours. Another consequence is the high cost of commuting both in terms of out-of-pocket expenses and reduced quality of life for the commuters and their families.

***The Moreno Highlands Specific Plan***

The Community Development Element of the City's General Plan currently designates the project site as the Moreno Highlands Specific Pan (MHSP). The Specific Plan, approved by the City in 1992, envisioned the 3,038-acre site as a master planned, mixed use community, with up to 7,763 residential dwelling units (on approximately 2,435 acres) and approximately 603 acres of business, retail, institutional, and other uses.

Figure 19 shows the land use plan, and a summary of uses by acreage is presented in Table 19.

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20 Only 0.58 jobs/household, which is less than half of the regional average of 1.24. Source: *Profile of the City of Moreno Valley*, SCAG, May 2011, page 2.

21 ibid.

22 ibid. The number of manufacturing jobs in Moreno Valley has declined 31% since 2007.

23 Source: On-the-Map website, U.S. Census Bureau. Based on data collected in 2011.

24 Source: *Profile of the City of Moreno Valley*, SCAG, May 2011.

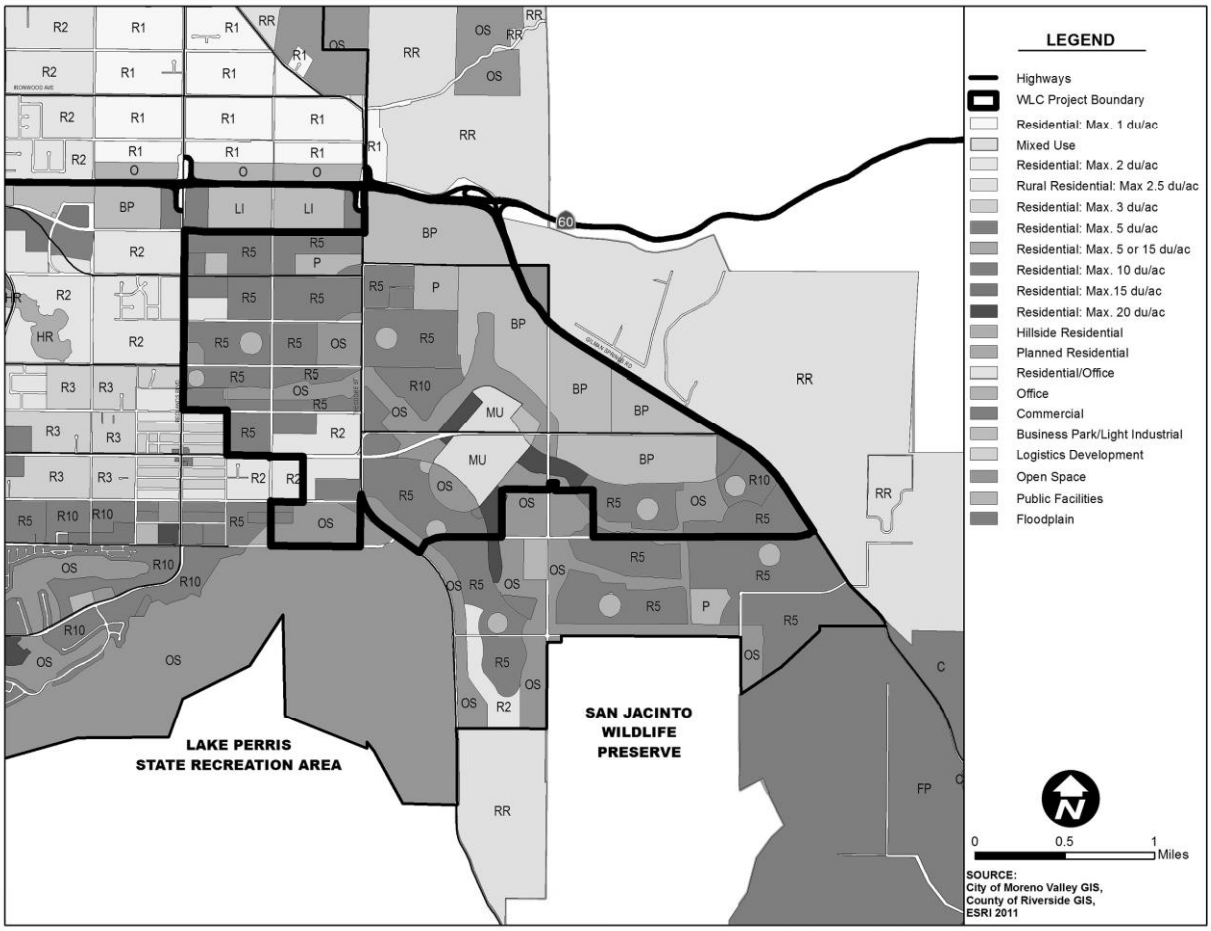



**Figure 19: General Plan Land Use Designations in the Project Area**

**Table 19: Moreno Highlands Specific Plan (Current Land Use Designations)**

| Land Use | Acreage |
|---|---|
| **Residential Community** | |
| Residential (7,283 du) | 1,359 |
| Parks and Open Space | 702 |
| Neighborhood Commercial | 10 |
| Cemetery | 17 |
| Public Facilities | 348 |
| **Planned Business Center** | |
| Business Park | 361 |
| Mixed Use | 81 |
| Community Commercial | 16 |
| Parks and Open Space | 78 |
| Public Facilities | 67 |
| **Project Total** | **3,038** |

Adopted by City Council March 17, 1992

The MHSP had two serious weaknesses. The first is that the SCAG region has had an over-abundance of land designated for business park uses, which means that only the most attractive locations are likely to be developed. Since the Specific Plan was adopted, most business park development has taken place in the coastal counties rather than in the Inland Empire. Within Moreno Valley, sites at the eastern end of the city have not been successful. Sites at the western end of town closer to I-215 had very limited success and are struggling. Therefore, despite being designated for business park development for the last 20 years, no such development actually occurred in the MHSP.

The second weakness that the Specific Plan faced was the general decline in the housing market, which impacted Moreno Valley particularly hard. Without the business park jobs there has been little demand for the residential component of the MHSP. Moreover, if housing had been developed pursuant to the Specific Plan without the jobs component, it would have further exacerbated Moreno Valley's jobs/housing imbalance.

As a result, neither the commercial nor the residential component of the Specific Plan proved marketable, even during the prolonged real estate boom in the late 1990s and early 2000s. The MHSP has never come to fruition and the site remains today much the same as it was in 1992[25].

***Policy Updates***

An updated Housing Element, adopted by the City in February 2011, identified the Moreno Highlands area as a potential location for future jobs-producing land uses[26]. In April 2011, the City adopted its Economic Development Action Plan which identified eastern Moreno Valley as a potential area for major job-producing land uses[27]. The proposed World Logistics Center project is consistent with this planning objective, as it provides a comprehensive plan for jobs-producing land uses.

***General Plan Road Network***

The current General Plan, based on the MHSP, treats the western side of the project area as a continuation of the city street grid (see Figure 20). On the eastern side of the project area, Eucalyptus Ave. and Alessandro Blvd. would curve south and then east to connect with Gilman Springs Rd. at new intersections south of where the existing intersections are located. There is also a proposed Spine Rd. on a southwest-to-northeast alignment. Virginia Ave. would curve on a northwest-to-southeast alignment that would cross Eucalyptus Ave. twice.

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[25] The exception being the Skechers facility, which is outside the boundaries of the MHSP.

[26] *City of Moreno Valley Draft Housing Element 2008-2014*, page 6

[27] *Economic Development Action Plan, April 2011*, page 10

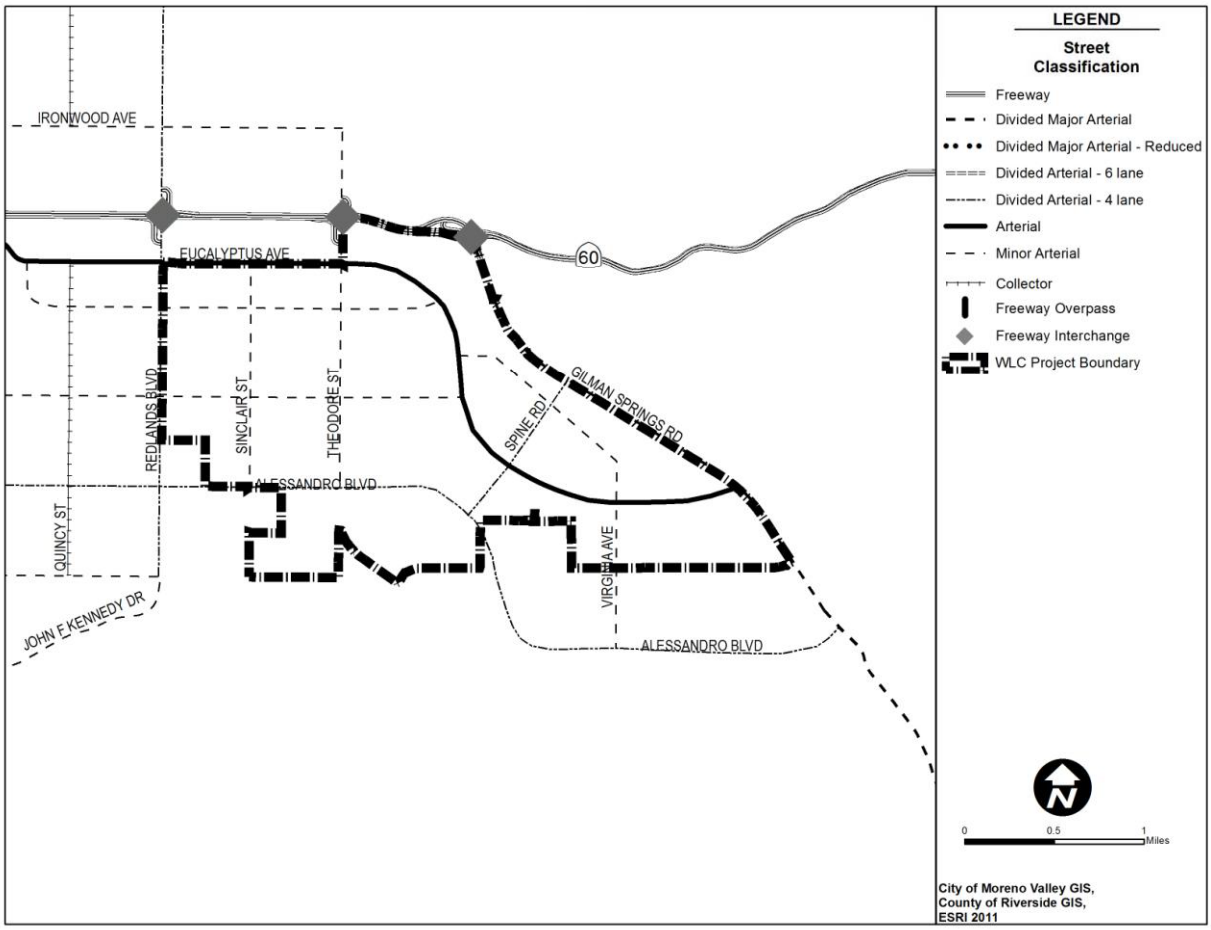



**Figure 20: Roadway System in Current General Plan**

***Regional Truck Traffic Patterns***

Truck traffic in the SCAG region is comprised of four major components. These are:

- Internal Trips – Truck trips that begin and end within the SCAG region. These include trips between industries, warehouses, and retail businesses within the region, excluding port-related cargo trips.
- External Trips – Truck trips with either the origin or destination in the SCAG region, and the other end of the trips outside the region, excluding port-related cargo trips. These include agricultural products brought into the region and industrial goods made in southern California and shipped to other parts of the U.S.
- Port Trips – Truck trips that begin or end at the Ports of Los Angeles or Long Beach, or secondary trips involving cargos transloaded from trucks from the port.

- Intermodal Trips – Truck trips involving cargos transferred to or from trains that are not port-related.

Table 20 shows the relative sizes of these components[28]. In Riverside County, 88% of the truck trips are internal to the region. Another 10% are external trips, while port-related trips and intermodal trips account for less than 2% of truck traffic.

**Table 20: Daily Truck Trips by Major Category**

| | SCAG Region | | Riverside County | |
|---|---|---|---|---|
| | Truck Trips | % of Truck Trips | Truck Trips | % of Truck Trips |
| **Internal** | 1,011,993 | 87.3% | 94,469 | 87.9% |
| **External** | 81,019 | 7.0% | 11,183 | 10.4% |
| **Port-Related** | 59,645 | 5.1% | 1,569 | 1.5% |
| **Intermodal** | 7,170 | 0.6% | 271 | 0.3% |
| **Total** | 1,159,827 | 100.0% | 107,492 | 100.0% |

The truck traffic associated with the WLC and other logistics centers is expected to follow this general pattern. Most of the warehouse occupants in the NAIOP survey of logistics centers in southern California (Lowe's, Target, Big5, Walgreen's, Home Depot, Costco, Toys "R" Us, Staples, etc.) have extensive business interests in southern California. Thus, it is reasonable to assume that a future warehouse logistics center located in this region would be used in part to support operations within the region; i.e. some of the truck trips they generate would be internal to the region. It is also reasonable to assume that the external trips would follow the overall regional pattern, which is as follows (also see Figure 21)[29]:

- I-5 and US-101 are the main truck routes for cargos transported north of the SCAG region, accounting for 38% of external truck trips
- I-15 is the main route for cargos going northeast (Salt Lake City, Chicago, etc.) , accounting for 10% of external truck trips
- I-40 is the main route for cargos going east (Albuquerque, St. Louis, Atlanta, New York, etc.), accounting for 11% of external truck trips
- I-10 is the main route for cargos going southeast (Phoenix, Houston, New Orleans, etc.), accounting for 12% of external truck trips

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28 Source: *Draft Regional Transportation Plan 2012-2035*, *Goods Movement,* Southern California Association of Governments. December 2011, page 13.

29 Data Source: Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework.

- I-5 and I-215 are the major routes going south (San Diego, Mexico), accounting for 29% of external truck trips.

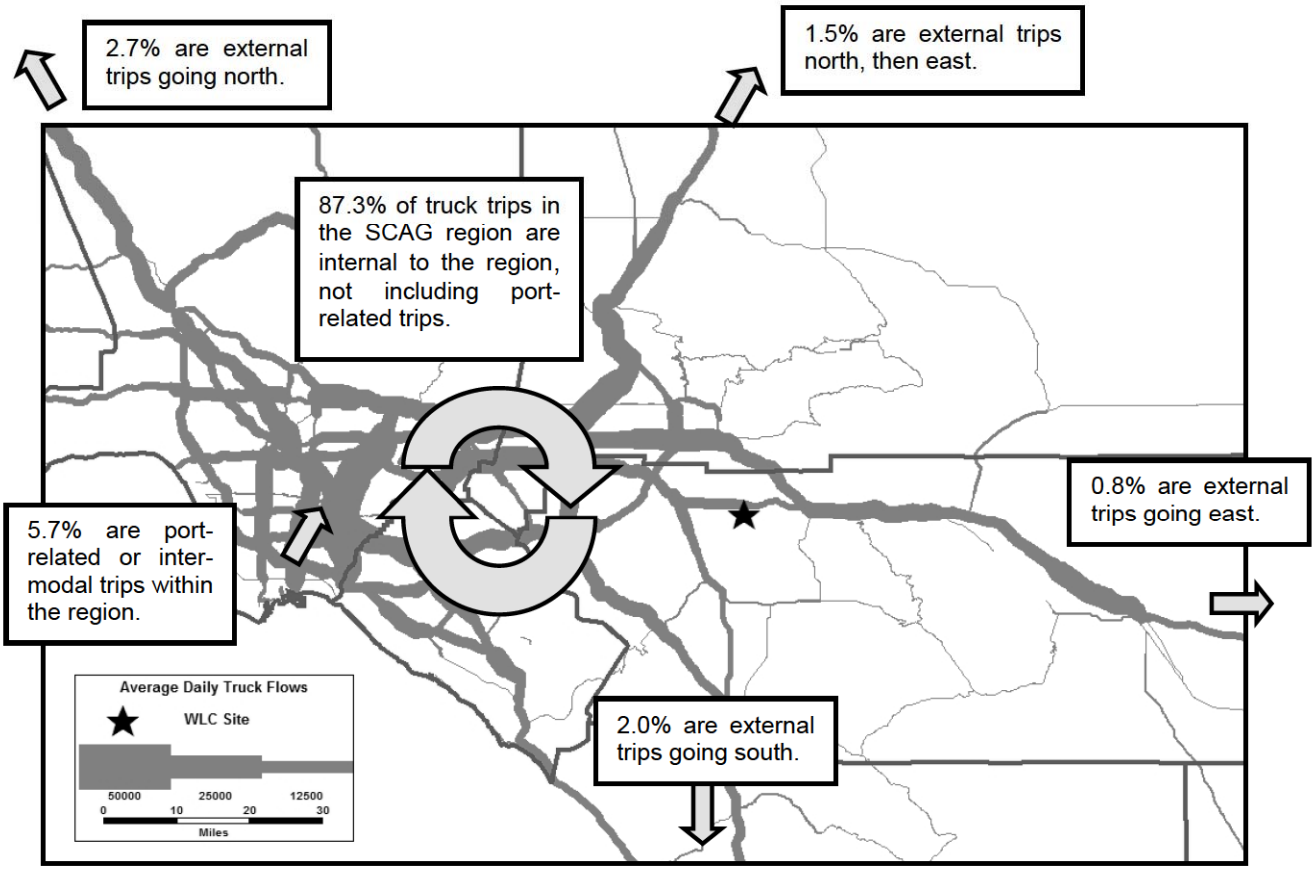



**Figure 21: Major Truck Flows in the SCAG Region, 2010**

# 4. PROPOSED PROJECT

## A. POTENTIAL ROLE OF LOGISTICS

The type of development envisioned in the Moreno Highland Specific Plan has proven to be infeasible at this location; since the plan's approval more than twenty years ago no development has occurred on the site. This raises the question of whether a different type of development would be more feasible and so would provide more scope for benefits to Moreno Valley. SCAG has studied this issue in the larger context of the region's relative standard of living. In the period from 1987 to 2001, the SCAG region slipped from 4th place to 17th (last) place in per capita income among the 17 consolidated metropolitan areas in the United States[30]. Among the chief reasons for this decline was the loss in manufacturing jobs, which reduced the earning potential for the region's large and growing number of workers who lack a college education. One possibility for replacing these lost jobs is the logistics sector, since:

- Logistics has shown steady growth due to the adoption of "just-in-time" inventory systems, which rely on rapid-response warehouses as a substitute for goods stored on-site.
- The growth in trade with Asia has increased the volume of cargos while the introduction of post-Panamax container ships[31] limits the choice of west coast ports to L.A./Long Beach, Seattle/Tacoma, and Vancouver. Consequently they all have good prospects for continuing long-term growth.
- Logistics jobs offer better-than-average wages. These wages are better t han the wages of the blue-collar jobs in the declining sectors of manufacturing and construction[32].

Within the Inland Empire context, logistics development would bring high-paying blue collar jobs into an area with an under-employed labor force, including many workers lacking a college education[33]. Also, since modern logistics warehouses are very large buildings requiring large vacant parcels of land near freeways, it gives the Inland Empire region a comparative advantage over the coastal counties that do not have such parcels readily available or regions further inland that are not as easily accessible from the Ports of Los Angeles and Long Beach. Forecasts suggest that the regional demand for warehouse space

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30 *Logistics & Distribution: An Answer to Regional Upward Social Mobility*, Dr. John Husing for SCAG, June 2004, page 1.

31 Post-Panamax vessels are too large to go through the Panama Canal.

32 In 2003 the average pay was $45,314/yr for logistics jobs compared to $43,871 for manufacturing and $40,439 for construction (from *Logistics & Distribution: An Answer to Regional Upward Social Mobility*, Dr. John Husing for SCAG, June 2004, page 12.)

33 In 2010 only 14.1% of adults aged 25 or older in Moreno Valley had a bachelor's degree or higher. This compares to 36.5% in Orange County. Source: American Fact Finder, U.S. Census Bureau.

will triple over the next 25 years, from approximately 1.5 billion square feet to 4.5 billion square feet, and that half of this space will be built in the Inland Empire[34].

## B. PROJECT DESCRIPTION

The proposed World Logistics Center is a plan for the development of modern high-cube logistics warehouse distribution facilities on land in eastern Moreno Valley. The project includes the development of up to 40.6 million square feet of modern high-cube logistics facilities within the 2,610-acre World Logistics Center Specific Plan, while designating 1,084 acres as "open space," and 19 acres as "public facility."

### *Proposed Land Uses*

The project includes a Specific Plan to implement a proposed General Plan Amendment and to set forth comprehensive land use regulations governing the proposed World Logistics Center. The Specific Plan provides for a master planned development of up to 40.6 million square feet of modern high-cube logistics warehouse distribution facilities.

The Specific Plan includes development standards and use regulations, a master plan for circulation and infrastructure, architectural, landscape and design guidelines, and sustainability goals which would be applicable to all future development within the project area.

Table 21 lists the acreage associated with the proposed Logistics Development, Light Logistics, Public Utility, and Open Space uses within the project site.

**Table 21: The World Logistics Center Land Use Summary**

| Land Use | Acreage |
|---|---|
| **Specific Plan Area** | |
| Logistics Development (includes Logistics Support site) | 2,383 |
| Light Logistics | 37 |
| Open Space | 74 |
| Street ROW | 116 |
| **Outside Specific Plan** | |
| Open Space (CDFW) | 1,084 |
| Public (SDGE, SCG) | 20 |
| **Total** | **3,714** |

[34] Source: *Multi-County Goods Movement Action Plan*, Wilbur Smith Associates, August 2008.

Within the Specific Plan, the primary land use category is Logistics Development. This land use designation would provide for development of high-cube logistics warehouse uses consisting of warehouse buildings at least 500,000 square feet in size. Warehousing and logistics activities, consistent with the storage and processing of manufactured goods and materials prior to their distribution to other facilities and retail outlets, would be permitted within this category. Ancillary office and maintenance space would be permitted, along with the outdoor storage of trucks, trailers, and shipping containers.

A smaller area would be devoted to Light Logistics. The light logistics land use designation is for conventional warehouse buildings smaller than 500,000 square feet in floor area.

In consultation with the South Coast Air Quality Management District (SCAQMD) a combined fueling station and convenience store was been added to the plans for the WLC which would be developed within the Logistics Support (LS) land use area. The purpose of the fueling station/convenience store is to provide an on-site location to purchase alternative fuels such as compressed/liquefied natural gas (CNG) / (LNG), diesel fuel, snacks, soft drinks, toiletries, cigarettes, etc. for WLC truck drivers. The station is not intended to attract customers from outside of the WLC and would only have driveway access onto a side street in the WLC; no driveway access to external roads would be provided. The facility would have restrooms and operate on a 24/7 basis. There would be no shower facilities, stand-alone food uses, drive-through food operations, alcohol products, vehicle maintenance, vehicle washing, or long-term parking.

***Proposed Road Network***

The proposed network is shown in Figure 22 and the lane configurations are summarized in Table 22. As in the current General Plan, the proposed road network would feature two major east-west connections for through traffic between Redlands Blvd. and Gilman Springs Rd. Theodore St. would remain the main north-south road but would be changed from a minor arterial (in the current plan) to a major arterial. The other project streets are designed to provide internal access to project buildings and are not expected to serve external traffic. The overall density of streets is low because the very large size of the WLC buildings can only be accommodated in large blocks.

**Table 22: Lane Configurations for WLC Internal Roads**

| Road | Lane Configuration |
|---|---|
| Street A (Theodore St.) | 6 lanes and 4 lanes, wide median |
| Street B (Eucalyptus Ave.) | 4 lanes, standard median |
| Street C (Alessandro Blvd.) | 4 lanes, undivided |
| Cactus Ave. Extension | 4 lanes, undivided |
| Street E (Alessandro Blvd.) | 4 lanes, undivided |
| Street F | 2 lanes, undivided |

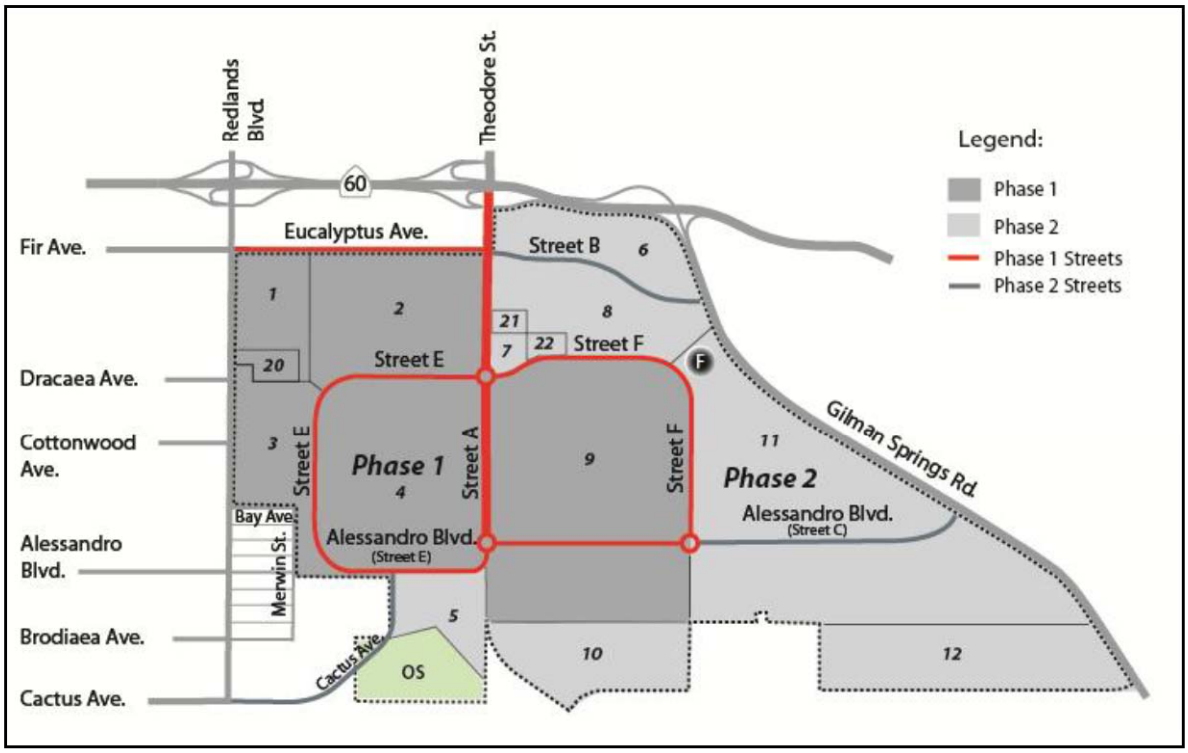



**Figure 22: Proposed Roadways and Phasing**

The WLC's internal streets are proposed as follows:

**Street "A"** (Theodore St.) would run on its present alignment north-south through the World Logistics Center. It is planned to be a 6-lane divided roadway north of Street E/F (see Figure 23) and 4-lane divided roadway south of Street E/F (see Figure 24), with additional widening and lane improvements at its intersections with SR-60, Eucalyptus Ave. and local interior collector streets. Two interior intersections would be roundabouts to provide for efficient traffic flow.

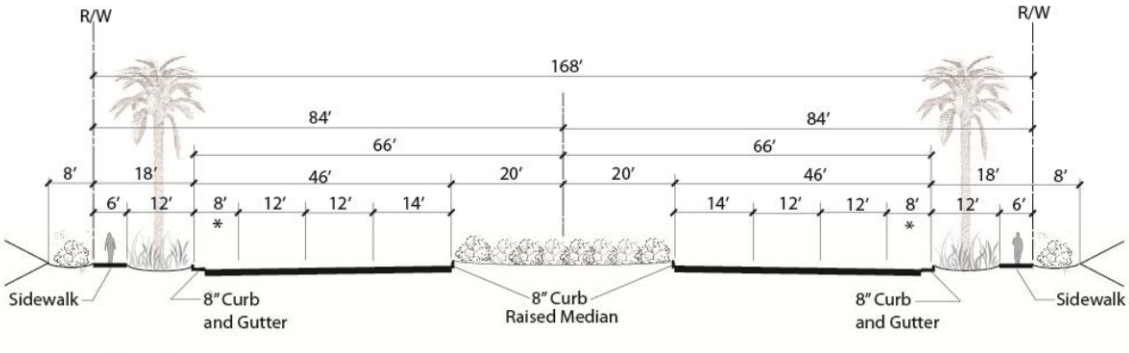



**Figure 23: Street A Typical 6-Lane Section**

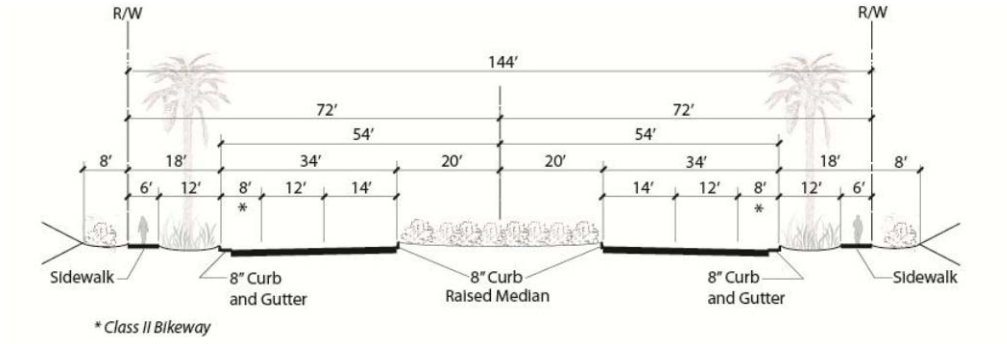



**Figure 24: Street A Typical 4-Lane Section**

**Street "B"** is proposed to be a 4-lane divided roadway running east-west through the northerly portion of the World Logistics Center from Gilman Springs Rd. on the east to existing Eucalyptus Ave. at Street "A" on the west (see Figure 25). The City's General Plan shows this street ultimately extending westerly across the City.

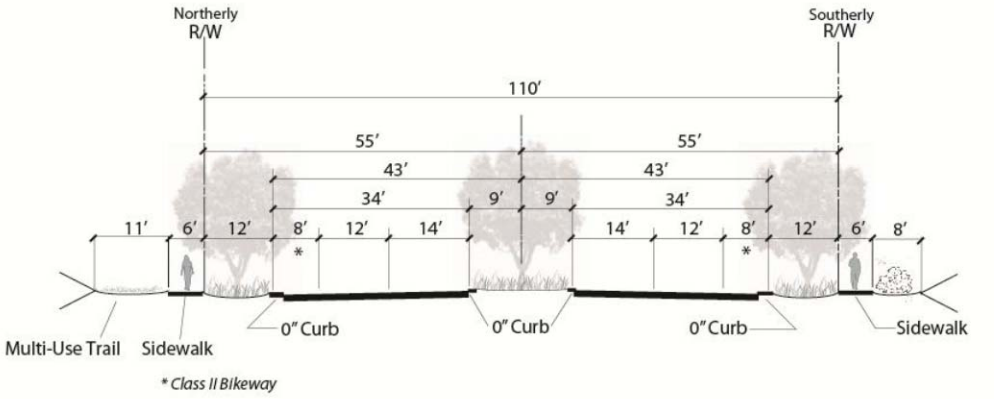



**Figure 25: Street B Typical Section**

**Alessandro Boulevard**[35] would retain its name. ROW width, and current alignment as an undivided roadway running east-west through the World Logistics Center, intersecting with Gilman Springs Rd. on the east (see Figure 26) and the Cactus Avenue Extension on the west. An existing section of Alessandro Blvd. between Merwin Street and the Cactus Avenue Extension would be closed to vehicular traffic except for emergency vehicles and bicycles and pedestrians. This is to prevent project traffic from traveling through existing residential neighborhoods. Passenger cars and light trucks heading west through the site would use Cactus Ave. Extension.

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[35] Alessandro Boulevard was labeled “Street C” and “Street E” (the western portion) in some draft reports discussing the WLC internal road network.

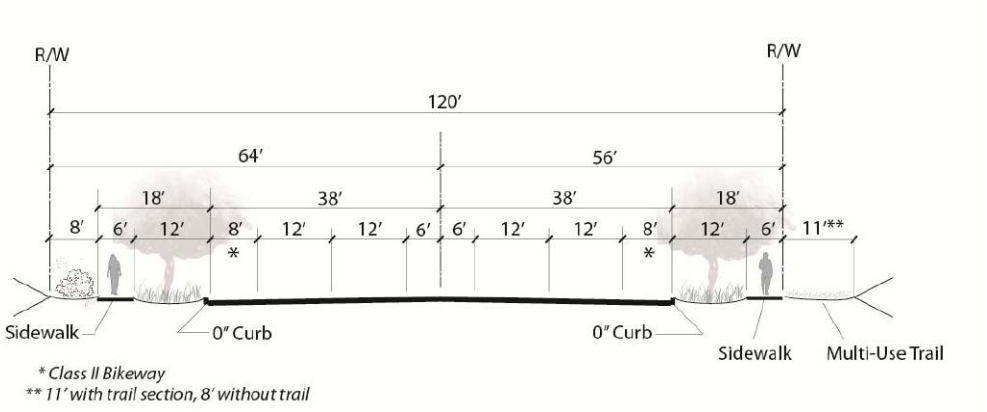



**Figure 26: Alessandro Boulevard Typical Section**

**Cactus Avenue Extension** is proposed to be a 4-lane undivided north-south roadway (see Figure 27) connecting existing Cactus Ave. with the westerly internal loop street (Street "E"). The intersection with Street "E" would be designed to prohibit large trucks from using Cactus Ave. Extension to prevent their travel through adjacent residential neighborhoods. Special design features and signage will reinforce this restriction.

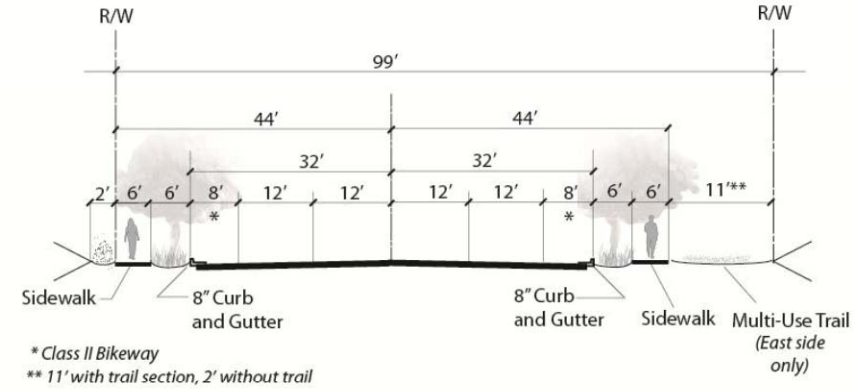



**Figure 27: Cactus Boulevard Extension Typical Section**

**Street "E"** is proposed to be a 4-lane undivided internal collector loop (see Figure 28) road providing direct access to development areas in the westerly portion of the project. Design details of this roadway will be determined by subsequent subdivision and site development approvals.

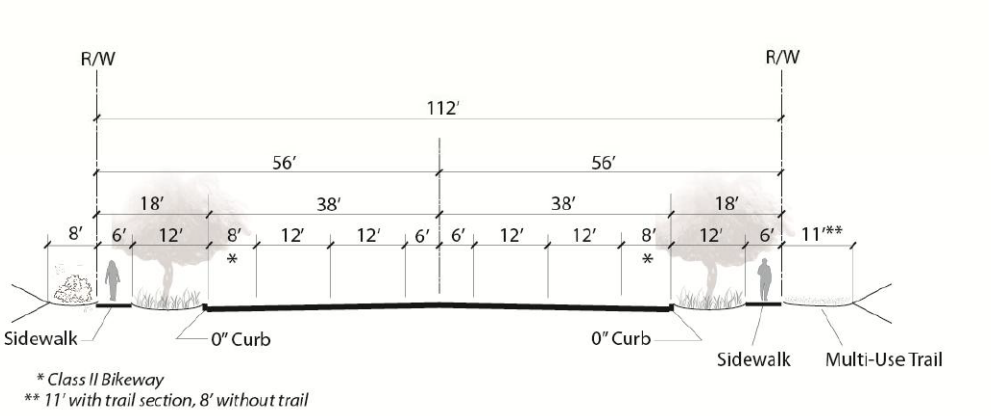



**Figure 28: Street E Typical Section**

**Street "F"** is proposed to be a 2-lane internal collector road providing direct access to development areas in the central portion of the project (see Figure 29). It would intersect with Street "A" at its northerly end and with Alessandro Boulevard at its southerly end. A roundabout is planned at its intersection with Alessandro Boulevard. Specific design details of this roadway will be determined by subsequent subdivision and site development approvals.

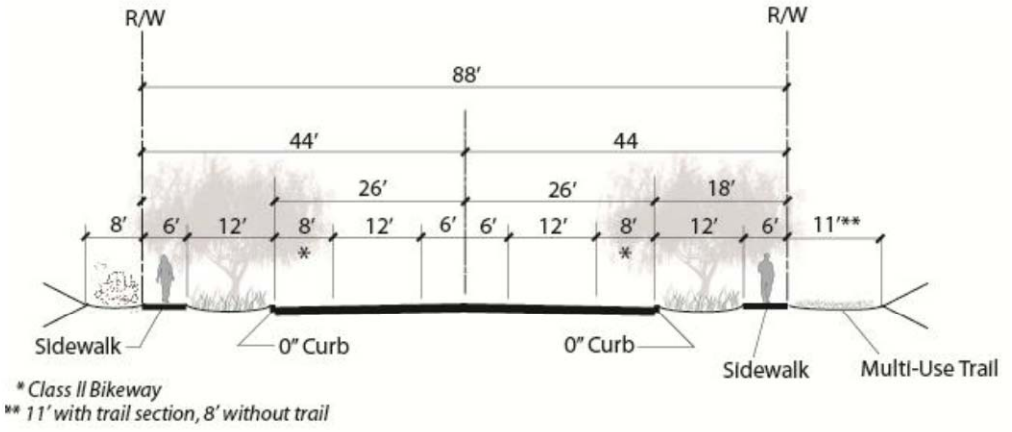



**Figure 29: Street F Typical Section**

**Eucalyptus Avenue** is proposed to be a 4-lane divided roadway running east-west through the northerly portion of the World Logistics Center from Street “B” on the east to a future Eucalyptus Ave. west of Redlands Blvd. (see Figure 30). The City's General Plan shows this street ultimately extending westerly across the City.

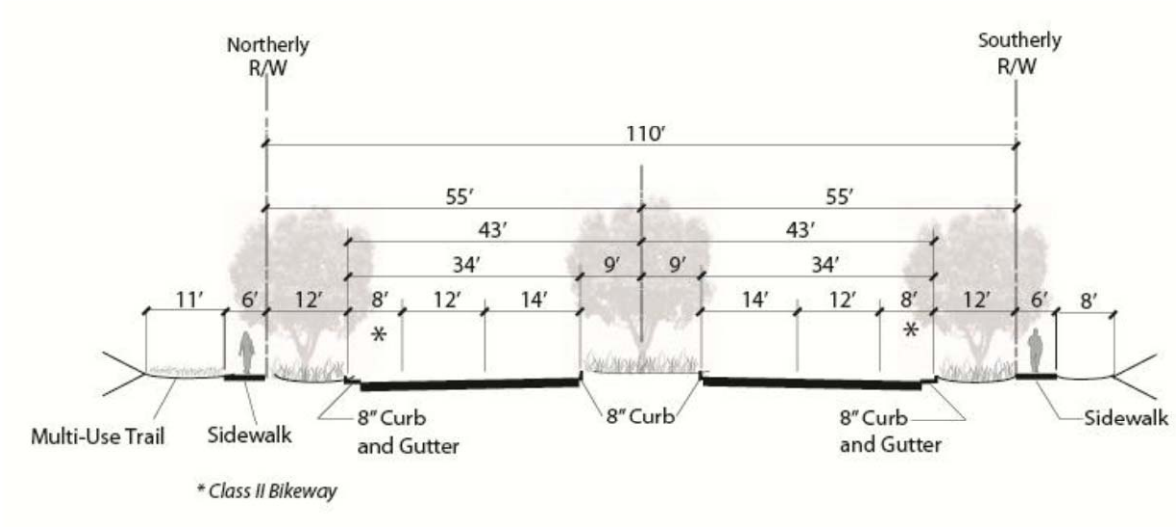



**Figure 30: Eucalyptus Avenue Typical Section**

The project would change a number of existing intersections in or adjacent to the project site, including:

- **Alessandro Blvd./Gilman Springs Rd. (IN-6)** would be signalized in Phase 1, and the eastbound approach changed from a shared left-turn/right-turn lane to dedicated left-turn lane and right-turn lanes. The northbound approach would have a left-turn pocket and two through lanes while the southbound approach would have a right-turn pocket and two through lanes. In Phase 2 an additional through lane would be added to the northbound and southbound approaches.
- **Theodore St./SR-60 WB ramps (IN-15)** would be signalized in Phase 1, one westbound and two northbound right-turn pockets would be added along with a southbound left-turn pocket. In Phase 2 this intersection would be replaced as part of the re-configuration of the interchange that will be described later in this section.
- **Theodore St./SR-60 EB ramps (IN-16)** would be signalized in Phase 1, eastbound and southbound right-turn pockets would be added, a northbound through lane would be added, and the existing left-turn pocket would be extended south to the adjacent intersection (IN-19). In Phase 2 this intersection would be eliminated and replaced with a new intersection to the north as part of the re-configuration of the interchange that will be described later in this section.
- **Theodore St. (Street A)/Fir Ave. (Eucalyptus) (IN-19)** would be signalized in Phase 1 and two northbound and southbound lanes added as part of the widening of Theodore St. In Phase 2 right-turn pockets would be added in the northbound, southbound, and eastbound directions, and an eastbound through lane added. A new westbound approach would be added with a left-turn pocket and a shared through/right turn lane.

Three roundabouts would be created, namely:

- **Alessandro Blvd. (Streets C and E)/Theodore St. (St. A) (IN-3)** is currently two closely-spaced offset intersections. These would be replaced with a 3-legged roundabout as shown in Figure 31.

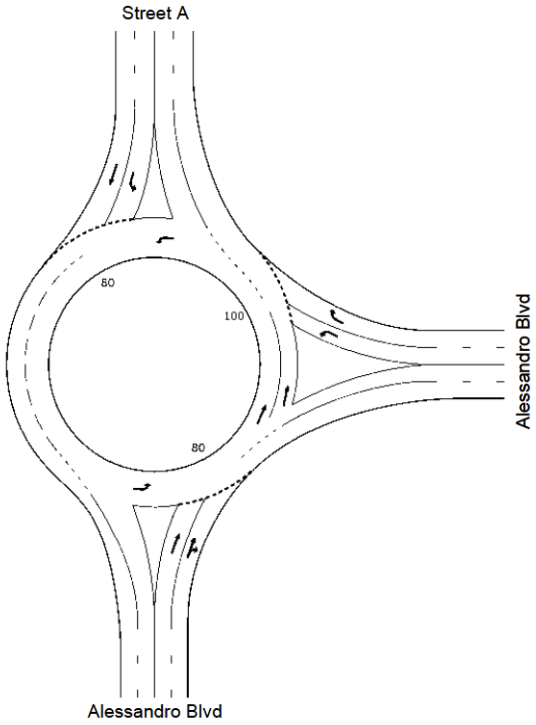



**Figure 31: Alessandro Blvd. (Streets C and E)/Theodore St. (Street A) Roundabout**

- **Streets E and F/Theodore St. (Street A) (IN-1)** would be created as a 4-leg roundabout in Phase 1 as shown in Figure 32.

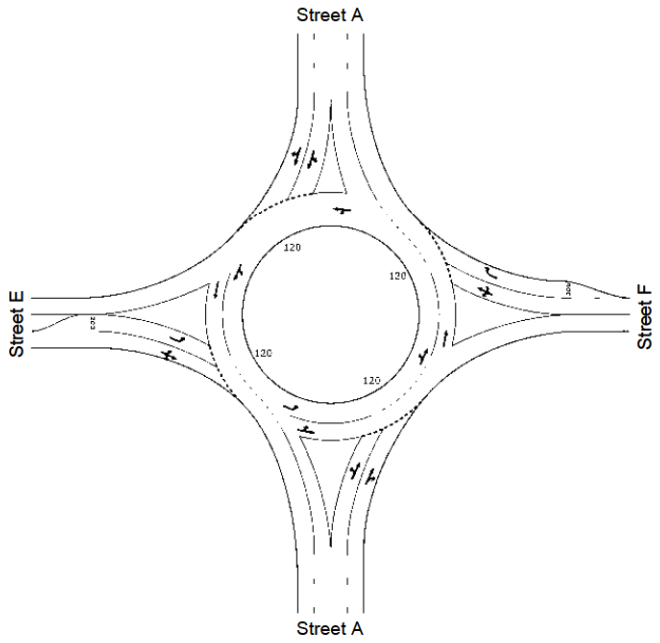



**Figure 32: Roundabout at Intersection of Streets A (Theodore St.), E, and F**

- **Streets C/Street F (IN-4)** would be created as a 3-leg roundabout as shown in Figure 33.

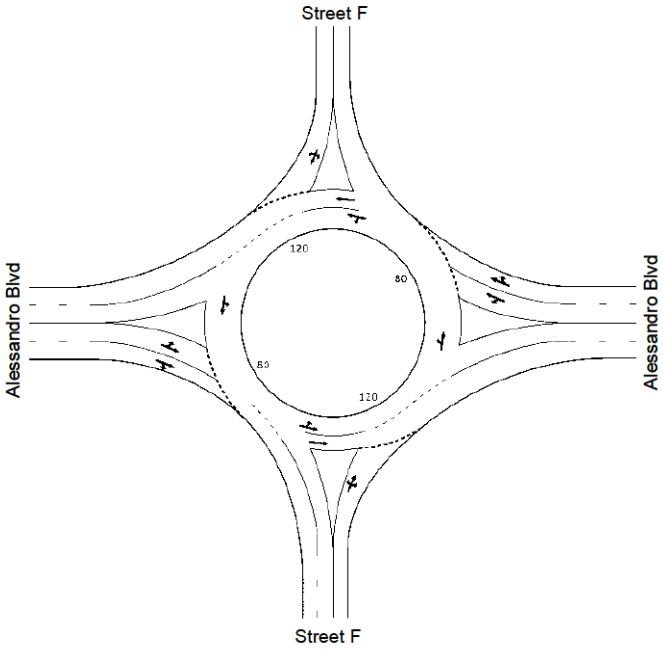



**Figure 33: Roundabout at Intersection of Streets F and C (Alessandro Blvd.)**

Another change from the current General Plan is that Alessandro Blvd. would be severed east of Merwin St. and connected to Cactus Ave. via Cactus Ave. Extension. This re-configuration is proposed to avoid impacts to the existing residential community west of the project area that would occur if Alessandro Blvd. were not severed and was widened into a 6-lane arterial as shown in the current General Plan.

The proposed circulation plan for the General Plan is shown in Figure 34.

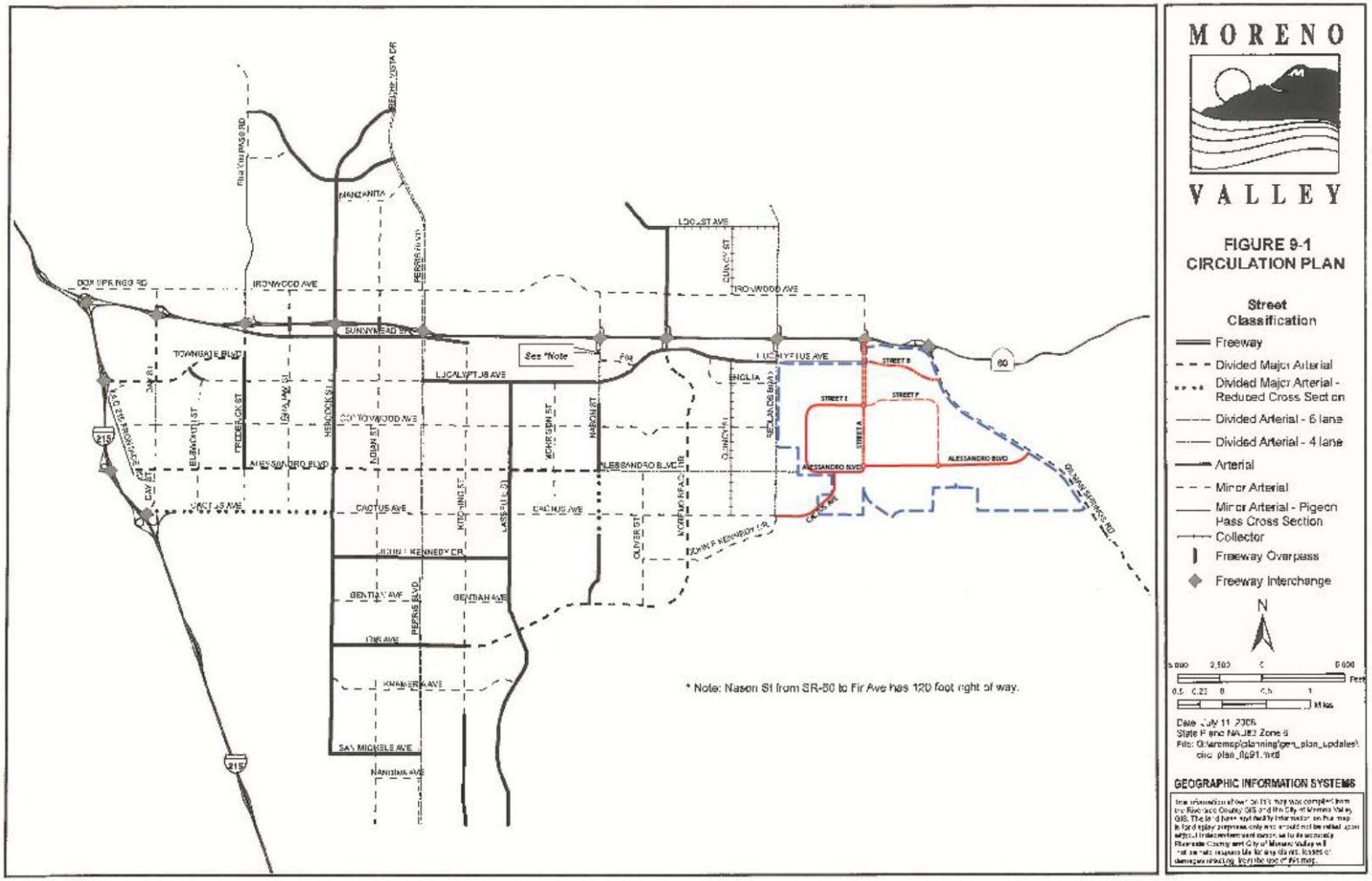



**Figure 34: Circulation Plan After Proposed Amendment**

A closely-related project that would serve the WLC is the reconfiguration of the SR-60 interchange at Theodore St. One of the new configurations being considered is shown in Figure 35. This project is included in the financially-constrained RTP project list and was assumed to be completed prior to Phase 2 of the WLC.

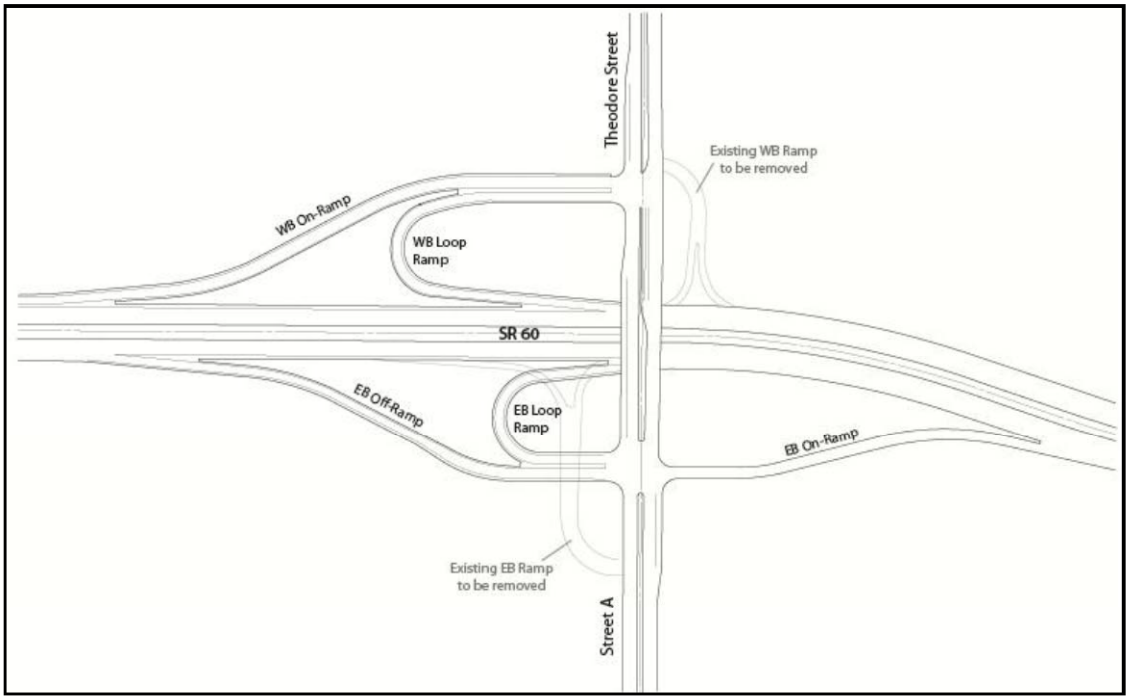



**Figure 35: Possible Future Configuration for the SR-60 Interchange at Theodore St.**

The developer of the WLC has discussed the interchange project with the City and has also entered into discussions with Caltrans and other agencies regarding this interchange project. The planning and design of this interchange is currently underway. For the purposes of this report, the improvements to the SR-60/Theodore interchange have been analyzed as part of the WLC project and have been studied in the same manner as the proposed project's internal roadways.

***Proposed Truck Routes***

The proposed revision to truck routes near the project site is shown in Figure 36. These routes would need to be incorporated into the Municipal Code.

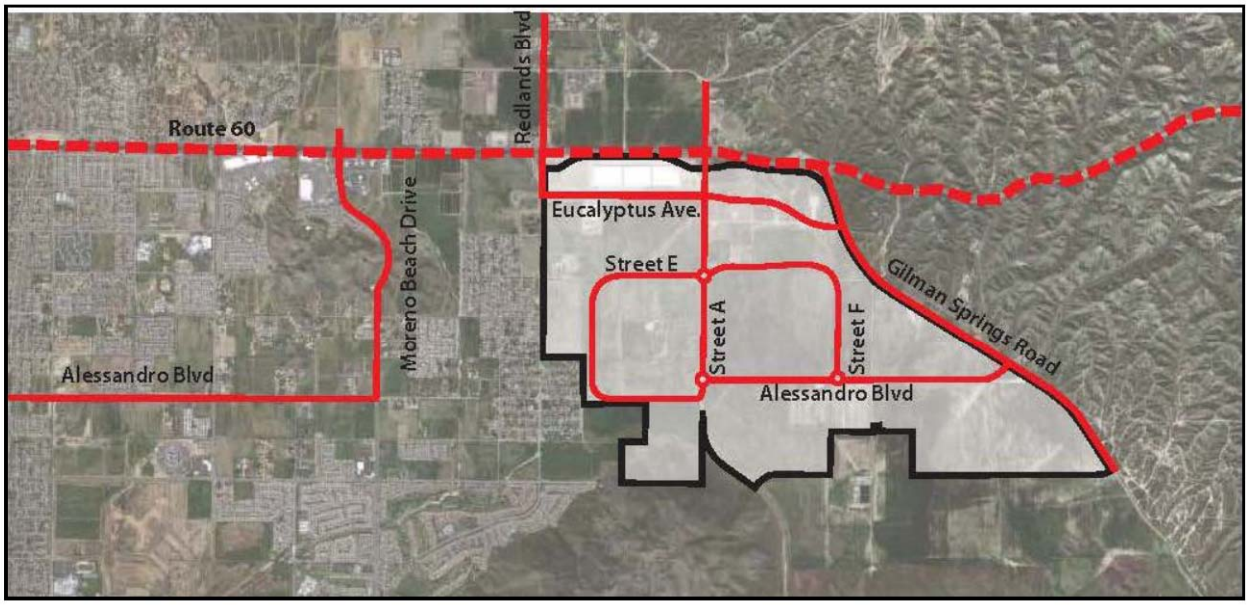



**Figure 36: Proposed Truck Routes Near Project Site**

***Bicycle and Pedestrian Facilities***

The WLC proposes Class II bike routes on all of its internal streets, thus providing safe access to all WLC buildings for employees wishing to commute by bicycle, as well as creating north-south and east-west paths through the site for bicycle through trips (see Figure 37).

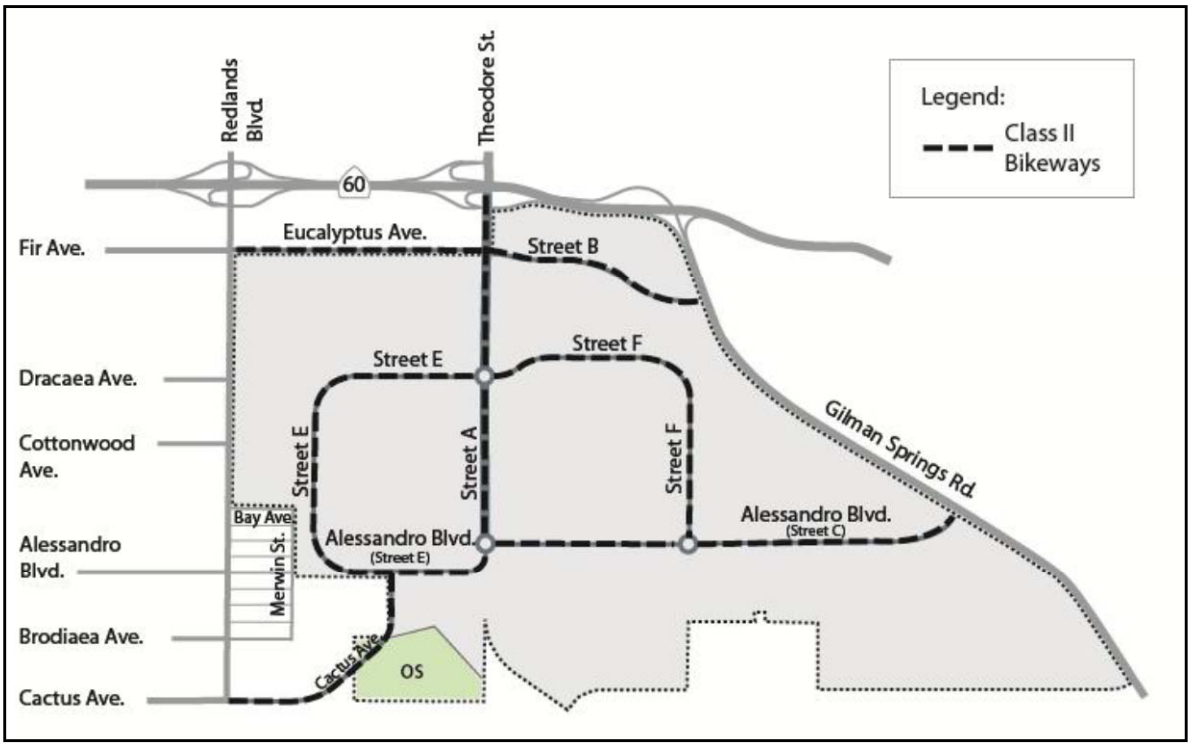



**Figure 37: Proposed WLC Bikeways**

The World Logistics Center proposes a network of pedestrian ways on project streets, as required to comply with ADA and other applicable codes, to connect all areas of the project to surrounding areas and to interconnect all buildings within the project.

An extension of the City's Redlands Blvd multi-use trail is proposed to be routed along the eastside of Redlands Blvd., and extend southerly through the project connecting to the existing trail along the south side of Cactus Ave., and to the San Jacinto Wildlife Area at the former Davis Rd. alignment (see Figure 38). Details of this trail alignment would be established with site-specific development proposals. The multi-use trails within the World Logistics Center would comply with existing City standards.

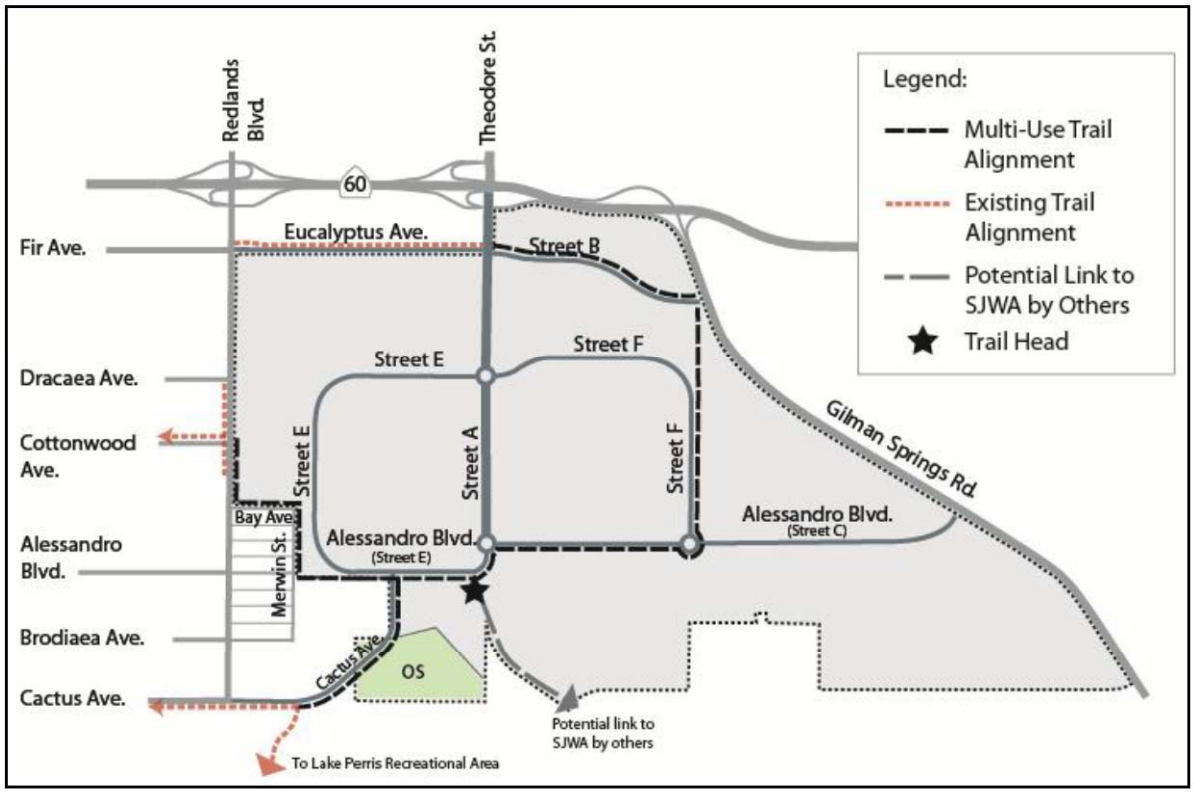



**Figure 38: Proposed Multi-Use Trails**

***Phasing***

The WLC would be developed over a number of years. For planning purposes it was assumed that Phase 1, to be completed by 2022, would contain approximately 21,450,000 square feet of logistics warehouse uses. This is approximately 52% of the total project building space. At that time, the road system would be partially built out (see Figure 22) with east-west through traffic served by Cactus Ave. Extension and Streets C and E, and north-south traffic served by Theodore St.

For Phase 2, full build-out of the project was assumed. An additional east-west through route would be provided when Eucalyptus Ave. (Street B) is connected with Redlands Blvd. to the west and Gilman Springs Rd. to the east.

## C. PROJECT TRIP GENERATION

As was discussed in an earlier chapter, in order to ensure that the traffic forecasts would be conservative (i.e. not underestimate actual volumes) the trip generation rates selected for use in this study were the rates found in the latest edition of ITE's *Trip General Manual*. These rates are shown in Table 23.

**Table 23: Trip Generation Rates for Proposed and Existing Land Uses**

| Land Use Type | Unit | AM Peak Hour | | | PM Peak Hour | | | ADT |
|---|---|---|---|---|---|---|---|---|
| | | In | Out | Total | In | Out | Total | |
| **Proposed Land Uses** | | | | | | | | |
| High-Cube Logistics Center (ITE 152) | KSF | 0.076 | 0.034 | 0.110 | 0.037 | 0.083 | 0.120 | 1.680 |
| Light Logistics (ITE 150) | KSF | 0.237 | 0.063 | 0.300 | 0.080 | 0.240 | 0.320 | 3.560 |
| Utilities Servicing Station (ITE 170)* | KSF | 0.720 | 0.080 | 0.800 | 0.342 | 0.418 | 0.760 | 8.000 |
| Fire Station** | Site | 20 | 8 | 28 | 10 | 20 | 29 | 137 |
| Gas Station w Convenience Store (ITE 945) | Pumps | 5.08 | 5.08 | 10.16 | 6.76 | 6.76 | 13.51 | 162.78 |
| Convenience Store (ITE 851) | KSF | 33.52 | 33.52 | 67.03 | 26.73 | 25.68 | 52.41 | 737.99 |
| **Existing Land Uses** | | | | | | | | |
| Single-Family Dwellings (ITE 210) | DU | 0.188 | 0.563 | 0.750 | 0.630 | 0.370 | 1.000 | 9.520 |
| Utilities Servicing Station (ITE 170)* | KSF | 0.720 | 0.080 | 0.800 | 0.342 | 0.418 | 0.760 | 8.000 |

"KSF" means "thousand square feet"

* Note: AM directionality taken from table for trips/employee. Daily rate is assumed to be ten time peak-hour rates

** Fire Station rate is based on the average of three traffic studies:

Fehr and Peers, *Loyola Marymount University Master Plan Project*, City of Los Angeles Department of Transportation, 2009, Table 5.

LLG Engineers, *Peaceful Valley Ranch*, County of San Diego, 2007, page 11.

McMahon, *Upper Dublin Fire House*, Montgomery County, Pennsylvania, 2010, page 15.

Using these rates, the trips that would be generated by the WLC are shown in Table 24 and Table 25.

**Table 24: Trips Generated by Proposed and Existing Land Uses**

| Land Use Type | Unit | Amount | AM Peak Hour | | | PM Peak Hour | | | ADT |
|---|---|---|---|---|---|---|---|---|---|
| | | | In | Out | Total | In | Out | Total | |
| **Proposed Land Uses** | | | | | | | | | |
| High-Cube Logistics Center | KSF | 40,400 | 3,066 | 1,378 | 4,444 | 1,503 | 3,345 | 4,848 | 67,872 |
| Light Logistics | KSF | 200 | 47 | 13 | 60 | 16 | 48 | 64 | 712 |
| SCG Valve/Metering Station (ITE 170) | KSF | 0.15 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| SDG&E Gas Compression Station (ITE 170) | KSF | 30.8 | 22 | 2 | 25 | 11 | 13 | 23 | 247 |
| Fire Station | Site | 1 | 20 | 8 | 28 | 10 | 20 | 29 | 137 |
| Gas Station with Convenience Store (ITE 945) | Pumps | 12 | 5 | 5 | 11 | 10 | 10 | 21 | 219 |
| Convenience Store (ITE Category 851) | KSF | 3 | 11 | 11 | 22 | 13 | 12 | 25 | 354 |
| Total | | | 3,172 | 1,417 | 4,590 | 1,563 | 3,449 | 5,010 | 69,542 |
| **Existing Land Uses** | | | | | | | | | |
| Single-Family Dwellings (ITE 210) | DU | 7 | 1 | 4 | 5 | 4 | 3 | 7 | 67 |
| SCG Valve/Metering Station (ITE 170) | KSF | 0.15 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| SDG&E Gas Compression Station (ITE 170) | KSF | 30.8 | 22 | 2 | 25 | 11 | 13 | 23 | 247 |
| Total | | | 24 | 6 | 30 | 15 | 16 | 31 | 314 |

**Table 25: WLC Trips by Vehicle Type [36]**

| Vehicle Type | Surface Street PCEs | Freeway PCEs | AM Peak Hour | | | | | | PM Peak Hour | | | | | | Daily | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Vehicles | | | PCEs | | | Vehicles | | | PCEs | | | Vehicles | Surface Street PCEs | Freeway PCEs |
| | | | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | | | |
| **PHASE 1** | | | | | | | | | | | | | | | | | |
| Autos | 1.0 | 1.0 | 1,197 | 466 | 1,663 | 1,197 | 466 | 1,663 | 412 | 1,396 | 1,807 | 412 | 1,396 | 1,807 | 30,879 | 30,879 | 30,879 |
| Light Trucks | 1.5 | 1.5 | 97 | 55 | 152 | 146 | 83 | 229 | 77 | 90 | 167 | 115 | 135 | 251 | 1,340 | 2,009 | 2,009 |
| Medium Trucks | 2.0 | 1.5 | 130 | 74 | 204 | 260 | 148 | 408 | 103 | 121 | 223 | 206 | 241 | 447 | 1,792 | 3,585 | 2,689 |
| Heavy Trucks | 3.0 | 1.5 | 345 | 197 | 542 | 1,035 | 590 | 1,625 | 273 | 320 | 594 | 820 | 961 | 1,781 | 4,760 | 14,279 | 7,140 |
| Total | | | 1,769 | 792 | 2,561 | 2,638 | 1,287 | 3,924 | 866 | 1,927 | 2,792 | 1,554 | 2,733 | 4,286 | 38,771 | 50,753 | 42,717 |
| **PHASE 2** | | | | | | | | | | | | | | | | | |
| Autos | 1.0 | 1.0 | 923 | 356 | 1,279 | 923 | 356 | 1,279 | 313 | 1,075 | 1,388 | 313 | 1,075 | 1,388 | 23,835 | 23,835 | 23,835 |
| Light Trucks | 1.5 | 1.5 | 75 | 43 | 118 | 113 | 64 | 177 | 60 | 70 | 130 | 90 | 105 | 195 | 1,046 | 1,569 | 1,569 |
| Medium Trucks | 2.0 | 1.5 | 100 | 57 | 157 | 200 | 114 | 314 | 79 | 93 | 173 | 159 | 187 | 345 | 1,389 | 2,778 | 2,083 |
| Heavy Trucks | 3.0 | 1.5 | 266 | 151 | 418 | 799 | 454 | 1,253 | 211 | 248 | 459 | 633 | 744 | 1,376 | 3,680 | 11,040 | 5,520 |
| Total | | | 1,365 | 606 | 1,971 | 2,035 | 987 | 3,023 | 663 | 1,486 | 2,149 | 1,194 | 2,110 | 3,305 | 29,950 | 39,222 | 33,007 |
| **Full Build-out** | | | | | | | | | | | | | | | | | |
| Autos | 1.0 | 1.0 | 2,120 | 821 | 2,941 | 2,120 | 821 | 2,941 | 726 | 2,471 | 3,195 | 726 | 2,471 | 3,195 | 54,714 | 54,714 | 54,714 |
| Light Trucks | 1.5 | 1.5 | 172 | 98 | 271 | 259 | 147 | 406 | 137 | 160 | 297 | 205 | 241 | 446 | 2,385 | 3,578 | 3,578 |
| Medium Trucks | 2.0 | 1.5 | 230 | 131 | 361 | 460 | 262 | 722 | 182 | 214 | 396 | 365 | 428 | 792 | 3,181 | 6,363 | 4,772 |
| Heavy Trucks | 3.0 | 1.5 | 611 | 348 | 959 | 1,834 | 1,044 | 2,878 | 484 | 568 | 1,052 | 1,453 | 1,704 | 3,157 | 8,440 | 25,319 | 12,660 |
| Total | | | 3,134 | 1,398 | 4,532 | 4,673 | 2,274 | 6,947 | 1,529 | 3,413 | 4,941 | 2,748 | 4,843 | 7,590 | 68,721 | 89,975 | 75,724 |

## D. PROJECT TRIP DISTRIBUTION

A survey of warehouses in the Inland Empire[37] found that 80% of the vehicles entering or leaving warehouse sites are passenger cars, nearly all of which are used for commute trips by employees of the warehouses. The travel pattern of the project-related auto traffic is discussed below, followed by a discussion of project-related truck traffic.

### *WLC Auto Traffic*

As discussed previously, Moreno Valley currently has a severe jobs/housing imbalance that results in long westbound commutes for thousands of city residents every workday. The WLC would create approximately 20,000 local job opportunities[38]; nearly doubling the number of jobs in Moreno Valley. This would have several effects on commute patterns:

- Many current and future residents of Moreno Valley would have the opportunity to work locally with very short commute trips.
- Residents of neighboring cities who work at the WLC would have short commutes and, importantly, be able to access the site using the arterial road network. This is consistent with the

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[36] Light trucks are 2 axle trucks with six wheels, medium trucks are those with three axles, and heavy trucks are those with four or more axles. Pickup trucks with four wheels are included in the "auto" category.

[37] *Truck Trip Generation Study*, City of Fontana, August 2003.

[38] Based on a ratio of 0.5 employees per 1000 square feet of logistics. This ratio is taken from: *DTA Public Works Database; confirmed by "Employment Density Study," SCAG (2001), and "Logistics Trends and Specific Industries," NAIOP Research Foundation (March 2010).San Bernardino Planning Department.*

policies of the Western Riverside Council of Governments and the Riverside County Transportation Commission to promote use of the arterial road network as an alternative to freeways. Tests with the RivTAM model (see Figure 39) suggest that nearly half of auto traffic associated with the WLC would be on surface streets; i.e. not on freeways.

- Workers coming from more distant locations would, in most cases, be travelling on freeways in the off-peak direction; i.e. commuters traveling to the WLC from Los Angeles or Orange Counties would be headed eastbound in the morning and westbound in the evening. This would enable them to take advantage of the existing unused off-peak capacity of freeways, since the freeways were sized for flows in the peak direction.

- Assuming, as RivTAM does, that WLC employees would work elsewhere if the WLC project were not implemented, then the availability of jobs at the east end of Moreno Valley would reduce the number of workers driving long commutes to distant jobsites to the west and southwest. Figure 40 shows that although the project would increase freeway auto traffic eastbound in the morning (where unused capacity is available), it would also decrease the traffic in the more congested westbound direction. In the evening the pattern would reverse, with the project relieving traffic in the congested eastbound direction (see Figure 41). Therefore, the WLC project would have a net beneficial impact on the regional freeway auto traffic. This is the effect sought in the policies of SCAG, WRCOG, and other regional governments and agencies that encourage better jobs/housing balances as a way to reduce peak directional flows on the regional freeway system.

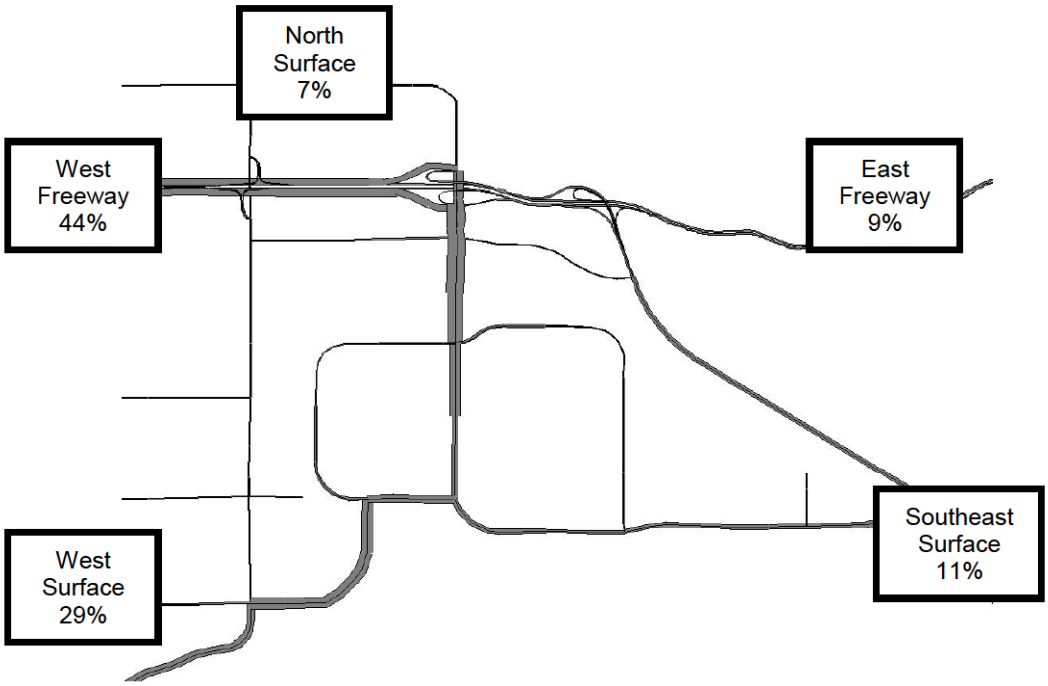



**Figure 39: Daily Distribution of WLC Auto Trips**

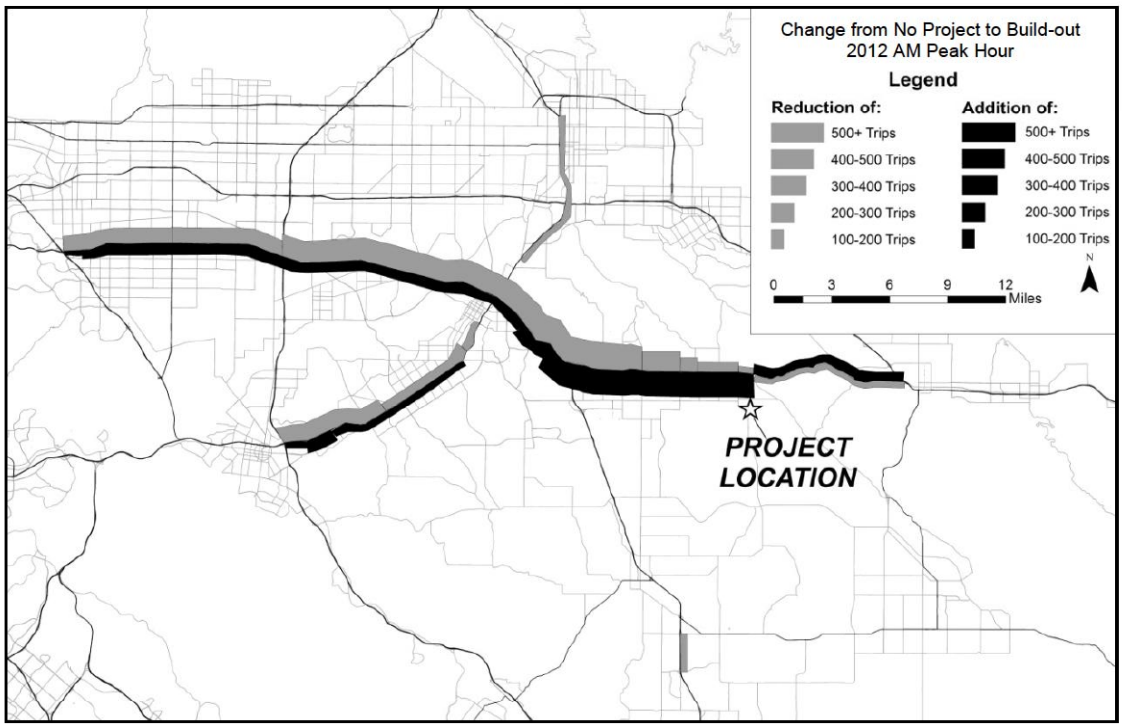



**Figure 40: Effect of WLC on Freeway Car Traffic, AM Peak Hour 2012**

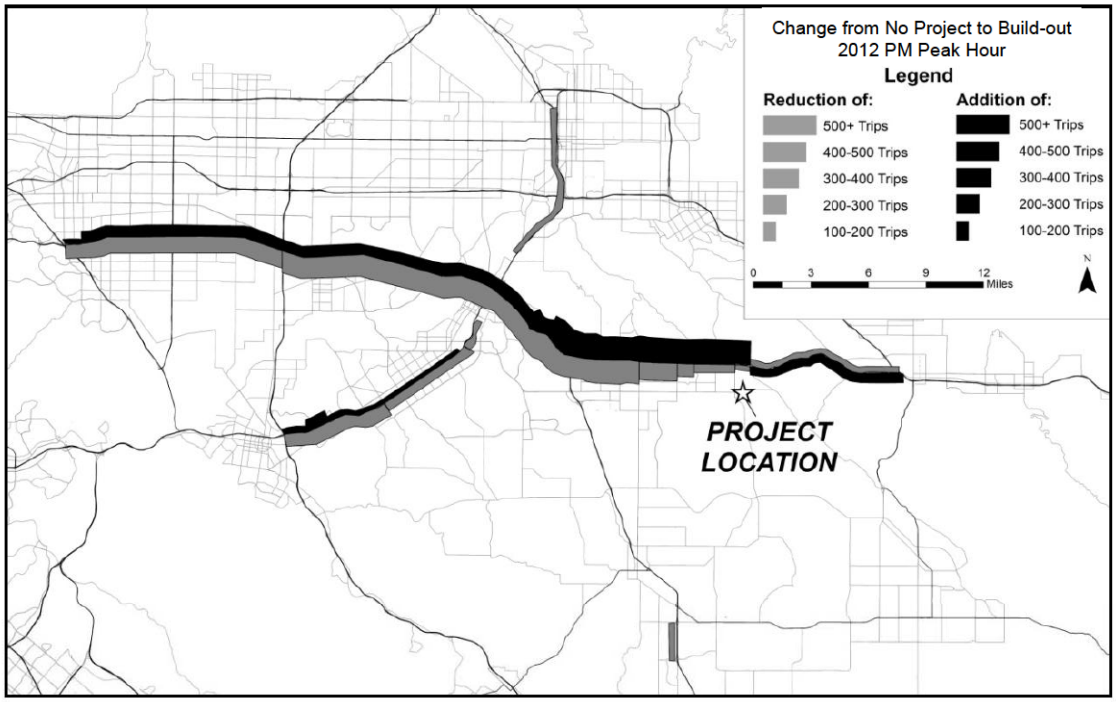



**Figure 41: Effect of WLC on Freeway Car Traffic, PM Peak Hour 2012**

***WLC Truck Traffic***

The truck traffic associated with a typical logistics center has a much different time-of-day pattern than auto traffic. Figure 42 shows the combined traffic data for vehicles entering or leaving the 31 logistics centers in 2011 NAIOP trip generation study. As shown, besides being much larger, the auto traffic shows distinct peaks while truck traffic is spread much more evenly throughout the 24-hour period. The five hours with the highest truck traffic all occurred outside of the freeway peak periods.

Some readers of the Draft TIA misunderstood Figure 42 to mean that the WLC traffic analysis did not cover the worst-case scenario. In fact, because of the conservatively high trip-generation rate used in the WLC analysis, along with the fact that the peak hour of trip generation for the WLC was assumed to occur simultaneous with the peak hour of background traffic, the assumptions in the WLC analysis are far more conservative (i.e. assume worse conditions) than the NAIOP survey would suggest is likely to occur (see Figure 43). In addition, the 2PM to 3PM hour was also studied with regards to possible impacts on pedestrians in the areas around schools, since most schools release students at that time of the day (see Chapter 12, Section B of this report).

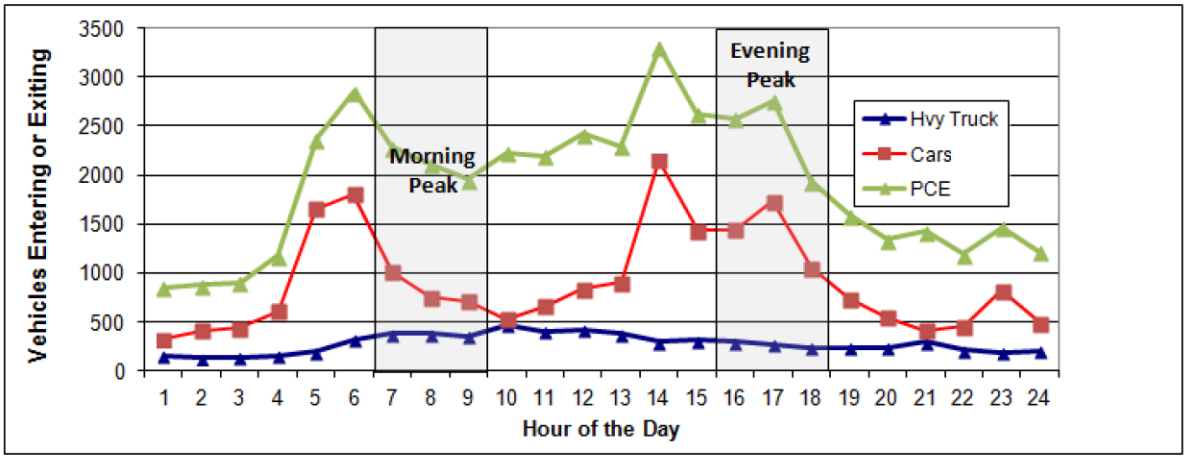



**Figure 42: Time-of-Day Distribution of Traffic from Logistics Warehouses**

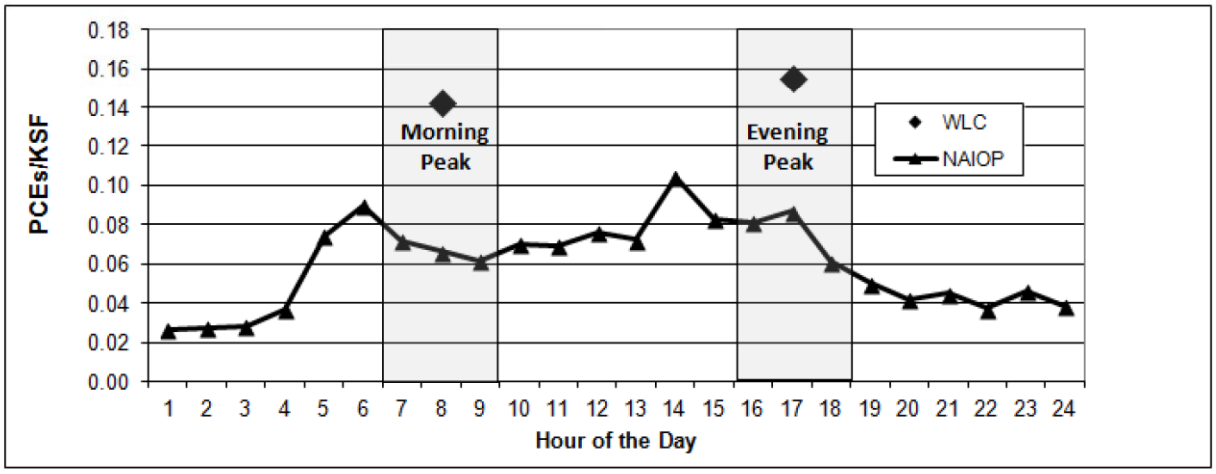



**Figure 43: Time-of-Day Distribution, WLC Assumptions Compared to NAIOP**

Since the internal trips, the port-related trips, and the majority of external trips (all but those on I-10) use routes west of the project site, it is anticipated that a large majority of the WLC truck traffic would be oriented to the west of the project, with a much smaller amount to and from the east. Also, due to truck routing restrictions the majority of WLC truck traffic would use the freeway system to enter and leave the site. However, there may be some trips between the WLC and local businesses, for example trip chaining among warehouses to consolidate cargos, that may use surface streets such as Gilman Springs Rd. Tests with the RivTAM model confirm this pattern (see Figure 44).

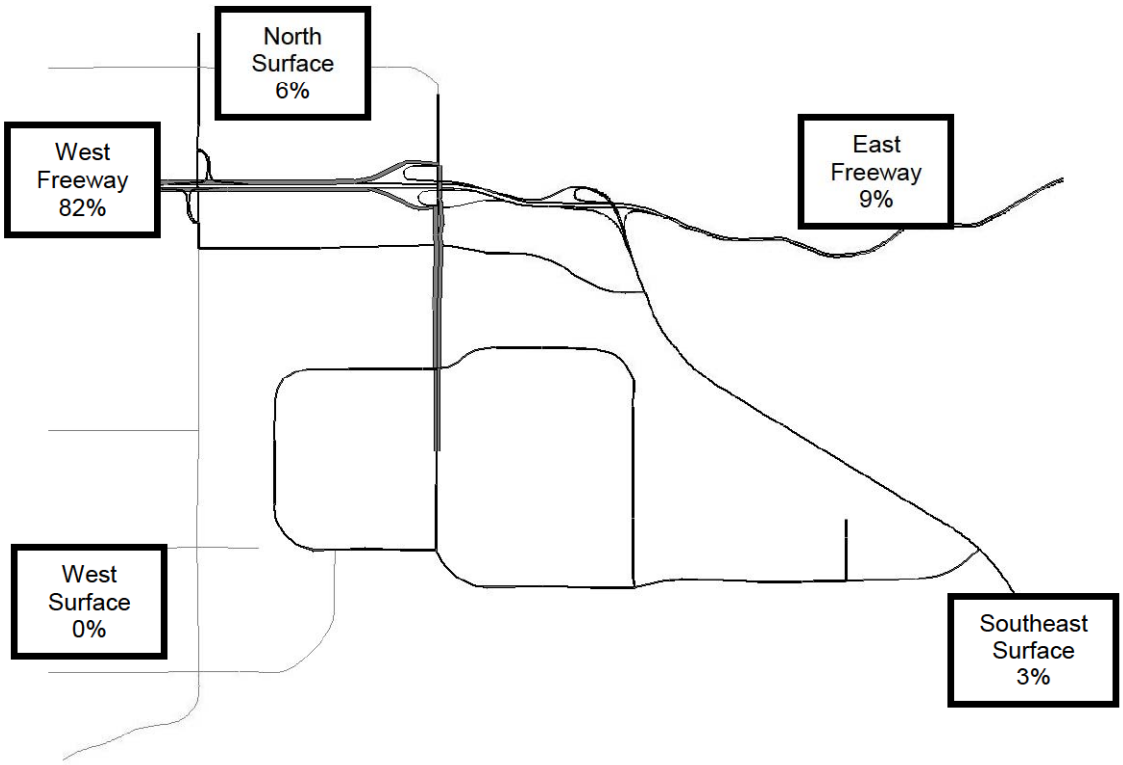



**Figure 44: Daily Distribution of WLC Truck Trips**

The percentage of WLC truck trips that would go to the port were estimated based on the assumptions described in Chapter 12 (see Table 87) for each study year. These percentages were then applied to the trip generation rates to find the number of WLC trucks going to and from the port in each analysis period. These are shown in Table 26. Tests with the SCAG traffic model showed that these trips would split approximately evenly between the two routes shown in Figure 56, so half of these trips were assigned to the SR-60 route and the other half assigned to the SR-91 route.

**Table 26: WLC Truck Trips to and from the Port by Analysis Period**

| Scenario | AM Peak Hour | | PM Peak Hour | | Daily | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| 2012 Plus Build-out | 18 | 10 | 14 | 17 | 121 | 121 |
| 2022 Plus Phase 1 | 19 | 11 | 15 | 18 | 127 | 127 |
| 2035 Plus Build-out | 57 | 33 | 46 | 53 | 393 | 393 |

## E. TRIP GENERATION COMPARISONS

The final traffic study for the Moreno Highlands Specific Plan [39], which served as the basis for approval of that plan, forecast a total of 178,608 average vehicle trips per day (ADT) being generated by the Specific Plan. That would be more than two-and-a-half times as many trips (256%; see Figure 45) as are forecast for the WLC (69,542 ADT). The Moreno Highlands traffic studies did not distinguish between car and truck traffic and so did not provide a forecast in terms of PCEs. However, even if the Moreno Highlands plan were to generate no truck trips at all (only auto trips), it would still generate nearly twice as many PCEs trips as the WLC[40]. Thus, the World Logistics Center would generate substantially less traffic than what is envisioned in the existing Specific Plan.

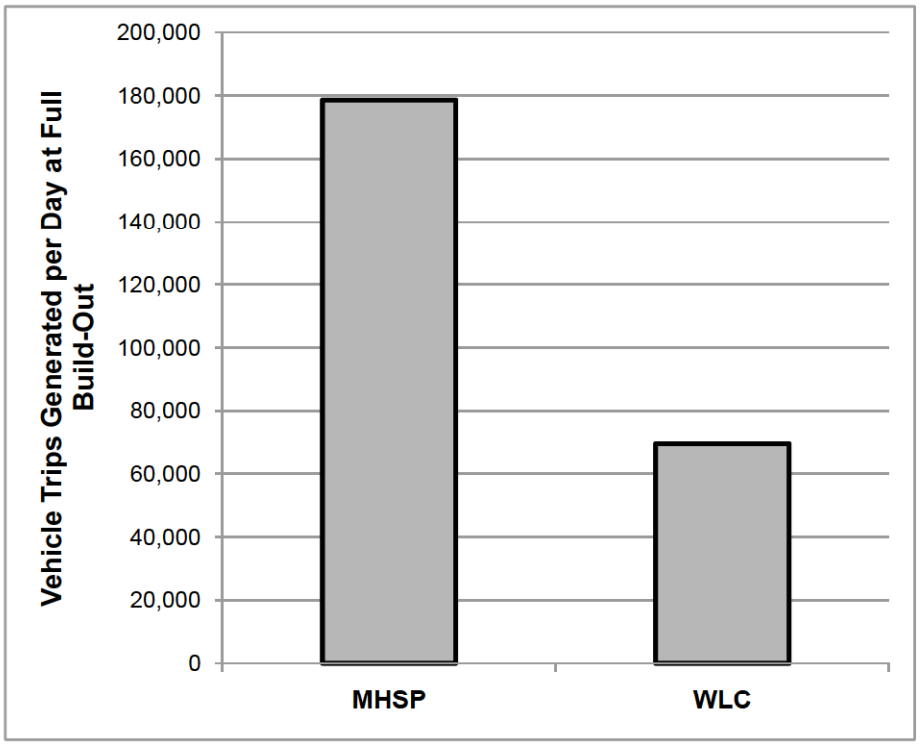



**Figure 45: Comparison of Trip Generation**

The comparison between the traffic forecast for the proposed WLC project and the traffic forecast for the Moreno Highlands Specific Plan indicates that the current Circulation Element of the General Plan is designed to accommodate approximately twice as much traffic from the WLC site than the WLC project is likely to generate. The much lower traffic volumes forecast for the WLC can therefore be expected to

[39] *Moreno Highlands SP 212-1 Traffic Impact Study Addendum*, Endo Engineering, October 1991

[40] 178,608 PCEs for Moreno Highlands would be 191% of the 93,414 PCEs forecast for the WLC

result in less strain on the transportation system than the land uses envisioned in the current General Plan.

## F. RAIL ALTERNATIVE

Several comments received on the DEIR requested that the provision of rail service to the project site be studied as a potential means of reducing the number of trucks driving between the ports and the site, and therefore a reduction in the number of significant impacts caused by the project. This section describes why rail service is not considered a viable option for reducing the traffic impacts of the WLC. This conclusion is based on several factors, including the physical constraints to bringing rail service to the WLC site, the cost of cargo movement by rail relative to movement by truck, capacity constraints in the rail system that the WLC branch line would tie into, and the minimal effect that rail service would have even if all other factors could be overcome. These factors are discussed in turn below.

### *The Possible Alignments for Bringing Rail Service to the WLC Site*

The WLC site is not currently served by rail. The rail lines nearest the site are the Union Pacific Yuma Line (single-track in this area), the Riverside County Transportation Commission's San Jacinto Branch Line (single-track, currently inactive), and the BNSF double-track line through the City of Riverside (see Figure 46).

As can be seen in Figure 46, there are four general alignment possibilities for a branch line to the WLC. Each has problems associated with it:

- Western Alignment – Alignments running from the BNSF line in Riverside to the WLC, an approximate distance of 15 miles, would have to run through built-up areas of the Cities of Riverside and Moreno Valley. The cost of acquiring right-of-way through these areas, and the impacts to the community (noise, traffic disruption, safety, division of the community, etc.) render such alignments unviable. Moreover, trains using the at-grade rail crossings in the City of Riverside already impose substantial delays on road traffic. In fact, in recent years the City of Riverside has sued the ports over the issue of traffic impacts from additional trains passing through their city. Adding more crossings and more trains would exacerbate this problem.

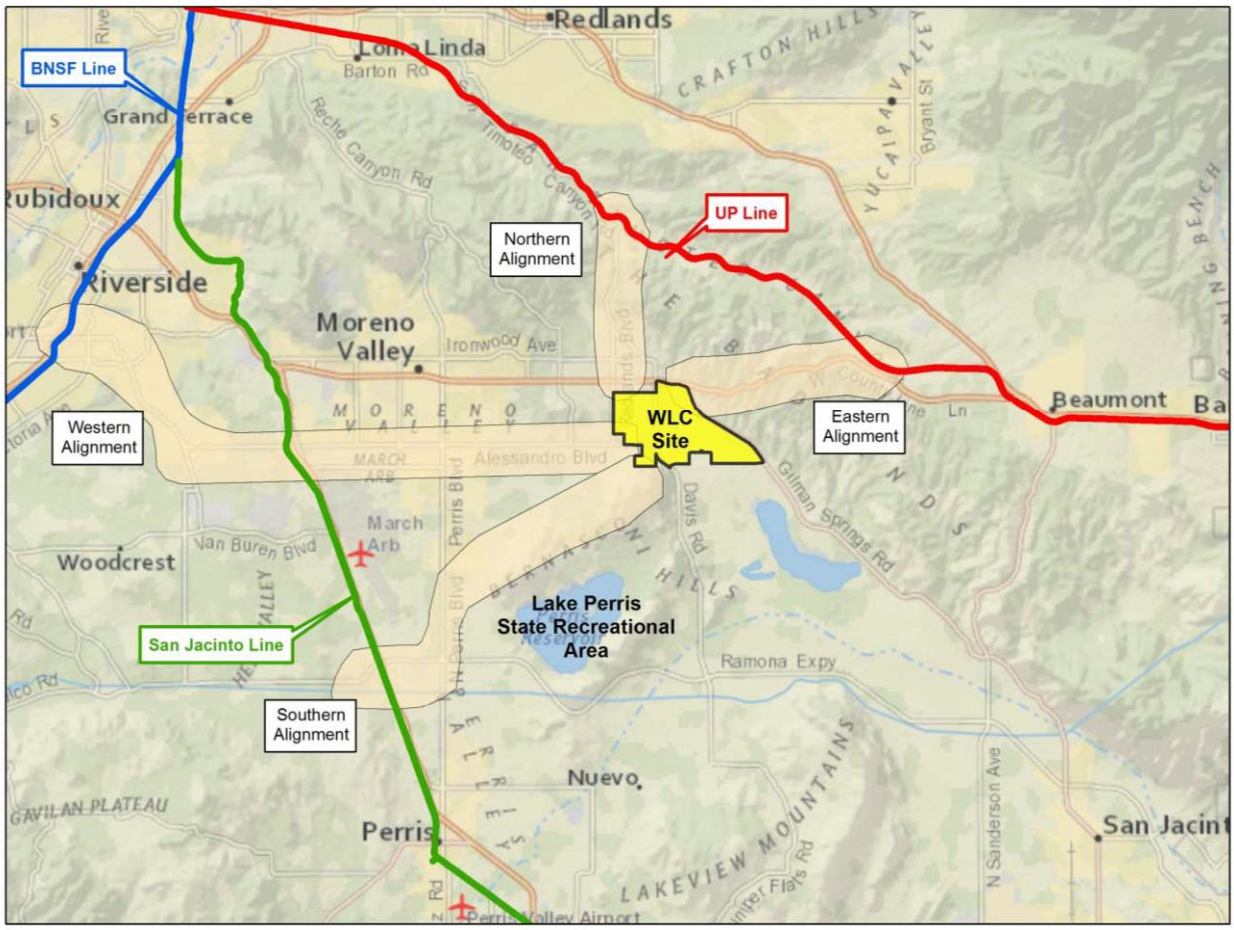



**Figure 46: Conceptual Rail Alignments**

- Southern Alignment – It would be possible to avoid densely populated and built-out areas by connecting to the San Jacinto Branch Line south of March Air Reserve Base. However, the only way to avoid established communities would be to pass along the northern portion of the Lake Perris State Recreation Area. The alignment, approximately 10 miles in length, would be a major impact as it would require constructing and operating a rail line along the slopes of the Lake Perris State Recreation Area and potentially the San Jacinto Wildlife Area. There would also be traffic impacts at road crossings, potential grade issues, and grade separated crossings needed for drainage channels and I-215. The impacts and costs of this approach would be disproportionate to the benefit of removing WLC trucks from the freeways (which will be discussed in a later section).
- Northern Alignment – The shortest alignment to an existing rail line is to the north in the vicinity of Redlands Blvd. and connecting to the UP Yuma line near the intersection of Redlands Blvd. and San Timoteo Canyon Rd., approximately five miles from the project site. This alignment would require extensive ROW acquisition, very serious grade issues that would increase the length of

track needed[41], environmental impacts on the Badlands, and a grade separated crossing of SR-60. The impacts and costs of this approach would be disproportionate to the benefit of removing WLC trucks from the freeways.

- Eastern Alignment – The final possibility would be to connect to the UP Yuma line along an alignment parallel to SR-60. This alignment would connect to the existing rail network near the Morongo Golf Club at Tukwet Canyon, approximately five miles to the east of the WLC site. The eastern alignment would be affected by the same drawbacks as the northern alignment, with the addition of the need to construct a bridge over San Timoteo Creek.

  As can be seen from the discussion above, providing rail service to the WLC along any of the possible alignments would in itself create serious environmental impacts.

***Relative Costs of Truck and Rail Service***

The loading and unloading of rail cargos require special equipment and handling and can only be performed at specialized places, which adds to the cost of shipping goods by rail. On the other hand, the actual movement of goods by rail is more energy-efficient and less expensive than movement by truck. This combination of relatively high fixed costs at each end of a trip with low variable costs for the distance traveled means rail can be a less expensive way to ship cargo than truck, but only if the shipping distance is sufficiently long.

The breakeven distance between rail and truck shipping has been the subject of several studies. The industry rule-of-thumb is that the rail becomes economically viable when cargos are shipped more than 500 miles. For example, the National Rail Plan, a nationwide guiding document from the U.S. Department of Transportation Federal Railroad Administration, has set the freight rail goal to, "Develop strategies to attract 50 percent of all shipments 500 miles or greater to intermodal rail."[42] In addition, the Plan highlights the importance that trucks have in conjunction with rail when moving freight as trucks, "excel in providing time-sensitive delivery services for high-value goods being transported over medium and short-haul distances."[43] A local example is the Ports of Long Beach/Los Angeles Rail Master Planning Study, which indicates that rail loaded with two levels of shipping containers, "traditionally competes well with

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41 Although the grade passable by train depends on the load, generally tracks climb at less than three percent. For example, as the BNSF Cajon line traverses the Cajon Pass, the maximum uphill grade is 2.2 percent. Therefore, constructing a track through the Badlands, either near Redlands Blvd. or State Route 60, may require a longer more circuitous layout to avoid the grades. A longer track would require more right-of-way, result in a greater impact to the environmentally sensitive area, and be more costly to construct.

42 National Rail Plan, U.S. Department of Transportation Federal Railroad Administration, September 2010. Available at: https://www.fra.dot.gov/eLib/Details/L02696, page 14.

43 Ibid.

trucks at distances greater than 500 miles.[44] Figure 47, from the San Pedro Bay Ports Rail Market Study, shows the breakeven point between truck and rail freight transport beginning east of Las Vegas and Phoenix, and north of the Bay Area. For shipments between the Ports of Los Angeles and Long Beach and the WLC, a distance of about 70 miles, shipping by rail would be far more expensive than by truck. So even if a rail line were built to the WLC, it would be uneconomical to use it for trips to and from the ports.

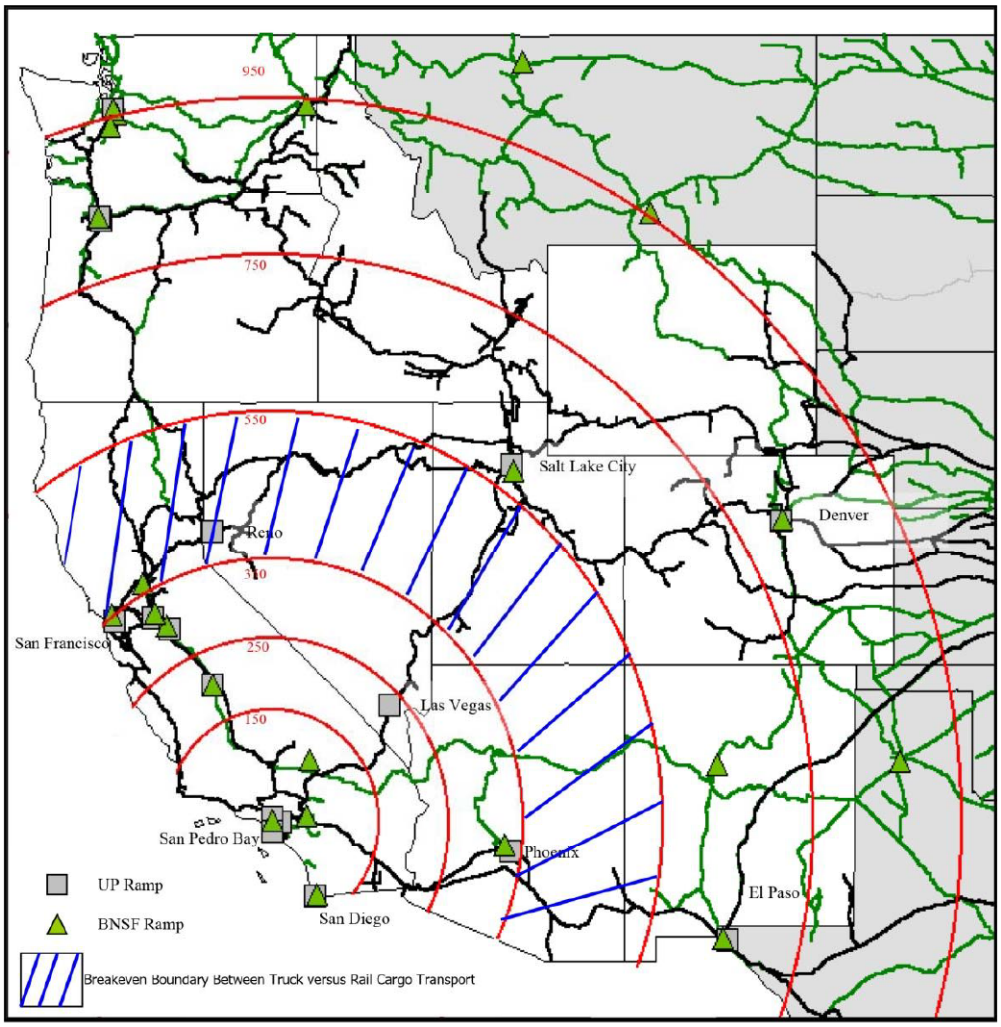



**Figure 47: Range of Typical Rail Market in Southern California[45]**

44 Ports of Long Beach/Los Angeles Rail Master Planning Study, Michael Leue, PE, Kerry Cartwright, PE, 2004. Available at: http://www.ite.org/Membersonly/annualmeeting/2004/AB04H4203.pdf

45 San Pedro Bay Ports Rail Market Study, Port of Los Angeles and Parsons Transportation Group, April 2004.Available at: http://www.portoflosangeles.org/DOC/REPORT_SPBayPortsRailMarketStudy.pdf, page 9.

***Capacity Constraints in the Rail System***

If a rail line could be built to the WLC site and tenants could be induced to use it despite higher costs, this would only be helpful if the regional rail system had sufficient capacity to accommodate WLC freight without detriment to other users.

In fact, there are serious capacity constraints in the rail network in the Los Angeles basin. Among other things, rail operations for both BNSF and UP are already constrained by the capacity of the lines between the ports and western Riverside County. Two studies, completed in the early 2000s and using the year 2000 as the existing condition, found that many of the rail lines were already operating near capacity.[46] The studies evaluated 10 and 25 years of projected growth on the network and found that within 10 years (of the date of the study) the network would be overcapacity. Without capacity increasing improvements, 10 years of train traffic growth was forecast to increase delay more than six-fold. This did not include additional delays that would be caused by trains serving the WLC.

The Los Angeles-Inland Empire Railroad Main Line Advanced Planning Study from October 2002 found that the, "region's rail system is inadequate for forecast train traffic."[47] The study presented other findings that illustrate the near-capacity state of the rail network, for example, "…just 25 percent of the forecast 2010 traffic is sufficient to roughly double the average delay per train, to 67.6 minutes for BNSF freight and 54.4 minutes for UP freight." This occurs because small increases in train traffic result in disproportionate delays as the network nears capacity.

Several minor improvements to the rail network have been made since the 2002 study. However, accommodating estimated future demand in the year 2025 by providing capacity improvements alone would be costly; to meet future demand without rerouting would require capacity of some segments to be increased from two to four tracks. Therefore, an approach has been developed to revise train routing on the existing rail network and make limited capacity-increasing improvements. Even the limited improvements are estimated to cost over $2 billion.[48]

The fact that the rail system has limited capacity to accommodate additional traffic means that potential users have to be prioritized so that the capacity can be allocated efficiently. Highest priority would be for long-distance rail service direct from the ports. Short-distance cargo trips between the ports and the WLC would receive much lower priority than long-distance shipments because they would generate less revenue (unless a premium was charged). If regional passenger trains (e.g. Metrolink) share the tracks with freight trains, as is the case for some lines, then service to WLC would drop even further on the priority list.

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46 Los Angeles-Inland Empire Railroad Main Line Advanced Planning Study, Los Angeles Economic Development Corporation, October 2002, page 15.

47 Ibid. page 8.

48 Inland Empire Railroad Main Line Study, Southern California Association of Governments, June 2005, page 75.

Based on existing capacity of the rail network and projected growth, the studies indicated that the rail network would be overcapacity without further capital investments, which are beyond the scope of the WLC project.

***Minimal Reduction in Traffic***

Assuming that a rail line could be built to the WLC site and assuming that WLC freight could be accommodated by the rail network and that the costs for these things could be covered by subsidies or by increasing the prices on goods moved through the WLC, the question must be asked, "how much of a reduction in truck traffic impacts would be achieved?"

The answer is, "very little". As was discussed earlier, the economics of freight shipment make rail viable only for trips of 500 miles or more. As is described elsewhere in this report (Chapter 12, Section F), between 2% and 7% (depending on the year) of the truck trips beginning or ending in WLC go to the ports and these trips have no significant impact on freeway LOS for most of their length. So the effect of rail service on reducing truck impacts would be very small.

***Conclusions About the Rail Alternative***

This analysis of the rail alternative found that bringing rail service to the site would be very costly, result in serious environmental impacts, create major disruption to existing communities, and take many years to design, acquire right-of-way and construct. Even if a line were built, both economics and system constraints would deter its use for cargos between the WLC and the ports. Even if built and used, rail service would have very little effect on reducing the traffic impacts of the WLC. Based on these considerations rail service was not included in the design of the WLC.

# 5. EXISTING PLUS PHASE 1 CONDITIONS

The analysis of Existing Plus Phase 1 conditions shows the effect of project-related traffic using the same land use and road network assumptions as the Existing scenario plus the build-out of Phase 1 (only) of the WLC and no changes occurred to the off-site land uses or roadway system.

## A. ROAD SEGMENT LOS, IMPACTS, AND MITIGATIONS

Table 27 compares the average daily traffic (ADT) volumes for study roadway segments to Existing Conditions and to their threshold of significance under the City's General Plan policies. Under Existing Plus Phase 1 Conditions two segments would exceed the threshold of significance set by General Plan policy, namely:

- Gilman Springs Rd. between SR-60 and Alessandro Blvd. would exceed the threshold of significance under both Existing Conditions and under Existing Plus Phase 1 Conditions. Widening the road from two lanes to four lanes would allow it to achieve the target LOS under Existing Plus Phase 1 Conditions.

- Gilman Springs Rd. from Alessandro Blvd. to Bridge St. would exceed the threshold of significance under both Existing Conditions and under Existing Plus Phase 1 Conditions. Widening the road from two lanes to four lanes would allow it to achieve the target LOS under Existing Plus Phase 1 Conditions.

In each case adding lanes would bring the LOS above the target threshold set in the General Plan. The feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## B. INTERSECTION LOS, IMPACTS, AND MITIGATIONS

Figure 48 shows the turning movement volumes under Existing Plus Phase 1 (see Figure 16 for the key map).

Table 28 presents the LOS for the study intersections under the Existing Plus Phase 1 conditions in the AM and PM peak hours. Detailed worksheets are presented in Appendix C.

## Table 27: Existing Plus Phase 1 Road Segment Impacts and Mitigations

| | Roadway | From | To | LOS Standard* | Existing Conditions | | | Existing Plus Phase 1 Conditions | | | Project Significant Impact? | Mitigation Measures Required to Reduce Project Impacts to Less-Than-Significant | LOS After Mitigation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Roadway Section** | Daily Volume | LOS | Roadway Section* | Daily Volume | LOS | | | |
| S-1 | Theodore Street (A) | SR-60 WB Ramps | Ironwood Avenue | D | 2U | 771 | A | 2U | 2,709 | A | | | |
| S-2 | Theodore Street (A) | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 2,046 | A | 6D | 26,532 | A | | | |
| S-3 | Fir (Eucalyptus) Ave. | Redlands Blvd | Theodore Street (A) | D | 2U*** | 1,339 | A | 4D | 2,102 | A | | | |
| S-4 | Eucalyptus Ave (B) | Theodore Street (A) | Gilman Springs Rd | N/A | Future Road | | | Future Road | | | | | |
| S-5 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Street E | D | 2U | 641 | A | 6D | 27,883 | A | | | |
| S-6 | Street E | Theodore Street (A) | Cactus Ave Extension | D | Future Road | | | 4U | 14,240 | A | | | |
| S-7 | Street F | Theodore Street (A) | Alessandro Blvd (Street C) | D | Future Road | | | 2U | 2,242 | A | | | |
| S-8 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Alessandro Blvd (Street C) | D | 2U | 641 | A | 4D | 10,443 | A | | | |
| S-9 | Alessandro Blvd (Street E) | Merwin Street | Theodore Street (A) | D | 2U | 2,537 | A | 4U | 5,761 | A | | | |
| S-10 | Cactus Ave Extension | Alessandro Blvd (Street E) | Cactus Ave. | D | Future Road | | | 4U | 9,250 | A | | | |
| S-11 | Alessandro Blvd (Street C) | Theodore Street (A) | Street F | D | 2U | 1,896 | A | 4U | 4,006 | A | | | |
| S-13 | Alessandro Blvd (Street C) | Street F | Gilman Springs Rd | D | 2U | 1,896 | A | 4U | 3,799 | A | | | |
| S-14 | Alessandro Blvd | Moreno Beach Drive | Redlands Blvd | D | 2U | 3,877 | A | 2U | 3,367 | A | | | |
| S-16 | Gilman Springs Rd | Alessandro Blvd (Street C) | Bridge Street | D | 2U | 14,407 | F | 2U | 14,970 | F | Yes | Widen to 4 lanes | C |
| S-17 | Gilman Springs Rd | SR-60 | Alessandro Blvd (Street C) | D | 2U | 11,973 | E | 2U | 11,973 | E | Yes | Widen to 4 lanes | C |
| S-18 | Redlands Blvd | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 7,338 | A | 2U | 9,634 | C | | | |
| S-19 | Redlands Blvd | Fir (Eucalyptus) Ave. | Alessandro Blvd | C | 2U | 6,786 | A | 2U | 4,146 | A | | | |
| S-20 | Alessandro Blvd | Redlands Blvd | Merwin Street | C | 2U | 2,537 | A | 2U | 565 | A | | | |
| S-21 | Redlands Blvd | Alessandro Blvd | Cactus Ave. | C | 2U | 6,786 | A | 2U | 3,415 | A | | | |
| S-22 | Cactus Ave. | Redlands Blvd | Cactus Ave Extension | C | 2U*** | 472 | A | 2U | 9,250 | C | | | |

* LOS Standard is "C" in residential areas and "D" for roads in employment-generating areas or near freeways.

** Section is the number of lanes, with "U" for "undivided" and "D" for "Divided" roadways.

*** Road currently has 2 lanes in one direction and 1 lane in the other. The capacity shown is based on the narrower direction.

Indicates LOS exceeds the target level

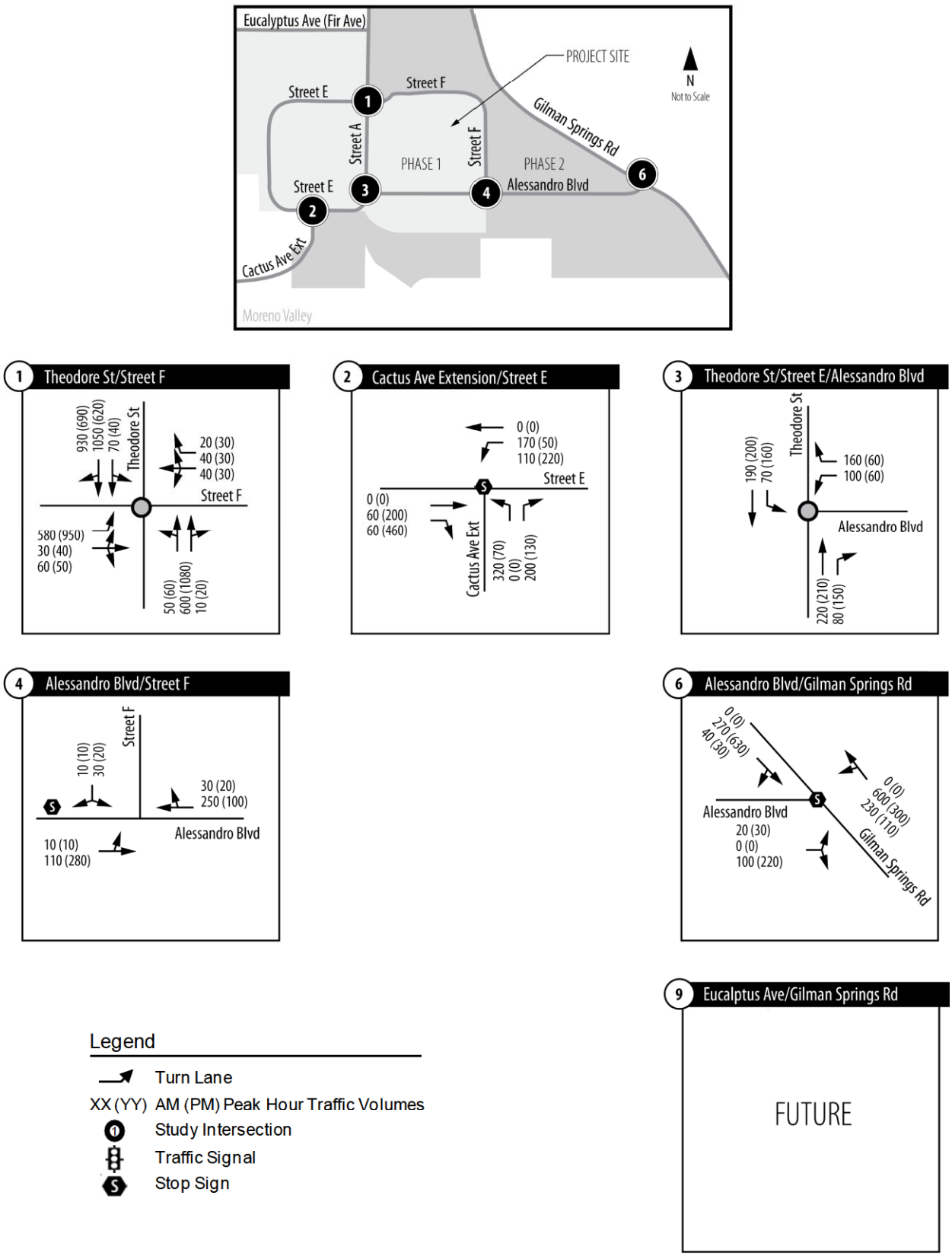



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions**

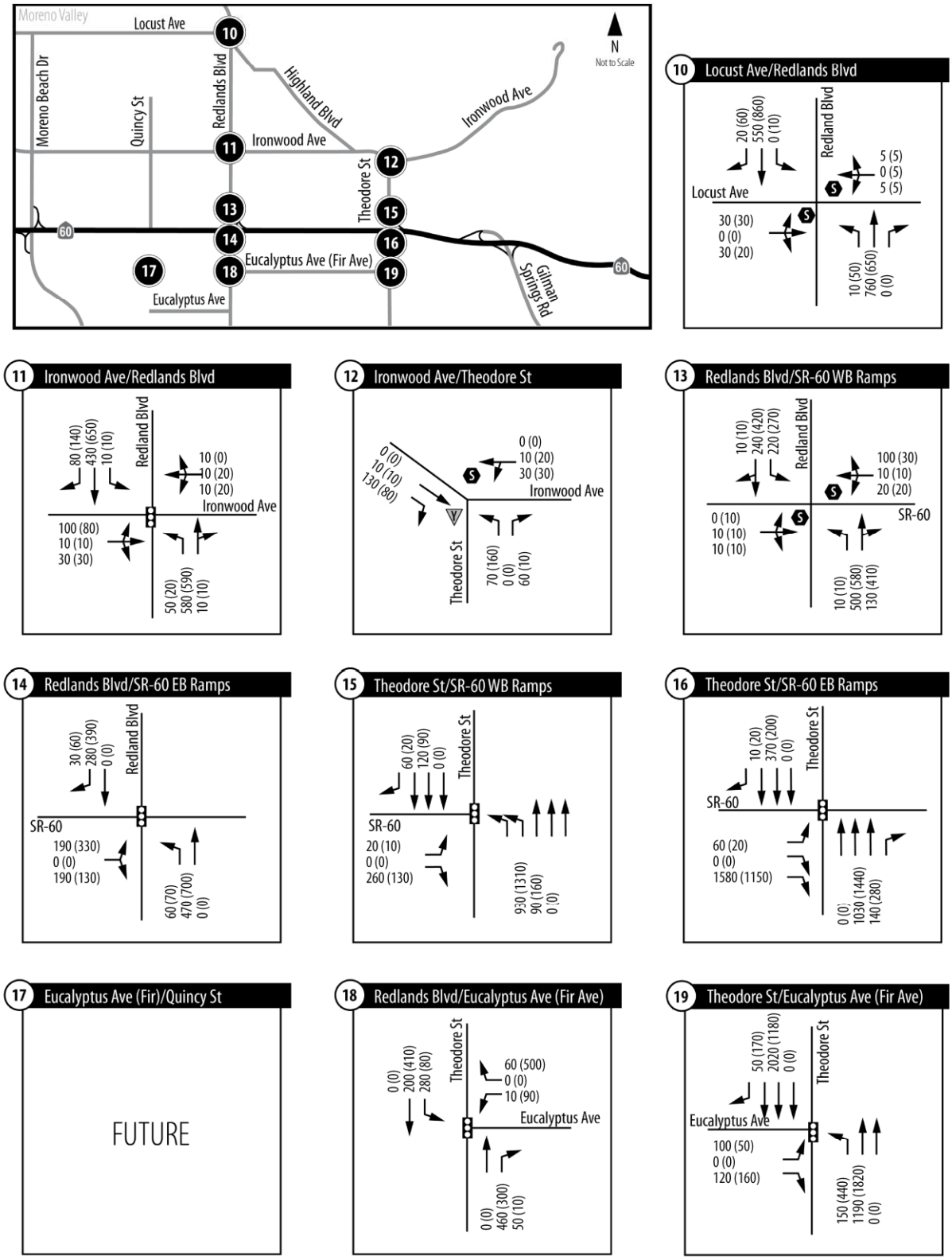



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (B)**

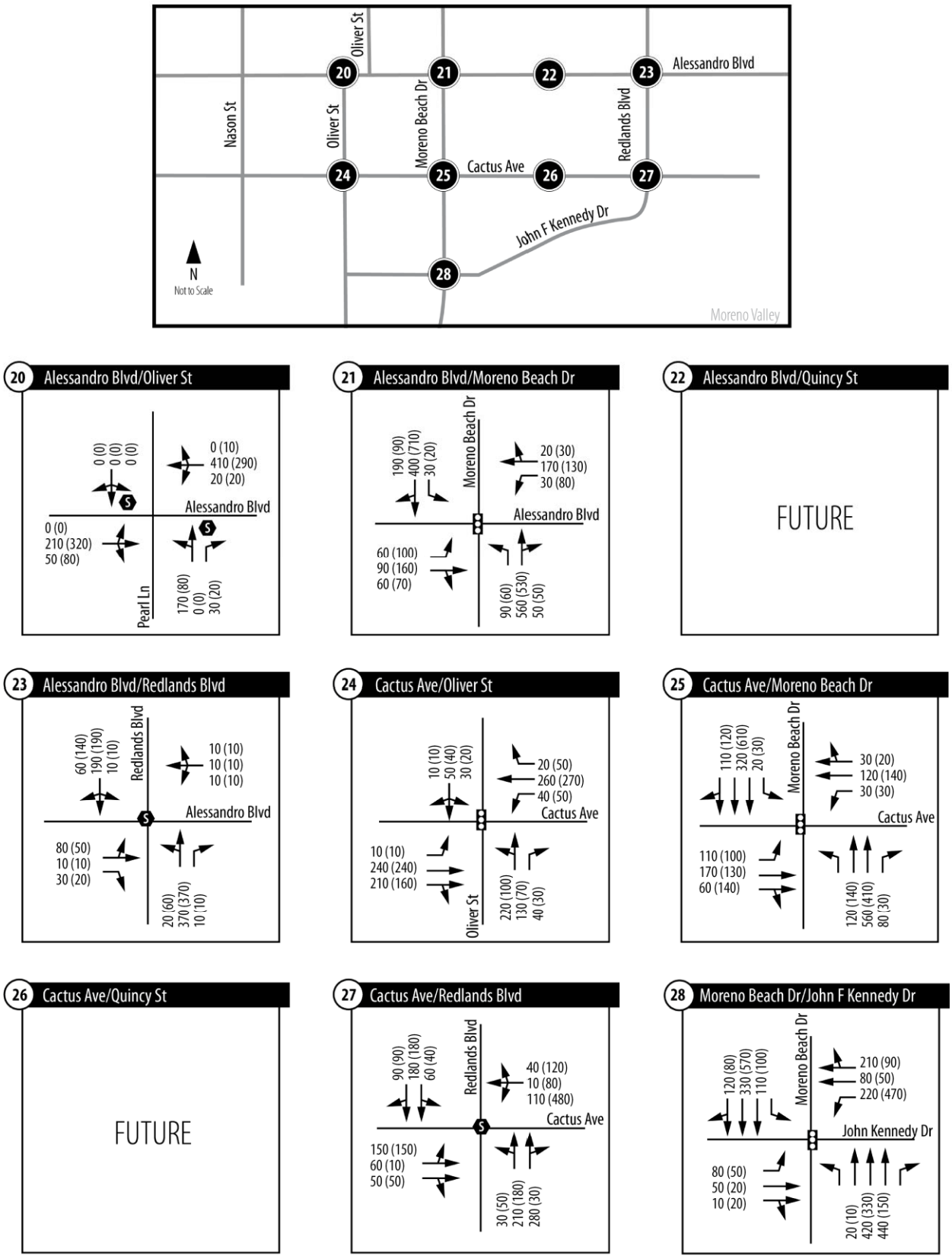



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (C)**

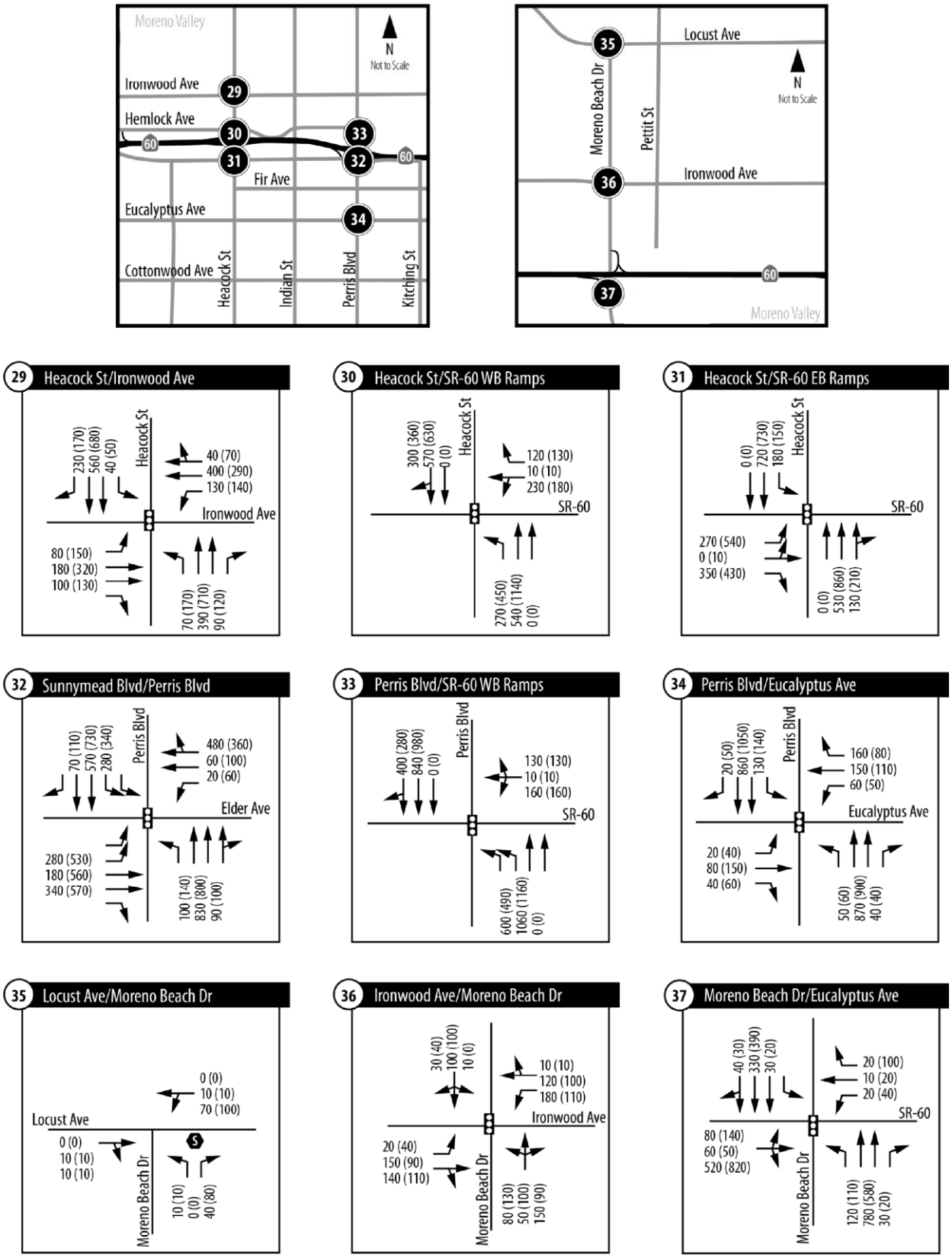



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (D)**

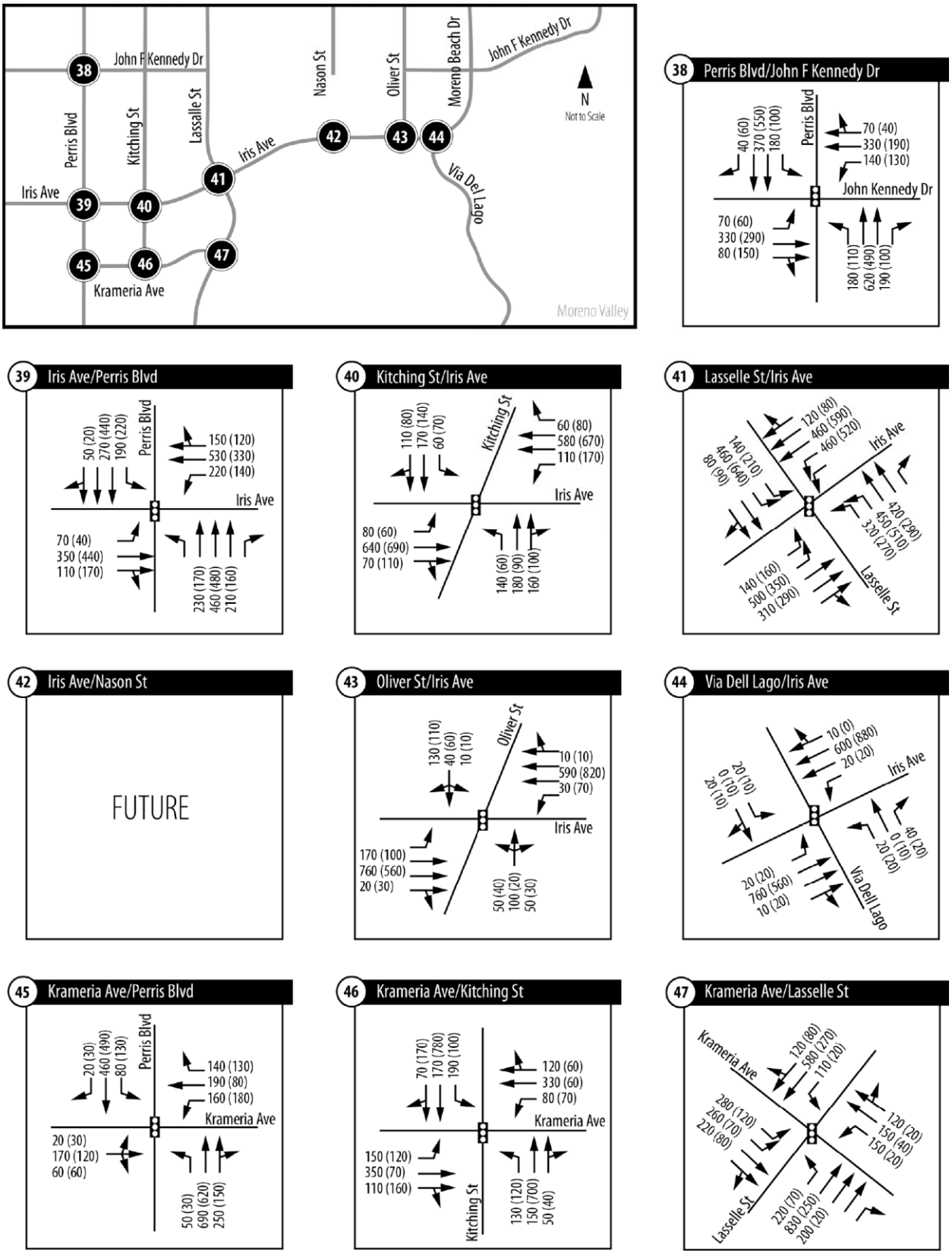



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (E)**

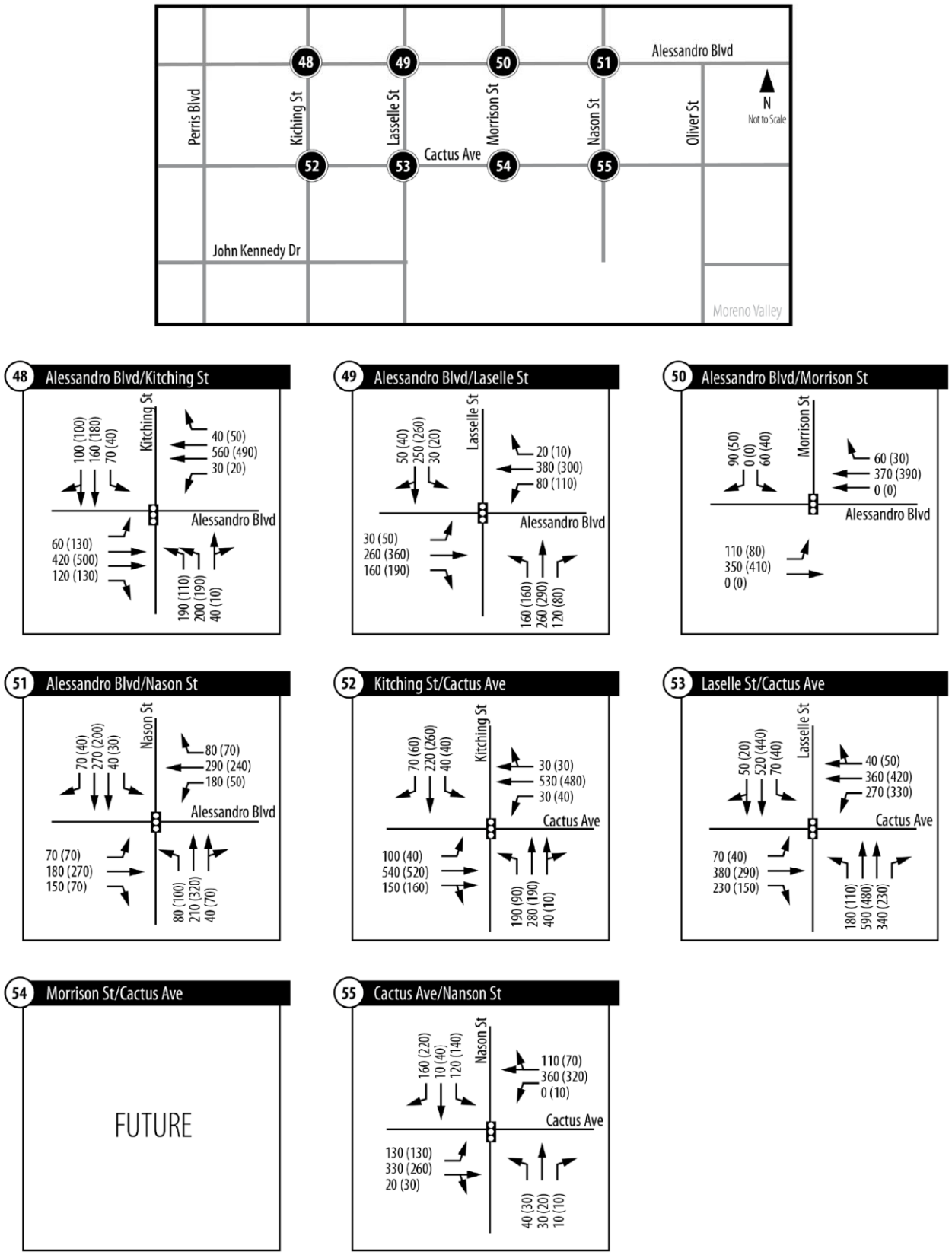



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (F)**

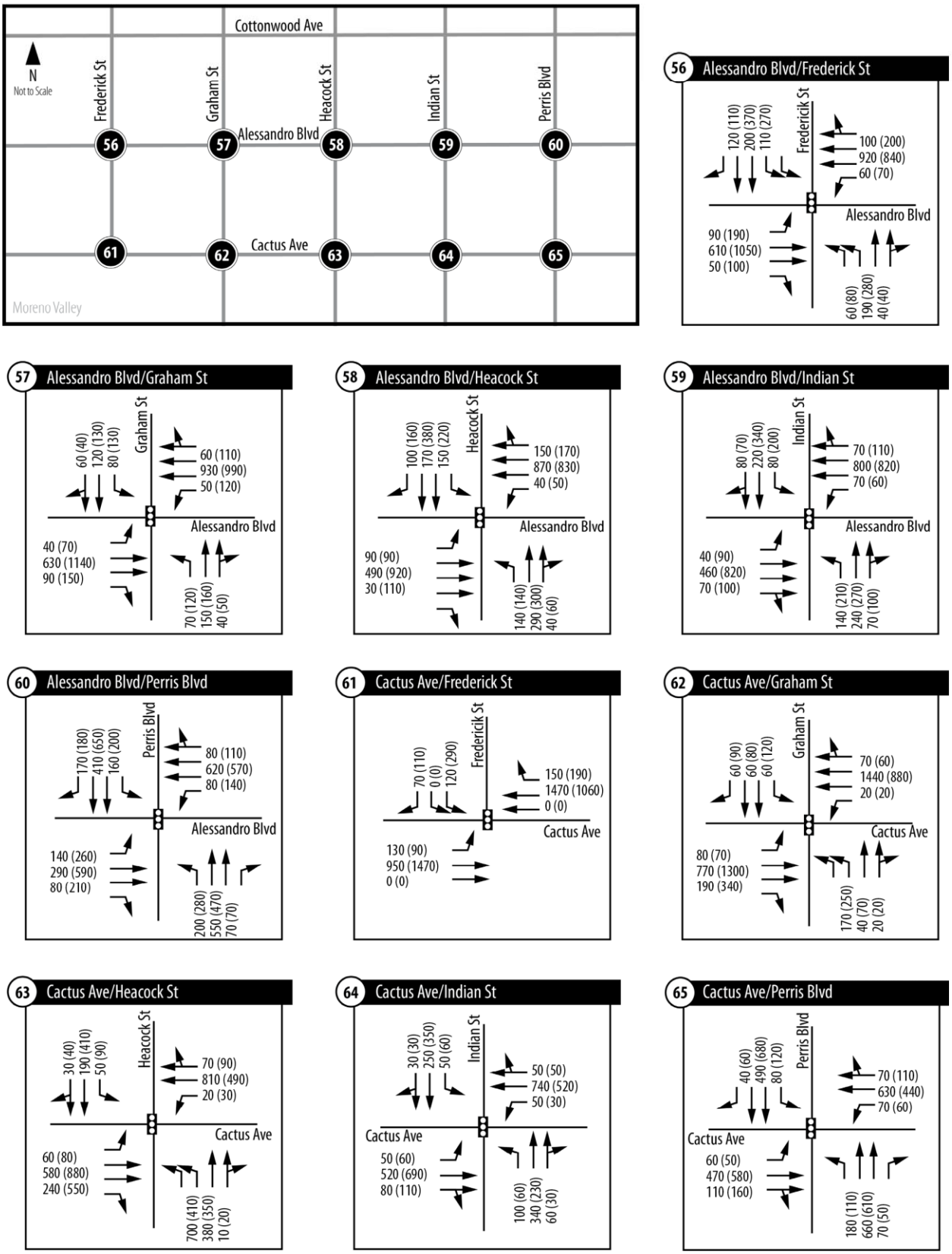



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (G)**

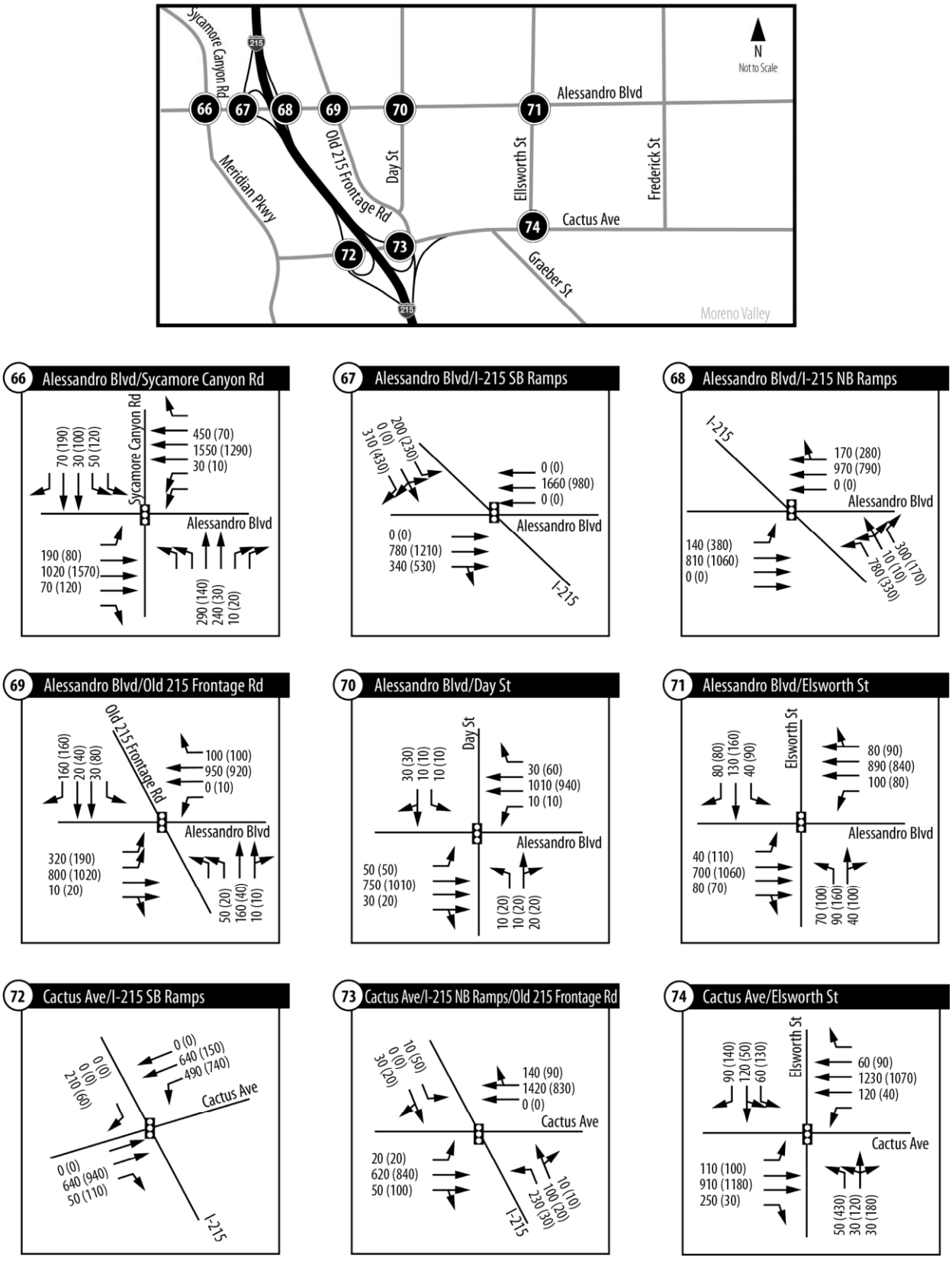



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (H)**

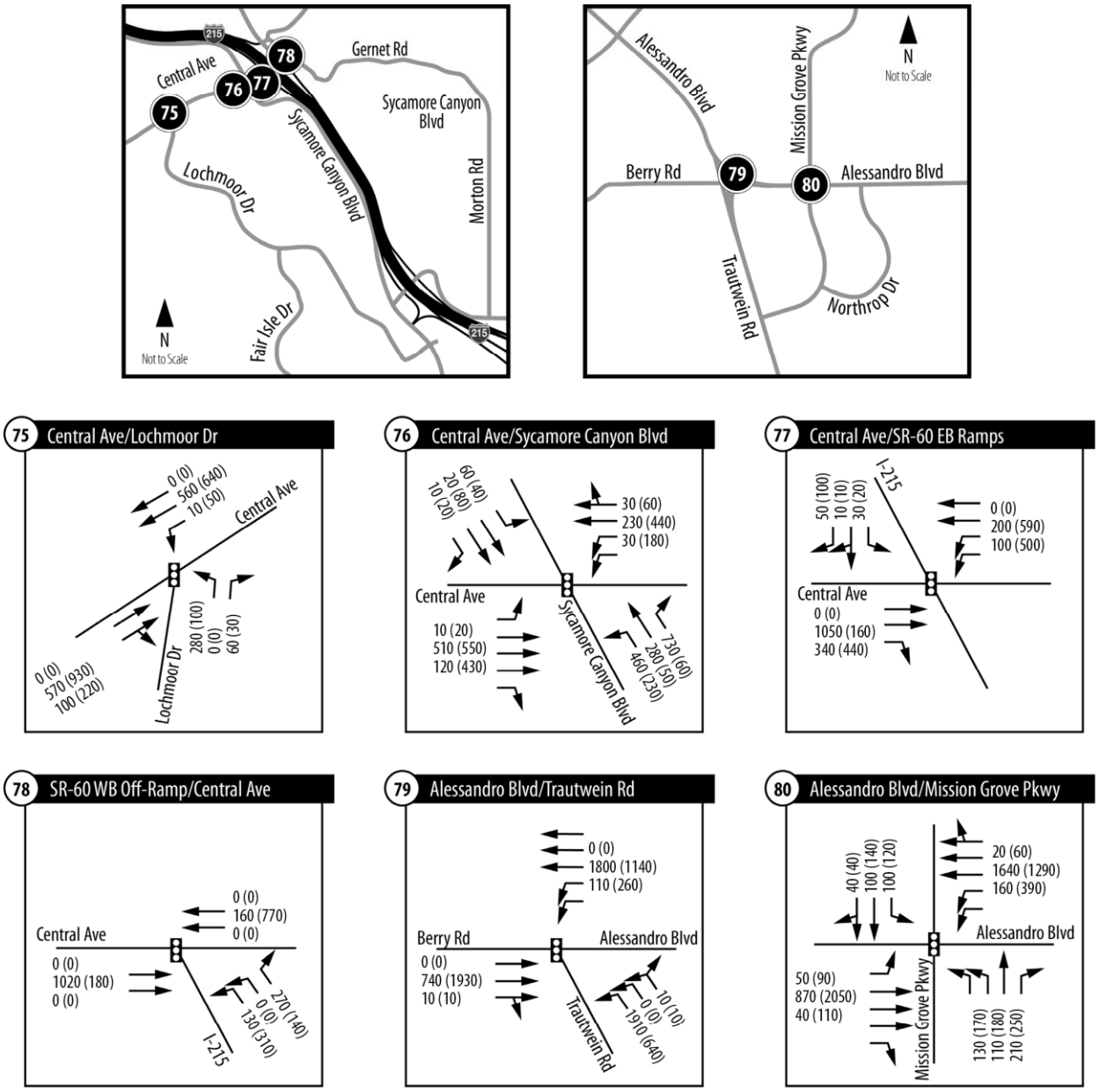



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (I)**

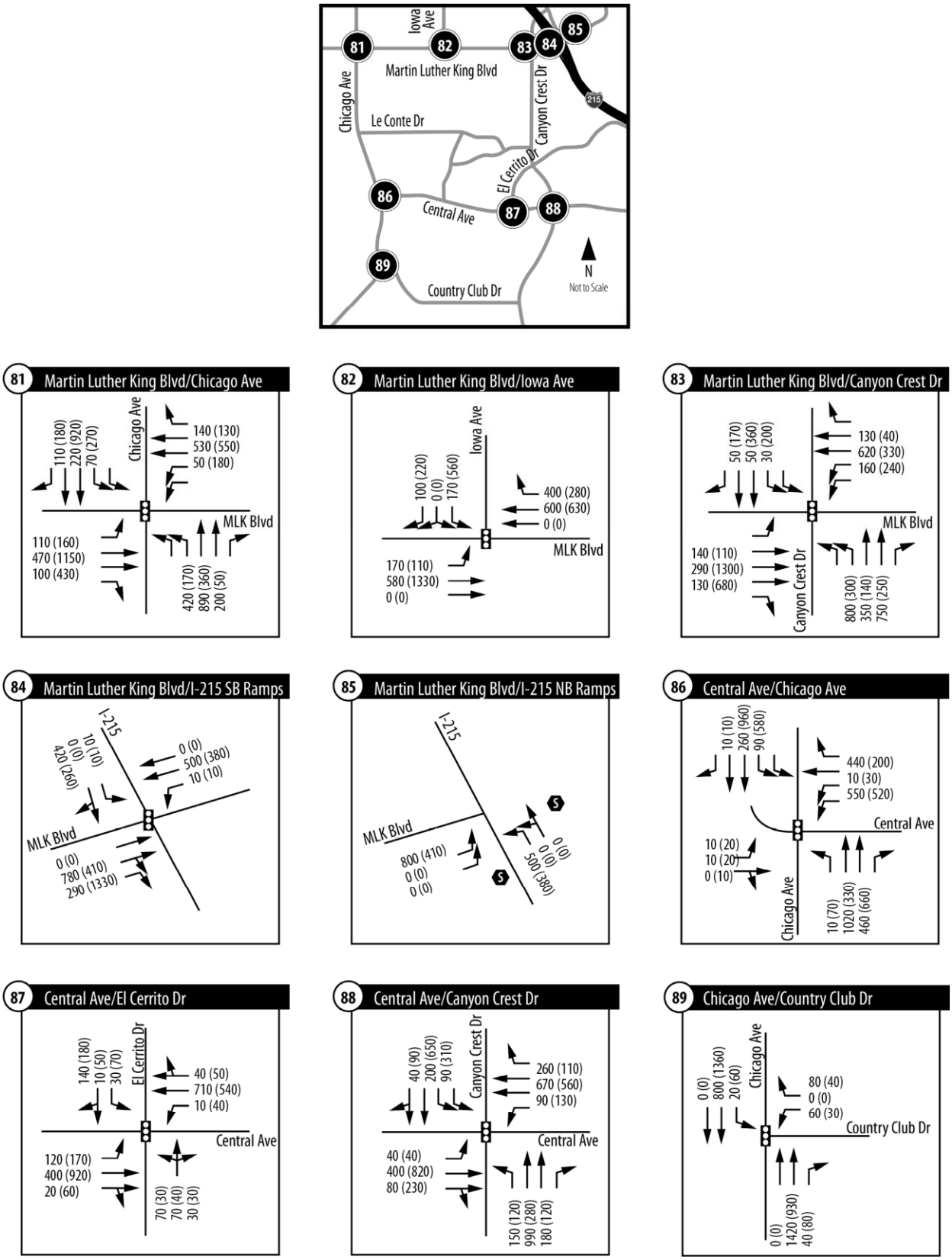



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (J)**

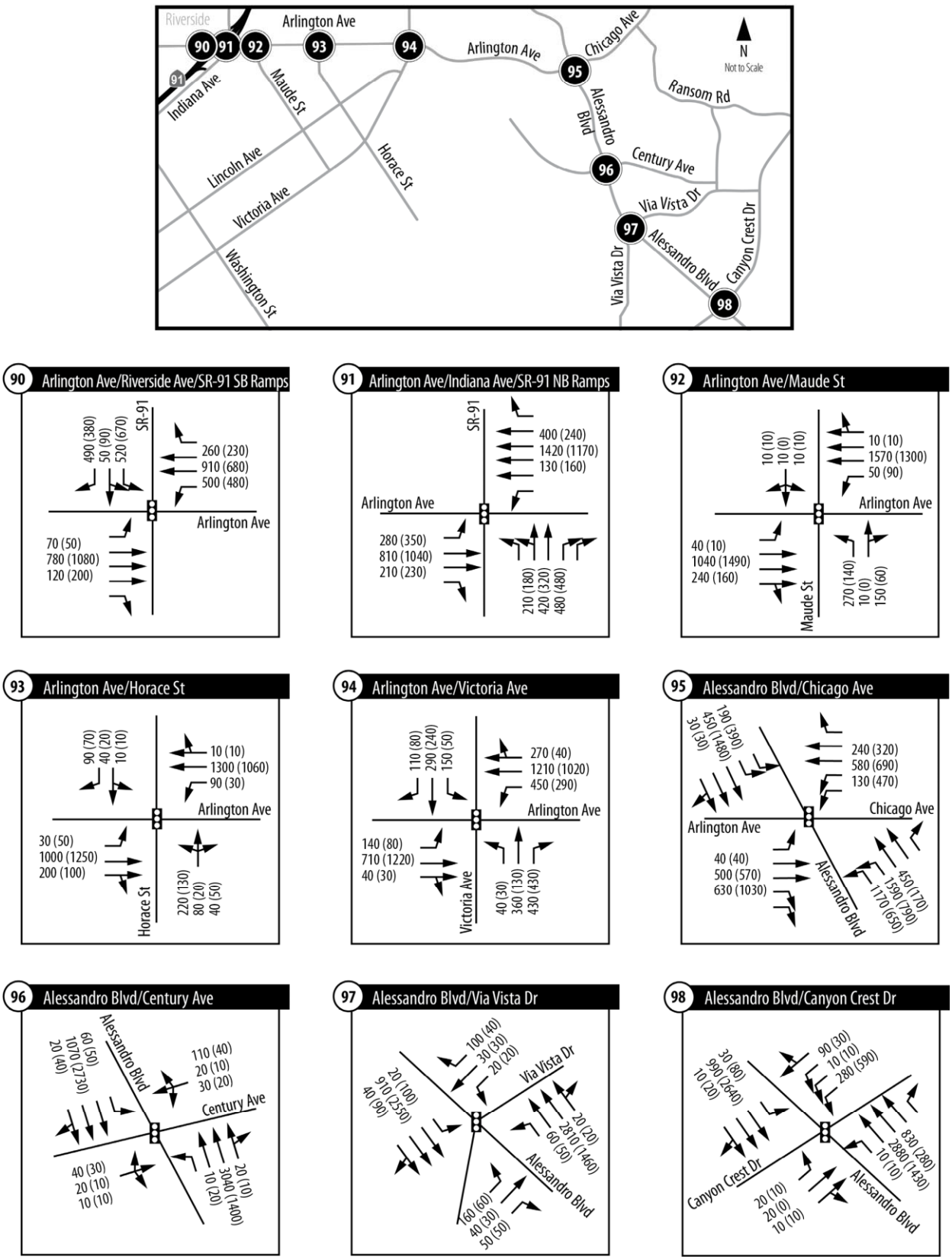



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (K)**

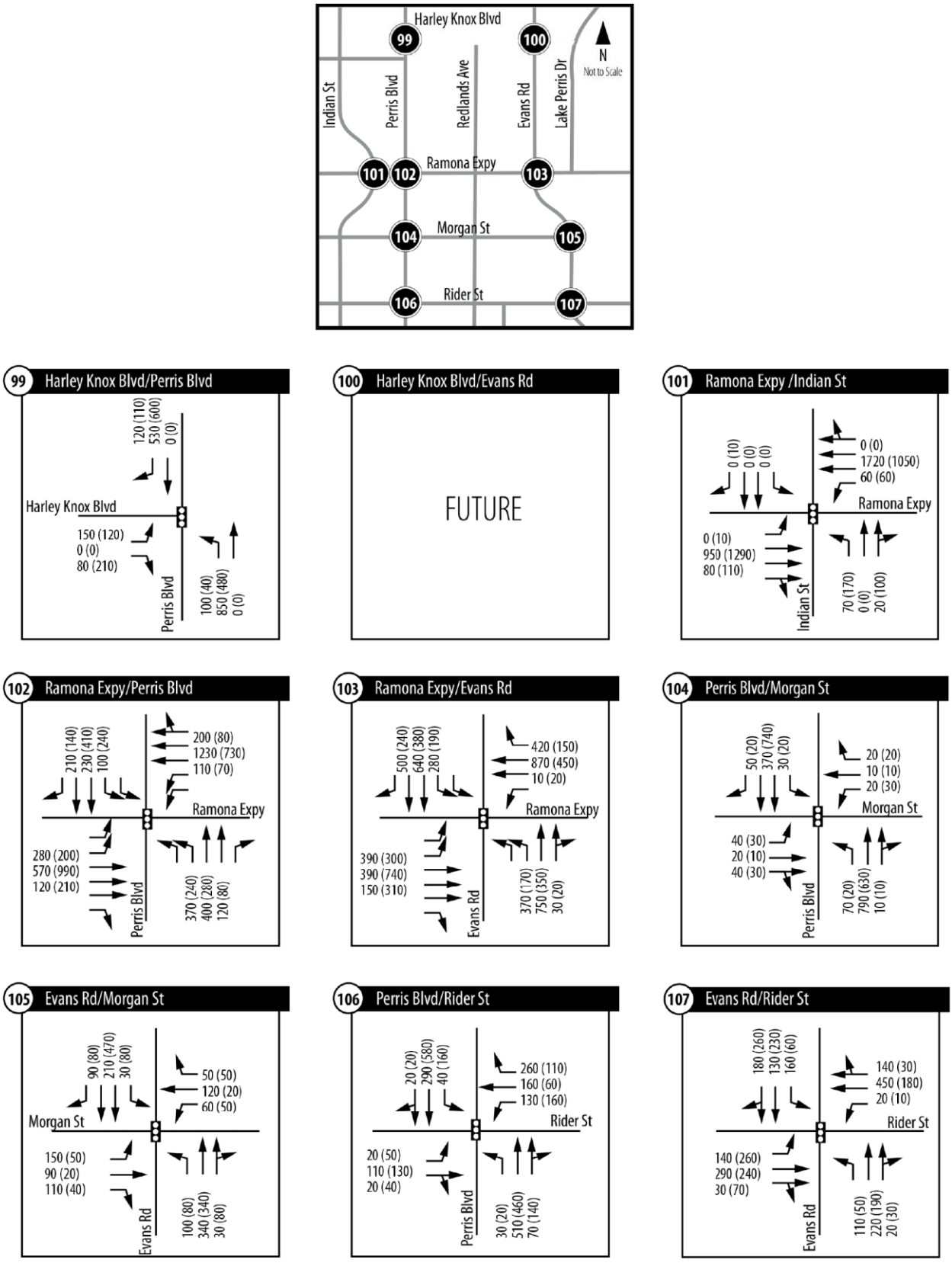
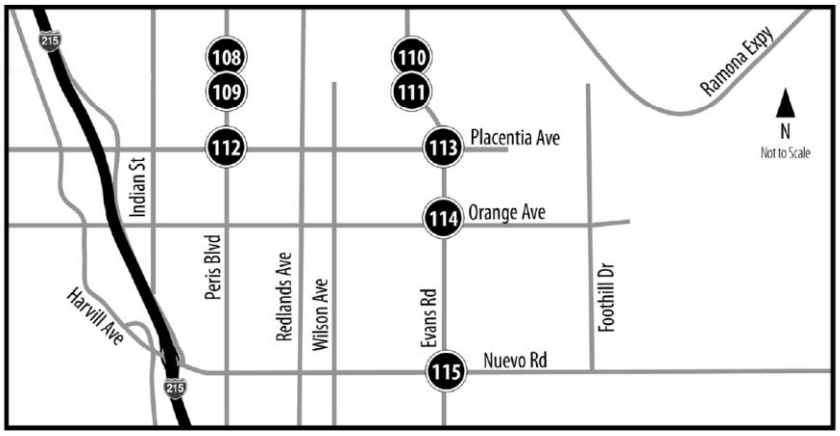



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (L)**



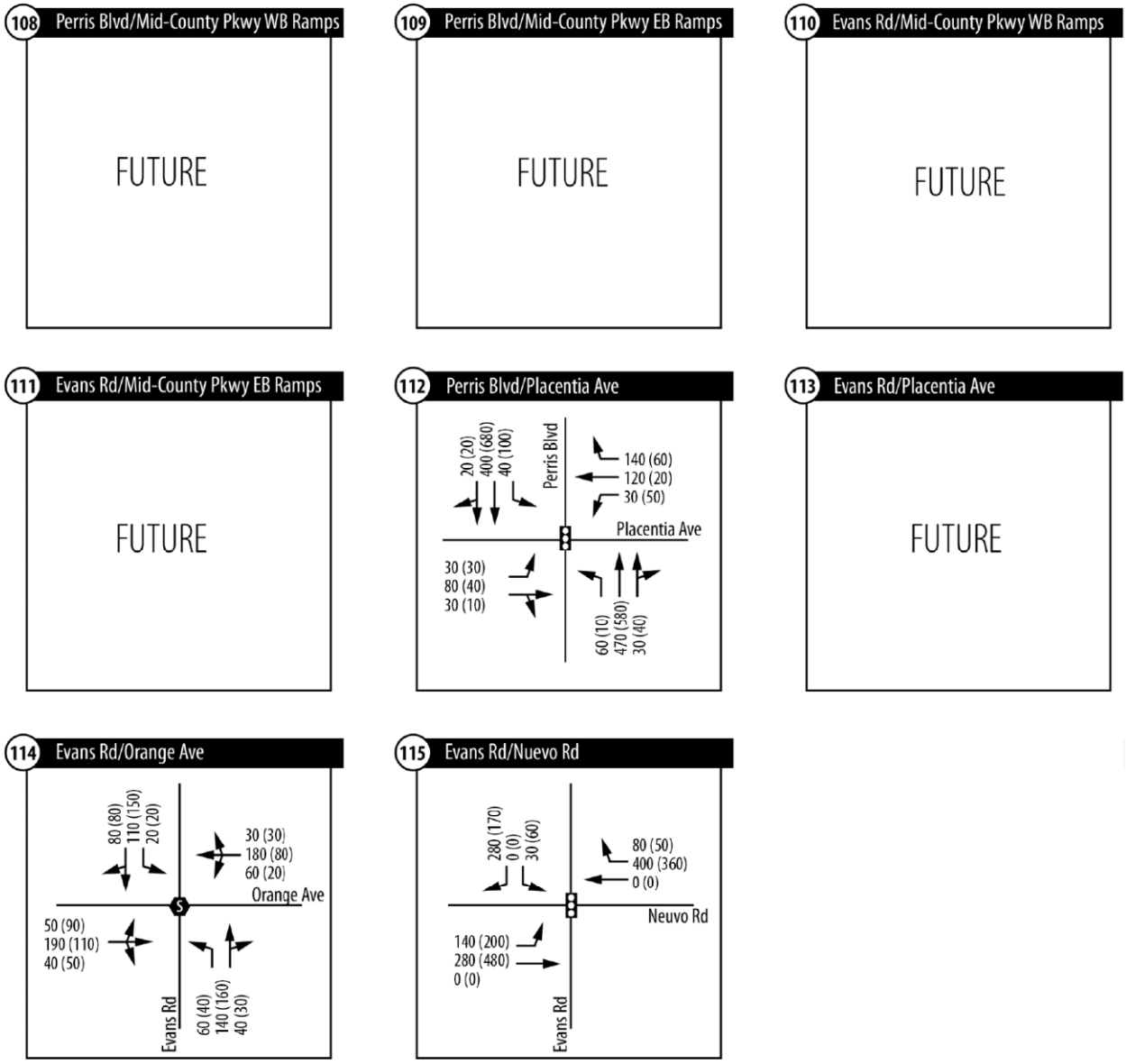




**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (M)**

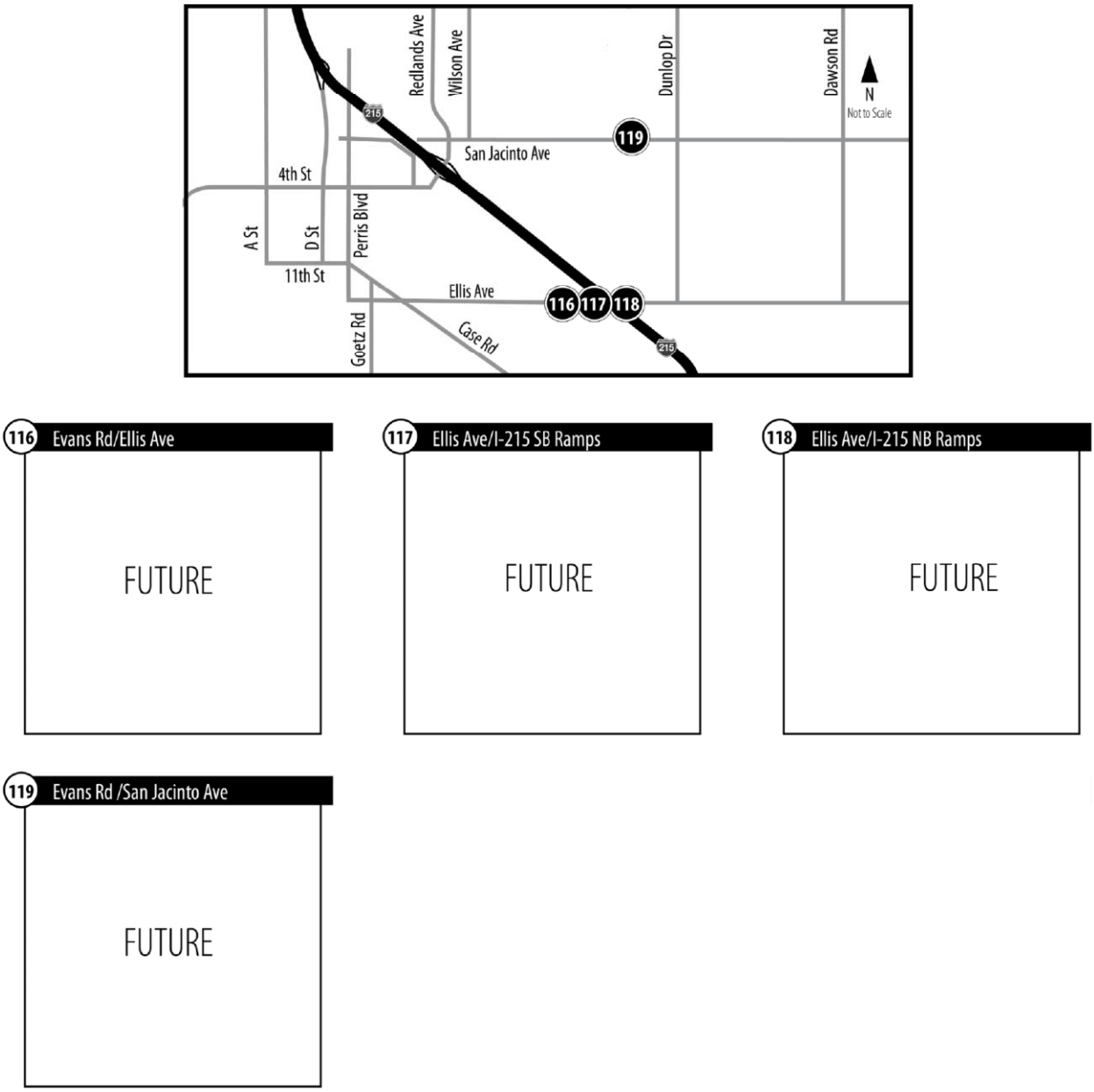



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (N)**

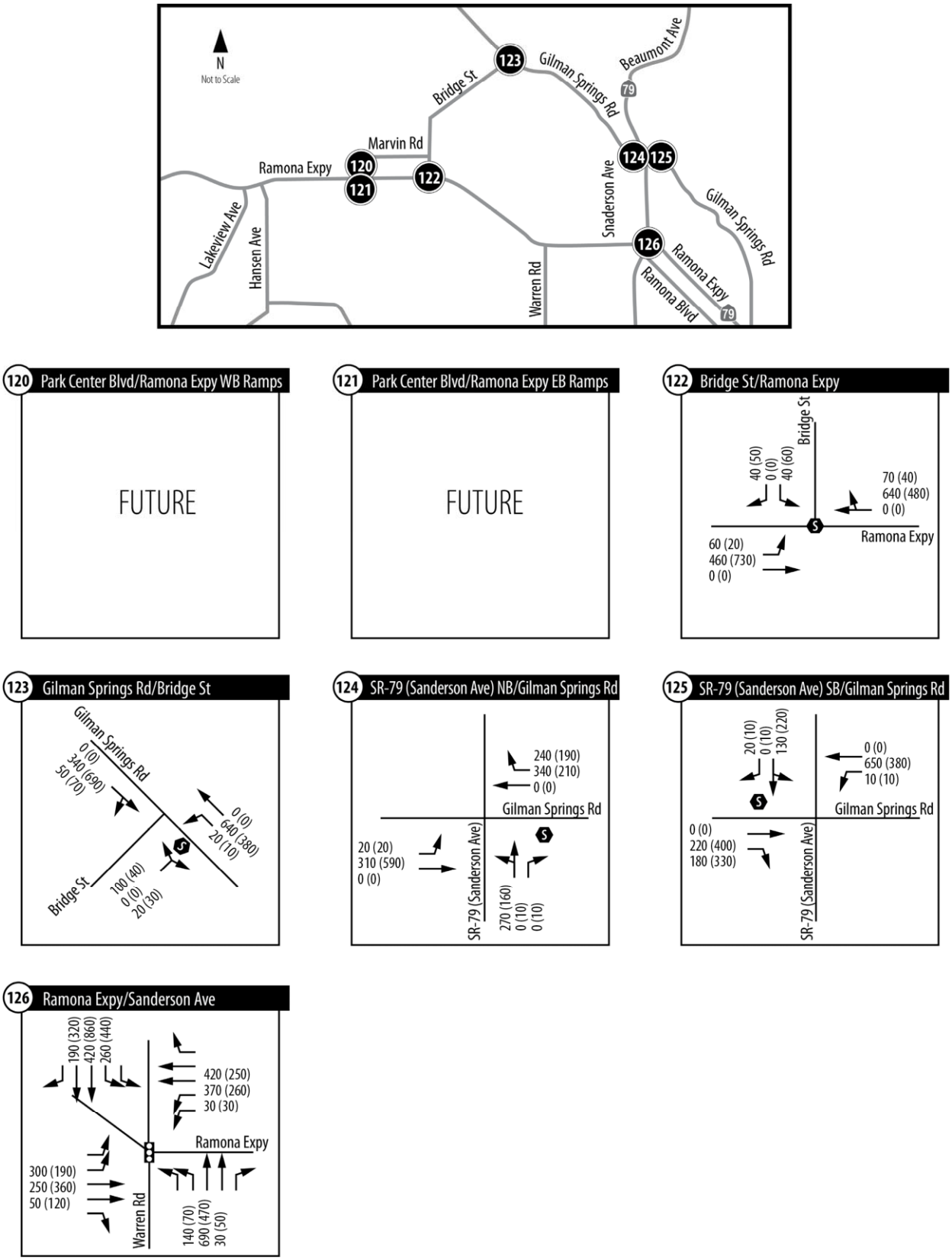



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (O)**

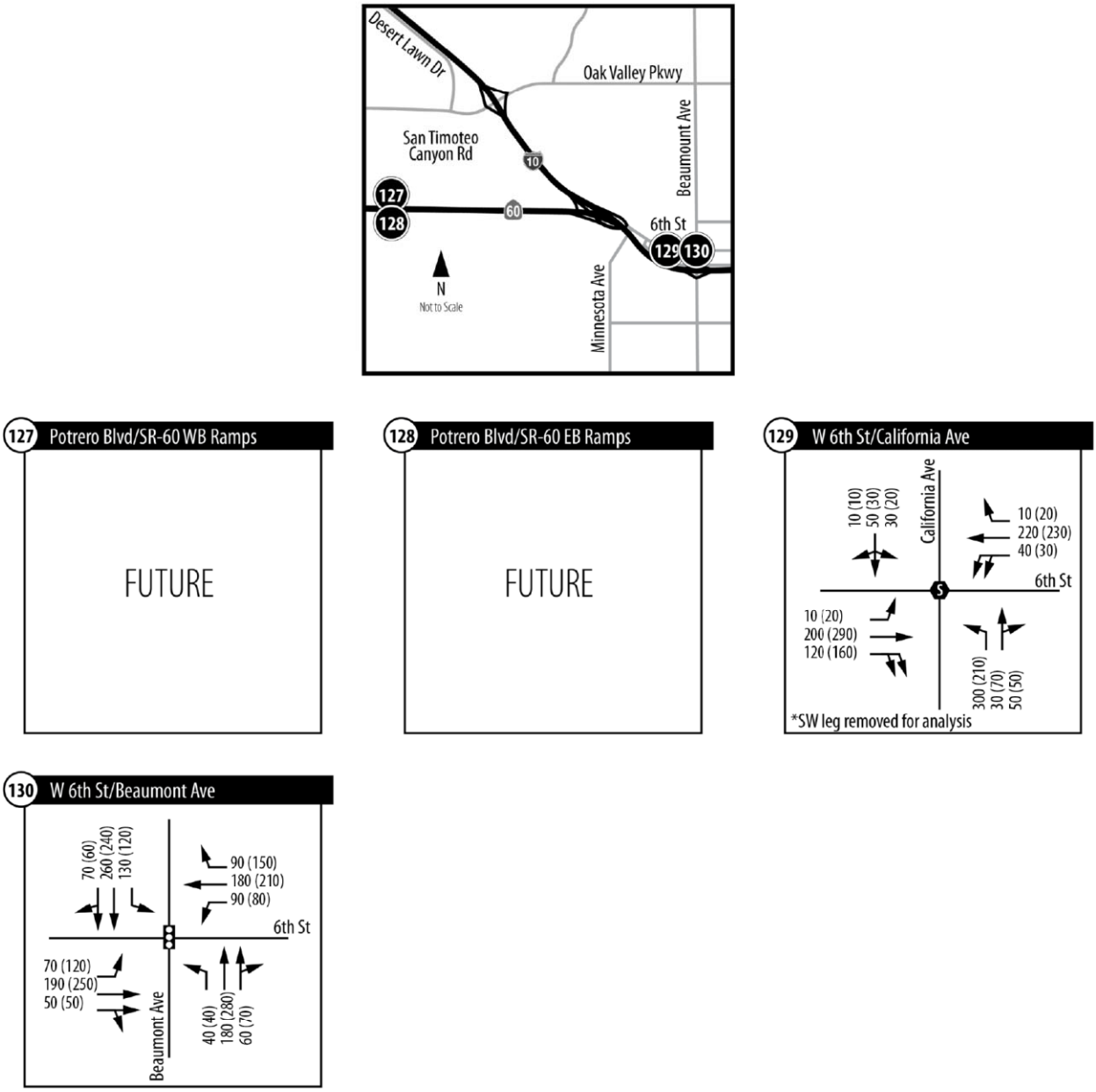



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (P)**

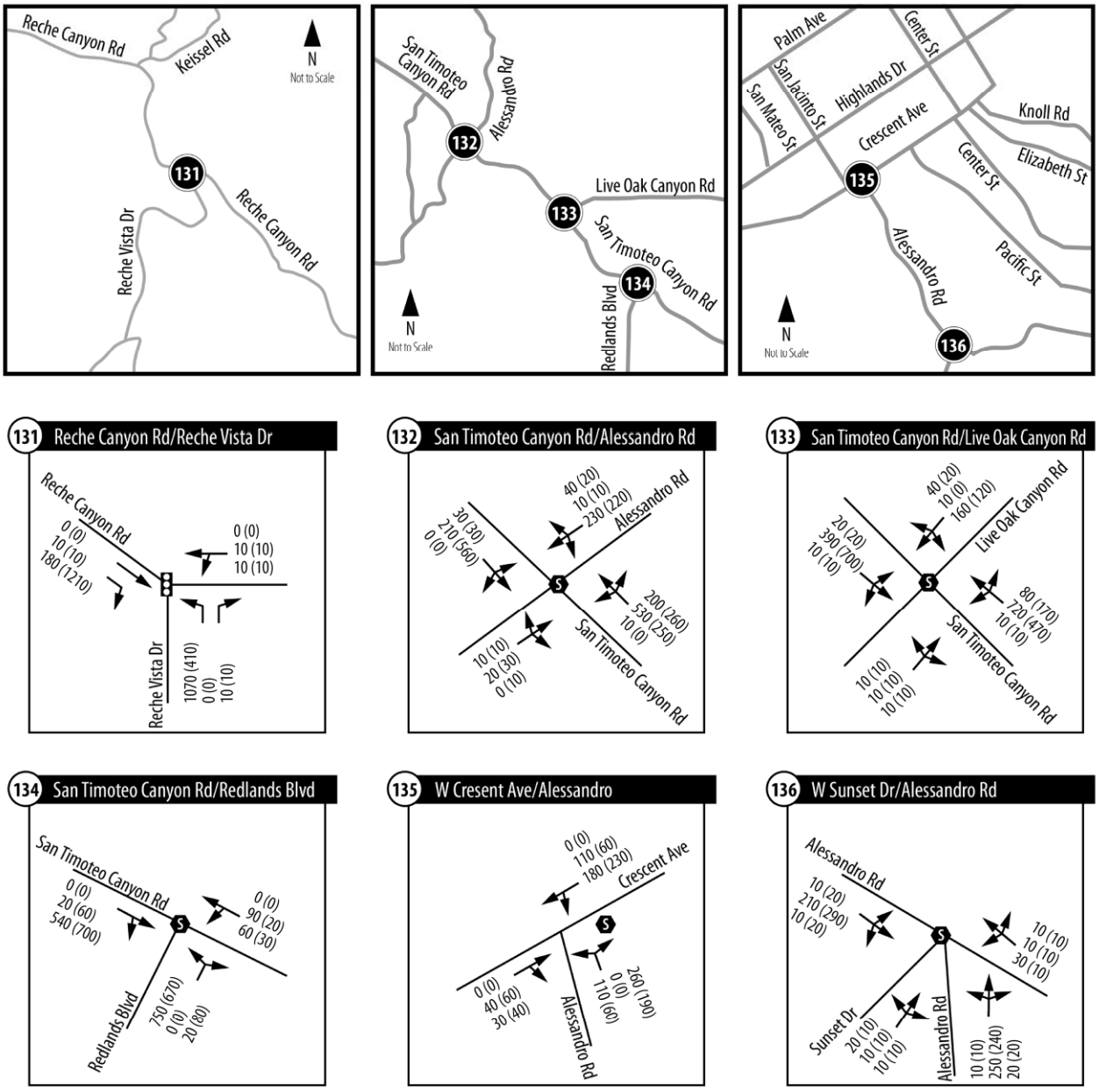



**Figure 48: Turning Movement Volumes under Existing Plus Phase 1 Conditions (Q)**

Table 28 identifies where impacts occur. As shown in the table, there are 15 study intersections where the project would have a significant impact. Twelve of these intersections would exceed the threshold of significance under Existing Conditions and three would exceed the threshold of significance with the addition of the project. These intersections are:

Would Exceed Threshold of Significance Under Both Existing Conditions and Existing Plus Phase 1 Conditions

- Redlands Blvd./Locust Ave.
- Redlands Blvd./SR-60 WB ramps
- Oliver St./Alessandro Blvd.
- Lasselle St./Cactus Ave.
- Gilman Springs Rd./Bridge St.
- SR-79 (Sanderson Ave.) NB/Gilman Springs Rd.
- SR-79 (Sanderson Ave.) SB/Gilman Springs Rd.
- San Timoteo Canyon Rd./Alessandro Rd.
- San Timoteo Canyon Rd./Live Oak Canyon Rd.
- Redlands Blvd./San Timoteo Canyon Rd.
- Moreno Beach Dr./SR-60 EB Ramps
- Alessandro Blvd./Chicago Ave.

Would Exceed Threshold of Significance Under Existing Plus Phase 1 Conditions (only)

- Redlands Blvd./Cactus Ave.
- Arlington Ave./Victoria Ave.
- Moreno Beach Dr./John Kennedy Dr.

The mitigation measures shown in Table 29 are those that would be needed to reduce the impact of the project to a less-than-significant level. While these measures are feasible in the sense that if they could be constructed they would achieve the target LOS, this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## Table 28: Intersection LOS under Existing Plus Phase 1 Conditions

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-1 | Theodore St/Street F | D | N/A | Non-Existent | | RABT | 9.5 | A |
| IN-2 | Cactus Ave Extension/Street E | D | N/A | Non-Existent | | AWS | 12.3 | B |
| IN-3 | Theodore St/Alessandro (Str A/Str C/Str E) | D | CSS | 9.7 | A | RABT | 7.8 | A |
| IN-4 | Alessandro Blvd (Street C)/Street F | D | N/A | Non-Existent | | CSS | 11.4 | B |
| IN-6 | Alessandro Blvd (Street C)/Gilman Springs Rd | D | CSS | 10.3 | B | SIGNAL | 20.9 | C |
| IN-9 | Gilman Springs Rd/Eucalytpus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-10 | Redlands Blvd/Locust Ave | C | CSS | 26.7 | **D** | CSS | 44.8 | **E** |
| IN-11 | Redlands Blvd/Ironwood Ave | D | SIGNAL | 40.9 | D | SIGNAL | 37.5 | D |
| IN-12 | Theodore Street/Ironwood Avenue | D | CSS | 9.7 | A | CSS | 12.6 | B |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | CSS | 42.2 | **E** | CSS | 70.5 | **F** |
| IN-14 | Redlands Blvd/SR-60 EB ramps | D | SIGNAL | 9.6 | A | SIGNAL | 12.9 | B |
| IN-15 | Theodore Str/SR-60 WB ramps | D | CSS | 9.0 | A | CSS | 13.3 | B |
| IN-16 | Theodore Str/SR-60 EB ramps | D | CSS | 9.2 | A | CSS | 2.4 | A |
| IN-17 | Quincy Str/Fir Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-18 | Redlands Blvd/Eucalyptus Ave (Fir) | D | N/A | Non-Existent | | SIGNAL | 12.9 | B |
| IN-19 | Theodore St/Fir Ave (Eucalyptus) | D | CSS | 9.2 | A | SIGNAL | 12.4 | B |
| IN-20 | Oliver Str/Alessandro Blvd | C | CSS | 25.9 | **D** | CSS | 40.5 | **E** |
| IN-21 | Moreno Beach Dr/Alessandro Blvd | D | SIGNAL | 24.0 | C | SIGNAL | 27.9 | C |
| IN-22 | Quincy Str/Alessandro Blvd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-23 | Redlands Blvd/Alessandro Blvd | C | AWS | 20.5 | C | AWS | 17.6 | C |
| IN-24 | Oliver Str/Cactus Ave | D | SIGNAL | 23.8 | C | SIGNAL | 26.2 | C |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | SIGNAL | 16.0 | B | SIGNAL | 17.9 | B |
| IN-26 | Quincy Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-27 | Redlands Blvd/Cactus Ave | C | AWS | 11.4 | B | AWS | 37.9 | **E** |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | SIGNAL | 16.2 | B | SIGNAL | 17.0 | B |
| IN-29 | Heacock Str/Ironwood Ave | D | SIGNAL | 29.6 | C | SIGNAL | 29.9 | C |
| IN-30 | Heacock Str/SR-60 WB Ramps | D | SIGNAL | 22.6 | C | SIGNAL | 23.4 | C |
| IN-31 | Heacock St/SR-60 EB Ramps | D | SIGNAL | 12.5 | B | SIGNAL | 13.9 | B |
| IN-32 | Sunnymead Blvd & Perris Blvd | D | SIGNAL | 29.4 | C | SIGNAL | 30.7 | C |
| IN-33 | Perris Blvd/SR-60 WB Ramps | D | SIGNAL | 22.0 | C | SIGNAL | 24.6 | C |
| IN-34 | Perris Blvd/Eucalyptus Ave | D | SIGNAL | 22.8 | C | SIGNAL | 23.8 | C |
| IN-35 | Moreno Beach Dr/Locust Ave | C | CSS | 8.6 | A | CSS | 8.8 | A |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | SIGNAL | 50.3 | D | SIGNAL | 51.8 | D |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | SIGNAL | 38.0 | D | SIGNAL | 42.0 | D |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | SIGNAL | 37.0 | D | SIGNAL | 37.6 | D |
| IN-39 | Iris Ave/Perris Blvd | D | SIGNAL | 41.5 | D | SIGNAL | 43.0 | D |
| IN-40 | Kitching St/Iris Ave | C | SIGNAL | 23.4 | C | SIGNAL | 25.0 | C |
| IN-41 | Lasselle Str/Iris Ave | D | SIGNAL | 25.4 | C | SIGNAL | 28.5 | C |
| IN-42 | Nason Str/Iris Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-43 | Oliver Str/Iris Ave | D | SIGNAL | 22.1 | C | SIGNAL | 25.6 | C |
| IN-44 | Via Dell Lago/Iris Ave | C | SIGNAL | 6.7 | A | SIGNAL | 8.0 | A |
| IN-45 | Krameria Ave/Perris Blvd | D | SIGNAL | 34.6 | C | SIGNAL | 35.1 | D |
| IN-46 | Kitching Str/Krameria Ave | D | SIGNAL | 21.7 | C | SIGNAL | 23.9 | C |
| IN-47 | Lasselle Str/Krameria Ave | D | SIGNAL | 37.9 | D | SIGNAL | 40.8 | D |
| IN-48 | Kitching Str/Alessandro Blvd | D | SIGNAL | 28.8 | C | SIGNAL | 29.6 | C |

## Table 28: Intersection LOS under Existing Plus Phase 1 Conditions (continued)

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-49 | Lasselle Str/Alessandro Blvd | D | SIGNAL | 31.7 | C | SIGNAL | 32.2 | C |
| IN-50 | Morrison Str/Alessandro Blvd | D | SIGNAL | 8.8 | A | SIGNAL | 8.8 | A |
| IN-51 | Nason Str/Alessandro Blvd | D | SIGNAL | 20.5 | C | SIGNAL | 20.7 | C |
| IN-52 | Kitching Str/Cactus Ave | C | SIGNAL | 33.3 | C | SIGNAL | 34.3 | C |
| IN-53 | Lasselle Str/Cactus Ave | C | SIGNAL | 47.2 | D | SIGNAL | 47.3 | D |
| IN-54 | Morrison Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-55 | Nason Str/Cactus Ave | D | SIGNAL | 22.5 | C | SIGNAL | 22.6 | C |
| IN-56 | Frederick Str/Alessandro Blvd | D | SIGNAL | 19.5 | B | SIGNAL | 19.5 | B |
| IN-57 | Graham Str/Alessandro Blvd | D | SIGNAL | 19.8 | B | SIGNAL | 20.4 | C |
| IN-58 | Heacock Str/Alessandro Blvd | D | SIGNAL | 25.8 | C | SIGNAL | 26.3 | C |
| IN-59 | Indian Str/Alessandro Blvd | D | SIGNAL | 17.6 | B | SIGNAL | 19.2 | B |
| IN-60 | Perris Blvd/Alessandro Blvd | D | SIGNAL | 32.4 | C | SIGNAL | 32.7 | C |
| IN-61 | Frederick Str/Cactus Ave | D | SIGNAL | 9.8 | A | SIGNAL | 10.3 | B |
| IN-62 | Graham Str/Cactus Ave | D | SIGNAL | 12.9 | B | SIGNAL | 13.7 | B |
| IN-63 | Heacock Str/Cactus Ave | D | SIGNAL | 30.1 | C | SIGNAL | 30.9 | C |
| IN-64 | Indian Str/Cactus Ave | C | SIGNAL | 24.4 | C | SIGNAL | 25.3 | C |
| IN-65 | Perris Blvd/Cactus Ave | D | SIGNAL | 26.9 | C | SIGNAL | 26.8 | C |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | SIGNAL | 25.8 | C | SIGNAL | 26.1 | C |
| IN-67 | I-215 SB Ramps/Alessandro Blvd | D | SIGNAL | 6.4 | A | SIGNAL | 6.7 | A |
| IN-68 | I-215 NB Ramps/Alessandro Blvd | D | SIGNAL | 19.4 | B | SIGNAL | 19.9 | B |
| IN-69 | Old 215 Frontage Rd/Alessandro Blvd | D | SIGNAL | 18.2 | B | SIGNAL | 18.4 | B |
| IN-70 | Day Str/Alessandro Blvd | D | SIGNAL | 4.6 | A | SIGNAL | 6.2 | A |
| IN-71 | Elsworth Str/Alessandro Blvd | D | SIGNAL | 19.2 | B | SIGNAL | 19.6 | B |
| IN-72 | I-215 SB Ramps/Cactus Ave | D | SIGNAL | 12.1 | B | SIGNAL | 18.7 | B |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | SIGNAL | 11.1 | B | SIGNAL | 10.3 | B |
| IN-74 | Elsworth Str/Cactus Ave | D | SIGNAL | 26.7 | C | SIGNAL | 30.6 | C |
| IN-75 | Central Ave/Lochmoor Dr. | D | SIGNAL | 10.9 | B | SIGNAL | 11.4 | B |
| IN-76 | Sycamore Canyon Blvd/Central Ave | D | SIGNAL | 22.2 | C | SIGNAL | 23.9 | C |
| IN-77 | SR-60 EB Ramps/Central Ave | D | SIGNAL | 7.3 | A | SIGNAL | 8.3 | A |
| IN-78 | SR-60 WB Ramps/Central Ave | D | SIGNAL | 6.8 | A | SIGNAL | 6.9 | A |
| IN-79 | Alessandro Blvd/Trautwein Rd. | D | SIGNAL | 28.4 | C | SIGNAL | 28.4 | C |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | SIGNAL | 18.8 | B | SIGNAL | 20.7 | C |
| IN-81 | Martin Luther King Blvd/Chicago Ave | D | SIGNAL | 43.2 | D | SIGNAL | 43.8 | D |
| IN-82 | Martin Luther King Blvd/Iowa Ave | D | SIGNAL | 9.0 | A | SIGNAL | 9.2 | A |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | SIGNAL | 43.2 | D | SIGNAL | 47.8 | D |
| IN-84 | Martin Luther King Blvd/I-215 SB Ramps | D | SIGNAL | 8.6 | A | SIGNAL | 8.8 | A |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | AWS | 24.3 | C | AWS | 26.9 | D |
| IN-86 | Central Ave/Chicago Ave | D | SIGNAL | 23.4 | C | SIGNAL | 23.7 | C |
| IN-87 | Central Ave/El Cerrito Dr | D | SIGNAL | 11.7 | B | SIGNAL | 12.9 | B |
| IN-88 | Central Ave/Canyon Crest Dr | D | SIGNAL | 27.8 | C | SIGNAL | 28.6 | C |
| IN-89 | Chicago Ave/Country Club Dr | D | SIGNAL | 6.3 | A | SIGNAL | 6.7 | A |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | SIGNAL | 31.3 | C | SIGNAL | 31.6 | C |
| IN-91 | Arlington Ave/Indiana Ave/SR-91 NB Ramps | D | SIGNAL | 21.0 | C | SIGNAL | 21.1 | C |
| IN-92 | Arlington Ave/Maude St | D | SIGNAL | 13.8 | B | SIGNAL | 14.1 | B |
| IN-93 | Horace St/Arlington Ave | D | SIGNAL | 12.3 | B | SIGNAL | 13.0 | B |

## Table 28: Intersection LOS under Existing Plus Phase 1 Conditions (continued)

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-94 | Arlington Ave/Victoria Ave | D | SIGNAL | 54.8 | D | SIGNAL | 55.8 | **E** |
| IN-95 | Alessandro Blvd/Chicago Ave | D | SIGNAL | 40.7 | D | SIGNAL | 42.9 | D |
| IN-96 | Alessandro Blvd/Century Ave | D | SIGNAL | 16.7 | B | SIGNAL | 17.8 | B |
| IN-97 | Alessandro Blvd/Via Vista Dr | D | SIGNAL | 30.7 | C | SIGNAL | 30.6 | C |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | SIGNAL | 20.4 | C | SIGNAL | 25.3 | C |
| IN-99 | Harley Knox Blvd/Perris Blvd | D | SIGNAL | 15.4 | B | SIGNAL | 16.5 | B |
| IN-100 | Harley Knox Blvd/Evan Rd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-101 | Ramona Expy/Indian St | E | SIGNAL | 3.3 | A | SIGNAL | 4.5 | A |
| IN-102 | Ramona Expy/Perris Blvd | E | SIGNAL | 31.7 | C | SIGNAL | 32.5 | C |
| IN-103 | Ramona Expy/Evans Rd | E | SIGNAL | 54.5 | D | SIGNAL | 58.1 | E |
| IN-104 | Perris Blvd/Morgan St | D | SIGNAL | 11.8 | B | SIGNAL | 13.6 | B |
| IN-105 | Evans Rd/Morgan St | C | SIGNAL | 32.5 | C | SIGNAL | 32.5 | C |
| IN-106 | Perris Blvd/Rider St | C | SIGNAL | 24.5 | C | SIGNAL | 24.5 | C |
| IN-107 | Evans Rd/Rider St | C | SIGNAL | 34.2 | C | SIGNAL | 34.4 | C |
| IN-108 | Perris Blvd/Mid-County Pkwy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-109 | Perris Blvd/Mid-County Pkwy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-110 | Evans Rd/Mid-County Pkwy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-111 | Evans Rd/Mid-County Pkwy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-112 | Placentia Ave/Perris Blvd | D | SIGNAL | 30.1 | C | SIGNAL | 29.9 | C |
| IN-113 | Evans Rd/Placentia Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-114 | Evans Rd/Orange Ave | C | AWS | 12.5 | B | AWS | 13.6 | B |
| IN-115 | Evans Rd/Nuevo Rd | C | SIGNAL | 23.3 | C | SIGNAL | 23.5 | C |
| IN-116 | Evans Rd/Ellis Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-117 | Ellis Ave/I-215 SB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-118 | Ellis Ave/SR-215 NB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-119 | Evans Rd/San Jacinto Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-120 | Park Center Blvd/Ramona Expy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-121 | Park Center Blvd/Ramona Expy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-122 | Bridge St/Ramona Expy | C | CSS | 22.4 | C | CSS | 26.2 | C |
| IN-123 | Gilman Springs Rd/Bridge Str | C | CSS | 26.6 | **D** | CSS | 37.9 | **E** |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | CSS | 34.7 | **D** | CSS | 56.8 | **F** |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | CSS | 29.2 | **D** | CSS | 36.6 | **E** |
| IN-126 | Ramona Expy/Sanderson Ave | D | SIGNAL | 27.1 | C | SIGNAL | 28.2 | C |
| IN-127 | Potrero Blvd/SR-60 WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-128 | Potrero Blvd/SR-60 EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-129 | W 6th St/California Ave | C | AWS | 16.6 | C | AWS | 20.2 | C |
| IN-130 | W 6th St/Beaumont Ave | C | SIGNAL | 13.2 | B | SIGNAL | 12.7 | B |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | SIGNAL | 18.9 | B | SIGNAL | 21.5 | C |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | AWS | 77.2 | **F** | AWS | 145.4 | **F** |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | AWS | 50.9 | **F** | AWS | 110.2 | **F** |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | AWS | 81.8 | **F** | AWS | 142.8 | **F** |
| IN-135 | W Crescent Ave/Alessandro Rd | C | CSS | 14.0 | B | CSS | 16.9 | C |
| IN-136 | W Sunset Dr/Alessandro Rd | C | AWS | 8.9 | A | AWS | 9.7 | A |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

## Table 28: Intersection LOS under Existing Plus Phase 1 Conditions (continued)

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-1 | Theodore St/Street F | D | N/A | Non-Existent | | RABT | 12.1 | B |
| IN-2 | Cactus Ave Extension/Street E | D | N/A | Non-Existent | | AWS | 13.2 | B |
| IN-3 | Theodore St/Alessandro (Str A/Str C/Str E) | D | CSS | 10.1 | B | RABT | 8.1 | A |
| IN-4 | Alessandro Blvd (Street C)/Street F | D | N/A | Non-Existent | | CSS | 10.9 | B |
| IN-6 | Alessandro Blvd (Street C)/Gilman Springs Rd | D | CSS | 15.7 | C | SIGNAL | 31.2 | C |
| IN-9 | Gilman Springs Rd/Eucalytpus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-10 | Redlands Blvd/Locust Ave | C | CSS | 42.8 | **E** | CSS | > 180.0 | **F** |
| IN-11 | Redlands Blvd/Ironwood Ave | D | SIGNAL | 37.3 | D | SIGNAL | 35.2 | D |
| IN-12 | Theodore Street/Ironwood Avenue | D | CSS | 9.8 | A | CSS | 15.9 | C |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | CSS | 54.0 | **F** | CSS | > 180.0 | **F** |
| IN-14 | Redlands Blvd/SR-60 EB ramps | D | SIGNAL | 14.4 | B | SIGNAL | 20.3 | C |
| IN-15 | Theodore Str/SR-60 WB ramps | D | CSS | 9.6 | A | CSS | 13.7 | B |
| IN-16 | Theodore Str/SR-60 EB ramps | D | CSS | 9.4 | A | CSS | 1.5 | A |
| IN-17 | Quincy Str/Fir Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-18 | Redlands Blvd/Eucalyptus Ave (Fir) | D | N/A | Non-Existent | | SIGNAL | 10.6 | B |
| IN-19 | Theodore St/Fir Ave (Eucalyptus) | D | CSS | 9.8 | A | SIGNAL | 27.1 | C |
| IN-20 | Oliver Str/Alessandro Blvd | C | CSS | 14.7 | B | CSS | 18.6 | C |
| IN-21 | Moreno Beach Dr/Alessandro Blvd | D | SIGNAL | 28.2 | C | SIGNAL | 38.6 | D |
| IN-22 | Quincy Str/Alessandro Blvd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-23 | Redlands Blvd/Alessandro Blvd | C | AWS | 13.8 | B | AWS | 14.9 | B |
| IN-24 | Oliver Str/Cactus Ave | D | SIGNAL | 17.3 | B | SIGNAL | 18.1 | B |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | SIGNAL | 17.0 | B | SIGNAL | 18.9 | B |
| IN-26 | Quincy Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-27 | Redlands Blvd/Cactus Ave | C | AWS | 8.2 | A | AWS | 103.0 | **F** |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | SIGNAL | 13.8 | B | SIGNAL | 66.5 | **E** |
| IN-29 | Heacock Str/Ironwood Ave | D | SIGNAL | 31.9 | C | SIGNAL | 32.0 | C |
| IN-30 | Heacock Str/SR-60 WB Ramps | D | SIGNAL | 21.5 | C | SIGNAL | 21.7 | C |
| IN-31 | Heacock St/SR-60 EB Ramps | D | SIGNAL | 15.9 | B | SIGNAL | 16.8 | B |
| IN-32 | Sunnymead Blvd & Perris Blvd | D | SIGNAL | 36.0 | D | SIGNAL | 36.4 | D |
| IN-33 | Perris Blvd/SR-60 WB Ramps | D | SIGNAL | 19.7 | B | SIGNAL | 21.5 | C |
| IN-34 | Perris Blvd/Eucalyptus Ave | D | SIGNAL | 23.4 | C | SIGNAL | 23.9 | C |
| IN-35 | Moreno Beach Dr/Locust Ave | C | CSS | 8.6 | A | CSS | 8.9 | A |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | SIGNAL | 40.0 | D | SIGNAL | 41.6 | D |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | SIGNAL | 76.6 | **E** | SIGNAL | 98.0 | **F** |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | SIGNAL | 31.2 | C | SIGNAL | 31.8 | C |
| IN-39 | Iris Ave/Perris Blvd | D | SIGNAL | 36.5 | D | SIGNAL | 37.0 | D |
| IN-40 | Kitching St/Iris Ave | C | SIGNAL | 17.5 | B | SIGNAL | 20.1 | C |
| IN-41 | Lasselle Str/Iris Ave | D | SIGNAL | 26.6 | C | SIGNAL | 28.4 | C |
| IN-42 | Nason Str/Iris Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-43 | Oliver Str/Iris Ave | D | SIGNAL | 15.8 | B | SIGNAL | 18.3 | B |
| IN-44 | Via Dell Lago/Iris Ave | C | SIGNAL | 6.5 | A | SIGNAL | 7.3 | A |
| IN-45 | Krameria Ave/Perris Blvd | D | SIGNAL | 29.3 | C | SIGNAL | 33.7 | C |
| IN-46 | Kitching Str/Krameria Ave | D | SIGNAL | 19.4 | B | SIGNAL | 20.2 | C |
| IN-47 | Lasselle Str/Krameria Ave | D | SIGNAL | 13.5 | B | SIGNAL | 13.7 | B |
| IN-48 | Kitching Str/Alessandro Blvd | D | SIGNAL | 24.7 | C | SIGNAL | 25.4 | C |

## Table 28: Intersection LOS under Existing Plus Phase 1 Conditions (continued)

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-49 | Lasselle Str/Alessandro Blvd | D | SIGNAL | 26.6 | C | SIGNAL | 29.5 | C |
| IN-50 | Morrison Str/Alessandro Blvd | D | SIGNAL | 7.8 | A | SIGNAL | 8.1 | A |
| IN-51 | Nason Str/Alessandro Blvd | D | SIGNAL | 16.9 | B | SIGNAL | 18.2 | B |
| IN-52 | Kitching Str/Cactus Ave | C | SIGNAL | 22.6 | C | SIGNAL | 22.7 | C |
| IN-53 | Lasselle Str/Cactus Ave | C | SIGNAL | 38.6 | D | SIGNAL | 38.6 | D |
| IN-54 | Morrison Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-55 | Nason Str/Cactus Ave | D | SIGNAL | 21.0 | C | SIGNAL | 21.8 | C |
| IN-56 | Frederick Str/Alessandro Blvd | D | SIGNAL | 25.6 | C | SIGNAL | 26.5 | C |
| IN-57 | Graham Str/Alessandro Blvd | D | SIGNAL | 24.2 | C | SIGNAL | 26.0 | C |
| IN-58 | Heacock Str/Alessandro Blvd | D | SIGNAL | 23.6 | C | SIGNAL | 24.1 | C |
| IN-59 | Indian Str/Alessandro Blvd | D | SIGNAL | 27.9 | C | SIGNAL | 28.7 | C |
| IN-60 | Perris Blvd/Alessandro Blvd | D | SIGNAL | 42.3 | D | SIGNAL | 44.2 | D |
| IN-61 | Frederick Str/Cactus Ave | D | SIGNAL | 11.7 | B | SIGNAL | 13.8 | B |
| IN-62 | Graham Str/Cactus Ave | D | SIGNAL | 17.4 | B | SIGNAL | 17.9 | B |
| IN-63 | Heacock Str/Cactus Ave | D | SIGNAL | 20.3 | C | SIGNAL | 22.9 | C |
| IN-64 | Indian Str/Cactus Ave | C | SIGNAL | 19.6 | B | SIGNAL | 19.3 | B |
| IN-65 | Perris Blvd/Cactus Ave | D | SIGNAL | 30.7 | C | SIGNAL | 30.6 | C |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | SIGNAL | 18.0 | B | SIGNAL | 18.1 | B |
| IN-67 | I-215 SB Ramps/Alessandro Blvd | D | SIGNAL | 12.6 | B | SIGNAL | 12.7 | B |
| IN-68 | I-215 NB Ramps/Alessandro Blvd | D | SIGNAL | 24.1 | C | SIGNAL | 25.0 | C |
| IN-69 | Old 215 Frontage Rd/Alessandro Blvd | D | SIGNAL | 18.6 | B | SIGNAL | 20.0 | B |
| IN-70 | Day Str/Alessandro Blvd | D | SIGNAL | 8.2 | A | SIGNAL | 9.9 | A |
| IN-71 | Elsworth Str/Alessandro Blvd | D | SIGNAL | 27.6 | C | SIGNAL | 29.0 | C |
| IN-72 | I-215 SB Ramps/Cactus Ave | D | SIGNAL | 19.7 | B | SIGNAL | 40.1 | D |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | SIGNAL | 3.7 | A | SIGNAL | 4.1 | A |
| IN-74 | Elsworth Str/Cactus Ave | D | SIGNAL | 29.5 | C | SIGNAL | 29.2 | C |
| IN-75 | Central Ave/Lochmoor Dr. | D | SIGNAL | 6.7 | A | SIGNAL | 7.7 | A |
| IN-76 | Sycamore Canyon Blvd/Central Ave | D | SIGNAL | 17.6 | B | SIGNAL | 18.6 | B |
| IN-77 | SR-60 EB Ramps/Central Ave | D | SIGNAL | 10.3 | B | SIGNAL | 10.6 | B |
| IN-78 | SR-60 WB Ramps/Central Ave | D | SIGNAL | 8.2 | A | SIGNAL | 8.3 | A |
| IN-79 | Alessandro Blvd/Trautwein Rd. | D | SIGNAL | 14.8 | B | SIGNAL | 14.8 | B |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | SIGNAL | 34.9 | C | SIGNAL | 36.9 | D |
| IN-81 | Martin Luther King Blvd/Chicago Ave | D | SIGNAL | 36.5 | D | SIGNAL | 38.3 | D |
| IN-82 | Martin Luther King Blvd/Iowa Ave | D | SIGNAL | 13.0 | B | SIGNAL | 13.4 | B |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | SIGNAL | 28.0 | C | SIGNAL | 28.9 | C |
| IN-84 | Martin Luther King Blvd/I-215 SB Ramps | D | SIGNAL | 4.7 | A | SIGNAL | 5.5 | A |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | AWS | 12.2 | B | AWS | 13.0 | B |
| IN-86 | Central Ave/Chicago Ave | D | SIGNAL | 23.1 | C | SIGNAL | 26.7 | C |
| IN-87 | Central Ave/El Cerrito Dr | D | SIGNAL | 12.0 | B | SIGNAL | 12.6 | B |
| IN-88 | Central Ave/Canyon Crest Dr | D | SIGNAL | 35.2 | D | SIGNAL | 36.5 | D |
| IN-89 | Chicago Ave/Country Club Dr | D | SIGNAL | 4.9 | A | SIGNAL | 4.9 | A |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | SIGNAL | 30.7 | C | SIGNAL | 30.9 | C |
| IN-91 | Arlington Ave/Indiana Ave/SR-91 NB Ramps | D | SIGNAL | 20.8 | C | SIGNAL | 20.9 | C |
| IN-92 | Arlington Ave/Maude St | D | SIGNAL | 11.1 | B | SIGNAL | 11.6 | B |
| IN-93 | Horace St/Arlington Ave | D | SIGNAL | 7.2 | A | SIGNAL | 7.6 | A |

## Table 28: Intersection LOS under Existing Plus Phase 1 Conditions (continued)

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-94 | Arlington Ave/Victoria Ave | D | SIGNAL | 30.9 | C | SIGNAL | 32.5 | C |
| IN-95 | Alessandro Blvd/Chicago Ave | D | SIGNAL | 65.9 | **E** | SIGNAL | 70.0 | **E** |
| IN-96 | Alessandro Blvd/Century Ave | D | SIGNAL | 7.6 | A | SIGNAL | 8.7 | A |
| IN-97 | Alessandro Blvd/Via Vista Dr | D | SIGNAL | 18.9 | B | SIGNAL | 18.7 | B |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | SIGNAL | 17.9 | B | SIGNAL | 17.7 | B |
| IN-99 | Harley Knox Blvd/Perris Blvd | D | SIGNAL | 15.1 | B | SIGNAL | 15.5 | B |
| IN-100 | Harley Knox Blvd/Evan Rd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-101 | Ramona Expy/Indian St | E | SIGNAL | 8.5 | A | SIGNAL | 11.1 | B |
| IN-102 | Ramona Expy/Perris Blvd | E | SIGNAL | 34.6 | C | SIGNAL | 34.8 | C |
| IN-103 | Ramona Expy/Evans Rd | E | SIGNAL | 28.8 | C | SIGNAL | 28.7 | C |
| IN-104 | Perris Blvd/Morgan St | D | SIGNAL | 6.7 | A | SIGNAL | 8.7 | A |
| IN-105 | Evans Rd/Morgan St | C | SIGNAL | 20.6 | C | SIGNAL | 20.4 | C |
| IN-106 | Perris Blvd/Rider St | C | SIGNAL | 22.9 | C | SIGNAL | 26.8 | C |
| IN-107 | Evans Rd/Rider St | C | SIGNAL | 28.3 | C | SIGNAL | 27.8 | C |
| IN-108 | Perris Blvd/Mid-County Pkwy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-109 | Perris Blvd/Mid-County Pkwy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-110 | Evans Rd/Mid-County Pkwy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-111 | Evans Rd/Mid-County Pkwy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-112 | Placentia Ave/Perris Blvd | D | SIGNAL | 14.0 | B | SIGNAL | 15.1 | B |
| IN-113 | Evans Rd/Placentia Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-114 | Evans Rd/Orange Ave | C | AWS | 10.1 | B | AWS | 10.7 | B |
| IN-115 | Evans Rd/Nuevo Rd | C | SIGNAL | 22.6 | C | SIGNAL | 22.5 | C |
| IN-116 | Evans Rd/Ellis Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-117 | Ellis Ave/I-215 SB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-118 | Ellis Ave/SR-215 NB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-119 | Evans Rd/San Jacinto Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-120 | Park Center Blvd/Ramona Expy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-121 | Park Center Blvd/Ramona Expy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-122 | Bridge St/Ramona Expy | C | CSS | 20.6 | C | CSS | 25.5 | C |
| IN-123 | Gilman Springs Rd/Bridge Str | C | CSS | 20.8 | C | CSS | 23.7 | C |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | CSS | 30.7 | **D** | CSS | 41.0 | **E** |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | CSS | 48.2 | **E** | CSS | 63.6 | **F** |
| IN-126 | Ramona Expy/Sanderson Ave | D | SIGNAL | 20.8 | C | SIGNAL | 21.0 | C |
| IN-127 | Potrero Blvd/SR-60 WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-128 | Potrero Blvd/SR-60 EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-129 | W 6th St/California Ave | C | AWS | 18.0 | C | AWS | 20.9 | C |
| IN-130 | W 6th St/Beaumont Ave | C | SIGNAL | 12.8 | B | SIGNAL | 11.9 | B |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | SIGNAL | 6.3 | A | SIGNAL | 6.5 | A |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | AWS | 23.9 | C | AWS | 68.8 | **F** |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | AWS | 60.2 | **F** | AWS | 135.8 | **F** |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | AWS | 80.5 | **F** | AWS | 170.0 | **F** |
| IN-135 | W Crescent Ave/Alessandro Rd | C | CSS | 11.5 | B | CSS | 13.5 | B |
| IN-136 | W Sunset Dr/Alessandro Rd | C | AWS | 9.0 | A | AWS | 9.8 | A |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

## Table 29: Existing Plus Phase 1 Intersection Impacts and Mitigations

| ID | Study Intersection | LOS Standard | Determination of Impact | | | | | Existing Plus Phase 1 & Mitigations | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | PM Peak Hour | | Project Impact? | Traffic Control | AM Peak Hour | | PM Peak Hour | | |
| | | | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | | | Delay | LOS | Delay | LOS | |
| IN-10 | Redlands Blvd/Locust Ave | C | D | E | E | F | Yes | SIGNAL | 4.8 | A | 8.9 | A | Signalize. Add 1 EB LT and 1 WB LT. |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | E | F | F | F | Yes | SIGNAL | 14.6 | B | 13.3 | B | Signalize. Add 1 NB RT. |
| IN-20 | Oliver Str/Alessandro Blvd | C | D | E | B | C | Yes | AWS | 15.9 | C | 11.5 | B | Change to AWS. |
| IN-27 | Redlands Blvd/Cactus Ave | C | B | E | A | F | Yes | SIGNAL | 11.8 | B | 14.5 | B | Signalize. Add 1 WB LT, 1 EB LT lanes. |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | B | B | B | E | Yes | SIGNAL | 15.9 | B | 15.3 | B | Add 1 WB LT Lane. |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | D | D | E | F | Yes | SIGNAL | 18.7 | B | 25.6 | C | Add 1 EB RT lane. |
| IN-53 | Lasselle Str/Cactus Ave | C | D | D | D | D | Yes | SIGNAL | 36.3 | D | 33.5 | C | Add 1 WB LT, 1 NB LT, 1 SB LT, Add overlap phase for NB and EB RT. |
| IN-94 | Arlington Ave/Victoria Ave | D | D | E | C | C | Yes | SIGNAL | 54.7 | D | 32.5 | C | Add WB LT lane |
| IN-95 | Alessandro Blvd/Chicago Ave | D | D | D | E | E | Yes | SIGNAL | 38.6 | D | 53.9 | D | Add NB LT lane. |
| IN-123 | Gilman Springs Rd/Bridge Str | C | D | E | C | C | Yes | SIGNAL | 6.2 | A | 4.7 | A | Signalize. |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | D | F | D | E | Yes | SIGNAL | 6.6 | A | 7.3 | A | Signalize. |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | D | E | E | F | Yes | SIGNAL | 6.0 | A | 6.2 | A | Signalize. |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | F | F | C | F | Yes | SIGNAL | 28.5 | C | 14.5 | B | Signalize. |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | F | F | F | F | Yes | SIGNAL | 15.5 | B | 11.0 | B | Signalize. |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | F | F | F | F | Yes | SIGNAL | 30.8 | C | 20.9 | C | Signalize. |

Indicates that the LOS exceeds the target leve "LT" and "RT" denote left turn and right turn respectively

Notes: "CSS" means cross-street is stop-controlled "NB" and "SB" denote northbound and southbound respectively

"AWS" means all-way stop "EB" and "WB" denote eastbound and westbound respectively

## C. FREEWAY SEGMENT LOS, IMPACTS, AND MITIGATIONS

***Freeway Mainline Basic Sections***

Table 30 compares the LOS for freeway mainline sections for the Existing and Existing Plus Phase 1 conditions. Details of the LOS calculations for freeways under Existing Plus Phase 1 conditions can be found in Appendix J. As shown in Table 31, there are nine sections where the project would have a significant impact. Eight of these sections would be deficient under both Existing and Existing Plus Phase 1 conditions, namely:

Northbound or Eastbound

- SR-60 from Euclid Ave. to Grove Ave.
- SR-60 from Martin Luther King Blvd. to Central Ave.
- I-215 from SR-74 to Redlands Ave.

Southbound or Westbound

- SR-60 from I-215 to Day St.
- SR-91 from Pierce St. to Magnolia Ave.
- SR-91 from Magnolia Ave. to La Sierra Ave.
- I-215 from SR-74 to Redlands Ave.
- I-215 from Baseline Rd. to Highland Ave

An additional section was found to be deficient under Plus Phase 1 conditions: SR-91 from Central Ave. to 14th St. in the eastbound direction.

Adding a mixed-flow lane would improve these sections to better than LOS "E" in the Plus Phase 1 condition and thus would reduce the impact of the WLC project to a less-than-significant level. Mitigation measures that would be needed to reduce the impact of the project to a less-than-significant level are summarized in Table 31. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS, this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11

## Table 30: Existing Plus Phase 1 Freeway Mainline LOS

| ID | Freeway | Segment | Existing Conditions | | | | | | Existing Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-2 | SR-60 | Reservoir St to Ramona Ave | 6,024 | 24.5 | C | 7,822 | 33.0 | D | 6,200 | 25.7 | C | 7,770 | 32.9 | D |
| F-3 | SR-60 | Ramona Ave to Central Ave | 5,687 | 22.8 | C | 9,400 | 47.3 | F | 5,880 | 24.0 | C | 9,330 | 47.0 | F |
| F-4 | SR-60 | Central Ave to Mountain Ave | 6,339 | 26.2 | D | 9,338 | 46.6 | F | 6,540 | 27.6 | D | 9,280 | 46.4 | F |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | 6,205 | 25.4 | C | 6,664 | 26.1 | D | 6,410 | 26.9 | D | 6,590 | 26.0 | D |
| F-6 | SR-60 | Euclid Ave to Grove Ave | 7,650 | 34.7 | D | 9,091 | 43.8 | E | 7,860 | 36.7 | E | 9,010 | 43.4 | E |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | 6,923 | 29.6 | D | 9,400 | 47.3 | F | 7,130 | 31.2 | D | 9,320 | 46.9 | F |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | 6,823 | 28.7 | D | 9,400 | 47.3 | F | 7,030 | 30.3 | D | 9,310 | 46.7 | F |
| F-9 | SR-60 | Archibald Ave to Haven Ave | 6,268 | 25.6 | C | 6,471 | 25.1 | C | 6,480 | 27.1 | D | 6,370 | 24.9 | C |
| F-10 | SR-60 | Haven Ave to Milliken Ave | 6,096 | 19.1 | C | 6,864 | 20.6 | C | 6,310 | 20.0 | C | 6,750 | 20.5 | C |
| F-11 | SR-60 | Milliken Ave to I-15 | 4,234 | 16.5 | B | 4,529 | 16.9 | B | 4,430 | 17.6 | B | 4,430 | 16.7 | B |
| F-12 | SR-60 | I-15 to Etiwanda Ave/Van Buren Blvd | 2,593 | 10.2 | A | 2,910 | 10.8 | A | 2,840 | 11.4 | B | 2,770 | 10.5 | A |
| F-13 | SR-60 | Etiwanda Ave/Van Buren Blvd to Mission | 3,026 | 11.9 | B | 3,968 | 14.8 | B | 3,290 | 13.2 | B | 3,850 | 14.5 | B |
| F-14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 2,596 | 10.2 | A | 3,061 | 11.4 | B | 2,860 | 11.6 | B | 2,950 | 11.2 | B |
| F-15 | SR-60 | Pedley Rd to Pyrite St | 2,813 | 11.1 | B | 3,334 | 12.4 | B | 3,100 | 12.5 | B | 3,160 | 12.0 | B |
| F-16 | SR-60 | Pyrite St to Valley Way | 3,348 | 13.2 | B | 3,642 | 13.6 | B | 3,640 | 14.6 | B | 3,460 | 13.1 | B |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | 4,398 | 23.7 | C | 4,252 | 21.4 | C | 4,690 | 26.2 | D | 4,080 | 20.8 | C |
| F-18 | SR-60 | Rubidoux Blvd to Market St | 4,943 | 27.6 | D | 4,706 | 24.3 | C | 5,250 | 30.7 | D | 4,600 | 24.0 | C |
| F-19 | SR-60 | Market St to Main St | 4,498 | 24.4 | C | 7,050 | 47.8 | F | 4,800 | 27.0 | D | 6,940 | 47.1 | F |
| F-20 | SR-60 | Main to SR-91 | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | 5,865 | 24.6 | C | 8,976 | 45.7 | F | 6,280 | 29.7 | D | 8,860 | 48.9 | F |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 4,332 | 16.9 | B | 6,795 | 26.6 | D | 4,680 | 18.9 | C | 6,750 | 26.9 | D |
| F-27 | SR-60 | I-215 to Day St | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-29 | SR-60 | Pigeon Pass Rd to Heacock St | 2,702 | 21.6 | C | 3,713 | 30.2 | D | 3,050 | 26.8 | D | 3,770 | 32.6 | D |
| F-30 | SR-60 | Heacock St to Perris Blvd | 2,349 | 18.6 | C | 3,355 | 26.1 | D | 2,840 | 24.6 | C | 3,420 | 28.3 | D |
| F-31 | SR-60 | Perris Blvd to Nason St | 1,812 | 14.3 | B | 2,344 | 17.4 | B | 2,340 | 19.8 | C | 2,460 | 19.4 | C |
| F-32 | SR-60 | Nason St to Moreno Beach Dr | 1,619 | 12.8 | B | 2,038 | 15.1 | B | 2,070 | 17.7 | B | 2,160 | 17.0 | B |
| F-33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 1,326 | 10.5 | A | 1,397 | 10.4 | A | 1,930 | 16.7 | B | 1,660 | 13.5 | B |
| F-34 | SR-60 | Redlands Blvd to Theodore St | 1,614 | 12.7 | B | 1,920 | 14.2 | B | 2,310 | 19.7 | C | 2,260 | 18.0 | B |
| F-35 | SR-60 | Theodore St to Gilman Springs Rd | 1,521 | 12.0 | B | 1,915 | 14.2 | B | 1,480 | 11.8 | B | 1,900 | 14.3 | B |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 1,213 | 11.2 | B | 1,484 | 12.3 | B | 1,190 | 11.7 | B | 1,590 | 14.4 | B |
| F-37 | SR-60 | Jack Rabbit Trail to I-10 | 1,215 | 9.6 | A | 1,482 | 11.0 | A | 1,200 | 9.6 | A | 1,590 | 12.0 | B |
| F-39 | SR-91 | I-15 to McKinley St | 5,914 | 22.6 | C | 9,400 | 53.3 | F | 6,030 | 23.3 | C | 9,350 | 52.5 | F |
| F-40 | SR-91 | McKinley St to Pierce St | 5,382 | 29.1 | D | 5,427 | 31.4 | D | 5,510 | 30.4 | D | 5,370 | 31.1 | D |
| F-41 | SR-91 | Pierce St to Magnolia Ave | 4,888 | 25.5 | C | 4,922 | 27.2 | D | 5,020 | 26.8 | D | 4,860 | 26.9 | D |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-43 | SR-91 | La Sierra Ave to Tyler St | 4,585 | 23.5 | C | 4,939 | 27.3 | D | 4,700 | 24.6 | C | 4,890 | 27.2 | D |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | 5,704 | 21.7 | C | 5,851 | 23.5 | C | 5,810 | 22.3 | C | 5,810 | 23.4 | C |

## Table 30: Existing Plus Phase 1 Freeway Mainline LOS (continued)

| ID | Freeway | Segment | Existing Conditions | | | | | | Existing Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-45 | SR-91 | Van Buren Blvd to Adam St | 5,841 | 22.3 | C | 4,999 | 19.6 | C | 5,930 | 22.8 | C | 4,970 | 19.6 | C |
| F-46 | SR-91 | Adam St to Madison St | 6,531 | 26.1 | D | 4,742 | 18.7 | C | 6,620 | 26.7 | D | 4,720 | 18.7 | C |
| F-47 | SR-91 | Madison St to Arlington Ave | 5,879 | 22.8 | C | 4,530 | 17.9 | B | 5,960 | 23.4 | C | 4,510 | 17.9 | B |
| F-49 | SR-91 | Central Ave to 14th St | 6,021 | 34.8 | D | 5,391 | 30.8 | D | 6,070 | 35.6 | E | 5,400 | 31.2 | D |
| F-51 | SR-91 | University Ave to Spruce St | 7,244 | 22.1 | C | 6,394 | 20.0 | C | 7,280 | 22.3 | C | 6,410 | 20.2 | C |
| F-66 | I-215 | Scott Rd to Newport Rd | 2,739 | 22.0 | C | 3,285 | 25.8 | C | 2,700 | 21.8 | C | 3,280 | 25.7 | C |
| F-68 | I-215 | Newport Rd to McCall Blvd | 1,900 | 15.0 | B | 2,047 | 15.3 | B | 1,860 | 14.8 | B | 2,050 | 15.4 | B |
| F-69 | I-215 | McCall Blvd to Ethanac Rd | 2,457 | 19.5 | C | 3,293 | 25.8 | C | 2,400 | 19.1 | C | 3,290 | 25.8 | C |
| F-70 | I-215 | Ethanac Rd to SR-74 | 3,787 | 34.5 | D | 3,150 | 24.4 | C | 3,730 | 33.9 | D | 3,160 | 24.5 | C |
| F-71 | I-215 | SR-74 to Redlands Ave | 3,350 | 28.5 | D | 4,181 | 37.4 | E | 3,290 | 27.9 | D | 4,210 | 37.9 | E |
| F-74 | I-215 | Columbia Ave to Center St | 5,587 | 33.5 | D | 5,150 | 27.3 | D | 5,550 | 33.1 | D | 5,230 | 27.9 | D |
| F-75 | I-215 | Center St to La Cadena Dr | 5,474 | 32.4 | D | 5,034 | 26.5 | D | 5,440 | 32.1 | D | 5,100 | 27.0 | D |
| F-76 | I-215 | La Cadena Dr to Barton Rd | 5,341 | 31.2 | D | 5,164 | 27.5 | D | 5,300 | 30.8 | D | 5,230 | 27.9 | D |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | 5,738 | 35.1 | E | 5,533 | 30.3 | D | 5,680 | 34.5 | D | 5,620 | 31.1 | D |
| F-78 | I-215 | Mt. Vernon Ave to I-10 | 5,582 | 22.5 | C | 5,420 | 20.5 | C | 5,510 | 22.1 | C | 5,510 | 20.8 | C |
| F-80 | I-215 | Auto Plaza Dr to Mill St | 4,319 | 17.1 | B | 4,533 | 17.0 | B | 4,240 | 16.7 | B | 4,580 | 17.1 | B |
| F-83 | I-215 | Baseline Rd to Highland Ave | 3,023 | 24.8 | C | 3,355 | 26.5 | D | 2,970 | 24.2 | C | 3,400 | 27.0 | D |
| F-52 | I-10 | SR-60 to Beaumont Ave | 3,037 | 11.9 | B | 4,252 | 16.4 | B | 3,040 | 11.9 | B | 4,320 | 16.8 | B |
| F-53 | I-10 | Beaumont Ave to Pennsylvania Ave | 3,087 | 12.1 | B | 4,322 | 16.7 | B | 3,080 | 12.1 | B | 4,370 | 17.0 | B |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs Ave | 3,236 | 12.6 | B | 4,531 | 17.5 | B | 3,220 | 12.6 | B | 4,580 | 17.8 | B |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | 3,112 | 12.2 | B | 4,357 | 16.8 | B | 3,080 | 12.1 | B | 4,390 | 17.0 | B |
| F-56 | I-10 | Sunset Ave to 22nd St | 3,037 | 11.9 | B | 4,252 | 16.4 | B | 3,000 | 11.8 | B | 4,290 | 16.7 | B |
| F-57 | I-10 | 22nd St to 8th St | 2,987 | 11.7 | B | 4,182 | 16.2 | B | 2,950 | 11.6 | B | 4,220 | 16.4 | B |
| F-58 | I-10 | 8th St to Hargrave St | 2,987 | 11.7 | B | 4,182 | 16.2 | B | 2,940 | 11.5 | B | 4,210 | 16.3 | B |
| F-59 | I-10 | Hargrave St to Fields Rd | 2,689 | 10.5 | A | 3,764 | 14.5 | B | 2,640 | 10.4 | A | 3,800 | 14.8 | B |
| F-60 | I-10 | Fields Rd to Morongo Trail | 2,564 | 10.0 | A | 3,590 | 13.9 | B | 2,510 | 9.9 | A | 3,620 | 14.1 | B |
| F-61 | I-10 | Morongo Trail to Main St | 2,265 | 8.8 | A | 3,172 | 12.3 | B | 2,220 | 8.7 | A | 3,210 | 12.5 | B |
| F-62 | I-10 | Main St to Haugen-Lehmann Way | 2,265 | 8.8 | A | 3,172 | 12.3 | B | 2,220 | 8.7 | A | 3,210 | 12.5 | B |
| F-64 | I-10 | SR-111 to Tipton Rd | 1,967 | 7.7 | A | 2,753 | 10.6 | A | 1,920 | 7.5 | A | 2,780 | 10.8 | A |
| F-65 | I-10 | Tipton Rd to SR-62 | 1,967 | 7.7 | A | 2,753 | 10.6 | A | 1,940 | 7.6 | A | 2,780 | 10.8 | A |

Indicates that the LOS exceeds the target level

## Table 30: Existing Plus Phase 1 Freeway Mainline LOS (continued)

| ID | Freeway | Segment | Existing Conditions | | | | | | Existing Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-2 | SR-60 | Reservoir St to Ramona Ave | 8,762 | 41.4 | E | 6,381 | 25.6 | C | 8,670 | 40.9 | E | 6,490 | 26.4 | D |
| F-3 | SR-60 | Ramona Ave to Central Ave | 8,283 | 37.1 | E | 5,925 | 23.4 | C | 8,170 | 36.5 | E | 6,040 | 24.1 | C |
| F-4 | SR-60 | Central Ave to Mountain Ave | 6,336 | 24.7 | C | 6,076 | 24.1 | C | 6,220 | 24.3 | C | 6,200 | 24.9 | C |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | 6,259 | 24.4 | C | 6,495 | 26.3 | D | 6,150 | 24.0 | C | 6,620 | 27.1 | D |
| F-6 | SR-60 | Euclid Ave to Grove Ave | 6,461 | 25.4 | C | 6,302 | 25.2 | C | 6,350 | 25.0 | C | 6,430 | 26.1 | D |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | 6,274 | 24.3 | C | 6,699 | 27.4 | D | 6,150 | 23.8 | C | 6,830 | 28.3 | D |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | 7,658 | 32.1 | D | 6,245 | 25.0 | C | 7,510 | 31.4 | D | 6,380 | 26.0 | C |
| F-9 | SR-60 | Archibald Ave to Haven Ave | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-10 | SR-60 | Haven Ave to Milliken Ave | 5,804 | 17.4 | B | 5,698 | 17.5 | B | 5,640 | 17.0 | B | 5,850 | 18.2 | C |
| F-11 | SR-60 | Milliken Ave to I-15 | 5,456 | 20.5 | C | 5,111 | 19.5 | C | 5,240 | 19.7 | C | 5,270 | 20.4 | C |
| F-12 | SR-60 | I-15 to Etiwanda Ave/Van Buren Blvd | 4,490 | 13.4 | B | 4,275 | 13.0 | B | 4,300 | 12.9 | B | 4,460 | 13.8 | B |
| F-13 | SR-60 | Etiwanda Ave/Van Buren Blvd to Mission | 4,220 | 15.7 | B | 3,881 | 14.8 | B | 4,010 | 15.1 | B | 4,110 | 15.9 | B |
| F-14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 4,172 | 15.5 | B | 3,963 | 15.1 | B | 3,970 | 14.9 | B | 4,190 | 16.2 | B |
| F-15 | SR-60 | Pedley Rd to Pyrite St | 3,216 | 12.0 | B | 3,068 | 11.7 | B | 3,010 | 11.4 | B | 3,280 | 12.7 | B |
| F-16 | SR-60 | Pyrite St to Valley Way | 2,653 | 9.9 | A | 2,567 | 9.8 | A | 2,460 | 9.3 | A | 2,790 | 10.9 | A |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | 4,532 | 23.1 | C | 4,725 | 24.9 | C | 4,320 | 22.0 | C | 4,950 | 27.0 | D |
| F-18 | SR-60 | Rubidoux Blvd to Market St | 3,568 | 17.7 | B | 3,868 | 19.7 | C | 3,390 | 17.1 | B | 4,120 | 21.5 | C |
| F-19 | SR-60 | Market St to Main St | 5,631 | 30.9 | D | 5,109 | 27.6 | D | 5,440 | 29.8 | D | 5,350 | 30.2 | D |
| F-20 | SR-60 | Main to SR-91 | 5,248 | 27.9 | D | 4,720 | 24.9 | C | 5,100 | 27.2 | D | 4,920 | 26.8 | D |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | 7,050 | 30.6 | D | 5,800 | 24.1 | C | 6,910 | 30.9 | D | 6,150 | 28.0 | D |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 7,461 | 31.1 | D | 6,376 | 25.6 | C | 7,280 | 30.4 | D | 6,740 | 28.4 | D |
| F-27 | SR-60 | I-215 to Day St | 7,050 | 47.9 | F | 3,093 | 15.9 | B | 7,020 | 49.1 | F | 3,340 | 18.0 | B |
| F-29 | SR-60 | Pigeon Pass Rd to Heacock St | 3,013 | 23.1 | C | 3,254 | 26.5 | D | 2,990 | 23.7 | C | 3,550 | 31.8 | D |
| F-30 | SR-60 | Heacock St to Perris Blvd | 2,638 | 19.9 | C | 2,671 | 20.8 | C | 2,680 | 21.0 | C | 3,040 | 25.8 | C |
| F-31 | SR-60 | Perris Blvd to Nason St | 1,910 | 14.3 | B | 2,045 | 15.8 | B | 2,030 | 15.9 | B | 2,490 | 20.5 | C |
| F-32 | SR-60 | Nason St to Moreno Beach Dr | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 988 | 7.4 | A | 1,336 | 10.3 | A | 1,270 | 10.4 | A | 1,900 | 16.0 | B |
| F-34 | SR-60 | Redlands Blvd to Theodore St | 1,193 | 8.9 | A | 1,498 | 11.6 | B | 1,560 | 12.5 | B | 2,110 | 17.3 | B |
| F-35 | SR-60 | Theodore St to Gilman Springs Rd | 1,183 | 8.9 | A | 1,393 | 10.8 | A | 1,170 | 9.0 | A | 1,350 | 10.6 | A |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 837 | 7.0 | A | 1,002 | 9.1 | A | 970 | 9.4 | A | 990 | 10.0 | A |
| F-37 | SR-60 | Jack Rabbit Trail to I-10 | 837 | 6.3 | A | 1,002 | 7.7 | A | 970 | 7.4 | A | 990 | 7.8 | A |
| F-39 | SR-91 | I-15 to McKinley St | 6,402 | 25.1 | C | 5,971 | 24.1 | C | 6,310 | 24.8 | C | 6,080 | 24.8 | C |
| F-40 | SR-91 | McKinley St to Pierce St | 4,788 | 25.0 | C | 5,183 | 29.3 | D | 4,690 | 24.5 | C | 5,290 | 30.4 | D |
| F-41 | SR-91 | Pierce St to Magnolia Ave | 4,629 | 23.9 | C | 7,050 | 53.3 | F | 4,540 | 23.5 | C | 7,150 | 56.2 | F |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | 4,894 | 25.7 | C | 7,050 | 53.3 | F | 4,800 | 25.2 | C | 7,140 | 55.9 | F |
| F-43 | SR-91 | La Sierra Ave to Tyler St | 4,467 | 22.9 | C | 5,167 | 29.2 | D | 4,370 | 22.5 | C | 5,260 | 30.2 | D |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | 5,769 | 22.1 | C | 6,661 | 27.8 | D | 5,690 | 21.9 | C | 6,740 | 28.5 | D |

## Table 30: Existing Plus Phase 1 Freeway Mainline LOS (continued)

| ID | Freeway | Segment | Existing Conditions | | | | | | Existing Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-45 | SR-91 | Van Buren Blvd to Adam St | 5,342 | 20.2 | C | 6,401 | 26.3 | D | 5,280 | 20.1 | C | 6,490 | 27.0 | D |
| F-46 | SR-91 | Adam St to Madison St | 4,939 | 18.6 | C | 5,453 | 21.5 | C | 4,890 | 18.5 | C | 5,530 | 22.0 | C |
| F-47 | SR-91 | Madison St to Arlington Ave | 4,218 | 21.4 | C | 4,711 | 25.5 | C | 4,170 | 21.3 | C | 4,780 | 26.3 | D |
| F-49 | SR-91 | Central Ave to 14th St | 4,737 | 24.7 | C | 4,940 | 27.2 | D | 4,720 | 24.7 | C | 4,990 | 27.7 | D |
| F-51 | SR-91 | University Ave to Spruce St | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-66 | I-215 | Scott Rd to Newport Rd | 2,294 | 17.2 | B | 2,318 | 17.2 | B | 2,280 | 17.1 | B | 2,280 | 17.0 | B |
| F-68 | I-215 | Newport Rd to McCall Blvd | 2,528 | 19.0 | C | 3,111 | 23.7 | C | 2,530 | 19.0 | C | 3,070 | 23.4 | C |
| F-69 | I-215 | McCall Blvd to Ethanac Rd | 3,069 | 23.6 | C | 2,539 | 18.9 | C | 3,070 | 23.6 | C | 2,510 | 18.7 | C |
| F-70 | I-215 | Ethanac Rd to SR-74 | 2,882 | 21.9 | C | 3,854 | 32.0 | D | 2,890 | 22.0 | C | 3,850 | 31.9 | D |
| F-71 | I-215 | SR-74 to Redlands Ave | 4,539 | 44.2 | E | 3,710 | 30.1 | D | 4,570 | 44.9 | E | 3,680 | 29.7 | D |
| F-74 | I-215 | Columbia Ave to Center St | 5,191 | 27.6 | D | 4,917 | 25.4 | C | 5,260 | 28.4 | D | 4,890 | 25.2 | C |
| F-75 | I-215 | Center St to La Cadena Dr | 5,541 | 30.4 | D | 5,235 | 27.6 | D | 5,630 | 31.4 | D | 5,210 | 27.4 | D |
| F-76 | I-215 | La Cadena Dr to Barton Rd | 5,414 | 29.4 | D | 5,196 | 27.3 | D | 5,480 | 29.9 | D | 5,170 | 27.1 | D |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | 5,435 | 29.5 | D | 5,256 | 27.7 | D | 5,500 | 30.1 | D | 5,230 | 27.5 | D |
| F-78 | I-215 | Mt. Vernon Ave to I-10 | 5,776 | 22.0 | C | 5,606 | 21.0 | C | 5,850 | 22.3 | C | 5,580 | 20.9 | C |
| F-80 | I-215 | Auto Plaza Dr to Mill St | 4,022 | 15.1 | B | 4,090 | 15.2 | B | 4,080 | 15.4 | B | 4,040 | 15.0 | B |
| F-83 | I-215 | Baseline Rd to Highland Ave | 4,537 | 44.1 | E | 4,700 | 46.7 | F | 4,590 | 45.3 | F | 4,650 | 45.6 | F |
| F-52 | I-10 | SR-60 to Beaumont Ave | 4,288 | 18.1 | C | 3,675 | 13.8 | B | 4,320 | 18.3 | C | 3,710 | 14.0 | B |
| F-53 | I-10 | Beaumont Ave to Pennsylvania Ave | 4,358 | 18.4 | C | 3,736 | 14.0 | B | 4,400 | 18.7 | C | 3,740 | 14.1 | B |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs Ave | 4,569 | 19.4 | C | 3,916 | 14.7 | B | 4,610 | 19.7 | C | 3,910 | 14.7 | B |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | 4,393 | 18.6 | C | 3,766 | 14.1 | B | 4,430 | 18.8 | C | 3,750 | 14.1 | B |
| F-56 | I-10 | Sunset Ave to 22nd St | 4,288 | 18.1 | C | 3,675 | 13.8 | B | 4,330 | 18.4 | C | 3,660 | 13.8 | B |
| F-57 | I-10 | 22nd St to 8th St | 4,218 | 17.8 | B | 3,615 | 13.5 | B | 4,260 | 18.1 | C | 3,600 | 13.5 | B |
| F-58 | I-10 | 8th St to Hargrave St | 4,218 | 17.8 | B | 3,615 | 13.5 | B | 4,250 | 18.1 | C | 3,590 | 13.5 | B |
| F-59 | I-10 | Hargrave St to Fields Rd | 3,796 | 16.0 | B | 3,254 | 12.2 | B | 3,830 | 16.3 | B | 3,220 | 12.1 | B |
| F-60 | I-10 | Fields Rd to Morongo Trail | 3,620 | 15.3 | B | 3,103 | 11.6 | B | 3,660 | 15.5 | B | 3,070 | 11.6 | B |
| F-61 | I-10 | Morongo Trail to Main St | 3,198 | 13.5 | B | 2,741 | 10.3 | A | 3,240 | 13.8 | B | 2,710 | 10.2 | A |
| F-62 | I-10 | Main St to Haugen-Lehmann Way | 3,198 | 13.5 | B | 2,741 | 10.3 | A | 3,240 | 13.8 | B | 2,710 | 10.2 | A |
| F-64 | I-10 | SR-111 to Tipton Rd | 2,777 | 11.7 | B | 2,380 | 8.9 | A | 2,810 | 11.9 | B | 2,360 | 8.9 | A |
| F-65 | I-10 | Tipton Rd to SR-62 | 2,777 | 11.7 | B | 2,380 | 8.9 | A | 2,810 | 11.9 | B | 2,360 | 8.9 | A |

Indicates that the LOS exceeds the target level

## Table 31: Existing Plus Phase 1 Freeway Mainline Impacts and Mitigations

| ID | Freeway | Segment | Northbound / Eastbound | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | Existing Plus Phase 1 & Mitigations | | | | | | |
| | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | |
| | | | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| F-6 | SR-60 | Euclid Ave to Grove Ave | D | E | E | E | Yes | 7,860 | 26.0 | D | 9,010 | 29.3 | D | Add 1 mixed flow lane |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | C | D | F | F | Yes | 6,280 | 22.2 | C | 8,860 | 31.7 | D | Add 1 mixed flow lane |
| F-49 | SR-91 | Central Ave to 14th St | D | E | D | D | Yes | 6,070 | 23.5 | C | 5,400 | 21.4 | C | Add 1 mixed flow lane |
| F-71 | I-215 | SR-74 to Redlands Ave | D | D | E | E | Yes | 3,290 | 17.4 | B | 4,210 | 21.3 | C | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

| ID | Freeway | Segment | Southbound / Westbound | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | Existing Plus Phase 1 & Mitigations | | | | | | |
| | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | |
| | | | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| F-27 | SR-60 | I-215 to Day St | F | F | B | B | Yes | 7,020 | 28.8 | D | 3,340 | 13.5 | B | Add 1 mixed flow lane |
| F-41 | SR-91 | Pierce St to Magnolia Ave | C | C | F | F | Yes | 4,540 | 17.2 | B | 7,150 | 31.1 | D | Add 1 mixed flow lane |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | C | C | F | F | Yes | 4,800 | 18.2 | C | 7,140 | 31.0 | D | Add 1 mixed flow lane |
| F-71 | I-215 | SR-74 to Redlands Ave | E | E | D | D | Yes | 4,570 | 23.4 | C | 3,680 | 18.2 | C | Add 1 mixed flow lane |
| F-83 | I-215 | Baseline Rd to Highland Ave | E | F | F | F | Yes | 4,590 | 23.6 | C | 4,650 | 23.6 | C | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

***Freeway Weaving LOS***

Table 32 compares the LOS for study weaving sections under Existing and Existing Plus Phase 1 conditions. As shown in the table, four sections would be significantly impacted under Existing Plus Phase 1 conditions, and all of which would operate below target LOS "D" under both Existing and Plus Phase 1. These segments are:

Northbound and Eastbound

- SR-60 from Blaine St./3rd St. to University Ave.
- SR-91 from Arlington Ave. to Central Ave.

Southbound and Westbound

- SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.
- SR-91 from 14th St. to University Ave.

No additional sections would be deficient under Plus Phase 1 conditions. Table 33 identifies mitigation measures that would reduce the impact of the WLC project to a less-than-significant level.

The mitigation measures shown in Table 33 are those that would be needed to reduce the impact of the project to a less-than-significant level. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS, this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## Table 32: Existing Plus Phase 1 Freeway Weaving Section LOS

| ID | Freeway | Weaving Segment | Existing Conditions | | | | | | Existing Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | 5,985 | 24.0 | C | 8,616 | 35.7 | **E** | 6,160 | 25.1 | C | 8,550 | 35.5 | **E** |
| W-9 | SR-60 | Haven Ave to Archibald Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-20 | SR-60 | Main St to SR-91 | 5,418 | 25.8 | C | 7,050 | 33.6 | D | 5,690 | 27.7 | C | 6,970 | 33.6 | D |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | 3,885 | 14.8 | B | 9,400 | 39.0 | **E** | 4,280 | 16.9 | B | 9,330 | 39.0 | **E** |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | 3,919 | 18.7 | B | 7,050 | 37.4 | **E** | 4,260 | 22.5 | C | 6,980 | 38.4 | **E** |
| W-23 | SR-60 | University Ave to Martin Luther King | 4,528 | 20.4 | C | 5,932 | 25.7 | C | 4,890 | 22.9 | C | 5,830 | 25.7 | C |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | 3,856 | 14.5 | B | 7,840 | 32.4 | D | 4,330 | 18.0 | B | 7,830 | 33.8 | D |
| W-27 | SR-60 | I-215 to Day St | 2,988 | 10.6 | B | 4,704 | 18.8 | B | 3,480 | 14.9 | B | 4,770 | 19.8 | B |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 2,995 | 12.8 | B | 4,749 | 20.7 | C | 3,400 | 15.1 | B | 4,740 | 21.1 | C |
| W-32 | SR-60 | Moreno Beach Dr to Nason St | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-42 | SR-91 | Magnolia Ave to La Sierra Ave | 5,445 | 24.6 | C | 5,684 | 27.4 | C | 5,560 | 25.3 | C | 5,630 | 27.2 | C |
| W-48 | SR-91 | Arlington Ave to Central Ave | 7,050 | 35.3 | **E** | 4,073 | 19.6 | B | 7,150 | 36.2 | **E** | 4,080 | 19.8 | B |
| W-50 | SR-91 | 14th St to University Ave | 4,643 | 21.8 | C | 4,441 | 21.9 | C | 4,670 | 22.1 | C | 4,450 | 22.1 | C |
| W-51 | SR-91 | SR-60 to Mission Inn Ave/University Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-73 | I-215 | SR-60 to Columbia Ave | 6,260 | 34.4 | D | 5,548 | 28.0 | C | 6,240 | 34.3 | D | 5,610 | 28.5 | D |
| W-79 | I-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 4,400 | 16.3 | B | 4,147 | 14.5 | B | 4,320 | 16.1 | B | 4,200 | 15.0 | B |
| W-81 | I-215 | Mill St to 2nd St | 5,044 | 23.0 | C | 5,095 | 22.5 | C | 4,970 | 22.6 | C | 5,140 | 22.7 | C |
| W-82 | I-215 | 5th St to Baseline Rd | 3,754 | 16.5 | B | 3,590 | 14.9 | B | 3,700 | 16.2 | B | 3,640 | 15.2 | B |
| W-63 | I-10 | Haugen-Lehmann Way to SR-111 | 2,265 | 7.5 | A | 3,172 | 10.5 | B | 2,220 | 7.4 | A | 3,210 | 10.7 | B |

Indicates that the LOS exceeds the target level

## Table 32: Existing Plus Phase 1 Freeway Weaving Section LOS (continued)

| ID | Freeway | Weaving Segment | Existing Conditions | | | | | | Existing Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | 6,125 | 21.4 | C | 5,892 | 20.8 | C | 6,020 | 21.1 | C | 6,000 | 21.4 | C |
| W-9 | SR-60 | Haven Ave to Archibald Ave | 6,288 | 23.5 | C | 6,071 | 23.5 | C | 6,130 | 23.0 | C | 6,210 | 24.4 | C |
| W-20 | SR-60 | Main St to SR-91 | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | 7,729 | 28.6 | D | 7,211 | 27.2 | C | 7,520 | 28.1 | D | 7,530 | 29.2 | D |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | 5,714 | 20.1 | C | 6,204 | 23.0 | C | 5,520 | 20.2 | C | 6,550 | 25.9 | C |
| W-23 | SR-60 | University Ave to Martin Luther King | 5,601 | 28.0 | C | 5,876 | 28.0 | C | 5,430 | 27.4 | C | 6,200 | 31.0 | D |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | 7,050 | 37.0 | E | 6,026 | 29.3 | D | 6,940 | 37.7 | E | 6,300 | 32.6 | D |
| W-27 | SR-60 | I-215 to Day St | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 4,700 | 31.0 | D | 4,197 | 27.2 | C | 4,630 | 30.2 | D | 4,520 | 30.6 | D |
| W-32 | SR-60 | Moreno Beach Dr to Nason St | 1,609 | 9.2 | A | 1,753 | 10.2 | B | 1,780 | 10.7 | B | 2,170 | 13.5 | B |
| W-42 | SR-91 | Magnolia Ave to La Sierra Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-48 | SR-91 | Arlington Ave to Central Ave | 4,642 | 21.1 | C | 5,118 | 23.8 | C | 4,570 | 20.8 | C | 5,190 | 24.4 | C |
| W-50 | SR-91 | 14th St to University Ave | 5,179 | 24.1 | C | 7,050 | 35.5 | E | 5,210 | 24.4 | C | 7,070 | 35.9 | E |
| W-51 | SR-91 | SR-60 to Mission Inn Ave/University Ave | 5,075 | 14.4 | B | 8,804 | 26.9 | C | 5,100 | 14.6 | B | 8,820 | 27.1 | C |
| W-73 | I-215 | SR-60 to Columbia Ave | 5,877 | 26.4 | C | 5,495 | 24.5 | C | 5,950 | 26.9 | C | 5,460 | 24.4 | C |
| W-79 | I-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 4,890 | 16.8 | B | 4,591 | 16.3 | B | 4,940 | 17.0 | B | 4,530 | 16.2 | B |
| W-81 | I-215 | Mill St to 2nd St | 4,442 | 19.6 | B | 4,380 | 19.4 | B | 4,500 | 19.9 | B | 4,330 | 19.1 | B |
| W-82 | I-215 | 5th St to Baseline Rd | 3,607 | 15.6 | B | 3,481 | 15.1 | B | 3,660 | 15.9 | B | 3,440 | 14.9 | B |
| W-63 | I-10 | Haugen-Lehmann Way to SR-111 | 3,198 | 11.8 | B | 2,741 | 10.3 | B | 3,240 | 12.0 | B | 2,710 | 10.1 | B |

Indicates that the LOS exceeds the target level

**Table 33: Existing Plus Phase 1 Freeway Weaving Impacts and Mitigations**

| Northbound / Eastbound | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | Existing Plus Phase 1 & Mitigations | | | | | | |
| | | | | | | | | AM Peak Hour | | | PM Peak Hour | | | |
| ID | Freeway | Weaving Segment | AM Peak Hour | | PM Peak Hour | | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| | | | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | | | | | | | | |
| W-22 | SR-60 | W Blaine St/3rd St to University Ave | B | C | E | E | Yes | 4,260 | 21.7 | C | 6,980 | 36.9 | E | Add a second off-ramp lane |
| W-48 | SR-91 | Arlington Ave to Central Ave | E | E | B | B | Yes | 7,150 | 33.4 | D | 4,080 | 18.2 | B | Add a second off-ramp lane |

Indicates that the LOS exceeds the target level

| Southbound / Westbound | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | Existing Plus Phase 1 & Mitigations | | | | | | |
| | | | | | | | | AM Peak Hour | | | PM Peak Hour | | | |
| ID | Freeway | Weaving Segment | AM Peak Hour | | PM Peak Hour | | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| | | | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | | | | | | | | |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | E | E | D | D | Yes | 6,940 | 29.3 | D | 6,300 | 25.4 | C | Add 1 mixed flow lane |
| W-50 | SR-91 | 14th St to University Ave | C | C | E | E | Yes | 5,210 | 22.5 | C | 7,070 | 33.5 | D | Add a second off-ramp lane |

Indicates that the LOS exceeds the target level

### *Freeway Ramp LOS*

Table 34 compares the freeway ramp level of service on SR-60 under Existing and Existing Plus Phase 1 conditions. Under Existing and Existing Plus Phase 1 conditions only one ramp operates below the target LOS of "D": SR-60 westbound on-ramp from Central Ave.

No ramps that currently operate at an acceptable LOS would exceed the LOS threshold as a result of Phase 1 of the project.

Table 35 shows the mitigation measures needed to reduce the impacts of the WLC to a less-than-significant level. The mitigation measures shown in Table 35 are those that would be needed to reduce the impact of the project to a less-than-significant level. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS, this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## Table 34: Existing Plus Phase 1 Freeway Ramp LOS

| ID | Freeway / Direction | Ramp Segment | Ramp No. of Lanes | Existing Conditions | | | | | | | | Existing Plus Phase 1 Conditions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | | PM Peak Hour | | | | AM Peak Hour | | | | PM Peak Hour | | | |
| | | | | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS |
| R-1 | SR-60 EB | On-Ramp from Martin Luther King Blvd | 1 | 4,110 | 242 | 16.9 | B | 5,678 | 906 | 26.5 | C | 4,460 | 290 | 19.1 | B | 5,560 | 1,290 | 29.6 | D |
| R-2 | SR-60 EB | On-Ramp from Central Ave | 1 | 5,796 | 349 | 18.5 | B | 8,868 | 904 | 31.8 | F | 6,190 | 440 | 21.1 | C | 8,740 | 930 | 32.0 | F |
| R-3 | SR-60 EB | Off-Ramp to Redlands Blvd | 1 | 1,326 | 119 | 3.3 | A | 1,397 | 30 | 3.2 | A | 1,930 | 350 | 10.8 | B | 1,660 | 440 | 6.9 | A |
| R-4 | SR-60 EB | Loop On-Ramp from Redlands Blvd | 1 | 1,207 | 26 | 12.9 | B | 1,367 | 25 | 13.6 | B | 1,580 | 80 | 17.9 | B | 1,220 | 90 | 13.9 | B |
| R-5 | SR-60 EB | Direct On-Ramp from Redlands Blvd | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-6 | SR-60 EB | Off-Ramp to Theodore St | 1 | 1,614 | 207 | 17.3 | B | 1,920 | 434 | 19.1 | B | 2,310 | 940 | 16.1 | B | 2,260 | 580 | 14.8 | B |
| R-7 | SR-60 EB | Loop On-Ramp from Theodore St | 1 | 1,407 | 70 | 16.5 | B | 1,486 | 71 | 16.5 | B | 1,370 | 10 | 16.7 | B | 1,680 | 20 | 18.6 | B |
| R-8 | SR-60 EB | Direct On-Ramp from Theodore St | 1 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | 1,360 | 90 | 17.3 | B | 1,660 | 200 | 20.1 | C |
| R-9 | SR-60 EB | Off-Ramp to Gilman Springs Rd | 1 | 1,521 | 330 | 16.4 | B | 1,915 | 385 | 19.0 | B | 1,480 | 380 | 16.1 | B | 1,900 | 410 | 19.2 | B |
| R-10 | SR-60 EB | On-Ramp from Gilman Springs Rd | 1 | 1,191 | 7 | 14.2 | B | 1,530 | 8 | 16.3 | B | 1,100 | 20 | 13.6 | B | 1,490 | 37 | 16.4 | B |
| R-11 | SR-60 WB | Off-Ramp to Gilman Springs Rd | 1 | 837 | 11 | 9.6 | A | 1,002 | 9 | 11.3 | B | 970 | 59 | 11.0 | B | 990 | 21 | 11.4 | B |
| R-12 | SR-60 WB | On-Ramp from Gilman Springs Rd | 1 | 826 | 357 | 13.5 | B | 993 | 306 | 14.6 | B | 911 | 384 | 14.7 | B | 969 | 397 | 15.6 | B |
| R-13 | SR-60 WB | Off-Ramp to Theodore St | 1 | 1,183 | 24 | 12.7 | B | 1,393 | 26 | 14.9 | B | 1,170 | 190 | 7.4 | A | 1,350 | 70 | 8.7 | A |
| R-14 | SR-60 WB | On-Ramp from Theodore St | 1 | 1,159 | 34 | 12.1 | B | 1,367 | 131 | 14.8 | B | 980 | 560 | 15.9 | B | 1,280 | 800 | 20.7 | C |
| R-15 | SR-60 WB | Off-Ramp to Redlands Blvd | 1 | 1,193 | 49 | 12.8 | B | 1,498 | 38 | 15.9 | B | 1,560 | 90 | 17.1 | B | 2,110 | 50 | 22.8 | C |
| R-16 | SR-60 WB | Loop On-Ramp from Redlands Blvd | 1 | 1,144 | 329 | 14.3 | B | 1,460 | 361 | 17.4 | B | 1,470 | 340 | 18.0 | B | 2,060 | 550 | 25.3 | C |
| R-17 | SR-60 WB | Direct On-Ramp from Redlands Blvd | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-18 | SR-60 WB | Off-Ramp to Central Ave | 2 | 7,050 | 384 | 32.6 | D | 6,026 | 439 | 28.5 | D | 6,940 | 390 | 32.6 | D | 6,300 | 440 | 30.4 | D |
| R-19 | SR-60 WB | Off-Ramp to Martin Luther King Blvd | 1 | 7,050 | 474 | 21.0 | C | 5,800 | 337 | 15.9 | B | 6,910 | 490 | 20.9 | C | 6,150 | 350 | 17.9 | B |

Indicates that the LOS exceeds the target level

## Table 35: Existing Plus Phase 1 Freeway Ramp Impacts and Mitigations

| ID | Freeway / Direction | Ramp Segment | Ramp No. of Lanes | Determination of Impact | | | | Project Impact? | Existing Plus Phase 1 & Mitigations | | | | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | | PM Peak Hour | | | | |
| | | | | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | |
| R-2 | SR-60 EB | On-Ramp from Central Ave | 1 | B | C | F | F | Yes | 6,190 | 440 | 15.3 | B | 8,740 | 930 | 24.3 | C | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

# 6. EXISTING PLUS BUILD-OUT CONDITIONS

The analysis of Existing Plus Build-out conditions shows the effects that project-related traffic would have on the local and regional road system if the WLC's land uses and internal road network were built-out in full in 2012 and no changes occurred to the off-site land uses or roadway system.

## A. ROAD SEGMENT LOS, IMPACTS, AND MITIGATIONS

Table 36 compares the LOS for study roadway segments under Existing Conditions and Existing Plus Build-out Conditions. As shown, under Existing Plus Build-out Conditions three segments exceed the target LOS set by General Plan policy, namely:

- Gilman Springs Rd. between SR-60 and Alessandro Blvd. exceeds the target LOS under both Existing Conditions and under Existing Plus Build-out Conditions. Widening the road from two lanes to four lanes would allow it to achieve the target LOS under the Existing Plus Build-out Conditions.

- Gilman Springs Rd. from Alessandro Blvd. to Bridge St. exceeds the threshold of significance under both Existing Conditions and under Existing Plus Build-out Conditions. Widening the road from two lanes to four lanes would allow it to achieve the target LOS under Existing Plus Build-out Conditions.

- Cactus Ave. east of Redlands Blvd. would exceed the threshold of significance under Existing Plus Build-out Conditions. The road currently has two eastbound lanes and one westbound lane. Adding a second westbound lane would enable it to achieve the target LOS under Existing Plus Build-out Conditions.

In each case adding lanes would achieve the LOS target set in the General Plan. The feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## B. INTERSECTION LOS, IMPACTS, AND MITIGATIONS

Figure 49 shows the turning movement volumes under Existing Plus Build-out conditions (see Figure 16 for the key map). Table 37 presents the LOS for the study intersections under the Existing Plus Build-out conditions in the AM and PM peak hours. Detailed worksheets are presented in Appendix D. Table 38 identifies where impacts occur and mitigation measures that would reduce the impacts to a less-than-significant level.

## Table 36: Existing Plus Build-out Road Segment Impacts and Mitigations

| | Roadway | From | To | LOS Standard* | Existing Conditions | | | Existing Plus Build-out Conditions | | | Project Significant Impact? | Mitigation Measures Required to Reduce Project Impacts to Less-Than-Significant | LOS After Mitigation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Roadway Section** | Daily Volume | LOS | Roadway Section* | Daily Volume | LOS | | | |
| S-1 | Theodore Street (A) | SR-60 WB Ramps | Ironwood Avenue | D | 2U | 771 | A | 2U | 4,017 | A | | | |
| S-2 | Theodore Street (A) | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 2,046 | A | 6D | 35,138 | B | | | |
| S-3 | Fir (Eucalyptus) Ave. | Redlands Blvd | Theodore Street (A) | D | 2U*** | 1,339 | A | 4D | 3,136 | A | | | |
| S-4 | Eucalyptus Ave (B) | Theodore Street (A) | Gilman Springs Rd | N/A | Future Road | | | 4D | 2,413 | A | | | |
| S-5 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Street E | D | 2U | 641 | A | 6D | 36,806 | B | | | |
| S-6 | Street E | Theodore Street (A) | Cactus Ave Extension | D | Future Road | | | 4U | 13,319 | A | | | |
| S-7 | Street F | Theodore Street (A) | Alessandro Blvd (Street C) | D | Future Road | | | 2U | 4,587 | A | | | |
| S-8 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Alessandro Blvd (Street C) | D | 2U | 641 | A | 4D | 16,641 | A | | | |
| S-9 | Alessandro Blvd (Street E) | Merwin Street | Theodore Street (A) | D | 2U | 2,537 | A | 4U | 10,660 | A | | | |
| S-10 | Cactus Ave Extension | Alessandro Blvd (Street E) | Cactus Ave. | D | Future Road | | | 4U | 14,426 | A | | | |
| S-11 | Alessandro Blvd (Street C) | Theodore Street (A) | Street F | D | 2U | 1,896 | A | 4U | 15,216 | B | | | |
| S-13 | Alessandro Blvd (Street C) | Street F | Gilman Springs Rd | D | 2U | 1,896 | A | 4U | 10,395 | A | | | |
| S-14 | Alessandro Blvd | Moreno Beach Drive | Redlands Blvd | D | 2U | 3,877 | A | 2U | 4,242 | A | | | |
| S-16 | Gilman Springs Rd | Alessandro Blvd (Street C) | Bridge Street | D | 2U | 14,407 | F | 2U | 15,180 | F | Yes | Widen to 4 lanes | C |
| S-17 | Gilman Springs Rd | SR-60 | Alessandro Blvd (Street C) | D | 2U | 11,973 | E | 2U | 14,125 | F | Yes | Widen to 4 lanes | C |
| S-18 | Redlands Blvd | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 7,338 | A | 2U | 10,407 | D | | | |
| S-19 | Redlands Blvd | Fir (Eucalyptus) Ave. | Alessandro Blvd | C | 2U | 6,786 | A | 2U | 4,037 | A | | | |
| S-20 | Alessandro Blvd | Redlands Blvd | Merwin Street | C | 2U | 2,537 | A | 2U | 565 | A | | | |
| S-21 | Redlands Blvd | Alessandro Blvd | Cactus Ave. | C | 2U | 6,786 | A | 2U | 3,210 | A | | | |
| S-22 | Cactus Ave. | Redlands Blvd | Cactus Ave Extension | C | 2U*** | 472 | A | 2U | 14,381 | E | Yes | Widen to 4 lanes | A |

* LOS Standard is "C" in residential areas and "D" for roads in employment-generating areas or near freeways.

** Section is the number of lanes, with "U" for "undivided" and "D" for "Divided" roadways.

*** Road currently has 2 lanes in one direction and 1 lane in the other. The capacity shown is based on the narrower direction.

Indicates LOS exceeds the target level

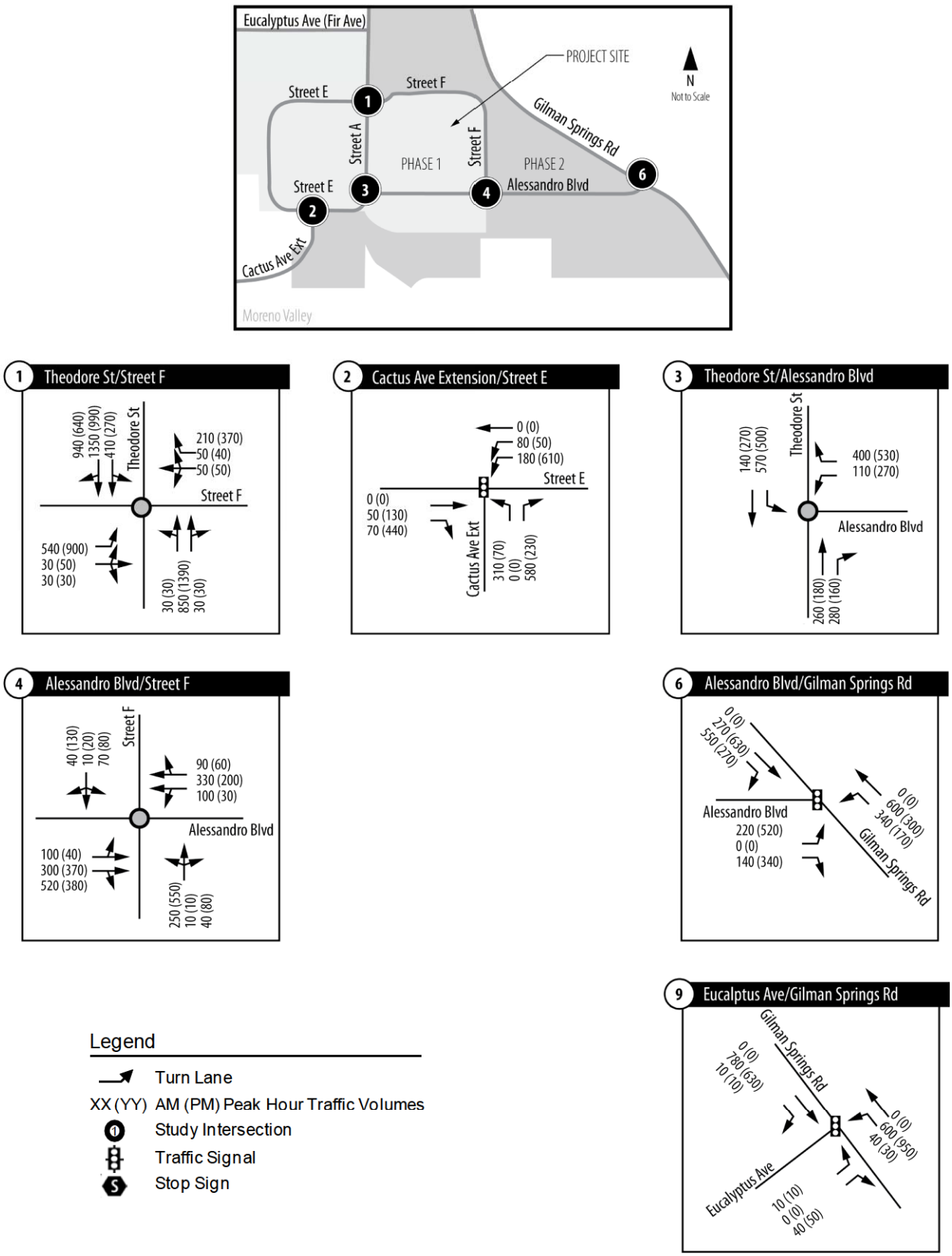



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions**

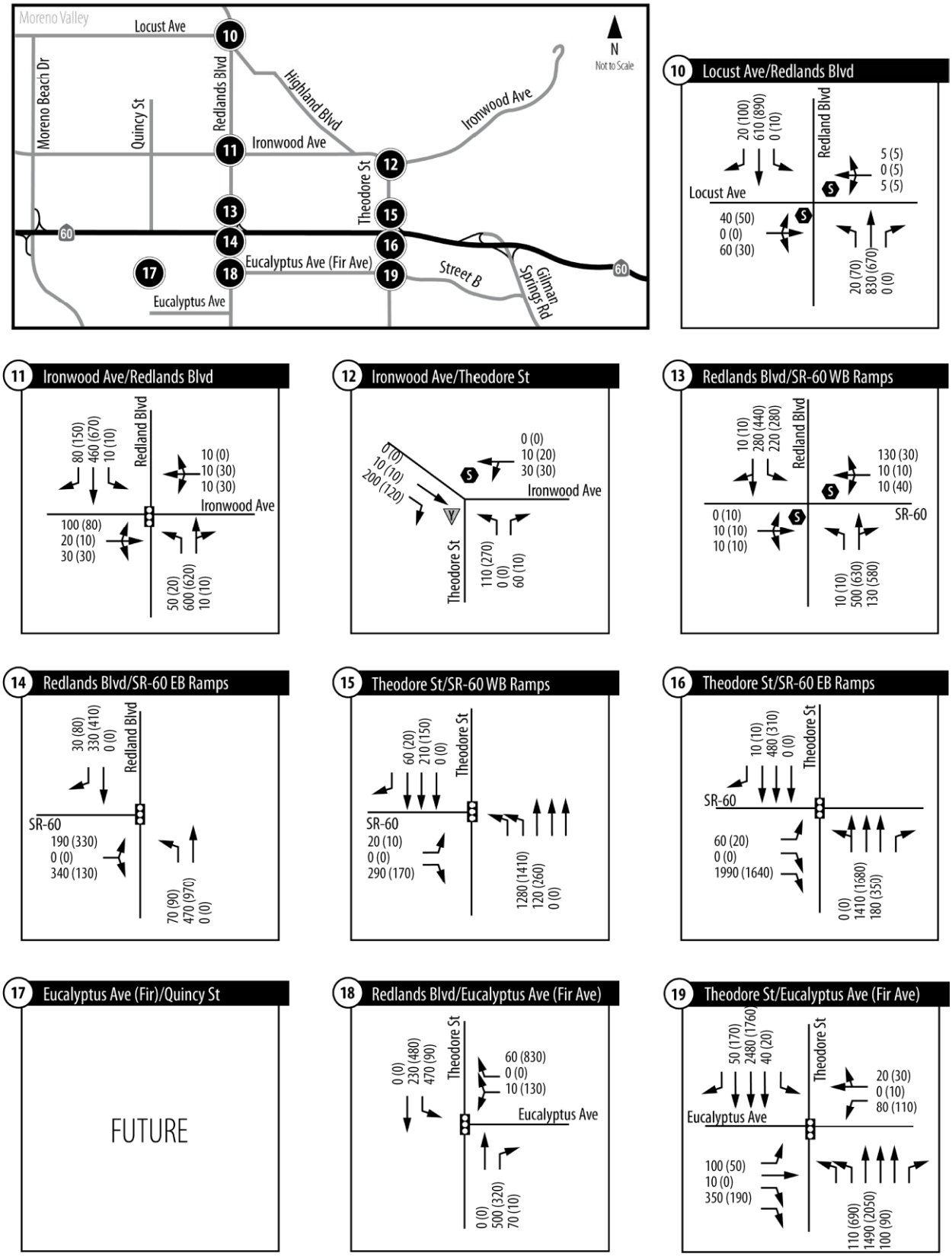



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (B)**

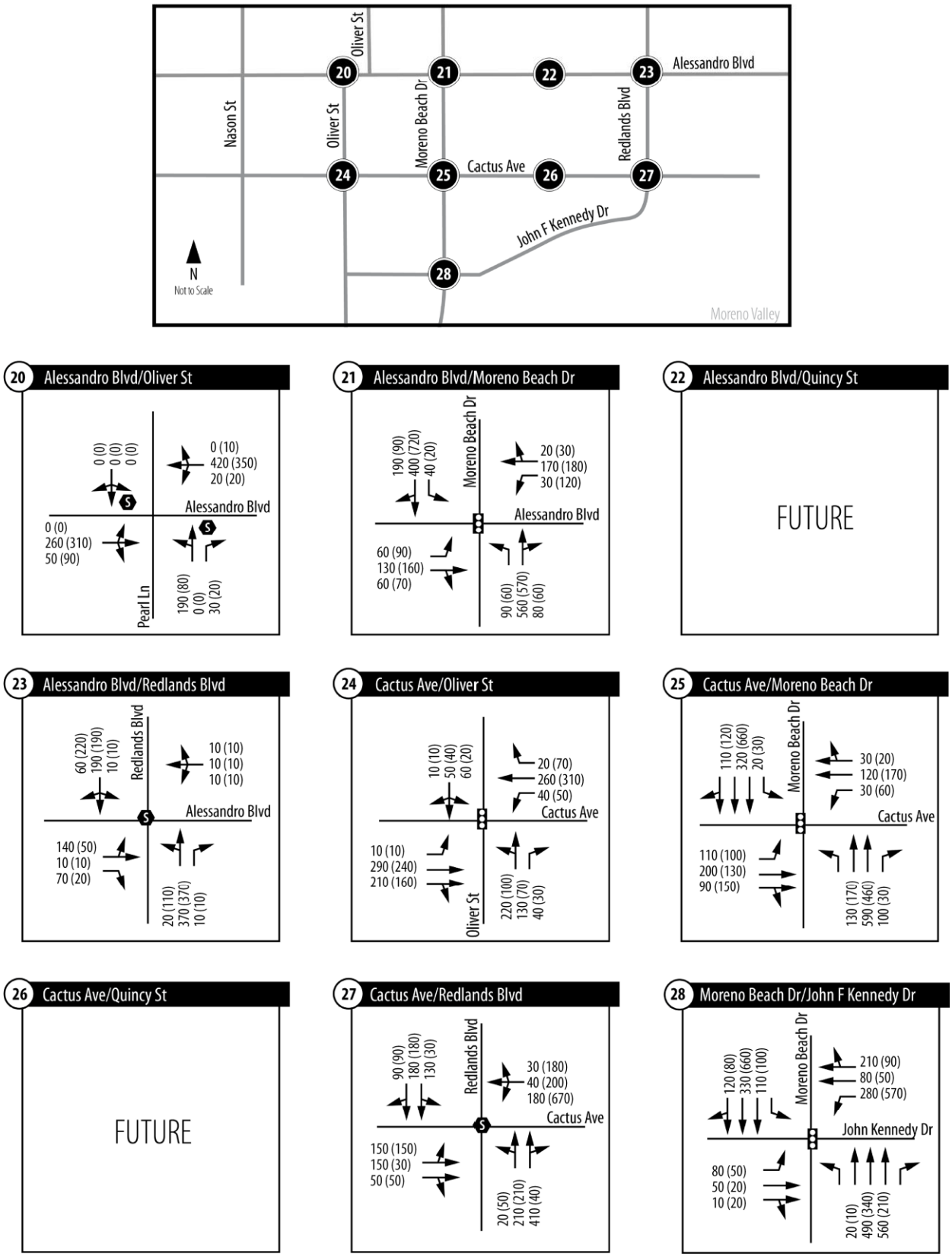



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (C)**

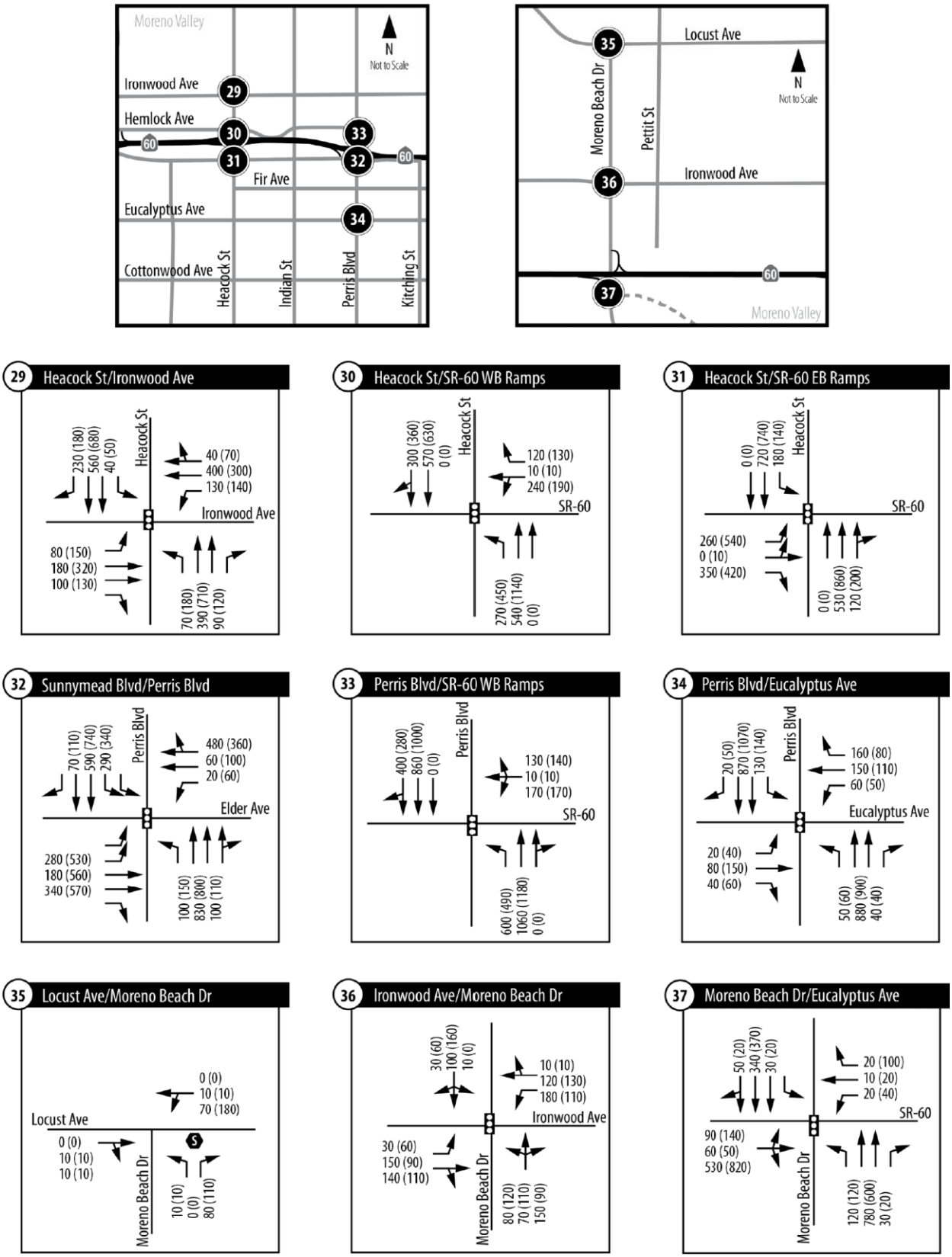



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (D)**

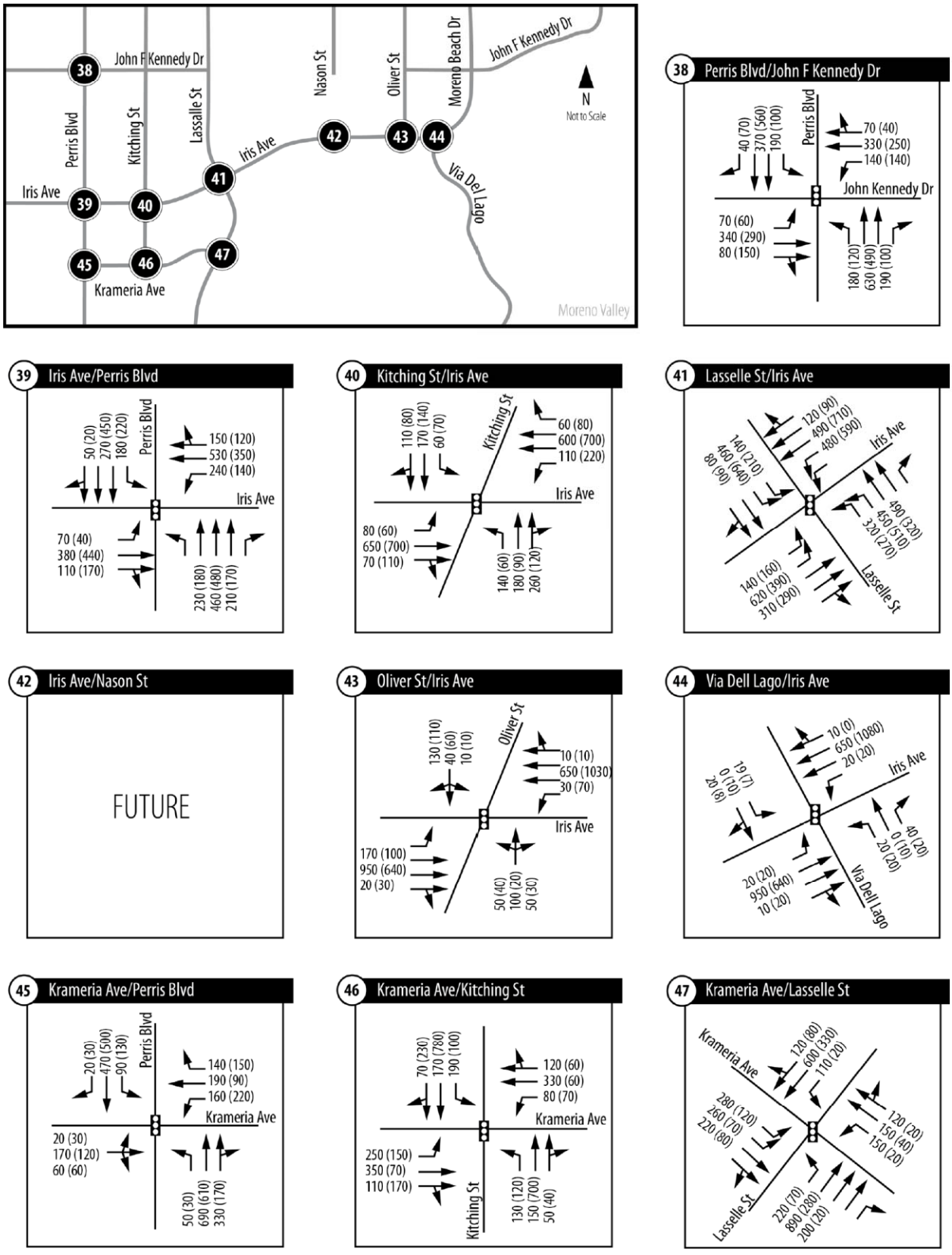



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (E)**

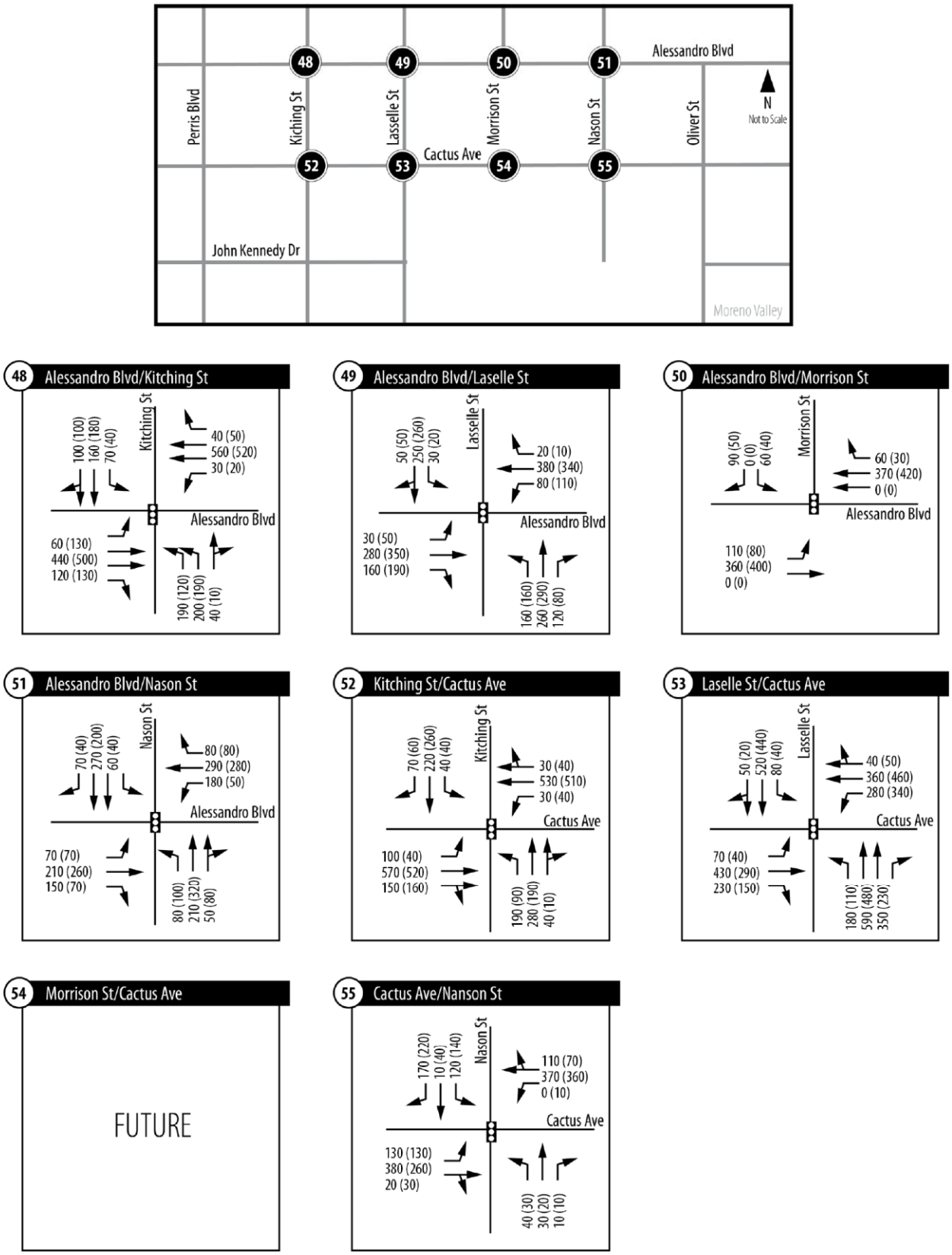



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (F)**

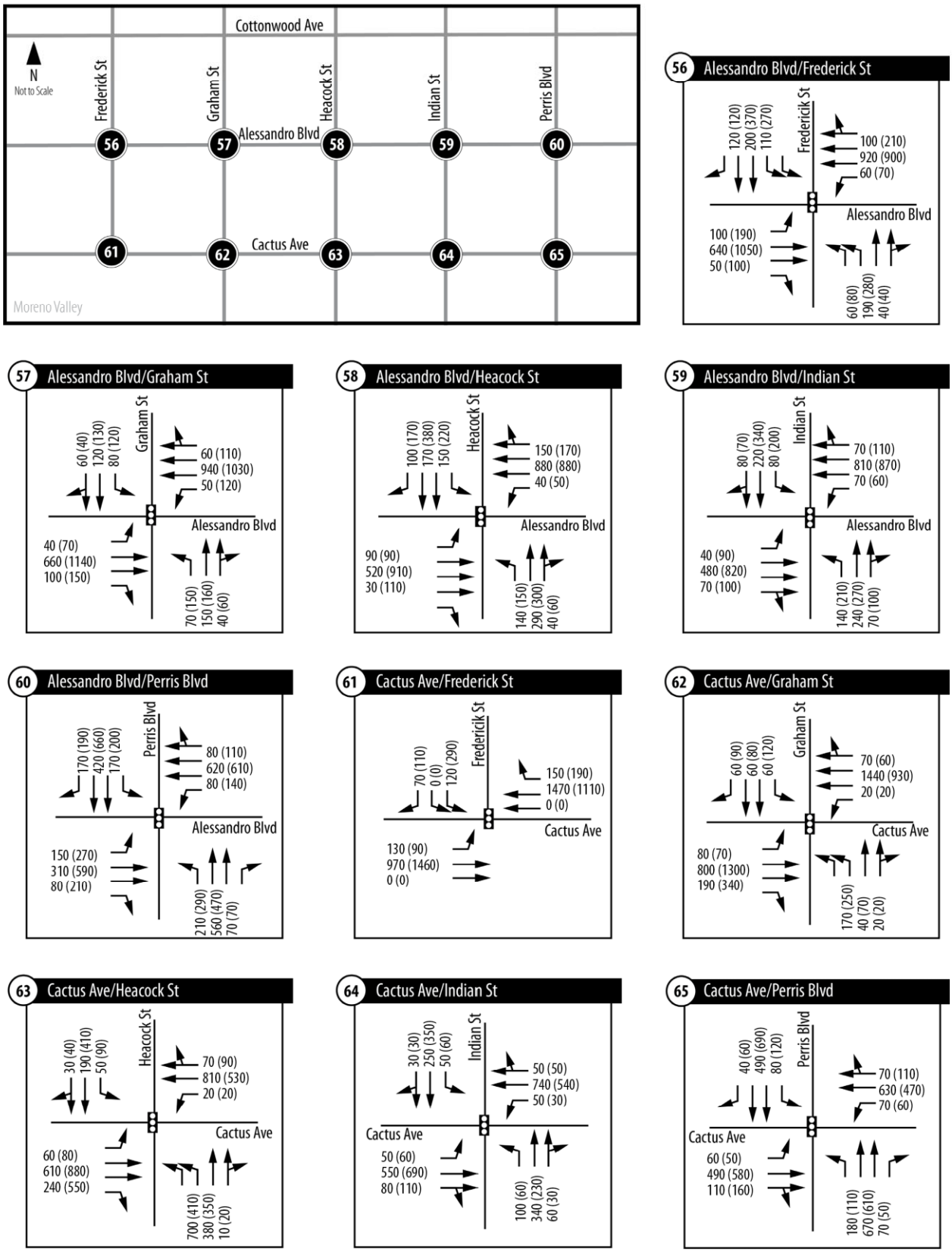



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (G)**

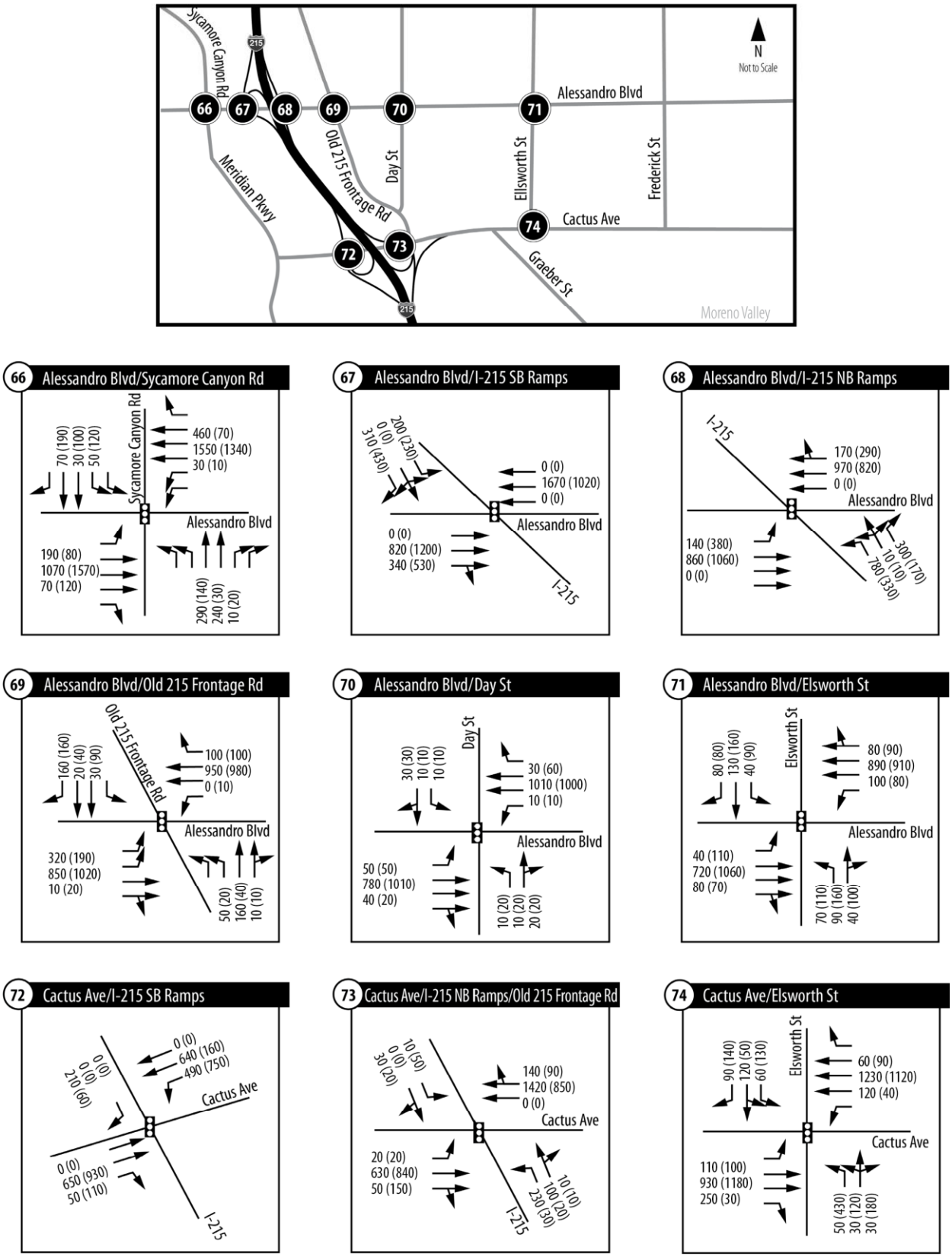



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (H)**

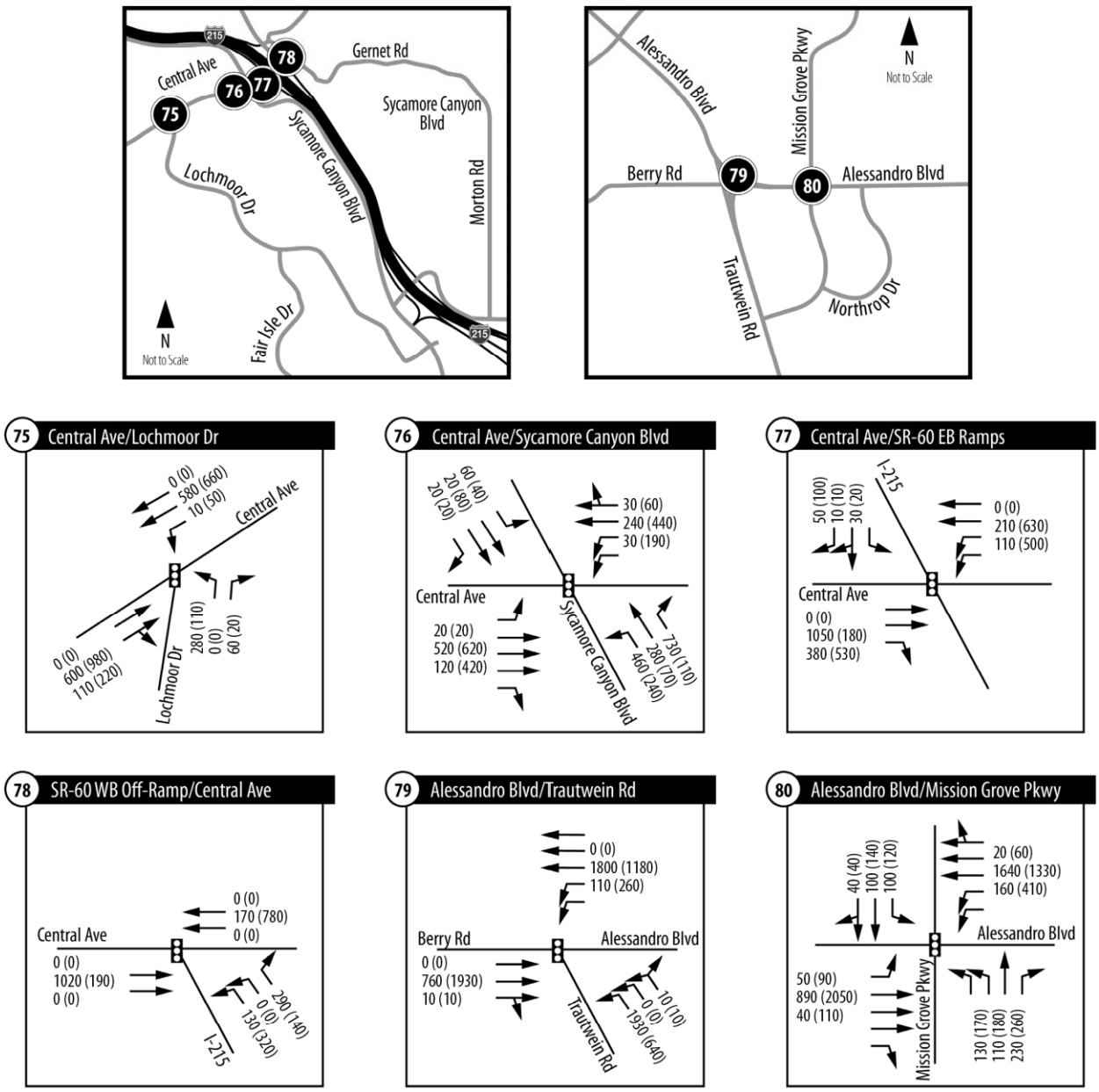



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (I)**

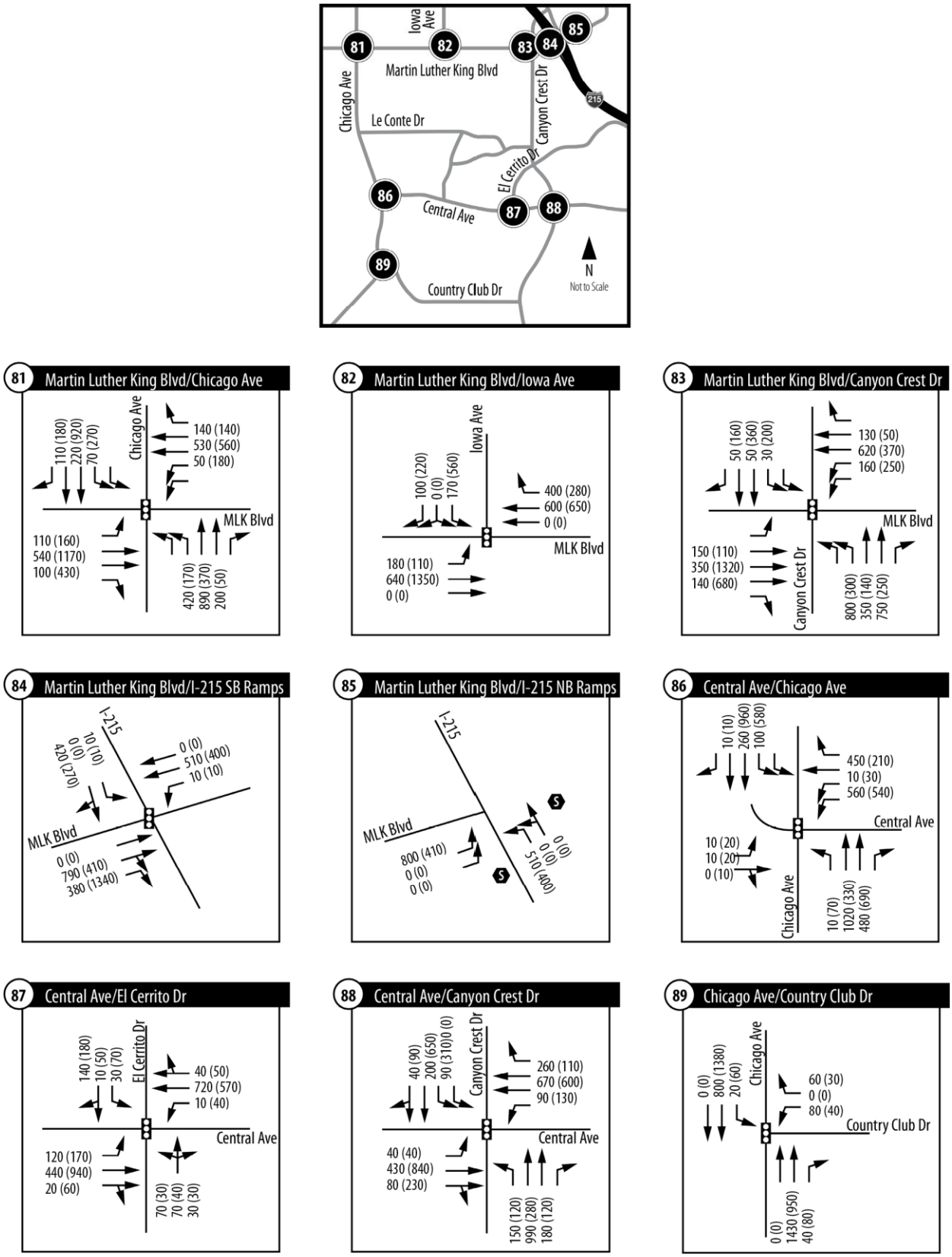



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (J)**

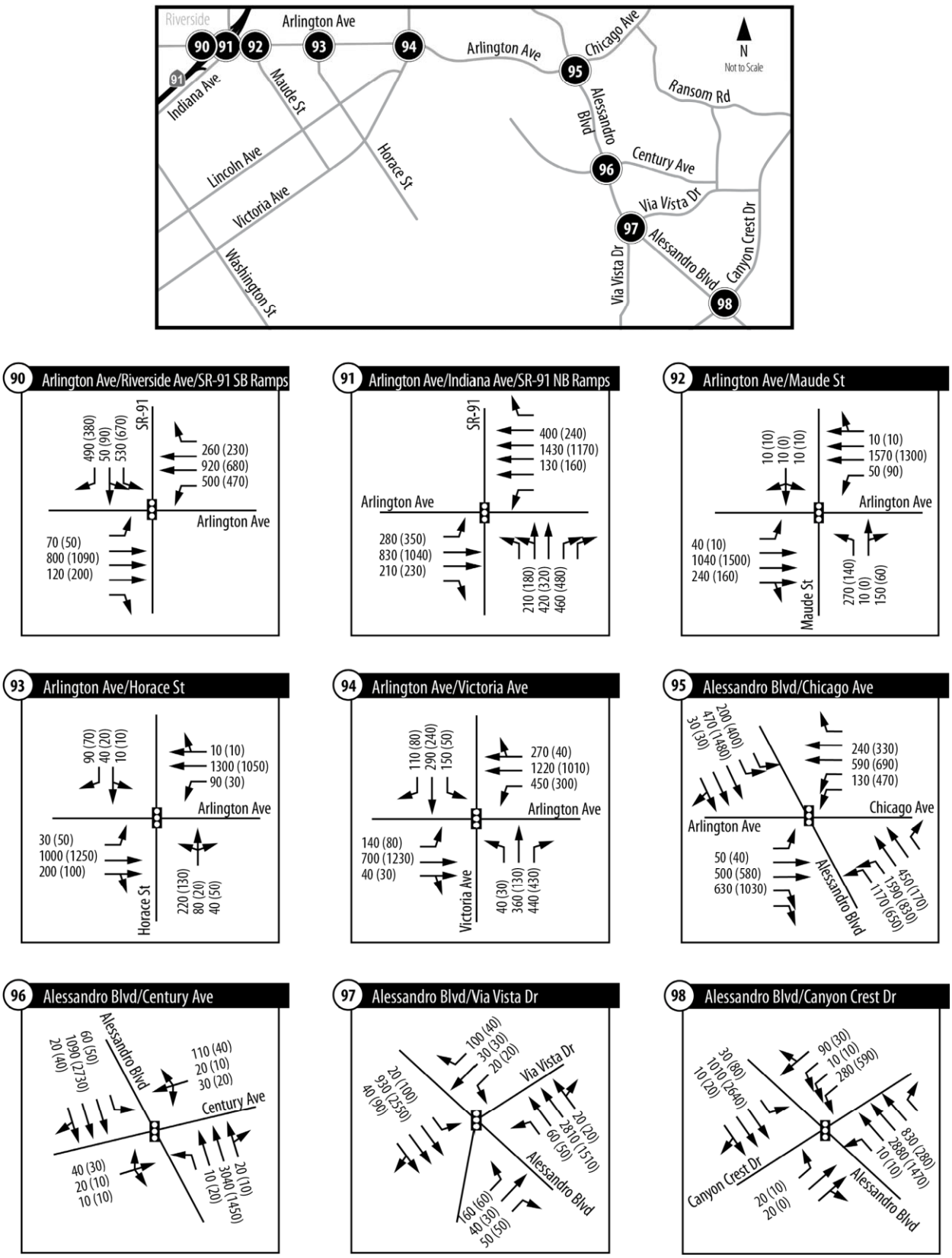



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (K)**

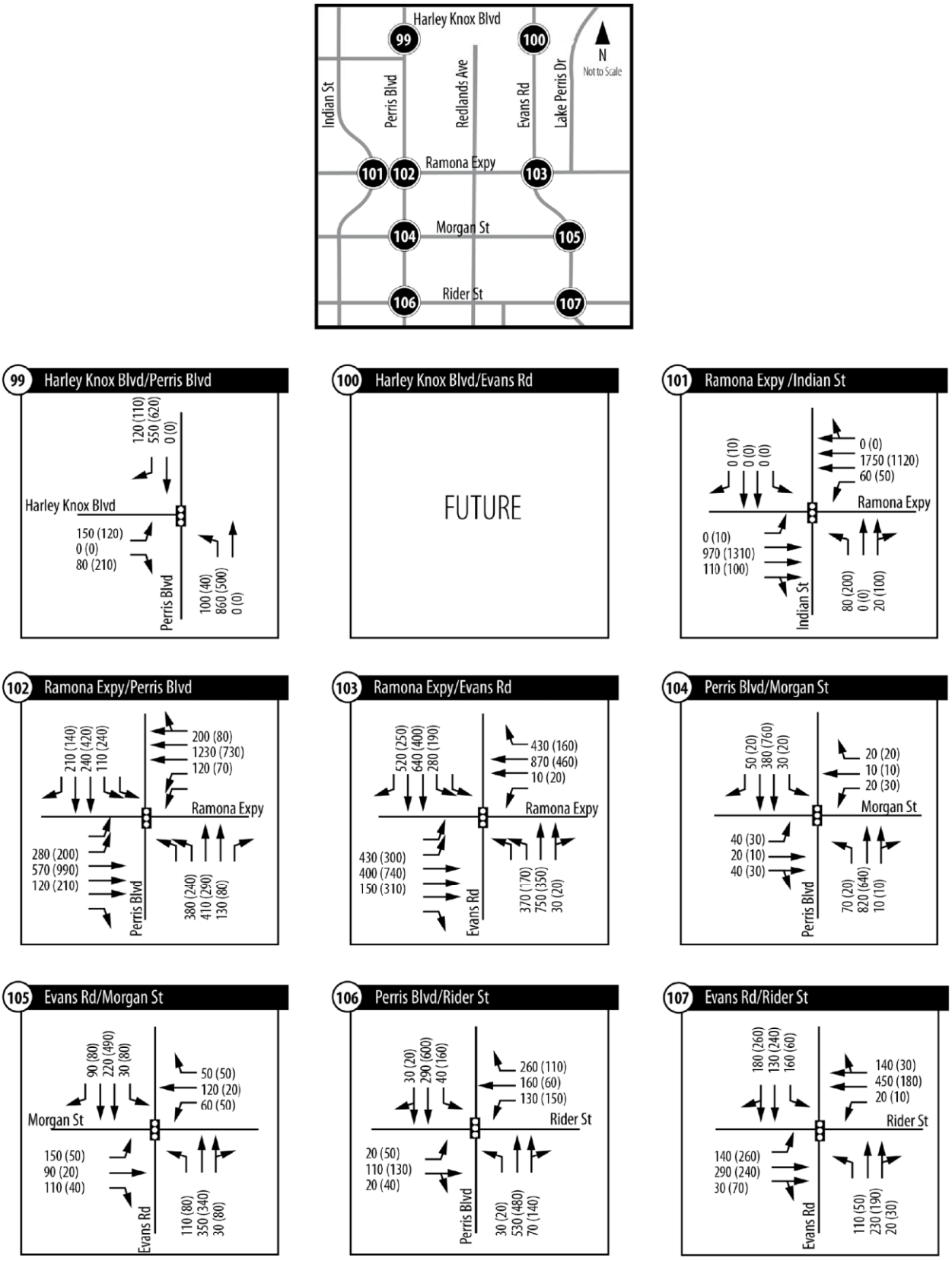



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (L)**

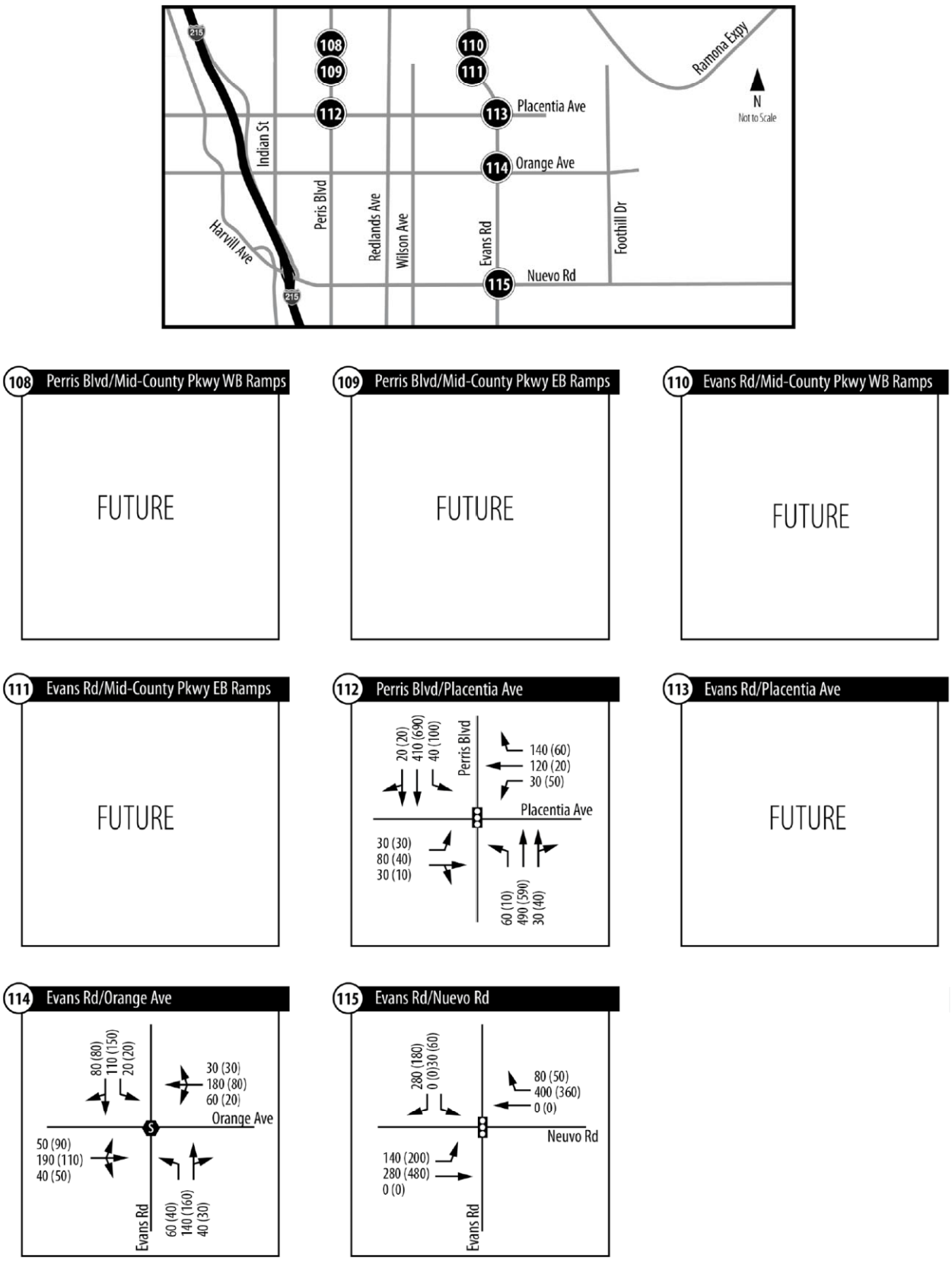



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (M)**

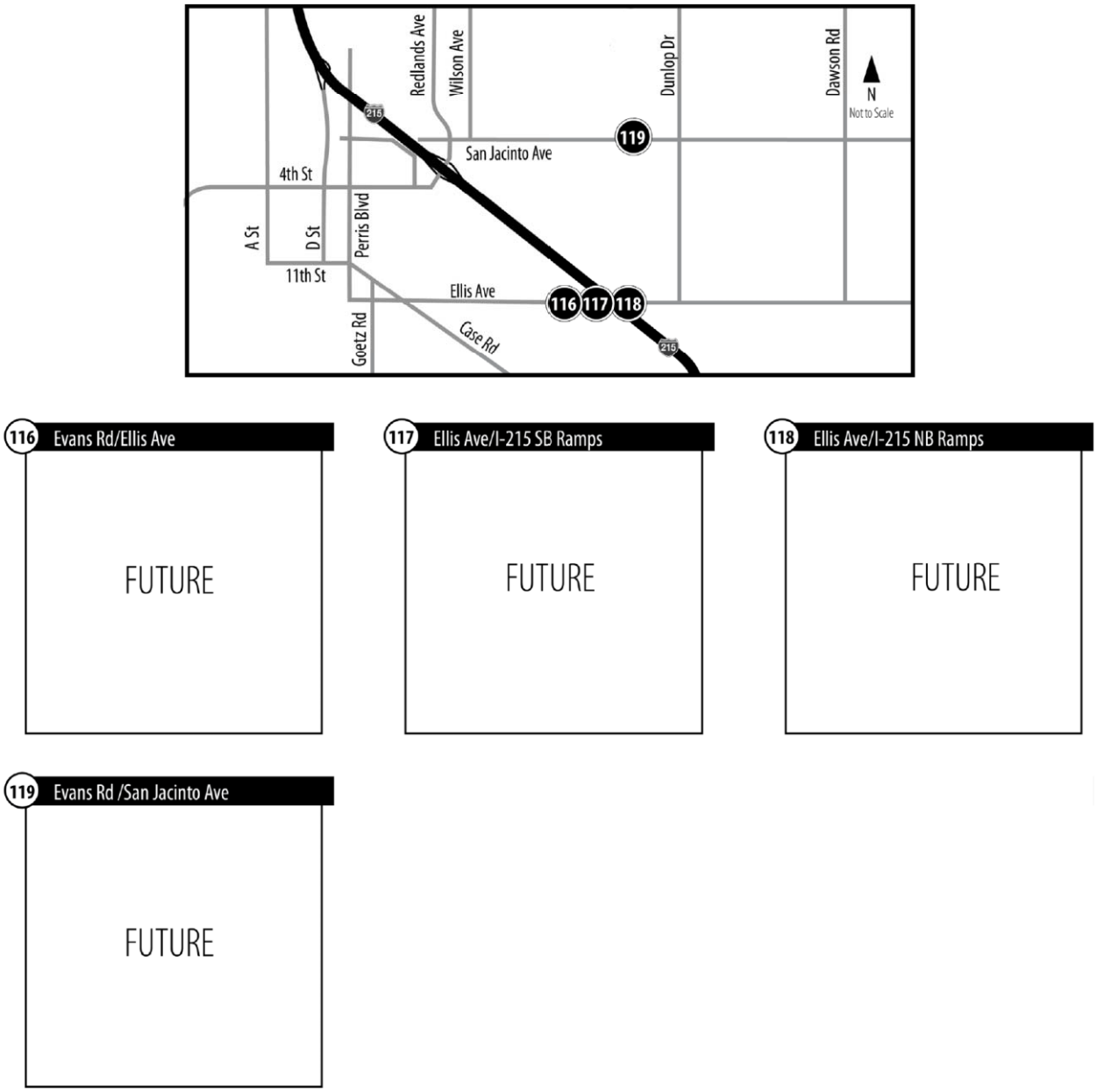



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (N)**

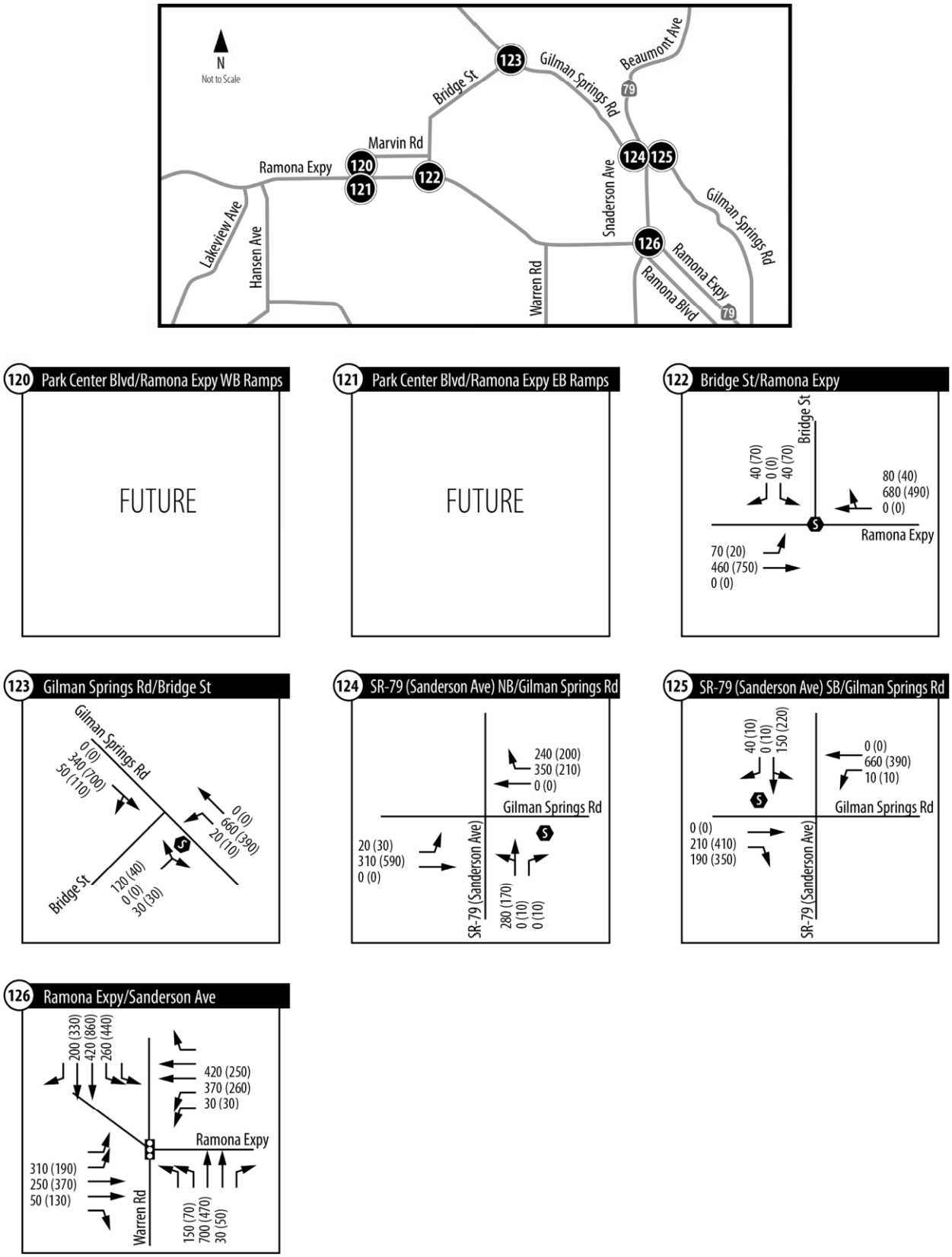



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (O)**

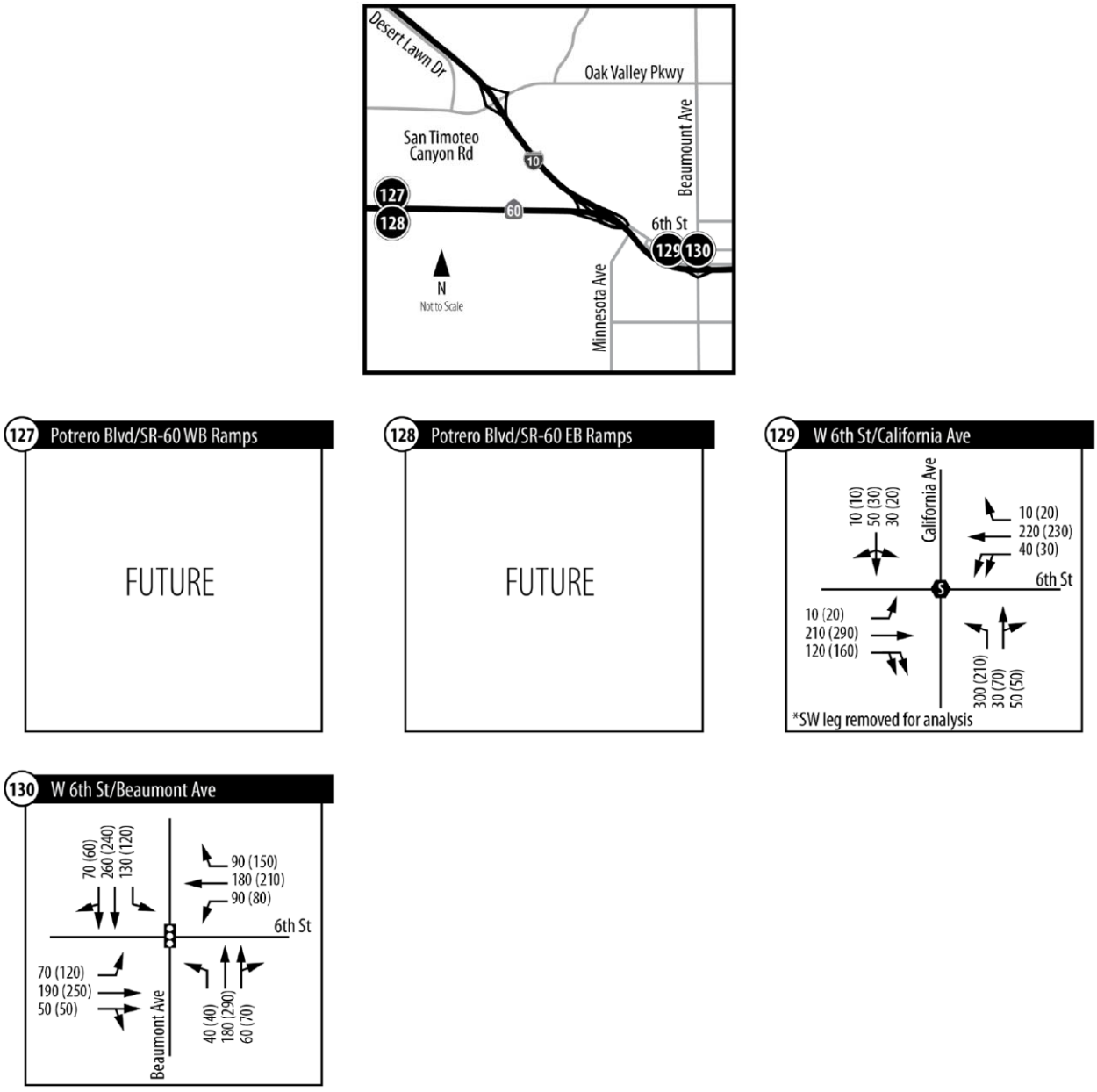



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (P)**

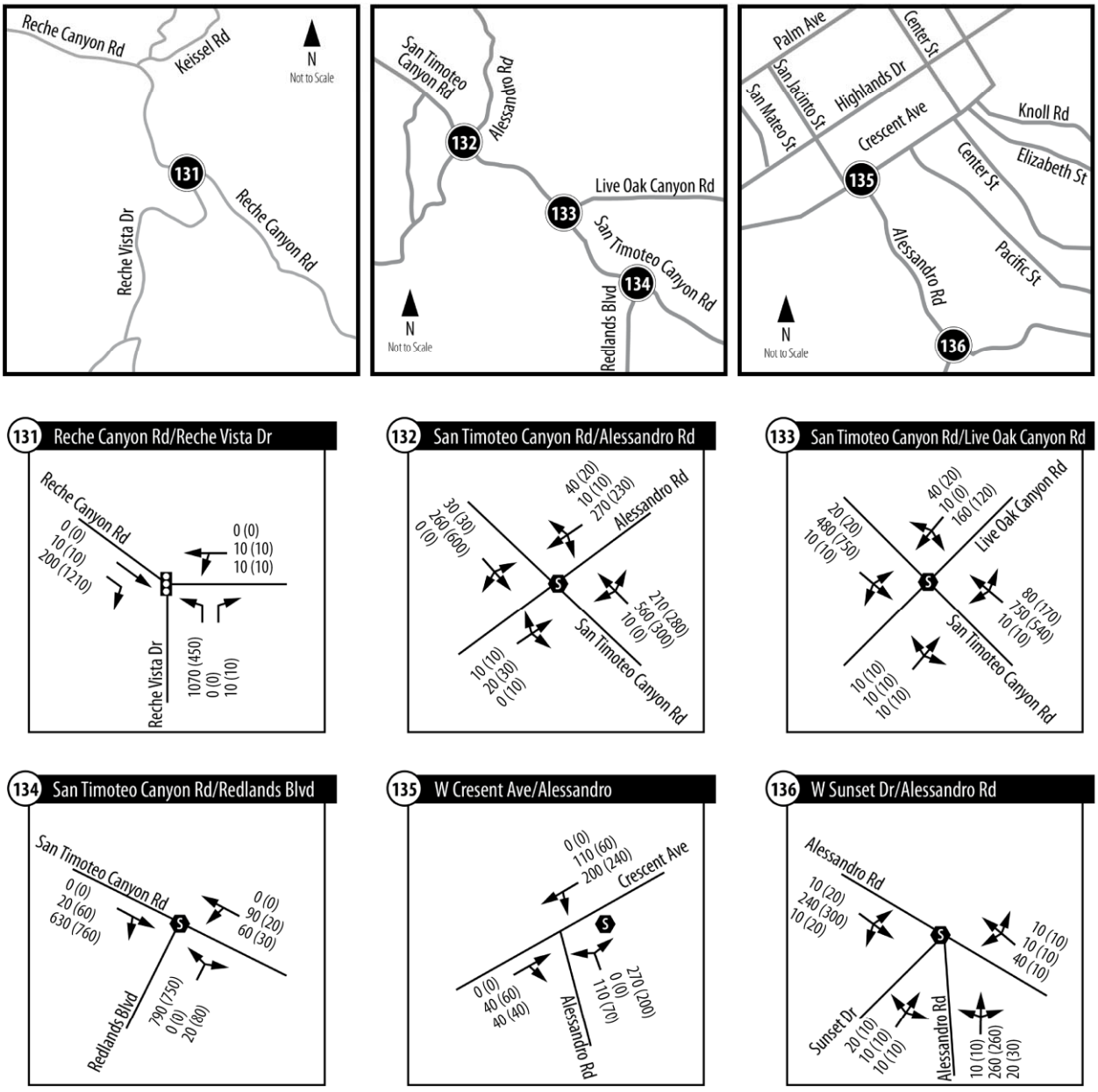



**Figure 49: Turning Movement Volumes under Existing Plus Build-out Conditions (Q)**

## Table 37: Intersection LOS under Existing Plus Build-out Conditions

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-1 | Theodore St/Street F | D | N/A | Non-Existent | | RABT | 26.3 | C |
| IN-2 | Cactus Ave Extension/Street E | D | N/A | Non-Existent | | SIGNAL | 10.3 | B |
| IN-3 | Theodore St/Alessandro (Str A/Str C/Str E) | D | CSS | 9.7 | A | RABT | 10.5 | B |
| IN-4 | Alessandro Blvd (Street C)/Street F | D | N/A | Non-Existent | | RABT | 9.6 | A |
| IN-6 | Alessandro Blvd (Street C)/Gilman Springs Rd | D | CSS | 10.3 | B | SIGNAL | 17.9 | B |
| IN-9 | Gilman Springs Rd/Eucalytpus Ave | D | N/A | Non-Existent | | SIGNAL | 6.4 | A |
| IN-10 | Redlands Blvd/Locust Ave | C | CSS | 26.7 | **D** | CSS | 92.2 | **F** |
| IN-11 | Redlands Blvd/Ironwood Ave | D | SIGNAL | 40.9 | D | SIGNAL | 36.0 | D |
| IN-12 | Theodore Street/Ironwood Avenue | D | CSS | 9.7 | A | CSS | 16.4 | C |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | CSS | 42.2 | **E** | CSS | 48.0 | **E** |
| IN-14 | Redlands Blvd/SR-60 EB ramps | D | SIGNAL | 9.6 | A | SIGNAL | 18.0 | B |
| IN-15 | Theodore Str/SR-60 WB ramps | D | CSS | 9.0 | A | SIGNAL | 15.2 | B |
| IN-16 | Theodore Str/SR-60 EB ramps | D | CSS | 9.2 | A | SIGNAL | 2.3 | A |
| IN-17 | Quincy Str/Fir Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-18 | Redlands Blvd/Eucalyptus Ave (Fir) | D | N/A | Non-Existent | | SIGNAL | 18.3 | B |
| IN-19 | Theodore St/Fir Ave (Eucalyptus) | D | CSS | 9.2 | A | SIGNAL | 14.7 | B |
| IN-20 | Oliver Str/Alessandro Blvd | C | CSS | 25.9 | **D** | CSS | 69.7 | **F** |
| IN-21 | Moreno Beach Dr/Alessandro Blvd | D | SIGNAL | 24.0 | C | SIGNAL | 30.0 | C |
| IN-22 | Quincy Str/Alessandro Blvd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-23 | Redlands Blvd/Alessandro Blvd | C | AWS | 20.5 | C | AWS | 21.7 | C |
| IN-24 | Oliver Str/Cactus Ave | D | SIGNAL | 23.8 | C | SIGNAL | 28.2 | C |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | SIGNAL | 16.0 | B | SIGNAL | 18.2 | B |
| IN-26 | Quincy Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-27 | Redlands Blvd/Cactus Ave | C | AWS | 11.4 | B | AWS | 106.3 | **F** |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | SIGNAL | 16.2 | B | SIGNAL | 22.1 | C |
| IN-29 | Heacock Str/Ironwood Ave | D | SIGNAL | 29.6 | C | SIGNAL | 29.9 | C |
| IN-30 | Heacock Str/SR-60 WB Ramps | D | SIGNAL | 22.6 | C | SIGNAL | 23.8 | C |
| IN-31 | Heacock St/SR-60 EB Ramps | D | SIGNAL | 12.5 | B | SIGNAL | 13.9 | B |
| IN-32 | Sunnymead Blvd & Perris Blvd | D | SIGNAL | 29.4 | C | SIGNAL | 30.7 | C |
| IN-33 | Perris Blvd/SR-60 WB Ramps | D | SIGNAL | 22.0 | C | SIGNAL | 25.1 | C |
| IN-34 | Perris Blvd/Eucalyptus Ave | D | SIGNAL | 22.8 | C | SIGNAL | 23.7 | C |
| IN-35 | Moreno Beach Dr/Locust Ave | C | CSS | 8.6 | A | CSS | 8.9 | A |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | SIGNAL | 50.3 | D | SIGNAL | 55.8 | **E** |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | SIGNAL | 38.0 | D | SIGNAL | 46.0 | D |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | SIGNAL | 37.0 | D | SIGNAL | 37.8 | D |
| IN-39 | Iris Ave/Perris Blvd | D | SIGNAL | 41.5 | D | SIGNAL | 45.3 | D |
| IN-40 | Kitching St/Iris Ave | C | SIGNAL | 23.4 | C | SIGNAL | 25.1 | C |
| IN-41 | Lasselle Str/Iris Ave | D | SIGNAL | 25.4 | C | SIGNAL | 30.9 | C |
| IN-42 | Nason Str/Iris Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-43 | Oliver Str/Iris Ave | D | SIGNAL | 22.1 | C | SIGNAL | 25.7 | C |
| IN-44 | Via Dell Lago/Iris Ave | C | SIGNAL | 6.7 | A | SIGNAL | 8.7 | A |
| IN-45 | Krameria Ave/Perris Blvd | D | SIGNAL | 34.6 | C | SIGNAL | 36.0 | D |
| IN-46 | Kitching Str/Krameria Ave | D | SIGNAL | 21.7 | C | SIGNAL | 48.5 | D |
| IN-47 | Lasselle Str/Krameria Ave | D | SIGNAL | 37.9 | D | SIGNAL | 42.8 | D |
| IN-48 | Kitching Str/Alessandro Blvd | D | SIGNAL | 28.8 | C | SIGNAL | 29.7 | C |

## Table 37: Intersection LOS under Existing Plus Build-out Conditions (continued)

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-49 | Lasselle Str/Alessandro Blvd | D | SIGNAL | 31.7 | C | SIGNAL | 32.4 | C |
| IN-50 | Morrison Str/Alessandro Blvd | D | SIGNAL | 8.8 | A | SIGNAL | 8.7 | A |
| IN-51 | Nason Str/Alessandro Blvd | D | SIGNAL | 20.5 | C | SIGNAL | 21.4 | C |
| IN-52 | Kitching Str/Cactus Ave | C | SIGNAL | 33.3 | C | SIGNAL | 34.2 | C |
| IN-53 | Lasselle Str/Cactus Ave | C | SIGNAL | 47.2 | D | SIGNAL | 49.2 | D |
| IN-54 | Morrison Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-55 | Nason Str/Cactus Ave | D | SIGNAL | 22.5 | C | SIGNAL | 22.4 | C |
| IN-56 | Frederick Str/Alessandro Blvd | D | SIGNAL | 19.5 | B | SIGNAL | 19.5 | B |
| IN-57 | Graham Str/Alessandro Blvd | D | SIGNAL | 19.8 | B | SIGNAL | 20.2 | C |
| IN-58 | Heacock Str/Alessandro Blvd | D | SIGNAL | 25.8 | C | SIGNAL | 26.5 | C |
| IN-59 | Indian Str/Alessandro Blvd | D | SIGNAL | 17.6 | B | SIGNAL | 19.2 | B |
| IN-60 | Perris Blvd/Alessandro Blvd | D | SIGNAL | 32.4 | C | SIGNAL | 33.9 | C |
| IN-61 | Frederick Str/Cactus Ave | D | SIGNAL | 9.8 | A | SIGNAL | 10.3 | B |
| IN-62 | Graham Str/Cactus Ave | D | SIGNAL | 12.9 | B | SIGNAL | 13.6 | B |
| IN-63 | Heacock Str/Cactus Ave | D | SIGNAL | 30.1 | C | SIGNAL | 30.8 | C |
| IN-64 | Indian Str/Cactus Ave | C | SIGNAL | 24.4 | C | SIGNAL | 25.4 | C |
| IN-65 | Perris Blvd/Cactus Ave | D | SIGNAL | 26.9 | C | SIGNAL | 26.6 | C |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | SIGNAL | 25.8 | C | SIGNAL | 25.9 | C |
| IN-67 | I-215 SB Ramps/Alessandro Blvd | D | SIGNAL | 6.4 | A | SIGNAL | 6.7 | A |
| IN-68 | I-215 NB Ramps/Alessandro Blvd | D | SIGNAL | 19.4 | B | SIGNAL | 19.7 | B |
| IN-69 | Old 215 Frontage Rd/Alessandro Blvd | D | SIGNAL | 18.2 | B | SIGNAL | 18.2 | B |
| IN-70 | Day Str/Alessandro Blvd | D | SIGNAL | 4.6 | A | SIGNAL | 6.1 | A |
| IN-71 | Elsworth Str/Alessandro Blvd | D | SIGNAL | 19.2 | B | SIGNAL | 19.5 | B |
| IN-72 | I-215 SB Ramps/Cactus Ave | D | SIGNAL | 12.1 | B | SIGNAL | 18.8 | B |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | SIGNAL | 11.1 | B | SIGNAL | 10.2 | B |
| IN-74 | Elsworth Str/Cactus Ave | D | SIGNAL | 26.7 | C | SIGNAL | 30.5 | C |
| IN-75 | Central Ave/Lochmoor Dr. | D | SIGNAL | 10.9 | B | SIGNAL | 11.6 | B |
| IN-76 | Sycamore Canyon Blvd/Central Ave | D | SIGNAL | 22.2 | C | SIGNAL | 24.3 | C |
| IN-77 | SR-60 EB Ramps/Central Ave | D | SIGNAL | 7.3 | A | SIGNAL | 8.3 | A |
| IN-78 | SR-60 WB Ramps/Central Ave | D | SIGNAL | 6.8 | A | SIGNAL | 7.3 | A |
| IN-79 | Alessandro Blvd/Trautwein Rd. | D | SIGNAL | 28.4 | C | SIGNAL | 29.1 | C |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | SIGNAL | 18.8 | B | SIGNAL | 20.8 | C |
| IN-81 | Martin Luther King Blvd/Chicago Ave | D | SIGNAL | 43.2 | D | SIGNAL | 43.6 | D |
| IN-82 | Martin Luther King Blvd/Iowa Ave | D | SIGNAL | 9.0 | A | SIGNAL | 9.2 | A |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | SIGNAL | 43.2 | D | SIGNAL | 47.5 | D |
| IN-84 | Martin Luther King Blvd/I-215 SB Ramps | D | SIGNAL | 8.6 | A | SIGNAL | 8.9 | A |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | AWS | 24.3 | C | AWS | 27.4 | D |
| IN-86 | Central Ave/Chicago Ave | D | SIGNAL | 23.4 | C | SIGNAL | 25.0 | C |
| IN-87 | Central Ave/El Cerrito Dr | D | SIGNAL | 11.7 | B | SIGNAL | 12.8 | B |
| IN-88 | Central Ave/Canyon Crest Dr | D | SIGNAL | 27.8 | C | SIGNAL | 28.9 | C |
| IN-89 | Chicago Ave/Country Club Dr | D | SIGNAL | 6.3 | A | SIGNAL | 6.8 | A |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | SIGNAL | 31.3 | C | SIGNAL | 31.9 | C |
| IN-91 | Arlington Ave/Indiana Ave/SR-91 NB Ramps | D | SIGNAL | 21.0 | C | SIGNAL | 21.1 | C |
| IN-92 | Arlington Ave/Maude St | D | SIGNAL | 13.8 | B | SIGNAL | 14.1 | B |
| IN-93 | Horace St/Arlington Ave | D | SIGNAL | 12.3 | B | SIGNAL | 13.0 | B |

## Table 37: Intersection LOS under Existing Plus Build-out Conditions (continued)

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-94 | Arlington Ave/Victoria Ave | D | SIGNAL | 54.8 | D | SIGNAL | 56.2 | **E** |
| IN-95 | Alessandro Blvd/Chicago Ave | D | SIGNAL | 40.7 | D | SIGNAL | 45.0 | D |
| IN-96 | Alessandro Blvd/Century Ave | D | SIGNAL | 16.7 | B | SIGNAL | 17.8 | B |
| IN-97 | Alessandro Blvd/Via Vista Dr | D | SIGNAL | 30.7 | C | SIGNAL | 30.5 | C |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | SIGNAL | 20.4 | C | SIGNAL | 25.2 | C |
| IN-99 | Harley Knox Blvd/Perris Blvd | D | SIGNAL | 15.4 | B | SIGNAL | 16.6 | B |
| IN-100 | Harley Knox Blvd/Evan Rd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-101 | Ramona Expy/Indian St | E | SIGNAL | 3.9 | A | SIGNAL | 5.0 | A |
| IN-102 | Ramona Expy/Perris Blvd | E | SIGNAL | 31.7 | C | SIGNAL | 33.1 | C |
| IN-103 | Ramona Expy/Evans Rd | E | SIGNAL | 54.5 | D | SIGNAL | 63.5 | E |
| IN-104 | Perris Blvd/Morgan St | D | SIGNAL | 11.9 | B | SIGNAL | 13.4 | B |
| IN-105 | Evans Rd/Morgan St | C | SIGNAL | 32.5 | C | SIGNAL | 32.5 | C |
| IN-106 | Perris Blvd/Rider St | C | SIGNAL | 24.5 | C | SIGNAL | 24.3 | C |
| IN-107 | Evans Rd/Rider St | C | SIGNAL | 34.2 | C | SIGNAL | 34.2 | C |
| IN-108 | Perris Blvd/Mid-County Pkwy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-109 | Perris Blvd/Mid-County Pkwy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-110 | Evans Rd/Mid-County Pkwy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-111 | Evans Rd/Mid-County Pkwy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-112 | Placentia Ave/Perris Blvd | D | SIGNAL | 30.1 | C | SIGNAL | 29.6 | C |
| IN-113 | Evans Rd/Placentia Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-114 | Evans Rd/Orange Ave | C | AWS | 12.5 | B | AWS | 13.6 | B |
| IN-115 | Evans Rd/Nuevo Rd | C | SIGNAL | 23.3 | C | SIGNAL | 23.5 | C |
| IN-116 | Evans Rd/Ellis Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-117 | Ellis Ave/I-215 SB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-118 | Ellis Ave/SR-215 NB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-119 | Evans Rd/San Jacinto Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-120 | Park Center Blvd/Ramona Expy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-121 | Park Center Blvd/Ramona Expy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-122 | Bridge St/Ramona Expy | C | CSS | 22.4 | C | CSS | 29.5 | **D** |
| IN-123 | Gilman Springs Rd/Bridge Str | C | CSS | 26.6 | **D** | CSS | 49.6 | **E** |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | CSS | 34.7 | **D** | CSS | 65.5 | **F** |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | CSS | 29.2 | **D** | CSS | 40.6 | **E** |
| IN-126 | Ramona Expy/Sanderson Ave | D | SIGNAL | 27.1 | C | SIGNAL | 28.6 | C |
| IN-127 | Potrero Blvd/SR-60 WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-128 | Potrero Blvd/SR-60 EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-129 | W 6th St/California Ave | C | AWS | 13.5 | B | AWS | 20.9 | C |
| IN-130 | W 6th St/Beaumont Ave | C | SIGNAL | 13.2 | B | SIGNAL | 12.7 | B |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | SIGNAL | 9.4 | A | SIGNAL | 21.2 | C |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | AWS | 77.2 | **F** | AWS | > 180.0 | **F** |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | AWS | 50.9 | **F** | AWS | 135.6 | **F** |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | AWS | 81.8 | **F** | AWS | 174.1 | **F** |
| IN-135 | W Crescent Ave/Alessandro Rd | C | CSS | 14.0 | B | CSS | 18.5 | C |
| IN-136 | W Sunset Dr/Alessandro Rd | C | AWS | 8.9 | A | AWS | 10.1 | B |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

## Table 37: Intersection LOS under Existing Plus Build-out Conditions (continued)

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-1 | Theodore St/Street F | D | N/A | Non-Existent | | RABT | 53.5 | D |
| IN-2 | Cactus Ave Extension/Street E | D | N/A | Non-Existent | | SIGNAL | 14.2 | B |
| IN-3 | Theodore St/Alessandro (Str A/Str C/Str E) | D | CSS | 10.1 | B | RABT | 10.2 | B |
| IN-4 | Alessandro Blvd (Street C)/Street F | D | N/A | Non-Existent | | RABT | 14.7 | B |
| IN-6 | Alessandro Blvd (Street C)/Gilman Springs Rd | D | CSS | 15.7 | C | SIGNAL | 28.4 | C |
| IN-9 | Gilman Springs Rd/Eucalytpus Ave | D | N/A | Non-Existent | | SIGNAL | 6.3 | A |
| IN-10 | Redlands Blvd/Locust Ave | C | CSS | 42.8 | **E** | CSS | > 180.0 | **F** |
| IN-11 | Redlands Blvd/Ironwood Ave | D | SIGNAL | 37.3 | D | SIGNAL | 34.8 | C |
| IN-12 | Theodore Street/Ironwood Avenue | D | CSS | 9.8 | A | CSS | 28.7 | D |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | CSS | 54.0 | **F** | CSS | > 180.0 | **F** |
| IN-14 | Redlands Blvd/SR-60 EB ramps | D | SIGNAL | 14.4 | B | SIGNAL | 49.0 | D |
| IN-15 | Theodore Str/SR-60 WB ramps | D | CSS | 9.6 | A | SIGNAL | 13.0 | B |
| IN-16 | Theodore Str/SR-60 EB ramps | D | CSS | 9.4 | A | SIGNAL | 1.4 | A |
| IN-17 | Quincy Str/Fir Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-18 | Redlands Blvd/Eucalyptus Ave (Fir) | D | N/A | Non-Existent | | SIGNAL | 14.4 | B |
| IN-19 | Theodore St/Fir Ave (Eucalyptus) | D | CSS | 9.8 | A | SIGNAL | 18.5 | B |
| IN-20 | Oliver Str/Alessandro Blvd | C | CSS | 14.7 | B | CSS | 20.2 | C |
| IN-21 | Moreno Beach Dr/Alessandro Blvd | D | SIGNAL | 28.2 | C | SIGNAL | 41.6 | D |
| IN-22 | Quincy Str/Alessandro Blvd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-23 | Redlands Blvd/Alessandro Blvd | C | AWS | 13.8 | B | AWS | 19.3 | C |
| IN-24 | Oliver Str/Cactus Ave | D | SIGNAL | 17.3 | B | SIGNAL | 18.3 | B |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | SIGNAL | 17.0 | B | SIGNAL | 19.5 | B |
| IN-26 | Quincy Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-27 | Redlands Blvd/Cactus Ave | C | AWS | 8.2 | A | AWS | 102.7 | **F** |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | SIGNAL | 13.8 | B | SIGNAL | 105.1 | **F** |
| IN-29 | Heacock Str/Ironwood Ave | D | SIGNAL | 31.9 | C | SIGNAL | 32.3 | C |
| IN-30 | Heacock Str/SR-60 WB Ramps | D | SIGNAL | 21.5 | C | SIGNAL | 22.1 | C |
| IN-31 | Heacock St/SR-60 EB Ramps | D | SIGNAL | 15.9 | B | SIGNAL | 16.2 | B |
| IN-32 | Sunnymead Blvd & Perris Blvd | D | SIGNAL | 36.0 | D | SIGNAL | 36.3 | D |
| IN-33 | Perris Blvd/SR-60 WB Ramps | D | SIGNAL | 19.7 | B | SIGNAL | 22.3 | C |
| IN-34 | Perris Blvd/Eucalyptus Ave | D | SIGNAL | 23.4 | C | SIGNAL | 23.8 | C |
| IN-35 | Moreno Beach Dr/Locust Ave | C | CSS | 8.6 | A | CSS | 9.1 | A |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | SIGNAL | 40.0 | D | SIGNAL | 43.8 | D |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | SIGNAL | 76.6 | **E** | SIGNAL | 98.8 | **F** |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | SIGNAL | 31.2 | C | SIGNAL | 32.3 | C |
| IN-39 | Iris Ave/Perris Blvd | D | SIGNAL | 36.5 | D | SIGNAL | 37.1 | D |
| IN-40 | Kitching St/Iris Ave | C | SIGNAL | 17.5 | B | SIGNAL | 27.9 | C |
| IN-41 | Lasselle Str/Iris Ave | D | SIGNAL | 26.6 | C | SIGNAL | 31.3 | C |
| IN-42 | Nason Str/Iris Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-43 | Oliver Str/Iris Ave | D | SIGNAL | 15.8 | B | SIGNAL | 18.1 | B |
| IN-44 | Via Dell Lago/Iris Ave | C | SIGNAL | 6.5 | A | SIGNAL | 7.3 | A |
| IN-45 | Krameria Ave/Perris Blvd | D | SIGNAL | 29.3 | C | SIGNAL | 35.4 | D |
| IN-46 | Kitching Str/Krameria Ave | D | SIGNAL | 19.4 | B | SIGNAL | 22.5 | C |
| IN-47 | Lasselle Str/Krameria Ave | D | SIGNAL | 13.5 | B | SIGNAL | 13.7 | B |
| IN-48 | Kitching Str/Alessandro Blvd | D | SIGNAL | 24.7 | C | SIGNAL | 25.6 | C |

## Table 37: Intersection LOS under Existing Plus Build-out Conditions (continued)

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-49 | Lasselle Str/Alessandro Blvd | D | SIGNAL | 26.6 | C | SIGNAL | 29.5 | C |
| IN-50 | Morrison Str/Alessandro Blvd | D | SIGNAL | 7.8 | A | SIGNAL | 8.2 | A |
| IN-51 | Nason Str/Alessandro Blvd | D | SIGNAL | 16.9 | B | SIGNAL | 18.7 | B |
| IN-52 | Kitching Str/Cactus Ave | C | SIGNAL | 22.6 | C | SIGNAL | 22.4 | C |
| IN-53 | Lasselle Str/Cactus Ave | C | SIGNAL | 38.6 | **D** | SIGNAL | 38.5 | **D** |
| IN-54 | Morrison Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-55 | Nason Str/Cactus Ave | D | SIGNAL | 21.0 | C | SIGNAL | 22.7 | C |
| IN-56 | Frederick Str/Alessandro Blvd | D | SIGNAL | 25.6 | C | SIGNAL | 25.9 | C |
| IN-57 | Graham Str/Alessandro Blvd | D | SIGNAL | 24.2 | C | SIGNAL | 26.2 | C |
| IN-58 | Heacock Str/Alessandro Blvd | D | SIGNAL | 23.6 | C | SIGNAL | 23.8 | C |
| IN-59 | Indian Str/Alessandro Blvd | D | SIGNAL | 27.9 | C | SIGNAL | 28.2 | C |
| IN-60 | Perris Blvd/Alessandro Blvd | D | SIGNAL | 42.3 | D | SIGNAL | 45.9 | D |
| IN-61 | Frederick Str/Cactus Ave | D | SIGNAL | 11.7 | B | SIGNAL | 13.7 | B |
| IN-62 | Graham Str/Cactus Ave | D | SIGNAL | 17.4 | B | SIGNAL | 18.3 | B |
| IN-63 | Heacock Str/Cactus Ave | D | SIGNAL | 20.3 | C | SIGNAL | 22.5 | C |
| IN-64 | Indian Str/Cactus Ave | C | SIGNAL | 19.6 | B | SIGNAL | 19.6 | B |
| IN-65 | Perris Blvd/Cactus Ave | D | SIGNAL | 30.7 | C | SIGNAL | 30.7 | C |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | SIGNAL | 18.0 | B | SIGNAL | 18.2 | B |
| IN-67 | I-215 SB Ramps/Alessandro Blvd | D | SIGNAL | 12.6 | B | SIGNAL | 12.6 | B |
| IN-68 | I-215 NB Ramps/Alessandro Blvd | D | SIGNAL | 24.1 | C | SIGNAL | 25.2 | C |
| IN-69 | Old 215 Frontage Rd/Alessandro Blvd | D | SIGNAL | 18.6 | B | SIGNAL | 21.2 | C |
| IN-70 | Day Str/Alessandro Blvd | D | SIGNAL | 8.2 | A | SIGNAL | 10.3 | B |
| IN-71 | Elsworth Str/Alessandro Blvd | D | SIGNAL | 27.6 | C | SIGNAL | 29.3 | C |
| IN-72 | I-215 SB Ramps/Cactus Ave | D | SIGNAL | 19.7 | B | SIGNAL | 39.0 | D |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | SIGNAL | 3.7 | A | SIGNAL | 4.2 | A |
| IN-74 | Elsworth Str/Cactus Ave | D | SIGNAL | 29.5 | C | SIGNAL | 29.6 | C |
| IN-75 | Central Ave/Lochmoor Dr. | D | SIGNAL | 6.7 | A | SIGNAL | 7.9 | A |
| IN-76 | Sycamore Canyon Blvd/Central Ave | D | SIGNAL | 17.6 | B | SIGNAL | 19.0 | B |
| IN-77 | SR-60 EB Ramps/Central Ave | D | SIGNAL | 10.3 | B | SIGNAL | 10.9 | B |
| IN-78 | SR-60 WB Ramps/Central Ave | D | SIGNAL | 8.2 | A | SIGNAL | 8.3 | A |
| IN-79 | Alessandro Blvd/Trautwein Rd. | D | SIGNAL | 14.8 | B | SIGNAL | 14.7 | B |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | SIGNAL | 34.9 | C | SIGNAL | 40.5 | D |
| IN-81 | Martin Luther King Blvd/Chicago Ave | D | SIGNAL | 36.5 | D | SIGNAL | 38.7 | D |
| IN-82 | Martin Luther King Blvd/Iowa Ave | D | SIGNAL | 13.0 | B | SIGNAL | 13.5 | B |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | SIGNAL | 28.0 | C | SIGNAL | 29.2 | C |
| IN-84 | Martin Luther King Blvd/I-215 SB Ramps | D | SIGNAL | 4.7 | A | SIGNAL | 5.6 | A |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | AWS | 12.2 | B | AWS | 13.4 | B |
| IN-86 | Central Ave/Chicago Ave | D | SIGNAL | 23.1 | C | SIGNAL | 27.5 | C |
| IN-87 | Central Ave/El Cerrito Dr | D | SIGNAL | 12.0 | B | SIGNAL | 12.6 | B |
| IN-88 | Central Ave/Canyon Crest Dr | D | SIGNAL | 35.2 | D | SIGNAL | 36.7 | D |
| IN-89 | Chicago Ave/Country Club Dr | D | SIGNAL | 4.9 | A | SIGNAL | 4.9 | A |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | SIGNAL | 30.7 | C | SIGNAL | 30.8 | C |
| IN-91 | Arlington Ave/Indiana Ave/SR-91 NB Ramps | D | SIGNAL | 20.8 | C | SIGNAL | 20.9 | C |
| IN-92 | Arlington Ave/Maude St | D | SIGNAL | 11.1 | B | SIGNAL | 11.6 | B |
| IN-93 | Horace St/Arlington Ave | D | SIGNAL | 7.2 | A | SIGNAL | 7.6 | A |

## Table 37: Intersection LOS under Existing Plus Build-out Conditions (continued)

| ID | Study Intersection | LOS Standard | Existing Conditions | | | Existing Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-94 | Arlington Ave/Victoria Ave | D | SIGNAL | 30.9 | C | SIGNAL | 33.2 | C |
| IN-95 | Alessandro Blvd/Chicago Ave | D | SIGNAL | 65.9 | **E** | SIGNAL | 70.0 | **E** |
| IN-96 | Alessandro Blvd/Century Ave | D | SIGNAL | 7.6 | A | SIGNAL | 8.7 | A |
| IN-97 | Alessandro Blvd/Via Vista Dr | D | SIGNAL | 18.9 | B | SIGNAL | 18.6 | B |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | SIGNAL | 17.9 | B | SIGNAL | 17.7 | B |
| IN-99 | Harley Knox Blvd/Perris Blvd | D | SIGNAL | 15.1 | B | SIGNAL | 15.4 | B |
| IN-100 | Harley Knox Blvd/Evan Rd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-101 | Ramona Expy/Indian St | E | SIGNAL | 7.8 | A | SIGNAL | 12.5 | B |
| IN-102 | Ramona Expy/Perris Blvd | E | SIGNAL | 34.7 | C | SIGNAL | 35.0 | D |
| IN-103 | Ramona Expy/Evans Rd | E | SIGNAL | 28.8 | C | SIGNAL | 28.8 | C |
| IN-104 | Perris Blvd/Morgan St | D | SIGNAL | 6.7 | A | SIGNAL | 8.6 | A |
| IN-105 | Evans Rd/Morgan St | C | SIGNAL | 20.6 | C | SIGNAL | 20.2 | C |
| IN-106 | Perris Blvd/Rider St | C | SIGNAL | 23.0 | C | SIGNAL | 26.5 | C |
| IN-107 | Evans Rd/Rider St | C | SIGNAL | 28.3 | C | SIGNAL | 27.6 | C |
| IN-108 | Perris Blvd/Mid-County Pkwy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-109 | Perris Blvd/Mid-County Pkwy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-110 | Evans Rd/Mid-County Pkwy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-111 | Evans Rd/Mid-County Pkwy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-112 | Placentia Ave/Perris Blvd | D | SIGNAL | 14.0 | B | SIGNAL | 14.9 | B |
| IN-113 | Evans Rd/Placentia Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-114 | Evans Rd/Orange Ave | C | AWS | 10.1 | B | AWS | 10.7 | B |
| IN-115 | Evans Rd/Nuevo Rd | C | SIGNAL | 22.6 | C | SIGNAL | 22.6 | C |
| IN-116 | Evans Rd/Ellis Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-117 | Ellis Ave/I-215 SB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-118 | Ellis Ave/SR-215 NB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-119 | Evans Rd/San Jacinto Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-120 | Park Center Blvd/Ramona Expy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-121 | Park Center Blvd/Ramona Expy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-122 | Bridge St/Ramona Expy | C | CSS | 20.6 | C | CSS | 27.3 | **D** |
| IN-123 | Gilman Springs Rd/Bridge Str | C | CSS | 20.8 | C | CSS | 25.1 | **D** |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | CSS | 30.7 | **D** | CSS | 48.8 | **E** |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | CSS | 48.2 | **E** | CSS | 70.4 | **F** |
| IN-126 | Ramona Expy/Sanderson Ave | D | SIGNAL | 20.8 | C | SIGNAL | 21.1 | C |
| IN-127 | Potrero Blvd/SR-60 WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-128 | Potrero Blvd/SR-60 EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-129 | W 6th St/California Ave | C | AWS | 18.0 | C | AWS | 20.9 | C |
| IN-130 | W 6th St/Beaumont Ave | C | SIGNAL | 12.8 | B | SIGNAL | 11.9 | B |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | SIGNAL | 5.6 | A | SIGNAL | 6.4 | A |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | AWS | 23.9 | C | AWS | 98.1 | **F** |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | AWS | 60.2 | **F** | AWS | > 180.0 | **F** |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | AWS | 80.5 | **F** | AWS | > 180.0 | **F** |
| IN-135 | W Crescent Ave/Alessandro Rd | C | CSS | 11.5 | B | CSS | 14.6 | B |
| IN-136 | W Sunset Dr/Alessandro Rd | C | AWS | 9.0 | A | AWS | 10.1 | B |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

## Table 38: Existing Plus Build-out Intersection Impacts and Mitigations

| ID | Study Intersection | LOS Standard | Determination of Impact | | | | | Existing Plus Build-out & Mitigations | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | PM Peak Hour | | Project Impact? | Traffic Control | AM Peak Hour | | PM Peak Hour | | |
| | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | | | Delay | LOS | Delay | LOS | |
| IN-10 | Redlands Blvd/Locust Ave | C | D | F | E | F | Yes | SIGNAL | 7.1 | A | 12.1 | A | Signalize. Add 1 EB LT and 1 WB LT. |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | E | E | F | F | Yes | SIGNAL | 15.6 | B | 16.0 | B | Signalize. Add 1 NB RT. |
| IN-20 | Oliver Str/Alessandro Blvd | C | D | F | B | C | Yes | AWS | 18.4 | C | 12.3 | B | Change to AWS. |
| IN-27 | Redlands Blvd/Cactus Ave | C | B | F | A | F | Yes | SIGNAL | 17.4 | B | 18.5 | B | Signalize. Add 1 EB LT, 1 WB LT. |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | B | C | B | F | Yes | SIGNAL | 16.2 | B | 18.4 | B | Add 1 WB LT Lane. |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | D | E | D | D | Yes | SIGNAL | 42.1 | D | 41.3 | D | Add 1 NB RT lane. |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | D | D | E | F | Yes | SIGNAL | 18.9 | B | 26.3 | C | Add 1 EB RT lane. |
| IN-53 | Lasselle Str/Cactus Ave | C | D | D | D | D | Yes | SIGNAL | 38.7 | D | 33.4 | C | Add 1 WB LT, 1 NB LT, 1 SB LT, Add overlap phase for NB and EB RT. |
| IN-94 | Arlington Ave/Victoria Ave | D | D | E | C | C | Yes | SIGNAL | 54.9 | D | 33.2 | C | Add WB LT lane |
| IN-95 | Alessandro Blvd/Chicago Ave | D | D | D | E | E | Yes | SIGNAL | 39.7 | D | 54.3 | D | Add NB LT lane; adjust signal timings. |
| IN-122 | Bridge St/Ramona Expy | C | C | D | C | D | Yes | SIGNAL | 6.9 | A | 7.3 | A | Signalize. |
| IN-123 | Gilman Springs Rd/Bridge Str | C | D | E | C | D | Yes | SIGNAL | 6.7 | A | 4.8 | A | Signalize. |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | D | F | D | E | Yes | SIGNAL | 7.5 | A | 7.2 | A | Signalize. |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | D | E | E | F | Yes | SIGNAL | 6.5 | A | 6.3 | A | Signalize. |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | F | F | C | F | Yes | SIGNAL | 41.5 | D | 16.8 | B | Signalize. |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | F | F | F | F | Yes | SIGNAL | 16.2 | B | 15.0 | B | Signalize. |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | F | F | F | F | Yes | SIGNAL | 8.6 | A | 5.9 | A | Signalize. Add 1 EB RT. Also add EB RT overlap phase. |

Indicates that the LOS exceeds the target leve "LT" and "RT" denote left turn and right turn respectively

Notes: "CSS" means cross-street is stop-controlled "NB" and "SB" denote northbound and southbound respectively

"AWS" means all-way stop "EB" and "WB" denote eastbound and westbound respectively

As shown in Table 38, there are 17 study intersections where the project would have a significant impact. Twelve of these intersections already exceed the threshold of significance under Existing Conditions and another five would exceed the threshold of significance with the addition of the project. These intersections are:

Exceed Threshold of Significance Under Both Existing Conditions and Existing Plus Build-out Conditions

- Redlands Blvd./Locust Ave.
- Redlands Blvd./SR-60 WB ramps
- Oliver St./Alessandro Blvd.
- Moreno Beach Dr./SR-60 EB Ramps
- Lasselle St./Cactus Ave.
- Alessandro Blvd./Chicago Ave.
- Gilman Springs Rd./Bridge St.
- SR-79 (Sanderson Ave.) NB/Gilman Springs Rd.
- SR-79 (Sanderson Ave.) SB/Gilman Springs Rd.
- San Timoteo Canyon Rd./Alessandro Rd.
- San Timoteo Canyon Rd./Live Oak Canyon Rd.
- Redlands Blvd./San Timoteo Canyon Rd.

Exceed Threshold of Significance Under Existing Plus Build-out Conditions (but not under Existing No-Project Conditions)

- Redlands Blvd./Cactus Ave.
- Moreno Beach Dr./John Kennedy Dr.
- Moreno Beach Dr./Ironwood Ave.
- Arlington Ave./Victoria Ave.
- Bridge St./Ramona Expy.

In each case, a change in the traffic control mechanism, or the addition of lanes, or both, would reduce the impact of the project to a less-than-significant level.

The mitigation measures shown in Table 38 are those that would be needed to reduce the impact of the project to a less-than-significant level. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS, this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## C. FREEWAY SEGMENT LOS, IMPACTS, AND MITIGATIONS

***Freeway Mainline Basic Sections***

Table 39 compares the LOS for freeway mainline sections for the Existing and Existing Plus Build-out scenarios. Details of the LOS calculations for freeways under Existing Plus Build-out conditions can be found in Appendix K. Table 40 identifies the ten basic freeway sections where the project has a significant impact. Eight of these sections would be deficient under both Existing and Existing Plus Build-out conditions, namely:

Northbound or Eastbound

- SR-60 from Euclid Ave. to Grove Ave.
- SR-60 from Martin Luther King Blvd. to Central Ave.
- I-215 from SR-74/Case Rd. to Redlands Ave.

Southbound or Westbound

- SR-60 from I-215 to Day St.
- SR-91 from Pierce St. to Magnolia Ave.
- SR-91 from Magnolia Ave. to La Sierra Ave.
- I-215 from SR-74/Case Rd. to Redlands Ave.
- I-215 from Baseline Rd. to Highland Ave./SR-210

Two additional sections were found to be deficient under Plus Build-out conditions, namely:

Eastbound

- SR-91 from Central Ave. to 14th St.

Westbound

- SR-60 from Pigeon Pass Rd./Frederick St. to Heacock St.

Table 40 also identifies the mitigation measures needed to reduce the impact to a less-than-significant level. In each case adding a mixed-flow lane[49] would bring the LOS to "D" or better. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS,

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[49] A "mixed-flow lane" is the most common type of freeway lane. The term is used to distinguish them from carpool lanes, truck lanes, etc.

## Table 39: Existing Plus Build-out Freeway Mainline LOS

| ID | Freeway | Segment | Existing Conditions | | | | | | Existing Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-2 | SR-60 | Reservoir St to Ramona Ave | 6,024 | 24.5 | C | 7,822 | 33.0 | D | 6,340 | 26.7 | D | 7,720 | 32.8 | D |
| F-3 | SR-60 | Ramona Ave to Central Ave | 5,687 | 22.8 | C | 9,400 | 47.3 | F | 6,020 | 24.9 | C | 9,280 | 46.9 | F |
| F-4 | SR-60 | Central Ave to Mountain Ave | 6,339 | 26.2 | D | 9,338 | 46.6 | F | 6,690 | 28.7 | D | 9,230 | 46.3 | F |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | 6,205 | 25.4 | C | 6,664 | 26.1 | D | 6,560 | 28.0 | D | 6,540 | 25.9 | C |
| F-6 | SR-60 | Euclid Ave to Grove Ave | 7,650 | 34.7 | D | 9,091 | 43.8 | E | 8,010 | 38.4 | E | 8,950 | 43.2 | E |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | 6,923 | 29.6 | D | 9,400 | 47.3 | F | 7,290 | 32.5 | D | 9,260 | 46.7 | F |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | 6,823 | 28.7 | D | 9,400 | 47.3 | F | 7,180 | 31.8 | D | 9,240 | 46.5 | F |
| F-9 | SR-60 | Archibald Ave to Haven Ave | 6,268 | 25.6 | C | 6,471 | 25.1 | C | 6,650 | 28.3 | D | 6,290 | 24.7 | C |
| F-10 | SR-60 | Haven Ave to Milliken Ave | 6,096 | 19.1 | C | 6,864 | 20.6 | C | 6,480 | 20.7 | C | 6,670 | 20.3 | C |
| F-11 | SR-60 | Milliken Ave to I-15 | 4,234 | 16.5 | B | 4,529 | 16.9 | B | 4,580 | 18.3 | C | 4,350 | 16.5 | B |
| F-12 | SR-60 | I-15 to Etiwanda Ave/Van Buren Blvd | 2,593 | 10.2 | A | 2,910 | 10.8 | A | 3,030 | 12.4 | B | 2,670 | 10.3 | A |
| F-13 | SR-60 | Etiwanda Ave/Van Buren Blvd to Mission | 3,026 | 11.9 | B | 3,968 | 14.8 | B | 3,490 | 14.2 | B | 3,770 | 14.5 | B |
| F-14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 2,596 | 10.2 | A | 3,061 | 11.4 | B | 3,060 | 12.5 | B | 2,870 | 11.1 | B |
| F-15 | SR-60 | Pedley Rd to Pyrite St | 2,813 | 11.1 | B | 3,334 | 12.4 | B | 3,320 | 13.5 | B | 3,030 | 11.7 | B |
| F-16 | SR-60 | Pyrite St to Valley Way | 3,348 | 13.2 | B | 3,642 | 13.6 | B | 3,860 | 15.7 | B | 3,320 | 12.8 | B |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | 4,398 | 23.7 | C | 4,252 | 21.4 | C | 4,920 | 28.3 | D | 3,950 | 20.3 | C |
| F-18 | SR-60 | Rubidoux Blvd to Market St | 4,943 | 27.6 | D | 4,706 | 24.3 | C | 5,490 | 33.5 | D | 4,510 | 23.7 | C |
| F-19 | SR-60 | Market St to Main St | 4,498 | 24.4 | C | 7,050 | 47.8 | F | 5,040 | 29.3 | D | 6,850 | 46.7 | F |
| F-20 | SR-60 | Main to SR-91 | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | 5,865 | 24.6 | C | 8,976 | 45.7 | F | 6,600 | 34.2 | D | 8,760 | 50.9 | F |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 4,332 | 16.9 | B | 6,795 | 26.6 | D | 4,950 | 20.4 | C | 6,710 | 27.2 | D |
| F-27 | SR-60 | I-215 to Day St | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-29 | SR-60 | Pigeon Pass Rd to Heacock St | 2,702 | 21.6 | C | 3,713 | 30.2 | D | 3,330 | 32.0 | D | 3,820 | 34.6 | D |
| F-30 | SR-60 | Heacock St to Perris Blvd | 2,349 | 18.6 | C | 3,355 | 26.1 | D | 3,220 | 30.3 | D | 3,480 | 30.2 | D |
| F-31 | SR-60 | Perris Blvd to Nason St | 1,812 | 14.3 | B | 2,344 | 17.4 | B | 2,750 | 25.0 | C | 2,540 | 20.9 | C |
| F-32 | SR-60 | Nason St to Moreno Beach Dr | 1,619 | 12.8 | B | 2,038 | 15.1 | B | 2,420 | 21.7 | C | 2,260 | 18.6 | C |
| F-33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 1,326 | 10.5 | A | 1,397 | 10.4 | A | 2,140 | 19.3 | C | 1,750 | 14.8 | B |
| F-34 | SR-60 | Redlands Blvd to Theodore St | 1,614 | 12.7 | B | 1,920 | 14.2 | B | 2,590 | 23.1 | C | 2,380 | 19.6 | C |
| F-35 | SR-60 | Theodore St to Gilman Springs Rd | 1,521 | 12.0 | B | 1,915 | 14.2 | B | 1,550 | 12.7 | B | 1,830 | 14.0 | B |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 1,213 | 11.2 | B | 1,484 | 12.3 | B | 1,180 | 12.2 | B | 1,680 | 15.6 | B |
| F-37 | SR-60 | Jack Rabbit Trail to I-10 | 1,215 | 9.6 | A | 1,482 | 11.0 | A | 1,180 | 9.5 | A | 1,680 | 12.7 | B |
| F-39 | SR-91 | I-15 to McKinley St | 5,914 | 22.6 | C | 9,400 | 53.3 | F | 6,120 | 23.8 | C | 9,310 | 52.6 | F |
| F-40 | SR-91 | McKinley St to Pierce St | 5,382 | 29.1 | D | 5,427 | 31.4 | D | 5,610 | 31.5 | D | 5,320 | 30.9 | D |
| F-41 | SR-91 | Pierce St to Magnolia Ave | 4,888 | 25.5 | C | 4,922 | 27.2 | D | 5,110 | 27.6 | D | 4,820 | 26.8 | D |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-43 | SR-91 | La Sierra Ave to Tyler St | 4,585 | 23.5 | C | 4,939 | 27.3 | D | 4,790 | 25.3 | C | 4,860 | 27.1 | D |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | 5,704 | 21.7 | C | 5,851 | 23.5 | C | 5,890 | 22.8 | C | 5,780 | 23.4 | C |

## Table 39: Existing Plus Build-out Freeway Mainline LOS (continued)

| ID | Freeway | Segment | Existing Conditions | | | | | | Existing Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-45 | SR-91 | Van Buren Blvd to Adam St | 5,841 | 22.3 | C | 4,999 | 19.6 | C | 6,010 | 23.3 | C | 4,940 | 19.6 | C |
| F-46 | SR-91 | Adam St to Madison St | 6,531 | 26.1 | D | 4,742 | 18.7 | C | 6,690 | 27.3 | D | 4,700 | 18.8 | C |
| F-47 | SR-91 | Madison St to Arlington Ave | 5,879 | 22.8 | C | 4,530 | 17.9 | B | 6,020 | 23.8 | C | 4,500 | 17.9 | B |
| F-49 | SR-91 | Central Ave to 14th St | 6,021 | 34.8 | D | 5,391 | 30.8 | D | 6,100 | 36.2 | E | 5,410 | 31.5 | D |
| F-51 | SR-91 | University Ave to Spruce St | 7,244 | 22.1 | C | 6,394 | 20.0 | C | 7,300 | 22.5 | C | 6,420 | 20.2 | C |
| F-66 | I-215 | Scott Rd to Newport Rd | 2,739 | 22.0 | C | 3,285 | 25.8 | C | 2,660 | 21.4 | C | 3,280 | 25.9 | C |
| F-68 | I-215 | Newport Rd to McCall Blvd | 1,900 | 15.0 | B | 2,047 | 15.3 | B | 1,840 | 14.7 | B | 2,040 | 15.4 | B |
| F-69 | I-215 | McCall Blvd to Ethanac Rd | 2,457 | 19.5 | C | 3,293 | 25.8 | C | 2,360 | 18.8 | C | 3,290 | 26.0 | C |
| F-70 | I-215 | Ethanac Rd to SR-74 | 3,787 | 34.5 | D | 3,150 | 24.4 | C | 3,690 | 33.3 | D | 3,160 | 24.7 | C |
| F-71 | I-215 | SR-74 to Redlands Ave | 3,350 | 28.5 | D | 4,181 | 37.4 | E | 3,240 | 27.3 | D | 4,230 | 38.6 | E |
| F-74 | I-215 | Columbia Ave to Center St | 5,587 | 33.5 | D | 5,150 | 27.3 | D | 5,520 | 33.1 | D | 5,290 | 28.6 | D |
| F-75 | I-215 | Center St to La Cadena Dr | 5,474 | 32.4 | D | 5,034 | 26.5 | D | 5,410 | 32.0 | D | 5,160 | 27.6 | D |
| F-76 | I-215 | La Cadena Dr to Barton Rd | 5,341 | 31.2 | D | 5,164 | 27.5 | D | 5,260 | 30.7 | D | 5,290 | 28.6 | D |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | 5,738 | 35.1 | E | 5,533 | 30.3 | D | 5,640 | 34.0 | D | 5,680 | 31.8 | D |
| F-78 | I-215 | Mt. Vernon Ave to I-10 | 5,582 | 22.5 | C | 5,420 | 20.5 | C | 5,450 | 21.9 | C | 5,580 | 21.3 | C |
| F-80 | I-215 | Auto Plaza Dr to Mill St | 4,319 | 17.1 | B | 4,533 | 17.0 | B | 4,190 | 16.6 | B | 4,620 | 17.4 | B |
| F-83 | I-215 | Baseline Rd to Highland Ave | 3,023 | 24.8 | C | 3,355 | 26.5 | D | 2,920 | 23.9 | C | 3,440 | 27.6 | D |
| F-52 | I-10 | SR-60 to Beaumont Ave | 3,037 | 11.9 | B | 4,252 | 16.4 | B | 3,050 | 12.0 | B | 4,380 | 17.0 | B |
| F-53 | I-10 | Beaumont Ave to Pennsylvania Ave | 3,087 | 12.1 | B | 4,322 | 16.7 | B | 3,070 | 12.0 | B | 4,400 | 17.1 | B |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs Ave | 3,236 | 12.6 | B | 4,531 | 17.5 | B | 3,200 | 12.6 | B | 4,610 | 17.9 | B |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | 3,112 | 12.2 | B | 4,357 | 16.8 | B | 3,060 | 12.0 | B | 4,420 | 17.2 | B |
| F-56 | I-10 | Sunset Ave to 22nd St | 3,037 | 11.9 | B | 4,252 | 16.4 | B | 2,970 | 11.7 | B | 4,310 | 16.7 | B |
| F-57 | I-10 | 22nd St to 8th St | 2,987 | 11.7 | B | 4,182 | 16.2 | B | 2,920 | 11.5 | B | 4,240 | 16.5 | B |
| F-58 | I-10 | 8th St to Hargrave St | 2,987 | 11.7 | B | 4,182 | 16.2 | B | 2,910 | 11.4 | B | 4,240 | 16.5 | B |
| F-59 | I-10 | Hargrave St to Fields Rd | 2,689 | 10.5 | A | 3,764 | 14.5 | B | 2,600 | 10.2 | A | 3,820 | 14.8 | B |
| F-60 | I-10 | Fields Rd to Morongo Trail | 2,564 | 10.0 | A | 3,590 | 13.9 | B | 2,480 | 9.7 | A | 3,650 | 14.2 | B |
| F-61 | I-10 | Morongo Trail to Main St | 2,265 | 8.8 | A | 3,172 | 12.3 | B | 2,190 | 8.6 | A | 3,230 | 12.5 | B |
| F-62 | I-10 | Main St to Haugen-Lehmann Way | 2,265 | 8.8 | A | 3,172 | 12.3 | B | 2,180 | 8.6 | A | 3,230 | 12.5 | B |
| F-64 | I-10 | SR-111 to Tipton Rd | 1,967 | 7.7 | A | 2,753 | 10.6 | A | 1,890 | 7.4 | A | 2,810 | 10.9 | A |
| F-65 | I-10 | Tipton Rd to SR-62 | 1,967 | 7.7 | A | 2,753 | 10.6 | A | 1,920 | 7.5 | A | 2,810 | 10.9 | A |

Indicates that the LOS exceeds the target level

## Table 39: Existing Plus Build-out Freeway Mainline LOS (continued)

| ID | Freeway | Segment | Existing Conditions | | | | | | Existing Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-2 | SR-60 | Reservoir St to Ramona Ave | 8,762 | 41.4 | E | 6,381 | 25.6 | C | 8,590 | 40.2 | E | 6,580 | 27.1 | D |
| F-3 | SR-60 | Ramona Ave to Central Ave | 8,283 | 37.1 | E | 5,925 | 23.4 | C | 8,080 | 35.8 | E | 6,140 | 24.9 | C |
| F-4 | SR-60 | Central Ave to Mountain Ave | 6,336 | 24.7 | C | 6,076 | 24.1 | C | 6,120 | 24.0 | C | 6,300 | 25.7 | C |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | 6,259 | 24.4 | C | 6,495 | 26.3 | D | 6,060 | 23.7 | C | 6,710 | 27.8 | D |
| F-6 | SR-60 | Euclid Ave to Grove Ave | 6,461 | 25.4 | C | 6,302 | 25.2 | C | 6,260 | 24.7 | C | 6,520 | 26.9 | D |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | 6,274 | 24.3 | C | 6,699 | 27.4 | D | 6,050 | 23.5 | C | 6,930 | 29.1 | D |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | 7,658 | 32.1 | D | 6,245 | 25.0 | C | 7,400 | 30.9 | D | 6,490 | 26.7 | D |
| F-9 | SR-60 | Archibald Ave to Haven Ave | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-10 | SR-60 | Haven Ave to Milliken Ave | 5,804 | 17.4 | B | 5,698 | 17.5 | B | 5,510 | 16.7 | B | 5,960 | 18.6 | C |
| F-11 | SR-60 | Milliken Ave to I-15 | 5,456 | 20.5 | C | 5,111 | 19.5 | C | 5,070 | 19.2 | C | 5,390 | 21.2 | C |
| F-12 | SR-60 | I-15 to Etiwanda Ave/Van Buren Blvd | 4,490 | 13.4 | B | 4,275 | 13.0 | B | 4,160 | 12.6 | B | 4,600 | 14.3 | B |
| F-13 | SR-60 | Etiwanda Ave/Van Buren Blvd to Mission | 4,220 | 15.7 | B | 3,881 | 14.8 | B | 3,850 | 14.6 | B | 4,290 | 16.7 | B |
| F-14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 4,172 | 15.5 | B | 3,963 | 15.1 | B | 3,820 | 14.5 | B | 4,360 | 17.0 | B |
| F-15 | SR-60 | Pedley Rd to Pyrite St | 3,216 | 12.0 | B | 3,068 | 11.7 | B | 2,860 | 10.9 | A | 3,440 | 13.5 | B |
| F-16 | SR-60 | Pyrite St to Valley Way | 2,653 | 9.9 | A | 2,567 | 9.8 | A | 2,310 | 8.9 | A | 2,960 | 11.7 | B |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | 4,532 | 23.1 | C | 4,725 | 24.9 | C | 4,150 | 21.3 | C | 5,120 | 28.7 | D |
| F-18 | SR-60 | Rubidoux Blvd to Market St | 3,568 | 17.7 | B | 3,868 | 19.7 | C | 3,260 | 16.6 | B | 4,320 | 23.1 | C |
| F-19 | SR-60 | Market St to Main St | 5,631 | 30.9 | D | 5,109 | 27.6 | D | 5,290 | 28.8 | D | 5,540 | 32.4 | D |
| F-20 | SR-60 | Main to SR-91 | 5,248 | 27.9 | D | 4,720 | 24.9 | C | 4,990 | 26.7 | D | 5,070 | 28.3 | D |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | 7,050 | 30.6 | D | 5,800 | 24.1 | C | 6,800 | 31.5 | D | 6,420 | 31.6 | D |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 7,461 | 31.1 | D | 6,376 | 25.6 | C | 7,140 | 29.9 | D | 7,030 | 30.8 | D |
| F-27 | SR-60 | I-215 to Day St | 7,050 | 47.9 | F | 3,093 | 15.9 | B | 7,000 | 50.0 | F | 3,530 | 19.5 | C |
| F-29 | SR-60 | Pigeon Pass Rd to Heacock St | 3,013 | 23.1 | C | 3,254 | 26.5 | D | 2,980 | 24.3 | C | 3,770 | 36.9 | E |
| F-30 | SR-60 | Heacock St to Perris Blvd | 2,638 | 19.9 | C | 2,671 | 20.8 | C | 2,710 | 21.9 | C | 3,320 | 30.3 | D |
| F-31 | SR-60 | Perris Blvd to Nason St | 1,910 | 14.3 | B | 2,045 | 15.8 | B | 2,120 | 17.2 | B | 2,830 | 24.8 | C |
| F-32 | SR-60 | Nason St to Moreno Beach Dr | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 988 | 7.4 | A | 1,336 | 10.3 | A | 1,330 | 11.3 | B | 2,070 | 18.1 | C |
| F-34 | SR-60 | Redlands Blvd to Theodore St | 1,193 | 8.9 | A | 1,498 | 11.6 | B | 1,660 | 13.8 | B | 2,300 | 19.4 | C |
| F-35 | SR-60 | Theodore St to Gilman Springs Rd | 1,183 | 8.9 | A | 1,393 | 10.8 | A | 1,100 | 8.6 | A | 1,510 | 12.3 | B |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 837 | 7.0 | A | 1,002 | 9.1 | A | 1,070 | 10.9 | A | 980 | 10.7 | A |
| F-37 | SR-60 | Jack Rabbit Trail to I-10 | 837 | 6.3 | A | 1,002 | 7.7 | A | 1,070 | 8.3 | A | 980 | 7.8 | A |
| F-39 | SR-91 | I-15 to McKinley St | 6,402 | 25.1 | C | 5,971 | 24.1 | C | 6,240 | 24.4 | C | 6,170 | 25.4 | C |
| F-40 | SR-91 | McKinley St to Pierce St | 4,788 | 25.0 | C | 5,183 | 29.3 | D | 4,620 | 24.2 | C | 5,370 | 31.4 | D |
| F-41 | SR-91 | Pierce St to Magnolia Ave | 4,629 | 23.9 | C | 7,050 | 53.3 | F | 4,470 | 23.2 | C | 7,230 | 58.8 | F |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | 4,894 | 25.7 | C | 7,050 | 53.3 | F | 4,740 | 25.0 | C | 7,210 | 58.4 | F |
| F-43 | SR-91 | La Sierra Ave to Tyler St | 4,467 | 22.9 | C | 5,167 | 29.2 | D | 4,290 | 22.1 | C | 5,330 | 31.0 | D |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | 5,769 | 22.1 | C | 6,661 | 27.8 | D | 5,630 | 21.7 | C | 6,810 | 29.1 | D |

## Table 39: Existing Plus Build-out Freeway Mainline LOS (continued)

| ID | Freeway | Segment | Existing Conditions | | | | | | Existing Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-45 | SR-91 | Van Buren Blvd to Adam St | 5,342 | 20.2 | C | 6,401 | 26.3 | D | 5,230 | 20.0 | C | 6,560 | 27.6 | D |
| F-46 | SR-91 | Adam St to Madison St | 4,939 | 18.6 | C | 5,453 | 21.5 | C | 4,840 | 18.4 | C | 5,590 | 22.4 | C |
| F-47 | SR-91 | Madison St to Arlington Ave | 4,218 | 21.4 | C | 4,711 | 25.5 | C | 4,140 | 21.2 | C | 4,830 | 26.9 | D |
| F-49 | SR-91 | Central Ave to 14th St | 4,737 | 24.7 | C | 4,940 | 27.2 | D | 4,700 | 24.7 | C | 5,030 | 28.5 | D |
| F-51 | SR-91 | University Ave to Spruce St | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-66 | I-215 | Scott Rd to Newport Rd | 2,294 | 17.2 | B | 2,318 | 17.2 | B | 2,270 | 17.1 | B | 2,240 | 16.7 | B |
| F-68 | I-215 | Newport Rd to McCall Blvd | 2,528 | 19.0 | C | 3,111 | 23.7 | C | 2,530 | 19.1 | C | 3,040 | 23.2 | C |
| F-69 | I-215 | McCall Blvd to Ethanac Rd | 3,069 | 23.6 | C | 2,539 | 18.9 | C | 3,080 | 23.9 | C | 2,490 | 18.6 | C |
| F-70 | I-215 | Ethanac Rd to SR-74 | 2,882 | 21.9 | C | 3,854 | 32.0 | D | 2,900 | 22.2 | C | 3,840 | 32.0 | D |
| F-71 | I-215 | SR-74 to Redlands Ave | 4,539 | 44.2 | **E** | 3,710 | 30.1 | D | 4,600 | 45.5 | **F** | 3,650 | 29.6 | D |
| F-74 | I-215 | Columbia Ave to Center St | 5,191 | 27.6 | D | 4,917 | 25.4 | C | 5,320 | 28.8 | D | 4,870 | 25.2 | C |
| F-75 | I-215 | Center St to La Cadena Dr | 5,541 | 30.4 | D | 5,235 | 27.6 | D | 5,690 | 31.9 | D | 5,180 | 27.4 | D |
| F-76 | I-215 | La Cadena Dr to Barton Rd | 5,414 | 29.4 | D | 5,196 | 27.3 | D | 5,530 | 30.5 | D | 5,160 | 27.2 | D |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | 5,435 | 29.5 | D | 5,256 | 27.7 | D | 5,550 | 30.7 | D | 5,210 | 27.6 | D |
| F-78 | I-215 | Mt. Vernon Ave to I-10 | 5,776 | 22.0 | C | 5,606 | 21.0 | C | 5,900 | 22.7 | C | 5,550 | 20.8 | C |
| F-80 | I-215 | Auto Plaza Dr to Mill St | 4,022 | 15.1 | B | 4,090 | 15.2 | B | 4,120 | 15.5 | B | 4,000 | 14.9 | B |
| F-83 | I-215 | Baseline Rd to Highland Ave | 4,537 | 44.1 | **E** | 4,700 | 46.7 | **F** | 4,630 | 46.7 | **F** | 4,610 | 45.2 | **F** |
| F-52 | I-10 | SR-60 to Beaumont Ave | 4,288 | 18.1 | C | 3,675 | 13.8 | B | 4,340 | 18.5 | C | 3,730 | 14.0 | B |
| F-53 | I-10 | Beaumont Ave to Pennsylvania Ave | 4,358 | 18.4 | C | 3,736 | 14.0 | B | 4,430 | 18.8 | C | 3,750 | 14.1 | B |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs Ave | 4,569 | 19.4 | C | 3,916 | 14.7 | B | 4,630 | 19.8 | C | 3,910 | 14.7 | B |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | 4,393 | 18.6 | C | 3,766 | 14.1 | B | 4,460 | 19.0 | C | 3,750 | 14.1 | B |
| F-56 | I-10 | Sunset Ave to 22nd St | 4,288 | 18.1 | C | 3,675 | 13.8 | B | 4,350 | 18.5 | C | 3,640 | 13.7 | B |
| F-57 | I-10 | 22nd St to 8th St | 4,218 | 17.8 | B | 3,615 | 13.5 | B | 4,280 | 18.2 | C | 3,580 | 13.5 | B |
| F-58 | I-10 | 8th St to Hargrave St | 4,218 | 17.8 | B | 3,615 | 13.5 | B | 4,280 | 18.2 | C | 3,570 | 13.4 | B |
| F-59 | I-10 | Hargrave St to Fields Rd | 3,796 | 16.0 | B | 3,254 | 12.2 | B | 3,860 | 16.4 | B | 3,190 | 12.0 | B |
| F-60 | I-10 | Fields Rd to Morongo Trail | 3,620 | 15.3 | B | 3,103 | 11.6 | B | 3,680 | 15.6 | B | 3,040 | 11.4 | B |
| F-61 | I-10 | Morongo Trail to Main St | 3,198 | 13.5 | B | 2,741 | 10.3 | A | 3,260 | 13.8 | B | 2,680 | 10.1 | A |
| F-62 | I-10 | Main St to Haugen-Lehmann Way | 3,198 | 13.5 | B | 2,741 | 10.3 | A | 3,270 | 13.9 | B | 2,680 | 10.1 | A |
| F-64 | I-10 | SR-111 to Tipton Rd | 2,777 | 11.7 | B | 2,380 | 8.9 | A | 2,840 | 12.1 | B | 2,340 | 8.8 | A |
| F-65 | I-10 | Tipton Rd to SR-62 | 2,777 | 11.7 | B | 2,380 | 8.9 | A | 2,840 | 12.1 | B | 2,340 | 8.8 | A |

Indicates that the LOS exceeds the target level

## Table 40: Existing Plus Build-out Freeway Mainline Impacts and Mitigations

**Northbound / Eastbound**

| ID | Freeway | Segment | Determination of Impact | | | | | Existing Plus Build-out & Mitigations | | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | |
| | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | |
| F-6 | SR-60 | Euclid Ave to Grove Ave | D | E | E | E | Yes | 8,010 | 26.9 | D | 8,950 | 29.2 | D | Add 1 mixed flow lane |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | C | D | F | F | Yes | 6,620 | 24.7 | C | 8,760 | 32.5 | D | Add 1 mixed flow lane |
| F-49 | SR-91 | Central Ave to 14th St | D | E | D | D | Yes | 6,100 | 23.7 | C | 5,410 | 21.5 | C | Add 1 mixed flow lane |
| F-71 | I-215 | SR-74 to Redlands Ave | D | D | E | E | Yes | 3,240 | 17.1 | B | 4,230 | 21.5 | C | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

**Southbound / Westbound**

| ID | Freeway | Segment | Determination of Impact | | | | | Existing Plus Build-out & Mitigations | | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | |
| | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | |
| F-27 | SR-60 | I-215 to Day St | F | F | B | C | Yes | 7,000 | 29.1 | D | 3,530 | 14.6 | B | Add 1 mixed flow lane |
| F-29 | SR-60 | Pigeon Pass Rd/Frederick St to Heacock St | C | C | D | E | Yes | 2,980 | 15.7 | B | 3,770 | 20.9 | C | Add 1 mixed flow lane |
| F-41 | SR-91 | Pierce St to Magnolia Ave | C | C | F | F | Yes | 4,470 | 17.0 | B | 7,230 | 31.9 | D | Add 1 mixed flow lane |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | C | C | F | F | Yes | 4,740 | 18.0 | C | 7,210 | 31.7 | D | Add 1 mixed flow lane |
| F-71 | I-215 | SR-74 to Redlands Ave | E | F | D | D | Yes | 4,600 | 23.6 | C | 3,650 | 18.1 | C | Add 1 mixed flow lane |
| F-83 | I-215 | Baseline Rd to Highland Ave | E | F | F | F | Yes | 4,630 | 23.9 | C | 4,610 | 23.5 | C | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

***Freeway Weaving LOS***

Table 41 compares the LOS for the study weaving sections under Existing and Existing Plus Build-out conditions. As shown in Table 41, there are six sections where the project would have a significant impact. Five of these sections would be deficient under both Existing and Existing Plus Build-out conditions, namely:

Northbound and Eastbound

- SR-60 from SR-91 to Blaine St./3rd St.
- SR-60 from Blaine St./3rd St. to University Ave.
- SR-91 from Arlington Ave. to Central Ave.

Southbound and Westbound

- SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.
- SR-91 from 14th St. to University Ave.

An additional section was found to be deficient under Plus Build-out conditions: SR-60 Central Ave. to Fair Isle Dr./Box Springs Rd. (in the eastbound direction).

Table 42 shows that in every case the addition of a mixed-flow lane or a second off-ramp lane would reduce the impact of the WLC project to a less-than-significant level. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS, this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## Table 41: Existing Plus Build-out Freeway Weaving Section LOS

| ID | Freeway | Weaving Segment | Existing Conditions | | | | | | Existing Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | 5,985 | 24.0 | C | 8,616 | 35.7 | **E** | 6,300 | 26.0 | C | 8,500 | 35.6 | **E** |
| W-9 | SR-60 | Haven Ave to Archibald Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-20 | SR-60 | Main St to SR-91 | 5,418 | 25.8 | C | 7,050 | 33.6 | D | 5,890 | 29.0 | D | 6,910 | 33.6 | D |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | 3,885 | 14.8 | B | 9,400 | 39.0 | **E** | 4,590 | 18.8 | B | 9,270 | 39.4 | **E** |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | 3,919 | 18.7 | B | 7,050 | 37.4 | **E** | 4,520 | 25.4 | C | 6,930 | 39.3 | **E** |
| W-23 | SR-60 | University Ave to Martin Luther King | 4,528 | 20.4 | C | 5,932 | 25.7 | C | 5,170 | 24.8 | C | 5,760 | 25.6 | C |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | 3,856 | 14.5 | B | 7,840 | 32.4 | D | 4,700 | 20.8 | C | 7,820 | 35.0 | **E** |
| W-27 | SR-60 | I-215 to Day St | 2,988 | 10.6 | B | 4,704 | 18.8 | B | 3,870 | 17.7 | B | 4,810 | 19.5 | B |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 2,995 | 12.8 | B | 4,749 | 20.7 | C | 3,710 | 16.9 | B | 4,730 | 21.3 | C |
| W-32 | SR-60 | Moreno Beach Dr to Nason St | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-42 | SR-91 | Magnolia Ave to La Sierra Ave | 5,445 | 24.6 | C | 5,684 | 27.4 | C | 5,640 | 25.8 | C | 5,590 | 27.1 | C |
| W-48 | SR-91 | Arlington Ave to Central Ave | 7,050 | 35.3 | **E** | 4,073 | 19.6 | B | 7,220 | 36.9 | **E** | 4,080 | 19.9 | B |
| W-50 | SR-91 | 14th St to University Ave | 4,643 | 21.8 | C | 4,441 | 21.9 | C | 4,690 | 22.3 | C | 4,460 | 22.1 | C |
| W-51 | SR-91 | SR-60 to Mission Inn Ave/University Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-73 | I-215 | SR-60 to Columbia Ave | 6,260 | 34.4 | D | 5,548 | 28.0 | C | 6,230 | 34.7 | D | 5,670 | 29.4 | D |
| W-79 | I-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 4,400 | 16.3 | B | 4,147 | 14.5 | B | 4,270 | 15.9 | B | 4,240 | 15.1 | B |
| W-81 | I-215 | Mill St to 2nd St | 5,044 | 23.0 | C | 5,095 | 22.5 | C | 4,920 | 22.5 | C | 5,180 | 23.0 | C |
| W-82 | I-215 | 5th St to Baseline Rd | 3,754 | 16.5 | B | 3,590 | 14.9 | B | 3,660 | 16.1 | B | 3,670 | 15.4 | B |
| W-63 | I-10 | Haugen-Lehmann Way to SR-111 | 2,265 | 7.5 | A | 3,172 | 10.5 | B | 2,180 | 7.2 | A | 3,230 | 10.8 | B |

Indicates that the LOS exceeds the target level

## Table 41: Existing Plus Build-out Freeway Weaving Section LOS (continued)

| ID | Freeway | Weaving Segment | Existing Conditions | | | | | | Existing Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | 6,125 | 21.4 | C | 5,892 | 20.8 | C | 5,950 | 21.0 | C | 6,090 | 21.9 | C |
| W-9 | SR-60 | Haven Ave to Archibald Ave | 6,288 | 23.5 | C | 6,071 | 23.5 | C | 6,010 | 22.6 | C | 6,320 | 25.0 | C |
| W-20 | SR-60 | Main St to SR-91 | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | 7,729 | 28.6 | D | 7,211 | 27.2 | C | 7,360 | 27.7 | C | 7,770 | 30.7 | D |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | 5,714 | 20.1 | C | 6,204 | 23.0 | C | 5,360 | 20.3 | C | 6,820 | 27.9 | C |
| W-23 | SR-60 | University Ave to Martin Luther King | 5,601 | 28.0 | C | 5,876 | 28.0 | C | 5,300 | 26.9 | C | 6,440 | 32.9 | D |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | 7,050 | 37.0 | E | 6,026 | 29.3 | D | 6,860 | 38.1 | E | 6,500 | 35.2 | E |
| W-27 | SR-60 | I-215 to Day St | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 4,700 | 31.0 | D | 4,197 | 27.2 | C | 4,580 | 30.9 | D | 4,760 | 33.4 | D |
| W-32 | SR-60 | Moreno Beach Dr to Nason St | 1,609 | 9.2 | A | 1,753 | 10.2 | B | 1,910 | 11.7 | B | 2,480 | 16.0 | B |
| W-42 | SR-91 | Magnolia Ave to La Sierra Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-48 | SR-91 | Arlington Ave to Central Ave | 4,642 | 21.1 | C | 5,118 | 23.8 | C | 4,520 | 20.7 | C | 5,250 | 25.0 | C |
| W-50 | SR-91 | 14th St to University Ave | 5,179 | 24.1 | C | 7,050 | 35.5 | E | 5,230 | 24.6 | C | 7,080 | 36.2 | E |
| W-51 | SR-91 | SR-60 to Mission Inn Ave/University Ave | 5,075 | 14.4 | B | 8,804 | 26.9 | C | 5,120 | 14.8 | B | 8,840 | 27.3 | C |
| W-73 | I-215 | SR-60 to Columbia Ave | 5,877 | 26.4 | C | 5,495 | 24.5 | C | 6,000 | 27.3 | C | 5,440 | 24.5 | C |
| W-79 | I-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 4,890 | 16.8 | B | 4,591 | 16.3 | B | 4,970 | 17.2 | B | 4,490 | 16.1 | B |
| W-81 | I-215 | Mill St to 2nd St | 4,442 | 19.6 | B | 4,380 | 19.4 | B | 4,540 | 20.1 | C | 4,290 | 19.0 | B |
| W-82 | I-215 | 5th St to Baseline Rd | 3,607 | 15.6 | B | 3,481 | 15.1 | B | 3,710 | 16.2 | B | 3,400 | 14.8 | B |
| W-63 | I-10 | Haugen-Lehmann Way to SR-111 | 3,198 | 11.8 | B | 2,741 | 10.3 | B | 3,270 | 12.2 | B | 2,680 | 10.1 | B |

Indicates that the LOS exceeds the target level

## Table 42: Existing Plus Build-out Freeway Weaving Impacts and Mitigations

**Northbound / Eastbound**

| ID | Freeway | Weaving Segment | Determination of Impact | | | | | Existing Plus Build-out & Mitigations | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | |
| | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| W-21 | SR-60 | SR-91 to W Blaine St/3rd St | B | B | E | E | Yes | 4,590 | 15.4 | B | 9,270 | 31.9 | D | Add 1 mixed flow lane |
| W-22 | SR-60 | W Blaine St/3rd St to University Ave | B | C | E | E | Yes | 4,520 | 19.9 | B | 6,930 | 30.5 | D | Add 1 mixed flow lane |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | B | C | D | E | Yes | 4,700 | 16.9 | B | 7,820 | 26.8 | C | Add 1 mixed flow lane |
| W-48 | SR-91 | Arlington Ave to Central Ave | E | E | B | B | Yes | 7,220 | 34.0 | D | 4,080 | 18.2 | B | Add a second off-ramp lane |

Indicates that the LOS exceeds the target level

**Southbound / Westbound**

| ID | Freeway | Weaving Segment | Determination of Impact | | | | | Existing Plus Build-out & Mitigations | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | |
| | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | E | E | D | E | Yes | 6,860 | 29.6 | D | 6,500 | 27.3 | C | Add 1 mixed flow lane |
| W-50 | SR-91 | 14th St to University Ave | C | C | E | E | Yes | 5,230 | 22.7 | C | 7,080 | 33.7 | D | Add a second off-ramp lane |

Indicates that the LOS exceeds the target level

***Freeway Ramp LOS***

Table 43 compares the freeway ramp level of service on SR-60 under Existing and Existing Plus Build-out conditions. One study ramp, namely the SR-60 eastbound on-ramp from Central Ave. currently operates at LOS "F" in the PM peak hour and would also operate at LOS "F" under Existing Plus Build-out conditions, but with a higher traffic density. Adding a mixed-flow lane to the freeway would reduce the impact of the project to a less-than-significant level.

Table 44 shows the mitigation measures needed to reduce the impacts of the WLC to a less-than-significant level. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS, this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## Table 43: Existing Plus Build-out Freeway Ramp Level of Service

| ID | Freeway / Direction | Ramp Segment | Ramp No. of Lanes | Existing Conditions | | | | | | | | Existing Plus Build-out Conditions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | | PM Peak Hour | | | | AM Peak Hour | | | | PM Peak Hour | | | |
| | | | | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS |
| R-1 | SR-60 EB | On-Ramp from Martin Luther King Blvd | 1 | 4,110 | 242 | 16.9 | B | 5,678 | 906 | 26.5 | C | 4,740 | 350 | 20.9 | C | 5,480 | 1,300 | 29.6 | D |
| R-2 | SR-60 EB | On-Ramp from Central Ave | 1 | 5,796 | 349 | 18.5 | B | 8,868 | 904 | 31.8 | F | 6,510 | 480 | 22.9 | C | 8,630 | 1,000 | 32.5 | F |
| R-3 | SR-60 EB | Off-Ramp to Redlands Blvd | 1 | 1,326 | 119 | 3.3 | A | 1,397 | 30 | 3.2 | A | 2,140 | 390 | 13.9 | B | 1,750 | 450 | 8.6 | A |
| R-4 | SR-60 EB | Loop On-Ramp from Redlands Blvd | 1 | 1,207 | 26 | 12.9 | B | 1,367 | 25 | 13.6 | B | 1,750 | 80 | 20.1 | C | 1,300 | 110 | 15.3 | B |
| R-5 | SR-60 EB | Direct On-Ramp from Redlands Blvd | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-6 | SR-60 EB | Off-Ramp to Theodore St | 1 | 1,614 | 207 | 17.3 | B | 1,920 | 434 | 19.1 | B | 2,590 | 1,160 | 18.5 | B | 2,380 | 810 | 16.0 | B |
| R-7 | SR-60 EB | Loop On-Ramp from Theodore St | 1 | 1,407 | 70 | 16.5 | B | 1,486 | 71 | 16.5 | B | 1,430 | 10 | 17.5 | B | 1,570 | 10 | 18.0 | B |
| R-8 | SR-60 EB | Direct On-Ramp from Theodore St | 1 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | 1,420 | 120 | 18.4 | B | 1,560 | 250 | 20.1 | C |
| R-9 | SR-60 EB | Off-Ramp to Gilman Springs Rd | 1 | 1,521 | 330 | 16.4 | B | 1,915 | 385 | 19.0 | B | 1,550 | 419 | 17.2 | B | 1,830 | 431 | 18.8 | B |
| R-10 | SR-60 EB | On-Ramp from Gilman Springs Rd | 1 | 1,191 | 7 | 14.2 | B | 1,530 | 8 | 16.3 | B | 1,131 | 30 | 14.2 | B | 1,399 | 59 | 16.1 | B |
| R-11 | SR-60 WB | Off-Ramp to Gilman Springs Rd | 1 | 837 | 11 | 9.6 | A | 1,002 | 9 | 11.3 | B | 1,070 | 97 | 12.0 | B | 980 | 30 | 11.4 | B |
| R-12 | SR-60 WB | On-Ramp from Gilman Springs Rd | 1 | 826 | 357 | 13.5 | B | 993 | 306 | 14.6 | B | 973 | 405 | 15.5 | B | 950 | 466 | 16.2 | B |
| R-13 | SR-60 WB | Off-Ramp to Theodore St | 1 | 1,183 | 24 | 12.7 | B | 1,393 | 26 | 14.9 | B | 1,100 | 210 | 7.1 | A | 1,510 | 90 | 10.1 | A |
| R-14 | SR-60 WB | On-Ramp from Theodore St | 1 | 1,159 | 34 | 12.1 | B | 1,367 | 131 | 14.8 | B | 890 | 740 | 17.1 | B | 1,420 | 850 | 22.8 | C |
| R-15 | SR-60 WB | Off-Ramp to Redlands Blvd | 1 | 1,193 | 49 | 12.8 | B | 1,498 | 38 | 15.9 | B | 1,660 | 100 | 18.7 | B | 2,300 | 60 | 25.2 | C |
| R-16 | SR-60 WB | Loop On-Ramp from Redlands Blvd | 1 | 1,144 | 329 | 14.3 | B | 1,460 | 361 | 17.4 | B | 1,560 | 350 | 19.3 | B | 2,240 | 590 | 28.0 | C |
| R-17 | SR-60 WB | Direct On-Ramp from Redlands Blvd | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-18 | SR-60 WB | Off-Ramp to Central Ave | 2 | 7,050 | 384 | 32.6 | D | 6,026 | 439 | 28.5 | D | 6,860 | 400 | 32.5 | D | 6,500 | 450 | 31.8 | D |
| R-19 | SR-60 WB | Off-Ramp to Martin Luther King Blvd | 1 | 7,050 | 474 | 21.0 | C | 5,800 | 337 | 15.9 | B | 6,800 | 510 | 20.8 | C | 6,420 | 370 | 19.5 | B |

Indicates that the LOS exceeds the target level

## Table 44: Existing Plus Build-out Freeway Ramp Impacts and Mitigations

| ID | Freeway / Direction | Ramp Segment | Ramp No. of Lanes | Determination of Impact | | | | | Existing Plus Build-out & Mitigations | | | | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | | PM Peak Hour | | | | |
| | | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | Project Impact? | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | |
| R-2 | SR-60 EB | On-Ramp from Central Ave | 1 | B | C | F | F | Yes | 6,510 | 480 | 16.7 | B | 8,630 | 1,000 | 24.8 | C | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

# 7. 2022 NO-PROJECT CONDITIONS

This chapter describes traffic conditions under the assumption that existing land uses plus other past, present, and reasonably foreseeable projects (both land development and roadway improvements) up to the year 2022 are implemented. Conditions on the WLC site were assumed to be unchanged from existing conditions. This scenario forms a basis of comparison for the 2022 Plus Phase 1 scenario that is discussed in the next chapter of this report. The 2022 scenarios are the "cumulative" scenarios in that they incorporate all known land development projects and all funded roadway projects.

## A. 2022 NO-PROJECT TRAFFIC VOLUMES

The forecast turning movement volumes for this scenario are shown in Figure 50. Figure 16 is the key map for the Figure 50 sub-figures.

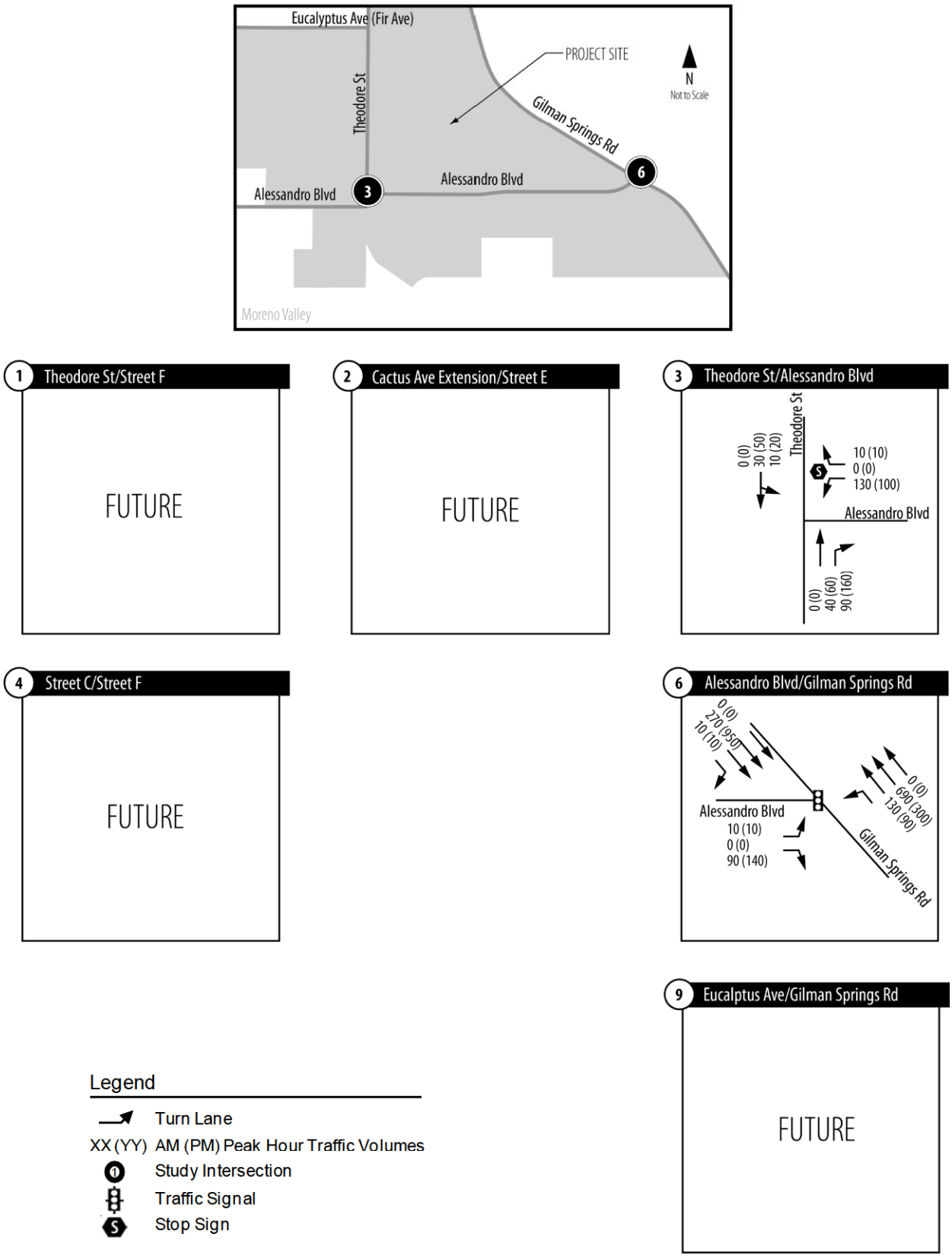



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions**

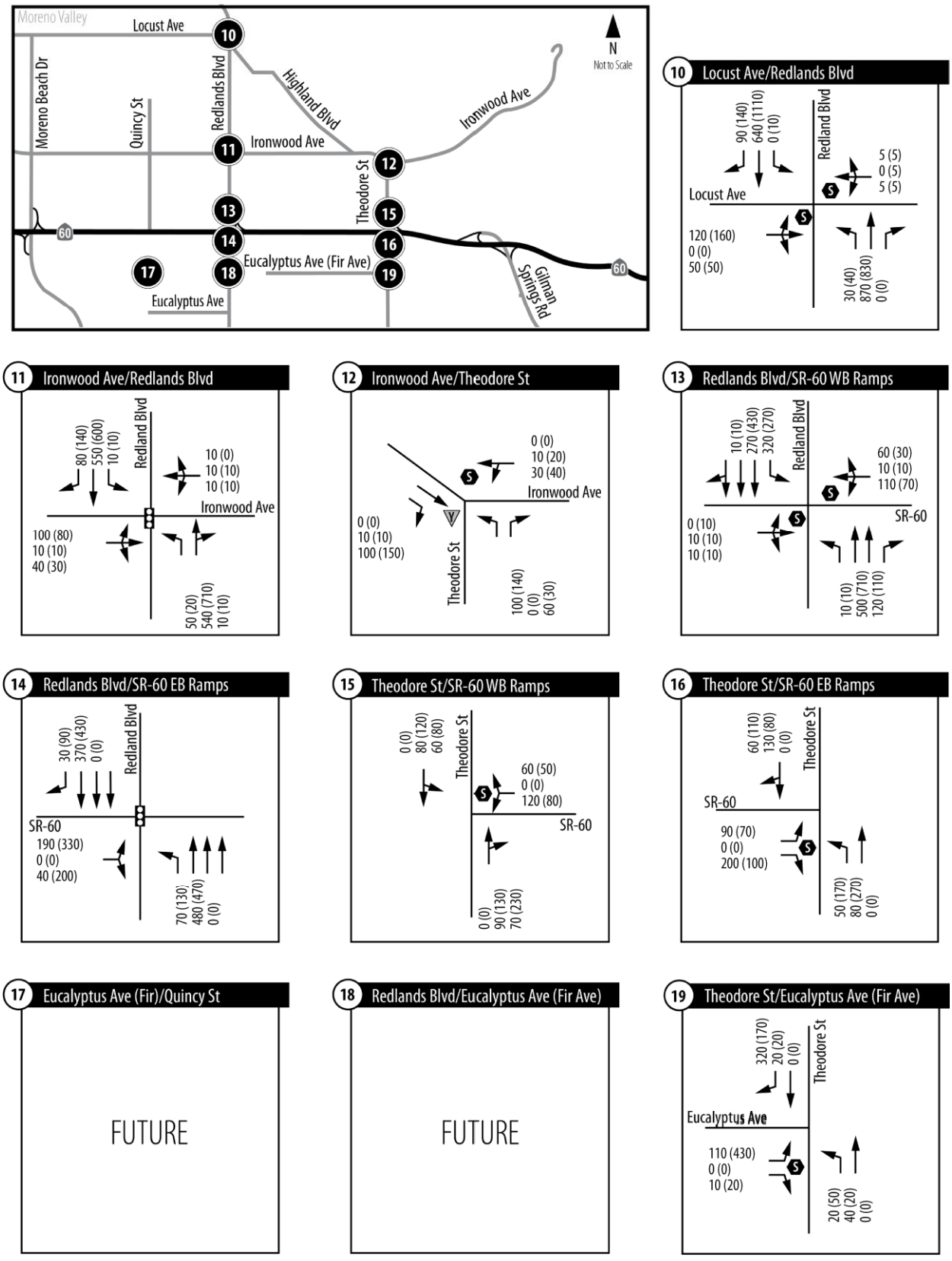



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (B)**

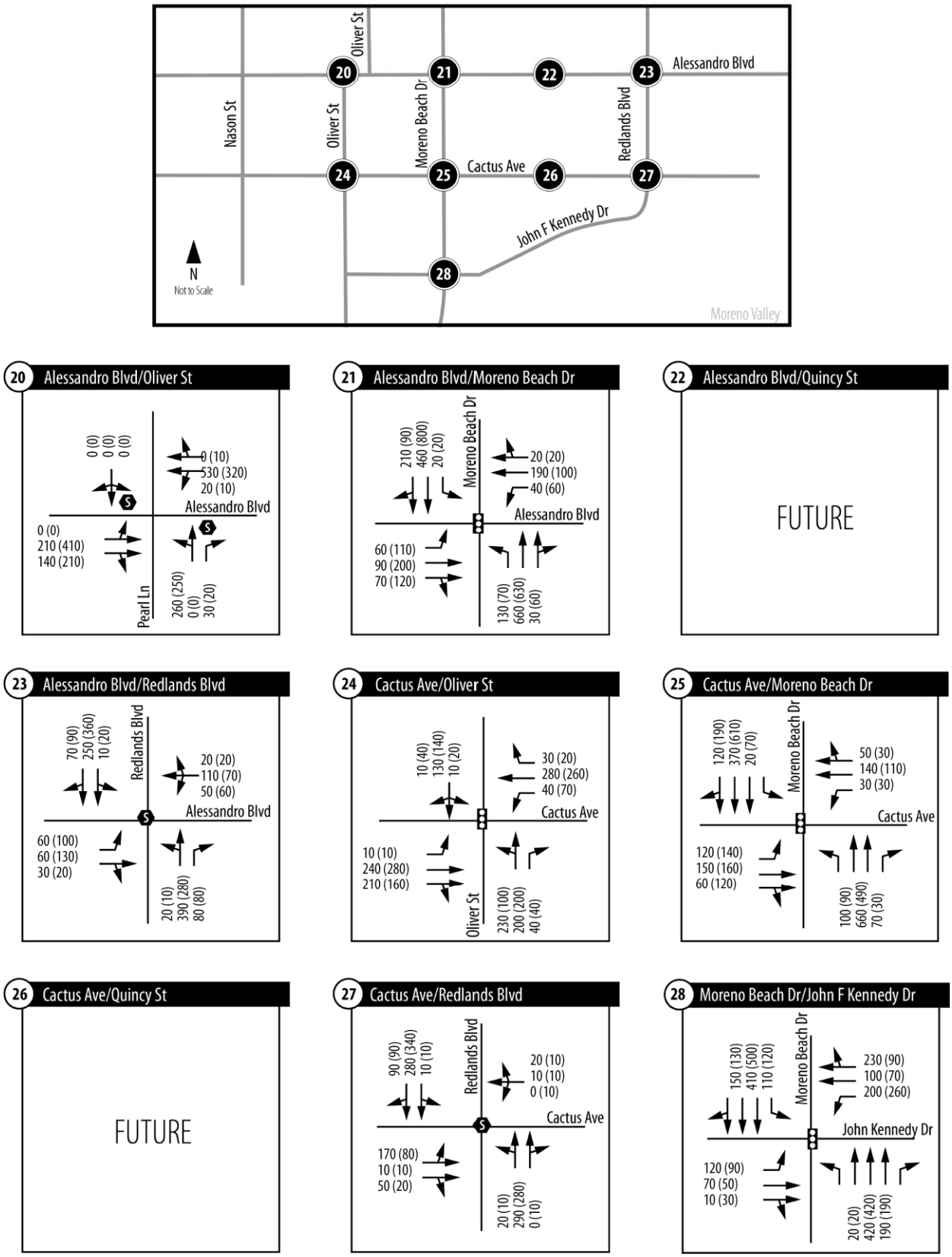



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (C)**

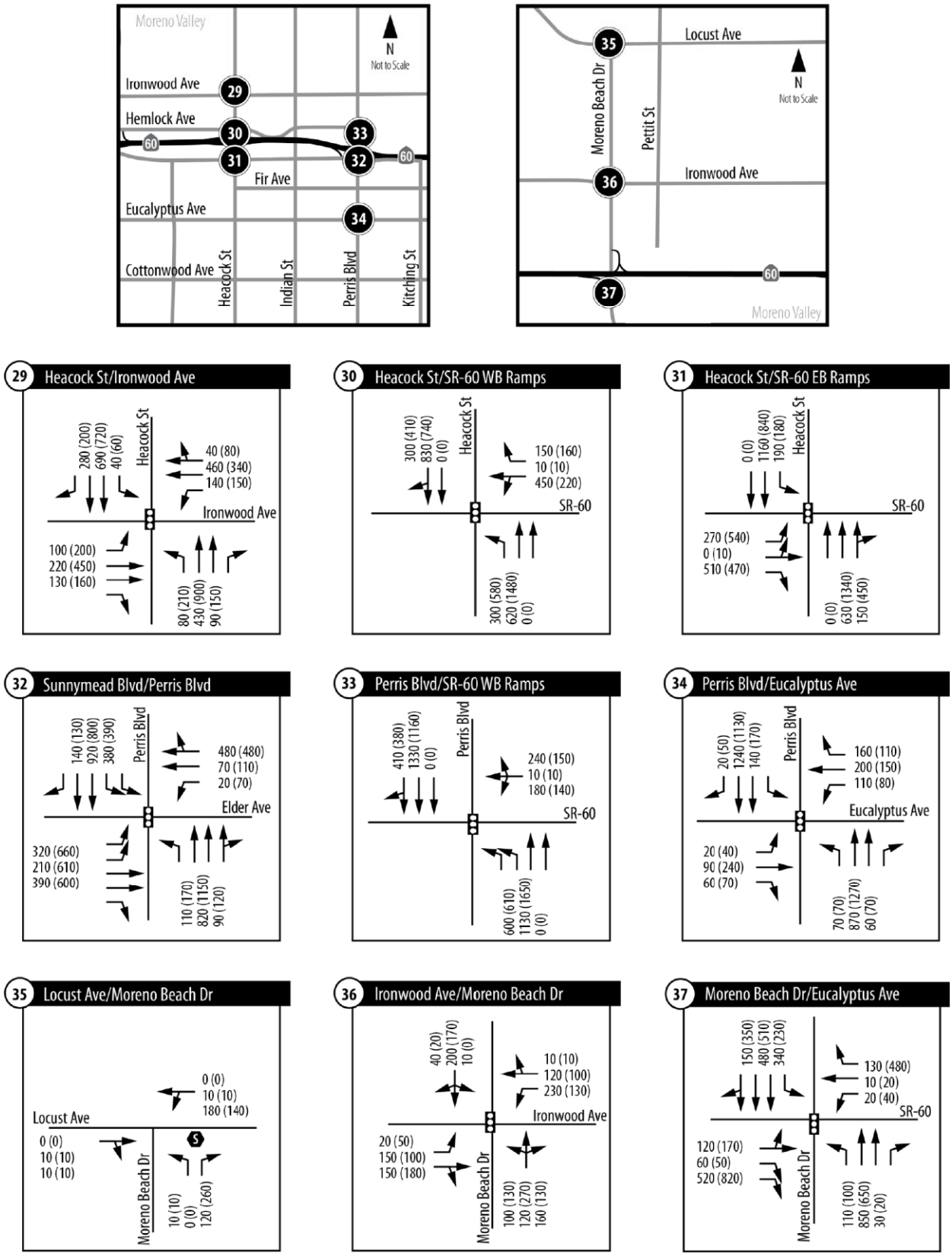



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (D)**

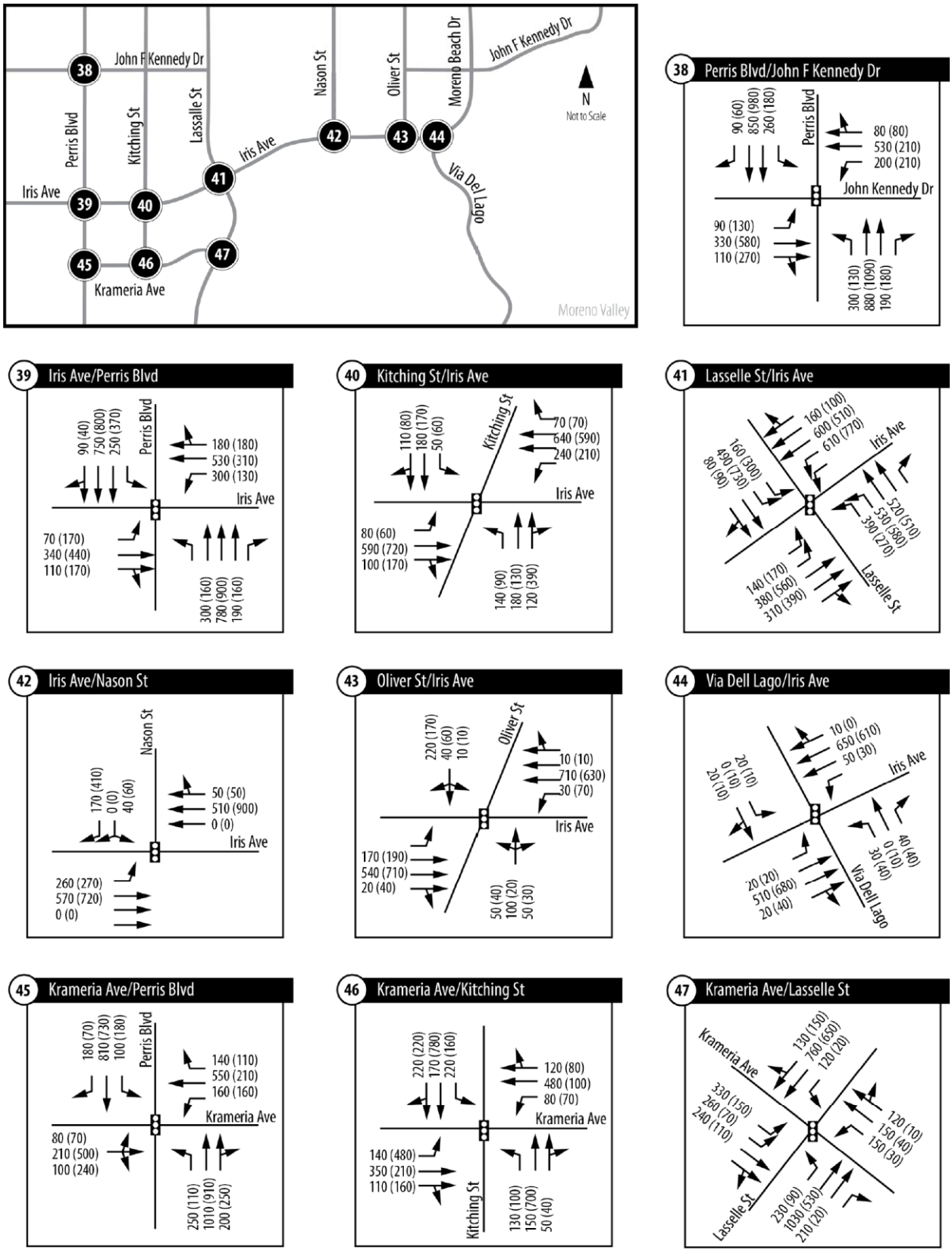



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (E)**

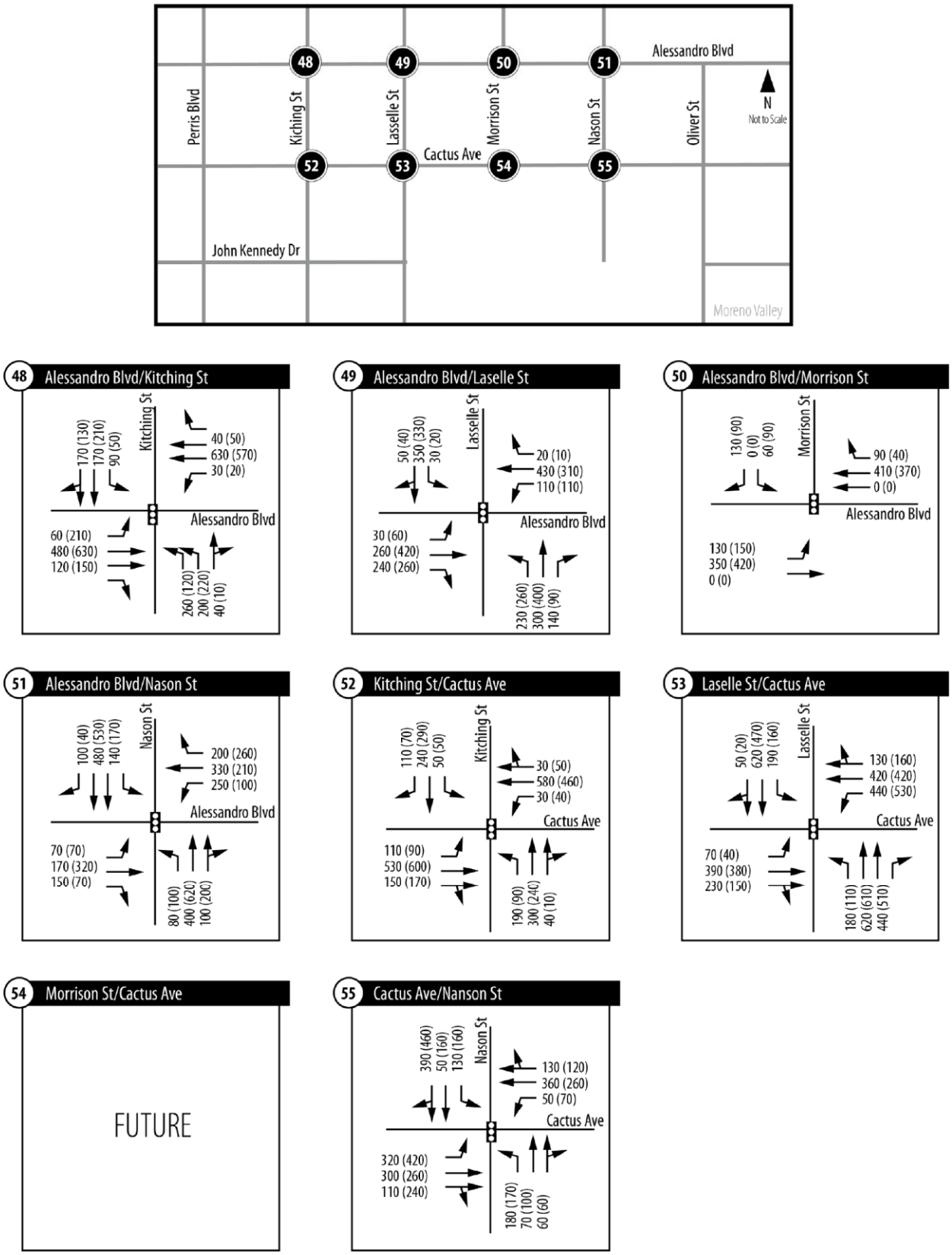



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (F)**

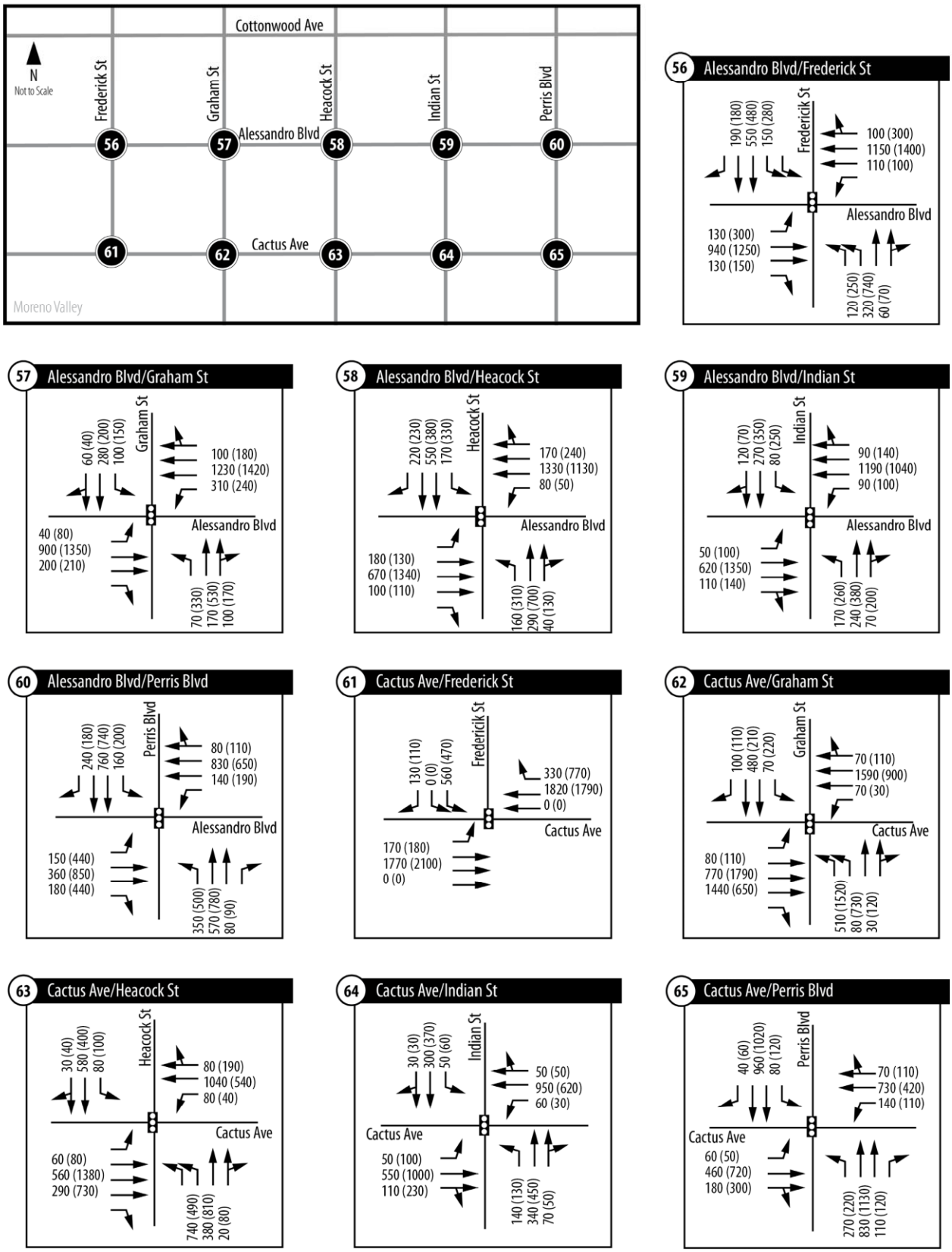



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (G)**

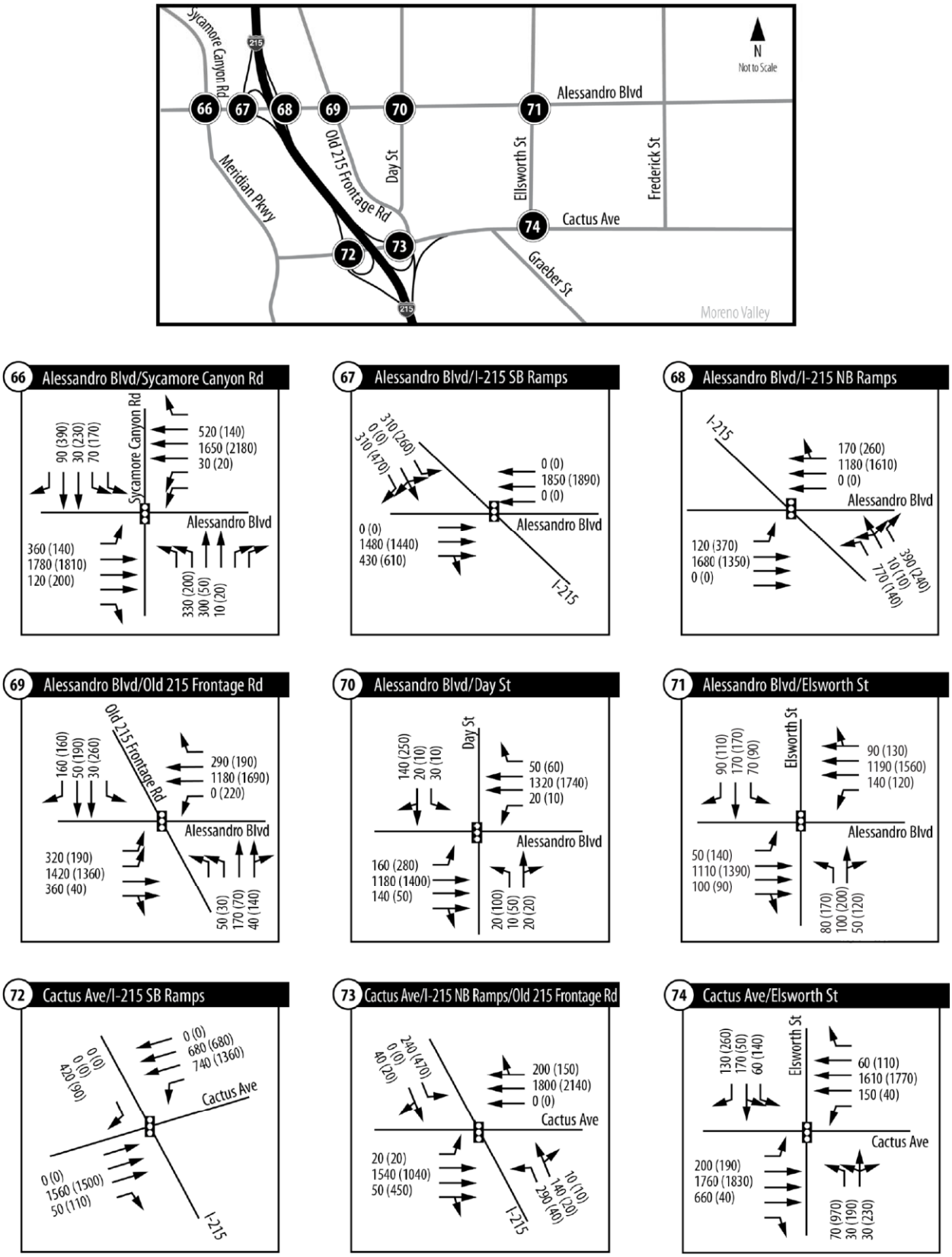



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (H)**

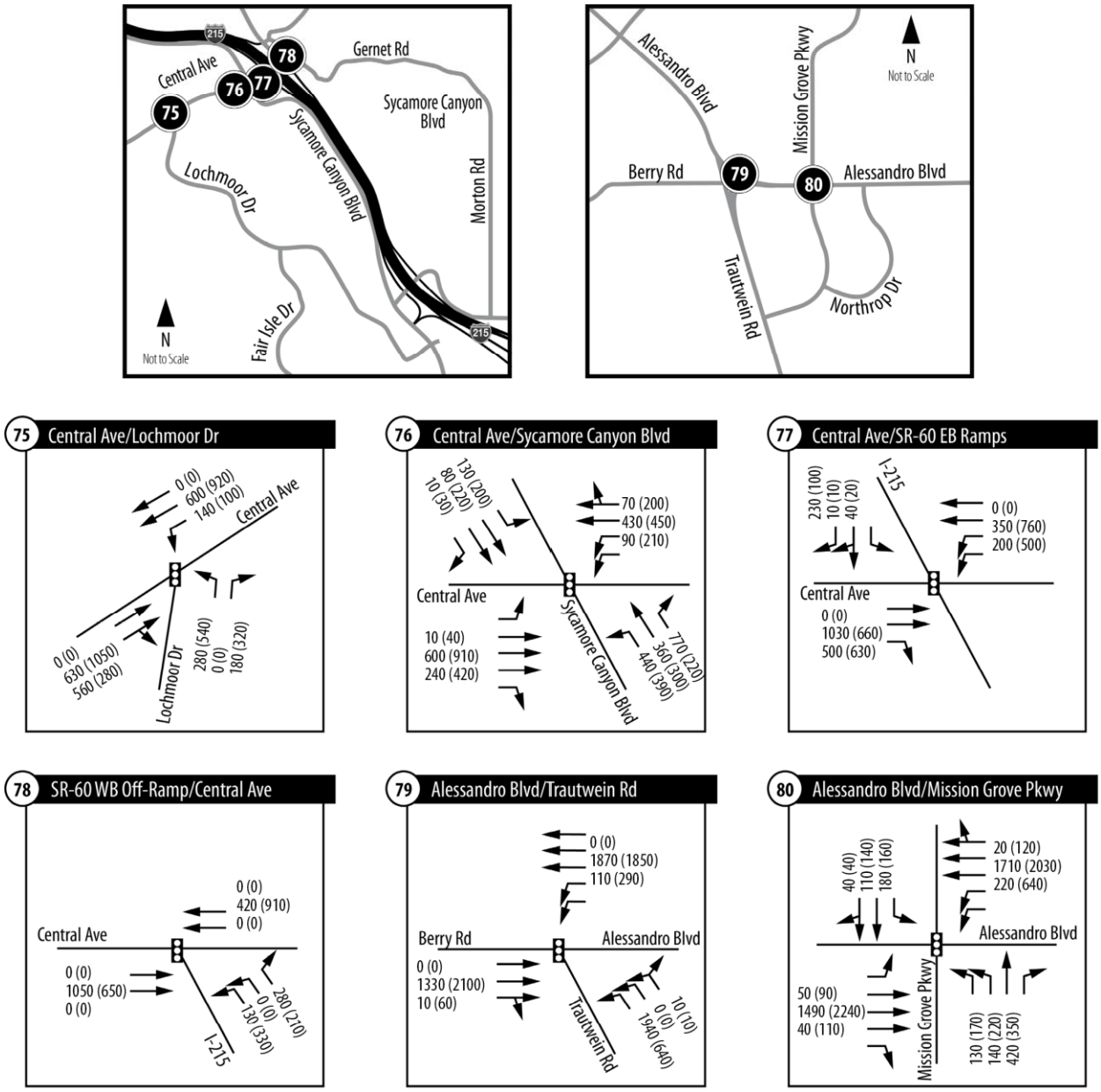



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (I)**

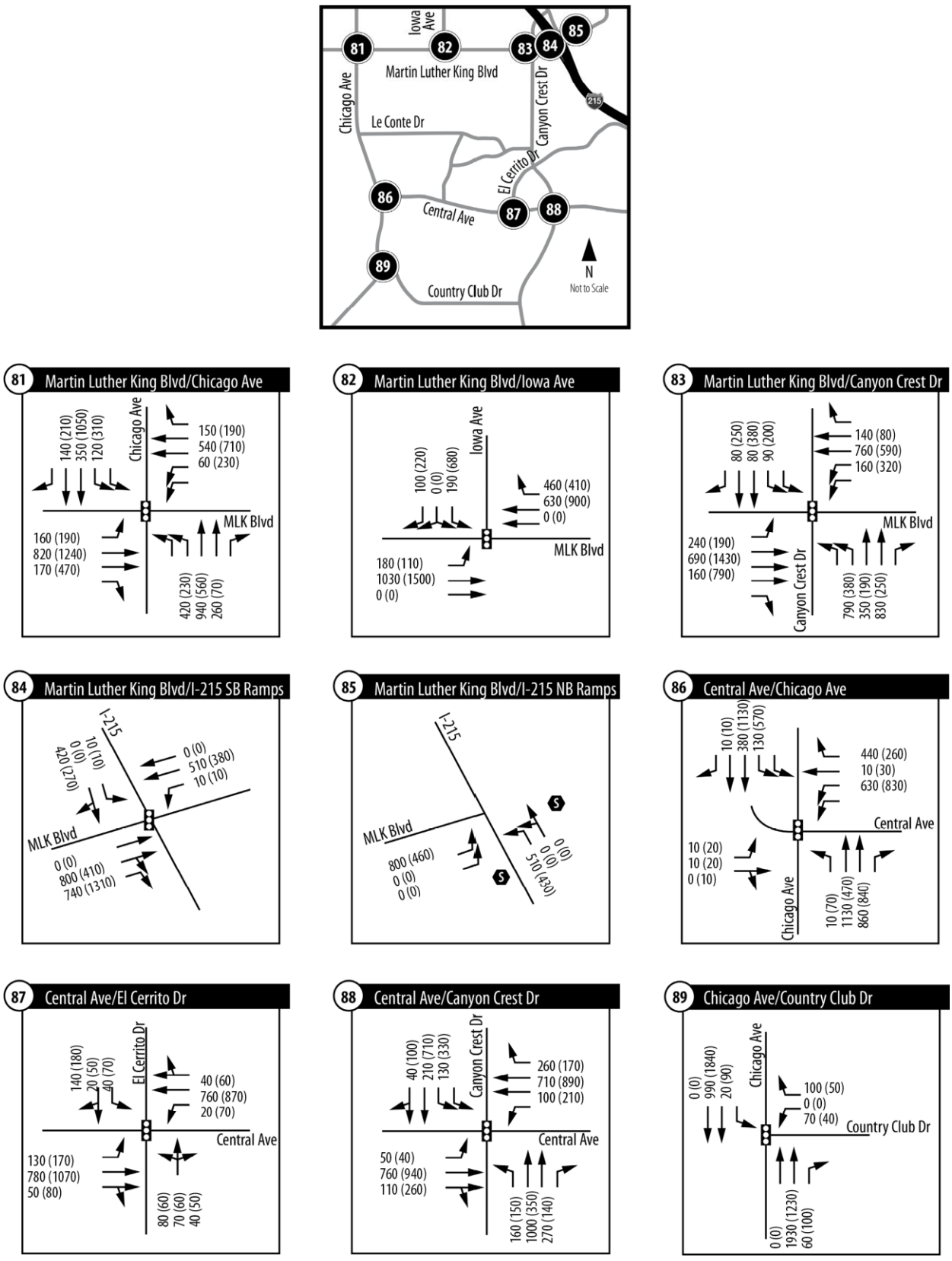



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (J)**

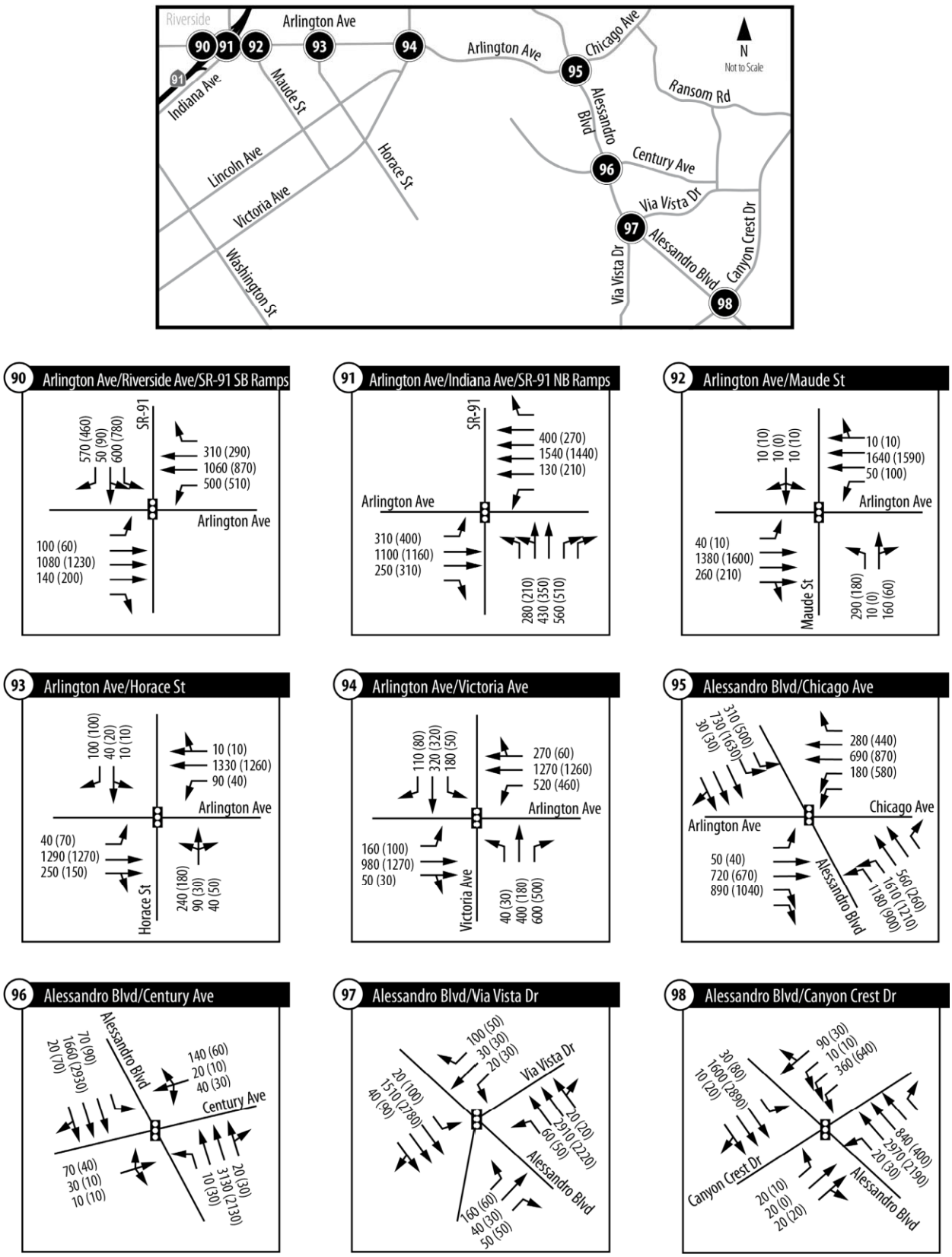



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (K)**

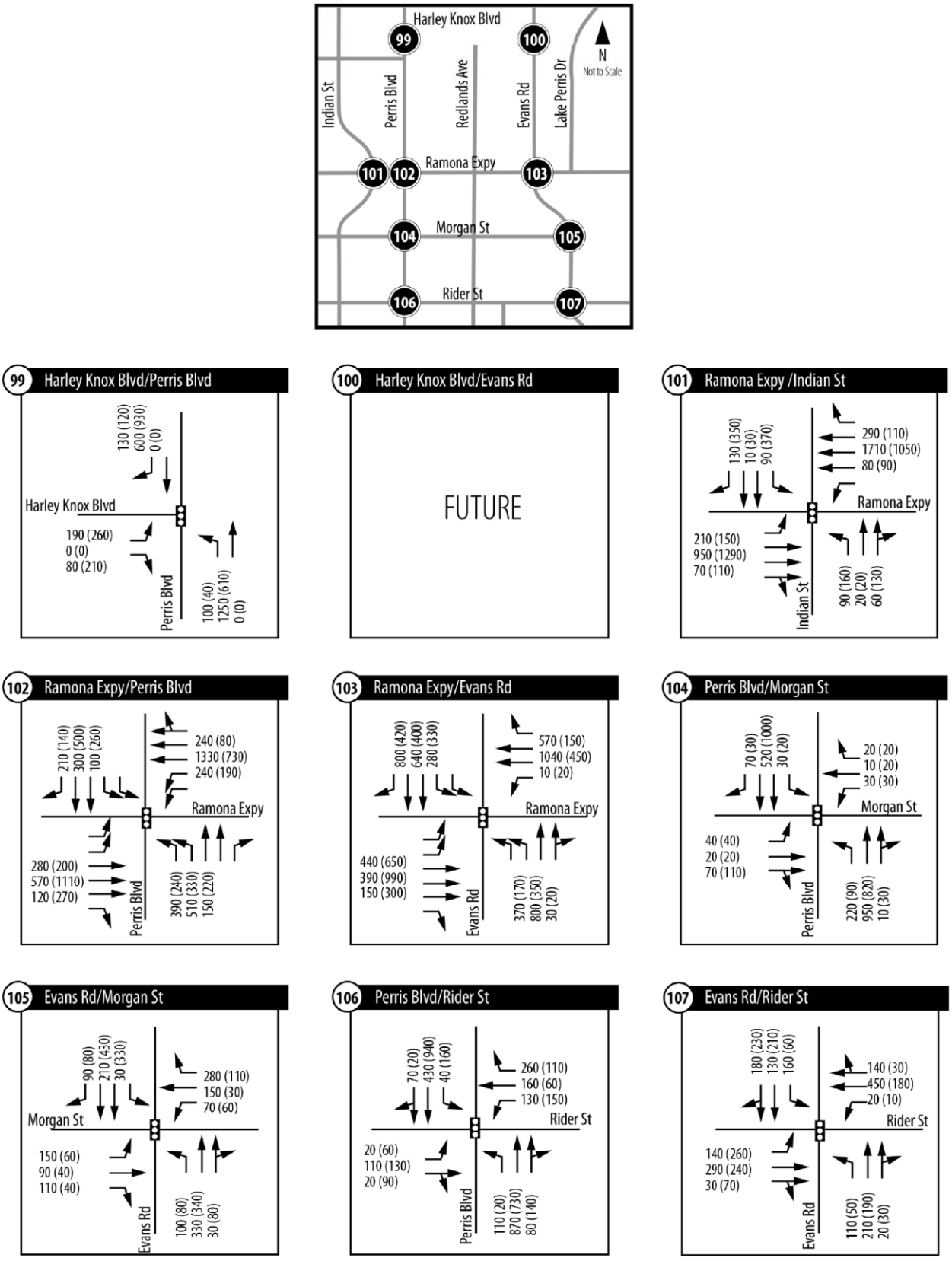



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (L)**

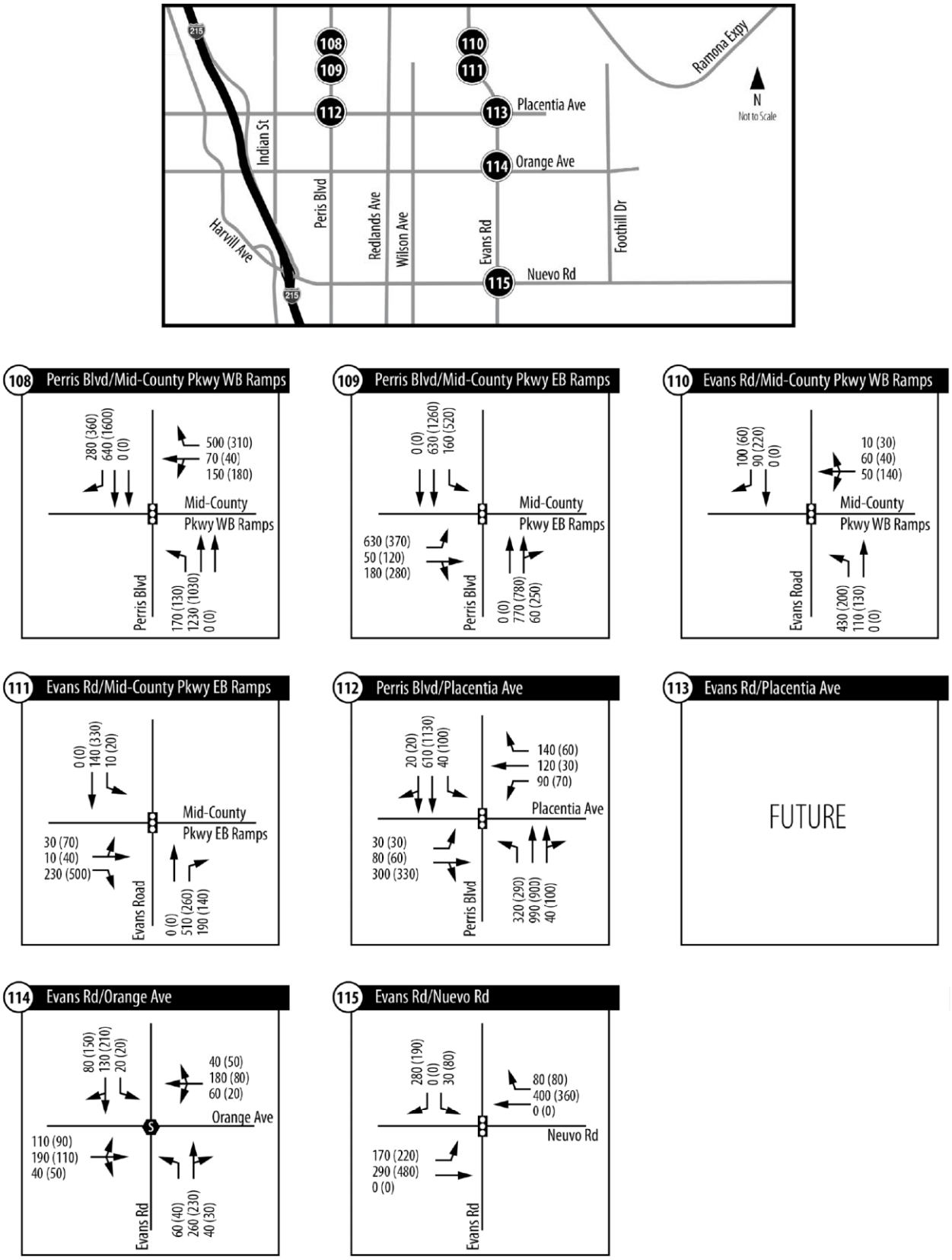
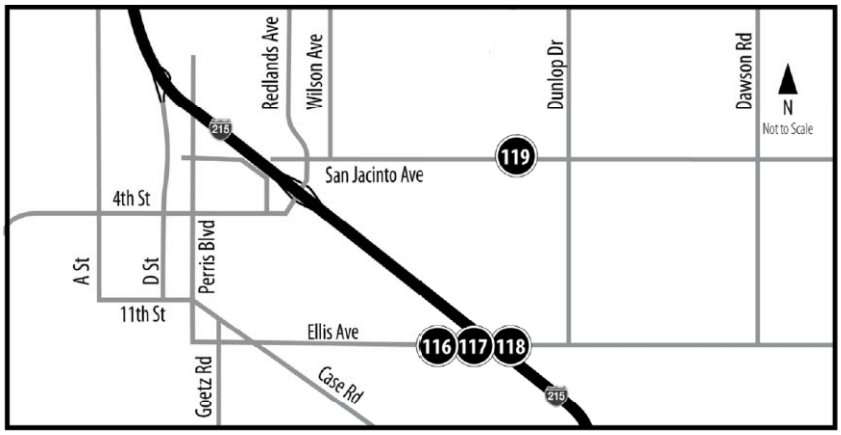



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (M)**



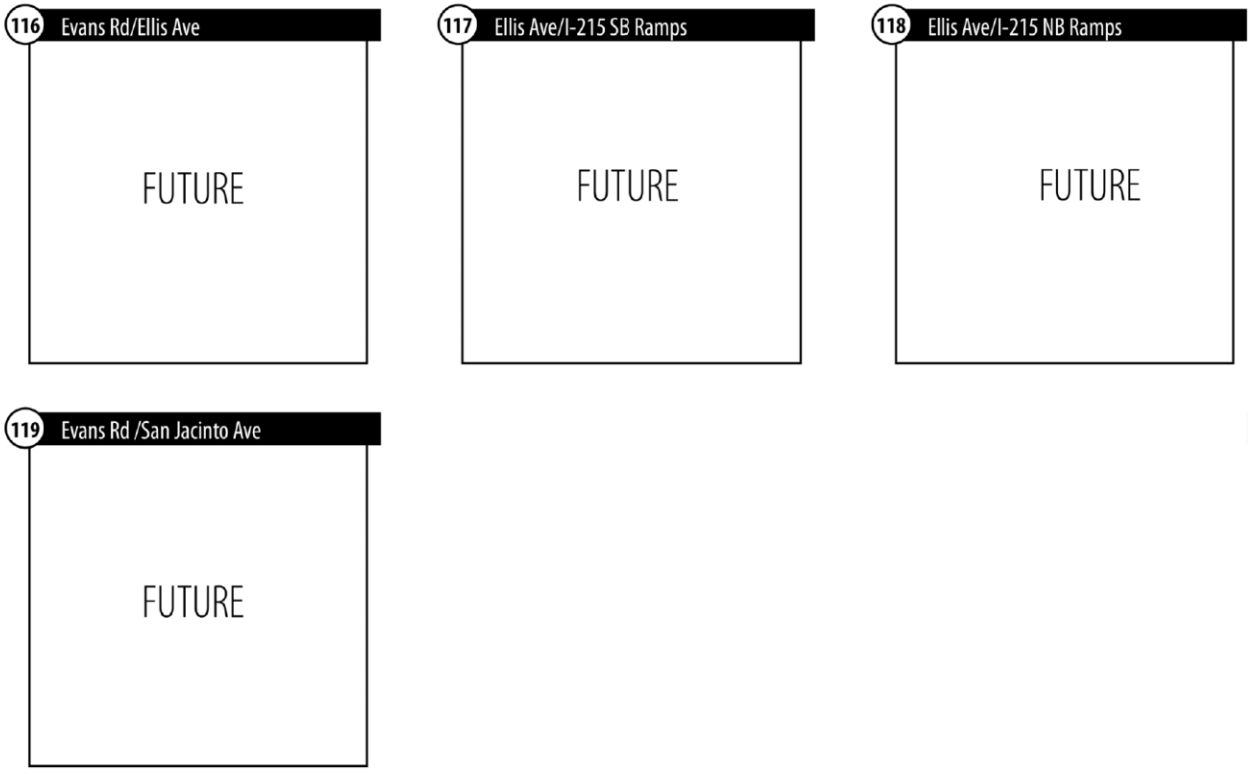




**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (N)**

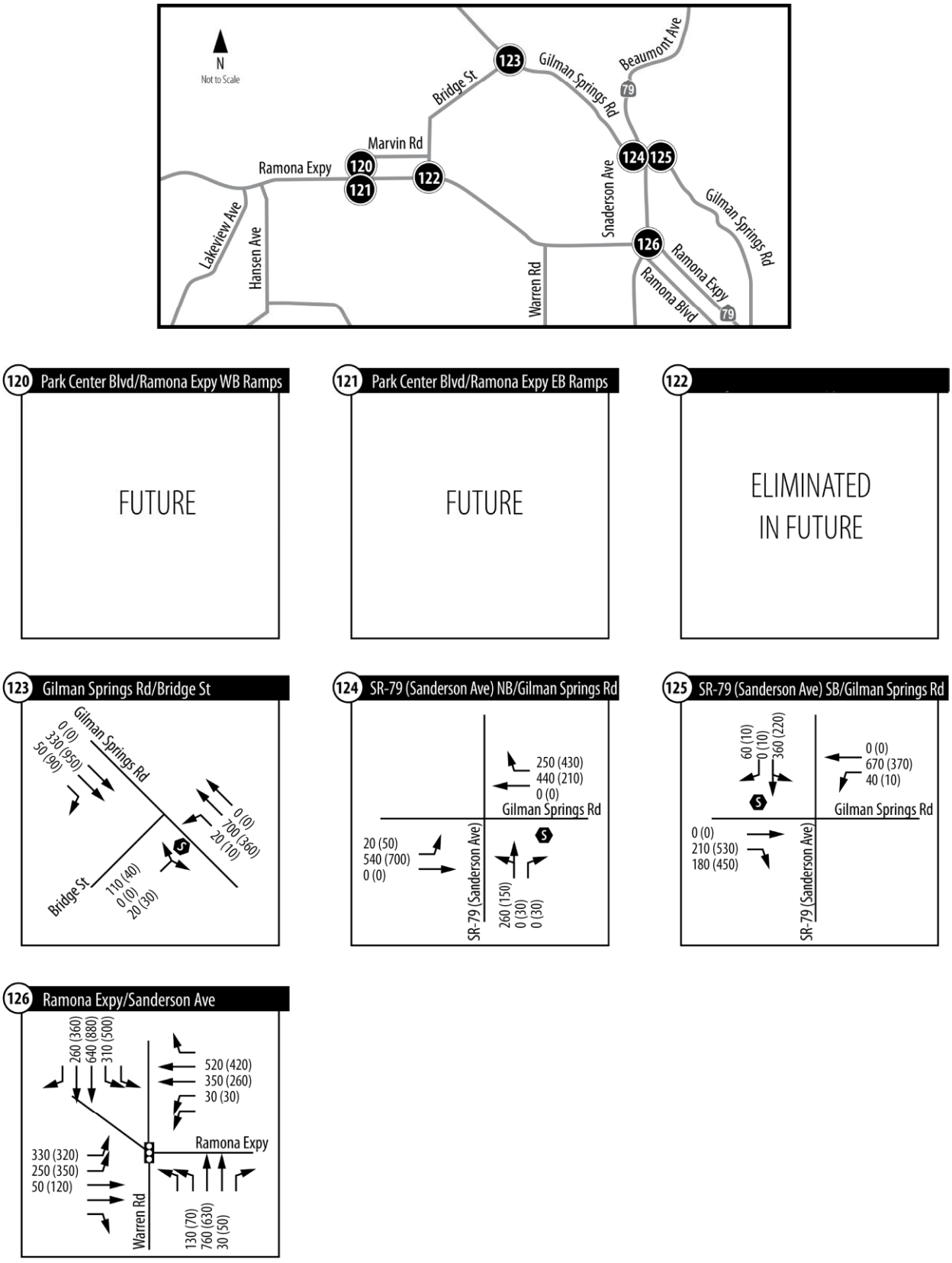



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (O)**

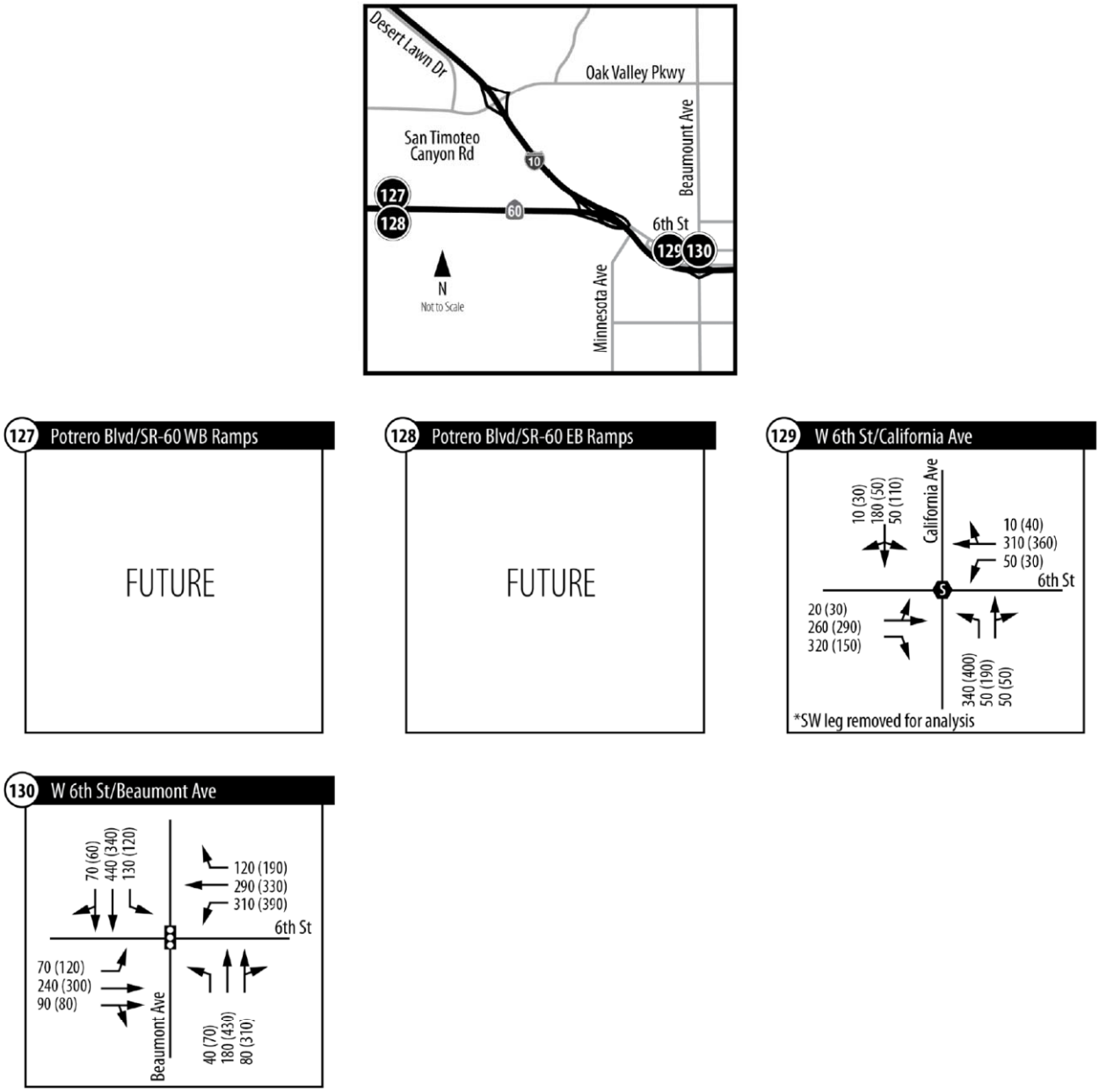



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (P)**

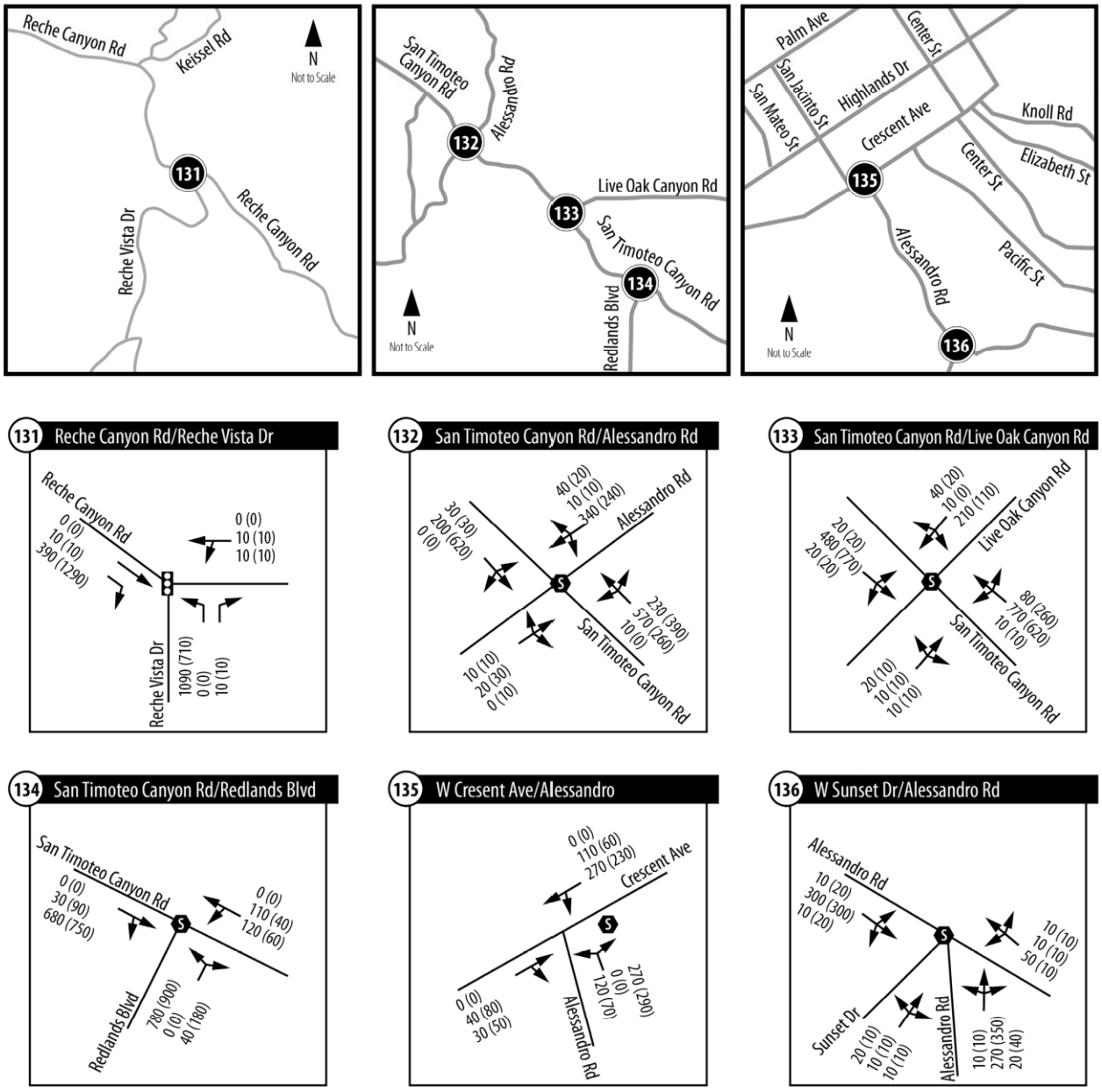



**Figure 50: Turning Movement Volumes under 2022 No-Project Conditions (Q)**

## B. 2022 NO-PROJECT LEVEL OF SERVICE

### *Roadway Segment Analysis*

Table 45 shows the LOS for study roadway segments under 2022 No-Project conditions.

**Table 45: LOS of Study Road Segments under 2022 No-Project Conditions**

| | Roadway | From | To | LOS Standard* | Roadway Section** | Daily Volume | LOS |
|---|---|---|---|---|---|---|---|
| S-1 | Theodore Street (A) | SR-60 WB Ramps | Ironwood Avenue | D | 2U | 3,133 | A |
| S-2 | Theodore Street (A) | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 6,689 | A |
| S-3 | Fir (Eucalyptus) Ave. | Redlands Blvd | Theodore Street (A) | D | 2U*** | 6,542 | A |
| S-4 | Eucalyptus Ave (B) | Theodore Street (A) | Gilman Springs Rd | N/A | Future Road | | |
| S-5 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Street E | D | 2U | 1,116 | A |
| S-6 | Street E | Theodore Street (A) | Cactus Ave Extension | N/A | Future Road | | |
| S-7 | Street F | Theodore Street (A) | Alessandro Blvd (Street C) | N/A | Future Road | | |
| S-8 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Alessandro Blvd (Street C) | D | 2U | 1,116 | A |
| S-9 | Alessandro Blvd (Street E) | Merwin Street | Theodore Street (A) | D | 2U | 3,778 | A |
| S-10 | Cactus Ave Extension | Alessandro Blvd (Street E) | Cactus Ave. | N/A | Future Road | | |
| S-11 | Alessandro Blvd (Street C) | Theodore Street (A) | Street F | D | 2U | 2,321 | A |
| S-13 | Alessandro Blvd (Street C) | Street F | Gilman Springs Rd | D | 2U | 2,321 | A |
| S-14 | Alessandro Blvd | Moreno Beach Drive | Redlands Blvd | D | 4U | 4,796 | A |
| S-16 | Gilman Springs Rd | Alessandro Blvd (Street C) | Bridge Street | D | 2U | 15,512 | F |
| S-17 | Gilman Springs Rd | SR-60 | Alessandro Blvd (Street C) | D | 2U | 12,819 | F |
| S-18 | Redlands Blvd | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 11,042 | D |
| S-19 | Redlands Blvd | Fir (Eucalyptus) Ave. | Alessandro Blvd | C | 2U | 8,416 | B |
| S-20 | Alessandro Blvd | Redlands Blvd | Merwin Street | C | 2U | 3,886 | A |
| S-21 | Redlands Blvd | Alessandro Blvd | Cactus Ave. | C | 2U | 8,583 | B |
| S-22 | Cactus Ave. | Redlands Blvd | Cactus Ave Extension | C | 2U*** | 472 | A |

* LOS Standard is "C" in residential areas and "D" for roads in employment-generating areas or near freeways.
** Section is the number of lanes, with "U" for "undivided" and "D" for "Divided" roadways.
*** Road currently has 2 lanes in one direction and 1 lane in the other. The capacity shown is based on the narrower direction.
Indicates LOS exceeds the target level

In this scenario, Gilman Springs Rd. north and south of Alessandro exceed the LOS target set by General Plan policy, which also occurred under Existing Conditions.

### *Intersection LOS*

Table 46 presents the LOS for the study intersections under 2022 No-Project conditions in the AM and PM peak hours. Detailed worksheets are presented in Appendix E. The number of intersections that

**Table 46: 2022 No-Project Conditions at Study Intersections**

| ID | Study Intersection | LOS Standard | Traffic Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| IN-1 | Theodore St/Street F | - | N/A | Non-Existent | | Non-Existent | |
| IN-2 | Cactus Ave Extension/Street E | - | N/A | Non-Existent | | Non-Existent | |
| IN-3 | Theodore St/Alessandro (Str A/Str C/Str E) | D | CSS | 10.0 | A | 10.3 | B |
| IN-4 | Alessandro Blvd (Street C)/Street F | - | N/A | Non-Existent | | Non-Existent | |
| IN-6 | Alessandro Blvd (Street C)/Gilman Springs Rd | D | SIGNAL | 5.8 | A | 7.9 | A |
| IN-9 | Gilman Springs Rd/Eucalytpus Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-10 | Redlands Blvd/Locust Ave | C | CSS | > 180.0 | **F** | > 180.0 | **F** |
| IN-11 | Redlands Blvd/Ironwood Ave | D | SIGNAL | 34.9 | C | 31.7 | C |
| IN-12 | Theodore Street/Ironwood Avenue | D | CSS | 13.0 | B | 17.8 | C |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | CSS | > 180.0 | **F** | > 180.0 | **F** |
| IN-14 | Redlands Blvd/SR-60 EB ramps | D | SIGNAL | 8.9 | A | 15.9 | B |
| IN-15 | Theodore Str/SR-60 WB ramps | D | CSS | 12.2 | B | 19.2 | C |
| IN-16 | Theodore Str/SR-60 EB ramps | D | CSS | 12.2 | B | 23.2 | C |
| IN-17 | Quincy Str/Fir Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-18 | Redlands Blvd/Eucalyptus Ave (Fir) | - | N/A | Non-Existent | | Non-Existent | |
| IN-19 | Theodore St/Fir Ave (Eucalyptus) | D | CSS | 9.8 | A | 41.7 | **E** |
| IN-20 | Oliver Str/Alessandro Blvd | C | CSS | 81.3 | **F** | 67.7 | **F** |
| IN-21 | Moreno Beach Dr/Alessandro Blvd | D | SIGNAL | 17.6 | B | 18.5 | B |
| IN-22 | Quincy Str/Alessandro Blvd | - | N/A | Non-Existent | | Non-Existent | |
| IN-23 | Redlands Blvd/Alessandro Blvd | C | AWS | 30.2 | **D** | 14.1 | B |
| IN-24 | Oliver Str/Cactus Ave | D | SIGNAL | 32.5 | C | 25.7 | C |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | SIGNAL | 18.5 | B | 18.9 | B |
| IN-26 | Quincy Str/Cactus Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-27 | Redlands Blvd/Cactus Ave | C | AWS | 13.4 | B | 9.5 | A |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | SIGNAL | 19.8 | B | 18.9 | B |
| IN-29 | Heacock Str/Ironwood Ave | D | SIGNAL | 30.9 | C | 36.9 | D |
| IN-30 | Heacock Str/SR-60 WB Ramps | D | SIGNAL | 33.7 | C | 47.5 | D |
| IN-31 | Heacock St/SR-60 EB Ramps | D | SIGNAL | 21.1 | C | 24.7 | C |
| IN-32 | Sunnymead Blvd & Perris Blvd | D | SIGNAL | 29.9 | C | 39.2 | D |
| IN-33 | Perris Blvd/SR-60 WB Ramps | D | SIGNAL | 31.8 | C | 21.7 | C |
| IN-34 | Perris Blvd/Eucalyptus Ave | D | SIGNAL | 27.7 | C | 33.4 | C |
| IN-35 | Moreno Beach Dr/Locust Ave | C | CSS | 9.2 | A | 9.6 | A |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | SIGNAL | 90.2 | **F** | 51.0 | D |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | SIGNAL | 88.7 | **F** | 37.8 | D |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | SIGNAL | 50.8 | D | 53.5 | D |
| IN-39 | Iris Ave/Perris Blvd | D | SIGNAL | 54.0 | D | 38.6 | D |
| IN-40 | Kitching St/Iris Ave | C | SIGNAL | 28.9 | C | 23.9 | C |
| IN-41 | Lasselle Str/Iris Ave | D | SIGNAL | 32.8 | C | 68.7 | **E** |
| IN-42 | Nason Str/Iris Ave | C | SIGNAL | 8.2 | A | 11.7 | B |
| IN-43 | Oliver Str/Iris Ave | D | SIGNAL | 28.9 | C | 22.0 | C |
| IN-44 | Via Dell Lago/Iris Ave | C | SIGNAL | 8.8 | A | 8.3 | A |
| IN-45 | Krameria Ave/Perris Blvd | D | SIGNAL | > 180.0 | **F** | > 180.0 | **F** |
| IN-46 | Kitching Str/Krameria Ave | D | SIGNAL | 29.2 | C | 40.0 | D |
| IN-47 | Lasselle Str/Krameria Ave | D | SIGNAL | 32.9 | C | 15.3 | B |
| IN-48 | Kitching Str/Alessandro Blvd | D | SIGNAL | 28.5 | C | 25.7 | C |

**Table 46: 2022 No-Project Conditions at Study Intersections (continued)**

| ID | Study Intersection | LOS Standard | Traffic Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| IN-49 | Lasselle Str/Alessandro Blvd | D | SIGNAL | 56.1 | **E** | 41.9 | D |
| IN-50 | Morrison Str/Alessandro Blvd | D | SIGNAL | 9.3 | A | 9.2 | A |
| IN-51 | Nason Str/Alessandro Blvd | D | SIGNAL | 31.5 | C | 29.5 | C |
| IN-52 | Kitching Str/Cactus Ave | C | SIGNAL | 32.2 | C | 26.2 | C |
| IN-53 | Lasselle Str/Cactus Ave | C | SIGNAL | 64.0 | **E** | 52.8 | **D** |
| IN-54 | Morrison Str/Cactus Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-55 | Nason Str/Cactus Ave | D | SIGNAL | 30.6 | C | 32.8 | C |
| IN-56 | Frederick Str/Alessandro Blvd | D | SIGNAL | 30.4 | C | 61.7 | **E** |
| IN-57 | Graham Str/Alessandro Blvd | D | SIGNAL | 32.4 | C | 76.8 | **E** |
| IN-58 | Heacock Str/Alessandro Blvd | D | SIGNAL | 41.8 | D | 48.9 | D |
| IN-59 | Indian Str/Alessandro Blvd | D | SIGNAL | 24.7 | C | 33.5 | C |
| IN-60 | Perris Blvd/Alessandro Blvd | D | SIGNAL | 50.5 | D | 113.4 | **F** |
| IN-61 | Frederick Str/Cactus Ave | D | SIGNAL | 19.1 | B | 15.6 | B |
| IN-62 | Graham Str/Cactus Ave | D | SIGNAL | 148.3 | **F** | 66.6 | **E** |
| IN-63 | Heacock Str/Cactus Ave | D | SIGNAL | 42.5 | D | 32.9 | C |
| IN-64 | Indian Str/Cactus Ave | C | SIGNAL | 28.8 | C | 22.0 | C |
| IN-65 | Perris Blvd/Cactus Ave | D | SIGNAL | 35.7 | D | 32.7 | C |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | SIGNAL | 38.2 | D | 58.3 | **E** |
| IN-67 | I-215 SB Ramps/Alessandro Blvd | D | SIGNAL | 10.9 | B | 8.9 | A |
| IN-68 | I-215 NB Ramps/Alessandro Blvd | D | SIGNAL | 25.5 | C | 23.3 | C |
| IN-69 | Old 215 Frontage Rd/Alessandro Blvd | D | SIGNAL | 17.3 | B | 35.4 | D |
| IN-70 | Day Str/Alessandro Blvd | D | SIGNAL | 10.7 | B | 43.0 | D |
| IN-71 | Elsworth Str/Alessandro Blvd | D | SIGNAL | 20.7 | C | 34.7 | C |
| IN-72 | I-215 SB Ramps/Cactus Ave | D | SIGNAL | 30.5 | C | 89.5 | **F** |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | SIGNAL | 10.8 | B | 12.6 | B |
| IN-74 | Elsworth Str/Cactus Ave | D | SIGNAL | 31.3 | C | 175.7 | **F** |
| IN-75 | Central Ave/Lochmoor Dr. | D | SIGNAL | 19.6 | B | 30.3 | C |
| IN-76 | Sycamore Canyon Blvd/Central Ave | D | SIGNAL | 27.8 | C | 29.8 | C |
| IN-77 | SR-60 EB Ramps/Central Ave | D | SIGNAL | 10.9 | B | 11.7 | B |
| IN-78 | SR-60 WB Ramps/Central Ave | D | SIGNAL | 6.6 | A | 7.4 | A |
| IN-79 | Alessandro Blvd/Trautwein Rd. | D | SIGNAL | 29.8 | C | 15.5 | B |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | SIGNAL | 33.2 | C | 48.3 | D |
| IN-81 | Martin Luther King Blvd/Chicago Ave | D | SIGNAL | 34.6 | C | 48.4 | D |
| IN-82 | Martin Luther King Blvd/Iowa Ave | D | SIGNAL | 9.2 | A | 16.7 | B |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | SIGNAL | 100.0 | **F** | 41.2 | D |
| IN-84 | Martin Luther King Blvd/I-215 SB Ramps | D | SIGNAL | 9.6 | A | 5.6 | A |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | AWS | 27.4 | D | 15.0 | C |
| IN-86 | Central Ave/Chicago Ave | D | SIGNAL | 34.5 | C | 40.8 | D |
| IN-87 | Central Ave/El Cerrito Dr | D | SIGNAL | 13.2 | B | 17.3 | B |
| IN-88 | Central Ave/Canyon Crest Dr | D | SIGNAL | 36.3 | D | 51.2 | D |
| IN-89 | Chicago Ave/Country Club Dr | D | SIGNAL | 9.4 | A | 7.1 | A |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | SIGNAL | 36.9 | D | 35.4 | D |
| IN-91 | Arlington Ave/Indiana Ave/SR-91 NB Ramps | D | SIGNAL | 22.1 | C | 31.3 | C |
| IN-92 | Arlington Ave/Maude St | D | SIGNAL | 14.3 | B | 13.5 | B |
| IN-93 | Horace St/Arlington Ave | D | SIGNAL | 19.7 | B | 10.1 | B |

**Table 46: 2022 No-Project Conditions at Study Intersections (continued)**

| ID | Study Intersection | LOS Standard | Traffic Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| IN-94 | Arlington Ave/Victoria Ave | D | SIGNAL | 84.2 | **F** | 83.7 | **F** |
| IN-95 | Alessandro Blvd/Chicago Ave | D | SIGNAL | 64.5 | **E** | 114.7 | **F** |
| IN-96 | Alessandro Blvd/Century Ave | D | SIGNAL | 32.5 | C | 14.9 | B |
| IN-97 | Alessandro Blvd/Via Vista Dr | D | SIGNAL | 29.5 | C | 20.5 | C |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | SIGNAL | 30.6 | C | 30.2 | C |
| IN-99 | Harley Knox Blvd/Perris Blvd | D | SIGNAL | 33.3 | C | 25.5 | C |
| IN-100 | Harley Knox Blvd/Evan Rd | - | N/A | Non-Existent | | Non-Existent | |
| IN-101 | Ramona Expy/Indian St | E | SIGNAL | 18.6 | B | 39.7 | D |
| IN-102 | Ramona Expy/Perris Blvd | E | SIGNAL | 34.3 | C | 31.2 | C |
| IN-103 | Ramona Expy/Evans Rd | E | SIGNAL | 139.7 | **F** | 41.6 | D |
| IN-104 | Perris Blvd/Morgan St | D | SIGNAL | 14.6 | B | 12.7 | B |
| IN-105 | Evans Rd/Morgan St | C | SIGNAL | 32.8 | C | 29.7 | C |
| IN-106 | Perris Blvd/Rider St | C | SIGNAL | 18.3 | B | 22.7 | C |
| IN-107 | Evans Rd/Rider St | C | SIGNAL | 34.4 | C | 30.3 | C |
| IN-108 | Perris Blvd/Mid-County Pkwy WB Ramps | D | SIGNAL | 29.2 | C | 20.8 | C |
| IN-109 | Perris Blvd/Mid-County Pkwy EB Ramps | D | SIGNAL | 19.2 | B | 32.4 | C |
| IN-110 | Evans Rd/Mid-County Pkwy WB Ramps | D | SIGNAL | 38.0 | D | 32.2 | C |
| IN-111 | Evans Rd/Mid-County Pkwy EB Ramps | D | SIGNAL | 14.6 | B | 25.9 | C |
| IN-112 | Placentia Ave/Perris Blvd | D | SIGNAL | 40.8 | D | 60.0 | **E** |
| IN-113 | Evans Rd/Placentia Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-114 | Evans Rd/Orange Ave | C | AWS | 22.1 | C | 16.9 | C |
| IN-115 | Evans Rd/Nuevo Rd | C | SIGNAL | 32.0 | C | 32.2 | C |
| IN-116 | Evans Rd/Ellis Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-117 | Ellis Ave/I-215 SB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-118 | Ellis Ave/SR-215 NB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-119 | Evans Rd/San Jacinto Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-120 | Park Center Blvd/Ramona Expy WB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-121 | Park Center Blvd/Ramona Expy EB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-122 | Bridge St/Ramona Expy | - | N/A | Non-Existent | | Non-Existent | |
| IN-123 | Gilman Springs Rd/Bridge Str | C | CSS | 22.3 | C | 25.7 | **D** |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | CSS | > 180.0 | **F** | 108.0 | **F** |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | CSS | > 180.0 | **F** | 123.3 | **F** |
| IN-126 | Ramona Expy/Sanderson Ave | D | SIGNAL | 35.7 | D | 24.4 | C |
| IN-127 | Potrero Blvd/SR-60 WB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-128 | Potrero Blvd/SR-60 EB Ramps | - | N/A | Non-Existent | | Non-Existent | |
| IN-129 | W 6th St/California Ave | C | AWS | 31.8 | **D** | 55.0 | **F** |
| IN-130 | W 6th St/Beaumont Ave | C | SIGNAL | 15.7 | B | 25.3 | C |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | SIGNAL | 13.7 | B | 6.3 | A |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | AWS | > 180.0 | **F** | 125.1 | **F** |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | AWS | 169.8 | **F** | > 180.0 | **F** |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | AWS | > 180.0 | **F** | > 180.0 | **F** |
| IN-135 | W Crescent Ave/Alessandro Rd | C | CSS | 27.7 | **D** | 16.2 | C |
| IN-136 | W Sunset Dr/Alessandro Rd | C | AWS | 10.9 | B | 11.1 | B |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

exceeded the LOS target rose from 12 under Existing Conditions to 31 under 2022 No-Project conditions due to population and employment growth. The intersections that were forecast to exceed the LOS target were:

- Redlands Blvd./Locust Ave. (AM, PM)
- Redlands Blvd./SR-60 WB ramps (AM, PM)
- Theodore Ave./Fir (Eucalyptus) Ave. (PM)
- Oliver St./Alessandro Blvd. (AM, PM)
- Redlands Blvd./Alessandro Blvd. (AM)
- Moreno Beach Dr./Ironwood Ave. (AM)
- Moreno Beach Dr./SR-60 EB Ramps (AM)
- Lasselle St./Iris Ave. (PM)
- Krameria Ave./Perris Blvd. (AM, PM)
- Lasselle St./Alessandro Blvd. (AM)
- Lasselle St./Cactus Ave. (AM, PM)
- Frederick St./Alessandro Blvd. (PM)
- Graham St./Alessandro Blvd. (PM)
- Perris Blvd./Alessandro Blvd. (PM)
- Graham St./Cactus Ave. (AM, PM)
- Alessandro Blvd./Sycamore Canyon Blvd. (PM)
- I-215 SB Ramps/Cactus Ave. (PM)
- Elsworth St./Cactus Ave. (PM)
- Martin Luther King Blvd./Canyon Crest Dr. (AM)
- Arlington Ave./Victoria Ave. (AM, PM)
- Alessandro Blvd./Chicago Ave. (AM, PM)
- Ramona Expwy./Evans Rd. (AM)
- Placentia Ave./Perris Blvd. (PM)
- Gilman Springs Rd./Bridge St. (AM)
- SR-79 (Sanderson Ave.) NB/Gilman Springs Rd. (AM, PM)
- SR-79 (Sanderson Ave.) SB/Gilman Springs Rd. (AM, PM)
- W 6th St./California Ave. (AM, PM)
- San Timoteo Canyon Rd./Alessandro Rd. (AM, PM)
- San Timoteo Canyon Rd./Live Oak Canyon Rd. (AM, PM)
- Redlands Blvd./San Timoteo Canyon Rd. (AM, PM)
- W Crescent Ave./Alessandro Rd. (AM)

***Freeway Mainline Basic Sections***

Table 47 presents the results of the LOS analysis for freeway mainline sections. A total of 33 freeway mainline basic sections were forecast to exceed the target LOS of "D". In comparison, 17 sections in Existing No-Project conditions were forecast to exceed the LOS target. The sections that would exceed LOS "D" under 2022 No-Project conditions are:

North or Eastbound

- SR-60 from Reservoir St. to Ramona Ave.
- SR-60 from Ramona Ave. to Central Ave.
- SR-60 from Central Ave. to Mountain Ave.
- SR-60 from Euclid Ave. to Grove Ave.
- SR-60 from Grove Ave. to Vineyard Ave.
- SR-60 from Vineyard Ave. to Archibald Ave.
- SR-60 from Valley Way to Rubidoux Blvd.
- SR-60 from Rubidoux Blvd. to Market St.
- SR-60 from Market St. to Main St.
- SR-60 from Martin Luther King Blvd. to Central Ave.
- SR-60 from Pigeon Pass Rd./Frederick St. to Heacock St.
- SR-60 from Heacock St. to Perris Blvd.
- SR-91 from I-15 to McKinley St.
- SR-91 from Pierce St. to Magnolia Ave.
- I-215 from Columbia Ave. to Center St.
- I-215 from Iowa Ave./La Cadena Dr. to Barton Rd.
- I-215 from Barton Rd. to Mt. Vernon Ave.

South or Westbound

- SR-60 from Reservoir St. to Ramona Ave.
- SR-60 from Ramona Ave. to Central Ave.
- SR-60 from Grove Ave to Vineyard Ave

- SR-60 from Valley Way to Rubidoux Blvd
- SR-60 from Market St. to Main St.
- SR-60 from Main St. to SR-91
- SR-60 from Fair Isle Dr./Box Springs Rd. to I-215
- SR-60 from I-215 to Day St.
- SR-91 from McKinley St. to Pierce St.
- SR-91 from Pierce St. to Magnolia Ave.
- SR-91 from Magnolia Ave. to La Sierra Ave.
- SR-91 from La Sierra Ave. to Tyler St.
- I-215 from Columbia Ave. to Center St.
- I-215 from Center St. to Iowa Ave./La Cadena Dr.
- I-215 from Iowa Ave./La Cadena Dr. to Barton Rd.
- I-215 from Barton Rd. to Mt. Vernon Ave.

## Table 47: 2022 No-Project Freeway Mainline Level of Service

| ID | Freeway | Segment | Northbound / Eastbound | | | | | | Southbound / Westbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-2 | SR-60 | Reservoir St to Ramona Ave | 7,210 | 30.5 | D | 7,830 | 35.1 | E | 8,770 | 43.3 | E | 7,150 | 30.1 | D |
| F-3 | SR-60 | Ramona Ave to Central Ave | 6,850 | 28.2 | D | 9,380 | 51.4 | F | 8,290 | 38.7 | E | 6,750 | 27.7 | D |
| F-4 | SR-60 | Central Ave to Mountain Ave | 7,590 | 33.0 | D | 9,350 | 51.0 | F | 6,340 | 25.4 | C | 6,990 | 29.1 | D |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | 7,520 | 32.5 | D | 6,690 | 27.5 | D | 6,260 | 25.0 | C | 7,440 | 32.0 | D |
| F-6 | SR-60 | Euclid Ave to Grove Ave | 8,990 | 45.8 | F | 9,280 | 50.0 | F | 6,470 | 26.1 | D | 7,310 | 31.1 | D |
| F 7 | SR 60 | Grove Ave to Vineyard Ave | 8,170 | 37.6 | E | 9,530 | 53.6 | F | 6,330 | 25.4 | C | 7,920 | 35.5 | E |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | 8,080 | 36.5 | E | 9,470 | 52.7 | F | 7,670 | 33.6 | D | 7,550 | 32.8 | D |
| F-9 | SR-60 | Archibald Ave to Haven Ave | 7,590 | 32.8 | D | 6,630 | 27.2 | D | See Weaving Analysis | | | See Weaving Analysis | | |
| F-10 | SR-60 | Haven Ave to Milliken Ave | 7,400 | 23.2 | C | 7,040 | 22.1 | C | 5,850 | 18.0 | B | 7,110 | 22.3 | C |
| F-11 | SR-60 | Milliken Ave to I-15 | 5,280 | 20.3 | C | 4,530 | 17.4 | B | 5,550 | 21.6 | C | 7,050 | 29.2 | D |
| F-12 | SR-60 | I-15 to Etiwanda Ave/Van Buren Blvd | 4,580 | 17.6 | B | 3,440 | 13.3 | B | 4,490 | 13.7 | B | 5,850 | 17.9 | B |
| F-13 | SR-60 | Etiwanda Ave/Van Buren Blvd to Mission | 5,070 | 19.6 | C | 4,460 | 17.2 | B | 4,220 | 16.2 | B | 5,830 | 22.8 | C |
| F-14 | SR-60 | Mission Blvd/Country Village Rd to Pedley | 4,600 | 17.7 | B | 3,560 | 13.8 | B | 4,240 | 16.3 | B | 5,850 | 22.9 | C |
| F-15 | SR-60 | Pedley Rd to Pyrite St | 4,620 | 17.8 | B | 3,710 | 14.4 | B | 3,290 | 12.6 | B | 5,010 | 19.2 | C |
| F-16 | SR-60 | Pyrite St to Valley Way | 5,190 | 20.1 | C | 3,990 | 15.5 | B | 2,740 | 10.6 | A | 4,510 | 17.2 | B |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | 6,280 | 39.4 | E | 4,530 | 24.1 | C | 4,630 | 24.4 | C | 6,530 | 42.2 | E |
| F-18 | SR-60 | Rubidoux Blvd to Market St | 6,920 | 48.7 | F | 4,950 | 27.2 | D | 3,630 | 18.6 | C | 5,660 | 32.5 | D |
| F-19 | SR-60 | Market St to Main St | 6,450 | 41.6 | E | 7,260 | 56.8 | F | 5,860 | 34.4 | D | 6,820 | 46.5 | F |
| F-20 | SR-60 | Main to SR-91 | See Weaving Analysis | | | See Weaving Analysis | | | 5,450 | 30.6 | D | 6,610 | 42.9 | E |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | 8,440 | 41.5 | E | 9,140 | 53.5 | F | 7,060 | 23.7 | C | 7,680 | 25.5 | C |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 6,450 | 25.7 | C | 7,270 | 30.8 | D | 7,390 | 31.9 | D | 8,510 | 40.3 | E |
| F-27 | SR-60 | I-215 to Day St | See Weaving Analysis | | | See Weaving Analysis | | | 7,250 | 54.3 | F | 3,880 | 20.0 | C |
| F-29 | SR-60 | Pigeon Pass Rd to Heacock St | 3,520 | 29.2 | D | 4,200 | 39.3 | E | 3,460 | 28.5 | D | 3,860 | 34.0 | D |
| F-30 | SR-60 | Heacock St to Perris Blvd | 3,160 | 25.0 | C | 4,050 | 36.7 | E | 3,300 | 26.6 | D | 3,360 | 27.5 | D |
| F-31 | SR-60 | Perris Blvd to Nason St | 2,590 | 19.8 | C | 3,070 | 24.3 | C | 2,790 | 21.6 | C | 2,550 | 19.6 | C |
| F-33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 1,910 | 14.5 | B | 2,370 | 18.0 | C | 1,810 | 13.8 | B | 1,750 | 13.4 | B |
| F-34 | SR-60 | Redlands Blvd to Theodore St | 2,460 | 18.8 | C | 3,240 | 25.8 | C | 2,280 | 17.3 | B | 2,200 | 16.8 | B |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 2,310 | 19.2 | C | 2,770 | 23.6 | C | 2,180 | 18.0 | C | 1,850 | 15.3 | B |
| F-37 | SR-60 | Jack Rabbit Trail to I-10 | 2,070 | 15.8 | B | 2,820 | 21.8 | C | 2,190 | 16.7 | B | 1,690 | 12.9 | B |
| F-39 | SR-91 | I-15 to McKinley St | 7,190 | 22.3 | C | 10,400 | 38.6 | E | 7,280 | 30.9 | D | 7,330 | 31.0 | D |
| F-40 | SR-91 | McKinley St to Pierce St | 6,500 | 26.1 | D | 5,950 | 23.5 | C | 5,440 | 31.0 | D | 6,330 | 39.6 | E |
| F-41 | SR-91 | Pierce St to Magnolia Ave | 5,970 | 35.2 | E | 5,410 | 30.5 | D | 5,210 | 29.0 | D | 8,080 | 77.6 | F |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | See Weaving Analysis | | | See Weaving Analysis | | | 5,450 | 31.1 | D | 8,040 | 76.1 | F |
| F-43 | SR-91 | La Sierra Ave to Tyler St | 5,490 | 30.9 | D | 5,230 | 29.0 | D | 4,800 | 25.9 | C | 5,980 | 35.6 | E |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | 6,600 | 26.6 | D | 5,980 | 23.6 | C | 6,170 | 24.7 | C | 7,420 | 31.6 | D |

## Table 47: 2022 No-Project Freeway Mainline Level of Service (continued)

| ID | Freeway | Segment | Northbound / Eastbound | | | | | | Southbound / Westbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-45 | SR-91 | Van Buren Blvd to Adam St | 6,700 | 27.2 | D | 5,250 | 20.3 | C | 5,810 | 22.9 | C | 7,160 | 29.9 | D |
| F-46 | SR-91 | Adam St to Madison St | 7,310 | 31.4 | D | 4,970 | 19.4 | C | 5,420 | 21.2 | C | 6,210 | 24.5 | C |
| F-47 | SR-91 | Madison St to Arlington Ave | 6,710 | 27.6 | D | 4,970 | 19.4 | C | 4,780 | 25.8 | C | 5,550 | 31.2 | D |
| F-49 | SR-91 | Central Ave to 14th St | 5,910 | 34.9 | D | 5,070 | 27.7 | D | 4,340 | 16.8 | B | 4,530 | 17.3 | B |
| F-51 | SR-91 | University Ave to Spruce St | 8,270 | 26.6 | D | 7,700 | 24.2 | C | See Weaving Analysis | | | See Weaving Analysis | | |
| F-66 | I-215 | Scott Rd to Newport Rd | 2,850 | 14.5 | B | 4,330 | 22.4 | C | 3,670 | 18.6 | C | 2,500 | 12.7 | B |
| F-68 | I-215 | Newport Rd to McCall Blvd | 2,100 | 10.8 | A | 3,140 | 15.9 | B | 3,820 | 19.6 | C | 3,520 | 18.0 | B |
| F-69 | I-215 | McCall Blvd to Ethanac Rd | 2,750 | 14.0 | B | 4,380 | 22.7 | C | 4,380 | 22.8 | C | 2,950 | 15.0 | B |
| F-70 | I-215 | Ethanac Rd to SR-74 | 4,200 | 21.7 | C | 4,100 | 21.0 | C | 4,110 | 21.2 | C | 4,250 | 21.9 | C |
| F-71 | I-215 | SR-74 to Redlands Ave | 3,490 | 17.7 | B | 4,800 | 25.4 | C | 5,730 | 33.1 | D | 3,860 | 19.7 | C |
| F-74 | I-215 | Columbia Ave to Center St | 6,090 | 36.8 | E | 6,030 | 36.2 | E | 6,390 | 40.0 | E | 5,330 | 29.6 | D |
| F-75 | I-215 | Center St to La Cadena Dr | 5,830 | 34.1 | D | 5,800 | 33.8 | D | 6,880 | 46.9 | F | 5,560 | 31.6 | D |
| F-76 | I-215 | La Cadena Dr to Barton Rd | 5,690 | 32.7 | D | 6,130 | 37.3 | E | 6,700 | 44.2 | E | 5,570 | 31.7 | D |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | 5,980 | 35.6 | E | 6,550 | 42.5 | E | 6,720 | 44.4 | E | 5,610 | 32.0 | D |
| F-78 | I-215 | Mt. Vernon Ave to I-10 | 5,770 | 22.5 | C | 6,660 | 27.0 | D | 7,080 | 29.2 | D | 5,890 | 23.1 | C |
| F-80 | I-215 | Auto Plaza Dr to Mill St | 4,490 | 17.2 | B | 5,500 | 21.2 | C | 4,790 | 18.2 | C | 4,140 | 15.8 | B |
| F-83 | I-215 | Baseline Rd to Highland Ave | 3,030 | 15.4 | B | 4,060 | 20.8 | C | 5,280 | 29.0 | D | 4,700 | 24.9 | C |
| F-52 | I-10 | SR-60 to Beaumont Ave | 4,390 | 16.8 | B | 6,080 | 24.1 | C | 5,610 | 21.9 | C | 5,370 | 20.7 | C |
| F-53 | I-10 | Beaumont Ave to Pennsylvania Ave | 4,450 | 17.1 | B | 6,240 | 24.9 | C | 5,470 | 21.3 | C | 5,270 | 20.3 | C |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs Ave | 4,640 | 17.8 | B | 6,480 | 26.2 | D | 5,920 | 23.3 | C | 5,480 | 21.2 | C |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | 4,560 | 17.5 | B | 6,210 | 24.8 | C | 5,690 | 22.3 | C | 5,200 | 20.1 | C |
| F-56 | I-10 | Sunset Ave to 22nd St | 4,470 | 17.2 | B | 5,960 | 23.5 | C | 5,450 | 21.2 | C | 5,090 | 19.7 | C |
| F-57 | I-10 | 22nd St to 8th St | 4,380 | 16.8 | B | 5,800 | 22.8 | C | 5,320 | 20.6 | C | 5,110 | 19.6 | C |
| F-58 | I-10 | 8th St to Hargrave St | 4,370 | 16.8 | B | 5,730 | 22.4 | C | 5,250 | 20.3 | C | 5,250 | 20.2 | C |
| F-59 | I-10 | Hargrave St to Fields Rd | 4,100 | 15.8 | B | 5,350 | 20.8 | C | 4,810 | 18.5 | C | 5,020 | 19.3 | C |
| F-60 | I-10 | Fields Rd to Morongo Trail | 3,770 | 14.5 | B | 5,080 | 19.6 | C | 4,600 | 17.7 | B | 4,830 | 18.6 | C |
| F-61 | I-10 | Morongo Trail to Main St | 3,410 | 13.1 | B | 4,670 | 18.0 | B | 4,110 | 15.8 | B | 4,240 | 16.3 | B |
| F 62 | I 10 | Main St to Haugen-Lehmann Way | 3,280 | 12.6 | B | 4,720 | 18.1 | C | 4,230 | 16.3 | B | 4,300 | 16.5 | B |
| F-64 | I-10 | SR-111 to Tipton Rd | 2,950 | 11.3 | B | 4,140 | 15.9 | B | 3,680 | 14.1 | B | 3,760 | 14.4 | B |
| F-65 | I-10 | Tipton Rd to SR-62 | 2,810 | 10.8 | A | 4,170 | 16.0 | B | 3,700 | 14.2 | B | 3,770 | 14.4 | B |

Indicates that the LOS exceeds the target level

***Freeway Weaving LOS***

Table 48 shows the weaving LOS under 2022 No-Project conditions. Six north- or east-bound sections and one south- or westbound sections would operate below LOS "D". These sections are:

North or Eastbound

- SR-60 from SR-71/ Garey Ave. to Reservoir St.
- SR-60 from Main St. to SR-91
- SR-60 from SR-91 to W. Blaine St./3rd St.
- SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.
- SR-91 from Arlington Ave. to Central Ave.
- I-215 from SR-60 to Columbia Ave.

South or Westbound

- SR-60 from SR-91 to W. Blaine St./3rd St.

## Table 48: 2022 No-Project Freeway Weaving Level of Service

| ID | Freeway | Weaving Segment | Northbound / Eastbound | | | | | | Southbound / Westbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | 7,150 | 29.2 | D | 8,640 | 37.6 | E | 6,130 | 21.9 | C | 6,720 | 24.3 | C |
| W-9 | SR-60 | Haven Ave to Archibald Ave | See Basic Analysis | | | See Basic Analysis | | | 6,330 | 24.4 | C | 7,330 | 29.3 | D |
| W-20 | SR-60 | Main St to SR-91 | 7,350 | 36.6 | E | 7,370 | 38.0 | E | See Basic Analysis | | | See Basic Analysis | | |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | 6,010 | 24.2 | C | 9,760 | 42.3 | E | 7,720 | 29.4 | D | 9,290 | 36.9 | E |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | 5,710 | 21.6 | C | 7,210 | 31.3 | D | 5,700 | 21.1 | C | 8,280 | 32.0 | D |
| W-23 | SR-60 | University Ave to Martin Luther King | 6,620 | 23.8 | C | 6,060 | 21.4 | C | 5,600 | 22.6 | C | 7,620 | 30.7 | D |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | 6,580 | 27.3 | C | 8,400 | 38.9 | E | 7,110 | 30.7 | D | 7,890 | 32.7 | D |
| W-27 | SR-60 | I-215 to Day St | 4,000 | 14.6 | B | 5,280 | 19.9 | B | See Basic Analysis | | | See Basic Analysis | | |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 3,890 | 16.6 | B | 5,130 | 23.2 | C | 4,970 | 34.3 | D | 4,860 | 32.7 | D |
| W-32 | SR-60 | Moreno Beach Dr to Nason St | 2,330 | 14.2 | B | 2,880 | 18.1 | B | 2,410 | 14.5 | B | 2,190 | 13.2 | B |
| W-35 | SR-60 | Theodore St to Gilman Springs Rd | 2,320 | 12.7 | B | 3,370 | 19.3 | B | 2,360 | 13.6 | B | 2,030 | 11.4 | B |
| W-42 | SR-91 | Magnolia Ave to La Sierra Ave | 6,400 | 30.3 | D | 5,950 | 28.5 | D | See Basic Analysis | | | See Basic Analysis | | |
| W-48 | SR-91 | Arlington Ave to Central Ave | 7,220 | 39.0 | E | 3,680 | 17.9 | B | 4,510 | 21.2 | C | 5,050 | 24.1 | C |
| W-50 | SR-91 | 14th St to University Ave | 5,030 | 25.1 | C | 4,810 | 24.6 | C | 5,090 | 19.6 | B | 7,020 | 27.9 | C |
| W-51 | SR-91 | SR-60 to Mission Inn Ave/University Ave | See Basic Analysis | | | See Basic Analysis | | | 5,020 | 14.7 | B | 8,850 | 26.7 | C |
| W-73 | I-215 | SR-60 to Columbia Ave | 6,840 | 37.8 | E | 6,540 | 35.8 | E | 7,040 | 33.4 | D | 6,110 | 28.8 | D |
| W-79 | I-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 4,610 | 16.8 | B | 5,210 | 19.0 | B | 5,830 | 20.8 | C | 4,870 | 18.0 | B |
| W-81 | I-215 | Mill St to 2nd St | 5,090 | 17.8 | B | 5,910 | 21.1 | C | 5,300 | 19.0 | B | 4,410 | 15.9 | B |
| W-82 | I-215 | 5th St to Baseline Rd | 3,760 | 12.7 | B | 4,450 | 15.2 | B | 4,540 | 16.0 | B | 3,490 | 12.3 | B |
| W-63 | I-10 | Haugen-Lehmann Way to SR-111 | 3,300 | 11.0 | B | 4,710 | 15.9 | B | 4,210 | 14.8 | B | 4,310 | 17.2 | B |

Indicates that the LOS exceeds the target level

### *Freeway Ramp LOS*

Table 49 shows the level of service at study freeway ramps under 2022 No-Project conditions. One ramp was found to operate below the target LOS of "D", namely:

- SR-60 eastbound On-Ramp from Central Ave.

Details of the LOS calculations for freeways under 2022 No-Project Conditions can be found in Appendix L.

## Table 49: 2022 No-Project Freeway Ramp Level of Service

| ID | Freeway / Direction | Ramp Segment | Ramp No. of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS |
| R-1 | SR-60 EB | On-Ramp from Martin Luther King Blvd | 1 | 6,190 | 710 | 27.4 | C | 5,780 | 1,320 | 30.9 | D |
| R-2 | SR-60 EB | On-Ramp from Central Ave | 1 | 8,170 | 710 | 28.8 | D | 9,010 | 1,120 | 35.1 | F |
| R-3 | SR-60 EB | Off-Ramp to Redlands Blvd | 1 | 1,910 | 220 | 8.3 | A | 2,370 | 520 | 12.5 | B |
| R-4 | SR-60 EB | Loop On-Ramp from Redlands Blvd | 1 | 1,690 | 90 | 17.1 | B | 1,850 | 210 | 19.4 | B |
| R-5 | SR-60 EB | Direct On-Ramp from Redlands Blvd | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-6 | SR-60 EB | Off-Ramp to Theodore St | 1 | 2,460 | 250 | 24.5 | C | 3,240 | 150 | 31.7 | D |
| R-7 | SR-60 EB | Loop On-Ramp from Theodore St | 1 | 2,210 | 110 | 23.1 | C | 3,090 | 270 | 31.7 | D |
| R-8 | SR-60 EB | Direct On-Ramp from Theodore St | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-9 | SR-60 EB | Off-Ramp to Gilman Springs Rd | 2 | 2,320 | 330 | 14.5 | B | 3,370 | 650 | 21.0 | C |
| R-10 | SR-60 EB | On-Ramp from Gilman Springs Rd | 1 | 1,990 | 270 | 14.7 | B | 2,720 | 140 | 19.8 | B |
| R-11 | SR-60 WB | Off-Ramp to Gilman Springs Rd | 2 | 2,210 | 230 | 13.8 | B | 1,880 | 190 | 11.8 | B |
| R-12 | SR-60 WB | On-Ramp from Gilman Springs Rd | 1 | 1,980 | 380 | 15.5 | B | 1,690 | 310 | 12.6 | B |
| R-13 | SR-60 WB | Off-Ramp to Theodore St | 1 | 2,360 | 180 | 12.4 | B | 2,030 | 120 | 9.3 | A |
| R-14 | SR-60 WB | On-Ramp from Theodore St | 1 | 2,180 | 100 | 21.0 | C | 1,910 | 290 | 20.2 | C |
| R-15 | SR-60 WB | Off-Ramp to Redlands Blvd | 1 | 2,280 | 170 | 22.9 | C | 2,200 | 100 | 22.3 | C |
| R-16 | SR-60 WB | Loop On-Ramp from Redlands Blvd | 1 | 2,110 | 440 | 23.3 | C | 2,100 | 380 | 22.8 | C |
| R-17 | SR-60 WB | Direct On-Ramp from Redlands Blvd | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-18 | SR-60 WB | Off-Ramp to Central Ave | 2 | 7,110 | 410 | 26.5 | C | 7,890 | 530 | 29.8 | D |
| R-19 | SR-60 WB | Off-Ramp to Martin Luther King Blvd | 1 | 7,060 | 510 | 16.3 | B | 7,680 | 430 | 17.6 | B |

Indicates that the LOS exceeds the target level

# 8. 2022 PLUS PHASE 1 CONDITIONS

The analysis of 2022 Plus Phase 1 Conditions shows the effect of project-related traffic if the first phase of the WLC project were built and no other changes from the 2022 No-Project scenario occurred to the roadway system or land uses.

## A. ROAD SEGMENT LOS, IMPACTS, AND MITIGATIONS

Table 50 compares the average daily traffic (ADT) volumes for study roadway segments to 2022 No-Project Conditions and to their threshold of significance under the City's General Plan policies. Under 2022 Plus Phase 1 Conditions three segments would exceed the threshold of significance set by General Plan policy, namely:

- Gilman Springs Rd. between SR-60 and Alessandro Blvd. would exceed the threshold of significance under both 2022 No-Project Conditions and under 2022 Plus Phase 1 Conditions. Widening the road from two lanes to four lanes would allow it to achieve the target LOS in the 2022 Plus Phase 1 Conditions.

- Gilman Springs Rd. from Alessandro Blvd. to Bridge St. would exceed the threshold of significance under both 2022 No-Project Conditions and under 2022 Plus Phase 1 Conditions. Widening the road from two lanes to four lanes would allow it to achieve the target LOS in the 2022 Plus Phase 1 Conditions.

- Redlands Blvd. from Fir (future Eucalyptus) Ave. to the SR-60 eastbound ramps would exceed the threshold of significance under 2022 Plus Phase 1 Conditions. Widening the road from two lanes to four lanes would allow it to achieve the target LOS in the 2022 Plus Phase 1 Conditions.

In each case adding lanes would bring the LOS to the level required in the General Plan. The feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## Table 50: 2022 Plus Phase 1 Road Segment Impacts and Mitigations

| | Roadway | From | To | LOS Standard* | 2022 No-Project Conditions | | | 2022 Plus Phase 1 Conditions | | | Project Significant Impact? | Mitigation Measures Required to Reduce Project Impacts to Less-Than-Significant | LOS After Mitigation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Roadway Section** | Daily Volume | LOS | Roadway Section* | Daily Volume | LOS | | | |
| S-1 | Theodore Street (A) | SR-60 WB Ramps | Ironwood Avenue | D | 2U | 3,133 | A | 2U | 4,243 | A | | | |
| S-2 | Theodore Street (A) | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 6,689 | A | 6D | 29,448 | A | | | |
| S-3 | Fir (Eucalyptus) Ave. | Redlands Blvd | Theodore Street (A) | D | 2U*** | 6,542 | A | 4D | 7,234 | A | | | |
| S-4 | Eucalyptus Ave (B) | Theodore Street (A) | Gilman Springs Rd | N/A | Future Road | | | Future Road | | | | | |
| S-5 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Street E | D | 2U | 1,116 | A | 6D | 30,318 | A | | | |
| S-6 | Street E | Theodore Street (A) | Cactus Ave Extension | D | Future Road | | | 4U | 14,908 | A | | | |
| S-7 | Street F | Theodore Street (A) | Alessandro Blvd (Street C) | D | Future Road | | | 2U | 2,242 | A | | | |
| S-8 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Alessandro Blvd (Street C) | D | 2U | 1,116 | A | 4D | 11,017 | A | | | |
| S-9 | Alessandro Blvd (Street E) | Merwin Street | Theodore Street (A) | D | 2U | 3,778 | A | 4U | 7,226 | A | | | |
| S-10 | Cactus Ave Extension | Alessandro Blvd (Street E) | Cactus Ave. | D | Future Road | | | 4U | 9,699 | A | | | |
| S-11 | Alessandro Blvd (Street C) | Theodore Street (A) | Street F | D | 2U | 2,321 | A | 4U | 4,768 | A | | | |
| S-13 | Alessandro Blvd (Street C) | Street F | Gilman Springs Rd | D | 2U | 2,321 | A | 4U | 4,347 | A | | | |
| S-14 | Alessandro Blvd | Moreno Beach Drive | Redlands Blvd | D | 4U | 4,796 | A | 4U | 4,675 | A | **** | | |
| S-16 | Gilman Springs Rd | Alessandro Blvd (Street C) | Bridge Street | D | 2U | 15,512 | F | 2U | 16,492 | F | Yes | Widen to 4 lanes | C |
| S-17 | Gilman Springs Rd | SR-60 | Alessandro Blvd (Street C) | D | 2U | 12,819 | F | 2U | 12,829 | F | Yes | Widen to 4 lanes | C |
| S-18 | Redlands Blvd | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 11,042 | D | 2U | 15,071 | E | Yes | Widen to 4 lanes | A |
| S-19 | Redlands Blvd | Fir (Eucalyptus) Ave. | Alessandro Blvd | C | 2U | 8,416 | B | 2U | 6,575 | A | | | |
| S-20 | Alessandro Blvd | Redlands Blvd | Merwin Street | C | 2U | 3,886 | A | 2U | 772 | A | | | |
| S-21 | Redlands Blvd | Alessandro Blvd | Cactus Ave. | C | 2U | 8,583 | B | 2U | 4,755 | A | | | |
| S-22 | Cactus Ave. | Redlands Blvd | Cactus Ave Extension | C | 2U*** | 472 | A | 2U | 9,699 | C | | | |

* LOS Standard is "C" in residential areas and "D" for roads in employment-generating areas or near freeways.

** Section is the number of lanes, with "U" for "undivided" and "D" for "Divided" roadways.

*** Road currently has 2 lanes in one direction and 1 lane in the other. The capacity shown is based on the narrower direction.

**** Due to the severing of Alessandro Blvd. and the diversion of traffic to other routes, there is no need to widen this section beyond the current 2U configuration

Indicates LOS exceeds the target level

## B. INTERSECTION LOS, IMPACTS, AND MITIGATIONS

Figure 51 shows the turning movement volumes under 2022 Plus Phase 1 conditions (see Figure 16 for the key map). Table 51 presents the LOS for the study intersections under the 2022 Plus Phase 1 conditions in the AM and PM peak hours. Detailed worksheets are presented in Appendix F. Table 52 identifies where impacts occur and mitigation measures that would reduce the impacts to a less-than-significant level.

As shown in Table 52, there are 34 study intersections where the project would have a significant impact. Twenty-eight of these intersections exceed the threshold of significance under 2022 No-Project conditions and six would exceed the threshold of significance with the addition of the project. These are:

Would Exceed Threshold of Significance Under Both 2022 No-Project Conditions and 2022 Plus Phase 1 Conditions

- Redlands Blvd./Locust Ave.
- Redlands Blvd./SR-60 WB ramps
- Oliver St./Alessandro Blvd.
- Moreno Beach Dr./Ironwood Ave.
- Moreno Beach Dr./SR-60 EB Ramps
- Lasselle St./Iris Ave.
- Krameria Ave./Perris Blvd.
- Lasselle St./Alessandro Blvd.
- Lasselle St./Cactus Ave.
- Frederick St./Alessandro Blvd.
- Graham St./Alessandro Blvd.
- Martin Luther King Blvd./Canyon Crest Dr.
- Perris Blvd./Alessandro Blvd.
- Graham St./Cactus Ave.
- Alessandro Blvd./Sycamore Canyon Blvd.
- Elsworth St./Cactus Ave.
- Arlington Ave./Victoria Ave.
- Alessandro Blvd./Chicago Ave.
- Ramona Expwy./Evans Rd.
- Placentia Ave./Perris Blvd.

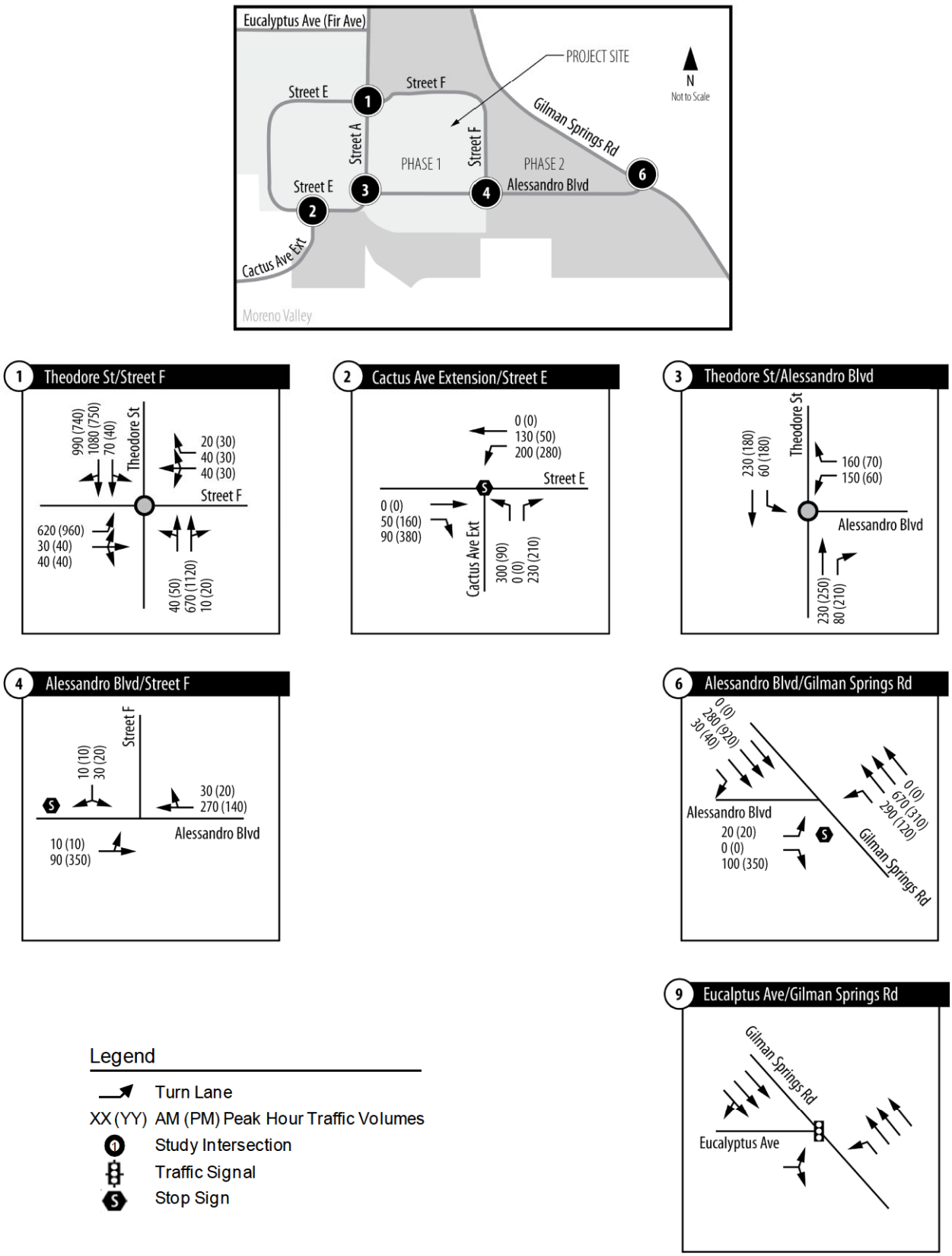



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions**

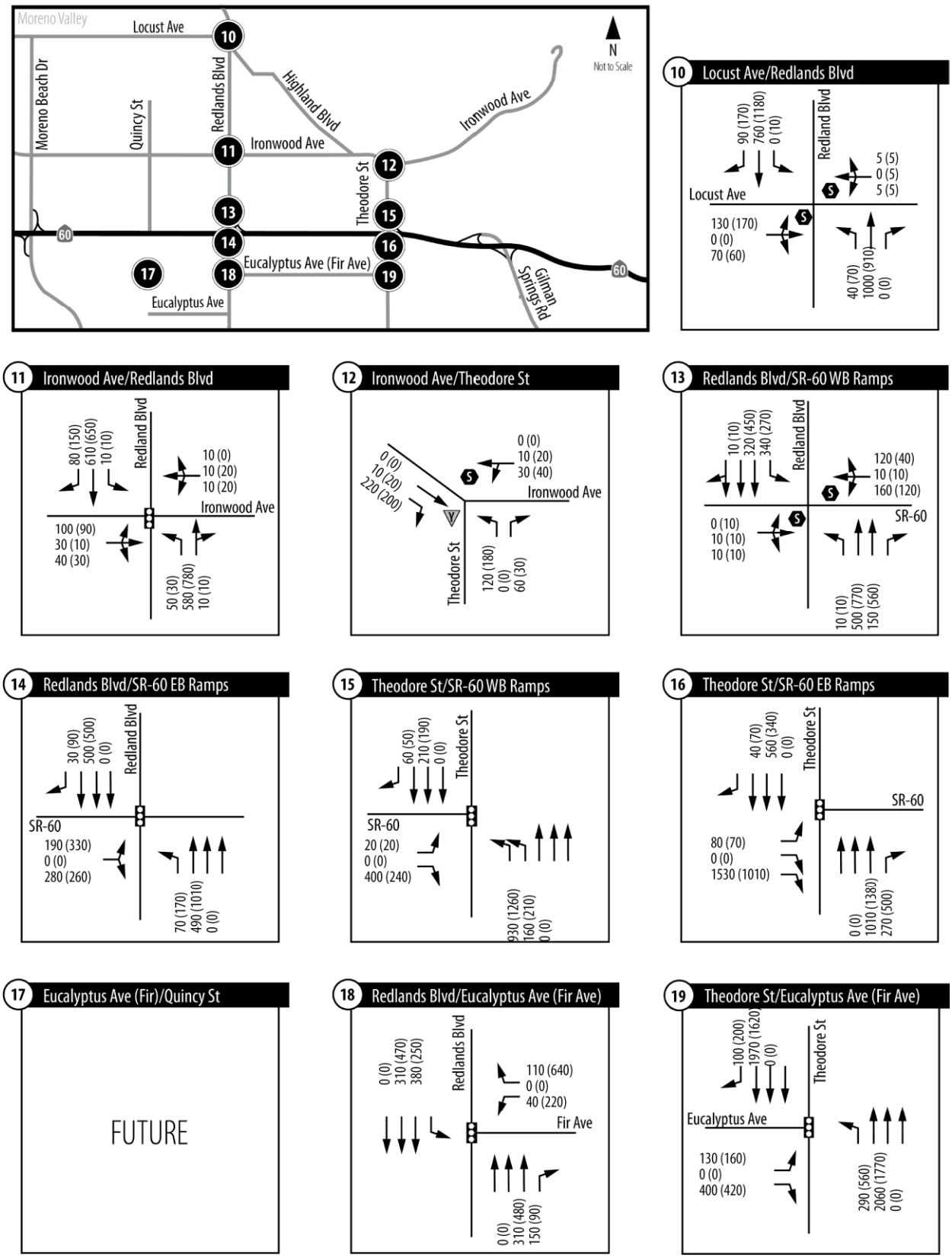



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (B)**

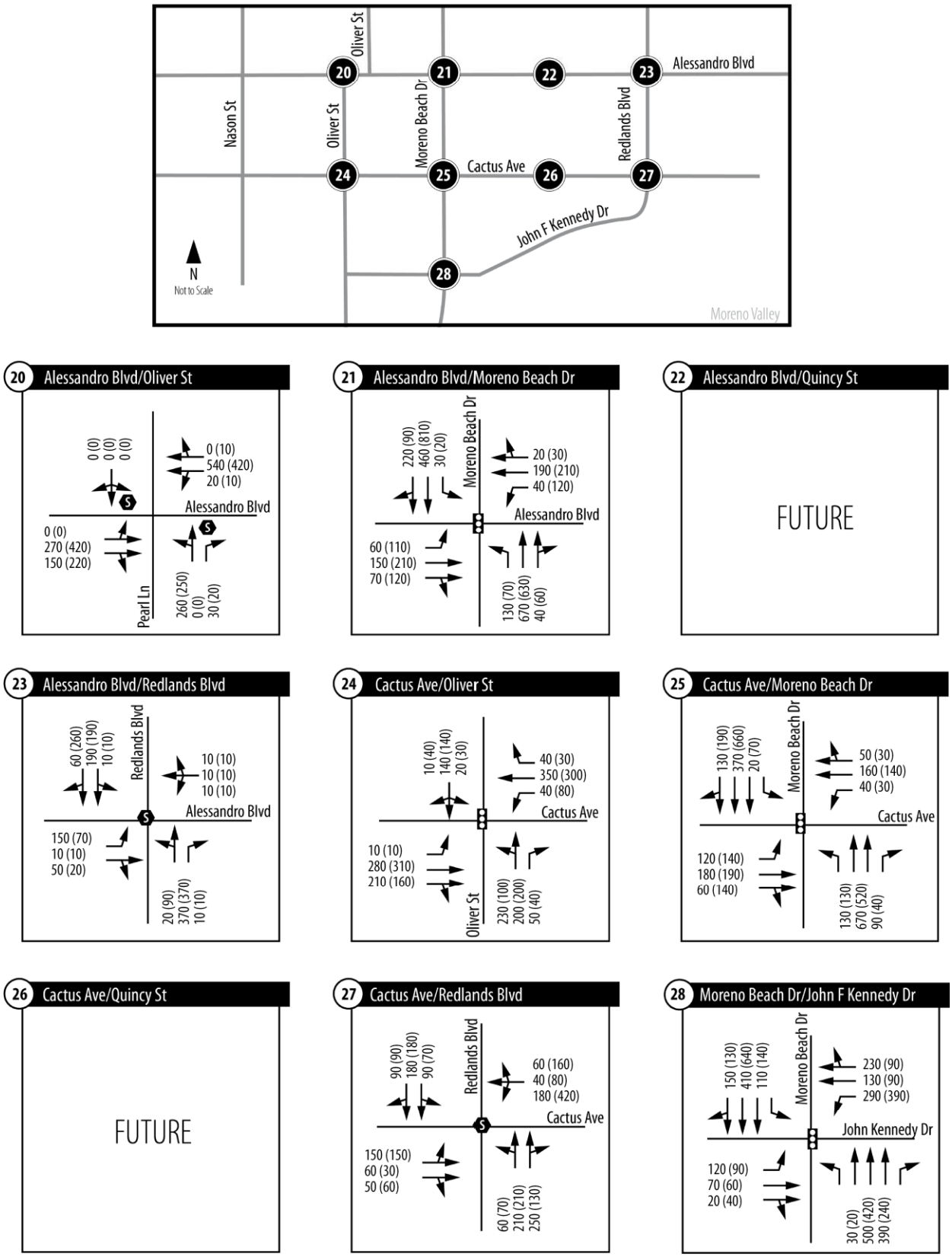



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (C)**

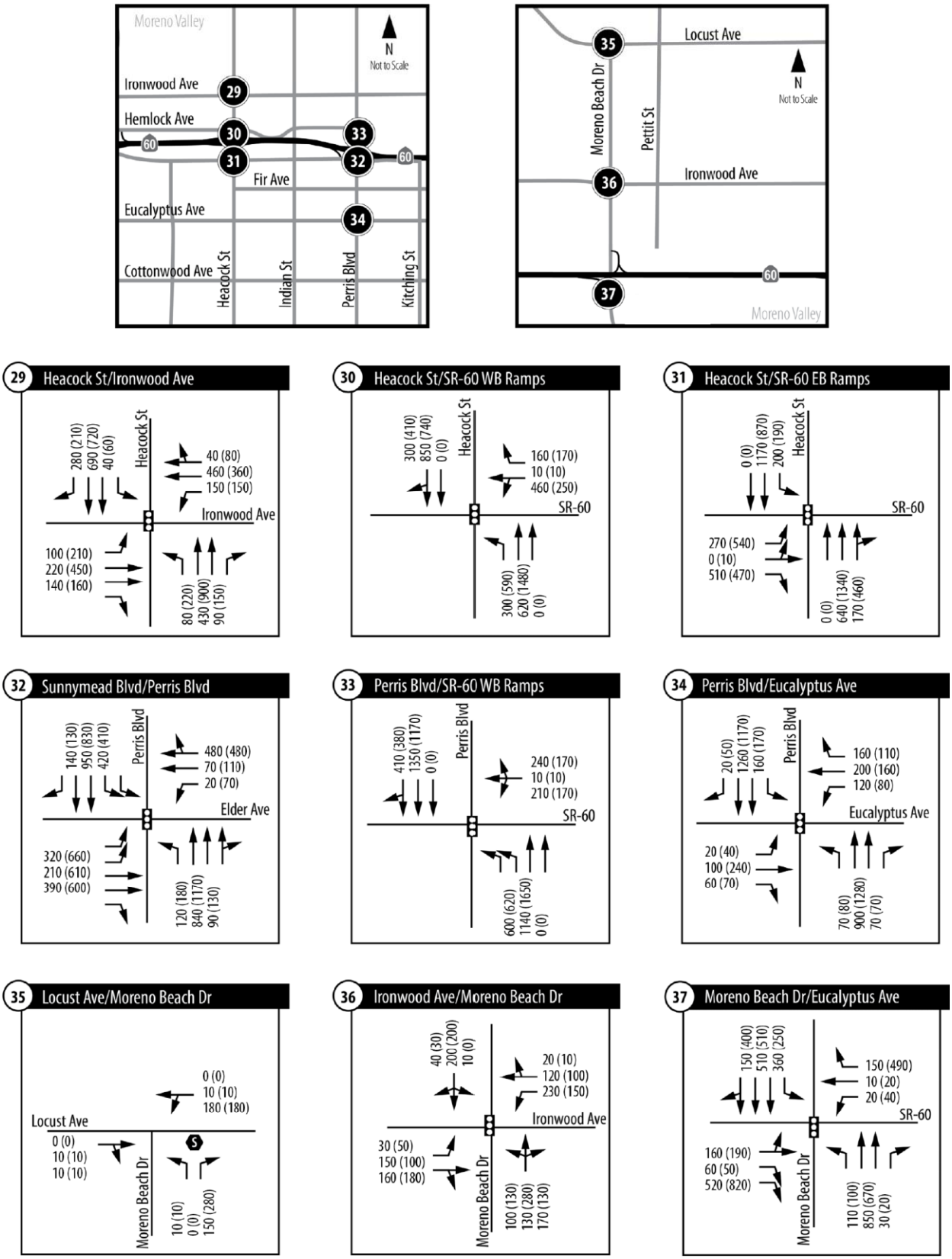



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (D)**

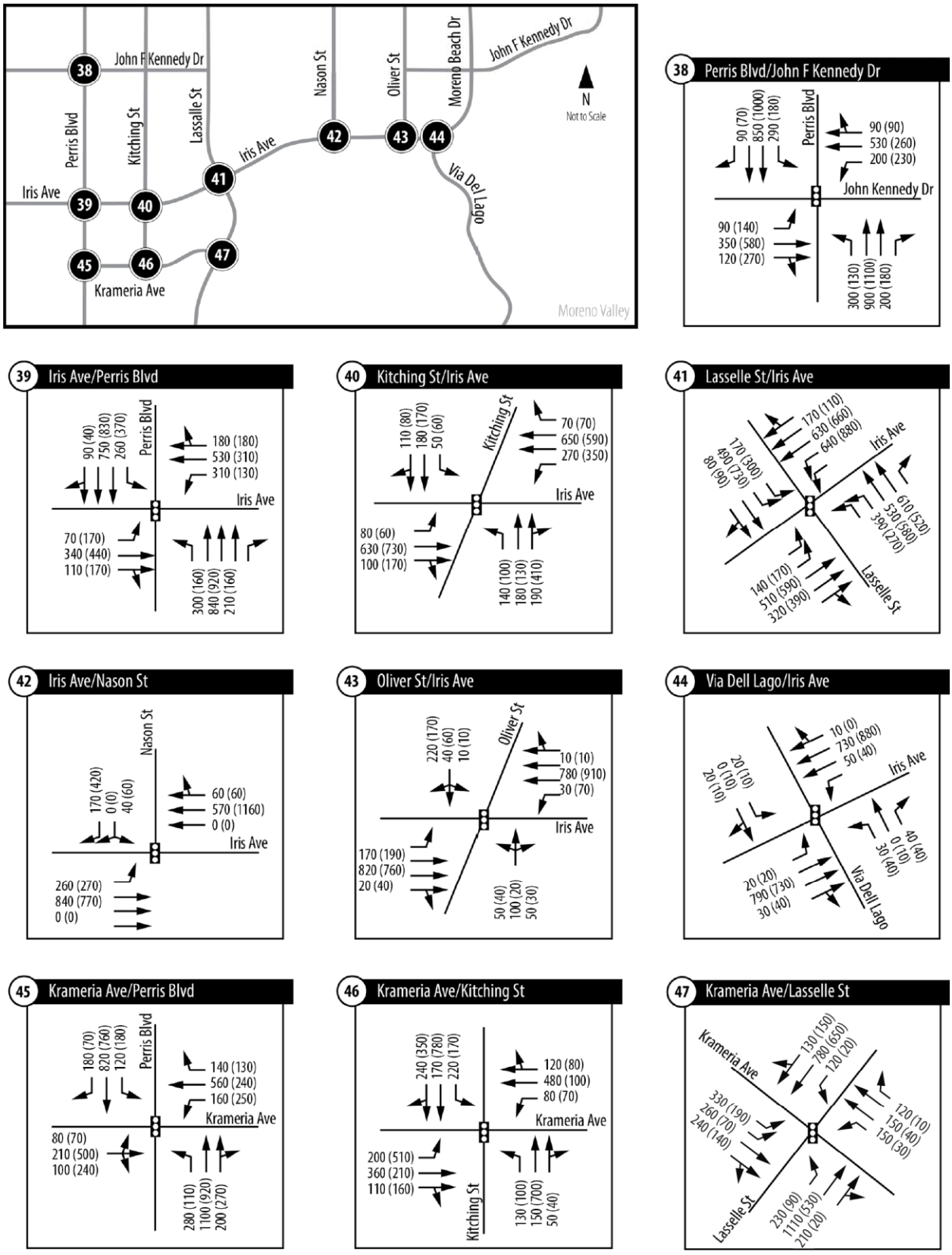



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (E)**

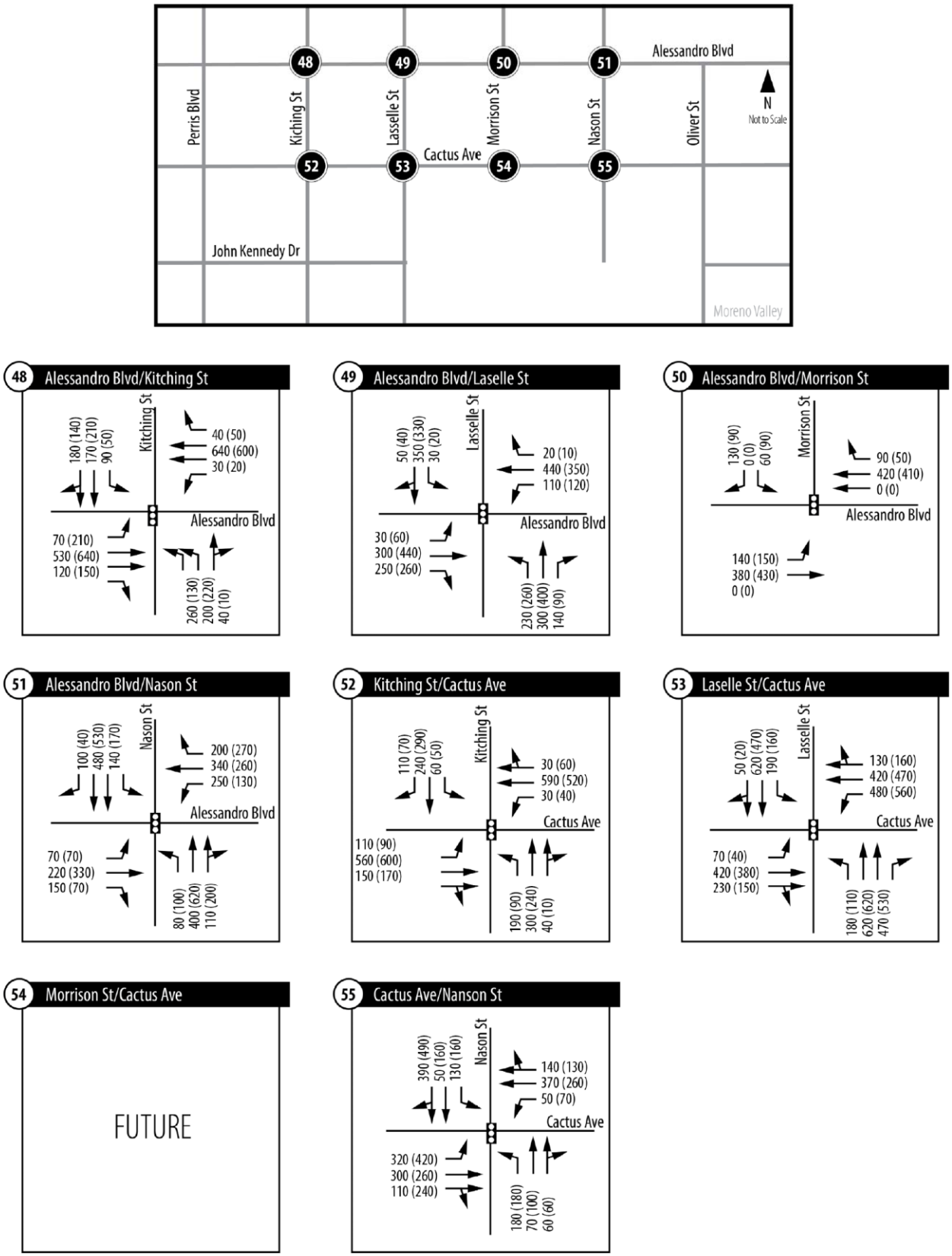



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (F)**

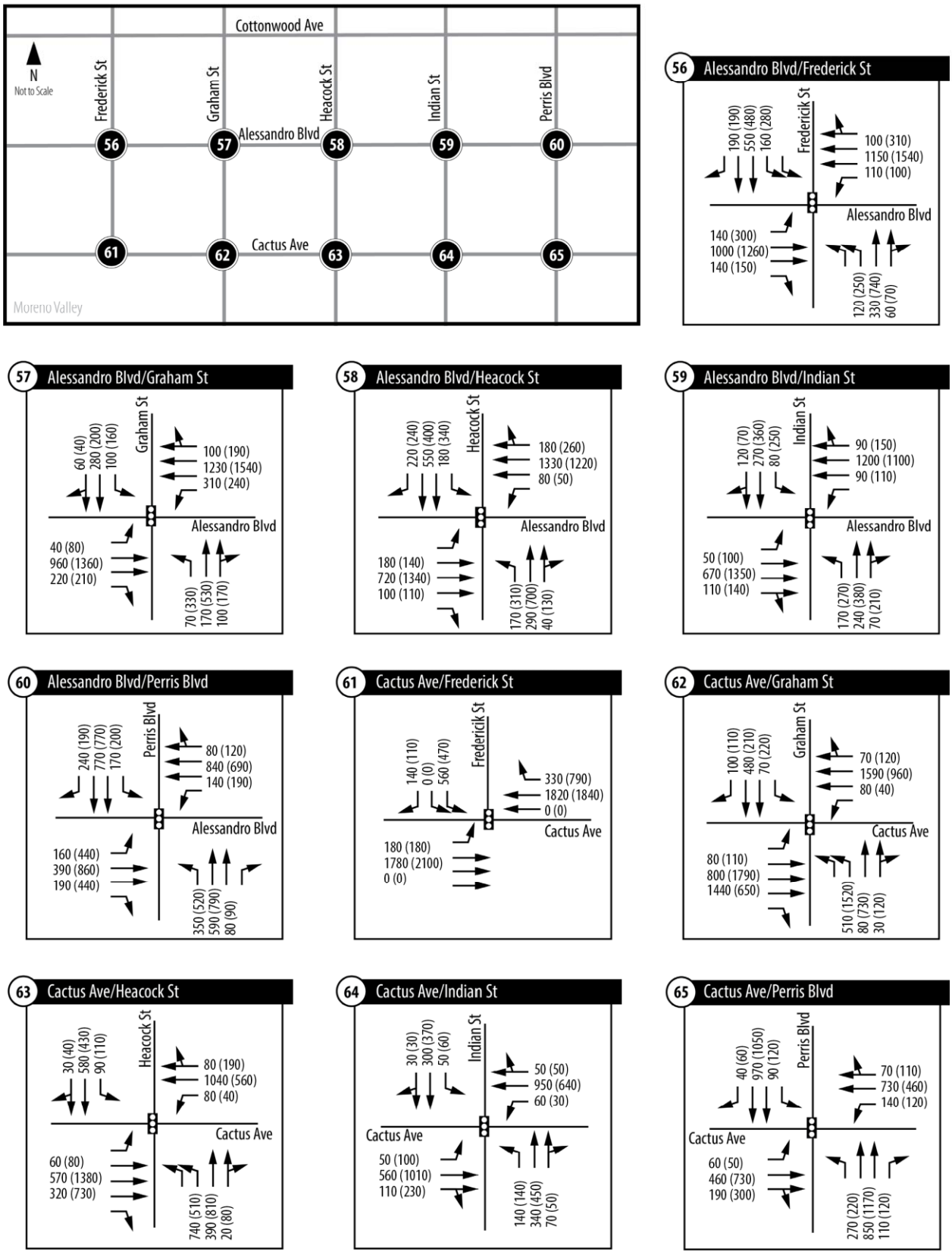



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (G)**

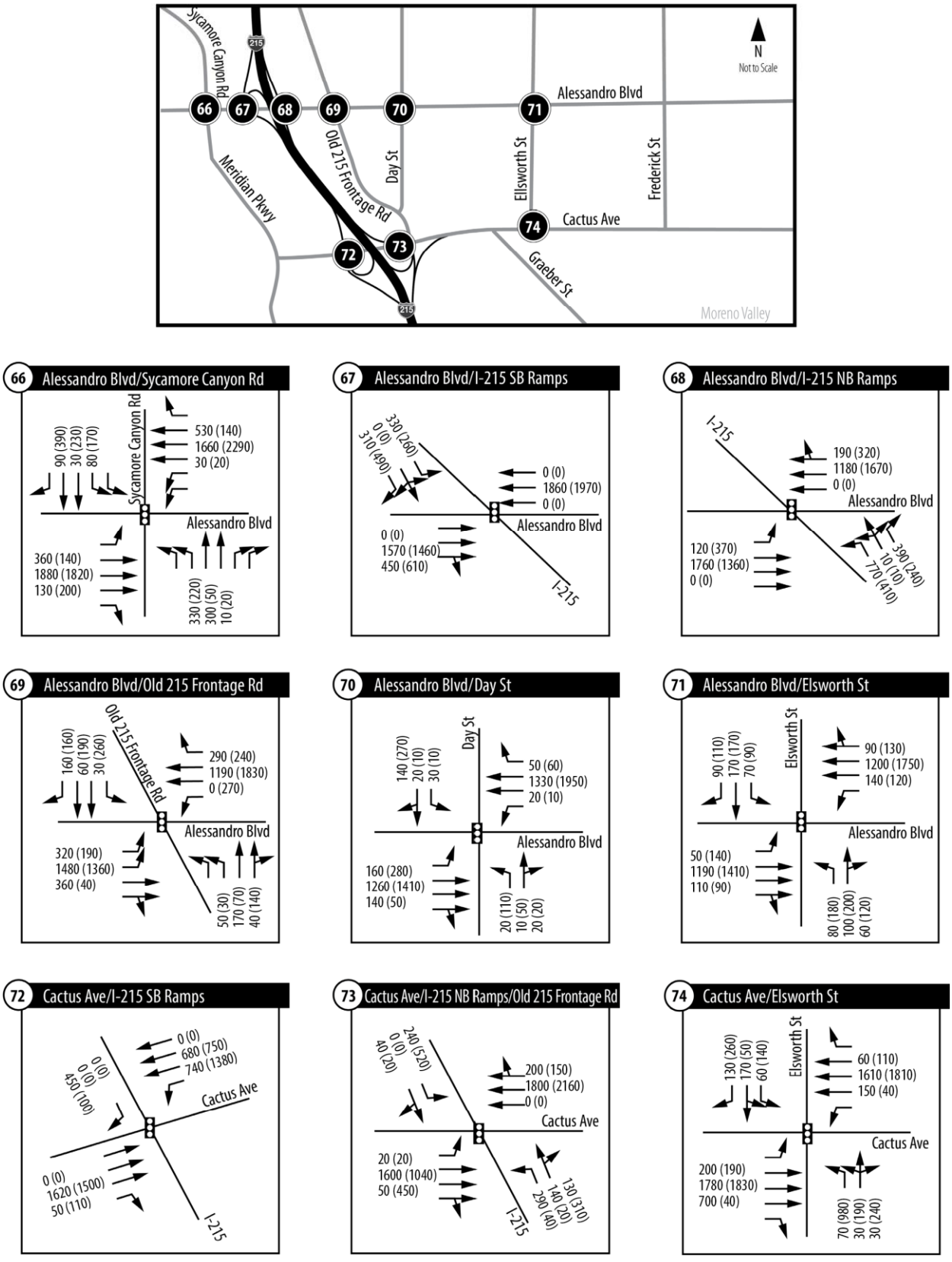



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (H)**

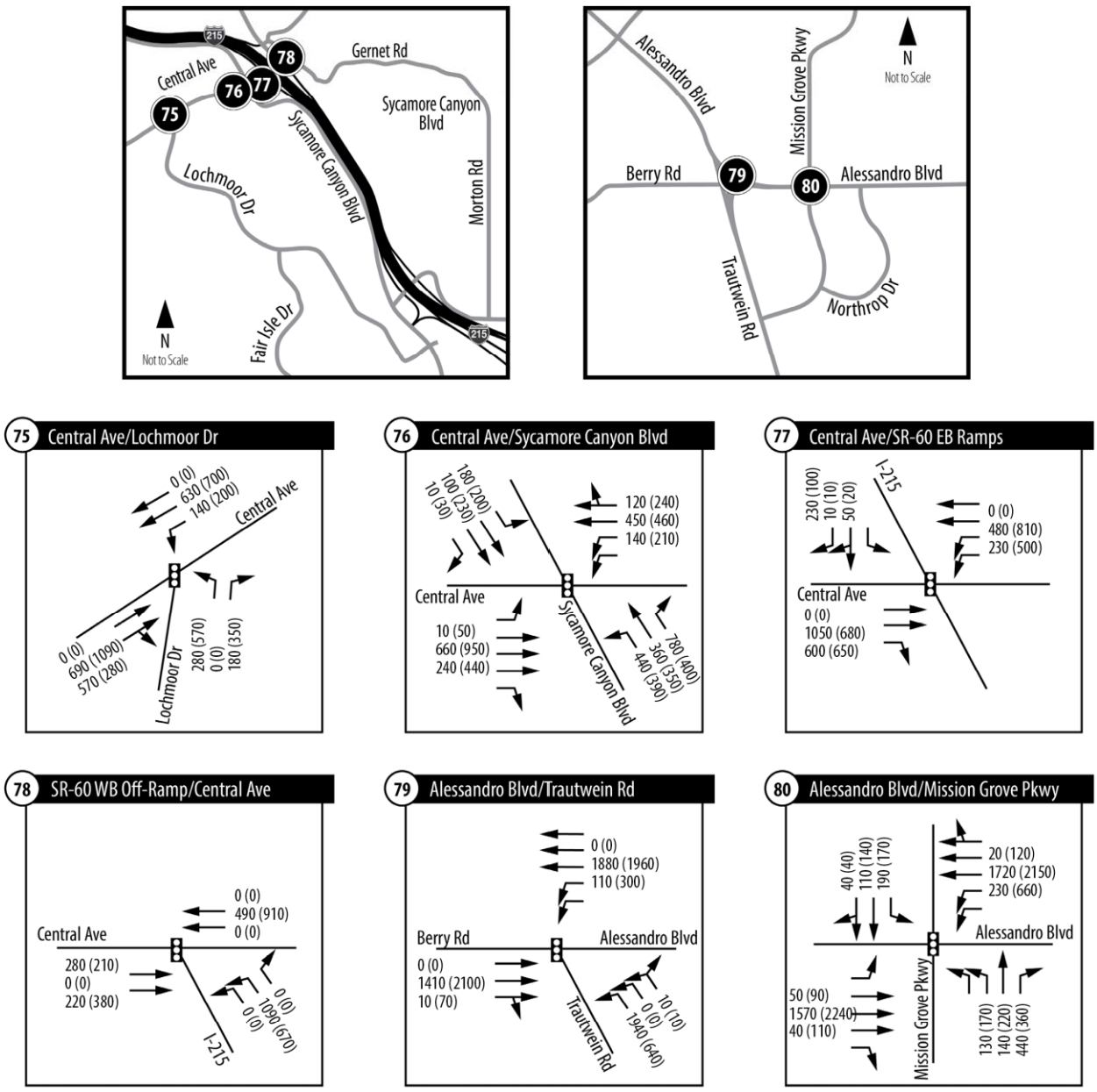



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (I)**

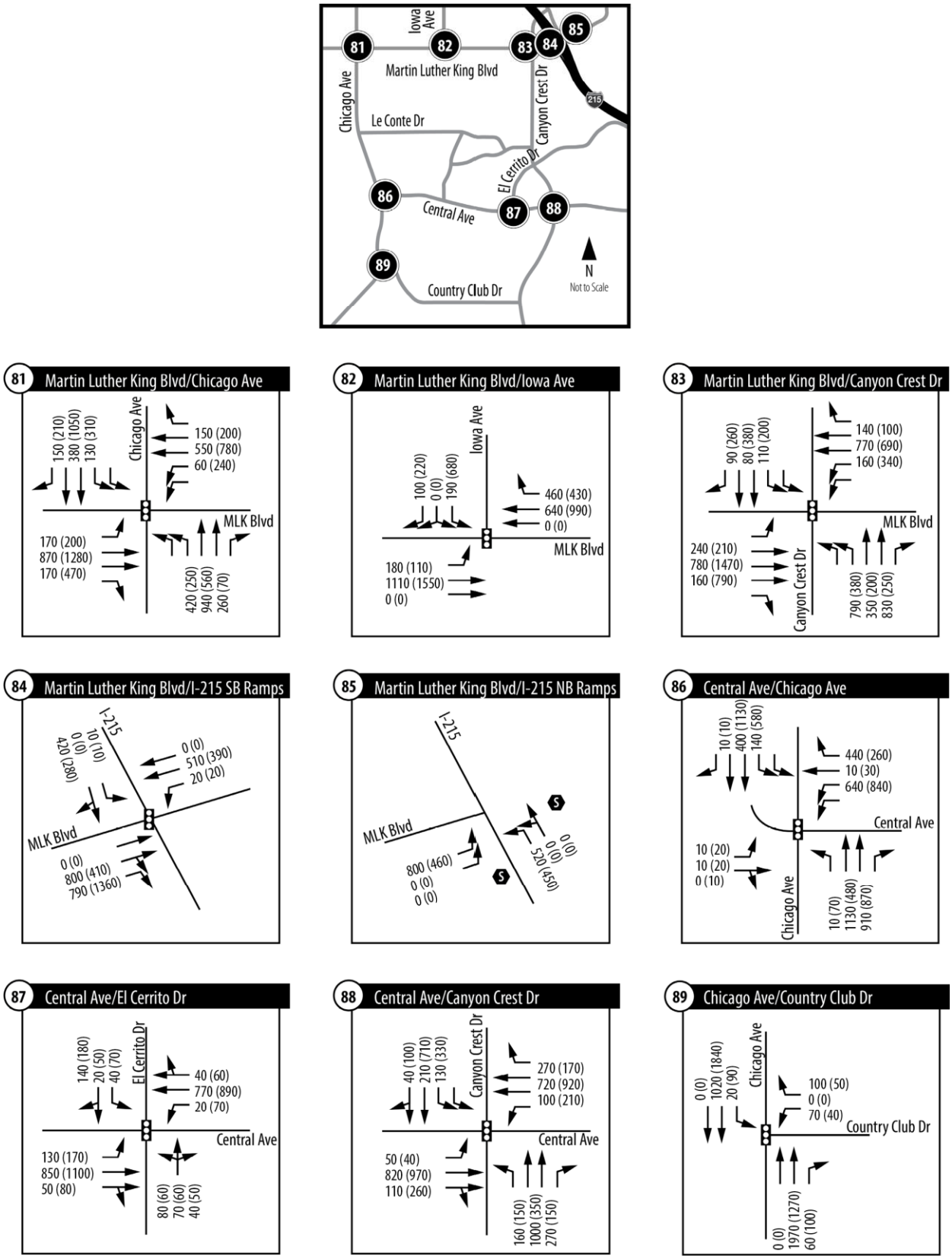



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (J)**

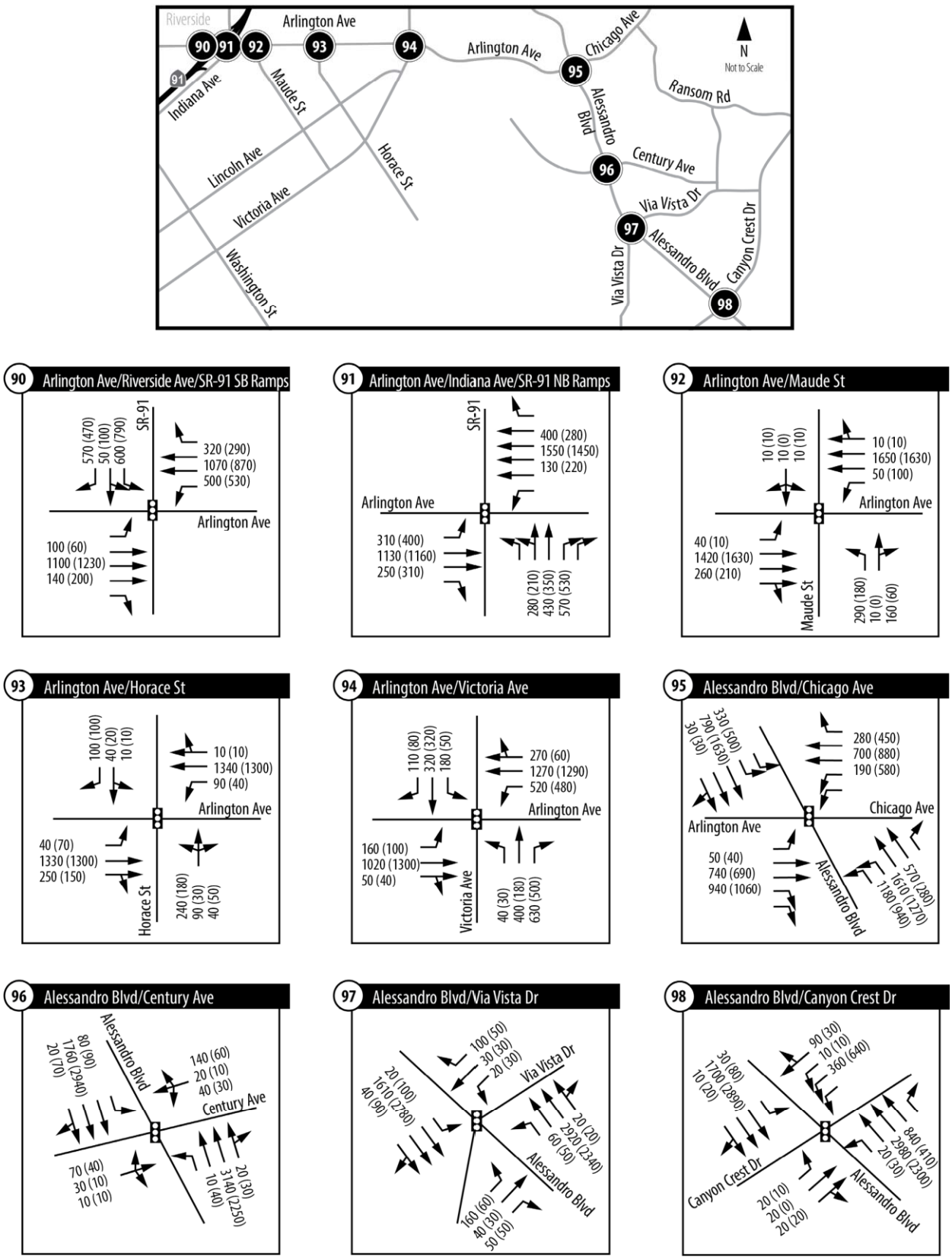



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (K)**

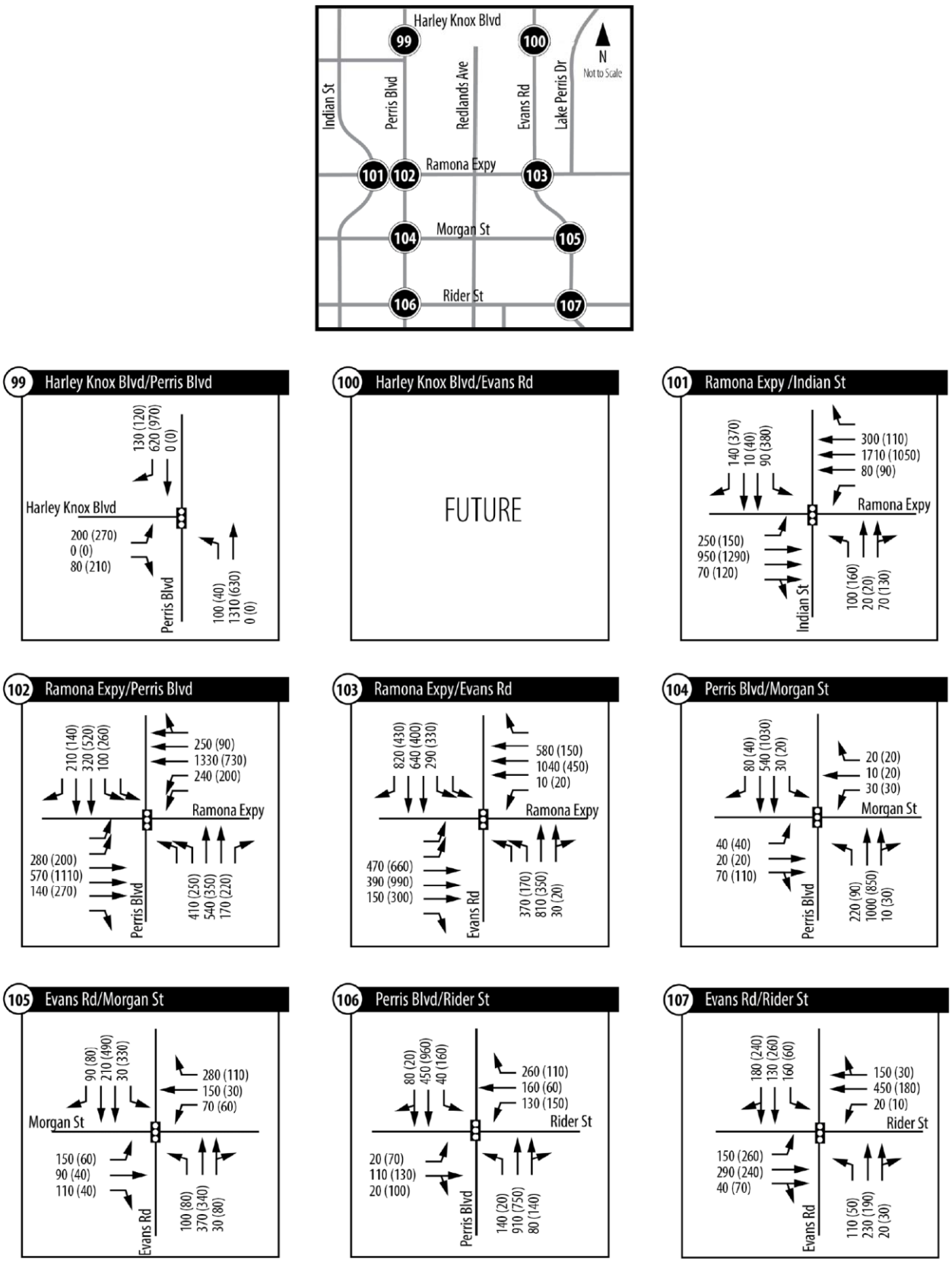



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (L)**

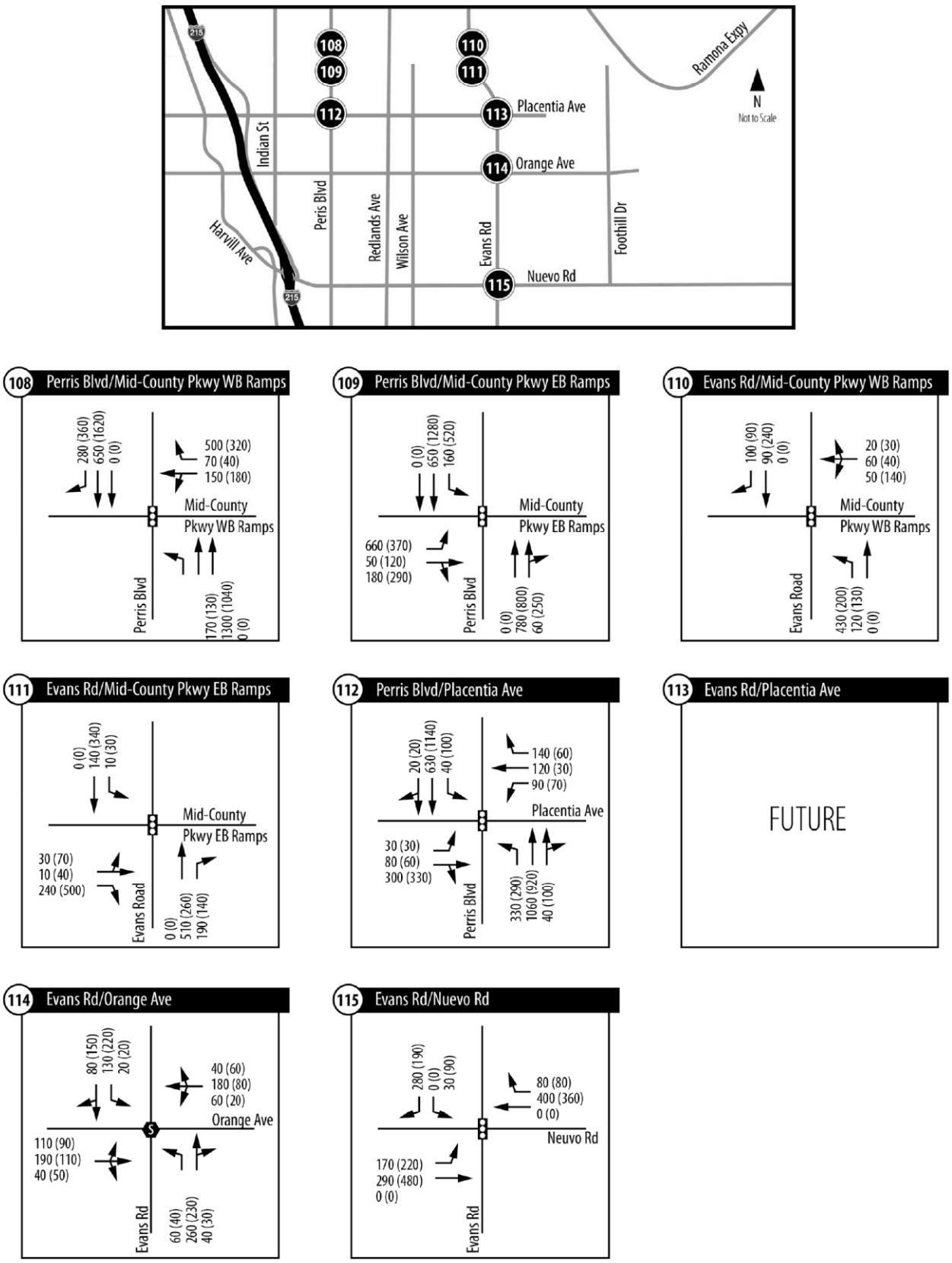
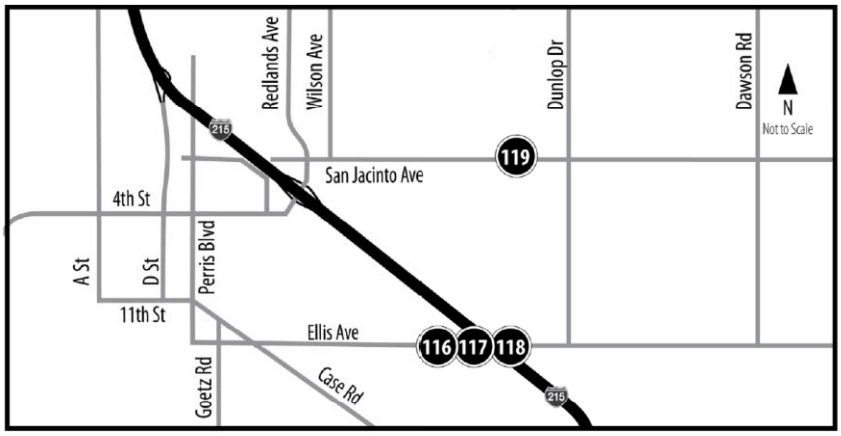



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (M)**



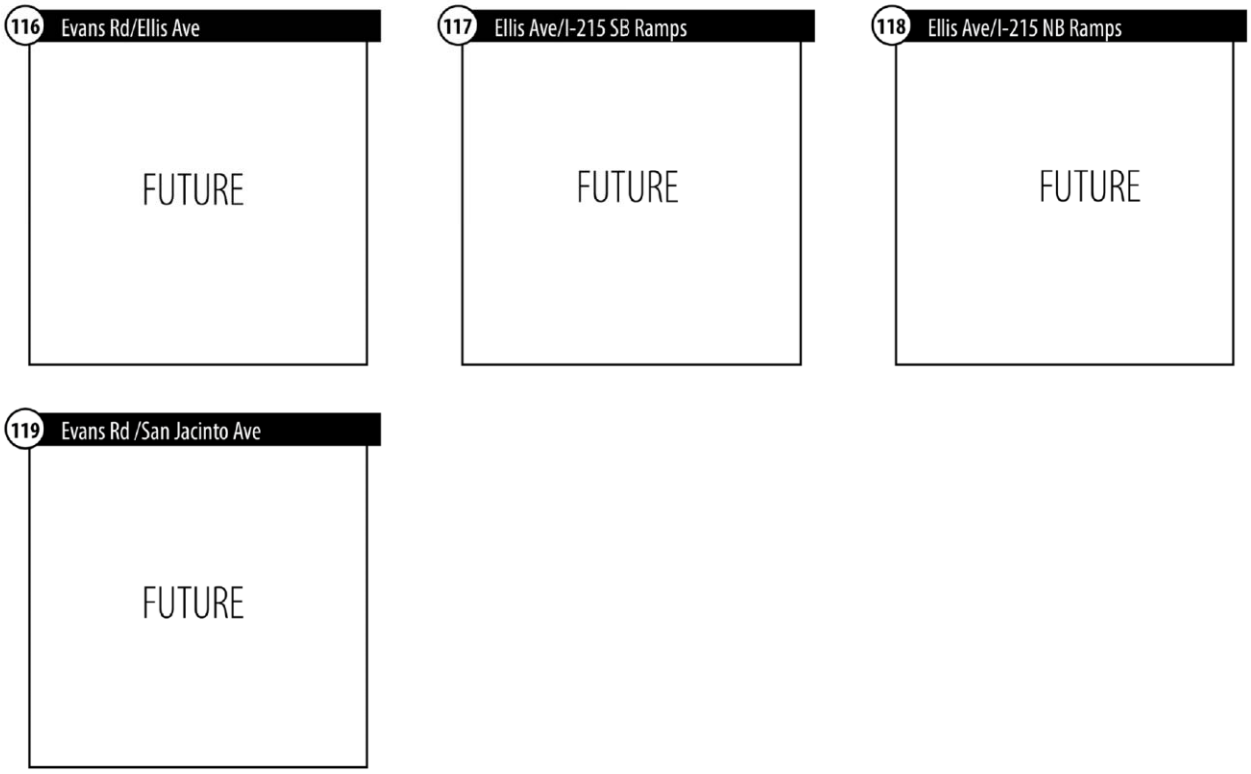




**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (N)**

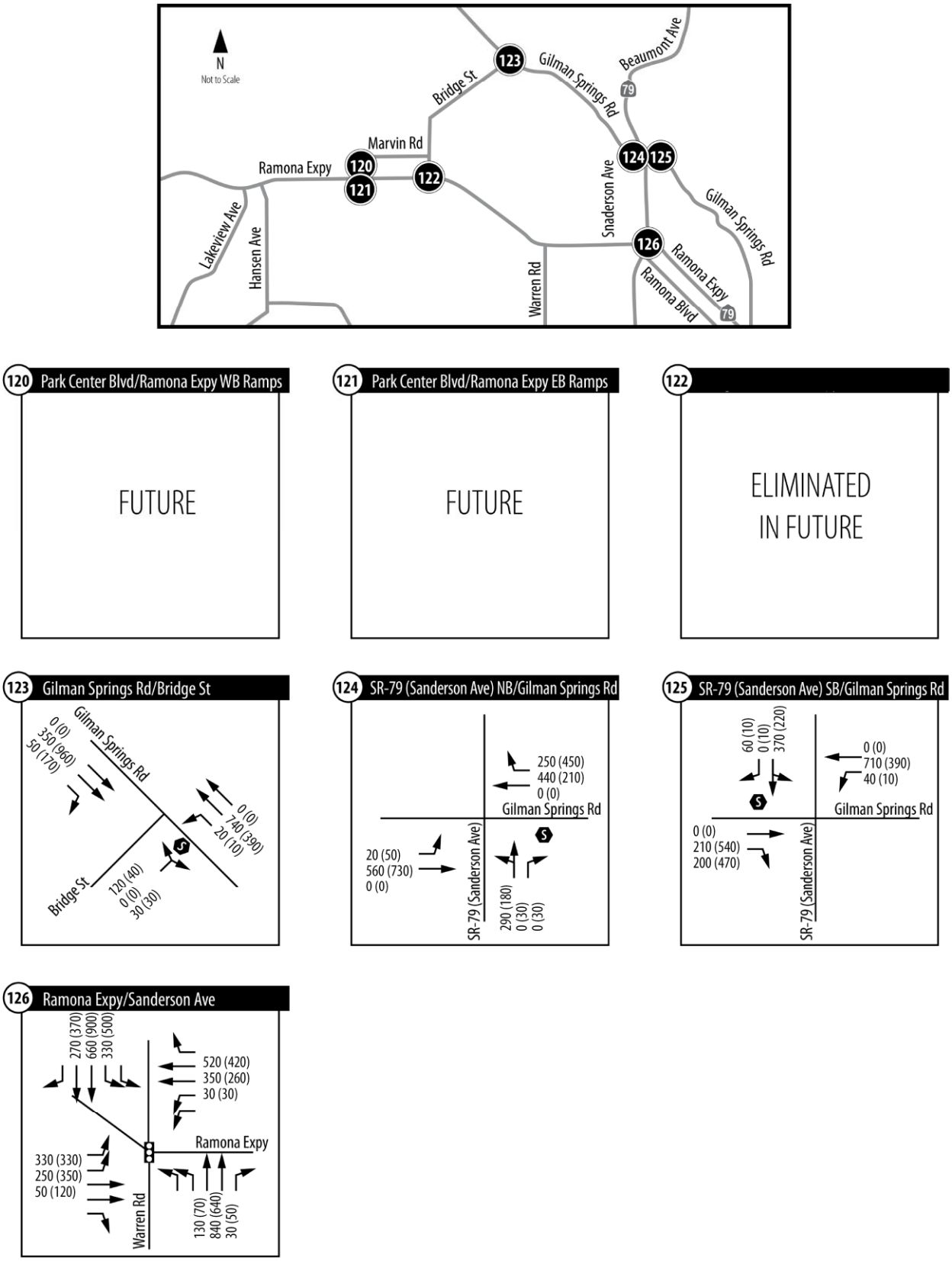
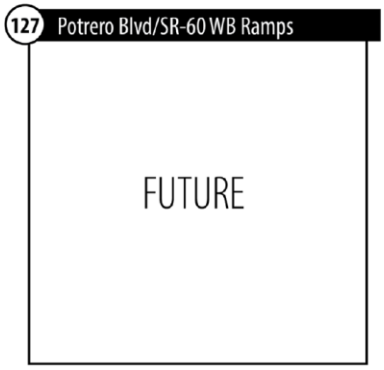
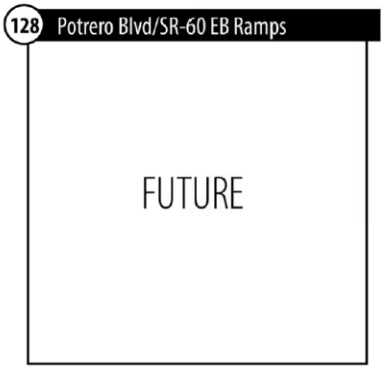
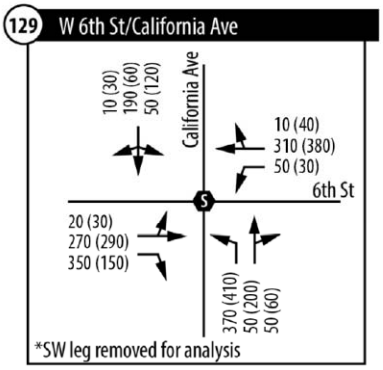



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (O)**



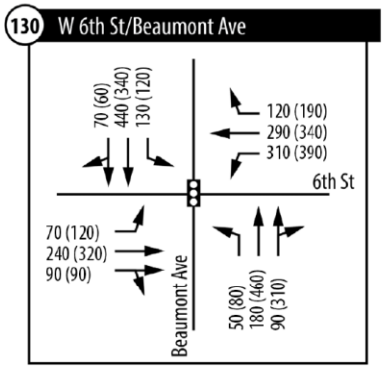




**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (P)**

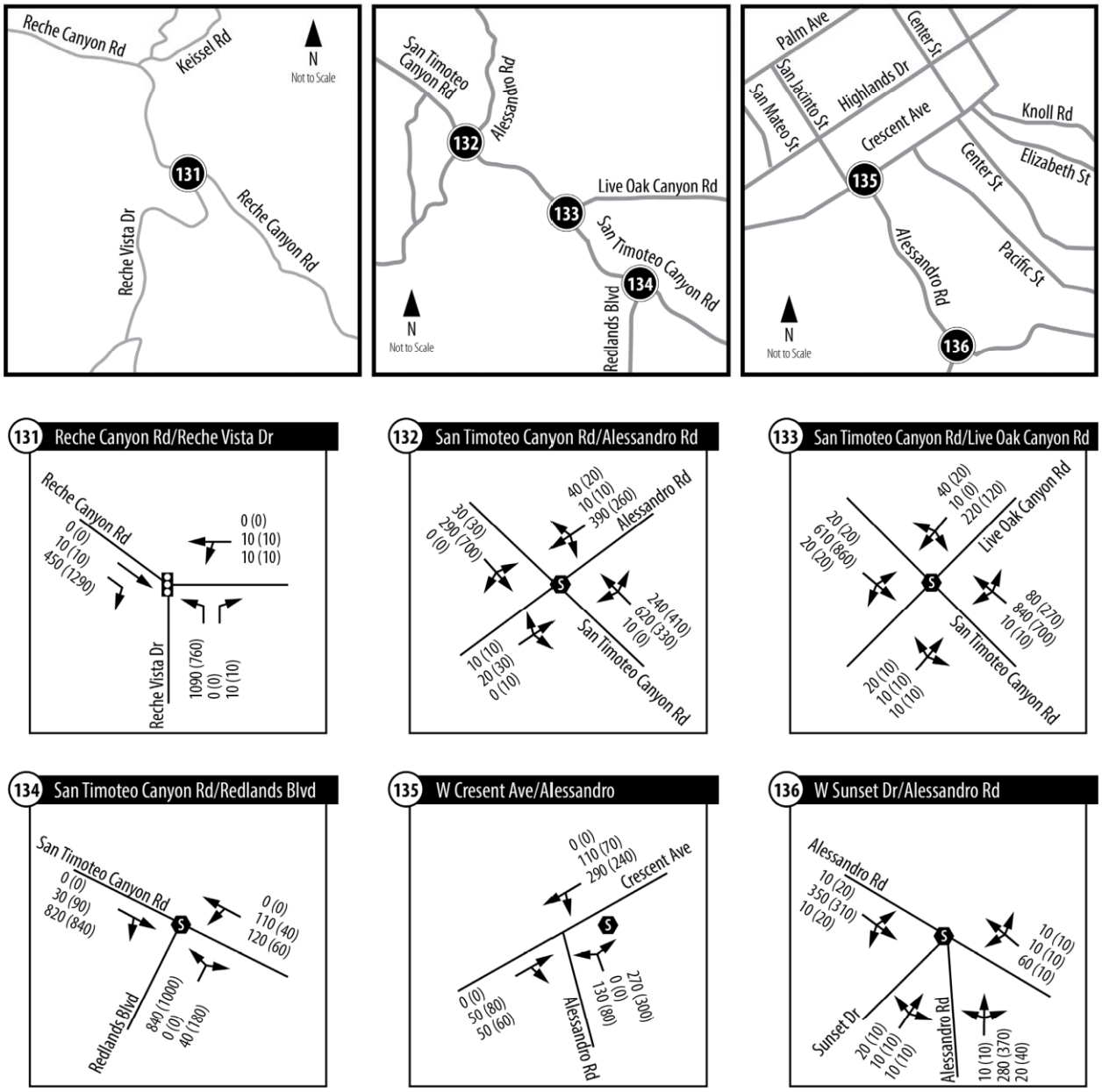



**Figure 51: Turning Movement Volumes under 2022 Plus Phase 1 Conditions (Q)**

## Table 51: Intersection LOS under 2022 Plus Phase 1 Conditions

| ID | Study Intersection | LOS Standard | 2022 No-Project | | | 2022 Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-1 | Theodore St/Street F | D | N/A | Non-Existent | | RABT | 9.8 | A |
| IN-2 | Cactus Ave Extension/Street E | D | N/A | Non-Existent | | CSS | 12.7 | B |
| IN-3 | Theodore St/Alessandro (Str A/Str C/Str E) | D | CSS | 10.0 | A | RABT | 8.0 | A |
| IN-4 | Alessandro Blvd (Street C)/Street F | D | N/A | Non-Existent | | CSS | 11.5 | B |
| IN-6 | Alessandro Blvd (Street C)/Gilman Springs Rd | D | SIGNAL | 5.8 | A | SIGNAL | 7.9 | A |
| IN-9 | Gilman Springs Rd/Eucalytpus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-10 | Redlands Blvd/Locust Ave | C | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-11 | Redlands Blvd/Ironwood Ave | D | SIGNAL | 34.9 | C | SIGNAL | 31.9 | C |
| IN-12 | Theodore Street/Ironwood Avenue | D | CSS | 13.0 | B | CSS | 17.9 | C |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-14 | Redlands Blvd/SR-60 EB ramps | D | SIGNAL | 8.9 | A | SIGNAL | 12.6 | B |
| IN-15 | Theodore Str/SR-60 WB ramps | D | CSS | 12.2 | B | SIGNAL | 14.0 | B |
| IN-16 | Theodore Str/SR-60 EB ramps | D | CSS | 12.2 | B | SIGNAL | 2.6 | A |
| IN-17 | Quincy Str/Fir Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-18 | Redlands Blvd/Eucalyptus Ave (Fir) | D | N/A | Non-Existent | | SIGNAL | 10.9 | B |
| IN-19 | Theodore St/Fir Ave (Eucalyptus) | D | CSS | 9.8 | A | SIGNAL | 13.6 | B |
| IN-20 | Oliver Str/Alessandro Blvd | C | CSS | 81.3 | **F** | CSS | 129.7 | **F** |
| IN-21 | Moreno Beach Dr/Alessandro Blvd | D | SIGNAL | 17.6 | B | SIGNAL | 17.5 | B |
| IN-22 | Quincy Str/Alessandro Blvd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-23 | Redlands Blvd/Alessandro Blvd | C | AWS | 30.2 | **D** | AWS | 18.7 | C |
| IN-24 | Oliver Str/Cactus Ave | D | SIGNAL | 32.5 | C | SIGNAL | 37.0 | D |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | SIGNAL | 18.5 | B | SIGNAL | 18.9 | B |
| IN-26 | Quincy Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-27 | Redlands Blvd/Cactus Ave | C | AWS | 13.4 | B | AWS | 52.8 | **F** |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | SIGNAL | 19.8 | B | SIGNAL | 29.0 | C |
| IN-29 | Heacock Str/Ironwood Ave | D | SIGNAL | 30.9 | C | SIGNAL | 31.1 | C |
| IN-30 | Heacock Str/SR-60 WB Ramps | D | SIGNAL | 33.7 | C | SIGNAL | 34.7 | C |
| IN-31 | Heacock St/SR-60 EB Ramps | D | SIGNAL | 21.1 | C | SIGNAL | 21.6 | C |
| IN-32 | Sunnymead Blvd & Perris Blvd | D | SIGNAL | 29.9 | C | SIGNAL | 30.2 | C |
| IN-33 | Perris Blvd/SR-60 WB Ramps | D | SIGNAL | 31.8 | C | SIGNAL | 33.7 | C |
| IN-34 | Perris Blvd/Eucalyptus Ave | D | SIGNAL | 27.7 | C | SIGNAL | 28.8 | C |
| IN-35 | Moreno Beach Dr/Locust Ave | C | CSS | 9.2 | A | CSS | 9.3 | A |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | SIGNAL | 90.2 | **F** | SIGNAL | 97.5 | **F** |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | SIGNAL | 88.7 | **F** | SIGNAL | 102.3 | **F** |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | SIGNAL | 50.8 | D | SIGNAL | 55.7 | **E** |
| IN-39 | Iris Ave/Perris Blvd | D | SIGNAL | 54.0 | D | SIGNAL | 55.5 | **E** |
| IN-40 | Kitching St/Iris Ave | C | SIGNAL | 28.9 | C | SIGNAL | 30.5 | C |
| IN-41 | Lasselle Str/Iris Ave | D | SIGNAL | 32.8 | C | SIGNAL | 42.1 | D |
| IN-42 | Nason Str/Iris Ave | C | SIGNAL | 8.2 | A | SIGNAL | 7.7 | A |
| IN-43 | Oliver Str/Iris Ave | D | SIGNAL | 28.9 | C | SIGNAL | 28.2 | C |
| IN-44 | Via Dell Lago/Iris Ave | C | SIGNAL | 8.8 | A | SIGNAL | 9.6 | A |
| IN-45 | Krameria Ave/Perris Blvd | D | SIGNAL | > 180.0 | **F** | SIGNAL | > 180.0 | **F** |
| IN-46 | Kitching Str/Krameria Ave | D | SIGNAL | 29.2 | C | SIGNAL | 41.2 | D |
| IN-47 | Lasselle Str/Krameria Ave | D | SIGNAL | 32.9 | C | SIGNAL | 33.6 | C |
| IN-48 | Kitching Str/Alessandro Blvd | D | SIGNAL | 28.5 | C | SIGNAL | 28.5 | C |

## Table 51: Intersection LOS under 2022 Plus Phase 1 Conditions (continued)

| ID | Study Intersection | LOS Standard | 2022 No-Project | | | 2022 Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-49 | Lasselle Str/Alessandro Blvd | D | SIGNAL | 56.1 | **E** | SIGNAL | 57.6 | **E** |
| IN-50 | Morrison Str/Alessandro Blvd | D | SIGNAL | 9.3 | A | SIGNAL | 9.3 | A |
| IN-51 | Nason Str/Alessandro Blvd | D | SIGNAL | 31.5 | C | SIGNAL | 32.3 | C |
| IN-52 | Kitching Str/Cactus Ave | C | SIGNAL | 32.2 | C | SIGNAL | 32.8 | C |
| IN-53 | Lasselle Str/Cactus Ave | C | SIGNAL | 64.0 | **E** | SIGNAL | 69.7 | **E** |
| IN-54 | Morrison Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-55 | Nason Str/Cactus Ave | D | SIGNAL | 30.6 | C | SIGNAL | 31.1 | C |
| IN-56 | Frederick Str/Alessandro Blvd | D | SIGNAL | 30.4 | C | SIGNAL | 30.7 | C |
| IN-57 | Graham Str/Alessandro Blvd | D | SIGNAL | 32.4 | C | SIGNAL | 32.7 | C |
| IN-58 | Heacock Str/Alessandro Blvd | D | SIGNAL | 41.8 | D | SIGNAL | 43.3 | D |
| IN-59 | Indian Str/Alessandro Blvd | D | SIGNAL | 24.7 | C | SIGNAL | 24.4 | C |
| IN-60 | Perris Blvd/Alessandro Blvd | D | SIGNAL | 50.5 | D | SIGNAL | 51.5 | D |
| IN-61 | Frederick Str/Cactus Ave | D | SIGNAL | 19.1 | B | SIGNAL | 19.9 | B |
| IN-62 | Graham Str/Cactus Ave | D | SIGNAL | 148.3 | **F** | SIGNAL | 154.7 | **F** |
| IN-63 | Heacock Str/Cactus Ave | D | SIGNAL | 42.5 | D | SIGNAL | 41.2 | D |
| IN-64 | Indian Str/Cactus Ave | C | SIGNAL | 28.8 | C | SIGNAL | 28.9 | C |
| IN-65 | Perris Blvd/Cactus Ave | D | SIGNAL | 35.7 | D | SIGNAL | 35.6 | D |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | SIGNAL | 38.2 | D | SIGNAL | 36.8 | D |
| IN-67 | I-215 SB Ramps/Alessandro Blvd | D | SIGNAL | 10.9 | B | SIGNAL | 11.0 | B |
| IN-68 | I-215 NB Ramps/Alessandro Blvd | D | SIGNAL | 25.5 | C | SIGNAL | 25.7 | C |
| IN-69 | Old 215 Frontage Rd/Alessandro Blvd | D | SIGNAL | 17.3 | B | SIGNAL | 17.5 | B |
| IN-70 | Day Str/Alessandro Blvd | D | SIGNAL | 10.7 | B | SIGNAL | 10.7 | B |
| IN-71 | Elsworth Str/Alessandro Blvd | D | SIGNAL | 20.7 | C | SIGNAL | 20.9 | C |
| IN-72 | I-215 SB Ramps/Cactus Ave | D | SIGNAL | 30.5 | C | SIGNAL | 31.8 | C |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | SIGNAL | 10.8 | B | SIGNAL | 12.7 | B |
| IN-74 | Elsworth Str/Cactus Ave | D | SIGNAL | 31.3 | C | SIGNAL | 31.2 | C |
| IN-75 | Central Ave/Lochmoor Dr. | D | SIGNAL | 19.6 | B | SIGNAL | 20.7 | C |
| IN-76 | Sycamore Canyon Blvd/Central Ave | D | SIGNAL | 27.8 | C | SIGNAL | 32.6 | C |
| IN-77 | SR-60 EB Ramps/Central Ave | D | SIGNAL | 10.9 | B | SIGNAL | 10.8 | B |
| IN-78 | SR-60 WB Ramps/Central Ave | D | SIGNAL | 6.6 | A | SIGNAL | 7.1 | A |
| IN-79 | Alessandro Blvd/Trautwein Rd. | D | SIGNAL | 29.8 | C | SIGNAL | 30.2 | C |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | SIGNAL | 33.2 | C | SIGNAL | 36.0 | D |
| IN-81 | Martin Luther King Blvd/Chicago Ave | D | SIGNAL | 34.6 | C | SIGNAL | 36.7 | D |
| IN-82 | Martin Luther King Blvd/Iowa Ave | D | SIGNAL | 9.2 | A | SIGNAL | 9.3 | A |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | SIGNAL | 100.0 | **F** | SIGNAL | 102.2 | **F** |
| IN-84 | Martin Luther King Blvd/I-215 SB Ramps | D | SIGNAL | 9.6 | A | SIGNAL | 9.8 | A |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | AWS | 27.4 | D | AWS | 28.0 | D |
| IN-86 | Central Ave/Chicago Ave | D | SIGNAL | 34.5 | C | SIGNAL | 39.0 | D |
| IN-87 | Central Ave/El Cerrito Dr | D | SIGNAL | 13.2 | B | SIGNAL | 13.2 | B |
| IN-88 | Central Ave/Canyon Crest Dr | D | SIGNAL | 36.3 | D | SIGNAL | 37.6 | D |
| IN-89 | Chicago Ave/Country Club Dr | D | SIGNAL | 9.4 | A | SIGNAL | 9.8 | A |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | SIGNAL | 36.9 | D | SIGNAL | 37.3 | D |
| IN-91 | Arlington Ave/Indiana Ave/SR-91 NB Ramps | D | SIGNAL | 22.1 | C | SIGNAL | 22.1 | C |
| IN-92 | Arlington Ave/Maude St | D | SIGNAL | 14.3 | B | SIGNAL | 14.3 | B |
| IN-93 | Horace St/Arlington Ave | D | SIGNAL | 19.7 | B | SIGNAL | 21.6 | C |

## Table 51: Intersection LOS under 2022 Plus Phase 1 Conditions (continued)

| ID | Study Intersection | LOS Standard | 2022 No-Project | | | 2022 Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-94 | Arlington Ave/Victoria Ave | D | SIGNAL | 84.2 | **F** | SIGNAL | 88.4 | **F** |
| IN-95 | Alessandro Blvd/Chicago Ave | D | SIGNAL | 64.5 | **E** | SIGNAL | 69.8 | **E** |
| IN-96 | Alessandro Blvd/Century Ave | D | SIGNAL | 32.5 | C | SIGNAL | 32.9 | C |
| IN-97 | Alessandro Blvd/Via Vista Dr | D | SIGNAL | 29.5 | C | SIGNAL | 29.9 | C |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | SIGNAL | 30.6 | C | SIGNAL | 30.9 | C |
| IN-99 | Harley Knox Blvd/Perris Blvd | D | SIGNAL | 33.3 | C | SIGNAL | 43.8 | D |
| IN-100 | Harley Knox Blvd/Evan Rd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-101 | Ramona Expy/Indian St | E | SIGNAL | 18.6 | B | SIGNAL | 21.4 | C |
| IN-102 | Ramona Expy/Perris Blvd | E | SIGNAL | 34.3 | C | SIGNAL | 36.0 | D |
| IN-103 | Ramona Expy/Evans Rd | E | SIGNAL | 139.7 | **F** | SIGNAL | 145.0 | **F** |
| IN-104 | Perris Blvd/Morgan St | D | SIGNAL | 14.6 | B | SIGNAL | 14.4 | B |
| IN-105 | Evans Rd/Morgan St | C | SIGNAL | 32.8 | C | SIGNAL | 32.4 | C |
| IN-106 | Perris Blvd/Rider St | C | SIGNAL | 17.6 | B | SIGNAL | 18.4 | B |
| IN-107 | Evans Rd/Rider St | C | SIGNAL | 34.4 | C | SIGNAL | 34.7 | C |
| IN-108 | Perris Blvd/Mid-County Pkwy WB Ramps | D | SIGNAL | 29.2 | C | SIGNAL | 30.1 | C |
| IN-109 | Perris Blvd/Mid-County Pkwy EB Ramps | D | SIGNAL | 19.2 | B | SIGNAL | 30.8 | C |
| IN-110 | Evans Rd/Mid-County Pkwy WB Ramps | D | SIGNAL | 38.0 | D | SIGNAL | 37.9 | D |
| IN-111 | Evans Rd/Mid-County Pkwy EB Ramps | D | SIGNAL | 14.6 | B | SIGNAL | 14.9 | B |
| IN-112 | Placentia Ave/Perris Blvd | D | SIGNAL | 40.8 | D | SIGNAL | 41.7 | D |
| IN-113 | Evans Rd/Placentia Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-114 | Evans Rd/Orange Ave | C | AWS | 22.1 | C | AWS | 22.1 | C |
| IN-115 | Evans Rd/Nuevo Rd | C | SIGNAL | 32.0 | C | SIGNAL | 32.0 | C |
| IN-116 | Evans Rd/Ellis Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-117 | Ellis Ave/I-215 SB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-118 | Ellis Ave/SR-215 NB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-119 | Evans Rd/San Jacinto Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-120 | Park Center Blvd/Ramona Expy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-121 | Park Center Blvd/Ramona Expy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-122 | Bridge St/Ramona Expy | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-123 | Gilman Springs Rd/Bridge Str | C | CSS | 22.3 | C | CSS | 25.4 | **D** |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-126 | Ramona Expy/Sanderson Ave | D | SIGNAL | 35.7 | D | SIGNAL | 40.6 | D |
| IN-127 | Potrero Blvd/SR-60 WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-128 | Potrero Blvd/SR-60 EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-129 | W 6th St/California Ave | C | AWS | 31.8 | **D** | AWS | 40.9 | **E** |
| IN-130 | W 6th St/Beaumont Ave | C | SIGNAL | 15.7 | B | SIGNAL | 16.0 | B |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | SIGNAL | 13.7 | B | SIGNAL | 13.2 | B |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | AWS | > 180.0 | **F** | AWS | > 180.0 | **F** |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | AWS | 169.8 | **F** | AWS | > 180.0 | **F** |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | AWS | > 180.0 | **F** | AWS | > 180.0 | **F** |
| IN-135 | W Crescent Ave/Alessandro Rd | C | CSS | 27.7 | **D** | CSS | 40.9 | **E** |
| IN-136 | W Sunset Dr/Alessandro Rd | C | AWS | 10.9 | B | AWS | 11.9 | B |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

## Table 51: Intersection LOS under 2022 Plus Phase 1 Conditions (continued)

| ID | Study Intersection | LOS Standard | 2022 No-Project | | | 2022 Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-1 | Theodore St/Street F | D | N/A | Non-Existent | | RABT | 12.8 | B |
| IN-2 | Cactus Ave Extension/Street E | D | N/A | Non-Existent | | CSS | 13.9 | B |
| IN-3 | Theodore St/Alessandro (Str A/Str C/Str E) | D | CSS | 10.3 | B | RABT | 8.3 | A |
| IN-4 | Alessandro Blvd (Street C)/Street F | D | N/A | Non-Existent | | CSS | 11.8 | B |
| IN-6 | Alessandro Blvd (Street C)/Gilman Springs Rd | D | SIGNAL | 7.9 | A | SIGNAL | 10.9 | B |
| IN-9 | Gilman Springs Rd/Eucalytpus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-10 | Redlands Blvd/Locust Ave | C | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-11 | Redlands Blvd/Ironwood Ave | D | SIGNAL | 31.7 | C | SIGNAL | 26.1 | C |
| IN-12 | Theodore Street/Ironwood Avenue | D | CSS | 17.8 | C | CSS | 25.5 | D |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-14 | Redlands Blvd/SR-60 EB ramps | D | SIGNAL | 15.9 | B | SIGNAL | 18.5 | B |
| IN-15 | Theodore Str/SR-60 WB ramps | D | CSS | 19.2 | C | SIGNAL | 17.4 | B |
| IN-16 | Theodore Str/SR-60 EB ramps | D | CSS | 23.2 | C | SIGNAL | 2.6 | A |
| IN-17 | Quincy Str/Fir Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-18 | Redlands Blvd/Eucalyptus Ave (Fir) | D | N/A | Non-Existent | | SIGNAL | 17 | B |
| IN-19 | Theodore St/Fir Ave (Eucalyptus) | D | CSS | 41.7 | **E** | SIGNAL | 37.9 | D |
| IN-20 | Oliver Str/Alessandro Blvd | C | CSS | 67.7 | **F** | CSS | 98.9 | **F** |
| IN-21 | Moreno Beach Dr/Alessandro Blvd | D | SIGNAL | 18.5 | B | SIGNAL | 20.8 | C |
| IN-22 | Quincy Str/Alessandro Blvd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-23 | Redlands Blvd/Alessandro Blvd | C | AWS | 14.1 | B | AWS | 15.8 | C |
| IN-24 | Oliver Str/Cactus Ave | D | SIGNAL | 25.7 | C | SIGNAL | 27.2 | C |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | SIGNAL | 18.9 | B | SIGNAL | 19.7 | B |
| IN-26 | Quincy Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-27 | Redlands Blvd/Cactus Ave | C | AWS | 9.5 | A | AWS | 105.0 | **F** |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | SIGNAL | 18.9 | B | SIGNAL | 44.7 | D |
| IN-29 | Heacock Str/Ironwood Ave | D | SIGNAL | 36.9 | D | SIGNAL | 38.0 | D |
| IN-30 | Heacock Str/SR-60 WB Ramps | D | SIGNAL | 47.5 | D | SIGNAL | 49.5 | D |
| IN-31 | Heacock St/SR-60 EB Ramps | D | SIGNAL | 24.7 | C | SIGNAL | 25.4 | C |
| IN-32 | Sunnymead Blvd & Perris Blvd | D | SIGNAL | 39.2 | D | SIGNAL | 39.3 | D |
| IN-33 | Perris Blvd/SR-60 WB Ramps | D | SIGNAL | 21.7 | C | SIGNAL | 23.7 | C |
| IN-34 | Perris Blvd/Eucalyptus Ave | D | SIGNAL | 33.4 | C | SIGNAL | 34.1 | C |
| IN-35 | Moreno Beach Dr/Locust Ave | C | CSS | 9.6 | A | CSS | 9.8 | A |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | SIGNAL | 51.0 | D | SIGNAL | 54.9 | D |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | SIGNAL | 37.8 | D | SIGNAL | 45.5 | D |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | SIGNAL | 53.5 | D | SIGNAL | 55.9 | **E** |
| IN-39 | Iris Ave/Perris Blvd | D | SIGNAL | 38.6 | D | SIGNAL | 38.4 | D |
| IN-40 | Kitching St/Iris Ave | C | SIGNAL | 23.9 | C | SIGNAL | 49.8 | D |
| IN-41 | Lasselle Str/Iris Ave | D | SIGNAL | 68.7 | **E** | SIGNAL | 89.5 | **F** |
| IN-42 | Nason Str/Iris Ave | C | SIGNAL | 11.7 | B | SIGNAL | 12.9 | B |
| IN-43 | Oliver Str/Iris Ave | D | SIGNAL | 22.0 | C | SIGNAL | 23.0 | C |
| IN-44 | Via Dell Lago/Iris Ave | C | SIGNAL | 8.3 | A | SIGNAL | 8.1 | A |
| IN-45 | Krameria Ave/Perris Blvd | D | SIGNAL | > 180.0 | **F** | SIGNAL | > 180.0 | **F** |
| IN-46 | Kitching Str/Krameria Ave | D | SIGNAL | 40.0 | D | SIGNAL | 47.6 | D |
| IN-47 | Lasselle Str/Krameria Ave | D | SIGNAL | 15.3 | B | SIGNAL | 15.7 | B |
| IN-48 | Kitching Str/Alessandro Blvd | D | SIGNAL | 25.7 | C | SIGNAL | 26.0 | C |

## Table 51: Intersection LOS under 2022 Plus Phase 1 Conditions (continued)

| ID | Study Intersection | LOS Standard | 2022 No-Project | | | 2022 Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-49 | Lasselle Str/Alessandro Blvd | D | SIGNAL | 41.9 | D | SIGNAL | 42.9 | D |
| IN-50 | Morrison Str/Alessandro Blvd | D | SIGNAL | 9.2 | A | SIGNAL | 9.3 | A |
| IN-51 | Nason Str/Alessandro Blvd | D | SIGNAL | 29.5 | C | SIGNAL | 31.5 | C |
| IN-52 | Kitching Str/Cactus Ave | C | SIGNAL | 26.2 | C | SIGNAL | 26.5 | C |
| IN-53 | Lasselle Str/Cactus Ave | C | SIGNAL | 52.8 | **D** | SIGNAL | 56.6 | **E** |
| IN-54 | Morrison Str/Cactus Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-55 | Nason Str/Cactus Ave | D | SIGNAL | 32.8 | C | SIGNAL | 35.3 | D |
| IN-56 | Frederick Str/Alessandro Blvd | D | SIGNAL | 61.7 | **E** | SIGNAL | 74.8 | **E** |
| IN-57 | Graham Str/Alessandro Blvd | D | SIGNAL | 76.8 | **E** | SIGNAL | 77.6 | **E** |
| IN-58 | Heacock Str/Alessandro Blvd | D | SIGNAL | 48.9 | D | SIGNAL | 59.7 | **E** |
| IN-59 | Indian Str/Alessandro Blvd | D | SIGNAL | 33.5 | C | SIGNAL | 39.6 | D |
| IN-60 | Perris Blvd/Alessandro Blvd | D | SIGNAL | 113.4 | **F** | SIGNAL | 120.7 | **F** |
| IN-61 | Frederick Str/Cactus Ave | D | SIGNAL | 15.6 | B | SIGNAL | 16.3 | B |
| IN-62 | Graham Str/Cactus Ave | D | SIGNAL | 66.6 | **E** | SIGNAL | 69.9 | **E** |
| IN-63 | Heacock Str/Cactus Ave | D | SIGNAL | 32.9 | C | SIGNAL | 33.6 | C |
| IN-64 | Indian Str/Cactus Ave | C | SIGNAL | 22.0 | C | SIGNAL | 22.1 | C |
| IN-65 | Perris Blvd/Cactus Ave | D | SIGNAL | 32.7 | C | SIGNAL | 33.5 | C |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | SIGNAL | 58.3 | **E** | SIGNAL | 76.7 | **E** |
| IN-67 | I-215 SB Ramps/Alessandro Blvd | D | SIGNAL | 8.9 | A | SIGNAL | 8.6 | A |
| IN-68 | I-215 NB Ramps/Alessandro Blvd | D | SIGNAL | 23.3 | C | SIGNAL | 33.5 | C |
| IN-69 | Old 215 Frontage Rd/Alessandro Blvd | D | SIGNAL | 35.4 | D | SIGNAL | 42.1 | D |
| IN-70 | Day Str/Alessandro Blvd | D | SIGNAL | 43.0 | D | SIGNAL | 76.5 | **E** |
| IN-71 | Elsworth Str/Alessandro Blvd | D | SIGNAL | 34.7 | C | SIGNAL | 36.3 | D |
| IN-72 | I-215 SB Ramps/Cactus Ave | D | SIGNAL | 89.5 | **F** | SIGNAL | 89.5 | **F** |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | SIGNAL | 12.6 | B | SIGNAL | 40.4 | D |
| IN-74 | Elsworth Str/Cactus Ave | D | SIGNAL | 175.7 | **F** | SIGNAL | > 180.0 | **F** |
| IN-75 | Central Ave/Lochmoor Dr. | D | SIGNAL | 30.3 | C | SIGNAL | 52.8 | D |
| IN-76 | Sycamore Canyon Blvd/Central Ave | D | SIGNAL | 29.8 | C | SIGNAL | 31.1 | C |
| IN-77 | SR-60 EB Ramps/Central Ave | D | SIGNAL | 11.7 | B | SIGNAL | 11.9 | B |
| IN-78 | SR-60 WB Ramps/Central Ave | D | SIGNAL | 7.4 | A | SIGNAL | 7.8 | A |
| IN-79 | Alessandro Blvd/Trautwein Rd. | D | SIGNAL | 15.5 | B | SIGNAL | 15.5 | B |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | SIGNAL | 48.3 | D | SIGNAL | 50.0 | D |
| IN-81 | Martin Luther King Blvd/Chicago Ave | D | SIGNAL | 48.4 | D | SIGNAL | 51.7 | D |
| IN-82 | Martin Luther King Blvd/Iowa Ave | D | SIGNAL | 16.7 | B | SIGNAL | 17.5 | B |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | SIGNAL | 41.2 | D | SIGNAL | 42.7 | D |
| IN-84 | Martin Luther King Blvd/I-215 SB Ramps | D | SIGNAL | 5.6 | A | SIGNAL | 5.7 | A |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | AWS | 15.0 | C | AWS | 15.6 | C |
| IN-86 | Central Ave/Chicago Ave | D | SIGNAL | 40.8 | D | SIGNAL | 43.4 | D |
| IN-87 | Central Ave/El Cerrito Dr | D | SIGNAL | 17.3 | B | SIGNAL | 17.6 | B |
| IN-88 | Central Ave/Canyon Crest Dr | D | SIGNAL | 51.2 | D | SIGNAL | 53.0 | D |
| IN-89 | Chicago Ave/Country Club Dr | D | SIGNAL | 7.1 | A | SIGNAL | 7.0 | A |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | SIGNAL | 35.4 | D | SIGNAL | 36.6 | D |
| IN-91 | Arlington Ave/Indiana Ave/SR-91 NB Ramps | D | SIGNAL | 31.3 | C | SIGNAL | 31.3 | C |
| IN-92 | Arlington Ave/Maude St | D | SIGNAL | 13.5 | B | SIGNAL | 13.6 | B |
| IN-93 | Horace St/Arlington Ave | D | SIGNAL | 10.1 | B | SIGNAL | 10.3 | B |

## Table 51: Intersection LOS under 2022 Plus Phase 1 Conditions (continued)

| ID | Study Intersection | LOS Standard | 2022 No-Project | | | 2022 Plus Phase 1 | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-94 | Arlington Ave/Victoria Ave | D | SIGNAL | 83.7 | **F** | SIGNAL | 92.9 | **F** |
| IN-95 | Alessandro Blvd/Chicago Ave | D | SIGNAL | 114.7 | **F** | SIGNAL | 121.2 | **F** |
| IN-96 | Alessandro Blvd/Century Ave | D | SIGNAL | 14.9 | B | SIGNAL | 15.0 | B |
| IN-97 | Alessandro Blvd/Via Vista Dr | D | SIGNAL | 20.5 | C | SIGNAL | 20.9 | C |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | SIGNAL | 30.2 | C | SIGNAL | 30.2 | C |
| IN-99 | Harley Knox Blvd/Perris Blvd | D | SIGNAL | 25.5 | C | SIGNAL | 28.4 | C |
| IN-100 | Harley Knox Blvd/Evan Rd | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-101 | Ramona Expy/Indian St | E | SIGNAL | 39.7 | D | SIGNAL | 41.8 | D |
| IN-102 | Ramona Expy/Perris Blvd | E | SIGNAL | 31.2 | C | SIGNAL | 31.5 | C |
| IN-103 | Ramona Expy/Evans Rd | E | SIGNAL | 41.6 | D | SIGNAL | 45.1 | D |
| IN-104 | Perris Blvd/Morgan St | D | SIGNAL | 12.7 | B | SIGNAL | 12.6 | B |
| IN-105 | Evans Rd/Morgan St | C | SIGNAL | 29.7 | C | SIGNAL | 29.0 | C |
| IN-106 | Perris Blvd/Rider St | C | SIGNAL | 22.7 | C | SIGNAL | 23.4 | C |
| IN-107 | Evans Rd/Rider St | C | SIGNAL | 30.3 | C | SIGNAL | 30.0 | C |
| IN-108 | Perris Blvd/Mid-County Pkwy WB Ramps | D | SIGNAL | 20.8 | C | SIGNAL | 21.2 | C |
| IN-109 | Perris Blvd/Mid-County Pkwy EB Ramps | D | SIGNAL | 32.4 | C | SIGNAL | 34.6 | C |
| IN-110 | Evans Rd/Mid-County Pkwy WB Ramps | D | SIGNAL | 32.2 | C | SIGNAL | 32.1 | C |
| IN-111 | Evans Rd/Mid-County Pkwy EB Ramps | D | SIGNAL | 25.9 | C | SIGNAL | 26.3 | C |
| IN-112 | Placentia Ave/Perris Blvd | D | SIGNAL | 60.0 | **E** | SIGNAL | 61.4 | **E** |
| IN-113 | Evans Rd/Placentia Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-114 | Evans Rd/Orange Ave | C | AWS | 16.9 | C | AWS | 17.7 | C |
| IN-115 | Evans Rd/Nuevo Rd | C | SIGNAL | 32.2 | C | SIGNAL | 32.2 | C |
| IN-116 | Evans Rd/Ellis Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-117 | Ellis Ave/I-215 SB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-118 | Ellis Ave/SR-215 NB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-119 | Evans Rd/San Jacinto Ave | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-120 | Park Center Blvd/Ramona Expy WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-121 | Park Center Blvd/Ramona Expy EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-122 | Bridge St/Ramona Expy | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-123 | Gilman Springs Rd/Bridge Str | C | CSS | 25.7 | **D** | CSS | 26.7 | **D** |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | CSS | 108.0 | **F** | CSS | > 180.0 | **F** |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | CSS | 123.3 | **F** | CSS | 145.4 | **F** |
| IN-126 | Ramona Expy/Sanderson Ave | D | SIGNAL | 24.4 | C | SIGNAL | 24.8 | C |
| IN-127 | Potrero Blvd/SR-60 WB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-128 | Potrero Blvd/SR-60 EB Ramps | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-129 | W 6th St/California Ave | C | AWS | 55.0 | **F** | AWS | 64.0 | **F** |
| IN-130 | W 6th St/Beaumont Ave | C | SIGNAL | 25.3 | C | SIGNAL | 28.0 | C |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | SIGNAL | 6.3 | A | SIGNAL | 6.2 | A |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | AWS | 125.1 | **F** | AWS | > 180.0 | **F** |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | AWS | > 180.0 | **F** | AWS | > 180.0 | **F** |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | AWS | > 180.0 | **F** | AWS | > 180.0 | **F** |
| IN-135 | W Crescent Ave/Alessandro Rd | C | CSS | 16.2 | C | CSS | 18.5 | C |
| IN-136 | W Sunset Dr/Alessandro Rd | C | AWS | 11.1 | B | AWS | 11.5 | B |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

- Gilman Springs Rd./Bridge St.
- SR-79 (Sanderson Ave.) NB/Gilman Springs Rd.
- SR-79 (Sanderson Ave.) SB/Gilman Springs Rd.
- W 6th St./California Ave.
- San Timoteo Canyon Rd./Alessandro Rd.
- San Timoteo Canyon Rd./Live Oak Canyon Rd.
- Redlands Blvd./San Timoteo Canyon Rd.
- W. Crescent Ave./Alessandro Rd.

Exceed Threshold of Significance Under 2022 Plus Phase 1 Conditions (only)

- Redlands Blvd./Cactus Ave.
- Kitching St./Iris Ave.
- Perris Blvd./John F. Kennedy Dr.
- Iris Ave./Perris Blvd.
- Heacock St./Alessandro Blvd.
- Day St./Alessandro Blvd.

The mitigation measures shown in Table 52 are those that would be needed to reduce the impact of the project to a less-than-significant level. The feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## Table 52: 2022 Plus Phase 1 Intersection Impacts and Mitigations

| ID | Study Intersection | LOS Standard | Determination of Impact | | | | | 2022 Plus Phase 1 & Mitigations | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | PM Peak Hour | | | | AM Peak Hour | | PM Peak Hour | | |
| | | | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | Project Impact? | Traffic Control | Delay | LOS | Delay | LOS | |
| IN-10 | Redlands Blvd/Locust Ave | C | F | F | F | F | Yes | SIGNAL | 12.2 | B | 18.1 | B | Signalize. Add EB and WB LT pockets. Add 1 SB TH lane. |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | F | F | F | F | Yes | SIGNAL | 19.2 | B | 14.4 | B | Signalize. Add WB LT pocket. |
| IN-20 | Oliver Str/Alessandro Blvd | C | F | F | F | F | Yes | AWS | 16.8 | C | 16.3 | C | Change to AWS. |
| IN-27 | Redlands Blvd/Cactus Ave | C | B | F | A | F | Yes | SIGNAL | 13.4 | B | 15.4 | B | Signalize. Add 1 EB LT and 1 WB LT lanes. |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | F | F | D | D | Yes | SIGNAL | 46.1 | D | 42.5 | D | Change N/S from split to protected LT phasing. Add NB and SB LT pockets. |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | F | F | D | D | Yes | SIGNAL | 40.7 | D | 33.0 | C | Add 1 SB LT lane. |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | D | E | D | E | Yes | SIGNAL | 52.1 | D | 48.5 | D | Add 1 WB LT lane. |
| IN-39 | Iris Ave/Perris Blvd | D | D | E | D | D | Yes | SIGNAL | 40.5 | D | 37.4 | D | Add 1 WB LT lane. |
| IN-40 | Kitching St/Iris Ave | C | C | C | C | D | Yes | SIGNAL | 26.3 | C | 24.0 | C | Add 1 WB LT lane. |
| IN-41 | Lasselle Str/Iris Ave | D | C | D | E | F | Yes | SIGNAL | 28.3 | C | 45.0 | D | Add 1 WB LT lane (resulting 3 turn lanes), and 1 EB RT. |
| IN-45 | Krameria Ave/Perris Blvd | D | F | F | F | F | Yes | SIGNAL | 40.2 | D | 44.1 | D | Add 1 NB LT and 1 NB RT lane, change SB from 1 LT, 1 TH, 1 RT to 1 LT, 2 THs and 1 RT, EB change from 1 lane to 1 LT and 1 TH and 1 RT lane. Change signal phasing for E/W from split phasing to include protected LT phases. |
| IN-49 | Lasselle Str/Alessandro Blvd | D | E | E | D | D | Yes | SIGNAL | 36.5 | D | 30.2 | C | Add 1 NB LT lane. |
| IN-53 | Lasselle Str/Cactus Ave | C | E | E | D | E | Yes | SIGNAL | 40.0 | D | 34.7 | C | Add 1 EB RT, 1 WB LT, 1 WB RT, 1 EB RT. 1 NB LT. 2 NB RTs, 1 SB LT. Add overlap phase for EB and NB RT. |
| IN-56 | Frederick Str/Alessandro Blvd | D | C | C | E | E | Yes | SIGNAL | 29.8 | C | 56.0 | D | Add 1 EB LT lane . Reduce the median width and the width of EB RT lane. |
| IN-57 | Graham Str/Alessandro Blvd | D | C | C | E | E | Yes | SIGNAL | 32.4 | C | 55.1 | D | Add 1 NB LT, 1 NB RT, and 1 WB RT lanes. |
| IN-58 | Heacock Str/Alessandro Blvd | D | D | D | D | E | Yes | SIGNAL | 39.2 | D | 48.5 | D | Add 1 SB LT lane. |
| IN-60 | Perris Blvd/Alessandro Blvd | D | D | D | F | F | Yes | SIGNAL | 35.5 | D | 49.9 | D | Add 1 NB LT, 1 SB LT, 1 WB LT,and 1 EB LT. |
| IN-62 | Graham Str/Cactus Ave | D | F | F | E | E | Yes | SIGNAL | 34.7 | C | 44.0 | D | Add 1 EB RT and 1 NB LT lane. |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | D | D | E | E | Yes | SIGNAL | 38.8 | D | 46.8 | D | Add SB RT overlap. |
| IN-70 | Day Str/Alessandro Blvd | D | B | B | D | E | Yes | SIGNAL | 10.3 | B | 32.3 | C | Add 1 EB LT lane. |

Indicates that the LOS exceeds the target level

Notes: "CSS" means cross-street is stop-controlled
"AWS" means all-way stop
"RABT" means roundabout
"LT" and "RT" denote left turn and right turn respectively
"TH" denotes through lanes
"NB" and "SB" denote northbound and southbound respectively
"EB" and "WB" denote eastbound and westbound respectively

## Table 52: 2022 Plus Phase 1 Intersection Impacts and Mitigations (continued)

| ID | Study Intersection | LOS Standard | Determination of Impact | | | | | 2022 Plus Phase 1 & Mitigations | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | PM Peak Hour | | | | AM Peak Hour | | PM Peak Hour | | |
| | | | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | Project Impact? | Traffic Control | Delay | LOS | Delay | LOS | |
| IN-74 | Elsworth Str/Cactus Ave | D | C | C | F | F | Yes | SIGNAL | 27.2 | C | 78.9 | E | Widen NB approach and change NB lane geometry from: 1 LT and 1 shared LT/TH/RT lanes to 3 LTs and 1 TH and 1 RT. Add 1 EB and WB TH lanes (to become 4 TH lanes). |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | F | F | D | D | Yes | SIGNAL | 52.8 | D | 42.7 | D | Add NB RT lane.<br><br>NOTE: not an impact in 2035 due to redistributed volumes. |
| IN-94 | Arlington Ave/Victoria Ave | D | F | F | F | F | Yes | SIGNAL | 49.5 | D | 51.7 | D | Add WB LT lane. Add WB RT lane. Adjust timings.<br><br>NOTE: Mitigation measures are different than those suggeted for 2035. The projected SB LT volume is higher in 2022 than in 2035. |
| IN-95 | Alessandro Blvd/Chicago Ave | D | E | E | F | F | Yes | SIGNAL | 33.2 | C | 54.2 | D | Add EB TH lane. Add WB LT lane. Add WB TH lane. Add NB LT lane. Add NB TH lane. Reconfigure SB approach to 1 LT, 3 THs and 1 shared TH/RT. |
| IN-103 | Ramona Expy/Evans Rd | E | F | F | D | D | Yes | SIGNAL | 63.1 | E | 41.1 | D | Add 3rd WB TH lane. Already has 3 receiving lanes. Add 2nd SBR. |
| IN-112 | Placentia Ave/Perris Blvd | D | D | D | E | E | Yes | SIGNAL | 24.8 | C | 39.9 | D | Add NB RT. Add EB RT and lengthen EB LT by approximately 100'. |
| IN-123 | Gilman Springs Rd/Bridge Str | C | C | D | D | D | Yes | SIGNAL | 14.5 | B | 17.1 | C | Add a TWTL along the SB approach to offer a weave zone for EB LT. |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | F | F | F | F | Yes | SIGNAL | 9.0 | A | 7.0 | A | Signalize. |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | F | F | F | F | Yes | SIGNAL | 12.8 | B | 6.5 | A | Signalize. |
| IN-129 | W 6th St/California Ave | C | D | E | F | F | Yes | SIGNAL | 19.7 | B | 22.7 | C | Signalize. |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | F | F | F | F | Yes | SIGNAL | 37.8 | D | 15.9 | B | Signalize. Add 1 WB RT. This intersection has planned widening by 2035, which would replace the turn lane. |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | F | F | F | F | Yes | SIGNAL | 20.7 | C | 19.5 | B | Signalize. |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | F | F | F | F | Yes | SIGNAL | 12.5 | B | 16.1 | C | Signalize. Add 1 EB RT. Also add EB RT overlap phase. |
| IN-135 | W Crescent Ave/Alessandro Rd | C | D | E | C | C | Yes | SIGNAL | 13.0 | B | 9.3 | A | Signalize. |

Indicates that the LOS exceeds the target level

Notes: "CSS" means cross-street is stop-controlled
"AWS" means all-way stop
"RABT" means roundabout
"LT" and "RT" denote left turn and right turn respectively
"TH" denotes through lanes
"NB" and "SB" denote northbound and southbound respectively
"EB" and "WB" denote eastbound and westbound respectively

## C. FREEWAY SEGMENT LOS, IMPACTS, AND MITIGATIONS

***Freeway Mainline Basic Sections***

Table 53 compares the LOS for freeway mainline sections for the 2022 No-Project and 2022 Plus Phase 1 scenarios. Details of the LOS calculations for freeways under 2022 Plus Build-out Conditions can be found in Appendix M. Table 54 identifies 33 basic freeway sections where the project has a significant impact and identifies measures that would reduce project impacts to a less-than-significant level. Twenty-nine of these 33 sections would operate worse than the target LOS under both 2022 No-Project and Plus Phase 1 conditions, namely:

Northbound or Eastbound Sections

- SR-60 from Reservoir St. to Ramona Ave.
- SR-60 from Central Ave. to Mountain Ave.
- SR-60 from Euclid Ave. to Grove Ave.
- SR-60 from Grove Ave. to Vineyard Ave.
- SR-60 from Vineyard Ave. to Archibald Ave.
- SR-60 from Valley Way to Rubidoux Blvd.
- SR-60 from Rubidoux Blvd. to Market St.
- SR-60 from Market St. to Main St.
- SR-60 from Martin Luther King Blvd. to Central Ave.
- SR-60 from Pigeon Pass Rd./Frederick St. to Heacock St.
- SR-60 from Heacock St. to Perris Blvd.
- SR-91 from Pierce St. to Magnolia Ave.
- I-215 from Columbia Ave. to Center St.
- I-215 from Iowa Ave./La Cadena Dr to Barton Rd.
- I-215 from Barton Rd. to Mt. Vernon Ave.

Southbound or Westbound Sections

- SR-60 from Grove Ave. to Vineyard Ave.
- SR-60 from Valley Way to Rubidoux Blvd.

- SR-60 from Market St. to Main St.
- SR-60 from Main St. to SR-91
- SR-60 from Fair Isle Dr./Box Springs Rd. to I-215
- SR-60 from I-215 to Day St.
- SR-91 from McKinley St. to Pierce St.
- SR-91 from Pierce St. to Magnolia Ave.
- SR-91 from Magnolia Ave. to La Sierra Ave.
- SR-91 from La Sierra Ave. to Tyler St.
- I-215 from Columbia Ave. to Center St.
- I-215 from Center St. to Iowa Ave./La Cadena Dr.
- I-215 from Iowa Ave./La Cadena Dr. to Barton Rd.
- I-215 from Barton Rd. to Mt. Vernon Ave.

There were four segments that would be deficient only under Plus Phase 1 conditions, namely:

Northbound or Eastbound Sections

- SR-91 from Central Ave. to 14th St.

Southbound or Westbound Sections

- SR-60 from Rubidoux Blvd. to Market St.
- SR-60 from Pigeon Pass Rd./Frederick St. to Heacock St.
- SR-60 from Heacock St. to Perris Blvd.

As shown in Table 54, three of these sections would operate at LOS "F" under 2022 No-Project conditions and would continue to do so under 2022 Plus Phase 1 conditions. Adding a mixed-flow lane would improve these sections to LOS "E" under 2022 Plus Phase 1 conditions. While this would not be sufficient to achieve the target LOS it would nevertheless be an improvement over 2022 No-Project conditions and so would reduce the impact of the WLC project to a less-than-significant level.

## Table 53: 2022 Plus Phase 1 Freeway Mainline Level of Service

| ID | Freeway | Segment | 2022 No-Project Conditions | | | | | | 2022 Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-2 | SR-60 | Reservoir St to Ramona Ave | 7,210 | 30.5 | D | 7,830 | 35.1 | E | 7,400 | 32.0 | D | 7,810 | 35.3 | E |
| F-3 | SR-60 | Ramona Ave to Central Ave | 6,850 | 28.2 | D | 9,380 | 51.4 | F | 7,010 | 29.4 | D | 9,340 | 50.8 | F |
| F-4 | SR-60 | Central Ave to Mountain Ave | 7,590 | 33.0 | D | 9,350 | 51.0 | F | 7,750 | 34.5 | D | 9,320 | 51.2 | F |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | 7,520 | 32.5 | D | 6,690 | 27.5 | D | 7,690 | 34.0 | D | 6,640 | 27.4 | D |
| F-6 | SR-60 | Euclid Ave to Grove Ave | 8,990 | 45.8 | F | 9,280 | 50.0 | F | 9,190 | 48.8 | F | 9,240 | 50.1 | F |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | 8,170 | 37.6 | E | 9,530 | 53.6 | F | 8,370 | 39.7 | E | 9,480 | 52.8 | F |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | 8,080 | 36.5 | E | 9,470 | 52.7 | F | 8,280 | 38.6 | E | 9,410 | 52.5 | F |
| F-9 | SR-60 | Archibald Ave to Haven Ave | 7,590 | 32.8 | D | 6,630 | 27.2 | D | 7,810 | 34.7 | D | 6,560 | 27.0 | D |
| F-10 | SR-60 | Haven Ave to Milliken Ave | 7,400 | 23.2 | C | 7,040 | 22.1 | C | 7,630 | 24.2 | C | 6,950 | 21.9 | C |
| F-11 | SR-60 | Milliken Ave to I-15 | 5,280 | 20.3 | C | 4,530 | 17.4 | B | 5,500 | 21.5 | C | 4,440 | 17.2 | B |
| F-12 | SR-60 | I-15 to Etiwanda Ave/Van Buren Blvd | 4,580 | 17.6 | B | 3,440 | 13.3 | B | 4,840 | 18.8 | C | 3,380 | 13.3 | B |
| F-13 | SR-60 | Etiwanda Ave/Van Buren Blvd to Mission | 5,070 | 19.6 | C | 4,460 | 17.2 | B | 5,300 | 20.8 | C | 4,380 | 17.2 | B |
| F-14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 4,600 | 17.7 | B | 3,560 | 13.8 | B | 4,850 | 19.0 | C | 3,480 | 13.7 | B |
| F-15 | SR-60 | Pedley Rd to Pyrite St | 4,620 | 17.8 | B | 3,710 | 14.4 | B | 4,880 | 19.1 | C | 3,640 | 14.3 | B |
| F-16 | SR-60 | Pyrite St to Valley Way | 5,190 | 20.1 | C | 3,990 | 15.5 | B | 5,460 | 21.5 | C | 3,910 | 15.3 | B |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | 6,280 | 39.4 | E | 4,530 | 24.1 | C | 6,530 | 43.6 | E | 4,450 | 24.0 | C |
| F-18 | SR-60 | Rubidoux Blvd to Market St | 6,920 | 48.7 | F | 4,950 | 27.2 | D | 7,180 | 54.3 | F | 4,860 | 26.9 | D |
| F-19 | SR-60 | Market St to Main St | 6,450 | 41.6 | E | 7,260 | 56.8 | F | 6,810 | 48.0 | F | 7,230 | 56.9 | F |
| F-20 | SR-60 | Main to SR-91 | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | 8,440 | 41.5 | E | 9,140 | 53.5 | F | 8,980 | 53.0 | F | 9,210 | 59.2 | F |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 6,450 | 25.7 | C | 7,270 | 30.8 | D | 6,900 | 29.0 | D | 7,320 | 31.7 | D |
| F-27 | SR-60 | I-215 to Day St | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-29 | SR-60 | Pigeon Pass Rd to Heacock St | 3,520 | 29.2 | D | 4,200 | 39.3 | E | 3,930 | 37.2 | E | 4,170 | 41.0 | E |
| F-30 | SR-60 | Heacock St to Perris Blvd | 3,160 | 25.0 | C | 4,050 | 36.7 | E | 3,780 | 35.0 | E | 4,070 | 39.1 | E |
| F-31 | SR-60 | Perris Blvd to Nason St | 2,590 | 19.8 | C | 3,070 | 24.3 | C | 3,270 | 28.1 | D | 3,140 | 26.3 | D |
| F-33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 1,910 | 14.5 | B | 2,370 | 18.0 | C | 2,780 | 23.4 | C | 2,540 | 20.7 | C |
| F-34 | SR-60 | Redlands Blvd to Theodore St | 2,460 | 18.8 | C | 3,240 | 25.8 | C | 3,300 | 28.9 | D | 3,350 | 28.7 | D |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 2,310 | 19.2 | C | 2,770 | 23.6 | C | 2,240 | 18.6 | C | 2,780 | 23.6 | C |
| F-37 | SR-60 | Jack Rabbit Trail to I-10 | 2,070 | 15.8 | B | 2,820 | 21.8 | C | 2,040 | 15.7 | B | 2,850 | 22.3 | C |
| F-39 | SR-91 | I-15 to McKinley St | 7,190 | 22.3 | C | 10,400 | 38.6 | E | 7,330 | 22.9 | C | 10,350 | 38.6 | E |
| F-40 | SR-91 | McKinley St to Pierce St | 6,500 | 26.1 | D | 5,950 | 23.5 | C | 6,620 | 26.8 | D | 5,900 | 23.4 | C |
| F-41 | SR-91 | Pierce St to Magnolia Ave | 5,970 | 35.2 | E | 5,410 | 30.5 | D | 6,070 | 36.6 | E | 5,350 | 30.2 | D |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-43 | SR-91 | La Sierra Ave to Tyler St | 5,490 | 30.9 | D | 5,230 | 29.0 | D | 5,600 | 32.2 | D | 5,200 | 29.0 | D |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | 6,600 | 26.6 | D | 5,980 | 23.6 | C | 6,700 | 27.4 | D | 5,950 | 23.6 | C |

## Table 53: 2022 Plus Phase 1 Freeway Mainline Level of Service (Continued)

| ID | Freeway | Segment | 2022 No-Project Conditions | | | | | | 2022 Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-45 | SR-91 | Van Buren Blvd to Adam St | 6,700 | 27.2 | D | 5,250 | 20.3 | C | 6,780 | 27.8 | D | 5,220 | 20.3 | C |
| F-46 | SR-91 | Adam St to Madison St | 7,310 | 31.4 | D | 4,970 | 19.4 | C | 7,380 | 32.1 | D | 4,940 | 19.3 | C |
| F-47 | SR-91 | Madison St to Arlington Ave | 6,710 | 27.6 | D | 4,970 | 19.4 | C | 6,770 | 28.2 | D | 4,950 | 19.4 | C |
| F-49 | SR-91 | Central Ave to 14th St | 5,910 | 34.9 | D | 5,070 | 27.7 | D | 5,940 | 35.5 | E | 5,070 | 27.7 | D |
| F-51 | SR-91 | University Ave to Spruce St | 8,270 | 26.6 | D | 7,700 | 24.2 | C | 8,350 | 27.1 | D | 7,700 | 24.4 | C |
| F-66 | I-215 | Scott Rd to Newport Rd | 2,850 | 14.5 | B | 4,330 | 22.4 | C | 2,830 | 14.5 | B | 4,330 | 22.4 | C |
| F-68 | I-215 | Newport Rd to McCall Blvd | 2,100 | 10.8 | A | 3,140 | 15.9 | B | 2,090 | 10.7 | A | 3,120 | 15.8 | B |
| F-69 | I-215 | McCall Blvd to Ethanac Rd | 2,750 | 14.0 | B | 4,380 | 22.7 | C | 2,730 | 14.0 | B | 4,360 | 22.7 | C |
| F-70 | I-215 | Ethanac Rd to SR-74 | 4,200 | 21.7 | C | 4,100 | 21.0 | C | 4,170 | 21.6 | C | 4,080 | 21.0 | C |
| F-71 | I-215 | SR-74 to Redlands Ave | 3,490 | 17.7 | B | 4,800 | 25.4 | C | 3,470 | 17.7 | B | 4,780 | 25.5 | C |
| F-74 | I-215 | Columbia Ave to Center St | 6,090 | 36.8 | E | 6,030 | 36.2 | E | 6,060 | 36.5 | E | 6,060 | 36.5 | E |
| F-75 | I-215 | Center St to La Cadena Dr | 5,830 | 34.1 | D | 5,800 | 33.8 | D | 5,810 | 33.9 | D | 5,840 | 34.2 | D |
| F-76 | I-215 | La Cadena Dr to Barton Rd | 5,690 | 32.7 | D | 6,130 | 37.3 | E | 5,680 | 32.7 | D | 6,190 | 38.0 | E |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | 5,980 | 35.6 | E | 6,550 | 42.5 | E | 5,960 | 35.4 | E | 6,610 | 43.3 | E |
| F-78 | I-215 | Mt. Vernon Ave to I-10 | 5,770 | 22.5 | C | 6,660 | 27.0 | D | 5,740 | 22.4 | C | 6,750 | 27.5 | D |
| F-80 | I-215 | Auto Plaza Dr to Mill St | 4,490 | 17.2 | B | 5,500 | 21.2 | C | 4,440 | 17.0 | B | 5,530 | 21.4 | C |
| F-83 | I-215 | Baseline Rd to Highland Ave | 3,030 | 15.4 | B | 4,060 | 20.8 | C | 3,020 | 15.4 | B | 4,110 | 21.2 | C |
| F-52 | I-10 | SR-60 to Beaumont Ave | 4,390 | 16.8 | B | 6,080 | 24.1 | C | 4,360 | 16.8 | B | 6,080 | 24.1 | C |
| F-53 | I-10 | Beaumont Ave to Pennsylvania Ave | 4,450 | 17.1 | B | 6,240 | 24.9 | C | 4,430 | 17.0 | B | 6,260 | 25.0 | C |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs Ave | 4,640 | 17.8 | B | 6,480 | 26.2 | D | 4,620 | 17.8 | B | 6,510 | 26.3 | D |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | 4,560 | 17.5 | B | 6,210 | 24.8 | C | 4,530 | 17.4 | B | 6,240 | 24.9 | C |
| F-56 | I-10 | Sunset Ave to 22nd St | 4,470 | 17.2 | B | 5,960 | 23.5 | C | 4,430 | 17.0 | B | 5,990 | 23.7 | C |
| F-57 | I-10 | 22nd St to 8th St | 4,380 | 16.8 | B | 5,800 | 22.8 | C | 4,340 | 16.7 | B | 5,840 | 23.0 | C |
| F-58 | I-10 | 8th St to Hargrave St | 4,370 | 16.8 | B | 5,730 | 22.4 | C | 4,330 | 16.6 | B | 5,770 | 22.6 | C |
| F-59 | I-10 | Hargrave St to Fields Rd | 4,100 | 15.8 | B | 5,350 | 20.8 | C | 4,040 | 15.5 | B | 5,390 | 20.9 | C |
| F-60 | I-10 | Fields Rd to Morongo Trail | 3,770 | 14.5 | B | 5,080 | 19.6 | C | 3,720 | 14.3 | B | 5,130 | 19.8 | C |
| F-61 | I-10 | Morongo Trail to Main St | 3,410 | 13.1 | B | 4,670 | 18.0 | B | 3,360 | 12.9 | B | 4,710 | 18.1 | C |
| F-62 | I-10 | Main St to Haugen-Lehmann Way | 3,280 | 12.6 | B | 4,720 | 18.1 | C | 3,230 | 12.4 | B | 4,770 | 18.3 | C |
| F-64 | I-10 | SR-111 to Tipton Rd | 2,950 | 11.3 | B | 4,140 | 15.9 | B | 2,900 | 11.1 | B | 4,180 | 16.1 | B |
| F-65 | I-10 | Tipton Rd to SR-62 | 2,810 | 10.8 | A | 4,170 | 16.0 | B | 2,780 | 10.7 | A | 4,220 | 16.2 | B |

Indicates that the LOS exceeds the target level

## Table 53: 2022 Plus Phase 1 Freeway Mainline Level of Service (Continued)

| ID | Freeway | Segment | 2022 No-Project Conditions | | | | | | 2022 Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-2 | SR-60 | Reservoir St to Ramona Ave | 8,770 | 43.3 | E | 7,150 | 30.1 | D | 8,690 | 43.0 | E | 7,260 | 31.0 | D |
| F-3 | SR-60 | Ramona Ave to Central Ave | 8,290 | 38.7 | E | 6,750 | 27.7 | D | 8,210 | 38.3 | E | 6,860 | 28.5 | D |
| F-4 | SR-60 | Central Ave to Mountain Ave | 6,340 | 25.4 | C | 6,990 | 29.1 | D | 6,260 | 25.2 | C | 7,100 | 30.0 | D |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | 6,260 | 25.0 | C | 7,440 | 32.0 | D | 6,190 | 24.8 | C | 7,560 | 33.1 | D |
| F-6 | SR-60 | Euclid Ave to Grove Ave | 6,470 | 26.1 | D | 7,310 | 31.1 | D | 6,390 | 25.9 | C | 7,420 | 32.1 | D |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | 6,330 | 25.4 | C | 7,920 | 35.5 | E | 6,250 | 25.1 | C | 8,060 | 37.0 | E |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | 7,670 | 33.6 | D | 7,550 | 32.8 | D | 7,580 | 33.2 | D | 7,680 | 34.0 | D |
| F-9 | SR-60 | Archibald Ave to Haven Ave | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-10 | SR-60 | Haven Ave to Milliken Ave | 5,850 | 18.0 | B | 7,110 | 22.3 | C | 5,740 | 17.7 | B | 7,270 | 23.0 | C |
| F-11 | SR-60 | Milliken Ave to I-15 | 5,550 | 21.6 | C | 7,050 | 29.2 | D | 5,430 | 21.2 | C | 7,230 | 30.6 | D |
| F-12 | SR-60 | I-15 to Etiwanda Ave/Van Buren Blvd | 4,490 | 13.7 | B | 5,850 | 17.9 | B | 4,360 | 13.4 | B | 6,080 | 18.7 | C |
| F-13 | SR-60 | Etiwanda Ave/Van Buren Blvd to Mission | 4,220 | 16.2 | B | 5,830 | 22.8 | C | 4,110 | 15.9 | B | 6,050 | 24.0 | C |
| F-14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 4,240 | 16.3 | B | 5,850 | 22.9 | C | 4,130 | 15.9 | B | 6,130 | 24.4 | C |
| F-15 | SR-60 | Pedley Rd to Pyrite St | 3,290 | 12.6 | B | 5,010 | 19.2 | C | 3,150 | 12.2 | B | 5,260 | 20.5 | C |
| F-16 | SR-60 | Pyrite St to Valley Way | 2,740 | 10.6 | A | 4,510 | 17.2 | B | 2,620 | 10.2 | A | 4,740 | 18.3 | C |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | 4,630 | 24.4 | C | 6,530 | 42.2 | E | 4,510 | 23.9 | C | 6,810 | 46.9 | F |
| F-18 | SR-60 | Rubidoux Blvd to Market St | 3,630 | 18.6 | C | 5,660 | 32.5 | D | 3,520 | 18.2 | C | 5,940 | 35.5 | E |
| F-19 | SR-60 | Market St to Main St | 5,860 | 34.4 | D | 6,820 | 46.5 | F | 5,680 | 32.9 | D | 7,090 | 51.8 | F |
| F-20 | SR-60 | Main to SR-91 | 5,450 | 30.6 | D | 6,610 | 42.9 | E | 5,290 | 29.7 | D | 6,880 | 48.0 | F |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | 7,060 | 23.7 | C | 7,680 | 25.5 | C | 7,000 | 24.3 | C | 8,050 | 28.7 | D |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 7,390 | 31.9 | D | 8,510 | 40.3 | E | 7,310 | 31.8 | D | 8,900 | 45.8 | F |
| F-27 | SR-60 | I-215 to Day St | 7,250 | 54.3 | F | 3,880 | 20.0 | C | 7,210 | 55.7 | F | 4,210 | 22.8 | C |
| F-29 | SR-60 | Pigeon Pass Rd to Heacock St | 3,460 | 28.5 | D | 3,860 | 34.0 | D | 3,460 | 29.5 | D | 4,320 | 45.2 | F |
| F-30 | SR-60 | Heacock St to Perris Blvd | 3,300 | 26.6 | D | 3,360 | 27.5 | D | 3,370 | 28.4 | D | 3,900 | 36.7 | E |
| F-31 | SR-60 | Perris Blvd to Nason St | 2,790 | 21.6 | C | 2,550 | 19.6 | C | 2,900 | 23.4 | C | 3,210 | 27.4 | D |
| F-33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 1,810 | 13.8 | B | 1,750 | 13.4 | B | 2,060 | 16.5 | B | 2,620 | 21.7 | C |
| F-34 | SR-60 | Redlands Blvd to Theodore St | 2,280 | 17.3 | B | 2,200 | 16.8 | B | 2,580 | 20.7 | C | 2,920 | 24.2 | C |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 2,180 | 18.0 | C | 1,850 | 15.3 | B | 2,250 | 20.6 | C | 1,770 | 14.6 | B |
| F-37 | SR-60 | Jack Rabbit Trail to I-10 | 2,190 | 16.7 | B | 1,690 | 12.9 | B | 2,290 | 17.6 | B | 1,660 | 12.9 | B |
| F-39 | SR-91 | I-15 to McKinley St | 7,280 | 30.9 | D | 7,330 | 31.0 | D | 7,230 | 30.8 | D | 7,400 | 31.5 | D |
| F-40 | SR-91 | McKinley St to Pierce St | 5,440 | 31.0 | D | 6,330 | 39.6 | E | 5,400 | 30.6 | D | 6,400 | 40.9 | E |
| F-41 | SR-91 | Pierce St to Magnolia Ave | 5,210 | 29.0 | D | 8,080 | 77.6 | F | 5,180 | 28.8 | D | 8,150 | 80.4 | F |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | 5,450 | 31.1 | D | 8,040 | 76.1 | F | 5,410 | 30.7 | D | 8,120 | 80.9 | F |
| F-43 | SR-91 | La Sierra Ave to Tyler St | 4,800 | 25.9 | C | 5,980 | 35.6 | E | 4,760 | 25.8 | C | 6,050 | 36.7 | E |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | 6,170 | 24.7 | C | 7,420 | 31.6 | D | 6,170 | 24.7 | C | 7,490 | 32.3 | D |

## Table 53: 2022 Plus Phase 1 Freeway Mainline Level of Service (Continued)

| ID | Freeway | Segment | 2022 No-Project Conditions | | | | | | 2022 Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-45 | SR-91 | Van Buren Blvd to Adam St | 5,810 | 22.9 | C | 7,160 | 29.9 | D | 5,810 | 22.9 | C | 7,230 | 30.6 | D |
| F-46 | SR-91 | Adam St to Madison St | 5,420 | 21.2 | C | 6,210 | 24.5 | C | 5,420 | 21.2 | C | 6,280 | 25.0 | C |
| F-47 | SR-91 | Madison St to Arlington Ave | 4,780 | 25.8 | C | 5,550 | 31.2 | D | 4,790 | 26.0 | D | 5,610 | 32.0 | D |
| F-49 | SR-91 | Central Ave to 14th St | 4,340 | 16.8 | B | 4,530 | 17.3 | B | 4,310 | 16.7 | B | 4,570 | 17.6 | B |
| F-51 | SR-91 | University Ave to Spruce St | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-66 | I-215 | Scott Rd to Newport Rd | 3,670 | 18.6 | C | 2,500 | 12.7 | B | 3,640 | 18.5 | C | 2,520 | 12.8 | B |
| F-68 | I-215 | Newport Rd to McCall Blvd | 3,820 | 19.6 | C | 3,520 | 18.0 | B | 3,790 | 19.4 | C | 3,520 | 18.0 | B |
| F-69 | I-215 | McCall Blvd to Ethanac Rd | 4,380 | 22.8 | C | 2,950 | 15.0 | B | 4,360 | 22.7 | C | 2,940 | 15.0 | B |
| F-70 | I-215 | Ethanac Rd to SR-74 | 4,110 | 21.2 | C | 4,250 | 21.9 | C | 4,100 | 21.1 | C | 4,250 | 22.0 | C |
| F-71 | I-215 | SR-74 to Redlands Ave | 5,730 | 33.1 | D | 3,860 | 19.7 | C | 5,730 | 33.1 | D | 3,870 | 19.8 | C |
| F-74 | I-215 | Columbia Ave to Center St | 6,390 | 40.0 | E | 5,330 | 29.6 | D | 6,420 | 40.8 | E | 5,310 | 29.4 | D |
| F-75 | I-215 | Center St to La Cadena Dr | 6,880 | 46.9 | F | 5,560 | 31.6 | D | 6,920 | 48.1 | F | 5,540 | 31.4 | D |
| F-76 | I-215 | La Cadena Dr to Barton Rd | 6,700 | 44.2 | E | 5,570 | 31.7 | D | 6,750 | 45.4 | F | 5,550 | 31.5 | D |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | 6,720 | 44.4 | E | 5,610 | 32.0 | D | 6,770 | 45.7 | F | 5,580 | 31.7 | D |
| F-78 | I-215 | Mt. Vernon Ave to I-10 | 7,080 | 29.2 | D | 5,890 | 23.1 | C | 7,150 | 29.9 | D | 5,870 | 23.0 | C |
| F-80 | I-215 | Auto Plaza Dr to Mill St | 4,790 | 18.2 | C | 4,140 | 15.8 | B | 4,810 | 18.4 | C | 4,120 | 15.8 | B |
| F-83 | I-215 | Baseline Rd to Highland Ave | 5,280 | 29.0 | D | 4,700 | 24.9 | C | 5,330 | 29.6 | D | 4,700 | 24.9 | C |
| F-52 | I-10 | SR-60 to Beaumont Ave | 5,610 | 21.9 | C | 5,370 | 20.7 | C | 5,620 | 21.9 | C | 5,380 | 20.9 | C |
| F-53 | I-10 | Beaumont Ave to Pennsylvania Ave | 5,470 | 21.3 | C | 5,270 | 20.3 | C | 5,510 | 21.5 | C | 5,260 | 20.4 | C |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs Ave | 5,920 | 23.3 | C | 5,480 | 21.2 | C | 5,960 | 23.5 | C | 5,430 | 21.1 | C |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | 5,690 | 22.3 | C | 5,200 | 20.1 | C | 5,740 | 22.6 | C | 5,180 | 20.0 | C |
| F-56 | I-10 | Sunset Ave to 22nd St | 5,450 | 21.2 | C | 5,090 | 19.7 | C | 5,490 | 21.5 | C | 5,080 | 19.6 | C |
| F-57 | I-10 | 22nd St to 8th St | 5,320 | 20.6 | C | 5,110 | 19.6 | C | 5,370 | 20.9 | C | 5,110 | 19.7 | C |
| F-58 | I-10 | 8th St to Hargrave St | 5,250 | 20.3 | C | 5,250 | 20.2 | C | 5,300 | 20.6 | C | 5,230 | 20.2 | C |
| F-59 | I-10 | Hargrave St to Fields Rd | 4,810 | 18.5 | C | 5,020 | 19.3 | C | 4,860 | 18.8 | C | 4,980 | 19.2 | C |
| F-60 | I-10 | Fields Rd to Morongo Trail | 4,600 | 17.7 | B | 4,830 | 18.6 | C | 4,650 | 18.0 | B | 4,790 | 18.4 | C |
| F-61 | I-10 | Morongo Trail to Main St | 4,110 | 15.8 | B | 4,240 | 16.3 | B | 4,170 | 16.1 | B | 4,210 | 16.2 | B |
| F-62 | I-10 | Main St to Haugen-Lehmann Way | 4,230 | 16.3 | B | 4,300 | 16.5 | B | 4,290 | 16.6 | B | 4,270 | 16.4 | B |
| F-64 | I-10 | SR-111 to Tipton Rd | 3,680 | 14.1 | B | 3,760 | 14.4 | B | 3,740 | 14.4 | B | 3,750 | 14.4 | B |
| F-65 | I-10 | Tipton Rd to SR-62 | 3,700 | 14.2 | B | 3,770 | 14.4 | B | 3,760 | 14.5 | B | 3,750 | 14.4 | B |

Indicates that the LOS exceeds the target level

## Table 54: 2022 Plus Phase 1 Freeway Mainline Impacts and Mitigations

| | | | Northbound / Eastbound | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | 2022 Plus Phase 1 & Mitigations | | | | | | |
| | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | |
| ID | Freeway | Segment | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| F-2 | SR-60 | Reservoir St to Ramona Ave | D | D | E | E | Yes | 7,400 | 23.5 | C | 7,810 | 25.3 | C | Add 1 mixed flow lane |
| F-4 | SR-60 | Central Ave to Mountain Ave | D | D | F | F | Yes | 7,750 | 24.9 | C | 9,320 | 32.6 | D | Add 1 mixed flow lane |
| F-6 | SR-60 | Euclid Ave to Grove Ave | F | F | F | F | Yes | 9,190 | 31.6 | D | 9,240 | 32.2 | D | Add 1 mixed flow lane |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | E | E | F | F | Yes | 8,370 | 27.6 | D | 9,480 | 33.3 | D | Add 1 mixed flow lane |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | E | E | F | F | Yes | 8,280 | 27.0 | D | 9,410 | 33.1 | D | Add 1 mixed flow lane |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | E | E | C | C | Yes | 6,530 | 26.8 | D | 4,450 | 17.4 | B | Add 1 mixed flow lane |
| F-18 | SR-60 | Rubidoux Blvd to Market St | F | F | D | D | Yes | 7,180 | 30.5 | D | 4,860 | 19.1 | C | Add 1 mixed flow lane |
| F-19 | SR-60 | Market St to Main St | E | F | F | F | Yes | 6,810 | 28.4 | D | 7,230 | 31.3 | D | Add 1 mixed flow lane |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | E | F | F | F | Yes | 8,980 | 33.3 | D | 9,210 | 35.6 | E | Add 1 mixed flow lane |
| F-29 | SR-60 | Pigeon Pass Rd/Frederick St to | D | E | E | E | Yes | 3,930 | 21.1 | C | 4,170 | 22.3 | C | Add 1 mixed flow lane |
| F-30 | SR-60 | Heacock St to Perris Blvd | C | E | E | E | Yes | 3,780 | 20.3 | C | 4,070 | 21.7 | C | Add 1 mixed flow lane |
| F-41 | SR-91 | Pierce St to Magnolia Ave | E | E | D | D | Yes | 6,070 | 23.9 | C | 5,350 | 20.9 | C | Add 1 mixed flow lane |
| F-49 | SR-91 | Central Ave to 14th St | D | E | D | D | Yes | 5,940 | 23.4 | C | 5,070 | 19.6 | C | Add 1 mixed flow lane |
| F-74 | I-215 | Columbia Ave to Center St | E | E | E | E | Yes | 6,060 | 23.9 | C | 6,060 | 23.9 | C | Add 1 mixed flow lane |
| F-76 | I-215 | La Cadena Dr to Barton Rd | D | D | E | E | Yes | 5,680 | 22.1 | C | 6,190 | 24.5 | C | Add 1 mixed flow lane |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | E | E | E | E | Yes | 5,960 | 23.4 | C | 6,610 | 26.7 | D | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

## Table 54: 2022 Plus Phase 1 Freeway Mainline Impacts and Mitigations (continued)

| | | | Southbound / Westbound | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | 2022 Plus Phase 1 & Mitigations | | | | | | |
| | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | |
| ID | Freeway | Segment | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | C | C | E | E | Yes | 6,250 | 19.4 | C | 8,060 | 26.2 | D | Add 1 mixed flow lane |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | C | C | E | F | Yes | 4,510 | 17.4 | B | 6,810 | 28.0 | D | Add 1 mixed flow lane |
| F-18 | SR-60 | Rubidoux Blvd to Market St | C | C | D | E | Yes | 3,520 | 13.7 | B | 5,940 | 23.4 | C | Add 1 mixed flow lane |
| F-19 | SR-60 | Market St to Main St | D | D | F | F | Yes | 5,680 | 22.2 | C | 7,090 | 29.7 | D | Add 1 mixed flow lane |
| F-20 | SR-60 | Main to SR-91 | D | D | E | F | Yes | 5,290 | 20.6 | C | 6,880 | 28.4 | D | Add 1 mixed flow lane |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | D | D | E | F | Yes | 7,310 | 23.4 | C | 8,900 | 30.3 | D | Add 1 mixed flow lane |
| F-27 | SR-60 | I-215 to Day St | F | F | C | C | Yes | 7,210 | 30.9 | D | 4,210 | 16.7 | B | Add 1 mixed flow lane |
| F-29 | SR-60 | Pigeon Pass Rd/Frederick St to | D | D | D | F | Yes | 3,460 | 18.1 | C | 4,320 | 23.5 | C | Add 1 mixed flow lane |
| F-30 | SR-60 | Heacock St to Perris Blvd | D | D | D | E | Yes | 3,370 | 17.6 | B | 3,900 | 20.9 | C | Add 1 mixed flow lane |
| F-40 | SR-91 | McKinley St to Pierce St | D | D | E | E | Yes | 5,400 | 21.1 | C | 6,400 | 25.7 | C | Add 1 mixed flow lane |
| F-41 | SR-91 | Pierce St to Magnolia Ave | D | D | F | F | Yes | 5,180 | 20.1 | C | 8,150 | 37.1 | E | Add 1 mixed flow lane |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | D | D | F | F | Yes | 5,410 | 21.1 | C | 8,120 | 37.2 | E | Add 1 mixed flow lane |
| F-43 | SR-91 | La Sierra Ave to Tyler St | C | C | E | E | Yes | 4,760 | 18.5 | C | 6,050 | 24.0 | C | Add 1 mixed flow lane |
| F-74 | I-215 | Columbia Ave to Center St | E | E | D | D | Yes | 6,420 | 25.7 | C | 5,310 | 20.5 | C | Add 1 mixed flow lane |
| F-75 | I-215 | Center St to La Cadena Dr | F | F | D | D | Yes | 6,920 | 28.5 | D | 5,540 | 21.5 | C | Add 1 mixed flow lane |
| F-76 | I-215 | La Cadena Dr to Barton Rd | E | F | D | D | Yes | 6,750 | 27.5 | D | 5,550 | 21.5 | C | Add 1 mixed flow lane |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | E | F | D | D | Yes | 6,770 | 27.6 | D | 5,580 | 21.6 | C | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

***Freeway Weaving LOS***

Table 55 compares the LOS for study weaving sections under 2022 No-Project and 2022 Plus Phase 1 conditions. As shown in the table, there are 10 sections where the project would have a significant impact. Seven of these 10 sections would be deficient under both 2022 No-Project and Plus Phase 1 conditions, namely:

Northbound or Eastbound

- SR-60 from SR-71/S. Garey Ave. to Reservoir St.
- SR-60 from Main St. to SR-91
- SR-60 from SR-91 to W. Blaine St./3rd St.
- SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.
- SR-91 from Arlington Ave. to Central Ave.
- I-215 from SR-60 to Columbia Ave.

Southbound or Westbound

- SR-60 from SR-91 to W. Blaine St/3rd St.

There were three segments that would be deficient only under Plus Phase 1 conditions, namely:

Southbound or Westbound:

- SR-60 from Blaine St/3rd St. to University Ave.
- SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.
- SR-60 from Day St. to Pigeon Pass Rd./Frederick St.

## Table 55: 2022 Plus Phase 1 Freeway Weaving Section LOS

| ID | Freeway | Weaving Segment | 2022 No-Project Conditions | | | | | | 2022 Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | 7,150 | 29.2 | D | 8,640 | 37.6 | **E** | 7,340 | 30.5 | D | 8,620 | 37.7 | **E** |
| W-9 | SR-60 | Haven Ave to Archibald Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-20 | SR-60 | Main St to SR-91 | 7,350 | 36.6 | **E** | 7,370 | 38.0 | **E** | 7,620 | 38.5 | **E** | 7,380 | 38.2 | **E** |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | 6,010 | 24.2 | C | 9,760 | 42.3 | **E** | 6,440 | 26.7 | C | 9,720 | 42.6 | **E** |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | 5,710 | 21.6 | C | 7,210 | 31.3 | D | 6,140 | 25.0 | C | 7,250 | 32.5 | D |
| W-23 | SR-60 | University Ave to Martin Luther King | 6,620 | 23.8 | C | 6,060 | 21.4 | C | 7,140 | 26.3 | C | 6,130 | 22.0 | C |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | 6,580 | 27.3 | C | 8,400 | 38.9 | **E** | 7,240 | 32.8 | D | 8,360 | 39.7 | **E** |
| W-27 | SR-60 | I-215 to Day St | 4,000 | 14.6 | B | 5,280 | 19.9 | B | 4,650 | 19.0 | B | 5,320 | 21.1 | C |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 3,890 | 16.6 | B | 5,130 | 23.2 | C | 4,350 | 19.3 | B | 5,120 | 23.6 | C |
| W-32 | SR-60 | Moreno Beach Dr to Nason St | 2,330 | 14.2 | B | 2,880 | 18.1 | B | 2,960 | 19.1 | B | 2,940 | 19.0 | B |
| W-35 | SR-60 | Theodore St to Gilman Springs Rd | 2,320 | 12.7 | B | 3,370 | 19.3 | B | 2,350 | 13.5 | B | 3,280 | 19.4 | B |
| W-42 | SR-91 | Magnolia Ave to La Sierra Ave | 6,400 | 30.3 | D | 5,950 | 28.5 | D | 6,550 | 31.1 | D | 5,920 | 28.5 | D |
| W-48 | SR-91 | Arlington Ave to Central Ave | 7,220 | 39.0 | **E** | 3,680 | 17.9 | B | 7,300 | 39.9 | **E** | 3,660 | 17.8 | B |
| W-50 | SR-91 | 14th St to University Ave | 5,030 | 25.1 | C | 4,810 | 24.6 | C | 5,100 | 25.7 | C | 4,840 | 24.9 | C |
| W-51 | SR-91 | SR-60 to Mission Inn Ave/University Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-73 | I-215 | SR-60 to Columbia Ave | 6,840 | 37.8 | **E** | 6,540 | 35.8 | **E** | 6,810 | 37.7 | **E** | 6,580 | 36.4 | **E** |
| W-79 | I-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 4,610 | 16.8 | B | 5,210 | 19.0 | B | 4,590 | 16.8 | B | 5,250 | 19.3 | B |
| W-81 | I-215 | Mill St to 2nd St | 5,090 | 17.8 | B | 5,910 | 21.1 | C | 5,070 | 17.7 | B | 5,940 | 21.3 | C |
| W-82 | I-215 | 5th St to Baseline Rd | 3,760 | 12.7 | B | 4,450 | 15.2 | B | 3,750 | 12.7 | B | 4,490 | 15.4 | B |
| W-63 | I-10 | Haugen-Lehmann Way to SR-111 | 3,300 | 11.0 | B | 4,710 | 15.9 | B | 3,260 | 10.9 | B | 4,760 | 16.1 | B |

Indicates that the LOS exceeds the target level

## Table 55: 2022 Plus Phase 1 Freeway Weaving Section LOS (continued)

| ID | Freeway | Weaving Segment | 2022 No-Project Conditions | | | | | | 2022 Plus Phase 1 Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | 6,130 | 21.9 | C | 6,720 | 24.3 | C | 6,060 | 21.7 | C | 6,850 | 25.0 | C |
| W-9 | SR-60 | Haven Ave to Archibald Ave | 6,330 | 24.4 | C | 7,330 | 29.3 | D | 6,230 | 24.1 | C | 7,480 | 30.1 | D |
| W-20 | SR-60 | Main St to SR-91 | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | 7,720 | 29.4 | D | 9,290 | 36.9 | **E** | 7,640 | 29.4 | D | 9,670 | 39.1 | **E** |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | 5,700 | 21.1 | C | 8,280 | 32.0 | D | 5,620 | 21.3 | C | 8,670 | 35.2 | **E** |
| W-23 | SR-60 | University Ave to Martin Luther King | 5,600 | 22.6 | C | 7,620 | 30.7 | D | 5,500 | 22.3 | C | 7,980 | 32.8 | D |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | 7,110 | 30.7 | D | 7,890 | 32.7 | D | 7,120 | 31.3 | D | 8,330 | 36.1 | **E** |
| W-27 | SR-60 | I-215 to Day St | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 4,970 | 34.3 | D | 4,860 | 32.7 | D | 4,950 | 34.7 | D | 5,270 | 37.1 | **E** |
| W-32 | SR-60 | Moreno Beach Dr to Nason St | 2,410 | 14.5 | B | 2,190 | 13.2 | B | 2,560 | 15.8 | B | 2,840 | 18.2 | B |
| W-35 | SR-60 | Theodore St to Gilman Springs Rd | 2,360 | 13.6 | B | 2,030 | 11.4 | B | 2,310 | 13.5 | B | 1,980 | 11.8 | B |
| W-42 | SR-91 | Magnolia Ave to La Sierra Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-48 | SR-91 | Arlington Ave to Central Ave | 4,510 | 21.2 | C | 5,050 | 24.1 | C | 4,510 | 21.3 | C | 5,120 | 24.6 | C |
| W-50 | SR-91 | 14th St to University Ave | 5,090 | 19.6 | B | 7,020 | 27.9 | C | 5,070 | 19.5 | B | 7,010 | 28.1 | D |
| W-51 | SR-91 | SR-60 to Mission Inn Ave/University Ave | 5,020 | 14.7 | B | 8,850 | 26.7 | C | 5,010 | 14.7 | B | 8,850 | 26.9 | C |
| W-73 | I-215 | SR-60 to Columbia Ave | 7,040 | 33.4 | D | 6,110 | 28.8 | D | 7,070 | 33.7 | D | 6,070 | 28.6 | D |
| W-79 | I-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 5,830 | 20.8 | C | 4,870 | 18.0 | B | 5,850 | 20.9 | C | 4,830 | 17.9 | B |
| W-81 | I-215 | Mill St to 2nd St | 5,300 | 19.0 | B | 4,410 | 15.9 | B | 5,330 | 19.2 | B | 4,390 | 15.8 | B |
| W-82 | I-215 | 5th St to Baseline Rd | 4,540 | 16.0 | B | 3,490 | 12.3 | B | 4,570 | 16.1 | B | 3,470 | 12.2 | B |
| W-63 | I-10 | Haugen-Lehmann Way to SR-111 | 4,210 | 14.8 | B | 4,310 | 17.2 | B | 4,280 | 15.2 | B | 4,280 | 17.1 | B |

Indicates that the LOS exceeds the target level

Table 56 identifies mitigation measures that would reduce the impact of the WLC project to a less-than-significant level. These mitigation measures may not all be feasible due physical and financial constraints, and may not be desirable as a matter of public policy. Chapter 11 analyses the mitigation measures in greater detail and discusses options for funding those that are feasible.

### *Freeway Ramp LOS*

Table 57 compares the freeway ramp level of service on SR-60 under 2022 No-Project and 2022 Plus Phase 1 conditions. As shown in the table, only the SR-60 eastbound On-Ramp from Central Ave would have a significant impact with the project. This location would operate below LOS "D" under both 2022 No Project and Plus Phase 1 conditions. Table 58 shows the mitigation measures needed to reduce the impacts of the WLC to a less-than-significant level. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS, this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

**Table 56: 2022 Plus Phase 1 Freeway Weaving Impacts and Mitigations**

| | | | Northbound / Eastbound | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | 2022 Plus Phase 1 & Mitigations | | | | | | |
| | | | | | | | | AM Peak Hour | | | PM Peak Hour | | | |
| ID | Freeway | Weaving Segment | AM Peak Hour | | PM Peak Hour | | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| | | | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | | | | | | | | |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | D | D | E | E | Yes | 7,340 | 24.8 | C | 8,620 | 30.5 | D | Add 1 mixed flow lane |
| W-20 | SR-60 | Main St to SR-91 | E | E | E | E | Yes | 7,620 | 29.9 | D | 7,380 | 29.6 | D | Add 1 mixed flow lane |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | C | C | E | E | Yes | 6,440 | 21.8 | C | 9,720 | 34.4 | D | Add 1 mixed flow lane |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | C | D | E | E | Yes | 7,240 | 26.5 | C | 8,360 | 31.8 | D | Add 1 mixed flow lane |
| W-48 | SR-91 | Arlington Ave to Central Ave | E | E | B | B | Yes | 7,300 | 35.2 | E | 3,660 | 16.3 | B | Add a second off-ramp lane |
| W-73 | I-215 | SR-60 to Columbia Ave | E | E | E | E | Yes | 6,810 | 36.6 | E | 6,580 | 35.1 | E | Add a second off-ramp lane |

Indicates that the LOS exceeds the target level

| | | | Southbound / Westbound | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | 2022 Plus Phase 1 & Mitigations | | | | | | |
| | | | | | | | | AM Peak Hour | | | PM Peak Hour | | | |
| ID | Freeway | Weaving Segment | AM Peak Hour | | PM Peak Hour | | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| | | | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | | | | | | | | |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | D | D | E | E | Yes | 7,640 | 24.0 | C | 9,670 | 31.7 | D | Add 1 mixed flow lane |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | C | C | D | E | Yes | 5,620 | 17.5 | B | 8,670 | 28.6 | D | Add 1 mixed flow lane |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | D | D | D | E | Yes | 7,120 | 25.4 | C | 8,330 | 29.1 | D | Add 1 mixed flow lane |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | D | D | D | E | Yes | 4,950 | 25.3 | C | 5,270 | 26.9 | C | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

## Table 57: 2022 Plus Phase 1 Freeway Ramp LOS

| ID | Freeway / Direction | Ramp Segment | Ramp No. of Lanes | 2022 No-Project Conditions | | | | | | | | 2022 Plus Phase 1 Conditions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | | PM Peak Hour | | | | AM Peak Hour | | | | PM Peak Hour | | | |
| | | | | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS |
| R-1 | SR-60 EB | On-Ramp from Martin Luther King Blvd | 1 | 6,190 | 710 | 27.4 | C | 5,780 | 1,320 | 30.9 | D | 6,710 | 740 | 29.7 | D | 5,840 | 1,340 | 31.5 | D |
| R-2 | SR-60 EB | On-Ramp from Central Ave | 1 | 8,170 | 710 | 28.8 | D | 9,010 | 1,120 | 35.1 | F | 8,700 | 820 | 31.9 | F | 9,080 | 1,120 | 35.6 | F |
| R-3 | SR-60 EB | Off-Ramp to Redlands Blvd | 1 | 1,910 | 220 | 8.3 | A | 2,370 | 520 | 12.5 | B | 2,780 | 430 | 18.2 | B | 2,540 | 560 | 15.4 | B |
| R-4 | SR-60 EB | Loop On-Ramp from Redlands Blvd | 1 | 1,690 | 90 | 17.1 | B | 1,850 | 210 | 19.4 | B | 2,350 | 90 | 24.1 | C | 1,980 | 250 | 21.7 | C |
| R-5 | SR-60 EB | Direct On-Ramp from Redlands Blvd | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-6 | SR-60 EB | Off-Ramp to Theodore St | 2 | 2,460 | 250 | 24.5 | C | 3,240 | 150 | 31.7 | D | 3,300 | 910 | 21.9 | C | 3,350 | 540 | 21.8 | C |
| R-7 | SR-60 EB | Loop On-Ramp from Theodore St | 1 | 2,210 | 110 | 23.1 | C | 3,090 | 270 | 31.7 | D | 2,390 | 40 | 25.4 | C | 2,810 | 70 | 28.8 | D |
| R-8 | SR-60 EB | Direct On-Ramp from Theodore St | 1 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | 2,350 | 200 | 18.6 | B | 2,740 | 410 | 23.3 | C |
| R-9 | SR-60 EB | Off-Ramp to Gilman Springs Rd | 2 | 2,320 | 330 | 14.5 | B | 3,370 | 650 | 21.0 | C | 2,350 | 432 | 14.9 | B | 3,280 | 537 | 20.7 | C |
| R-10 | SR-60 EB | On-Ramp from Gilman Springs Rd | 1 | 1,990 | 270 | 14.7 | B | 2,720 | 140 | 19.8 | B | 1,918 | 288 | 14.5 | B | 2,743 | 211 | 20.8 | C |
| R-11 | SR-60 WB | Off-Ramp to Gilman Springs Rd | 2 | 2,210 | 230 | 13.8 | B | 1,880 | 190 | 11.8 | B | 2,250 | 326 | 14.7 | B | 1,770 | 233 | 11.7 | B |
| R-12 | SR-60 WB | On-Ramp from Gilman Springs Rd | 1 | 1,980 | 380 | 15.5 | B | 1,690 | 310 | 12.6 | B | 1,924 | 406 | 16.2 | B | 1,537 | 452 | 13.5 | B |
| R-13 | SR-60 WB | Off-Ramp to Theodore St | 2 | 2,360 | 180 | 12.4 | B | 2,030 | 120 | 9.3 | A | 2,310 | 310 | 14.6 | B | 1,980 | 170 | 12.6 | B |
| R-14 | SR-60 WB | On-Ramp from Theodore St | 1 | 2,180 | 100 | 21.0 | C | 1,910 | 290 | 20.2 | C | 2,000 | 560 | 24.1 | C | 1,810 | 790 | 24.7 | C |
| R-15 | SR-60 WB | Off-Ramp to Redlands Blvd | 1 | 2,280 | 170 | 22.9 | C | 2,200 | 100 | 22.3 | C | 2,580 | 250 | 26.7 | C | 2,920 | 160 | 30.2 | D |
| R-16 | SR-60 WB | Loop On-Ramp from Redlands Blvd | 1 | 2,110 | 440 | 23.3 | C | 2,100 | 380 | 22.8 | C | 2,330 | 470 | 26.3 | C | 2,760 | 700 | 32.3 | D |
| R-17 | SR-60 WB | Direct On-Ramp from Redlands Blvd | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-18 | SR-60 WB | Off-Ramp to Central Ave | 2 | 7,110 | 410 | 26.5 | C | 7,890 | 530 | 29.8 | D | 7,120 | 480 | 27.3 | C | 8,330 | 540 | 31.8 | D |
| R-19 | SR-60 WB | Off-Ramp to Martin Luther King Blvd | 1 | 7,060 | 510 | 16.3 | B | 7,680 | 430 | 17.6 | B | 7,000 | 520 | 16.4 | B | 8,050 | 430 | 19.2 | B |

Indicates that the LOS exceeds the target level

## Table 58: 2022 Plus Phase 1 Freeway Ramp Impacts and Mitigations

| ID | Freeway / Direction | Ramp Segment | Ramp No. of Lanes | Determination of Impact | | | | | 2022 Plus Phase 1 & Mitigations | | | | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | | PM Peak Hour | | | | |
| | | | | No-Project LOS | Plus Phase 1 LOS | No-Project LOS | Plus Phase 1 LOS | Project Impact? | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | |
| R-2 | SR-60 EB | On-Ramp from Central Ave | 1 | D | F | F | F | Yes | 8,700 | 820 | 24.1 | C | 9,080 | 1,120 | 27.8 | C | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

# 9. 2035 NO-PROJECT CONDITIONS

This chapter describes traffic conditions under the assumption that existing land uses plus other past, present, and reasonably foreseeable projects (both land development and roadway improvements) up to the year 2035 are implemented. Within the City of Moreno Valley full build-out of the General Plan was assumed, except for the project site which was assumed to be unchanged from existing conditions. This scenario forms a basis of comparison for the 2035 Plus Build-out scenario.

## A. 2035 NO-PROJECT TRAFFIC VOLUMES

The forecast turning movement volumes for this scenario are shown in Figure 52. Figure 16 is the key map for the Figure 52 sub-figures.

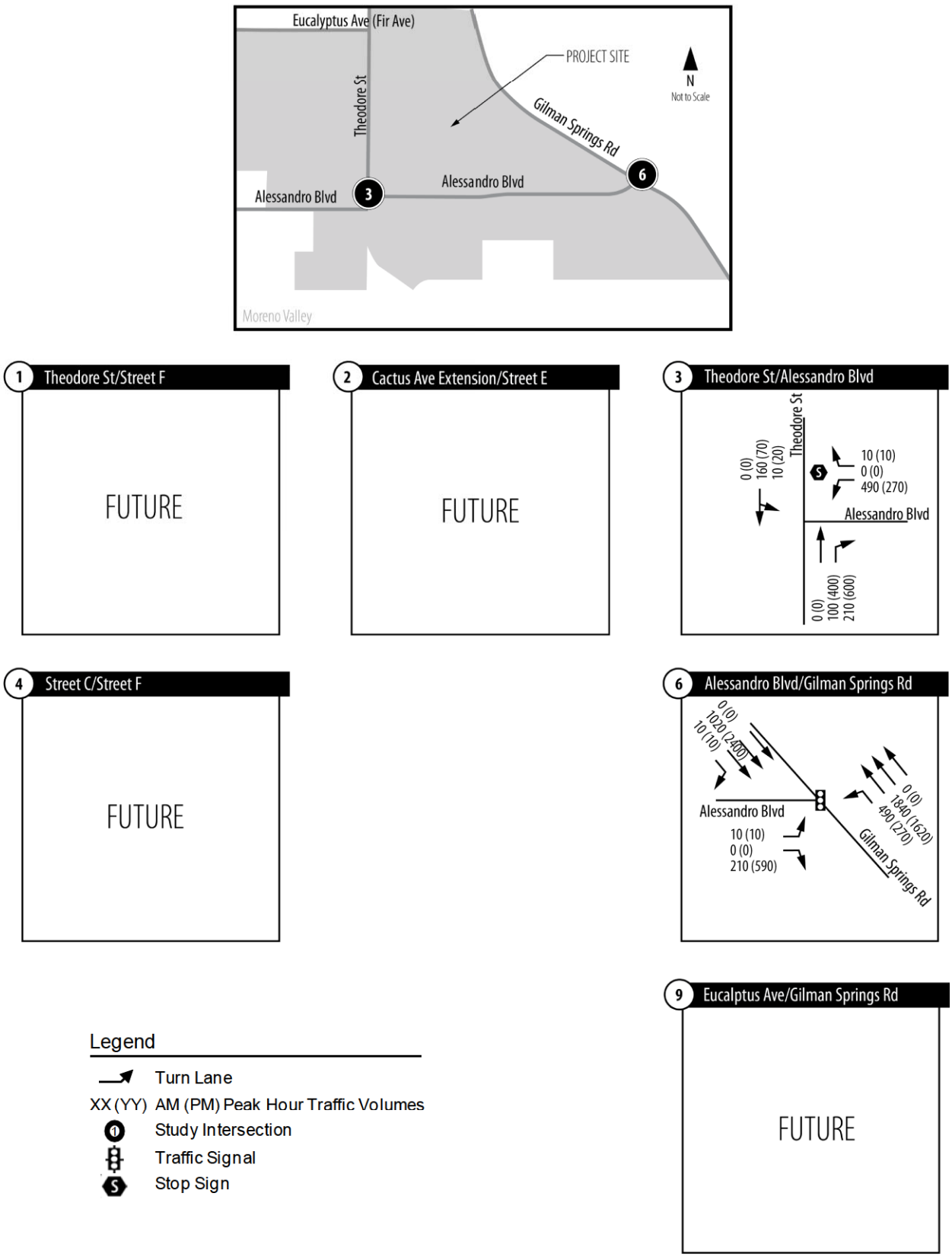



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions**

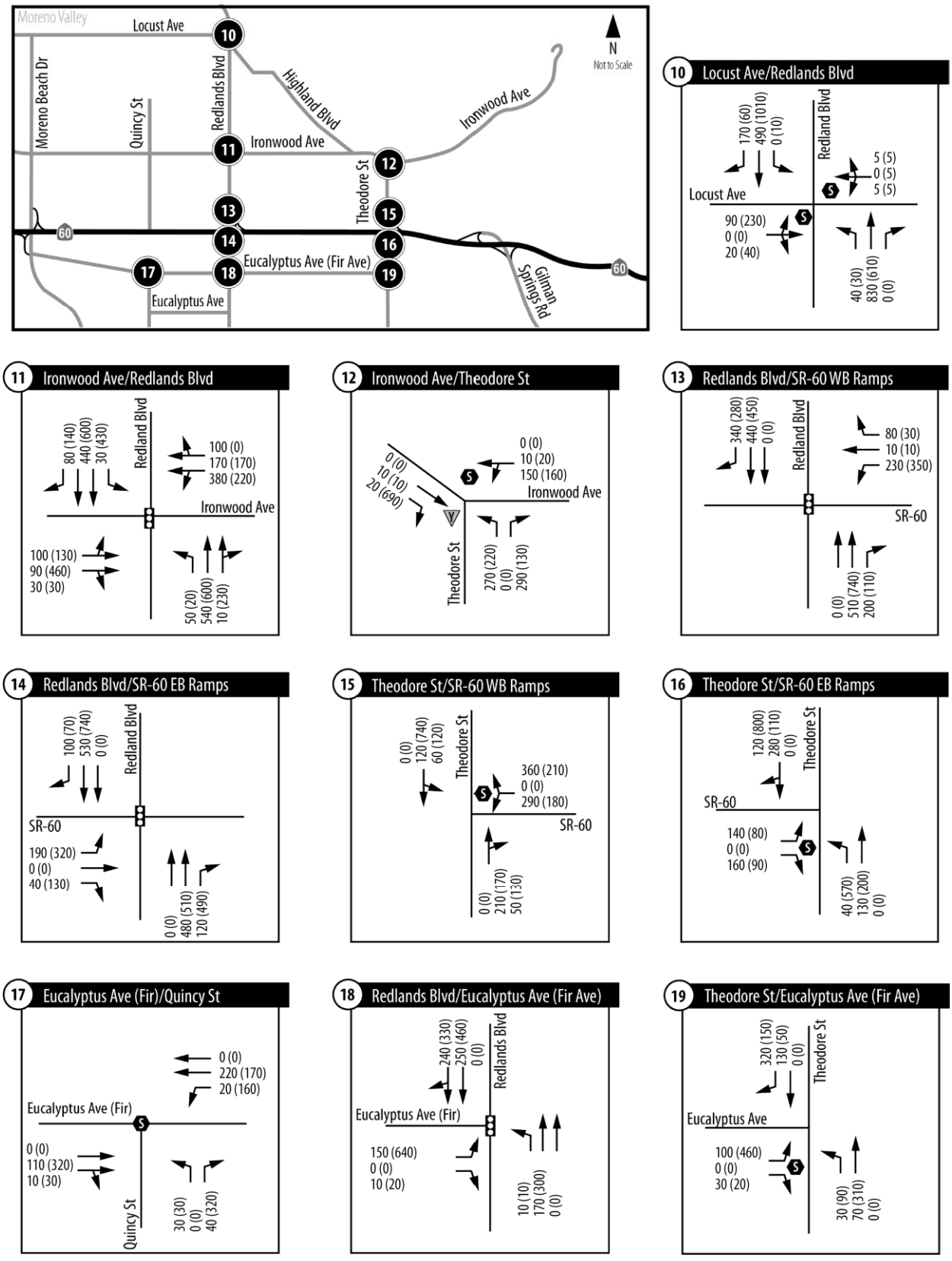



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (B)**

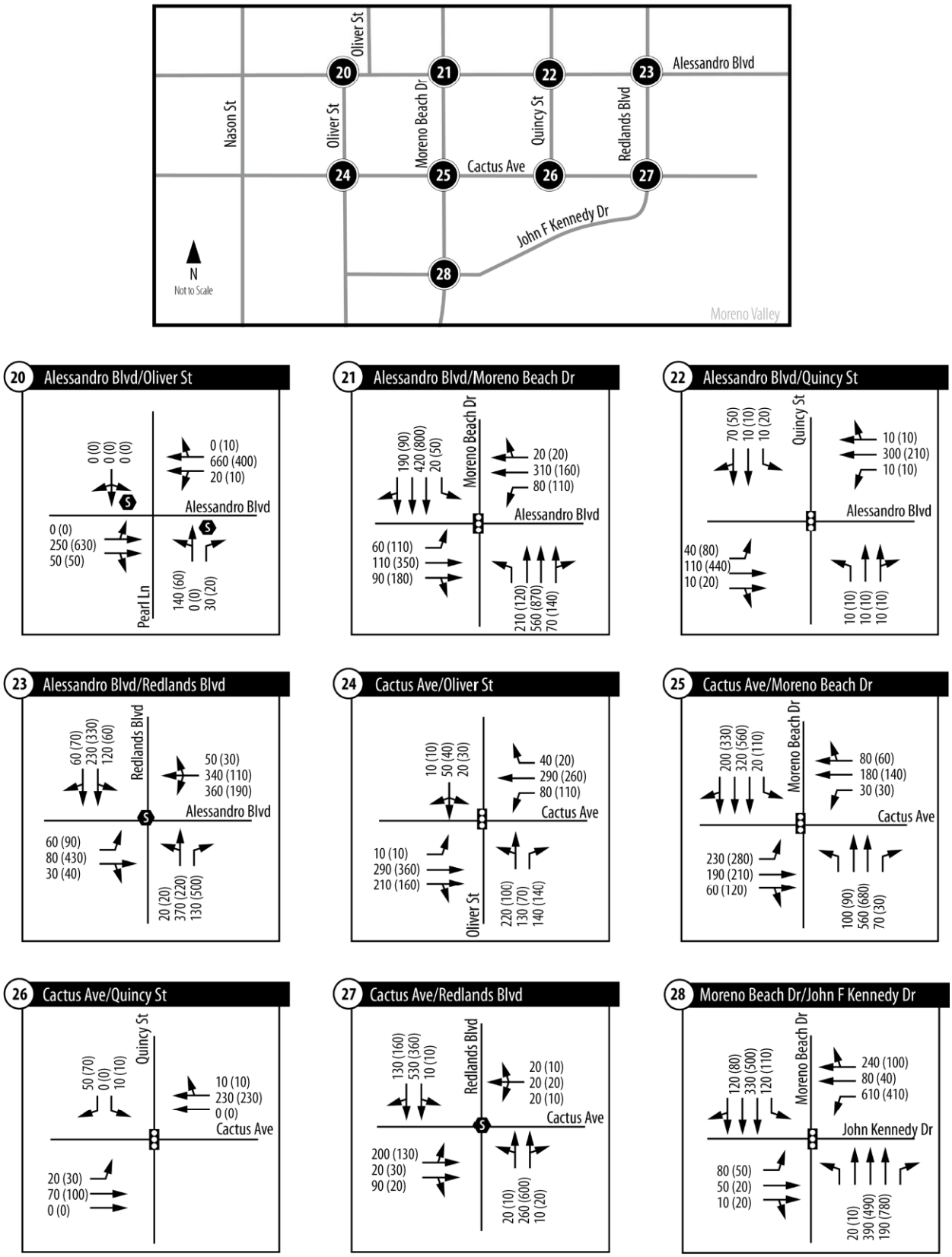



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (C)**

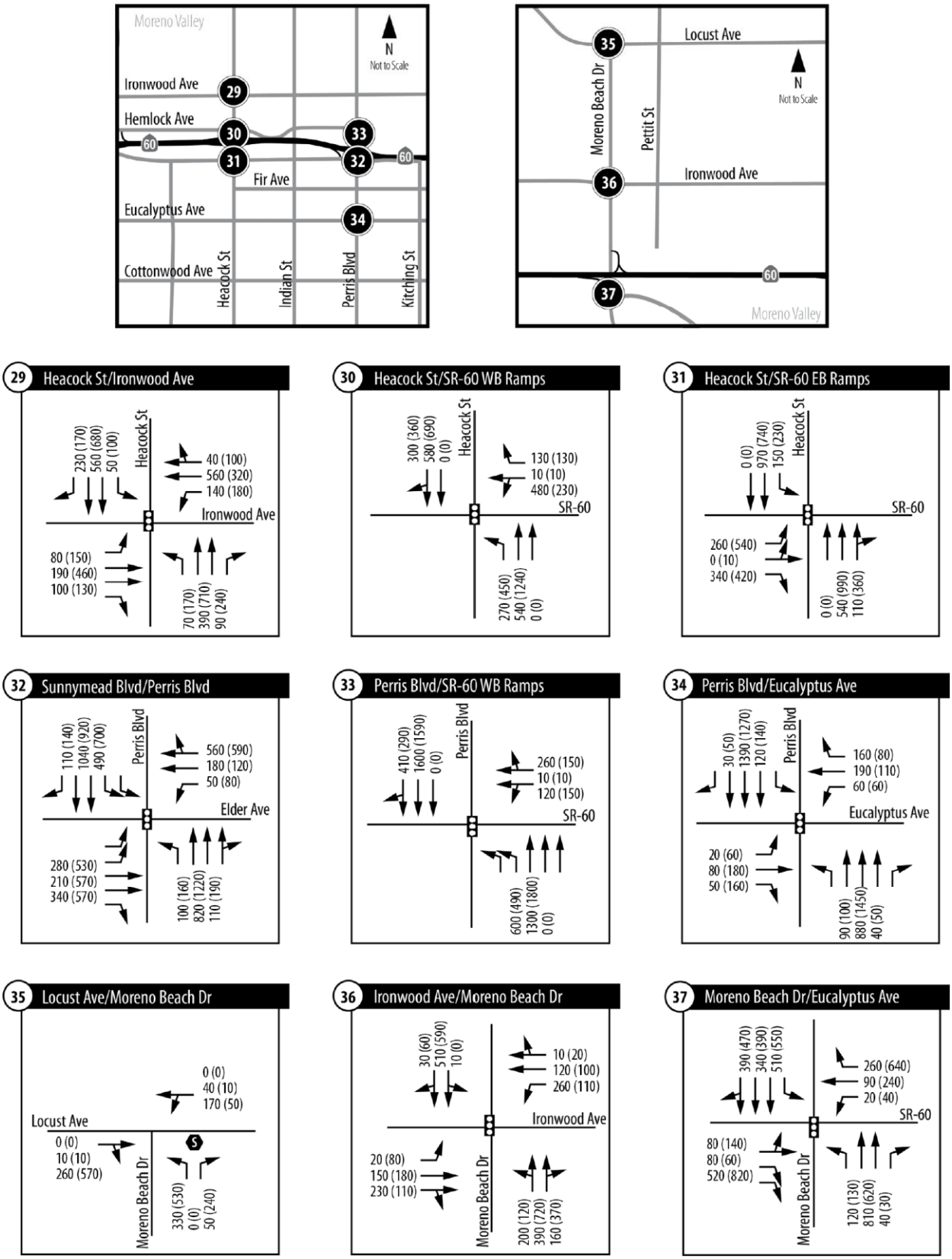



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (D)**

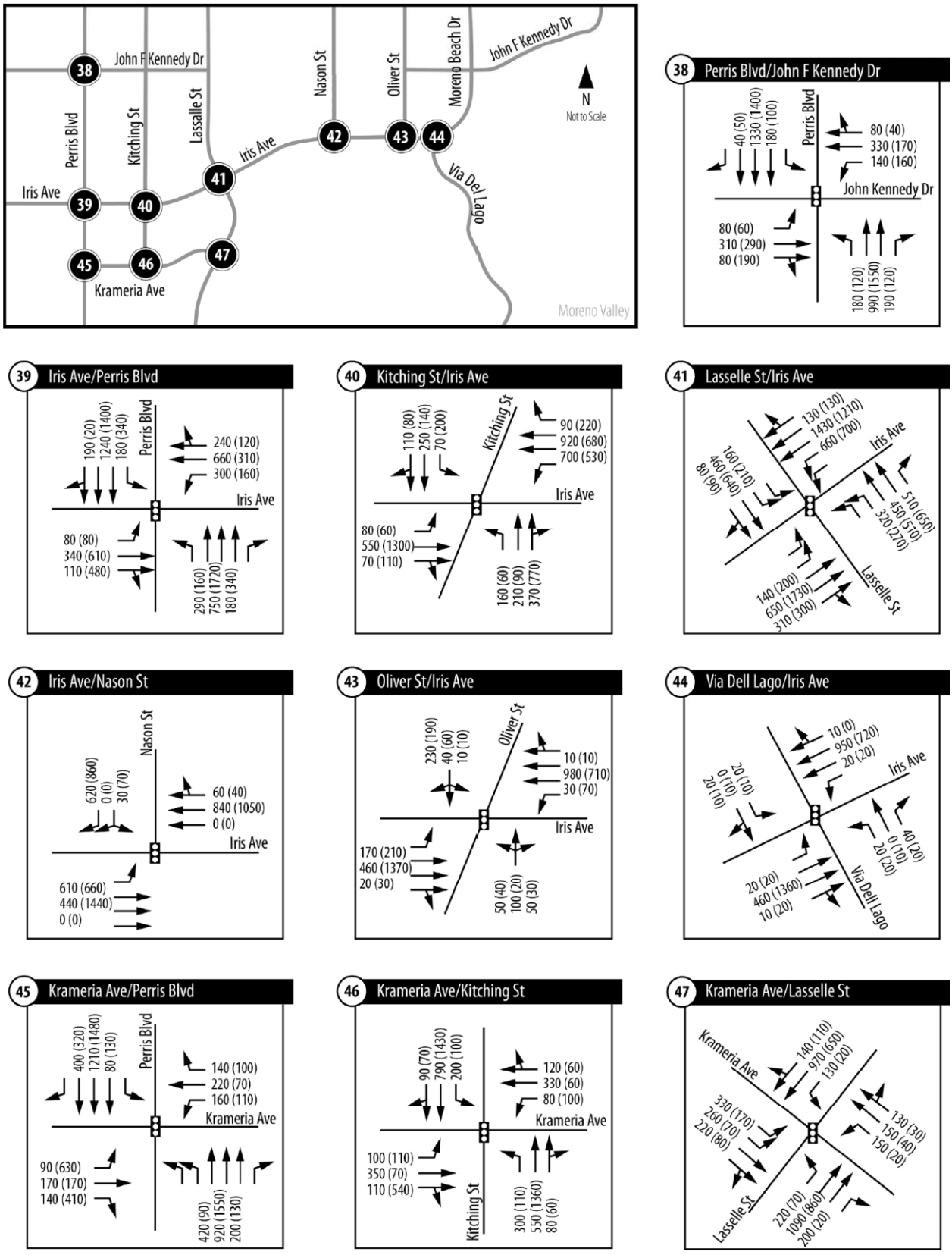



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (E)**

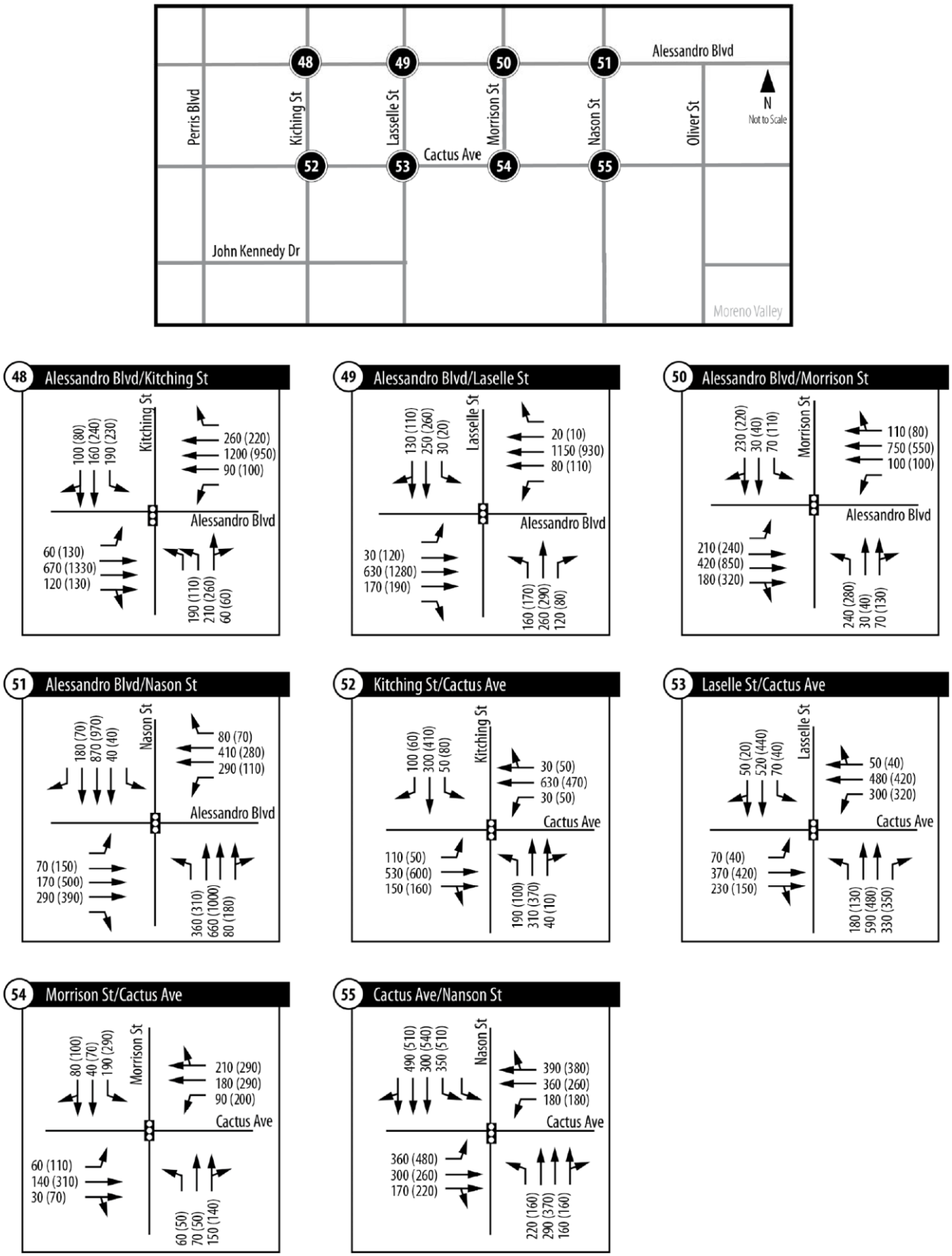



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (F)**

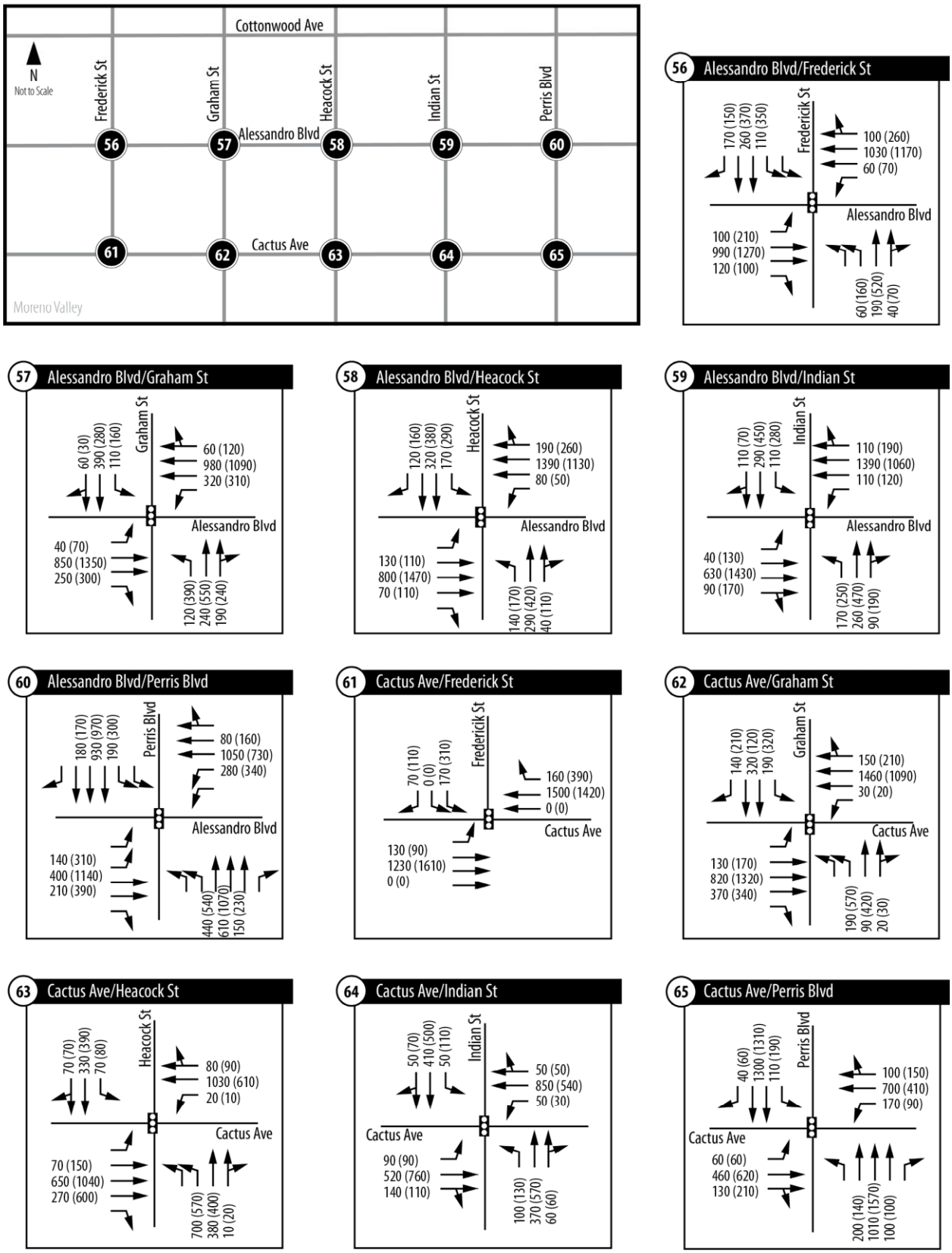



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (G)**

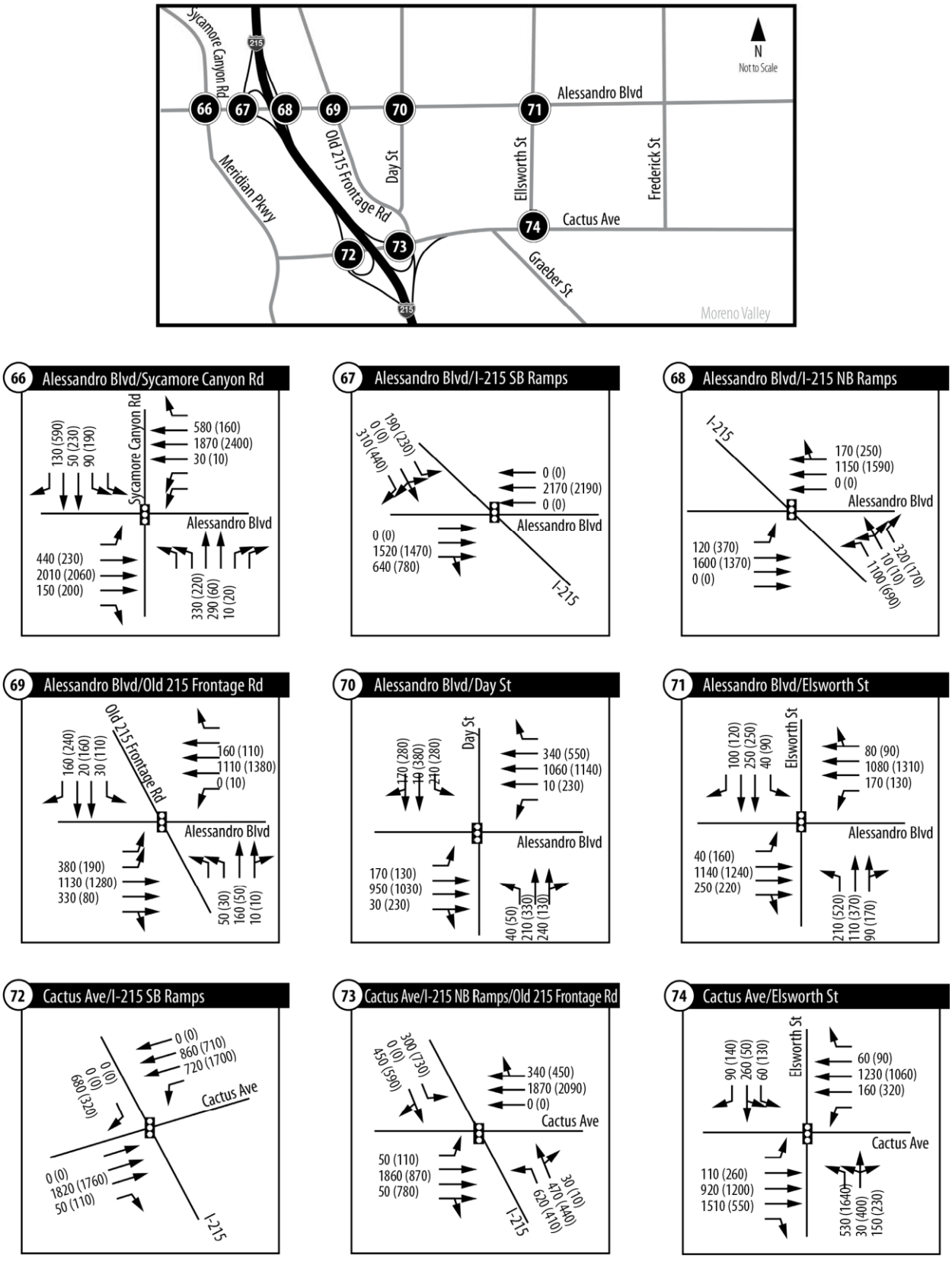



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (H)**

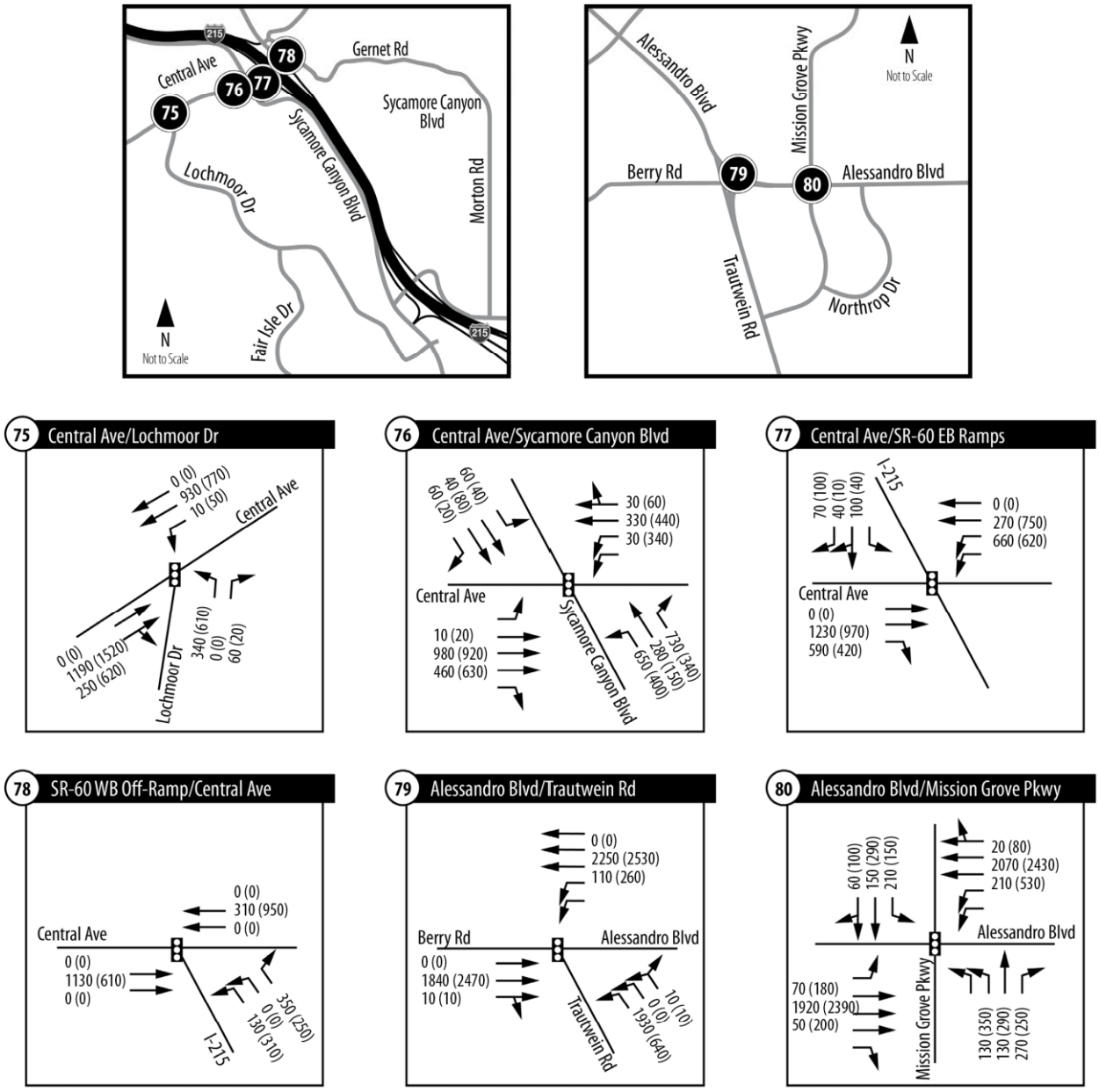



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (I)**

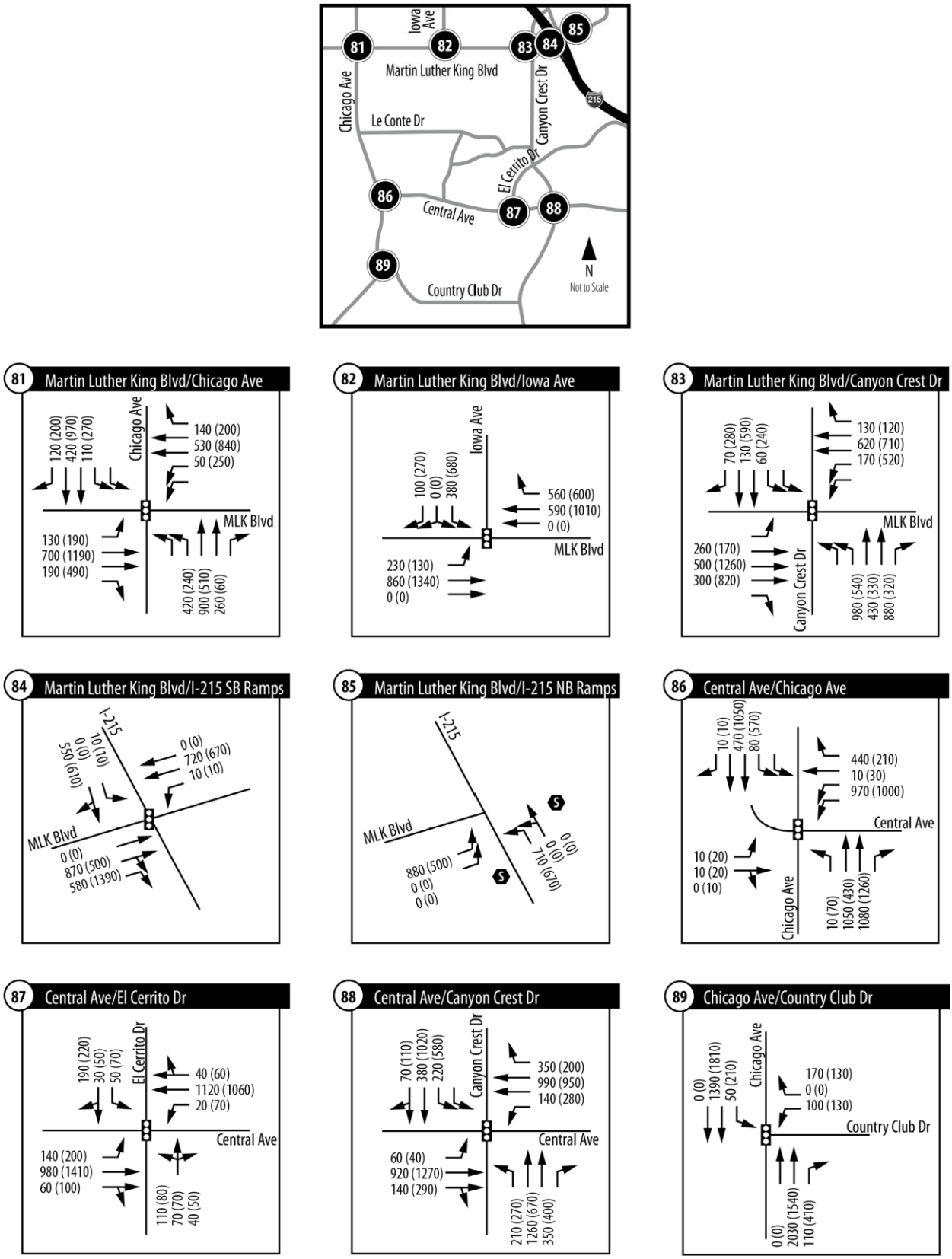



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (J)**

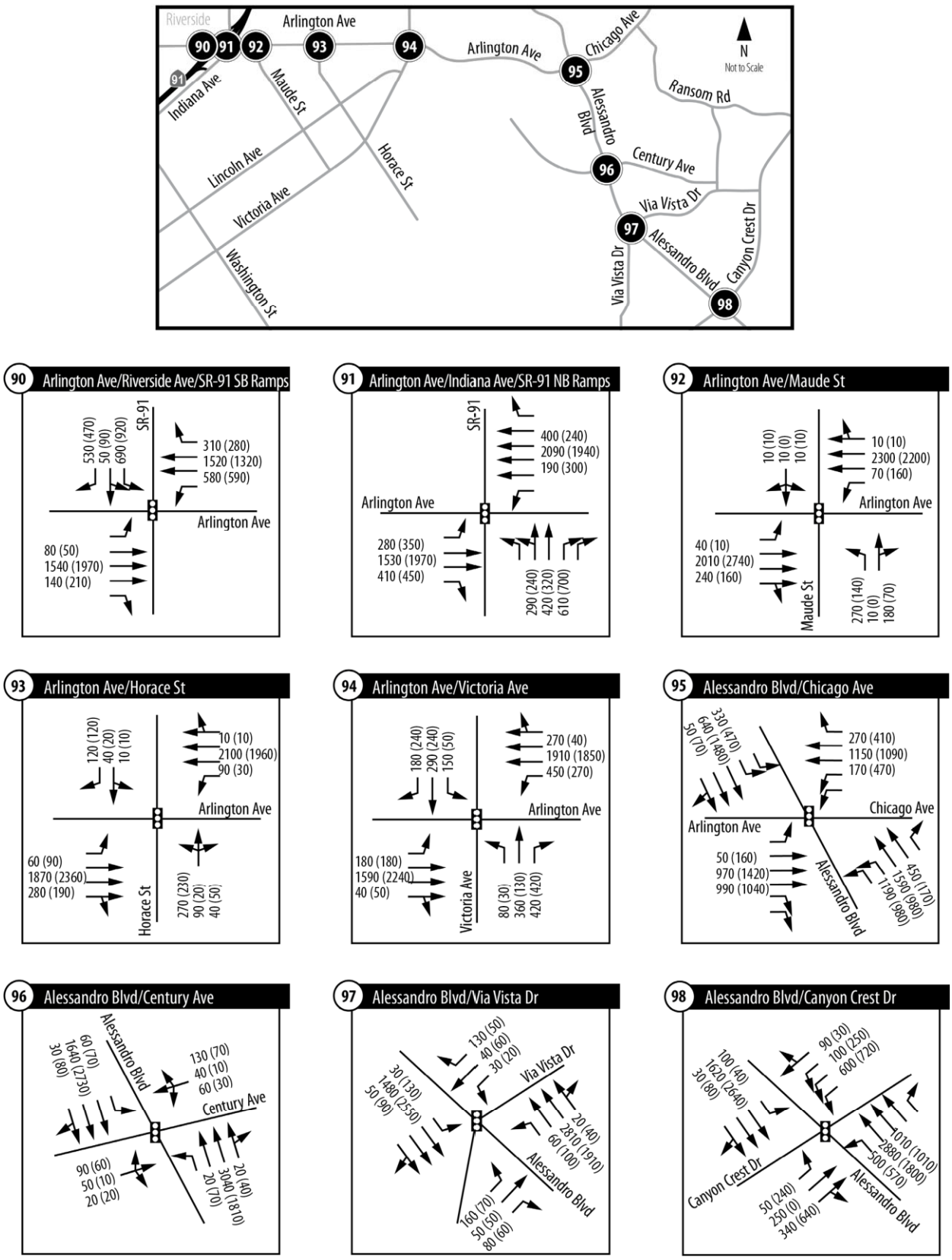



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (K)**

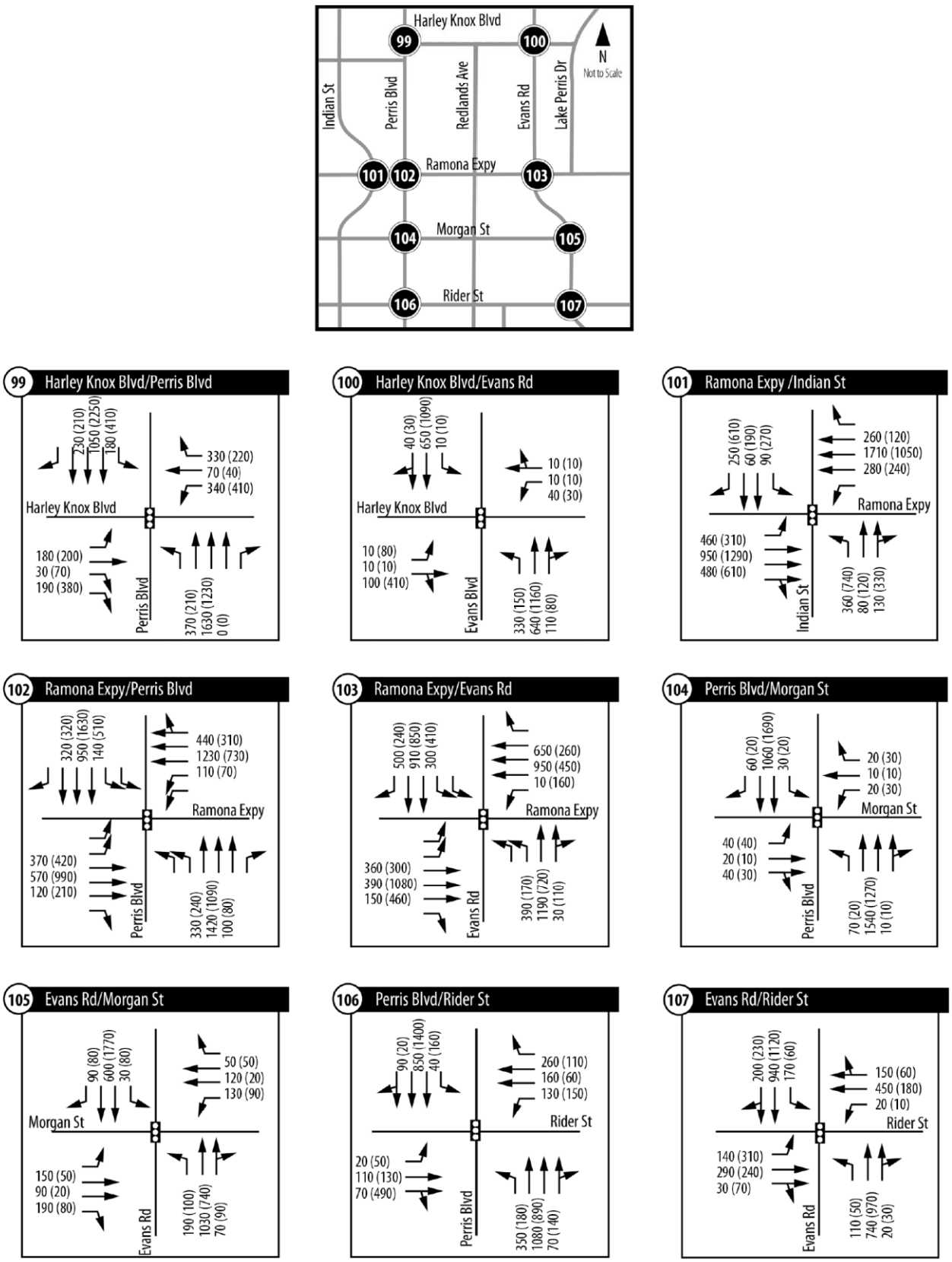



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (L)**

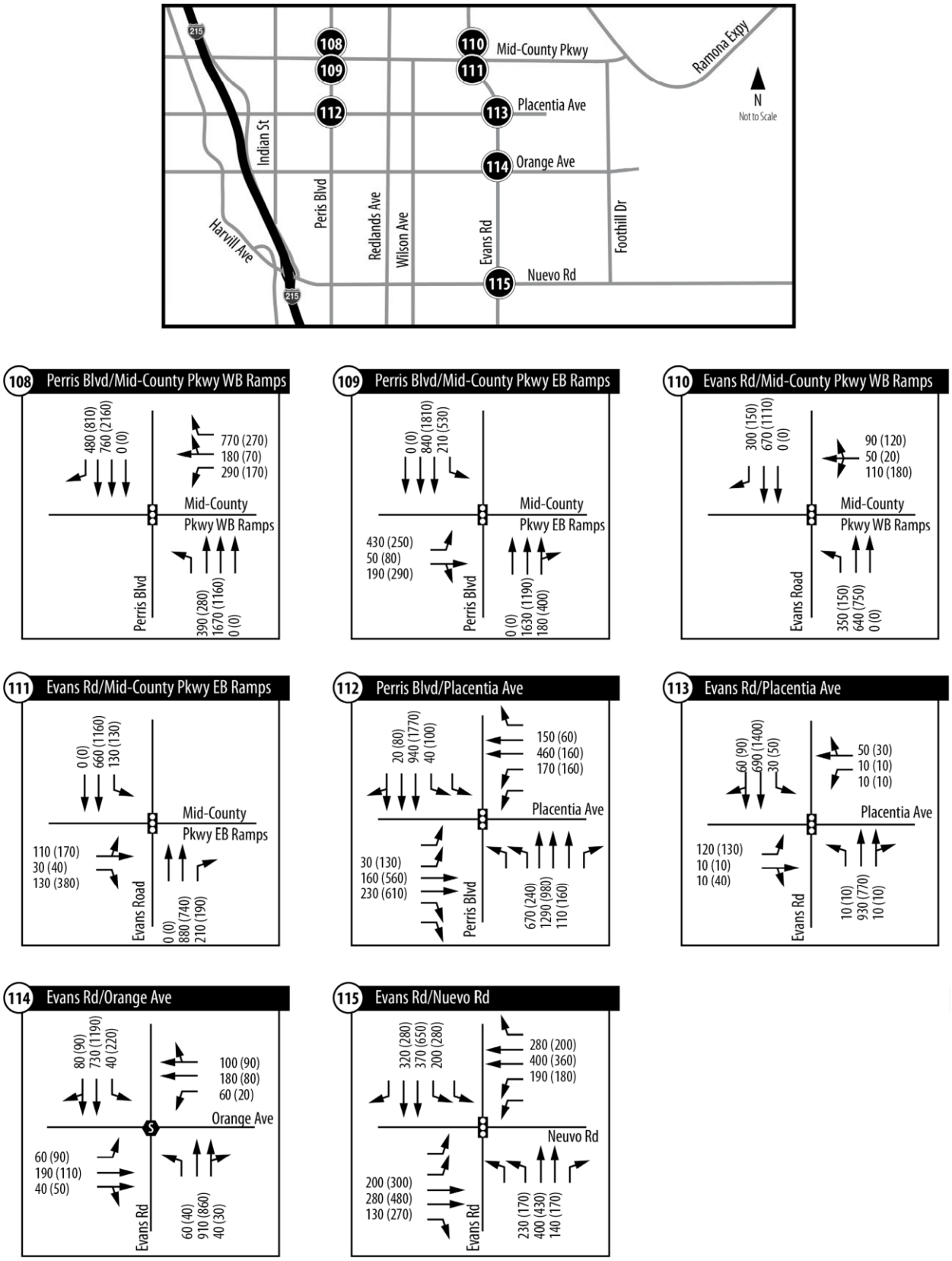



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (M)**

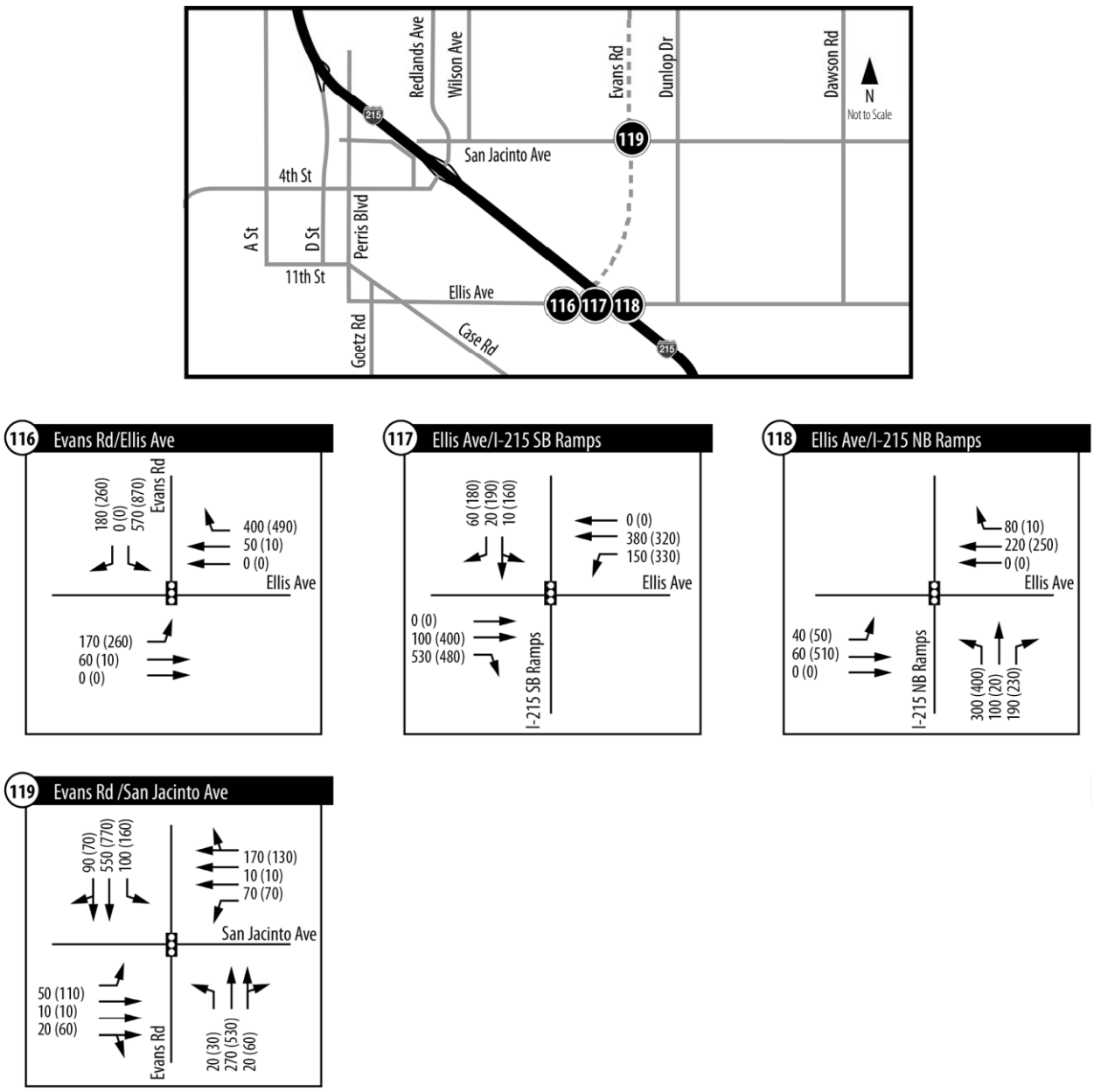



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (N)**

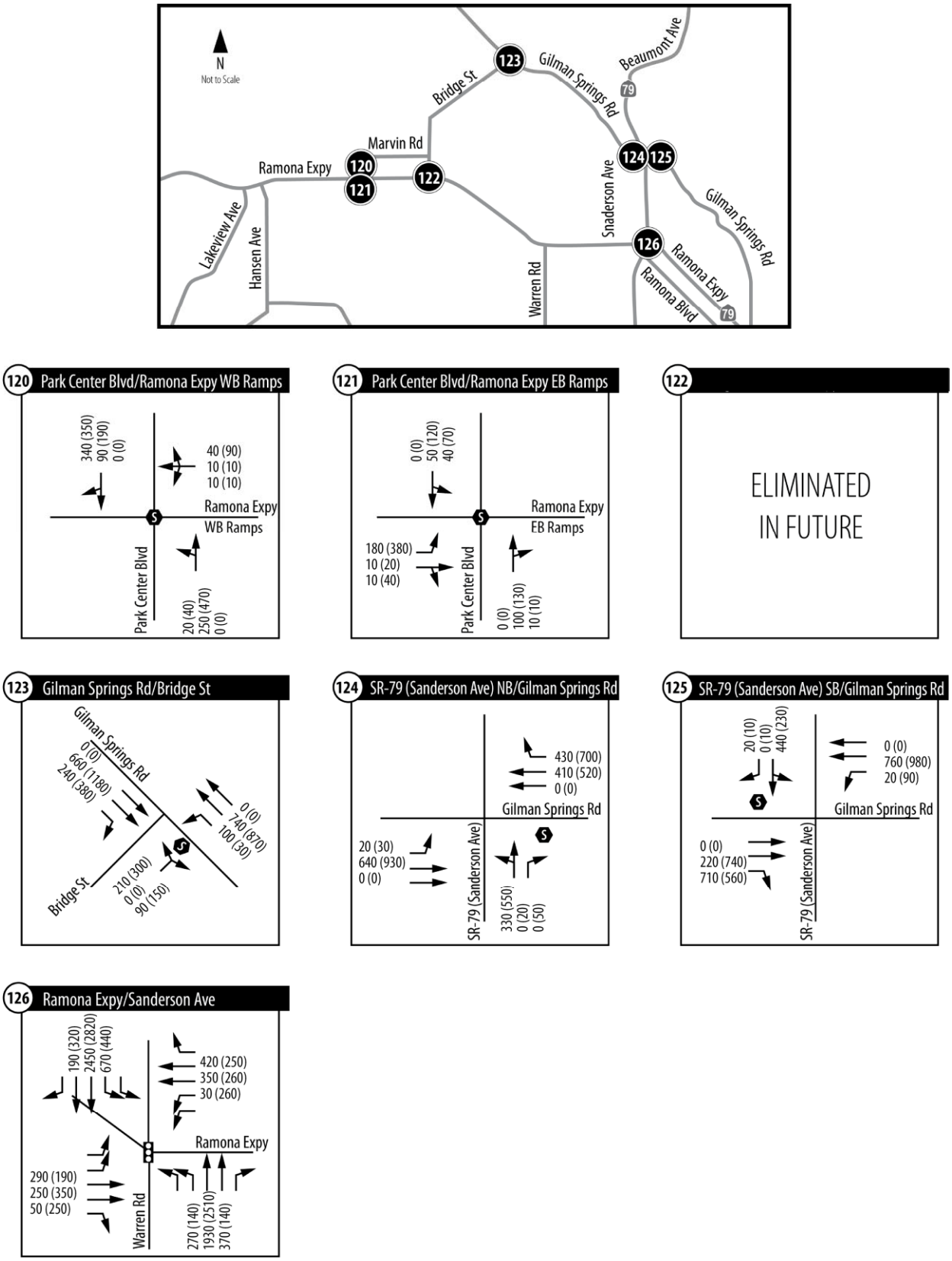



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (O)**

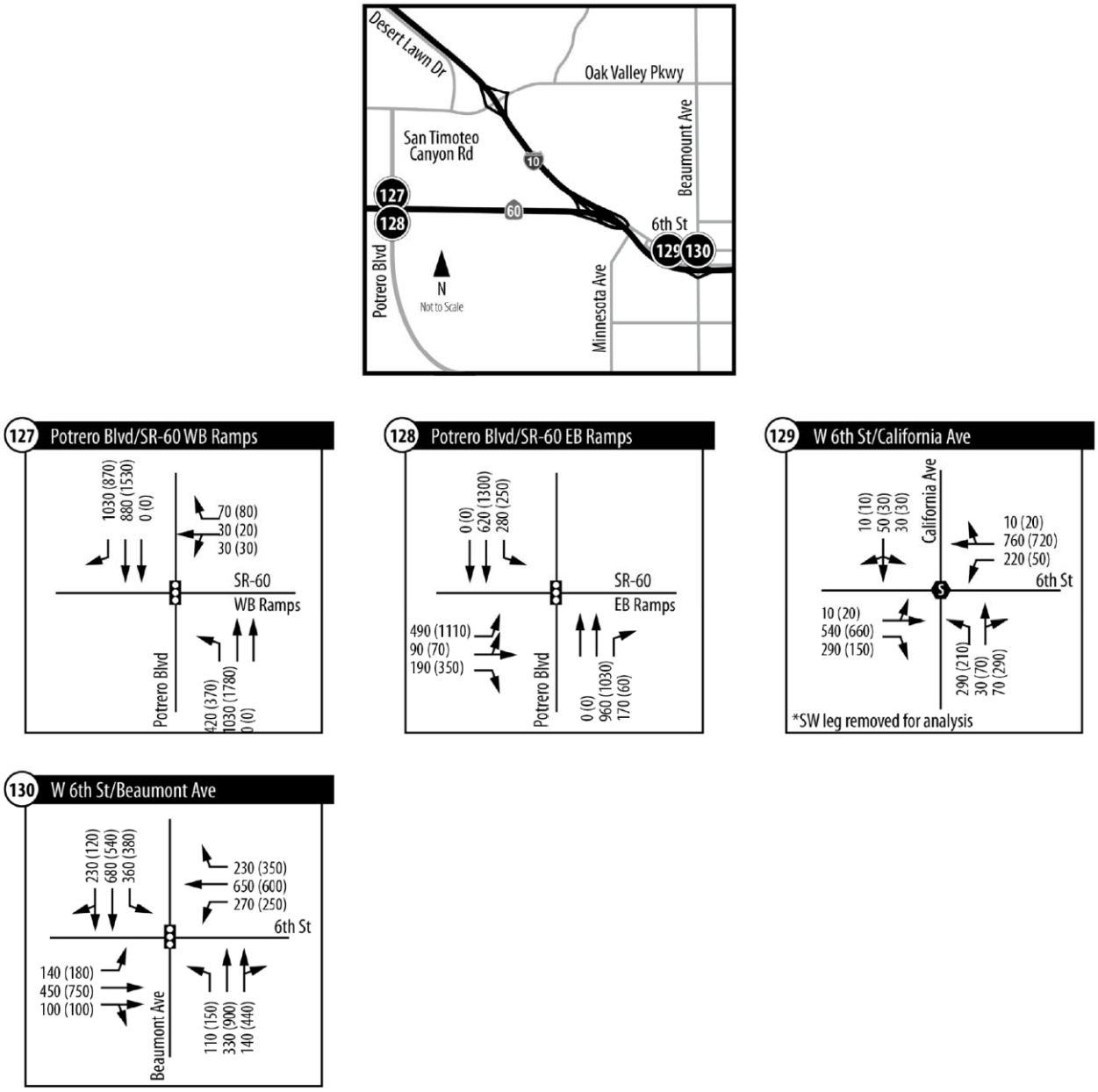



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (P)**

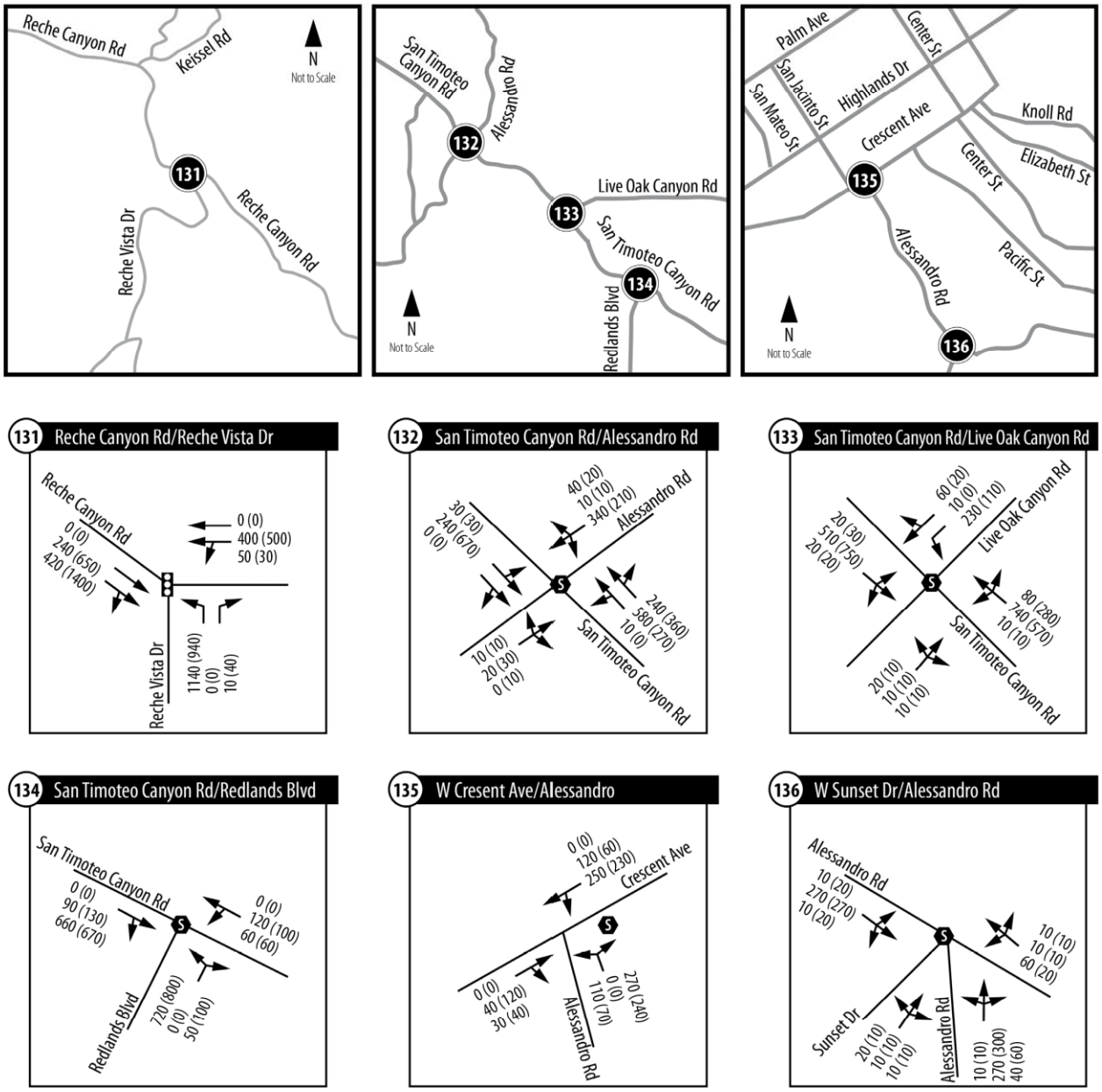



**Figure 52: Turning Movement Volumes under 2035 No-Project Conditions (Q)**

## B. 2035 NO-PROJECT LEVEL OF SERVICE

### *Roadway Segment Analysis*

Table 59 shows the LOS for study roadway segments under 2035 No-Project conditions.

**Table 59: LOS of Study Road Segments under 2035 No-Project Conditions**

| | Roadway | From | To | LOS Standard* | Roadway Section** | Daily Volume | LOS |
|---|---|---|---|---|---|---|---|
| S-1 | Theodore Street (A) | SR-60 WB Ramps | Ironwood Avenue | D | 2U | 9,774 | C |
| S-2 | Theodore Street (A) | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 8,726 | B |
| S-3 | Fir (Eucalyptus) Ave. | Redlands Blvd | Theodore Street (A) | D | 2U | 6,847 | A |
| S-4 | Eucalyptus Ave (B) | Theodore Street (A) | Gilman Springs Rd | N/A | Future Road | | |
| S-5 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Street E | D | 2U | 3,295 | A |
| S-6 | Street E | Theodore Street (A) | Cactus Ave Extension | N/A | Future Road | | |
| S-7 | Street F | Theodore Street (A) | Alessandro Blvd (Street C) | N/A | Future Road | | |
| S-8 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Alessandro Blvd (Street C) | D | 2U | 3,437 | A |
| S-9 | Alessandro Blvd (Street E) | Merwin Street | Theodore Street (A) | D | 2U | 10,854 | D |
| S-10 | Cactus Ave Extension | Alessandro Blvd (Street E) | Cactus Ave. | N/A | Future Road | | |
| S-11 | Alessandro Blvd (Street C) | Theodore Street (A) | Street F | D | 2U | 7,437 | A |
| S-13 | Alessandro Blvd (Street C) | Street F | Gilman Springs Rd | D | 2U | 7,437 | A |
| S-14 | Alessandro Blvd | Moreno Beach Drive | Redlands Blvd | D | 4U | 6,373 | A |
| S-16 | Gilman Springs Rd | Alessandro Blvd (Street C) | Bridge Street | D | 6D | 49,434 | D |
| S-17 | Gilman Springs Rd | SR-60 | Alessandro Blvd (Street C) | D | 6D | 41,537 | C |
| S-18 | Redlands Blvd | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 4U | 13,411 | A |
| S-19 | Redlands Blvd | Fir (Eucalyptus) Ave. | Alessandro Blvd | C | 4U | 7,665 | A |
| S-20 | Alessandro Blvd | Redlands Blvd | Merwin Street | C | 4U | 11,038 | A |
| S-21 | Redlands Blvd | Alessandro Blvd | Cactus Ave. | C | 4U | 11,511 | A |
| S-22 | Cactus Ave. | Redlands Blvd | Cactus Ave Extension | C | 4U | 1,144 | A |

* LOS Standard is "C" in residential areas and "D" for roads in employment-generating areas or near freeways

** Section is the number of lanes, with "U" for "undivided" and "D" for "Divided" roadways

Indicates volume-to-capcity (V/C) ratio greater than 1.00

In this scenario Gilman Springs Rd. and Redlands Blvd. are assumed to have been widened in accordance with General Plan policy to six and four lanes respectively. Under these conditions all study street segments would be within the target LOS.

### *Intersection LOS*

Table 60 presents the LOS for the study intersections under 2035 No-Project conditions in the AM and PM peak hours. Detailed worksheets are presented in Appendix G. The number of intersections that would exceed the target LOS rose from 12 under Existing Conditions to 32 under 2022 No-Project Conditions to 36 under 2035 No-Project Conditions due to population and employment growth. The intersections that would operate exceed the target LOS are:

- Theodore St./Ironwood Ave. (PM)
- Theodore St./SR-60 WB ramps (AM, PM)
- Theodore St./SR-60 EB ramps (PM)

- Theodore Ave./Fir (Eucalyptus) Ave. (PM)
- Redlands Blvd./Alessandro Blvd. (AM, PM)
- Moreno Beach Dr./Locust Ave. (AM, PM)
- Moreno Beach Dr./SR-60 EB Ramps (AM, PM)
- Iris Ave./Perris Blvd. (AM, PM)
- Kitching St./Iris Ave. (AM, PM)
- Lasselle St./Iris Ave. (PM)
- Lasselle St./Cactus Ave. (AM)
- Graham St./Alessandro Blvd. (PM)
- Indian St./Cactus Ave. (PM)
- Alessandro Blvd./Sycamore Canyon Blvd. (PM)
- I-215 SB Ramps/Cactus Ave. (PM)
- I-215 NB Ramps/Cactus Ave. (AM, PM)
- Elsworth St./Cactus Ave. (AM, PM)
- Central Ave./Lochmoor Dr. (PM)
- Alessandro Blvd./Mission Grove Pkwy. (PM)
- Martin Luther King Blvd./I-215 NB Ramps (AM)
- Central Ave./Chicago Ave. (PM)
- Central Ave./Canyon Crest Dr. (PM)
- Arlington Ave./Riverside Ave./SR-91 SB Ramps (PM)
- Arlington Ave./Victoria Ave. (AM, PM)
- Alessandro Blvd./Chicago Ave. (AM, PM)
- Alessandro Blvd./Canyon Crest Dr. (AM, PM)
- Ramona Expwy./Indian St. (AM, PM)
- Evans Rd./Rider St. (AM)
- Gilman Springs Rd./Bridge St. (AM, PM)
- SR-79 (Sanderson Ave.) NB/Gilman Springs Rd. (AM, PM)

- SR-79 (Sanderson Ave.) SB/Gilman Springs Rd. (AM, PM)
- W 6th St./California Ave. (AM, PM)
- W 6th St./Beaumont Ave. (AM, PM)
- Reche Canyon Rd./Reche Vista Rd. (AM, PM)
- San Timoteo Canyon Rd./Live Oak Canyon Rd. (AM, PM)
- Redlands Blvd./San Timoteo Canyon Rd. (AM, PM)

## Table 60: 2035 No-Project Conditions at Study Intersections

| ID | Study Intersection | LOS Standard | Traffic Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| IN-1 | Theodore St/Street F | - | N/A | Non-Existent | | Non-Existent | |
| IN-2 | Cactus Ave Extension/Street E | - | N/A | Non-Existent | | Non-Existent | |
| IN-3 | Theodore St/Alessandro (Str A/Str C/Str E) | D | CSS | 20.9 | C | 19.6 | C |
| IN-4 | Alessandro Blvd (Street C)/Street F | - | N/A | Non-Existent | | Non-Existent | |
| IN-6 | Alessandro Blvd (Street C)/Gilman Springs Rd | D | SIGNAL | 11.7 | B | 37.7 | D |
| IN-9 | Gilman Springs Rd/Eucalytpus Ave | - | N/A | Non-Existent | | Non-Existent | |
| IN-10 | Redlands Blvd/Locust Ave | C | SIGNAL | 5.4 | A | 16.6 | B |
| IN-11 | Redlands Blvd/Ironwood Ave | D | SIGNAL | 45.0 | D | 48.2 | D |
| IN-12 | Theodore Street/Ironwood Avenue | D | CSS | 22.9 | C | > 180.0 | **F** |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | SIGNAL | 5.7 | A | 7.5 | A |
| IN-14 | Redlands Blvd/SR-60 EB ramps | D | SIGNAL | 5.1 | A | 7.3 | A |
| IN-15 | Theodore Str/SR-60 WB ramps | D | CSS | 62.2 | **F** | 173.7 | **F** |
| IN-16 | Theodore Str/SR-60 EB ramps | D | CSS | 13.5 | B | > 180.0 | **F** |
| IN-17 | Quincy Str/Fir Ave | D | CSS | 9.6 | A | 12.6 | B |
| IN-18 | Redlands Blvd/Eucalyptus Ave (Fir) | D | SIGNAL | 7.2 | A | 15.6 | B |
| IN-19 | Theodore St/Fir Ave (Eucalyptus) | D | CSS | 10.5 | B | 68.9 | **F** |
| IN-20 | Oliver Str/Alessandro Blvd | C | CSS | 20.0 | C | 21.6 | C |
| IN-21 | Moreno Beach Dr/Alessandro Blvd | D | SIGNAL | 17.3 | B | 20.2 | C |
| IN-22 | Quincy Str/Alessandro Blvd | C | SIGNAL | 4.2 | A | 3.7 | A |
| IN-23 | Redlands Blvd/Alessandro Blvd | C | AWS | 137.4 | **F** | 74.7 | **F** |
| IN-24 | Oliver Str/Cactus Ave | D | SIGNAL | 22.3 | C | 20.2 | C |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | SIGNAL | 20.3 | C | 29.7 | C |
| IN-26 | Quincy Str/Cactus Ave | C | SIGNAL | 3.9 | A | 3.7 | A |
| IN-27 | Redlands Blvd/Cactus Ave | C | AWS | 14.3 | B | 13.5 | B |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | SIGNAL | 23.5 | C | 16.6 | B |
| IN-29 | Heacock Str/Ironwood Ave | D | SIGNAL | 31.6 | C | 35.2 | D |
| IN-30 | Heacock Str/SR-60 WB Ramps | D | SIGNAL | 30.5 | C | 23.1 | C |
| IN-31 | Heacock St/SR-60 EB Ramps | D | SIGNAL | 12.3 | B | 19.4 | B |
| IN-32 | Sunnymead Blvd & Perris Blvd | D | SIGNAL | 31.8 | C | 39.7 | D |
| IN-33 | Perris Blvd/SR-60 WB Ramps | D | SIGNAL | 22.5 | C | 17.1 | B |
| IN-34 | Perris Blvd/Eucalyptus Ave | D | SIGNAL | 21.8 | C | 24.7 | C |
| IN-35 | Moreno Beach Dr/Locust Ave | C | CSS | 29.4 | **D** | 37.9 | **E** |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | SIGNAL | 46.6 | D | 50.4 | D |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | SIGNAL | 113.9 | **F** | 155.8 | **F** |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | SIGNAL | 28.8 | C | 31.6 | C |
| IN-39 | Iris Ave/Perris Blvd | D | SIGNAL | 58.6 | **E** | 63.8 | **E** |
| IN-40 | Kitching St/Iris Ave | C | SIGNAL | 65.8 | **E** | 126.3 | **F** |
| IN-41 | Lasselle Str/Iris Ave | D | SIGNAL | 35.0 | C | 79.2 | **E** |
| IN-42 | Nason Str/Iris Ave | C | SIGNAL | 18.5 | B | 21.7 | C |
| IN-43 | Oliver Str/Iris Ave | D | SIGNAL | 24.5 | C | 25.1 | C |
| IN-44 | Via Dell Lago/Iris Ave | C | SIGNAL | 7.0 | A | 7.2 | A |
| IN-45 | Krameria Ave/Perris Blvd | D | SIGNAL | 27.8 | C | 52.6 | D |
| IN-46 | Kitching Str/Krameria Ave | D | SIGNAL | 35.3 | D | 41.7 | D |
| IN-47 | Lasselle Str/Krameria Ave | D | SIGNAL | 32.2 | C | 14.5 | B |
| IN-48 | Kitching Str/Alessandro Blvd | D | SIGNAL | 26.5 | C | 28.1 | C |

## Table 60: 2035 No-Project Conditions at Study Intersections (continued)

| ID | Study Intersection | LOS Standard | Traffic Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| IN-49 | Lasselle Str/Alessandro Blvd | D | SIGNAL | 19.8 | B | 23.7 | C |
| IN-50 | Morrison Str/Alessandro Blvd | D | SIGNAL | 25.5 | C | 26.2 | C |
| IN-51 | Nason Str/Alessandro Blvd | D | SIGNAL | 31.1 | C | 28.3 | C |
| IN-52 | Kitching Str/Cactus Ave | C | SIGNAL | 30.7 | C | 28.5 | C |
| IN-53 | Lasselle Str/Cactus Ave | C | SIGNAL | 38.5 | **D** | 34.8 | C |
| IN-54 | Morrison Str/Cactus Ave | D | SIGNAL | 6.1 | A | 8.6 | A |
| IN-55 | Nason Str/Cactus Ave | D | SIGNAL | 36.1 | D | 47.6 | D |
| IN-56 | Frederick Str/Alessandro Blvd | D | SIGNAL | 19.2 | B | 34.5 | C |
| IN-57 | Graham Str/Alessandro Blvd | D | SIGNAL | 35.6 | D | 88.9 | **F** |
| IN-58 | Heacock Str/Alessandro Blvd | D | SIGNAL | 29.6 | D | 29.5 | C |
| IN-59 | Indian Str/Alessandro Blvd | D | SIGNAL | 21.7 | C | 37.1 | D |
| IN-60 | Perris Blvd/Alessandro Blvd | D | SIGNAL | 32.8 | C | 41.4 | D |
| IN-61 | Frederick Str/Cactus Ave | D | SIGNAL | 9.7 | A | 12.5 | B |
| IN-62 | Graham Str/Cactus Ave | D | SIGNAL | 22.7 | C | 42.1 | D |
| IN-63 | Heacock Str/Cactus Ave | D | SIGNAL | 31.6 | C | 27.2 | C |
| IN-64 | Indian Str/Cactus Ave | C | SIGNAL | 32.6 | C | 36.3 | **D** |
| IN-65 | Perris Blvd/Cactus Ave | D | SIGNAL | 39.2 | D | 32.5 | C |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | SIGNAL | 37.5 | D | 81.2 | **F** |
| IN-67 | I-215 SB Ramps/Alessandro Blvd | D | SIGNAL | 6.6 | A | 11.5 | B |
| IN-68 | I-215 NB Ramps/Alessandro Blvd | D | SIGNAL | 21.9 | C | 32.8 | C |
| IN-69 | Old 215 Frontage Rd/Alessandro Blvd | D | SIGNAL | 15.1 | B | 16.4 | B |
| IN-70 | Day Str/Alessandro Blvd | D | SIGNAL | 22.6 | C | 28.2 | C |
| IN-71 | Elsworth Str/Alessandro Blvd | D | SIGNAL | 28.4 | C | 52.4 | D |
| IN-72 | I-215 SB Ramps/Cactus Ave | D | SIGNAL | 37.6 | D | 144.8 | **F** |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | SIGNAL | 71.1 | **E** | 122.6 | **F** |
| IN-74 | Elsworth Str/Cactus Ave | D | SIGNAL | > 180.0 | **F** | > 180.0 | **F** |
| IN-75 | Central Ave/Lochmoor Dr. | D | SIGNAL | 16.2 | B | 77.5 | **E** |
| IN-76 | Sycamore Canyon Blvd/Central Ave | D | SIGNAL | 28.6 | C | 26.8 | C |
| IN-77 | SR-60 EB Ramps/Central Ave | D | SIGNAL | 18.1 | B | 12.4 | B |
| IN-78 | SR-60 WB Ramps/Central Ave | D | SIGNAL | 6.7 | A | 7.0 | A |
| IN-79 | Alessandro Blvd/Trautwein Rd. | D | SIGNAL | 32.2 | C | 16.1 | B |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | SIGNAL | 28.0 | C | 73.7 | **E** |
| IN-81 | Martin Luther King Blvd/Chicago Ave | D | SIGNAL | 27.0 | C | 41.5 | D |
| IN-82 | Martin Luther King Blvd/Iowa Ave | D | SIGNAL | 11.3 | B | 14.8 | B |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | SIGNAL | 40.2 | D | 52.4 | D |
| IN-84 | Martin Luther King Blvd/I-215 SB Ramps | D | SIGNAL | 11.2 | B | 12.2 | B |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | AWS | 45.1 | **E** | 20.7 | C |
| IN-86 | Central Ave/Chicago Ave | D | SIGNAL | 46.8 | D | 79.0 | **E** |
| IN-87 | Central Ave/El Cerrito Dr | D | SIGNAL | 17.6 | B | 20.0 | B |
| IN-88 | Central Ave/Canyon Crest Dr | D | SIGNAL | 45.4 | D | 106.3 | **F** |
| IN-89 | Chicago Ave/Country Club Dr | D | SIGNAL | 11.2 | B | 12.9 | B |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | SIGNAL | 38.4 | D | 68.0 | **E** |
| IN-91 | Arlington Ave/Indiana Ave/SR-91 NB Ramps | D | SIGNAL | 20.5 | C | 26.8 | C |
| IN-92 | Arlington Ave/Maude St | D | SIGNAL | 14.1 | B | 10.7 | B |
| IN-93 | Horace St/Arlington Ave | D | SIGNAL | 37.4 | D | 25.5 | C |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

**Table 60: 2035 No-Project Conditions at Study Intersections (continued)**

| ID | Study Intersection | LOS Standard | Traffic Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|---|
| | | | | Delay | LOS | Delay | LOS |
| IN-94 | Arlington Ave/Victoria Ave | D | SIGNAL | 124.5 | **F** | 87.2 | **F** |
| IN-95 | Alessandro Blvd/Chicago Ave | D | SIGNAL | 57.4 | **E** | 111.2 | **F** |
| IN-96 | Alessandro Blvd/Century Ave | D | SIGNAL | 19.2 | B | 11.8 | B |
| IN-97 | Alessandro Blvd/Via Vista Dr | D | SIGNAL | 17.9 | B | 22.2 | C |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | SIGNAL | 56.6 | **E** | 131.0 | **F** |
| IN-99 | Harley Knox Blvd/Perris Blvd | D | SIGNAL | 33.5 | C | 48.0 | D |
| IN-100 | Harley Knox Blvd/Evan Rd | D | SIGNAL | 16.1 | B | 23.8 | C |
| IN-101 | Ramona Expy/Indian St | E | SIGNAL | 110.4 | **F** | > 180.0 | **F** |
| IN-102 | Ramona Expy/Perris Blvd | E | SIGNAL | 49.2 | D | 58.5 | E |
| IN-103 | Ramona Expy/Evans Rd | E | SIGNAL | 60.6 | E | 46.2 | D |
| IN-104 | Perris Blvd/Morgan St | D | SIGNAL | 11.9 | B | 9.9 | A |
| IN-105 | Evans Rd/Morgan St | C | SIGNAL | 28.1 | C | 21.8 | C |
| IN-106 | Perris Blvd/Rider St | C | SIGNAL | 23.4 | C | 30.1 | C |
| IN-107 | Evans Rd/Rider St | C | SIGNAL | 36.3 | **D** | 34.5 | C |
| IN-108 | Perris Blvd/Mid-County Pkwy WB Ramps | D | SIGNAL | 32.7 | C | 22.6 | C |
| IN-109 | Perris Blvd/Mid-County Pkwy EB Ramps | D | SIGNAL | 28.3 | C | 36.2 | D |
| IN-110 | Evans Rd/Mid-County Pkwy WB Ramps | D | SIGNAL | 25.7 | C | 21.3 | C |
| IN-111 | Evans Rd/Mid-County Pkwy EB Ramps | D | SIGNAL | 18.1 | B | 24.9 | C |
| IN-112 | Placentia Ave/Perris Blvd | D | SIGNAL | 29.3 | C | 34.2 | C |
| IN-113 | Evans Rd/Placentia Ave | D | SIGNAL | 7.3 | A | 7.4 | A |
| IN-114 | Evans Rd/Orange Ave | C | SIGNAL | 25.5 | C | 25.3 | C |
| IN-115 | Evans Rd/Nuevo Rd | C | SIGNAL | 31.8 | C | 31.2 | C |
| IN-116 | Evans Rd/Ellis Ave | D | SIGNAL | 12.7 | B | 13.6 | B |
| IN-117 | Ellis Ave/I-215 SB Ramps | E | SIGNAL | 26.5 | C | 28.3 | C |
| IN-118 | Ellis Ave/SR-215 NB Ramps | E | SIGNAL | 22.2 | C | 34.3 | C |
| IN-119 | Evans Rd/San Jacinto Ave | D | SIGNAL | 21.1 | C | 22.7 | C |
| IN-120 | Park Center Blvd/Ramona Expy WB Ramps | D | CSS | 11.8 | B | 15.3 | C |
| IN-121 | Park Center Blvd/Ramona Expy EB Ramps | D | CSS | 11.6 | B | 23.1 | C |
| IN-122 | Bridge St/Ramona Expy | - | N/A | Non-Existent | | Non-Existent | |
| IN-123 | Gilman Springs Rd/Bridge Str | C | CSS | > 180.0 | **F** | > 180.0 | **F** |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | CSS | > 180.0 | **F** | > 180.0 | **F** |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | CSS | > 180.0 | **F** | > 180.0 | **F** |
| IN-126 | Ramona Expy/Sanderson Ave | D | SIGNAL | 43.9 | D | 39.9 | D |
| IN-127 | Potrero Blvd/SR-60 WB Ramps | D | SIGNAL | 21.3 | C | 15.3 | B |
| IN-128 | Potrero Blvd/SR-60 EB Ramps | D | SIGNAL | 20.3 | C | 31.3 | C |
| IN-129 | W 6th St/California Ave | C | AWS | 146.4 | **F** | 178.3 | **F** |
| IN-130 | W 6th St/Beaumont Ave | C | SIGNAL | 35.5 | **D** | 94.4 | **F** |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | SIGNAL | 42.2 | **D** | 100.9 | **F** |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | AWS | 26.4 | D | 22.2 | C |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | AWS | 127.6 | **F** | 127.7 | **F** |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | AWS | 140.5 | **F** | > 180.0 | **F** |
| IN-135 | W Crescent Ave/Alessandro Rd | C | CSS | 17.6 | C | 14.7 | B |
| IN-136 | W Sunset Dr/Alessandro Rd | C | AWS | 10.2 | B | 10.4 | B |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

***Freeway Mainline Basic Sections***

Table 61 presents the results of the LOS analysis for freeway mainline sections. A total of 57 freeway mainline basic sections were forecast to exceed the target LOS of "D", up from 33 under 2022 No-Project conditions, and 17 under Existing No-Project conditions due to employment and population growth. The sections that would exceed the target LOS would be:

North or Eastbound

- SR-60 from Reservoir St. to Ramona Ave.
- SR-60 from Ramona Ave. to Central Ave.
- SR-60 from Central Ave. to Mountain Ave.
- SR-60 from Mountain Ave. to Euclid Ave.
- SR-60 from Euclid Ave. to Grove Ave.
- SR-60 from Grove Ave. to Vineyard Ave.
- SR-60 from Vineyard Ave. to Archibald Ave.
- SR-60 from Archibald Ave. to Haven Ave.
- SR-60 from Valley Way to Rubidoux Blvd.
- SR-60 from Rubidoux Blvd. to Market St.
- SR-60 from Market St. to Main St.
- SR-60 from Martin Luther King Blvd. to Central Ave.
- SR-60 from Pigeon Pass Rd./Frederick St. to Heacock St.
- SR-60 from Heacock St. to Perris Blvd.
- SR-60 from Redlands Blvd. to Theodore St.
- SR-60 from Gilman Springs Rd. to Jack Rabbit Trail
- SR-60 from Jack Rabbit Trail to Potrero Blvd.
- SR-91 from I-15 to McKinley St.
- SR-91 from Pierce St. to Magnolia Ave.
- SR-91 from La Sierra Ave. to Tyler St.
- SR-91 from Adam St. to Madison St.

- SR-91 from Central Ave. to 14th St.
- I-10 from SR-60 to Beaumont Ave.
- I-10 from Beaumont Ave. to Pennsylvania Ave.
- I-10 from Pennsylvania Ave. to Highland Springs
- I-10 from Highland Springs Ave. to Sunset Ave.
- I-10 from S. Hargrave St. to Field Rd.
- I-10 from Morongo Trail to Main St.
- I-215 from Scott Rd. to Garbani Rd.
- I-215 from SR-74 to Ellis Ave.
- I-215 from Ellis Ave. to Redlands Ave.

South or Westbound

- SR-60 from Reservoir St. to Ramona Ave.
- SR-60 from Ramona Ave. to Central Ave.
- SR-60 from Mountain Ave. to Euclid Ave.
- SR-60 from Euclid Ave. to Grove Ave.
- SR-60 from Grove Ave. to Vineyard Ave.
- SR-60 from Valley Way to Rubidoux Blvd.
- SR-60 from Market St. to Main St.
- SR-60 from Main St. to SR-91
- SR-60 from Fair Isle Dr./Box Springs Rd. to I-215
- SR-60 from I-215 to Day St.
- SR-60 from Pigeon Pass Rd. to Heacock St.
- SR-60 from Redlands Blvd. to Theodore St.
- SR-91 from Pierce St. to Magnolia Ave.
- SR-91 from Magnolia Ave. to La Sierra Ave.
- SR-91 from La Sierra Ave. to Tyler St.
- SR-91 from Tyler St. to Van Buren Blvd.

- SR-91 from Madison St. to Indiana Ave.
- I-10 from SR-60 to Beaumont Ave.
- I-10 from Pennsylvania Ave. to Highland Springs Ave.
- I-10 from Highland Springs Ave. to Sunset Ave.
- I-10 from S. 8th St. to S. Hargrave St.
- I-215 from Ethanac Rd. to SR-74
- I-215 from SR-74 to Ellis Ave.
- I-215 from Ellis Ave. to Redlands Ave.
- I-215 from Center St. to Iowa Ave./La Cadena Dr.
- I-215 from Baseline Rd. to Highland Ave.

## Table 61: 2035 No-Project Freeway Mainline Level of Service

| ID | Freeway | Segment | Northbound / Eastbound | | | | | | Southbound / Westbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-2 | SR-60 | Reservoir St to Ramona Ave | 8,560 | 41.2 | E | 8,750 | 43.6 | E | 8,770 | 43.3 | E | 7,840 | 34.6 | D |
| F-3 | SR-60 | Ramona Ave to Central Ave | 8,190 | 37.8 | E | 10,230 | 66.5 | F | 8,080 | 37.2 | E | 7,720 | 33.7 | D |
| F-4 | SR-60 | Central Ave to Mountain Ave | 8,900 | 44.8 | E | 10,210 | 66.0 | F | 6,340 | 25.4 | C | 7,580 | 32.7 | D |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | 8,780 | 43.4 | E | 7,590 | 33.3 | D | 6,230 | 25.2 | C | 8,250 | 37.9 | E |
| F-6 | SR-60 | Euclid Ave to Grove Ave | 9,920 | 59.3 | F | 9,680 | 56.0 | F | 6,470 | 26.1 | D | 7,950 | 35.5 | E |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | 9,210 | 48.5 | F | 10,050 | 62.7 | F | 6,280 | 25.0 | C | 8,150 | 37.1 | E |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | 9,080 | 46.3 | F | 10,210 | 66.0 | F | 7,660 | 33.3 | D | 7,640 | 33.1 | D |
| F-9 | SR-60 | Archibald Ave to Haven Ave | 8,430 | 39.5 | E | 7,330 | 31.5 | D | See Weaving Analysis | | | See Weaving Analysis | | |
| F-10 | SR-60 | Haven Ave to Milliken Ave | 8,430 | 27.5 | D | 8,110 | 26.4 | D | 6,510 | 20.3 | C | 7,970 | 25.6 | C |
| F-11 | SR-60 | Milliken Ave to I-15 | 5,160 | 19.8 | C | 4,530 | 17.4 | B | 5,460 | 21.0 | C | 7,180 | 29.8 | D |
| F-12 | SR-60 | I-15 to Etiwanda Ave/Van Buren Blvd | 4,140 | 15.9 | B | 2,740 | 10.6 | A | 4,840 | 14.9 | B | 6,360 | 19.4 | C |
| F-13 | SR-60 | Etiwanda Ave/Van Buren Blvd to Mission | 4,950 | 19.1 | C | 4,170 | 16.1 | B | 4,220 | 16.1 | B | 5,620 | 21.6 | C |
| F-14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 4,380 | 16.8 | B | 3,150 | 12.2 | B | 4,140 | 15.9 | B | 5,660 | 21.8 | C |
| F-15 | SR-60 | Pedley Rd to Pyrite St | 4,620 | 17.8 | B | 3,610 | 13.9 | B | 3,260 | 12.5 | B | 4,820 | 18.3 | C |
| F-16 | SR-60 | Pyrite St to Valley Way | 5,060 | 19.5 | C | 3,880 | 15.0 | B | 2,470 | 9.5 | A | 3,930 | 14.9 | B |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | 6,160 | 38.0 | E | 3,850 | 19.9 | C | 4,560 | 24.1 | C | 6,360 | 39.6 | E |
| F-18 | SR-60 | Rubidoux Blvd to Market St | 6,490 | 42.1 | E | 4,210 | 22.2 | C | 3,410 | 17.5 | B | 5,120 | 27.7 | D |
| F-19 | SR-60 | Market St to Main St | 6,020 | 36.4 | E | 6,620 | 44.9 | E | 5,530 | 31.5 | D | 6,280 | 38.7 | E |
| F-20 | SR-60 | Main to SR-91 | See Weaving Analysis | | | See Weaving Analysis | | | 5,320 | 29.7 | D | 6,310 | 39.0 | E |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | 9,500 | 59.8 | F | 9,860 | 70.8 | F | 8,330 | 30.8 | D | 8,980 | 33.3 | D |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 6,090 | 24.2 | C | 5,790 | 22.9 | C | 7,500 | 33.2 | D | 8,970 | 46.6 | F |
| F-27 | SR-60 | I-215 to Day St | See Weaving Analysis | | | See Weaving Analysis | | | 7,050 | 50.4 | F | 3,590 | 18.6 | C |
| F-29 | SR-60 | Pigeon Pass Rd to Heacock St | 3,330 | 27.3 | D | 4,120 | 38.2 | E | 3,650 | 31.3 | D | 3,910 | 35.0 | E |
| F-30 | SR-60 | Heacock St to Perris Blvd | 3,020 | 24.1 | C | 4,200 | 39.6 | E | 3,560 | 30.1 | D | 3,410 | 28.3 | D |
| F-31 | SR-60 | Perris Blvd to Nason St | 2,670 | 20.9 | C | 3,520 | 29.4 | D | 3,330 | 27.3 | D | 2,780 | 21.9 | C |
| F-33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 2,480 | 19.2 | C | 3,130 | 25.0 | C | 3,150 | 25.2 | C | 2,680 | 20.9 | C |
| F-34 | SR-60 | Redlands Blvd to Theodore St | 3,200 | 25.9 | C | 4,500 | 45.4 | F | 4,010 | 36.3 | E | 3,530 | 29.7 | D |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 2,420 | 20.1 | C | 4,430 | 53.0 | F | 3,350 | 30.5 | D | 2,920 | 25.2 | C |
| F-37 | SR-60 | Jack Rabbit Trail to Potrero Blvd | 2,500 | 19.5 | C | 4,750 | 51.8 | F | 3,690 | 31.6 | D | 3,010 | 24.0 | C |
| F-38 | SR-60 | Potrero Blvd to I-10 | 2,300 | 17.8 | B | 3,620 | 30.6 | D | 2,360 | 18.2 | C | 1,930 | 15.0 | B |
| F-39 | SR-91 | I-15 to McKinley St | 8,140 | 26.3 | D | 11,870 | 52.4 | F | 8,590 | 28.6 | D | 8,630 | 28.6 | D |
| F-40 | SR-91 | McKinley St to Pierce St | 6,990 | 29.1 | D | 6,910 | 29.0 | D | 6,550 | 26.9 | D | 7,440 | 32.0 | D |
| F-41 | SR-91 | Pierce St to Magnolia Ave | 6,430 | 41.3 | E | 6,360 | 41.2 | E | 6,260 | 39.9 | E | 9,000 | 144.5 | F |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | See Weaving Analysis | | | See Weaving Analysis | | | 6,130 | 38.3 | E | 8,600 | 107.0 | F |
| F-43 | SR-91 | La Sierra Ave to Tyler St | 6,170 | 38.1 | E | 6,250 | 39.8 | E | 5,460 | 31.4 | D | 6,390 | 40.8 | E |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | 7,250 | 30.7 | D | 6,950 | 29.2 | D | 6,880 | 28.8 | D | 7,970 | 35.9 | E |

## Table 61: 2035 No-Project Freeway Mainline Level of Service (continued)

| ID | Freeway | Segment | Northbound / Eastbound | | | | | | Southbound / Westbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-45 | SR-91 | Van Buren Blvd to Adam St | 7,270 | 30.8 | D | 6,290 | 25.5 | C | 6,590 | 27.1 | D | 7,720 | 34.0 | D |
| F-46 | SR-91 | Adam St to Madison St | 7,980 | 36.6 | **E** | 6,030 | 24.3 | C | 6,270 | 25.4 | C | 6,970 | 29.0 | D |
| F-47 | SR-91 | Madison St to Arlington Ave | 7,000 | 29.6 | D | 5,390 | 21.4 | C | 5,540 | 32.1 | D | 6,290 | 39.5 | **E** |
| F-49 | SR-91 | Central Ave to 14th St | 6,400 | 40.9 | **E** | 5,730 | 33.4 | D | 5,290 | 20.8 | C | 5,460 | 21.2 | C |
| F-51 | SR-91 | University Ave to Spruce St | 8,160 | 26.4 | D | 7,420 | 23.4 | C | See Weaving Analysis | | | See Weaving Analysis | | |
| F 66 | I 215 | Scott Rd to Garbani Rd | 3,350 | 17.2 | B | 6,010 | 36.0 | **E** | 5,470 | 30.8 | D | 4,160 | 21.5 | C |
| F-84 | I-215 | Garbani Rd to Newport Rd | 3,150 | 16.1 | B | 5,680 | 32.9 | D | 4,950 | 26.6 | D | 4,040 | 20.9 | C |
| F-68 | I-215 | Newport Rd to McCall Blvd | 2,910 | 15.0 | B | 4,610 | 24.4 | C | 5,020 | 27.2 | D | 5,240 | 28.9 | D |
| F-69 | I-215 | McCall Blvd to Ethanac Rd | 3,530 | 18.1 | C | 5,570 | 31.9 | D | 5,400 | 30.4 | D | 4,800 | 25.6 | C |
| F-70 | I-215 | Ethanac Rd to SR-74 | 5,240 | 29.1 | D | 5,650 | 32.6 | D | 5,390 | 30.3 | D | 6,220 | 38.3 | **E** |
| F-71 | I-215 | SR-74 to Ellis Ave | 5,200 | 28.7 | D | 6,760 | 46.1 | **F** | 7,170 | 53.3 | **F** | 5,980 | 35.6 | **E** |
| F-85 | I-215 | Ellis Ave to Redlands Ave | 4,820 | 25.9 | C | 6,200 | 38.4 | **E** | 6,560 | 43.1 | **E** | 5,490 | 31.2 | D |
| F-74 | I-215 | Columbia Ave to Center St | 4,110 | 21.6 | C | 3,350 | 17.5 | B | 5,000 | 27.4 | D | 3,680 | 19.1 | C |
| F-75 | I-215 | Center St to La Cadena Dr | 4,940 | 26.9 | D | 4,270 | 22.7 | C | 5,970 | 35.8 | **E** | 4,690 | 25.1 | C |
| F-76 | I-215 | La Cadena Dr to Barton Rd | 4,880 | 26.5 | D | 4,310 | 22.8 | C | 5,060 | 27.8 | D | 3,780 | 19.7 | C |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | 5,320 | 29.9 | D | 4,700 | 25.4 | C | 5,540 | 31.6 | D | 4,210 | 22.2 | C |
| F-78 | I-215 | Mt. Vernon Ave to I-10 | 5,110 | 19.8 | C | 5,720 | 22.5 | C | 6,480 | 26.2 | D | 5,210 | 20.3 | C |
| F-80 | I-215 | Auto Plaza Dr to Mill St | 4,680 | 18.0 | B | 5,980 | 23.6 | C | 5,600 | 21.7 | C | 4,540 | 17.4 | B |
| F-83 | I-215 | Baseline Rd to Highland Ave | 3,260 | 16.8 | B | 4,890 | 26.4 | D | 6,910 | 48.0 | **F** | 5,450 | 30.8 | D |
| F-52 | I-10 | SR-60 to Beaumont Ave | 5,030 | 19.7 | C | 8,170 | 38.3 | **E** | 7,820 | 35.3 | **E** | 6,060 | 24.5 | C |
| F-53 | I-10 | Beaumont Ave to Pennsylvania Ave | 5,100 | 20.1 | C | 8,030 | 37.1 | **E** | 7,660 | 34.1 | D | 5,840 | 23.5 | C |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs Ave | 5,240 | 20.7 | C | 8,170 | 38.3 | **E** | 8,180 | 38.4 | **E** | 5,920 | 23.9 | C |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | 5,350 | 21.2 | C | 8,240 | 38.9 | **E** | 7,990 | 36.7 | **E** | 5,590 | 22.3 | C |
| F-56 | I-10 | Sunset Ave to 22nd St | 4,970 | 19.6 | C | 7,670 | 34.5 | D | 7,620 | 33.8 | D | 5,420 | 21.5 | C |
| F-57 | I-10 | 22nd St to 8th St | 4,880 | 19.3 | C | 7,480 | 33.0 | D | 7,680 | 34.5 | D | 5,130 | 20.3 | C |
| F-58 | I-10 | 8th St to Hargrave St | 5,000 | 19.7 | C | 7,770 | 34.9 | D | 7,790 | 35.4 | **E** | 5,370 | 21.4 | C |
| F-59 | I-10 | Hargrave St to Fields Rd | 4,770 | 18.8 | C | 7,970 | 36.9 | **E** | 7,610 | 34.0 | D | 5,000 | 19.8 | C |
| F-60 | I-10 | Fields Rd to Morongo Trail | 3,990 | 15.8 | B | 7,490 | 33.1 | D | 7,150 | 30.7 | D | 4,620 | 18.3 | C |
| F-61 | I-10 | Morongo Trail to Main St | 4,320 | 17.1 | B | 7,800 | 35.2 | **E** | 7,040 | 30.0 | D | 5,040 | 20.0 | C |
| F-62 | I-10 | Main St to Haugen-Lehmann Way | 4,080 | 16.1 | B | 7,530 | 33.1 | D | 7,070 | 30.2 | D | 4,410 | 17.4 | B |
| F-64 | I-10 | SR-111 to Tipton Rd | 3,660 | 14.5 | B | 7,320 | 31.7 | D | 6,420 | 26.2 | D | 4,860 | 19.2 | C |
| F-65 | I-10 | Tipton Rd to SR-62 | 3,700 | 14.6 | B | 7,330 | 31.7 | D | 6,430 | 26.2 | D | 4,870 | 19.2 | C |

Indicates that the LOS exceeds the target level

***Freeway Weaving LOS***

Table 62 shows the weaving LOS under 2035 No-Project conditions. Seven north- or east-bound sections and six south- or westbound sections would operate below LOS "D". These sections are:

North or Eastbound

- SR-60 from SR-71/Garey Ave. to Reservoir St.
- SR-60 from Main St. to SR-91
- SR-60 from SR-91 to W. Blaine St./3rd St.
- SR-60 from W. Blaine St./3rd St. to University Ave.
- SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.
- SR-60 from Theodore St. to Gilman Springs Rd.
- SR-91 from Arlington Ave. to Central Ave.

South or Westbound

- SR-60 from Haven Ave. to Archibald Ave.
- SR-60 from SR-91 to W. Blaine St./3rd St.
- SR-60 from W. Blaine St./3rd St. to University Ave.
- SR-60 from University Ave. to Martin Luther King Blvd.
- SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.
- I-10 from Haugen-Lehmann Way to SR-111

## Table 62: 2035 No-Project Freeway Weaving Section Level of Service

| ID | Freeway | Weaving Segment | Northbound / Eastbound | | | | | | Southbound / Westbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | 8,630 | 39.7 | E | 9,700 | 46.8 | E | 6,130 | 22.0 | C | 7,510 | 27.6 | C |
| W-9 | SR-60 | Haven Ave to Archibald Ave | See Basic Analysis | | | See Basic Analysis | | | 6,910 | 28.7 | D | 8,180 | 36.4 | E |
| W-20 | SR-60 | Main St to SR-91 | 7,060 | 34.1 | D | 7,110 | 35.1 | E | See Basic Analysis | | | See Basic Analysis | | |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | 7,280 | 32.4 | D | 10,640 | >Capacity | F | 8,490 | 33.7 | D | 9,970 | 40.9 | E |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | 7,120 | 28.9 | D | 8,460 | 38.7 | E | 6,320 | 24.3 | C | 8,890 | 35.8 | E |
| W-23 | SR-60 | University Ave to Martin Luther King | 7,960 | 30.0 | D | 7,040 | 26.4 | C | 6,750 | 28.2 | D | 8,830 | 36.9 | E |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | 7,890 | 37.0 | E | 8,640 | 40.5 | E | 8,340 | 38.1 | E | 9,200 | 39.2 | E |
| W-27 | SR-60 | I-215 to Day St | 3,980 | 16.3 | B | 6,210 | 27.7 | C | See Basic Analysis | | | See Basic Analysis | | |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 3,760 | 16.2 | B | 5,660 | 26.5 | C | 4,790 | 33.5 | D | 4,790 | 32.4 | D |
| W-32 | SR-60 | Moreno Beach Dr to Nason St | 2,640 | 16.5 | B | 3,480 | 22.6 | C | 3,310 | 20.5 | C | 2,680 | 16.2 | B |
| W-35 | SR-60 | Theodore St to Gilman Springs Rd | 3,070 | 17.5 | B | 5,710 | 37.9 | E | 4,560 | 32.0 | D | 3,680 | 24.2 | C |
| W-42 | SR-91 | Magnolia Ave to La Sierra Ave | 6,970 | 33.7 | D | 6,930 | 34.2 | D | See Basic Analysis | | | See Basic Analysis | | |
| W-48 | SR-91 | Arlington Ave to Central Ave | 7,620 | 41.0 | E | 4,370 | 21.3 | C | 5,160 | 24.9 | C | 5,760 | 27.4 | C |
| W-50 | SR-91 | 14th St to University Ave | 5,310 | 26.4 | C | 5,060 | 26.1 | C | 6,070 | 23.7 | C | 8,010 | 33.0 | D |
| W-51 | SR-91 | SR-60 to Mission Inn Ave/University Ave | See Basic Analysis | | | See Basic Analysis | | | 6,500 | 20.6 | C | 10,130 | 32.5 | D |
| W-73 | I-215 | SR-60 to Columbia Ave | 5,330 | 28.4 | D | 4,610 | 24.6 | C | 6,660 | 33.8 | D | 5,570 | 28.2 | D |
| W-79 | I-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 4,590 | 16.9 | B | 5,640 | 20.9 | C | 6,200 | 22.5 | C | 4,950 | 18.8 | B |
| W-81 | I-215 | Mill St to 2nd St | 5,190 | 18.3 | B | 6,460 | 23.5 | C | 6,360 | 23.4 | C | 4,980 | 18.3 | B |
| W-82 | I-215 | 5th St to Baseline Rd | 3,900 | 13.5 | B | 4,980 | 17.7 | B | 5,610 | 20.3 | C | 4,060 | 14.6 | B |
| W-63 | I-10 | Haugen-Lehmann Way to SR-111 | 4,170 | 14.4 | B | 8,420 | 33.1 | D | 7,270 | 29.0 | D | 5,500 | >Capacity | F |

Indicates that the LOS exceeds the target level

***Freeway Ramp LOS***

Table 63 shows the level of service of study freeway ramps under 2035 No-Project conditions. Eight ramps would exceed the target LOS of "D", compared to one under 2022 No-Project and Existing No-Project conditions. This is due to population and employment growth outpacing the growth of highway capacity. The ramps that would exceed LOS "D" under 2035 No-Project conditions would be:

- SR-60 eastbound On-Ramp from Central Ave.
- SR-60 eastbound Off-Ramp to Theodore St.
- SR-60 eastbound Loop On-Ramp from Theodore St.
- SR-60 eastbound Off-Ramp to Gilman Spring Rd.
- SR-60 eastbound On-Ramp from Gilman Spring Rd.
- SR-60 westbound Off-Ramp to Theodore St.
- SR-60 westbound On-Ramp from Theodore St.
- SR-60 westbound Loop On-Ramp from Redlands Blvd.

Details of the LOS calculations for freeways under 2035 No-Project Conditions can be found in Appendix N.

## Table 63: 2035 No-Project Freeway Ramp Level of Service

| ID | Freeway / Direction | Ramp Segment | Ramp No. of Lanes | AM Peak Hour | | | | PM Peak Hour | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS |
| R-1 | SR-60 EB | On-Ramp from Martin Luther King Blvd | 1 | 7,410 | 580 | 30.6 | D | 6,430 | 1,400 | 33.8 | D |
| R-2 | SR-60 EB | On-Ramp from Central Ave | 1 | 7,890 | 1,220 | 32.2 | **F** | 8,630 | 970 | 32.9 | **F** |
| R-3 | SR-60 EB | Off-Ramp to Redlands Blvd | 1 | 2,480 | 220 | 13.8 | B | 3,130 | 440 | 19.7 | B |
| R-4 | SR-60 EB | Loop On-Ramp from Redlands Blvd | 1 | 2,260 | 90 | 22.1 | C | 2,690 | 60 | 25.4 | C |
| R-5 | SR-60 EB | Direct On-Ramp from Redlands Blvd | 1 | 2,350 | 110 | 19.9 | B | 2,750 | 480 | 26.0 | C |
| R-6 | SR-60 EB | Off-Ramp to Theodore St | 1 | 3,200 | 270 | 25.0 | C | 4,500 | 150 | 36.7 | **F** |
| R-7 | SR-60 EB | Loop On-Ramp from Theodore St | 1 | 2,930 | 150 | 22.0 | C | 4,350 | 1,350 | 42.9 | **F** |
| R-8 | SR-60 EB | Direct On-Ramp from Theodore St | 0 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | |
| R-9 | SR-60 EB | Off-Ramp to Gilman Springs Rd | 2 | 3,070 | 840 | 19.4 | B | 5,710 | 1,570 | 35.8 | **E** |
| R-10 | SR-60 EB | On-Ramp from Gilman Springs Rd | 1 | 2,230 | 260 | 16.9 | B | 4,140 | 470 | 34.3 | **F** |
| R-11 | SR-60 WB | Off-Ramp to Gilman Springs Rd | 2 | 3,350 | 240 | 20.9 | C | 2,920 | 560 | 18.2 | B |
| R-12 | SR-60 WB | On-Ramp from Gilman Springs Rd | 1 | 3,110 | 1,330 | 32.2 | D | 2,360 | 1,140 | 24.6 | C |
| R-13 | SR-60 WB | Off-Ramp to Theodore St | 1 | 4,560 | 640 | 32.7 | **F** | 3,680 | 380 | 24.8 | C |
| R-14 | SR-60 WB | On-Ramp from Theodore St | 1 | 3,920 | 90 | 35.5 | **E** | 3,300 | 230 | 31.5 | D |
| R-15 | SR-60 WB | Off-Ramp to Redlands Blvd | 1 | 4,010 | 310 | 32.4 | D | 3,530 | 370 | 28.1 | D |
| R-16 | SR-60 WB | Loop On-Ramp from Redlands Blvd | 1 | 3,700 | 200 | 36.5 | **E** | 3,160 | 110 | 31.4 | D |
| R-17 | SR-60 WB | Direct On-Ramp from Redlands Blvd | 1 | 3,900 | 350 | 34.7 | D | 3,270 | 280 | 29.0 | D |
| R-18 | SR-60 WB | Off-Ramp to Central Ave | 2 | 8,340 | 480 | 32.0 | D | 9,200 | 540 | 35.0 | D |
| R-19 | SR-60 WB | Off-Ramp to Martin Luther King Blvd | 1 | 8,330 | 710 | 32.5 | D | 8,980 | 660 | 34.1 | D |

Indicates that the LOS exceeds the target level

# 10. 2035 PLUS BUILD-OUT CONDITIONS

The analysis of 2035 Plus Build-out Conditions shows the effect of project-related traffic if the WLC project were built-out in full and no other changes from the 2035 No-Project scenario occurred to the roadway system of land uses.

## A. ROAD SEGMENT LOS, IMPACTS, AND MITIGATIONS

Table 64 compares the LOS for study roadway segments under 2035 Plus Build-out Conditions to 2035 No-Project Conditions and to the target LOS under the City's General Plan policies. Under 2035 Plus Build-out Conditions traffic volumes on one segment would exceed the target LOS, namely:

- Gilman Springs Rd. from Alessandro Blvd. to Bridge St. would exceed the threshold of significance under 2035 Plus Build-out Conditions. Widening the road from six lanes to eight lanes would allow it to achieve the target under 2035 Plus Build-out Conditions. However, 6 lanes is the maximum planned for under the City of Moreno Valley General Plan and further widening may be undesirable from a public policy standpoint.

The feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## Table 64: 2035 Plus Build-out Road Segment Impacts and Mitigations

| | Roadway | From | To | LOS Standard* | 2035 No-Project Conditions | | | 2035 Plus Build-out Conditions | | | Project Significant Impact? | Mitigation Measures Required to Reduce Project Impacts to Less-Than-Significant | LOS After Mitigation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Roadway Section** | Daily Volume | LOS | Roadway Section* | Daily Volume | LOS | | | |
| S-1 | Theodore Street (A) | SR-60 WB Ramps | Ironwood Avenue | D | 2U | 9,774 | C | 2U | 10,267 | D | | | |
| S-2 | Theodore Street (A) | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 2U | 8,726 | B | 6D | 33,082 | A | | | |
| S-3 | Fir (Eucalyptus) Ave. | Redlands Blvd | Theodore Street (A) | D | 2U | 6,847 | A | 4D | 10,513 | A | | | |
| S-4 | Eucalyptus Ave (B) | Theodore Street (A) | Gilman Springs Rd | N/A | Future Road | | | 4D | 6,565 | A | | | |
| S-5 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Street E | D | 2U | 3,295 | A | 6D | 35,374 | B | | | |
| S-6 | Street E | Theodore Street (A) | Cactus Ave Extension | N/A | Future Road | | | 4U | 13,862 | A | | | |
| S-7 | Street F | Theodore Street (A) | Alessandro Blvd (Street C) | N/A | Future Road | | | 2U | 5,009 | A | | | |
| S-8 | Theodore Street (A) | Fir (Eucalyptus) Ave. | Alessandro Blvd (Street C) | D | 2U | 3,437 | A | 4D | 13,001 | A | | | |
| S-9 | Alessandro Blvd (Street E) | Merwin Street | Theodore Street (A) | D | 2U | 10,854 | D | 4U | 13,486 | A | | | |
| S-10 | Cactus Ave Extension | Alessandro Blvd (Street E) | Cactus Ave. | N/A | Future Road | | | 4U | 17,423 | B | | | |
| S-11 | Alessandro Blvd (Street C) | Theodore Street (A) | Street F | D | 2U | 7,437 | A | 4U | 14,680 | A | | | |
| S-13 | Alessandro Blvd (Street C) | Street F | Gilman Springs Rd | D | 2U | 7,437 | A | 4U | 21,164 | D | | | |
| S-14 | Alessandro Blvd | Moreno Beach Drive | Redlands Blvd | D | 4U | 6,373 | A | 4U | 5,416 | A | *** | | |
| S-16 | Gilman Springs Rd | Alessandro Blvd (Street C) | Bridge Street | D | 6D | 49,434 | D | 6D | 54,288 | F | Yes | Widen to 8 lanes | C |
| S-17 | Gilman Springs Rd | SR-60 | Alessandro Blvd (Street C) | D | 6D | 41,537 | C | 6D | 47,958 | D | | | |
| S-18 | Redlands Blvd | SR-60 EB Ramps | Fir (Eucalyptus) Ave. | D | 4U | 13,411 | A | 4U | 17,626 | C | | | |
| S-19 | Redlands Blvd | Fir (Eucalyptus) Ave. | Alessandro Blvd | C | 4U | 7,665 | A | 4U | 5,037 | A | | | |
| S-20 | Alessandro Blvd | Redlands Blvd | Merwin Street | C | 4U | 11,038 | A | 4U | 1,677 | A | *** | | |
| S-21 | Redlands Blvd | Alessandro Blvd | Cactus Ave. | C | 4U | 11,511 | A | 4U | 5,653 | A | | | |
| S-22 | Cactus Ave. | Redlands Blvd | Cactus Ave Extension | C | 4U | 1,144 | A | 4U | 16,916 | B | | | |

* LOS Standard is "C" in residential areas and "D" for roads in employment-generating areas or near freeways.

** Section is the number of lanes, with "U" for "undivided" and "D" for "Divided" roadways.

*** Due to the severing of Alessandro Blvd. and the diversion of traffic to other routes, there is no need to widen this section beyond the current 2U configuration

Indicates LOS exceeds the target level

## B. INTERSECTION LOS, IMPACTS, AND MITIGATIONS

Figure 53 shows the turning movement volumes under 2035 Plus Build-out Conditions (see Figure 16 for the key map). Table 65 presents the LOS for the study intersections under the 2035 Plus Build-out Conditions in the AM and PM peak hours. Detailed worksheets are presented in Appendix H. Table 66 identifies where impacts occur and mitigation measures that would reduce the impacts to a less-than-significant level.

As shown in Table 66 there are 35 study intersections where the project would have a significant impact. Thirty of these intersections exceed the threshold of significance under 2035 No-Project Conditions and five would exceed the threshold of significance with the addition of the project. These intersections are:

Would Exceed Threshold of Significance Under Both 2035 No-Project Conditions and 2035 Plus Build-out Conditions

- Theodore St./Ironwood Ave.
- Moreno Beach Dr./Locust Ave.
- Moreno Beach Dr./SR-60 EB Ramps
- Iris Ave./Perris Blvd.
- Kitching St./Iris Ave.
- Lasselle Str./Iris Ave.
- Lasselle St./Cactus Ave.
- Graham St./Alessandro Blvd.
- Alessandro Blvd./Sycamore Canyon Blvd.
- I-215 NB Ramps/Cactus Ave.
- Elsworth St./Cactus Ave.
- Central Ave./Lochmoor Dr.
- Alessandro Blvd./Mission Grove Pkwy.
- Martin Luther King Blvd./I-215 NB Ramps
- Central Ave./Chicago Ave.
- Central Ave./Canyon Crest Dr.
- Arlington Ave./Riverside Ave./SR-91 SB Ramps
- Arlington Ave./Victoria Ave.
- Alessandro Blvd./Chicago Ave.
- Alessandro Blvd./Canyon Crest Dr.
- Ramona Expwy./Indian St.
- Evans Rd./Rider St.

- Gilman Springs Rd./Bridge St.
- SR-79 (Sanderson Ave.) NB/Gilman Springs Rd.
- SR-79 (Sanderson Ave.) SB/Gilman Springs Rd.
- W 6th St./California Ave.
- W 6th St./Beaumont Ave.
- Reche Canyon Rd./Reche Vista Dr.
- San Timoteo Canyon Rd./Live Oak Canyon Rd.
- Redlands Blvd./San Timoteo Canyon Rd.

Would Exceed Threshold of Significance Under 2035 Plus Build-out Conditions (only)

- Redlands Blvd./Ironwood Ave.
- Moreno Beach Dr./Cactus Ave.
- Redlands Blvd./Cactus Ave.
- Moreno Beach Dr./Ironwood Ave.
- San Timoteo Canyon Rd./Alessandro Rd.

The mitigation measures shown in Table 66 are those that would be needed to reduce the impact of the project to a less-than-significant level. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS, this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

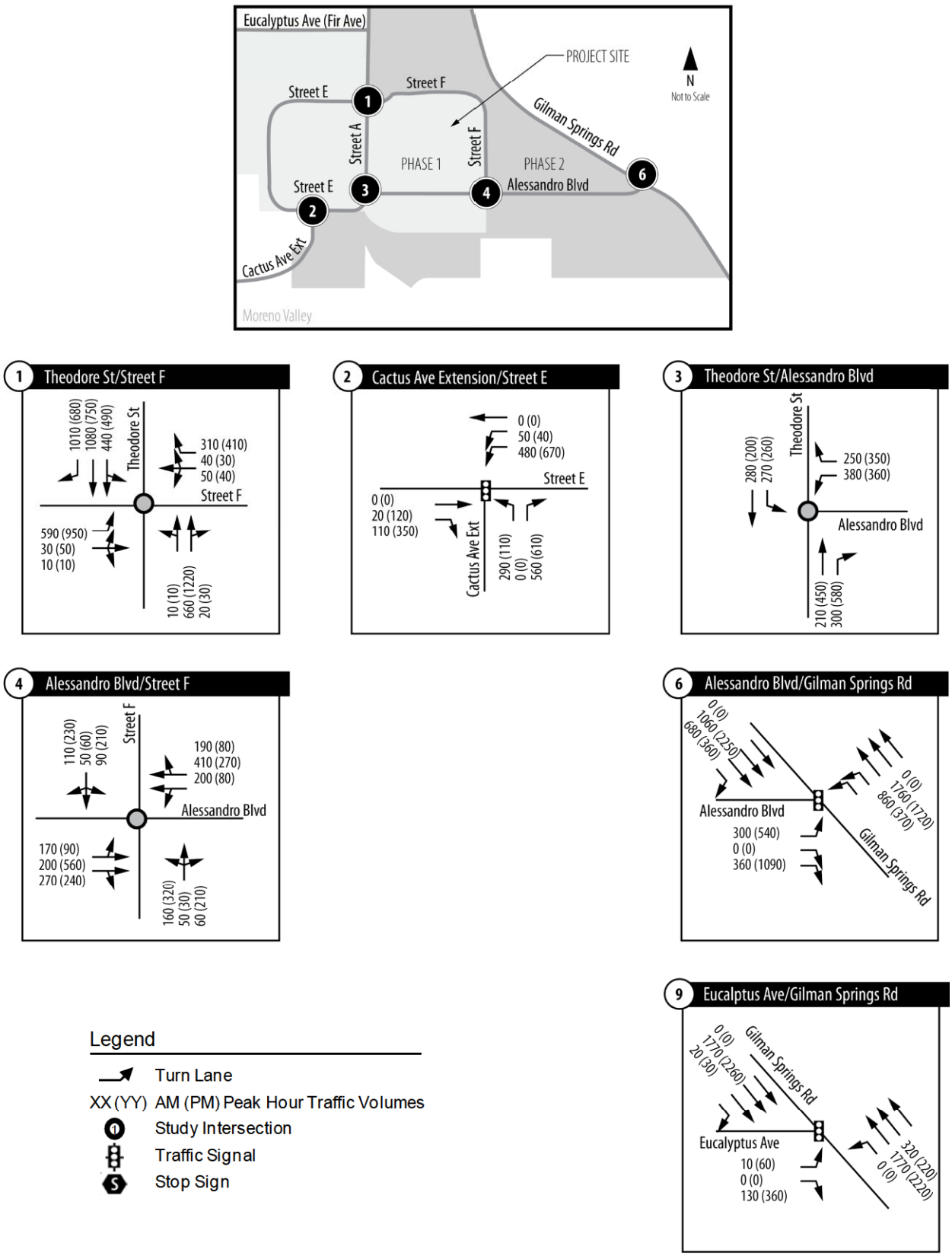



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions**

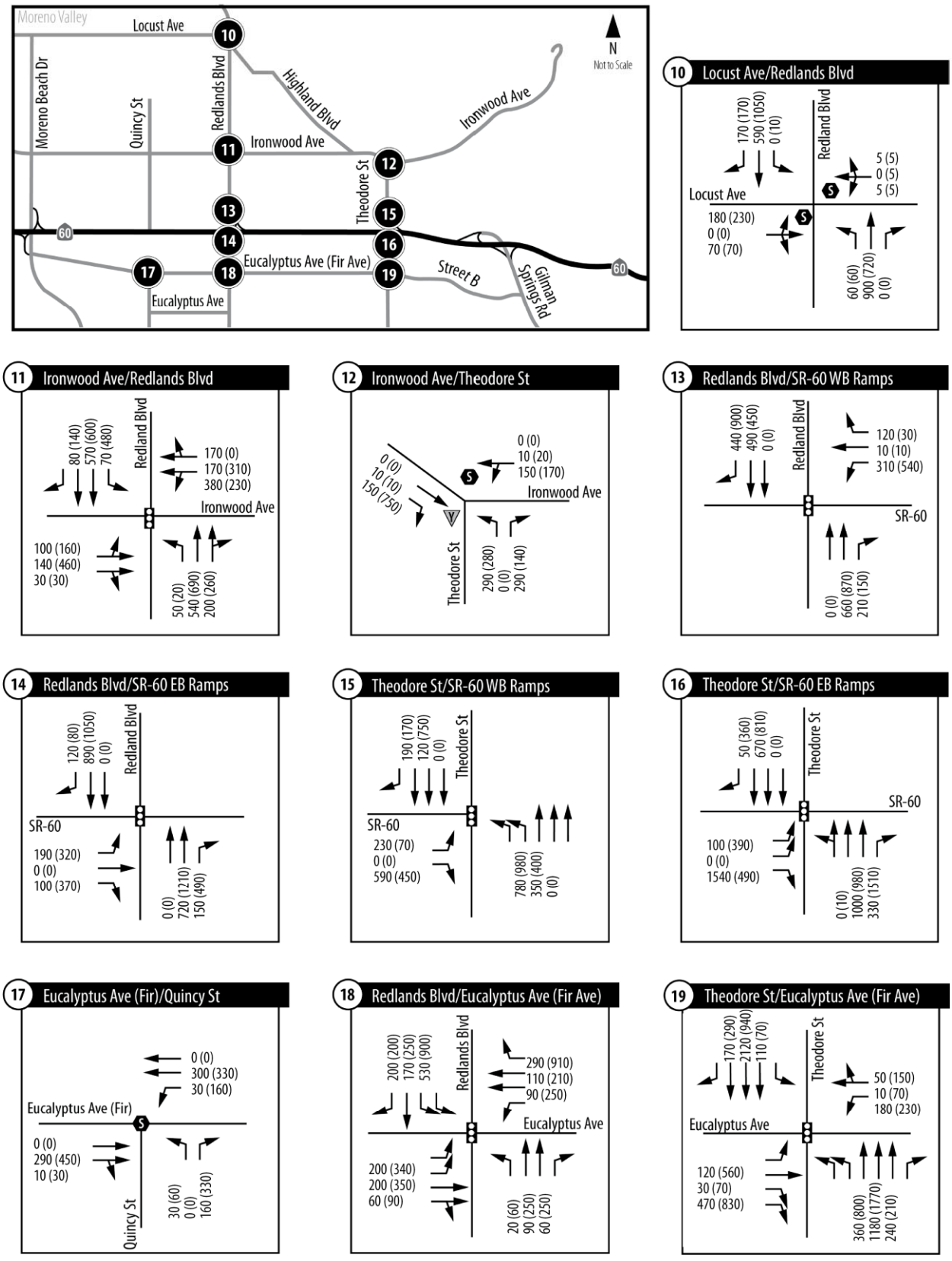



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (B)**

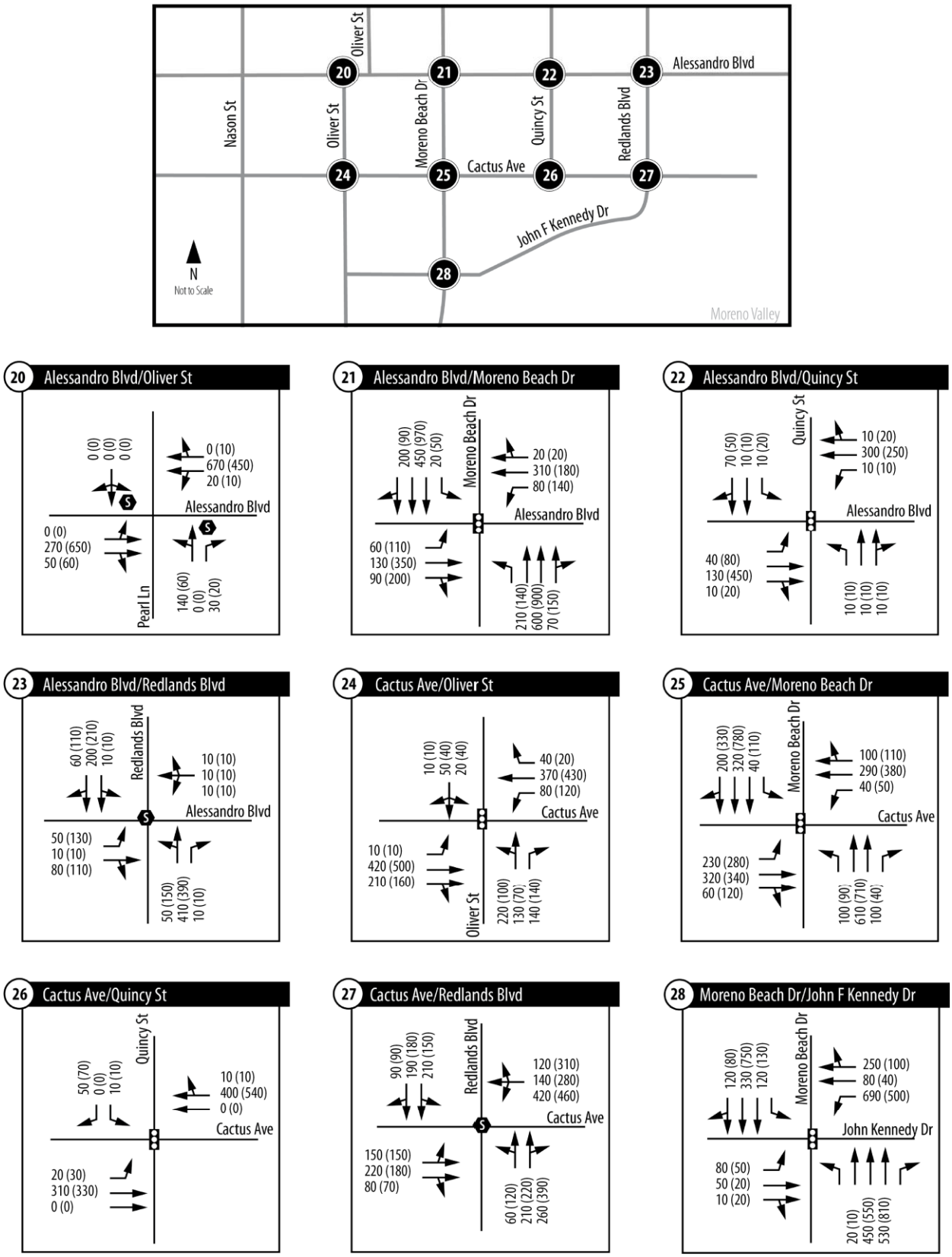



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (C)**

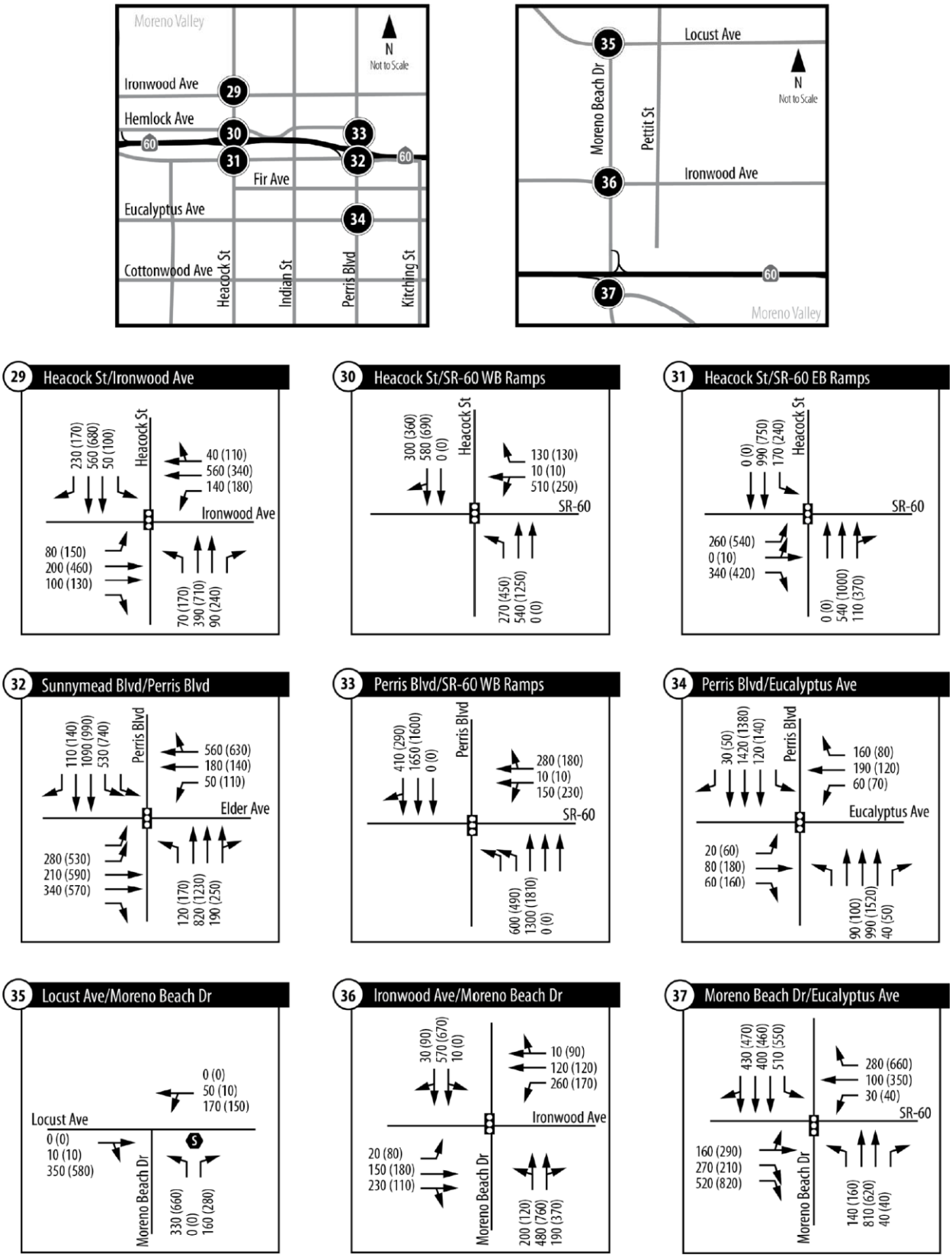



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (D)**

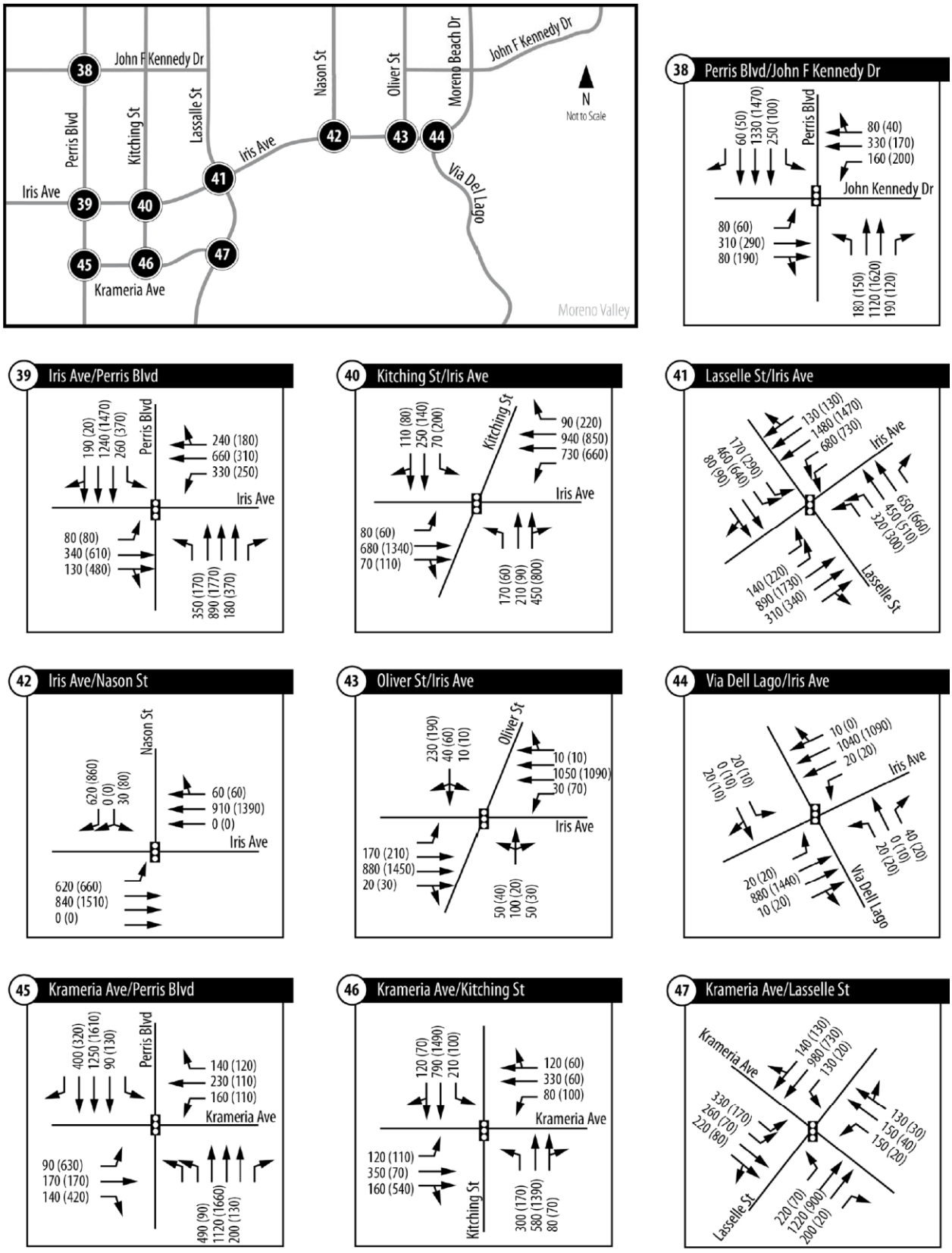



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (E)**

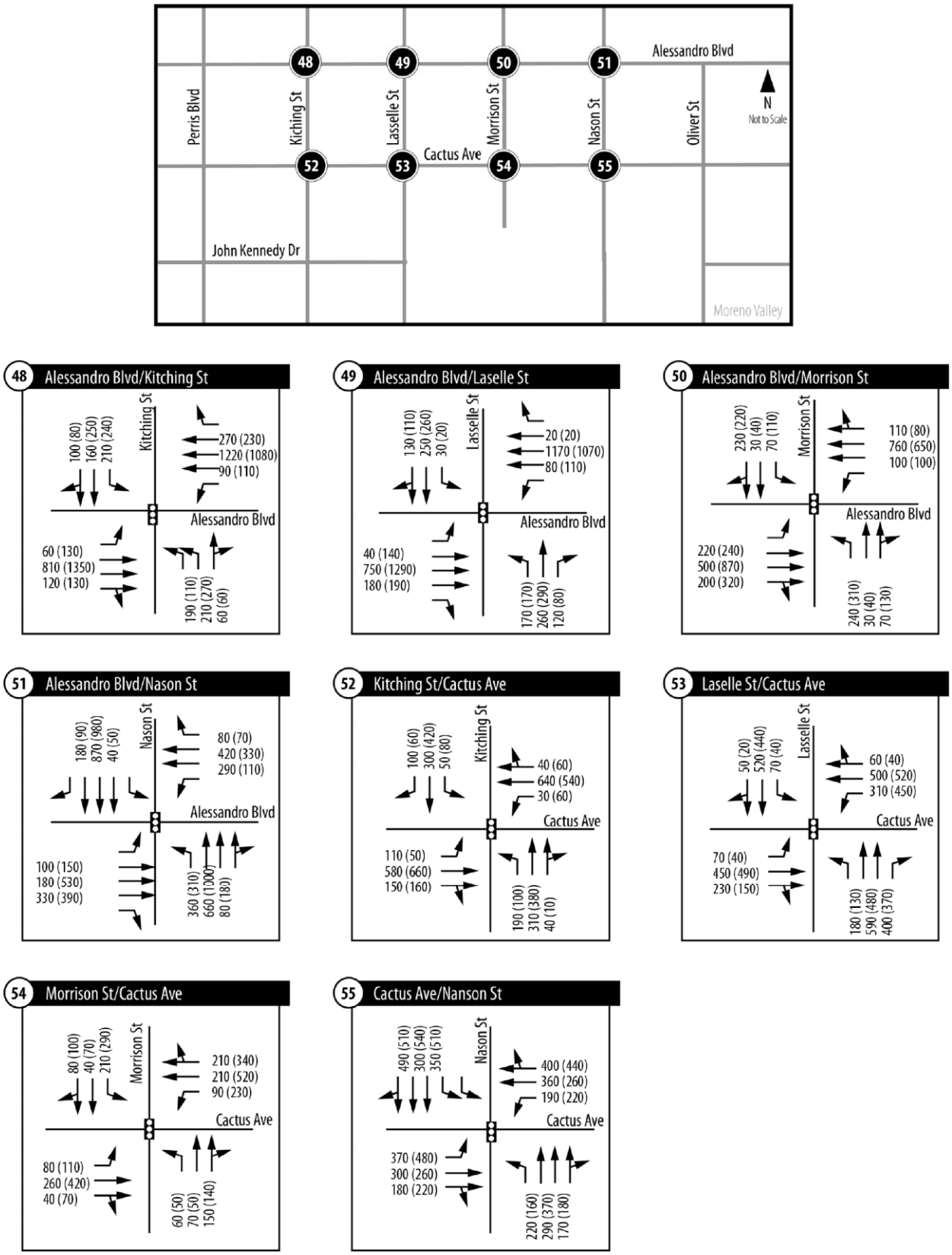



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (F)**

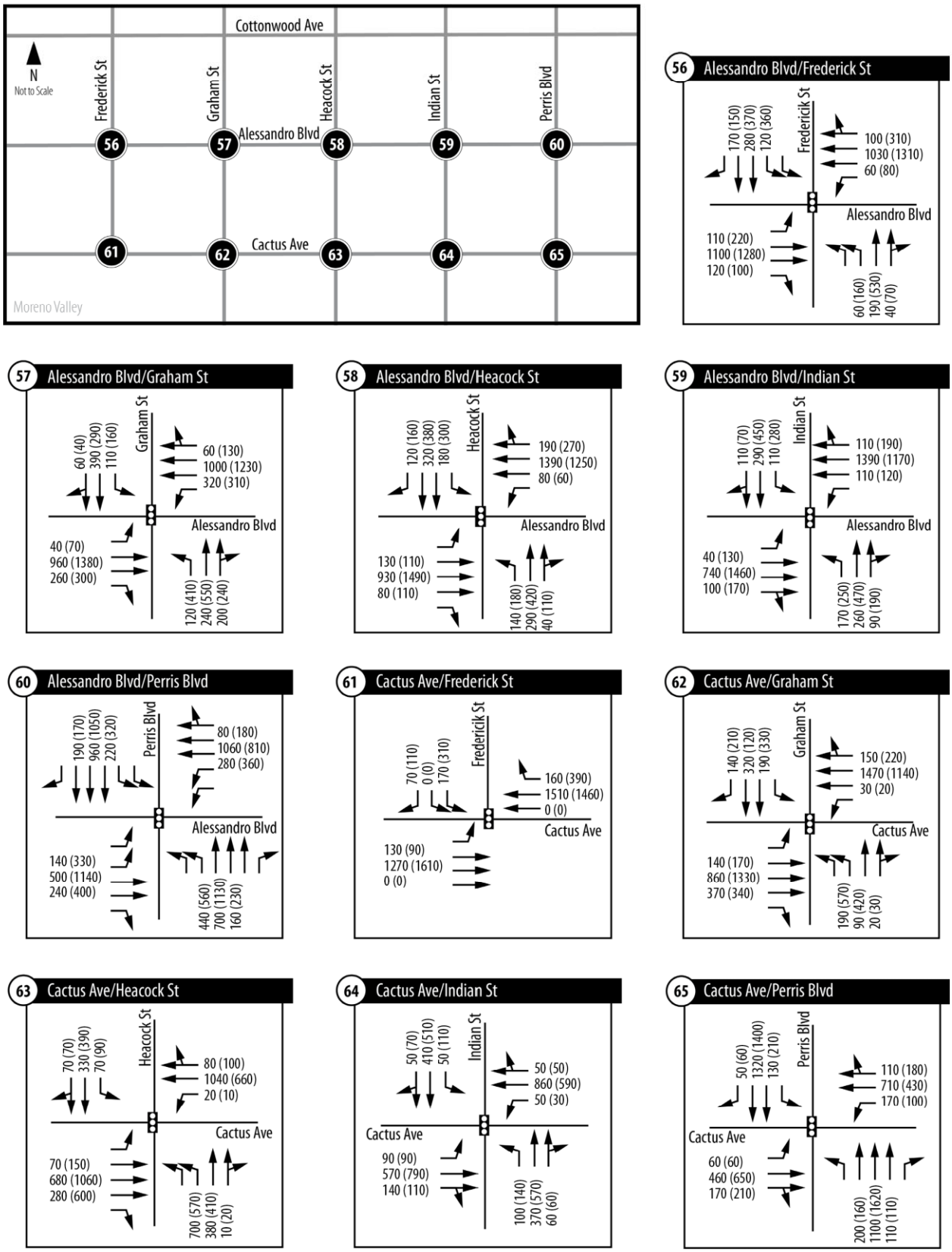



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (G)**

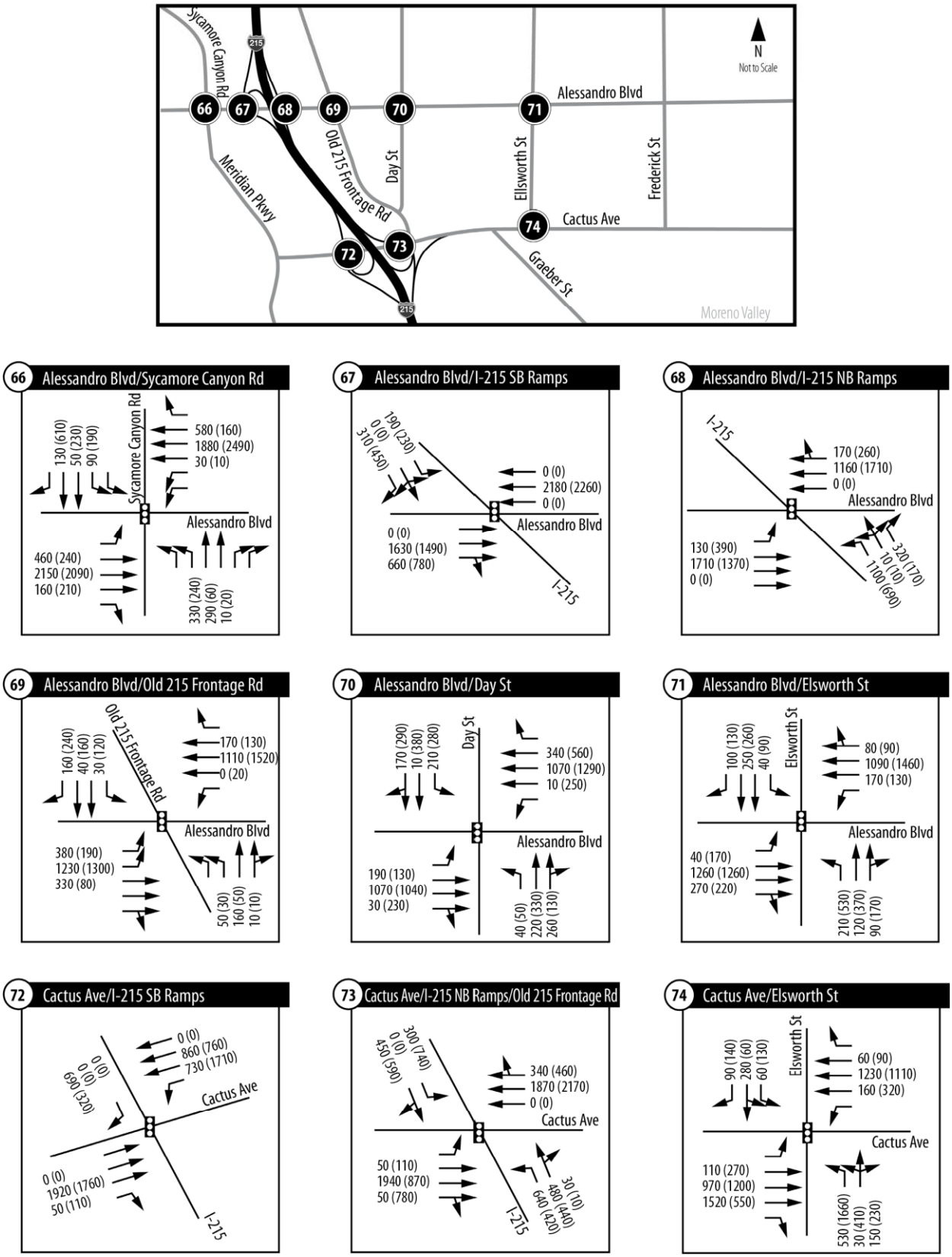



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (H)**

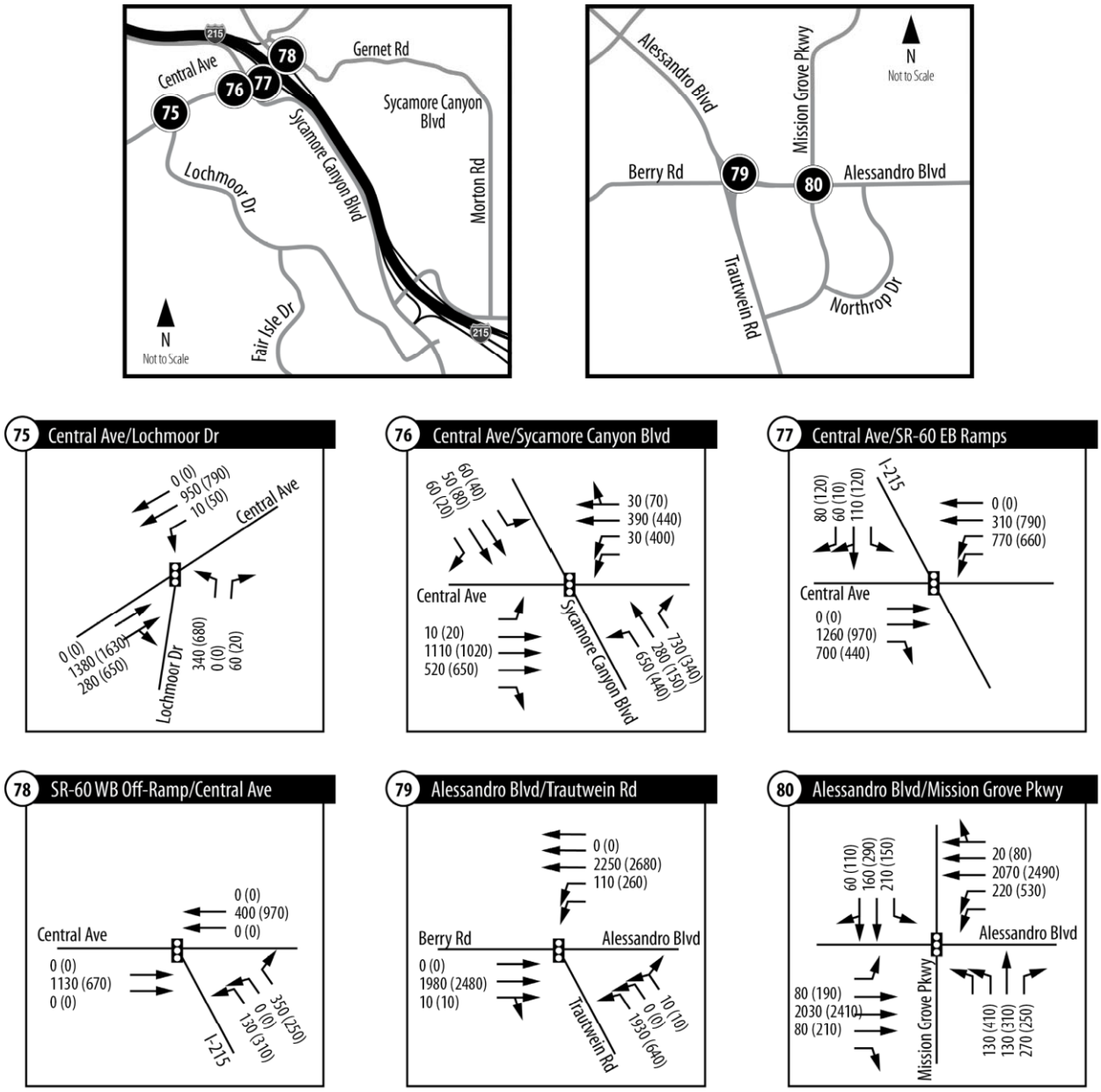



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (I)**

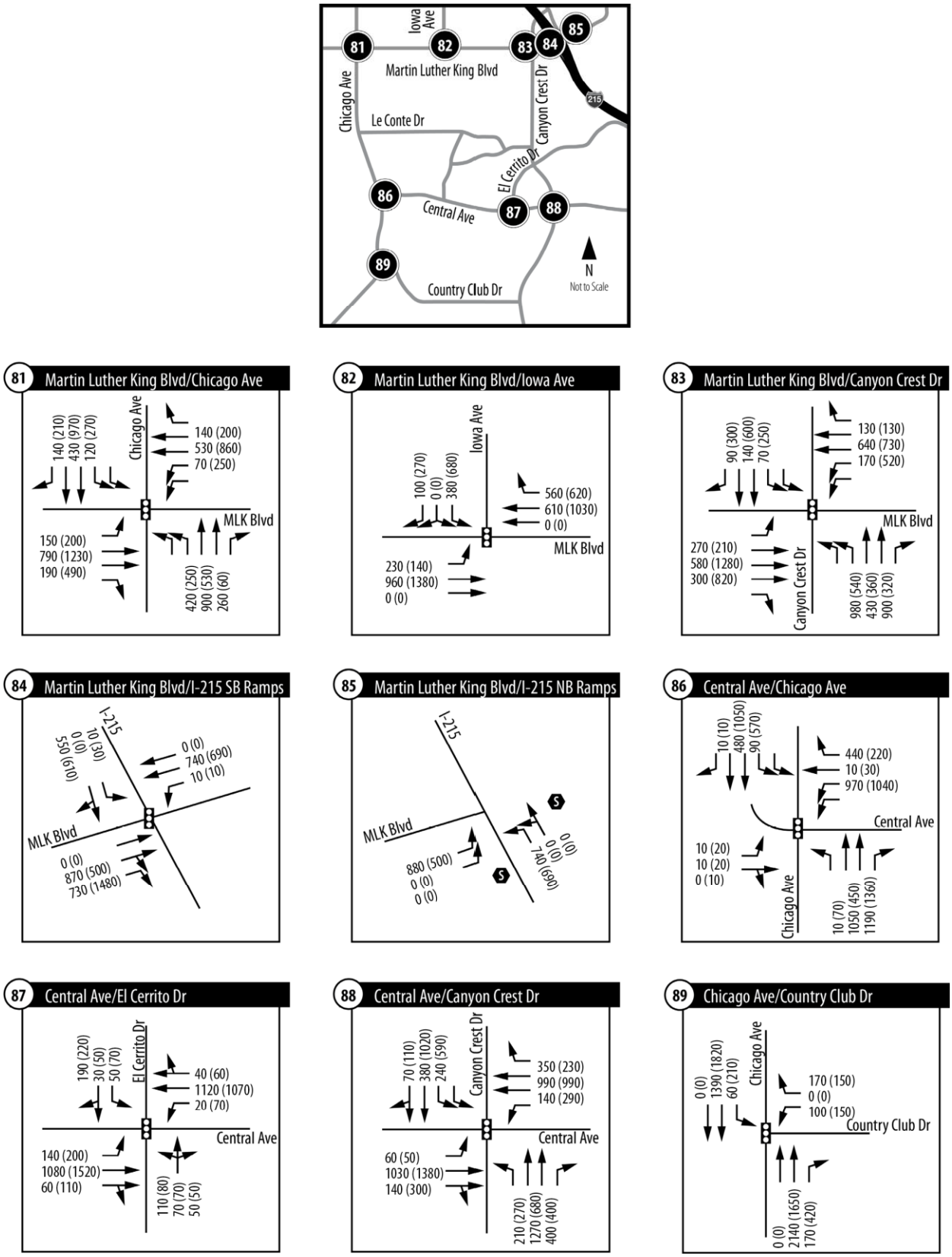



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (J)**

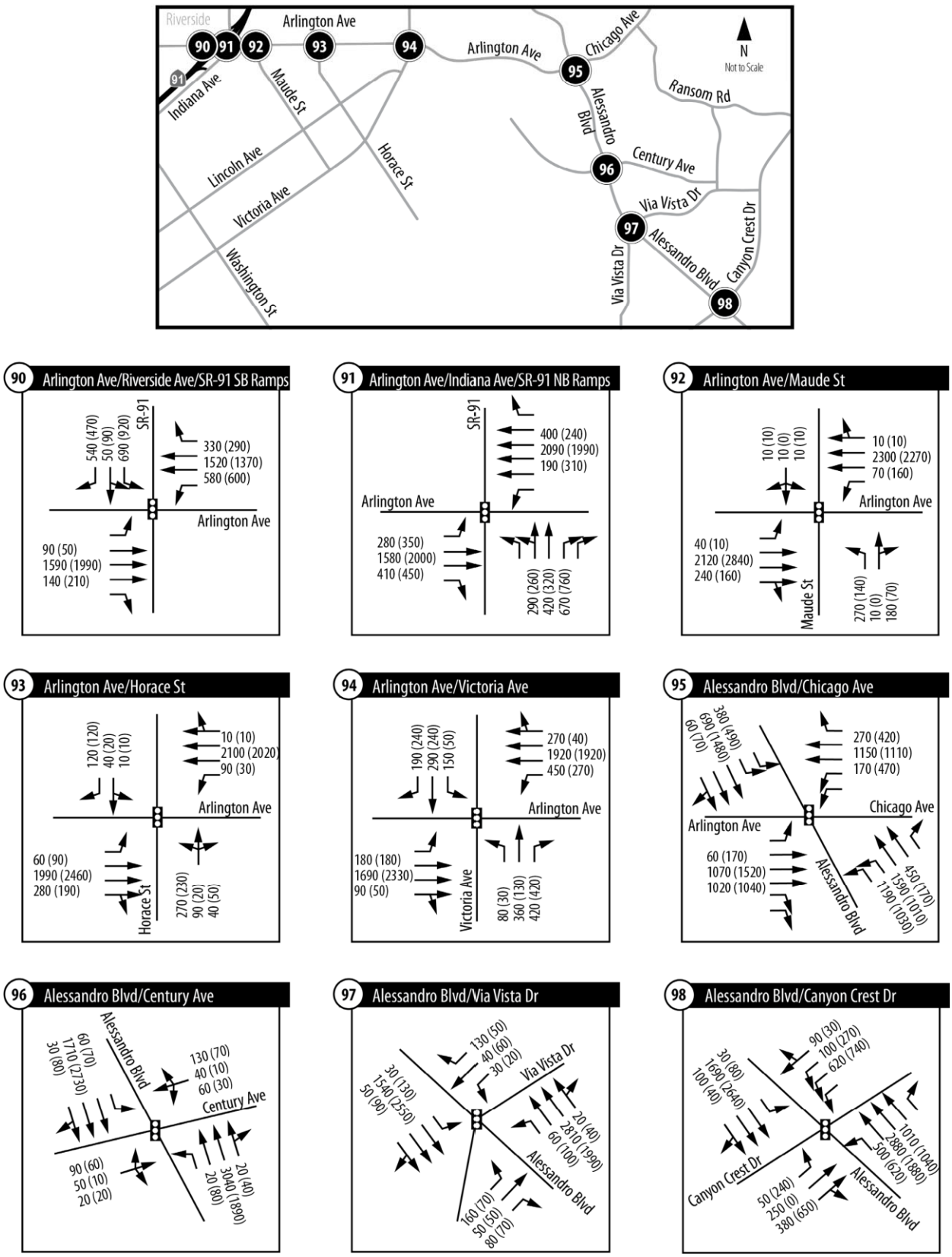



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (K)**

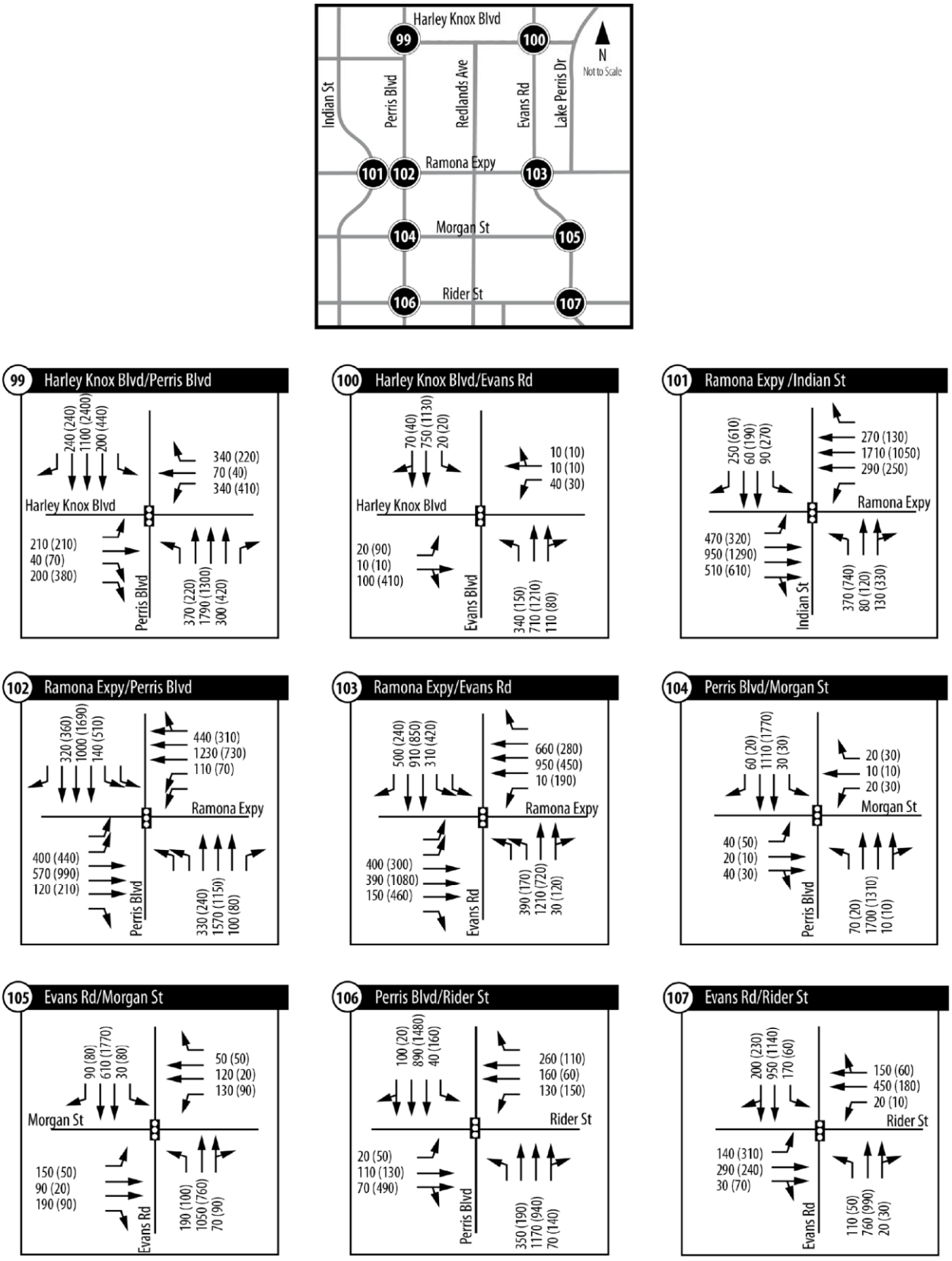



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (L)**

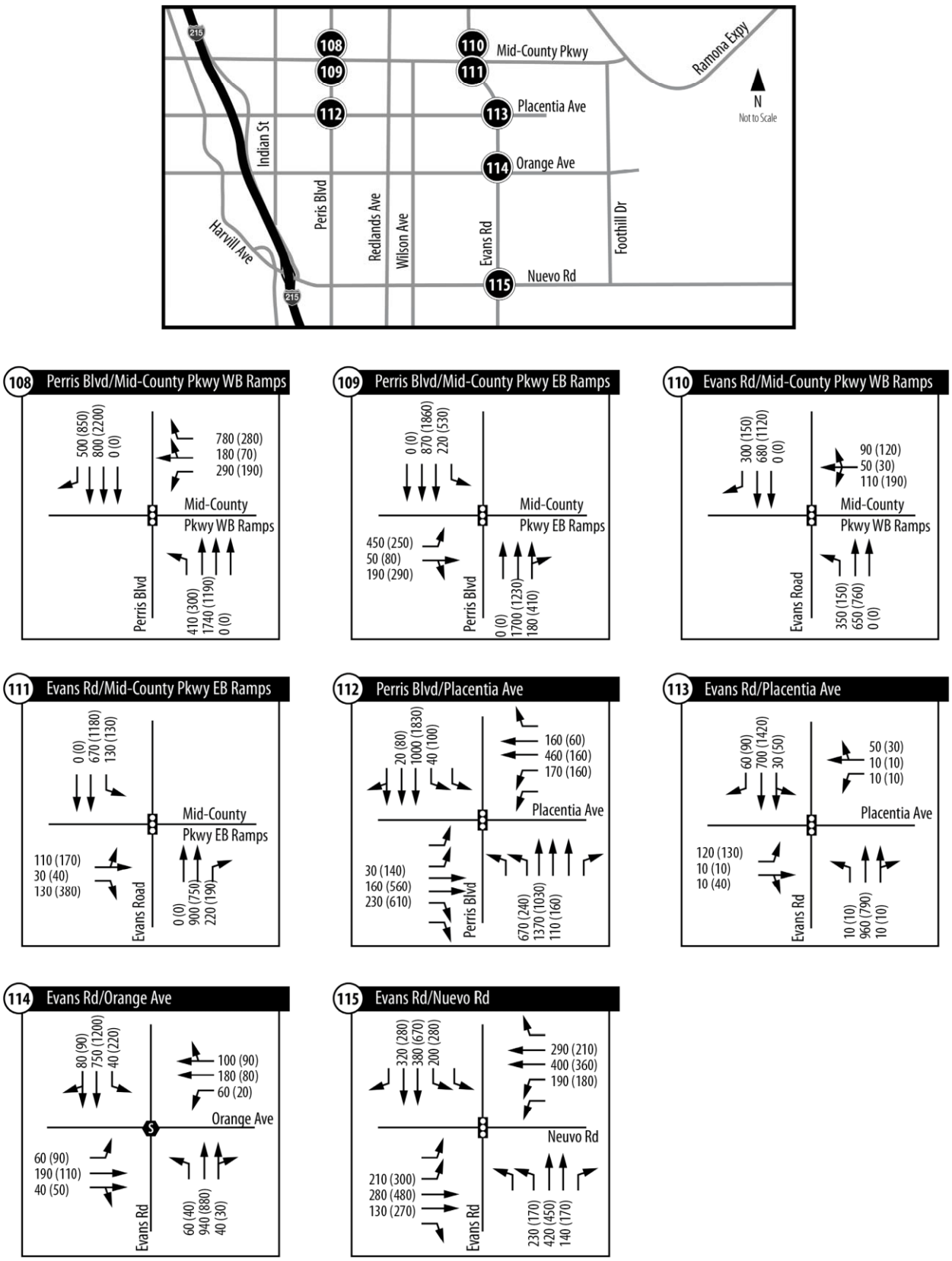



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (M)**

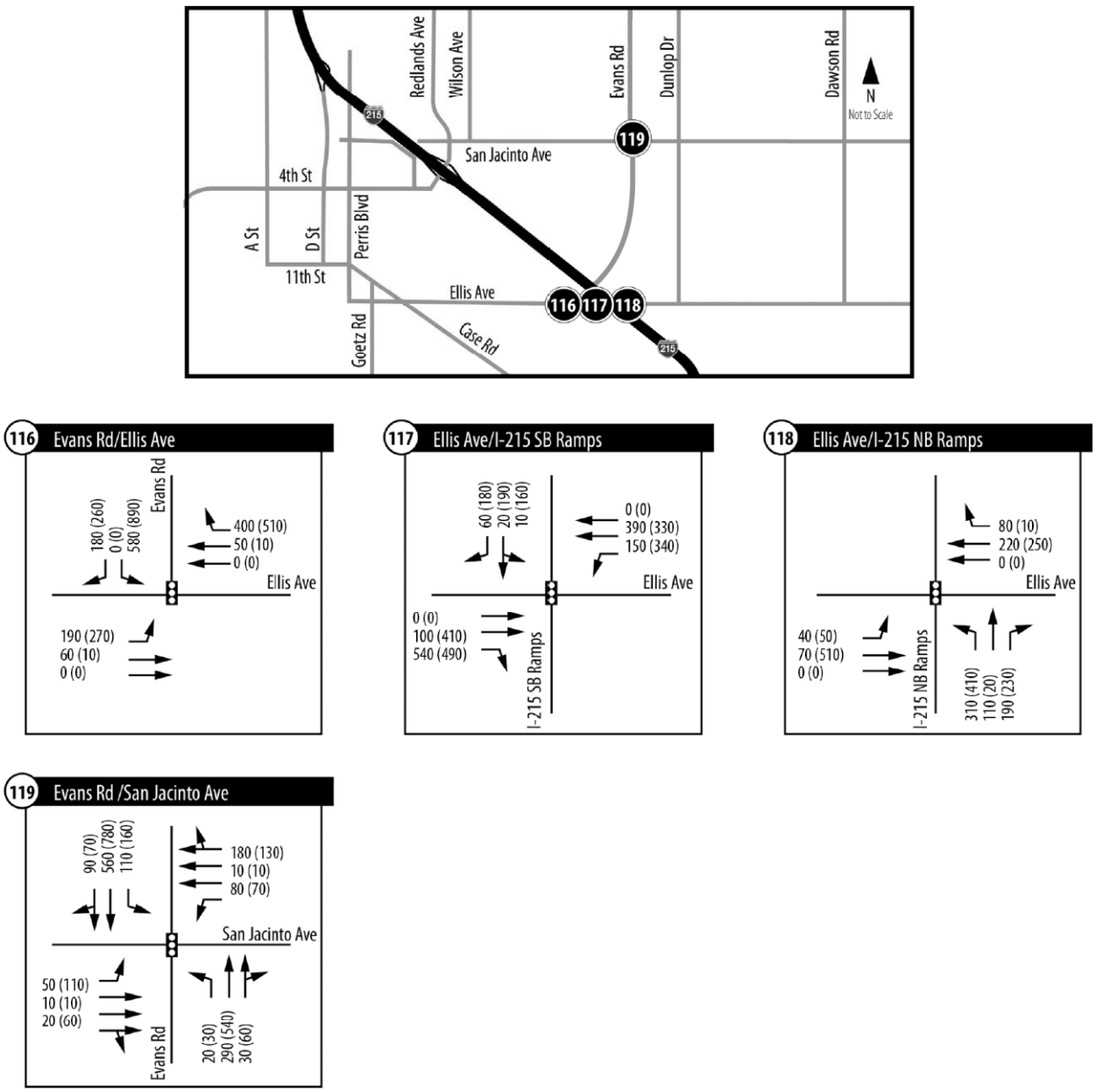



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (N)**

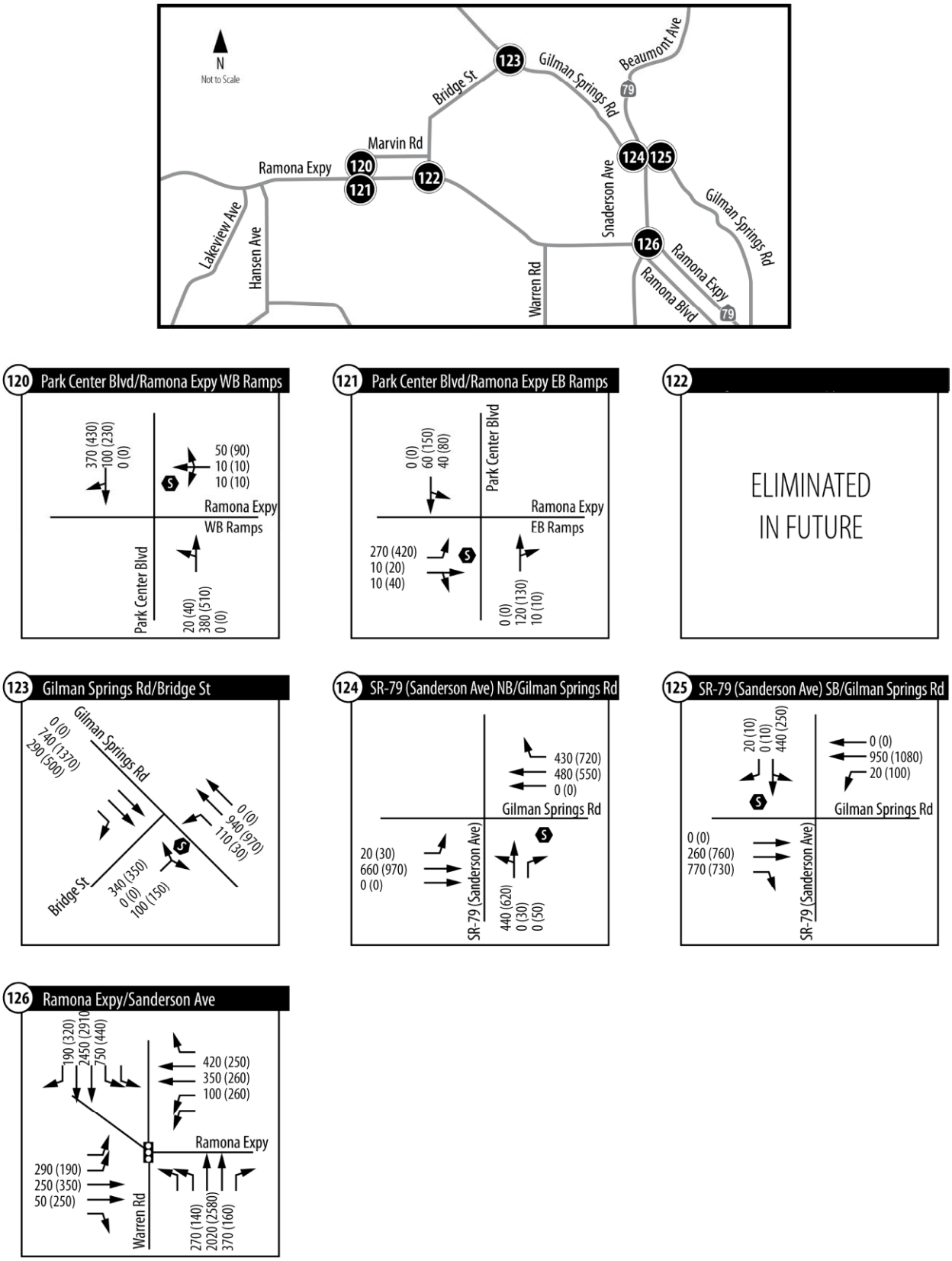



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (O)**

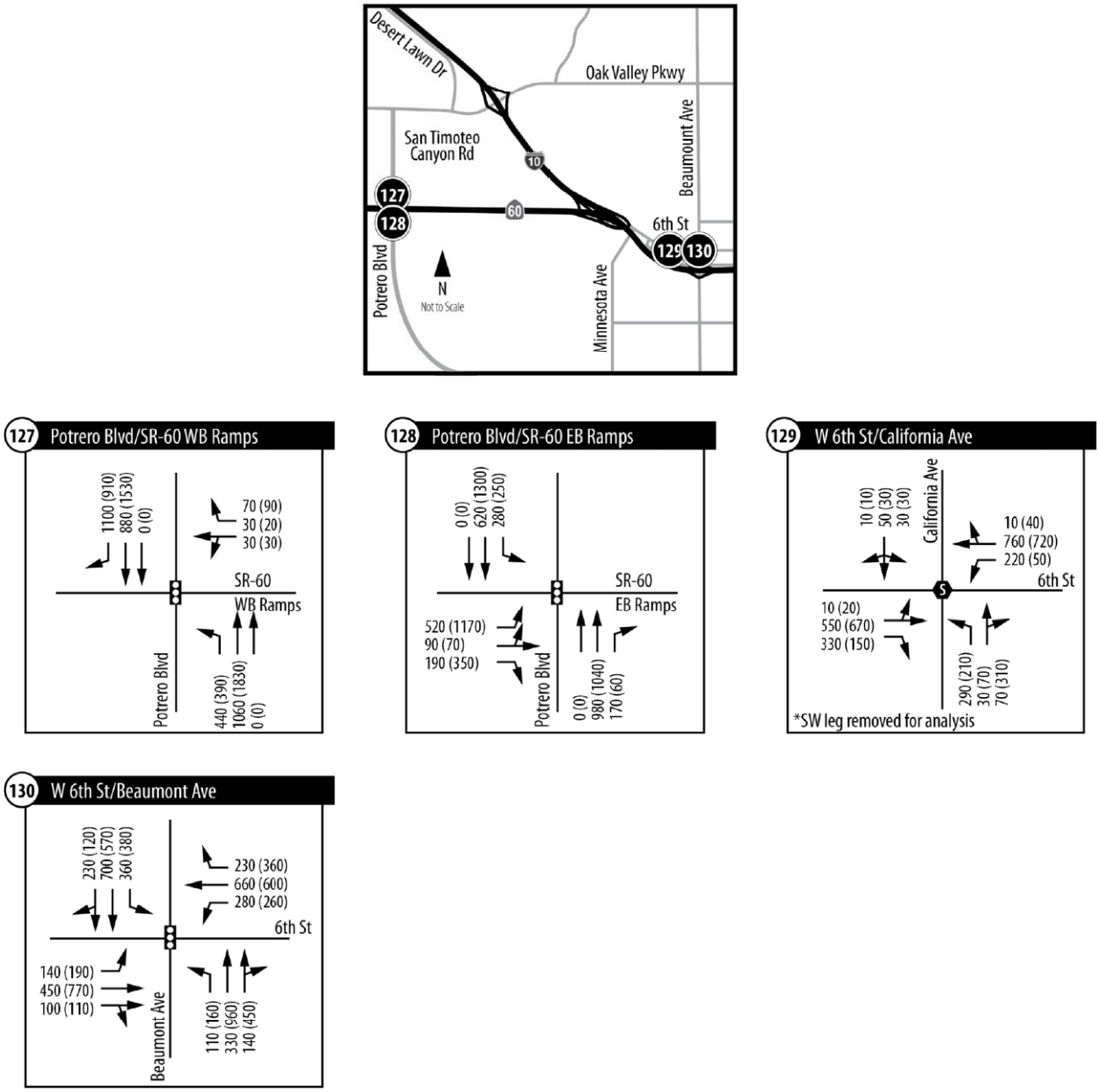



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (P)**

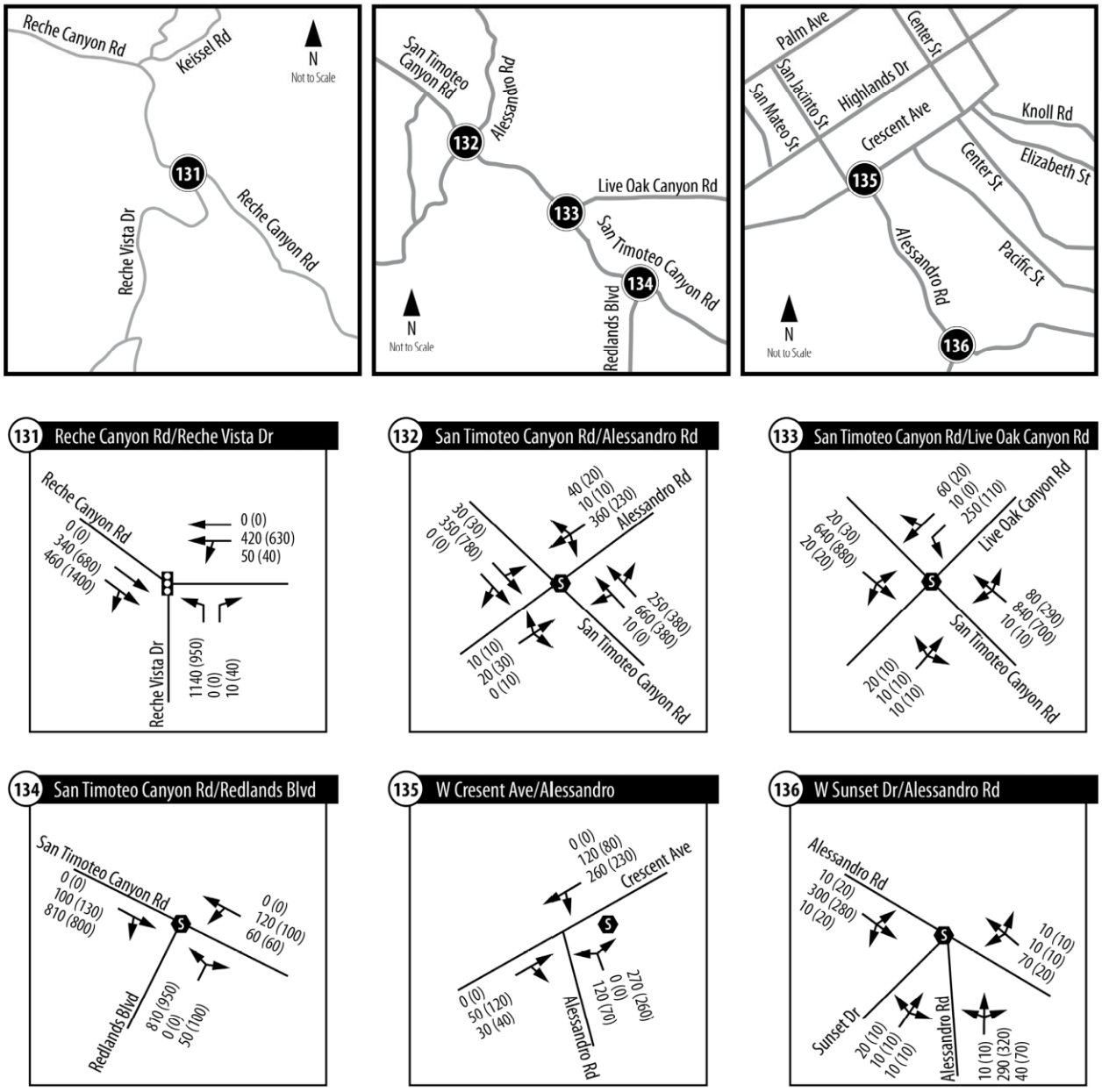



**Figure 53: Turning Movement Volumes under 2035 Plus Build-out Conditions (Q)**

## Table 65: Intersection LOS under 2035 Plus Build-out Conditions

| ID | Study Intersection | LOS Standard | 2035 No-Project | | | 2035 Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-1 | Theodore St/Street F | D | N/A | Non-Existent | | RABT | 10.2 | B |
| IN-2 | Cactus Ave Extension/Street E | D | N/A | Non-Existent | | SIGNAL | 12.3 | B |
| IN-3 | Theodore St/Alessandro (Str A/Str C/Str E) | D | CSS | 20.9 | C | RABT | 10.1 | B |
| IN-4 | Alessandro Blvd (Street C)/Street F | D | N/A | Non-Existent | | RABT | 10.2 | B |
| IN-6 | Alessandro Blvd (Street C)/Gilman Springs Rd | D | SIGNAL | 11.7 | B | SIGNAL | 44.3 | D |
| IN-9 | Gilman Springs Rd/Eucalytpus Ave | D | N/A | Non-Existent | | SIGNAL | 10.5 | B |
| IN-10 | Redlands Blvd/Locust Ave | C | SIGNAL | 5.4 | A | SIGNAL | 10.7 | B |
| IN-11 | Redlands Blvd/Ironwood Ave | D | SIGNAL | 45.0 | D | SIGNAL | 46.4 | D |
| IN-12 | Theodore Street/Ironwood Avenue | D | CSS | 22.9 | C | CSS | 44.3 | **E** |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | SIGNAL | 5.7 | A | SIGNAL | 6.7 | A |
| IN-14 | Redlands Blvd/SR-60 EB ramps | D | SIGNAL | 5.1 | A | SIGNAL | 5.4 | A |
| IN-15 | Theodore Str/SR-60 WB ramps | D | CSS | 62.2 | **F** | SIGNAL | 14.1 | B |
| IN-16 | Theodore Str/SR-60 EB ramps | D | CSS | 13.5 | B | SIGNAL | 2.2 | A |
| IN-17 | Quincy Str/Fir Ave | D | CSS | 9.6 | A | CSS | 10.6 | B |
| IN-18 | Redlands Blvd/Eucalyptus Ave (Fir) | D | SIGNAL | 7.2 | A | SIGNAL | 21.8 | C |
| IN-19 | Theodore St/Fir Ave (Eucalyptus) | D | CSS | 10.5 | B | SIGNAL | 18.5 | B |
| IN-20 | Oliver Str/Alessandro Blvd | C | CSS | 20.0 | C | CSS | 21.0 | C |
| IN-21 | Moreno Beach Dr/Alessandro Blvd | D | SIGNAL | 17.3 | B | SIGNAL | 17.4 | B |
| IN-22 | Quincy Str/Alessandro Blvd | C | SIGNAL | 4.2 | A | SIGNAL | 4.2 | A |
| IN-23 | Redlands Blvd/Alessandro Blvd | C | AWS | 137.4 | **F** | AWS | 13.4 | B |
| IN-24 | Oliver Str/Cactus Ave | D | SIGNAL | 22.3 | C | SIGNAL | 23.9 | C |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | SIGNAL | 20.3 | C | SIGNAL | 22.0 | C |
| IN-26 | Quincy Str/Cactus Ave | C | SIGNAL | 3.9 | A | SIGNAL | 3.5 | A |
| IN-27 | Redlands Blvd/Cactus Ave | C | AWS | 14.3 | B | AWS | 128.4 | **F** |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | SIGNAL | 23.5 | C | SIGNAL | 29.1 | C |
| IN-29 | Heacock Str/Ironwood Ave | D | SIGNAL | 31.6 | C | SIGNAL | 31.6 | C |
| IN-30 | Heacock Str/SR-60 WB Ramps | D | SIGNAL | 30.5 | C | SIGNAL | 31.4 | C |
| IN-31 | Heacock St/SR-60 EB Ramps | D | SIGNAL | 12.3 | B | SIGNAL | 12.7 | B |
| IN-32 | Sunnymead Blvd & Perris Blvd | D | SIGNAL | 31.8 | C | SIGNAL | 32.1 | C |
| IN-33 | Perris Blvd/SR-60 WB Ramps | D | SIGNAL | 22.5 | C | SIGNAL | 24.0 | C |
| IN-34 | Perris Blvd/Eucalyptus Ave | D | SIGNAL | 21.8 | C | SIGNAL | 21.5 | C |
| IN-35 | Moreno Beach Dr/Locust Ave | C | CSS | 29.4 | **D** | CSS | 31.0 | **D** |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | SIGNAL | 46.6 | D | SIGNAL | 52.9 | D |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | SIGNAL | 113.9 | **F** | SIGNAL | 147.6 | **F** |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | SIGNAL | 28.8 | C | SIGNAL | 33.5 | C |
| IN-39 | Iris Ave/Perris Blvd | D | SIGNAL | 58.6 | **E** | SIGNAL | 65.7 | **E** |
| IN-40 | Kitching St/Iris Ave | C | SIGNAL | 65.8 | **E** | SIGNAL | 78.3 | **E** |
| IN-41 | Lasselle Str/Iris Ave | D | SIGNAL | 35.0 | C | SIGNAL | 38.7 | D |
| IN-42 | Nason Str/Iris Ave | C | SIGNAL | 18.5 | B | SIGNAL | 17.1 | B |
| IN-43 | Oliver Str/Iris Ave | D | SIGNAL | 24.5 | C | SIGNAL | 23.7 | C |
| IN-44 | Via Dell Lago/Iris Ave | C | SIGNAL | 7.0 | A | SIGNAL | 6.8 | A |
| IN-45 | Krameria Ave/Perris Blvd | D | SIGNAL | 27.8 | C | SIGNAL | 29.1 | C |
| IN-46 | Kitching Str/Krameria Ave | D | SIGNAL | 35.3 | D | SIGNAL | 37.4 | D |
| IN-47 | Lasselle Str/Krameria Ave | D | SIGNAL | 32.2 | C | SIGNAL | 34.4 | C |
| IN-48 | Kitching Str/Alessandro Blvd | D | SIGNAL | 26.5 | C | SIGNAL | 26.7 | C |

## Table 65: Intersection LOS under 2035 Plus Build-out Conditions (continued)

| ID | Study Intersection | LOS Standard | 2035 No-Project | | | 2035 Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-49 | Lasselle Str/Alessandro Blvd | D | SIGNAL | 19.8 | B | SIGNAL | 20.5 | C |
| IN-50 | Morrison Str/Alessandro Blvd | D | SIGNAL | 25.5 | C | SIGNAL | 25.6 | C |
| IN-51 | Nason Str/Alessandro Blvd | D | SIGNAL | 31.1 | C | SIGNAL | 31.3 | C |
| IN-52 | Kitching Str/Cactus Ave | C | SIGNAL | 30.7 | C | SIGNAL | 30.5 | C |
| IN-53 | Lasselle Str/Cactus Ave | C | SIGNAL | 38.5 | **D** | SIGNAL | 38.8 | **D** |
| IN-54 | Morrison Str/Cactus Ave | D | SIGNAL | 6.1 | A | SIGNAL | 6.4 | A |
| IN-55 | Nason Str/Cactus Ave | D | SIGNAL | 36.1 | D | SIGNAL | 36.6 | D |
| IN-56 | Frederick Str/Alessandro Blvd | D | SIGNAL | 19.2 | B | SIGNAL | 19.3 | B |
| IN-57 | Graham Str/Alessandro Blvd | D | SIGNAL | 35.6 | D | SIGNAL | 35.6 | D |
| IN-58 | Heacock Str/Alessandro Blvd | D | SIGNAL | 29.6 | D | SIGNAL | 29.2 | C |
| IN-59 | Indian Str/Alessandro Blvd | D | SIGNAL | 21.7 | C | SIGNAL | 21.3 | C |
| IN-60 | Perris Blvd/Alessandro Blvd | D | SIGNAL | 32.8 | C | SIGNAL | 33.6 | C |
| IN-61 | Frederick Str/Cactus Ave | D | SIGNAL | 9.7 | A | SIGNAL | 9.6 | A |
| IN-62 | Graham Str/Cactus Ave | D | SIGNAL | 22.7 | C | SIGNAL | 23.4 | C |
| IN-63 | Heacock Str/Cactus Ave | D | SIGNAL | 31.6 | C | SIGNAL | 31.9 | C |
| IN-64 | Indian Str/Cactus Ave | C | SIGNAL | 32.6 | C | SIGNAL | 32.6 | C |
| IN-65 | Perris Blvd/Cactus Ave | D | SIGNAL | 39.2 | D | SIGNAL | 38.8 | D |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | SIGNAL | 37.5 | D | SIGNAL | 39.7 | D |
| IN-67 | I-215 SB Ramps/Alessandro Blvd | D | SIGNAL | 6.6 | A | SIGNAL | 6.7 | A |
| IN-68 | I-215 NB Ramps/Alessandro Blvd | D | SIGNAL | 21.9 | C | SIGNAL | 21.8 | C |
| IN-69 | Old 215 Frontage Rd/Alessandro Blvd | D | SIGNAL | 15.1 | B | SIGNAL | 15.0 | B |
| IN-70 | Day Str/Alessandro Blvd | D | SIGNAL | 22.6 | C | SIGNAL | 23.4 | C |
| IN-71 | Elsworth Str/Alessandro Blvd | D | SIGNAL | 28.4 | C | SIGNAL | 29.5 | C |
| IN-72 | I-215 SB Ramps/Cactus Ave | D | SIGNAL | 37.6 | D | SIGNAL | 41.6 | D |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | SIGNAL | 71.1 | **E** | SIGNAL | 75.5 | **E** |
| IN-74 | Elsworth Str/Cactus Ave | D | SIGNAL | > 180.0 | **F** | SIGNAL | > 180.0 | **F** |
| IN-75 | Central Ave/Lochmoor Dr. | D | SIGNAL | 16.2 | B | SIGNAL | 18.5 | B |
| IN-76 | Sycamore Canyon Blvd/Central Ave | D | SIGNAL | 28.6 | C | SIGNAL | 29.9 | C |
| IN-77 | SR-60 EB Ramps/Central Ave | D | SIGNAL | 18.1 | B | SIGNAL | 23.1 | C |
| IN-78 | SR-60 WB Ramps/Central Ave | D | SIGNAL | 6.7 | A | SIGNAL | 6.7 | A |
| IN-79 | Alessandro Blvd/Trautwein Rd. | D | SIGNAL | 32.2 | C | SIGNAL | 34.3 | C |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | SIGNAL | 28.0 | C | SIGNAL | 29.6 | C |
| IN-81 | Martin Luther King Blvd/Chicago Ave | D | SIGNAL | 27.0 | C | SIGNAL | 28.2 | C |
| IN-82 | Martin Luther King Blvd/Iowa Ave | D | SIGNAL | 11.3 | B | SIGNAL | 11.3 | B |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | SIGNAL | 40.2 | D | SIGNAL | 43.2 | D |
| IN-84 | Martin Luther King Blvd/I-215 SB Ramps | D | SIGNAL | 11.2 | B | SIGNAL | 11.6 | B |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | AWS | 45.1 | **E** | AWS | 48.5 | **E** |
| IN-86 | Central Ave/Chicago Ave | D | SIGNAL | 46.8 | D | SIGNAL | 60.7 | **E** |
| IN-87 | Central Ave/El Cerrito Dr | D | SIGNAL | 17.6 | B | SIGNAL | 17.8 | B |
| IN-88 | Central Ave/Canyon Crest Dr | D | SIGNAL | 45.4 | D | SIGNAL | 49.7 | D |
| IN-89 | Chicago Ave/Country Club Dr | D | SIGNAL | 11.2 | B | SIGNAL | 11.7 | B |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | SIGNAL | 38.4 | D | SIGNAL | 39.4 | D |
| IN-91 | Arlington Ave/Indiana Ave/SR-91 NB Ramps | D | SIGNAL | 20.5 | C | SIGNAL | 20.8 | C |
| IN-92 | Arlington Ave/Maude St | D | SIGNAL | 14.1 | B | SIGNAL | 14.3 | B |
| IN-93 | Horace St/Arlington Ave | D | SIGNAL | 37.4 | D | SIGNAL | 38.8 | D |

## Table 65: Intersection LOS under 2035 Plus Build-out Conditions (continued)

| ID | Study Intersection | LOS Standard | 2035 No-Project | | | 2035 Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | AM Peak Hour | | Traffic Control | AM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-94 | Arlington Ave/Victoria Ave | D | SIGNAL | 124.5 | **F** | SIGNAL | 138.7 | **F** |
| IN-95 | Alessandro Blvd/Chicago Ave | D | SIGNAL | 57.4 | **E** | SIGNAL | 64.9 | **E** |
| IN-96 | Alessandro Blvd/Century Ave | D | SIGNAL | 19.2 | B | SIGNAL | 19.1 | B |
| IN-97 | Alessandro Blvd/Via Vista Dr | D | SIGNAL | 17.9 | B | SIGNAL | 17.9 | B |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | SIGNAL | 56.6 | **E** | SIGNAL | 60.6 | **E** |
| IN-99 | Harley Knox Blvd/Perris Blvd | D | SIGNAL | 33.5 | C | SIGNAL | 35.4 | D |
| IN-100 | Harley Knox Blvd/Evan Rd | D | SIGNAL | 16.1 | B | SIGNAL | 16.6 | B |
| IN-101 | Ramona Expy/Indian St | E | SIGNAL | 110.4 | **F** | SIGNAL | 112.0 | **F** |
| IN-102 | Ramona Expy/Perris Blvd | E | SIGNAL | 49.2 | D | SIGNAL | 52.3 | D |
| IN-103 | Ramona Expy/Evans Rd | E | SIGNAL | 60.6 | E | SIGNAL | 66.1 | E |
| IN-104 | Perris Blvd/Morgan St | D | SIGNAL | 11.9 | B | SIGNAL | 11.9 | B |
| IN-105 | Evans Rd/Morgan St | C | SIGNAL | 28.1 | C | SIGNAL | 28.1 | C |
| IN-106 | Perris Blvd/Rider St | C | SIGNAL | 23.4 | C | SIGNAL | 23.1 | C |
| IN-107 | Evans Rd/Rider St | C | SIGNAL | 36.3 | **D** | SIGNAL | 36.5 | **D** |
| IN-108 | Perris Blvd/Mid-County Pkwy WB Ramps | D | SIGNAL | 32.7 | C | SIGNAL | 33.7 | C |
| IN-109 | Perris Blvd/Mid-County Pkwy EB Ramps | D | SIGNAL | 28.3 | C | SIGNAL | 29.8 | C |
| IN-110 | Evans Rd/Mid-County Pkwy WB Ramps | D | SIGNAL | 25.7 | C | SIGNAL | 25.6 | C |
| IN-111 | Evans Rd/Mid-County Pkwy EB Ramps | D | SIGNAL | 18.1 | B | SIGNAL | 18.1 | B |
| IN-112 | Placentia Ave/Perris Blvd | D | SIGNAL | 29.3 | C | SIGNAL | 29.3 | C |
| IN-113 | Evans Rd/Placentia Ave | D | SIGNAL | 7.3 | A | SIGNAL | 7.2 | A |
| IN-114 | Evans Rd/Orange Ave | C | SIGNAL | 25.5 | C | SIGNAL | 25.4 | C |
| IN-115 | Evans Rd/Nuevo Rd | C | SIGNAL | 31.8 | C | SIGNAL | 31.9 | C |
| IN-116 | Evans Rd/Ellis Ave | D | SIGNAL | 12.7 | B | SIGNAL | 13.5 | B |
| IN-117 | Ellis Ave/I-215 SB Ramps | E | SIGNAL | 26.5 | C | SIGNAL | 26.2 | C |
| IN-118 | Ellis Ave/SR-215 NB Ramps | E | SIGNAL | 22.2 | C | SIGNAL | 21.9 | C |
| IN-119 | Evans Rd/San Jacinto Ave | D | SIGNAL | 21.1 | C | SIGNAL | 21.5 | C |
| IN-120 | Park Center Blvd/Ramona Expy WB Ramps | D | CSS | 11.8 | B | CSS | 13.3 | B |
| IN-121 | Park Center Blvd/Ramona Expy EB Ramps | D | CSS | 11.6 | B | CSS | 13.5 | B |
| IN-122 | Bridge St/Ramona Expy | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-123 | Gilman Springs Rd/Bridge Str | C | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-126 | Ramona Expy/Sanderson Ave | D | SIGNAL | 43.9 | D | SIGNAL | 48.4 | D |
| IN-127 | Potrero Blvd/SR-60 WB Ramps | D | SIGNAL | 21.3 | C | SIGNAL | 27.0 | C |
| IN-128 | Potrero Blvd/SR-60 EB Ramps | D | SIGNAL | 20.3 | C | SIGNAL | 21.1 | C |
| IN-129 | W 6th St/California Ave | C | AWS | 146.4 | **F** | AWS | 148.1 | **F** |
| IN-130 | W 6th St/Beaumont Ave | C | SIGNAL | 35.5 | **D** | SIGNAL | 36.7 | **D** |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | SIGNAL | 42.2 | **D** | SIGNAL | 47.0 | **D** |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | AWS | 26.4 | D | AWS | 40.8 | **E** |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | AWS | 127.6 | **F** | AWS | > 180.0 | **F** |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | AWS | 140.5 | **F** | AWS | > 180.0 | **F** |
| IN-135 | W Crescent Ave/Alessandro Rd | C | CSS | 17.6 | C | CSS | 19.9 | C |
| IN-136 | W Sunset Dr/Alessandro Rd | C | AWS | 10.2 | B | AWS | 10.7 | B |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

## Table 65: Intersection LOS under 2035 Plus Build-out Conditions (continued)

| ID | Study Intersection | LOS Standard | 2035 No-Project | | | 2035 Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-1 | Theodore St/Street F | D | N/A | Non-Existent | | RABT | 53.0 | D |
| IN-2 | Cactus Ave Extension/Street E | D | N/A | Non-Existent | | SIGNAL | 15.2 | B |
| IN-3 | Theodore St/Alessandro (Str A/Str C/Str E) | D | CSS | 19.6 | C | RABT | 10.2 | B |
| IN-4 | Alessandro Blvd (Street C)/Street F | D | N/A | Non-Existent | | RABT | 18.2 | C |
| IN-6 | Alessandro Blvd (Street C)/Gilman Springs Rd | D | SIGNAL | 37.7 | D | SIGNAL | 36.7 | D |
| IN-9 | Gilman Springs Rd/Eucalytpus Ave | D | N/A | Non-Existent | | SIGNAL | 14.3 | B |
| IN-10 | Redlands Blvd/Locust Ave | C | SIGNAL | 16.6 | B | SIGNAL | 20.3 | C |
| IN-11 | Redlands Blvd/Ironwood Ave | D | SIGNAL | 48.2 | D | SIGNAL | 72.3 | **E** |
| IN-12 | Theodore Street/Ironwood Avenue | D | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-13 | Redlands Blvd/SR-60 WB ramps | D | SIGNAL | 7.5 | A | SIGNAL | 10.9 | B |
| IN-14 | Redlands Blvd/SR-60 EB ramps | D | SIGNAL | 7.3 | A | SIGNAL | 10.0 | A |
| IN-15 | Theodore Str/SR-60 WB ramps | D | CSS | 173.7 | **F** | SIGNAL | 17.0 | B |
| IN-16 | Theodore Str/SR-60 EB ramps | D | CSS | > 180.0 | **F** | SIGNAL | 31.2 | C |
| IN-17 | Quincy Str/Fir Ave | D | CSS | 12.6 | B | CSS | 15.7 | C |
| IN-18 | Redlands Blvd/Eucalyptus Ave (Fir) | D | SIGNAL | 15.6 | B | SIGNAL | 52.3 | D |
| IN-19 | Theodore St/Fir Ave (Eucalyptus) | D | CSS | 68.9 | **F** | SIGNAL | 54.5 | D |
| IN-20 | Oliver Str/Alessandro Blvd | C | CSS | 21.6 | C | CSS | 23.5 | C |
| IN-21 | Moreno Beach Dr/Alessandro Blvd | D | SIGNAL | 20.2 | C | SIGNAL | 22.7 | C |
| IN-22 | Quincy Str/Alessandro Blvd | C | SIGNAL | 3.7 | A | SIGNAL | 3.7 | A |
| IN-23 | Redlands Blvd/Alessandro Blvd | C | AWS | 74.7 | **F** | AWS | 24.1 | C |
| IN-24 | Oliver Str/Cactus Ave | D | SIGNAL | 20.2 | C | SIGNAL | 21.5 | C |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | SIGNAL | 29.7 | C | SIGNAL | 37.1 | **D** |
| IN-26 | Quincy Str/Cactus Ave | C | SIGNAL | 3.7 | A | SIGNAL | 3.6 | A |
| IN-27 | Redlands Blvd/Cactus Ave | C | AWS | 13.5 | B | AWS | > 180.0 | **F** |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | D | SIGNAL | 16.6 | B | SIGNAL | 18.5 | B |
| IN-29 | Heacock Str/Ironwood Ave | D | SIGNAL | 35.2 | D | SIGNAL | 35.5 | D |
| IN-30 | Heacock Str/SR-60 WB Ramps | D | SIGNAL | 23.1 | C | SIGNAL | 24.0 | C |
| IN-31 | Heacock St/SR-60 EB Ramps | D | SIGNAL | 19.4 | B | SIGNAL | 20.0 | B |
| IN-32 | Sunnymead Blvd & Perris Blvd | D | SIGNAL | 39.7 | D | SIGNAL | 45.3 | D |
| IN-33 | Perris Blvd/SR-60 WB Ramps | D | SIGNAL | 17.1 | B | SIGNAL | 19.5 | B |
| IN-34 | Perris Blvd/Eucalyptus Ave | D | SIGNAL | 24.7 | C | SIGNAL | 24.6 | C |
| IN-35 | Moreno Beach Dr/Locust Ave | C | CSS | 37.9 | **E** | CSS | > 180.0 | **F** |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | SIGNAL | 50.4 | D | SIGNAL | 61.9 | **E** |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | SIGNAL | 155.8 | **F** | SIGNAL | > 180.0 | **F** |
| IN-38 | Perris Blvd/John F. Kennedy Dr | D | SIGNAL | 31.6 | C | SIGNAL | 37.3 | D |
| IN-39 | Iris Ave/Perris Blvd | D | SIGNAL | 63.8 | **E** | SIGNAL | 80.4 | **F** |
| IN-40 | Kitching St/Iris Ave | C | SIGNAL | 126.3 | **F** | SIGNAL | 169.8 | **F** |
| IN-41 | Lasselle Str/Iris Ave | D | SIGNAL | 79.2 | **E** | SIGNAL | 89.5 | **F** |
| IN-42 | Nason Str/Iris Ave | C | SIGNAL | 21.7 | C | SIGNAL | 32.8 | C |
| IN-43 | Oliver Str/Iris Ave | D | SIGNAL | 25.1 | C | SIGNAL | 24.9 | C |
| IN-44 | Via Dell Lago/Iris Ave | C | SIGNAL | 7.2 | A | SIGNAL | 6.6 | A |
| IN-45 | Krameria Ave/Perris Blvd | D | SIGNAL | 52.6 | D | SIGNAL | 53.2 | D |
| IN-46 | Kitching Str/Krameria Ave | D | SIGNAL | 41.7 | D | SIGNAL | 52.4 | D |
| IN-47 | Lasselle Str/Krameria Ave | D | SIGNAL | 14.5 | B | SIGNAL | 15.8 | B |
| IN-48 | Kitching Str/Alessandro Blvd | D | SIGNAL | 28.1 | C | SIGNAL | 29.3 | C |

## Table 65: Intersection LOS under 2035 Plus Build-out Conditions (continued)

| ID | Study Intersection | LOS Standard | 2035 No-Project | | | 2035 Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-49 | Lasselle Str/Alessandro Blvd | D | SIGNAL | 23.7 | C | SIGNAL | 24.3 | C |
| IN-50 | Morrison Str/Alessandro Blvd | D | SIGNAL | 26.2 | C | SIGNAL | 26.8 | C |
| IN-51 | Nason Str/Alessandro Blvd | D | SIGNAL | 28.3 | C | SIGNAL | 29.1 | C |
| IN-52 | Kitching Str/Cactus Ave | C | SIGNAL | 28.5 | C | SIGNAL | 28.3 | C |
| IN-53 | Lasselle Str/Cactus Ave | C | SIGNAL | 34.8 | C | SIGNAL | 38.2 | **D** |
| IN-54 | Morrison Str/Cactus Ave | D | SIGNAL | 8.6 | A | SIGNAL | 9.7 | A |
| IN-55 | Nason Str/Cactus Ave | D | SIGNAL | 47.6 | D | SIGNAL | 51.1 | D |
| IN-56 | Frederick Str/Alessandro Blvd | D | SIGNAL | 34.5 | C | SIGNAL | 36.7 | D |
| IN-57 | Graham Str/Alessandro Blvd | D | SIGNAL | 88.9 | **F** | SIGNAL | 93.7 | **F** |
| IN-58 | Heacock Str/Alessandro Blvd | D | SIGNAL | 29.5 | C | SIGNAL | 30.5 | C |
| IN-59 | Indian Str/Alessandro Blvd | D | SIGNAL | 37.1 | D | SIGNAL | 36.7 | D |
| IN-60 | Perris Blvd/Alessandro Blvd | D | SIGNAL | 41.4 | D | SIGNAL | 44.5 | D |
| IN-61 | Frederick Str/Cactus Ave | D | SIGNAL | 12.5 | B | SIGNAL | 13.0 | B |
| IN-62 | Graham Str/Cactus Ave | D | SIGNAL | 42.1 | D | SIGNAL | 43.3 | D |
| IN-63 | Heacock Str/Cactus Ave | D | SIGNAL | 27.2 | C | SIGNAL | 27.5 | C |
| IN-64 | Indian Str/Cactus Ave | C | SIGNAL | 36.3 | **D** | SIGNAL | 36.3 | **D** |
| IN-65 | Perris Blvd/Cactus Ave | D | SIGNAL | 32.5 | C | SIGNAL | 36.1 | D |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | SIGNAL | 81.2 | **F** | SIGNAL | 94.9 | **F** |
| IN-67 | I-215 SB Ramps/Alessandro Blvd | D | SIGNAL | 11.5 | B | SIGNAL | 11.6 | B |
| IN-68 | I-215 NB Ramps/Alessandro Blvd | D | SIGNAL | 32.8 | C | SIGNAL | 35.6 | D |
| IN-69 | Old 215 Frontage Rd/Alessandro Blvd | D | SIGNAL | 16.4 | B | SIGNAL | 16.5 | B |
| IN-70 | Day Str/Alessandro Blvd | D | SIGNAL | 28.2 | C | SIGNAL | 27.8 | C |
| IN-71 | Elsworth Str/Alessandro Blvd | D | SIGNAL | 52.4 | D | SIGNAL | 53.6 | D |
| IN-72 | I-215 SB Ramps/Cactus Ave | D | SIGNAL | 144.8 | **F** | SIGNAL | 144.8 | **F** |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | SIGNAL | 122.6 | **F** | SIGNAL | 133.6 | **F** |
| IN-74 | Elsworth Str/Cactus Ave | D | SIGNAL | > 180.0 | **F** | SIGNAL | > 180.0 | **F** |
| IN-75 | Central Ave/Lochmoor Dr. | D | SIGNAL | 77.5 | **E** | SIGNAL | 104.9 | **F** |
| IN-76 | Sycamore Canyon Blvd/Central Ave | D | SIGNAL | 26.8 | C | SIGNAL | 29.7 | C |
| IN-77 | SR-60 EB Ramps/Central Ave | D | SIGNAL | 12.4 | B | SIGNAL | 13.2 | B |
| IN-78 | SR-60 WB Ramps/Central Ave | D | SIGNAL | 7.0 | A | SIGNAL | 6.9 | A |
| IN-79 | Alessandro Blvd/Trautwein Rd. | D | SIGNAL | 16.1 | B | SIGNAL | 16.2 | B |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | SIGNAL | 73.7 | **E** | SIGNAL | 84.3 | **F** |
| IN-81 | Martin Luther King Blvd/Chicago Ave | D | SIGNAL | 41.5 | D | SIGNAL | 43.5 | D |
| IN-82 | Martin Luther King Blvd/Iowa Ave | D | SIGNAL | 14.8 | B | SIGNAL | 15.1 | B |
| IN-83 | Martin Luther King Blvd/Canyon Crest Dr | D | SIGNAL | 52.4 | D | SIGNAL | 53.3 | D |
| IN-84 | Martin Luther King Blvd/I-215 SB Ramps | D | SIGNAL | 12.2 | B | SIGNAL | 12.5 | B |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | AWS | 20.7 | C | AWS | 22.0 | C |
| IN-86 | Central Ave/Chicago Ave | D | SIGNAL | 79.0 | **E** | SIGNAL | 102.9 | **F** |
| IN-87 | Central Ave/El Cerrito Dr | D | SIGNAL | 20.0 | B | SIGNAL | 20.8 | C |
| IN-88 | Central Ave/Canyon Crest Dr | D | SIGNAL | 106.3 | **F** | SIGNAL | 118.0 | **F** |
| IN-89 | Chicago Ave/Country Club Dr | D | SIGNAL | 12.9 | B | SIGNAL | 14.4 | B |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | SIGNAL | 68.0 | **E** | SIGNAL | 69.8 | **E** |
| IN-91 | Arlington Ave/Indiana Ave/SR-91 NB Ramps | D | SIGNAL | 26.8 | C | SIGNAL | 29.8 | C |
| IN-92 | Arlington Ave/Maude St | D | SIGNAL | 10.7 | B | SIGNAL | 11.2 | B |
| IN-93 | Horace St/Arlington Ave | D | SIGNAL | 25.5 | C | SIGNAL | 33.7 | C |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

## Table 65: Intersection LOS under 2035 Plus Build-out Conditions (continued)

| ID | Study Intersection | LOS Standard | 2035 No-Project | | | 2035 Plus Build-out | | |
|---|---|---|---|---|---|---|---|---|
| | | | Traffic Control | PM Peak Hour | | Traffic Control | PM Peak Hour | |
| | | | | Delay | LOS | | Delay | LOS |
| IN-94 | Arlington Ave/Victoria Ave | D | SIGNAL | 87.2 | **F** | SIGNAL | 97.9 | **F** |
| IN-95 | Alessandro Blvd/Chicago Ave | D | SIGNAL | 111.2 | **F** | SIGNAL | 123.3 | **F** |
| IN-96 | Alessandro Blvd/Century Ave | D | SIGNAL | 11.8 | B | SIGNAL | 12.3 | B |
| IN-97 | Alessandro Blvd/Via Vista Dr | D | SIGNAL | 22.2 | C | SIGNAL | 22.0 | C |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | SIGNAL | 131.0 | **F** | SIGNAL | 142.1 | **F** |
| IN-99 | Harley Knox Blvd/Perris Blvd | D | SIGNAL | 48.0 | D | SIGNAL | 51.9 | D |
| IN-100 | Harley Knox Blvd/Evan Rd | D | SIGNAL | 23.8 | C | SIGNAL | 24.3 | C |
| IN-101 | Ramona Expy/Indian St | E | SIGNAL | > 180.0 | **F** | SIGNAL | > 180.0 | **F** |
| IN-102 | Ramona Expy/Perris Blvd | E | SIGNAL | 58.5 | **E** | SIGNAL | 60.9 | **E** |
| IN-103 | Ramona Expy/Evans Rd | E | SIGNAL | 46.2 | D | SIGNAL | 49.2 | D |
| IN-104 | Perris Blvd/Morgan St | D | SIGNAL | 9.9 | A | SIGNAL | 11.0 | B |
| IN-105 | Evans Rd/Morgan St | C | SIGNAL | 21.8 | C | SIGNAL | 21.8 | C |
| IN-106 | Perris Blvd/Rider St | C | SIGNAL | 30.1 | C | SIGNAL | 30.6 | C |
| IN-107 | Evans Rd/Rider St | C | SIGNAL | 34.5 | C | SIGNAL | 34.6 | C |
| IN-108 | Perris Blvd/Mid-County Pkwy WB Ramps | D | SIGNAL | 22.6 | C | SIGNAL | 25.3 | C |
| IN-109 | Perris Blvd/Mid-County Pkwy EB Ramps | D | SIGNAL | 36.2 | D | SIGNAL | 38.4 | D |
| IN-110 | Evans Rd/Mid-County Pkwy WB Ramps | D | SIGNAL | 21.3 | C | SIGNAL | 22.0 | C |
| IN-111 | Evans Rd/Mid-County Pkwy EB Ramps | D | SIGNAL | 24.9 | C | SIGNAL | 24.9 | C |
| IN-112 | Placentia Ave/Perris Blvd | D | SIGNAL | 34.2 | C | SIGNAL | 34.6 | C |
| IN-113 | Evans Rd/Placentia Ave | D | SIGNAL | 7.4 | A | SIGNAL | 7.4 | A |
| IN-114 | Evans Rd/Orange Ave | C | SIGNAL | 25.3 | C | SIGNAL | 25.2 | C |
| IN-115 | Evans Rd/Nuevo Rd | C | SIGNAL | 31.2 | C | SIGNAL | 31.1 | C |
| IN-116 | Evans Rd/Ellis Ave | D | SIGNAL | 13.6 | B | SIGNAL | 14.3 | B |
| IN-117 | Ellis Ave/I-215 SB Ramps | E | SIGNAL | 28.3 | C | SIGNAL | 28.0 | C |
| IN-118 | Ellis Ave/SR-215 NB Ramps | E | SIGNAL | 34.3 | C | SIGNAL | 35.0 | C |
| IN-119 | Evans Rd/San Jacinto Ave | D | SIGNAL | 22.7 | C | SIGNAL | 22.6 | C |
| IN-120 | Park Center Blvd/Ramona Expy WB Ramps | D | CSS | 15.3 | C | CSS | 16.9 | C |
| IN-121 | Park Center Blvd/Ramona Expy EB Ramps | D | CSS | 23.1 | C | CSS | 34.9 | D |
| IN-122 | Bridge St/Ramona Expy | - | N/A | Non-Existent | | N/A | Non-Existent | |
| IN-123 | Gilman Springs Rd/Bridge Str | C | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | CSS | > 180.0 | **F** | CSS | > 180.0 | **F** |
| IN-126 | Ramona Expy/Sanderson Ave | D | SIGNAL | 39.9 | D | SIGNAL | 41.9 | D |
| IN-127 | Potrero Blvd/SR-60 WB Ramps | D | SIGNAL | 15.3 | B | SIGNAL | 16.4 | B |
| IN-128 | Potrero Blvd/SR-60 EB Ramps | D | SIGNAL | 31.3 | C | SIGNAL | 33.5 | C |
| IN-129 | W 6th St/California Ave | C | AWS | 178.3 | **F** | AWS | > 180.0 | **F** |
| IN-130 | W 6th St/Beaumont Ave | C | SIGNAL | 94.4 | **F** | SIGNAL | 106.8 | **F** |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | SIGNAL | 100.9 | **F** | SIGNAL | 109.5 | **F** |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | AWS | 22.2 | C | AWS | 38.3 | **E** |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | AWS | 127.7 | **F** | AWS | > 180.0 | **F** |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | AWS | > 180.0 | **F** | AWS | > 180.0 | **F** |
| IN-135 | W Crescent Ave/Alessandro Rd | C | CSS | 14.7 | B | CSS | 15.1 | C |
| IN-136 | W Sunset Dr/Alessandro Rd | C | AWS | 10.4 | B | AWS | 10.8 | B |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level

"CSS" means cross-street is stop-controlled

"AWS" means all-way stop

"RABT" means roundabout

## Table 66: 2035 Plus Build-out Intersection Impacts and Mitigations

| ID | Study Intersection | LOS Standard | Determination of Impact | | | | | 2035 Plus Build-out & Mitigations | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | PM Peak Hour | | | | AM Peak Hour | | PM Peak Hour | | |
| | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | Project Impact? | Traffic Control | Delay | LOS | Delay | LOS | |
| IN-11 | Redlands Blvd/Ironwood Ave | D | D | D | D | E | Yes | SIGNAL | 46.5 | D | 46.5 | D | Add 1 SB LT lane. |
| IN-12 | Theodore Street/Ironwood Avenue | D | C | E | F | F | Yes | SIGNAL | 6.6 | A | 7.4 | A | Signalize. |
| IN-25 | Moreno Beach Dr/Cactus Ave | C | C | C | C | D | Yes | SIGNAL | 18.8 | B | 23.1 | C | Add 1 EB LT lane. |
| IN-27 | Redlands Blvd/Cactus Ave | C | B | F | B | F | Yes | SIGNAL | 15.9 | B | 29.0 | C | Signalize. Add 1 EB LT and 2 WB LT lanes. |
| IN-35 | Moreno Beach Dr/Locust Ave | C | D | D | E | F | Yes | SIGNAL | 7.6 | A | 18.1 | B | Signalize. Add 1 WB LT lane. |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | D | D | D | D | E | Yes | SIGNAL | 37.3 | D | 35.8 | D | Change N/S from split to protected LT phase. Add NB and SB LT lanes. |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | D | F | F | F | F | Yes | SIGNAL | 28.3 | C | 48.4 | D | Change EB from 1 shared LT/TH to 1 LT and 1 TH. Add 1 SB LT lane. Change split phasing on E/W movement to protected LT phasing. |
| IN-39 | Iris Ave/Perris Blvd | D | E | E | E | F | Yes | SIGNAL | 51.1 | D | 47.1 | D | Add 1 WB LT and 1 SB LT lane. |
| IN-40 | Kitching St/Iris Ave | C | E | E | F | F | Yes | SIGNAL | 29.1 | C | 27.6 | C | Add 1 WB LT and change NB shared TH/RT to RT lane and add another RT lane. Provide overlap phase for NB RT. Add 1 EB TH lane. |
| IN-41 | Lasselle Str/Iris Ave | D | C | D | E | F | Yes | SIGNAL | 31.6 | C | 51.3 | D | Add 1 WB LT lane (resulting 3 turn lanes), and 1 EB RT<br>Need to widen Lasselle in the SB to have 3 receiving lanes. |
| IN-53 | Lasselle Str/Cactus Ave | C | D | D | C | D | Yes | SIGNAL | 37.9 | D | 33.6 | C | Add 1 WB LT lane. |
| IN-57 | Graham Str/Alessandro Blvd | D | D | D | F | F | Yes | SIGNAL | 33.1 | C | 42.6 | D | Add 1 NB LT and 1 WB LT lanes. |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | D | D | D | F | F | Yes | SIGNAL | 23.7 | C | 52.9 | D | Add SB RT overlap. |
| IN-73 | I-215 NB Ramps/Cactus Ave | D | E | E | F | F | Yes | SIGNAL | 17.7 | B | 47.2 | D | Add 1 EB RT, 1 WB RT, 1 NB LT, and 1 SB LT lanes. |
| IN-74 | Elsworth Str/Cactus Ave | D | F | F | F | F | Yes | SIGNAL | 38.0 | D | 54.7 | D | Widen NB approach and change NB lane geometry from: 1 LT and 1 shared LT/TH/RT lanes to 3 LTs and 1 TH and 1 RT. Add 1 WB LT and EB RT. |

Indicates that the LOS exceeds the target level

Notes: "CSS" means cross-street is stop-controlled
"AWS" means all-way stop
"RABT" means roundabout

"LT" and "RT" denote left turn and right turn respectively
"TH" denotes through lanes
"NB" and "SB" denote northbound and southbound respectively
"EB" and "WB" denote eastbound and westbound respectively

## Table 66: 2035 Plus Build-out Intersection Impacts and Mitigations (continued)

| ID | Study Intersection | LOS Standard | Determination of Impact | | | | | 2035 Plus Build-out & Mitigations | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | PM Peak Hour | | | | AM Peak Hour | | PM Peak Hour | | |
| | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | Project Impact? | Traffic Control | Delay | LOS | Delay | LOS | |
| IN-75 | Central Ave/Lochmoor Dr. | D | B | B | E | F | Yes | SIGNAL | 12.2 | B | 45.5 | D | Change NB approach to one LT and 1 shared LT/RT lane. |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | D | C | C | E | F | Yes | SIGNAL | 27.6 | C | 53.9 | D | Add EB LT. Add WB LT. Add NB TH lane. |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | D | E | E | C | C | Yes | SIGNAL | 10.1 | B | 7.8 | A | Signalize. |
| IN-86 | Central Ave/Chicago Ave | D | D | E | E | F | Yes | SIGNAL | 20.8 | C | 42.1 | D | Add NB RT overlap. |
| IN-88 | Central Ave/Canyon Crest Dr | D | D | D | F | F | Yes | SIGNAL | 41.5 | D | 54.2 | D | Change EB approach to 1 LT, 2 THs and 1 RT. Add WB LT lane. Add NB LT lane. Change SB approach to 2 LTs, 2 THs and 1 RT. Adjust splits. |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | D | D | D | E | E | Yes | SIGNAL | 34.0 | C | 52.2 | D | Add SB LT lane. |
| IN-94 | Arlington Ave/Victoria Ave | D | F | F | F | F | Yes | SIGNAL | 54.2 | D | 39.8 | D | Add EB TH lane. Add WB LT and RT. Adjust timings. |
| IN-95 | Alessandro Blvd/Chicago Ave | D | E | E | F | F | Yes | SIGNAL | 40.1 | D | 54.4 | D | Add EB TH lane. Add WB LT lane. Add WB TH lane. Add NB LT lane. Reconfigure SB approach to 3 LTs, 3 THs and 1 RT. |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | D | E | E | F | F | Yes | SIGNAL | 52.5 | D | 51.4 | D | Reconfigure EB approach to 1 LT, 1 TH and 2 RTs. Add WB TH lane. Add NB LT and NB RT lane. Reconfigure SB approach to 1 LT, 3 THs and 1 shared TH/RT lane. |
| IN-101 | Ramona Expy/Indian St | E | F | F | F | F | Yes | SIGNAL | 77.6 | E | 56.2 | E | Add 1 EB RT. Add 2nd NB LT and 1 NB RT. Provide signal phase overlap for all RTs. |
| IN-107 | Evans Rd/Rider St | C | D | D | C | C | Yes | SIGNAL | 34.7 | C | 30.5 | C | Reconfigure SB approach to include 1 LT, 2 THs and 1 RT. |
| IN-123 | Gilman Springs Rd/Bridge Str | C | F | F | F | F | Yes | SIGNAL | 9.3 | A | 12.1 | B | Signalize. |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | C | F | F | F | F | Yes | SIGNAL | 8.9 | A | 14.5 | B | Signalize. |

Indicates that the LOS exceeds the target level

Notes: "CSS" means cross-street is stop-controlled
"AWS" means all-way stop
"RABT" means roundabout
"LT" and "RT" denote left turn and right turn respectively
"TH" denotes through lanes
"NB" and "SB" denote northbound and southbound respectively
"EB" and "WB" denote eastbound and westbound respectively

## Table 66: 2035 Plus Build-out Intersection Impacts and Mitigations (continued)

| ID | Study Intersection | LOS Standard | Determination of Impact | | | | | 2035 Plus Build-out & Mitigations | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | | PM Peak Hour | | | | AM Peak Hour | | PM Peak Hour | | |
| | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | Project Impact? | Traffic Control | Delay | LOS | Delay | LOS | |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | C | F | F | F | F | Yes | SIGNAL | 10.2 | B | 7.5 | A | Signalize. |
| IN-129 | W 6th St/California Ave | C | F | F | F | F | Yes | SIGNAL | 19.4 | B | 20.1 | C | Signalize. |
| IN-130 | W 6th St/Beaumont Ave | C | D | D | F | F | Yes | SIGNAL | 29.6 | C | 34.9 | C | Reconfigure EB approach to 2 LTs, 2 THs and 1 RT; change lefts to protected. Add 1 WB LT and 1 WB TH; change lefts to protected. Reconfigure NB approach to 1 LT, 2 THs and 1 RT. Add 1 SB LT. |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | C | D | D | F | F | Yes | SIGNAL | 12.9 | B | 30.6 | C | Adjust NB approach to a dedicated LT and a shared LT/RT lane. |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | D | D | E | C | E | Yes | SIGNAL | 13.4 | B | 8.7 | A | Signalize. |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | C | F | F | F | F | Yes | SIGNAL | 16.7 | B | 10.3 | B | Signalize. |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | C | F | F | F | F | Yes | SIGNAL | 8.8 | A | 11.7 | B | Signalize. Add 1 EB RT. Also add EB RT overlap phase. |

Indicates that the LOS exceeds the target level

Notes: "CSS" means cross-street is stop-controlled
"AWS" means all-way stop
"RABT" means roundabout
"LT" and "RT" denote left turn and right turn respectively
"TH" denotes through lanes
"NB" and "SB" denote northbound and southbound respectively
"EB" and "WB" denote eastbound and westbound respectively

## C. FREEWAY SEGMENT LOS, IMPACTS, AND MITIGATIONS

***Freeway Mainline Basic Sections***

Table 67 compares the LOS for freeway mainline sections for the 2035 No-Project and 2035 Plus Build-out scenarios. Details of the LOS calculations for freeways under 2035 Plus Build-out Conditions can be found in Appendix O. Table 68 identifies the 52 basic freeway sections where the project has a significant impact and identifies measures that would reduce project impacts to a less-than-significant level. Forty-eight of the 52 sections would operate below LOS "D" under both 2035 No-Project conditions and 2035 Plus Build-out conditions, namely:

- Northbound or Eastbound SectionsSR-60 from Reservoir St. to Ramona Ave.
- SR-60 from Ramona Ave. to Central Ave.
- SR-60 from Central Ave. to Mountain Ave
- SR-60 from Mountain Ave. to Euclid Ave.
- SR-60 from Euclid Ave. to Grove Ave.
- SR-60 from Grove Ave. to Vineyard Ave.
- SR-60 from Vineyard Ave. to Archibald Ave.
- SR-60 from Archibald Ave. to Haven Ave.
- SR-60 from Valley Way to Rubidoux Blvd.
- SR-60 from Rubidoux Blvd. to Market St.
- SR-60 from Market St. to Main St.
- SR-60 from Martin Luther King Blvd. to Central Ave.
- SR-60 from Pigeon Pass Rd./Frederick St. to Heacock St.
- SR-60 from Heacock St. to Perris Blvd.
- SR-60 from Gilman Springs Rd. to Jack Rabbit Trail
- SR-60 from Jack Rabbit Trail to Potrero Blvd.
- SR-91 from Pierce St. to Magnolia Ave.
- SR-91 from La Sierra Ave. to Tyler St.
- SR-91 from Adam St. to Madison St.

- SR-91 from Central Ave. to 14th St.
- I-10 from SR-60 to Beaumont Ave.
- I-10 from Pennsylvania Ave. to Highland Springs Ave.
- I-10 from Highland Springs Ave. to Sunset Ave.
- I-10 from S. Hargrave St. to Field Rd.
- I-10 from Morongo Trail to Main St.

Southbound or Westbound Sections

- SR-60 from Reservoir St. to Ramona Ave.
- SR-60 from Mountain Ave. to Euclid Ave.
- SR-60 from Euclid Ave. to Grove Ave.
- SR-60 from Grove Ave. to Vineyard Ave.
- SR-60 from Valley Way to Rubidoux Blvd.
- SR-60 from Market St. to Main St.
- SR-60 from Main St. to SR-91
- SR-60 from Fair Isle Dr./Box Springs Rd. to I-215
- SR-60 from I-215 to Day St.
- SR-60 from Pigeon Pass Rd./Frederick St. to Heacock St.
- SR-60 from Redlands Blvd. to Theodore St.
- SR-91 from Pierce St. to Magnolia Ave.
- SR-91 from Magnolia Ave. to La Sierra Ave.
- SR-91 from La Sierra Ave. to Tyler St.
- SR-91 from Tyler St. to Van Buren Blvd.
- SR-91 from Madison St. to Arlington Ave.
- I-215 from SR-74 to Ellis Ave.
- I-215 from Center St. to Iowa Ave./La Cadena Dr.
- I-215 from Baseline Rd. to Highland Ave.
- I-10 from SR-60 to Beaumont Ave.

- I-10 from Pennsylvania Ave. to Highland Springs Ave.
- I-10 from Highland Springs Ave. to Sunset Ave.
- I-10 from S. 8th St. to S. Hargrave St.

Four sections were found to be deficient under Plus Build-out conditions only, namely:

Northbound or Eastbound Sections

- I-10 from 8th St. to Hargrave St.

Southbound or Westbound Sections

- SR-60 from Martin Luther King Blvd. to Central Ave.
- SR-60 from Heacock St. to Perris Blvd.
- SR-91 from Van Buren Blvd. to Adam St.

There are seven locations would operate at LOS "F" under 2035 No-Project conditions and would continue to do so under 2035 Plus Build-out conditions, and adding a mixed-flow lane would improve six sections to LOS "E" while one would still operate at LOS "F". While this is below the threshold of significance it would be an improvement over 2035 No-Project conditions and so would reduce the impact of the WLC project to a less-than-significant level.

The mitigation measures shown in Table 68 are those that would be needed to reduce the impact of the project to a less-than-significant level. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS, this does not necessarily mean that they pass other

tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## Table 67: 2035 Plus Build-out Freeway Mainline LOS

| ID | Freeway | Segment | 2035 No-Project Conditions | | | | | | 2035 Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-2 | SR-60 | Reservoir St to Ramona Ave | 8,560 | 41.2 | E | 8,750 | 43.6 | E | 8,740 | 43.5 | E | 8,640 | 42.8 | E |
| F-3 | SR-60 | Ramona Ave to Central Ave | 8,190 | 37.8 | E | 10,230 | 66.5 | F | 8,370 | 39.7 | E | 10,140 | 65.6 | F |
| F-4 | SR-60 | Central Ave to Mountain Ave | 8,900 | 44.8 | E | 10,210 | 66.0 | F | 9,100 | 47.6 | F | 10,110 | 65.0 | F |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | 8,780 | 43.4 | E | 7,590 | 33.3 | D | 8,990 | 46.3 | F | 7,480 | 33.0 | D |
| F-6 | SR-60 | Euclid Ave to Grove Ave | 9,920 | 59.3 | F | 9,680 | 56.0 | F | 10,120 | 64.1 | F | 9,580 | 55.1 | F |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | 9,210 | 48.5 | F | 10,050 | 62.7 | F | 9,410 | 51.8 | F | 9,960 | 61.9 | F |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | 9,080 | 46.3 | F | 10,210 | 66.0 | F | 9,290 | 49.6 | F | 10,100 | 64.7 | F |
| F-9 | SR-60 | Archibald Ave to Haven Ave | 8,430 | 39.5 | E | 7,330 | 31.5 | D | 8,650 | 42.5 | E | 7,220 | 31.2 | D |
| F-10 | SR-60 | Haven Ave to Milliken Ave | 8,430 | 27.5 | D | 8,110 | 26.4 | D | 8,690 | 29.1 | D | 7,980 | 26.2 | D |
| F-11 | SR-60 | Milliken Ave to I-15 | 5,160 | 19.8 | C | 4,530 | 17.4 | B | 5,420 | 21.3 | C | 4,460 | 17.4 | B |
| F-12 | SR-60 | I-15 to Etiwanda Ave/Van Buren Blvd | 4,140 | 15.9 | B | 2,740 | 10.6 | A | 4,380 | 17.1 | B | 2,640 | 10.5 | A |
| F-13 | SR-60 | Etiwanda Ave/Van Buren Blvd to Mission | 4,950 | 19.1 | C | 4,170 | 16.1 | B | 5,190 | 20.4 | C | 3,990 | 15.7 | B |
| F-14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 4,380 | 16.8 | B | 3,150 | 12.2 | B | 4,650 | 18.2 | C | 2,970 | 11.7 | B |
| F-15 | SR-60 | Pedley Rd to Pyrite St | 4,620 | 17.8 | B | 3,610 | 13.9 | B | 4,870 | 19.0 | C | 3,400 | 13.4 | B |
| F-16 | SR-60 | Pyrite St to Valley Way | 5,060 | 19.5 | C | 3,880 | 15.0 | B | 5,310 | 20.9 | C | 3,650 | 14.4 | B |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | 6,160 | 38.0 | E | 3,850 | 19.9 | C | 6,410 | 42.3 | E | 3,790 | 20.1 | C |
| F-18 | SR-60 | Rubidoux Blvd to Market St | 6,490 | 42.1 | E | 4,210 | 22.2 | C | 6,710 | 46.8 | F | 4,140 | 22.2 | C |
| F-19 | SR-60 | Market St to Main St | 6,020 | 36.4 | E | 6,620 | 44.9 | E | 6,240 | 40.0 | E | 6,610 | 46.2 | F |
| F-20 | SR-60 | Main to SR-91 | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | 9,500 | 59.8 | F | 9,860 | 70.8 | F | 9,980 | 82.8 | F | 10,060 | 91.4 | F |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 6,090 | 24.2 | C | 5,790 | 22.9 | C | 6,540 | 27.2 | D | 6,010 | 24.4 | C |
| F-27 | SR-60 | I-215 to Day St | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-29 | SR-60 | Pigeon Pass Rd St to Heacock St | 3,330 | 27.3 | D | 4,120 | 38.2 | E | 3,590 | 33.6 | D | 4,110 | 41.4 | E |
| F-30 | SR-60 | Heacock St to Perris Blvd | 3,020 | 24.1 | C | 4,200 | 39.6 | E | 3,540 | 32.9 | D | 4,240 | 44.2 | E |
| F-31 | SR-60 | Perris Blvd to Nason St | 2,670 | 20.9 | C | 3,520 | 29.4 | D | 3,210 | 28.9 | D | 3,610 | 33.4 | D |
| F-33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 2,480 | 19.2 | C | 3,130 | 25.0 | C | 2,910 | 25.4 | C | 3,240 | 28.5 | D |
| F-34 | SR-60 | Redlands Blvd to Theodore St | 3,200 | 25.9 | C | 4,500 | 45.4 | F | 3,630 | 34.0 | D | 4,280 | 43.8 | E |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 2,420 | 20.1 | C | 4,430 | 53.0 | F | 2,320 | 19.3 | C | 4,580 | 58.2 | F |
| F-37 | SR-60 | Jack Rabbit Trail to Potrero Blvd | 2,500 | 19.5 | C | 4,750 | 51.8 | F | 2,400 | 18.7 | C | 4,950 | 59.8 | F |
| F-38 | SR-60 | Potrero Blvd to I-10 | 2,300 | 17.8 | B | 3,620 | 30.6 | D | 2,190 | 16.9 | B | 3,810 | 33.8 | D |
| F-39 | SR-91 | I-15 to McKinley St | 8,140 | 26.3 | D | 11,870 | 52.4 | F | 8,290 | 27.2 | D | 11,740 | 51.6 | F |
| F-40 | SR-91 | McKinley St to Pierce St | 6,990 | 29.1 | D | 6,910 | 29.0 | D | 7,110 | 30.1 | D | 6,870 | 29.0 | D |
| F-41 | SR-91 | Pierce St to Magnolia Ave | 6,430 | 41.3 | E | 6,360 | 41.2 | E | 6,550 | 43.9 | E | 6,310 | 41.0 | E |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-43 | SR-91 | La Sierra Ave to Tyler St | 6,170 | 38.1 | E | 6,250 | 39.8 | E | 6,250 | 39.8 | E | 6,210 | 39.7 | E |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | 7,250 | 30.7 | D | 6,950 | 29.2 | D | 7,350 | 31.6 | D | 6,920 | 29.3 | D |

## Table 67: 2035 Plus Build-out Freeway Mainline LOS (continued)

| ID | Freeway | Segment | 2035 No-Project Conditions | | | | | | 2035 Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-45 | SR-91 | Van Buren Blvd to Adam St | 7,270 | 30.8 | D | 6,290 | 25.5 | C | 7,360 | 31.7 | D | 6,260 | 25.5 | C |
| F-46 | SR-91 | Adam St to Madison St | 7,980 | 36.6 | E | 6,030 | 24.3 | C | 8,060 | 38.0 | E | 6,000 | 24.4 | C |
| F-47 | SR-91 | Madison St to Arlington Ave | 7,000 | 29.6 | D | 5,390 | 21.4 | C | 7,030 | 30.2 | D | 5,370 | 21.4 | C |
| F-49 | SR-91 | Central Ave to 14th St | 6,400 | 40.9 | E | 5,730 | 33.4 | D | 6,410 | 41.5 | E | 5,580 | 32.2 | D |
| F-51 | SR-91 | University Ave to Spruce St | 8,160 | 26.4 | D | 7,420 | 23.4 | C | 8,110 | 26.2 | D | 7,290 | 22.9 | C |
| F-66 | I-215 | Scott Rd to Garbani Rd | 3,350 | 17.2 | B | 6,010 | 36.0 | E | 3,370 | 17.3 | B | 5,980 | 35.6 | E |
| F-84 | I-215 | Garbani Rd to Newport Rd | 3,150 | 16.1 | B | 5,680 | 32.9 | D | 3,200 | 16.5 | B | 5,650 | 32.6 | D |
| F-68 | I-215 | Newport Rd to McCall Blvd | 2,910 | 15.0 | B | 4,610 | 24.4 | C | 2,980 | 15.3 | B | 4,580 | 24.2 | C |
| F-69 | I-215 | McCall Blvd to Ethanac Rd | 3,530 | 18.1 | C | 5,570 | 31.9 | D | 3,600 | 18.5 | C | 5,540 | 31.6 | D |
| F-70 | I-215 | Ethanac Rd to SR-74 | 5,240 | 29.1 | D | 5,650 | 32.6 | D | 5,290 | 29.5 | D | 5,610 | 32.3 | D |
| F-71 | I-215 | SR-74 to Ellis Ave | 5,200 | 28.7 | D | 6,760 | 46.1 | F | 5,200 | 28.7 | D | 6,740 | 45.8 | F |
| F-85 | I-215 | Ellis Ave to Redlands Ave | 4,820 | 25.9 | C | 6,200 | 38.4 | E | 4,840 | 26.0 | D | 6,170 | 38.1 | E |
| F-74 | I-215 | Columbia Ave to Center St | 4,110 | 21.6 | C | 3,350 | 17.5 | B | 4,090 | 21.4 | C | 3,410 | 17.8 | B |
| F-75 | I-215 | Center St to La Cadena Dr | 4,940 | 26.9 | D | 4,270 | 22.7 | C | 4,930 | 27.0 | D | 4,350 | 23.2 | C |
| F-76 | I-215 | La Cadena Dr to Barton Rd | 4,880 | 26.5 | D | 4,310 | 22.8 | C | 4,900 | 26.6 | D | 4,400 | 23.5 | C |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | 5,320 | 29.9 | D | 4,700 | 25.4 | C | 5,280 | 29.6 | D | 4,760 | 25.8 | C |
| F-78 | I-215 | Mt. Vernon Ave to I-10 | 5,110 | 19.8 | C | 5,720 | 22.5 | C | 5,070 | 19.7 | C | 5,870 | 23.4 | C |
| F-80 | I-215 | Auto Plaza Dr to Mill St | 4,680 | 18.0 | B | 5,980 | 23.6 | C | 4,600 | 17.8 | B | 6,030 | 24.0 | C |
| F-83 | I-215 | Baseline Rd to Highland Ave | 3,260 | 16.8 | B | 4,890 | 26.4 | D | 3,250 | 16.7 | B | 5,000 | 27.4 | D |
| F-52 | I-10 | SR-60 to Beaumont Ave | 5,030 | 19.7 | C | 8,170 | 38.3 | E | 5,060 | 19.9 | C | 8,230 | 39.2 | E |
| F-53 | I-10 | Beaumont Ave to Pennsylvania Ave | 5,100 | 20.1 | C | 8,030 | 37.1 | E | 5,130 | 20.3 | C | 7,990 | 37.0 | E |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs Ave | 5,240 | 20.7 | C | 8,170 | 38.3 | E | 5,260 | 20.8 | C | 8,200 | 38.9 | E |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | 5,350 | 21.2 | C | 8,240 | 38.9 | E | 5,340 | 21.3 | C | 8,230 | 39.2 | E |
| F-56 | I-10 | Sunset Ave to 22nd St | 4,970 | 19.6 | C | 7,670 | 34.5 | D | 4,950 | 19.6 | C | 7,680 | 34.5 | D |
| F-57 | I-10 | 22nd St to 8th St | 4,880 | 19.3 | C | 7,480 | 33.0 | D | 4,870 | 19.2 | C | 7,500 | 33.2 | D |
| F-58 | I-10 | 8th St to Hargrave St | 5,000 | 19.7 | C | 7,770 | 34.9 | D | 4,970 | 19.7 | C | 7,810 | 35.5 | E |
| F-59 | I-10 | Hargrave St to Fields Rd | 4,770 | 18.8 | C | 7,970 | 36.9 | E | 4,730 | 18.6 | C | 8,020 | 37.3 | E |
| F-60 | I-10 | Fields Rd to Morongo Trail | 3,990 | 15.8 | B | 7,490 | 33.1 | D | 3,950 | 15.7 | B | 7,520 | 33.3 | D |
| F-61 | I-10 | Morongo Trail to Main St | 4,320 | 17.1 | B | 7,800 | 35.2 | E | 4,310 | 17.0 | B | 7,850 | 35.9 | E |
| F-62 | I-10 | Main St to Haugen-Lehmann Way | 4,080 | 16.1 | B | 7,530 | 33.1 | D | 4,060 | 16.1 | B | 7,600 | 33.9 | D |
| F-64 | I-10 | SR-111 to Tipton Rd | 3,660 | 14.5 | B | 7,320 | 31.7 | D | 3,640 | 14.4 | B | 7,420 | 32.6 | D |
| F-65 | I-10 | Tipton Rd to SR-62 | 3,700 | 14.6 | B | 7,330 | 31.7 | D | 3,680 | 14.6 | B | 7,440 | 32.7 | D |

Indicates that the LOS exceeds the target level

## Table 67: 2035 Plus Build-out Freeway Mainline LOS (continued)

| ID | Freeway | Segment | 2035 No-Project Conditions | | | | | | 2035 Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-2 | SR-60 | Reservoir St to Ramona Ave | 8,770 | 43.3 | E | 7,840 | 34.6 | D | 8,670 | 42.7 | E | 7,920 | 35.8 | E |
| F-3 | SR-60 | Ramona Ave to Central Ave | 8,080 | 37.2 | E | 7,720 | 33.7 | D | 7,970 | 36.5 | E | 7,790 | 34.8 | D |
| F-4 | SR-60 | Central Ave to Mountain Ave | 6,340 | 25.4 | C | 7,580 | 32.7 | D | 6,260 | 25.2 | C | 7,630 | 33.6 | D |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | 6,230 | 25.2 | C | 8,250 | 37.9 | E | 6,120 | 24.8 | C | 8,310 | 39.2 | E |
| F-6 | SR-60 | Euclid Ave to Grove Ave | 6,470 | 26.1 | D | 7,950 | 35.5 | E | 6,390 | 25.9 | C | 8,050 | 36.9 | E |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | 6,280 | 25.0 | C | 8,150 | 37.1 | E | 6,200 | 24.7 | C | 8,240 | 38.6 | E |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | 7,660 | 33.3 | D | 7,640 | 33.1 | D | 7,570 | 32.9 | D | 7,720 | 34.3 | D |
| F-9 | SR-60 | Archibald Ave to Haven Ave | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-10 | SR-60 | Haven Ave to Milliken Ave | 6,510 | 20.3 | C | 7,970 | 25.6 | C | 6,380 | 19.9 | C | 8,100 | 26.3 | D |
| F-11 | SR-60 | Milliken Ave to I-15 | 5,460 | 21.0 | C | 7,180 | 29.8 | D | 5,350 | 20.8 | C | 7,320 | 31.2 | D |
| F-12 | SR-60 | I-15 to Etiwanda Ave/Van Buren Blvd | 4,840 | 14.9 | B | 6,360 | 19.4 | C | 4,690 | 14.6 | B | 6,520 | 20.2 | C |
| F-13 | SR-60 | Etiwanda Ave/Van Buren Blvd to Mission | 4,220 | 16.1 | B | 5,620 | 21.6 | C | 4,080 | 15.8 | B | 5,790 | 22.9 | C |
| F-14 | SR-60 | Mission Blvd/Country Village Rd to Pedley Rd | 4,140 | 15.9 | B | 5,660 | 21.8 | C | 4,010 | 15.6 | B | 5,750 | 22.7 | C |
| F-15 | SR-60 | Pedley Rd to Pyrite St | 3,260 | 12.5 | B | 4,820 | 18.3 | C | 3,110 | 12.1 | B | 4,860 | 18.8 | C |
| F-16 | SR-60 | Pyrite St to Valley Way | 2,470 | 9.5 | A | 3,930 | 14.9 | B | 2,330 | 9.2 | A | 4,000 | 15.5 | B |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | 4,560 | 24.1 | C | 6,360 | 39.6 | E | 4,420 | 23.5 | C | 6,390 | 41.2 | E |
| F-18 | SR-60 | Rubidoux Blvd to Market St | 3,410 | 17.5 | B | 5,120 | 27.7 | D | 3,280 | 17.1 | B | 5,420 | 31.0 | D |
| F-19 | SR-60 | Market St to Main St | 5,530 | 31.5 | D | 6,280 | 38.7 | E | 5,400 | 30.8 | D | 6,430 | 41.7 | E |
| F-20 | SR-60 | Main to SR-91 | 5,320 | 29.7 | D | 6,310 | 39.0 | E | 5,300 | 30.0 | D | 6,480 | 42.4 | E |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | 8,330 | 30.8 | D | 8,980 | 33.3 | D | 8,240 | 31.6 | D | 9,380 | 39.7 | E |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | 7,500 | 33.2 | D | 8,970 | 46.6 | F | 7,420 | 33.6 | D | 9,250 | 52.1 | F |
| F-27 | SR-60 | I-215 to Day St | 7,050 | 50.4 | F | 3,590 | 18.6 | C | 7,080 | 53.6 | F | 3,810 | 20.8 | C |
| F-29 | SR-60 | Pigeon Pass Rd St to Heacock St | 3,650 | 31.3 | D | 3,910 | 35.0 | E | 3,590 | 32.1 | D | 4,120 | 42.4 | E |
| F-30 | SR-60 | Heacock St to Perris Blvd | 3,560 | 30.1 | D | 3,410 | 28.3 | D | 3,610 | 32.4 | D | 3,730 | 35.3 | E |
| F-31 | SR-60 | Perris Blvd to Nason St | 3,330 | 27.3 | D | 2,780 | 21.9 | C | 3,430 | 30.1 | D | 3,140 | 27.6 | D |
| F-33 | SR-60 | Moreno Beach Dr to Redlands Blvd | 3,150 | 25.2 | C | 2,680 | 20.9 | C | 3,270 | 28.1 | D | 3,010 | 26.1 | D |
| F-34 | SR-60 | Redlands Blvd to Theodore St | 4,010 | 36.3 | E | 3,530 | 29.7 | D | 4,290 | 44.0 | E | 3,780 | 35.0 | E |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | 3,350 | 30.5 | D | 2,920 | 25.2 | C | 3,450 | 31.9 | D | 2,680 | 23.5 | C |
| F-37 | SR-60 | Jack Rabbit Trail to Potrero Blvd | 3,690 | 31.6 | D | 3,010 | 24.0 | C | 3,840 | 34.3 | D | 2,820 | 22.4 | C |
| F-38 | SR-60 | Potrero Blvd to I-10 | 2,360 | 18.2 | C | 1,930 | 15.0 | B | 2,450 | 19.3 | C | 1,810 | 14.1 | B |
| F-39 | SR-91 | I-15 to McKinley St | 8,590 | 28.6 | D | 8,630 | 28.6 | D | 8,430 | 28.0 | D | 8,850 | 29.8 | D |
| F-40 | SR-91 | McKinley St to Pierce St | 6,550 | 26.9 | D | 7,440 | 32.0 | D | 6,430 | 26.4 | D | 7,630 | 33.6 | D |
| F-41 | SR-91 | Pierce St to Magnolia Ave | 6,260 | 39.9 | E | 9,000 | 144.5 | F | 6,160 | 39.0 | E | 9,170 | 177.2 | F |
| F-42 | SR-91 | Magnolia Ave to La Sierra Ave | 6,130 | 38.3 | E | 8,600 | 107.0 | F | 6,050 | 37.7 | E | 8,720 | 119.7 | F |
| F-43 | SR-91 | La Sierra Ave to Tyler St | 5,460 | 31.4 | D | 6,390 | 40.8 | E | 5,380 | 30.9 | D | 6,510 | 43.3 | E |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | 6,880 | 28.8 | D | 7,970 | 35.9 | E | 6,810 | 28.6 | D | 8,080 | 37.2 | E |

## Table 67: 2035 Plus Build-out Freeway Mainline LOS (continued)

| ID | Freeway | Segment | 2035 No-Project Conditions | | | | | | 2035 Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| F-45 | SR-91 | Van Buren Blvd to Adam St | 6,590 | 27.1 | D | 7,720 | 34.0 | D | 6,540 | 27.0 | D | 7,830 | 35.1 | **E** |
| F-46 | SR-91 | Adam St to Madison St | 6,270 | 25.4 | C | 6,970 | 29.0 | D | 6,250 | 25.5 | C | 7,080 | 29.8 | D |
| F-47 | SR-91 | Madison St to Arlington Ave | 5,540 | 32.1 | D | 6,290 | 39.5 | **E** | 5,560 | 32.6 | D | 6,360 | 40.8 | **E** |
| F-49 | SR-91 | Central Ave to 14th St | 5,290 | 20.8 | C | 5,460 | 21.2 | C | 5,270 | 20.9 | C | 5,580 | 22.0 | C |
| F-51 | SR-91 | University Ave to Spruce St | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | | See Weaving Analysis | | |
| F-66 | I-215 | Scott Rd to Garbani Rd | 5,470 | 30.8 | D | 4,160 | 21.5 | C | 5,380 | 29.8 | D | 4,170 | 21.7 | C |
| F-84 | I-215 | Garbani Rd to Newport Rd | 4,950 | 26.6 | D | 4,040 | 20.9 | C | 4,880 | 26.1 | D | 4,030 | 20.9 | C |
| F-68 | I-215 | Newport Rd to McCall Blvd | 5,020 | 27.2 | D | 5,240 | 28.9 | D | 4,930 | 26.5 | D | 5,230 | 29.0 | D |
| F-69 | I-215 | McCall Blvd to Ethanac Rd | 5,400 | 30.4 | D | 4,800 | 25.6 | C | 5,330 | 29.6 | D | 4,790 | 25.7 | C |
| F-70 | I-215 | Ethanac Rd to SR-74 | 5,390 | 30.3 | D | 6,220 | 38.3 | **E** | 5,320 | 29.5 | D | 6,220 | 38.3 | **E** |
| F-71 | I-215 | SR-74 to Ellis Ave | 7,170 | 53.3 | **F** | 5,980 | 35.6 | **E** | 7,110 | 51.5 | **F** | 6,000 | 35.8 | **E** |
| F-85 | I-215 | Ellis Ave to Redlands Ave | 6,560 | 43.1 | **E** | 5,490 | 31.2 | D | 6,510 | 42.0 | **E** | 5,510 | 31.4 | D |
| F-74 | I-215 | Columbia Ave to Center St | 5,000 | 27.4 | D | 3,680 | 19.1 | C | 4,970 | 27.2 | D | 3,680 | 19.2 | C |
| F-75 | I-215 | Center St to La Cadena Dr | 5,970 | 35.8 | **E** | 4,690 | 25.1 | C | 6,010 | 36.6 | **E** | 4,740 | 25.6 | C |
| F-76 | I-215 | La Cadena Dr to Barton Rd | 5,060 | 27.8 | D | 3,780 | 19.7 | C | 5,100 | 28.2 | D | 3,790 | 19.8 | C |
| F-77 | I-215 | Barton Rd to Mt. Vernon Ave | 5,540 | 31.6 | D | 4,210 | 22.2 | C | 5,590 | 32.3 | D | 4,220 | 22.2 | C |
| F-78 | I-215 | Mt. Vernon Ave to I-10 | 6,480 | 26.2 | D | 5,210 | 20.3 | C | 6,570 | 26.7 | D | 5,190 | 20.3 | C |
| F-80 | I-215 | Auto Plaza Dr to Mill St | 5,600 | 21.7 | C | 4,540 | 17.4 | B | 5,500 | 21.4 | C | 4,570 | 17.6 | B |
| F-83 | I-215 | Baseline Rd to Highland Ave | 6,910 | 48.0 | **F** | 5,450 | 30.8 | D | 6,930 | 48.3 | **F** | 5,490 | 31.4 | D |
| F-52 | I-10 | SR-60 to Beaumont Ave | 7,820 | 35.3 | **E** | 6,060 | 24.5 | C | 7,880 | 36.1 | **E** | 6,040 | 24.5 | C |
| F-53 | I-10 | Beaumont Ave to Pennsylvania Ave | 7,660 | 34.1 | D | 5,840 | 23.5 | C | 7,680 | 34.3 | D | 5,820 | 23.4 | C |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs Ave | 8,180 | 38.4 | **E** | 5,920 | 23.9 | C | 8,250 | 39.4 | **E** | 5,860 | 23.7 | C |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | 7,990 | 36.7 | **E** | 5,590 | 22.3 | C | 8,060 | 37.7 | **E** | 5,550 | 22.2 | C |
| F-56 | I-10 | Sunset Ave to 22nd St | 7,620 | 33.8 | D | 5,420 | 21.5 | C | 7,720 | 34.9 | D | 5,430 | 21.7 | C |
| F-57 | I-10 | 22nd St to 8th St | 7,680 | 34.5 | D | 5,130 | 20.3 | C | 7,680 | 34.5 | D | 5,120 | 20.4 | C |
| F-58 | I-10 | 8th St to Hargrave St | 7,790 | 35.4 | **E** | 5,370 | 21.4 | C | 7,860 | 36.0 | **E** | 5,350 | 21.4 | C |
| F-59 | I-10 | Hargrave St to Fields Rd | 7,610 | 34.0 | D | 5,000 | 19.8 | C | 7,720 | 34.9 | D | 4,980 | 19.8 | C |
| F-60 | I-10 | Fields Rd to Morongo Trail | 7,150 | 30.7 | D | 4,620 | 18.3 | C | 7,270 | 31.6 | D | 4,590 | 18.3 | C |
| F-61 | I-10 | Morongo Trail to Main St | 7,040 | 30.0 | D | 5,040 | 20.0 | C | 7,190 | 31.0 | D | 5,010 | 19.9 | C |
| F-62 | I-10 | Main St to Haugen-Lehmann Way | 7,070 | 30.2 | D | 4,410 | 17.4 | B | 7,230 | 31.3 | D | 4,560 | 18.0 | C |
| F-64 | I-10 | SR-111 to Tipton Rd | 6,420 | 26.2 | D | 4,860 | 19.2 | C | 6,560 | 27.1 | D | 4,830 | 19.1 | C |
| F-65 | I-10 | Tipton Rd to SR-62 | 6,430 | 26.2 | D | 4,870 | 19.2 | C | 6,570 | 27.2 | D | 4,840 | 19.1 | C |

Indicates that the LOS exceeds the target level

## Table 68: 2035 Plus Build-out Freeway Mainline Impacts and Mitigations

| | | | Northbound / Eastbound | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | 2035 Plus Build-out & Mitigations | | | | | | |
| | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | |
| ID | Freeway | Segment | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| F-2 | SR-60 | Reservoir St to Ramona Ave | E | E | E | E | Yes | 8,740 | 29.3 | D | 8,640 | 29.0 | D | Add 1 mixed flow lane |
| F-3 | SR-60 | Ramona Ave to Central Ave | E | E | F | F | Yes | 8,370 | 27.6 | D | 10,140 | 37.8 | D | Add 1 mixed flow lane |
| F-4 | SR-60 | Central Ave to Mountain Ave | E | F | F | F | Yes | 9,100 | 31.2 | D | 10,110 | 37.6 | E | Add 1 mixed flow lane |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | E | F | D | D | Yes | 8,990 | 30.6 | D | 7,480 | 24.1 | C | Add 1 mixed flow lane |
| F-6 | SR-60 | Euclid Ave to Grove Ave | F | F | F | F | Yes | 10,120 | 37.3 | E | 9,580 | 34.1 | D | Add 1 mixed flow lane |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | F | F | F | F | Yes | 9,410 | 32.9 | D | 9,960 | 36.5 | E | Add 1 mixed flow lane |
| F-8 | SR-60 | Vineyard Ave to Archibald Ave | F | F | F | F | Yes | 9,290 | 31.9 | D | 10,100 | 37.5 | E | Add 1 mixed flow lane |
| F-9 | SR-60 | Archibald Ave to Haven Ave | E | E | D | D | Yes | 8,650 | 28.9 | D | 7,220 | 23.1 | C | Add 1 mixed flow lane |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | E | E | C | C | Yes | 6,410 | 26.3 | D | 3,790 | 15.0 | B | Add 1 mixed flow lane |
| F-18 | SR-60 | Rubidoux Blvd to Market St | E | F | C | C | Yes | 6,710 | 28.0 | D | 4,140 | 16.4 | B | Add 1 mixed flow lane |
| F-19 | SR-60 | Market St to Main St | E | E | E | F | Yes | 6,240 | 25.4 | C | 6,610 | 27.8 | D | Add 1 mixed flow lane |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | F | F | F | F | Yes | 9,980 | 42.7 | E | 10,060 | 44.7 | E | Add 1 mixed flow lane |
| F-29 | SR-60 | Pigeon Pass Rd St to Heacock St | D | D | E | E | Yes | 3,590 | 19.8 | C | 4,110 | 22.4 | C | Add 1 mixed flow lane |
| F-30 | SR-60 | Heacock St to Perris Blvd | C | D | E | E | Yes | 3,540 | 19.4 | C | 4,240 | 23.2 | C | Add 1 mixed flow lane |
| F-36 | SR-60 | Gilman Springs Rd to Jack Rabbit Trail | C | C | F | F | Yes | 2,320 | 12.8 | B | 4,580 | 26.7 | D | Add 1 mixed flow lane |
| F-37 | SR-60 | Jack Rabbit Trail to Potrero Blvd | C | C | F | F | Yes | 2,400 | 12.4 | B | 4,950 | 27.0 | D | Add 1 mixed flow lane |
| F-41 | SR-91 | Pierce St to Magnolia Ave | E | E | E | E | Yes | 6,550 | 26.9 | D | 6,310 | 25.8 | C | Add 1 mixed flow lane |
| F-43 | SR-91 | La Sierra Ave to Tyler St | E | E | E | E | Yes | 6,250 | 25.3 | C | 6,210 | 25.2 | C | Add 1 mixed flow lane |
| F-46 | SR-91 | Adam St to Madison St | E | E | C | C | Yes | 8,060 | 26.7 | D | 6,000 | 18.9 | C | Add 1 mixed flow lane |
| F-49 | SR-91 | Central Ave to 14th St | E | E | D | D | Yes | 6,410 | 26.0 | C | 5,580 | 21.9 | C | Add 1 mixed flow lane |
| F-52 | I-10 | SR-60 to Beaumont Ave | C | C | E | E | Yes | 5,060 | 15.9 | B | 8,230 | 27.3 | D | Add 1 mixed flow lane |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs | C | C | E | E | Yes | 5,260 | 16.5 | B | 8,200 | 27.1 | D | Add 1 mixed flow lane |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | C | C | E | E | Yes | 5,340 | 16.8 | B | 8,230 | 27.3 | D | Add 1 mixed flow lane |
| F-58 | I-10 | 8th St to Hargrave St | C | C | D | E | Yes | 4,970 | 15.6 | B | 7,810 | 25.4 | C | Add 1 mixed flow lane |
| F-59 | I-10 | Hargrave St to Fields Rd | C | C | E | E | Yes | 4,730 | 14.9 | B | 8,020 | 26.3 | D | Add 1 mixed flow lane |
| F-61 | I-10 | Morongo Trail to Main St | B | B | E | E | Yes | 4,310 | 13.6 | B | 7,850 | 25.6 | C | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

## Table 68: 2035 Plus Build-out Freeway Mainline Impacts and Mitigations (continued)

| | | | Southbound / Westbound | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | 2035 Plus Build-out & Mitigations | | | | | | |
| | | | AM Peak Hour | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | | |
| ID | Freeway | Segment | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| F-2 | SR-60 | Reservoir St to Ramona Ave | E | E | D | E | Yes | 8,670 | 29.0 | D | 7,920 | 25.6 | C | Add 1 mixed flow lane |
| F-5 | SR-60 | Mountain Ave to Euclid Ave | C | C | E | E | Yes | 6,120 | 19.1 | C | 8,310 | 27.3 | D | Add 1 mixed flow lane |
| F-6 | SR-60 | Euclid Ave to Grove Ave | D | C | E | E | Yes | 6,390 | 19.9 | C | 8,050 | 26.1 | D | Add 1 mixed flow lane |
| F-7 | SR-60 | Grove Ave to Vineyard Ave | C | C | E | E | Yes | 6,200 | 19.1 | C | 8,240 | 27.0 | D | Add 1 mixed flow lane |
| F-17 | SR-60 | Valley Way to Rubidoux Blvd | C | C | E | E | Yes | 4,420 | 17.1 | B | 6,390 | 25.9 | C | Add 1 mixed flow lane |
| F-19 | SR-60 | Market St to Main St | D | D | E | E | Yes | 5,400 | 21.2 | C | 6,430 | 26.1 | D | Add 1 mixed flow lane |
| F-20 | SR-60 | Main to SR-91 | D | D | E | E | Yes | 5,300 | 20.8 | C | 6,480 | 26.3 | D | Add 1 mixed flow lane |
| F-24 | SR-60 | Martin Luther King Blvd to Central Ave | D | D | D | E | Yes | 8,240 | 24.5 | C | 9,380 | 29.2 | D | Add 1 mixed flow lane |
| F-26 | SR-60 | Fair Isle Dr/Box Springs Rd to I-215 | D | D | F | F | Yes | 7,420 | 24.4 | C | 9,250 | 33.0 | D | Add 1 mixed flow lane |
| F-27 | SR-60 | I-215 to Day St | F | F | C | C | Yes | 7,080 | 30.3 | D | 3,810 | 15.4 | B | Add 1 mixed flow lane |
| F-29 | SR-60 | Pigeon Pass Rd St to Heacock St | D | D | E | E | Yes | 3,590 | 19.2 | C | 4,120 | 22.7 | C | Add 1 mixed flow lane |
| F-30 | SR-60 | Heacock St to Perris Blvd | D | D | D | E | Yes | 3,610 | 19.3 | C | 3,730 | 20.4 | C | Add 1 mixed flow lane |
| F-34 | SR-60 | Redlands Blvd to Theodore St | E | E | D | E | Yes | 4,290 | 23.2 | C | 3,780 | 20.3 | C | Add 1 mixed flow lane |
| F-41 | SR-91 | Pierce St to Magnolia Ave | E | E | F | F | Yes | 6,160 | 25.0 | C | 9,170 | 48.5 | F | Add 1 mixed flow lane |
| F-42 | SR-91 | Magnolia Ave to La Sicrra Avc | E | E | F | F | Yes | 6,050 | 24.4 | C | 8,720 | 43.3 | E | Add 1 mixed flow lane |
| F-43 | SR-91 | La Sierra Ave to Tyler St | D | D | E | E | Yes | 5,380 | 21.2 | C | 6,510 | 26.7 | D | Add 1 mixed flow lane |
| F-44 | SR-91 | Tyler St to Van Buren Blvd | D | D | E | E | Yes | 6,810 | 21.5 | C | 8,080 | 26.3 | D | Add 1 mixed flow lane |
| F-45 | SR-91 | Van Buren Blvd to Adam St | D | D | D | E | Yes | 6,540 | 20.6 | C | 7,830 | 25.2 | C | Add 1 mixed flow lane |
| F-47 | SR-91 | Madison St to Arlington Ave | D | D | E | E | Yes | 5,560 | 22.0 | C | 6,360 | 25.7 | C | Add 1 mixed flow lane |
| F-71 | I-215 | SR-74 to Ellis Ave | F | F | E | E | Yes | 7,110 | 29.6 | D | 6,000 | 23.6 | C | Add 1 mixed flow lane |
| F-75 | I-215 | Center St to La Cadena Dr | E | E | C | C | Yes | 6,010 | 23.9 | C | 4,740 | 18.4 | C | Add 1 mixed flow lane |
| F-83 | I-215 | Baseline Rd to Highland Ave | F | F | D | D | Yes | 6,930 | 28.5 | D | 5,490 | 21.5 | C | Add 1 mixed flow lane |
| F-52 | I-10 | SR-60 to Beaumont Ave | E | E | C | C | Yes | 7,880 | 25.7 | C | 6,040 | 19.0 | C | Add 1 mixed flow lane |
| F-54 | I-10 | Pennsylvania Ave to Highland Springs | E | E | C | C | Yes | 8,250 | 27.4 | D | 5,860 | 18.5 | C | Add 1 mixed flow lane |
| F-55 | I-10 | Highland Springs Ave to Sunset Ave | E | E | C | C | Yes | 8,060 | 26.5 | D | 5,550 | 17.5 | B | Add 1 mixed flow lane |
| F-58 | I-10 | 8th St to Hargrave St | E | E | C | C | Yes | 7,860 | 25.6 | C | 5,350 | 16.9 | B | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

### *Freeway Weaving LOS*

Table 69 compares the LOS for study weaving sections under 2035 No-Project and 2035 Plus Build-out conditions. As shown in the table, there are 12 sections where the project would have a significant impact. Eleven of the 12 sections would be deficient under both 2035 No-Project and Plus Build-out conditions, namely:

Northbound or Eastbound

- SR-60 from SR-71/Garey Ave. to Reservoir St.
- SR-60 from Main St. to SR-91
- SR-60 from SR-91 to W. Blaine St./3rd St.
- SR-60 from W. Blaine St./3rd St. to University Ave.

- SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.
- SR-91 from Arlington Ave. to Central Ave.

Southbound or Westbound

- SR-60 from Haven Ave. to Archibald Ave.
- SR-60 from SR-91 to W. Blaine St./3rd St.
- SR-60 from W. Blaine St./3rd St. to University Ave.
- SR-60 from University Ave. to Martin Luther King Blvd.
- SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.

There was only one segment that would be deficient only under Plus Build-out conditions, namely:

Southbound or Westbound

- SR-60 from Day St. to Pigeon Pass Rd./Frederick St.

Table 70 identifies mitigation measures that would reduce the impact of the WLC project to a less-than-significant level. In five cases the mitigation would achieve the threshold of significance. In the other seven cases the LOS after mitigation would be worse than the LOS target but better than the 2035 No-Project condition, and so the project's impact with mitigation would be less-than-significant.

The mitigation measures shown in Table 70 are those that would be needed to reduce the impact of the project to a less-than-significant level. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS, this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## Table 69: 2035 Plus Build-out Freeway Weaving Section LOS

| ID | Freeway | Weaving Segment | 2035 No-Project Conditions | | | | | | 2035 Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound / Eastbound | | | | | | Northbound / Eastbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | 8,630 | 39.7 | **E** | 9,700 | 46.8 | **E** | 8,820 | 41.2 | **E** | 9,570 | 46.5 | **E** |
| W-9 | SR-60 | Haven Ave to Archibald Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-20 | SR-60 | Main St to SR-91 | 7,060 | 34.1 | D | 7,110 | 35.1 | **E** | 7,280 | 35.8 | **E** | 7,040 | 35.2 | **E** |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | 7,280 | 32.4 | D | 10,640 | >Capacity | **F** | 7,540 | 34.3 | D | 10,640 | > Capacity | **F** |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | 7,120 | 28.9 | D | 8,460 | 38.7 | **E** | 7,460 | 31.9 | D | 8,570 | 40.9 | **E** |
| W-23 | SR-60 | University Ave to Martin Luther King | 7,960 | 30.0 | D | 7,040 | 26.4 | C | 8,310 | 32.0 | D | 7,160 | 27.4 | C |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | 7,890 | 37.0 | **E** | 8,640 | 40.5 | **E** | 8,370 | 43.9 | **E** | 8,760 | 44.5 | **E** |
| W-27 | SR-60 | I-215 to Day St | 3,980 | 16.3 | B | 6,210 | 27.7 | C | 4,460 | 21.4 | C | 6,200 | 30.8 | D |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 3,760 | 16.2 | B | 5,660 | 26.5 | C | 4,190 | 18.9 | B | 5,690 | 27.2 | C |
| W-32 | SR-60 | Moreno Beach Dr to Nason St | 2,640 | 16.5 | B | 3,480 | 22.6 | C | 3,150 | 21.0 | C | 3,650 | 24.9 | C |
| W-35 | SR-60 | Theodore St to Gilman Springs Rd | 3,070 | 17.5 | B | 5,710 | 37.9 | **E** | 3,080 | 18.3 | B | 5,360 | 36.2 | **E** |
| W-42 | SR-91 | Magnolia Ave to La Sierra Ave | 6,970 | 33.7 | D | 6,930 | 34.2 | D | 7,080 | 34.4 | D | 6,900 | 34.2 | D |
| W-48 | SR-91 | Arlington Ave to Central Ave | 7,620 | 41.0 | **E** | 4,370 | 21.3 | C | 7,660 | 41.6 | **E** | 4,220 | 20.6 | C |
| W-50 | SR-91 | 14th St to University Ave | 5,310 | 26.4 | C | 5,060 | 26.1 | C | 5,260 | 26.2 | C | 4,930 | 25.4 | C |
| W-51 | SR-91 | SR-60 to Mission Inn Ave/University Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-73 | I-215 | SR-60 to Columbia Ave | 5,330 | 28.4 | D | 4,610 | 24.6 | C | 5,300 | 28.3 | D | 4,670 | 25.0 | C |
| W-79 | I-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 4,590 | 16.9 | B | 5,640 | 20.9 | C | 4,570 | 16.8 | B | 5,730 | 21.3 | C |
| W-81 | I-215 | Mill St to 2nd St | 5,190 | 18.3 | B | 6,460 | 23.5 | C | 5,160 | 18.2 | B | 6,560 | 23.9 | C |
| W-82 | I-215 | 5th St to Baseline Rd | 3,900 | 13.5 | B | 4,980 | 17.7 | B | 3,880 | 13.4 | B | 5,050 | 18.0 | B |
| W-63 | I-10 | Haugen-Lehmann Way to SR-111 | 4,170 | 14.4 | B | 8,420 | 33.1 | D | 4,140 | 14.3 | B | 8,550 | 34.1 | D |

Indicates that the LOS exceeds the target level

## Table 69: 2035 Plus Build-out Freeway Weaving Section LOS (continued)

| ID | Freeway | Weaving Segment | 2035 No-Project Conditions | | | | | | 2035 Plus Build-out Conditions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Southbound / Westbound | | | | | | Southbound / Westbound | | | | | |
| | | | AM Peak Hour | | | PM Peak Hour | | | AM Peak Hour | | | PM Peak Hour | | |
| | | | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | 6,130 | 22.0 | C | 7,510 | 27.6 | C | 6,040 | 21.8 | C | 7,620 | 28.4 | D |
| W-9 | SR-60 | Haven Ave to Archibald Ave | 6,910 | 28.7 | D | 8,180 | 36.4 | **E** | 6,800 | 28.5 | D | 8,270 | 37.1 | **E** |
| W-20 | SR-60 | Main St to SR-91 | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | 8,490 | 33.7 | D | 9,970 | 40.9 | **E** | 8,380 | 33.5 | D | 10,290 | > Capacity | **F** |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | 6,320 | 24.3 | C | 8,890 | 35.8 | **E** | 6,320 | 25.3 | C | 9,220 | 39.6 | **E** |
| W-23 | SR-60 | University Ave to Martin Luther King | 6,750 | 28.2 | D | 8,830 | 36.9 | **E** | 6,670 | 28.3 | D | 9,130 | 39.2 | **E** |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs | 8,340 | 38.1 | **E** | 9,200 | 39.2 | **E** | 8,170 | 38.5 | **E** | 9,560 | 43.8 | **E** |
| W-27 | SR-60 | I-215 to Day St | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | 4,790 | 33.5 | D | 4,790 | 32.4 | D | 4,820 | 34.5 | D | 5,100 | 36.1 | **E** |
| W-32 | SR-60 | Moreno Beach Dr to Nason St | 3,310 | 20.5 | C | 2,680 | 16.2 | B | 3,460 | 22.2 | C | 3,040 | 19.5 | B |
| W-35 | SR-60 | Theodore St to Gilman Springs Rd | 4,560 | 32.0 | D | 3,680 | 24.2 | C | 4,220 | 27.3 | C | 3,470 | 22.5 | C |
| W-42 | SR-91 | Magnolia Ave to La Sierra Ave | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | | See Basic Analysis | | |
| W-48 | SR-91 | Arlington Ave to Central Ave | 5,160 | 24.9 | C | 5,760 | 27.4 | C | 5,140 | 24.9 | C | 5,830 | 28.0 | D |
| W-50 | SR-91 | 14th St to University Ave | 6,070 | 23.7 | C | 8,010 | 33.0 | D | 6,020 | 23.6 | C | 8,050 | 33.3 | D |
| W-51 | SR-91 | SR-60 to Mission Inn Ave/University Ave | 6,500 | 20.6 | C | 10,130 | 32.5 | D | 6,460 | 20.7 | C | 10,140 | 32.7 | D |
| W-73 | I-215 | SR-60 to Columbia Ave | 6,660 | 33.8 | D | 5,570 | 28.2 | D | 6,640 | 33.8 | D | 5,580 | 28.3 | D |
| W-79 | I-215 | I-10 to Auto Plaza Dr/Orange Show Rd | 6,200 | 22.5 | C | 4,950 | 18.8 | B | 6,240 | 22.7 | C | 4,970 | 18.9 | B |
| W-81 | I-215 | Mill St to 2nd St | 6,360 | 23.4 | C | 4,980 | 18.3 | B | 6,370 | 23.5 | C | 5,020 | 18.5 | B |
| W-82 | I-215 | 5th St to Baseline Rd | 5,610 | 20.3 | C | 4,060 | 14.6 | B | 5,620 | 20.3 | C | 4,060 | 14.6 | B |
| W-63 | I-10 | Haugen-Lehmann Way to SR-111 | 7,270 | 29.0 | D | 5,500 | >Capacity | **F** | 7,440 | 30.0 | D | 5,460 | > Capacity | **F** |

Indicates that the LOS exceeds the target level

**Table 70: 2035 Plus Build-out Freeway Weaving Impacts and Mitigations**

| | | | Northbound / Eastbound | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | 2035 Plus Build-out & Mitigations | | | | | | |
| | | | | | | | | AM Peak Hour | | | PM Peak Hour | | | |
| ID | Freeway | Weaving Segment | AM Peak Hour | | PM Peak Hour | | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | | | | | | | | |
| W-1 | SR-60 | SR-71/Garey Ave to Reservoir St | E | E | E | E | Yes | 8,820 | 33.1 | D | 9,570 | 37.2 | E | Add 1 mixed flow lane |
| W-20 | SR-60 | Main St to SR-91 | D | E | E | E | Yes | 7,280 | 27.8 | C | 7,040 | 27.4 | C | Add 1 mixed flow lane |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | D | D | F | F | Yes | 7,540 | 27.7 | C | 10,640 | 40.7 | E | Add 1 mixed flow lane |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | D | D | E | E | Yes | 7,460 | 30.2 | D | 8,570 | 38.7 | E | Add a second off-ramp lane |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs Rd | E | E | E | E | Yes | 8,370 | 34.9 | D | 8,760 | 35.6 | E | Add 1 mixed flow lane |
| W-48 | SR-91 | Arlington Ave to Central Ave | E | E | C | C | Yes | 7,660 | 37.2 | E | 4,220 | 18.8 | B | Add a second off-ramp lane |

Indicates that the LOS exceeds the target level

| | | | Southbound / Westbound | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Determination of Impact | | | | | 2035 Plus Build-out & Mitigations | | | | | | |
| | | | | | | | | AM Peak Hour | | | PM Peak Hour | | | |
| ID | Freeway | Weaving Segment | AM Peak Hour | | PM Peak Hour | | Project Impact? | Freeway Volume | Density (pc/mi/ln) | LOS | Freeway Volume | Density (pc/mi/ln) | LOS | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
| | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | | | | | | | | |
| W-9 | SR-60 | Haven Ave to Archibald Ave | D | D | E | E | Yes | 6,800 | 25.2 | C | 8,270 | 32.6 | D | Add 1 mixed flow lane |
| W-21 | SR-60 | SR-91 to Blaine St/3rd St | D | D | E | F | Yes | 8,380 | 27.3 | C | 10,290 | 35.0 | D | Add 1 mixed flow lane |
| W-22 | SR-60 | Blaine St/3rd St to University Ave | C | C | E | E | Yes | 6,320 | 20.6 | C | 9,220 | 32.0 | D | Add 1 mixed flow lane |
| W-23 | SR-60 | University Ave to Martin Luther King Blvd | D | D | E | E | Yes | 6,670 | 26.2 | C | 9,130 | 35.6 | E | Add a second off-ramp lane |
| W-25 | SR-60 | Central Ave to Fair Isle Dr/Box Springs Rd | E | E | E | E | Yes | 8,170 | 30.9 | D | 9,560 | 35.1 | E | Add 1 mixed flow lane |
| W-28 | SR-60 | Day St to Pigeon Pass Rd/Frederick St | D | D | D | E | Yes | 4,820 | 25.1 | C | 5,100 | 26.2 | C | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

### *Freeway Ramp LOS*

Table 71 compares the freeway ramp level of service on SR-60 under 2035 No-Project and 2035 Plus Build-out conditions. As shown in the table, there are nine ramps where the project would have a significant impact. Four ramps would operate at below LOS "D" under both 2035 No-Project and 2035 Plus Build-out conditions while other five ramps would operate below LOS of "D" under 2035 Plus Build-out conditions only. These locations are:

Would Operate Below LOS "D" Under Both 2035 No-Project and Plus Build-out Conditions

- SR-60 eastbound On-Ramp from Central Ave.
- SR-60 eastbound On-Ramp from Gilman Springs Rd.
- SR-60 westbound On-Ramp from Theodore St.
- SR-60 westbound Loop On-Ramp from Redlands Blvd.

Would Operate Below LOS "D" Under 2035 Plus Build-out Conditions (only)

- SR-60 eastbound On-Ramp from Martin Luther King Blvd
- SR-60 westbound Off-Ramp to Redlands Blvd
- SR-60 westbound Direct On-Ramp from Redlands Blvd.
- SR-60 westbound Off-Ramp to Central Ave.
- SR-60 westbound Off-Ramp to Martin Luther King Blvd.

The mitigation measures shown in Table 72 are those that would be needed to reduce the impact of the project to a less-than-significant level. While these measures are feasible in the sense that, if they could be constructed, they would achieve the target LOS, this does not necessarily mean that they pass other tests of feasibility. The physical and financial feasibility of these mitigation measures and the means to fund them are discussed in greater depth in Chapter 11.

## Table 71: 2035 Plus Build-out Freeway Ramp LOS

| ID | Freeway / Direction | Ramp Segment | Ramp No. of Lanes | 2035 No-Project Conditions | | | | | | | | 2035 Plus Build-out Conditions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | | | PM Peak Hour | | | | AM Peak Hour | | | | PM Peak Hour | | | |
| | | | | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS |
| R-1 | SR-60 EB | On-Ramp from Martin Luther King Blvd | 1 | 7,410 | 580 | 30.6 | D | 6,430 | 1,400 | 33.8 | D | 7,760 | 680 | 33.0 | D | 6,530 | 1,460 | 35.1 | E |
| R-2 | SR-60 EB | On-Ramp from Central Ave | 1 | 7,890 | 1,220 | 32.2 | F | 8,630 | 970 | 32.9 | F | 8,370 | 1,360 | 35.5 | F | 8,760 | 970 | 33.9 | F |
| R-3 | SR-60 EB | Off-Ramp to Redlands Blvd | 1 | 2,480 | 220 | 13.8 | B | 3,130 | 440 | 19.7 | B | 2,910 | 280 | 20.0 | C | 3,240 | 680 | 22.6 | C |
| R-4 | SR-60 EB | Loop On-Ramp from Redlands Blvd | 1 | 2,260 | 90 | 22.1 | C | 2,690 | 60 | 25.4 | C | 2,630 | 110 | 27.2 | C | 2,560 | 70 | 25.8 | C |
| R-5 | SR-60 EB | Direct On-Ramp from Redlands Blvd | 1 | 2,350 | 110 | 19.9 | B | 2,750 | 480 | 26.0 | C | 2,740 | 140 | 25.3 | C | 2,630 | 480 | 26.4 | C |
| R-6 | SR-60 EB | Off-Ramp to Theodore St | 2 | 3,200 | 270 | 25.0 | C | 4,500 | 150 | 36.7 | F | 3,630 | 850 | 24.3 | C | 4,280 | 410 | 27.8 | C |
| R-7 | SR-60 EB | Loop On-Ramp from Theodore St | 1 | 2,930 | 150 | 22.0 | C | 4,350 | 1,350 | 42.9 | F | 2,780 | 50 | 27.6 | C | 3,870 | 350 | 38.5 | E |
| R-8 | SR-60 EB | Direct On-Ramp from Theodore St | 1 | Does not Exist in this Scenario | | | | Does not Exist in this Scenario | | | | 2,830 | 260 | 23.5 | C | 4,220 | 1,400 | 43.6 | F |
| R-9 | SR-60 EB | Off-Ramp to Gilman Springs Rd | 2 | 3,070 | 840 | 19.4 | B | 5,710 | 1,570 | 35.8 | E | 3,080 | 980 | 19.8 | B | 5,360 | 1,240 | 34.0 | D |
| R-10 | SR-60 EB | On-Ramp from Gilman Springs Rd | 1 | 2,230 | 260 | 16.9 | B | 4,140 | 470 | 34.3 | F | 2,100 | 300 | 16.5 | B | 4,120 | 690 | 36.4 | F |
| R-11 | SR-60 WB | Off-Ramp to Gilman Springs Rd | 2 | 3,350 | 240 | 20.9 | C | 2,920 | 560 | 18.2 | B | 3,450 | 450 | 21.5 | C | 2,680 | 530 | 16.8 | B |
| R-12 | SR-60 WB | On-Ramp from Gilman Springs Rd | 1 | 3,110 | 1,330 | 32.2 | D | 2,360 | 1,140 | 24.6 | C | 3,000 | 1,050 | 29.3 | D | 2,150 | 1,130 | 23.2 | C |
| R-13 | SR-60 WB | Off-Ramp to Theodore St | 2 | 4,560 | 640 | 32.7 | F | 3,680 | 380 | 24.8 | C | 4,220 | 710 | 26.9 | C | 3,470 | 420 | 22.2 | C |
| R-14 | SR-60 WB | On-Ramp from Theodore St | 1 | 3,920 | 90 | 35.5 | E | 3,300 | 230 | 31.5 | D | 3,510 | 520 | 36.8 | E | 3,050 | 640 | 34.1 | D |
| R-15 | SR-60 WB | Off-Ramp to Redlands Blvd | 1 | 4,010 | 310 | 32.4 | D | 3,530 | 370 | 28.1 | D | 4,290 | 420 | 36.1 | E | 3,780 | 540 | 31.6 | D |
| R-16 | SR-60 WB | Loop On-Ramp from Redlands Blvd | 1 | 3,700 | 200 | 36.5 | E | 3,160 | 110 | 31.4 | D | 3,870 | 210 | 39.0 | E | 3,240 | 150 | 33.3 | D |
| R-17 | SR-60 WB | Direct On-Ramp from Redlands Blvd | 1 | 3,900 | 350 | 34.7 | D | 3,270 | 280 | 29.0 | D | 4,080 | 390 | 37.6 | F | 3,390 | 630 | 34.2 | D |
| R-18 | SR-60 WB | Off-Ramp to Central Ave | 2 | 8,340 | 480 | 32.0 | D | 9,200 | 540 | 35.0 | D | 8,170 | 480 | 31.8 | D | 9,560 | 540 | 37.0 | E |
| R-19 | SR-60 WB | Off-Ramp to Martin Luther King Blvd | 1 | 8,330 | 710 | 32.5 | D | 8,980 | 660 | 34.1 | D | 8,240 | 720 | 32.5 | D | 9,380 | 670 | 36.0 | E |

Indicates that the LOS exceeds the target level

## Table 72: 2035 Plus Build-out Freeway Ramp Impacts and Mitigations

| ID | Freeway / Direction | Ramp Segment | Ramp No. of Lanes | Determination of Impact | | | | | 2035 Plus Build-out & Mitigations | | | | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak Hour | | PM Peak Hour | | Project Impact? | AM Peak Hour | | | | PM Peak Hour | | | | |
| | | | | No-Project LOS | Plus Build-out LOS | No-Project LOS | Plus Build-out LOS | | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | Mainline Volume | Ramp Volume | Density (pc/mi/ln) | LOS | |
| R-1 | SR-60 EB | On-Ramp from Martin Luther King | 1 | D | D | D | E | Yes | 7,760 | 680 | 25.2 | C | 6,530 | 1,460 | 29.0 | D | Add 1 mixed flow lane |
| R-2 | SR-60 EB | On-Ramp from Central Ave | 1 | F | F | F | F | Yes | 8,370 | 1,360 | 27.7 | C | 8,760 | 970 | 26.1 | C | Add 1 mixed flow lane |
| R-10 | SR-60 EB | On-Ramp from Gilman Springs Rd | 1 | B | B | F | F | Yes | 2,100 | 300 | 9.6 | A | 4,120 | 690 | 23.1 | C | Add 1 mixed flow lane |
| R-14 | SR-60 WB | On-Ramp from Theodore St | 1 | E | E | D | D | Yes | 3,510 | 520 | 24.7 | C | 3,050 | 640 | 23.5 | C | Add 1 mixed flow lane |
| R-15 | SR-60 WB | Off-Ramp to Redlands Blvd | 1 | D | E | D | D | Yes | 4,290 | 420 | 22.1 | C | 3,780 | 540 | 19.9 | B | Add 1 mixed flow lane |
| R-16 | SR-60 WB | Loop On-Ramp from Redlands | 1 | E | E | D | D | Yes | 3,870 | 210 | 25.1 | C | 3,240 | 150 | 21.6 | C | Add 1 mixed flow lane |
| R-17 | SR-60 WB | Direct On-Ramp from Redlands Blvd | 1 | D | F | D | D | Yes | 4,080 | 390 | 23.7 | C | 3,390 | 630 | 22.6 | C | Add 1 mixed flow lane |
| R-18 | SR-60 WB | Off-Ramp to Central Ave | 2 | D | D | D | E | Yes | 8,170 | 480 | 26.5 | C | 9,560 | 540 | 30.9 | D | Add 1 mixed flow lane |
| R-19 | SR-60 WB | Off-Ramp to Martin Luther King Blvd | 1 | D | D | D | E | Yes | 8,240 | 720 | 28.0 | C | 9,380 | 670 | 30.9 | D | Add 1 mixed flow lane |

Indicates that the LOS exceeds the target level

# 11. MITIGATION MEASURES

The results of the traffic analysis indicate the proposed project would have some level of impact on the local and regional roadway system. The greatest impact by number of locations would occur under the 2035 Plus Build-out conditions. This chapter discusses the mitigation measures that would be needed to reduce the impact of the project to a less-than-significant level. The discussion includes the fee programs relevant to the WLC, the methodology used to determine project impacts, and policy considerations regarding possible mitigations. The objective of each recommended measure is to allow the road or intersection to achieve the target level of service under Plus Build-out Plus Mitigations conditions or, where that is not feasible, to improve the level of service at the impacted locations to a level not worse than under No-Project conditions.

As set forth in greater detail below, in some circumstances mitigation is infeasible and so project impacts cannot be mitigated to less than significant levels. In such cases a statement of overriding considerations should be considered in accordance with City of Moreno Valley General Plan Policy 5.3.7 which reads:

> "*Provide consideration to projects that have overriding regional or local benefits that would be desirable even though the LOS standards cannot be met. These projects would be required to analyze traffic impacts and mitigate such impacts to the extent that it is deemed feasible*."

## A. THE TUMF PROGRAM

In 1988 the voters of Riverside County approved Measure A, a half-cent sales tax to fund transportation projects. In 2002 voters approved a 20-year extension of Measure A, this time including a Transportation Uniform Mitigation Fee or TUMF. The rationale behind TUMF was that having a single uniform fee program to mitigate the cumulative regional impacts of new development on the area's arterial highway system would be more effective than having multiple, and potentially uncoordinated, fee programs with varying policies, fee amounts and project lists. Under the TUMF, developers of residential, industrial, and commercial properties pay a development fee to fund transportation projects that will be required as a result of the growth the projects create. The program is recognition by voters that residents and employees in all of western Riverside County's jurisdictions benefit from arterials located not just in their own city, but also in nearby cities as well.

The TUMF program is designed to provide a network of roads, bridges, interchanges and railroad grade separations, known as the Regional System of Highways and Arterials (RSHA), needed to accommodate future growth in the area through 2035. The RSHA was developed by the Public Works Directors of the WRCOG member jurisdictions. A "Nexus Study" was then prepared in accordance with the California Mitigation Fee Act, which requires that a reasonable relationship exist between the impact fee collected

and the proposed improvements for which a fee is used. The study determined the proportion of the cost of the improvements that should be borne by different types of development based on the trip generating characteristics of each land use type. The Nexus Study was updated in 2010 and the RSHA was revised to reflect the most current transportation needs and costs for western Riverside County. The new RSHA network reflected several changes due to completed projects and recommendations from the WRCOG Public Works Committee (PWC) to better represent the transportation needs of western Riverside County.

TUMF is administered by the Western Riverside Council of Governments (WRCOG). As administrator, WRCOG receives all fees generated from the TUMF as collected by the local jurisdictions. TUMF funds are programmed by WRCOG's partner agencies, which are responsible for prioritizing projects and overseeing their development.

The TUMF program uses six categories of land uses; two residential and four non-residential. The two residential types are single-family residential and multi-family residential. Non-residential categories include industrial, retail, service commercial, and high-cube warehouse, with fees being assessed at different rates depending on the category. The high-cube warehouses in the WLC would fall into the "high-cube" category of non-residential development. Based on the current formula for calculating fees, if the WLC builds out as planned the developer would pay $34 million in TUMF fees.

TUMF fees are collected when a development reaches the building permit stage. TUMF revenues are allocated as follows:

- 46.39 percent is allocated for regional improvements. These revenues are programmed by the RCTC pursuant to an agreement with WRCOG.
- 46.39 percent is allocated to the geographic zone from which the fees are collected. Project prioritization and programming are undertaken by the jurisdictions in each of the five zones.
- 1.64 percent is allocated for regional transit projects. WRCOG administers the funds on behalf of the Riverside Transit Agency which prioritizes and programs capital transit projects.
- 1.59 percent is allocated to the Multiple Species Habitat Conservation Plan (MSHCP)
- 4.00% is used for program administration.

Since its inception TUMF has collected more than $554 million in revenues, making it the largest multi-jurisdictional fee program in the nation. It has completed 46 projects with several dozen more under development. The projects successfully funded by the program include a variety of road widening, intersection improvements, and freeway interchanges, including:

- Widening Pigeon Pass Rd. from 2 lanes to 4 lanes from Climbing Rose Dr. to Hidden Springs Dr.
- Widening the Ramona Expressway from 2 lanes to 6 lanes from I-215 to Evans Rd.

- Improvements to the Ironwood Ave./Moreno Beach Dr. Intersection
- Improvements to the Ironwood Ave./Nason St. intersection
- Adding a northbound lane to Lasselle St. from John F Kennedy Dr. to Alessandro Blvd.
- Widening Oleander Ave. from Perris Blvd to Indian Ave.
- The Van Buren Blvd./SR-91 Interchange project
- Widening State St. in Hemet from 2 to 4 lanes with a center turn lane
- Widening Sanderson Ave. from Menlo to Ramona Expressway

This track record of success is a key reason to believe that TUMF projects have a good probability of being implemented. Between now and 2035, when the program is scheduled for completion, the TUMF Program is forecasted to provide $1.9 billion towards a total of $4.2 billion in arterial road, bridge, intersection and interchange improvements in western Riverside County[50].

## B. THE DIF PROGRAM

The City of Moreno Valley's Development Impact Fee (DIF) program is used to fund road and intersection improvements needed to accommodate new residential, commercial, and industrial development. The program collects fees from three categories of residential development (single-family, multi-family, and mobile homes) and five categories of commercial development (general commercial, regional commercial, general industrial, high-cube warehouse, and office) based on their respective trip generating characteristics. In many cases developers dedicate right-of-way and/or construct improvements that are part of the TUMF or DIF programs in lieu of paying the fees. These facilities are typically part of a project's direct frontage or are necessary to accommodate traffic needs in the immediate area of the project. DIF fees on high-cube warehouses are currently set at $0.9955 per square foot, which means that the WLC would more than $40 million in DIF fees if the project builds out as planned.

DIF funds are overseen by the City's Public Works Department. Department staff monitor traffic volumes and periodically develop a Capital Improvement Program (CIP) for use of the funds. The CIP is reviewed and approved by the city council. Examples of projects successfully completed using DIF funds include:

- Iris Ave. from Indian St. to Perris Blvd.
- Lasselle St./Bay Ave. traffic signal
- Lasselle St./Cottonwood Ave. traffic signal

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[50] *Transportation Uniform Mitigation Fee Program* 2012 Annual Report, page 17. Western Riverside Council of Governments. The TUMF program is one of several sources used to fund improvements.

- Cactus Ave. eastbound improvements from I-215 to Veterans Way

This track record of success is a key reason to believe that DIF projects have a good probability of being implemented. The DIF program supplements the TUMF program by funding elements of the City's General Plan Circulation Element not covered by TUMF, and in some projects by providing funds for additional capacity beyond what the TUMF project will provide. DIF and TUMF are routinely used in combination with other funding sources so that the inability of any single source to fund an entire project does not prevent the project from being implemented. Table 73 shows a sample of projects from Moreno Valley's Capital Improvement Program that used DIF and/or TUMF funds in combination with other funding sources.

**Table 73: Projects Using DIF and TUMF in Combination with Other Funding Sources**

| Project | DIF Funds | TUMF Funds | Other Funds | Sources of Other Funds |
|---|---|---|---|---|
| Iron Avenue / Heacock Street to Perris Boulevard | $1,509,420 | $72,413 | $57,358 | 2005 Lease Revenue Bonds |
| Nason Street / Cactus Avenue Street Improvements | $9,272,000 | | $15,910,845 | Measure "A"; State-Local Partnership Program; General Fund; General City C.P.; Successor Agency Tax Revenue; Redevelopment Agency Cap. Proj.; Eastern Municipal Water District; Riverside County Flood Control; 2007 Taxable Lease Revenue Bonds |
| SR-60 / Moreno Beach Drive South Side of Interchange (Phase 1) | | $3,500,000 | $6,110,735 | Successor Agency; Redevelopment Agency |
| SR-60 / Nason Street Interchange | $740,000 | | $13,285,777 | Measure "A"; Federal Demonstration Funds; Demo Toll Credit - Const.; Surface Transportation Program Local (construction); Surface Transportation Program Local Toll Credit - Const. |
| Heacock Street South Extension | | $300,000 | $564,172 | Measure "A" |
| Emergency Vehicle Pre-emption at 117 Traffic Signals | $93,534 | | $840,000 | Highway Safety Improvement Program |
| Nason Street / Riverside County Regional Medical Center Main Driveway Traffic Signal | $250,000 | | $50,000 | Measure "A" |
| Transportation Management Center | $316,578 | | $214,646 | Air Quality Management |
| Lasselle Street / John F. Kennedy Drive to Alessandro Boulevard | | $2,757,886 | $1,058,143 | 2005 Lease Revenue Bonds |
| Kitching Street / Alessandro Boulevard to Gentian Avenue | $11,903 | | $1,639,854 | 2005 Lease Revenue Bonds |
| Pigeon Pass Road Widening / Climbing Rose Drive to North City Limits | $462,239 | $679,953 | $22,664 | Measure "A" |
| Total | $12,655,674 | $7,310,252 | $39,754,194 | |
| Percentage of Total | 21% | 12% | 67% | |

The DIF program has been updated several times, most recently in October 2012, to reflect changes in priorities as development occurs in different parts of the city.

## C. METHODOLOGY FOR DETERMINING IMPACTS

The potential impacts of the project were classified as either direct impacts or cumulative impacts. A direct impact of the project is one that would occur if the proposed project was the only change from

existing conditions. A cumulative impact is defined in the CEQA Guidelines, Section 15355 as, "an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." Both types of impacts can be either significant or less-than-significant depending on whether or not they result in traffic conditions that exceed the threshold of significance set by the agency that has jurisdiction over the road in question. For example, if a road was subject to a threshold of significance of LOS "D", and the proposed project would by itself cause the LOS to change from "B" to "C", then the direct impact would be less-than-significant. If the addition of other past, present, and reasonably foreseeable future projects would result in LOS "E", then the cumulative impact of the project would be significant.

The methodology used to identify mitigation measures included:

1) Determining whether the LOS exceeded the target threshold in the Plus Build-out condition.
2) If so, then determining whether the LOS under Plus Build-out conditions was better than the LOS under No-Project conditions. Some study freeway segments were found to exceed the threshold of significance under Plus Build-out conditions but the traffic density was better under Plus Build-out conditions than No-Project conditions. This would happen because detailed computer modeling shows that the project would cause some commuters to switch from the peak direction to the off-peak direction, thus reducing congestion at some locations (see Figure 40 and Figure 41). The project's impacts were considered significant only when the Plus Build-out condition was worse than the No-Project condition.
3) If the project had a significant impact, capacity-increasing improvements were then added incrementally until the LOS was within the target threshold of significance.
4) For cumulative projects, determining whether the mitigations could be funded as part of an established fee program such as TUMF or DIF. If so, then Payment into the TUMF or DIF program could constitute mitigation of impacts to the TUMF and DIF facilities.
5) For improvements that would not be funded from an established fee program the project's fair-share contribution was computed using the formula in Caltrans' *Guide for the Preparation of Traffic Impact Studies - Appendix "B"*. This formula defines the project's fair-share as the project-related traffic's percentage share of overall traffic growth, not including new traffic attributable to projects that have already been approved. Where there were significant impacts in both the AM and PM peak periods, the period with the higher share of project traffic was used to determine the fair-share contribution.

Potential mitigation measures were analyzed to determine whether they were feasible or not. Improvements were deemed to be infeasible if they would require the acquisition of existing homes or businesses, if they would result in excessive air, noise, or vibration impacts on existing homes,

businesses, or sensitive natural environments, or would create safety impacts that could be considered less acceptable than a reduced traffic LOS. In cases where feasibility is uncertain, the recommended improvement was treated as feasible in order to produce a conservative estimate of project responsibilities (i.e. "conservative" in the sense that the project's responsibilities would not be under-estimated).

In cases where a proposed modification to an existing intersection would result in the elimination of an existing bus stop or bicycle lane the proposed mitigation would include the replacement of the bicycle lane or bus stop even if not explicitly stated. This is also true of the replacement of existing curbs, gutters, sidewalks, lights, and other existing design features.

## D. FORMAT FOR REPORTING IMPACTS

The remainder of the chapter is devoted to reporting project impacts and mitigation measures. The situation for each impacted facility is discussed in the text and the results are summarized in Table 74 through Table 79. These tables all follow a similar format which includes the following data fields (columns):

(A) This field identifies the location of the impact.

(B) This field identifies which agency has jurisdiction over the facility in question.

(C) This field shows the agency's target LOS for the facility in question.

(D) This field shows the LOS under Existing conditions. This is used to determine whether or not there is an existing deficiency.

(E) This field shows the LOS under Existing Plus Build-out conditions. This is used to determine whether or not the project has a significant impact.

(F) This field shows whether there is a significant impact. It is based on the thresholds of significance described in Chapter 2.

(G) This field describes what improvements would be required to achieve the target LOS under Existing Plus Build-out conditions.

(H) This field states whether the measure described in Column G is feasible or not. In some cases the needed improvements may not be feasible. For example, it may be infeasible to widen a road because doing so would cause serious negative impacts to an adjacent neighborhood.

(I) This field shows the LOS after all feasible mitigations have been implemented. If mitigation is infeasible then Column I will be the same as Column E.

(J) This field states whether the impact would still be significant after all feasible mitigation measures have been implemented. For those facilities under the jurisdiction of the City of Moreno Valley (see Column B) a "No" in Column J indicates that the impact will be mitigated to a less-than-significant level. For those facilities outside the jurisdiction of the City of Moreno Valley, Column J indicates what would happen if the jurisdiction that controls the facility implements the recommended feasible mitigations. However, because the City of Moreno Valley cannot guarantee that the other agency will implement the needed improvement the City cannot guarantee that the impact will be mitigated to a less-than-significant level.

(K) This field shows whether or not there is an existing deficiency. Generally speaking, under state law a developer is responsible for mitigating the impacts of their project but is not responsible for rectifying existing deficiencies that are the result of earlier projects. They need only pay a fair-share representing the portion of the improvements required to mitigate the impacts attributable to their own project.

(L) This field reports the action that the developers of the WLC will be required to take as a condition of approval.

## E. PROJECT DIRECT IMPACTS

The direct impacts of the WLC project were determined by comparing the LOS of study facilities under Existing and Existing Plus Build-out conditions. The direct impacts of the project and their mitigation measures were as follows:

## Table 74: Project Direct Impacts on Road Sections

| Study Roadway | | From | To | Jurisdiction | LOS Standard* | Existing LOS | Existing Plus Build-out LOS | Does the Project have a Significant Impact? | Mitigation Measures Required to Reduce Project Impacts to Less-Than-Significant | Is the Mitigation Feasible? | LOS After Feasible Mitigations are Implemented | Impact Significant After Feasible Mitigations are Implemented? | Is There an Existing Deficiency? | Developer Action Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (A) | | | | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) |
| **Road Section Impacts that can be Mitigated to a Less-Than-Significant Level** | | | | | | | | | | | | | | |
| S-22 | Cactus Ave. | Redlands Blvd | Cactus Ave Extension | Moreno Valley | C | A | E | Yes | Widen to 4 lanes | Yes | A | No | No | Pay fair share (95.9%) |
| **Road Section Impacts that are Considered Significant and Unavoidable (because they are not under the control of the City of Moreno Valley)** | | | | | | | | | | | | | | |
| S-16 | Gilman Springs Rd | Alessandro Blvd (Street C) | Bridge Street | Riverside County | D | F | F | Yes | Widen to 4 lanes | Yes | C | No | Yes | Pay fair share (12.2%) |
| S-17 | Gilman Springs Rd | SR-60 | Alessandro Blvd (Street C) | Riverside County | D | E | F | Yes | Widen to 4 lanes | Yes | C | No | Yes | Pay fair share (17.8%) |

* LOS Standard is "C" in residential areas and "D" for roads in employment-generating areas or near freeways.

Indicates LOS exceeds the target level

***Road Section Direct Impacts***

The project's direct impacts on road sections are summarized in Table 74. These impacts would be:

- **Cactus Ave. east of Redlands Blvd.** (S-22) currently has one westbound lane and two eastbound lanes. The WLC would involve the re-construction of Alessandro Blvd. along a new alignment that ends at Cactus Ave. Extension, which would connect Cactus Ave. and Alessandro Blvd. (Street E) as the main route for east-west through traffic. Cactus Ave. would need to be widened to four lanes in conjunction with this change. The City will require the developer to pay a fair share for this improvement as a condition of approval.

- **Gilman Springs Rd. from Alessandro Blvd. to Bridge St.** (S-16) is already deficient and needs to be widened to four lanes and will need to be widened to six lanes in the future. In accordance with General Plan Policy 5.5.7 the City will require the developer to widen Gilman Springs Rd. to provide three southbound lanes and one northbound lane along the frontage of the WLC project. The developer will receive a TUMF credit for the portion of the cost of this improvement that exceeds the project's fair-share contribution.

  However, because Gilman Springs Rd. is a Riverside County facility and is thus outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. Moreover, there are right-of-way constraints involving sensitive environmental areas that may limit widening to four lanes between Alessandro Blvd. and Bridge St., or even preclude any widening at all. The project's impacts on Gilman Springs Rd. must therefore be considered significant and unavoidable. The City will work with Riverside County to find funding for improvements that would provide an acceptable LOS on this road to the extent feasible.

- **Gilman Springs Rd. from SR-60 to Alessandro Blvd.** (S-17) is already deficient and needs to be widened to four lanes. In accordance with General Plan Policy 5.5.7 the City will require the developer to widen Gilman Springs Rd. to provide three southbound lanes and one northbound lane along the frontage of the WLC project. The developer would receive a TUMF credit for the portion of the cost of this improvement that exceeds the project's fair-share contribution.

  However, because Gilman Springs Rd. is a Riverside County facility and is thus outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on Gilman Springs Rd. must therefore be considered significant and unavoidable. The City will work with Riverside County to find funding for improvements that would provide an acceptable LOS on this road to the extent feasible.

***Intersection Direct Impacts***

The project's direct impacts on study intersections are summarized in Table 75. These impacts would be:

- **Redlands Blvd./Locust Ave. intersection** (IN-10) already exceeds the LOS threshold in both the AM and PM peak hours and traffic using the intersection would experience longer delays under Existing Plus Build-out conditions. Signalizing the intersection and adding an eastbound left-turn and westbound left-turn would reduce project impacts to a less-than-significant level. The City will require the developer to pay a fair-share contribution towards this improvement as a condition of approval.
- **Redlands Blvd./SR-60 WB ramps intersection** (IN-13) already exceeds the LOS threshold in both the AM and PM peak hours and traffic using the intersection would experience longer delays under Existing Plus Build-out conditions. Signalizing the intersection and adding a northbound right-turn lane would reduce project impacts to a less-than-significant level. The City will require the developer to pay a fair-share contribution towards this improvement as a condition of approval.
- **Oliver St./Alessandro Blvd. intersection** (IN-20) already exceeds the LOS threshold in the AM peak hour and traffic using the intersection would experience longer delays under Existing Plus Build-out conditions. Changing from side-street stop control to all-way stop control would reduce project impacts to a less-than-significant level. The City will require the developer to pay a fair-share contribution towards this improvement as a condition of approval.
- **Redlands Blvd./Cactus Ave. intersection** (IN-27) currently operates within the LOS threshold but would exceed the threshold in both the AM and PM peak hour under Existing Plus Build-out conditions. Signalizing the intersection and adding eastbound and westbound left-turn lanes would reduce project impacts to a less-than-significant level. The City will require the developer to pay a fair-share contribution towards this improvement as a condition of approval.
- **Moreno Beach Dr./John Kennedy Dr. intersection** (IN-28) currently operates within the LOS threshold but would exceed the threshold in the PM peak hour under Existing Plus Build-out conditions. Adding a westbound left-turn lane would reduce project impacts to a less-than-significant level. The City will require the developer to pay a fair-share contribution towards this improvement as a condition of approval.

## Table 75: Direct Impacts on Intersections and Mitigation Measures

| Study Intersection | | Jurisdiction | LOS Standard | Existing Conditions | | Existing Plus Build-out | | Does the Project Have a Significant Impact? | Mitigation Measures Required to Reduce Impact to Less-Than-Significant | Is Mitigation Feasible? | LOS After Feasible Mitigations are Implemented | | Impact Significant After Feasible Mitigations are Implemented? | Is There an Existing Deficiency? | Developer Action Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM | PM | AM | PM | | | | AM LOS | PM LOS | | | |
| (A) | | (B) | (C) | (D) | | (E) | | (F) | (G) | (H) | (I) | | (J) | (K) | (L) |
| **Intersection Direct Impacts that can be Mitigated to a Less-Than-Significant Level** | | | | | | | | | | | | | | | |
| IN-10 | Redlands Blvd/Locust Ave | Moreno Valley | C | D | E | F | F | Yes | Signalize. Add 1 EB LT and 1 WB LT. | Yes | A | A | No | Yes | Implement improvement, with reimbursement agreement based on fair share contribution (34.8%) |
| IN-13 | Redlands Blvd/SR-60 WB ramps | Moreno Valley | D | E | F | E | F | Yes | Signalize. Add 1 NB RT. | Yes | B | B | No | Yes | Implement improvement, with reimbursement agreement based on fair share contribution (49.6%) |
| IN-20 | Oliver Str/Alessandro Blvd | Moreno Valley | C | D | B | F | C | Yes | Change to AWS. | Yes | C | B | No | Yes | Implement improvement, with reimbursement agreement based on fair share contribution (11.5%) |
| IN-27 | Redlands Blvd/Cactus Ave | Moreno Valley | C | B | A | F | F | Yes | Signalize. Add 1 EB LT, 1 WB LT. | Yes | B | B | No | No | Implement improvement, with reimbursement agreement based on fair share contribution (60.7%) |
| IN-28 | Moreno Beach Dr/John Kennedy Dr | Moreno Valley | D | B | B | C | F | Yes | Add 1 WB LT Lane. | Yes | B | B | No | No | Implement improvement, with reimbursement agreement based on fair share contribution (36.3%) |
| IN-36 | Moreno Beach Dr/Ironwood Ave | Moreno Valley | D | D | D | E | D | Yes | Add 1 NB RT lane. | Yes | D | D | No | No | Implement improvement, with reimbursement agreement based on fair share contribution (14.9%) |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | Moreno Valley | D | D | E | D | F | Yes | Add 1 EB RT lane. | Yes | C | C | No | Yes | N/A* |
| IN-53 | Lasselle Str/Cactus Ave | Moreno Valley | C | D | D | D | D | Yes | Add 1 WB LT, 1 NB LT, 1 SB LT, Add overlap phase for NB and EB RT. | Yes | D | C | No | Yes | Implement improvement, with reimbursement agreement based on fair share contribution (46.2%) |
| **Intersection Direct Impacts that are Considered Significant and Unavoidable (either because they are not under the control of the City of Moreno Valley or because mitigation is infeasible)** | | | | | | | | | | | | | | | |
| IN-94 | Arlington Ave/Victoria Ave | City of Riverside | D | D | C | E | C | Yes | Add WB LT lane | Yes | D | C | No | No | Pay fair share (7.5%) |
| IN-95 | Alessandro Blvd/Chicago Ave | City of Riverside | D | D | E | D | E | Yes | Add NB LT lane; adjust signal timings. | Yes | D | D | No | Yes | Pay fair share (10.3%) |
| IN-122 | Bridge St/Ramona Expy | Riverside County | C | C | C | D | D | This intersection is due to be closed in the near future and replaced by a grade separated intersection further west. No improvements are warranted | | | | | | | |
| IN-123 | Gilman Springs Rd/Bridge Str | Riverside County | C | D | C | E | D | Yes | Signalize. | Yes | A | A | No | Yes | Pay fair share (25.7%) |
| IN-124 | SR-79(Sanderson Ave) NB/Gilman Springs Rd | Riverside County | C | D | D | F | E | Yes | Signalize. | Yes | A | A | No | Yes | Pay fair share (13.6%) |
| IN-125 | SR-79(Sanderson Ave) SB/Gilman Springs Rd | Riverside County | C | D | E | E | F | Yes | Signalize. | Yes | A | A | No | Yes | Pay fair share (20.7%) |
| IN-132 | San Timoteo Canyon Rd/Alessandro Rd | Redlands | D | F | C | F | F | Yes | Signalize. | Yes | D | B | No | Yes | Pay fair share (33.6%) |
| IN-133 | San Timoteo Canyon Rd/Live Oak Canyon Rd | Riverside County | C | F | F | F | F | Yes | Signalize. | Yes | B | B | No | Yes | Pay fair share (32.1%) |
| IN-134 | Redlands Blvd/San Timoteo Canyon Rd | Riverside County | C | F | F | F | F | Yes | Signalize. Add 1 EB RT. Also add EB RT overlap phase. | Yes | A | A | No | Yes | Pay fair share (34.1%) |

Notes: "CSS" means cross-street is stop-controlled "AWS" means all-way stop "NB" and "SB" denote northbound and southbound respectively

"AWS" means all-way stop "LT" and "RT" denote left turn and right turn respectively "EB" and "WB" denote eastbound and westbound respectively

Indicates LOS exceeds the target level * Improvements already being made at intersection

- **Moreno Beach Dr./Ironwood Ave. intersection** (IN-36) currently operates within the LOS threshold but would exceed the threshold in the AM peak hour under Existing Plus Build-out conditions. Adding a northbound right-turn lane would reduce project impacts to a less-than-significant level. The City will require the developer to pay a fair-share contribution towards this improvement as a condition of approval.

- **Moreno Beach Dr./SR-60 EB Ramps intersection** (IN-37) already exceeds the LOS threshold in the PM peak hour and traffic using the intersection would experience longer delays under Existing Plus Build-out conditions. Adding an eastbound right-turn lane would reduce project impacts to a less-than-significant level. At time of publication, improvements were already being made to the intersection.

- **Lasselle St./Cactus Ave. intersection** (IN-53) already exceeds the LOS threshold in both the AM and PM peak hours and traffic using the intersection would experience longer delays under Existing Plus Build-out conditions. Constructing an additional lane for the westbound left turn, northbound left-turn, southbound left-turn, and modifying the traffic signal to provide overlap phasing for northbound right-turns and eastbound right turns would reduce project impacts to a less-than-significant level. The City will require the developer to pay a fair-share contribution towards this improvement as a condition of approval.

- **Arlington Ave./Victoria Ave. intersection** (IN-94) currently operates within the LOS threshold but would exceed the threshold in the AM peak hour under Existing Plus Build-out conditions. Adding an additional westbound left-turn lane would reduce project impacts to a less-than-significant level.

  This intersection is under the jurisdiction of the City of Riverside. The City will require the developer to pay a fair-share contribution towards this improvement as a condition of approval. However, because this intersection is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Riverside to develop a mechanism for implementing improvements that would provide an acceptable LOS at this intersection.

- **Alessandro Blvd./Chicago Ave. intersection** (IN-95) is already built out to near the practical limit before grade separation is required (it has five lanes for each approach). Despite this it already operates at LOS "E" in the PM peak period. To achieve the target LOS under Existing Plus Build-out conditions would require the addition of another northbound left-turn lane (with adjusted signal timings).

This intersection is under the jurisdiction of the City of Riverside. The City will require the developer to pay a fair-share contribution towards this improvement as a condition of approval. However, because this intersection is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Riverside to develop a mechanism for implementing improvements that would provide an acceptable LOS at this intersection.

- **Bridge St./Ramona Expressway intersection** (IN-122) currently operates within the LOS threshold but would exceed the threshold in the AM and PM peak hours under Existing Plus Build-out conditions. Signalizing the intersection would reduce project impacts to a less-than-significant level. However, there is a plan to close this intersection in the future and replace it with a grade-separated crossing west of the current location as part of the Villages of Lakeview project. It may not be worthwhile to signalize this intersection for only a few years before closing it.

  This intersection is under the jurisdiction of the Riverside County, because the intersection is outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the Riverside County to develop a mechanism for implementing improvements that would provide an acceptable LOS at this intersection.

- **Gilman Springs Rd./Bridge St. intersection** (IN-123) already exceeds the LOS threshold in AM peak hour and traffic using the intersection would experience longer delays under Existing Plus Build-out conditions. Signalizing this intersection would reduce project impacts to a less-than-significant level.

  This intersection is under the jurisdiction of Riverside County. The City will require the developer to pay a fair share of this improvement as a condition of approval. However, because this intersection is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with Riverside County to develop a mechanism for implementing improvements that would provide an acceptable LOS at this intersection.

- **SR-79 (Sanderson Ave.) NB/Gilman Springs Rd. intersection** (IN-124) already exceeds the LOS threshold in both the AM and PM peak hours and traffic using the intersection would

experience longer delays under Existing Plus Build-out conditions. Signalizing this intersection would reduce project impacts to a less-than-significant level.

This intersection is under the jurisdiction of Riverside County. The City will require the developer to pay a fair-share contribution towards improvement of this intersection as a condition of approval. However, because this intersection is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Riverside to develop a mechanism for implementing improvements that would provide an acceptable LOS at this intersection.

- **SR-79 (Sanderson Ave.) SB/Gilman Springs Rd. intersection** (IN-125) already exceeds the LOS threshold in both the AM and PM peak hours and traffic using the intersection would experience longer delays under Existing Plus Build-out conditions. Signalizing this intersection would reduce project impacts to a less-than-significant level.

  This intersection is under the jurisdiction of Riverside County. The City will require the developer to pay a fair-share contribution towards improvement of this intersection as a condition of approval. However, because intersection is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable.

- **San Timoteo Canyon Rd./Alessandro Rd. intersection** (IN-132) already exceeds the LOS threshold in the AM peak hour and traffic using the intersection would experience longer delays under Existing Plus Build-out conditions. Signalizing this intersection would reduce project impacts to a less-than-significant level.

  This intersection is under the jurisdiction of the City of Redlands. The City will require the developer to pay for a fair share of this improvement as a condition of approval. However, because this intersection is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Redlands to develop a mechanism for implementing improvements that would provide an acceptable LOS at this intersection.

- **San Timoteo Canyon Rd./Live Oak Canyon Rd. intersection** (IN-133) already exceeds the LOS threshold in both the AM and PM peak hours and traffic using the intersection would

experience longer delays under Existing Plus Build-out conditions. Signalizing this intersection would reduce project impacts to a less-than-significant level.

This intersection is under the jurisdiction of Riverside County. The City will require the developer to pay a fair-share contribution towards improvement of this intersection as a condition of approval. However, because intersection is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable.

- **Redlands Blvd./San Timoteo Canyon Rd. intersection** (IN-134) already exceeds the LOS threshold in both the AM and PM peak hours and traffic using the intersection would experience longer delays under Existing Plus Build-out conditions. Signalizing this intersection and adding an eastbound right-turn storage lane with an overlap phase would reduce project impacts to a less-than-significant level.

  This intersection is under the jurisdiction of Riverside County. The City will require the developer to pay a fair-share contribution towards improvement of this intersection as a condition of approval. However, because intersection is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable.

***Freeway Direct Impacts***

Unlike the surface streets, where intersection improvements are generally both feasible and desirable, the strategic situation for freeways in western Riverside County is such that major freeway improvements are becoming increasingly problematic over time. A key problem is that the rights-of way are essentially built out in many locations and cannot be expanded without severe impacts to existing communities (loss of homes and businesses, visual intrusion, increased noise and air quality impacts, etc.) and high costs to replace overcrossing structures. Moreover, there is a growing consensus that over-provision of freeway capacity facilitates long-distance commuting by car and leads to more auto-oriented residential development on the urban fringe, which in turn increases greenhouse gas emissions. This has resulted in a policy shift away from continued expansion of the freeway system, as reflected, for example, in Riverside County Transportation Commission's Ordinance No. 02-001 which reads in part,

> *"State Routes 91 and 60 and Interstate Routes 15 and 215 cannot cost effectively be widened enough to provide for the traffic expected as Riverside County continues to grow. In addition to the specific highway improvements listed in Section 1 above, congestion relief for these*

*highways will require that new north–south and east-west transportation corridors will have to be developed to provide mobility within Riverside County and between Riverside County and its neighboring Orange and San Bernardino Counties."*

In other words, as a matter of policy, with the exception of spot improvements in some specific locations, the overall strategy to relieve congestion on SR-60 and SR-91 is to improve the capacity of surface streets that could serve as alternate routes to freeways. The policy to forego further widening of some sections of SR-60 and SR-91 is also noted in the Riverside County Congestion Management Program (CMP) which permits LOS "F" for some of the study freeway sections because those sections already operated at LOS "F" when the CMP was established in 1991[51]. For these reasons some of the identified mitigation measures may not be pursued even if they are deemed feasible in an engineering sense. In such cases the project's payment into the TUMF and DIF programs and funding for the surface street improvements would constitute a type of mitigation because they help create viable alternative routes that would substitute for freeway travel for some trips. For the purposes of this report, however, the impacts were treated as significant and unavoidable.

The project's direct impacts on the regional freeway system are summarized in Table 76. The freeways studied in this report are state facilities outside the jurisdiction of the City of Moreno Valley. The City will require the developer to pay a fair-share contribution towards improvements of these freeways as a condition of approval. However, because the freeways are outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this section must therefore be considered significant and unavoidable. These impacts would be:

*Direct Impacts on Freeway Mainline Basic Sections*

- **Eastbound SR-60 from Euclid Ave. to Grove Ave.** (F-6) already exceeds the LOS threshold in the PM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. The addition of a lane is identified in the Transportation Concept Report[52].

  SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley. The City will require the developer to pay a fair-share contribution towards improvement of this section as a condition of approval. However, because the freeway is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of

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51 *2011 Riverside County Congestion Management Program*, Page 4-7.

52 A transportation concept report is Caltrans' analysis of long-range demand for a highway.

the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this section must therefore be considered significant and unavoidable.

## Table 76: Direct Impacts on Freeways and Mitigations

| Study Facility | | Juris-diction | LOS Standard | Determination of Impact | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant | Is Mitigation Feasible? | LOS After Feasible Mitigations are Implemented | | Impact Significant After Feasible Mitigations are Implemented? | Is There an Existing Deficiency? | Developer Action Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Existing | | Existing Plus Build-out | | Does the Project Have a Significant Impact? | | | AM LOS | PM LOS | | | |
| | | | | AM | PM | AM | PM | | | | | | | | |
| (A) | | (B) | (C) | (D) | | (E) | | (F) | (G) | (H) | (I) | | (J) | (K) | (L) |
| **Freeway Mainline Basic Sections - All Impacts are Considered Significant and Unavoidable (because they are not feasible, not part of an existing fee program, and/or not under the control of the City of Moreno Valley)** | | | | | | | | | | | | | | | |
| F-6 | EB SR-60 Euclid Ave to Grove Ave | Caltrans | D | D | E | E | E | Yes | Add one mixed flow lane. | Yes | D | D | No | Yes | Pay fair share (11.6%) |
| F-24 | EB SR-60 Martin Luther King Blvd to Central Ave | Caltrans | D | C | F | D | F | Yes | Add one mixed flow lane. | No | D | F | Yes | Yes | N/A* |
| F-27 | WB SR-60 I-215 to Day St | Caltrans | D | F | B | F | C | Yes | Add one mixed flow lane. | Yes | D | B | No | Yes | Pay fair share (52.7%) |
| F-29 | WB SR-60 Pigeon Pass Rd/Frederick St to Heacock St | Caltrans | D | C | D | C | E | Yes | Add one mixed flow lane. | Yes | B | C | No | No | Pay fair share (36.8%) |
| F-41 | WB SR-91 Pierce St to Magnolia Ave | Caltrans | D | C | F | C | F | Yes | Add one mixed flow lane. | Yes | B | D | No | Yes | Pay fair share (9.4%) |
| F-42 | WB SR-91 Magnolia Ave to La Sierra Ave | Caltrans | D | C | F | C | F | Yes | Add one mixed flow lane. | No | C | F | Yes | Yes | N/A* |
| F-49 | EB SR-91 Central Ave to 14th St | Caltrans | D | D | D | E | D | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (3.3%) |
| F-71 | NB I-215 SR-74 to Redlands Ave | Caltrans | D | D | E | D | E | Yes | Add one mixed flow lane. | Yes | C | D | No | Yes | N/A** |
| F-71 | SB I-215 SR-74 to Redlands Ave | Caltrans | D | E | D | F | D | Yes | Add one mixed flow lane. | Yes | C | C | No | Yes | N/A** |
| F-83 | SB I-215 Baseline Rd to Highland Ave | Caltrans | D | E | F | F | F | Yes | Add one mixed flow lane. | Yes | C | C | No | Yes | N/A** |
| **Freeway Weaving Sections - All Impacts are Considered Significant and Unavoidable (because they are not feasible, not part of an existing fee program, and/or not under the control of the City of Moreno Valley)** | | | | | | | | | | | | | | | |
| W-21 | EB SR-60 SR-91 to Blaine St/3rd St | Caltrans | D | B | E | B | E | Yes | Add one mixed flow lane. | No | B | E | Yes | Yes | N/A* |
| W-22 | EB SR-60 Blaine St/3rd St to University Ave | Caltrans | D | B | E | C | E | Yes | Add a second off-ramp lane. | Yes | B | D | No | Yes | Pay fair share (10.1%) |
| W-25 | EB SR-60 Central Ave to Fair Isle Dr/Box Springs Rd | Caltrans | D | B | D | C | E | Yes | Add one mixed flow lane. | No | C | E | Yes | No | N/A* |
| W-25 | WB SR-60 Central Ave to Fair Isle Dr/Box Springs Rd | Caltrans | D | E | D | E | E | Yes | Add one mixed flow lane. | Yes | D | C | No | Yes | N/A** |
| W-48 | EB SR-91 Arlington Ave to Central Ave | Caltrans | D | E | B | E | B | Yes | Add a second off-ramp lane. | Yes | D | B | No | Yes | Pay fair share (6.3%) |
| W-50 | WB SR-91 14th to University Ave | Caltrans | D | C | E | C | E | Yes | Add a second off-ramp lane. | Yes | C | D | No | Yes | Pay fair share (6.0%) |
| **Freeway Ramps - All Impacts are Considered Significant and Unavoidable (because they are not feasible, not part of an existing fee program, and/or not under the control of the City of Moreno Valley)** | | | | | | | | | | | | | | | |
| R-2 | SR-60 EB On-Ramp from Central Ave | Caltrans | D | B | F | C | F | Yes | Add one mixed flow lane. | No | C | F | Yes | Yes | N/A* |

Indicates LOS exceeds the target level

** Improvement identified in the current RTP and planned to be completed independent of the WLC project

* Not applicable because mitigation is infeasible

- **Eastbound SR-60 from Martin Luther King Blvd. to Central Ave.** (F-24) already exceeds the LOS threshold in the PM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. The Transportation Concept Report does not call for further widening of this section, which could only be accomplished by eliminating the existing shoulder and thus leaving no space for disabled vehicles to pull over. Since this would create safety problems that would be less acceptable than a low LOS, mitigating this impact is infeasible. This impact is therefore significant and unavoidable.

- **Westbound SR-60 from I-215 to Day St.** (F-27) already exceeds the LOS threshold in the AM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley. The City will require the developer to pay a fair-share contribution towards improvement of this section as a condition of approval. However, because the freeway is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this section must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Pigeon Pass Rd./Frederick St. to Heacock St.** (F-29) currently operates at an acceptable LOS but would exceed the LOS threshold in the PM peak hour under Existing Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. The addition of a lane is identified in the Transportation Concept Report.

  SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley. The City will require the developer to pay a fair-share contribution towards improvement of this section as a condition of approval. However, because the freeway is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this section must therefore be considered significant and unavoidable.

- **Westbound SR-91 from Pierce St. to Magnolia Ave.** (F-41) already exceeds the LOS threshold in the PM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  SR-91 is a state facility outside the jurisdiction of the City of Moreno Valley. The City will require the developer to pay a fair-share contribution towards improvement of this section as a condition of approval. However, because the freeway is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of

the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this section must therefore be considered significant and unavoidable.

- **Westbound SR-91 from Magnolia Ave. to La Sierra Ave.** (F-42) already exceeds the LOS threshold in the PM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. However, this could only be accomplished by eliminating the existing shoulder and thus leaving no space for disabled vehicles to pull over. Since this would create safety problems that would be less acceptable than a low LOS, mitigating this impact is infeasible. This impact is therefore significant and unavoidable.

- **Eastbound SR-91 from Central Ave. to 14th St.** (F-49) currently operates at an acceptable LOS but would exceed the LOS threshold in the AM peak hour under Existing Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  SR-91 is a state facility outside the jurisdiction of the City of Moreno Valley. The City will require the developer to pay a fair-share contribution towards improvement of this section as a condition of approval. However, because the freeway is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this section must therefore be considered significant and unavoidable.

- **Northbound I-215 from SR-74/Case Rd. to Redlands Ave.** (F-71) already exceeds the LOS threshold in the PM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. The improvement is identified in the current SCAG RTP and planned to be completed by 2022 independent of the WLC project.

- **Southbound I-215 from SR-74/Case Rd. to Redlands Ave.** (F-71) already exceeds the LOS threshold in the AM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. The improvement is identified in the current SCAG RTP and planned to be completed by 2022 independent of the WLC project.

- **Southbound I-215 from Baseline Rd to Highland Ave.** (F-83) already exceeds the LOS threshold in both the AM and PM peak hours and traffic density would increase under Existing Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. The improvement is identified in the current SCAG RTP and planned to be completed by 2022 independent of the WLC project. There is no need for action by the developer since the mitigation measure will already be in place, thus eliminating the Project's impact.

*Direct Impacts on Freeway Weaving Sections*

- **Eastbound SR-60 from SR-91 to W. Blaine St/.3rd St.** (W-21) already exceeds the LOS threshold in the PM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a mixed-flow lane would reduce the impact to a less-than-significant level. The existing freeway right-of-way in this section cannot accommodate an additional lane and cannot be widened without impacting the adjacent residential community. Since widening the freeway is infeasible, this impact is significant and unavoidable.

- **Eastbound SR-60 from W Blaine St./3rd St. to University Ave.** (W-22) already exceeds the LOS threshold in the PM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a second off-ramp lane would bring the LOS to within the target threshold.

  SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley. The City will require the developer to pay a fair-share contribution towards improvement of this section as a condition of approval. However, because the freeway is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this section must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.** (W-25) currently operates near capacity and the addition of the project would increase traffic above the target LOS threshold. Adding a mixed-flow lane would reduce the impact to a less-than-significant level. The existing freeway right-of-way in this section cannot accommodate an additional lane and cannot be widened without eliminating the adjacent frontage road. Since widening the freeway is infeasible, this impact is significant and unavoidable.

- **Westbound SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.** (W-25) already exceeds the LOS threshold in the AM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. The improvement is identified in the current SCAG RTP and planned to be completed by 2022 independent of the WLC project.

- **Eastbound SR-91: Arlington Ave. to Central Ave.** (W-48) already exceeds the LOS threshold in the AM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a second off-ramp lane would bring the LOS to within the target threshold.

  SR-91 is a state facility outside the jurisdiction of the City of Moreno Valley. The City will require the developer to pay a fair-share contribution towards improvement of this section as a condition of approval. However, because the freeway is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of

the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this section must therefore be considered significant and unavoidable.

- **Westbound SR-91: 14th St. to University Ave.** (W-50) already exceeds the LOS threshold in the PM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a second off-ramp lane would bring the LOS to within the target threshold.

  SR-91 is a state facility outside the jurisdiction of the City of Moreno Valley. The City will require the developer to pay a fair-share contribution towards improvement of this section as a condition of approval. However, because the freeway is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this section must therefore be considered significant and unavoidable.

*Direct Impacts on Freeway Ramps*

- **Eastbound SR-60 from On-Ramp from Central Ave.** (R-2) already exceeds the LOS threshold in the PM peak hour and traffic density would increase under Existing Plus Build-out conditions. Adding a mixed-flow lane would reduce the impact to a less-than-significant level. The existing freeway right-of-way in this section cannot accommodate an additional lane and cannot be widened without eliminating the adjacent frontage road. Since widening the freeway is infeasible, this impact is significant and unavoidable.

As individual projects within the WLC are processed the City will require that each project do a traffic impact assessment in accordance with City guidelines. These project-level assessments will determine the timing of each mitigation measure.

## F. PROJECT CUMULATIVE IMPACTS

The cumulative impacts of the WLC project were determined by comparing the LOS of study facilities under 2035 No-Project and 2035 Plus Build-out conditions. The cumulative impacts of the project and their associated mitigation measures are described below. In cases where the facility had mitigation measures identified for direct impacts and requires additional improvements under cumulative conditions, the improvements described below are the improvements required beyond those described in the previous section on direct impacts.

### *Cumulative Impacts on Road Sections*

The project's cumulative impact on road sections is summarized in Table 77. This impact would be:

- **Gilman Springs Rd. from Alessandro Blvd. to Bridge St.** (S-16) should be widened from two lanes to four lanes in the short term (see previous section on direct impacts) and may need to be further widened from four lanes to eight lanes sometime in the 2022-to-2035 timeframe. Gilman Springs is a TUMF facility. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because Gilman Springs Rd. is a Riverside County facility and is thus outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. Moreover, there are right-of-way constraints involving sensitive environmental areas that may limit widening to six lanes between Alessandro Blvd. and Bridge St., or even preclude any widening at all. The project's impacts on Gilman Springs Rd. must therefore be considered significant and unavoidable. The City will work with Riverside County and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS on this road to the extent feasible.

## Table 77: Cumulative Impacts on Road Sections and Mitigations

| Roadway | | From | To | Jurisdiction | LOS Standard* | 2035 No-Project LOS | 2035 Plus Build-out LOS | Does the Project have a Significant Impact? | Mitigation Measures Required to Reduce Project Impacts to Less-Than-Significant | Is the Mitigation Feasible? | LOS After Feasible Mitigations are Implemented | Impact Significant After Feasible Mitigations are Implemented? | Is There an Existing Deficiency? | Developer Action Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (A) | | | | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) |
| **Road Section Cumulative Impacts that are Considered Significant and Unavoidable (because they are not under the control of the City of Moreno Valley)** | | | | | | | | | | | | | | |
| S-16 | Gilman Springs Rd | Alessandro Blvd (Street C) | Bridge Street | Riverside County | D | D | F | Yes | Widen to 8 lanes | Partially (to 6 lanes) | F | Yes | Yes | Pay Fair Share (12.2%) |

* LOS Standard is "C" in residential areas and "D" for roads in employment-generating areas or near freeways.

** WLC's impacts would already be mitigated with the measures identified for direct impacts.

Indicates LOS exceeds the target level

*Cumulative Impacts on Study Intersections*

The WLC project's cumulative impacts on study intersections is summarized in Table 78, and described in detail below:

- **Redlands Blvd./Ironwood Ave. intersection** (IN-11) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing a second southbound left-turn lane would reduce cumulative impacts to a less-than-significant level. This intersection is eligible for funds under the DIF program. The City will collect DIF fees in accordance with City Municipal Code 3.42.030 and 3.42.040, and use these fees to improve this intersection.
- **Theodore St./Ironwood Ave. intersection** (IN-12) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Signalizing the intersection would reduce cumulative impacts to a less-than-significant level. This intersection is eligible for funds under the DIF program. The City will collect DIF fees in accordance with City Municipal Code 3.42.030 and 3.42.040, and use these fees to improve this intersection.
- **Moreno Beach Dr./Cactus Ave. intersection** (IN-25) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing a second eastbound left-turn lane would reduce cumulative impacts to a less-than-significant level. This intersection is eligible for funds under the DIF program. The City will collect DIF fees in accordance with City Municipal Code 3.42.030 and 3.42.040, and use these fees to improve this intersection.
- **Redlands Blvd./Cactus Ave. intersection** (IN-27) should be signalized and added eastbound and westbound left-turn lanes in the short term (see previous section on direct impacts) and may exceed the target LOS threshold at some point in the 2022-to2035 period. Constructing a westbound left-turn lane would reduce project impacts to a less-than-significant level. The City will require the developer to pay a fair-share contribution towards this improvement as a condition of approval.
- **Moreno Beach Dr./Locust Ave. intersection** (IN-35) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Signalizing the intersection and constructing a westbound left-turn lane would reduce cumulative impacts to a less-than-significant level. This intersection is eligible for funds under the DIF program. The City will collect DIF fees in accordance with City Municipal Code 3.42.030 and 3.42.040, and use these fees to improve this intersection.
- **Moreno Beach Dr./Ironwood Ave. intersection** (IN-36) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Adding northbound and southbound left-turn lanes and changing north/south lefts from split to protected left-turn phase would reduce project impacts to a less-than-significant level. This intersection is eligible for funds under the DIF program. The City

will collect DIF fees in accordance with City Municipal Code 3.42.030 and 3.42.040, and use these fees to improve this intersection.

- **Moreno Beach Dr./SR-60 EB Ramps intersection** (IN-37) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing a southbound left-turn lane and changing the eastbound approach to one left-turn and one through lane would reduce cumulative impacts to a less-than-significant level. This intersection is eligible for funds under the DIF program. The City will collect DIF fees in accordance with City Municipal Code 3.42.030 and 3.42.040, and use these fees to improve this intersection.

## Table 78: Cumulative Intersection Impacts and Mitigations

| Study Intersection | | Jurisdiction | LOS Standard | 2035 No-Project | | 2035 Plus Build-out | | Does the Project Have a Significant Impact? | Mitigation Measures Required to Reduce Impact to Less-Than-Significant | Is Mitigation Feasible? | LOS After Feasible Mitigations are Implemented | | Impact Significant After Feasible Mitigations are Implemented? | TUMF Facility? | DIF Facility? | Developer Action Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM | PM | AM | PM | | | | AM LOS | PM LOS | | | | |
| (A) | | (B) | (C) | (D) | | (E) | | (F) | (G) | (H) | (I) | | (J) | (K) | (L) | (M) |
| **Intersection Cumulative Impacts that can be Mitigated to a Less-Than-Significant Level** | | | | | | | | | | | | | | | | |
| IN-11 | Redlands Blvd/Ironwood Ave | Moreno Valley | D | D | D | D | E | Yes | Add 1 SB LT lane. | Yes | D | D | No | Yes | Yes | Pay DIF |
| IN-12 | Theodore Street/Ironwood Avenue | Moreno Valley | D | C | F | E | F | Yes | Signalize. | Yes | A | A | No | No | Yes | Pay DIF |
| IN-25 | Moreno Beach Dr/Cactus Ave | Moreno Valley | C | C | C | C | D | Yes | Add 1 EB LT lane. | Yes | B | C | No | No | Yes | Pay DIF |
| IN-27 | Redlands Blvd/Cactus Ave | Moreno Valley | C | B | B | F | F | Yes | Add 1 WB LT lane. | Yes | B | C | No | No | No | Pay fair share (60.7%) |
| IN-35 | Moreno Beach Dr/Locust Ave | Moreno Valley | C | D | E | D | F | Yes | Signalize. Add 1 WB LT lane. | Yes | A | B | No | Yes | Yes | Pay DIF |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | Moreno Valley | D | D | D | D | E | Yes | Change N/S from split to protected LT phase. Add NB and SB LT lanes. | Yes | D | D | No | Yes | Yes | Pay DIF |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | Moreno Valley | D | F | F | F | F | Yes | Change EB from 1 shared LT/TH to 1 LT and 1 TH. Add 1 SB LT lane. Change split phasing on E/W movement to protected LT phasing. | Yes | C | D | No | Yes | Yes | Pay DIF |
| IN-39 | Iris Ave/Perris Blvd | Moreno Valley | D | E | E | E | F | Yes | Add 1 WB LT and 1 SB LT lane. | Yes | D | D | No | Yes | Yes | Pay DIF |
| IN-40 | Kitching St/Iris Ave | Moreno Valley | C | E | F | E | F | Yes | Add 1 WB LT and change NB shared TH/RT to RT lane and add another RT lane. Provide overlap phase for NB RT. Add 1 EB TH lane. | Yes | C | C | No | No | No | Pay fair share (16%) |
| IN-41 | Lasselle Str/Iris Ave | Moreno Valley | D | C | E | D | F | Yes | Add 1 WB LT lane (resulting 3 turn lanes), and 1 EB RT Need to widen Lasselle in the SB to have 3 receiving lanes. | Yes | C | D | No | Yes | No | Pay TUMF |
| IN-57 | Graham Str/Alessandro Blvd | Moreno Valley | D | D | F | D | F | Yes | Add 1 NB LT and 1 WB LT lanes. | Yes | C | D | No | Yes | Yes | Pay DIF |
| IN-74 | Elsworth Str/Cactus Ave | Moreno Valley | D | F | F | F | F | Yes | Widen NB approach and change NB lane geometry from: 1 LT and 1 shared LT/TH/RT lanes to 3 LTs and 1 TH and 1 RT. Add 1 WB LT and EB RT lanes. | Yes | D | D | No | Yes | Yes | Pay DIF |

Notes: "CSS" means cross-street is stop-controlled
"AWS" means all-way stop
Indicates LOS exceeds the target level
"RABT" means roundabout
* Not applicable because mitigation is infeasible
** The "Plus Build-out and Mitigations" condition is better than the "No-Project" condition
"NB" and "SB" denote northbound and southbound respectively
"EB" and "WB" denote eastbound and westbound respectively
"LT" and "RT" denote left turn and right turn respectively
"TH" denotes through lanes

## Table 78: Cumulative Intersection Impacts and Mitigations (continued)

| Study Intersection | | Jurisdiction | LOS Standard | 2035 No-Project | | 2035 Plus Build-out | | Does the Project Have a Significant Impact? | Mitigation Measures Required to Reduce Impact to Less-Than-Significant | Is Mitigation Feasible? | LOS After Feasible Mitigations are Implemented | | Impact Significant After Feasible Mitigations are Implemented? | TUMF Facility? | DIF Facility? | Developer Action Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM | PM | AM | PM | | | | AM LOS | PM LOS | | | | |
| (A) | | (B) | (C) | (D) | | (E) | | (F) | (G) | (H) | (I) | | (J) | (K) | (L) | (M) |
| **Intersection Cumulative Impacts that are Considered Significant and Unavoidable (because they are not feasible, not under the control of the City of Moreno Valley, or are not part of an existing fee program)** | | | | | | | | | | | | | | | | |
| IN-66 | Alessandro Blvd/Sycamore Canyon Blvd | City of Riverside | D | D | F | D | F | Yes | Add SB RT overlap. | Yes | C | D | No | Yes | No | Pay TUMF |
| IN-73 | I-215 NB Ramps/Cactus Ave | March AFB | D | E | F | E | F | Yes | Add 1 EB RT, 1 WB RT, 1 NB LT, and 1 SB LT lanes. | Yes | B | D | No | Yes | No | Pay TUMF |
| IN-75 | Central Ave/Lochmoor Dr. | City of Riverside | D | B | E | B | F | Yes | Change NB approach to 1 LT and 1 shared LT/RT lane. | Yes | B | D | No | Yes | No | Pay TUMF |
| IN-80 | Alessandro Blvd/Mission Grove Pkwy | City of Riverside | D | C | E | C | F | Yes | Add EB LT lane. Add WB LT lane. Add NB TH lane. | Yes | C | D | No | Yes | No | Pay TUMF |
| IN-85 | Martin Luther King Blvd/I-215 NB Ramps | City of Riverside | D | E | C | E | C | Yes | Signalize. | Yes | B | A | No | No | No | Pay fair share (6.2%) |
| IN-86 | Central Ave/Chicago Ave | City of Riverside | D | D | E | E | F | Yes | Add NB RT overlap. | Yes | C | D | No | Yes | No | Pay TUMF |
| IN-88 | Central Ave/Canyon Crest Dr | City of Riverside | D | D | F | D | F | Yes | Change EB approach to 1 LT, 2 THs and 1 RT. Add WB LT lane. Add NB LT lane. Change SB approach to 2 LTs, 2 THs and 1 RT lane. Adjust splits. | Yes | D | D | No | Yes | No | Pay TUMF |
| IN-90 | Arlington Ave/Riverside Ave/SR-91 SB Ramps | City of Riverside | D | D | E | D | E | Yes | Add SB LT lane. | Yes | C | D | No | Yes | No | Pay TUMF |
| IN-94 | Arlington Ave/Victoria Ave | City of Riverside | D | F | F | F | F | Yes | Add EB TH lane. Add WB LT and RT. Adjust timings. | Yes | D | D | No | Yes | No | Pay TUMF |
| IN-95 | Alessandro Blvd/Chicago Ave | City of Riverside | D | E | F | E | F | Yes | Add EB TH lane. Add WB LT lane. Add WB TH lane. Add NB LT lane. Reconfigure SB approach to 3 LTs, 3 THs and 1 RT. | No | E | F | Yes | Yes | Yes | N/A* |
| IN-98 | Alessandro Blvd/Canyon Crest Dr | City of Riverside | D | E | F | E | F | Yes | Reconfigure EB approach to 1 LT, 1 TH and 2 RTs. Add WB TH lane. Add NB LT and NB RT lane. Reconfigure SB approach to 1 LT, 3 THs and 1 shared TH/RT lane. | Yes | D | D | No | Yes | No | Pay TUMF |
| IN-101 | Ramona Expy/Indian St | Perris | E | F | F | F | F | Yes | Add 1 EB RT lane. Add 2nd NB LT and 1 NB RT. Provide signal phase overlap for all RTs. | Yes | E | E | No** | Yes | No | Pay TUMF |
| IN-107 | Evans Rd/Rider St | Perris | C | D | C | D | C | Yes | Reconfigure SB approach to include 1 LT, 2 THs and 1 RT. | Yes | C | C | No | Yes | No | Pay TUMF |
| IN-129 | W 6th St/California Ave | Beaumont | C | F | F | F | F | Yes | Signalize. | Yes | B | C | No | Yes | No | Pay TUMF |
| IN-130 | W 6th St/Beaumont Ave | Beaumont | C | D | F | D | F | Yes | Reconfigure EB approach to 2 LTs, 2 THs and 1 RT. Make EB/WB LT protected phasing. Add 1 WB LT and 1 WB TH lane. Reconfigure NB approach to 1 LT, 2 THs and 1 RT. Add SB LT. | Yes | C | C | No | Yes | No | Pay TUMF |
| IN-131 | Reche Canyon Rd/Reche Vista Dr | Riverside County | C | D | F | D | F | Yes | Adjusted NB approach to a dedicated LT and a shared LT/RT lane. | Yes | B | C | No | Yes | No | Pay TUMF |

Notes: "CSS" means cross-street is stop-controlled
"AWS" means all-way stop
Indicates LOS exceeds the target level
"RABT" means roundabout
* Not applicable because mitigation is infeasible
** The "Plus Build-out and Mitigations" condition is better than the "No-Project" condition
"NB" and "SB" denote northbound and southbound respectively
"EB" and "WB" denote eastbound and westbound respectively
"LT" and "RT" denote left turn and right turn respectively
"TH" denotes through lanes

- **Iris Ave./Perris Blvd. intersection** (IN-39) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing a second westbound left-turn lane and a second southbound left-turn lane would reduce cumulative impacts to a less-than-significant level. This intersection is eligible for funds under the DIF program. The City will collect DIF fees in accordance with City Municipal Code 3.42.030 and 3.42.040, and use these fees to improve this intersection.
- **Kitching St./Iris Ave. intersection** (IN-40) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Adding a third eastbound through lane and a second westbound left-turn lane, widening and reconfiguring the northbound approach to provide one left-turn lane, one through lane, and two right-turn lanes, and modifying the traffic signal to provide overlap phasing for the northbound right-turn movement would reduce cumulative impacts to a less-than-significant level. The City will impose as a condition of approval that the WLC will provide fair-share funds to cover the cost of this improvement, which the City will use to construct the needed improvements.
- **Lasselle St./Iris Ave. intersection** (IN-41) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Adding a third westbound left-turn lane and an eastbound right-turn lane would reduce project impacts to a less-than-significant level. This improvement is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact.
- **Graham St./Alessandro Blvd. intersection** (IN-57) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing a northbound left-turn lane and a westbound left-turn lane would reduce cumulative impacts to a less-than-significant level. This intersection is eligible for funds under the DIF program. The City will collect DIF fees in accordance with City Municipal Code 3.42.030 and 3.42.040, and use these fees to improve this intersection.
- **Elsworth St./Cactus Ave. intersection** (IN-74) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Widening the northbound approach to provide three left-turn lanes, one through lane, and one right-turn lane, and adding a westbound left-turn lane and eastbound right-turn lane would reduce cumulative impacts to a less-than-significant level. This intersection is eligible for funds under the DIF program. The City will collect DIF fees in accordance with City Municipal Code 3.42.030 and 3.42.040, and use these fees to improve this intersection.
- **Alessandro Blvd./Sycamore Canyon Blvd. intersection** (IN-66) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Providing a southbound right-turn overlap phase at the signal would reduce cumulative impacts to a less-than-significant level.

This intersection is under the jurisdiction of the City of Riverside. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Riverside and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

- **I-215 NB Ramps/Cactus Ave. intersection** (IN-73) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing an eastbound right-turn lane, a westbound right-turn lane, a second northbound left-turn lane, and a second southbound left-turn lane would reduce cumulative impacts to a less-than-significant level.

  This intersection is under the jurisdiction of the March AFB Joint Powers Authority. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the March AFB Joint Powers Authority and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

- **Central Ave./Lochmoor Dr. intersection** (IN-75) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Converting the northbound approach to one left-turn lane and a shared left-right-turn lane would reduce cumulative impacts to a less-than-significant level.

  This intersection is under the jurisdiction of the City of Riverside. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Riverside and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

- **Alessandro Blvd./Mission Grove Pkwy. intersection** (IN-80) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Modifying the traffic signal to provide an additional eastbound left-turn, westbound left-turn, and northbound through lane would reduce cumulative impacts to a less-than-significant level.

This intersection is under the jurisdiction of the City of Riverside. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Riverside and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

- **Martin Luther King Blvd./I-215 NB Ramps intersection** (IN-85) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Signalizing the intersection would reduce cumulative impacts to a less-than-significant level.

  This intersection is under the jurisdiction of the City of Riverside. It is not eligible for TUMF funding. The City will work with the City of Riverside to establish a mechanism for collecting and distributing payments from developers for inter-jurisdictional impacts not covered by the TUMF program. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable.

- **Central Ave./Chicago Ave. intersection** (IN-86) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Modifying the traffic signal to provide overlap phasing for the northbound right-turn movement would reduce cumulative impacts to a less-than-significant level.

  This intersection is under the jurisdiction of the City of Riverside. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Riverside and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

- **Central Ave./Canyon Crest Dr. intersection** (IN-88) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing an eastbound right-turn lane, a second westbound left-turn lane, and a second northbound left-turn lane, and a southbound right-turn lane (and adjust signal timings) would reduce cumulative impacts to a less-than-significant level.

This intersection is under the jurisdiction of the City of Riverside. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Riverside and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

- **Arlington Ave./Riverside Ave./SR-91 SB Ramps intersection** (IN-90) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing a third southbound left-turn lane would reduce cumulative impacts to a less-than-significant level.

  This intersection is under the jurisdiction of the City of Riverside. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Riverside and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

- **Arlington Ave./Victoria Ave. intersection** (IN-94) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing a fourth eastbound through lane, a second westbound left-turn lane, and a second westbound right-turn lane would reduce cumulative impacts to a less-than-significant level.

  This intersection is under the jurisdiction of the City of Riverside. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Riverside and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

- **Alessandro Blvd./Chicago Ave**. **intersection** (IN-95) is already built out to near the practical limit before grade separation is required (it has five lanes for each approach). Despite this it already operates at LOS "F" in the PM peak period. To achieve the target LOS in 2035 would require the addition of lanes to the eastbound through, westbound left-turn, westbound though,

northbound left-turn, southbound left-turn, and southbound right-turn movements. There are established residential communities on each corner that would be impacted by such a widening or by grade separation. These mitigation measures are thus likely to be infeasible, and the project impact at this location is therefore considered to be a significant and unavoidable.

- **Alessandro Blvd./Canyon Crest Dr. intersection** (IN-98) will exceed the target LOS threshold at some point in the 2022-to-2035 period. The following measures would reduce cumulative impacts to a less-than-significant level: widen and reconfigure the eastbound approach to provide: one left-turn lane, one through lane, and two right-turn lanes; add an additional westbound through lane; add an additional northbound left-turn and northbound right-turn lane; and reconfigure the southbound approach to one left-turn lane, three through lanes, and one shared through-right-turn lane.

  This intersection is under the jurisdiction of the City of Riverside. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Riverside and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

- **Ramona Expwy./Indian St. intersection** (IN-101) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing one eastbound right-turn lane, a second northbound left-turn lane, and one northbound right-turn lane, and modifying the traffic signal to provide overlap phasing for all right-turn movements would reduce cumulative impacts to a less-than-significant level.

  This intersection is under the jurisdiction of the City of Perris. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Perris and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

- **Evans Rd./Rider St. intersection** (IN-107) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing an exclusive right-turn lane the on the southbound approach would reduce cumulative impacts to a less-than-significant level.

This intersection is under the jurisdiction of the City of Perris. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with the City of Perris and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

- **W. 6th St./California Ave. intersection** (IN-129) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Signalizing this intersection would reduce project impacts to a less-than-significant level.

  This intersection is under the jurisdiction of the City of Beaumont. Although it is a TUMF facility signalization is not currently eligible for TUMF funding. The City will work with the City of Beaumont to establish a mechanism for collecting and distributing payments from developers for inter-jurisdictional impacts not covered by the TUMF program. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable.

- **W. 6th St./Beaumont Ave. intersection** (IN-130) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Constructing a northbound right-turn lane, an eastbound right-turn lane, a second southbound left-turn lane, and a second westbound left-turn lane, removing on-street parking and restriping to provide a second westbound through lane, modifying the traffic signal to provide protected phasing for eastbound and westbound left-turn movements, and providing overlap phasing for northbound and eastbound right-turn movements would reduce cumulative impacts to a less-than-significant level.

  There are established commercial buildings on the corners on the northern part of the intersection that would be impacted by such a widening. These mitigation measures are thus infeasible, and the project impact at this location is therefore considered to be significant and unavoidable.

- **Reche Canyon Rd./Reche Vista Dr. intersection** (IN-131) will exceed the target LOS threshold at some point in the 2022-to-2035 period. Converting the existing northbound right-turn lane into a shared left-right-turn lane would reduce cumulative impacts to a less-than-significant level.

  This intersection is under the jurisdiction of Riverside County. It is eligible for TUMF funding. The City will collect TUMF fees in accordance with Municipal Code Chapter 3.44, and payment of these fees will constitute the mitigation for this impact. However, because both the intersection and the funding source are outside the jurisdiction of the City of Moreno Valley, the City cannot

ensure that the identified improvements would be made. The project's impacts on this intersection must therefore be considered significant and unavoidable. The City will work with Riverside County and WRCOG to direct TUMF funding for improvements that would provide an acceptable LOS at this intersection.

*Cumulative Freeway Mainline Mitigations*

The WLC's cumulative impacts on the freeways system are summarized in Table 79, and described in detail below:

**Eastbound SR-60 from S. Reservoir St. to Ramona Ave.** (F-2) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

The state freeway system is owned and operated by Caltrans and is thus outside the jurisdiction of the City of Moreno Valley. The City will work with Caltrans to establish a mechanism for collecting funds from developers for use in funding needed freeway improvements. However, since at the present time no such mechanism exists that would ensure that WLC funds contributed to Caltrans or any other state agency would be used to implement specific improvements that mitigate WLC impacts, and there is no mechanism by which the City can construct or guarantee the construction of any improvements to the freeway system by itself, this and all other freeway impacts must be considered as significant and unavoidable.

## Table 79: Cumulative Freeway Impacts and Mitigations

| Study Facility | | Juris-diction | LOS Standard | Determination of Impact | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant | Is Mitigation Feasible? | LOS After Feasible Mitigations are Implemented | | Impact Significant After Feasible Mitigations are Implemented? | Is There an Existing Deficiency? | Developer Action Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2035 No-Project | | 2035 Plus Build-out | | Does the Project Have a Significant Impact? | | | AM LOS | PM LOS | | | |
| | | | | AM | PM | AM | PM | | | | | | | | |
| (A) | | (B) | (C) | (D) | | (E) | | (F) | (G) | (H) | (I) | | (J) | (K) | (L) |
| Freeway Mainline Basic Sections - All Impacts are Considered Significant and Unavoidable (because they are not feasible, not part of an existing fee program, and/or not under the control of the City of Moreno Valley) | | | | | | | | | | | | | | | |
| F-2 | EB SR-60 Reservoir St to Ramona Ave | Caltrans | D | E | E | E | E | Yes | Add one mixed flow lane. | Yes | D | D | No | No | Pay fair share (9.5%) |
| F-2 | WB SR-60 Reservoir St to Ramona Ave | Caltrans | D | E | D | E | E | Yes | Add one mixed flow lane. | Yes | D | C | No | Yes | Pay fair share (7.9%) |
| F-3 | EB SR-60 Ramona Ave to Central Ave | Caltrans | D | E | F | E | F | Yes | Add one mixed flow lane. | Yes | D | D | No | Yes | Pay fair share (9.5%) |
| F-4 | EB SR-60 Central Ave to Mountain Ave | Caltrans | D | E | F | F | F | Yes | Add one mixed flow lane. | Yes | D | E | No** | Yes | Pay fair share (10.1%) |
| F-5 | EB SR-60 Mountain Ave to Euclid Ave | Caltrans | D | E | D | F | D | Yes | Add one mixed flow lane. | Yes | D | C | No | No | Pay fair share (10.6%) |
| F-5 | WB SR-60 Mountain Ave to Euclid Ave | Caltrans | D | C | E | C | E | Yes | Add one mixed flow lane. | Yes | C | D | No | No | Pay fair share (6.9%) |
| F-6 | WB SR-60 Euclid Ave to Grove Ave | Caltrans | D | D | E | C | E | Yes | Add one mixed flow lane. | Yes | C | D | No | No | Pay fair share (8.0%) |
| F-7 | EB SR-60 Grove Ave to Vineyard Ave | Caltrans | D | F | F | F | F | Yes | Add one mixed flow lane. | Yes | D | E | No** | Yes | Pay fair share (11.3%) |
| F-7 | WB SR-60 Grove Ave to Vineyard Ave | Caltrans | D | C | E | C | E | Yes | Add one mixed flow lane. | Yes | C | D | No | No | Pay fair share (8.5%) |
| F-8 | EB SR-60 Vineyard Ave to Archibald Ave | Caltrans | D | F | F | F | F | Yes | Add one mixed flow lane. | Yes | D | E | No** | Yes | Pay fair share (11.9%) |
| F-9 | EB SR-60 Archibald Ave to Haven Ave | Caltrans | D | E | D | E | D | Yes | Add one mixed flow lane. | Yes | D | C | No | No | Pay fair share (14.2%) |
| F-17 | EB SR-60 Valley Way to Rubidoux Blvd | Caltrans | D | E | C | E | C | Yes | Add one mixed flow lane. | Yes | D | B | No | No | Pay fair share (19.1%) |
| F-17 | WB SR-60 Valley Way to Rubidoux Blvd | Caltrans | D | C | E | C | E | Yes | Add one mixed flow lane. | Yes | B | C | No | No | Pay fair share (9.42%) |
| F-18 | EB SR-60 Rubidoux Blvd to Market St | Caltrans | D | E | C | F | C | Yes | Add one mixed flow lane. | Yes | D | B | No | No | Pay fair share (22.7%) |
| F-19 | EB SR-60 Market St to Main St | Caltrans | D | E | E | E | F | Yes | Add one mixed flow lane. | Yes | C | D | No | Yes | Pay fair share (20.9%) |
| F-19 | WB SR-60 Market St to Main St | Caltrans | D | D | E | D | E | Yes | Add one mixed flow lane. | Yes | C | D | No | No | Pay fair share (8.7%) |
| F-20 | WB SR-60 Main to SR-91 | Caltrans | D | D | E | D | E | Yes | Add one mixed flow lane. | Yes | C | D | No | No | Pay fair share (8.9%) |
| F-24 | WB SR-60 Martin Luther King Blvd to Central Ave | Caltrans | D | D | D | D | E | Yes | Add one mixed flow lane. | Yes | C | D | No | No | Pay fair share (18.3%) |
| F-26 | WB SR-60 Fair Isle Dr/Box Springs Rd to I-215 | Caltrans | D | D | F | D | F | Yes | Add one mixed flow lane. | Yes | C | D | No | No | Pay fair share (9.0%) |
| F-29 | EB SR-60 Pigeon Pass Rd/Frederick St to Heacock St | Caltrans | D | D | E | D | E | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (19.5%) |
| F-30 | EB SR-60 Heacock St to Perris Blvd | Caltrans | D | C | E | D | E | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (13.1%) |
| F-30 | WB SR-60 Heacock St to Perris Blvd | Caltrans | D | D | D | D | E | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (37.2%) |
| F-34 | WB SR-60 Redlands Blvd to Theodore St | Caltrans | D | E | D | E | E | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (12.5%) |
| F-36 | EB SR-60 Gilman Springs Rd to Jack Rabbit Trail | Caltrans | D | C | F | C | F | Yes | Add one mixed flow lane. | Yes | B | D | No | No | Pay fair share (4.9%) |
| F-37 | EB SR-60 Jack Rabbit Trail to Potrero Blvd | Caltrans | D | C | F | C | F | Yes | Add one mixed flow lane. | Yes | B | D | No | No | Pay fair share (7.0%) |
| F-41 | EB SR-91 Pierce St to Magnolia Ave | Caltrans | D | E | E | E | E | Yes | Add one mixed flow lane. | Yes | D | C | No | No | Pay fair share (12.4%) |
| F-43 | EB SR-91 La Sierra Ave to Tyler St | Caltrans | D | E | E | E | E | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (10.0%) |
| F-43 | WB SR-91 La Sierra Ave to Tyler St | Caltrans | D | D | E | D | E | Yes | Add one mixed flow lane. | Yes | C | D | No | No | Pay fair share (10.9%) |
| F-44 | WB SR-91 Tyler St to Van Buren Blvd | Caltrans | D | D | E | D | E | Yes | Add one mixed flow lane. | Yes | C | D | No | No | Pay fair share (8.7%) |

Indicates LOS exceeds the target level

** Although the target LOS is not met, conditions with the project and the mitigation measure would be better than No-Project conditions

* Not applicable because mitigation is infeasible

*** The mitigation measures are in addition to the mitigation measure needed for direct Project impacts (see Table 76)

## Table 79: Cumulative Freeway Impacts and Mitigations (continued)

| Study Facility | | Juris-diction | LOS Standard | Determination of Impact | | | | | Mitigation Measures Required to Reduce Impact to Less-Than-Significant | Is Mitigation Feasible? | LOS After Feasible Mitigations are Implemented | | Impact Significant After Feasible Mitigations are Implemented? | Is There an Existing Deficiency? | Developer Action Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2035 No-Project | | 2035 Plus Build-out | | Does the Project Have a Significant Impact? | | | AM LOS | PM LOS | | | |
| | | | | AM | PM | AM | PM | | | | | | | | |
| (A) | | (B) | (C) | (D) | | (E) | | (F) | (G) | (H) | (I) | | (J) | (K) | (L) |
| F-45 | WB SR-91 Van Buren Blvd to Adam St | Caltrans | D | D | D | D | E | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (8.2%) |
| F-46 | EB SR-91 Adam St to Madison St | Caltrans | D | E | C | E | C | Yes | Add one mixed flow lane. | No | E | C | Yes | No | N/A* |
| F-47 | WB SR-91 Madison St to Arlington Ave | Caltrans | D | D | E | D | E | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (4.9%) |
| F-75 | SB I-215 Center St to La Cadena Dr | Caltrans | D | E | C | E | C | Yes | Add one mixed flow lane. | No | E | C | Yes | No | N/A* |
| F-52 | EB I-10 SR-60 to Beaumont Ave | Caltrans | D | C | E | C | E | Yes | Add one mixed flow lane. | Yes | B | D | No | No | Pay fair share (2.5%) |
| F-52 | WB I-10 SR-60 to Beaumont Ave | Caltrans | D | E | C | E | C | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (2.9%) |
| F-54 | EB I-10 Pennsylvania Ave to Highland Springs Ave | Caltrans | D | C | E | C | E | Yes | Add one mixed flow lane. | Yes | B | D | No | No | Pay fair share (1.9%) |
| F-54 | WB I-10 Pennsylvania Ave to Highland Springs Ave | Caltrans | D | E | C | E | C | Yes | Add one mixed flow lane. | Yes | D | C | No | No | Pay fair share (3.2%) |
| F-55 | EB I-10 Highland Springs Ave to Sunset Ave | Caltrans | D | C | E | C | E | Yes | Add one mixed flow lane. | Yes | B | D | No | No | Pay fair share (0.7%) |
| F-55 | WB I-10 Highland Springs Ave to Sunset Ave | Caltrans | D | E | C | E | C | Yes | Add one mixed flow lane. | Yes | D | B | No | No | Pay fair share (3.3%) |
| F-58 | EB I-10 8th St to Hargrave St | Caltrans | D | C | D | C | E | Yes | Add one mixed flow lane. | Yes | B | C | No | No | Pay fair share (2.1%) |
| F-58 | WB I-10 8th St to Hargrave St | Caltrans | D | E | C | E | C | Yes | Add one mixed flow lane. | Yes | C | B | No | No | Pay fair share (2.1%) |
| F-59 | EB I-10 Hargrave St to Fields Rd | Caltrans | D | C | E | C | E | Yes | Add one mixed flow lane. | Yes | B | D | No | No | Pay fair share (1.2%) |
| F-61 | EB I-10 Morongo Trail to Main St | Caltrans | D | B | E | B | E | Yes | Add one mixed flow lane. | Yes | B | C | No | No | Pay fair share (1.9%) |
| F-71 | SB I-215 SR-74 to Ellis Ave | Caltrans | D | F | E | F | E | Yes | Add one mixed flow lane.*** | Yes | D | C | No | Yes | Pay fair share (0.8%) |
| F-83 | SB I-215 Baseline Rd to Highland Ave | Caltrans | D | F | D | F | D | Yes | Add one mixed flow lane.*** | No | F | D | Yes | Yes | N/A* |
| Freeway Weaving Sections - All Impacts are Considered Significant and Unavoidable (because they are not feasible, not part of an existing fee program, and/or not under the control of the City of Moreno Valley) | | | | | | | | | | | | | | | |
| W-1 | EB SR-60 SR-71/Garey Ave to Reservoir St | Caltrans | D | E | E | E | E | Yes | Add one mixed flow lane. | Yes | D | E | No** | Yes | Pay fair share (8.3%) |
| W-9 | WB SR-60 Haven Ave to Archibald Ave | Caltrans | D | D | E | D | E | Yes | Add one mixed flow lane. | Yes | C | D | No | No | Pay fair share (6.1%) |
| W-20 | EB SR-60 Main St to SR-91 | Caltrans | D | D | E | E | E | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (19.1%) |
| W-21 | WB SR-60 SR-91 to Blaine St/3rd St | Caltrans | D | D | E | D | F | Yes | Add one mixed flow lane. | No | D | F | Yes | No | N/A* |
| W-22 | WB SR-60 Blaine St/3rd St to University Ave | Caltrans | D | C | E | C | E | Yes | Add one mixed flow lane. | No | C | E | Yes | No | N/A* |
| W-23 | WB SR-60 University Ave to Martin Luther King Blvd | Caltrans | D | D | E | D | E | Yes | Add a second off-ramp lane. | Yes | C | E | No** | No | Pay fair share (10.4%) |
| W-25 | WB SR-60 Central Ave to Fair Isle Dr/Box Springs Rd | Caltrans | D | E | E | E | E | Yes | Add one mixed flow lane.*** | Yes | D | E | No** | Yes | Pay fair share (16.6%) |
| W-28 | WB SR-60 Day St to Pigeon Pass Rd/Frederick St | Caltrans | D | D | D | D | E | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (35.6%) |
| Freeway Ramps - All Impacts are Considered Significant and Unavoidable (because they are not feasible, not part of an existing fee program, and/or not under the control of the City of Moreno Valley) | | | | | | | | | | | | | | | |
| R-1 | SR-60 EB On-Ramp from Martin Luther King Blvd | Caltrans | D | D | D | D | E | Yes | Add one mixed flow lane. | No | D | E | Yes | No | N/A* |
| R-10 | SR-60 EB On-Ramp from Gilman Springs Rd | Caltrans | D | B | F | B | F | Yes | Add one mixed flow lane. | Yes | A | C | No | No | See F-36 |
| R-14 | SR-60 WB On-Ramp from Theodore St | Caltrans | D | E | D | E | D | Yes | Add one mixed flow lane. | Yes | C | C | No | No | See F-34 |
| R-15 | SR-60 WB Off-Ramp to Redlands Blvd | Caltrans | D | D | D | E | D | Yes | Add one mixed flow lane. | Yes | C | B | No | No | See F-34 |
| R-16 | WB SR-60 Loop On-Ramp from Redlands Blvd | Caltrans | D | E | D | E | D | Yes | Add one mixed flow lane. | Yes | C | C | No | No | Pay fair share (14.0%) |
| R-17 | SR-60 WB Direct On-Ramp from Redlands Blvd | Caltrans | D | D | D | F | D | Yes | Add one mixed flow lane.**** | Yes | C | C | No | No | Pay fair share (14.0%) |
| R-18 | SR-60 WB Off-Ramp to Central Ave | Caltrans | D | D | D | D | E | Yes | Add one mixed flow lane. | Yes | C | D | No | No | See W-25 (Table 74) |
| R-19 | SR-60 WB Off-Ramp to Martin Luther King Blvd | Caltrans | D | D | D | D | E | Yes | Add one mixed flow lane. | Yes | C | D | No | No | See F-24 |

Indicates LOS exceeds the target level

** Although the target LOS is not met, conditions with the project and the mitigation measure would be better than No-Project conditions

* Not applicable because mitigation is infeasible

*** The mitigation measures are in addition to the mitigation measure needed for direct Project impacts (see Table 76)

**** The additional lane needed between Redlands Blvd. and Moreno Beach Dr. as mitigation for R-16 is the same lane that is needed to mitigate impacts to R-17. Only one lane is needed; not one for R-16 and a second for R-17.

- **Westbound SR-60 from South Reservoir St. to Ramona Ave.** (F-2) already exceeds the target LOS threshold and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Ramona Ave to Central Av**e (F-3) already exceeds the LOS threshold and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Central Ave. to Mountain Ave.** (F-4) already exceeds the LOS threshold and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would reduce the cumulative impact to a less-than-significant level.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Mountain Ave. to Euclid Ave.** (F-5) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Mountain Ave. to Euclid Ave.** (F-5) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

The existing freeway right-of-way in this section cannot accommodate additional lanes and the right-of-way cannot be expanded without severe impacts to the adjacent residential community. Since widening the freeway is infeasible, this impact is significant and unavoidable.

- **Westbound SR-60 from Euclid Ave. to Grove Ave.** (F-6) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target

  The existing freeway right-of-way in this section cannot accommodate additional lanes and the right-of-way cannot be expanded without severe impacts to the adjacent residential community. Since widening the freeway is infeasible, this impact is significant and unavoidable.

- **Eastbound SR-60 from Grove Ave. to Vineyard Ave.** (F-7) already exceeds the LOS threshold and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would reduce the cumulative impact to a less-than-significant level.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Grove Ave. to Vineyard Ave.** (F-7) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Vineyard Ave. to Archibald Ave.** (F-8) already exceeds the LOS threshold and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would reduce the cumulative impact to a less-than-significant level.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Archibald Ave. to Haven Ave.** (F-9) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035

Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Valley Way to Rubidoux Blvd.** (F-17) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. The addition of a lane is identified in the Transportation Concept Report.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

  **Westbound SR-60 from Valley Way to Rubidoux Blvd.** (F-17) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. The addition of a lane is identified in the Transportation Concept Report.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means to either widen the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

  **Eastbound SR-60 from Rubidoux Blvd. to Market St.** (F-18) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. The addition of a lane is identified in the Transportation Concept Report.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Market St. to Main St.** (F-19) already exceeds the LOS threshold and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane

would bring the LOS to within target threshold. The addition of a lane is identified in the Transportation Concept Report.

As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Market St. to Main St.** (F-19) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Main St. to SR-91** (F-20) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Martin Luther King Blvd. to Central Ave.** (F-24) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Fair Isle Dr./Box Springs Rd. to I-215** (F-26) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Pigeon Pass Rd./Frederick St. to Heacock St**. (F-29) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. The addition of a lane is identified in the Transportation Concept Report.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Heacock St. to Perris Blvd.** (F-30) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Heacock St. to Perris Blvd.** (F-30) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Redlands Blvd .to Theodore St.** (F-34) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing

that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Gilman Springs Rd. to Jack Rabbit Trail** (F-36) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  Caltrans already has plans to build a truck climbing lane in this area. However, as explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Jack Rabbit Trail to Potrero Blvd.** (F-37) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow would reduce the cumulative impact to a less-than-significant level.

  Caltrans already has plans to build a truck climbing lane in this area. However, as explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-91 from Pierce St. to Magnolia Ave.** (F-41) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-91 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-91 from La Sierra Ave. to Tyler St.** (F-43) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-91 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing

that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-91 from La Sierra Ave. to Tyler St.** (F-43) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-91 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-91 from Tyler St. to Van Buren Blvd.** (F-44) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-91 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-91 from Van Buren Blvd. to Adam St.** (F-45) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-91 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-91 from Adam St. to Madison St.** (F-46) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would reduce the cumulative impact to a less-than-significant level. The existing freeway right-of-way in this section cannot accommodate an additional lane and cannot be widened without impacting the adjacent residential community. Since widening the freeway is infeasible, this impact is significant and unavoidable.

- **Westbound SR-91 from Madison St. to Indiana Ave.** (F-47) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035

Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

As explained above, because SR-91 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound I-10 from SR-60 to Beaumont Ave.** (F-52) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because I-10 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound I-10 from SR-60 to Beaumont Ave.** (F-52) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because I-10 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound I-10 from Pennsylvania Ave. to Highland Springs Ave.** (F-54) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because I-10 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound I-10 from Pennsylvania Ave. to Highland Springs Ave.** (F-54) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

As explained above, because I-10 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound I-10 from Highland Springs Ave. to Sunset Ave.** (F-55) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because I-10 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound I-10 from Highland Springs Ave. to Sunset Ave.** (F-55) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because I-10 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound I-10 from S 8th St. to S. Hargrave St.** (F-58) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because I-10 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound I-10 from S 8th St. to S. Hargrave St.** (F-58) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because I-10 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some

other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound I-10 from S. Hargrave St. to Field Rd.** (F-59) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because I-10 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound I-10 from Main St. (Cabazon) to Main St.** (F-61) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because I-10 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Southbound I-215 from SR-74 to Ellis Ave.** (F-71[53]) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because I-215 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Southbound I-215 from Center St. to Iowa Ave/La Cadena Dr.** (F-75) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would reduce the cumulative impact to a less-than-significant level. The existing freeway right-of-way in this section cannot accommodate an additional lane and cannot be widened without impacting the adjacent frontage road. Since widening the freeway is infeasible, this impact is significant and unavoidable.

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[53] I-215 currently runs unbroken between SR-74 and Redlands Ave. The 2012 RTP includes a project (3M0731) that would split this section with a new interchange at Ellis Ave. So this section is listed as "I-215 SR-74 to Redlands" on tables describing conditions prior to construction of the Ellis Avenue Interchange.

- **Southbound I-215 from Baseline Rd. to Highland Ave.** (F-83) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would reduce the cumulative impact to a less-than-significant level. The freeway right-of-way in this section cannot accommodate an additional lane (beyond the lane already identified in the current SCAG RTP) and cannot be widened without impacting the adjacent railroad. Since widening the freeway is infeasible, this impact is significant and unavoidable.

*Cumulative Freeway Weaving Mitigations*

- **Eastbound SR-60: SR-71/S Garey Ave. to S. Reservoir St.** (W-1) already exceeds the LOS threshold and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would reduce the cumulative impact to a less-than-significant level.

  SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley. The City will require the developer to pay a fair-share contribution towards improvement of this section as a condition of approval. However, because the freeway is outside the jurisdiction of the City of Moreno Valley and because no mechanism is in place for ensuring the availability of the non-project portion of the needed funds, the City cannot ensure that the identified improvements would be made. The project's impacts on this section must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Haven Ave. to Archibald Ave.** (W-9) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Eastbound SR-60 from Main St. to SR-91** (W-20) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from SR-91 to W. Blaine St./3rd St.** (W-21) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would reduce the cumulative impact to a less-than-significant level. The existing freeway right-of-way in this section cannot accommodate an additional lane and cannot be widened without impacting the adjacent residential community. Since widening the freeway is infeasible, this impact is significant and unavoidable.

- **Westbound SR-60 from W Blaine St./3rd St. to University Ave.** (W-22) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would reduce the cumulative impact to a less-than-significant level. The existing freeway right-of-way in this section cannot accommodate an additional lane and cannot be widened without impacting the adjacent residential community. Since widening the freeway is infeasible, this impact is significant and unavoidable.

- **Westbound SR-60 from University Ave. to Martin Luther King Blvd.** (W-23) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a second off-ramp lane would reduce the cumulative impact to a less-than-significant level.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Central Ave. to Fair Isle Dr./Box Springs Rd.** (W-25) already exceeds the LOS threshold and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would reduce the cumulative impact to a less-than-significant level.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Day St. to Pigeon Pass Rd./Frederick St.** (W-28) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing

that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

*Cumulative Freeway Ramp Mitigations*

- **Eastbound SR-60 from On-Ramp from Martin Luther King Blvd.** (R-1) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would reduce the cumulative impact to a less-than-significant level. The Transportation Concept Report does not call for further widening of this section, which could only be accomplished by eliminating the existing shoulder and thus leaving no space for disabled vehicles to pull over. Since this would create safety problems that would be less acceptable than a low LOS, mitigating this impact is infeasible. This impact is therefore significant and unavoidable.

- **Eastbound SR-60 from On-Ramp from Gilman Spring Rd.** (R-10) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. (This improvement is already identified as the mitigation for mainline segment F-36.)

  Caltrans has plans to re-configure the SR-60/Gilman Springs Rd. interchange in the future. However, as explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from On-Ramp from Theodore St.** (R-14) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. (This improvement is already identified as the mitigation for mainline segment F-34.)

  The City has a study underway to develop alternative designs for this interchange. The City will collect a fair-share contribution from the developer to implement this improvement in conjunction with the reconfiguration of the SR-60/Theodore St. Interchange.

- **Westbound SR-60 from Off-Ramp to Redlands Blvd.** (R-15) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. (This improvement is already identified as the mitigation for mainline segment F-34.)

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing

that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Loop On-Ramp from Redlands Blvd.** (R-16) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Direct On-Ramp from Redlands Blvd.** (R-17) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold.

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Off-Ramp to Central Ave.** (R-18) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. (This improvement is already identified as the mitigation for weaving segment W-25 in the direct impacts list, Table 74.)

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

- **Westbound SR-60 from Off-Ramp to Martin Luther King Blvd.** (R-19) will exceed the target LOS threshold at some point in the 2022-to-2035 period and traffic density would increase under 2035 Plus Build-out conditions. Adding a mixed-flow lane would bring the LOS to within the target threshold. (This improvement is already identified as the mitigation for mainline segment F-24.)

  As explained above, because SR-60 is a state facility outside the jurisdiction of the City of Moreno Valley, the City has no means for either widening the freeway itself or for guaranteeing

that some other agency will widen the freeway. This impact must therefore be considered significant and unavoidable.

## G. RECOMMENDED MITIGATION MEASURES

Based on the analysis described above following Mitigation Measures are recommended:

- MM Trans-1: A traffic impact analysis ("TIA"), conforming to the guidelines for TIAs adopted by the City shall be submitted in conjunction with each Plot Plan application within the WLCSP. Prior to the approval of the Plot Plan, the City shall review the TIA to determine if any of the traffic improvements listed in Tables 72 through 77 of the TIA prepared for the Program EIR are required to be completed prior to the issuance of a certificate of occupancy for each building. If the City determines that any of the improvements within Moreno Valley are required to be constructed in order to ensure that the traffic impacts which will result from the construction and operation of the building will be mitigated into insignificance, then the completion of construction of the improvements prior to the issuance of a Certificate of Occupancy for the building shall be made a Condition of Approval of the Plot Plan. Construction of improvements within the City shall be subject to reimbursement agreement for those costs that exceed the fair share contribution determined for the specific Plot Plan application. If the City determines that any of the improvements outside Moreno Valley are required to be constructed in order to ensure that the traffic impacts which will result from the construction and operation of the building will be mitigated to a less than significant level, then the payment of any necessary fair share contribution as prescribed in MM Trans-6 prior to the issuance of a Certificate of Occupancy for the building shall be made a Condition of Approval of the Plot Plan. If the City determines that the traffic impacts which will result from the construction or operation of a building will be significantly more adverse than those shown in the program EIR, further environmental review shall be conducted prior to the approval of the Plot Plan pursuant to Public Resources Code § 21166 and CEQA Guidelines § 15162 to determine what additional mitigation measures, if any, will be required in order to maintain the appropriate levels of service.

- MM Trans-2: As a condition of approval for individual development permits processed in the future under the World Logistics Center Specific Plan, the City shall require the dedication of appropriate right-of-way, where feasible, consistent with the Subdivision Map Act for frontage street improvements contained within the World Logistics Center Specific Plan Circulation Map, as shown in Figure 22. Required dedications shall be made prior to the issuance of occupancy permits for the requested development.Figure 22.

- MM Trans-3: As a condition of approval for individual development permits processed in the future under the World Logistics Center Specific Plan, the City shall require each project to pay the requisite Development Impact Fee (DIF) as set forth in Municipal Code Chapter 3.42.

Required DIF payments shall be made prior to the issuance of occupancy permits for the requested development.

- MM Trans-4: As a condition of approval for individual development permits processed in the future under the World Logistics Center Specific Plan, the City shall require each project to pay the requisite Transportation Uniform Mitigation Fee (TUMF) as set forth in Municipal Code Chapter 3.44. Required TUMF payments shall be made prior to the issuance of occupancy permits for the requested development.

- MM Trans-5: In order to ensure that all of the Project's traffic impacts are mitigated to the greatest extent feasible, the Applicant shall contribute its fair share of the cost of the needed traffic improvements that are not within the City as identified in the Traffic Impact Analysis, *i.e.,* under the jurisdiction of other cities, the County of Riverside or Caltrans, pursuant to MM Trans-6. As used in this mitigation measure, the Applicant's "fair share" has been determined in compliance with the requirements of the Fee Mitigation Act, Government Code § 66000 *et seq.*, and, pursuant to § 66001(g), does not require that the Applicant be responsible for making up for any existing deficiencies.

- MM Trans-6: The Applicant shall pay a portion of the fair share of the cost of traffic improvements identified in the Transportation Impact Analysis for those significantly impacted road segments and intersections for each warehouse building within the World Logistics Center if the impacted jurisdiction has established a fair share contribution program prior to the approval of a building-specific plot plan. The City shall determine whether a fair share program exists in the impacted jurisdiction and, if one does exist, require that the appropriate fees are paid by the Applicant, consistent with the requirements below, prior to the issuance of a certificate of occupancy for the building in question. If no fair share program exists or if the existing programs are not consistent with the requirements below, then no payment of fees shall be required. The impacts are to be determined on a road segment or intersection basis. Nothing in this condition requires the payment of a traffic impact fee imposed by another jurisdiction which covers improvement to facilities where the Project does not have a significant impact. Fair-share contributions will be determined on a building-by-building basis as a share of the impact of the Project as a whole (for each segment or intersection where the WLC project as a whole has a significant impact identified in the programmatic EIR) as determined by the Traffic Impact Analysis and will be due as each certificate of occupancy is issued. The fair share payments for the significantly impacted road segments and intersections identified in the program EIR will be required even though the impact resulting from a specific building does not, by itself, cause a significant impact.

  For example, the intersection of Martin Luther King Blvd. and the I-215 northbound ramps (Intersection 85) in the City of Riverside was identified as a place where the WLC contributes to cumulatively significant impacts, and where the fair share contribution of the WLC project as a

whole was computed to be 6.2%. If the City of Riverside establishes a fair share contribution program consistent with this MM Trans-6 to improve that intersection, then when a certificate of occupancy is to be issued for a 2-million sq.ft. high-cube warehouse in the WLC (approximately 5% of the entire WLC project) the amount of the fair share payment due from the Applicant to the City of Riverside would be computed as follows:

| Amount Due | = | Total cost of Improvement | * | Total WLC fair Share (6.2%) as determined by TIA | * | % attributable to the building that is subject to the certificate of occupancy (5%) |
|---|---|---|---|---|---|---|

A similar calculation would be done for each subsequent building, with payments for each due at the time of issuance of the certificate of occupancy. As a result, while each building individually would not produce a significant impact, and therefore would not be required to pay any mitigation fees if considered by itself, the total amount of the payments for all of the buildings would be equal to the fair share payment for the entire WLC to the extent that the responsible jurisdiction has chosen to adopt a fair share contribution funding program consistent with MM Trans-6.

- MM Trans-7: City shall work directly with WRCOG to request that TUMF funding priorities be shifted to align with the needs of the City, including improvements identified in this TIA. Toward this end, City shall meet regularly with WRCOG.

*Level of Significance after Mitigation*

The mitigation measures described above can be usefully grouped into four categories based on who is responsible for the facility, which is the primary determinant of the level of significance after mitigation. The four categories are as follows:

On-Site Improvements – These are changes to the road system within the WLC project site that are being undertaken as part of the WLC project. The developer shall be responsible for constructing the improvements described in the section "*Proposed Road Network*" in Chapter 4 above in accordance with City standards for roadway construction and the roadway cross-sections in the proposed Specific Plan. Completion of these improvements shall constitute the developer's mitigation of the project's on-site impacts. When these improvements are completed the project's impacts on the roadway system within the WLC project site will be mitigated to a **less-than-significant** level.

Off-Site Improvements for Non-TUMF Roads Under the Jurisdiction of the City of Moreno Valley - These are improvements to public streets in Moreno Valley that are outside the area covered by the proposed WLC Specific Plan Amendment. The developer shall be responsible for paying the

DIF as set forth in Municipal Code Chapter 3.42 which the City shall use to implement the mitigation measures identified in Table 74, Table 75, Table 76, Table 78 and Table 79 pertaining to DIF facilities. The developer shall also be required to pay its fair share of the improvements to City streets that are not in the DIF program where there are significant project impacts. These payments shall constitute the developer's mitigation of project impacts on this category of roads. When these improvements are completed the project's impacts on the City roadway system will be mitigated to a **less-than-significant** level.

Off-Site Improvements to TUMF Facilities – These are improvements to roads that are part of the TUMF Regional System of Highways and Arterials, some of which are under the jurisdiction of Moreno Valley and others are located in other jurisdictions. The developer shall be responsible for paying the TUMF fees in effect at the time of approval. These payments shall constitute the developer's mitigation of project impacts to this category of roads.

The City shall implement the mitigation measures identified in Table 76 and Table 79 pertaining to TUMF facilities under the City's jurisdiction. When these improvements are completed the project's impacts on the roadway system within the WLC project site will be mitigated to a **less-than-significant** level.

The City shall work with the other member agencies of WRCOG to program TUMF funds to implement the mitigation measures identified in Table 75, Table 76, Table 78 and Table 79 pertaining to TUMF facilities outside the jurisdiction of the City of Moreno Valley. To the extent that TUMF fees provided by the developer are used to implement the recommended improvements the project's impacts would be less-than-significant. However, because the City does not have direct control over TUMF funding the City cannot ensure that the identified improvements would be made. Thus at this point the project's impacts on these facilities must be considered **significant and unavoidable**.

Off-Site Improvements to Roads Outside the Jurisdiction of the City and Not Part of the TUMF Program – This category includes all of the recommended mitigation measures that are under the jurisdiction of Riverside County, Caltrans, and other municipalities and that are not included in the TUMF Regional System of Highways and Arterials.

At this time the City does not have cooperative agreements with neighboring jurisdictions that would serve as a mechanism for collecting and distributing developer funds to cover the cost of cross-jurisdictions mitigation measures, other than the TUMF program. The City shall therefore work with the City of Redlands and Riverside County to collect funds from the developer and to implement the signalization of the San Timoteo Rd./Alessandro Rd. intersection and the San Timoteo Rd./Live Oak Canyon intersection (respectively). The City shall also work with the City of

Riverside to collect a fair-share contribution from the developer to signalize the Martin Luther King Blvd./I-215 northbound ramp intersection. To the extent that the City is able to establish such a mechanism (as described in MM Trans-6) and the other jurisdiction constructs the recommended improvement the project's impacts would be less-than-significant. However, because the City cannot guarantee that such a mechanism will be established and does not have direct control over facilities outside of its jurisdiction the City cannot ensure that the identified improvements would be made. Thus at this point the project's impacts on these facilities must be considered **significant and unavoidable**.

Similarly, the City has not entered into an agreement with Caltrans for the collection of developer payments for improvements to the state highway system other than freeway interchange improvements funded through the TUMF program. Nor has Caltrans established a program to collect fair-share contributions to freeway improvements such as those indentified in Table 76 and Table 79. Instead, Caltrans has traditionally relied on other means to fund freeway improvements; means involving multiple stages of review and input from other agencies, with priorities and constraints applied at each stage, that preclude a direct connection between developer-provided fair-share funds and specific highway improvements.

Decisions on funding for improvements to the state highway system are made by four bodies, namely[54]:

Legislature: Establishes overall policies, including determining funding sources and distribution, and spending priorities through state statutes such as Revenue and Taxation Code, Streets and Highways Code, and Government Code. The Legislature appropriates funds through the annual budget for transportation projects and has authority to designate transportation projects statutorily.

California Transportation Commission (CTC): The nine-member CTC, appointed by the Governor, reviews and adopts the state transportation programs and approves projects nominated by Caltrans and regional agencies for funding. The CTC recommends policy and funding priorities to the Legislature and is also responsible for project delivery oversight.

California Department of Transportation (Caltrans): Caltrans owns, operates and maintains the state highway system. Caltrans plans, designs, and nominates interregional capital improvement projects on the state highway system and also manages the intercity rail operation.

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54 This information came from *Transportation Funding in California*, Caltrans Economic Analysis Branch, 2011, page 2.

Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Agencies (RTPAs): MPOs and RTPAs are responsible for planning, coordinating and administering funds for regional transportation systems. In California, 17 MPOs and 48 RTPAs develop 20-year Regional Transportation Plans (RTPs) as well as 5-year Regional Transportation Improvement Program (RTIP), which identify projects for the regional portion of the State Transportation Improvement Program (STIP). SCAG is the MPO for Riverside County.

Most funds for improvements to the state highway system come through the State Highway Account (SHA), which receives funding from a variety of sources including:

- motor vehicle fuel taxes, part of which goes into the Highway Users Tax Account, a portion of which goes to the SHA and the rest goes to cities and counties according to a statutory formula.
- The fuel tax swap, enacted in 2011 (Fuel Tax Swap Fix), reenacted the provisions of the Fuel Tax Swap of 2010 addressing issues raised by the passage of Propositions 22 and 26. The Fuel Tax Swap eliminated the state sales tax on gasoline and instead imposed an additional excise tax on gasoline of 17.3¢ (July 2010). The increase in the excise tax would generate revenues equivalent to what would have been collected from the state sales tax on gasoline. These revenues are intended for new road construction (STIP), highway maintenance and operations (SHOPP), and local roadways.
- the federal fuel tax, which goes into the Highway Trust fund for use on the portions of the system that are designated ad federal aid highways

In addition local sales tax measures, such as Measure A in Riverside County, and the proceeds of Proposition 1B provide funding for improvements to certain portions of the state highway system.

The key feature of this system pertaining to the recommended freeway mitigation measures is that this system is outside the control of the City of Moreno Valley. The City shall work with Caltrans to establish a mechanism for collecting funds from developers for use in funding needed freeway improvements (as described in MM Trans-6). However, since at the present time no such mechanism exists that would ensure that WLC funds contributed to Caltrans or any other state agency would be used to implement specific improvements that mitigate WLC impacts, and there is no mechanism by which the City can construct or guarantee the construction of any improvements to the freeway system by itself, the project's impacts on the state highway system must be considered **significant and unavoidable**.

# 12. OTHER ISSUES

At the request of the City of Moreno Valley and to facilitate a more complete understanding of transportation issues related to the WLC, the following additional issues were studied.

## A. TRAFFIC SIGNAL WARRANT ANALYSIS

Traffic signal warrants are criteria used to determine whether a traffic signal might be justified at a particular location. The warrants represent minimum criteria for justifiability; in other words, meeting a warrant by itself does not necessarily mean that a signal should be installed. The City of Moreno Valley's TIA Guidelines mandate that study intersections that are not currently signalized be analyzed to determine whether the *California Manual of Uniform Traffic Control Devices*' (California MUTCD) peak-hour warrant is met for existing intersections or whether the California MUCTD daily warrant is met for future intersections. Table 80 through Table 82 show this analysis for No-Project and Plus Build-out conditions for the 2012, 2022, and 2035 conditions. Detailed signal warrant analyses can be found in Appendix P.

**Table 80: Signal Warrant Analysis for Existing**

| Study Intersection | | Jurisdiction | Traffic Control | Existing | | Existing Plus Phase 1 | | Existing Plus Build-out | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | AM | PM | AM | PM | AM | PM |
| 3 | Alessandro Blvd. & Theodore St. | Moreno Valley | CSS* | No | No | Yes | Yes | Yes | Yes |
| 6 | Alessandro Blvd. & Gilman Springs Rd. | Moreno Valley | CSS | No | Yes | Yes | Yes | Yes | Yes |
| 10 | Locust Ave. & Redlands Blvd. | Moreno Valley | CSS | No | No | No | No | Yes | Yes |
| 12 | Ironwood Ave. & Theodore St. | Moreno Valley | CSS | No | No | No | No | No | No |
| 13 | SR-60 WB Ramps & Redlands Blvd. | Moreno Valley | CSS | No | No | Yes | No | Yes | Yes |
| 15 | SR-60 WB Ramps & Theodore St. | Moreno Valley | CSS | No | No | Yes | Yes | Yes | Yes |
| 16 | SR-60 EB Ramps & Theodore St. | Moreno Valley | CSS | No | No | Yes | Yes | Yes | Yes |
| 19 | Eucalyptus Ave. & Theodore St. | Moreno Valley | CSS | No | No | Yes | Yes | Yes | Yes |
| 20 | Alessandro Blvd. & Oliver St. | Moreno Valley | CSS | No | No | No | No | Yes | No |
| 23 | Alessandro Blvd. & Redlands Blvd. | Moreno Valley | AWS | No | No | No | No | No | No |
| 27 | Cactus Ave. & Redlands Blvd. | Moreno Valley | AWS | No | No | Yes | Yes | Yes | Yes |
| 35 | Locust Ave. & Moreno Beach Dr. | Moreno Valley | CSS | No | No | No | No | No | No |
| 85 | Martain Luther King Blvd. & SR-60 NB Ramp | Riverside | AWS | No | No | Yes | No | Yes | No |
| 113 | Placentia Ave. & Evans Rd. (2035 only) | Perris | CSS | N/A | N/A | N/A | N/A | N/A | N/A |
| 114 | Orange Ave. & Evans Rd. | Perris | AWS | No | No | No | No | No | No |
| 122 | Ramona Expy & Bridge St.** | San Jacinto | CSS | No | No | No | Yes | No | Yes |
| 123 | Bridge St. Gilman Springs Rd. | San Jacinto | CSS | No | No | Yes | No | Yes | No |
| 124 | Gilman Springs Rd. & SR-79 NB Ramps | San Jacinto | CSS | Yes | Yes | Yes | Yes | Yes | Yes |
| 125 | Gilman Springs Rd. & SR-79 SB Ramps | San Jacinto | CSS | No | Yes | Yes | Yes | Yes | Yes |
| 129 | 6th St. & California Ave. | Beaumont | AWS | No | No | No | No | No | No |
| 132 | San Timoteo Canyon Rd. & Alessandro Rd. | Redlands | AWS | Yes | Yes | Yes | Yes | Yes | Yes |
| 133 | Live Oak Canyon & San Timoteo Canyon Rd. | Redlands | AWS | Yes | Yes | Yes | Yes | Yes | Yes |
| 134 | San Timoteo Canyon Rd. & Redlands Blvd. | Redlands | AWS | Yes | Yes | Yes | Yes | Yes | Yes |
| 135 | Crescent Ave. & Alessandro Rd. | Redlands | CSS | No | No | No | No | No | No |
| 136 | Sunset Dr. & Alessandro Rd. | Redlands | AWS | No | No | No | No | No | No |

* This would be a roundabout in the Plus Project condition.
** As part of a future upgrade of the Ramona Expressway, the Ramona Expressway/Bridge Street Intersection will be closed in the future and replaced with a new intersection west of the existing intersection.

**Table 81: Signal Warrant Analysis for 2022**

| Study Intersection | | Jurisdiction | Traffic Control | 2022 No-Project | | 2022 Plus Phase 1 | |
|---|---|---|---|---|---|---|---|
| | | | | AM | PM | AM | PM |
| 3 | Alessandro Blvd. & Theodore St. | Moreno Valley | CSS* | No | No | Yes | Yes |
| 6 | Alessandro Blvd. & Gilman Springs Rd. | Moreno Valley | CSS | Yes | Yes | Yes | Yes |
| 10 | Locust Ave. & Redlands Blvd. | Moreno Valley | CSS | Yes | Yes | Yes | Yes |
| 12 | Ironwood Ave. & Theodore St. | Moreno Valley | CSS | No | No | No | No |
| 13 | SR-60 WB Ramps & Redlands Blvd. | Moreno Valley | CSS | Yes | Yes | Yes | Yes |
| 15 | SR-60 WB Ramps & Theodore St. | Moreno Valley | CSS | No | No | Yes | Yes |
| 16 | SR-60 EB Ramps & Theodore St. | Moreno Valley | CSS | No | No | Yes | Yes |
| 19 | Eucalyptus Ave. & Theodore St. | Moreno Valley | CSS | No | No | Yes | Yes |
| 20 | Alessandro Blvd. & Oliver St. | Moreno Valley | CSS | Yes | Yes | Yes | Yes |
| 23 | Alessandro Blvd. & Redlands Blvd. | Moreno Valley | AWS | No | Yes | No | No |
| 27 | Cactus Ave. & Redlands Blvd. | Moreno Valley | AWS | No | No | Yes | Yes |
| 35 | Locust Ave. & Moreno Beach Dr. | Moreno Valley | CSS | No | No | No | No |
| 85 | Martain Luther King Blvd. & SR-60 NB Ramp | Riverside | AWS | Yes | No | Yes | No |
| 113 | Placentia Ave. & Evans Rd. (2035 only) | Perris | CSS | N/A | N/A | N/A | N/A |
| 114 | Orange Ave. & Evans Rd. | Perris | AWS | No | No | No | No |
| 122 | Ramona Expy & Bridge St.** | San Jacinto | CSS | N/A | N/A | N/A | N/A |
| 123 | Bridge St. Gilman Springs Rd. | San Jacinto | CSS | Yes | No | Yes | No |
| 124 | Gilman Springs Rd. & SR-79 NB Ramps | San Jacinto | CSS | Yes | Yes | Yes | Yes |
| 125 | Gilman Springs Rd. & SR-79 SB Ramps | San Jacinto | CSS | Yes | Yes | Yes | Yes |
| 129 | 6th St. & California Ave. | Beaumont | AWS | Yes | Yes | Yes | Yes |
| 132 | San Timoteo Canyon Rd. & Alessandro Rd. | Redlands | AWS | Yes | Yes | Yes | Yes |
| 133 | Live Oak Canyon & San Timoteo Canyon Rd. | Redlands | AWS | Yes | Yes | Yes | Yes |
| 134 | San Timoteo Canyon Rd. & Redlands Blvd. | Redlands | AWS | Yes | Yes | Yes | Yes |
| 135 | Crescent Ave. & Alessandro Rd. | Redlands | CSS | No | No | No | No |
| 136 | Sunset Dr. & Alessandro Rd. | Redlands | AWS | No | No | No | No |

* This would be a roundabout in the Plus Project condition.
** As part of a future upgrade of the Ramona Expressway, the Ramona Expressway/Bridge Street Intersection will be closed in the future and replaced with a new intersection west of the existing intersection.

**Table 82: Signal Warrant Analysis for 2035**

| Study Intersection | | Jurisdiction | Traffic Control | 2035 No-Project | | 2035 Plus Build-out | |
|---|---|---|---|---|---|---|---|
| | | | | AM | PM | AM | PM |
| 3 | Alessandro Blvd. & Theodore St. | Moreno Valley | CSS* | Yes | Yes | Yes | Yes |
| 6 | Alessandro Blvd. & Gilman Springs Rd. | Moreno Valley | CSS | Yes | Yes | Yes | Yes |
| 10 | Locust Ave. & Redlands Blvd. | Moreno Valley | CSS | Yes | Yes | Yes | Yes |
| 12 | Ironwood Ave. & Theodore St. | Moreno Valley | CSS | No | Yes | No | Yes |
| 13 | SR-60 WB Ramps & Redlands Blvd. | Moreno Valley | CSS | Yes | Yes | Yes | Yes |
| 15 | SR-60 WB Ramps & Theodore St. | Moreno Valley | CSS | Yes | Yes | Yes | Yes |
| 16 | SR-60 EB Ramps & Theodore St. | Moreno Valley | CSS | No | Yes | Yes | Yes |
| 19 | Eucalyptus Ave. & Theodore St. | Moreno Valley | CSS | No | Yes | Yes | Yes |
| 20 | Alessandro Blvd. & Oliver St. | Moreno Valley | CSS | Yes | No | Yes | Yes |
| 23 | Alessandro Blvd. & Redlands Blvd. | Moreno Valley | AWS | Yes | Yes | No | Yes |
| 27 | Cactus Ave. & Redlands Blvd. | Moreno Valley | AWS | Yes | Yes | Yes | Yes |
| 35 | Locust Ave. & Moreno Beach Dr. | Moreno Valley | CSS | Yes | Yes | Yes | Yes |
| 85 | Martain Luther King Blvd. & SR-60 NB Ramp | Riverside | AWS | Yes | Yes | Yes | Yes |
| 113 | Placentia Ave. & Evans Rd. (2035 only) | Perris | CSS | Yes | Yes | Yes | Yes |
| 114 | Orange Ave. & Evans Rd. | Perris | AWS | Yes | Yes | Yes | Yes |
| 122 | Ramona Expy & Bridge St.** | San Jacinto | CSS | N/A | N/A | N/A | N/A |
| 123 | Bridge St. Gilman Springs Rd. | San Jacinto | CSS | Yes | Yes | Yes | Yes |
| 124 | Gilman Springs Rd. & SR-79 NB Ramps | San Jacinto | CSS | Yes | Yes | Yes | Yes |
| 125 | Gilman Springs Rd. & SR-79 SB Ramps | San Jacinto | CSS | Yes | Yes | Yes | Yes |
| 129 | 6th St. & California Ave. | Beaumont | AWS | Yes | Yes | Yes | Yes |
| 132 | San Timoteo Canyon Rd. & Alessandro Rd. | Redlands | AWS | Yes | Yes | Yes | Yes |
| 133 | Live Oak Canyon & San Timoteo Canyon Rd. | Redlands | AWS | Yes | Yes | Yes | Yes |
| 134 | San Timoteo Canyon Rd. & Redlands Blvd. | Redlands | AWS | Yes | Yes | Yes | Yes |
| 135 | Crescent Ave. & Alessandro Rd. | Redlands | CSS | No | No | No | No |
| 136 | Sunset Dr. & Alessandro Rd. | Redlands | AWS | No | No | No | No |

* This would be a roundabout in the Plus Project condition.
** As part of a future upgrade of the Ramona Expressway, the Ramona Expressway/Bridge Street Intersection will be closed in the future and replaced with a new intersection west of the existing intersection.

In the medium-term future (2022), there are five intersections that would meet the signal warrant with the WLC project but would not meet the warrant without the project. These are:

- Alessandro Blvd./Theodore St.
- SR-60 WB Ramps/Theodore St.
- SR-60 EB Ramps/Theodore St.
- Eucalyptus Ave./Theodore St.
- Cactus Ave./Redlands Blvd.

In the long-term (2035) all five intersections listed above would warrant signalization even without the WLC project.

## B. TRAFFIC NEAR SCHOOLS

Several comments were received regarding possible traffic safety issues related to traffic going to or from the WLC passing near schools.

In one case the commenter mistakenly believed that WLC trucks would be using Alessandro Blvd. to access SR-60 and I-215. In fact, trucks will be prohibited from using Cactus Ave. Extension and trucks are already prohibited from using Redlands Blvd. south of Eucalyptus Ave., which means that they will not be using Alessandro Blvd. to get to and from the WLC. Figure 54 shows the designated trucks routes in and around Moreno Valley[55], while Figure 55 shows the main routes expected to be taken by WLC trucks. With the exception of Perris Blvd., which will be used by a small volume of WLC trucks[56], none of the routes go near schools.

It was assumed that other comments regarding "streets adjacent and near schools" were safety related due to the fact that there may be a higher amount of pedestrian activity near schools. Therefore, the safety impact of Project-related auto trips along streets adjacent to and near schools was evaluated by reviewing the existing pedestrian facilities and collecting pedestrian counts at the intersections along Project truck trip distribution routes.

The intersections reviewed exhibit the characteristics of typical suburban arterial roadways with common pedestrian accommodations, such as crosswalks, curb ramps, push buttons, pedestrian walk/don't walk signals, etc. All pedestrian crossings at the signalized intersections are protected; a protected crossing occurs where traffic that conflicts with the pedestrian movement is required to stop. Crosswalks near a school are striped in yellow, consistent with guidance from the *California Manual on Traffic Control Devices* (page 1282). In most cases, sidewalks exist along roadways and lead to the striped, protected crosswalks at the intersections.

Key intersections along the truck trip distribution routes were reviewed during a site visit and found to provide adequate pedestrian amenities with protected crossings, crosswalks, curb ramps, and pedestrian signals, consistent with other signalized intersections in the City. Therefore, the location of an intersection on a Project truck trip distribution route is not expected to cause unsafe pedestrian facilities.

Pedestrian counts were collected at 25 study intersections along the Project truck trip distribution routes to determine if unusually high pedestrian volumes were being experienced at intersections. Table 83

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55 Note that Riverside County does not identify truck routes. The City of Riverside's code does not identify a positive list of where trucks are allowed, but does have a negative list of where trucks are prohibited based on weight.

56 22 medium and heavy trucks in the AM peak hour and 25 in the PM peak hour.

shows that many of the intersections along the routes have fewer than 30 pedestrian crossings per hour between the hours of 2:00 to 4:00 PM (the peak of school children crossing activity).

The main commuter routes expected to be used by WLC workers were identified using the RivTAM model. The routes with 50 or more peak-hour trips are shown in Figure 55.[57] These include the John F. Kennedy Dr./Moreno Beach Dr./Iris Ave. route, the Cactus Ave. route, the Alessandro Blvd. route, and the north Perris Ave. route. Only three locations were identified where significant pedestrian activity (50 or more pedestrians per hour) may encounter significant WLC commuter traffic (50 or more peak-hour trips). These occurred at the Iris Ave./Laselle St, Krameria Ave./Kitching St., and Alessandro Blvd./Perris Blvd. intersections. These intersections were specifically reviewed to ensure that pedestrian accommodations were provided. Protected, marked crosswalks exist at all of these intersections and pedestrian amenities are consistent with other, standard signalized intersections in the City.

Based on this analysis the conclusion was reached that the WLC project poses no special traffic safety risk to children near schools, and that appropriate safety measures have already been taken to minimize traffic risks in the vicinity of the schools near the project.

[57] Peak hour volumes are shown as a worse-case. Actual traffic volumes in the 2:00 to 3:00 PM period are forecast to be lower. The threshold of 50 project trips per hour was based on the City of Moreno Valley *Traffic Impact Guidelines* threshold for when potential impacts need to be analyzed.

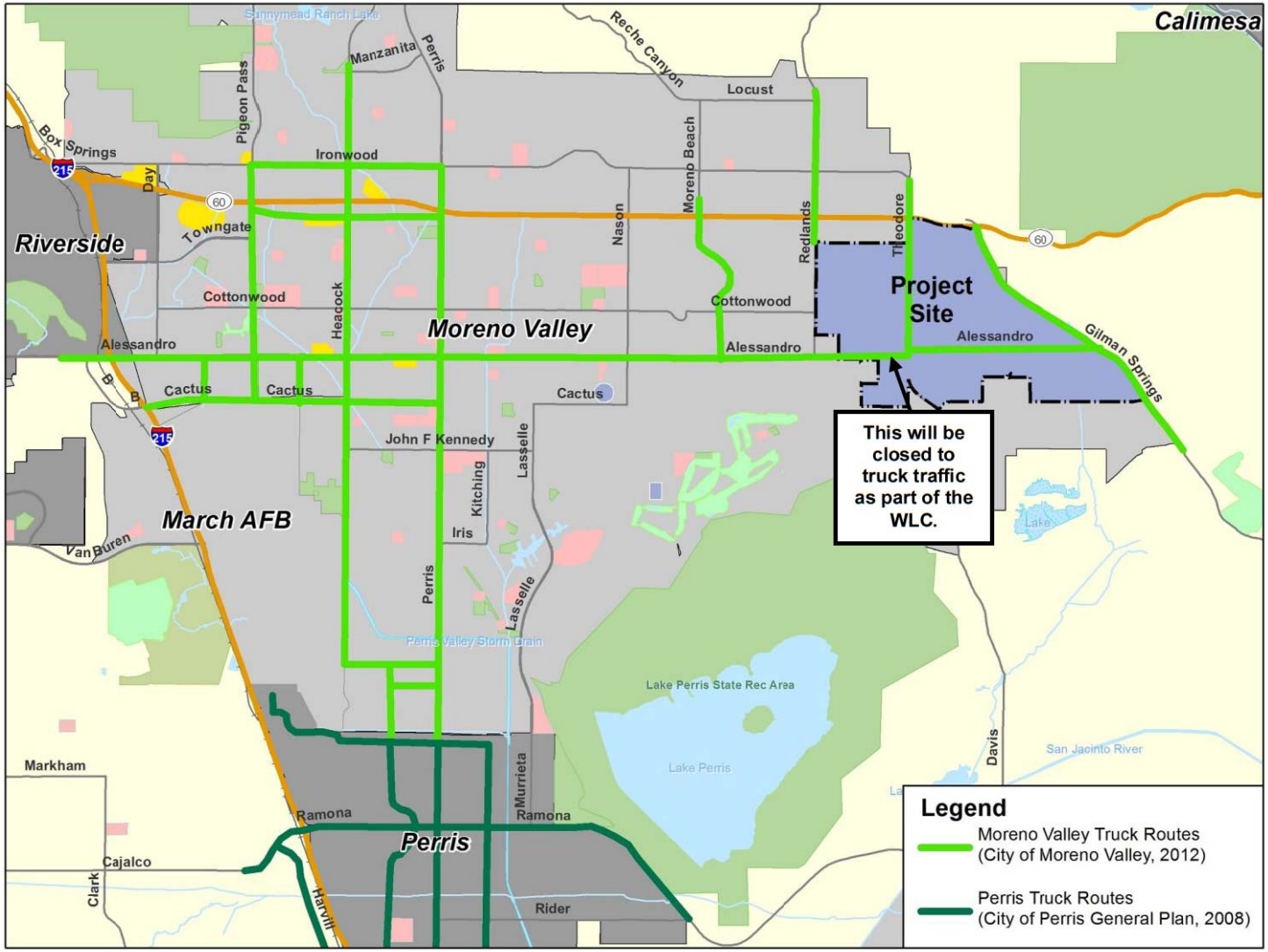
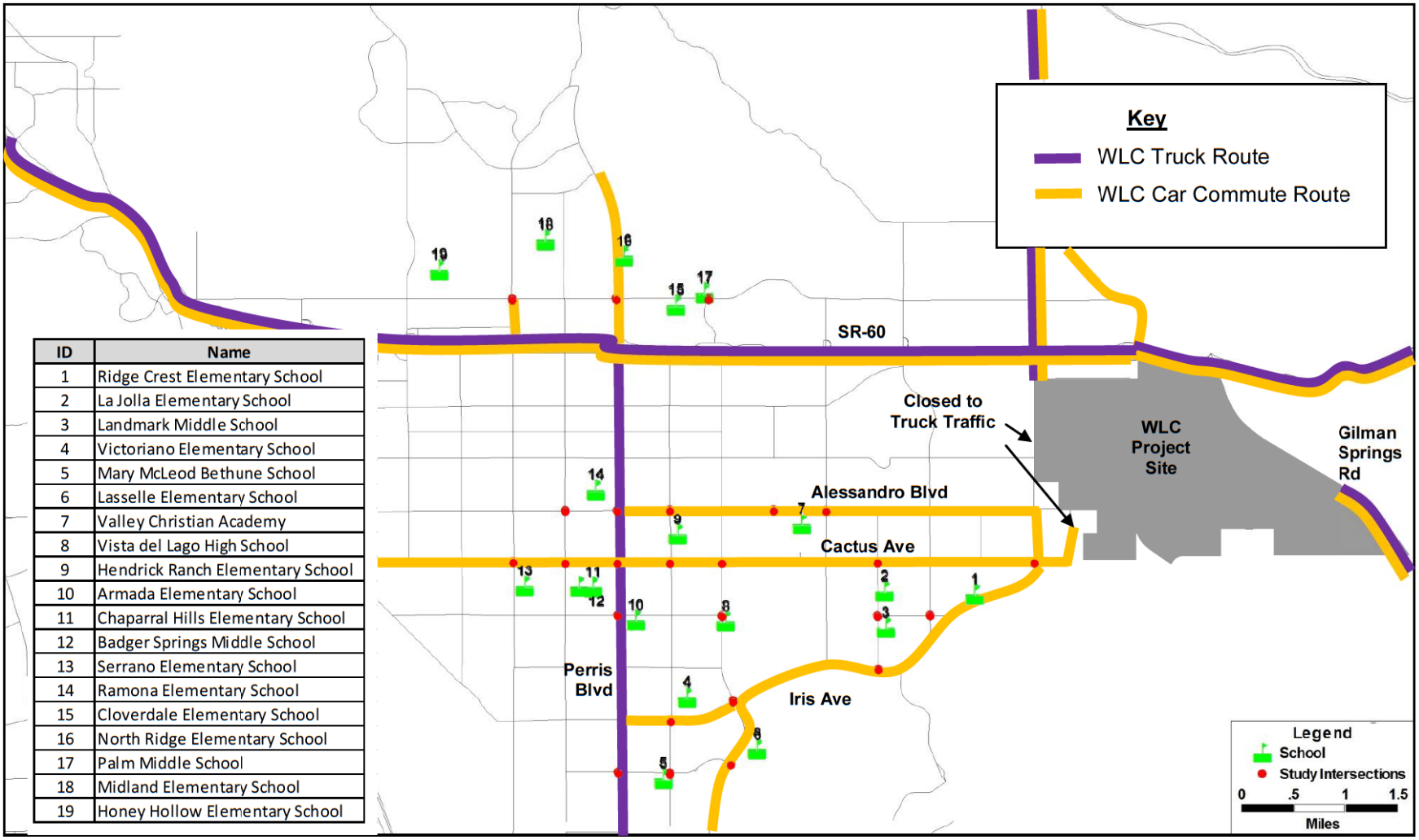



**Figure 54: Existing Truck Routes in and Near Moreno Valley**




| ID | Name |
|---|---|
| 1 | Ridge Crest Elementary School |
| 2 | La Jolla Elementary School |
| 3 | Landmark Middle School |
| 4 | Victoriano Elementary School |
| 5 | Mary McLeod Bethune School |
| 6 | Lasselle Elementary School |
| 7 | Valley Christian Academy |
| 8 | Vista del Lago High School |
| 9 | Hendrick Ranch Elementary School |
| 10 | Armada Elementary School |
| 11 | Chaparral Hills Elementary School |
| 12 | Badger Springs Middle School |
| 13 | Serrano Elementary School |
| 14 | Ramona Elementary School |
| 15 | Cloverdale Elementary School |
| 16 | North Ridge Elementary School |
| 17 | Palm Middle School |
| 18 | Midland Elementary School |
| 19 | Honey Hollow Elementary School |

**Figure 55: Routes Taken by WLC Trips in Relation to Schools**

**Table 83: Pedestrian and Project Traffic in Vicinity of Schools[58]**

| ID | Intersection | Pedestrian Crossings | Expected WLC Car Trips |
|---|---|---|---|
| 24 | Cactus Ave / Oliver St | 0 | 222 |
| 27 | Cactus Ave / Redlands Blvd | 0 | 985 |
| 28 | John F. Kennedy Dr / Moreno Beach Dr | 2 | 590 |
| 29 | Ironwood Ave / Heacock St | 23 | 55 |
| 38 | John F. Kennedy Dr / Perris Blvd | 20 | 73 |
| 40 | Iris Ave / Kitching St | 17 | 166 |
| 41 | Iris Ave / Lasselle St | 112 | 524 |
| 43 | Iris Ave/Moreno Beach Dr / Oliver St | 0 | 543 |
| 45 | Krameria Ave / Perris Blvd | 18 | 134 |
| 46 | Krameria Ave / Kitching St | 128 | 137 |
| 47 | Krameria Ave / Lasselle St | 25 | 336 |
| 48 | Alessandro Blvd / Kitching St | 18 | 52 |
| 50 | Alessandro Blvd / Morrison St | 0 | 49 |
| 51 | Alessandro Blvd / Nason St | 5 | 79 |
| 52 | Cactus Ave / Kitching St | 22 | 96 |
| 53 | Cactus Ave / Lasselle St | 1 | 202 |
| 59 | Alessandro Blvd / Indian St | 55 | 43 |
| 60 | Alessandro Blvd / Perris Blvd | 82 | 50 |
| 63 | Cactus Ave / Heacock St | 4 | 71 |
| 64 | Cactus Ave / Indian St | 23 | 74 |
| 65 | Cactus Ave / Perris Blvd | 17 | 84 |
| 201 | John F. Kennedy Dr / Oliver St | 5 | 47 |
| 202 | John F. Kennedy Dr / Lasselle St | 4 | 94 |
| 203 | Ironwood Dr / Lasselle St | 3 | 31 |
| 204 | Ironwood Dr / Perris Blvd | 12 | 76 |

## C. SAFETY AND OPERATIONAL CONSIDERATIONS

The City's guidelines mandate that the TIA cover the following safety and operational issues:

- Turn Lanes: The improvements needed for study intersections were described in detail in the preceding chapters.
- Intersections Needing Future Sight Distance Studies: The City's established sight distance standard will be applied at all street intersections in connection with all plot plan and subdivision applications.

[58] Peak hour car volumes are shown as a worse-case. Actual traffic volumes in the 2:00 to 3:00 PM period are forecast to be lower. Peak hour pedestrian crossings are shown as the one peak hour within the 2:00 to 4:00 PM period.

- Parking Restrictions: Each plot plan application will be reviewed to ensure that off-street parking will be provided at each building in compliance with the Moreno Valley Municipal Code. A limited amount of short-term on-street parking for trucks will be provided in selected areas of the WLC. Overnight or extended parking would be prohibited.

- Measures to Reduce Cut-Through Traffic in Adjacent Residential Neighborhoods: The design of the WLC incorporates several features that limit the project's impacts on adjacent residential areas. Eastbound Alessandro Blvd. will end at Merwin St. to prevent traffic from passing through the neighborhood directly west of the project. Cactus Ave. Extension would be for cars and light trucks only. The intersection of Cactus Ave. Extension and Street E would include signage and, if deemed necessary by the City, a design feature, such as a median island, height-restricting gateway, or reduced curb return, which would preclude trucks from turning onto Cactus Ave.

- Potential Impacts to Adjacent Schools, Parks, and/or Trails: There are no schools or parks within or adjacent to the WLC. The WLC Specific Plan provides for the continuation of a public multi-use trail from Redlands Blvd. through the WLC linking to the Lake Perris State Recreation Area and the San Jacinto Wildlife Area.

- Queue Lengths and Impacts to Adjacent Intersections and/or Driveways: As individual buildings are developed, a traffic study will be performed including a queue length analysis to ensure there is not spill back affecting nearby intersections.

- Emergency Access: Every plot plan will be conditioned to provide all emergency access required by federal, state, and local regulations. Emergency vehicles that currently pass through the site using either Theodore St. or Alessandro Blvd. would continue to have those routes available to them, upgraded to arterial standards. The Alessandro route would reach Redlands Blvd. at Cactus Ave. instead of at Alessandro. The change would not lengthen the route between Gilman Springs Rd. and the Riverside Community Regional Medical Center on Cactus Ave. or the route to and from the Kaiser Moreno Valley Community Hospital on Iris Ave. The extension of Eucalyptus Ave. through the WLC would provide an upgraded [59] route to the project site from the nearest existing fire station (the Moreno Beach fire station). Moreover, the WLC would include a fire station on site.

## D. TRANSIT, PEDESTRIAN, AND BICYCLE FACILITIES

There is currently no transit service in the project area. The WLC would be designed to accommodate bus access on all project streets. Bus turn-outs and shelters would be provided at all active bus stops. It

[59] There is currently a gated connection available to emergency vehicles only between Fir (future Eucalyptus) Avenue and Redlands Blvd.

is expected that transit service would be provided once the project reaches a transit-supportable level of operations.

The WLC pedestrian and bicycle facilities were described previously in Chapter 4 (see Figure 37, Figure 38, etc.).

## E. CONSTRUCTION TRAFFIC IMPACTS

A project phasing plan was developed to estimate the level of construction activity occurring during any given year during build-out of the project. Based on this plan, the expected level of truck activity related to construction of the project is shown in Table 84.

**Table 84: Estimated Construction-Related Truck Traffic**

| Land Use | 2022 Study Year | | |
|---|---|---|---|
| | Daily | AM Peak Hour | PM Peak Hour |
| **Building** | | | |
| Concrete Trucks | 50 | 5 | 5 |
| Material Delivery Trucks | 20 | 2 | 2 |
| Service/Support Trucks | 80 | 8 | 8 |
| **Utilities** | | | |
| Service/Support Trucks | 15 | 2 | 2 |
| **Curbing** | | | |
| Concrete Trucks | 4 | 1 | 1 |
| Service/Support Trucks | 5 | 1 | 1 |
| **Paving** | | | |
| Service/Support Trucks | 5 | 1 | 1 |
| **Landscaping** | | | |
| Service/Support Trucks | 6 | 1 | 1 |
| **Project Total** | **185** | **21** | **21** |

In addition, the estimated construction activity would generate approximately 250 inbound car trips during the AM peak hour and 250 outbound car trips during the PM peak hour in 2022. This traffic was added onto the traffic forecasts used in the LOS analysis.

## F. TRUCK TRIPS TO PORT

Several comments received on the Draft EIR indicated confusion regarding the volume of truck traffic between the WLC and the Ports of Los Angeles and Long Beach. In general, the DEIR commenters

seemed to believe that the truck traffic between the WLC and the ports will be much higher than will actually occur. This section responds to these comments by 1) describing the current share of port-related use of warehouse space, 2) estimating the truck traffic between the WLC and the ports using three different methods, 3) estimating the growth in WLC truck traffic to the port over time, and 4) determining whether WLC trucks would impose significant impacts on the freeways to the ports beyond those identified in previous chapters.

*Current Share of Port-Related Warehouse Space*

The DEIR commenters referred to SCAG's study entitled *Industrial Space in Southern California: Future Supply and Demand for Warehousing and Intermodal Facilities*[60]. This study states that 13% of the occupied warehouse space in the SCAG region in 2009 was port-related. This indicates that while the ports are important sources of demand for warehouse space, the great majority of warehouse space serves other demands. In a large regional economy such as southern California this other demand amounted to 578 million square feet in 2009, and is growing over time.

The SCAG study also shows wide differentiation in the markets served. As can be seen in Table 85[61], Riverside County serves only a small percentage of port-related demand while playing a much more important role in serving non-port demand. This differentiation reflects the tendency of warehouse tenants whose operations rely on the ports to self-select locations close to the port.

**Table 85: Share of Port and Non-Port Demand by County**

| County | Share of Port Demand for Warehouse Space | Share of Non-Port Demand for Warehouse Space |
|---|---|---|
| Los Angeles | 61% | 21% |
| Orange | 7% | 7% |
| Ventura | 1% | 3% |
| San Bernardino | 19% | 34% |
| Riverside | 12% | 34% |
| Imperial | 0% | 1% |
| Total | 100% | 100% |

The information provided in the report indicates that only 5% of the warehouse space in Riverside County serves port-related demand (See Table 87), which suggests that the volume of truck traffic between the ports and warehouses in Riverside County, including those in WLC, will be relatively small.

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60 *Industrial Space in Southern California: Future Supply and Demand for Warehousing and Intermodal Facilities (Task Report 5)*, SCAG, June 2010

61 Ibid

The study also reached two conclusions regarding the regional supply of warehouse space, taken from the report's Executive Summary (pages ES-1 and ES-2):

- "*According to assumed growth rates, the region will run out of suitably zoned vacant land in about the year 2028. At that time, forecasts show that the demand for warehousing space will be approximately 1,023 million square feet.*
- *During the year 2035, there will be a projected shortfall of space of about 228 million square feet, unless other land not currently zoned for warehousing becomes available.*"

In other words, according to SCAG study cited by the commenters, even if all of the land currently zoned for warehouse space were developed, there would still be a massive shortfall of warehouse space by 2035 unless projects like the WLC are approved and built.

*Estimating Truck Trips between WLC and the Ports*

In order to ensure that a reasonable worst case scenario was used for the impact analysis, the number of truck trips between the WLC and the ports was forecast using three different methods, all based on data provided by regional planning agencies, with the highest of the three forecasts used for the analysis. The three methods were as follows:

*Method 1: RivTAM Model*

The first method for estimating truck trips to the port was to use the RivTAM model. As described in Chapter 2, RivTAM is the standard traffic forecasting tool used by agencies in Riverside County to analyze the regional effects of proposed projects. Like most other traffic models, RivTAM assigns trips to destinations using a gravity model where the number of trips between each origin-destination pair increases in proportion to the number of trips generated at each end, but decreases in proportion to the distance between the origin and destination. The effect of distance on the likelihood of travel between origin-destination pairs is determined by the trip length distribution which in turn is based on survey data.

The WLC's proposed land uses were input into the RivTAM model as described in Chapter 2, the model was run, and the outputs were checked to find how many truck trips were assigned between the port TAZs and the WLC. Using the RivTAM model to estimate truck trips yields **82 truck trips per day between the ports and the WLC** if the WLC were built today (i.e. the 2012 Plus Full Build-Out scenario).

*Method 2: Based on Port Truck Study*

The best information currently available on truck trips from the ports comes from the Ports of Los Angeles and Long Beach Year 2010 Marine Terminal Gate Surveys[62]. These surveys found that 1.5% of truck trips entering the ports came from Riverside County, and 1.7% of trucks leaving the ports went to Riverside County. These finding are consistent with an earlier study[63] that found 1% of truck trips entering the ports came from Riverside County and 2% of truck trips leaving the ports went to Riverside County (the numbers are rounded in the study). Applying the percentages from the 2010 survey to the approximately 50,000 truck trips per day generated by the ports[64] yields a total of approximately 800 trucks per day between the ports and Riverside County.

If we make the conservative assumption that every one of these 800 truck trips goes to a warehouse rather than to a factory, store, or some other destination, and divide these trips among the 136 million square feet of occupied warehouse space in Riverside County, we find an average of 5.9 truck trips to or from the ports per million square feet of warehouse space per day. Applying this rate to the 40.6 million square feet of warehouse space proposed for the WLC yields **240 truck trips per day between the ports and the WLC** if the WLC were built today (the 2012 Plus Full Build-Out scenario).

*Method 3: Based on Truck Flows from Riverside County*

The best information currently available on regional truck traffic patterns comes from SCAG's Goods Movement Study[65] that was done in preparation for the 2012 RTP/SCS. Table 86 shows SCAG's estimated truck flows between Riverside County and other locations.

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62 Technical Memorandum, *Ports of Los Angeles and Long Beach Year 2010 Marine Terminal Gate Surveys*, Cambridge Systematics to SCAG, November 2010

63 *Ports of Long Beach/Los Angeles Transportation Study*, Meyer, Mohaddes Associates, June 2001

64 *Goods Movement Appendix, Regional Transportation Plan 2012-2035*, SCAG, April 2012

65 *Draft Regional Transportation Plan 2012-2035*, *Goods Movement Appendix,* Southern California Association of Governments. December 2011.

**Table 86: Location of Other End of Trip, for Truck Trips Beginning or Ending in Riverside County**

| Trip Origin or Destination | Truck Trips | Percent of Truck Trips |
|---|---|---|
| Outside the SCAG Region | 11,183 | 10.4% |
| Port (including Secondary Trips) | 1,569 | 1.5% |
| Intermodal Facilities | 271 | 0.3% |
| Other Places in SCAG Region | 94,469 | 87.9% |
| Total | 107,492 | 100.0% |

Applying the ports' 1.5% share of Riverside County truck trips applies to WLC's 11,600 medium and heavy truck trips per day yields **174 truck trips per day between the ports and the WLC** if the WLC were built today (the 2012 Plus Full Build-Out scenario).

This analysis shows that a reasonable estimate of truck traffic between WLC and the ports would be in the range of 84-to-240 truck trips per day. The higher figure of 240 truck trips per day was used as a reasonable worst-case scenario.

*Growth in Truck Trips to the Port*

Some comments suggested that the analysis should consider the possibility that the share of warehouse space in the Inland Empire, and by extension the WLC, may grow over time. This section addresses those comments.

As discussed previously (see Table 86) currently only 1.5% (one and a half percent) of the truck trips in Riverside County are to or from the ports. In the future, port-related uses are anticipated to require a greater share of warehouse space. Table 87 shows the expected growth in port-related cargo's share of warehouse space by county. For Riverside County, SCAG estimates that the percentage of warehouse space devoted to port uses would more than triple between 2012 and 2035, from 5.0% to 16.3%.

**Table 87: Percentage of Warehouse Space that is Port-Related[66]**

| Year | Los Angeles | Orange | Riverside | San Bernardino | Ventura | Imperial | Total |
|---|---|---|---|---|---|---|---|
| **2012** | 27.8% | 6.0% | 5.0% | 5.4% | 3.6% | 0.0% | 15.9% |
| **2022** | 30.2% | 15.7% | 9.3% | 14.6% | 5.4% | 0.0% | 19.3% |
| **2035** | 28.3% | 28.5% | 16.3% | 21.8% | 7.6% | 0.0% | 22.5% |

[66] Source: *Industrial Space in Southern California: Future Supply and Demand for Warehousing and Intermodal Facilities* (Task 5 Report), Southern California Association of Governments. June 2010, pages 16-19.

Note that the percentage of warehouse space devoted to port-related cargo will always be larger than the percentage of trucks going to and from the port. That is because the cargo that has come from the port to the warehouse then leaves the warehouse in trucks going to non-port destinations. There may also be inbound truck trips to warehouses from places other than the ports, delivering shipments of packaging material and other items which might be combined with port-related cargo, thus further reducing the proportion of trucks that come from the ports.

The estimated percentage of WLC trucks going to the ports is summarized in Table 88. The percentage of WLC going to the port (2.07%) was estimated from 240 truck trips per day to the port compared to 11,621 total medium and heavy truck trips to and from the WLC.

**Table 88: Percentage of WLC Trucks to or from the Port**

| Year | % of Warehouse Space Used for Port-Related Cargo | % of Truck Trips Going to and from the Ports |
|---|---|---|
| 2012 | 5.00% | 2.07% |
| 2022 | 9.30% | 3.86% |
| 2035 | 16.30% | 6.76% |

These percentages were then applied to the trip generation rates to obtain the number of WLC trucks to and from the port for each analysis period. These are shown in Table 89. Tests with the SCAG traffic model showed that these trips would split approximately evenly between the two routes shown in Figure 56 and thus, half of these trips were assigned to the SR-60 route and half to the SR-91 route.

**Table 89: WLC Truck Trips to and from the Port by Analysis Period[67]**

| Scenario | AM Peak Hour | | PM Peak Hour | | Daily | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| 2012 Plus Build-out | 18 | 10 | 14 | 17 | 121 | 121 |
| 2022 Plus Phase 1 | 19 | 11 | 15 | 18 | 127 | 127 |
| 2035 Plus Build-out | 57 | 33 | 46 | 53 | 393 | 393 |

*Determination of Whether Impacts are Significant*

The potential for traffic impacts along the SR-60 and SR-91 corridors was assessed by manually adding the forecasts for WLC trucks to and from the port to the No-Project condition from the SCAG model. Because the ports and the freeways leading to them are in Los Angeles County, the threshold of

[67] The 2022 Plus Phase 1 scenario has only half as much warehouse space as the 2012 Plus Full Build-Out scenario but, because the percent of space devoted to port uses nearly doubles in the 2012-to-2022 period, the truck trips to the port (once rounded to whole numbers) are nearly the same.

significance for the analysis was taken from the Los Angeles County Congestion Management Program (CMP)[68]. The CMP states that a significant impact would be deemed to occur if the project increased demand on a highway by at least 2% causing LOS "F" or, if the highway facility already operates at LOS "F", then a significant impact would be deemed to occur if the project increases traffic demand by 2% or more of capacity.

Table 90 through Table 101[69] show the results of this analysis for each section of the SR-60 and SR-91 corridors and in each direction, for both the AM and PM peak periods, for three of the four Plus Build-out scenarios studied in other sections of the report[70]. As shown in the tables the addition of the WLC traffic, which ranges from 0.05% to 1.17% of non-project traffic, would not cause a significant impact on any segment of these freeways.

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[68] Note that Caltrans has not established thresholds of significance for freeway impacts, and neither have the CMPs for Orange, San Bernardino, or Riverside Counties.

[69] The determination of whether the 2% threshold was reached was done in Passenger Car Equivalents. Please see Chapter 2 Section A for an explanation of the PCE factors used.

[70] For freeway traffic the Existing Plus Phase 1 (Only) scenario is identical to the 2012 Plus Full Build-Out scenario but with only half as much warehouse space and so only half as many freeway truck trips. If the 2012 Plus Full Build-Out scenario does not generate any significant impacts then the Phase 1 (only) would necessarily not generate any significant impacts, either.

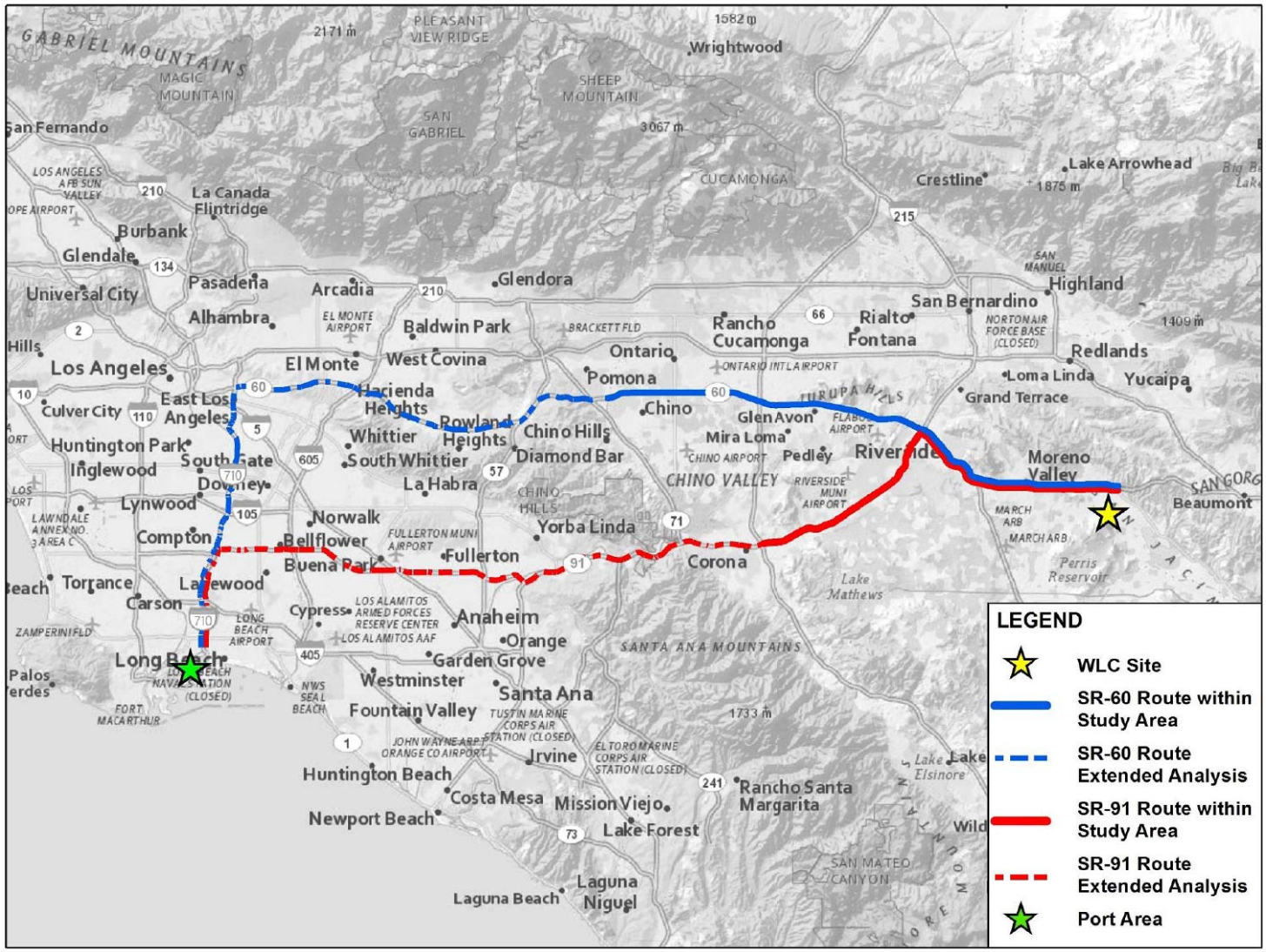



**Figure 56: Routes to the Port Outside of the Study Area**

## Table 90: Volumes Along Routes to Port, Existing, Eastbound, AM Peak Hour

| Route | | Segment Descripton | 2012 No Project (Existing Conditions) | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 EB | SR -71 S to Phillips Ranch Rd | 5,562 | 214 | 5,776 | 5,883 | 118 | 9 | 14 | 0.23% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 5,700 | 220 | 5,920 | 6,030 | 121 | 9 | 14 | 0.22% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 9,367 | 276 | 9,643 | 9,781 | 196 | 9 | 14 | 0.14% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 9,238 | 272 | 9,510 | 9,646 | 193 | 9 | 14 | 0.14% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 7,496 | 219 | 7,715 | 7,825 | 156 | 9 | 14 | 0.17% | No |
| | | Lemon Ave to Fairway Dr | 7,496 | 219 | 7,715 | 7,825 | 156 | 9 | 14 | 0.17% | No |
| | | Fairway Dr to Nogales St | 6,337 | 183 | 6,520 | 6,612 | 132 | 9 | 14 | 0.20% | No |
| | | Nogales St to Fullerton Rd | 7,012 | 204 | 7,216 | 7,318 | 146 | 9 | 14 | 0.18% | No |
| | | Fullerton Rd to S. Azusa Ave | 7,727 | 225 | 7,952 | 8,064 | 161 | 9 | 14 | 0.17% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 9,648 | 284 | 9,932 | 10,074 | 201 | 9 | 14 | 0.13% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 6,670 | 193 | 6,863 | 6,960 | 139 | 9 | 14 | 0.19% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 5,974 | 172 | 6,146 | 6,232 | 125 | 9 | 14 | 0.22% | No |
| | | Crossroads Pkwy N to I-605 | 8,031 | 236 | 8,267 | 8,385 | 168 | 9 | 14 | 0.16% | No |
| | | I-605 to Peck Rd | 6,775 | 210 | 6,985 | 7,090 | 142 | 9 | 14 | 0.19% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 6,473 | 200 | 6,673 | 6,773 | 135 | 9 | 14 | 0.20% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 6,108 | 189 | 6,297 | 6,392 | 128 | 9 | 14 | 0.21% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 7,384 | 228 | 7,612 | 7,726 | 155 | 9 | 14 | 0.17% | No |
| | | San Gabriel Blvd to Paramount Blvd | 5,972 | 185 | 6,157 | 6,250 | 125 | 9 | 14 | 0.22% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 5,779 | 179 | 5,958 | 6,048 | 121 | 9 | 14 | 0.22% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 6,726 | 208 | 6,934 | 7,038 | 141 | 9 | 14 | 0.19% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Find | 5,425 | 168 | 5,593 | 5,677 | 114 | 9 | 14 | 0.24% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 5,569 | 172 | 5,741 | 5,827 | 117 | 9 | 14 | 0.23% | No |
| | | S Atlantic Blvd to I-710 | 5,537 | 171 | 5,708 | 5,794 | 116 | 9 | 14 | 0.23% | No |
| | SR-710 NB | SR 60 to S Eastern Ave/Olympic Blvd | 6,437 | 199 | 6,636 | 6,736 | 135 | 9 | 14 | 0.20% | No |
| | | I-5 to E Washington Blvd | 6,949 | 290 | 7,239 | 7,384 | 148 | 9 | 14 | 0.18% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 9,109 | 380 | 9,489 | 9,679 | 194 | 9 | 14 | 0.14% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 5,704 | 238 | 5,942 | 6,061 | 121 | 9 | 14 | 0.22% | No |
| | | Florence Ave to Firestone Blvd | 6,036 | 318 | 6,354 | 6,513 | 130 | 9 | 14 | 0.21% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 9,024 | 376 | 9,400 | 9,588 | 192 | 9 | 14 | 0.14% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 8,302 | 346 | 8,648 | 8,821 | 176 | 9 | 14 | 0.15% | No |
| | | I-105 to E Alondra Blvd | 6,363 | 265 | 6,628 | 6,761 | 135 | 9 | 14 | 0.20% | No |
| | | E Alondra Blvd to SR 91 | 6,238 | 260 | 6,498 | 6,628 | 133 | 9 | 14 | 0.20% | No |
| SR-91 Route | SR-91 EB | I-15 to N Main St | 6,578 | 331 | 6,909 | 7,075 | 141 | 9 | 14 | 0.19% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 7,367 | 372 | 7,739 | 7,925 | 159 | 9 | 14 | 0.17% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 5,985 | 299 | 6,284 | 6,434 | 129 | 9 | 14 | 0.21% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 6,222 | 312 | 6,534 | 6,690 | 134 | 9 | 14 | 0.20% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 6,129 | 309 | 6,438 | 6,593 | 132 | 9 | 14 | 0.20% | No |
| | | SR-71 to Green River Rd | 6,686 | 243 | 6,929 | 7,051 | 141 | 9 | 14 | 0.19% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 7,275 | 267 | 7,542 | 7,676 | 154 | 9 | 14 | 0.18% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 6,891 | 251 | 7,142 | 7,268 | 145 | 9 | 14 | 0.19% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 8,273 | 308 | 8,581 | 8,735 | 175 | 9 | 14 | 0.15% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 7,218 | 264 | 7,482 | 7,614 | 152 | 9 | 14 | 0.18% | No |
| | | N Lakeview Ave to SR-55 | 8,686 | 325 | 9,011 | 9,174 | 183 | 9 | 14 | 0.15% | No |
| | | SR-55 to Tustin Ave | 7,185 | 279 | 7,464 | 7,604 | 152 | 9 | 14 | 0.18% | No |
| | | Tustin Ave to Kraemer Blvd | 6,078 | 233 | 6,311 | 6,428 | 129 | 9 | 14 | 0.21% | No |
| | | Kraemer Blvd to SR-57 | 6,319 | 243 | 6,562 | 6,684 | 134 | 9 | 14 | 0.20% | No |
| | | SR-57 to State College Blvd | 7,614 | 291 | 7,905 | 8,051 | 161 | 9 | 14 | 0.17% | No |
| | | State College Blvd to Raymond Ave/East St | 8,360 | 303 | 8,663 | 8,815 | 176 | 9 | 14 | 0.15% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 7,623 | 271 | 7,894 | 8,030 | 161 | 9 | 14 | 0.17% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 8,973 | 325 | 9,298 | 9,461 | 189 | 9 | 14 | 0.14% | No |
| | | Euclid St to Brookhurst Rd | 9,498 | 350 | 9,848 | 10,023 | 200 | 9 | 14 | 0.13% | No |
| | | Brookhurst Rd to I-5 | 7,217 | 262 | 7,479 | 7,610 | 152 | 9 | 14 | 0.18% | No |
| | | I-5 to Beach Blvd | 9,144 | 331 | 9,475 | 9,641 | 193 | 9 | 14 | 0.14% | No |
| | | Beach Blvd to Knott Ave | 9,366 | 343 | 9,709 | 9,881 | 198 | 9 | 14 | 0.14% | No |
| | | Knott Ave to Valley View St | 9,492 | 352 | 9,844 | 10,020 | 200 | 9 | 14 | 0.13% | No |
| | | Valley View St to Carmenita Rd | 7,557 | 273 | 7,830 | 7,967 | 159 | 9 | 14 | 0.17% | No |
| | | Carmenita Rd to Artesia Blvd | 19,417 | 242 | 19,659 | 19,780 | 396 | 9 | 14 | 0.07% | No |
| | | Artesia Blvd to Bloomfield Ave | 7,254 | 260 | 7,514 | 7,644 | 153 | 9 | 14 | 0.18% | No |
| | | Bloomfield Ave to Norwalk Blvd | 8,850 | 321 | 9,171 | 9,332 | 187 | 9 | 14 | 0.14% | No |
| | | Norwalk Blvd to Pioneer Blvd | 8,926 | 331 | 9,257 | 9,423 | 188 | 9 | 14 | 0.14% | No |
| | | Pioneer Blvd to SR-605 | 9,215 | 343 | 9,558 | 9,730 | 195 | 9 | 14 | 0.14% | No |
| | | SR-605 to Bellflower Blvd | 8,917 | 337 | 9,254 | 9,423 | 188 | 9 | 14 | 0.14% | No |
| | | Bellflower Blvd to Clark Ave | 9,079 | 343 | 9,422 | 9,594 | 192 | 9 | 14 | 0.14% | No |
| | | Clark Ave to Lakewood Blvd | 8,604 | 323 | 8,927 | 9,089 | 182 | 9 | 14 | 0.15% | No |
| | | Lakewood Blvd to Downey Ave | 8,911 | 324 | 9,235 | 9,397 | 188 | 9 | 14 | 0.14% | No |
| | | Downey Ave to Paramount Blvd | 8,443 | 304 | 8,747 | 8,899 | 178 | 9 | 14 | 0.15% | No |
| | | Paramount Blvd to Cherry Ave | 8,238 | 308 | 8,546 | 8,700 | 174 | 9 | 14 | 0.16% | No |
| | | Cherry Ave to I-710 | 8,433 | 304 | 8,737 | 8,889 | 178 | 9 | 14 | 0.15% | No |
| Shared Portion | SR-710 NB | SR 91 to Long Beach Blvd | 5,458 | 411 | 5,869 | 6,075 | 121 | 18 | 27 | 0.44% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 3,208 | 242 | 3,450 | 3,571 | 71 | 18 | 27 | 0.76% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 3,182 | 239 | 3,421 | 3,541 | 71 | 18 | 27 | 0.76% | No |
| | | I-405/W Wardlow Rd to W Willow St | 5,313 | 400 | 5,713 | 5,913 | 118 | 18 | 27 | 0.46% | No |
| | | W Willow St to Pacific Coast Hwy | 4,928 | 371 | 5,299 | 5,485 | 110 | 18 | 27 | 0.49% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 4,119 | 310 | 4,429 | 4,584 | 92 | 18 | 27 | 0.59% | No |

## Table 91: Volumes Along Routes to Port, Existing, Westbound, AM Peak Hour

| Route | | Segment Descripton | 2012 No Project (Existing Conditions) | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 WB | SR -71 S to Phillips Ranch Rd | 6,368 | 214 | 6,582 | 6,689 | 134 | 5 | 8 | 0.1% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 6,631 | 223 | 6,854 | 6,965 | 139 | 5 | 8 | 0.1% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 9,876 | 266 | 10,142 | 10,275 | 205 | 5 | 8 | 0.1% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 9,849 | 265 | 10,114 | 10,246 | 205 | 5 | 8 | 0.1% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 6,211 | 153 | 6,364 | 6,440 | 129 | 5 | 8 | 0.1% | No |
| | | Lemon Ave to Fairway Dr | 6,211 | 153 | 6,364 | 6,440 | 129 | 5 | 8 | 0.1% | No |
| | | Fairway Dr to Nogales St | 6,480 | 161 | 6,641 | 6,721 | 134 | 5 | 8 | 0.1% | No |
| | | Nogales St to Fullerton Rd | 6,972 | 176 | 7,148 | 7,236 | 145 | 5 | 8 | 0.1% | No |
| | | Fullerton Rd to S. Azusa Ave | 7,230 | 184 | 7,414 | 7,506 | 150 | 5 | 8 | 0.1% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 10,095 | 273 | 10,368 | 10,504 | 210 | 5 | 8 | 0.1% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 10,401 | 282 | 10,683 | 10,824 | 216 | 5 | 8 | 0.1% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 12,680 | 353 | 13,033 | 13,210 | 264 | 5 | 8 | 0.06% | No |
| | | Crossroads Pkwy N to I-605 | 11,594 | 319 | 11,913 | 12,073 | 241 | 5 | 8 | 0.06% | No |
| | | I-605 to Peck Rd | 11,397 | 353 | 11,750 | 11,927 | 239 | 5 | 8 | 0.06% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 11,397 | 353 | 11,750 | 11,927 | 239 | 5 | 8 | 0.06% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 11,397 | 353 | 11,750 | 11,927 | 239 | 5 | 8 | 0.06% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 11,397 | 353 | 11,750 | 11,927 | 239 | 5 | 8 | 0.06% | No |
| | | San Gabriel Blvd to Paramount Blvd | 7,962 | 246 | 8,208 | 8,331 | 167 | 5 | 8 | 0.09% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 10,467 | 324 | 10,791 | 10,953 | 219 | 5 | 8 | 0.07% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 6,095 | 189 | 6,284 | 6,379 | 128 | 5 | 8 | 0.12% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Fi | 8,745 | 270 | 9,015 | 9,150 | 183 | 5 | 8 | 0.08% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 9,192 | 284 | 9,476 | 9,618 | 192 | 5 | 8 | 0.08% | No |
| | | S Atlantic Blvd to I-710 | 7,960 | 246 | 8,206 | 8,329 | 167 | 5 | 8 | 0.09% | No |
| | SR-710 SB | SR 60 to S Eastern Ave/Olympic Blvd | 8,110 | 251 | 8,361 | 8,487 | 170 | 5 | 8 | 0.09% | No |
| | | I-5 to E Washington Blvd | 8,530 | 355 | 8,885 | 9,063 | 181 | 5 | 8 | 0.08% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 6,806 | 284 | 7,090 | 7,232 | 145 | 5 | 8 | 0.10% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 7,430 | 310 | 7,740 | 7,895 | 158 | 5 | 8 | 0.09% | No |
| | | Florence Ave to Firestone Blvd | 6,711 | 353 | 7,064 | 7,241 | 145 | 5 | 8 | 0.10% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 7,469 | 311 | 7,780 | 7,936 | 159 | 5 | 8 | 0.09% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 7,389 | 308 | 7,697 | 7,851 | 157 | 5 | 8 | 0.10% | No |
| | | I-105 to E Alondra Blvd | 9,614 | 401 | 10,015 | 10,216 | 204 | 5 | 8 | 0.07% | No |
| | | E Alondra Blvd to SR 91 | 9,198 | 383 | 9,581 | 9,773 | 195 | 5 | 8 | 0.08% | No |
| SR-91 Route | SR-91 WB | I-15 to N Main St | 9,385 | 354 | 9,739 | 9,916 | 198 | 5 | 8 | 0.08% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 10,157 | 376 | 10,533 | 10,721 | 214 | 5 | 8 | 0.07% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 10,194 | 376 | 10,570 | 10,758 | 215 | 5 | 8 | 0.07% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 8,717 | 308 | 9,025 | 9,179 | 184 | 5 | 8 | 0.08% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 8,775 | 311 | 9,086 | 9,242 | 185 | 5 | 8 | 0.08% | No |
| | | SR-71 to Green River Rd | 8,682 | 306 | 8,988 | 9,141 | 183 | 5 | 8 | 0.08% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 9,317 | 295 | 9,612 | 9,760 | 195 | 5 | 8 | 0.08% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 8,859 | 276 | 9,135 | 9,273 | 185 | 5 | 8 | 0.08% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 8,567 | 264 | 8,831 | 8,963 | 179 | 5 | 8 | 0.08% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 13,515 | 470 | 13,985 | 14,220 | 284 | 5 | 8 | 0.05% | No |
| | | N Lakeview Ave to SR-55 | 13,515 | 470 | 13,985 | 14,220 | 284 | 5 | 8 | 0.05% | No |
| | | SR-55 to Tustin Ave | 7,622 | 282 | 7,904 | 8,045 | 161 | 5 | 8 | 0.09% | No |
| | | Tustin Ave to Kraemer Blvd | 7,997 | 289 | 8,286 | 8,431 | 169 | 5 | 8 | 0.09% | No |
| | | Kraemer Blvd to SR-57 | 7,722 | 281 | 8,003 | 8,144 | 163 | 5 | 8 | 0.09% | No |
| | | SR-57 to State College Blvd | 7,400 | 264 | 7,664 | 7,796 | 156 | 5 | 8 | 0.10% | No |
| | | State College Blvd to Raymond Ave/East St | 7,882 | 268 | 8,150 | 8,284 | 166 | 5 | 8 | 0.09% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 7,341 | 246 | 7,587 | 7,710 | 154 | 5 | 8 | 0.10% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 7,990 | 273 | 8,263 | 8,400 | 168 | 5 | 8 | 0.09% | No |
| | | Euclid St to Brookhurst Rd | 8,362 | 290 | 8,652 | 8,797 | 176 | 5 | 8 | 0.09% | No |
| | | Brookhurst Rd to I-5 | 8,137 | 280 | 8,417 | 8,557 | 171 | 5 | 8 | 0.09% | No |
| | | I-5 to Beach Blvd | 9,136 | 322 | 9,458 | 9,619 | 192 | 5 | 8 | 0.08% | No |
| | | Beach Blvd to Knott Ave | 10,433 | 376 | 10,809 | 10,997 | 220 | 5 | 8 | 0.07% | No |
| | | Knott Ave to Valley View St | 10,446 | 376 | 10,822 | 11,010 | 220 | 5 | 8 | 0.07% | No |
| | | Valley View St to Carmenita Rd | 10,464 | 376 | 10,840 | 11,028 | 221 | 5 | 8 | 0.07% | No |
| | | Carmenita Rd to Artesia Blvd | 10,171 | 376 | 10,547 | 10,735 | 215 | 5 | 8 | 0.07% | No |
| | | Artesia Blvd to Bloomfield Ave | 10,418 | 376 | 10,794 | 10,982 | 220 | 5 | 8 | 0.07% | No |
| | | Bloomfield Ave to Norwalk Blvd | 10,440 | 376 | 10,816 | 11,004 | 220 | 5 | 8 | 0.07% | No |
| | | Norwalk Blvd to Pioneer Blvd | 10,435 | 376 | 10,811 | 10,999 | 220 | 5 | 8 | 0.07% | No |
| | | Pioneer Blvd to SR-605 | 10,217 | 376 | 10,593 | 10,781 | 216 | 5 | 8 | 0.07% | No |
| | | SR-605 to Bellflower Blvd | 11,389 | 414 | 11,803 | 12,010 | 240 | 5 | 8 | 0.06% | No |
| | | Bellflower Blvd to Clark Ave | 10,477 | 376 | 10,853 | 11,041 | 221 | 5 | 8 | 0.07% | No |
| | | Clark Ave to Lakewood Blvd | 10,502 | 376 | 10,878 | 11,066 | 221 | 5 | 8 | 0.07% | No |
| | | Lakewood Blvd to Downey Ave | 10,171 | 376 | 10,547 | 10,735 | 215 | 5 | 8 | 0.07% | No |
| | | Downey Ave to Paramount Blvd | 9,150 | 320 | 9,470 | 9,630 | 193 | 5 | 8 | 0.08% | No |
| | | Paramount Blvd to Cherry Ave | 12,757 | 470 | 13,227 | 13,462 | 269 | 5 | 8 | 0.06% | No |
| | | Cherry Ave to I-710 | 11,510 | 417 | 11,927 | 12,136 | 243 | 5 | 8 | 0.06% | No |
| Shared Portion | SR-710 SB | SR 91 to Long Beach Blvd | 7,097 | 534 | 7,631 | 7,898 | 158 | 10 | 15 | 0.19% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 6,597 | 497 | 7,094 | 7,343 | 147 | 10 | 15 | 0.20% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 6,362 | 479 | 6,841 | 7,081 | 142 | 10 | 15 | 0.21% | No |
| | | I-405/W Wardlow Rd to W Willow St | 5,500 | 414 | 5,914 | 6,121 | 122 | 10 | 15 | 0.25% | No |
| | | W Willow St to Pacific Coast Hwy | 5,048 | 380 | 5,428 | 5,618 | 112 | 10 | 15 | 0.27% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 4,803 | 362 | 5,165 | 5,346 | 107 | 10 | 15 | 0.28% | No |

## Table 92: Volumes Along Routes to Port, Existing, Eastbound, PM Peak Hour

| Route | | Segment Descripton | 2012 No Project (Existing Conditions) | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 EB | SR -71 S to Phillips Ranch Rd | 6,423 | 219 | 6,642 | 6,752 | 135 | 7 | 11 | 0.16% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 7,289 | 255 | 7,544 | 7,672 | 153 | 7 | 11 | 0.14% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 12,288 | 344 | 12,632 | 12,804 | 256 | 7 | 11 | 0.08% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 12,124 | 339 | 12,463 | 12,633 | 253 | 7 | 11 | 0.08% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 10,285 | 282 | 10,567 | 10,708 | 214 | 7 | 11 | 0.10% | No |
| | | Lemon Ave to Fairway Dr | 10,285 | 282 | 10,567 | 10,708 | 214 | 7 | 11 | 0.10% | No |
| | | Fairway Dr to Nogales St | 8,245 | 219 | 8,464 | 8,574 | 171 | 7 | 11 | 0.12% | No |
| | | Nogales St to Fullerton Rd | 9,423 | 255 | 9,678 | 9,806 | 196 | 7 | 11 | 0.11% | No |
| | | Fullerton Rd to S. Azusa Ave | 10,294 | 282 | 10,576 | 10,717 | 214 | 7 | 11 | 0.10% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 12,561 | 353 | 12,914 | 13,090 | 262 | 7 | 11 | 0.08% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 8,432 | 224 | 8,656 | 8,768 | 175 | 7 | 11 | 0.12% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 8,058 | 214 | 8,272 | 8,379 | 168 | 7 | 11 | 0.13% | No |
| | | Crossroads Pkwy N to I-605 | 12,320 | 346 | 12,666 | 12,839 | 257 | 7 | 11 | 0.08% | No |
| | | I-605 to Peck Rd | 9,300 | 288 | 9,588 | 9,732 | 195 | 7 | 11 | 0.11% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 8,184 | 253 | 8,437 | 8,564 | 171 | 7 | 11 | 0.12% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 7,893 | 244 | 8,137 | 8,259 | 165 | 7 | 11 | 0.13% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 9,118 | 282 | 9,400 | 9,541 | 191 | 7 | 11 | 0.11% | No |
| | | San Gabriel Blvd to Paramount Blvd | 9,118 | 282 | 9,400 | 9,541 | 191 | 7 | 11 | 0.11% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 11,397 | 353 | 11,750 | 11,927 | 239 | 7 | 11 | 0.09% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 6,757 | 209 | 6,966 | 7,071 | 141 | 7 | 11 | 0.15% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Find | 11,397 | 353 | 11,750 | 11,927 | 239 | 7 | 11 | 0.09% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 13,677 | 423 | 14,100 | 14,312 | 286 | 7 | 11 | 0.07% | No |
| | | S Atlantic Blvd to I-710 | 11,397 | 353 | 11,750 | 11,927 | 239 | 7 | 11 | 0.09% | No |
| | SR-710 NB | SR 60 to S Eastern Ave/Olympic Blvd | 7,371 | 228 | 7,599 | 7,713 | 154 | 7 | 11 | 0.14% | No |
| | | I-5 to E Washington Blvd | 6,465 | 269 | 6,734 | 6,869 | 137 | 7 | 11 | 0.15% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 7,269 | 303 | 7,572 | 7,724 | 154 | 7 | 11 | 0.14% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 4,993 | 208 | 5,201 | 5,305 | 106 | 7 | 11 | 0.20% | No |
| | | Florence Ave to Firestone Blvd | 6,065 | 319 | 6,384 | 6,544 | 131 | 7 | 11 | 0.16% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 8,448 | 352 | 8,800 | 8,976 | 180 | 7 | 11 | 0.12% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 7,386 | 308 | 7,694 | 7,848 | 157 | 7 | 11 | 0.13% | No |
| | | I-105 to E Alondra Blvd | 7,448 | 310 | 7,758 | 7,913 | 158 | 7 | 11 | 0.13% | No |
| | | E Alondra Blvd to SR 91 | 7,916 | 330 | 8,246 | 8,411 | 168 | 7 | 11 | 0.12% | No |
| SR-91 Route | SR-91 EB | I-15 to N Main St | 10,058 | 470 | 10,528 | 10,763 | 215 | 7 | 11 | 0.10% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 10,427 | 470 | 10,897 | 11,132 | 223 | 7 | 11 | 0.09% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 10,427 | 470 | 10,897 | 11,132 | 223 | 7 | 11 | 0.09% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 10,402 | 470 | 10,872 | 11,107 | 222 | 7 | 11 | 0.09% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 11,031 | 517 | 11,548 | 11,807 | 236 | 7 | 11 | 0.09% | No |
| | | SR-71 to Green River Rd | 10,461 | 368 | 10,829 | 11,013 | 220 | 7 | 11 | 0.10% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 11,612 | 398 | 12,010 | 12,209 | 244 | 7 | 11 | 0.09% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 11,980 | 414 | 12,394 | 12,601 | 252 | 7 | 11 | 0.08% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 10,782 | 364 | 11,146 | 11,328 | 227 | 7 | 11 | 0.09% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 9,490 | 310 | 9,800 | 9,955 | 199 | 7 | 11 | 0.11% | No |
| | | N Lakeview Ave to SR-55 | 10,423 | 349 | 10,772 | 10,947 | 219 | 7 | 11 | 0.10% | No |
| | | SR-55 to Tustin Ave | 9,102 | 339 | 9,441 | 9,611 | 192 | 7 | 11 | 0.11% | No |
| | | Tustin Ave to Kraemer Blvd | 7,729 | 282 | 8,011 | 8,152 | 163 | 7 | 11 | 0.13% | No |
| | | Kraemer Blvd to SR-57 | 8,620 | 320 | 8,940 | 9,100 | 182 | 7 | 11 | 0.12% | No |
| | | SR-57 to State College Blvd | 8,010 | 297 | 8,307 | 8,456 | 169 | 7 | 11 | 0.12% | No |
| | | State College Blvd to Raymond Ave/East St | 8,444 | 297 | 8,741 | 8,890 | 178 | 7 | 11 | 0.12% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 7,293 | 248 | 7,541 | 7,665 | 153 | 7 | 11 | 0.14% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 8,990 | 319 | 9,309 | 9,469 | 189 | 7 | 11 | 0.11% | No |
| | | Euclid St to Brookhurst Rd | 10,324 | 376 | 10,700 | 10,888 | 218 | 7 | 11 | 0.10% | No |
| | | Brookhurst Rd to I-5 | 6,751 | 250 | 7,001 | 7,126 | 143 | 7 | 11 | 0.15% | No |
| | | I-5 to Beach Blvd | 8,746 | 304 | 9,050 | 9,202 | 184 | 7 | 11 | 0.11% | No |
| | | Beach Blvd to Knott Ave | 8,693 | 302 | 8,995 | 9,146 | 183 | 7 | 11 | 0.11% | No |
| | | Knott Ave to Valley View St | 10,438 | 376 | 10,814 | 11,002 | 220 | 7 | 11 | 0.10% | No |
| | | Valley View St to Carmenita Rd | 10,383 | 376 | 10,759 | 10,947 | 219 | 7 | 11 | 0.10% | No |
| | | Carmenita Rd to Artesia Blvd | 7,294 | 243 | 7,537 | 7,659 | 153 | 7 | 11 | 0.14% | No |
| | | Artesia Blvd to Bloomfield Ave | 7,427 | 249 | 7,676 | 7,801 | 156 | 7 | 11 | 0.13% | No |
| | | Bloomfield Ave to Norwalk Blvd | 8,477 | 302 | 8,779 | 8,930 | 179 | 7 | 11 | 0.12% | No |
| | | Norwalk Blvd to Pioneer Blvd | 8,977 | 317 | 9,294 | 9,453 | 189 | 7 | 11 | 0.11% | No |
| | | Pioneer Blvd to SR-605 | 9,278 | 332 | 9,610 | 9,776 | 196 | 7 | 11 | 0.11% | No |
| | | SR-605 to Bellflower Blvd | 11,235 | 414 | 11,649 | 11,856 | 237 | 7 | 11 | 0.09% | No |
| | | Bellflower Blvd to Clark Ave | 9,063 | 318 | 9,381 | 9,540 | 191 | 7 | 11 | 0.11% | No |
| | | Clark Ave to Lakewood Blvd | 11,230 | 408 | 11,638 | 11,842 | 237 | 7 | 11 | 0.09% | No |
| | | Lakewood Blvd to Downey Ave | 9,620 | 349 | 9,969 | 10,144 | 203 | 7 | 11 | 0.10% | No |
| | | Downey Ave to Paramount Blvd | 10,167 | 372 | 10,539 | 10,725 | 215 | 7 | 11 | 0.10% | No |
| | | Paramount Blvd to Cherry Ave | 10,513 | 376 | 10,889 | 11,077 | 222 | 7 | 11 | 0.09% | No |
| | | Cherry Ave to I-710 | 11,158 | 414 | 11,572 | 11,779 | 236 | 7 | 11 | 0.09% | No |
| Shared Portion | SR-710 NB | SR 91 to Long Beach Blvd | 5,646 | 425 | 6,071 | 6,284 | 126 | 14 | 21 | 0.33% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 3,772 | 284 | 4,056 | 4,198 | 84 | 14 | 21 | 0.50% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 3,740 | 282 | 4,022 | 4,163 | 83 | 14 | 21 | 0.50% | No |
| | | I-405/W Wardlow Rd to W Willow St | 6,556 | 494 | 7,050 | 7,297 | 146 | 14 | 21 | 0.29% | No |
| | | W Willow St to Pacific Coast Hwy | 6,248 | 470 | 6,718 | 6,953 | 139 | 14 | 21 | 0.30% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 4,201 | 316 | 4,517 | 4,675 | 94 | 14 | 21 | 0.45% | No |

## Table 93: Volumes Along Routes to Port, Existing, Westbound, PM Peak Hour

| Route | | Segment Descripton | 2012 No Project (Existing Conditions) | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 WB | SR -71 S to Phillips Ranch Rd | 6,587 | 219 | 6,806 | 6,915 | 138 | 9 | 13 | 0.18% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 6,442 | 229 | 6,671 | 6,785 | 136 | 9 | 13 | 0.19% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 10,010 | 281 | 10,291 | 10,431 | 209 | 9 | 13 | 0.12% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 9,981 | 280 | 10,261 | 10,401 | 208 | 9 | 13 | 0.12% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 6,356 | 168 | 6,524 | 6,608 | 132 | 9 | 13 | 0.19% | No |
| | | Lemon Ave to Fairway Dr | 6,356 | 168 | 6,524 | 6,608 | 132 | 9 | 13 | 0.19% | No |
| | | Fairway Dr to Nogales St | 7,042 | 189 | 7,231 | 7,325 | 147 | 9 | 13 | 0.17% | No |
| | | Nogales St to Fullerton Rd | 7,102 | 191 | 7,293 | 7,388 | 148 | 9 | 13 | 0.17% | No |
| | | Fullerton Rd to S. Azusa Ave | 6,939 | 193 | 7,132 | 7,229 | 145 | 9 | 13 | 0.18% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 7,606 | 204 | 7,810 | 7,912 | 158 | 9 | 13 | 0.16% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 9,717 | 275 | 9,992 | 10,129 | 203 | 9 | 13 | 0.13% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 7,326 | 201 | 7,527 | 7,627 | 153 | 9 | 13 | 0.17% | No |
| | | Crossroads Pkwy N to I-605 | 7,766 | 215 | 7,981 | 8,088 | 162 | 9 | 13 | 0.16% | No |
| | | I-605 to Peck Rd | 7,311 | 226 | 7,537 | 7,650 | 153 | 9 | 13 | 0.17% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 7,690 | 238 | 7,928 | 8,047 | 161 | 9 | 13 | 0.16% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 7,360 | 228 | 7,588 | 7,702 | 154 | 9 | 13 | 0.17% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 6,793 | 210 | 7,003 | 7,108 | 142 | 9 | 13 | 0.18% | No |
| | | San Gabriel Blvd to Paramount Blvd | 5,661 | 175 | 5,836 | 5,924 | 118 | 9 | 13 | 0.22% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 5,626 | 174 | 5,800 | 5,887 | 118 | 9 | 13 | 0.22% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 6,851 | 212 | 7,063 | 7,169 | 143 | 9 | 13 | 0.18% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Find | 6,352 | 196 | 6,548 | 6,646 | 133 | 9 | 13 | 0.19% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 6,454 | 200 | 6,654 | 6,754 | 135 | 9 | 13 | 0.19% | No |
| | | S Atlantic Blvd to I-710 | 5,840 | 181 | 6,021 | 6,112 | 122 | 9 | 13 | 0.21% | No |
| | SR-710 SB | SR 60 to S Eastern Ave/Olympic Blvd | 9,118 | 282 | 9,400 | 9,541 | 191 | 9 | 13 | 0.13% | No |
| | | I-5 to E Washington Blvd | 11,280 | 470 | 11,750 | 11,985 | 240 | 9 | 13 | 0.11% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 9,024 | 376 | 9,400 | 9,588 | 192 | 9 | 13 | 0.13% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 8,397 | 350 | 8,747 | 8,922 | 178 | 9 | 13 | 0.14% | No |
| | | Florence Ave to Firestone Blvd | 6,513 | 343 | 6,856 | 7,028 | 141 | 9 | 13 | 0.18% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 7,152 | 298 | 7,450 | 7,599 | 152 | 9 | 13 | 0.17% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 4,576 | 191 | 4,767 | 4,863 | 97 | 9 | 13 | 0.26% | No |
| | | I-105 to E Alondra Blvd | 7,596 | 317 | 7,913 | 8,072 | 161 | 9 | 13 | 0.16% | No |
| | | E Alondra Blvd to SR 91 | 7,551 | 315 | 7,866 | 8,024 | 160 | 9 | 13 | 0.16% | No |
| SR-91 Route | SR-91 WB | I-15 to N Main St | 6,537 | 244 | 6,781 | 6,903 | 138 | 9 | 13 | 0.18% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 6,698 | 245 | 6,943 | 7,066 | 141 | 9 | 13 | 0.18% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 6,737 | 247 | 6,984 | 7,108 | 142 | 9 | 13 | 0.18% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 8,061 | 300 | 8,361 | 8,511 | 170 | 9 | 13 | 0.15% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 6,980 | 262 | 7,242 | 7,373 | 147 | 9 | 13 | 0.17% | No |
| | | SR-71 to Green River Rd | 7,449 | 278 | 7,727 | 7,866 | 157 | 9 | 13 | 0.16% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 7,106 | 266 | 7,372 | 7,505 | 150 | 9 | 13 | 0.17% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 6,735 | 251 | 6,986 | 7,112 | 142 | 9 | 13 | 0.18% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 6,552 | 243 | 6,795 | 6,917 | 138 | 9 | 13 | 0.18% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 7,086 | 265 | 7,351 | 7,484 | 150 | 9 | 13 | 0.17% | No |
| | | N Lakeview Ave to SR-55 | 7,515 | 283 | 7,798 | 7,940 | 159 | 9 | 13 | 0.16% | No |
| | | SR-55 to Tustin Ave | 7,495 | 282 | 7,777 | 7,918 | 158 | 9 | 13 | 0.16% | No |
| | | Tustin Ave to Kraemer Blvd | 7,155 | 246 | 7,401 | 7,524 | 150 | 9 | 13 | 0.17% | No |
| | | Kraemer Blvd to SR-57 | 8,239 | 305 | 8,544 | 8,697 | 174 | 9 | 13 | 0.15% | No |
| | | SR-57 to State College Blvd | 7,831 | 282 | 8,113 | 8,254 | 165 | 9 | 13 | 0.15% | No |
| | | State College Blvd to Raymond Ave/East St | 9,090 | 320 | 9,410 | 9,570 | 191 | 9 | 13 | 0.13% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 7,957 | 277 | 8,234 | 8,373 | 167 | 9 | 13 | 0.15% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 8,947 | 320 | 9,267 | 9,427 | 189 | 9 | 13 | 0.14% | No |
| | | Euclid St to Brookhurst Rd | 8,343 | 297 | 8,640 | 8,789 | 176 | 9 | 13 | 0.15% | No |
| | | Brookhurst Rd to I-5 | 8,347 | 282 | 8,629 | 8,770 | 175 | 9 | 13 | 0.15% | No |
| | | I-5 to Beach Blvd | 8,848 | 314 | 9,162 | 9,319 | 186 | 9 | 13 | 0.14% | No |
| | | Beach Blvd to Knott Ave | 8,531 | 306 | 8,837 | 8,990 | 180 | 9 | 13 | 0.14% | No |
| | | Knott Ave to Valley View St | 8,603 | 308 | 8,911 | 9,065 | 181 | 9 | 13 | 0.14% | No |
| | | Valley View St to Carmenita Rd | 10,287 | 376 | 10,663 | 10,851 | 217 | 9 | 13 | 0.12% | No |
| | | Carmenita Rd to Artesia Blvd | 10,256 | 376 | 10,632 | 10,820 | 216 | 9 | 13 | 0.12% | No |
| | | Artesia Blvd to Bloomfield Ave | 10,254 | 376 | 10,630 | 10,818 | 216 | 9 | 13 | 0.12% | No |
| | | Bloomfield Ave to Norwalk Blvd | 10,275 | 376 | 10,651 | 10,839 | 217 | 9 | 13 | 0.12% | No |
| | | Norwalk Blvd to Pioneer Blvd | 10,254 | 376 | 10,630 | 10,818 | 216 | 9 | 13 | 0.12% | No |
| | | Pioneer Blvd to SR-605 | 8,901 | 328 | 9,229 | 9,393 | 188 | 9 | 13 | 0.14% | No |
| | | SR-605 to Bellflower Blvd | 8,291 | 317 | 8,608 | 8,767 | 175 | 9 | 13 | 0.15% | No |
| | | Bellflower Blvd to Clark Ave | 8,286 | 317 | 8,603 | 8,762 | 175 | 9 | 13 | 0.15% | No |
| | | Clark Ave to Lakewood Blvd | 7,775 | 295 | 8,070 | 8,218 | 164 | 9 | 13 | 0.16% | No |
| | | Lakewood Blvd to Downey Ave | 8,654 | 309 | 8,963 | 9,118 | 182 | 9 | 13 | 0.14% | No |
| | | Downey Ave to Paramount Blvd | 8,189 | 313 | 8,502 | 8,659 | 173 | 9 | 13 | 0.15% | No |
| | | Paramount Blvd to Cherry Ave | 8,384 | 321 | 8,705 | 8,866 | 177 | 9 | 13 | 0.14% | No |
| | | Cherry Ave to I-710 | 7,967 | 308 | 8,275 | 8,429 | 169 | 9 | 13 | 0.15% | No |
| Shared Portion | SR-710 SB | SR 91 to Long Beach Blvd | 6,105 | 460 | 6,565 | 6,795 | 136 | 17 | 26 | 0.38% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 5,662 | 426 | 6,088 | 6,301 | 126 | 17 | 26 | 0.40% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 5,671 | 427 | 6,098 | 6,312 | 126 | 17 | 26 | 0.40% | No |
| | | I-405/W Wardlow Rd to W Willow St | 5,142 | 387 | 5,529 | 5,723 | 114 | 17 | 26 | 0.45% | No |
| | | W Willow St to Pacific Coast Hwy | 4,740 | 357 | 5,097 | 5,276 | 106 | 17 | 26 | 0.48% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 4,643 | 350 | 4,993 | 5,168 | 103 | 17 | 26 | 0.49% | No |

## Table 94: Volumes Along Routes to Port, 2022, Eastbound, AM Peak Hour

| Route | | Segment Descripton | 2022 No Project | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 EB | SR -71 S to Phillips Ranch Rd | 6,866 | 256 | 6,471 | 6,599 | 132 | 10 | 14 | 0.22% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 6,918 | 257 | 6,577 | 6,706 | 134 | 10 | 14 | 0.21% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 10,751 | 331 | 10,537 | 10,703 | 214 | 10 | 14 | 0.13% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 10,510 | 327 | 10,292 | 10,456 | 209 | 10 | 14 | 0.14% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 8,478 | 246 | 8,094 | 8,217 | 164 | 10 | 14 | 0.17% | No |
| | | Lemon Ave to Fairway Dr | 8,478 | 246 | 8,094 | 8,217 | 164 | 10 | 14 | 0.17% | No |
| | | Fairway Dr to Nogales St | 7,310 | 210 | 6,890 | 6,995 | 140 | 10 | 14 | 0.20% | No |
| | | Nogales St to Fullerton Rd | 8,026 | 230 | 7,683 | 7,798 | 156 | 10 | 14 | 0.18% | No |
| | | Fullerton Rd to S. Azusa Ave | 8,713 | 249 | 8,461 | 8,586 | 172 | 10 | 14 | 0.17% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 10,564 | 305 | 10,288 | 10,441 | 209 | 10 | 14 | 0.14% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 7,547 | 213 | 7,159 | 7,266 | 145 | 10 | 14 | 0.20% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 6,901 | 192 | 6,590 | 6,686 | 134 | 10 | 14 | 0.21% | No |
| | | Crossroads Pkwy N to I-605 | 9,006 | 256 | 8,759 | 8,887 | 178 | 10 | 14 | 0.16% | No |
| | | I-605 to Peck Rd | 7,642 | 248 | 7,890 | 8,014 | 160 | 10 | 14 | 0.18% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 7,281 | 236 | 7,517 | 7,635 | 153 | 10 | 14 | 0.19% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 6,880 | 225 | 7,105 | 7,218 | 144 | 10 | 14 | 0.20% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 8,012 | 256 | 8,268 | 8,396 | 168 | 10 | 14 | 0.17% | No |
| | | San Gabriel Blvd to Paramount Blvd | 6,539 | 213 | 6,752 | 6,859 | 137 | 10 | 14 | 0.21% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 6,337 | 207 | 6,544 | 6,648 | 133 | 10 | 14 | 0.21% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 7,248 | 236 | 7,484 | 7,602 | 152 | 10 | 14 | 0.19% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Find | 5,981 | 195 | 6,176 | 6,274 | 125 | 10 | 14 | 0.23% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 6,138 | 198 | 6,336 | 6,435 | 129 | 10 | 14 | 0.22% | No |
| | | S Atlantic Blvd to I-710 | 6,073 | 196 | 6,269 | 6,367 | 127 | 10 | 14 | 0.22% | No |
| | SR-710 NB | SR 60 to S Eastern Ave/Olympic Blvd | 6,597 | 218 | 6,815 | 6,924 | 138 | 10 | 14 | 0.21% | No |
| | | I-5 to E Washington Blvd | 7,139 | 302 | 7,441 | 7,592 | 152 | 10 | 14 | 0.19% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 9,247 | 390 | 9,637 | 9,832 | 197 | 10 | 14 | 0.14% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 5,824 | 246 | 6,070 | 6,193 | 124 | 10 | 14 | 0.23% | No |
| | | Florence Ave to Firestone Blvd | 6,179 | 326 | 6,505 | 6,668 | 133 | 10 | 14 | 0.21% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 9,183 | 384 | 9,567 | 9,759 | 195 | 10 | 14 | 0.15% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 8,500 | 354 | 8,854 | 9,031 | 181 | 10 | 14 | 0.16% | No |
| | | I-105 to E Alondra Blvd | 6,546 | 288 | 6,834 | 6,978 | 140 | 10 | 14 | 0.20% | No |
| | | E Alondra Blvd to SR 91 | 6,423 | 284 | 6,707 | 6,849 | 137 | 10 | 14 | 0.21% | No |
| SR-91 Route | SR-91 EB | I-15 to N Main St | 8,942 | 416 | 7,264 | 7,472 | 149 | 10 | 14 | 0.19% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 10,140 | 478 | 8,502 | 8,741 | 175 | 10 | 14 | 0.16% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 8,734 | 406 | 7,024 | 7,227 | 145 | 10 | 14 | 0.20% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 8,863 | 418 | 7,167 | 7,376 | 148 | 10 | 14 | 0.19% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 8,864 | 417 | 6,937 | 7,146 | 143 | 10 | 14 | 0.20% | No |
| | | SR-71 to Green River Rd | 9,141 | 349 | 6,294 | 6,469 | 129 | 10 | 14 | 0.22% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 9,646 | 360 | 8,546 | 8,726 | 175 | 10 | 14 | 0.16% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 8,983 | 333 | 7,856 | 8,023 | 160 | 10 | 14 | 0.18% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 10,008 | 382 | 8,930 | 9,121 | 182 | 10 | 14 | 0.16% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 8,845 | 318 | 7,703 | 7,862 | 157 | 10 | 14 | 0.18% | No |
| | | N Lakeview Ave to SR-55 | 10,331 | 380 | 9,251 | 9,441 | 189 | 10 | 14 | 0.15% | No |
| | | SR-55 to Tustin Ave | 7,805 | 289 | 7,574 | 7,719 | 154 | 10 | 14 | 0.18% | No |
| | | Tustin Ave to Kraemer Blvd | 6,752 | 244 | 6,434 | 6,556 | 131 | 10 | 14 | 0.22% | No |
| | | Kraemer Blvd to SR-57 | 7,046 | 253 | 6,736 | 6,863 | 137 | 10 | 14 | 0.21% | No |
| | | SR-57 to State College Blvd | 8,354 | 298 | 7,821 | 7,970 | 159 | 10 | 14 | 0.18% | No |
| | | State College Blvd to Raymond Ave/East St | 9,117 | 311 | 8,146 | 8,302 | 166 | 10 | 14 | 0.17% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 8,365 | 279 | 7,321 | 7,461 | 149 | 10 | 14 | 0.19% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 9,676 | 331 | 8,642 | 8,808 | 176 | 10 | 14 | 0.16% | No |
| | | Euclid St to Brookhurst Rd | 10,132 | 356 | 9,226 | 9,404 | 188 | 10 | 14 | 0.15% | No |
| | | Brookhurst Rd to I-5 | 7,871 | 267 | 7,047 | 7,181 | 144 | 10 | 14 | 0.20% | No |
| | | I-5 to Beach Blvd | 10,178 | 352 | 9,061 | 9,237 | 185 | 10 | 14 | 0.15% | No |
| | | Beach Blvd to Knott Ave | 10,362 | 361 | 9,314 | 9,495 | 190 | 10 | 14 | 0.15% | No |
| | | Knott Ave to Valley View St | 10,458 | 366 | 9,505 | 9,688 | 194 | 10 | 14 | 0.15% | No |
| | | Valley View St to Carmenita Rd | 8,537 | 287 | 7,555 | 7,699 | 154 | 10 | 14 | 0.19% | No |
| | | Carmenita Rd to Artesia Blvd | 20,417 | 257 | 6,787 | 6,916 | 138 | 10 | 14 | 0.21% | No |
| | | Artesia Blvd to Bloomfield Ave | 8,188 | 271 | 7,186 | 7,322 | 146 | 10 | 14 | 0.19% | No |
| | | Bloomfield Ave to Norwalk Blvd | 9,779 | 332 | 8,729 | 8,895 | 178 | 10 | 14 | 0.16% | No |
| | | Norwalk Blvd to Pioneer Blvd | 9,792 | 329 | 8,905 | 9,070 | 181 | 10 | 14 | 0.16% | No |
| | | Pioneer Blvd to SR-605 | 10,042 | 339 | 9,165 | 9,335 | 187 | 10 | 14 | 0.15% | No |
| | | SR-605 to Bellflower Blvd | 9,830 | 343 | 9,102 | 9,274 | 185 | 10 | 14 | 0.15% | No |
| | | Bellflower Blvd to Clark Ave | 9,941 | 349 | 9,206 | 9,381 | 188 | 10 | 14 | 0.15% | No |
| | | Clark Ave to Lakewood Blvd | 9,466 | 329 | 8,704 | 8,869 | 177 | 10 | 14 | 0.16% | No |
| | | Lakewood Blvd to Downey Ave | 9,758 | 335 | 8,711 | 8,879 | 178 | 10 | 14 | 0.16% | No |
| | | Downey Ave to Paramount Blvd | 9,259 | 313 | 8,190 | 8,347 | 167 | 10 | 14 | 0.17% | No |
| | | Paramount Blvd to Cherry Ave | 9,024 | 315 | 8,266 | 8,424 | 168 | 10 | 14 | 0.17% | No |
| | | Cherry Ave to I-710 | 9,201 | 309 | 8,160 | 8,315 | 166 | 10 | 14 | 0.17% | No |
| Shared Portion | SR-710 NB | SR 91 to Long Beach Blvd | 5,653 | 425 | 6,078 | 6,291 | 126 | 19 | 29 | 0.45% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 3,453 | 255 | 3,708 | 3,836 | 77 | 19 | 29 | 0.74% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 3,401 | 251 | 3,652 | 3,778 | 76 | 19 | 29 | 0.75% | No |
| | | I-405/W Wardlow Rd to W Willow St | 5,464 | 405 | 5,869 | 6,072 | 121 | 19 | 29 | 0.47% | No |
| | | W Willow St to Pacific Coast Hwy | 5,088 | 376 | 5,464 | 5,652 | 113 | 19 | 29 | 0.50% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 4,277 | 315 | 4,592 | 4,750 | 95 | 19 | 29 | 0.60% | No |

## Table 95: Volumes Along Routes to Port, 2022, Westbound, AM Peak Hour

| Route | | Segment Descripton | 2022 No Project | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 WB | SR -71 S to Phillips Ranch Rd | 6,368 | 214 | 5,349 | 5,456 | 109 | 6 | 8 | 0.15% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 6,631 | 223 | 5,587 | 5,699 | 114 | 6 | 8 | 0.14% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 9,882 | 321 | 8,919 | 9,080 | 182 | 6 | 8 | 0.09% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 9,849 | 264 | 8,846 | 8,978 | 180 | 6 | 8 | 0.09% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 6,211 | 153 | 5,097 | 5,174 | 103 | 6 | 8 | 0.16% | No |
| | | Lemon Ave to Fairway Dr | 6,211 | 153 | 5,097 | 5,174 | 103 | 6 | 8 | 0.16% | No |
| | | Fairway Dr to Nogales St | 6,480 | 162 | 5,375 | 5,456 | 109 | 6 | 8 | 0.15% | No |
| | | Nogales St to Fullerton Rd | 6,972 | 175 | 5,880 | 5,968 | 119 | 6 | 8 | 0.14% | No |
| | | Fullerton Rd to S. Azusa Ave | 7,230 | 185 | 6,146 | 6,239 | 125 | 6 | 8 | 0.13% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 10,095 | 274 | 9,103 | 9,240 | 185 | 6 | 8 | 0.09% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 10,401 | 282 | 9,400 | 9,541 | 191 | 6 | 8 | 0.09% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 12,680 | 352 | 11,749 | 11,925 | 239 | 6 | 8 | 0.07% | No |
| | | Crossroads Pkwy N to I-605 | 11,594 | 319 | 10,630 | 10,790 | 216 | 6 | 8 | 0.08% | No |
| | | I-605 to Peck Rd | 11,397 | 353 | 11,750 | 11,927 | 239 | 6 | 8 | 0.07% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 11,397 | 353 | 11,750 | 11,927 | 239 | 6 | 8 | 0.07% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 11,397 | 353 | 11,750 | 11,927 | 239 | 6 | 8 | 0.07% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 11,397 | 354 | 11,751 | 11,928 | 239 | 6 | 8 | 0.07% | No |
| | | San Gabriel Blvd to Paramount Blvd | 7,962 | 246 | 8,208 | 8,331 | 167 | 6 | 8 | 0.10% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 10,433 | 365 | 10,798 | 10,981 | 220 | 6 | 8 | 0.08% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 6,095 | 189 | 6,284 | 6,379 | 128 | 6 | 8 | 0.13% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Fi | 8,745 | 270 | 9,015 | 9,150 | 183 | 6 | 8 | 0.09% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 9,178 | 324 | 9,502 | 9,664 | 193 | 6 | 8 | 0.09% | No |
| | | S Atlantic Blvd to I-710 | 8,003 | 286 | 8,289 | 8,432 | 169 | 6 | 8 | 0.10% | No |
| | SR-710 SB | SR 60 to S Eastern Ave/Olympic Blvd | 8,443 | 275 | 8,718 | 8,856 | 177 | 6 | 8 | 0.09% | No |
| | | I-5 to E Washington Blvd | 8,996 | 367 | 9,363 | 9,547 | 191 | 6 | 8 | 0.09% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 7,245 | 296 | 7,541 | 7,689 | 154 | 6 | 8 | 0.11% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 7,864 | 319 | 8,183 | 8,343 | 167 | 6 | 8 | 0.10% | No |
| | | Florence Ave to Firestone Blvd | 7,154 | 364 | 7,518 | 7,700 | 154 | 6 | 8 | 0.11% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 7,854 | 317 | 8,171 | 8,330 | 167 | 6 | 8 | 0.10% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 7,775 | 313 | 8,088 | 8,245 | 165 | 6 | 8 | 0.10% | No |
| | | I-105 to E Alondra Blvd | 10,100 | 422 | 10,522 | 10,733 | 215 | 6 | 8 | 0.08% | No |
| | | E Alondra Blvd to SR 91 | 9,660 | 405 | 10,065 | 10,268 | 205 | 6 | 8 | 0.08% | No |
| SR-91 Route | SR-91 WB | I-15 to N Main St | 10,306 | 404 | 7,565 | 7,767 | 155 | 6 | 8 | 0.11% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 12,185 | 474 | 9,617 | 9,854 | 197 | 6 | 8 | 0.08% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 11,869 | 465 | 9,335 | 9,568 | 191 | 6 | 8 | 0.09% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 9,958 | 392 | 7,188 | 7,384 | 148 | 6 | 8 | 0.11% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 9,782 | 398 | 7,038 | 7,237 | 145 | 6 | 8 | 0.11% | No |
| | | SR-71 to Green River Rd | 8,682 | 306 | 7,641 | 7,794 | 156 | 6 | 8 | 0.11% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 9,317 | 295 | 7,377 | 7,525 | 150 | 6 | 8 | 0.11% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 9,304 | 407 | 7,149 | 7,353 | 147 | 6 | 8 | 0.11% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 8,983 | 392 | 6,813 | 7,009 | 140 | 6 | 8 | 0.12% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 13,937 | 591 | 11,966 | 12,262 | 245 | 6 | 8 | 0.07% | No |
| | | N Lakeview Ave to SR-55 | 13,860 | 587 | 11,885 | 12,179 | 244 | 6 | 8 | 0.07% | No |
| | | SR-55 to Tustin Ave | 7,622 | 282 | 7,050 | 7,191 | 144 | 6 | 8 | 0.11% | No |
| | | Tustin Ave to Kraemer Blvd | 7,997 | 288 | 7,223 | 7,367 | 147 | 6 | 8 | 0.11% | No |
| | | Kraemer Blvd to SR-57 | 7,690 | 326 | 7,019 | 7,182 | 144 | 6 | 8 | 0.11% | No |
| | | SR-57 to State College Blvd | 7,453 | 308 | 6,660 | 6,814 | 136 | 6 | 8 | 0.12% | No |
| | | State College Blvd to Raymond Ave/East St | 7,959 | 314 | 6,780 | 6,937 | 139 | 6 | 8 | 0.12% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 7,384 | 288 | 6,187 | 6,331 | 127 | 6 | 8 | 0.13% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 8,020 | 313 | 6,859 | 7,016 | 140 | 6 | 8 | 0.12% | No |
| | | Euclid St to Brookhurst Rd | 8,339 | 326 | 7,192 | 7,355 | 147 | 6 | 8 | 0.11% | No |
| | | Brookhurst Rd to I-5 | 8,137 | 280 | 7,006 | 7,146 | 143 | 6 | 8 | 0.12% | No |
| | | I-5 to Beach Blvd | 9,136 | 322 | 8,044 | 8,205 | 164 | 6 | 8 | 0.10% | No |
| | | Beach Blvd to Knott Ave | 10,433 | 376 | 9,400 | 9,588 | 192 | 6 | 8 | 0.09% | No |
| | | Knott Ave to Valley View St | 10,446 | 376 | 9,400 | 9,588 | 192 | 6 | 8 | 0.09% | No |
| | | Valley View St to Carmenita Rd | 10,464 | 376 | 9,400 | 9,588 | 192 | 6 | 8 | 0.09% | No |
| | | Carmenita Rd to Artesia Blvd | 10,171 | 377 | 9,401 | 9,590 | 192 | 6 | 8 | 0.09% | No |
| | | Artesia Blvd to Bloomfield Ave | 10,418 | 375 | 9,399 | 9,587 | 192 | 6 | 8 | 0.09% | No |
| | | Bloomfield Ave to Norwalk Blvd | 10,440 | 376 | 9,400 | 9,588 | 192 | 6 | 8 | 0.09% | No |
| | | Norwalk Blvd to Pioneer Blvd | 10,435 | 376 | 9,400 | 9,588 | 192 | 6 | 8 | 0.09% | No |
| | | Pioneer Blvd to SR-605 | 10,217 | 376 | 9,400 | 9,588 | 192 | 6 | 8 | 0.09% | No |
| | | SR-605 to Bellflower Blvd | 11,389 | 414 | 10,340 | 10,547 | 211 | 6 | 8 | 0.08% | No |
| | | Bellflower Blvd to Clark Ave | 10,477 | 377 | 9,401 | 9,590 | 192 | 6 | 8 | 0.09% | No |
| | | Clark Ave to Lakewood Blvd | 10,502 | 377 | 9,401 | 9,590 | 192 | 6 | 8 | 0.09% | No |
| | | Lakewood Blvd to Downey Ave | 10,171 | 376 | 9,400 | 9,588 | 192 | 6 | 8 | 0.09% | No |
| | | Downey Ave to Paramount Blvd | 9,150 | 320 | 7,990 | 8,150 | 163 | 6 | 8 | 0.10% | No |
| | | Paramount Blvd to Cherry Ave | 12,757 | 470 | 11,750 | 11,985 | 240 | 6 | 8 | 0.07% | No |
| | | Cherry Ave to I-710 | 11,510 | 417 | 10,420 | 10,629 | 213 | 6 | 8 | 0.08% | No |
| Shared Portion | SR-710 SB | SR 91 to Long Beach Blvd | 7,322 | 549 | 7,871 | 8,146 | 163 | 11 | 17 | 0.20% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 6,824 | 512 | 7,336 | 7,592 | 152 | 11 | 17 | 0.22% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 6,621 | 492 | 7,113 | 7,359 | 147 | 11 | 17 | 0.22% | No |
| | | I-405/W Wardlow Rd to W Willow St | 5,686 | 419 | 6,105 | 6,315 | 126 | 11 | 17 | 0.26% | No |
| | | W Willow St to Pacific Coast Hwy | 5,243 | 384 | 5,627 | 5,819 | 116 | 11 | 17 | 0.28% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 5,045 | 365 | 5,410 | 5,593 | 112 | 11 | 17 | 0.30% | No |

## Table 96: Volumes Along Routes to Port, 2022, Eastbound, PM Peak Hour

| Route | | Segment Descripton | 2022 No Project | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 EB | SR -71 S to Phillips Ranch Rd | 6,423 | 219 | 5,475 | 5,585 | 112 | 8 | 11 | 0.20% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 7,289 | 255 | 6,377 | 6,505 | 130 | 8 | 11 | 0.17% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 12,471 | 406 | 11,647 | 11,850 | 237 | 8 | 11 | 0.09% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 12,298 | 400 | 11,458 | 11,658 | 233 | 8 | 11 | 0.10% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 10,304 | 347 | 9,546 | 9,720 | 194 | 8 | 11 | 0.12% | No |
| | | Lemon Ave to Fairway Dr | 10,304 | 347 | 9,546 | 9,720 | 194 | 8 | 11 | 0.12% | No |
| | | Fairway Dr to Nogales St | 8,262 | 286 | 7,443 | 7,586 | 152 | 8 | 11 | 0.15% | No |
| | | Nogales St to Fullerton Rd | 9,484 | 321 | 8,693 | 8,854 | 177 | 8 | 11 | 0.13% | No |
| | | Fullerton Rd to S. Azusa Ave | 10,321 | 345 | 9,596 | 9,769 | 195 | 8 | 11 | 0.12% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 12,579 | 410 | 11,896 | 12,101 | 242 | 8 | 11 | 0.09% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 8,448 | 280 | 7,688 | 7,828 | 157 | 8 | 11 | 0.14% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 8,120 | 269 | 7,170 | 7,305 | 146 | 8 | 11 | 0.15% | No |
| | | Crossroads Pkwy N to I-605 | 12,401 | 400 | 11,582 | 11,782 | 236 | 8 | 11 | 0.10% | No |
| | | I-605 to Peck Rd | 9,305 | 349 | 9,654 | 9,829 | 197 | 8 | 11 | 0.11% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 8,206 | 313 | 8,519 | 8,676 | 174 | 8 | 11 | 0.13% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 7,898 | 301 | 8,199 | 8,350 | 167 | 8 | 11 | 0.13% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 9,181 | 336 | 9,517 | 9,685 | 194 | 8 | 11 | 0.12% | No |
| | | San Gabriel Blvd to Paramount Blvd | 9,173 | 335 | 9,508 | 9,676 | 194 | 8 | 11 | 0.12% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 11,495 | 406 | 11,901 | 12,104 | 242 | 8 | 11 | 0.09% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 6,806 | 259 | 7,065 | 7,195 | 144 | 8 | 11 | 0.16% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Find | 11,483 | 401 | 11,884 | 12,085 | 242 | 8 | 11 | 0.09% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 13,724 | 472 | 14,196 | 14,432 | 289 | 8 | 11 | 0.08% | No |
| | | S Atlantic Blvd to I-710 | 11,423 | 397 | 11,820 | 12,019 | 240 | 8 | 11 | 0.09% | No |
| | SR-710 NB | SR 60 to S Eastern Ave/Olympic Blvd | 7,720 | 260 | 7,980 | 8,110 | 162 | 8 | 11 | 0.14% | No |
| | | I-5 to E Washington Blvd | 6,850 | 292 | 7,142 | 7,288 | 146 | 8 | 11 | 0.15% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 7,647 | 320 | 7,967 | 8,127 | 163 | 8 | 11 | 0.14% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 5,326 | 223 | 5,549 | 5,661 | 113 | 8 | 11 | 0.20% | No |
| | | Florence Ave to Firestone Blvd | 6,373 | 332 | 6,705 | 6,871 | 137 | 8 | 11 | 0.16% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 8,780 | 364 | 9,144 | 9,326 | 187 | 8 | 11 | 0.12% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 7,694 | 319 | 8,013 | 8,173 | 163 | 8 | 11 | 0.14% | No |
| | | I-105 to E Alondra Blvd | 7,780 | 333 | 8,113 | 8,280 | 166 | 8 | 11 | 0.14% | No |
| | | E Alondra Blvd to SR 91 | 8,237 | 352 | 8,589 | 8,765 | 175 | 8 | 11 | 0.13% | No |
| SR-91 Route | SR-91 EB | I-15 to N Main St | 12,374 | 628 | 10,065 | 10,379 | 208 | 8 | 11 | 0.11% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 13,088 | 663 | 10,686 | 11,018 | 220 | 8 | 11 | 0.10% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 12,797 | 665 | 10,397 | 10,730 | 215 | 8 | 11 | 0.10% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 12,549 | 661 | 10,170 | 10,501 | 210 | 8 | 11 | 0.11% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 13,021 | 708 | 10,439 | 10,793 | 216 | 8 | 11 | 0.10% | No |
| | | SR-71 to Green River Rd | 12,256 | 543 | 9,195 | 9,467 | 189 | 8 | 11 | 0.12% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 13,076 | 574 | 10,932 | 11,219 | 224 | 8 | 11 | 0.10% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 12,530 | 554 | 10,366 | 10,643 | 213 | 8 | 11 | 0.11% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 11,251 | 497 | 9,030 | 9,279 | 186 | 8 | 11 | 0.12% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 9,958 | 441 | 7,681 | 7,902 | 158 | 8 | 11 | 0.14% | No |
| | | N Lakeview Ave to SR-55 | 10,890 | 484 | 8,656 | 8,898 | 178 | 8 | 11 | 0.13% | No |
| | | SR-55 to Tustin Ave | 9,206 | 394 | 8,227 | 8,424 | 168 | 8 | 11 | 0.13% | No |
| | | Tustin Ave to Kraemer Blvd | 7,861 | 336 | 7,196 | 7,364 | 147 | 8 | 11 | 0.15% | No |
| | | Kraemer Blvd to SR-57 | 8,749 | 375 | 8,134 | 8,322 | 166 | 8 | 11 | 0.14% | No |
| | | SR-57 to State College Blvd | 8,010 | 348 | 7,442 | 7,616 | 152 | 8 | 11 | 0.15% | No |
| | | State College Blvd to Raymond Ave/East St | 8,459 | 347 | 7,445 | 7,619 | 152 | 8 | 11 | 0.15% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 7,346 | 296 | 6,264 | 6,412 | 120 | 0 | 11 | 0.10% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 9,063 | 367 | 8,066 | 8,250 | 165 | 8 | 11 | 0.14% | No |
| | | Euclid St to Brookhurst Rd | 10,379 | 423 | 9,487 | 9,699 | 194 | 8 | 11 | 0.12% | No |
| | | Brookhurst Rd to I-5 | 6,808 | 296 | 6,326 | 6,474 | 129 | 8 | 11 | 0.17% | No |
| | | I-5 to Beach Blvd | 8,820 | 347 | 7,678 | 7,852 | 157 | 8 | 11 | 0.14% | No |
| | | Beach Blvd to Knott Ave | 8,699 | 341 | 7,552 | 7,723 | 154 | 8 | 11 | 0.15% | No |
| | | Knott Ave to Valley View St | 10,465 | 412 | 9,436 | 9,642 | 193 | 8 | 11 | 0.12% | No |
| | | Valley View St to Carmenita Rd | 10,391 | 407 | 9,412 | 9,616 | 192 | 8 | 11 | 0.12% | No |
| | | Carmenita Rd to Artesia Blvd | 7,330 | 275 | 6,129 | 6,267 | 125 | 8 | 11 | 0.18% | No |
| | | Artesia Blvd to Bloomfield Ave | 7,466 | 280 | 6,283 | 6,423 | 128 | 8 | 11 | 0.18% | No |
| | | Bloomfield Ave to Norwalk Blvd | 8,519 | 336 | 7,599 | 7,767 | 155 | 8 | 11 | 0.14% | No |
| | | Norwalk Blvd to Pioneer Blvd | 8,975 | 347 | 7,924 | 8,098 | 162 | 8 | 11 | 0.14% | No |
| | | Pioneer Blvd to SR-605 | 9,314 | 363 | 8,353 | 8,535 | 171 | 8 | 11 | 0.13% | No |
| | | SR-605 to Bellflower Blvd | 11,328 | 437 | 10,428 | 10,647 | 213 | 8 | 11 | 0.11% | No |
| | | Bellflower Blvd to Clark Ave | 9,125 | 339 | 7,982 | 8,152 | 163 | 8 | 11 | 0.14% | No |
| | | Clark Ave to Lakewood Blvd | 11,292 | 429 | 10,239 | 10,454 | 209 | 8 | 11 | 0.11% | No |
| | | Lakewood Blvd to Downey Ave | 9,685 | 370 | 8,784 | 8,969 | 179 | 8 | 11 | 0.13% | No |
| | | Downey Ave to Paramount Blvd | 10,247 | 392 | 9,368 | 9,564 | 191 | 8 | 11 | 0.12% | No |
| | | Paramount Blvd to Cherry Ave | 10,589 | 394 | 9,455 | 9,652 | 193 | 8 | 11 | 0.12% | No |
| | | Cherry Ave to I-710 | 11,262 | 431 | 10,428 | 10,644 | 213 | 8 | 11 | 0.11% | No |
| Shared Portion | SR-710 NB | SR 91 to Long Beach Blvd | 5,830 | 439 | 6,269 | 6,489 | 130 | 15 | 23 | 0.35% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 3,955 | 302 | 4,257 | 4,408 | 88 | 15 | 23 | 0.51% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 3,967 | 299 | 4,266 | 4,416 | 88 | 15 | 23 | 0.51% | No |
| | | I-405/W Wardlow Rd to W Willow St | 6,705 | 500 | 7,205 | 7,455 | 149 | 15 | 23 | 0.30% | No |
| | | W Willow St to Pacific Coast Hwy | 6,431 | 480 | 6,911 | 7,151 | 143 | 15 | 23 | 0.31% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 4,433 | 324 | 4,757 | 4,919 | 98 | 15 | 23 | 0.46% | No |

## Table 97: Volumes Along Routes to Port, 2022, Westbound, PM Peak Hour

| Route | | Segment Descripton | 2022 No Project | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 WB | SR -71 S to Phillips Ranch Rd | 7,903 | 287 | 6,383 | 6,527 | 131 | 9 | 14 | 0.21% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 7,698 | 292 | 6,581 | 6,727 | 135 | 9 | 14 | 0.20% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 11,162 | 343 | 10,130 | 10,302 | 206 | 9 | 14 | 0.13% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 10,571 | 337 | 9,918 | 10,087 | 202 | 9 | 14 | 0.13% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 7,185 | 201 | 6,381 | 6,482 | 130 | 9 | 14 | 0.21% | No |
| | | Lemon Ave to Fairway Dr | 7,185 | 201 | 6,381 | 6,482 | 130 | 9 | 14 | 0.21% | No |
| | | Fairway Dr to Nogales St | 7,870 | 225 | 7,090 | 7,203 | 144 | 9 | 14 | 0.19% | No |
| | | Nogales St to Fullerton Rd | 7,978 | 229 | 7,145 | 7,260 | 145 | 9 | 14 | 0.19% | No |
| | | Fullerton Rd to S. Azusa Ave | 7,758 | 223 | 7,158 | 7,270 | 145 | 9 | 14 | 0.19% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 8,458 | 234 | 7,550 | 7,667 | 153 | 9 | 14 | 0.18% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 10,508 | 302 | 9,848 | 9,999 | 200 | 9 | 14 | 0.14% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 8,108 | 224 | 7,259 | 7,371 | 147 | 9 | 14 | 0.18% | No |
| | | Crossroads Pkwy N to I-605 | 8,545 | 236 | 7,708 | 7,826 | 157 | 9 | 14 | 0.17% | No |
| | | I-605 to Peck Rd | 8,165 | 274 | 8,439 | 8,576 | 172 | 9 | 14 | 0.16% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 8,365 | 283 | 8,648 | 8,790 | 176 | 9 | 14 | 0.15% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 7,973 | 273 | 8,246 | 8,383 | 168 | 9 | 14 | 0.16% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 7,404 | 255 | 7,659 | 7,787 | 156 | 9 | 14 | 0.17% | No |
| | | San Gabriel Blvd to Paramount Blvd | 6,229 | 217 | 6,446 | 6,555 | 131 | 9 | 14 | 0.21% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 6,159 | 212 | 6,371 | 6,477 | 130 | 9 | 14 | 0.21% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 7,327 | 247 | 7,574 | 7,698 | 154 | 9 | 14 | 0.18% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Find | 6,836 | 231 | 7,067 | 7,183 | 144 | 9 | 14 | 0.19% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 6,960 | 237 | 7,197 | 7,316 | 146 | 9 | 14 | 0.18% | No |
| | | S Atlantic Blvd to I-710 | 6,388 | 218 | 6,606 | 6,715 | 134 | 9 | 14 | 0.20% | No |
| | SR-710 SB | SR 60 to S Eastern Ave/Olympic Blvd | 9,377 | 319 | 9,696 | 9,856 | 197 | 9 | 14 | 0.14% | No |
| | | I-5 to E Washington Blvd | 11,556 | 483 | 12,039 | 12,281 | 246 | 9 | 14 | 0.11% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 9,264 | 389 | 9,653 | 9,848 | 197 | 9 | 14 | 0.14% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 8,585 | 360 | 8,945 | 9,125 | 183 | 9 | 14 | 0.15% | No |
| | | Florence Ave to Firestone Blvd | 6,750 | 348 | 7,098 | 7,272 | 145 | 9 | 14 | 0.19% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 7,330 | 300 | 7,630 | 7,780 | 156 | 9 | 14 | 0.17% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 4,786 | 195 | 4,981 | 5,079 | 102 | 9 | 14 | 0.27% | No |
| | | I-105 to E Alondra Blvd | 7,885 | 331 | 8,216 | 8,382 | 168 | 9 | 14 | 0.16% | No |
| | | E Alondra Blvd to SR 91 | 7,846 | 329 | 8,175 | 8,340 | 167 | 9 | 14 | 0.16% | No |
| SR-91 Route | SR-91 WB | I-15 to N Main St | 8,238 | 223 | 5,150 | 5,262 | 105 | 9 | 14 | 0.26% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 9,723 | 260 | 6,567 | 6,697 | 134 | 9 | 14 | 0.20% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 9,688 | 266 | 6,533 | 6,666 | 133 | 9 | 14 | 0.20% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 10,981 | 331 | 7,849 | 8,015 | 160 | 9 | 14 | 0.17% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 9,870 | 296 | 6,869 | 7,017 | 140 | 9 | 14 | 0.19% | No |
| | | SR-71 to Green River Rd | 7,449 | 277 | 6,959 | 7,098 | 142 | 9 | 14 | 0.19% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 7,106 | 266 | 6,652 | 6,785 | 136 | 9 | 14 | 0.20% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 8,752 | 372 | 7,121 | 7,307 | 146 | 9 | 14 | 0.18% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 8,349 | 361 | 6,707 | 6,888 | 138 | 9 | 14 | 0.20% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 8,838 | 381 | 7,216 | 7,407 | 148 | 9 | 14 | 0.18% | No |
| | | N Lakeview Ave to SR-55 | 9,019 | 391 | 7,407 | 7,603 | 152 | 9 | 14 | 0.18% | No |
| | | SR-55 to Tustin Ave | 8,352 | 316 | 7,312 | 7,470 | 149 | 9 | 14 | 0.18% | No |
| | | Tustin Ave to Kraemer Blvd | 7,967 | 280 | 6,752 | 6,892 | 138 | 9 | 14 | 0.20% | No |
| | | Kraemer Blvd to SR-57 | 9,050 | 333 | 8,230 | 8,397 | 168 | 9 | 14 | 0.16% | No |
| | | SR-57 to State College Blvd | 8,551 | 305 | 7,520 | 7,673 | 153 | 9 | 14 | 0.18% | No |
| | | State College Blvd to Raymond Ave/East St | 9,788 | 343 | 8,434 | 8,606 | 172 | 9 | 14 | 0.16% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 8,655 | 301 | 7,345 | 7,496 | 150 | 9 | 14 | 0.10% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 9,531 | 342 | 8,333 | 8,504 | 170 | 9 | 14 | 0.16% | No |
| | | Euclid St to Brookhurst Rd | 8,820 | 313 | 7,617 | 7,774 | 155 | 9 | 14 | 0.17% | No |
| | | Brookhurst Rd to I-5 | 8,825 | 298 | 7,428 | 7,577 | 152 | 9 | 14 | 0.18% | No |
| | | I-5 to Beach Blvd | 9,495 | 338 | 8,343 | 8,512 | 170 | 9 | 14 | 0.16% | No |
| | | Beach Blvd to Knott Ave | 9,205 | 326 | 8,161 | 8,324 | 166 | 9 | 14 | 0.16% | No |
| | | Knott Ave to Valley View St | 9,316 | 326 | 8,275 | 8,438 | 169 | 9 | 14 | 0.16% | No |
| | | Valley View St to Carmenita Rd | 10,983 | 390 | 9,950 | 10,145 | 203 | 9 | 14 | 0.13% | No |
| | | Carmenita Rd to Artesia Blvd | 10,943 | 389 | 9,938 | 10,133 | 203 | 9 | 14 | 0.13% | No |
| | | Artesia Blvd to Bloomfield Ave | 10,924 | 392 | 9,924 | 10,120 | 202 | 9 | 14 | 0.13% | No |
| | | Bloomfield Ave to Norwalk Blvd | 10,922 | 389 | 9,902 | 10,097 | 202 | 9 | 14 | 0.13% | No |
| | | Norwalk Blvd to Pioneer Blvd | 10,886 | 394 | 9,885 | 10,082 | 202 | 9 | 14 | 0.13% | No |
| | | Pioneer Blvd to SR-605 | 9,498 | 347 | 8,698 | 8,872 | 177 | 9 | 14 | 0.15% | No |
| | | SR-605 to Bellflower Blvd | 8,865 | 344 | 8,392 | 8,564 | 171 | 9 | 14 | 0.16% | No |
| | | Bellflower Blvd to Clark Ave | 8,821 | 341 | 8,291 | 8,462 | 169 | 9 | 14 | 0.16% | No |
| | | Clark Ave to Lakewood Blvd | 8,303 | 320 | 7,752 | 7,912 | 158 | 9 | 14 | 0.17% | No |
| | | Lakewood Blvd to Downey Ave | 9,161 | 331 | 8,079 | 8,245 | 165 | 9 | 14 | 0.16% | No |
| | | Downey Ave to Paramount Blvd | 8,728 | 335 | 8,196 | 8,364 | 167 | 9 | 14 | 0.16% | No |
| | | Paramount Blvd to Cherry Ave | 8,949 | 345 | 8,443 | 8,616 | 172 | 9 | 14 | 0.16% | No |
| | | Cherry Ave to I-710 | 8,569 | 333 | 8,155 | 8,322 | 166 | 9 | 14 | 0.16% | No |
| Shared Portion | SR-710 SB | SR 91 to Long Beach Blvd | 6,329 | 480 | 6,809 | 7,049 | 141 | 18 | 27 | 0.38% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 5,908 | 445 | 6,353 | 6,576 | 132 | 18 | 27 | 0.41% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 5,908 | 443 | 6,351 | 6,573 | 131 | 18 | 27 | 0.41% | No |
| | | I-405/W Wardlow Rd to W Willow St | 5,258 | 393 | 5,651 | 5,848 | 117 | 18 | 27 | 0.46% | No |
| | | W Willow St to Pacific Coast Hwy | 4,846 | 364 | 5,210 | 5,392 | 108 | 18 | 27 | 0.50% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 4,752 | 354 | 5,106 | 5,283 | 106 | 18 | 27 | 0.51% | No |

## Table 98: Volumes Along Routes to Port, 2035, Eastbound, AM Peak Hour

| Route | | Segment Descripton | 2035 No Project | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 EB | SR -71 S to Phillips Ranch Rd | 7,766 | 279 | 8,045 | 8,185 | 164 | 29 | 43 | 0.52% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 7,751 | 285 | 8,036 | 8,179 | 164 | 29 | 43 | 0.52% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 11,650 | 369 | 12,019 | 12,204 | 244 | 29 | 43 | 0.35% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 11,320 | 355 | 11,675 | 11,853 | 237 | 29 | 43 | 0.36% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 9,810 | 330 | 10,140 | 10,305 | 206 | 29 | 43 | 0.41% | No |
| | | Lemon Ave to Fairway Dr | 9,639 | 325 | 9,964 | 10,127 | 203 | 29 | 43 | 0.42% | No |
| | | Fairway Dr to Nogales St | 8,238 | 278 | 8,516 | 8,655 | 173 | 29 | 43 | 0.49% | No |
| | | Nogales St to Fullerton Rd | 8,932 | 294 | 9,226 | 9,373 | 187 | 29 | 43 | 0.46% | No |
| | | Fullerton Rd to S. Azusa Ave | 9,614 | 308 | 9,922 | 10,076 | 202 | 29 | 43 | 0.42% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 11,311 | 351 | 11,662 | 11,838 | 237 | 29 | 43 | 0.36% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 8,176 | 252 | 8,428 | 8,554 | 171 | 29 | 43 | 0.50% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 7,496 | 228 | 7,724 | 7,838 | 157 | 29 | 43 | 0.55% | No |
| | | Crossroads Pkwy N to I-605 | 9,554 | 290 | 9,844 | 9,989 | 200 | 29 | 43 | 0.43% | No |
| | | I-605 to Peck Rd | 7,950 | 286 | 8,236 | 8,379 | 168 | 29 | 43 | 0.51% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 7,635 | 278 | 7,913 | 8,052 | 161 | 29 | 43 | 0.53% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 7,246 | 275 | 7,521 | 7,659 | 153 | 29 | 43 | 0.56% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 8,379 | 308 | 8,687 | 8,841 | 177 | 29 | 43 | 0.48% | No |
| | | San Gabriel Blvd to Paramount Blvd | 6,850 | 265 | 7,115 | 7,248 | 145 | 29 | 43 | 0.59% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 6,644 | 247 | 6,891 | 7,015 | 140 | 29 | 43 | 0.61% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 7,508 | 277 | 7,785 | 7,924 | 158 | 29 | 43 | 0.54% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Find | 6,270 | 240 | 6,510 | 6,630 | 133 | 29 | 43 | 0.64% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 6,508 | 246 | 6,754 | 6,877 | 138 | 29 | 43 | 0.62% | No |
| | | S Atlantic Blvd to I-710 | 6,530 | 241 | 6,771 | 6,892 | 138 | 29 | 43 | 0.62% | No |
| | SR-710 NB | SR 60 to S Eastern Ave/Olympic Blvd | 9,491 | 475 | 9,966 | 10,204 | 204 | 29 | 43 | 0.42% | No |
| | | I-5 to E Washington Blvd | 10,090 | 489 | 10,579 | 10,824 | 216 | 29 | 43 | 0.39% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 12,426 | 586 | 13,012 | 13,305 | 266 | 29 | 43 | 0.32% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 9,366 | 428 | 9,794 | 10,008 | 200 | 29 | 43 | 0.43% | No |
| | | Florence Ave to Firestone Blvd | 9,674 | 503 | 10,177 | 10,429 | 209 | 29 | 43 | 0.41% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 12,644 | 551 | 13,195 | 13,471 | 269 | 29 | 43 | 0.32% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 11,448 | 504 | 11,952 | 12,204 | 244 | 29 | 43 | 0.35% | No |
| | | I-105 to E Alondra Blvd | 9,540 | 396 | 9,936 | 10,134 | 203 | 29 | 43 | 0.42% | No |
| | | E Alondra Blvd to SR 91 | 9,454 | 393 | 9,847 | 10,044 | 201 | 29 | 43 | 0.43% | No |
| SR-91 Route | SR-91 EB | I-15 to N Main St | 10,762 | 615 | 11,377 | 11,685 | 234 | 29 | 43 | 0.37% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 12,104 | 653 | 12,757 | 13,084 | 262 | 29 | 43 | 0.33% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 11,014 | 591 | 11,605 | 11,901 | 238 | 29 | 43 | 0.36% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 11,014 | 633 | 11,647 | 11,964 | 239 | 29 | 43 | 0.36% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 11,149 | 598 | 11,747 | 12,046 | 241 | 29 | 43 | 0.35% | No |
| | | SR-71 to Green River Rd | 12,695 | 595 | 13,290 | 13,588 | 272 | 29 | 43 | 0.31% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 13,478 | 655 | 14,133 | 14,461 | 289 | 29 | 43 | 0.30% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 9,026 | 475 | 9,501 | 9,739 | 195 | 29 | 43 | 0.44% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 9,820 | 522 | 10,342 | 10,603 | 212 | 29 | 43 | 0.40% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 8,713 | 488 | 9,201 | 9,445 | 189 | 29 | 43 | 0.45% | No |
| | | N Lakeview Ave to SR-55 | 10,108 | 534 | 10,642 | 10,909 | 218 | 29 | 43 | 0.39% | No |
| | | SR-55 to Tustin Ave | 9,722 | 453 | 10,175 | 10,402 | 208 | 29 | 43 | 0.41% | No |
| | | Tustin Ave to Kraemer Blvd | 8,314 | 407 | 8,721 | 8,925 | 178 | 29 | 43 | 0.48% | No |
| | | Kraemer Blvd to SR-57 | 8,422 | 413 | 8,835 | 9,042 | 181 | 29 | 43 | 0.47% | No |
| | | SR-57 to State College Blvd | 9,446 | 453 | 9,899 | 10,126 | 203 | 29 | 43 | 0.42% | No |
| | | State College Blvd to Raymond Ave/East St | 10,076 | 464 | 10,540 | 10,772 | 215 | 29 | 43 | 0.40% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 9,306 | 431 | 9,737 | 9,953 | 199 | 29 | 43 | 0.43% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 10,487 | 479 | 10,966 | 11,206 | 224 | 29 | 43 | 0.38% | No |
| | | Euclid St to Brookhurst Rd | 11,282 | 514 | 11,796 | 12,053 | 241 | 29 | 43 | 0.35% | No |
| | | Brookhurst Rd to I-5 | 9,051 | 426 | 9,477 | 9,690 | 194 | 29 | 43 | 0.44% | No |
| | | I-5 to Beach Blvd | 10,237 | 437 | 10,674 | 10,893 | 218 | 29 | 43 | 0.39% | No |
| | | Beach Blvd to Knott Ave | 10,444 | 442 | 10,886 | 11,107 | 222 | 29 | 43 | 0.38% | No |
| | | Knott Ave to Valley View St | 10,543 | 446 | 10,989 | 11,212 | 224 | 29 | 43 | 0.38% | No |
| | | Valley View St to Carmenita Rd | 8,591 | 362 | 8,953 | 9,134 | 183 | 29 | 43 | 0.47% | No |
| | | Carmenita Rd to Artesia Blvd | 20,471 | 333 | 20,804 | 20,971 | 419 | 29 | 43 | 0.20% | No |
| | | Artesia Blvd to Bloomfield Ave | 8,224 | 346 | 8,570 | 8,743 | 175 | 29 | 43 | 0.49% | No |
| | | Bloomfield Ave to Norwalk Blvd | 9,884 | 407 | 10,291 | 10,495 | 210 | 29 | 43 | 0.41% | No |
| | | Norwalk Blvd to Pioneer Blvd | 9,946 | 417 | 10,363 | 10,572 | 211 | 29 | 43 | 0.40% | No |
| | | Pioneer Blvd to SR-605 | 10,293 | 428 | 10,721 | 10,935 | 219 | 29 | 43 | 0.39% | No |
| | | SR-605 to Bellflower Blvd | 10,749 | 427 | 11,176 | 11,390 | 228 | 29 | 43 | 0.38% | No |
| | | Bellflower Blvd to Clark Ave | 11,511 | 444 | 11,955 | 12,177 | 244 | 29 | 43 | 0.35% | No |
| | | Clark Ave to Lakewood Blvd | 10,454 | 413 | 10,867 | 11,074 | 221 | 29 | 43 | 0.39% | No |
| | | Lakewood Blvd to Downey Ave | 10,724 | 422 | 11,146 | 11,357 | 227 | 29 | 43 | 0.38% | No |
| | | Downey Ave to Paramount Blvd | 10,143 | 398 | 10,541 | 10,740 | 215 | 29 | 43 | 0.40% | No |
| | | Paramount Blvd to Cherry Ave | 9,866 | 397 | 10,263 | 10,462 | 209 | 29 | 43 | 0.41% | No |
| | | Cherry Ave to I-710 | 10,091 | 393 | 10,484 | 10,681 | 214 | 29 | 43 | 0.40% | No |
| Shared Portion | SR-710 NB | SR 91 to Long Beach Blvd | 9,614 | 554 | 10,168 | 10,445 | 209 | 57 | 86 | 0.82% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 6,854 | 357 | 7,211 | 7,390 | 148 | 57 | 86 | 1.16% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 6,803 | 344 | 7,147 | 7,319 | 146 | 57 | 86 | 1.17% | No |
| | | I-405/W Wardlow Rd to W Willow St | 8,797 | 447 | 9,244 | 9,468 | 189 | 57 | 86 | 0.90% | No |
| | | W Willow St to Pacific Coast Hwy | 8,441 | 422 | 8,863 | 9,074 | 181 | 57 | 86 | 0.94% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 7,054 | 348 | 7,402 | 7,576 | 152 | 57 | 86 | 1.13% | No |

## Table 99: Volumes Along Routes to Port, 2035, Westbound, AM Peak Hour

| Route | | Segment Descripton | 2035 No Project | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 WB | SR -71 S to Phillips Ranch Rd | 6,368 | 214 | 6,582 | 6,689 | 134 | 17 | 25 | 0.37% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 6,631 | 223 | 6,854 | 6,966 | 139 | 17 | 25 | 0.36% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 10,369 | 392 | 10,761 | 10,957 | 219 | 17 | 25 | 0.23% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 10,820 | 394 | 11,214 | 11,411 | 228 | 17 | 25 | 0.22% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 6,453 | 295 | 6,748 | 6,896 | 138 | 17 | 25 | 0.36% | No |
| | | Lemon Ave to Fairway Dr | 6,211 | 153 | 6,364 | 6,441 | 129 | 17 | 25 | 0.38% | No |
| | | Fairway Dr to Nogales St | 6,480 | 162 | 6,642 | 6,723 | 134 | 17 | 25 | 0.37% | No |
| | | Nogales St to Fullerton Rd | 6,972 | 175 | 7,147 | 7,235 | 145 | 17 | 25 | 0.34% | No |
| | | Fullerton Rd to S. Azusa Ave | 7,230 | 185 | 7,415 | 7,508 | 150 | 17 | 25 | 0.33% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 10,095 | 274 | 10,369 | 10,506 | 210 | 17 | 25 | 0.24% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 10,401 | 282 | 10,683 | 10,824 | 216 | 17 | 25 | 0.23% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 12,680 | 352 | 13,032 | 13,208 | 264 | 17 | 25 | 0.19% | No |
| | | Crossroads Pkwy N to I-605 | 11,594 | 319 | 11,913 | 12,073 | 241 | 17 | 25 | 0.21% | No |
| | | I-605 to Peck Rd | 11,397 | 353 | 11,750 | 11,927 | 239 | 17 | 25 | 0.21% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 11,397 | 353 | 11,750 | 11,927 | 239 | 17 | 25 | 0.21% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 11,397 | 353 | 11,750 | 11,927 | 239 | 17 | 25 | 0.21% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 11,397 | 354 | 11,751 | 11,928 | 239 | 17 | 25 | 0.21% | No |
| | | San Gabriel Blvd to Paramount Blvd | 7,962 | 246 | 8,208 | 8,331 | 167 | 17 | 25 | 0.30% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 10,467 | 324 | 10,791 | 10,953 | 219 | 17 | 25 | 0.23% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 6,095 | 189 | 6,284 | 6,379 | 128 | 17 | 25 | 0.39% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Find | 8,649 | 414 | 9,063 | 9,270 | 185 | 17 | 25 | 0.27% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 9,110 | 429 | 9,539 | 9,754 | 195 | 17 | 25 | 0.25% | No |
| | | S Atlantic Blvd to I-710 | 7,960 | 246 | 8,206 | 8,329 | 167 | 17 | 25 | 0.30% | No |
| | SR-710 SB | SR 60 to S Eastern Ave/Olympic Blvd | 10,750 | 556 | 11,306 | 11,584 | 232 | 17 | 25 | 0.21% | No |
| | | I-5 to E Washington Blvd | 11,653 | 593 | 12,246 | 12,543 | 251 | 17 | 25 | 0.20% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 10,093 | 511 | 10,604 | 10,860 | 217 | 17 | 25 | 0.23% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 10,353 | 507 | 10,860 | 11,114 | 222 | 17 | 25 | 0.22% | No |
| | | Florence Ave to Firestone Blvd | 9,673 | 547 | 10,220 | 10,494 | 210 | 17 | 25 | 0.24% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 10,301 | 492 | 10,793 | 11,039 | 221 | 17 | 25 | 0.22% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 10,048 | 480 | 10,528 | 10,768 | 215 | 17 | 25 | 0.23% | No |
| | | I-105 to E Alondra Blvd | 12,084 | 571 | 12,655 | 12,941 | 259 | 17 | 25 | 0.19% | No |
| | | E Alondra Blvd to SR 91 | 11,628 | 548 | 12,176 | 12,450 | 249 | 17 | 25 | 0.20% | No |
| SR-91 Route | SR-91 WB | I-15 to N Main St | 9,385 | 354 | 9,739 | 9,916 | 198 | 17 | 25 | 0.25% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 13,000 | 722 | 13,722 | 14,083 | 282 | 17 | 25 | 0.18% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 12,423 | 714 | 13,137 | 13,494 | 270 | 17 | 25 | 0.18% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 10,416 | 631 | 11,047 | 11,363 | 227 | 17 | 25 | 0.22% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 10,090 | 649 | 10,739 | 11,064 | 221 | 17 | 25 | 0.22% | No |
| | | SR-71 to Green River Rd | 10,340 | 599 | 10,939 | 11,239 | 225 | 17 | 25 | 0.22% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 11,234 | 627 | 11,861 | 12,175 | 243 | 17 | 25 | 0.20% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 8,859 | 276 | 9,135 | 9,273 | 185 | 17 | 25 | 0.27% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 8,567 | 264 | 8,831 | 8,963 | 179 | 17 | 25 | 0.28% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 13,515 | 469 | 13,984 | 14,219 | 284 | 17 | 25 | 0.17% | No |
| | | N Lakeview Ave to SR-55 | 13,515 | 470 | 13,985 | 14,220 | 284 | 17 | 25 | 0.17% | No |
| | | SR-55 to Tustin Ave | 8,091 | 481 | 8,572 | 8,813 | 176 | 17 | 25 | 0.28% | No |
| | | Tustin Ave to Kraemer Blvd | 8,469 | 486 | 8,955 | 9,198 | 184 | 17 | 25 | 0.27% | No |
| | | Kraemer Blvd to SR-57 | 8,209 | 478 | 8,687 | 8,926 | 179 | 17 | 25 | 0.28% | No |
| | | SR-57 to State College Blvd | 8,222 | 471 | 8,693 | 8,929 | 179 | 17 | 25 | 0.28% | No |
| | | State College Blvd to Raymond Ave/East St | 8,765 | 489 | 9,254 | 9,499 | 190 | 17 | 25 | 0.26% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 8,213 | 460 | 8,673 | 8,903 | 170 | 17 | 25 | 0.20% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 8,744 | 485 | 9,229 | 9,472 | 189 | 17 | 25 | 0.26% | No |
| | | Euclid St to Brookhurst Rd | 9,053 | 495 | 9,548 | 9,796 | 196 | 17 | 25 | 0.25% | No |
| | | Brookhurst Rd to I-5 | 8,585 | 478 | 9,063 | 9,302 | 186 | 17 | 25 | 0.27% | No |
| | | I-5 to Beach Blvd | 9,136 | 322 | 9,458 | 9,619 | 192 | 17 | 25 | 0.26% | No |
| | | Beach Blvd to Knott Ave | 10,433 | 376 | 10,809 | 10,997 | 220 | 17 | 25 | 0.23% | No |
| | | Knott Ave to Valley View St | 10,446 | 376 | 10,822 | 11,010 | 220 | 17 | 25 | 0.22% | No |
| | | Valley View St to Carmenita Rd | 10,464 | 376 | 10,840 | 11,028 | 221 | 17 | 25 | 0.22% | No |
| | | Carmenita Rd to Artesia Blvd | 10,171 | 377 | 10,548 | 10,737 | 215 | 17 | 25 | 0.23% | No |
| | | Artesia Blvd to Bloomfield Ave | 10,418 | 375 | 10,793 | 10,981 | 220 | 17 | 25 | 0.23% | No |
| | | Bloomfield Ave to Norwalk Blvd | 10,440 | 376 | 10,816 | 11,004 | 220 | 17 | 25 | 0.22% | No |
| | | Norwalk Blvd to Pioneer Blvd | 10,435 | 376 | 10,811 | 10,999 | 220 | 17 | 25 | 0.23% | No |
| | | Pioneer Blvd to SR-605 | 10,217 | 376 | 10,593 | 10,781 | 216 | 17 | 25 | 0.23% | No |
| | | SR-605 to Bellflower Blvd | 11,389 | 414 | 11,803 | 12,010 | 240 | 17 | 25 | 0.21% | No |
| | | Bellflower Blvd to Clark Ave | 10,477 | 377 | 10,854 | 11,043 | 221 | 17 | 25 | 0.22% | No |
| | | Clark Ave to Lakewood Blvd | 10,502 | 377 | 10,879 | 11,068 | 221 | 17 | 25 | 0.22% | No |
| | | Lakewood Blvd to Downey Ave | 10,171 | 376 | 10,547 | 10,735 | 215 | 17 | 25 | 0.23% | No |
| | | Downey Ave to Paramount Blvd | 9,150 | 320 | 9,470 | 9,630 | 193 | 17 | 25 | 0.26% | No |
| | | Paramount Blvd to Cherry Ave | 12,757 | 470 | 13,227 | 13,462 | 269 | 17 | 25 | 0.18% | No |
| | | Cherry Ave to I-710 | 11,510 | 417 | 11,927 | 12,136 | 243 | 17 | 25 | 0.20% | No |
| Shared Portion | SR-710 SB | SR 91 to Long Beach Blvd | 9,772 | 716 | 10,488 | 10,846 | 217 | 33 | 50 | 0.46% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 8,634 | 658 | 9,292 | 9,621 | 192 | 33 | 50 | 0.51% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 8,462 | 635 | 9,097 | 9,415 | 188 | 33 | 50 | 0.53% | No |
| | | I-405/W Wardlow Rd to W Willow St | 7,457 | 511 | 7,968 | 8,224 | 164 | 33 | 50 | 0.60% | No |
| | | W Willow St to Pacific Coast Hwy | 7,130 | 470 | 7,600 | 7,835 | 157 | 33 | 50 | 0.63% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 6,405 | 427 | 6,832 | 7,046 | 141 | 33 | 50 | 0.70% | No |

## Table 100: Volumes Along Routes to Port, 2035, Eastbound, PM Peak Hour

| Route | | Segment Descripton | 2035 No Project | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 EB | SR -71 S to Phillips Ranch Rd | 6,672 | 284 | 6,956 | 7,098 | 142 | 23 | 35 | 0.49% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 7,504 | 316 | 7,820 | 7,978 | 160 | 23 | 35 | 0.43% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 13,153 | 492 | 13,645 | 13,891 | 278 | 23 | 35 | 0.25% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 12,672 | 469 | 13,141 | 13,376 | 268 | 23 | 35 | 0.26% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 10,992 | 455 | 11,447 | 11,675 | 233 | 23 | 35 | 0.30% | No |
| | | Lemon Ave to Fairway Dr | 10,773 | 449 | 11,222 | 11,447 | 229 | 23 | 35 | 0.30% | No |
| | | Fairway Dr to Nogales St | 8,567 | 372 | 8,939 | 9,125 | 183 | 23 | 35 | 0.38% | No |
| | | Nogales St to Fullerton Rd | 9,826 | 407 | 10,233 | 10,437 | 209 | 23 | 35 | 0.33% | No |
| | | Fullerton Rd to S. Azusa Ave | 10,554 | 419 | 10,973 | 11,183 | 224 | 23 | 35 | 0.31% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 12,702 | 479 | 13,181 | 13,421 | 268 | 23 | 35 | 0.26% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 8,833 | 357 | 9,190 | 9,369 | 187 | 23 | 35 | 0.37% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 8,328 | 344 | 8,672 | 8,844 | 177 | 23 | 35 | 0.39% | No |
| | | Crossroads Pkwy N to I-605 | 12,565 | 469 | 13,034 | 13,269 | 265 | 23 | 35 | 0.26% | No |
| | | I-605 to Peck Rd | 9,300 | 288 | 9,588 | 9,732 | 195 | 23 | 35 | 0.35% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 8,184 | 253 | 8,437 | 8,564 | 171 | 23 | 35 | 0.40% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 7,893 | 244 | 8,137 | 8,259 | 165 | 23 | 35 | 0.42% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 9,118 | 282 | 9,400 | 9,541 | 191 | 23 | 35 | 0.36% | No |
| | | San Gabriel Blvd to Paramount Blvd | 9,118 | 282 | 9,400 | 9,541 | 191 | 23 | 35 | 0.36% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 11,397 | 353 | 11,750 | 11,927 | 239 | 23 | 35 | 0.29% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 6,757 | 209 | 6,966 | 7,071 | 141 | 23 | 35 | 0.49% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Find | 11,397 | 353 | 11,750 | 11,927 | 239 | 23 | 35 | 0.29% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 13,677 | 424 | 14,101 | 14,313 | 286 | 23 | 35 | 0.24% | No |
| | | S Atlantic Blvd to I-710 | 11,397 | 353 | 11,750 | 11,927 | 239 | 23 | 35 | 0.29% | No |
| | SR-710 NB | SR 60 to S Eastern Ave/Olympic Blvd | 11,267 | 482 | 11,749 | 11,990 | 240 | 23 | 35 | 0.29% | No |
| | | I-5 to E Washington Blvd | 11,399 | 493 | 11,892 | 12,139 | 243 | 23 | 35 | 0.28% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 12,628 | 537 | 13,165 | 13,434 | 269 | 23 | 35 | 0.26% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 10,400 | 432 | 10,832 | 11,048 | 221 | 23 | 35 | 0.31% | No |
| | | Florence Ave to Firestone Blvd | 11,531 | 539 | 12,070 | 12,340 | 247 | 23 | 35 | 0.28% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 14,000 | 562 | 14,562 | 14,843 | 297 | 23 | 35 | 0.23% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 12,538 | 505 | 13,043 | 13,296 | 266 | 23 | 35 | 0.26% | No |
| | | I-105 to E Alondra Blvd | 12,734 | 419 | 13,153 | 13,363 | 267 | 23 | 35 | 0.26% | No |
| | | E Alondra Blvd to SR 91 | 13,220 | 439 | 13,659 | 13,879 | 278 | 23 | 35 | 0.25% | No |
| SR-91 Route | SR-91 EB | I-15 to N Main St | 14,960 | 944 | 15,904 | 16,376 | 328 | 23 | 35 | 0.21% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 15,482 | 954 | 16,436 | 16,913 | 338 | 23 | 35 | 0.20% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 15,710 | 974 | 16,684 | 17,171 | 343 | 23 | 35 | 0.20% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 15,070 | 1,008 | 16,078 | 16,582 | 332 | 23 | 35 | 0.21% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 15,871 | 1,088 | 16,959 | 17,503 | 350 | 23 | 35 | 0.20% | No |
| | | SR-71 to Green River Rd | 16,712 | 907 | 17,619 | 18,073 | 361 | 23 | 35 | 0.19% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 17,300 | 958 | 18,258 | 18,737 | 375 | 23 | 35 | 0.18% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 13,305 | 765 | 14,070 | 14,453 | 289 | 23 | 35 | 0.24% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 11,836 | 716 | 12,552 | 12,910 | 258 | 23 | 35 | 0.27% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 10,509 | 656 | 11,165 | 11,493 | 230 | 23 | 35 | 0.30% | No |
| | | N Lakeview Ave to SR-55 | 11,388 | 692 | 12,080 | 12,426 | 249 | 23 | 35 | 0.28% | No |
| | | SR-55 to Tustin Ave | 11,096 | 650 | 11,746 | 12,071 | 241 | 23 | 35 | 0.29% | No |
| | | Tustin Ave to Kraemer Blvd | 9,501 | 594 | 10,095 | 10,392 | 208 | 23 | 35 | 0.33% | No |
| | | Kraemer Blvd to SR-57 | 10,221 | 630 | 10,851 | 11,166 | 223 | 23 | 35 | 0.31% | No |
| | | SR-57 to State College Blvd | 9,135 | 578 | 9,713 | 10,002 | 200 | 23 | 35 | 0.34% | No |
| | | State College Blvd to Raymond Ave/East St | 9,431 | 580 | 10,011 | 10,301 | 206 | 23 | 35 | 0.33% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 8,209 | 531 | 8,740 | 9,006 | 180 | 23 | 35 | 0.30% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 9,814 | 601 | 10,415 | 10,716 | 214 | 23 | 35 | 0.32% | No |
| | | Euclid St to Brookhurst Rd | 11,325 | 661 | 11,986 | 12,317 | 246 | 23 | 35 | 0.28% | No |
| | | Brookhurst Rd to I-5 | 7,956 | 541 | 8,497 | 8,768 | 175 | 23 | 35 | 0.39% | No |
| | | I-5 to Beach Blvd | 8,746 | 304 | 9,050 | 9,202 | 184 | 23 | 35 | 0.37% | No |
| | | Beach Blvd to Knott Ave | 8,693 | 302 | 8,995 | 9,146 | 183 | 23 | 35 | 0.38% | No |
| | | Knott Ave to Valley View St | 10,438 | 376 | 10,814 | 11,002 | 220 | 23 | 35 | 0.31% | No |
| | | Valley View St to Carmenita Rd | 10,383 | 376 | 10,759 | 10,947 | 219 | 23 | 35 | 0.32% | No |
| | | Carmenita Rd to Artesia Blvd | 7,294 | 243 | 7,537 | 7,659 | 153 | 23 | 35 | 0.45% | No |
| | | Artesia Blvd to Bloomfield Ave | 7,427 | 248 | 7,675 | 7,799 | 156 | 23 | 35 | 0.44% | No |
| | | Bloomfield Ave to Norwalk Blvd | 8,477 | 303 | 8,780 | 8,932 | 179 | 23 | 35 | 0.39% | No |
| | | Norwalk Blvd to Pioneer Blvd | 8,977 | 318 | 9,295 | 9,454 | 189 | 23 | 35 | 0.36% | No |
| | | Pioneer Blvd to SR-605 | 9,278 | 332 | 9,610 | 9,776 | 196 | 23 | 35 | 0.35% | No |
| | | SR-605 to Bellflower Blvd | 11,849 | 503 | 12,352 | 12,604 | 252 | 23 | 35 | 0.27% | No |
| | | Bellflower Blvd to Clark Ave | 10,185 | 421 | 10,606 | 10,817 | 216 | 23 | 35 | 0.32% | No |
| | | Clark Ave to Lakewood Blvd | 11,866 | 498 | 12,364 | 12,613 | 252 | 23 | 35 | 0.27% | No |
| | | Lakewood Blvd to Downey Ave | 10,199 | 436 | 10,635 | 10,853 | 217 | 23 | 35 | 0.32% | No |
| | | Downey Ave to Paramount Blvd | 10,717 | 449 | 11,166 | 11,391 | 228 | 23 | 35 | 0.30% | No |
| | | Paramount Blvd to Cherry Ave | 11,065 | 452 | 11,517 | 11,743 | 235 | 23 | 35 | 0.29% | No |
| | | Cherry Ave to I-710 | 11,865 | 494 | 12,359 | 12,606 | 252 | 23 | 35 | 0.27% | No |
| Shared Portion | SR-710 NB | SR 91 to Long Beach Blvd | 12,401 | 548 | 12,949 | 13,223 | 264 | 46 | 69 | 0.52% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 9,953 | 387 | 10,340 | 10,534 | 211 | 46 | 69 | 0.66% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 10,014 | 390 | 10,404 | 10,599 | 212 | 46 | 69 | 0.65% | No |
| | | I-405/W Wardlow Rd to W Willow St | 12,932 | 527 | 13,459 | 13,723 | 274 | 46 | 69 | 0.50% | No |
| | | W Willow St to Pacific Coast Hwy | 12,727 | 514 | 13,241 | 13,498 | 270 | 46 | 69 | 0.51% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 9,878 | 347 | 10,225 | 10,399 | 208 | 46 | 69 | 0.66% | No |

## Table 101: Volumes Along Routes to Port, 2035, Westbound, PM Peak Hour

| Route | | Segment Descripton | 2035 No Project | | | | | WLC Trucks | | WLC Truck PCEs as % of No-Project PCES | Do WLC PCEs Exceed 2% Threshold? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Trucks | Total Vehicles | Total PCEs | 2% of Total PCEs | Vehicles | PCEs | | |
| SR-60 Route | SR-60 WB | SR -71 S to Phillips Ranch Rd | 8,851 | 252 | 9,103 | 9,229 | 185 | 27 | 40 | 0.43% | No |
| | | Phillips Ranch Rd to N Diamond Bar Blvd/Orange Fwy | 8,671 | 290 | 8,961 | 9,106 | 182 | 27 | 40 | 0.44% | No |
| | | N Diamond Bar Blvd/Orange Fwy to Grand Ave | 13,308 | 384 | 13,692 | 13,884 | 278 | 27 | 40 | 0.29% | No |
| | | Grand Ave to Orange Fwy/Brea Canyon Rd | 13,110 | 390 | 13,500 | 13,695 | 274 | 27 | 40 | 0.29% | No |
| | | Orange Fwy/Brea Canyon Rd to Fairway Dr/Lemon Ave | 8,618 | 282 | 8,900 | 9,041 | 181 | 27 | 40 | 0.44% | No |
| | | Lemon Ave to Fairway Dr | 7,891 | 268 | 8,159 | 8,293 | 166 | 27 | 40 | 0.48% | No |
| | | Fairway Dr to Nogales St | 8,441 | 274 | 8,715 | 8,852 | 177 | 27 | 40 | 0.45% | No |
| | | Nogales St to Fullerton Rd | 8,564 | 276 | 8,840 | 8,978 | 180 | 27 | 40 | 0.44% | No |
| | | Fullerton Rd to S. Azusa Ave | 8,420 | 267 | 8,687 | 8,821 | 176 | 27 | 40 | 0.45% | No |
| | | S. Azusa Ave to S. Hacienda Blvd | 9,019 | 266 | 9,285 | 9,418 | 188 | 27 | 40 | 0.42% | No |
| | | S. Hacienda Blvd to S 7th Ave/E Gale Ave | 10,965 | 329 | 11,294 | 11,459 | 229 | 27 | 40 | 0.35% | No |
| | | S 7th Ave/E Gale Ave to Crossroads Pkwy N | 8,552 | 246 | 8,798 | 8,921 | 178 | 27 | 40 | 0.45% | No |
| | | Crossroads Pkwy N to I-605 | 8,930 | 258 | 9,188 | 9,317 | 186 | 27 | 40 | 0.43% | No |
| | | I-605 to Peck Rd | 8,575 | 356 | 8,931 | 9,109 | 182 | 27 | 40 | 0.44% | No |
| | | Peck Rd to Fawcett Ave/Santa Anita Ave | 8,995 | 371 | 9,366 | 9,552 | 191 | 27 | 40 | 0.42% | No |
| | | Fawcett Ave/Santa Anita Ave to Rosemead Blvd | 8,602 | 366 | 8,968 | 9,151 | 183 | 27 | 40 | 0.43% | No |
| | | Rosemead Blvd to San Gabriel Blvd | 8,090 | 357 | 8,447 | 8,626 | 173 | 27 | 40 | 0.46% | No |
| | | San Gabriel Blvd to Paramount Blvd | 6,884 | 320 | 7,204 | 7,364 | 147 | 27 | 40 | 0.54% | No |
| | | Paramount Blvd to E Markland Dr/Potrero Dr | 6,798 | 313 | 7,111 | 7,268 | 145 | 27 | 40 | 0.55% | No |
| | | E Markland Dr to W Pomona Blvd E of Findlay | 7,938 | 348 | 8,286 | 8,460 | 169 | 27 | 40 | 0.47% | No |
| | | W Pomona Blvd E of Findlay to W Pomona Blvd W of Find | 7,491 | 332 | 7,823 | 7,989 | 160 | 27 | 40 | 0.50% | No |
| | | W Pomona Blvd W of Findlay Ave to S Atlantic Blvd | 7,612 | 339 | 7,951 | 8,121 | 162 | 27 | 40 | 0.49% | No |
| | | S Atlantic Blvd to I-710 | 7,031 | 320 | 7,351 | 7,511 | 150 | 27 | 40 | 0.53% | No |
| | SR-710 SB | SR 60 to S Eastern Ave/Olympic Blvd | 11,846 | 625 | 12,471 | 12,784 | 256 | 27 | 40 | 0.31% | No |
| | | I-5 to E Washington Blvd | 14,838 | 767 | 15,605 | 15,989 | 320 | 27 | 40 | 0.25% | No |
| | | E Washington Blvd to S Atlantic Blvd/Bandini Blvd | 13,003 | 662 | 13,665 | 13,996 | 280 | 27 | 40 | 0.28% | No |
| | | S Atlantic Blvd/Bandini Blvd to Florence Ave | 12,554 | 637 | 13,191 | 13,510 | 270 | 27 | 40 | 0.29% | No |
| | | Florence Ave to Firestone Blvd | 10,726 | 630 | 11,356 | 11,671 | 233 | 27 | 40 | 0.34% | No |
| | | Firestone Blvd to Imperial Hwy/Abott Rd | 11,260 | 568 | 11,828 | 12,112 | 242 | 27 | 40 | 0.33% | No |
| | | Imperial Hwy/Abott Rd to I-105 | 8,107 | 445 | 8,552 | 8,775 | 175 | 27 | 40 | 0.45% | No |
| | | I-105 to E Alondra Blvd | 10,630 | 537 | 11,167 | 11,436 | 229 | 27 | 40 | 0.35% | No |
| | | E Alondra Blvd to SR 91 | 10,581 | 522 | 11,103 | 11,364 | 227 | 27 | 40 | 0.35% | No |
| SR-91 Route | SR-91 WB | I-15 to N Main St | 6,970 | 159 | 7,129 | 7,209 | 144 | 27 | 40 | 0.55% | No |
| | | Main St/Grand Blvd to Lincoln Ave | 11,253 | 617 | 11,870 | 12,179 | 244 | 27 | 40 | 0.33% | No |
| | | N Lincoln Ave to S Maple St/W 6th St | 11,168 | 614 | 11,782 | 12,089 | 242 | 27 | 40 | 0.33% | No |
| | | Maple St/6th St to Serfas Club Dr/Auto Center Dr | 12,551 | 653 | 13,204 | 13,531 | 271 | 27 | 40 | 0.29% | No |
| | | Serfas Club Dr/Auto Center Dr to SR-71 | 11,591 | 623 | 12,214 | 12,526 | 251 | 27 | 40 | 0.32% | No |
| | | SR-71 to Green River Rd | 12,177 | 609 | 12,786 | 13,091 | 262 | 27 | 40 | 0.30% | No |
| | | Green River Rd to Gypsum Cyn Rd/SR-241 | 12,237 | 623 | 12,860 | 13,172 | 263 | 27 | 40 | 0.30% | No |
| | | Gypsum Cyn Rd/SR-241 to Yorba Linda Blvd | 9,110 | 440 | 9,550 | 9,770 | 195 | 27 | 40 | 0.41% | No |
| | | Yorba Linda Blvd to SR-90/Imperial Hwy | 8,779 | 426 | 9,205 | 9,418 | 188 | 27 | 40 | 0.42% | No |
| | | SR-90/Imperial Hwy to N Lakeview Ave | 8,357 | 426 | 8,783 | 8,996 | 180 | 27 | 40 | 0.44% | No |
| | | N Lakeview Ave to SR-55 | 8,300 | 422 | 8,722 | 8,933 | 179 | 27 | 40 | 0.44% | No |
| | | SR-55 to Tustin Ave | 9,020 | 477 | 9,497 | 9,736 | 195 | 27 | 40 | 0.41% | No |
| | | Tustin Ave to Kraemer Blvd | 8,659 | 444 | 9,103 | 9,325 | 187 | 27 | 40 | 0.43% | No |
| | | Kraemer Blvd to SR-57 | 9,731 | 491 | 10,222 | 10,468 | 209 | 27 | 40 | 0.38% | No |
| | | SR-57 to State College Blvd | 9,900 | 508 | 10,408 | 10,662 | 213 | 27 | 40 | 0.37% | No |
| | | State College Blvd to Raymond Ave/East St | 11,221 | 561 | 11,782 | 12,063 | 241 | 27 | 40 | 0.33% | No |
| | | Raymond Ave/East St to Anaheim Blvd/Harbor Blvd | 10,126 | 516 | 10,642 | 10,900 | 210 | 27 | 40 | 0.36% | No |
| | | Anaheim Blvd/Harbor Blvd to Euclid St | 11,150 | 561 | 11,711 | 11,992 | 240 | 27 | 40 | 0.33% | No |
| | | Euclid St to Brookhurst Rd | 10,447 | 531 | 10,978 | 11,244 | 225 | 27 | 40 | 0.35% | No |
| | | Brookhurst Rd to I-5 | 10,178 | 505 | 10,683 | 10,936 | 219 | 27 | 40 | 0.36% | No |
| | | I-5 to Beach Blvd | 9,142 | 430 | 9,572 | 9,787 | 196 | 27 | 40 | 0.41% | No |
| | | Beach Blvd to Knott Ave | 8,804 | 417 | 9,221 | 9,430 | 189 | 27 | 40 | 0.42% | No |
| | | Knott Ave to Valley View St | 8,891 | 414 | 9,305 | 9,512 | 190 | 27 | 40 | 0.42% | No |
| | | Valley View St to Carmenita Rd | 10,620 | 481 | 11,101 | 11,342 | 227 | 27 | 40 | 0.35% | No |
| | | Carmenita Rd to Artesia Blvd | 10,576 | 477 | 11,053 | 11,292 | 226 | 27 | 40 | 0.35% | No |
| | | Artesia Blvd to Bloomfield Ave | 10,545 | 480 | 11,025 | 11,265 | 225 | 27 | 40 | 0.35% | No |
| | | Bloomfield Ave to Norwalk Blvd | 10,525 | 477 | 11,002 | 11,241 | 225 | 27 | 40 | 0.35% | No |
| | | Norwalk Blvd to Pioneer Blvd | 10,521 | 482 | 11,003 | 11,244 | 225 | 27 | 40 | 0.35% | No |
| | | Pioneer Blvd to SR-605 | 9,201 | 432 | 9,633 | 9,849 | 197 | 27 | 40 | 0.40% | No |
| | | SR-605 to Bellflower Blvd | 9,132 | 444 | 9,576 | 9,798 | 196 | 27 | 40 | 0.41% | No |
| | | Bellflower Blvd to Clark Ave | 9,045 | 442 | 9,487 | 9,708 | 194 | 27 | 40 | 0.41% | No |
| | | Clark Ave to Lakewood Blvd | 8,510 | 417 | 8,927 | 9,136 | 183 | 27 | 40 | 0.44% | No |
| | | Lakewood Blvd to Downey Ave | 9,349 | 428 | 9,777 | 9,991 | 200 | 27 | 40 | 0.40% | No |
| | | Downey Ave to Paramount Blvd | 8,970 | 432 | 9,402 | 9,618 | 192 | 27 | 40 | 0.41% | No |
| | | Paramount Blvd to Cherry Ave | 9,211 | 440 | 9,651 | 9,871 | 197 | 27 | 40 | 0.40% | No |
| | | Cherry Ave to I-710 | 8,901 | 432 | 9,333 | 9,549 | 191 | 27 | 40 | 0.42% | No |
| Shared Portion | SR-710 SB | SR 91 to Long Beach Blvd | 9,632 | 711 | 10,343 | 10,699 | 214 | 53 | 80 | 0.74% | No |
| | | Long Beach Blvd to W Del Amo Blvd | 8,406 | 649 | 9,055 | 9,380 | 188 | 53 | 80 | 0.85% | No |
| | | W Del Amo Blvd to I-405/W Wardlow Rd | 8,383 | 638 | 9,021 | 9,340 | 187 | 53 | 80 | 0.85% | No |
| | | I-405/W Wardlow Rd to W Willow St | 7,779 | 497 | 8,276 | 8,525 | 170 | 53 | 80 | 0.93% | No |
| | | W Willow St to Pacific Coast Hwy | 7,501 | 463 | 7,964 | 8,196 | 164 | 53 | 80 | 0.97% | No |
| | | Pacific Coast Hwy to W Anaheim St/9th St | 6,712 | 425 | 7,137 | 7,350 | 147 | 53 | 80 | 1.08% | No |

## G. GENERAL PLAN CONFORMITY

The City General Plan has established a set of goals, policies, and objectives for the Circulation Element. Table 102 shows how the WLC project conforms to these goals, policies, and objectives with the implementation of the proposed Specific Plan and General Plan amendments. In Table 102 WLCSP refers to the World Logistics Center Specific Plan while WLC is the World Logistics Center business entity for the project's development that ensures implementation of mitigations.

**Table 102: Conformity to General Plan (as Amended)**

| Goals, Policies, and Objectives<br>Goal, Policy, or Objective as Stated in the General Plan | | Consistent? | Explanation |
|---|---|---|---|
| **9.5 Circulation Element Goals, Objectives. Policies and Programs** | | | |
| **9.5.1 Circulation Element Goals** | | | |
| Goal 5.1 | Develop a safe, efficient, environmentally and financially sound, integrated vehicular circulation system consistent with the City General Plan Circulation Element Map, Figure 9-1, which provides access to development and supports mobility requirements of the system's users. | Yes | The WLC Specific Plan (WLCSP) meets the intent of the General Plan Circulation Element Map based on land use and design criteria. The WLCSP provides planned cross sections that satisfy minimum City requirements and serve the unique needs of logistics development. |
| Goal 5.2 | Maintain safe and adequate pedestrian, bicycle, and public transportation systems to provide alternatives to single occupant vehicular travel and to support planned land uses. | Yes | The WLCSP supports this goal of the General Plan Circulation Element based on land use and design criteria. All on-site roads would include design features to facilitate the use of alternative transportation modes including but not limited to bus, bicycle, pedestrian, etc. |
| **9.5.2 Circulation Element Objectives and Policies** | | | |
| ***Objective 5.1*** | ***Create a safe, efficient and neighborhood- friendly street system.*** | Yes | The WLCSP supports this objective in that the specific plan is designed to reduce vehicle and pedestrian conflicts near residential neighborhoods by prohibiting truck access to nearby residential areas. |
| Policy 5.1.1 | Plan access and circulation of each development project to accommodate vehicles (including emergency vehicles and trash trucks), pedestrians, and bicycles. | Yes | The planned street network features multiple routes to most buildings and would have two major east-west connectors called for in the General Plan. This would facilitate the passage of emergency and service vehicles. On-site roads would be provided with sidewalks and bicycle lanes. All of the WLC logistics buildings would be provided with bicycle racks. |
| Policy 5.1.2 | Plan the circulation system to reduce conflicts between vehicular, pedestrian and bicycle traffic. | Yes | The project features modern roundabouts at key locations, which are proven to be effective in reducing the frequency and severity of traffic accidents.<br>Pedestrian ways are not curb-adjacent, and streets are designed to accommodate bikeways. |
| Policy 5.1.3 | Require adequate off-street parking for all developments. | Yes | Off-street parking would be provided for all WLC buildings in accordance with City of Moreno Valley standards. |

| | | | |
|---|---|---|---|
| Policy 5.1.4 | Driveway placement shall be designed for safety and to enhance circulation wherever possible. | Yes | Driveway design and placement would not be less than City code or engineering standards. Specific proposals will be reviewed with the plot plans. |
| Policy 5.1.5 | Incorporate American Disability Act (ADA) and Title 24 requirements in roadway improvements as appropriate. | Yes | ADA compliant paths of travel would be required with all building permits. |
| Policy 5.1.6 | Design new developments to provide opportunity for access and circulation to future adjacent developments. | Yes | The WLCSP is bounded by SR-60 to the north, Gilman Springs Rd. to the east, and permanent open space to the south. There is a small amount of developable land west of the project that would benefit from the construction of Cactus Ave. Extension. |
| ***Objective 5.2*** | ***Implement access management policies.*** | Yes | The WLCSP supports this objective by prohibiting truck movements on Cactus Ave. Extension. All developments subject to plot plans including detailed access management conditions. |
| Policy 5.2.1 | Locate residential units with access from local streets. Minimize direct residential access from collectors. Prohibit direct single-family driveway access on arterials and higher classification roadways. | NA | The project has no residential component. Existing non-conforming uses would continue to have driveway access as long as the use continues. |
| Policy 5.2.2 | Feed short local streets into collectors. | NA | The project has no local streets. All on-site streets are classified as arterials or collectors and meet City standards. |
| Policy 5.2.3 | Encourage the incorporation of traffic calming design into local and collector streets to promote safe vehicle speeds. | Yes | The project has no residential component that would need traffic calming. There are three roundabouts to ensure that vehicle movement is fluid and to reduce pedestrian and vehicle conflicts. |
| Policy 5.2.4 | Design new subdivisions to minimize the disruptive impact of motor vehicles on local streets. Long, broad and linear streets should be avoided. Residential streets should be no wider than 40 feet, and should have an uninterrupted length of less than one half mile. Curvilinear streets and cul-de-sacs are preferred. Streets within the subdivision should be designed to facilitate access to residences and to discourage through traffic. | NA | The project has no residential component and so design features intended to enhance the quality of life for residents of the street are not applicable to the WLCSP. |

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| ***Objective 5.3*** | ***Maintain Level of Service (LOS) "C" on roadway links, wherever possible, and LOS "D" in the vicinity of SR 60 and high employment centers. Figure 9-2 depicts the LOS standards that are applicable to all segments of the General Plan Circulation Element Map.*** | Yes | All WLC streets would be designed to function at LOS D or better. |
| Policy 5.3.1 | Obtain right-of-way and construct roadways in accordance with the designations shown on the General Plan Circulation Element Map and the City street improvement standards. | Yes | The project would obtain right-of-way and construct roadways in accordance with the General Plan Circulation Element Map as revised. |
| Policy 5.3.2 | Wherever feasible, promote the development of roadways in accordance with the City standard roadway cross-sections, as shown in Figure 9-3. Cross-sections range from two-lane undivided roadways to 8-lane divided facilities. | Yes | The project would develop roadways in accordance with City standard cross-sections. |
| Policy 5.3.3 | Create new roadway classifications to accommodate future traffic demand, including; Divided Major Arterial – Reduced Cross-Section, and Divided Arterial – 6-lane. These cross-sections are shown on Figure 9-3. | Yes | The project would develop roadways in accordance with City standard cross-sections. |
| Policy 5.3.4 | For planning purposes, utilize LOS standards shown on Table 5 –1 to determine recommended roadway widths. | Yes | The City LOS standards were used to develop the General Plan Amendment. |
| Policy 5.3.5 | Ensure that new development pays a fair share of costs to provide local and regional transportation improvements and to mitigate cumulative traffic impacts. For this purpose, require new developments to participate in Transportation Uniform Mitigation Fee Program (TUMF), the Development Impact Fee Program (DIF) and any other applicable transportation fee programs and benefit assessment districts. | Yes | The WLC would participate in the TUMF and DIF programs. |

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| Policy 5.3.6 | Where new developments would increase traffic flows beyond the LOS C (or LOS D, where applicable), require appropriate and feasible mitigation measures as a condition of approval. Such measures may include extra right-of-way and improvements to accommodate left-turn and right-turn lanes at intersections, or other improvements. | Yes | The project applicant would pay fair-share contributions towards improvements needed to mitigate the project's traffic impacts where applicable. |
| Policy 5.3.7 | Provide consideration to projects that have overriding regional or local benefits that would be desirable even though the LOS standards cannot be met. These projects would be required to analyze traffic impacts and mitigate such impacts to the extent that it is deemed feasible. | Yes | Moreno Valley's jobs/housing ratio is currently very imbalanced, with too few jobs for the number of employable residents. By creating a large number of jobs in a housing-rich area, The WLCSP would reduce the need for long-distance out-commuting. The WLC has the potential to support reverse commute conditions reducing westbound commute impacts on SR-60. Also, the project helps fill the expected deficit in warehousing capacity that SCAG has identified as a drag on the regional economy (see *Logistics & Distribution: An Answer to Regional Upward Social Mobility*, SCAG June 2004). |
| Policy 5.3.8 | Pursue arterial improvements that link and/or cross the State route 60 (SR-60) Freeway, including an additional over-crossing at Graham St. | Yes | The project would participate in the TUMF program which funds interchange improvements. |
| Policy 5.3.9 | Address additional widenings at arterials providing access to SR-60 at Day St., Frederick St./Pigeon Pass Rd. and Perris Blvd. | Yes | The project would fund its fair share of improvements to these roads through its contributions to DIF and TUMF. |
| ***Objective 5.4*** | ***Maximize efficiency of the regional circulation system through close coordination with state and regional agencies and implementation of regional transportation policies.*** | Yes | WLC would pay all applicable DIF and TUMF fees and would participate in other multi-jurisdictional funding programs as established. |
| Policy 5.4.1 | Coordinate with Caltrans and the Riverside County Transportation Commission (RCTC) to identify and protect ultimate rights-of-way, including those for freeways, regional arterial projects, transit, bikeways and interchange expansion. | Yes | Project-specific Plot Plans and subdivisions would provide for the ultimate rights of way or regional facilities. |

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| Policy 5.4.2 | Coordinate with Caltrans and RCTC regarding the integration of Intelligent Transportation Systems (ITS) consistent with the principles and recommendations of the Inland Empire Regional ITS Architecture Project. | NA | This policy concerns system-wide improvements that are not associated with individual development projects. |
| Policy 5.4.3 | Work with property owners, in cooperation with RCTC, to reserve rights-of-way for potential Community and Environmental Transportation Acceptability Process (CETAP) corridors through site design, dedication, and land acquisition, as appropriate. | NA | The project site is not on any of the four corridors being studied: Winchester to Temecula, Hemet to the Corona/Lake Elsinore area, west Moreno Valley to San Bernardino County, and Riverside County to Orange County. |
| Policy 5.4.4 | The City Council will commit to establishing ongoing relationships with all agencies that play a role in the development of the City's transportation system. Council members who are appointed to these agencies as City representatives shall seek out leadership roles to maximize their effectiveness on behalf of the City. Council will strive to maintain continuity in their appointments of representatives. | NA | This policy concerns relationships that are not associated with individual development projects. |
| Policy 5.4.5 | Work with RCTC, WRCOG, and the TUMF Central Zone Committee to facilitate the expeditious construction of TUMF Network projects, especially projects that directly benefit Moreno Valley. | Yes | The WLC would participate in the TUMF program. |
| Policy 5.4.6 | Cooperatively participate with SCAG, RCTC, and WRCOG in the planning for a transportation system that anticipates regional needs for the safe and efficient movement of goods and people. | NA | This policy is not directly related to the WLC project. |
| Policy 5.4.7 | Utilizing a combination of regional, state and federal funds, development impact fees, and other locally generated funds, provide needed improvements along SR 60 and the associated interchanges, including interchange and grade separation improvements. | Yes | With implementation of a cooperative program, the WLC would participate in a fair-share funding program for improvements to SR-60, if such a program is established among all contributing jurisdictions. |

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| Policy 5.4.8 | Reserve rights-of-way to accomplish future improvements as specified in the Caltrans District 8 Route Concept Fact Sheet for SR-60. Specifically, SR-60 shall be built to six general purpose lanes and two High Occupancy Vehicle (HOV) lanes through Moreno Valley. Additional auxiliary lanes may be required between interchanges. The need for auxiliary lanes will be determined from future studies. | Yes | The City would work with Caltrans to define and protect the ultimate right-of-way for SR-60 and its interchange at Theodore St. |
| Policy 5.4.9 | Lobby the State Legislature to keep triple trailer trucks off highways in developed areas of California. | NA | This policy is not directly related to the WLC project. |
| ***Objective 5.5*** | ***Maximize efficiency of the local circulation system by using appropriate policies and standards to design, locate and size roadways.*** | Yes | The WLCSP supports this objective by requiring right of way standards that accommodates automobile and truck traffic that the project requires. Street cross sections meet or exceed minimum City standards. |
| Policy 5.5.1 | Space Collectors between higher classification roadways within development areas at appropriate one-quarter mile intervals. | Yes | The WLCSP supports this policy. The spacing of roadways for collectors is at appropriate intervals to reflect the size and scale of the WLC buildings. |
| Policy 5.5.2 | Provide dedicated left-turn lanes at all major intersections on minor arterials and higher classification roadways. | Yes, Partially | The most critical intersections within the project site would use modern roundabout rather than conventional intersections. These conform to the intent of the policy which is to minimize conflicts between left-turning traffic and through traffic. Subsequent subdivision applications will provide dedicated left-turn lanes in public streets as required by the City. |
| Policy 5.5.3 | Prohibit points of access from conflicting with other existing or planned access points. Require points of access to roadways to be separated sufficiently to maintain capacity, efficiency, and safety of the traffic flow. | Yes | Plot plans and subdivisions would be reviewed to analyze all points of access on a project by project basis. The WLC features a relatively small number of very large buildings. There would therefore be fewer access points needed than for the same square footage of conventional low-rise commercial buildings. The driveways to WLC would be located away from intersections at distances not be less than required by City code or engineering standards. |

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| Policy 5.5.4 | Wherever possible, minimize the frequency of access points along streets by the consolidation of access points between adjacent properties on all circulation element streets, excluding collectors. | Yes | The WLC features a relatively small number of very large buildings. There would be fewer access points needed than for the same square footage of conventional low-rise business parks. Plot plans and subdivisions would be reviewed to analyze all points of access on a project by project basis. |
| Policy 5.5.5 | Design streets and intersections in accordance with the Moreno Valley Municipal Code. | Yes | Project streets and intersections would be built to comply with City standards. The cross-sections would be designed to accommodate the type of traffic associated with high-cube logistics. |
| Policy 5.5.6 | Consider the overall safety, efficiency and capacity of street designs as more important than the location of on-street parking. | Yes | On-street parking would be prohibited except at selected locations within the project subject to city approval. Safety, efficiency, and the capacity of the street would be key factors in selecting the location of on-street parking areas. |
| Policy 5.5.7 | For developments fronting both sides of a street, require that streets be constructed to full width. Where new developments front only one side of a street, require that streets be constructed to half width plus an additional 12-foot lane for opposing traffic, whenever possible. Additional width may be needed for medians or left and/or right turn lanes. | Yes | The applicant would comply with this policy. |
| Policy 5.5.8 | Whenever possible, require private and public land developments to provide on-site and off-site improvements necessary to mitigate any development-generated circulation impacts. A review of each proposed land development project shall be undertaken to identify project impacts to the circulation system. The City may require developers to provide traffic impact studies prepared by qualified professionals to identify the impacts of a development. | Yes | A traffic impact study has been conducted for the project. Improvements needed to mitigate project impacts have been identified. The project would pay TUMF and DIF fees that would cover its share of many improvements, and would pay its fair share towards the cost of implementing the remaining (non-TUMF or DIF) improvements. |
| Policy 5.5.9 | Design curves and grades to permit safe movement of vehicular traffic per applicable Caltrans and Moreno Valley standards. | Yes | All WLC roadways would be designed to meet or exceed City standards. |

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| Policy 5.5.10 | Provide adequate sight distances for safe vehicular movement at all intersections and driveways. | Yes | Plot plans and subdivisions would be reviewed to ensure compliance with City standards. Driveways would provide sight distances per City code and engineering standards. |
| Policy 5.5.11 | Implement National Pollutant Discharge Elimination System (NPDES) Best Management Practices (BMPs) relating to construction of roadways to control runoff contamination from affecting water resources. | Yes | The WLCSP would design streets to comply with NPDES BMPs for street run-off. |
| ***Objective 5.6*** | ***Support development of a ground access system to March Inland Port in accordance with its development plan as a major cargo airport.*** | NA | The WLC is not related to the March Inland Cargo Port project. |
| Policy 5.6.1 | Ensure that City arterials that provide access to and from March Inland Port are properly designed to accommodate projected traffic volumes, including truck traffic. | NA | The WLC is not involved in the development of the March Inland Cargo Port. |
| Policy 5.6.2 | Ensure that traffic routes to March Inland Port are planned to minimize impacts to City residential communities. | NA | The WLC is not involved in the development of the March Inland Cargo Port. |
| ***Objective 5.7*** | ***Design roads to meet the needs of the residents of the community without detracting from the "rural" atmosphere in designated portions of Moreno Valley. (Designated "rural" areas include those encompassed by the Residential Agriculture 2, Residential 1, Rural Residential and Hillside Residential zoning districts. "Urban" areas encompass all other zoning districts.)*** | NA | The WLC project has no rural residential component. |
| Policy 5.7.1 | Pursue development of modified sidewalk standards for local and collector roads within low density areas to reflect the rural character of those areas. | NA | The WLC would not be a low density residential area. |

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| Policy 5.7.2 | Provide sidewalks on arterials in designated low density areas that provide access to schools and bus stops. | NA | There is no residential component in this project. |
| ***Objective 5.8*** | ***Encourage development of an efficient public transportation system for the entire community.*** | Yes | All WLC streets would accommodate bus traffic, bus turnouts, and shelters. |
| Policy 5.8.1 | Support the development of high-speed transit linkages, or express routes, that would benefit the citizens and employers of Moreno Valley. | Yes | All WLC streets would accommodate bus traffic, bus turnouts, and shelters. |
| Policy 5.8.2 | Support the efforts of the March Joint Powers Authority in its pursuit of a Transit Center | NA | This policy is not directly related to the WLC. |
| Policy 5.8.3 | Encourage public transportation opportunities that address the particular needs of transit dependent individuals in the City such as senior citizens, the disabled and low -income residents. | Yes | The WLC would be designed to accommodate transit. The City would work with Riverside Transit Agency to develop routes serving WLC when development on the site has reached transit-supportive levels. |
| Policy 5.8.4 | Ensure that all new developments make adequate provision for bus stops and turnout areas for both public transit and school bus service. | Yes | WLC would provide bus turn-outs and shelters at all active bus stops. |
| Policy 5.8.5 | Continue on-going coordination with transit authorities toward the expansion of transit facilities into newly developed areas. | Yes | The WLC would be designed to accommodate transit and would work with transit operators to establish routes once the WLC has reached a transit-supportive level of development. |

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| ***Objective 5.9*** | ***Support and encourage development of safe, efficient and aesthetic pedestrian facilities.*** | Yes | The WLCSP establishes right of way standards and street sections appropriate for an employment center. The Specific Plan requires pedestrian ways (sidewalks) along both sides of all streets in the WLC. Project provides multi-use trails throughout. |
| Policy 5.9.1 | Encourage walking as an alternative to single occupancy vehicle travel, and help ensure the safety of the pedestrian as follows: | Yes | The WLC encourages walking to work by providing jobs within walking distance of many homes in Moreno Valley. |
| | (a) All new developments shall provide sidewalks in conformance with the City's streets cross-section standards, and applicable policies for designated urban and rural areas. | Yes | All streets in the WLC would conform to GP cross-sections, as amended including the provision of sidewalks on all streets. |
| | (b) The City shall actively pursue funding for the infill of sidewalks in developed areas. The highest priority shall be to provide sidewalks on designated school routes. | NA | The WLC is not an infill area. |
| Policy 5.9.2 | Walkways shall be designed to minimize conflicts between vehicles and pedestrians. | Yes | All streets and sidewalks in the WLC would meet minimum city standards |
| Policy 5.9.3 | Where appropriate, provide amenities such as, but not limited to, enhanced paving, seating, and landscaping to enhance the pedestrian experience. | Yes | The WLC provides and supports pedestrian facilities along street right of ways as designed. California-friendly and drought-tolerant landscaping would be incorporated into the plan to create a pleasing environment. |
| Policy 5.9.4 | Require the provision of convenient and safe pedestrian access to buildings from the public sidewalk. | Yes | Pedestrian considerations are incorporated into the appropriate streetscapes and rely on individual building site planning efforts as established in the development standards and design guidelines. All plot plans would provide such access. |

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| ***Objective 5.10*** | ***Encourage bicycling as an alternative to single occupant vehicle travel for the purpose of reducing fuel consumption, traffic congestion, and air pollution. The Moreno Bikeway Plan is shown in Figure 9-4.*** | Yes | All WLC streets would provide class II bikeways. The WLCSP provides continued trail use on the west side of Redlands Blvd. towards Alessandro Blvd. The WLCSP establishes right of way standards conducive to the economic center and to support heavy truck use. Pedestrian considerations are incorporated into the appropriate streetscapes and rely on individual building site planning efforts as established in the development standards and design guidelines. |
| Policy 5.10.1 | Bikeways shall link residential neighborhood areas with parks, employment centers, civic and commercial areas, and schools. | Yes | All streets within the WLC will include class II bikeways. They will link to bikeways to the west to provide paths between residential areas outside WLC and employment centers within the WLC site. |
| Policy 5.10.2 | Integrate bikeways, consistent with the Bikeway Plan, with the circulation system and maintain Class II and III bikeways as part of the City's street system. | Yes | The WLCSP provides continued trail use on the west side of Redlands Blvd. towards Alessandro Blvd. Class II bikeways are provided on all streets in the WLC. |
| Policy 5.10.3 | Support bicycle safety programs, and active enforcement of laws relating to the safe operation of bicycles on City streets. | NA | This is a system-wide policy not associated with any specific development proposal. |
| Policy 5.10.4 | Link local bikeways with existing and planned regional bikeways. | Yes | All streets within the WLC will include class II bikeways. They would link to bikeways to the west to provide paths between residential areas outside WLC and employment centers in WLC. |
| ***Objective 5.11*** | ***Eliminate obstructions that impede safe movement of vehicles, bicyclists, and pedestrians.*** | Yes | The WLC would provide a comprehensively planned network of roads, bikeways, pedestrian ways and trails to facilitate, efficient, safe travel for vehicles, cyclists, and pedestrians. Roadways would be designed with 8-ft shoulders with no parking, allowing unobstructed Class II bikeways. |

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| Policy 5.11.1 | Landscaping adjacent to City streets, sidewalks and bikeways shall be designed, installed and maintained so as not to physically or visually impede public use of these facilities. | Yes | WLC landscape design standards would provide a safe environment for motorists, pedestrians, and cyclists that would not impede visibility or access to facilities. Landscape areas adjacent to streets would be maintained by a Property Owner Association |
| | (a) The removal or relocation of mature trees, street trees and landscaping may be necessary to construct safe pedestrian, bicycle and street facilities. | NA | Existing vegetation may be removed to provide adequate pedestrian, bicycle, and street facilities. |
| | (b) New landscaping, especially street trees shall be planted in such a manner to avoid overhang into streets, obstruction of traffic control devices or sight distances, or creation of other safety hazards. | Yes | The WLCSP would establish right of way standards and street design that allow for safe sight distances. |
| Policy 5.11.2 | Driveways shall be designed to avoid conflicts with pedestrian and bicycle travel. | Yes | Project-specific Plot Plans and subdivisions would be reviewed and approved by the City to ensure the safe design of streets, bikeways, and pedestrian ways. |
| ***Objective 5.12*** | ***Promote efficient circulation planning for all school sites that will maximize pedestrian safety, and minimize traffic congestion and neighborhood impacts.*** | NA | There are no schools in the WLC. |
| Policy 5.12.1 | Coordinate with school districts to identify suggested pedestrian routes within existing and new subdivisions for school children to walk to and from schools and/or bus stops. | NA | There are no schools in the WLC. |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix A

## Traffic Counts

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**SITE #03 AM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Theodore Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Theodore Street Southbound | | | | Alessandro Boulevard Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 6 | 0 | 0 | 18 | 0 | 1 | 0 | 0 | 3 | 10 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 1 | 4 | 0 | 0 | 27 | 0 | 1 | 0 | 0 | 6 | 19 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 3 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 10 | 26 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 4 | 0 | 0 | 21 | 0 | 2 | 0 | 0 | 7 | 14 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 3 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 4 | 13 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 3 | 0 | 0 | 30 | 0 | 1 | 0 | 0 | 3 | 19 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 1 | 0 | 0 | 0 | 19 | 0 | 1 | 0 | 0 | 4 | 17 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 1 | 3 | 0 | 0 | 19 | 0 | 3 | 0 | 0 | 4 | 15 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Theodore Street Southbound | | | | Alessandro Boulevard Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Theodore Street Southbound | | | | Alessandro Boulevard Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Theodore Street Southbound | | | | Alessandro Boulevard Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #03 PM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Theodore Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Theodore Street Southbound | | | | Alessandro Boulevard Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 8 | 0 | 0 | 13 | 0 | 3 | 0 | 0 | 3 | 25 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 2 | 2 | 0 | 0 | 9 | 0 | 1 | 0 | 0 | 2 | 30 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 2 | 11 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 5 | 34 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 2 | 7 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 9 | 39 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 6 | 12 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 3 | 40 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 4 | 0 | 0 | 10 | 0 | 1 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 7 | 0 | 0 | 22 | 0 | 1 | 0 | 0 | 1 | 34 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 2 | 9 | 0 | 0 | 25 | 0 | 1 | 0 | 0 | 6 | 30 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Theodore Street Southbound | | | | Alessandro Boulevard Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Theodore Street Southbound | | | | Alessandro Boulevard Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Theodore Street Southbound | | | | Alessandro Boulevard Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #06 AM

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Gilman Springs Road
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Gilman Springs Road Southbound | | | | Westbound | | | | Gilman Springs Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 51 | 1 | 0 | 0 | 0 | 0 | 0 | 17 | 144 | 0 | 0 | 0 | 0 | 8 | 0 |
| 07:15 AM | 0 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 157 | 0 | 0 | 0 | 0 | 17 | 0 |
| 07:30 AM | 0 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 140 | 0 | 0 | 0 | 0 | 29 | 0 |
| 07:45 AM | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 122 | 0 | 0 | 0 | 0 | 13 | 0 |
| 08:00 AM | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 113 | 0 | 0 | 1 | 0 | 13 | 0 |
| 08:15 AM | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 95 | 0 | 0 | 3 | 0 | 18 | 0 |
| 08:30 AM | 0 | 45 | 2 | 0 | 0 | 0 | 0 | 0 | 20 | 111 | 0 | 0 | 0 | 0 | 15 | 0 |
| 08:45 AM | 0 | 40 | 3 | 0 | 0 | 0 | 0 | 0 | 18 | 97 | 0 | 0 | 0 | 0 | 12 | 0 |

| 2-Axle Trucks | Gilman Springs Road Southbound | | | | Westbound | | | | Gilman Springs Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Gilman Springs Road Southbound | | | | Westbound | | | | Gilman Springs Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Gilman Springs Road Southbound | | | | Westbound | | | | Gilman Springs Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 0 |
| 07:30 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |

**SITE #06 PM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Gilman Springs Road
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Gilman Springs Road Southbound | | | | Westbound | | | | Gilman Springs Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 123 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 78 | 0 | 0 | 1 | 0 | 23 | 0 |
| 04:15 PM | 0 | 143 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 71 | 0 | 0 | 1 | 0 | 26 | 0 |
| 04:30 PM | 0 | 121 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 74 | 0 | 0 | 0 | 0 | 33 | 0 |
| 04:45 PM | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 69 | 0 | 0 | 0 | 0 | 38 | 0 |
| 05:00 PM | 0 | 145 | 2 | 0 | 0 | 0 | 0 | 0 | 10 | 72 | 0 | 0 | 2 | 0 | 34 | 0 |
| 05:15 PM | 0 | 157 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 63 | 0 | 0 | 0 | 0 | 30 | 0 |
| 05:30 PM | 0 | 156 | 1 | 0 | 0 | 0 | 0 | 0 | 19 | 69 | 0 | 0 | 0 | 0 | 32 | 0 |
| 05:45 PM | 0 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 83 | 0 | 0 | 0 | 0 | 34 | 0 |

| 2-Axle Trucks | Gilman Springs Road Southbound | | | | Westbound | | | | Gilman Springs Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Gilman Springs Road Southbound | | | | Westbound | | | | Gilman Springs Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Gilman Springs Road Southbound | | | | Westbound | | | | Gilman Springs Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #10 AM**

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: Locust Avenue
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | Locust Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 107 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 162 | 0 | 0 | 15 | 0 | 7 | 0 |
| 07:15 AM | 0 | 100 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 170 | 0 | 0 | 6 | 0 | 2 | 0 |
| 07:30 AM | 0 | 116 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 143 | 0 | 0 | 3 | 0 | 3 | 0 |
| 07:45 AM | 0 | 70 | 7 | 0 | 0 | 0 | 0 | 0 | 5 | 106 | 0 | 0 | 3 | 0 | 5 | 0 |
| 08:00 AM | 0 | 99 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 123 | 0 | 0 | 6 | 0 | 2 | 0 |
| 08:15 AM | 0 | 88 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 102 | 1 | 0 | 5 | 0 | 4 | 0 |
| 08:30 AM | 0 | 80 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 93 | 0 | 0 | 5 | 0 | 3 | 0 |
| 08:45 AM | 0 | 71 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 68 | 0 | 0 | 3 | 0 | 0 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | Locust Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | Locust Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | Locust Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #10 PM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: Locust Avenue
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | Locust Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 128 | 3 | 0 | 0 | 0 | 0 | 0 | 6 | 117 | 0 | 0 | 3 | 0 | 6 | 0 |
| 04:15 PM | 0 | 161 | 4 | 0 | 2 | 0 | 0 | 0 | 6 | 140 | 0 | 0 | 0 | 0 | 3 | 0 |
| 04:30 PM | 0 | 147 | 6 | 0 | 1 | 1 | 0 | 0 | 6 | 138 | 3 | 0 | 3 | 0 | 2 | 0 |
| 04:45 PM | 0 | 213 | 4 | 0 | 0 | 0 | 0 | 0 | 6 | 162 | 0 | 0 | 2 | 0 | 3 | 0 |
| 05:00 PM | 1 | 124 | 8 | 0 | 0 | 2 | 1 | 0 | 6 | 122 | 0 | 0 | 5 | 0 | 3 | 0 |
| 05:15 PM | 7 | 199 | 5 | 0 | 0 | 0 | 1 | 0 | 5 | 121 | 0 | 0 | 0 | 0 | 3 | 0 |
| 05:30 PM | 0 | 187 | 3 | 0 | 0 | 1 | 0 | 0 | 2 | 114 | 0 | 0 | 3 | 0 | 3 | 0 |
| 05:45 PM | 0 | 156 | 7 | 0 | 1 | 0 | 0 | 0 | 3 | 91 | 0 | 0 | 4 | 0 | 1 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | Locust Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 2 | 0 |
| 04:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 04:45 PM | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | Locust Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | Locust Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #11 AM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: Ironw ood Avenue
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | Ironwood Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 73 | 13 | 0 | 1 | 1 | 0 | 0 | 6 | 144 | 1 | 0 | 16 | 1 | 4 | 0 |
| 07:15 AM | 0 | 111 | 27 | 0 | 0 | 4 | 0 | 0 | 12 | 147 | 1 | 0 | 27 | 1 | 9 | 0 |
| 07:30 AM | 0 | 86 | 23 | 0 | 0 | 1 | 0 | 0 | 22 | 121 | 0 | 0 | 22 | 5 | 11 | 0 |
| 07:45 AM | 1 | 81 | 15 | 0 | 0 | 1 | 1 | 0 | 3 | 106 | 0 | 0 | 25 | 2 | 6 | 0 |
| 08:00 AM | 0 | 86 | 11 | 0 | 0 | 1 | 1 | 0 | 1 | 81 | 1 | 0 | 20 | 3 | 3 | 0 |
| 08:15 AM | 0 | 76 | 12 | 0 | 0 | 2 | 1 | 0 | 1 | 91 | 3 | 0 | 14 | 1 | 8 | 0 |
| 08:30 AM | 0 | 136 | 21 | 0 | 1 | 4 | 3 | 0 | 5 | 75 | 5 | 0 | 10 | 4 | 1 | 0 |
| 08:45 AM | 2 | 102 | 19 | 0 | 2 | 3 | 1 | 0 | 1 | 62 | 0 | 0 | 14 | 5 | 5 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | Ironwood Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | Ironwood Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | Ironwood Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #11 PM

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: Ironw ood Avenue
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | Ironwood Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 107 | 20 | 0 | 2 | 1 | 1 | 0 | 1 | 100 | 0 | 0 | 13 | 1 | 6 | 0 |
| 04:15 PM | 0 | 122 | 33 | 0 | 1 | 2 | 1 | 0 | 5 | 109 | 0 | 0 | 20 | 2 | 2 | 0 |
| 04:30 PM | 0 | 117 | 28 | 0 | 2 | 1 | 2 | 0 | 1 | 115 | 1 | 0 | 21 | 0 | 8 | 0 |
| 04:45 PM | 0 | 140 | 36 | 0 | 1 | 3 | 0 | 0 | 2 | 143 | 0 | 0 | 21 | 1 | 3 | 0 |
| 05:00 PM | 0 | 139 | 32 | 0 | 0 | 0 | 0 | 0 | 5 | 127 | 2 | 0 | 16 | 3 | 8 | 0 |
| 05:15 PM | 0 | 159 | 39 | 0 | 3 | 1 | 0 | 0 | 6 | 127 | 3 | 0 | 15 | 1 | 5 | 0 |
| 05:30 PM | 1 | 137 | 31 | 0 | 1 | 1 | 0 | 0 | 1 | 106 | 2 | 0 | 23 | 1 | 6 | 0 |
| 05:45 PM | 0 | 128 | 22 | 0 | 2 | 3 | 0 | 0 | 5 | 90 | 3 | 0 | 19 | 3 | 6 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | Ironwood Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | Ironwood Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | Ironwood Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #12 AM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Theodore Street
Comment 3: E/W: Ironw ood Avenue
Comment 4: Weather: Sunny

| Cars | NEW APPROACH Southbound | | | | Badlands Disposal Access Westbound | | | | Theodore Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 0 | 1 | 5 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 3 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 4 | 0 | 0 | 1 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 2 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 3 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 2 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 2-Axle Trucks | NEW APPROACH Southbound | | | | Badlands Disposal Access Westbound | | | | Theodore Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 2 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

| 3-Axle Trucks | NEW APPROACH Southbound | | | | Badlands Disposal Access Westbound | | | | Theodore Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | NEW APPROACH Southbound | | | | Badlands Disposal Access Westbound | | | | Theodore Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

**SITE #12 PM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Theodore Street
Comment 3: E/W: Ironw ood Avenue
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Badlands Disposal Access Westbound | | | | Theodore Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 1 | 7 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |

| 2-Axle Trucks | Southbound | | | | Badlands Disposal Access Westbound | | | | Theodore Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Southbound | | | | Badlands Disposal Access Westbound | | | | Theodore Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Badlands Disposal Access Westbound | | | | Theodore Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #13 AM

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: SR-60 Westbound Ramps
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Redlands Boulevard Northbound | | | | Spruce Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 53 | 26 | 0 | 0 | 1 | 0 | 12 | 0 | 0 | 121 | 28 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 63 | 62 | 0 | 0 | 0 | 0 | 16 | 0 | 2 | 135 | 34 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 46 | 49 | 1 | 0 | 0 | 0 | 12 | 0 | 2 | 130 | 25 | 0 | 0 | 1 | 1 | 0 |
| 07:45 AM | 49 | 34 | 0 | 0 | 0 | 0 | 6 | 0 | 2 | 100 | 20 | 0 | 0 | 1 | 1 | 0 |
| 08:00 AM | 54 | 32 | 0 | 0 | 1 | 0 | 6 | 0 | 3 | 72 | 24 | 0 | 0 | 2 | 0 | 0 |
| 08:15 AM | 50 | 37 | 2 | 0 | 0 | 0 | 6 | 0 | 1 | 84 | 25 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 79 | 38 | 0 | 0 | 2 | 0 | 5 | 0 | 0 | 78 | 28 | 0 | 1 | 1 | 0 | 0 |
| 08:45 AM | 89 | 30 | 0 | 0 | 3 | 0 | 3 | 0 | 2 | 60 | 24 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Redlands Boulevard Northbound | | | | Spruce Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 08:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Redlands Boulevard Northbound | | | | Spruce Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Redlands Boulevard Northbound | | | | Spruce Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #13 PM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: SR-60 Westbound Ramps
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Redlands Boulevard Northbound | | | | Spruce Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 52 | 48 | 1 | 0 | 4 | 0 | 6 | 0 | 5 | 90 | 14 | 0 | 0 | 4 | 2 | 0 |
| 04:15 PM | 62 | 62 | 0 | 0 | 6 | 0 | 2 | 0 | 2 | 112 | 16 | 0 | 1 | 0 | 5 | 0 |
| 04:30 PM | 51 | 69 | 3 | 0 | 7 | 0 | 5 | 0 | 2 | 118 | 16 | 0 | 1 | 2 | 1 | 0 |
| 04:45 PM | 62 | 73 | 0 | 1 | 2 | 0 | 6 | 0 | 0 | 123 | 26 | 0 | 1 | 0 | 2 | 0 |
| 05:00 PM | 59 | 89 | 0 | 0 | 0 | 0 | 7 | 0 | 1 | 127 | 23 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 70 | 99 | 0 | 0 | 7 | 1 | 3 | 0 | 1 | 138 | 26 | 0 | 1 | 1 | 4 | 0 |
| 05:30 PM | 67 | 83 | 1 | 0 | 5 | 0 | 5 | 0 | 0 | 102 | 20 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 69 | 65 | 0 | 0 | 6 | 0 | 6 | 0 | 2 | 87 | 17 | 0 | 0 | 1 | 0 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Redlands Boulevard Northbound | | | | Spruce Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Redlands Boulevard Northbound | | | | Spruce Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Redlands Boulevard Northbound | | | | Spruce Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #14 AM

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: SR-60 Eastbound Ramps
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | Westbound | | | | Redlands Boulevard Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 33 | 5 | 0 | 0 | 0 | 0 | 0 | 12 | 132 | 0 | 0 | 32 | 0 | 3 | 0 |
| 07:15 AM | 0 | 55 | 6 | 0 | 0 | 0 | 0 | 0 | 15 | 115 | 0 | 0 | 58 | 0 | 6 | 0 |
| 07:30 AM | 0 | 47 | 5 | 0 | 0 | 0 | 0 | 0 | 14 | 116 | 0 | 0 | 36 | 0 | 8 | 0 |
| 07:45 AM | 0 | 31 | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 70 | 0 | 0 | 47 | 0 | 9 | 0 |
| 08:00 AM | 0 | 29 | 3 | 0 | 0 | 0 | 0 | 0 | 9 | 52 | 0 | 0 | 48 | 0 | 7 | 0 |
| 08:15 AM | 0 | 36 | 4 | 0 | 0 | 0 | 0 | 0 | 14 | 60 | 0 | 0 | 53 | 0 | 12 | 0 |
| 08:30 AM | 0 | 31 | 6 | 0 | 0 | 0 | 0 | 0 | 6 | 69 | 0 | 0 | 36 | 0 | 9 | 0 |
| 08:45 AM | 0 | 30 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 40 | 0 | 0 | 38 | 0 | 8 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | Westbound | | | | Redlands Boulevard Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | Westbound | | | | Redlands Boulevard Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | Westbound | | | | Redlands Boulevard Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 |

## SITE #14 PM

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: SR-60 Eastbound Ramps
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | Westbound | | | | Redlands Boulevard Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 59 | 3 | 0 | 0 | 0 | 0 | 0 | 8 | 46 | 0 | 0 | 80 | 1 | 22 | 0 |
| 04:15 PM | 0 | 54 | 9 | 0 | 0 | 0 | 0 | 0 | 7 | 50 | 0 | 0 | 89 | 0 | 21 | 0 |
| 04:30 PM | 0 | 75 | 7 | 0 | 0 | 0 | 0 | 0 | 10 | 50 | 0 | 0 | 77 | 4 | 23 | 1 |
| 04:45 PM | 0 | 61 | 16 | 0 | 0 | 0 | 0 | 0 | 8 | 74 | 0 | 0 | 73 | 0 | 23 | 0 |
| 05:00 PM | 0 | 77 | 11 | 0 | 0 | 0 | 0 | 0 | 7 | 64 | 0 | 0 | 80 | 0 | 28 | 0 |
| 05:15 PM | 0 | 105 | 9 | 0 | 0 | 0 | 0 | 0 | 7 | 86 | 0 | 0 | 78 | 0 | 33 | 6 |
| 05:30 PM | 0 | 88 | 4 | 0 | 0 | 0 | 0 | 0 | 7 | 48 | 0 | 0 | 69 | 0 | 39 | 1 |
| 05:45 PM | 2 | 66 | 8 | 0 | 0 | 0 | 1 | 0 | 4 | 50 | 0 | 0 | 54 | 1 | 31 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | Westbound | | | | Redlands Boulevard Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | Westbound | | | | Redlands Boulevard Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | Westbound | | | | Redlands Boulevard Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 2 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #15 AM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Theodore Street
Comment 3: E/W: SR-60 Westbound Ramps
Comment 4: Weather: Sunny

| Cars | Theodore Street Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 3 | 0 | 0 | 4 | 0 | 4 | 1 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 1 | 2 | 0 | 0 | 6 | 0 | 2 | 0 | 0 | 6 | 3 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 2 | 2 | 0 | 0 | 4 | 0 | 2 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 2 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 1 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 3 | 3 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Theodore Street Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Theodore Street Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Theodore Street Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #15 PM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Theodore Street
Comment 3: E/W: SR-60 Westbound Ramps
Comment 4: Weather: Sunny

| Cars | Theodore Street Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 4 | 4 | 0 | 0 | 2 | 0 | 4 | 0 | 0 | 2 | 28 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 6 | 19 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 3 | 0 | 0 | 8 | 0 | 1 | 0 | 0 | 3 | 48 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 4 | 3 | 0 | 0 | 4 | 0 | 3 | 0 | 0 | 4 | 15 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 2 | 6 | 0 | 0 | 5 | 0 | 2 | 0 | 0 | 5 | 17 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 3 | 0 | 0 | 8 | 0 | 2 | 0 | 0 | 1 | 12 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 5 | 4 | 0 | 0 | 7 | 0 | 2 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 4 | 0 | 0 | 7 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Theodore Street Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Theodore Street Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Theodore Street Southbound | | | | SR-60 Westbound Ramps Westbound | | | | Theodore Street Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |

**SITE #16 AM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Theodore Street
Comment 3: E/W: SR-60 Eastbound Ramps
Comment 4: Weather: Sunny

| Cars | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 6 | 0 |
| 07:15 AM | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 4 | 3 | 0 | 0 | 3 | 0 | 11 | 0 |
| 07:30 AM | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 8 | 0 | 0 | 4 | 0 | 12 | 0 |
| 07:45 AM | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 0 | 0 | 3 | 0 | 16 | 0 |
| 08:00 AM | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 2 | 2 | 0 | 24 | 0 |
| 08:15 AM | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 7 | 0 | 0 | 8 | 0 | 29 | 0 |
| 08:30 AM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 2 | 0 | 5 | 0 |
| 08:45 AM | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 7 | 0 | 0 | 1 | 0 | 7 | 0 |

| 2-Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 |

| 3-Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

**SITE #16 PM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Theodore Street
Comment 3: E/W: SR-60 Eastbound Ramps
Comment 4: Weather: Sunny

| Cars | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 24 | 0 | 0 | 1 | 0 | 3 | 0 |
| 04:15 PM | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 1 | 0 | 5 | 0 |
| 04:30 PM | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 45 | 0 | 0 | 1 | 0 | 4 | 0 |
| 04:45 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 18 | 0 | 0 | 1 | 0 | 6 | 0 |
| 05:00 PM | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 13 | 0 | 0 | 4 | 0 | 2 | 0 |
| 05:15 PM | 0 | 10 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 13 | 0 | 0 | 3 | 0 | 2 | 0 |
| 05:30 PM | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 2 | 0 |
| 05:45 PM | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 1 | 0 |

| 2-Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| 3-Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |

**SITE #19 AM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Theodore Street
Comment 3: E/W: Fir Avenue
Comment 4: Weather: Sunny

| Cars | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | Fir Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 5 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 7 | 12 | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 0 | 0 | 2 | 0 | 0 | 0 |
| 07:30 AM | 0 | 3 | 15 | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 0 | 0 | 4 | 0 | 0 | 0 |
| 07:45 AM | 0 | 2 | 14 | 0 | 0 | 0 | 0 | 0 | 3 | 8 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 AM | 0 | 2 | 27 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 3 | 0 | 0 | 0 |
| 08:15 AM | 0 | 3 | 28 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 4 | 0 | 1 | 0 |
| 08:30 AM | 0 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 3 | 7 | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 0 | 0 | 4 | 0 | 0 | 0 |

| 2-Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | Fir Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| 3-Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | Fir Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | Fir Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #19 PM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Theodore Street
Comment 3: E/W: Fir Avenue
Comment 4: Weather: Sunny

| Cars | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | Fir Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 24 | 0 | 2 | 0 |
| 04:15 PM | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 15 | 0 | 4 | 0 |
| 04:30 PM | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 0 | 0 | 48 | 0 | 7 | 0 |
| 04:45 PM | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 0 | 22 | 0 | 2 | 0 |
| 05:00 PM | 0 | 14 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 13 | 0 | 1 | 0 |
| 05:15 PM | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 | 1 | 0 |
| 05:30 PM | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 9 | 0 | 1 | 0 |
| 05:45 PM | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |

| 2-Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | Fir Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | Fir Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Theodore Street Southbound | | | | Westbound | | | | Theodore Street Northbound | | | | Fir Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

**SITE #20 AM**

Start Date: 11/2/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Oliver Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Pearl Lane Southbound | | | | Alessandro Boulevard Westbound | | | | Oliver Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 3 | 94 | 0 | 0 | 18 | 0 | 2 | 0 | 0 | 28 | 8 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 97 | 0 | 0 | 19 | 0 | 2 | 0 | 0 | 35 | 6 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 2 | 102 | 0 | 0 | 29 | 0 | 6 | 0 | 1 | 31 | 6 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 4 | 124 | 0 | 0 | 36 | 0 | 10 | 0 | 0 | 45 | 12 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 4 | 97 | 0 | 0 | 33 | 0 | 4 | 0 | 0 | 45 | 11 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 66 | 0 | 0 | 32 | 0 | 4 | 0 | 0 | 49 | 13 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 58 | 0 | 0 | 19 | 0 | 4 | 0 | 0 | 31 | 6 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 3 | 62 | 0 | 0 | 35 | 0 | 6 | 0 | 0 | 28 | 4 | 0 |

| 2-Axle Trucks | Pearl Lane Southbound | | | | Alessandro Boulevard Westbound | | | | Oliver Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

| 3-Axle Trucks | Pearl Lane Southbound | | | | Alessandro Boulevard Westbound | | | | Oliver Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Pearl Lane Southbound | | | | Alessandro Boulevard Westbound | | | | Oliver Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #20 PM**

Start Date: 11/2/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Oliver Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Pearl Lane Southbound | | | | Alessandro Boulevard Westbound | | | | Oliver Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 2 | 52 | 1 | 0 | 17 | 0 | 6 | 0 | 0 | 58 | 17 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 64 | 0 | 0 | 9 | 0 | 3 | 0 | 0 | 64 | 8 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 3 | 43 | 0 | 0 | 15 | 0 | 2 | 0 | 0 | 93 | 7 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 4 | 56 | 0 | 0 | 16 | 0 | 4 | 0 | 0 | 79 | 13 | 1 |
| 05:00 PM | 0 | 0 | 0 | 0 | 5 | 41 | 0 | 0 | 18 | 0 | 4 | 0 | 0 | 60 | 10 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 5 | 47 | 0 | 0 | 13 | 0 | 4 | 0 | 0 | 60 | 9 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 5 | 56 | 0 | 0 | 12 | 0 | 2 | 0 | 0 | 75 | 13 | 0 |
| 05:45 PM | 1 | 0 | 0 | 0 | 8 | 41 | 0 | 0 | 19 | 0 | 2 | 0 | 0 | 62 | 5 | 1 |

| 2-Axle Trucks | Pearl Lane Southbound | | | | Alessandro Boulevard Westbound | | | | Oliver Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

| 3-Axle Trucks | Pearl Lane Southbound | | | | Alessandro Boulevard Westbound | | | | Oliver Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Pearl Lane Southbound | | | | Alessandro Boulevard Westbound | | | | Oliver Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #21 AM

Start Date: 11/1/2011
Comment 1: City of Moreno Beach
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Moreno Beach Drive Southbound | | | | Alessandro Boulevard Westbound | | | | Moreno Beach Drive Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 74 | 28 | 0 | 3 | 26 | 2 | 0 | 8 | 142 | 4 | 0 | 9 | 9 | 3 | 0 |
| 07:15 AM | 0 | 74 | 31 | 0 | 4 | 27 | 3 | 0 | 7 | 137 | 3 | 0 | 10 | 16 | 3 | 0 |
| 07:30 AM | 1 | 84 | 51 | 0 | 11 | 57 | 4 | 0 | 16 | 153 | 4 | 0 | 12 | 19 | 8 | 0 |
| 07:45 AM | 1 | 116 | 61 | 0 | 3 | 36 | 4 | 0 | 25 | 150 | 5 | 0 | 22 | 19 | 14 | 0 |
| 08:00 AM | 3 | 85 | 40 | 0 | 4 | 39 | 0 | 0 | 24 | 134 | 11 | 0 | 15 | 16 | 13 | 0 |
| 08:15 AM | 3 | 87 | 32 | 0 | 6 | 31 | 2 | 0 | 12 | 105 | 6 | 0 | 9 | 19 | 11 | 0 |
| 08:30 AM | 6 | 85 | 26 | 0 | 2 | 32 | 5 | 0 | 3 | 88 | 4 | 0 | 16 | 17 | 2 | 0 |
| 08:45 AM | 4 | 84 | 23 | 0 | 7 | 27 | 3 | 0 | 5 | 109 | 8 | 0 | 8 | 17 | 5 | 0 |

| 2-Axle Trucks | Moreno Beach Drive Southbound | | | | Alessandro Boulevard Westbound | | | | Moreno Beach Drive Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 1 | 0 |
| 08:00 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 3 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |

| 3-Axle Trucks | Moreno Beach Drive Southbound | | | | Alessandro Boulevard Westbound | | | | Moreno Beach Drive Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Moreno Beach Drive Southbound | | | | Alessandro Boulevard Westbound | | | | Moreno Beach Drive Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #21 PM

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Moreno Beach Drive Southbound | | | | Alessandro Boulevard Westbound | | | | Moreno Beach Drive Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 5 | 166 | 19 | 0 | 8 | 21 | 5 | 0 | 16 | 130 | 6 | 0 | 15 | 29 | 14 | 0 |
| 04:15 PM | 1 | 163 | 21 | 0 | 9 | 16 | 4 | 0 | 13 | 117 | 6 | 0 | 16 | 41 | 14 | 0 |
| 04:30 PM | 5 | 168 | 21 | 0 | 7 | 16 | 2 | 0 | 9 | 118 | 8 | 0 | 21 | 38 | 11 | 0 |
| 04:45 PM | 3 | 157 | 20 | 0 | 8 | 16 | 4 | 0 | 11 | 123 | 15 | 0 | 25 | 40 | 15 | 0 |
| 05:00 PM | 6 | 174 | 18 | 0 | 8 | 19 | 0 | 0 | 16 | 115 | 9 | 0 | 24 | 43 | 22 | 0 |
| 05:15 PM | 5 | 161 | 29 | 0 | 10 | 27 | 4 | 0 | 15 | 131 | 9 | 0 | 21 | 33 | 10 | 0 |
| 05:30 PM | 2 | 188 | 16 | 0 | 12 | 29 | 3 | 0 | 9 | 144 | 12 | 0 | 20 | 41 | 18 | 0 |
| 05:45 PM | 4 | 177 | 19 | 0 | 5 | 29 | 4 | 0 | 10 | 104 | 7 | 0 | 24 | 30 | 17 | 0 |

| 2-Axle Trucks | Moreno Beach Drive Southbound | | | | Alessandro Boulevard Westbound | | | | Moreno Beach Drive Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 2 | 0 |
| 04:15 PM | 1 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Moreno Beach Drive Southbound | | | | Alessandro Boulevard Westbound | | | | Moreno Beach Drive Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Moreno Beach Drive Southbound | | | | Alessandro Boulevard Westbound | | | | Moreno Beach Drive Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #23 AM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Redlands Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 5 | 21 | 9 | 0 | 7 | 19 | 3 | 0 | 2 | 91 | 15 | 0 | 11 | 11 | 1 | 0 |
| 07:15 AM | 3 | 48 | 15 | 0 | 8 | 30 | 2 | 0 | 2 | 93 | 20 | 0 | 13 | 12 | 6 | 0 |
| 07:30 AM | 1 | 82 | 18 | 0 | 9 | 15 | 4 | 0 | 5 | 104 | 12 | 0 | 16 | 6 | 6 | 0 |
| 07:45 AM | 0 | 26 | 14 | 0 | 3 | 17 | 2 | 0 | 9 | 72 | 6 | 0 | 9 | 11 | 5 | 0 |
| 08:00 AM | 3 | 27 | 7 | 0 | 6 | 26 | 4 | 0 | 2 | 45 | 5 | 0 | 12 | 15 | 1 | 0 |
| 08:15 AM | 2 | 30 | 13 | 0 | 1 | 18 | 3 | 0 | 7 | 45 | 9 | 0 | 11 | 9 | 3 | 0 |
| 08:30 AM | 2 | 20 | 6 | 0 | 1 | 16 | 5 | 0 | 8 | 48 | 6 | 0 | 14 | 10 | 2 | 0 |
| 08:45 AM | 3 | 30 | 11 | 0 | 5 | 22 | 3 | 0 | 2 | 33 | 1 | 0 | 7 | 10 | 3 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Redlands Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Redlands Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Redlands Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

**SITE #23 PM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Redlands Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 5 | 46 | 17 | 0 | 7 | 15 | 1 | 0 | 1 | 27 | 5 | 0 | 14 | 21 | 12 | 0 |
| 04:15 PM | 6 | 43 | 14 | 0 | 2 | 5 | 1 | 0 | 3 | 32 | 5 | 0 | 16 | 22 | 5 | 0 |
| 04:30 PM | 5 | 63 | 12 | 0 | 8 | 10 | 5 | 0 | 1 | 48 | 14 | 0 | 21 | 18 | 3 | 0 |
| 04:45 PM | 2 | 61 | 12 | 0 | 14 | 10 | 4 | 0 | 3 | 38 | 10 | 0 | 17 | 33 | 4 | 0 |
| 05:00 PM | 5 | 77 | 14 | 0 | 4 | 10 | 1 | 0 | 3 | 50 | 9 | 0 | 23 | 20 | 5 | 0 |
| 05:15 PM | 5 | 87 | 26 | 0 | 8 | 12 | 3 | 0 | 0 | 41 | 3 | 0 | 21 | 13 | 5 | 0 |
| 05:30 PM | 6 | 75 | 9 | 0 | 10 | 18 | 3 | 0 | 2 | 35 | 6 | 0 | 13 | 22 | 4 | 0 |
| 05:45 PM | 2 | 78 | 10 | 0 | 11 | 16 | 2 | 0 | 3 | 24 | 8 | 0 | 11 | 23 | 2 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Redlands Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Redlands Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Redlands Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #24 AM

Start Date: 11/2/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Oliver Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Oliver Street Southbound | | | | Cactus Avenue Westbound | | | | Oliver Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 4 | 5 | 1 | 0 | 4 | 54 | 2 | 0 | 21 | 12 | 3 | 0 | 1 | 40 | 9 | 0 |
| 07:15 AM | 1 | 4 | 1 | 0 | 9 | 49 | 2 | 0 | 30 | 14 | 7 | 0 | 1 | 47 | 10 | 0 |
| 07:30 AM | 0 | 9 | 0 | 0 | 6 | 78 | 5 | 0 | 54 | 26 | 9 | 0 | 0 | 51 | 33 | 0 |
| 07:45 AM | 1 | 13 | 1 | 0 | 15 | 73 | 6 | 0 | 71 | 35 | 12 | 0 | 4 | 69 | 64 | 0 |
| 08:00 AM | 0 | 11 | 0 | 0 | 6 | 53 | 1 | 0 | 48 | 33 | 11 | 0 | 0 | 51 | 73 | 0 |
| 08:15 AM | 3 | 8 | 0 | 0 | 8 | 42 | 3 | 0 | 38 | 24 | 4 | 0 | 1 | 29 | 31 | 0 |
| 08:30 AM | 0 | 4 | 0 | 0 | 7 | 39 | 0 | 0 | 56 | 24 | 15 | 0 | 0 | 29 | 80 | 0 |
| 08:45 AM | 0 | 7 | 2 | 0 | 9 | 32 | 3 | 0 | 61 | 35 | 19 | 0 | 0 | 17 | 37 | 0 |

| 2-Axle Trucks | Oliver Street Southbound | | | | Cactus Avenue Westbound | | | | Oliver Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 0 | 2 | 2 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 1 | 2 | 0 |

| 3-Axle Trucks | Oliver Street Southbound | | | | Cactus Avenue Westbound | | | | Oliver Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Oliver Street Southbound | | | | Cactus Avenue Westbound | | | | Oliver Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #24 PM

Start Date: 11/2/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Oliver Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Oliver Street Southbound | | | | Cactus Avenue Westbound | | | | Oliver Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 4 | 7 | 0 | 0 | 5 | 42 | 1 | 0 | 11 | 16 | 4 | 0 | 2 | 64 | 13 | 0 |
| 04:15 PM | 1 | 4 | 0 | 0 | 6 | 41 | 4 | 0 | 12 | 9 | 7 | 0 | 2 | 56 | 28 | 0 |
| 04:30 PM | 0 | 7 | 2 | 0 | 5 | 44 | 2 | 0 | 15 | 10 | 2 | 0 | 0 | 67 | 32 | 0 |
| 04:45 PM | 1 | 10 | 2 | 0 | 10 | 46 | 2 | 0 | 15 | 15 | 12 | 0 | 2 | 52 | 31 | 0 |
| 05:00 PM | 1 | 8 | 4 | 0 | 13 | 50 | 2 | 0 | 10 | 15 | 10 | 0 | 0 | 49 | 31 | 0 |
| 05:15 PM | 0 | 7 | 1 | 0 | 16 | 49 | 1 | 0 | 17 | 12 | 7 | 0 | 0 | 74 | 37 | 0 |
| 05:30 PM | 2 | 13 | 2 | 0 | 14 | 57 | 1 | 0 | 24 | 14 | 5 | 0 | 1 | 66 | 45 | 0 |
| 05:45 PM | 1 | 7 | 3 | 0 | 7 | 57 | 2 | 0 | 40 | 18 | 7 | 0 | 0 | 38 | 39 | 0 |

| 2-Axle Trucks | Oliver Street Southbound | | | | Cactus Avenue Westbound | | | | Oliver Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Oliver Street Southbound | | | | Cactus Avenue Westbound | | | | Oliver Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Oliver Street Southbound | | | | Cactus Avenue Westbound | | | | Oliver Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #25 AM

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Moreno Beach Drive Southbound | | | | Cactus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 51 | 22 | 0 | 2 | 21 | 7 | 0 | 19 | 123 | 7 | 0 | 18 | 25 | 14 | 0 |
| 07:15 AM | 2 | 58 | 19 | 0 | 4 | 29 | 8 | 0 | 17 | 106 | 13 | 0 | 17 | 27 | 6 | 0 |
| 07:30 AM | 1 | 90 | 16 | 0 | 7 | 31 | 4 | 0 | 16 | 148 | 7 | 0 | 27 | 39 | 8 | 0 |
| 07:45 AM | 2 | 85 | 36 | 0 | 9 | 25 | 4 | 0 | 36 | 142 | 29 | 0 | 29 | 31 | 22 | 0 |
| 08:00 AM | 4 | 69 | 26 | 0 | 6 | 24 | 7 | 0 | 28 | 138 | 17 | 0 | 19 | 28 | 13 | 0 |
| 08:15 AM | 3 | 81 | 19 | 0 | 7 | 14 | 4 | 0 | 16 | 102 | 4 | 0 | 13 | 14 | 16 | 0 |
| 08:30 AM | 2 | 63 | 16 | 0 | 9 | 13 | 2 | 0 | 15 | 78 | 10 | 0 | 13 | 8 | 17 | 0 |
| 08:45 AM | 3 | 64 | 8 | 0 | 3 | 12 | 2 | 0 | 18 | 106 | 5 | 0 | 18 | 17 | 15 | 0 |

| 2-Axle Trucks | Moreno Beach Drive Southbound | | | | Cactus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 2 | 0 |
| 07:15 AM | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 07:45 AM | 1 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 1 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Moreno Beach Drive Southbound | | | | Cactus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Moreno Beach Drive Southbound | | | | Cactus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

**SITE #25 PM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Moreno Beach Drive Southbound | | | | Cactus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 6 | 133 | 23 | 0 | 1 | 22 | 1 | 0 | 17 | 94 | 1 | 0 | 26 | 22 | 29 | 0 |
| 04:15 PM | 6 | 120 | 30 | 0 | 3 | 15 | 3 | 0 | 13 | 96 | 4 | 0 | 16 | 17 | 22 | 0 |
| 04:30 PM | 4 | 115 | 26 | 0 | 0 | 18 | 3 | 0 | 17 | 105 | 5 | 0 | 26 | 28 | 25 | 0 |
| 04:45 PM | 5 | 127 | 34 | 0 | 4 | 28 | 3 | 0 | 22 | 93 | 5 | 0 | 21 | 38 | 15 | 0 |
| 05:00 PM | 8 | 125 | 33 | 0 | 4 | 20 | 5 | 0 | 26 | 101 | 7 | 0 | 14 | 35 | 27 | 0 |
| 05:15 PM | 7 | 128 | 22 | 0 | 7 | 23 | 2 | 0 | 21 | 99 | 4 | 0 | 29 | 29 | 37 | 0 |
| 05:30 PM | 4 | 165 | 26 | 0 | 4 | 27 | 6 | 0 | 19 | 100 | 4 | 0 | 29 | 25 | 38 | 0 |
| 05:45 PM | 9 | 132 | 15 | 0 | 3 | 17 | 3 | 0 | 16 | 87 | 7 | 0 | 18 | 26 | 37 | 0 |

| 2-Axle Trucks | Moreno Beach Drive Southbound | | | | Cactus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 2 | 0 |
| 04:45 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Moreno Beach Drive Southbound | | | | Cactus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Moreno Beach Drive Southbound | | | | Cactus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #27 AM

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 27 | 19 | 0 | 0 | 0 | 3 | 0 | 6 | 62 | 0 | 0 | 29 | 2 | 4 | 0 |
| 07:15 AM | 1 | 17 | 14 | 0 | 0 | 2 | 5 | 0 | 3 | 65 | 0 | 0 | 47 | 3 | 4 | 0 |
| 07:30 AM | 1 | 40 | 27 | 0 | 0 | 0 | 8 | 0 | 6 | 57 | 0 | 0 | 44 | 1 | 11 | 0 |
| 07:45 AM | 3 | 89 | 25 | 0 | 0 | 3 | 2 | 0 | 5 | 65 | 0 | 0 | 47 | 1 | 29 | 0 |
| 08:00 AM | 0 | 23 | 13 | 0 | 0 | 0 | 2 | 0 | 12 | 49 | 0 | 0 | 41 | 2 | 11 | 0 |
| 08:15 AM | 1 | 25 | 11 | 0 | 0 | 3 | 3 | 0 | 4 | 28 | 0 | 0 | 17 | 0 | 3 | 0 |
| 08:30 AM | 2 | 28 | 11 | 0 | 0 | 1 | 3 | 0 | 2 | 39 | 1 | 0 | 15 | 1 | 1 | 0 |
| 08:45 AM | 0 | 21 | 8 | 0 | 0 | 1 | 2 | 0 | 5 | 46 | 1 | 0 | 20 | 0 | 5 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #27 PM

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Redlands Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 39 | 13 | 0 | 1 | 1 | 0 | 0 | 1 | 26 | 1 | 0 | 21 | 1 | 1 | 0 |
| 04:15 PM | 5 | 43 | 16 | 0 | 0 | 0 | 1 | 0 | 3 | 27 | 0 | 0 | 22 | 2 | 5 | 0 |
| 04:30 PM | 3 | 49 | 15 | 0 | 2 | 2 | 2 | 0 | 2 | 36 | 1 | 0 | 23 | 1 | 5 | 0 |
| 04:45 PM | 2 | 48 | 14 | 0 | 0 | 1 | 2 | 0 | 1 | 35 | 1 | 0 | 26 | 1 | 4 | 0 |
| 05:00 PM | 1 | 49 | 15 | 0 | 1 | 1 | 1 | 0 | 1 | 39 | 0 | 0 | 25 | 1 | 3 | 0 |
| 05:15 PM | 2 | 53 | 18 | 0 | 0 | 0 | 1 | 0 | 1 | 28 | 1 | 0 | 24 | 2 | 4 | 0 |
| 05:30 PM | 1 | 73 | 24 | 0 | 0 | 1 | 0 | 0 | 3 | 29 | 0 | 0 | 12 | 2 | 6 | 0 |
| 05:45 PM | 5 | 65 | 27 | 0 | 0 | 1 | 2 | 0 | 0 | 28 | 0 | 0 | 16 | 4 | 2 | 0 |

| 2-Axle Trucks | Redlands Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Redlands Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Redlands Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Redlands Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #28 AM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: John F Kennedy Drive
Comment 4: Weather: Sunny

| Cars | Moreno Beach Drive Southbound | | | | John F Kennedy Drive Westbound | | | | Moreno Beach Drive Northbound | | | | John F Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 19 | 40 | 1 | 0 | 25 | 4 | 14 | 0 | 1 | 91 | 40 | 0 | 22 | 5 | 3 | 0 |
| 07:15 AM | 10 | 55 | 5 | 0 | 22 | 2 | 17 | 0 | 4 | 92 | 49 | 0 | 11 | 8 | 3 | 0 |
| 07:30 AM | 25 | 89 | 13 | 0 | 49 | 8 | 55 | 0 | 4 | 90 | 50 | 0 | 15 | 9 | 0 | 0 |
| 07:45 AM | 38 | 99 | 44 | 0 | 45 | 27 | 66 | 0 | 4 | 106 | 62 | 0 | 22 | 10 | 2 | 0 |
| 08:00 AM | 28 | 68 | 26 | 0 | 30 | 20 | 70 | 0 | 4 | 76 | 29 | 0 | 22 | 12 | 3 | 0 |
| 08:15 AM | 11 | 54 | 34 | 0 | 17 | 15 | 14 | 0 | 2 | 96 | 23 | 0 | 16 | 12 | 2 | 0 |
| 08:30 AM | 11 | 39 | 53 | 0 | 16 | 44 | 13 | 0 | 4 | 50 | 28 | 0 | 25 | 26 | 5 | 0 |
| 08:45 AM | 15 | 38 | 39 | 0 | 13 | 30 | 14 | 0 | 7 | 69 | 25 | 0 | 47 | 25 | 4 | 0 |

| 2-Axle Trucks | Moreno Beach Drive Southbound | | | | John F Kennedy Drive Westbound | | | | Moreno Beach Drive Northbound | | | | John F Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 3 | 0 | 1 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 1 | 0 |
| 07:15 AM | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 |
| 07:45 AM | 0 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 1 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |

| 3-Axle Trucks | Moreno Beach Drive Southbound | | | | John F Kennedy Drive Westbound | | | | Moreno Beach Drive Northbound | | | | John F Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Moreno Beach Drive Southbound | | | | John F Kennedy Drive Westbound | | | | Moreno Beach Drive Northbound | | | | John F Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #28 PM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: John F Kennedy Drive
Comment 4: Weather: Sunny

| Cars | Moreno Beach Drive Southbound | | | | John F Kennedy Drive Westbound | | | | Moreno Beach Drive Northbound | | | | John F Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 23 | 101 | 21 | 0 | 26 | 9 | 10 | 0 | 0 | 73 | 26 | 0 | 17 | 2 | 2 | 0 |
| 04:15 PM | 23 | 102 | 10 | 0 | 26 | 2 | 11 | 0 | 1 | 82 | 23 | 0 | 13 | 2 | 4 | 0 |
| 04:30 PM | 17 | 100 | 18 | 0 | 49 | 10 | 11 | 0 | 3 | 86 | 39 | 0 | 21 | 7 | 1 | 0 |
| 04:45 PM | 15 | 103 | 21 | 0 | 33 | 4 | 17 | 0 | 3 | 98 | 30 | 0 | 14 | 5 | 1 | 0 |
| 05:00 PM | 22 | 97 | 13 | 0 | 52 | 3 | 17 | 0 | 5 | 78 | 24 | 0 | 13 | 3 | 3 | 0 |
| 05:15 PM | 25 | 118 | 19 | 0 | 60 | 6 | 21 | 0 | 0 | 90 | 29 | 0 | 12 | 1 | 4 | 0 |
| 05:30 PM | 19 | 127 | 23 | 0 | 54 | 16 | 27 | 0 | 2 | 63 | 25 | 0 | 10 | 7 | 4 | 0 |
| 05:45 PM | 32 | 137 | 24 | 0 | 54 | 12 | 16 | 0 | 2 | 86 | 25 | 0 | 6 | 6 | 1 | 0 |

| 2-Axle Trucks | Moreno Beach Drive Southbound | | | | John F Kennedy Drive Westbound | | | | Moreno Beach Drive Northbound | | | | John F Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 4 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Moreno Beach Drive Southbound | | | | John F Kennedy Drive Westbound | | | | Moreno Beach Drive Northbound | | | | John F Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Moreno Beach Drive Southbound | | | | John F Kennedy Drive Westbound | | | | Moreno Beach Drive Northbound | | | | John F Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #29 AM

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Heacock Street
Comment 3: E/W: Ironw ood Avenue
Comment 4: Weather: Sunny

| Cars | Heacock Street Southbound | | | | Ironwood Avenue Westbound | | | | Heacock Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 3 | 113 | 35 | 0 | 30 | 51 | 3 | 0 | 12 | 71 | 17 | 0 | 27 | 28 | 14 | 0 |
| 07:15 AM | 5 | 123 | 45 | 0 | 34 | 107 | 8 | 1 | 10 | 95 | 12 | 0 | 12 | 25 | 17 | 0 |
| 07:30 AM | 5 | 144 | 50 | 0 | 24 | 100 | 7 | 0 | 21 | 92 | 18 | 0 | 16 | 47 | 28 | 0 |
| 07:45 AM | 12 | 135 | 64 | 0 | 22 | 85 | 6 | 0 | 16 | 91 | 21 | 0 | 20 | 53 | 17 | 0 |
| 08:00 AM | 13 | 127 | 53 | 0 | 40 | 82 | 10 | 0 | 16 | 87 | 28 | 1 | 23 | 33 | 30 | 0 |
| 08:15 AM | 2 | 132 | 33 | 0 | 30 | 69 | 3 | 0 | 21 | 79 | 17 | 0 | 26 | 33 | 21 | 0 |
| 08:30 AM | 8 | 129 | 26 | 0 | 29 | 69 | 5 | 0 | 13 | 74 | 15 | 0 | 12 | 33 | 29 | 1 |
| 08:45 AM | 4 | 107 | 37 | 0 | 41 | 53 | 11 | 0 | 18 | 87 | 17 | 0 | 17 | 35 | 27 | 0 |

| 2-Axle Trucks | Heacock Street Southbound | | | | Ironwood Avenue Westbound | | | | Heacock Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 3 | 0 | 1 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 0 | 5 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 2 | 0 | 0 |
| 07:45 AM | 0 | 1 | 1 | 0 | 3 | 2 | 1 | 0 | 1 | 3 | 2 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 3 | 3 | 0 | 1 | 4 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 2 | 1 | 0 |
| 08:30 AM | 0 | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 5 | 2 | 0 |
| 08:45 AM | 0 | 3 | 1 | 0 | 3 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |

| 3-Axle Trucks | Heacock Street Southbound | | | | Ironwood Avenue Westbound | | | | Heacock Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Heacock Street Southbound | | | | Ironwood Avenue Westbound | | | | Heacock Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 3 | 113 | 35 | 0 | 30 | 51 | 3 | 0 | 12 | 71 | 17 | 0 | 27 | 28 | 14 | 0 |
| 07:15 AM | 5 | 123 | 45 | 0 | 34 | 107 | 8 | 1 | 10 | 95 | 12 | 0 | 12 | 25 | 17 | 0 |
| 07:30 AM | 5 | 144 | 50 | 0 | 24 | 100 | 7 | 0 | 21 | 92 | 18 | 0 | 16 | 47 | 28 | 0 |
| 07:45 AM | 12 | 135 | 64 | 0 | 22 | 85 | 6 | 0 | 16 | 91 | 21 | 0 | 20 | 53 | 17 | 0 |
| 08:00 AM | 13 | 127 | 53 | 0 | 40 | 82 | 10 | 0 | 16 | 87 | 28 | 1 | 23 | 33 | 30 | 0 |
| 08:15 AM | 2 | 132 | 33 | 0 | 30 | 69 | 3 | 0 | 21 | 79 | 17 | 0 | 26 | 33 | 21 | 0 |
| 08:30 AM | 8 | 129 | 26 | 0 | 29 | 69 | 5 | 0 | 13 | 74 | 15 | 0 | 12 | 33 | 29 | 1 |
| 08:45 AM | 4 | 107 | 37 | 0 | 41 | 53 | 11 | 0 | 18 | 87 | 17 | 0 | 17 | 35 | 27 | 0 |

**SITE #29 PM**

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Heacock Street
Comment 3: E/W: Ironw ood Avenue
Comment 4: Weather: Sunny

| Cars | Heacock Street Southbound | | | | Ironwood Avenue Westbound | | | | Heacock Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 10 | 174 | 36 | 0 | 28 | 65 | 18 | 0 | 40 | 151 | 26 | 0 | 32 | 73 | 42 | 0 |
| 04:15 PM | 10 | 151 | 27 | 0 | 30 | 53 | 13 | 0 | 48 | 130 | 27 | 0 | 30 | 69 | 46 | 0 |
| 04:30 PM | 14 | 167 | 22 | 0 | 39 | 58 | 11 | 0 | 31 | 194 | 19 | 0 | 40 | 76 | 30 | 0 |
| 04:45 PM | 17 | 164 | 41 | 0 | 37 | 66 | 23 | 0 | 35 | 171 | 26 | 0 | 24 | 72 | 39 | 0 |
| 05:00 PM | 13 | 135 | 51 | 0 | 23 | 65 | 13 | 0 | 52 | 141 | 23 | 0 | 45 | 96 | 44 | 0 |
| 05:15 PM | 12 | 169 | 39 | 0 | 38 | 74 | 17 | 0 | 43 | 194 | 29 | 0 | 36 | 62 | 22 | 0 |
| 05:30 PM | 7 | 186 | 38 | 0 | 36 | 75 | 15 | 0 | 33 | 187 | 27 | 0 | 42 | 87 | 23 | 0 |
| 05:45 PM | 9 | 167 | 34 | 0 | 19 | 73 | 16 | 0 | 34 | 163 | 45 | 0 | 45 | 78 | 25 | 0 |

| 2-Axle Trucks | Heacock Street Southbound | | | | Ironwood Avenue Westbound | | | | Heacock Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 0 |
| 04:15 PM | 1 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 2 | 1 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 2 | 1 | 3 | 0 | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| 04:45 PM | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Heacock Street Southbound | | | | Ironwood Avenue Westbound | | | | Heacock Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Heacock Street Southbound | | | | Ironwood Avenue Westbound | | | | Heacock Street Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #30 AM**

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Heacock Street
Comment 3: E/W: SR-60 Westbound Ramps
Comment 4: Weather: Sunny

| Cars | Heacock Street Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 75 | 93 | 0 | 23 | 1 | 15 | 0 | 49 | 110 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 118 | 98 | 0 | 41 | 0 | 18 | 0 | 55 | 122 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 151 | 85 | 0 | 49 | 0 | 21 | 0 | 46 | 121 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 139 | 81 | 0 | 54 | 0 | 41 | 0 | 59 | 137 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 119 | 61 | 0 | 61 | 0 | 27 | 0 | 49 | 152 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 150 | 70 | 0 | 50 | 2 | 19 | 0 | 70 | 128 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 146 | 70 | 0 | 50 | 1 | 27 | 0 | 80 | 117 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 156 | 73 | 0 | 51 | 0 | 21 | 0 | 64 | 146 | 0 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Heacock Street Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Heacock Street Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Heacock Street Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #30 PM**

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Heacock Street
Comment 3: E/W: SR-60 Westbound Ramps
Comment 4: Weather: Sunny

| Cars | Heacock Street Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 193 | 61 | 0 | 38 | 0 | 34 | 0 | 99 | 222 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 183 | 76 | 0 | 47 | 1 | 31 | 0 | 70 | 256 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 175 | 87 | 0 | 31 | 0 | 19 | 0 | 99 | 286 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 156 | 80 | 3 | 38 | 0 | 39 | 0 | 83 | 292 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 177 | 84 | 1 | 37 | 4 | 35 | 0 | 119 | 246 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 127 | 98 | 0 | 31 | 0 | 30 | 0 | 97 | 270 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 144 | 91 | 6 | 54 | 1 | 32 | 0 | 127 | 302 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 170 | 76 | 1 | 51 | 2 | 26 | 0 | 79 | 306 | 0 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Heacock Street Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 6 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Heacock Street Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Heacock Street Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #31 AM

Start Date: 10/10/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Heacock Street
Comment 3: E/W: SR-60 Eastbound Ramps
Comment 4: Weather: Sunny

| Cars | Heacock Street Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 26 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 113 | 15 | 0 | 49 | 0 | 41 | 0 |
| 07:15 AM | 42 | 131 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 128 | 29 | 0 | 45 | 1 | 44 | 0 |
| 07:30 AM | 38 | 152 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 25 | 0 | 34 | 0 | 66 | 0 |
| 07:45 AM | 40 | 205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 114 | 27 | 0 | 72 | 0 | 85 | 0 |
| 08:00 AM | 30 | 166 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 118 | 22 | 0 | 64 | 0 | 85 | 0 |
| 08:15 AM | 38 | 165 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 128 | 14 | 0 | 64 | 0 | 84 | 0 |
| 08:30 AM | 24 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 134 | 31 | 0 | 47 | 0 | 59 | 0 |
| 08:45 AM | 15 | 146 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 161 | 17 | 0 | 51 | 0 | 87 | 0 |

| 2-Axle Trucks | Heacock Street Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 2 | 0 | 1 | 0 |
| 07:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 2 | 0 |
| 07:30 AM | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 |
| 07:45 AM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 |
| 08:00 AM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:15 AM | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:30 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 0 | 2 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 1 | 3 | 0 |

| 3-Axle Trucks | Heacock Street Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Heacock Street Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |

**SITE #31 PM**

Start Date: 10/10/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Heacock Street
Comment 3: E/W: SR-60 Eastbound Ramps
Comment 4: Weather: Sunny

| Cars | Heacock Street Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 26 | 184 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 209 | 40 | 0 | 145 | 1 | 116 | 0 |
| 04:15 PM | 33 | 160 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 205 | 47 | 0 | 133 | 1 | 117 | 0 |
| 04:30 PM | 39 | 172 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 205 | 48 | 0 | 143 | 0 | 88 | 0 |
| 04:45 PM | 31 | 196 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 216 | 59 | 0 | 112 | 1 | 94 | 0 |
| 05:00 PM | 35 | 141 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 247 | 50 | 0 | 109 | 0 | 105 | 0 |
| 05:15 PM | 31 | 186 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 198 | 52 | 0 | 141 | 1 | 86 | 0 |
| 05:30 PM | 22 | 174 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 212 | 40 | 0 | 105 | 0 | 78 | 0 |
| 05:45 PM | 33 | 178 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 190 | 50 | 0 | 129 | 0 | 93 | 0 |

| 2-Axle Trucks | Heacock Street Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 |
| 04:30 PM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 1 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 3 | 0 | 1 | 0 |
| 05:30 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |
| 05:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Heacock Street Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Heacock Street Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Heacock Street Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #32 AM

Start Date: 10/10/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Sunnymead Boulevard
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Sunnymead Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Sunnymead Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 33 | 59 | 5 | 0 | 1 | 7 | 128 | 0 | 10 | 187 | 16 | 0 | 49 | 29 | 60 | 0 |
| 07:15 AM | 47 | 103 | 11 | 0 | 3 | 12 | 129 | 0 | 19 | 195 | 12 | 0 | 55 | 43 | 74 | 0 |
| 07:30 AM | 57 | 162 | 11 | 0 | 4 | 14 | 132 | 0 | 16 | 185 | 19 | 0 | 66 | 55 | 85 | 0 |
| 07:45 AM | 64 | 137 | 27 | 0 | 4 | 20 | 105 | 0 | 19 | 185 | 21 | 0 | 75 | 37 | 60 | 0 |
| 08:00 AM | 40 | 113 | 19 | 0 | 2 | 11 | 99 | 0 | 24 | 206 | 12 | 0 | 57 | 35 | 71 | 0 |
| 08:15 AM | 41 | 93 | 26 | 0 | 4 | 10 | 83 | 0 | 25 | 167 | 16 | 0 | 40 | 44 | 69 | 0 |
| 08:30 AM | 58 | 112 | 14 | 0 | 5 | 8 | 66 | 0 | 26 | 147 | 10 | 0 | 72 | 43 | 74 | 0 |
| 08:45 AM | 37 | 90 | 47 | 0 | 4 | 13 | 67 | 0 | 21 | 115 | 14 | 0 | 52 | 34 | 73 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Sunnymead Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Sunnymead Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 0 | 2 | 1 | 2 | 0 |
| 07:15 AM | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 10 | 1 | 0 | 1 | 0 | 1 | 0 |
| 07:30 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 6 | 0 |
| 07:45 AM | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 3 | 0 | 3 | 0 |
| 08:00 AM | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 4 | 1 | 0 | 1 | 0 | 5 | 0 |
| 08:15 AM | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 0 | 1 | 1 | 3 | 0 |
| 08:30 AM | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 2 | 1 | 6 | 0 |
| 08:45 AM | 1 | 11 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 2 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Sunnymead Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Sunnymead Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 2 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 0 |
| 08:00 AM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Sunnymead Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Sunnymead Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 3 | 0 |
| 08:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:15 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 3 | 0 |
| 08:45 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 1 | 0 |

**SITE #32 PM**

Start Date: 10/10/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Sunnymead Boulevard
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Sunnymead Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Sunnymead Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 70 | 126 | 32 | 0 | 14 | 21 | 81 | 0 | 30 | 210 | 15 | 0 | 124 | 111 | 128 | 0 |
| 04:15 PM | 63 | 146 | 24 | 0 | 9 | 20 | 84 | 0 | 36 | 180 | 22 | 0 | 112 | 96 | 126 | 0 |
| 04:30 PM | 76 | 149 | 27 | 0 | 7 | 26 | 83 | 0 | 16 | 172 | 21 | 0 | 126 | 110 | 127 | 0 |
| 04:45 PM | 72 | 153 | 35 | 0 | 7 | 18 | 78 | 0 | 31 | 169 | 18 | 0 | 117 | 116 | 141 | 0 |
| 05:00 PM | 73 | 136 | 21 | 0 | 18 | 27 | 82 | 0 | 27 | 200 | 27 | 0 | 129 | 150 | 148 | 0 |
| 05:15 PM | 81 | 198 | 31 | 0 | 12 | 11 | 76 | 0 | 26 | 178 | 19 | 0 | 127 | 119 | 133 | 0 |
| 05:30 PM | 86 | 176 | 23 | 0 | 9 | 23 | 79 | 0 | 35 | 193 | 19 | 0 | 123 | 132 | 127 | 0 |
| 05:45 PM | 80 | 184 | 29 | 0 | 20 | 30 | 110 | 0 | 39 | 210 | 19 | 0 | 130 | 147 | 137 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Sunnymead Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Sunnymead Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 4 | 0 |
| 04:15 PM | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 0 |
| 04:30 PM | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 3 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 1 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Sunnymead Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Sunnymead Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Sunnymead Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Sunnymead Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 0 |

**SITE #33 AM**

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: SR-60 Westbound Ramps
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | SR-60 Westbound On Ramp Westbound | | | | Perris Boulevard Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 101 | 112 | 0 | 20 | 0 | 24 | 0 | 146 | 172 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 143 | 101 | 0 | 26 | 1 | 25 | 0 | 169 | 222 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 211 | 98 | 0 | 27 | 0 | 36 | 0 | 125 | 266 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 221 | 89 | 0 | 32 | 2 | 35 | 0 | 133 | 262 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 196 | 92 | 0 | 24 | 1 | 22 | 0 | 158 | 257 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 112 | 81 | 0 | 24 | 0 | 20 | 0 | 144 | 198 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 124 | 105 | 0 | 18 | 0 | 14 | 0 | 100 | 160 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 134 | 85 | 0 | 38 | 1 | 17 | 0 | 115 | 144 | 0 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | SR-60 Westbound On Ramp Westbound | | | | Perris Boulevard Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 3 | 2 | 0 | 4 | 0 | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 8 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 7 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | SR-60 Westbound On Ramp Westbound | | | | Perris Boulevard Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | SR-60 Westbound On Ramp Westbound | | | | Perris Boulevard Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #33 PM**

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: SR-60 Westbound Ramps
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Perris Boulevard Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 199 | 63 | 0 | 26 | 0 | 23 | 0 | 142 | 284 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 199 | 72 | 0 | 31 | 0 | 23 | 0 | 119 | 269 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 210 | 79 | 0 | 24 | 1 | 31 | 0 | 114 | 277 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 240 | 61 | 0 | 30 | 0 | 25 | 0 | 113 | 291 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 249 | 54 | 0 | 34 | 1 | 28 | 0 | 128 | 272 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 240 | 68 | 0 | 31 | 0 | 31 | 0 | 125 | 262 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 227 | 82 | 0 | 41 | 0 | 26 | 0 | 114 | 304 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 214 | 69 | 0 | 38 | 0 | 37 | 0 | 106 | 274 | 0 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Perris Boulevard Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 5 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Perris Boulevard Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Perris Boulevard Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #34 AM

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Eucalyptus Avenue
Comment 4: Weather: Clear

| Cars | Perris Boulevard Southbound | | | | Eucalyptus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Eucalyptus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 12 | 101 | 2 | 0 | 5 | 14 | 25 | 0 | 4 | 185 | 6 | 0 | 3 | 7 | 4 | 0 |
| 07:15 AM | 24 | 171 | 2 | 0 | 11 | 16 | 33 | 0 | 5 | 181 | 4 | 0 | 5 | 8 | 9 | 0 |
| 07:30 AM | 41 | 237 | 3 | 0 | 17 | 31 | 38 | 1 | 11 | 195 | 10 | 0 | 5 | 24 | 14 | 0 |
| 07:45 AM | 41 | 233 | 6 | 0 | 16 | 42 | 37 | 0 | 20 | 199 | 12 | 0 | 3 | 22 | 8 | 0 |
| 08:00 AM | 7 | 145 | 2 | 0 | 10 | 48 | 45 | 0 | 12 | 240 | 6 | 0 | 2 | 19 | 4 | 0 |
| 08:15 AM | 10 | 144 | 9 | 0 | 6 | 14 | 20 | 0 | 11 | 197 | 5 | 0 | 5 | 6 | 6 | 0 |
| 08:30 AM | 5 | 154 | 14 | 0 | 9 | 27 | 18 | 0 | 10 | 168 | 5 | 0 | 7 | 9 | 4 | 0 |
| 08:45 AM | 8 | 139 | 9 | 0 | 3 | 30 | 21 | 0 | 8 | 168 | 4 | 0 | 9 | 10 | 6 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Eucalyptus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Eucalyptus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 2 | 1 | 0 | 0 |
| 07:15 AM | 1 | 6 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 7 | 2 | 0 | 0 | 1 | 1 | 0 |
| 07:30 AM | 2 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 6 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 AM | 1 | 9 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 1 | 0 | 0 | 0 |
| 08:45 AM | 0 | 15 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Eucalyptus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Eucalyptus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Eucalyptus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Eucalyptus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #34 PM**

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Eucalyptus Avenue
Comment 4: Weather: Clear

| Cars | Perris Bouelvard Southbound | | | | Eucalyptus Avenue Westbound | | | | Perris Bouelvard Northbound | | | | Eucalyptus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 29 | 238 | 14 | 0 | 6 | 31 | 16 | 0 | 22 | 213 | 17 | 0 | 8 | 21 | 18 | 0 |
| 04:15 PM | 25 | 236 | 14 | 0 | 12 | 14 | 25 | 0 | 11 | 233 | 7 | 0 | 5 | 21 | 18 | 0 |
| 04:30 PM | 19 | 241 | 11 | 0 | 8 | 22 | 20 | 0 | 10 | 196 | 21 | 0 | 11 | 35 | 11 | 0 |
| 04:45 PM | 26 | 240 | 13 | 0 | 14 | 22 | 13 | 0 | 7 | 221 | 13 | 0 | 3 | 40 | 8 | 0 |
| 05:00 PM | 30 | 250 | 13 | 0 | 14 | 27 | 15 | 0 | 17 | 185 | 9 | 0 | 12 | 33 | 18 | 0 |
| 05:15 PM | 39 | 227 | 13 | 0 | 12 | 28 | 26 | 0 | 14 | 222 | 9 | 0 | 12 | 36 | 11 | 0 |
| 05:30 PM | 39 | 292 | 7 | 0 | 6 | 25 | 20 | 0 | 14 | 250 | 8 | 0 | 6 | 37 | 15 | 0 |
| 05:45 PM | 26 | 266 | 10 | 0 | 3 | 21 | 24 | 0 | 12 | 154 | 13 | 0 | 13 | 28 | 12 | 0 |

| 2-Axle Trucks | Perris Bouelvard Southbound | | | | Eucalyptus Avenue Westbound | | | | Perris Bouelvard Northbound | | | | Eucalyptus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 12 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Bouelvard Southbound | | | | Eucalyptus Avenue Westbound | | | | Perris Bouelvard Northbound | | | | Eucalyptus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Bouelvard Southbound | | | | Eucalyptus Avenue Westbound | | | | Perris Bouelvard Northbound | | | | Eucalyptus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #35 AM

Start Date: 11/16/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: Locust Avenue
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Locust Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 16 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 2 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 1 | 0 |

| 2-Axle Trucks | Southbound | | | | Locust Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Southbound | | | | Locust Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Locust Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #35 PM

Start Date: 11/16/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: Locust Ave
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Locust Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 12 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 1 | 0 | 13 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 4 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 1 | 0 | 17 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 1 | 0 | 15 | 0 | 0 | 0 | 2 | 0 |

| 2-Axle Trucks | Southbound | | | | Locust Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Southbound | | | | Locust Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Locust Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Locust Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #36 AM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: Ironw ood Avenue
Comment 4: Weather: Sunny

| Cars | Moreno Beach Drive Southbound | | | | Ironwood Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 25 | 3 | 0 | 16 | 14 | 0 | 0 | 21 | 12 | 28 | 0 | 1 | 19 | 24 | 0 |
| 07:15 AM | 4 | 30 | 7 | 0 | 23 | 17 | 0 | 0 | 15 | 5 | 15 | 0 | 1 | 24 | 29 | 0 |
| 07:30 AM | 4 | 28 | 5 | 0 | 42 | 32 | 2 | 0 | 33 | 5 | 44 | 0 | 3 | 35 | 31 | 0 |
| 07:45 AM | 2 | 23 | 9 | 0 | 68 | 44 | 5 | 0 | 17 | 13 | 61 | 0 | 6 | 50 | 47 | 0 |
| 08:00 AM | 0 | 19 | 6 | 0 | 46 | 17 | 0 | 0 | 15 | 21 | 18 | 0 | 6 | 33 | 27 | 0 |
| 08:15 AM | 2 | 22 | 5 | 0 | 17 | 13 | 0 | 0 | 18 | 14 | 9 | 0 | 3 | 18 | 20 | 0 |
| 08:30 AM | 0 | 21 | 5 | 0 | 19 | 13 | 0 | 0 | 16 | 17 | 13 | 0 | 3 | 15 | 19 | 0 |
| 08:45 AM | 0 | 20 | 1 | 0 | 14 | 14 | 1 | 0 | 13 | 11 | 9 | 0 | 1 | 13 | 20 | 0 |

| 2-Axle Trucks | Moreno Beach Drive Southbound | | | | Ironwood Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Moreno Beach Drive Southbound | | | | Ironwood Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Moreno Beach Drive Southbound | | | | Ironwood Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #36 PM**

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: Ironw ood Avenue
Comment 4: Weather: Sunny

| Cars | Moreno Beach Drive Southbound | | | | Ironwood Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 14 | 6 | 0 | 30 | 18 | 3 | 0 | 33 | 26 | 20 | 0 | 7 | 18 | 20 | 0 |
| 04:15 PM | 0 | 19 | 4 | 0 | 22 | 22 | 2 | 0 | 32 | 22 | 25 | 0 | 6 | 10 | 20 | 0 |
| 04:30 PM | 0 | 17 | 5 | 0 | 21 | 25 | 0 | 0 | 30 | 22 | 21 | 0 | 3 | 21 | 31 | 0 |
| 04:45 PM | 0 | 22 | 2 | 0 | 29 | 20 | 0 | 0 | 24 | 28 | 23 | 0 | 5 | 20 | 19 | 0 |
| 05:00 PM | 0 | 17 | 2 | 0 | 30 | 18 | 0 | 0 | 34 | 20 | 23 | 0 | 8 | 21 | 31 | 0 |
| 05:15 PM | 0 | 23 | 4 | 0 | 22 | 29 | 2 | 0 | 31 | 24 | 17 | 0 | 5 | 18 | 24 | 0 |
| 05:30 PM | 0 | 24 | 6 | 0 | 24 | 18 | 1 | 0 | 30 | 19 | 18 | 0 | 6 | 23 | 21 | 0 |
| 05:45 PM | 1 | 18 | 3 | 0 | 18 | 17 | 1 | 0 | 21 | 28 | 23 | 0 | 9 | 23 | 22 | 0 |

| 2-Axle Trucks | Moreno Beach Drive Southbound | | | | Ironwood Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Moreno Beach Drive Southbound | | | | Ironwood Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Moreno Beach Drive Southbound | | | | Ironwood Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | Ironwood Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #37 AM

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: SR-60 EB Ramps/Eucalyptus Avenue
Comment 4: Weather: Sunny

| Cars | Moreno Beach Drive Southbound | | | | Eucalyptus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 4 | 44 | 8 | 0 | 2 | 1 | 5 | 0 | 22 | 199 | 5 | 0 | 16 | 13 | 113 | 0 |
| 07:15 AM | 4 | 65 | 7 | 0 | 3 | 0 | 2 | 0 | 21 | 165 | 3 | 0 | 14 | 7 | 87 | 0 |
| 07:30 AM | 8 | 103 | 6 | 0 | 1 | 0 | 6 | 0 | 25 | 195 | 5 | 0 | 24 | 13 | 132 | 0 |
| 07:45 AM | 5 | 118 | 3 | 0 | 3 | 0 | 1 | 0 | 26 | 204 | 6 | 0 | 23 | 20 | 148 | 0 |
| 08:00 AM | 4 | 72 | 8 | 0 | 2 | 2 | 3 | 0 | 21 | 151 | 6 | 0 | 14 | 15 | 129 | 0 |
| 08:15 AM | 2 | 36 | 1 | 0 | 3 | 3 | 3 | 0 | 15 | 135 | 7 | 0 | 15 | 10 | 123 | 0 |
| 08:30 AM | 6 | 44 | 7 | 0 | 3 | 1 | 9 | 0 | 27 | 131 | 1 | 0 | 15 | 7 | 98 | 0 |
| 08:45 AM | 11 | 45 | 3 | 0 | 3 | 4 | 0 | 0 | 7 | 121 | 8 | 0 | 13 | 8 | 119 | 0 |

| 2-Axle Trucks | Moreno Beach Drive Southbound | | | | Eucalyptus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 4 | 2 | 1 | 0 | 0 | 0 | 3 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 3 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 4 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 4 | 0 |
| 08:15 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 0 |
| 08:30 AM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 4 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 5 | 0 |

| 3-Axle Trucks | Moreno Beach Drive Southbound | | | | Eucalyptus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Moreno Beach Drive Southbound | | | | Eucalyptus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 |

## SITE #37 PM

Start Date: 11/1/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Moreno Beach Drive
Comment 3: E/W: SR-60 WB Ramps/Eucalyptus Avenue
Comment 4: Weather: Sunny

| Cars | Moreno Beach Drive Southbound | | | | Eucalyptus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 7 | 69 | 3 | 0 | 10 | 5 | 13 | 0 | 26 | 151 | 5 | 0 | 33 | 8 | 196 | 0 |
| 04:15 PM | 2 | 69 | 2 | 0 | 5 | 2 | 14 | 0 | 28 | 149 | 11 | 0 | 45 | 6 | 191 | 0 |
| 04:30 PM | 3 | 75 | 2 | 0 | 5 | 3 | 26 | 0 | 27 | 129 | 7 | 0 | 38 | 6 | 172 | 0 |
| 04:45 PM | 6 | 77 | 3 | 0 | 6 | 3 | 24 | 0 | 25 | 131 | 7 | 0 | 40 | 13 | 209 | 0 |
| 05:00 PM | 2 | 80 | 6 | 0 | 7 | 7 | 21 | 0 | 29 | 141 | 3 | 0 | 31 | 8 | 190 | 0 |
| 05:15 PM | 1 | 99 | 3 | 0 | 9 | 3 | 21 | 0 | 18 | 139 | 5 | 0 | 24 | 10 | 185 | 0 |
| 05:30 PM | 7 | 70 | 3 | 0 | 9 | 7 | 27 | 0 | 17 | 139 | 5 | 0 | 27 | 11 | 207 | 0 |
| 05:45 PM | 2 | 75 | 2 | 0 | 3 | 2 | 22 | 0 | 31 | 131 | 8 | 0 | 43 | 2 | 222 | 0 |

| 2-Axle Trucks | Moreno Beach Drive Southbound | | | | Eucalyptus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 2 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 05:00 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 0 |
| 05:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 |

| 3-Axle Trucks | Moreno Beach Drive Southbound | | | | Eucalyptus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Moreno Beach Drive Southbound | | | | Eucalyptus Avenue Westbound | | | | Moreno Beach Drive Northbound | | | | SR-60 Eastbound Ramps Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #38 AM**

Start Date: 10/9/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: John F. Kennedy Drive
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | John F. Kennedy Drive Westbound | | | | Perris Boulevard Northbound | | | | John F. Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 12 | 55 | 3 | 0 | 15 | 56 | 3 | 0 | 18 | 108 | 25 | 0 | 6 | 33 | 8 | 0 |
| 07:15 AM | 31 | 65 | 9 | 0 | 16 | 46 | 12 | 0 | 45 | 150 | 34 | 0 | 2 | 51 | 13 | 0 |
| 07:30 AM | 69 | 80 | 10 | 0 | 19 | 69 | 17 | 1 | 53 | 154 | 56 | 0 | 29 | 118 | 12 | 0 |
| 07:45 AM | 59 | 85 | 11 | 0 | 35 | 107 | 17 | 0 | 39 | 142 | 53 | 0 | 20 | 98 | 22 | 0 |
| 08:00 AM | 18 | 113 | 4 | 0 | 57 | 96 | 11 | 0 | 35 | 115 | 23 | 0 | 11 | 39 | 19 | 0 |
| 08:15 AM | 14 | 59 | 5 | 0 | 18 | 39 | 9 | 0 | 18 | 147 | 9 | 0 | 3 | 29 | 14 | 1 |
| 08:30 AM | 15 | 51 | 5 | 0 | 7 | 32 | 2 | 0 | 25 | 115 | 10 | 0 | 6 | 27 | 7 | 0 |
| 08:45 AM | 10 | 70 | 8 | 0 | 15 | 23 | 2 | 0 | 18 | 101 | 11 | 0 | 10 | 25 | 13 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | John F. Kennedy Drive Westbound | | | | Perris Boulevard Northbound | | | | John F. Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 5 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:15 AM | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 9 | 2 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 1 | 2 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 4 | 3 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | John F. Kennedy Drive Westbound | | | | Perris Boulevard Northbound | | | | John F. Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | John F. Kennedy Drive Westbound | | | | Perris Boulevard Northbound | | | | John F. Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #38 PM**

Start Date: 10/9/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: John F. Kennedy Drive
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | John F. Kennedy Drive Westbound | | | | Perris Boulevard Northbound | | | | John F. Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 21 | 112 | 3 | 0 | 29 | 53 | 5 | 0 | 30 | 138 | 10 | 0 | 14 | 58 | 27 | 0 |
| 04:15 PM | 19 | 103 | 4 | 0 | 24 | 50 | 6 | 0 | 40 | 130 | 10 | 0 | 19 | 61 | 38 | 1 |
| 04:30 PM | 24 | 122 | 10 | 0 | 18 | 27 | 4 | 0 | 31 | 139 | 13 | 0 | 8 | 63 | 31 | 0 |
| 04:45 PM | 18 | 107 | 9 | 0 | 32 | 44 | 7 | 0 | 30 | 118 | 19 | 0 | 16 | 58 | 32 | 0 |
| 05:00 PM | 14 | 135 | 4 | 0 | 30 | 46 | 10 | 0 | 33 | 127 | 20 | 0 | 19 | 70 | 35 | 0 |
| 05:15 PM | 22 | 132 | 15 | 0 | 29 | 34 | 6 | 0 | 18 | 107 | 25 | 0 | 15 | 62 | 31 | 0 |
| 05:30 PM | 23 | 109 | 13 | 0 | 30 | 38 | 3 | 0 | 22 | 116 | 23 | 0 | 9 | 73 | 39 | 0 |
| 05:45 PM | 32 | 146 | 17 | 0 | 30 | 48 | 12 | 0 | 32 | 109 | 30 | 0 | 10 | 85 | 35 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | John F. Kennedy Drive Westbound | | | | Perris Boulevard Northbound | | | | John F. Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 2 | 0 |
| 04:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | John F. Kennedy Drive Westbound | | | | Perris Boulevard Northbound | | | | John F. Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | John F. Kennedy Drive Westbound | | | | Perris Boulevard Northbound | | | | John F. Kennedy Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #39 AM

Start Date: 10/10/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Iris Avenue
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Iris Avenue Westbound | | | | Perris Boulevard Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 12 | 56 | 9 | 0 | 25 | 94 | 16 | 0 | 38 | 82 | 30 | 0 | 6 | 35 | 16 | 0 |
| 07:15 AM | 27 | 53 | 24 | 0 | 58 | 123 | 27 | 0 | 37 | 113 | 43 | 0 | 11 | 56 | 21 | 0 |
| 07:30 AM | 32 | 55 | 11 | 0 | 60 | 166 | 35 | 0 | 61 | 110 | 44 | 0 | 25 | 109 | 28 | 0 |
| 07:45 AM | 58 | 76 | 8 | 0 | 39 | 129 | 31 | 0 | 62 | 107 | 40 | 0 | 15 | 110 | 22 | 0 |
| 08:00 AM | 35 | 57 | 3 | 0 | 27 | 89 | 30 | 0 | 55 | 84 | 33 | 0 | 14 | 55 | 23 | 0 |
| 08:15 AM | 27 | 52 | 1 | 0 | 34 | 68 | 19 | 0 | 36 | 80 | 28 | 0 | 1 | 37 | 16 | 0 |
| 08:30 AM | 22 | 52 | 2 | 0 | 23 | 59 | 22 | 0 | 36 | 93 | 21 | 0 | 6 | 48 | 8 | 0 |
| 08:45 AM | 36 | 60 | 4 | 0 | 25 | 66 | 20 | 0 | 24 | 69 | 16 | 0 | 2 | 53 | 16 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Iris Avenue Westbound | | | | Perris Boulevard Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 6 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:15 AM | 3 | 4 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 3 | 1 | 0 | 1 | 4 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 2 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 4 | 3 | 0 | 2 | 1 | 2 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 6 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 1 | 0 |
| 08:15 AM | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 1 | 4 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 3 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:45 AM | 0 | 4 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Iris Avenue Westbound | | | | Perris Boulevard Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Iris Avenue Westbound | | | | Perris Boulevard Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:00 AM | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 1 | 0 |

## SITE #39 PM

Start Date: 10/10/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Iris Avenue
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Iris Avenue Westbound | | | | Perris Boulevard Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 48 | 94 | 5 | 0 | 23 | 64 | 27 | 0 | 38 | 140 | 33 | 0 | 3 | 83 | 27 | 0 |
| 04:15 PM | 35 | 85 | 3 | 0 | 22 | 65 | 27 | 0 | 40 | 111 | 25 | 0 | 6 | 91 | 26 | 0 |
| 04:30 PM | 51 | 96 | 2 | 0 | 24 | 67 | 28 | 0 | 50 | 136 | 41 | 0 | 8 | 89 | 41 | 0 |
| 04:45 PM | 51 | 92 | 2 | 0 | 36 | 65 | 20 | 0 | 33 | 140 | 35 | 0 | 10 | 98 | 25 | 0 |
| 05:00 PM | 39 | 93 | 3 | 0 | 35 | 76 | 35 | 0 | 39 | 119 | 30 | 0 | 9 | 90 | 41 | 0 |
| 05:15 PM | 50 | 108 | 2 | 0 | 27 | 65 | 22 | 0 | 37 | 116 | 39 | 0 | 9 | 115 | 39 | 0 |
| 05:30 PM | 65 | 81 | 1 | 0 | 32 | 84 | 26 | 0 | 36 | 103 | 42 | 0 | 5 | 98 | 37 | 0 |
| 05:45 PM | 46 | 106 | 5 | 0 | 28 | 78 | 22 | 0 | 43 | 108 | 38 | 0 | 7 | 127 | 41 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Iris Avenue Westbound | | | | Perris Boulevard Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 6 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Iris Avenue Westbound | | | | Perris Boulevard Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Iris Avenue Westbound | | | | Perris Boulevard Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:15 PM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

## SITE #40 AM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Kitching Street
Comment 3: E/W: Iris Avenue
Comment 4: Weather: Sunny

| Cars | Kitching Street Southbound | | | | Iris Avenue Westbound | | | | Kitching Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 22 | 4 | 0 | 21 | 107 | 7 | 0 | 17 | 19 | 14 | 0 | 11 | 66 | 9 | 0 |
| 07:15 AM | 9 | 41 | 14 | 0 | 37 | 112 | 15 | 0 | 26 | 35 | 19 | 0 | 9 | 116 | 14 | 0 |
| 07:30 AM | 7 | 59 | 31 | 1 | 28 | 139 | 16 | 0 | 20 | 58 | 20 | 0 | 22 | 154 | 17 | 0 |
| 07:45 AM | 19 | 37 | 33 | 0 | 28 | 168 | 9 | 0 | 48 | 37 | 31 | 0 | 31 | 147 | 15 | 0 |
| 08:00 AM | 9 | 23 | 25 | 0 | 13 | 124 | 10 | 0 | 35 | 44 | 14 | 0 | 10 | 111 | 18 | 0 |
| 08:15 AM | 8 | 16 | 10 | 0 | 13 | 124 | 9 | 0 | 16 | 23 | 9 | 0 | 7 | 90 | 18 | 0 |
| 08:30 AM | 4 | 13 | 3 | 0 | 11 | 78 | 15 | 0 | 11 | 19 | 18 | 0 | 5 | 112 | 9 | 0 |
| 08:45 AM | 12 | 14 | 11 | 0 | 10 | 126 | 6 | 1 | 12 | 23 | 10 | 0 | 2 | 80 | 8 | 0 |

| 2-Axle Trucks | Kitching Street Southbound | | | | Iris Avenue Westbound | | | | Kitching Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 07:30 AM | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 |
| 07:45 AM | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:15 AM | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 7 | 1 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Kitching Street Southbound | | | | Iris Avenue Westbound | | | | Kitching Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Kitching Street Southbound | | | | Iris Avenue Westbound | | | | Kitching Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #40 PM**

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Kitching Street
Comment 3: E/W: Iris Avenue
Comment 4: Weather: Sunny

| Cars | Kitching Street Southbound | | | | Iris Avenue Westbound | | | | Kitching Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 7 | 21 | 18 | 0 | 25 | 161 | 22 | 1 | 8 | 17 | 13 | 0 | 16 | 140 | 23 | 0 |
| 04:15 PM | 19 | 18 | 18 | 0 | 16 | 130 | 13 | 0 | 14 | 32 | 7 | 0 | 15 | 130 | 15 | 0 |
| 04:30 PM | 11 | 24 | 13 | 0 | 29 | 148 | 19 | 0 | 14 | 20 | 23 | 0 | 19 | 168 | 17 | 0 |
| 04:45 PM | 22 | 35 | 19 | 0 | 24 | 121 | 15 | 0 | 10 | 23 | 25 | 0 | 16 | 163 | 24 | 0 |
| 05:00 PM | 17 | 36 | 19 | 0 | 21 | 151 | 23 | 0 | 17 | 15 | 13 | 0 | 7 | 130 | 27 | 0 |
| 05:15 PM | 8 | 34 | 15 | 0 | 24 | 150 | 11 | 0 | 12 | 17 | 23 | 0 | 16 | 195 | 24 | 0 |
| 05:30 PM | 10 | 29 | 18 | 0 | 19 | 156 | 19 | 0 | 9 | 24 | 12 | 0 | 16 | 168 | 29 | 0 |
| 05:45 PM | 9 | 26 | 25 | 0 | 20 | 131 | 18 | 0 | 10 | 17 | 20 | 0 | 5 | 175 | 31 | 0 |

| 2-Axle Trucks | Kitching Street Southbound | | | | Iris Avenue Westbound | | | | Kitching Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 2 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 1 | 0 | 0 |
| 05:30 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |

| 3-Axle Trucks | Kitching Street Southbound | | | | Iris Avenue Westbound | | | | Kitching Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 4+ Axle Trucks | Kitching Street Southbound | | | | Iris Avenue Westbound | | | | Kitching Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #41 AM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Lasselle Street
Comment 3: E/W: Iris Avenue
Comment 4: Weather: Sunny

| Cars | Lasselle Street Southbound | | | | Iris Avenue Westbound | | | | Lasselle Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 21 | 99 | 11 | 0 | 89 | 95 | 10 | 0 | 44 | 81 | 51 | 0 | 13 | 35 | 50 | 0 |
| 07:15 AM | 10 | 116 | 20 | 0 | 165 | 118 | 16 | 0 | 83 | 87 | 70 | 0 | 26 | 65 | 103 | 3 |
| 07:30 AM | 27 | 98 | 17 | 0 | 86 | 113 | 32 | 0 | 104 | 114 | 108 | 0 | 36 | 80 | 71 | 0 |
| 07:45 AM | 36 | 127 | 22 | 0 | 93 | 100 | 49 | 0 | 59 | 128 | 95 | 0 | 45 | 97 | 77 | 0 |
| 08:00 AM | 38 | 110 | 15 | 0 | 79 | 80 | 19 | 0 | 67 | 113 | 57 | 0 | 29 | 67 | 43 | 0 |
| 08:15 AM | 25 | 69 | 4 | 0 | 46 | 87 | 12 | 0 | 49 | 103 | 64 | 0 | 15 | 48 | 28 | 0 |
| 08:30 AM | 37 | 63 | 8 | 0 | 52 | 68 | 24 | 0 | 28 | 75 | 48 | 0 | 28 | 64 | 43 | 0 |
| 08:45 AM | 36 | 68 | 14 | 0 | 54 | 82 | 16 | 0 | 29 | 92 | 44 | 0 | 17 | 43 | 60 | 0 |

| 2-Axle Trucks | Lasselle Street Southbound | | | | Iris Avenue Westbound | | | | Lasselle Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 3 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 3 | 0 | 1 | 2 | 0 | 0 |
| 07:15 AM | 2 | 1 | 0 | 0 | 3 | 2 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 3 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 08:30 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 0 |

| 3-Axle Trucks | Lasselle Street Southbound | | | | Iris Avenue Westbound | | | | Lasselle Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Lasselle Street Southbound | | | | Iris Avenue Westbound | | | | Lasselle Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #41 PM**

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Lasselle Street
Comment 3: E/W: Iris Avenue
Comment 4: Weather: Sunny

| Cars | Lasselle Street Southbound | | | | Iris Avenue Westbound | | | | Lasselle Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 42 | 95 | 19 | 0 | 77 | 83 | 12 | 0 | 66 | 125 | 78 | 0 | 35 | 61 | 34 | 0 |
| 04:15 PM | 46 | 83 | 11 | 0 | 66 | 78 | 18 | 0 | 54 | 107 | 70 | 1 | 19 | 56 | 47 | 0 |
| 04:30 PM | 43 | 119 | 24 | 0 | 93 | 100 | 12 | 0 | 50 | 108 | 65 | 0 | 51 | 88 | 54 | 0 |
| 04:45 PM | 60 | 149 | 23 | 0 | 102 | 80 | 16 | 0 | 59 | 126 | 75 | 0 | 28 | 67 | 62 | 1 |
| 05:00 PM | 59 | 149 | 22 | 0 | 116 | 99 | 15 | 0 | 72 | 116 | 81 | 0 | 36 | 44 | 61 | 0 |
| 05:15 PM | 50 | 160 | 23 | 0 | 73 | 86 | 10 | 0 | 61 | 165 | 78 | 0 | 41 | 102 | 63 | 0 |
| 05:30 PM | 39 | 151 | 18 | 0 | 95 | 99 | 19 | 0 | 66 | 134 | 65 | 1 | 32 | 69 | 72 | 0 |
| 05:45 PM | 56 | 175 | 17 | 0 | 119 | 110 | 21 | 0 | 62 | 93 | 50 | 0 | 47 | 101 | 84 | 0 |

| 2-Axle Trucks | Lasselle Street Southbound | | | | Iris Avenue Westbound | | | | Lasselle Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 2 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:00 PM | 0 | 2 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| 3-Axle Trucks | Lasselle Street Southbound | | | | Iris Avenue Westbound | | | | Lasselle Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Lasselle Street Southbound | | | | Iris Avenue Westbound | | | | Lasselle Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #43 AM**

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Oliver Street
Comment 3: E/W: Iris Avenue
Comment 4: Weather: Sunny

| Cars | Oliver Street Southbound | | | | Iris Avenue Westbound | | | | Oliver Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 7 | 22 | 0 | 5 | 108 | 1 | 0 | 12 | 13 | 12 | 0 | 8 | 106 | 2 | 0 |
| 07:15 AM | 1 | 5 | 25 | 0 | 2 | 123 | 1 | 0 | 11 | 18 | 11 | 0 | 32 | 110 | 3 | 0 |
| 07:30 AM | 0 | 7 | 34 | 0 | 2 | 138 | 2 | 0 | 10 | 32 | 15 | 0 | 47 | 134 | 5 | 0 |
| 07:45 AM | 1 | 10 | 41 | 0 | 10 | 151 | 2 | 0 | 7 | 30 | 1 | 0 | 71 | 101 | 2 | 0 |
| 08:00 AM | 1 | 14 | 46 | 0 | 6 | 99 | 5 | 0 | 5 | 10 | 7 | 0 | 28 | 65 | 2 | 0 |
| 08:15 AM | 1 | 8 | 42 | 0 | 9 | 73 | 2 | 0 | 7 | 14 | 7 | 0 | 41 | 70 | 4 | 0 |
| 08:30 AM | 2 | 9 | 56 | 0 | 4 | 64 | 2 | 0 | 2 | 10 | 11 | 0 | 69 | 60 | 6 | 0 |
| 08:45 AM | 4 | 9 | 61 | 0 | 8 | 69 | 4 | 0 | 5 | 17 | 11 | 0 | 42 | 50 | 2 | 0 |

| 2-Axle Trucks | Oliver Street Southbound | | | | Iris Avenue Westbound | | | | Oliver Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Oliver Street Southbound | | | | Iris Avenue Westbound | | | | Oliver Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Oliver Street Southbound | | | | Iris Avenue Westbound | | | | Oliver Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #43 PM**

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Oliver Street
Comment 3: E/W: Iris Avenue
Comment 4: Weather: Sunny

| Cars | Oliver Street Southbound | | | | Iris Avenue Westbound | | | | Oliver Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 6 | 11 | 18 | 0 | 3 | 105 | 1 | 0 | 5 | 5 | 3 | 0 | 32 | 89 | 4 | 0 |
| 04:15 PM | 3 | 12 | 21 | 0 | 13 | 111 | 1 | 0 | 7 | 7 | 4 | 0 | 36 | 92 | 7 | 0 |
| 04:30 PM | 1 | 13 | 42 | 0 | 12 | 105 | 2 | 0 | 6 | 8 | 3 | 0 | 34 | 110 | 3 | 0 |
| 04:45 PM | 0 | 17 | 23 | 0 | 12 | 122 | 2 | 0 | 6 | 1 | 3 | 0 | 18 | 127 | 7 | 0 |
| 05:00 PM | 1 | 12 | 15 | 0 | 15 | 113 | 4 | 0 | 8 | 3 | 7 | 0 | 32 | 134 | 3 | 0 |
| 05:15 PM | 0 | 13 | 35 | 0 | 20 | 117 | 1 | 0 | 8 | 9 | 13 | 0 | 23 | 135 | 7 | 0 |
| 05:30 PM | 1 | 10 | 28 | 0 | 17 | 142 | 0 | 0 | 10 | 4 | 5 | 0 | 25 | 115 | 12 | 0 |
| 05:45 PM | 1 | 12 | 32 | 0 | 13 | 143 | 0 | 0 | 8 | 4 | 3 | 0 | 18 | 95 | 7 | 0 |

| 2-Axle Trucks | Oliver Street Southbound | | | | Iris Avenue Westbound | | | | Oliver Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Oliver Street Southbound | | | | Iris Avenue Westbound | | | | Oliver Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Oliver Street Southbound | | | | Iris Avenue Westbound | | | | Oliver Street Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #44 AM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Via del Lago
Comment 3: E/W: Iris Avenue
Comment 4: Weather: Sunny

| Cars | Via del Lago Southbound | | | | Iris Avenue Westbound | | | | Via del Lago Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 6 | 0 | 6 | 0 | 5 | 112 | 2 | 0 | 2 | 0 | 3 | 0 | 3 | 98 | 1 | 0 |
| 07:15 AM | 4 | 0 | 4 | 0 | 3 | 120 | 0 | 0 | 4 | 0 | 4 | 0 | 1 | 85 | 1 | 0 |
| 07:30 AM | 1 | 0 | 5 | 0 | 5 | 148 | 0 | 0 | 2 | 0 | 12 | 0 | 2 | 117 | 1 | 0 |
| 07:45 AM | 8 | 0 | 5 | 0 | 3 | 138 | 4 | 0 | 5 | 0 | 12 | 0 | 5 | 151 | 2 | 0 |
| 08:00 AM | 6 | 0 | 9 | 0 | 6 | 94 | 6 | 0 | 5 | 0 | 3 | 0 | 2 | 85 | 3 | 0 |
| 08:15 AM | 5 | 1 | 4 | 0 | 0 | 85 | 2 | 1 | 0 | 1 | 1 | 0 | 6 | 78 | 0 | 0 |
| 08:30 AM | 3 | 0 | 5 | 0 | 0 | 73 | 2 | 0 | 3 | 0 | 5 | 0 | 2 | 56 | 1 | 0 |
| 08:45 AM | 6 | 4 | 4 | 0 | 3 | 66 | 3 | 0 | 3 | 2 | 2 | 0 | 2 | 75 | 1 | 0 |

| 2-Axle Trucks | Via del Lago Southbound | | | | Iris Avenue Westbound | | | | Via del Lago Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Via del Lago Southbound | | | | Iris Avenue Westbound | | | | Via del Lago Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Via del Lago Southbound | | | | Iris Avenue Westbound | | | | Via del Lago Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #44 PM**

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Via del Lago
Comment 3: E/W: Iris Avenue
Comment 4: Weather: Sunny

| Cars | Via del Lago Southbound | | | | Iris Avenue Westbound | | | | Via del Lago Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 0 | 1 | 0 | 0 | 98 | 0 | 0 | 3 | 0 | 4 | 0 | 4 | 95 | 3 | 0 |
| 04:15 PM | 2 | 0 | 3 | 0 | 2 | 111 | 3 | 0 | 4 | 0 | 5 | 0 | 3 | 105 | 2 | 0 |
| 04:30 PM | 2 | 0 | 2 | 0 | 4 | 115 | 4 | 0 | 3 | 0 | 4 | 0 | 3 | 110 | 3 | 0 |
| 04:45 PM | 3 | 1 | 2 | 0 | 7 | 131 | 0 | 0 | 6 | 0 | 3 | 0 | 3 | 102 | 7 | 0 |
| 05:00 PM | 2 | 0 | 2 | 0 | 7 | 128 | 0 | 0 | 5 | 1 | 6 | 0 | 8 | 107 | 0 | 0 |
| 05:15 PM | 3 | 1 | 1 | 0 | 3 | 135 | 0 | 0 | 4 | 0 | 4 | 0 | 3 | 148 | 7 | 0 |
| 05:30 PM | 1 | 0 | 2 | 0 | 5 | 148 | 0 | 0 | 2 | 0 | 4 | 0 | 4 | 139 | 5 | 0 |
| 05:45 PM | 1 | 0 | 3 | 0 | 5 | 141 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 115 | 3 | 0 |

| 2-Axle Trucks | Via del Lago Southbound | | | | Iris Avenue Westbound | | | | Via del Lago Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Via del Lago Southbound | | | | Iris Avenue Westbound | | | | Via del Lago Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Via del Lago Southbound | | | | Iris Avenue Westbound | | | | Via del Lago Northbound | | | | Iris Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #45 AM

Start Date: 10/10/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Krameria Avenue
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Krameria Avenue Westbound | | | | Perris Boulevard Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 7 | 81 | 0 | 0 | 34 | 25 | 23 | 0 | 8 | 101 | 35 | 0 | 1 | 16 | 12 | 0 |
| 07:15 AM | 13 | 103 | 6 | 0 | 45 | 41 | 34 | 0 | 11 | 142 | 51 | 0 | 5 | 27 | 16 | 0 |
| 07:30 AM | 22 | 107 | 3 | 0 | 32 | 47 | 34 | 0 | 10 | 156 | 58 | 0 | 5 | 38 | 18 | 0 |
| 07:45 AM | 20 | 91 | 2 | 0 | 28 | 50 | 29 | 0 | 11 | 144 | 41 | 0 | 6 | 62 | 17 | 0 |
| 08:00 AM | 20 | 83 | 1 | 0 | 38 | 46 | 37 | 0 | 6 | 140 | 35 | 0 | 4 | 30 | 4 | 0 |
| 08:15 AM | 13 | 70 | 3 | 0 | 18 | 20 | 20 | 0 | 4 | 106 | 22 | 0 | 2 | 12 | 5 | 0 |
| 08:30 AM | 10 | 66 | 2 | 0 | 22 | 22 | 18 | 0 | 5 | 98 | 15 | 0 | 0 | 9 | 4 | 0 |
| 08:45 AM | 10 | 68 | 5 | 0 | 19 | 15 | 13 | 0 | 6 | 78 | 10 | 0 | 3 | 7 | 4 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Krameria Avenue Westbound | | | | Perris Boulevard Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 1 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 3 | 0 | 1 | 0 | 1 | 5 | 3 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 7 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 1 | 8 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 8 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Krameria Avenue Westbound | | | | Perris Boulevard Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Krameria Avenue Westbound | | | | Perris Boulevard Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #45 PM**

Start Date: 10/10/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Krameria Avenue
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Krameria Avenue Westbound | | | | Perris Boulevard Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 22 | 110 | 11 | 5 | 32 | 11 | 23 | 0 | 12 | 149 | 30 | 0 | 5 | 20 | 10 | 0 |
| 04:15 PM | 20 | 83 | 2 | 1 | 26 | 14 | 20 | 0 | 3 | 127 | 31 | 1 | 4 | 26 | 7 | 0 |
| 04:30 PM | 29 | 114 | 8 | 2 | 18 | 16 | 27 | 2 | 9 | 184 | 26 | 1 | 3 | 22 | 8 | 0 |
| 04:45 PM | 30 | 97 | 1 | 1 | 29 | 11 | 23 | 0 | 3 | 133 | 21 | 0 | 7 | 29 | 19 | 0 |
| 05:00 PM | 25 | 108 | 5 | 1 | 31 | 23 | 24 | 0 | 10 | 137 | 32 | 0 | 5 | 32 | 10 | 0 |
| 05:15 PM | 36 | 121 | 9 | 2 | 21 | 15 | 20 | 0 | 6 | 132 | 43 | 1 | 4 | 31 | 12 | 0 |
| 05:30 PM | 27 | 105 | 5 | 1 | 12 | 17 | 30 | 1 | 5 | 126 | 36 | 0 | 3 | 33 | 10 | 0 |
| 05:45 PM | 25 | 93 | 4 | 0 | 20 | 21 | 29 | 0 | 3 | 112 | 26 | 0 | 3 | 25 | 6 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Krameria Avenue Westbound | | | | Perris Boulevard Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 3 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 1 | 1 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Krameria Avenue Westbound | | | | Perris Boulevard Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Krameria Avenue Westbound | | | | Perris Boulevard Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #46 AM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Kitching Street
Comment 3: E/W: Krameria Avenue
Comment 4: Weather: Sunny

| Cars | Kitching Street Southbound | | | | Krameria Avenue Westbound | | | | Kitching Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 29 | 19 | 21 | 0 | 6 | 50 | 21 | 0 | 9 | 10 | 12 | 0 | 12 | 67 | 6 | 0 |
| 07:15 AM | 89 | 23 | 12 | 0 | 15 | 87 | 26 | 0 | 13 | 21 | 7 | 0 | 20 | 118 | 4 | 0 |
| 07:30 AM | 60 | 58 | 12 | 0 | 37 | 100 | 40 | 0 | 40 | 38 | 15 | 0 | 14 | 92 | 24 | 0 |
| 07:45 AM | 23 | 62 | 19 | 0 | 18 | 66 | 25 | 0 | 44 | 56 | 12 | 0 | 37 | 76 | 44 | 0 |
| 08:00 AM | 13 | 22 | 23 | 0 | 4 | 57 | 21 | 0 | 19 | 23 | 5 | 0 | 19 | 51 | 21 | 0 |
| 08:15 AM | 16 | 12 | 17 | 0 | 2 | 48 | 22 | 0 | 11 | 12 | 0 | 0 | 8 | 32 | 12 | 0 |
| 08:30 AM | 10 | 10 | 11 | 0 | 0 | 26 | 12 | 0 | 10 | 17 | 3 | 0 | 8 | 23 | 8 | 0 |
| 08:45 AM | 8 | 9 | 6 | 1 | 0 | 35 | 11 | 0 | 4 | 11 | 1 | 0 | 6 | 24 | 1 | 0 |

| 2-Axle Trucks | Kitching Street Southbound | | | | Krameria Avenue Westbound | | | | Kitching Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:15 AM | 0 | 2 | 1 | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 |
| 07:45 AM | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 4 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Kitching Street Southbound | | | | Krameria Avenue Westbound | | | | Kitching Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Kitching Street Southbound | | | | Krameria Avenue Westbound | | | | Kitching Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #46 PM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Kitching Street
Comment 3: E/W: Krameria Avenue
Comment 4: Weather: Sunny

| Cars | Kitching Street Southbound | | | | Krameria Avenue Westbound | | | | Kitching Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 26 | 168 | 25 | 0 | 21 | 14 | 10 | 0 | 20 | 193 | 6 | 0 | 33 | 12 | 25 | 0 |
| 04:15 PM | 16 | 160 | 11 | 0 | 15 | 15 | 8 | 0 | 18 | 146 | 4 | 0 | 15 | 11 | 38 | 0 |
| 04:30 PM | 38 | 184 | 14 | 0 | 10 | 9 | 18 | 0 | 24 | 146 | 5 | 0 | 26 | 6 | 33 | 1 |
| 04:45 PM | 26 | 193 | 7 | 0 | 14 | 14 | 16 | 0 | 21 | 148 | 11 | 0 | 23 | 18 | 30 | 0 |
| 05:00 PM | 23 | 210 | 14 | 0 | 20 | 6 | 12 | 0 | 22 | 168 | 7 | 0 | 24 | 17 | 33 | 0 |
| 05:15 PM | 18 | 187 | 19 | 0 | 17 | 19 | 12 | 1 | 32 | 205 | 6 | 0 | 26 | 11 | 45 | 0 |
| 05:30 PM | 28 | 176 | 16 | 0 | 12 | 12 | 18 | 0 | 18 | 165 | 14 | 0 | 25 | 18 | 40 | 1 |
| 05:45 PM | 37 | 189 | 13 | 0 | 7 | 4 | 14 | 0 | 24 | 139 | 14 | 0 | 24 | 16 | 43 | 0 |

| 2-Axle Trucks | Kitching Street Southbound | | | | Krameria Avenue Westbound | | | | Kitching Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 |
| 04:15 PM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| 04:30 PM | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 0 |
| 05:15 PM | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Kitching Street Southbound | | | | Krameria Avenue Westbound | | | | Kitching Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Kitching Street Southbound | | | | Krameria Avenue Westbound | | | | Kitching Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #47 AM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Lasselle Street
Comment 3: E/W: Krameria Avenue
Comment 4: Weather: Sunny

| Cars | Lasselle Street Southbound | | | | Krameria Avenue Westbound | | | | Lasselle Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 8 | 152 | 23 | 0 | 8 | 16 | 4 | 0 | 38 | 123 | 9 | 0 | 30 | 16 | 38 | 0 |
| 07:15 AM | 13 | 234 | 44 | 0 | 19 | 32 | 11 | 0 | 82 | 186 | 32 | 0 | 73 | 47 | 93 | 0 |
| 07:30 AM | 24 | 100 | 30 | 0 | 34 | 40 | 27 | 0 | 69 | 218 | 48 | 0 | 92 | 106 | 68 | 0 |
| 07:45 AM | 44 | 112 | 29 | 0 | 46 | 26 | 33 | 0 | 45 | 190 | 73 | 0 | 65 | 66 | 27 | 0 |
| 08:00 AM | 22 | 97 | 9 | 0 | 51 | 48 | 43 | 0 | 16 | 147 | 45 | 0 | 36 | 37 | 24 | 0 |
| 08:15 AM | 7 | 65 | 14 | 0 | 15 | 16 | 16 | 0 | 35 | 105 | 8 | 0 | 19 | 10 | 16 | 0 |
| 08:30 AM | 7 | 74 | 6 | 0 | 5 | 2 | 12 | 0 | 15 | 123 | 9 | 0 | 26 | 6 | 26 | 0 |
| 08:45 AM | 15 | 76 | 6 | 0 | 6 | 7 | 13 | 0 | 9 | 117 | 7 | 0 | 15 | 6 | 19 | 0 |

| 2-Axle Trucks | Lasselle Street Southbound | | | | Krameria Avenue Westbound | | | | Lasselle Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 07:15 AM | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 1 | 0 |
| 07:45 AM | 3 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 4 | 0 | 1 | 0 |
| 08:00 AM | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:45 AM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| 3-Axle Trucks | Lasselle Street Southbound | | | | Krameria Avenue Westbound | | | | Lasselle Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Lasselle Street Southbound | | | | Krameria Avenue Westbound | | | | Lasselle Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #47 PM**

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Lasselle Street
Comment 3: E/W: Krameria Avenue
Comment 4: Weather: Sunny

| Cars | Lasselle Street Southbound | | | | Krameria Avenue Westbound | | | | Lasselle Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 3 | 57 | 17 | 0 | 6 | 7 | 0 | 0 | 12 | 54 | 7 | 0 | 31 | 20 | 22 | 0 |
| 04:15 PM | 5 | 51 | 23 | 0 | 3 | 12 | 1 | 0 | 20 | 43 | 3 | 0 | 18 | 10 | 11 | 0 |
| 04:30 PM | 3 | 53 | 13 | 0 | 1 | 8 | 4 | 0 | 19 | 51 | 4 | 0 | 14 | 19 | 20 | 0 |
| 04:45 PM | 4 | 42 | 18 | 0 | 7 | 12 | 3 | 0 | 14 | 67 | 2 | 0 | 28 | 15 | 26 | 0 |
| 05:00 PM | 4 | 37 | 12 | 0 | 2 | 9 | 5 | 0 | 9 | 62 | 1 | 0 | 28 | 12 | 14 | 0 |
| 05:15 PM | 3 | 45 | 23 | 0 | 3 | 11 | 4 | 0 | 14 | 61 | 4 | 0 | 24 | 16 | 21 | 0 |
| 05:30 PM | 2 | 43 | 14 | 0 | 4 | 11 | 4 | 0 | 13 | 61 | 4 | 0 | 33 | 23 | 17 | 0 |
| 05:45 PM | 4 | 35 | 17 | 0 | 5 | 9 | 9 | 0 | 16 | 61 | 2 | 0 | 22 | 14 | 17 | 0 |

| 2-Axle Trucks | Lasselle Street Southbound | | | | Krameria Avenue Westbound | | | | Lasselle Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Lasselle Street Southbound | | | | Krameria Avenue Westbound | | | | Lasselle Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Lasselle Street Southbound | | | | Krameria Avenue Westbound | | | | Lasselle Street Northbound | | | | Krameria Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #48 AM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Kitching Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Kitching Street Southbound | | | | Alessandro Boulevard Westbound | | | | Kitching Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 5 | 10 | 20 | 0 | 2 | 110 | 2 | 0 | 17 | 34 | 2 | 0 | 12 | 71 | 8 | 0 |
| 07:15 AM | 19 | 32 | 18 | 0 | 3 | 117 | 1 | 0 | 39 | 42 | 7 | 0 | 10 | 75 | 27 | 0 |
| 07:30 AM | 20 | 36 | 26 | 0 | 8 | 124 | 2 | 0 | 32 | 56 | 10 | 0 | 12 | 113 | 28 | 0 |
| 07:45 AM | 13 | 48 | 26 | 0 | 9 | 140 | 10 | 0 | 67 | 53 | 15 | 0 | 24 | 109 | 25 | 0 |
| 08:00 AM | 9 | 37 | 20 | 0 | 5 | 149 | 14 | 0 | 39 | 39 | 3 | 0 | 8 | 93 | 26 | 0 |
| 08:15 AM | 7 | 19 | 18 | 0 | 6 | 106 | 2 | 0 | 26 | 24 | 1 | 0 | 5 | 83 | 18 | 0 |
| 08:30 AM | 4 | 9 | 17 | 0 | 1 | 102 | 4 | 0 | 21 | 25 | 4 | 0 | 9 | 61 | 20 | 0 |
| 08:45 AM | 3 | 24 | 13 | 0 | 0 | 106 | 3 | 0 | 27 | 21 | 2 | 0 | 9 | 74 | 20 | 0 |

| 2-Axle Trucks | Kitching Street Southbound | | | | Alessandro Boulevard Westbound | | | | Kitching Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 3 | 2 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 2 | 1 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:15 AM | 2 | 1 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Kitching Street Southbound | | | | Alessandro Boulevard Westbound | | | | Kitching Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Kitching Street Southbound | | | | Alessandro Boulevard Westbound | | | | Kitching Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #48 PM**

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Kitching Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Kitching Street Southbound | | | | Alessandro Boulevard Westbound | | | | Kitching Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 10 | 43 | 21 | 0 | 4 | 107 | 6 | 0 | 28 | 42 | 2 | 0 | 28 | 113 | 37 | 0 |
| 04:15 PM | 11 | 32 | 26 | 0 | 3 | 114 | 6 | 0 | 24 | 54 | 3 | 0 | 32 | 124 | 31 | 0 |
| 04:30 PM | 5 | 37 | 16 | 0 | 5 | 130 | 14 | 0 | 26 | 46 | 1 | 0 | 28 | 129 | 29 | 0 |
| 04:45 PM | 10 | 59 | 14 | 0 | 2 | 111 | 11 | 0 | 29 | 42 | 1 | 0 | 34 | 118 | 25 | 0 |
| 05:00 PM | 10 | 44 | 20 | 0 | 3 | 99 | 10 | 0 | 16 | 33 | 1 | 0 | 30 | 119 | 29 | 0 |
| 05:15 PM | 4 | 47 | 13 | 0 | 4 | 88 | 6 | 0 | 30 | 44 | 3 | 0 | 31 | 103 | 32 | 0 |
| 05:30 PM | 6 | 46 | 29 | 0 | 4 | 89 | 3 | 0 | 35 | 32 | 0 | 0 | 35 | 135 | 36 | 0 |
| 05:45 PM | 2 | 72 | 22 | 0 | 5 | 105 | 4 | 0 | 22 | 43 | 0 | 0 | 42 | 122 | 30 | 0 |

| 2-Axle Trucks | Kitching Street Southbound | | | | Alessandro Boulevard Westbound | | | | Kitching Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Kitching Street Southbound | | | | Alessandro Boulevard Westbound | | | | Kitching Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Kitching Street Southbound | | | | Alessandro Boulevard Westbound | | | | Kitching Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #49 AM

Start Date: 11/16/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Lasselle Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Lasselle Street Southbound | | | | Alessandro Boulevard Westbound | | | | Lasselle Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 4 | 27 | 9 | 0 | 8 | 64 | 3 | 0 | 27 | 49 | 8 | 0 | 4 | 40 | 21 | 0 |
| 07:15 AM | 4 | 54 | 5 | 0 | 12 | 90 | 1 | 0 | 33 | 49 | 17 | 0 | 3 | 51 | 25 | 0 |
| 07:30 AM | 1 | 57 | 7 | 0 | 19 | 84 | 5 | 0 | 32 | 49 | 23 | 0 | 10 | 53 | 32 | 0 |
| 07:45 AM | 6 | 81 | 13 | 0 | 27 | 97 | 5 | 0 | 45 | 86 | 41 | 0 | 4 | 78 | 50 | 0 |
| 08:00 AM | 8 | 39 | 15 | 0 | 17 | 87 | 5 | 0 | 47 | 61 | 29 | 0 | 5 | 63 | 31 | 0 |
| 08:15 AM | 2 | 26 | 8 | 0 | 6 | 62 | 3 | 0 | 21 | 54 | 21 | 0 | 6 | 56 | 15 | 0 |
| 08:30 AM | 2 | 33 | 9 | 0 | 11 | 59 | 6 | 0 | 27 | 41 | 10 | 0 | 4 | 54 | 25 | 0 |
| 08:45 AM | 0 | 52 | 11 | 0 | 3 | 59 | 3 | 0 | 21 | 32 | 11 | 0 | 4 | 44 | 29 | 0 |

| 2-Axle Trucks | Lasselle Street Southbound | | | | Alessandro Boulevard Westbound | | | | Lasselle Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 2 | 2 | 0 |
| 07:15 AM | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 2 | 0 |
| 07:30 AM | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 3 | 1 | 0 |
| 07:45 AM | 0 | 3 | 0 | 0 | 0 | 6 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 1 | 0 |
| 08:00 AM | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 |
| 08:15 AM | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 2 | 1 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 0 |

| 3-Axle Trucks | Lasselle Street Southbound | | | | Alessandro Boulevard Westbound | | | | Lasselle Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Lasselle Street Southbound | | | | Alessandro Boulevard Westbound | | | | Lasselle Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #49 PM

Start Date: 11/16/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Lasselle Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Lasselle Street Southbound | | | | Alessandro Boulevard Westbound | | | | Lasselle Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 3 | 45 | 4 | 0 | 15 | 64 | 2 | 0 | 27 | 64 | 14 | 0 | 10 | 78 | 44 | 0 |
| 04:15 PM | 1 | 65 | 8 | 0 | 13 | 54 | 3 | 0 | 28 | 70 | 6 | 0 | 10 | 69 | 42 | 0 |
| 04:30 PM | 0 | 59 | 8 | 0 | 19 | 67 | 3 | 0 | 33 | 65 | 18 | 0 | 8 | 100 | 39 | 0 |
| 04:45 PM | 0 | 70 | 8 | 0 | 20 | 63 | 1 | 0 | 44 | 65 | 15 | 0 | 19 | 89 | 44 | 0 |
| 05:00 PM | 6 | 63 | 6 | 0 | 11 | 49 | 2 | 0 | 32 | 77 | 23 | 0 | 11 | 82 | 50 | 0 |
| 05:15 PM | 4 | 56 | 9 | 0 | 10 | 67 | 2 | 0 | 39 | 73 | 12 | 0 | 10 | 73 | 43 | 0 |
| 05:30 PM | 7 | 92 | 6 | 0 | 16 | 65 | 1 | 0 | 38 | 69 | 20 | 0 | 6 | 73 | 35 | 0 |
| 05:45 PM | 8 | 78 | 10 | 0 | 21 | 68 | 5 | 0 | 29 | 48 | 21 | 0 | 18 | 81 | 45 | 0 |

| 2-Axle Trucks | Lasselle Street Southbound | | | | Alessandro Boulevard Westbound | | | | Lasselle Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 05:00 PM | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Lasselle Street Southbound | | | | Alessandro Boulevard Westbound | | | | Lasselle Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Lasselle Street Southbound | | | | Alessandro Boulevard Westbound | | | | Lasselle Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #50 AM**

Start Date: 11/16/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Morrison Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Morrison Street Southbound | | | | Alessandro Boulevard Westbound | | | | Morrison Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 3 | 0 | 10 | 0 | 0 | 62 | 8 | 0 | 0 | 0 | 0 | 0 | 7 | 51 | 0 | 0 |
| 07:15 AM | 9 | 0 | 19 | 0 | 0 | 87 | 8 | 0 | 0 | 0 | 0 | 0 | 11 | 61 | 0 | 0 |
| 07:30 AM | 10 | 0 | 25 | 0 | 0 | 84 | 6 | 0 | 0 | 0 | 0 | 0 | 20 | 53 | 0 | 0 |
| 07:45 AM | 15 | 0 | 32 | 0 | 0 | 85 | 23 | 0 | 0 | 0 | 0 | 0 | 44 | 70 | 0 | 0 |
| 08:00 AM | 18 | 0 | 22 | 0 | 0 | 97 | 18 | 0 | 0 | 0 | 0 | 0 | 22 | 84 | 0 | 0 |
| 08:15 AM | 14 | 0 | 4 | 0 | 0 | 74 | 10 | 0 | 0 | 0 | 0 | 0 | 9 | 82 | 0 | 0 |
| 08:30 AM | 16 | 0 | 6 | 0 | 0 | 58 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 58 | 0 | 0 |
| 08:45 AM | 7 | 0 | 9 | 0 | 0 | 52 | 3 | 0 | 0 | 0 | 0 | 0 | 6 | 47 | 0 | 0 |

| 2-Axle Trucks | Morrison Street Southbound | | | | Alessandro Boulevard Westbound | | | | Morrison Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 |
| 07:45 AM | 2 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:15 AM | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 |
| 08:30 AM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |

| 3-Axle Trucks | Morrison Street Southbound | | | | Alessandro Boulevard Westbound | | | | Morrison Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Morrison Street Southbound | | | | Alessandro Boulevard Westbound | | | | Morrison Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |

**SITE #50 PM**

Start Date: 11/16/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Morrison Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Morrison Street Southbound | | | | Alessandro Boulevard Westbound | | | | Morrison Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 10 | 0 | 11 | 0 | 0 | 75 | 7 | 0 | 0 | 0 | 0 | 0 | 19 | 69 | 0 | 0 |
| 04:15 PM | 7 | 0 | 8 | 0 | 0 | 69 | 9 | 0 | 0 | 0 | 0 | 0 | 9 | 68 | 0 | 0 |
| 04:30 PM | 7 | 0 | 15 | 0 | 0 | 67 | 4 | 0 | 0 | 0 | 0 | 0 | 20 | 95 | 0 | 0 |
| 04:45 PM | 7 | 0 | 16 | 0 | 0 | 69 | 5 | 0 | 0 | 0 | 0 | 0 | 14 | 90 | 0 | 0 |
| 05:00 PM | 4 | 0 | 7 | 0 | 0 | 57 | 3 | 0 | 0 | 0 | 0 | 0 | 19 | 83 | 0 | 0 |
| 05:15 PM | 7 | 0 | 16 | 0 | 0 | 66 | 6 | 0 | 0 | 0 | 0 | 0 | 16 | 75 | 0 | 0 |
| 05:30 PM | 12 | 0 | 19 | 0 | 0 | 59 | 3 | 0 | 0 | 0 | 0 | 0 | 18 | 86 | 0 | 0 |
| 05:45 PM | 8 | 0 | 8 | 0 | 0 | 77 | 6 | 0 | 0 | 0 | 0 | 0 | 22 | 75 | 0 | 0 |

| 2-Axle Trucks | Morrison Street Southbound | | | | Alessandro Boulevard Westbound | | | | Morrison Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Morrison Street Southbound | | | | Alessandro Boulevard Westbound | | | | Morrison Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Morrison Street Southbound | | | | Alessandro Boulevard Westbound | | | | Morrison Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #51 AM

Start Date: 11/2/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Nason Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Nason Street Southbound | | | | Alessandro Boulevard Westbound | | | | Nason Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 4 | 53 | 4 | 0 | 47 | 57 | 10 | 0 | 8 | 37 | 6 | 0 | 6 | 27 | 36 | 0 |
| 07:15 AM | 4 | 38 | 10 | 0 | 32 | 77 | 8 | 0 | 9 | 37 | 7 | 0 | 10 | 29 | 31 | 0 |
| 07:30 AM | 5 | 57 | 13 | 0 | 45 | 62 | 21 | 0 | 12 | 56 | 9 | 0 | 11 | 29 | 28 | 0 |
| 07:45 AM | 9 | 76 | 14 | 0 | 58 | 76 | 28 | 0 | 21 | 65 | 11 | 0 | 18 | 35 | 33 | 0 |
| 08:00 AM | 8 | 75 | 23 | 0 | 39 | 78 | 18 | 0 | 17 | 47 | 9 | 0 | 16 | 42 | 40 | 0 |
| 08:15 AM | 5 | 44 | 12 | 0 | 24 | 61 | 10 | 0 | 17 | 23 | 5 | 0 | 16 | 46 | 39 | 0 |
| 08:30 AM | 4 | 39 | 7 | 0 | 31 | 40 | 9 | 0 | 11 | 48 | 4 | 0 | 16 | 34 | 32 | 0 |
| 08:45 AM | 4 | 52 | 6 | 0 | 32 | 48 | 19 | 0 | 13 | 36 | 8 | 0 | 7 | 19 | 22 | 0 |

| 2-Axle Trucks | Nason Street Southbound | | | | Alessandro Boulevard Westbound | | | | Nason Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 3 | 1 | 0 | 0 | 1 | 3 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 1 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 |
| 07:45 AM | 1 | 3 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 1 | 0 |
| 08:00 AM | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 3 | 2 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 1 | 3 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Nason Street Southbound | | | | Alessandro Boulevard Westbound | | | | Nason Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| 4+ Axle Trucks | Nason Street Southbound | | | | Alessandro Boulevard Westbound | | | | Nason Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #51 PM**

Start Date: 11/2/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Nason Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Nason Street Southbound | | | | Alessandro Boulevard Westbound | | | | Nason Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 8 | 52 | 13 | 0 | 2 | 52 | 12 | 0 | 26 | 79 | 13 | 0 | 25 | 57 | 15 | 0 |
| 04:15 PM | 4 | 55 | 5 | 0 | 15 | 51 | 12 | 0 | 16 | 58 | 10 | 0 | 6 | 61 | 15 | 0 |
| 04:30 PM | 6 | 42 | 15 | 0 | 5 | 40 | 11 | 0 | 29 | 107 | 22 | 0 | 12 | 65 | 17 | 0 |
| 04:45 PM | 7 | 47 | 3 | 0 | 8 | 46 | 17 | 0 | 19 | 65 | 20 | 0 | 19 | 67 | 11 | 0 |
| 05:00 PM | 6 | 64 | 7 | 0 | 8 | 36 | 11 | 0 | 23 | 86 | 13 | 0 | 20 | 50 | 23 | 0 |
| 05:15 PM | 8 | 45 | 13 | 0 | 7 | 42 | 15 | 0 | 20 | 50 | 16 | 0 | 15 | 48 | 26 | 0 |
| 05:30 PM | 10 | 67 | 10 | 0 | 7 | 51 | 11 | 0 | 22 | 75 | 17 | 0 | 15 | 56 | 22 | 0 |
| 05:45 PM | 7 | 57 | 12 | 0 | 11 | 36 | 15 | 0 | 13 | 78 | 6 | 0 | 18 | 61 | 11 | 0 |

| 2-Axle Trucks | Nason Street Southbound | | | | Alessandro Boulevard Westbound | | | | Nason Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 2 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |

| 3-Axle Trucks | Nason Street Southbound | | | | Alessandro Boulevard Westbound | | | | Nason Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Nason Street Southbound | | | | Alessandro Boulevard Westbound | | | | Nason Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #52 AM**

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Kitching Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Clear

| Cars | Kitching Street Southbound | | | | Cactus Avenue Westbound | | | | Kitching Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 17 | 10 | 0 | 1 | 120 | 2 | 0 | 41 | 49 | 3 | 0 | 3 | 81 | 7 | 0 |
| 07:15 AM | 3 | 36 | 8 | 0 | 5 | 113 | 6 | 0 | 30 | 60 | 6 | 0 | 18 | 96 | 21 | 0 |
| 07:30 AM | 10 | 61 | 13 | 0 | 4 | 138 | 6 | 0 | 48 | 68 | 7 | 0 | 21 | 131 | 44 | 0 |
| 07:45 AM | 13 | 64 | 27 | 0 | 9 | 124 | 8 | 0 | 48 | 87 | 13 | 0 | 37 | 170 | 57 | 0 |
| 08:00 AM | 8 | 46 | 19 | 0 | 1 | 130 | 6 | 0 | 48 | 58 | 4 | 0 | 12 | 99 | 21 | 0 |
| 08:15 AM | 2 | 22 | 12 | 0 | 5 | 91 | 5 | 0 | 29 | 43 | 2 | 0 | 3 | 91 | 5 | 0 |
| 08:30 AM | 6 | 30 | 3 | 0 | 4 | 70 | 5 | 0 | 17 | 32 | 7 | 0 | 6 | 103 | 12 | 0 |
| 08:45 AM | 4 | 24 | 2 | 0 | 3 | 82 | 14 | 0 | 24 | 32 | 5 | 0 | 2 | 65 | 10 | 0 |

| 2-Axle Trucks | Kitching Street Southbound | | | | Cactus Avenue Westbound | | | | Kitching Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 |
| 07:15 AM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 2 | 1 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 1 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 0 | 0 |
| 08:30 AM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Kitching Street Southbound | | | | Cactus Avenue Westbound | | | | Kitching Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Kitching Street Southbound | | | | Cactus Avenue Westbound | | | | Kitching Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

**SITE #52 PM**

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Kitching Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Clear

| Cars | Kitching Street Southbound | | | | Cactus Avenue Westbound | | | | Kitching Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 7 | 47 | 9 | 0 | 5 | 97 | 5 | 0 | 24 | 43 | 5 | 0 | 5 | 108 | 29 | 0 |
| 04:15 PM | 10 | 44 | 9 | 0 | 6 | 83 | 11 | 0 | 28 | 34 | 5 | 0 | 11 | 105 | 34 | 0 |
| 04:30 PM | 8 | 46 | 9 | 0 | 4 | 112 | 8 | 0 | 17 | 39 | 2 | 0 | 7 | 121 | 27 | 0 |
| 04:45 PM | 16 | 52 | 14 | 0 | 13 | 103 | 5 | 0 | 26 | 43 | 2 | 0 | 10 | 133 | 38 | 0 |
| 05:00 PM | 9 | 57 | 13 | 0 | 6 | 113 | 3 | 0 | 18 | 39 | 2 | 0 | 13 | 120 | 43 | 0 |
| 05:15 PM | 5 | 77 | 13 | 0 | 4 | 102 | 11 | 0 | 15 | 47 | 1 | 0 | 9 | 123 | 39 | 0 |
| 05:30 PM | 10 | 64 | 16 | 0 | 7 | 118 | 8 | 0 | 21 | 51 | 0 | 0 | 8 | 134 | 31 | 0 |
| 05:45 PM | 14 | 62 | 9 | 0 | 5 | 102 | 3 | 0 | 22 | 48 | 1 | 0 | 10 | 119 | 48 | 0 |

| 2-Axle Trucks | Kitching Street Southbound | | | | Cactus Avenue Westbound | | | | Kitching Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |

| 3-Axle Trucks | Kitching Street Southbound | | | | Cactus Avenue Westbound | | | | Kitching Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Kitching Street Southbound | | | | Cactus Avenue Westbound | | | | Kitching Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #53 AM

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Lasselle Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Clear

| Cars | Lasselle Street Southbound | | | | Cactus Avenue Westbound | | | | Lasselle Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 8 | 65 | 5 | 0 | 32 | 56 | 10 | 0 | 48 | 109 | 66 | 0 | 3 | 53 | 15 | 0 |
| 07:15 AM | 7 | 72 | 5 | 0 | 40 | 91 | 8 | 0 | 25 | 118 | 57 | 0 | 9 | 77 | 30 | 0 |
| 07:30 AM | 17 | 198 | 10 | 0 | 94 | 90 | 9 | 0 | 39 | 143 | 68 | 0 | 23 | 84 | 87 | 0 |
| 07:45 AM | 24 | 164 | 16 | 0 | 82 | 76 | 11 | 0 | 66 | 168 | 108 | 0 | 19 | 91 | 76 | 0 |
| 08:00 AM | 13 | 74 | 10 | 0 | 44 | 79 | 10 | 0 | 39 | 146 | 92 | 0 | 10 | 83 | 28 | 0 |
| 08:15 AM | 19 | 49 | 6 | 0 | 37 | 76 | 12 | 0 | 31 | 97 | 77 | 0 | 6 | 83 | 8 | 0 |
| 08:30 AM | 15 | 61 | 3 | 0 | 29 | 59 | 4 | 0 | 25 | 74 | 47 | 0 | 10 | 115 | 17 | 0 |
| 08:45 AM | 12 | 74 | 3 | 0 | 44 | 90 | 13 | 0 | 16 | 109 | 42 | 0 | 0 | 47 | 29 | 0 |

| 2-Axle Trucks | Lasselle Street Southbound | | | | Cactus Avenue Westbound | | | | Lasselle Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 1 | 2 | 2 | 0 |
| 07:15 AM | 1 | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 3 | 0 | 0 |
| 08:15 AM | 0 | 3 | 1 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Lasselle Street Southbound | | | | Cactus Avenue Westbound | | | | Lasselle Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Lasselle Street Southbound | | | | Cactus Avenue Westbound | | | | Lasselle Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

**SITE #53 PM**

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Lasselle Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Clear

| Cars | Lasselle Street Southbound | | | | Cactus Avenue Westbound | | | | Lasselle Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 8 | 96 | 3 | 0 | 53 | 63 | 14 | 0 | 31 | 100 | 63 | 0 | 6 | 56 | 28 | 0 |
| 04:15 PM | 11 | 88 | 5 | 0 | 66 | 82 | 10 | 0 | 23 | 130 | 48 | 0 | 12 | 71 | 35 | 0 |
| 04:30 PM | 3 | 111 | 6 | 0 | 80 | 96 | 12 | 0 | 26 | 106 | 56 | 0 | 12 | 71 | 25 | 0 |
| 04:45 PM | 10 | 121 | 3 | 0 | 81 | 92 | 3 | 0 | 34 | 154 | 56 | 0 | 5 | 73 | 35 | 0 |
| 05:00 PM | 11 | 108 | 3 | 0 | 80 | 93 | 11 | 0 | 26 | 83 | 62 | 0 | 11 | 63 | 54 | 0 |
| 05:15 PM | 11 | 108 | 4 | 0 | 57 | 60 | 8 | 0 | 32 | 136 | 30 | 0 | 11 | 35 | 34 | 0 |
| 05:30 PM | 14 | 115 | 9 | 0 | 70 | 96 | 13 | 0 | 34 | 109 | 48 | 0 | 7 | 67 | 45 | 0 |
| 05:45 PM | 7 | 115 | 7 | 0 | 63 | 96 | 5 | 0 | 17 | 96 | 37 | 0 | 9 | 77 | 64 | 0 |

| 2-Axle Trucks | Lasselle Street Southbound | | | | Cactus Avenue Westbound | | | | Lasselle Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Lasselle Street Southbound | | | | Cactus Avenue Westbound | | | | Lasselle Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Lasselle Street Southbound | | | | Cactus Avenue Westbound | | | | Lasselle Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #55 AM

Start Date: 11/2/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Nason Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Nason Street Southbound | | | | Cactus Avenue Westbound | | | | Nason Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 13 | 1 | 35 | 0 | 0 | 57 | 17 | 0 | 9 | 2 | 1 | 0 | 22 | 35 | 3 | 2 |
| 07:15 AM | 11 | 0 | 22 | 0 | 0 | 70 | 13 | 0 | 2 | 7 | 1 | 0 | 32 | 42 | 0 | 0 |
| 07:30 AM | 21 | 1 | 39 | 0 | 0 | 104 | 21 | 0 | 7 | 4 | 0 | 0 | 28 | 56 | 2 | 0 |
| 07:45 AM | 28 | 2 | 35 | 0 | 0 | 93 | 46 | 0 | 15 | 5 | 1 | 0 | 32 | 98 | 1 | 0 |
| 08:00 AM | 44 | 6 | 41 | 0 | 0 | 74 | 25 | 0 | 12 | 4 | 1 | 0 | 26 | 87 | 10 | 0 |
| 08:15 AM | 7 | 5 | 18 | 0 | 0 | 66 | 16 | 0 | 5 | 4 | 0 | 0 | 20 | 47 | 5 | 0 |
| 08:30 AM | 21 | 6 | 22 | 0 | 0 | 65 | 18 | 0 | 11 | 8 | 0 | 0 | 17 | 85 | 1 | 0 |
| 08:45 AM | 15 | 5 | 33 | 0 | 1 | 88 | 19 | 0 | 1 | 2 | 0 | 0 | 21 | 39 | 3 | 0 |

| 2-Axle Trucks | Nason Street Southbound | | | | Cactus Avenue Westbound | | | | Nason Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 07:15 AM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 07:30 AM | 1 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 08:00 AM | 2 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 1 | 0 |
| 08:15 AM | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |

| 3-Axle Trucks | Nason Street Southbound | | | | Cactus Avenue Westbound | | | | Nason Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Nason Street Southbound | | | | Cactus Avenue Westbound | | | | Nason Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |

## SITE #55 PM

Start Date: 11/2/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Nason Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Nason Street Southbound | | | | Cactus Avenue Westbound | | | | Nason Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 23 | 6 | 36 | 0 | 1 | 50 | 5 | 0 | 1 | 9 | 0 | 0 | 36 | 60 | 5 | 0 |
| 04:15 PM | 26 | 4 | 38 | 0 | 0 | 31 | 14 | 0 | 2 | 4 | 0 | 0 | 26 | 53 | 7 | 0 |
| 04:30 PM | 28 | 6 | 43 | 0 | 0 | 38 | 10 | 0 | 1 | 8 | 0 | 0 | 33 | 67 | 3 | 0 |
| 04:45 PM | 19 | 1 | 41 | 0 | 0 | 42 | 12 | 0 | 0 | 3 | 0 | 0 | 24 | 64 | 3 | 0 |
| 05:00 PM | 29 | 7 | 55 | 0 | 1 | 57 | 10 | 0 | 5 | 2 | 1 | 0 | 33 | 55 | 5 | 0 |
| 05:15 PM | 38 | 8 | 48 | 0 | 0 | 54 | 15 | 0 | 0 | 6 | 0 | 0 | 27 | 65 | 2 | 0 |
| 05:30 PM | 50 | 9 | 52 | 0 | 0 | 71 | 19 | 0 | 7 | 7 | 0 | 0 | 37 | 67 | 9 | 0 |
| 05:45 PM | 21 | 10 | 43 | 0 | 0 | 67 | 24 | 0 | 7 | 3 | 0 | 0 | 28 | 57 | 5 | 0 |

| 2-Axle Trucks | Nason Street Southbound | | | | Cactus Avenue Westbound | | | | Nason Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:15 PM | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |

| 3-Axle Trucks | Nason Street Southbound | | | | Cactus Avenue Westbound | | | | Nason Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Nason Street Southbound | | | | Cactus Avenue Westbound | | | | Nason Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #56 AM

Start Date: 11/17/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Frederick Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Frederick Street Southbound | | | | Alessandro Boulevard Westbound | | | | Frederick Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 11 | 47 | 33 | 0 | 5 | 206 | 11 | 0 | 9 | 36 | 3 | 0 | 22 | 86 | 4 | 0 |
| 07:15 AM | 14 | 55 | 24 | 0 | 10 | 241 | 16 | 0 | 20 | 36 | 11 | 0 | 19 | 112 | 3 | 0 |
| 07:30 AM | 21 | 60 | 39 | 0 | 10 | 232 | 28 | 0 | 10 | 50 | 5 | 0 | 18 | 127 | 11 | 0 |
| 07:45 AM | 22 | 50 | 27 | 0 | 15 | 199 | 23 | 0 | 19 | 44 | 7 | 0 | 19 | 113 | 10 | 0 |
| 08:00 AM | 20 | 42 | 32 | 0 | 14 | 216 | 23 | 0 | 17 | 39 | 9 | 0 | 27 | 160 | 10 | 0 |
| 08:15 AM | 41 | 34 | 18 | 0 | 10 | 217 | 15 | 0 | 11 | 45 | 9 | 0 | 19 | 145 | 8 | 0 |
| 08:30 AM | 23 | 56 | 32 | 0 | 15 | 190 | 30 | 0 | 14 | 49 | 6 | 0 | 35 | 118 | 13 | 0 |
| 08:45 AM | 30 | 48 | 18 | 0 | 19 | 185 | 28 | 1 | 12 | 49 | 5 | 0 | 35 | 111 | 15 | 0 |

| 2-Axle Trucks | Frederick Street Southbound | | | | Alessandro Boulevard Westbound | | | | Frederick Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 1 | 4 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 08:00 AM | 0 | 1 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 1 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 3 | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 3 | 0 | 0 |
| 08:45 AM | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |

| 3-Axle Trucks | Frederick Street Southbound | | | | Alessandro Boulevard Westbound | | | | Frederick Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Frederick Street Southbound | | | | Alessandro Boulevard Westbound | | | | Frederick Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

**SITE #56 PM**

Start Date: 11/17/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Frederick Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Frederick Street Southbound | | | | Alessandro Boulevard Westbound | | | | Frederick Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 64 | 54 | 22 | 0 | 11 | 188 | 46 | 0 | 8 | 38 | 6 | 0 | 46 | 251 | 12 | 0 |
| 04:15 PM | 54 | 57 | 29 | 0 | 15 | 170 | 41 | 1 | 11 | 58 | 9 | 0 | 26 | 207 | 12 | 0 |
| 04:30 PM | 70 | 60 | 25 | 0 | 7 | 196 | 40 | 0 | 20 | 63 | 11 | 0 | 30 | 250 | 15 | 0 |
| 04:45 PM | 45 | 77 | 27 | 0 | 13 | 190 | 59 | 0 | 9 | 57 | 3 | 0 | 46 | 205 | 12 | 0 |
| 05:00 PM | 60 | 84 | 22 | 0 | 19 | 210 | 43 | 2 | 18 | 66 | 6 | 0 | 39 | 261 | 15 | 1 |
| 05:15 PM | 71 | 85 | 30 | 0 | 11 | 163 | 45 | 0 | 25 | 67 | 14 | 0 | 52 | 219 | 18 | 0 |
| 05:30 PM | 70 | 78 | 21 | 0 | 16 | 203 | 70 | 0 | 15 | 69 | 10 | 0 | 55 | 282 | 23 | 0 |
| 05:45 PM | 61 | 114 | 35 | 0 | 20 | 167 | 37 | 1 | 15 | 71 | 6 | 0 | 40 | 256 | 42 | 0 |

| 2-Axle Trucks | Frederick Street Southbound | | | | Alessandro Boulevard Westbound | | | | Frederick Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 7 | 0 | 0 |
| 04:15 PM | 0 | 3 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 8 | 0 | 0 |
| 04:30 PM | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 |

| 3-Axle Trucks | Frederick Street Southbound | | | | Alessandro Boulevard Westbound | | | | Frederick Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Frederick Street Southbound | | | | Alessandro Boulevard Westbound | | | | Frederick Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #57 AM

Start Date: 11/17/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Graham Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Graham Street Southbound | | | | Alessandro Boulevard Westbound | | | | Graham Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 13 | 29 | 9 | 0 | 5 | 200 | 16 | 0 | 12 | 18 | 4 | 0 | 0 | 85 | 3 | 0 |
| 07:15 AM | 12 | 25 | 15 | 0 | 11 | 229 | 14 | 0 | 13 | 28 | 6 | 0 | 5 | 132 | 12 | 0 |
| 07:30 AM | 7 | 21 | 17 | 0 | 13 | 229 | 15 | 0 | 8 | 32 | 10 | 0 | 7 | 133 | 23 | 0 |
| 07:45 AM | 25 | 35 | 13 | 0 | 7 | 221 | 22 | 0 | 16 | 49 | 8 | 0 | 8 | 124 | 18 | 0 |
| 08:00 AM | 24 | 26 | 13 | 0 | 11 | 226 | 10 | 0 | 21 | 31 | 12 | 0 | 8 | 164 | 15 | 0 |
| 08:15 AM | 17 | 33 | 8 | 0 | 13 | 219 | 8 | 0 | 11 | 33 | 8 | 0 | 7 | 167 | 15 | 0 |
| 08:30 AM | 11 | 19 | 12 | 0 | 15 | 223 | 9 | 2 | 17 | 30 | 3 | 0 | 9 | 136 | 19 | 0 |
| 08:45 AM | 26 | 23 | 12 | 0 | 17 | 178 | 10 | 0 | 14 | 23 | 8 | 0 | 6 | 116 | 10 | 0 |

| 2-Axle Trucks | Graham Street Southbound | | | | Alessandro Boulevard Westbound | | | | Graham Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:15 AM | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 0 |
| 07:30 AM | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 07:45 AM | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:15 AM | 0 | 1 | 1 | 0 | 0 | 5 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

| 3-Axle Trucks | Graham Street Southbound | | | | Alessandro Boulevard Westbound | | | | Graham Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Graham Street Southbound | | | | Alessandro Boulevard Westbound | | | | Graham Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

## SITE #57 PM

Start Date: 11/17/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Graham Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Graham Street Southbound | | | | Alessandro Boulevard Westbound | | | | Graham Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 18 | 38 | 8 | 0 | 41 | 175 | 25 | 0 | 8 | 31 | 10 | 1 | 17 | 222 | 16 | 0 |
| 04:15 PM | 18 | 29 | 9 | 0 | 22 | 218 | 27 | 1 | 10 | 35 | 14 | 0 | 12 | 256 | 21 | 0 |
| 04:30 PM | 34 | 37 | 9 | 0 | 21 | 197 | 24 | 0 | 28 | 46 | 25 | 0 | 10 | 277 | 23 | 0 |
| 04:45 PM | 24 | 35 | 5 | 0 | 36 | 270 | 29 | 0 | 21 | 49 | 9 | 0 | 15 | 277 | 27 | 0 |
| 05:00 PM | 30 | 31 | 7 | 0 | 40 | 222 | 22 | 0 | 34 | 43 | 11 | 0 | 13 | 272 | 34 | 0 |
| 05:15 PM | 32 | 19 | 9 | 0 | 23 | 200 | 36 | 0 | 20 | 16 | 15 | 0 | 16 | 279 | 35 | 0 |
| 05:30 PM | 32 | 37 | 7 | 0 | 17 | 214 | 22 | 0 | 23 | 41 | 12 | 0 | 19 | 293 | 51 | 0 |
| 05:45 PM | 16 | 32 | 3 | 0 | 18 | 181 | 28 | 0 | 11 | 26 | 8 | 0 | 18 | 290 | 44 | 0 |

| 2-Axle Trucks | Graham Street Southbound | | | | Alessandro Boulevard Westbound | | | | Graham Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 04:30 PM | 0 | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |

| 3-Axle Trucks | Graham Street Southbound | | | | Alessandro Boulevard Westbound | | | | Graham Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Graham Street Southbound | | | | Alessandro Boulevard Westbound | | | | Graham Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #58 AM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Heacock Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Heacock Street Southbound | | | | Alessandro Boulevard Westbound | | | | Heacock Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 8 | 34 | 8 | 0 | 5 | 183 | 14 | 0 | 33 | 45 | 8 | 0 | 12 | 66 | 7 | 0 |
| 07:15 AM | 10 | 43 | 19 | 0 | 7 | 184 | 20 | 0 | 26 | 56 | 6 | 0 | 15 | 87 | 9 | 0 |
| 07:30 AM | 22 | 42 | 17 | 0 | 9 | 220 | 25 | 0 | 31 | 54 | 10 | 0 | 17 | 106 | 3 | 0 |
| 07:45 AM | 31 | 39 | 22 | 0 | 7 | 212 | 40 | 0 | 39 | 97 | 8 | 0 | 25 | 108 | 8 | 0 |
| 08:00 AM | 35 | 32 | 20 | 0 | 10 | 203 | 27 | 0 | 35 | 54 | 11 | 1 | 22 | 106 | 5 | 0 |
| 08:15 AM | 43 | 41 | 27 | 0 | 9 | 189 | 41 | 0 | 27 | 67 | 8 | 0 | 18 | 114 | 6 | 4 |
| 08:30 AM | 29 | 43 | 22 | 0 | 8 | 164 | 33 | 0 | 28 | 57 | 6 | 0 | 11 | 88 | 3 | 0 |
| 08:45 AM | 31 | 41 | 33 | 0 | 8 | 159 | 39 | 1 | 26 | 60 | 6 | 0 | 19 | 113 | 7 | 0 |

| 2-Axle Trucks | Heacock Street Southbound | | | | Alessandro Boulevard Westbound | | | | Heacock Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 2 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:15 AM | 1 | 2 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 1 | 0 |
| 07:30 AM | 2 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 1 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:00 AM | 0 | 2 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 0 |
| 08:15 AM | 0 | 2 | 1 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 |
| 08:30 AM | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:45 AM | 3 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 5 | 1 | 0 | 1 | 4 | 0 | 0 |

| 3-Axle Trucks | Heacock Street Southbound | | | | Alessandro Boulevard Westbound | | | | Heacock Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Heacock Street Southbound | | | | Alessandro Boulevard Westbound | | | | Heacock Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

**SITE #58 PM**

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Heacock Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Heacock Street Southbound | | | | Alessandro Boulevard Westbound | | | | Heacock Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 51 | 73 | 36 | 0 | 13 | 189 | 42 | 0 | 39 | 62 | 11 | 0 | 14 | 204 | 33 | 1 |
| 04:15 PM | 58 | 75 | 25 | 0 | 14 | 184 | 29 | 0 | 26 | 73 | 9 | 0 | 25 | 206 | 31 | 1 |
| 04:30 PM | 50 | 82 | 42 | 0 | 7 | 196 | 46 | 0 | 36 | 71 | 15 | 0 | 15 | 202 | 24 | 0 |
| 04:45 PM | 49 | 90 | 34 | 0 | 14 | 192 | 27 | 0 | 36 | 63 | 14 | 0 | 26 | 225 | 20 | 0 |
| 05:00 PM | 48 | 110 | 48 | 0 | 13 | 176 | 49 | 0 | 35 | 71 | 16 | 0 | 21 | 240 | 29 | 1 |
| 05:15 PM | 54 | 79 | 39 | 0 | 10 | 144 | 41 | 0 | 32 | 73 | 5 | 0 | 20 | 234 | 37 | 1 |
| 05:30 PM | 63 | 107 | 21 | 0 | 8 | 140 | 28 | 0 | 39 | 60 | 5 | 0 | 25 | 228 | 35 | 0 |
| 05:45 PM | 56 | 79 | 13 | 0 | 9 | 106 | 58 | 7 | 18 | 66 | 12 | 0 | 18 | 224 | 36 | 1 |

| 2-Axle Trucks | Heacock Street Southbound | | | | Alessandro Boulevard Westbound | | | | Heacock Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:15 PM | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 |
| 04:30 PM | 1 | 3 | 1 | 0 | 0 | 6 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 1 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 05:30 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Heacock Street Southbound | | | | Alessandro Boulevard Westbound | | | | Heacock Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Heacock Street Southbound | | | | Alessandro Boulevard Westbound | | | | Heacock Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 04:15 PM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #59 AM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Indian Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Indian Street Southbound | | | | Alessandro Boulevard Westbound | | | | Indian Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 10 | 17 | 14 | 0 | 5 | 166 | 6 | 0 | 18 | 23 | 4 | 0 | 4 | 60 | 11 | 0 |
| 07:15 AM | 7 | 24 | 11 | 0 | 4 | 183 | 11 | 0 | 21 | 36 | 7 | 0 | 7 | 94 | 4 | 0 |
| 07:30 AM | 13 | 35 | 15 | 0 | 9 | 196 | 13 | 0 | 34 | 55 | 9 | 0 | 11 | 94 | 12 | 0 |
| 07:45 AM | 8 | 58 | 25 | 0 | 11 | 196 | 20 | 0 | 47 | 80 | 15 | 0 | 11 | 104 | 19 | 0 |
| 08:00 AM | 18 | 64 | 21 | 0 | 19 | 204 | 12 | 0 | 33 | 58 | 18 | 0 | 7 | 105 | 14 | 0 |
| 08:15 AM | 22 | 36 | 15 | 0 | 18 | 163 | 15 | 0 | 22 | 31 | 15 | 0 | 8 | 117 | 12 | 0 |
| 08:30 AM | 20 | 49 | 11 | 0 | 17 | 175 | 14 | 0 | 31 | 43 | 16 | 0 | 3 | 84 | 21 | 0 |
| 08:45 AM | 24 | 46 | 12 | 0 | 16 | 190 | 19 | 0 | 61 | 44 | 18 | 0 | 14 | 112 | 19 | 0 |

| 2-Axle Trucks | Indian Street Southbound | | | | Alessandro Boulevard Westbound | | | | Indian Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 4 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:15 AM | 0 | 3 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 |
| 08:00 AM | 0 | 0 | 2 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 2 | 1 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 5 | 1 | 0 |

| 3-Axle Trucks | Indian Street Southbound | | | | Alessandro Boulevard Westbound | | | | Indian Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Indian Street Southbound | | | | Alessandro Boulevard Westbound | | | | Indian Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

## SITE #59 PM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Indian Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Indian Street Southbound | | | | Alessandro Boulevard Westbound | | | | Indian Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 52 | 71 | 15 | 0 | 12 | 184 | 23 | 0 | 38 | 63 | 15 | 0 | 14 | 170 | 20 | 0 |
| 04:15 PM | 36 | 63 | 12 | 0 | 8 | 187 | 34 | 0 | 36 | 53 | 16 | 0 | 15 | 214 | 18 | 0 |
| 04:30 PM | 52 | 88 | 12 | 0 | 18 | 190 | 20 | 0 | 50 | 74 | 20 | 0 | 12 | 174 | 25 | 0 |
| 04:45 PM | 52 | 83 | 18 | 0 | 16 | 176 | 24 | 0 | 24 | 55 | 17 | 0 | 20 | 204 | 27 | 0 |
| 05:00 PM | 60 | 90 | 16 | 0 | 17 | 164 | 22 | 0 | 70 | 70 | 44 | 0 | 31 | 203 | 28 | 0 |
| 05:15 PM | 42 | 83 | 14 | 0 | 13 | 136 | 30 | 0 | 22 | 55 | 18 | 0 | 28 | 200 | 22 | 0 |
| 05:30 PM | 52 | 86 | 22 | 0 | 23 | 148 | 24 | 0 | 48 | 48 | 37 | 0 | 21 | 203 | 26 | 0 |
| 05:45 PM | 37 | 72 | 8 | 0 | 32 | 169 | 28 | 0 | 29 | 48 | 32 | 0 | 24 | 205 | 42 | 0 |

| 2-Axle Trucks | Indian Street Southbound | | | | Alessandro Boulevard Westbound | | | | Indian Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 4 | 2 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:45 PM | 0 | 2 | 2 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Indian Street Southbound | | | | Alessandro Boulevard Westbound | | | | Indian Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Indian Street Southbound | | | | Alessandro Boulevard Westbound | | | | Indian Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #60 AM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 26 | 72 | 31 | 0 | 15 | 121 | 18 | 0 | 34 | 81 | 11 | 0 | 16 | 51 | 6 | 0 |
| 07:15 AM | 34 | 60 | 28 | 0 | 16 | 147 | 21 | 0 | 43 | 100 | 19 | 0 | 13 | 58 | 8 | 0 |
| 07:30 AM | 39 | 97 | 29 | 0 | 21 | 147 | 17 | 0 | 39 | 126 | 19 | 0 | 30 | 64 | 14 | 0 |
| 07:45 AM | 48 | 95 | 44 | 0 | 15 | 163 | 19 | 0 | 43 | 162 | 28 | 0 | 32 | 79 | 20 | 0 |
| 08:00 AM | 33 | 82 | 42 | 1 | 26 | 146 | 16 | 0 | 68 | 120 | 11 | 0 | 37 | 61 | 21 | 0 |
| 08:15 AM | 32 | 83 | 35 | 0 | 14 | 120 | 16 | 0 | 43 | 89 | 4 | 0 | 35 | 66 | 18 | 0 |
| 08:30 AM | 24 | 67 | 29 | 0 | 12 | 100 | 16 | 0 | 52 | 99 | 4 | 0 | 31 | 56 | 23 | 0 |
| 08:45 AM | 31 | 95 | 41 | 0 | 15 | 96 | 13 | 0 | 64 | 76 | 11 | 0 | 41 | 64 | 16 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 3 | 1 | 0 |
| 07:15 AM | 3 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:45 AM | 1 | 5 | 1 | 0 | 1 | 5 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 5 | 1 | 0 | 0 | 2 | 1 | 0 | 3 | 4 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 2 | 1 | 0 |
| 08:45 AM | 1 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 1 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 3 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 08:15 AM | 1 | 2 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |

## SITE #60 PM

Start Date: 11/15/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 55 | 130 | 41 | 0 | 26 | 121 | 29 | 0 | 72 | 125 | 19 | 0 | 42 | 124 | 42 | 0 |
| 04:15 PM | 50 | 165 | 32 | 0 | 23 | 128 | 28 | 0 | 58 | 110 | 12 | 0 | 62 | 129 | 37 | 0 |
| 04:30 PM | 49 | 172 | 49 | 0 | 39 | 131 | 24 | 0 | 72 | 128 | 17 | 0 | 52 | 125 | 49 | 0 |
| 04:45 PM | 43 | 117 | 35 | 0 | 42 | 149 | 22 | 0 | 48 | 108 | 21 | 0 | 75 | 166 | 67 | 0 |
| 05:00 PM | 47 | 161 | 46 | 0 | 32 | 104 | 25 | 0 | 78 | 114 | 7 | 0 | 65 | 153 | 51 | 0 |
| 05:15 PM | 39 | 162 | 34 | 0 | 34 | 117 | 19 | 0 | 47 | 86 | 12 | 0 | 46 | 161 | 43 | 0 |
| 05:30 PM | 47 | 199 | 33 | 0 | 37 | 107 | 20 | 0 | 65 | 118 | 23 | 0 | 50 | 165 | 58 | 0 |
| 05:45 PM | 43 | 127 | 40 | 0 | 45 | 119 | 16 | 0 | 56 | 91 | 15 | 0 | 57 | 166 | 71 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 2 | 1 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 4 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:30 PM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:45 PM | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Alessandro Boulevard Westbound | | | | Perris Boulevard Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #61 AM

Start Date: 11/16/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Frederick Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Frederick Street Southbound | | | | Cactus Avenue Westbound | | | | Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 20 | 0 | 14 | 0 | 0 | 350 | 28 | 0 | 0 | 0 | 0 | 0 | 33 | 159 | 0 | 0 |
| 07:15 AM | 25 | 0 | 16 | 0 | 0 | 331 | 35 | 0 | 0 | 0 | 0 | 0 | 32 | 224 | 0 | 0 |
| 07:30 AM | 44 | 0 | 18 | 0 | 0 | 367 | 46 | 0 | 0 | 0 | 0 | 0 | 31 | 227 | 0 | 0 |
| 07:45 AM | 28 | 0 | 18 | 0 | 0 | 370 | 38 | 0 | 0 | 0 | 0 | 0 | 26 | 247 | 0 | 0 |
| 08:00 AM | 24 | 0 | 13 | 0 | 0 | 289 | 27 | 0 | 0 | 0 | 0 | 0 | 21 | 220 | 0 | 0 |
| 08:15 AM | 35 | 0 | 9 | 0 | 0 | 259 | 42 | 0 | 0 | 0 | 0 | 0 | 13 | 189 | 0 | 0 |
| 08:30 AM | 29 | 0 | 12 | 0 | 0 | 243 | 35 | 0 | 0 | 0 | 0 | 0 | 26 | 183 | 0 | 0 |
| 08:45 AM | 27 | 0 | 9 | 0 | 0 | 193 | 31 | 0 | 0 | 0 | 0 | 0 | 16 | 156 | 0 | 0 |

| 2-Axle Trucks | Frederick Street Southbound | | | | Cactus Avenue Westbound | | | | Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| 07:15 AM | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 07:30 AM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 08:00 AM | 1 | 0 | 1 | 0 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |

| 3-Axle Trucks | Frederick Street Southbound | | | | Cactus Avenue Westbound | | | | Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Frederick Street Southbound | | | | Cactus Avenue Westbound | | | | Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:15 AM | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |

**SITE #61 PM**

Start Date: 11/16/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Frederick Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Frederick Street Southbound | | | | Cactus Avenue Westbound | | | | Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 65 | 0 | 10 | 0 | 0 | 285 | 36 | 0 | 0 | 0 | 0 | 0 | 27 | 317 | 0 | 0 |
| 04:15 PM | 72 | 0 | 20 | 0 | 0 | 260 | 53 | 0 | 0 | 0 | 0 | 0 | 22 | 336 | 0 | 0 |
| 04:30 PM | 60 | 0 | 26 | 0 | 0 | 259 | 46 | 0 | 0 | 0 | 0 | 0 | 26 | 340 | 1 | 0 |
| 04:45 PM | 56 | 0 | 26 | 0 | 0 | 236 | 40 | 0 | 0 | 0 | 0 | 0 | 20 | 368 | 0 | 0 |
| 05:00 PM | 93 | 0 | 29 | 0 | 0 | 233 | 44 | 0 | 0 | 0 | 0 | 0 | 21 | 362 | 0 | 0 |
| 05:15 PM | 60 | 0 | 19 | 0 | 0 | 204 | 33 | 0 | 0 | 0 | 0 | 0 | 14 | 372 | 0 | 0 |
| 05:30 PM | 83 | 0 | 29 | 0 | 0 | 190 | 23 | 0 | 0 | 0 | 0 | 0 | 18 | 349 | 0 | 0 |
| 05:45 PM | 91 | 0 | 25 | 0 | 0 | 191 | 32 | 0 | 0 | 0 | 0 | 0 | 13 | 332 | 0 | 0 |

| 2-Axle Trucks | Frederick Street Southbound | | | | Cactus Avenue Westbound | | | | Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:15 PM | 1 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |

| 3-Axle Trucks | Frederick Street Southbound | | | | Cactus Avenue Westbound | | | | Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Frederick Street Southbound | | | | Cactus Avenue Westbound | | | | Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #62 AM

Start Date: 11/16/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Graham Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Graham Street Southbound | | | | Cactus Avenue Westbound | | | | Graham Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 14 | 14 | 13 | 0 | 2 | 319 | 12 | 0 | 36 | 6 | 2 | 0 | 9 | 163 | 34 | 0 |
| 07:15 AM | 12 | 13 | 11 | 0 | 3 | 362 | 10 | 0 | 41 | 9 | 4 | 0 | 12 | 164 | 41 | 0 |
| 07:30 AM | 14 | 11 | 14 | 0 | 5 | 356 | 15 | 0 | 46 | 13 | 2 | 0 | 19 | 165 | 54 | 0 |
| 07:45 AM | 13 | 12 | 13 | 0 | 1 | 343 | 24 | 0 | 32 | 8 | 1 | 0 | 24 | 218 | 50 | 0 |
| 08:00 AM | 18 | 10 | 8 | 0 | 2 | 261 | 22 | 0 | 31 | 9 | 0 | 0 | 17 | 149 | 50 | 0 |
| 08:15 AM | 15 | 11 | 10 | 0 | 0 | 260 | 12 | 0 | 30 | 6 | 3 | 0 | 26 | 153 | 33 | 0 |
| 08:30 AM | 12 | 13 | 12 | 0 | 2 | 228 | 14 | 0 | 20 | 15 | 0 | 0 | 14 | 117 | 44 | 0 |
| 08:45 AM | 10 | 11 | 13 | 0 | 1 | 256 | 16 | 0 | 25 | 6 | 1 | 0 | 11 | 167 | 49 | 0 |

| 2-Axle Trucks | Graham Street Southbound | | | | Cactus Avenue Westbound | | | | Graham Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 2 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 AM | 1 | 0 | 1 | 0 | 0 | 3 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 4 | 1 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 6 | 1 | 0 | 2 | 1 | 0 | 0 | 1 | 3 | 0 | 0 |
| 08:30 AM | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 3 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |

| 3-Axle Trucks | Graham Street Southbound | | | | Cactus Avenue Westbound | | | | Graham Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Graham Street Southbound | | | | Cactus Avenue Westbound | | | | Graham Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 08:00 AM | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 4 | 0 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #62 PM

Start Date: 11/16/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Graham Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Graham Street Southbound | | | | Cactus Avenue Westbound | | | | Graham Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 27 | 18 | 17 | 0 | 2 | 180 | 13 | 0 | 93 | 20 | 2 | 0 | 27 | 250 | 59 | 0 |
| 04:15 PM | 26 | 15 | 10 | 0 | 6 | 195 | 17 | 0 | 53 | 8 | 4 | 0 | 14 | 325 | 84 | 0 |
| 04:30 PM | 35 | 18 | 19 | 0 | 2 | 203 | 14 | 0 | 72 | 22 | 5 | 0 | 20 | 316 | 87 | 0 |
| 04:45 PM | 19 | 22 | 19 | 0 | 2 | 230 | 16 | 0 | 48 | 21 | 1 | 0 | 16 | 302 | 91 | 0 |
| 05:00 PM | 32 | 23 | 26 | 0 | 4 | 201 | 13 | 0 | 63 | 14 | 1 | 0 | 14 | 315 | 74 | 0 |
| 05:15 PM | 14 | 28 | 8 | 0 | 3 | 219 | 14 | 0 | 44 | 9 | 1 | 0 | 9 | 337 | 71 | 0 |
| 05:30 PM | 30 | 24 | 20 | 0 | 3 | 189 | 7 | 0 | 27 | 8 | 0 | 0 | 13 | 331 | 71 | 0 |
| 05:45 PM | 29 | 20 | 16 | 0 | 1 | 201 | 10 | 0 | 34 | 8 | 0 | 0 | 14 | 303 | 65 | 0 |

| 2-Axle Trucks | Graham Street Southbound | | | | Cactus Avenue Westbound | | | | Graham Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 04:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 2 | 0 |

| 3-Axle Trucks | Graham Street Southbound | | | | Cactus Avenue Westbound | | | | Graham Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Graham Street Southbound | | | | Cactus Avenue Westbound | | | | Graham Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #63 AM

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Heacock Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Clear

| Cars | Heacock Street Southbound | | | | Cactus Avenue Westbound | | | | Heacock Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 6 | 39 | 8 | 0 | 1 | 199 | 8 | 0 | 186 | 55 | 1 | 0 | 4 | 88 | 40 | 0 |
| 07:15 AM | 3 | 51 | 9 | 0 | 0 | 193 | 16 | 0 | 203 | 65 | 0 | 0 | 9 | 124 | 54 | 0 |
| 07:30 AM | 13 | 42 | 9 | 0 | 4 | 230 | 14 | 0 | 171 | 73 | 2 | 0 | 7 | 115 | 67 | 0 |
| 07:45 AM | 15 | 48 | 5 | 0 | 6 | 182 | 12 | 0 | 167 | 116 | 3 | 0 | 16 | 149 | 59 | 1 |
| 08:00 AM | 8 | 40 | 4 | 0 | 1 | 185 | 15 | 0 | 144 | 106 | 4 | 0 | 24 | 137 | 38 | 0 |
| 08:15 AM | 7 | 34 | 9 | 0 | 5 | 161 | 20 | 0 | 135 | 76 | 2 | 0 | 15 | 103 | 35 | 0 |
| 08:30 AM | 10 | 38 | 3 | 0 | 2 | 122 | 19 | 0 | 102 | 74 | 2 | 1 | 15 | 105 | 54 | 0 |
| 08:45 AM | 6 | 58 | 17 | 0 | 4 | 141 | 18 | 0 | 103 | 66 | 5 | 0 | 18 | 85 | 40 | 0 |

| 2-Axle Trucks | Heacock Street Southbound | | | | Cactus Avenue Westbound | | | | Heacock Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 3 | 0 | 0 |
| 07:45 AM | 1 | 0 | 0 | 0 | 1 | 2 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 3 | 3 | 0 | 1 | 2 | 0 | 0 | 0 | 4 | 2 | 0 |
| 08:15 AM | 2 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 3 | 1 | 0 | 0 | 3 | 1 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 4 | 1 | 0 | 0 | 1 | 4 | 3 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 1 | 2 | 0 |

| 3-Axle Trucks | Heacock Street Southbound | | | | Cactus Avenue Westbound | | | | Heacock Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Heacock Street Southbound | | | | Cactus Avenue Westbound | | | | Heacock Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 0 |
| 08:45 AM | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

**SITE #63 PM**

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Heacock Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Clear

| Cars | Heacock Street Southbound | | | | Cactus Avenue Westbound | | | | Heacock Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 17 | 100 | 8 | 0 | 2 | 109 | 21 | 0 | 100 | 94 | 4 | 0 | 22 | 213 | 105 | 0 |
| 04:15 PM | 12 | 83 | 11 | 0 | 2 | 114 | 25 | 0 | 107 | 82 | 1 | 0 | 21 | 189 | 136 | 0 |
| 04:30 PM | 23 | 100 | 7 | 0 | 2 | 139 | 22 | 0 | 87 | 81 | 5 | 0 | 12 | 193 | 133 | 0 |
| 04:45 PM | 25 | 90 | 7 | 0 | 2 | 114 | 17 | 0 | 91 | 81 | 2 | 0 | 17 | 222 | 125 | 0 |
| 05:00 PM | 16 | 102 | 11 | 0 | 3 | 127 | 13 | 0 | 67 | 60 | 7 | 0 | 16 | 194 | 133 | 0 |
| 05:15 PM | 25 | 78 | 4 | 0 | 5 | 119 | 19 | 0 | 91 | 81 | 2 | 0 | 10 | 207 | 147 | 0 |
| 05:30 PM | 36 | 118 | 9 | 0 | 2 | 137 | 12 | 0 | 85 | 80 | 8 | 0 | 14 | 209 | 155 | 0 |
| 05:45 PM | 19 | 103 | 6 | 0 | 0 | 115 | 14 | 0 | 68 | 69 | 5 | 0 | 8 | 217 | 142 | 0 |

| 2-Axle Trucks | Heacock Street Southbound | | | | Cactus Avenue Westbound | | | | Heacock Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 3 | 0 |
| 04:15 PM | 1 | 4 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 |
| 04:30 PM | 0 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 4 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 2 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 05:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 3 | 5 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 5 | 0 |

| 3-Axle Trucks | Heacock Street Southbound | | | | Cactus Avenue Westbound | | | | Heacock Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Heacock Street Southbound | | | | Cactus Avenue Westbound | | | | Heacock Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #64 AM

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Indian Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Clear

| Cars | Indian Street Southbound | | | | Cactus Avenue Westbound | | | | Indian Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 3 | 24 | 3 | 0 | 3 | 166 | 4 | 0 | 22 | 36 | 2 | 0 | 7 | 81 | 11 | 0 |
| 07:15 AM | 7 | 44 | 6 | 0 | 12 | 167 | 2 | 0 | 21 | 41 | 10 | 0 | 7 | 101 | 19 | 0 |
| 07:30 AM | 12 | 71 | 4 | 0 | 11 | 230 | 8 | 0 | 24 | 79 | 15 | 0 | 8 | 115 | 21 | 0 |
| 07:45 AM | 12 | 65 | 7 | 0 | 6 | 164 | 18 | 0 | 25 | 114 | 16 | 0 | 15 | 135 | 22 | 0 |
| 08:00 AM | 10 | 55 | 4 | 0 | 9 | 153 | 13 | 0 | 19 | 88 | 10 | 0 | 9 | 121 | 18 | 0 |
| 08:15 AM | 6 | 39 | 3 | 0 | 4 | 141 | 12 | 0 | 16 | 57 | 5 | 0 | 7 | 87 | 10 | 0 |
| 08:30 AM | 17 | 34 | 2 | 0 | 3 | 112 | 20 | 0 | 14 | 66 | 7 | 0 | 10 | 96 | 21 | 0 |
| 08:45 AM | 14 | 44 | 5 | 0 | 3 | 116 | 10 | 0 | 26 | 71 | 9 | 0 | 6 | 73 | 12 | 0 |

| 2-Axle Trucks | Indian Street Southbound | | | | Cactus Avenue Westbound | | | | Indian Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 0 | 0 | 3 | 6 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 5 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 5 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 1 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 08:30 AM | 0 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 3 | 1 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Indian Street Southbound | | | | Cactus Avenue Westbound | | | | Indian Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Indian Street Southbound | | | | Cactus Avenue Westbound | | | | Indian Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #64 PM**

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Indian Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Clear

| Cars | Indian Street Southbound | | | | Cactus Avenue Westbound | | | | Indian Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 6 | 69 | 3 | 0 | 3 | 97 | 7 | 0 | 8 | 55 | 5 | 0 | 8 | 126 | 10 | 0 |
| 04:15 PM | 9 | 66 | 9 | 0 | 6 | 117 | 10 | 0 | 15 | 54 | 5 | 0 | 13 | 152 | 23 | 0 |
| 04:30 PM | 23 | 49 | 7 | 0 | 16 | 119 | 11 | 0 | 15 | 68 | 3 | 0 | 13 | 175 | 17 | 0 |
| 04:45 PM | 12 | 60 | 3 | 0 | 8 | 120 | 8 | 0 | 10 | 54 | 3 | 0 | 16 | 191 | 12 | 0 |
| 05:00 PM | 14 | 86 | 9 | 0 | 7 | 127 | 13 | 0 | 13 | 56 | 3 | 0 | 13 | 166 | 23 | 0 |
| 05:15 PM | 13 | 83 | 4 | 0 | 7 | 111 | 8 | 0 | 7 | 57 | 6 | 0 | 14 | 171 | 30 | 0 |
| 05:30 PM | 14 | 68 | 7 | 0 | 7 | 126 | 12 | 0 | 15 | 66 | 12 | 0 | 10 | 169 | 24 | 0 |
| 05:45 PM | 14 | 107 | 6 | 0 | 5 | 111 | 9 | 0 | 13 | 45 | 7 | 0 | 21 | 164 | 23 | 0 |

| 2-Axle Trucks | Indian Street Southbound | | | | Cactus Avenue Westbound | | | | Indian Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 1 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 1 | 0 |

| 3-Axle Trucks | Indian Street Southbound | | | | Cactus Avenue Westbound | | | | Indian Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Indian Street Southbound | | | | Cactus Avenue Westbound | | | | Indian Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #65 AM

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Clear

| Cars | Perris Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 6 | 57 | 2 | 0 | 8 | 131 | 12 | 0 | 30 | 113 | 4 | 0 | 11 | 76 | 14 | 0 |
| 07:15 AM | 15 | 81 | 7 | 0 | 11 | 135 | 17 | 0 | 40 | 123 | 9 | 0 | 13 | 82 | 26 | 0 |
| 07:30 AM | 24 | 125 | 10 | 0 | 10 | 190 | 22 | 0 | 37 | 150 | 12 | 0 | 16 | 106 | 32 | 0 |
| 07:45 AM | 24 | 125 | 9 | 0 | 21 | 142 | 11 | 0 | 36 | 161 | 23 | 0 | 9 | 150 | 28 | 0 |
| 08:00 AM | 14 | 105 | 12 | 0 | 16 | 137 | 18 | 0 | 53 | 173 | 17 | 0 | 12 | 97 | 19 | 0 |
| 08:15 AM | 13 | 93 | 7 | 0 | 9 | 118 | 17 | 0 | 26 | 125 | 7 | 0 | 7 | 73 | 18 | 0 |
| 08:30 AM | 18 | 96 | 12 | 0 | 11 | 89 | 16 | 0 | 35 | 109 | 11 | 0 | 3 | 74 | 23 | 0 |
| 08:45 AM | 16 | 87 | 5 | 0 | 12 | 81 | 23 | 0 | 30 | 144 | 10 | 0 | 9 | 65 | 18 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 5 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 3 | 0 | 0 |
| 07:15 AM | 0 | 4 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 4 | 1 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:45 AM | 1 | 7 | 1 | 0 | 2 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 3 | 1 | 0 |
| 08:00 AM | 0 | 6 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 3 | 0 | 0 |
| 08:15 AM | 2 | 3 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 1 | 6 | 0 |
| 08:30 AM | 0 | 4 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 7 | 1 | 0 | 0 | 1 | 3 | 0 |
| 08:45 AM | 1 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #65 PM

Start Date: 2/28/2012
Comment 1: City of Moreno Valley
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Clear

| Cars | Perris Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 29 | 142 | 9 | 0 | 11 | 98 | 24 | 0 | 30 | 174 | 9 | 0 | 11 | 111 | 17 | 0 |
| 04:15 PM | 23 | 167 | 9 | 0 | 14 | 85 | 24 | 0 | 33 | 138 | 11 | 0 | 13 | 115 | 29 | 0 |
| 04:30 PM | 22 | 170 | 15 | 0 | 6 | 95 | 25 | 0 | 30 | 137 | 16 | 0 | 13 | 140 | 33 | 0 |
| 04:45 PM | 31 | 136 | 7 | 0 | 12 | 109 | 31 | 0 | 25 | 157 | 9 | 0 | 16 | 140 | 43 | 0 |
| 05:00 PM | 24 | 169 | 19 | 0 | 12 | 106 | 22 | 0 | 20 | 151 | 6 | 0 | 8 | 149 | 35 | 0 |
| 05:15 PM | 27 | 178 | 14 | 0 | 16 | 92 | 19 | 0 | 25 | 143 | 16 | 0 | 13 | 139 | 39 | 0 |
| 05:30 PM | 24 | 160 | 13 | 0 | 16 | 96 | 28 | 0 | 31 | 144 | 14 | 0 | 9 | 138 | 40 | 0 |
| 05:45 PM | 37 | 160 | 10 | 0 | 14 | 89 | 28 | 0 | 23 | 158 | 10 | 0 | 10 | 126 | 44 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 2 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 1 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:00 PM | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 1 | 5 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Cactus Avenue Westbound | | | | Perris Boulevard Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #67 AM

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: I-215 Northbound Ramps
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | I-215 Northbound On Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 182 | 40 | 0 | 200 | 2 | 36 | 0 | 25 | 119 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 250 | 42 | 0 | 215 | 0 | 98 | 0 | 13 | 165 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 279 | 31 | 0 | 202 | 0 | 65 | 0 | 27 | 193 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 219 | 36 | 0 | 190 | 0 | 65 | 0 | 32 | 187 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 192 | 44 | 0 | 132 | 1 | 57 | 0 | 35 | 171 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 198 | 49 | 0 | 88 | 0 | 43 | 0 | 42 | 153 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 155 | 50 | 0 | 104 | 0 | 35 | 0 | 59 | 154 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 164 | 42 | 0 | 84 | 0 | 43 | 0 | 47 | 148 | 0 | 0 |

| 2-Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 7 | 0 | 4 | 0 | 3 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 8 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 4 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 2 | 0 | 2 | 0 | 3 | 3 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 2 | 1 | 1 | 0 | 1 | 6 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 4 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |

| 3-Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |

| 4+ Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |

**SITE #67 PM**

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: I-215 Northbound Ramps
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | I-215 Northbound On Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 159 | 61 | 0 | 87 | 1 | 34 | 0 | 69 | 217 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 182 | 46 | 0 | 79 | 1 | 44 | 0 | 99 | 260 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 176 | 61 | 0 | 75 | 2 | 40 | 0 | 90 | 259 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 188 | 51 | 0 | 94 | 1 | 38 | 0 | 79 | 250 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 173 | 66 | 0 | 54 | 2 | 38 | 0 | 89 | 256 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 167 | 66 | 0 | 68 | 0 | 32 | 0 | 75 | 263 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 181 | 56 | 0 | 65 | 0 | 28 | 0 | 97 | 249 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 122 | 49 | 0 | 61 | 0 | 32 | 0 | 105 | 254 | 0 | 0 |

| 2-Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 1 | 1 | 2 | 0 | 2 | 3 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 4 | 0 | 2 | 0 | 2 | 5 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 5 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |

| 3-Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| 4+ Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

## SITE #68 AM

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: I-215 Southbound Ramps
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | I-215 Southbound Off Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 28 | 0 | 53 | 0 | 0 | 368 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 115 | 46 | 0 |
| 07:15 AM | 29 | 0 | 60 | 0 | 0 | 417 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 151 | 112 | 0 |
| 07:30 AM | 44 | 0 | 58 | 0 | 0 | 488 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 184 | 68 | 0 |
| 07:45 AM | 35 | 0 | 81 | 0 | 0 | 409 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 183 | 57 | 0 |
| 08:00 AM | 44 | 0 | 68 | 0 | 0 | 310 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175 | 72 | 0 |
| 08:15 AM | 27 | 0 | 67 | 0 | 0 | 259 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 164 | 47 | 0 |
| 08:30 AM | 25 | 0 | 43 | 0 | 0 | 237 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 181 | 74 | 0 |
| 08:45 AM | 44 | 0 | 35 | 0 | 0 | 204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 161 | 53 | 0 |

| 2-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 5 | 0 | 3 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 5 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 2 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| 08:00 AM | 4 | 0 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| 08:15 AM | 3 | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 |
| 08:30 AM | 2 | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 |
| 08:45 AM | 4 | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |

| 3-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |

| 4+ Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 3 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

**SITE #68 PM**

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: I-215 Southbound Ramps
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | I-215 Southbound Off Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 64 | 0 | 102 | 0 | 0 | 213 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 238 | 108 | 0 |
| 04:15 PM | 48 | 0 | 93 | 0 | 0 | 209 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 301 | 117 | 0 |
| 04:30 PM | 48 | 0 | 99 | 0 | 0 | 221 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 309 | 119 | 0 |
| 04:45 PM | 45 | 0 | 101 | 0 | 0 | 231 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 268 | 128 | 0 |
| 05:00 PM | 59 | 0 | 102 | 0 | 0 | 224 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 306 | 131 | 0 |
| 05:15 PM | 56 | 0 | 96 | 0 | 0 | 206 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 290 | 139 | 0 |
| 05:30 PM | 49 | 0 | 100 | 0 | 0 | 209 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 296 | 147 | 0 |
| 05:45 PM | 50 | 0 | 75 | 0 | 0 | 157 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 293 | 123 | 0 |

| 2-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 04:15 PM | 3 | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:30 PM | 3 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 |
| 04:45 PM | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 05:00 PM | 2 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:15 PM | 2 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 |
| 05:30 PM | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 |
| 05:45 PM | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 |

| 3-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Alessandro Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |

**SITE #69 AM**

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Old 215 Frontage Road
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Old 215 Frontage Road Southbound | | | | Alessandro Boulevard Westbound | | | | Old 215 Frontage Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 4 | 3 | 35 | 0 | 0 | 176 | 16 | 0 | 8 | 35 | 0 | 0 | 53 | 108 | 1 | 0 |
| 07:15 AM | 5 | 6 | 39 | 0 | 0 | 222 | 19 | 0 | 13 | 47 | 0 | 0 | 99 | 163 | 2 | 0 |
| 07:30 AM | 10 | 2 | 45 | 0 | 0 | 261 | 20 | 0 | 16 | 40 | 0 | 0 | 75 | 171 | 1 | 0 |
| 07:45 AM | 2 | 2 | 36 | 0 | 0 | 220 | 24 | 0 | 11 | 51 | 1 | 0 | 75 | 196 | 2 | 0 |
| 08:00 AM | 3 | 0 | 34 | 0 | 0 | 210 | 28 | 0 | 6 | 16 | 0 | 0 | 55 | 174 | 1 | 0 |
| 08:15 AM | 8 | 2 | 43 | 0 | 1 | 199 | 12 | 0 | 5 | 11 | 0 | 0 | 42 | 137 | 2 | 0 |
| 08:30 AM | 6 | 4 | 36 | 0 | 2 | 156 | 11 | 0 | 3 | 14 | 0 | 0 | 40 | 151 | 0 | 0 |
| 08:45 AM | 12 | 3 | 28 | 0 | 0 | 169 | 14 | 0 | 2 | 8 | 1 | 0 | 32 | 157 | 2 | 0 |

| 2-Axle Trucks | Old 215 Frontage Road Southbound | | | | Alessandro Boulevard Westbound | | | | Old 215 Frontage Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 07:15 AM | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 |
| 07:30 AM | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 5 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 3 | 0 | 0 |
| 08:45 AM | 2 | 0 | 1 | 0 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 0 | 0 |

| 3-Axle Trucks | Old 215 Frontage Road Southbound | | | | Alessandro Boulevard Westbound | | | | Old 215 Frontage Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |

| 4+ Axle Trucks | Old 215 Frontage Road Southbound | | | | Alessandro Boulevard Westbound | | | | Old 215 Frontage Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |

**SITE #69 PM**

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Old 215 Frontage Road
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Old 215 Frontage Road Southbound | | | | Alessandro Boulevard Westbound | | | | Old 215 Frontage Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 14 | 10 | 38 | 0 | 2 | 190 | 20 | 0 | 2 | 11 | 0 | 0 | 38 | 214 | 1 | 0 |
| 04:15 PM | 16 | 7 | 26 | 0 | 1 | 191 | 29 | 0 | 3 | 12 | 1 | 0 | 47 | 258 | 1 | 0 |
| 04:30 PM | 18 | 13 | 45 | 0 | 1 | 186 | 15 | 1 | 6 | 7 | 1 | 0 | 44 | 253 | 2 | 0 |
| 04:45 PM | 19 | 10 | 38 | 0 | 1 | 191 | 24 | 0 | 3 | 9 | 0 | 0 | 48 | 243 | 4 | 0 |
| 05:00 PM | 18 | 5 | 41 | 0 | 0 | 221 | 23 | 0 | 0 | 6 | 1 | 0 | 44 | 228 | 7 | 0 |
| 05:15 PM | 9 | 10 | 41 | 0 | 1 | 193 | 20 | 0 | 1 | 8 | 0 | 0 | 39 | 248 | 3 | 0 |
| 05:30 PM | 25 | 10 | 41 | 0 | 0 | 169 | 18 | 0 | 2 | 17 | 0 | 0 | 46 | 233 | 3 | 0 |
| 05:45 PM | 9 | 11 | 38 | 0 | 1 | 156 | 17 | 0 | 4 | 9 | 0 | 0 | 47 | 251 | 1 | 0 |

| 2-Axle Trucks | Old 215 Frontage Road Southbound | | | | Alessandro Boulevard Westbound | | | | Old 215 Frontage Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 04:30 PM | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |

| 3-Axle Trucks | Old 215 Frontage Road Southbound | | | | Alessandro Boulevard Westbound | | | | Old 215 Frontage Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Old 215 Frontage Road Southbound | | | | Alessandro Boulevard Westbound | | | | Old 215 Frontage Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #70 AM

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Day Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Day Street Southbound | | | | Alessandro Boulevard Westbound | | | | Day Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 2 | 0 | 3 | 189 | 0 | 0 | 0 | 2 | 2 | 0 | 3 | 97 | 1 | 0 |
| 07:15 AM | 3 | 0 | 1 | 0 | 1 | 270 | 3 | 0 | 0 | 0 | 6 | 0 | 10 | 154 | 4 | 0 |
| 07:30 AM | 3 | 1 | 4 | 0 | 2 | 255 | 5 | 0 | 0 | 0 | 3 | 0 | 2 | 180 | 2 | 0 |
| 07:45 AM | 3 | 1 | 5 | 0 | 2 | 222 | 6 | 0 | 1 | 2 | 3 | 0 | 14 | 189 | 7 | 0 |
| 08:00 AM | 1 | 0 | 8 | 0 | 1 | 234 | 7 | 0 | 0 | 1 | 0 | 0 | 2 | 159 | 1 | 0 |
| 08:15 AM | 1 | 0 | 6 | 0 | 1 | 187 | 8 | 0 | 0 | 2 | 1 | 0 | 4 | 145 | 1 | 0 |
| 08:30 AM | 3 | 0 | 2 | 0 | 2 | 168 | 7 | 0 | 0 | 2 | 1 | 0 | 6 | 133 | 0 | 0 |
| 08:45 AM | 6 | 0 | 4 | 0 | 4 | 165 | 8 | 0 | 2 | 3 | 2 | 0 | 4 | 161 | 0 | 0 |

| 2-Axle Trucks | Day Street Southbound | | | | Alessandro Boulevard Westbound | | | | Day Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 4 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 7 | 0 | 0 |

| 3-Axle Trucks | Day Street Southbound | | | | Alessandro Boulevard Westbound | | | | Day Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Day Street Southbound | | | | Alessandro Boulevard Westbound | | | | Day Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |

**SITE #70 PM**

Start Date: 11/29/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Day Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Day Street Southbound | | | | Alessandro Boulevard Westbound | | | | Day Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 8 | 0 | 4 | 194 | 17 | 0 | 2 | 0 | 2 | 0 | 7 | 227 | 1 | 0 |
| 04:15 PM | 1 | 1 | 10 | 0 | 1 | 195 | 9 | 0 | 2 | 3 | 3 | 0 | 12 | 250 | 5 | 0 |
| 04:30 PM | 4 | 0 | 7 | 0 | 2 | 207 | 18 | 0 | 3 | 2 | 4 | 0 | 9 | 253 | 1 | 0 |
| 04:45 PM | 3 | 0 | 5 | 0 | 1 | 203 | 13 | 0 | 1 | 3 | 2 | 0 | 12 | 249 | 2 | 0 |
| 05:00 PM | 2 | 0 | 3 | 0 | 1 | 215 | 11 | 0 | 4 | 4 | 3 | 0 | 16 | 235 | 0 | 0 |
| 05:15 PM | 2 | 0 | 6 | 0 | 0 | 185 | 11 | 0 | 7 | 2 | 1 | 0 | 10 | 241 | 0 | 0 |
| 05:30 PM | 1 | 0 | 7 | 0 | 0 | 180 | 10 | 0 | 0 | 1 | 0 | 0 | 8 | 241 | 0 | 0 |
| 05:45 PM | 0 | 0 | 3 | 0 | 2 | 148 | 8 | 0 | 2 | 0 | 3 | 0 | 12 | 240 | 1 | 0 |

| 2-Axle Trucks | Day Street Southbound | | | | Alessandro Boulevard Westbound | | | | Day Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 0 |

| 3-Axle Trucks | Day Street Southbound | | | | Alessandro Boulevard Westbound | | | | Day Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Day Street Southbound | | | | Alessandro Boulevard Westbound | | | | Day Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #71 AM

Start Date: 11/17/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Elsworth Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Elsworth Street Southbound | | | | Alessandro Boulevard Westbound | | | | Elsworth Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 4 | 36 | 21 | 0 | 18 | 214 | 10 | 0 | 13 | 15 | 2 | 0 | 6 | 121 | 13 | 0 |
| 07:15 AM | 6 | 34 | 17 | 0 | 20 | 259 | 11 | 0 | 12 | 17 | 10 | 0 | 5 | 124 | 12 | 0 |
| 07:30 AM | 9 | 39 | 18 | 0 | 26 | 234 | 14 | 0 | 15 | 16 | 8 | 0 | 8 | 138 | 22 | 0 |
| 07:45 AM | 6 | 29 | 20 | 0 | 33 | 226 | 22 | 0 | 14 | 20 | 14 | 0 | 11 | 140 | 19 | 0 |
| 08:00 AM | 14 | 25 | 16 | 0 | 15 | 186 | 21 | 0 | 17 | 25 | 5 | 0 | 8 | 200 | 20 | 0 |
| 08:15 AM | 9 | 22 | 13 | 0 | 23 | 216 | 14 | 1 | 16 | 26 | 8 | 0 | 11 | 159 | 10 | 0 |
| 08:30 AM | 11 | 23 | 7 | 0 | 17 | 182 | 14 | 0 | 15 | 26 | 20 | 0 | 10 | 140 | 11 | 0 |
| 08:45 AM | 11 | 21 | 15 | 0 | 11 | 158 | 15 | 0 | 12 | 20 | 11 | 0 | 8 | 127 | 7 | 0 |

| 2-Axle Trucks | Elsworth Street Southbound | | | | Alessandro Boulevard Westbound | | | | Elsworth Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 1 | 3 | 1 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Elsworth Street Southbound | | | | Alessandro Boulevard Westbound | | | | Elsworth Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Elsworth Street Southbound | | | | Alessandro Boulevard Westbound | | | | Elsworth Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

**SITE #71 PM**

Start Date: 11/17/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Elsworth Street
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Elsworth Street Southbound | | | | Alessandro Boulevard Westbound | | | | Elsworth Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 10 | 27 | 16 | 0 | 28 | 191 | 23 | 0 | 18 | 46 | 34 | 0 | 16 | 238 | 9 | 0 |
| 04:15 PM | 18 | 32 | 18 | 0 | 20 | 145 | 18 | 0 | 20 | 34 | 17 | 0 | 20 | 207 | 11 | 0 |
| 04:30 PM | 20 | 25 | 23 | 0 | 15 | 205 | 24 | 0 | 32 | 33 | 34 | 0 | 17 | 261 | 18 | 0 |
| 04:45 PM | 26 | 35 | 21 | 0 | 22 | 181 | 15 | 0 | 25 | 49 | 25 | 0 | 25 | 233 | 13 | 0 |
| 05:00 PM | 21 | 26 | 14 | 0 | 23 | 230 | 22 | 0 | 30 | 36 | 28 | 0 | 20 | 251 | 22 | 0 |
| 05:15 PM | 17 | 45 | 12 | 0 | 16 | 160 | 18 | 0 | 25 | 33 | 22 | 0 | 23 | 245 | 17 | 0 |
| 05:30 PM | 16 | 47 | 25 | 0 | 16 | 177 | 23 | 0 | 16 | 32 | 18 | 0 | 31 | 310 | 11 | 0 |
| 05:45 PM | 15 | 38 | 19 | 0 | 19 | 159 | 19 | 0 | 21 | 33 | 22 | 0 | 31 | 250 | 13 | 0 |

| 2-Axle Trucks | Elsworth Street Southbound | | | | Alessandro Boulevard Westbound | | | | Elsworth Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 1 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Elsworth Street Southbound | | | | Alessandro Boulevard Westbound | | | | Elsworth Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Elsworth Street Southbound | | | | Alessandro Boulevard Westbound | | | | Elsworth Street Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #72 AM**

Start Date: 3/10/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: I-215 Southbound Ramps
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | I-215 Southbound Off Ramp Southbound | | | | Cactus Avenue Westbound | | | | I-215 Southbound On/Off Ramp Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 23 | 0 | 112 | 83 | 0 | 0 | 0 | 0 | 96 | 0 | 0 | 17 | 2 | 0 |
| 07:15 AM | 0 | 0 | 24 | 0 | 108 | 168 | 0 | 0 | 0 | 0 | 126 | 0 | 0 | 25 | 6 | 0 |
| 07:30 AM | 0 | 0 | 24 | 0 | 111 | 195 | 0 | 0 | 0 | 0 | 114 | 0 | 0 | 14 | 9 | 0 |
| 07:45 AM | 0 | 0 | 34 | 0 | 127 | 165 | 0 | 0 | 0 | 0 | 95 | 0 | 0 | 26 | 13 | 0 |
| 08:00 AM | 0 | 0 | 19 | 0 | 105 | 79 | 0 | 0 | 0 | 0 | 90 | 0 | 0 | 16 | 10 | 0 |
| 08:15 AM | 0 | 0 | 10 | 0 | 94 | 51 | 0 | 0 | 0 | 0 | 80 | 0 | 0 | 18 | 5 | 0 |
| 08:30 AM | 0 | 0 | 13 | 0 | 70 | 51 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 14 | 12 | 0 |
| 08:45 AM | 0 | 0 | 12 | 0 | 67 | 44 | 0 | 0 | 0 | 0 | 69 | 0 | 0 | 24 | 10 | 0 |

| 2-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Cactus Avenue Westbound | | | | I-215 Southbound On/Off Ramp Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 1 | 0 |
| 08:30 AM | 0 | 0 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 0 | 0 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

| 3-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Cactus Avenue Westbound | | | | I-215 Southbound On/Off Ramp Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

| 4+ Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Cactus Avenue Westbound | | | | I-215 Southbound On/Off Ramp Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | 1 | 0 |
| 07:15 AM | 0 | 0 | 4 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 2 | 0 |
| 07:30 AM | 0 | 0 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 1 | 0 |
| 07:45 AM | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 |
| 08:00 AM | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 5 | 2 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 5 | 4 | 0 |
| 08:30 AM | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 7 | 3 | 0 |
| 08:45 AM | 0 | 0 | 8 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 6 | 1 | 0 |

**SITE #72 PM**

Start Date: 3/10/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: I-215 Southbound
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | I-215 Southbound Off Ramp Southbound | | | | Cactus Avenue Westbound | | | | I-215 Southbound On/Off Ramp Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 12 | 0 | 180 | 35 | 0 | 0 | 0 | 0 | 154 | 0 | 0 | 58 | 18 | 0 |
| 04:15 PM | 0 | 0 | 7 | 0 | 166 | 38 | 0 | 0 | 0 | 0 | 153 | 0 | 0 | 55 | 17 | 0 |
| 04:30 PM | 0 | 0 | 8 | 0 | 186 | 26 | 0 | 0 | 0 | 0 | 151 | 0 | 0 | 56 | 32 | 0 |
| 04:45 PM | 0 | 0 | 9 | 0 | 147 | 20 | 0 | 0 | 0 | 0 | 177 | 0 | 0 | 62 | 14 | 0 |
| 05:00 PM | 0 | 0 | 14 | 0 | 182 | 30 | 0 | 0 | 0 | 0 | 152 | 0 | 0 | 74 | 39 | 0 |
| 05:15 PM | 0 | 0 | 8 | 0 | 138 | 30 | 0 | 0 | 0 | 0 | 159 | 0 | 0 | 59 | 42 | 0 |
| 05:30 PM | 0 | 0 | 12 | 0 | 130 | 22 | 0 | 0 | 0 | 0 | 138 | 0 | 0 | 77 | 27 | 0 |
| 05:45 PM | 0 | 0 | 9 | 0 | 117 | 20 | 0 | 0 | 0 | 0 | 149 | 0 | 0 | 67 | 27 | 0 |

| 2-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Cactus Avenue Westbound | | | | I-215 Southbound On/Off Ramp Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 04:15 PM | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Cactus Avenue Westbound | | | | I-215 Southbound On/Off Ramp Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Cactus Avenue Westbound | | | | I-215 Southbound On/Off Ramp Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

## SITE #73 AM

Start Date: 3/10/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: I-215 Northbound Ramps
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Old Frontage Road Southbound | | | | Cactus Avenue Westbound | | | | I-215 NB On-Off Ramps Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 0 | 0 | 0 | 0 | 0 | 183 | 146 | 20 | 0 | 23 | 0 | 20 | 1 | 190 | 0 |
| 07:15 AM | 3 | 0 | 2 | 0 | 0 | 0 | 230 | 150 | 17 | 0 | 45 | 0 | 16 | 0 | 174 | 0 |
| 07:30 AM | 3 | 0 | 3 | 0 | 0 | 0 | 225 | 116 | 40 | 0 | 78 | 0 | 25 | 1 | 134 | 0 |
| 07:45 AM | 2 | 0 | 2 | 0 | 0 | 0 | 217 | 110 | 27 | 0 | 65 | 0 | 22 | 4 | 137 | 0 |
| 08:00 AM | 7 | 0 | 2 | 0 | 0 | 0 | 163 | 120 | 19 | 0 | 24 | 0 | 10 | 1 | 100 | 0 |
| 08:15 AM | 3 | 0 | 0 | 0 | 0 | 0 | 119 | 138 | 21 | 0 | 24 | 0 | 6 | 2 | 85 | 0 |
| 08:30 AM | 6 | 0 | 2 | 1 | 0 | 0 | 106 | 147 | 12 | 0 | 16 | 0 | 3 | 1 | 78 | 0 |
| 08:45 AM | 3 | 0 | 1 | 4 | 0 | 0 | 93 | 88 | 14 | 0 | 13 | 0 | 4 | 0 | 90 | 0 |

| 2-Axle Trucks | Old Frontage Road Southbound | | | | Cactus Avenue Westbound | | | | I-215 NB On-Off Ramps Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 6 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 7 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 5 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 3 | 0 | 0 | 2 | 0 | 1 | 0 | 3 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |

| 3-Axle Trucks | Old Frontage Road Southbound | | | | Cactus Avenue Westbound | | | | I-215 NB On-Off Ramps Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| 4+ Axle Trucks | Old Frontage Road Southbound | | | | Cactus Avenue Westbound | | | | I-215 NB On-Off Ramps Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:00 AM | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 3 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

## SITE #73 PM

Start Date: 3/10/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: I-215 Northbound Ramps
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Old Frontage Road Southbound | | | | Cactus Avenue Westbound | | | | I-215 NB On-Off Ramps Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 15 | 0 | 0 | 3 | 0 | 0 | 202 | 182 | 12 | 0 | 7 | 0 | 4 | 1 | 137 | 0 |
| 04:15 PM | 4 | 0 | 2 | 4 | 0 | 0 | 202 | 211 | 10 | 0 | 1 | 0 | 2 | 1 | 130 | 0 |
| 04:30 PM | 8 | 0 | 3 | 2 | 0 | 0 | 200 | 185 | 11 | 0 | 8 | 0 | 4 | 0 | 108 | 0 |
| 04:45 PM | 15 | 0 | 4 | 3 | 0 | 0 | 157 | 173 | 10 | 0 | 8 | 0 | 2 | 0 | 104 | 0 |
| 05:00 PM | 14 | 0 | 1 | 7 | 0 | 0 | 197 | 144 | 8 | 0 | 3 | 0 | 7 | 0 | 95 | 0 |
| 05:15 PM | 18 | 0 | 4 | 4 | 0 | 0 | 150 | 128 | 10 | 0 | 6 | 0 | 3 | 0 | 102 | 0 |
| 05:30 PM | 14 | 1 | 1 | 10 | 0 | 0 | 136 | 117 | 6 | 0 | 4 | 0 | 3 | 0 | 92 | 0 |
| 05:45 PM | 26 | 0 | 0 | 7 | 0 | 0 | 130 | 130 | 6 | 0 | 5 | 0 | 1 | 1 | 91 | 0 |

| 2-Axle Trucks | Old Frontage Road Southbound | | | | Cactus Avenue Westbound | | | | I-215 NB On-Off Ramps Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 04:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 1 | 0 | 1 | 0 | 5 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 1 | 0 | 0 | 1 | 0 | 3 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 05:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 4 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| 05:30 PM | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 4 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Old Frontage Road Southbound | | | | Cactus Avenue Westbound | | | | I-215 NB On-Off Ramps Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 4+ Axle Trucks | Old Frontage Road Southbound | | | | Cactus Avenue Westbound | | | | I-215 NB On-Off Ramps Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #74 AM

Start Date: 11/17/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Graeber Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Elsworth Street Southbound | | | | Cactus Avenue Westbound | | | | Graeber Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 13 | 26 | 21 | 0 | 27 | 295 | 6 | 0 | 13 | 5 | 9 | 0 | 25 | 210 | 50 | 0 |
| 07:15 AM | 5 | 24 | 20 | 0 | 32 | 276 | 11 | 0 | 9 | 7 | 7 | 0 | 22 | 200 | 79 | 0 |
| 07:30 AM | 17 | 30 | 22 | 0 | 18 | 286 | 10 | 0 | 10 | 4 | 5 | 0 | 32 | 213 | 65 | 1 |
| 07:45 AM | 22 | 30 | 17 | 0 | 39 | 309 | 27 | 0 | 10 | 4 | 6 | 0 | 19 | 226 | 53 | 0 |
| 08:00 AM | 7 | 31 | 15 | 0 | 14 | 218 | 19 | 0 | 12 | 4 | 4 | 0 | 29 | 191 | 27 | 0 |
| 08:15 AM | 14 | 9 | 15 | 0 | 7 | 189 | 11 | 1 | 16 | 3 | 6 | 0 | 31 | 193 | 17 | 0 |
| 08:30 AM | 18 | 16 | 15 | 0 | 13 | 173 | 29 | 0 | 13 | 5 | 10 | 0 | 34 | 149 | 21 | 0 |
| 08:45 AM | 19 | 18 | 11 | 0 | 10 | 203 | 26 | 0 | 8 | 6 | 8 | 0 | 23 | 183 | 23 | 0 |

| 2-Axle Trucks | Elsworth Street Southbound | | | | Cactus Avenue Westbound | | | | Graeber Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |

| 3-Axle Trucks | Elsworth Street Southbound | | | | Cactus Avenue Westbound | | | | Graeber Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Elsworth Street Southbound | | | | Cactus Avenue Westbound | | | | Graeber Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #74 PM**

Start Date: 11/17/2011
Comment 1: City of Moreno Valley
Comment 2: N/S: Graeber Street
Comment 3: E/W: Cactus Avenue
Comment 4: Weather: Sunny

| Cars | Elsworth Street Southbound | | | | Cactus Avenue Westbound | | | | Graeber Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 25 | 5 | 31 | 0 | 4 | 238 | 24 | 0 | 114 | 42 | 55 | 0 | 20 | 275 | 5 | 0 |
| 04:15 PM | 37 | 7 | 36 | 0 | 15 | 220 | 26 | 0 | 112 | 22 | 32 | 0 | 19 | 276 | 7 | 0 |
| 04:30 PM | 24 | 15 | 36 | 0 | 5 | 261 | 18 | 0 | 116 | 20 | 46 | 0 | 21 | 298 | 2 | 0 |
| 04:45 PM | 32 | 11 | 27 | 0 | 10 | 258 | 21 | 0 | 79 | 27 | 44 | 0 | 33 | 285 | 4 | 0 |
| 05:00 PM | 49 | 10 | 40 | 0 | 9 | 252 | 19 | 0 | 61 | 22 | 30 | 0 | 30 | 298 | 7 | 0 |
| 05:15 PM | 34 | 3 | 40 | 0 | 9 | 264 | 22 | 0 | 48 | 20 | 21 | 0 | 31 | 335 | 3 | 0 |
| 05:30 PM | 41 | 6 | 28 | 0 | 7 | 226 | 18 | 0 | 25 | 7 | 10 | 0 | 25 | 347 | 0 | 0 |
| 05:45 PM | 36 | 5 | 23 | 0 | 5 | 206 | 30 | 0 | 19 | 10 | 9 | 0 | 27 | 294 | 5 | 0 |

| 2-Axle Trucks | Elsworth Street Southbound | | | | Cactus Avenue Westbound | | | | Graeber Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:15 PM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 04:45 PM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |

| 3-Axle Trucks | Elsworth Street Southbound | | | | Cactus Avenue Westbound | | | | Graeber Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Elsworth Street Southbound | | | | Cactus Avenue Westbound | | | | Graeber Street Northbound | | | | Cactus Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 2 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 |
| 04:30 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #75 AM

Start Date: 11/16/2011
Comment 1: City of Riverside
Comment 2: N/S: Lochmoor Drive
Comment 3: E/W: Central Avenue
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Central Avenue Westbound | | | | Lochmoor Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 89 | 0 | 0 | 48 | 0 | 10 | 0 | 0 | 100 | 10 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 116 | 0 | 0 | 57 | 0 | 17 | 0 | 0 | 112 | 6 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 2 | 149 | 0 | 0 | 88 | 0 | 14 | 1 | 0 | 148 | 14 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 128 | 0 | 0 | 63 | 0 | 12 | 0 | 0 | 141 | 16 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 2 | 120 | 0 | 0 | 56 | 0 | 10 | 0 | 0 | 105 | 16 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 2 | 89 | 0 | 0 | 50 | 0 | 6 | 0 | 0 | 130 | 22 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 4 | 101 | 0 | 0 | 40 | 0 | 4 | 0 | 0 | 99 | 30 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 106 | 0 | 0 | 33 | 0 | 7 | 0 | 0 | 92 | 10 | 0 |

| 2-Axle Trucks | Southbound | | | | Central Avenue Westbound | | | | Lochmoor Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 2 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 3 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

| 3-Axle Trucks | Southbound | | | | Central Avenue Westbound | | | | Lochmoor Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Central Avenue Westbound | | | | Lochmoor Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #75 PM

Start Date: 11/16/2011
Comment 1: City of Riverside
Comment 2: N/S: Lochmoor Drive
Comment 3: E/W: Central Avenue
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 8 | 131 | 0 | 0 | 12 | 0 | 3 | 0 | 0 | 132 | 56 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 4 | 117 | 0 | 0 | 21 | 0 | 7 | 0 | 0 | 174 | 43 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 4 | 174 | 0 | 0 | 18 | 0 | 2 | 0 | 0 | 155 | 39 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 5 | 127 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 212 | 45 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 2 | 170 | 0 | 0 | 23 | 0 | 7 | 0 | 0 | 194 | 52 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 5 | 154 | 0 | 0 | 21 | 0 | 5 | 0 | 0 | 255 | 57 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 10 | 136 | 0 | 0 | 24 | 0 | 1 | 0 | 14 | 209 | 53 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 27 | 96 | 0 | 0 | 23 | 0 | 3 | 0 | 0 | 225 | 55 | 0 |

| 2-Axle Trucks | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #76 AM

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: Sycamore Canyon Boulevard
Comment 3: E/W: Central Avenue
Comment 4: Weather: Clear

| Cars | Sycamore Canyon Boulevard Southbound | | | | Central Avenue Westbound | | | | Sycamore Canyon Boulevard Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 18 | 2 | 2 | 0 | 4 | 56 | 5 | 0 | 71 | 36 | 133 | 0 | 0 | 98 | 9 | 0 |
| 07:15 AM | 9 | 4 | 0 | 0 | 6 | 41 | 7 | 0 | 126 | 84 | 189 | 0 | 2 | 127 | 25 | 0 |
| 07:30 AM | 15 | 1 | 3 | 0 | 6 | 45 | 9 | 0 | 110 | 87 | 219 | 0 | 2 | 128 | 23 | 0 |
| 07:45 AM | 16 | 5 | 1 | 0 | 7 | 50 | 3 | 0 | 105 | 63 | 201 | 0 | 2 | 122 | 37 | 0 |
| 08:00 AM | 13 | 6 | 2 | 0 | 5 | 76 | 4 | 0 | 88 | 40 | 106 | 0 | 0 | 98 | 29 | 0 |
| 08:15 AM | 13 | 3 | 2 | 0 | 11 | 58 | 1 | 0 | 71 | 38 | 90 | 0 | 3 | 82 | 25 | 0 |
| 08:30 AM | 11 | 2 | 5 | 0 | 8 | 52 | 6 | 0 | 61 | 38 | 97 | 0 | 1 | 101 | 25 | 0 |
| 08:45 AM | 10 | 2 | 0 | 0 | 6 | 49 | 12 | 0 | 41 | 32 | 60 | 0 | 0 | 97 | 18 | 0 |

| 2-Axle Trucks | Sycamore Canyon Boulevard Southbound | | | | Central Avenue Westbound | | | | Sycamore Canyon Boulevard Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | 0 | 3 | 0 | 0 | 1 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 1 | 2 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Sycamore Canyon Boulevard Southbound | | | | Central Avenue Westbound | | | | Sycamore Canyon Boulevard Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Sycamore Canyon Boulevard Southbound | | | | Central Avenue Westbound | | | | Sycamore Canyon Boulevard Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #76 PM

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: Sycamore Canyon Boulevard
Comment 3: E/W: Central Avenue
Comment 4: Weather: Clear

| Cars | Sycamore Canyon Boulevard Southbound | | | | Central Avenue Westbound | | | | Sycamore Canyon Boulevard Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 14 | 8 | 2 | 0 | 32 | 97 | 20 | 0 | 34 | 7 | 11 | 0 | 0 | 102 | 53 | 0 |
| 04:15 PM | 13 | 13 | 3 | 0 | 22 | 80 | 12 | 0 | 40 | 12 | 14 | 0 | 4 | 117 | 74 | 0 |
| 04:30 PM | 16 | 7 | 1 | 0 | 36 | 92 | 16 | 0 | 33 | 3 | 13 | 0 | 2 | 111 | 66 | 0 |
| 04:45 PM | 13 | 16 | 0 | 0 | 34 | 92 | 13 | 0 | 36 | 9 | 5 | 0 | 1 | 99 | 91 | 0 |
| 05:00 PM | 12 | 13 | 1 | 0 | 33 | 101 | 11 | 0 | 44 | 5 | 10 | 0 | 2 | 116 | 73 | 0 |
| 05:15 PM | 13 | 12 | 0 | 0 | 47 | 108 | 13 | 0 | 41 | 10 | 12 | 0 | 1 | 146 | 105 | 0 |
| 05:30 PM | 9 | 28 | 4 | 0 | 49 | 113 | 18 | 0 | 32 | 12 | 9 | 0 | 1 | 140 | 107 | 0 |
| 05:45 PM | 4 | 24 | 7 | 0 | 46 | 106 | 15 | 0 | 34 | 7 | 11 | 0 | 7 | 118 | 124 | 0 |

| 2-Axle Trucks | Sycamore Canyon Boulevard Southbound | | | | Central Avenue Westbound | | | | Sycamore Canyon Boulevard Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 |
| 04:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |

| 3-Axle Trucks | Sycamore Canyon Boulevard Southbound | | | | Central Avenue Westbound | | | | Sycamore Canyon Boulevard Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Sycamore Canyon Boulevard Southbound | | | | Central Avenue Westbound | | | | Sycamore Canyon Boulevard Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #77 AM

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: Central Avenue
Comment 3: E/W: SR-60 Eastbound Ramps
Comment 4: Weather: Clear

| Cars | Central Avenue Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Central Avenue Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 24 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 192 | 57 | 0 | 1 | 2 | 14 | 0 |
| 07:15 AM | 17 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 255 | 84 | 0 | 5 | 0 | 11 | 0 |
| 07:30 AM | 18 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 302 | 62 | 0 | 3 | 2 | 9 | 0 |
| 07:45 AM | 18 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 277 | 65 | 0 | 6 | 1 | 10 | 0 |
| 08:00 AM | 18 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 158 | 62 | 0 | 6 | 0 | 12 | 0 |
| 08:15 AM | 16 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157 | 34 | 0 | 5 | 0 | 8 | 0 |
| 08:30 AM | 19 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 69 | 0 | 3 | 0 | 11 | 0 |
| 08:45 AM | 16 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 105 | 65 | 0 | 3 | 1 | 10 | 0 |

| 2-Axle Trucks | Central Avenue Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Central Avenue Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 0 |
| 07:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 1 | 0 |
| 07:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 1 | 0 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Central Avenue Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Central Avenue Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |

| 4+ Axle Trucks | Central Avenue Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Central Avenue Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #77 PM

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: Central Avenue
Comment 3: E/W: SR-60 Eastbound Ramps
Comment 4: Weather: Clear

| Cars | Central Avenue Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Central Avenue Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 95 | 122 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 84 | 0 | 5 | 0 | 30 | 0 |
| 04:15 PM | 86 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 86 | 0 | 4 | 1 | 14 | 0 |
| 04:30 PM | 104 | 133 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 87 | 0 | 2 | 2 | 20 | 0 |
| 04:45 PM | 97 | 128 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 94 | 0 | 4 | 1 | 11 | 0 |
| 05:00 PM | 112 | 135 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 90 | 0 | 7 | 0 | 23 | 0 |
| 05:15 PM | 151 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 113 | 0 | 2 | 1 | 28 | 0 |
| 05:30 PM | 113 | 148 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 115 | 0 | 3 | 1 | 17 | 0 |
| 05:45 PM | 113 | 144 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 92 | 0 | 2 | 0 | 21 | 0 |

| 2-Axle Trucks | Central Avenue Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Central Avenue Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Central Avenue Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Central Avenue Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| 4+ Axle Trucks | Central Avenue Southbound | | | | SR-60 Eastbound On Ramp Westbound | | | | Central Avenue Northbound | | | | SR-60 Eastbound Off Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #78A AM

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: Central Ave / Watkins Drive
Comment 3: E/W: SR-60 Westbound Off Ramp
Comment 4: Weather: Clear

| Cars | Central Avenue / Watkins Drive Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 35 | 0 | 0 | 29 | 0 | 37 | 0 | 0 | 184 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 24 | 0 | 0 | 28 | 0 | 49 | 0 | 0 | 257 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 33 | 0 | 0 | 28 | 0 | 70 | 0 | 0 | 307 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 35 | 0 | 0 | 20 | 0 | 72 | 0 | 0 | 266 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 40 | 0 | 0 | 51 | 0 | 62 | 0 | 0 | 159 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 33 | 0 | 0 | 41 | 0 | 50 | 0 | 0 | 155 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 29 | 0 | 0 | 43 | 0 | 47 | 0 | 0 | 151 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 19 | 0 | 0 | 40 | 0 | 64 | 0 | 0 | 114 | 0 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #78A PM

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: Central Avenue / Watkins Drive
Comment 3: E/W: SR-60 Westbound Off Ramp
Comment 4: Weather: Clear

| Cars | Central Avenue / Watkins Drive Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 159 | 0 | 0 | 73 | 0 | 34 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 110 | 0 | 0 | 61 | 0 | 29 | 0 | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 161 | 0 | 0 | 89 | 0 | 35 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 151 | 0 | 0 | 79 | 0 | 25 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 181 | 0 | 0 | 72 | 0 | 44 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 218 | 0 | 0 | 74 | 0 | 35 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 190 | 0 | 0 | 70 | 0 | 27 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 172 | 0 | 0 | 85 | 0 | 30 | 0 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | SR-60 Westbound Off Ramp Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #78B AM

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: Central Avenue / Watkins Drive
Comment 3: E/W: SR-60 Westbound On Ramp
Comment 4: Weather: Clear

| Cars | Central Avenue / Watkins Drive Southbound | | | | Dirt Road Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 35 | 2 | 0 | 4 | 6 | 1 | 0 | 110 | 103 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 26 | 2 | 0 | 0 | 5 | 0 | 0 | 159 | 153 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 35 | 11 | 0 | 0 | 3 | 11 | 0 | 163 | 208 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 36 | 11 | 0 | 0 | 1 | 7 | 0 | 138 | 217 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 47 | 5 | 0 | 0 | 3 | 2 | 0 | 96 | 115 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 33 | 5 | 0 | 0 | 2 | 0 | 0 | 105 | 93 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 29 | 5 | 0 | 1 | 0 | 1 | 0 | 97 | 93 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 18 | 3 | 0 | 0 | 1 | 1 | 0 | 61 | 106 | 0 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | Dirt Road Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | Dirt Road Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | Dirt Road Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #78B PM**

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: Central Avenue / Watkins Drive
Comment 3: E/W: SR-60 Westbound On Ramp
Comment 4: Weather: Clear

| Cars | Central Avenue / Watkins Drive Southbound | | | | Dirt Road Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 2 | 147 | 5 | 0 | 1 | 1 | 0 | 0 | 15 | 64 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 5 | 106 | 8 | 0 | 0 | 0 | 0 | 0 | 26 | 52 | 3 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 3 | 159 | 4 | 0 | 1 | 0 | 1 | 0 | 26 | 56 | 2 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 4 | 149 | 5 | 0 | 0 | 1 | 1 | 0 | 16 | 42 | 2 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 6 | 174 | 5 | 0 | 1 | 0 | 1 | 0 | 17 | 73 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 5 | 222 | 4 | 0 | 0 | 0 | 0 | 0 | 17 | 54 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 6 | 187 | 2 | 0 | 1 | 1 | 0 | 0 | 19 | 52 | 2 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 8 | 171 | 7 | 0 | 1 | 1 | 1 | 0 | 16 | 49 | 1 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | Dirt Road Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | Dirt Road Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Central Avenue / Watkins Drive Southbound | | | | Dirt Road Westbound | | | | Central Avenue / Watkins Drive Northbound | | | | SR-60 Westbound On Ramp Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #79 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Trautw ein Road
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Alessandro Boulevard Westbound | | | | Trautwein Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 17 | 434 | 0 | 0 | 380 | 0 | 2 | 0 | 0 | 149 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 33 | 433 | 0 | 0 | 517 | 0 | 2 | 0 | 0 | 171 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 27 | 500 | 0 | 0 | 517 | 0 | 1 | 0 | 0 | 161 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 22 | 393 | 0 | 0 | 461 | 0 | 2 | 0 | 0 | 187 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 28 | 365 | 0 | 0 | 349 | 0 | 2 | 0 | 0 | 200 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 25 | 348 | 0 | 0 | 297 | 0 | 1 | 0 | 0 | 192 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 24 | 264 | 0 | 0 | 283 | 0 | 2 | 0 | 0 | 213 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 32 | 225 | 0 | 0 | 263 | 0 | 1 | 0 | 0 | 180 | 1 | 0 |

| 2-Axle Trucks | Southbound | | | | Alessandro Boulevard Westbound | | | | Trautwein Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 2 | 6 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 4 | 0 | 0 |

| 3-Axle Trucks | Southbound | | | | Alessandro Boulevard Westbound | | | | Trautwein Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Alessandro Boulevard Westbound | | | | Trautwein Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

## SITE #79 PM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Trautw ein Road
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Alessandro Boulevard Westbound | | | | Trautwein Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 37 | 270 | 0 | 0 | 126 | 0 | 5 | 0 | 0 | 416 | 3 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 50 | 271 | 0 | 0 | 151 | 0 | 2 | 0 | 0 | 394 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 62 | 265 | 0 | 0 | 190 | 0 | 2 | 0 | 0 | 374 | 2 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 48 | 279 | 0 | 0 | 158 | 0 | 1 | 0 | 0 | 476 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 79 | 267 | 0 | 0 | 164 | 0 | 4 | 0 | 0 | 414 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 58 | 259 | 0 | 0 | 174 | 0 | 0 | 0 | 0 | 498 | 4 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 65 | 263 | 0 | 0 | 131 | 0 | 2 | 0 | 0 | 518 | 3 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 65 | 212 | 0 | 0 | 147 | 0 | 3 | 0 | 0 | 472 | 3 | 0 |

| 2-Axle Trucks | Southbound | | | | Alessandro Boulevard Westbound | | | | Trautwein Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |

| 3-Axle Trucks | Southbound | | | | Alessandro Boulevard Westbound | | | | Trautwein Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Alessandro Boulevard Westbound | | | | Trautwein Road Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #80 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Mission Grove Parkway
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Mission Grove Parkway Southbound | | | | Alessandro Boulevard Westbound | | | | Mission Grove Parkway Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 20 | 37 | 3 | 0 | 20 | 345 | 9 | 0 | 40 | 28 | 40 | 0 | 3 | 158 | 2 | 0 |
| 07:15 AM | 31 | 31 | 13 | 0 | 30 | 409 | 6 | 0 | 19 | 21 | 45 | 0 | 3 | 182 | 2 | 0 |
| 07:30 AM | 24 | 31 | 15 | 0 | 38 | 443 | 1 | 0 | 31 | 32 | 41 | 0 | 7 | 191 | 5 | 0 |
| 07:45 AM | 19 | 22 | 7 | 0 | 51 | 387 | 2 | 0 | 38 | 36 | 49 | 0 | 13 | 206 | 9 | 0 |
| 08:00 AM | 15 | 14 | 4 | 0 | 25 | 354 | 2 | 0 | 23 | 18 | 37 | 0 | 18 | 207 | 12 | 0 |
| 08:15 AM | 36 | 23 | 9 | 0 | 38 | 346 | 6 | 0 | 22 | 18 | 37 | 0 | 7 | 221 | 7 | 0 |
| 08:30 AM | 29 | 16 | 9 | 0 | 31 | 244 | 2 | 0 | 27 | 15 | 48 | 0 | 8 | 228 | 6 | 0 |
| 08:45 AM | 12 | 26 | 11 | 0 | 46 | 232 | 4 | 0 | 21 | 22 | 35 | 0 | 10 | 195 | 9 | 0 |

| 2-Axle Trucks | Mission Grove Parkway Southbound | | | | Alessandro Boulevard Westbound | | | | Mission Grove Parkway Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 3 | 2 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 5 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 7 | 0 | 0 |
| 08:00 AM | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 2 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 |

| 3-Axle Trucks | Mission Grove Parkway Southbound | | | | Alessandro Boulevard Westbound | | | | Mission Grove Parkway Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 4+ Axle Trucks | Mission Grove Parkway Southbound | | | | Alessandro Boulevard Westbound | | | | Mission Grove Parkway Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

**SITE #80 PM**

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Mission Grove Parkway
Comment 3: E/W: Alessandro Boulevard
Comment 4: Weather: Sunny

| Cars | Mission Grove Parkway Southbound | | | | Alessandro Boulevard Westbound | | | | Mission Grove Parkway Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 27 | 16 | 7 | 0 | 51 | 244 | 17 | 0 | 39 | 22 | 45 | 0 | 21 | 377 | 15 | 0 |
| 04:15 PM | 29 | 21 | 9 | 0 | 64 | 275 | 13 | 0 | 43 | 34 | 51 | 0 | 21 | 380 | 15 | 0 |
| 04:30 PM | 29 | 26 | 10 | 0 | 53 | 252 | 7 | 0 | 38 | 21 | 75 | 0 | 20 | 391 | 18 | 0 |
| 04:45 PM | 21 | 27 | 12 | 0 | 102 | 316 | 11 | 0 | 19 | 36 | 51 | 0 | 17 | 527 | 17 | 0 |
| 05:00 PM | 35 | 36 | 5 | 0 | 85 | 338 | 9 | 0 | 38 | 38 | 50 | 0 | 26 | 426 | 28 | 0 |
| 05:15 PM | 33 | 38 | 14 | 0 | 89 | 281 | 10 | 0 | 52 | 48 | 72 | 0 | 18 | 533 | 23 | 0 |
| 05:30 PM | 21 | 38 | 9 | 0 | 84 | 320 | 16 | 0 | 33 | 52 | 65 | 0 | 18 | 539 | 25 | 0 |
| 05:45 PM | 27 | 24 | 6 | 0 | 107 | 280 | 18 | 0 | 40 | 35 | 59 | 0 | 27 | 528 | 27 | 0 |

| 2-Axle Trucks | Mission Grove Parkway Southbound | | | | Alessandro Boulevard Westbound | | | | Mission Grove Parkway Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 3 | 0 | 0 |
| 05:30 PM | 1 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |

| 3-Axle Trucks | Mission Grove Parkway Southbound | | | | Alessandro Boulevard Westbound | | | | Mission Grove Parkway Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Mission Grove Parkway Southbound | | | | Alessandro Boulevard Westbound | | | | Mission Grove Parkway Northbound | | | | Alessandro Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #81 AM

Start Date: 10/10/2012
Comment 1: City of Riverside
Comment 2: N/S: Chicago Avenue
Comment 3: E/W: Martin Luther King Boulevard
Comment 4: Weather: Sunny

| Cars | Chicago Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Chicago Avenue Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 7 | 33 | 9 | 0 | 8 | 107 | 24 | 0 | 62 | 131 | 17 | 0 | 12 | 60 | 11 | 0 |
| 07:15 AM | 9 | 32 | 14 | 0 | 11 | 113 | 36 | 0 | 96 | 194 | 32 | 0 | 27 | 65 | 18 | 0 |
| 07:30 AM | 13 | 53 | 20 | 0 | 13 | 131 | 30 | 0 | 96 | 224 | 44 | 0 | 25 | 113 | 31 | 0 |
| 07:45 AM | 17 | 54 | 32 | 0 | 7 | 127 | 32 | 0 | 115 | 260 | 71 | 0 | 20 | 116 | 17 | 0 |
| 08:00 AM | 19 | 37 | 27 | 0 | 11 | 138 | 32 | 0 | 96 | 165 | 39 | 0 | 27 | 116 | 23 | 0 |
| 08:15 AM | 17 | 43 | 17 | 0 | 10 | 93 | 30 | 0 | 90 | 163 | 29 | 0 | 29 | 78 | 28 | 0 |
| 08:30 AM | 23 | 49 | 22 | 0 | 10 | 96 | 24 | 0 | 64 | 111 | 40 | 0 | 31 | 105 | 31 | 0 |
| 08:45 AM | 16 | 42 | 14 | 0 | 18 | 62 | 25 | 0 | 60 | 97 | 41 | 0 | 18 | 93 | 14 | 0 |

| 2-Axle Trucks | Chicago Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Chicago Avenue Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 7 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 4 | 0 |
| 07:15 AM | 2 | 4 | 2 | 0 | 1 | 4 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 1 | 0 |
| 07:30 AM | 3 | 4 | 1 | 0 | 0 | 1 | 1 | 0 | 3 | 6 | 2 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 8 | 0 | 0 | 1 | 3 | 0 | 0 | 2 | 8 | 0 | 0 | 2 | 1 | 0 | 0 |
| 08:00 AM | 0 | 7 | 2 | 0 | 0 | 4 | 1 | 0 | 0 | 10 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:15 AM | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 0 | 0 | 1 | 0 | 1 | 0 |
| 08:30 AM | 0 | 3 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 18 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 0 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 9 | 0 | 0 | 1 | 0 | 1 | 0 |

| 3-Axle Trucks | Chicago Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Chicago Avenue Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Chicago Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Chicago Avenue Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #81 PM

Start Date: 10/10/2012
Comment 1: City of Riverside
Comment 2: N/S: Chicago Avenue
Comment 3: E/W: Martin Luther King Boulevard
Comment 4: Weather: Sunny

| Cars | Chicago Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Chicago Avenue Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 72 | 142 | 51 | 0 | 22 | 77 | 30 | 0 | 30 | 78 | 12 | 0 | 33 | 214 | 53 | 0 |
| 04:15 PM | 51 | 178 | 31 | 0 | 35 | 109 | 43 | 0 | 28 | 66 | 16 | 0 | 26 | 226 | 52 | 0 |
| 04:30 PM | 54 | 195 | 28 | 0 | 45 | 74 | 36 | 0 | 31 | 77 | 9 | 0 | 33 | 238 | 62 | 0 |
| 04:45 PM | 51 | 199 | 24 | 0 | 18 | 100 | 26 | 0 | 24 | 72 | 16 | 0 | 29 | 260 | 56 | 0 |
| 05:00 PM | 61 | 201 | 51 | 0 | 37 | 120 | 34 | 0 | 36 | 86 | 14 | 0 | 41 | 256 | 103 | 0 |
| 05:15 PM | 78 | 226 | 40 | 0 | 61 | 137 | 38 | 0 | 41 | 85 | 15 | 0 | 40 | 275 | 108 | 0 |
| 05:30 PM | 42 | 233 | 40 | 0 | 49 | 127 | 30 | 0 | 47 | 94 | 5 | 0 | 31 | 299 | 111 | 0 |
| 05:45 PM | 77 | 250 | 33 | 0 | 26 | 121 | 19 | 0 | 35 | 77 | 14 | 0 | 32 | 263 | 103 | 0 |

| 2-Axle Trucks | Chicago Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Chicago Avenue Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 11 | 0 | 0 | 1 | 2 | 1 | 0 |
| 04:15 PM | 1 | 2 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 1 | 2 | 0 | 0 |
| 04:30 PM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 1 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 |
| 05:00 PM | 2 | 3 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 |
| 05:15 PM | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 0 |
| 05:30 PM | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |
| 05:45 PM | 1 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |

| 3-Axle Trucks | Chicago Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Chicago Avenue Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Chicago Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Chicago Avenue Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #82 AM

Start Date: 10/10/2012
Comment 1: City of Riverside
Comment 2: N/S: Iowa Avenue
Comment 3: E/W: Martin Luther King Boulevard
Comment 4: Weather: Sunny

| Cars | Iowa Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 12 | 0 | 10 | 0 | 0 | 126 | 62 | 0 | 0 | 0 | 0 | 0 | 10 | 73 | 0 | 0 |
| 07:15 AM | 13 | 0 | 19 | 0 | 0 | 139 | 72 | 0 | 0 | 0 | 0 | 0 | 24 | 74 | 0 | 0 |
| 07:30 AM | 36 | 0 | 23 | 0 | 0 | 163 | 106 | 0 | 0 | 0 | 0 | 0 | 36 | 135 | 0 | 0 |
| 07:45 AM | 47 | 0 | 19 | 0 | 0 | 147 | 114 | 0 | 0 | 0 | 0 | 0 | 48 | 151 | 0 | 0 |
| 08:00 AM | 35 | 0 | 27 | 0 | 0 | 145 | 86 | 0 | 0 | 0 | 0 | 0 | 39 | 139 | 0 | 0 |
| 08:15 AM | 34 | 0 | 19 | 0 | 0 | 118 | 77 | 0 | 0 | 0 | 0 | 0 | 26 | 98 | 0 | 0 |
| 08:30 AM | 43 | 0 | 21 | 0 | 0 | 107 | 53 | 0 | 0 | 0 | 0 | 0 | 43 | 124 | 0 | 0 |
| 08:45 AM | 47 | 0 | 25 | 0 | 0 | 75 | 52 | 0 | 0 | 0 | 0 | 0 | 36 | 110 | 0 | 0 |

| 2-Axle Trucks | Iowa Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 07:30 AM | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 AM | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 3 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Iowa Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Iowa Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #82 PM

Start Date: 10/10/2012
Comment 1: City of Riverside
Comment 2: N/S: Iowa Avenue
Comment 3: E/W: Martin Luther King Boulevard
Comment 4: Weather: Sunny

| Cars | Iowa Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 105 | 0 | 37 | 0 | 0 | 107 | 68 | 0 | 0 | 0 | 0 | 0 | 24 | 261 | 0 | 0 |
| 04:15 PM | 88 | 0 | 55 | 0 | 0 | 132 | 84 | 0 | 0 | 0 | 0 | 0 | 27 | 251 | 0 | 0 |
| 04:30 PM | 101 | 0 | 39 | 0 | 0 | 124 | 42 | 0 | 0 | 0 | 0 | 0 | 17 | 287 | 0 | 0 |
| 04:45 PM | 111 | 0 | 35 | 0 | 0 | 100 | 52 | 0 | 0 | 0 | 0 | 0 | 38 | 288 | 0 | 0 |
| 05:00 PM | 153 | 0 | 55 | 0 | 0 | 142 | 78 | 0 | 0 | 0 | 0 | 0 | 24 | 301 | 0 | 0 |
| 05:15 PM | 139 | 0 | 69 | 0 | 0 | 172 | 82 | 0 | 0 | 0 | 0 | 0 | 31 | 326 | 0 | 0 |
| 05:30 PM | 134 | 0 | 53 | 0 | 0 | 133 | 55 | 0 | 0 | 0 | 0 | 0 | 19 | 309 | 0 | 0 |
| 05:45 PM | 123 | 0 | 41 | 0 | 0 | 125 | 59 | 0 | 0 | 0 | 0 | 0 | 27 | 335 | 0 | 0 |

| 2-Axle Trucks | Iowa Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:30 PM | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 3 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:00 PM | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |

| 3-Axle Trucks | Iowa Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Iowa Avenue Southbound | | | | Martin Luther King Boulevard Westbound | | | | Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #83 AM

Start Date: 10/10/2012
Comment 1: City of Riverside
Comment 2: N/S: Canyon Crest Drive
Comment 3: E/W: Martin Luther King Boulevard
Comment 4: Weather: Sunny

| Cars | Canyon Crest Drive Southbound | | | | Martin Luther King Boulevard Westbound | | | | Canyon Crest Drive Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 4 | 7 | 4 | 0 | 32 | 88 | 14 | 0 | 121 | 31 | 176 | 0 | 6 | 55 | 19 | 0 |
| 07:15 AM | 5 | 6 | 4 | 0 | 36 | 107 | 18 | 0 | 151 | 48 | 219 | 0 | 12 | 43 | 12 | 0 |
| 07:30 AM | 4 | 7 | 6 | 0 | 26 | 155 | 19 | 0 | 222 | 81 | 205 | 0 | 27 | 71 | 29 | 0 |
| 07:45 AM | 4 | 11 | 5 | 0 | 39 | 216 | 56 | 0 | 233 | 134 | 166 | 0 | 47 | 65 | 33 | 0 |
| 08:00 AM | 9 | 20 | 8 | 0 | 41 | 133 | 30 | 0 | 161 | 80 | 147 | 0 | 38 | 73 | 41 | 0 |
| 08:15 AM | 4 | 15 | 8 | 0 | 34 | 115 | 20 | 0 | 141 | 58 | 112 | 0 | 20 | 40 | 56 | 0 |
| 08:30 AM | 5 | 17 | 7 | 0 | 36 | 158 | 16 | 0 | 108 | 63 | 119 | 0 | 27 | 50 | 56 | 0 |
| 08:45 AM | 4 | 11 | 7 | 0 | 31 | 145 | 17 | 0 | 144 | 78 | 96 | 0 | 30 | 29 | 47 | 0 |

| 2-Axle Trucks | Canyon Crest Drive Southbound | | | | Martin Luther King Boulevard Westbound | | | | Canyon Crest Drive Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 1 | 3 | 0 |
| 07:45 AM | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:00 AM | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 3 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 4 | 0 |
| 08:30 AM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Canyon Crest Drive Southbound | | | | Martin Luther King Boulevard Westbound | | | | Canyon Crest Drive Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Canyon Crest Drive Southbound | | | | Martin Luther King Boulevard Westbound | | | | Canyon Crest Drive Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #83 PM**

Start Date: 10/10/2012
Comment 1: City of Riverside
Comment 2: N/S: Canyon Crest Drive
Comment 3: E/W: Martin Luther King Boulevard
Comment 4: Weather: Sunny

| Cars | Canyon Crest Drive Southbound | | | | Martin Luther King Boulevard Westbound | | | | Canyon Crest Drive Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 42 | 55 | 24 | 0 | 46 | 68 | 10 | 0 | 40 | 41 | 51 | 0 | 39 | 233 | 137 | 0 |
| 04:15 PM | 74 | 64 | 25 | 0 | 48 | 59 | 14 | 0 | 59 | 27 | 41 | 0 | 47 | 278 | 127 | 0 |
| 04:30 PM | 47 | 47 | 23 | 0 | 50 | 68 | 6 | 0 | 54 | 31 | 61 | 0 | 22 | 233 | 134 | 0 |
| 04:45 PM | 39 | 42 | 17 | 0 | 59 | 73 | 9 | 0 | 61 | 41 | 66 | 0 | 46 | 257 | 130 | 0 |
| 05:00 PM | 85 | 107 | 55 | 0 | 52 | 67 | 10 | 0 | 58 | 35 | 62 | 0 | 35 | 306 | 153 | 0 |
| 05:15 PM | 61 | 122 | 56 | 0 | 55 | 66 | 13 | 0 | 78 | 30 | 55 | 0 | 25 | 354 | 194 | 0 |
| 05:30 PM | 20 | 64 | 28 | 0 | 59 | 74 | 6 | 0 | 69 | 27 | 69 | 0 | 17 | 303 | 158 | 0 |
| 05:45 PM | 22 | 62 | 16 | 0 | 71 | 77 | 8 | 0 | 83 | 38 | 59 | 0 | 20 | 284 | 165 | 0 |

| 2-Axle Trucks | Canyon Crest Drive Southbound | | | | Martin Luther King Boulevard Westbound | | | | Canyon Crest Drive Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 2 | 2 | 0 |
| 04:30 PM | 0 | 2 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 4 | 3 | 0 |
| 05:00 PM | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 1 | 0 |
| 05:30 PM | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 05:45 PM | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Canyon Crest Drive Southbound | | | | Martin Luther King Boulevard Westbound | | | | Canyon Crest Drive Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Canyon Crest Drive Southbound | | | | Martin Luther King Boulevard Westbound | | | | Canyon Crest Drive Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #84 AM

Start Date: 10/10/2012
Comment 1: City of Riverside
Comment 2: N/S: I-215 Southbund Ramps
Comment 3: E/W: Martin Luther King Boulevard
Comment 4: Weather: Sunny

| Cars | I-215 Southbound Off Ramp Southbound | | | | Martin Luther King Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 53 | 0 | 0 | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 185 | 51 | 0 |
| 07:15 AM | 0 | 0 | 72 | 0 | 0 | 102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 229 | 39 | 0 |
| 07:30 AM | 0 | 0 | 101 | 0 | 0 | 115 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 209 | 63 | 0 |
| 07:45 AM | 1 | 0 | 150 | 0 | 0 | 154 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 174 | 59 | 0 |
| 08:00 AM | 1 | 0 | 85 | 0 | 1 | 106 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 76 | 0 |
| 08:15 AM | 2 | 0 | 72 | 0 | 1 | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 111 | 33 | 0 |
| 08:30 AM | 0 | 0 | 98 | 0 | 0 | 110 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 113 | 44 | 0 |
| 08:45 AM | 0 | 0 | 110 | 0 | 1 | 94 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 27 | 0 |

| 2-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Martin Luther King Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 1 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 08:15 AM | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 08:30 AM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |

| 3-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Martin Luther King Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Martin Luther King Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #84 PM

Start Date: 10/10/2012
Comment 1: City of Riverside
Comment 2: N/S: I-215 Southbund Ramps
Comment 3: E/W: Martin Luther King Boulevard
Comment 4: Weather: Sunny

| Cars | I-215 Southbound Off Ramp Southbound | | | | Martin Luther King Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 50 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 248 | 1 |
| 04:15 PM | 0 | 0 | 54 | 0 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 105 | 279 | 0 |
| 04:30 PM | 0 | 0 | 48 | 0 | 1 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86 | 263 | 0 |
| 04:45 PM | 2 | 1 | 65 | 0 | 1 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 262 | 0 |
| 05:00 PM | 1 | 0 | 58 | 0 | 1 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 143 | 320 | 0 |
| 05:15 PM | 1 | 0 | 67 | 0 | 1 | 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 112 | 347 | 0 |
| 05:30 PM | 0 | 0 | 61 | 0 | 0 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 312 | 0 |
| 05:45 PM | 1 | 0 | 64 | 0 | 0 | 94 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 278 | 0 |

| 2-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Martin Luther King Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| 04:15 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 |
| 04:30 PM | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Martin Luther King Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | I-215 Southbound Off Ramp Southbound | | | | Martin Luther King Boulevard Westbound | | | | I-215 Southbound On Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #85 AM

Start Date: 10/10/2012
Comment 1: City of Riverside
Comment 2: N/S: 215S NB Ramps
Comment 3: E/W: Martin Luther King Boulevard
Comment 4: Weather: Sunny

| Cars | I-215 Northbound On Ramp Southbound | | | | Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 0 | 0 | 0 | 181 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 99 | 0 | 0 | 0 | 231 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 114 | 0 | 0 | 0 | 212 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 151 | 0 | 0 | 0 | 179 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 0 | 0 | 0 | 155 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88 | 0 | 0 | 0 | 115 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 108 | 0 | 0 | 0 | 111 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 0 | 0 | 0 | 95 | 0 | 0 | 0 |

| 2-Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |

| 3-Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| 4+ Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #85 PM

Start Date: 10/10/2012
Comment 1: City of Riverside
Comment 2: N/S: 215S NB Ramps
Comment 3: E/W: Martin Luther King Boulevard
Comment 4: Weather: Sunny

| Cars | I-215 Northbound On Ramp Southbound | | | | Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 | 0 | 0 | 0 | 78 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 0 | 0 | 0 | 99 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 | 0 | 0 | 0 | 89 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 0 | 0 | 0 | 78 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 72 | 0 | 0 | 0 | 141 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 0 | 0 | 0 | 115 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 0 | 0 | 0 | 65 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 0 | 0 | 0 | 79 | 0 | 0 | 0 |

| 2-Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | I-215 Northbound On Ramp Southbound | | | | Westbound | | | | I-215 Northbound Off Ramp Northbound | | | | Martin Luther King Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #86 AM

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: Chicago Avenue
Comment 3: E/W: Central Avenue - Andulka Park
Comment 4: Weather: Clear

| Cars | Chicago Avenue Southbound | | | | Central Avenue Westbound | | | | Chicago Avenue Northbound | | | | Andulka Park Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 13 | 35 | 0 | 0 | 141 | 0 | 43 | 0 | 4 | 142 | 56 | 0 | 1 | 0 | 0 | 0 |
| 07:15 AM | 7 | 62 | 1 | 0 | 133 | 1 | 101 | 0 | 0 | 216 | 85 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 13 | 53 | 0 | 0 | 153 | 0 | 114 | 0 | 1 | 283 | 83 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 17 | 53 | 0 | 0 | 127 | 7 | 123 | 0 | 1 | 301 | 113 | 0 | 3 | 0 | 0 | 0 |
| 08:00 AM | 33 | 60 | 0 | 0 | 114 | 1 | 87 | 0 | 2 | 192 | 102 | 0 | 1 | 0 | 0 | 0 |
| 08:15 AM | 28 | 55 | 0 | 0 | 143 | 3 | 78 | 0 | 5 | 166 | 105 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 26 | 56 | 0 | 0 | 82 | 0 | 44 | 0 | 8 | 155 | 96 | 0 | 0 | 1 | 2 | 0 |
| 08:45 AM | 16 | 73 | 1 | 0 | 86 | 1 | 46 | 0 | 6 | 143 | 94 | 0 | 1 | 0 | 2 | 0 |

| 2-Axle Trucks | Chicago Avenue Southbound | | | | Central Avenue Westbound | | | | Chicago Avenue Northbound | | | | Andulka Park Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 7 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 2 | 5 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 1 | 5 | 3 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 9 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Chicago Avenue Southbound | | | | Central Avenue Westbound | | | | Chicago Avenue Northbound | | | | Andulka Park Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Chicago Avenue Southbound | | | | Central Avenue Westbound | | | | Chicago Avenue Northbound | | | | Andulka Park Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #86 PM

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: Chicago Avenue
Comment 3: E/W: Andulka Park
Comment 4: Weather: Clear

| Cars | Chicago Avenue Southbound | | | | Central Avenue Westbound | | | | Chicago Avenue Northbound | | | | Andulka Park Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 72 | 159 | 1 | 0 | 103 | 3 | 28 | 0 | 9 | 84 | 148 | 0 | 2 | 4 | 4 | 0 |
| 04:15 PM | 97 | 209 | 0 | 0 | 111 | 8 | 32 | 0 | 7 | 66 | 155 | 0 | 2 | 5 | 2 | 0 |
| 04:30 PM | 99 | 178 | 0 | 0 | 87 | 4 | 39 | 0 | 15 | 80 | 131 | 0 | 3 | 2 | 4 | 0 |
| 04:45 PM | 124 | 194 | 0 | 0 | 111 | 13 | 24 | 0 | 20 | 67 | 153 | 0 | 7 | 3 | 2 | 0 |
| 05:00 PM | 122 | 185 | 1 | 0 | 128 | 7 | 39 | 0 | 13 | 84 | 160 | 4 | 5 | 3 | 1 | 0 |
| 05:15 PM | 151 | 303 | 0 | 0 | 132 | 7 | 32 | 0 | 21 | 78 | 167 | 0 | 3 | 3 | 3 | 0 |
| 05:30 PM | 165 | 221 | 0 | 0 | 127 | 9 | 50 | 0 | 15 | 83 | 157 | 0 | 4 | 4 | 3 | 0 |
| 05:45 PM | 128 | 233 | 0 | 0 | 101 | 6 | 34 | 0 | 12 | 78 | 161 | 0 | 1 | 2 | 1 | 0 |

| 2-Axle Trucks | Chicago Avenue Southbound | | | | Central Avenue Westbound | | | | Chicago Avenue Northbound | | | | Andulka Park Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Chicago Avenue Southbound | | | | Central Avenue Westbound | | | | Chicago Avenue Northbound | | | | Andulka Park Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Chicago Avenue Southbound | | | | Central Avenue Westbound | | | | Chicago Avenue Northbound | | | | Andulka Park Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #87 AM

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: El Cerrito Drive
Comment 3: E/W: Central Avenue
Comment 4: Weather: Clear

| Cars | El Cerrito Drive Southbound | | | | Central Avenue Westbound | | | | El Cerrito Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 7 | 8 | 30 | 0 | 0 | 135 | 5 | 0 | 9 | 9 | 5 | 0 | 16 | 55 | 3 | 0 |
| 07:15 AM | 7 | 1 | 33 | 0 | 3 | 155 | 7 | 0 | 13 | 15 | 5 | 0 | 20 | 83 | 1 | 0 |
| 07:30 AM | 10 | 0 | 29 | 0 | 2 | 195 | 7 | 0 | 20 | 14 | 4 | 0 | 22 | 72 | 4 | 0 |
| 07:45 AM | 5 | 5 | 36 | 0 | 2 | 169 | 4 | 0 | 18 | 19 | 8 | 0 | 41 | 82 | 3 | 0 |
| 08:00 AM | 3 | 1 | 30 | 0 | 0 | 164 | 13 | 0 | 15 | 16 | 2 | 0 | 32 | 83 | 3 | 0 |
| 08:15 AM | 4 | 4 | 23 | 0 | 0 | 138 | 9 | 0 | 15 | 12 | 3 | 0 | 35 | 94 | 7 | 0 |
| 08:30 AM | 6 | 3 | 21 | 0 | 0 | 93 | 14 | 0 | 8 | 11 | 4 | 0 | 29 | 86 | 3 | 0 |
| 08:45 AM | 8 | 0 | 26 | 0 | 5 | 81 | 8 | 0 | 8 | 11 | 4 | 0 | 38 | 77 | 3 | 0 |

| 2-Axle Trucks | El Cerrito Drive Southbound | | | | Central Avenue Westbound | | | | El Cerrito Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:30 AM | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |

| 3-Axle Trucks | El Cerrito Drive Southbound | | | | Central Avenue Westbound | | | | El Cerrito Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | El Cerrito Drive Southbound | | | | Central Avenue Westbound | | | | El Cerrito Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #87 PM

Start Date: 2/29/2012
Comment 1: City of Riverside
Comment 2: N/S: El Cerrito Drive
Comment 3: E/W: Central Avenue
Comment 4: Weather: Clear

| Cars | El Cerrito Drive Southbound | | | | Central Avenue Westbound | | | | El Cerrito Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 7 | 11 | 31 | 0 | 10 | 103 | 11 | 0 | 3 | 8 | 3 | 0 | 41 | 163 | 8 | 0 |
| 04:15 PM | 9 | 6 | 38 | 0 | 3 | 98 | 16 | 0 | 2 | 8 | 2 | 0 | 39 | 182 | 8 | 0 |
| 04:30 PM | 12 | 7 | 35 | 0 | 9 | 102 | 7 | 0 | 5 | 11 | 3 | 0 | 36 | 167 | 14 | 0 |
| 04:45 PM | 7 | 16 | 40 | 0 | 5 | 103 | 16 | 0 | 1 | 12 | 6 | 0 | 42 | 187 | 8 | 0 |
| 05:00 PM | 10 | 18 | 36 | 0 | 6 | 113 | 7 | 0 | 8 | 12 | 7 | 0 | 39 | 189 | 12 | 0 |
| 05:15 PM | 19 | 6 | 47 | 0 | 11 | 135 | 18 | 0 | 6 | 9 | 7 | 0 | 46 | 247 | 16 | 0 |
| 05:30 PM | 21 | 11 | 50 | 0 | 8 | 121 | 7 | 0 | 9 | 7 | 4 | 0 | 42 | 240 | 14 | 0 |
| 05:45 PM | 13 | 8 | 38 | 0 | 9 | 98 | 9 | 0 | 5 | 9 | 4 | 0 | 38 | 228 | 13 | 0 |

| 2-Axle Trucks | El Cerrito Drive Southbound | | | | Central Avenue Westbound | | | | El Cerrito Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | El Cerrito Drive Southbound | | | | Central Avenue Westbound | | | | El Cerrito Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | El Cerrito Drive Southbound | | | | Central Avenue Westbound | | | | El Cerrito Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #88 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Canyon Crest Drive
Comment 3: E/W: Central Avenue
Comment 4: Weather: Sunny

| Cars | Canyon Crest Drive Southbound | | | | Central Avenue Westbound | | | | Canyon Crest Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 13 | 47 | 13 | 0 | 22 | 109 | 38 | 0 | 26 | 205 | 26 | 0 | 6 | 41 | 12 | 0 |
| 07:15 AM | 23 | 47 | 9 | 0 | 18 | 162 | 45 | 0 | 28 | 247 | 38 | 0 | 9 | 71 | 18 | 0 |
| 07:30 AM | 17 | 46 | 10 | 0 | 23 | 180 | 64 | 0 | 27 | 231 | 37 | 0 | 7 | 72 | 12 | 0 |
| 07:45 AM | 19 | 39 | 9 | 0 | 18 | 161 | 85 | 0 | 52 | 276 | 48 | 0 | 5 | 89 | 19 | 0 |
| 08:00 AM | 17 | 59 | 8 | 0 | 24 | 129 | 56 | 0 | 39 | 216 | 32 | 0 | 12 | 81 | 20 | 0 |
| 08:15 AM | 10 | 52 | 7 | 0 | 15 | 125 | 70 | 0 | 34 | 164 | 32 | 0 | 10 | 69 | 20 | 0 |
| 08:30 AM | 32 | 34 | 11 | 0 | 25 | 85 | 61 | 0 | 26 | 152 | 29 | 0 | 7 | 100 | 23 | 0 |
| 08:45 AM | 27 | 37 | 15 | 0 | 6 | 88 | 46 | 0 | 34 | 166 | 27 | 0 | 8 | 66 | 10 | 0 |

| 2-Axle Trucks | Canyon Crest Drive Southbound | | | | Central Avenue Westbound | | | | Canyon Crest Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 1 | 0 | 0 |
| 07:30 AM | 1 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 0 |
| 07:45 AM | 0 | 1 | 2 | 0 | 1 | 3 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 2 | 0 | 0 | 1 | 2 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 1 | 1 | 1 | 0 | 1 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Canyon Crest Drive Southbound | | | | Central Avenue Westbound | | | | Canyon Crest Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Canyon Crest Drive Southbound | | | | Central Avenue Westbound | | | | Canyon Crest Drive Northbound | | | | Central Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #88 PM**

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Canyon Crest Drive
Comment 3: E/W: Central Avenue
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 61 | 117 | 17 | 0 | 22 | 111 | 21 | 0 | 23 | 61 | 21 | 0 | 6 | 148 | 30 | 0 |
| 04:15 PM | 58 | 113 | 23 | 0 | 22 | 105 | 31 | 0 | 27 | 46 | 18 | 0 | 12 | 157 | 47 | 0 |
| 04:30 PM | 67 | 103 | 25 | 0 | 29 | 114 | 30 | 0 | 27 | 52 | 35 | 0 | 16 | 137 | 52 | 0 |
| 04:45 PM | 57 | 123 | 20 | 0 | 30 | 145 | 41 | 0 | 28 | 72 | 23 | 0 | 8 | 195 | 48 | 0 |
| 05:00 PM | 73 | 145 | 17 | 0 | 27 | 121 | 19 | 0 | 28 | 76 | 24 | 0 | 7 | 181 | 54 | 0 |
| 05:15 PM | 82 | 174 | 21 | 0 | 32 | 124 | 24 | 0 | 25 | 64 | 31 | 0 | 10 | 237 | 61 | 0 |
| 05:30 PM | 84 | 172 | 20 | 0 | 32 | 133 | 20 | 0 | 28 | 67 | 33 | 0 | 9 | 183 | 53 | 0 |
| 05:45 PM | 60 | 151 | 26 | 0 | 28 | 117 | 34 | 0 | 31 | 61 | 23 | 0 | 8 | 201 | 54 | 0 |

| 2-Axle Trucks | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 0 |
| 05:45 PM | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #89 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Chicago Avenue
Comment 3: E/W: Country Club Drive
Comment 4: Weather: Sunny

| Cars | Chicago Avenue Southbound | | | | Country Club Drive Westbound | | | | Chicago Avenue Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 167 | 0 | 0 | 10 | 0 | 14 | 0 | 0 | 187 | 7 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 4 | 165 | 0 | 0 | 13 | 0 | 14 | 0 | 0 | 270 | 9 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 194 | 0 | 0 | 10 | 0 | 27 | 0 | 0 | 336 | 10 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 4 | 190 | 0 | 0 | 13 | 0 | 20 | 0 | 0 | 396 | 5 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 2 | 188 | 0 | 0 | 13 | 0 | 13 | 0 | 0 | 315 | 9 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 4 | 132 | 0 | 0 | 9 | 0 | 13 | 0 | 0 | 268 | 17 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 4 | 152 | 0 | 0 | 11 | 0 | 7 | 0 | 0 | 222 | 8 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 6 | 130 | 0 | 0 | 16 | 0 | 10 | 0 | 0 | 197 | 6 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Chicago Avenue Southbound | | | | Country Club Drive Westbound | | | | Chicago Avenue Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 2 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Chicago Avenue Southbound | | | | Country Club Drive Westbound | | | | Chicago Avenue Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Chicago Avenue Southbound | | | | Country Club Drive Westbound | | | | Chicago Avenue Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #89 PM**

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Chicago Avenue
Comment 3: E/W: Country Club Drive
Comment 4: Weather: Sunny

| Cars | Chicago Avenue Southbound | | | | Country Club Drive Westbound | | | | Chicago Avenue Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 10 | 266 | 0 | 0 | 8 | 0 | 5 | 0 | 0 | 229 | 11 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 10 | 248 | 0 | 0 | 8 | 0 | 4 | 0 | 0 | 224 | 10 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 12 | 303 | 0 | 0 | 5 | 0 | 7 | 0 | 0 | 220 | 16 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 17 | 280 | 0 | 0 | 7 | 0 | 7 | 0 | 0 | 232 | 21 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 15 | 331 | 0 | 0 | 6 | 0 | 7 | 0 | 0 | 223 | 19 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 14 | 331 | 0 | 0 | 8 | 0 | 8 | 0 | 11 | 224 | 9 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 19 | 354 | 0 | 0 | 6 | 0 | 8 | 0 | 0 | 242 | 19 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 11 | 318 | 0 | 0 | 4 | 0 | 7 | 0 | 0 | 219 | 25 | 0 | 0 | 0 | 0 | 0 |

| 2-Axle Trucks | Chicago Avenue Southbound | | | | Country Club Drive Westbound | | | | Chicago Avenue Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Chicago Avenue Southbound | | | | Country Club Drive Westbound | | | | Chicago Avenue Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Chicago Avenue Southbound | | | | Country Club Drive Westbound | | | | Chicago Avenue Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #90 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: SR-91 WB Ramps - Riverside Avenue
Comment 3: E/W: Arlington Avenue
Comment 4: Weather: Sunny

| Cars | Riverside Avenue Southbound | | | | Arlington Avenue Westbound | | | | SR-91 Westbound On Ramp Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 107 | 6 | 59 | 0 | 119 | 111 | 23 | 0 | 0 | 0 | 0 | 0 | 4 | 127 | 7 | 0 |
| 07:15 AM | 118 | 8 | 80 | 0 | 125 | 145 | 54 | 0 | 0 | 0 | 0 | 0 | 6 | 193 | 16 | 0 |
| 07:30 AM | 117 | 12 | 82 | 0 | 129 | 196 | 73 | 0 | 0 | 0 | 0 | 0 | 6 | 153 | 28 | 0 |
| 07:45 AM | 132 | 12 | 128 | 0 | 129 | 269 | 68 | 0 | 0 | 0 | 0 | 0 | 19 | 161 | 32 | 0 |
| 08:00 AM | 138 | 9 | 107 | 0 | 109 | 221 | 49 | 0 | 0 | 0 | 0 | 0 | 23 | 171 | 26 | 0 |
| 08:15 AM | 90 | 11 | 156 | 0 | 118 | 195 | 58 | 0 | 0 | 0 | 0 | 0 | 18 | 225 | 31 | 0 |
| 08:30 AM | 115 | 7 | 93 | 0 | 110 | 145 | 44 | 0 | 0 | 0 | 0 | 0 | 10 | 179 | 23 | 0 |
| 08:45 AM | 88 | 12 | 123 | 0 | 125 | 194 | 36 | 0 | 0 | 0 | 0 | 0 | 9 | 172 | 21 | 0 |

| 2-Axle Trucks | Riverside Avenue Southbound | | | | Arlington Avenue Westbound | | | | SR-91 Westbound On Ramp Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 3 | 0 | 2 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 |
| 07:15 AM | 4 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 |
| 07:30 AM | 13 | 1 | 2 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 07:45 AM | 4 | 0 | 2 | 0 | 1 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 |
| 08:00 AM | 1 | 0 | 1 | 0 | 2 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 1 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 2 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 |
| 08:30 AM | 2 | 0 | 3 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 2 | 0 | 2 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 |

| 3-Axle Trucks | Riverside Avenue Southbound | | | | Arlington Avenue Westbound | | | | SR-91 Westbound On Ramp Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

| 4+ Axle Trucks | Riverside Avenue Southbound | | | | Arlington Avenue Westbound | | | | SR-91 Westbound On Ramp Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #90 PM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: SR-91 WB Ramps - Riverside Avenue
Comment 3: E/W: Arlington Avenue
Comment 4: Weather: Sunny

| Cars | Riverside Avenue Southbound | | | | Arlington Avenue Westbound | | | | SR-91 Westbound On Ramp Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 145 | 20 | 92 | 0 | 97 | 130 | 59 | 0 | 0 | 0 | 0 | 0 | 19 | 275 | 36 | 0 |
| 04:15 PM | 134 | 27 | 102 | 0 | 107 | 154 | 49 | 0 | 0 | 0 | 0 | 0 | 20 | 234 | 38 | 0 |
| 04:30 PM | 154 | 22 | 101 | 0 | 113 | 157 | 59 | 0 | 0 | 0 | 0 | 0 | 10 | 275 | 46 | 0 |
| 04:45 PM | 167 | 19 | 82 | 0 | 128 | 165 | 49 | 0 | 0 | 0 | 0 | 0 | 9 | 271 | 35 | 0 |
| 05:00 PM | 182 | 28 | 83 | 0 | 108 | 131 | 61 | 0 | 0 | 0 | 0 | 0 | 15 | 260 | 67 | 0 |
| 05:15 PM | 147 | 17 | 85 | 0 | 114 | 183 | 50 | 0 | 0 | 0 | 0 | 0 | 13 | 247 | 41 | 0 |
| 05:30 PM | 164 | 24 | 81 | 0 | 96 | 158 | 49 | 0 | 0 | 0 | 0 | 0 | 21 | 253 | 38 | 0 |
| 05:45 PM | 144 | 24 | 71 | 0 | 94 | 152 | 37 | 0 | 0 | 0 | 0 | 0 | 14 | 239 | 41 | 0 |

| 2-Axle Trucks | Riverside Avenue Southbound | | | | Arlington Avenue Westbound | | | | SR-91 Westbound On Ramp Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 4 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 04:30 PM | 3 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:45 PM | 1 | 1 | 1 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 1 | 1 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 05:15 PM | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 05:30 PM | 1 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 4 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |

| 3-Axle Trucks | Riverside Avenue Southbound | | | | Arlington Avenue Westbound | | | | SR-91 Westbound On Ramp Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Riverside Avenue Southbound | | | | Arlington Avenue Westbound | | | | SR-91 Westbound On Ramp Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #91 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: SR-91 EB Ramps - Indiana Avenue
Comment 3: E/W: Arlington Avenue
Comment 4: Weather: Sunny

| Cars | SR-91 Eastbound On Ramp Southbound | | | | Arlington Avenue Westbound | | | | Indiana Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 24 | 242 | 64 | 0 | 18 | 83 | 85 | 0 | 54 | 151 | 30 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 25 | 284 | 101 | 0 | 38 | 102 | 98 | 0 | 72 | 191 | 35 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 28 | 362 | 96 | 0 | 52 | 118 | 103 | 0 | 65 | 180 | 25 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 29 | 397 | 103 | 0 | 63 | 89 | 97 | 0 | 51 | 170 | 70 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 37 | 345 | 64 | 0 | 51 | 91 | 102 | 0 | 66 | 188 | 58 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 36 | 308 | 66 | 0 | 53 | 74 | 86 | 0 | 70 | 158 | 46 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 32 | 278 | 57 | 0 | 41 | 82 | 78 | 0 | 67 | 183 | 59 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 55 | 281 | 36 | 0 | 44 | 65 | 85 | 0 | 60 | 130 | 43 | 0 |

| 2-Axle Trucks | SR-91 Eastbound On Ramp Southbound | | | | Arlington Avenue Westbound | | | | Indiana Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 3 | 2 | 0 | 2 | 5 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 1 | 5 | 0 | 1 | 5 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 6 | 0 | 2 | 14 | 3 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 6 | 13 | 0 | 0 | 2 | 2 | 0 | 4 | 6 | 3 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 7 | 8 | 0 | 2 | 3 | 2 | 0 | 1 | 6 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 0 | 3 | 6 | 2 | 0 | 2 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 5 | 1 | 0 | 2 | 4 | 2 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 3 | 4 | 0 | 1 | 4 | 1 | 0 |

| 3-Axle Trucks | SR-91 Eastbound On Ramp Southbound | | | | Arlington Avenue Westbound | | | | Indiana Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 3 | 0 | 1 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |

| 4+ Axle Trucks | SR-91 Eastbound On Ramp Southbound | | | | Arlington Avenue Westbound | | | | Indiana Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #91 PM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: SR-91 EB Ramps - Indiana Avenue
Comment 3: E/W: Arlington Avenue
Comment 4: Weather: Sunny

| Cars | SR-91 Eastbound On Ramp Southbound | | | | Arlington Avenue Westbound | | | | Indiana Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 26 | 225 | 75 | 0 | 44 | 80 | 143 | 0 | 85 | 273 | 58 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 34 | 257 | 57 | 0 | 46 | 57 | 122 | 0 | 79 | 249 | 55 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 31 | 264 | 45 | 0 | 50 | 82 | 101 | 0 | 81 | 250 | 49 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 25 | 271 | 50 | 0 | 37 | 55 | 73 | 0 | 90 | 252 | 52 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 47 | 289 | 50 | 0 | 50 | 91 | 137 | 0 | 90 | 248 | 64 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 33 | 306 | 61 | 0 | 40 | 79 | 130 | 0 | 77 | 274 | 56 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 45 | 263 | 69 | 0 | 46 | 78 | 126 | 0 | 78 | 244 | 46 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 33 | 246 | 35 | 0 | 44 | 60 | 82 | 0 | 73 | 274 | 45 | 0 |

| 2-Axle Trucks | SR-91 Eastbound On Ramp Southbound | | | | Arlington Avenue Westbound | | | | Indiana Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 3 | 4 | 2 | 0 | 2 | 2 | 3 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 6 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 2 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 1 | 2 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 3 | 4 | 1 | 0 | 2 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 2 | 1 | 0 | 2 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 2 | 1 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 3 | 4 | 0 |

| 3-Axle Trucks | SR-91 Eastbound On Ramp Southbound | | | | Arlington Avenue Westbound | | | | Indiana Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | SR-91 Eastbound On Ramp Southbound | | | | Arlington Avenue Westbound | | | | Indiana Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

## SITE #92 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Maude Street
Comment 3: E/W: Arlington Avenue
Comment 4: Weather: Sunny

| Cars | Private Drive Southbound | | | | Arlington Avenue Westbound | | | | Maude Street Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 10 | 256 | 0 | 0 | 63 | 0 | 25 | 0 | 1 | 158 | 74 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 13 | 299 | 6 | 0 | 93 | 0 | 57 | 0 | 2 | 270 | 50 | 0 |
| 07:30 AM | 0 | 0 | 2 | 0 | 15 | 319 | 0 | 0 | 62 | 1 | 70 | 0 | 11 | 199 | 65 | 0 |
| 07:45 AM | 0 | 2 | 1 | 0 | 13 | 291 | 1 | 0 | 62 | 1 | 40 | 0 | 17 | 240 | 76 | 0 |
| 08:00 AM | 1 | 1 | 1 | 0 | 7 | 463 | 1 | 0 | 72 | 2 | 14 | 0 | 1 | 233 | 41 | 0 |
| 08:15 AM | 0 | 1 | 1 | 0 | 7 | 432 | 3 | 0 | 55 | 0 | 20 | 0 | 5 | 245 | 34 | 0 |
| 08:30 AM | 0 | 1 | 1 | 0 | 13 | 315 | 1 | 0 | 36 | 0 | 9 | 0 | 2 | 240 | 24 | 0 |
| 08:45 AM | 0 | 0 | 3 | 0 | 8 | 349 | 0 | 0 | 31 | 1 | 9 | 0 | 0 | 199 | 20 | 0 |

| 2-Axle Trucks | Private Drive Southbound | | | | Arlington Avenue Westbound | | | | Maude Street Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 6 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 10 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 4 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 5 | 5 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 4 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |

| 3-Axle Trucks | Private Drive Southbound | | | | Arlington Avenue Westbound | | | | Maude Street Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |

| 4+ Axle Trucks | Private Drive Southbound | | | | Arlington Avenue Westbound | | | | Maude Street Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #92 PM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Maude Street
Comment 3: E/W: Arlington Avenue
Comment 4: Weather: Sunny

| Cars | Private Drive Southbound | | | | Arlington Avenue Westbound | | | | Maude Street Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 1 | 1 | 0 | 26 | 299 | 1 | 0 | 34 | 1 | 12 | 0 | 2 | 363 | 43 | 0 |
| 04:15 PM | 0 | 1 | 1 | 0 | 15 | 303 | 0 | 0 | 26 | 0 | 8 | 0 | 2 | 388 | 39 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 18 | 282 | 0 | 0 | 43 | 0 | 17 | 0 | 2 | 380 | 36 | 0 |
| 04:45 PM | 2 | 0 | 3 | 0 | 19 | 332 | 2 | 0 | 25 | 0 | 10 | 0 | 2 | 320 | 43 | 0 |
| 05:00 PM | 0 | 0 | 2 | 0 | 20 | 315 | 0 | 0 | 28 | 0 | 19 | 0 | 4 | 380 | 36 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 20 | 306 | 0 | 0 | 34 | 0 | 17 | 0 | 1 | 377 | 40 | 0 |
| 05:30 PM | 0 | 0 | 1 | 0 | 31 | 297 | 1 | 0 | 44 | 0 | 14 | 0 | 0 | 390 | 37 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 19 | 300 | 0 | 0 | 24 | 0 | 17 | 0 | 0 | 355 | 41 | 0 |

| 2-Axle Trucks | Private Drive Southbound | | | | Arlington Avenue Westbound | | | | Maude Street Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 |

| 3-Axle Trucks | Private Drive Southbound | | | | Arlington Avenue Westbound | | | | Maude Street Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Private Drive Southbound | | | | Arlington Avenue Westbound | | | | Maude Street Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #93 AM

Start Date: 2/28/2012
Comment 1: City of Riverside
Comment 2: N/S: Durango Road - Horace Street
Comment 3: E/W: Arlington Bouelvard
Comment 4: Weather: Clear

| Cars | Durango Road Southbound | | | | Arlington Boulevard Westbound | | | | Horace Street Northbound | | | | Arlington Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 16 | 14 | 0 | 19 | 298 | 0 | 0 | 38 | 11 | 3 | 0 | 7 | 151 | 31 | 0 |
| 07:15 AM | 0 | 13 | 20 | 0 | 27 | 307 | 1 | 0 | 48 | 20 | 7 | 0 | 7 | 266 | 63 | 1 |
| 07:30 AM | 0 | 3 | 29 | 0 | 8 | 322 | 0 | 0 | 73 | 28 | 10 | 0 | 6 | 264 | 35 | 0 |
| 07:45 AM | 4 | 11 | 18 | 0 | 24 | 321 | 0 | 0 | 25 | 25 | 2 | 0 | 9 | 183 | 45 | 0 |
| 08:00 AM | 0 | 8 | 13 | 0 | 19 | 336 | 0 | 0 | 30 | 5 | 6 | 0 | 2 | 180 | 19 | 0 |
| 08:15 AM | 0 | 5 | 14 | 0 | 4 | 309 | 0 | 0 | 25 | 2 | 5 | 0 | 8 | 208 | 17 | 0 |
| 08:30 AM | 0 | 0 | 6 | 0 | 4 | 277 | 0 | 0 | 17 | 0 | 3 | 0 | 8 | 207 | 5 | 0 |
| 08:45 AM | 1 | 3 | 11 | 0 | 4 | 264 | 0 | 0 | 27 | 6 | 2 | 0 | 2 | 167 | 13 | 0 |

| 2-Axle Trucks | Durango Road Southbound | | | | Arlington Boulevard Westbound | | | | Horace Street Northbound | | | | Arlington Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 3 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 6 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 19 | 1 | 5 | 0 | 0 | 4 | 9 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 4 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 0 |

| 3-Axle Trucks | Durango Road Southbound | | | | Arlington Boulevard Westbound | | | | Horace Street Northbound | | | | Arlington Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Durango Road Southbound | | | | Arlington Boulevard Westbound | | | | Horace Street Northbound | | | | Arlington Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #93 PM

Start Date: 2/28/2012
Comment 1: City of Riverside
Comment 2: N/S: Durango Road - Horace Street
Comment 3: E/W: Arlington Bouelvard
Comment 4: Weather: Clear

| Cars | Durango Road Southbound | | | | Arlington Boulevard Westbound | | | | Horace Street Northbound | | | | Arlington Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 29 | 7 | 0 | 4 | 200 | 1 | 0 | 19 | 13 | 8 | 0 | 8 | 236 | 17 | 0 |
| 04:15 PM | 0 | 2 | 8 | 0 | 6 | 231 | 0 | 0 | 25 | 3 | 2 | 0 | 5 | 305 | 31 | 0 |
| 04:30 PM | 1 | 3 | 14 | 0 | 7 | 218 | 4 | 0 | 33 | 7 | 17 | 0 | 13 | 331 | 35 | 0 |
| 04:45 PM | 2 | 1 | 17 | 0 | 10 | 284 | 1 | 0 | 26 | 4 | 12 | 0 | 15 | 321 | 26 | 0 |
| 05:00 PM | 2 | 2 | 17 | 0 | 8 | 241 | 1 | 0 | 36 | 4 | 12 | 0 | 10 | 311 | 19 | 0 |
| 05:15 PM | 1 | 5 | 18 | 0 | 3 | 277 | 0 | 0 | 26 | 5 | 2 | 0 | 12 | 269 | 18 | 0 |
| 05:30 PM | 0 | 3 | 11 | 0 | 3 | 242 | 2 | 0 | 21 | 5 | 6 | 0 | 14 | 292 | 18 | 0 |
| 05:45 PM | 2 | 1 | 16 | 0 | 3 | 269 | 1 | 0 | 22 | 2 | 7 | 0 | 12 | 304 | 28 | 0 |

| 2-Axle Trucks | Durango Road Southbound | | | | Arlington Boulevard Westbound | | | | Horace Street Northbound | | | | Arlington Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Durango Road Southbound | | | | Arlington Boulevard Westbound | | | | Horace Street Northbound | | | | Arlington Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Durango Road Southbound | | | | Arlington Boulevard Westbound | | | | Horace Street Northbound | | | | Arlington Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #94 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Victoria Avenue
Comment 3: E/W: Arlington Avenue
Comment 4: Weather: Sunny

| Cars | Victoria Avenue Southbound | | | | Arlington Avenue Westbound | | | | Victoria Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 12 | 75 | 5 | 0 | 92 | 272 | 23 | 0 | 1 | 69 | 73 | 0 | 24 | 129 | 1 | 0 |
| 07:15 AM | 25 | 77 | 18 | 0 | 97 | 318 | 33 | 0 | 6 | 106 | 101 | 0 | 23 | 126 | 10 | 0 |
| 07:30 AM | 47 | 50 | 27 | 0 | 107 | 223 | 83 | 0 | 6 | 104 | 91 | 0 | 30 | 128 | 14 | 0 |
| 07:45 AM | 49 | 90 | 41 | 0 | 124 | 237 | 119 | 0 | 6 | 89 | 93 | 0 | 42 | 129 | 5 | 0 |
| 08:00 AM | 21 | 55 | 19 | 0 | 105 | 403 | 27 | 0 | 5 | 36 | 83 | 0 | 30 | 224 | 5 | 0 |
| 08:15 AM | 10 | 25 | 12 | 0 | 43 | 290 | 7 | 0 | 7 | 44 | 80 | 0 | 22 | 212 | 1 | 0 |
| 08:30 AM | 12 | 23 | 8 | 0 | 31 | 280 | 8 | 0 | 4 | 24 | 69 | 0 | 18 | 200 | 3 | 0 |
| 08:45 AM | 7 | 21 | 11 | 0 | 41 | 246 | 4 | 0 | 3 | 31 | 58 | 0 | 22 | 163 | 0 | 0 |

| 2-Axle Trucks | Victoria Avenue Southbound | | | | Arlington Avenue Westbound | | | | Victoria Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 2 | 0 | 4 | 1 | 0 | 0 | 3 | 1 | 3 | 0 | 0 | 4 | 0 | 0 |
| 07:15 AM | 0 | 2 | 1 | 0 | 3 | 3 | 0 | 0 | 3 | 4 | 6 | 0 | 1 | 2 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 2 | 8 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 1 | 0 | 0 |
| 07:45 AM | 0 | 1 | 1 | 0 | 1 | 3 | 1 | 0 | 0 | 3 | 7 | 0 | 0 | 8 | 0 | 0 |
| 08:00 AM | 0 | 3 | 1 | 0 | 3 | 2 | 0 | 0 | 1 | 3 | 7 | 0 | 1 | 5 | 0 | 0 |
| 08:15 AM | 1 | 3 | 2 | 0 | 0 | 3 | 1 | 0 | 2 | 2 | 4 | 0 | 2 | 4 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 5 | 3 | 0 | 2 | 1 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 5 | 1 | 0 |

| 3-Axle Trucks | Victoria Avenue Southbound | | | | Arlington Avenue Westbound | | | | Victoria Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Victoria Avenue Southbound | | | | Arlington Avenue Westbound | | | | Victoria Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |

## SITE #94 PM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Victoria Avenue
Comment 3: E/W: Arlington Avenue
Comment 4: Weather: Sunny

| Cars | Victoria Avenue Southbound | | | | Arlington Avenue Westbound | | | | Victoria Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 16 | 46 | 19 | 0 | 43 | 241 | 5 | 0 | 2 | 35 | 98 | 0 | 20 | 290 | 2 | 0 |
| 04:15 PM | 20 | 50 | 16 | 0 | 53 | 214 | 7 | 0 | 6 | 28 | 105 | 0 | 23 | 308 | 5 | 0 |
| 04:30 PM | 13 | 55 | 10 | 0 | 54 | 225 | 5 | 0 | 8 | 42 | 105 | 0 | 23 | 309 | 4 | 0 |
| 04:45 PM | 14 | 68 | 18 | 0 | 57 | 247 | 6 | 0 | 7 | 37 | 97 | 0 | 20 | 289 | 8 | 0 |
| 05:00 PM | 12 | 59 | 22 | 0 | 49 | 227 | 6 | 0 | 5 | 24 | 113 | 0 | 18 | 273 | 4 | 0 |
| 05:15 PM | 10 | 50 | 17 | 0 | 74 | 268 | 9 | 0 | 4 | 26 | 109 | 0 | 17 | 341 | 3 | 0 |
| 05:30 PM | 12 | 44 | 23 | 0 | 74 | 237 | 15 | 0 | 5 | 35 | 94 | 0 | 22 | 303 | 8 | 0 |
| 05:45 PM | 21 | 55 | 33 | 0 | 47 | 204 | 12 | 0 | 6 | 32 | 103 | 0 | 14 | 288 | 2 | 0 |

| 2-Axle Trucks | Victoria Avenue Southbound | | | | Arlington Avenue Westbound | | | | Victoria Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 4 | 1 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 |

| 3-Axle Trucks | Victoria Avenue Southbound | | | | Arlington Avenue Westbound | | | | Victoria Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Victoria Avenue Southbound | | | | Arlington Avenue Westbound | | | | Victoria Avenue Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #95 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Alessandro Boulevard
Comment 3: E/W: Arlington Avenue - Chicago Avenue
Comment 4: Weather: Sunny

| Cars | Alessandro Boulevard Southbound | | | | Chicago Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 18 | 102 | 8 | 0 | 11 | 136 | 43 | 0 | 236 | 309 | 65 | 0 | 1 | 72 | 101 | 0 |
| 07:15 AM | 48 | 100 | 3 | 0 | 19 | 169 | 39 | 0 | 281 | 425 | 87 | 0 | 9 | 90 | 127 | 0 |
| 07:30 AM | 44 | 98 | 4 | 0 | 19 | 120 | 69 | 0 | 330 | 452 | 101 | 0 | 8 | 109 | 158 | 0 |
| 07:45 AM | 43 | 120 | 8 | 0 | 40 | 164 | 61 | 0 | 331 | 384 | 152 | 0 | 8 | 127 | 129 | 0 |
| 08:00 AM | 40 | 104 | 6 | 0 | 28 | 104 | 58 | 0 | 204 | 288 | 79 | 0 | 9 | 111 | 147 | 0 |
| 08:15 AM | 32 | 96 | 7 | 0 | 38 | 63 | 60 | 0 | 230 | 276 | 80 | 0 | 9 | 98 | 139 | 0 |
| 08:30 AM | 44 | 107 | 9 | 0 | 18 | 82 | 54 | 0 | 210 | 240 | 58 | 0 | 11 | 113 | 128 | 0 |
| 08:45 AM | 25 | 80 | 3 | 0 | 25 | 79 | 34 | 0 | 166 | 248 | 38 | 0 | 9 | 99 | 112 | 0 |

| 2-Axle Trucks | Alessandro Boulevard Southbound | | | | Chicago Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 1 | 5 | 0 | 0 | 3 | 1 | 0 |
| 07:30 AM | 1 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 1 | 7 | 0 | 0 | 2 | 0 | 0 |
| 07:45 AM | 0 | 2 | 1 | 0 | 1 | 4 | 0 | 0 | 1 | 5 | 2 | 0 | 0 | 3 | 6 | 0 |
| 08:00 AM | 0 | 2 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 5 | 0 |
| 08:15 AM | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 4 | 14 | 0 | 0 | 5 | 1 | 0 |
| 08:30 AM | 1 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 5 | 6 | 0 | 0 | 3 | 4 | 0 |
| 08:45 AM | 1 | 0 | 0 | 0 | 3 | 3 | 2 | 0 | 0 | 4 | 3 | 0 | 0 | 2 | 3 | 0 |

| 3-Axle Trucks | Alessandro Boulevard Southbound | | | | Chicago Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Alessandro Boulevard Southbound | | | | Chicago Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 |

## SITE #95 PM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Alessandro Boulevard
Comment 3: E/W: Arlington Avenue - Chicago Avenue
Comment 4: Weather: Sunny

| Cars | Alessandro Boulevard Southbound | | | | Chicago Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 50 | 218 | 5 | 2 | 71 | 132 | 68 | 0 | 145 | 153 | 40 | 0 | 9 | 118 | 242 | 0 |
| 04:15 PM | 70 | 239 | 5 | 0 | 98 | 137 | 63 | 0 | 117 | 128 | 26 | 0 | 7 | 132 | 225 | 0 |
| 04:30 PM | 83 | 322 | 1 | 0 | 73 | 121 | 81 | 0 | 138 | 180 | 26 | 0 | 6 | 134 | 223 | 0 |
| 04:45 PM | 72 | 249 | 7 | 0 | 120 | 176 | 60 | 0 | 156 | 188 | 20 | 0 | 5 | 150 | 264 | 0 |
| 05:00 PM | 100 | 363 | 12 | 1 | 111 | 140 | 69 | 0 | 125 | 167 | 38 | 0 | 6 | 145 | 216 | 0 |
| 05:15 PM | 92 | 379 | 6 | 0 | 104 | 191 | 88 | 0 | 171 | 220 | 36 | 0 | 8 | 146 | 300 | 0 |
| 05:30 PM | 79 | 324 | 3 | 0 | 110 | 177 | 78 | 0 | 155 | 168 | 29 | 0 | 11 | 150 | 289 | 0 |
| 05:45 PM | 113 | 393 | 3 | 0 | 137 | 148 | 75 | 0 | 153 | 188 | 50 | 0 | 8 | 123 | 214 | 0 |

| 2-Axle Trucks | Alessandro Boulevard Southbound | | | | Chicago Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 1 | 3 | 0 |
| 04:15 PM | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 7 | 0 | 0 | 0 | 3 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |

| 3-Axle Trucks | Alessandro Boulevard Southbound | | | | Chicago Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |

| 4+ Axle Trucks | Alessandro Boulevard Southbound | | | | Chicago Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Arlington Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

## SITE #96 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Alessandro Boulevard
Comment 3: E/W: Century Avenue
Comment 4: Weather: Sunny

| Cars | Alessandro Boulevard Southbound | | | | Century Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Century Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 12 | 213 | 2 | 0 | 8 | 0 | 13 | 0 | 3 | 669 | 3 | 0 | 7 | 2 | 2 | 0 |
| 07:15 AM | 17 | 206 | 0 | 0 | 6 | 0 | 21 | 0 | 0 | 794 | 5 | 0 | 15 | 3 | 2 | 0 |
| 07:30 AM | 27 | 217 | 1 | 0 | 10 | 9 | 49 | 0 | 4 | 859 | 9 | 0 | 11 | 15 | 2 | 0 |
| 07:45 AM | 3 | 238 | 2 | 0 | 6 | 6 | 23 | 0 | 2 | 768 | 3 | 0 | 4 | 0 | 2 | 0 |
| 08:00 AM | 4 | 320 | 11 | 0 | 6 | 0 | 7 | 0 | 3 | 585 | 1 | 0 | 4 | 1 | 0 | 0 |
| 08:15 AM | 5 | 250 | 2 | 0 | 3 | 0 | 6 | 0 | 0 | 578 | 3 | 0 | 9 | 0 | 5 | 0 |
| 08:30 AM | 6 | 271 | 11 | 0 | 2 | 0 | 6 | 0 | 3 | 522 | 4 | 0 | 10 | 2 | 5 | 0 |
| 08:45 AM | 5 | 244 | 1 | 0 | 2 | 0 | 10 | 0 | 2 | 388 | 1 | 0 | 9 | 1 | 4 | 0 |

| 2-Axle Trucks | Alessandro Boulevard Southbound | | | | Century Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Century Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 4 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 AM | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 17 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:30 AM | 1 | 5 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Alessandro Boulevard Southbound | | | | Century Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Century Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Alessandro Boulevard Southbound | | | | Century Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Century Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #96 PM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Alessandro Boulevard
Comment 3: E/W: Century Avenue
Comment 4: Weather: Sunny

| Cars | Alessandro Boulevard Southbound | | | | Century Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Century Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 18 | 578 | 8 | 0 | 3 | 1 | 5 | 0 | 3 | 339 | 4 | 0 | 5 | 2 | 4 | 0 |
| 04:15 PM | 10 | 581 | 8 | 0 | 2 | 4 | 6 | 0 | 7 | 325 | 1 | 0 | 3 | 0 | 2 | 0 |
| 04:30 PM | 10 | 579 | 8 | 0 | 7 | 2 | 5 | 0 | 6 | 346 | 7 | 0 | 6 | 1 | 3 | 0 |
| 04:45 PM | 6 | 483 | 4 | 0 | 3 | 0 | 7 | 0 | 9 | 306 | 1 | 0 | 5 | 1 | 4 | 0 |
| 05:00 PM | 11 | 653 | 11 | 0 | 4 | 0 | 9 | 0 | 2 | 359 | 4 | 0 | 4 | 1 | 3 | 0 |
| 05:15 PM | 11 | 785 | 11 | 0 | 4 | 0 | 10 | 0 | 2 | 391 | 2 | 0 | 2 | 0 | 1 | 0 |
| 05:30 PM | 14 | 657 | 4 | 0 | 10 | 0 | 6 | 0 | 2 | 311 | 2 | 0 | 8 | 0 | 3 | 0 |
| 05:45 PM | 9 | 627 | 8 | 0 | 1 | 1 | 12 | 0 | 6 | 264 | 1 | 0 | 13 | 1 | 2 | 0 |

| 2-Axle Trucks | Alessandro Boulevard Southbound | | | | Century Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Century Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:00 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Alessandro Boulevard Southbound | | | | Century Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Century Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Alessandro Boulevard Southbound | | | | Century Avenue Westbound | | | | Alessandro Boulevard Northbound | | | | Century Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #97 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Alessandro Boulevard
Comment 3: E/W: Via Vista Drive
Comment 4: Weather: Sunny

| Cars | Alessandro Boulevard Southbound | | | | Via Vista Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Via Vista Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 4 | 212 | 6 | 0 | 1 | 1 | 19 | 0 | 9 | 585 | 5 | 0 | 30 | 6 | 9 | 0 |
| 07:15 AM | 3 | 195 | 9 | 0 | 5 | 2 | 22 | 0 | 13 | 714 | 2 | 0 | 37 | 3 | 13 | 0 |
| 07:30 AM | 5 | 190 | 12 | 0 | 4 | 5 | 30 | 0 | 16 | 805 | 3 | 0 | 40 | 12 | 10 | 0 |
| 07:45 AM | 6 | 211 | 9 | 0 | 5 | 12 | 24 | 0 | 11 | 656 | 1 | 0 | 44 | 9 | 14 | 0 |
| 08:00 AM | 13 | 246 | 21 | 0 | 5 | 9 | 18 | 0 | 34 | 463 | 3 | 0 | 27 | 7 | 22 | 0 |
| 08:15 AM | 9 | 234 | 24 | 0 | 2 | 13 | 21 | 0 | 27 | 504 | 2 | 0 | 39 | 25 | 21 | 0 |
| 08:30 AM | 7 | 263 | 12 | 0 | 5 | 5 | 17 | 0 | 6 | 431 | 3 | 0 | 34 | 13 | 26 | 0 |
| 08:45 AM | 17 | 233 | 7 | 0 | 3 | 0 | 13 | 0 | 6 | 372 | 2 | 0 | 17 | 8 | 3 | 0 |

| 2-Axle Trucks | Alessandro Boulevard Southbound | | | | Via Vista Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Via Vista Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 11 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 1 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 6 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 7 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 20 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Alessandro Boulevard Southbound | | | | Via Vista Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Via Vista Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Alessandro Boulevard Southbound | | | | Via Vista Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Via Vista Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #97 PM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Alessandro Boulevard
Comment 3: E/W: Via Vista Drive
Comment 4: Weather: Sunny

| Cars | Alessandro Boulevard Southbound | | | | Via Vista Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Via Vista Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 24 | 524 | 20 | 0 | 3 | 9 | 23 | 0 | 6 | 318 | 2 | 0 | 20 | 12 | 6 | 0 |
| 04:15 PM | 18 | 583 | 15 | 0 | 2 | 12 | 13 | 0 | 8 | 315 | 8 | 0 | 8 | 5 | 9 | 0 |
| 04:30 PM | 21 | 600 | 17 | 0 | 2 | 9 | 14 | 0 | 7 | 337 | 16 | 0 | 10 | 7 | 8 | 0 |
| 04:45 PM | 17 | 560 | 17 | 1 | 6 | 7 | 5 | 0 | 13 | 369 | 1 | 0 | 12 | 0 | 14 | 0 |
| 05:00 PM | 21 | 573 | 20 | 0 | 4 | 5 | 15 | 0 | 18 | 316 | 3 | 0 | 16 | 16 | 13 | 0 |
| 05:15 PM | 27 | 729 | 23 | 0 | 2 | 4 | 11 | 1 | 9 | 343 | 4 | 0 | 20 | 3 | 11 | 0 |
| 05:30 PM | 27 | 655 | 21 | 0 | 4 | 13 | 7 | 0 | 9 | 338 | 6 | 0 | 12 | 3 | 12 | 0 |
| 05:45 PM | 18 | 656 | 16 | 0 | 3 | 6 | 11 | 0 | 12 | 263 | 4 | 0 | 9 | 4 | 10 | 0 |

| 2-Axle Trucks | Alessandro Boulevard Southbound | | | | Via Vista Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Via Vista Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:30 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |

| 3-Axle Trucks | Alessandro Boulevard Southbound | | | | Via Vista Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Via Vista Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Alessandro Boulevard Southbound | | | | Via Vista Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Via Vista Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #98 AM

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Alessandro Boulevard
Comment 3: E/W: Canyon Crest Drive
Comment 4: Weather: Sunny

| Cars | Alessandro Boulevard Southbound | | | | Canyon Crest Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Canyon Crest Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 220 | 2 | 0 | 74 | 0 | 20 | 0 | 0 | 637 | 180 | 0 | 5 | 1 | 1 | 0 |
| 07:15 AM | 4 | 224 | 0 | 0 | 73 | 2 | 16 | 0 | 0 | 743 | 203 | 0 | 5 | 4 | 1 | 0 |
| 07:30 AM | 3 | 219 | 1 | 0 | 66 | 1 | 25 | 0 | 3 | 785 | 216 | 0 | 8 | 5 | 0 | 0 |
| 07:45 AM | 11 | 243 | 0 | 0 | 55 | 1 | 18 | 0 | 1 | 659 | 218 | 0 | 2 | 3 | 0 | 0 |
| 08:00 AM | 6 | 305 | 2 | 0 | 60 | 0 | 19 | 0 | 0 | 550 | 142 | 0 | 2 | 4 | 2 | 0 |
| 08:15 AM | 8 | 238 | 0 | 0 | 61 | 2 | 17 | 0 | 1 | 482 | 156 | 0 | 1 | 2 | 0 | 0 |
| 08:30 AM | 7 | 266 | 2 | 0 | 57 | 0 | 19 | 0 | 2 | 437 | 114 | 0 | 4 | 5 | 0 | 0 |
| 08:45 AM | 8 | 229 | 2 | 0 | 44 | 0 | 16 | 0 | 0 | 383 | 113 | 0 | 3 | 2 | 0 | 0 |

| 2-Axle Trucks | Alessandro Boulevard Southbound | | | | Canyon Crest Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Canyon Crest Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 7 | 7 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 18 | 4 | 0 | 2 | 0 | 0 | 0 |
| 08:15 AM | 2 | 5 | 0 | 0 | 1 | 0 | 7 | 0 | 0 | 10 | 3 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 6 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12 | 1 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Alessandro Boulevard Southbound | | | | Canyon Crest Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Canyon Crest Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Alessandro Boulevard Southbound | | | | Canyon Crest Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Canyon Crest Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #98 PM**

Start Date: 12/1/2011
Comment 1: City of Riverside
Comment 2: N/S: Alessandro Boulevard
Comment 3: E/W: Canyon Crest Drive
Comment 4: Weather: Sunny

| Cars | Alessandro Boulevard Southbound | | | | Canyon Crest Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Canyon Crest Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 17 | 537 | 4 | 0 | 123 | 0 | 4 | 0 | 1 | 334 | 70 | 0 | 0 | 2 | 1 | 0 |
| 04:15 PM | 20 | 544 | 1 | 0 | 109 | 4 | 6 | 0 | 0 | 345 | 60 | 0 | 2 | 2 | 0 | 0 |
| 04:30 PM | 23 | 550 | 4 | 0 | 107 | 5 | 1 | 0 | 1 | 335 | 80 | 0 | 3 | 1 | 1 | 0 |
| 04:45 PM | 13 | 600 | 4 | 0 | 115 | 5 | 6 | 0 | 1 | 361 | 67 | 0 | 2 | 1 | 2 | 0 |
| 05:00 PM | 17 | 588 | 4 | 0 | 110 | 4 | 3 | 0 | 1 | 351 | 68 | 0 | 0 | 0 | 2 | 0 |
| 05:15 PM | 20 | 650 | 4 | 0 | 187 | 1 | 6 | 0 | 3 | 362 | 53 | 0 | 2 | 0 | 0 | 0 |
| 05:30 PM | 16 | 681 | 2 | 0 | 162 | 1 | 5 | 0 | 1 | 343 | 65 | 0 | 1 | 0 | 0 | 0 |
| 05:45 PM | 20 | 683 | 1 | 0 | 124 | 3 | 9 | 0 | 2 | 284 | 68 | 0 | 0 | 0 | 1 | 0 |

| 2-Axle Trucks | Alessandro Boulevard Southbound | | | | Canyon Crest Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Canyon Crest Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 7 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 8 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Alessandro Boulevard Southbound | | | | Canyon Crest Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Canyon Crest Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Alessandro Boulevard Southbound | | | | Canyon Crest Drive Westbound | | | | Alessandro Boulevard Northbound | | | | Canyon Crest Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #99 AM

Start Date: 11/16/2011
Comment 1: City of Perris
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Harley Knox Boulevard
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Westbound | | | | Perris Boulevard Northbound | | | | Harley Knox Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 89 | 37 | 0 | 0 | 0 | 0 | 0 | 18 | 125 | 0 | 0 | 18 | 0 | 13 | 0 |
| 07:15 AM | 0 | 123 | 30 | 0 | 0 | 0 | 0 | 0 | 14 | 180 | 0 | 0 | 25 | 0 | 8 | 0 |
| 07:30 AM | 0 | 108 | 22 | 0 | 0 | 0 | 0 | 0 | 27 | 245 | 0 | 0 | 43 | 0 | 9 | 0 |
| 07:45 AM | 0 | 125 | 20 | 0 | 0 | 0 | 0 | 0 | 17 | 188 | 0 | 0 | 35 | 0 | 11 | 0 |
| 08:00 AM | 0 | 112 | 23 | 0 | 0 | 0 | 0 | 0 | 12 | 129 | 0 | 0 | 16 | 0 | 6 | 0 |
| 08:15 AM | 0 | 69 | 10 | 0 | 0 | 0 | 0 | 0 | 11 | 102 | 0 | 0 | 24 | 0 | 4 | 0 |
| 08:30 AM | 0 | 68 | 12 | 0 | 0 | 0 | 0 | 0 | 5 | 99 | 0 | 0 | 12 | 0 | 9 | 0 |
| 08:45 AM | 0 | 70 | 15 | 0 | 0 | 0 | 0 | 0 | 2 | 76 | 0 | 0 | 7 | 0 | 6 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Westbound | | | | Perris Boulevard Northbound | | | | Harley Knox Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 0 | 0 | 2 | 0 | 1 | 0 |
| 07:15 AM | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 1 | 0 | 2 | 0 |
| 07:30 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 1 | 0 |
| 08:00 AM | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 2 | 0 | 0 | 0 |
| 08:30 AM | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 0 |
| 08:45 AM | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Westbound | | | | Perris Boulevard Northbound | | | | Harley Knox Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Westbound | | | | Perris Boulevard Northbound | | | | Harley Knox Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 |
| 07:15 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 2 | 0 | 0 | 0 |
| 07:30 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 |
| 07:45 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:00 AM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 0 |
| 08:30 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 |

**SITE #99 PM**

Start Date: 11/16/2011
Comment 1: City of Perris
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Harley Knox Boulevard
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Westbound | | | | Perris Boulevard Northbound | | | | Harley Knox Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 117 | 18 | 0 | 0 | 0 | 0 | 0 | 3 | 128 | 0 | 0 | 23 | 0 | 27 | 0 |
| 04:15 PM | 0 | 140 | 14 | 0 | 0 | 0 | 0 | 0 | 4 | 116 | 0 | 0 | 27 | 0 | 28 | 0 |
| 04:30 PM | 0 | 141 | 16 | 0 | 0 | 0 | 0 | 0 | 8 | 132 | 0 | 0 | 21 | 0 | 52 | 0 |
| 04:45 PM | 0 | 108 | 19 | 0 | 0 | 0 | 0 | 0 | 5 | 106 | 0 | 0 | 28 | 0 | 36 | 1 |
| 05:00 PM | 0 | 128 | 18 | 0 | 0 | 0 | 0 | 0 | 6 | 104 | 0 | 0 | 22 | 0 | 43 | 0 |
| 05:15 PM | 0 | 140 | 16 | 0 | 0 | 0 | 0 | 0 | 4 | 96 | 0 | 0 | 26 | 0 | 51 | 0 |
| 05:30 PM | 0 | 158 | 14 | 0 | 0 | 0 | 0 | 0 | 3 | 109 | 0 | 0 | 34 | 0 | 48 | 0 |
| 05:45 PM | 0 | 137 | 25 | 0 | 0 | 0 | 0 | 0 | 11 | 111 | 0 | 0 | 26 | 0 | 30 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Westbound | | | | Perris Boulevard Northbound | | | | Harley Knox Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 2 | 0 |
| 04:15 PM | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 04:30 PM | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:00 PM | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 05:15 PM | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Westbound | | | | Perris Boulevard Northbound | | | | Harley Knox Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Westbound | | | | Perris Boulevard Northbound | | | | Harley Knox Boulevard Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 0 |
| 04:30 PM | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 0 |
| 04:45 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 2 | 0 |
| 05:00 PM | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:15 PM | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |

**SITE #101 AM**

Start Date: 10/19/2011
Comment 1: City of Perris
Comment 2: N/S: Indian Avenue
Comment 3: E/W: Ramona Expressw ay
Comment 4: Weather: Sunny

| Cars | Indian Avenue Southbound | | | | Ramona Expressway Westbound | | | | Indian Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 10 | 378 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 192 | 5 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 12 | 407 | 0 | 0 | 3 | 0 | 6 | 0 | 0 | 210 | 6 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 16 | 401 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 209 | 10 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 11 | 391 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 223 | 19 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 6 | 374 | 0 | 0 | 4 | 0 | 3 | 0 | 0 | 173 | 7 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 3 | 309 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 151 | 3 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 5 | 304 | 0 | 0 | 6 | 0 | 7 | 0 | 0 | 132 | 7 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 3 | 226 | 0 | 0 | 5 | 0 | 3 | 0 | 0 | 128 | 8 | 0 |

| 2-Axle Trucks | Indian Avenue Southbound | | | | Ramona Expressway Westbound | | | | Indian Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 2 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 8 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 2 | 7 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 11 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 8 | 3 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 2 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 9 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 |

| 3-Axle Trucks | Indian Avenue Southbound | | | | Ramona Expressway Westbound | | | | Indian Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

| 4+ Axle Trucks | Indian Avenue Southbound | | | | Ramona Expressway Westbound | | | | Indian Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 9 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 2 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 3 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 2 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 5 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 10 | 1 | 0 |

**SITE #101 PM**

Start Date: 10/19/2011
Comment 1: City of Perris
Comment 2: N/S: Indian Avenue
Comment 3: E/W: Ramona Expressw ay
Comment 4: Weather: Sunny

| Cars | Indian Avenue Southbound | | | | Ramona Expressway Westbound | | | | Indian Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 8 | 213 | 0 | 0 | 10 | 0 | 9 | 0 | 0 | 303 | 5 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 7 | 223 | 0 | 0 | 6 | 0 | 9 | 0 | 0 | 314 | 6 | 0 |
| 04:30 PM | 0 | 0 | 1 | 0 | 2 | 228 | 0 | 0 | 61 | 0 | 54 | 0 | 1 | 291 | 7 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 7 | 242 | 0 | 0 | 21 | 0 | 14 | 0 | 1 | 287 | 5 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 12 | 269 | 0 | 0 | 12 | 0 | 7 | 0 | 0 | 299 | 8 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 12 | 219 | 0 | 0 | 11 | 0 | 10 | 0 | 0 | 296 | 17 | 0 |
| 05:30 PM | 0 | 0 | 1 | 0 | 42 | 206 | 0 | 0 | 15 | 0 | 13 | 0 | 0 | 315 | 31 | 0 |
| 05:45 PM | 0 | 0 | 1 | 0 | 19 | 176 | 0 | 0 | 8 | 0 | 4 | 0 | 0 | 361 | 21 | 0 |

| 2-Axle Trucks | Indian Avenue Southbound | | | | Ramona Expressway Westbound | | | | Indian Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 3 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 7 | 3 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 2 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |

| 3-Axle Trucks | Indian Avenue Southbound | | | | Ramona Expressway Westbound | | | | Indian Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Indian Avenue Southbound | | | | Ramona Expressway Westbound | | | | Indian Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 4 | 3 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 6 | 4 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 5 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 1 | 4 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 7 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 5 | 2 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 4 | 1 | 0 |

**SITE #102 AM**

Start Date: 10/19/2011
Comment 1: City of Perris
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Ramona Expressw ay
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Ramona Expressway Westbound | | | | Perris Boulevard Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 23 | 26 | 39 | 0 | 12 | 281 | 25 | 0 | 74 | 64 | 33 | 0 | 38 | 123 | 22 | 0 |
| 07:15 AM | 21 | 40 | 39 | 0 | 25 | 276 | 50 | 0 | 98 | 92 | 33 | 0 | 53 | 138 | 29 | 0 |
| 07:30 AM | 21 | 54 | 53 | 0 | 32 | 320 | 61 | 0 | 50 | 97 | 11 | 0 | 65 | 106 | 22 | 0 |
| 07:45 AM | 20 | 65 | 44 | 0 | 37 | 280 | 40 | 0 | 69 | 86 | 15 | 0 | 81 | 129 | 27 | 0 |
| 08:00 AM | 13 | 46 | 26 | 0 | 19 | 274 | 13 | 0 | 79 | 63 | 16 | 0 | 43 | 92 | 29 | 0 |
| 08:15 AM | 15 | 46 | 40 | 0 | 14 | 193 | 22 | 0 | 66 | 59 | 12 | 0 | 35 | 87 | 27 | 0 |
| 08:30 AM | 18 | 37 | 30 | 0 | 16 | 224 | 18 | 0 | 51 | 54 | 9 | 0 | 23 | 93 | 17 | 0 |
| 08:45 AM | 13 | 34 | 24 | 0 | 11 | 156 | 26 | 0 | 52 | 47 | 17 | 0 | 25 | 98 | 13 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Ramona Expressway Westbound | | | | Perris Boulevard Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 2 | 0 | 0 | 6 | 2 | 0 | 2 | 5 | 0 | 0 | 4 | 6 | 1 | 0 |
| 07:15 AM | 0 | 2 | 2 | 0 | 0 | 5 | 0 | 0 | 4 | 5 | 1 | 0 | 1 | 4 | 3 | 0 |
| 07:30 AM | 1 | 4 | 1 | 0 | 0 | 6 | 3 | 0 | 2 | 1 | 1 | 0 | 2 | 8 | 0 | 0 |
| 07:45 AM | 0 | 1 | 1 | 0 | 0 | 4 | 0 | 0 | 1 | 5 | 1 | 0 | 5 | 6 | 0 | 0 |
| 08:00 AM | 0 | 4 | 2 | 0 | 0 | 10 | 3 | 0 | 1 | 1 | 0 | 0 | 1 | 3 | 0 | 0 |
| 08:15 AM | 4 | 1 | 1 | 0 | 2 | 5 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 7 | 3 | 0 |
| 08:30 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 2 | 5 | 1 | 0 |
| 08:45 AM | 0 | 1 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 5 | 1 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Ramona Expressway Westbound | | | | Perris Boulevard Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 1 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Ramona Expressway Westbound | | | | Perris Boulevard Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 3 | 7 | 0 | 0 |
| 07:15 AM | 0 | 3 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 1 | 1 | 0 |
| 07:30 AM | 2 | 1 | 1 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 07:45 AM | 0 | 1 | 2 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 1 | 0 | 2 | 2 | 0 | 0 |
| 08:00 AM | 1 | 1 | 3 | 0 | 0 | 3 | 0 | 0 | 5 | 1 | 1 | 0 | 0 | 3 | 2 | 0 |
| 08:15 AM | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 2 | 2 | 0 | 0 |
| 08:30 AM | 0 | 1 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 |
| 08:45 AM | 1 | 1 | 1 | 0 | 0 | 5 | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 4 | 1 | 0 |

**SITE #102 PM**

Start Date: 10/19/2011
Comment 1: City of Perris
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Ramona Expressw ay
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Ramona Expressway Westbound | | | | Perris Boulevard Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 40 | 67 | 35 | 0 | 14 | 142 | 15 | 0 | 50 | 60 | 17 | 0 | 42 | 227 | 30 | 0 |
| 04:15 PM | 45 | 89 | 28 | 0 | 18 | 149 | 17 | 0 | 60 | 74 | 13 | 0 | 44 | 197 | 56 | 0 |
| 04:30 PM | 70 | 91 | 23 | 0 | 14 | 160 | 15 | 0 | 60 | 71 | 19 | 0 | 64 | 276 | 51 | 0 |
| 04:45 PM | 44 | 85 | 27 | 0 | 16 | 160 | 10 | 0 | 50 | 56 | 14 | 0 | 37 | 196 | 44 | 0 |
| 05:00 PM | 36 | 86 | 34 | 0 | 20 | 171 | 10 | 0 | 69 | 63 | 29 | 0 | 36 | 244 | 47 | 0 |
| 05:15 PM | 82 | 107 | 27 | 0 | 13 | 172 | 10 | 0 | 38 | 65 | 14 | 0 | 40 | 210 | 47 | 0 |
| 05:30 PM | 47 | 95 | 43 | 0 | 33 | 143 | 19 | 0 | 42 | 69 | 23 | 0 | 51 | 213 | 43 | 0 |
| 05:45 PM | 51 | 71 | 34 | 0 | 17 | 129 | 21 | 0 | 51 | 65 | 15 | 0 | 36 | 284 | 54 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Ramona Expressway Westbound | | | | Perris Boulevard Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 3 | 0 | 0 | 0 | 2 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 3 | 1 | 0 |
| 04:15 PM | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 0 |
| 04:30 PM | 0 | 3 | 1 | 0 | 0 | 3 | 1 | 0 | 3 | 0 | 0 | 0 | 3 | 2 | 3 | 0 |
| 04:45 PM | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 2 | 3 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 1 | 0 |
| 05:30 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 1 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Ramona Expressway Westbound | | | | Perris Boulevard Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Ramona Expressway Westbound | | | | Perris Boulevard Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 |
| 04:15 PM | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 | 1 | 1 | 0 |
| 04:30 PM | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 4 | 1 | 0 |
| 04:45 PM | 0 | 1 | 1 | 0 | 0 | 4 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 2 | 0 | 0 | 4 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 6 | 1 | 0 |
| 05:15 PM | 0 | 4 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 2 | 0 |

**SITE #103 AM**

Start Date: 10/19/2011
Comment 1: City of Perris
Comment 2: N/S: Evans Road
Comment 3: E/W: Ramona Expressw ay
Comment 4: Weather: Sunny

| Cars | Evans Road Southbound | | | | Ramona Expressway Westbound | | | | Evans Road Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 49 | 107 | 103 | 0 | 1 | 167 | 124 | 0 | 83 | 210 | 3 | 0 | 116 | 81 | 29 | 0 |
| 07:15 AM | 83 | 167 | 111 | 0 | 2 | 216 | 150 | 0 | 91 | 274 | 7 | 0 | 101 | 76 | 32 | 0 |
| 07:30 AM | 91 | 161 | 140 | 0 | 1 | 227 | 63 | 0 | 103 | 148 | 9 | 0 | 70 | 99 | 27 | 0 |
| 07:45 AM | 50 | 179 | 133 | 0 | 3 | 195 | 45 | 0 | 79 | 90 | 0 | 0 | 50 | 77 | 47 | 0 |
| 08:00 AM | 30 | 53 | 62 | 0 | 2 | 140 | 27 | 0 | 90 | 64 | 2 | 0 | 54 | 77 | 30 | 0 |
| 08:15 AM | 24 | 44 | 64 | 0 | 0 | 135 | 31 | 0 | 50 | 43 | 1 | 0 | 39 | 73 | 20 | 0 |
| 08:30 AM | 11 | 24 | 58 | 0 | 2 | 145 | 22 | 0 | 55 | 60 | 0 | 0 | 39 | 74 | 26 | 0 |
| 08:45 AM | 14 | 29 | 37 | 0 | 2 | 112 | 21 | 0 | 47 | 38 | 1 | 0 | 41 | 63 | 25 | 0 |

| 2-Axle Trucks | Evans Road Southbound | | | | Ramona Expressway Westbound | | | | Evans Road Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 2 | 2 | 0 | 0 | 3 | 0 | 2 | 0 |
| 07:15 AM | 1 | 3 | 1 | 0 | 0 | 4 | 2 | 0 | 0 | 1 | 0 | 0 | 2 | 3 | 2 | 0 |
| 07:30 AM | 2 | 3 | 1 | 0 | 0 | 6 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 5 | 0 | 0 |
| 07:45 AM | 1 | 2 | 1 | 0 | 0 | 4 | 0 | 0 | 2 | 2 | 2 | 0 | 2 | 6 | 1 | 0 |
| 08:00 AM | 0 | 3 | 5 | 0 | 0 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 6 | 0 | 0 |
| 08:15 AM | 1 | 2 | 4 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 5 | 1 | 0 |
| 08:30 AM | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 7 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 |

| 3-Axle Trucks | Evans Road Southbound | | | | Ramona Expressway Westbound | | | | Evans Road Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 3 | 0 | 0 |

| 4+ Axle Trucks | Evans Road Southbound | | | | Ramona Expressway Westbound | | | | Evans Road Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:30 AM | 1 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |

**SITE #103 PM**

Start Date: 10/19/2011
Comment 1: City of Perris
Comment 2: N/S: Evans Road
Comment 3: E/W: Ramona Expressw ay
Comment 4: Weather: Sunny

| Cars | Evans Road Southbound | | | | Ramona Expressway Westbound | | | | Evans Road Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 29 | 49 | 53 | 0 | 2 | 88 | 28 | 0 | 39 | 51 | 0 | 0 | 58 | 159 | 72 | 0 |
| 04:15 PM | 47 | 78 | 56 | 0 | 6 | 91 | 38 | 0 | 44 | 42 | 2 | 0 | 55 | 158 | 75 | 0 |
| 04:30 PM | 29 | 76 | 50 | 0 | 0 | 92 | 26 | 0 | 43 | 52 | 3 | 0 | 80 | 167 | 75 | 0 |
| 04:45 PM | 31 | 68 | 64 | 0 | 3 | 101 | 28 | 0 | 46 | 45 | 3 | 0 | 81 | 158 | 59 | 0 |
| 05:00 PM | 34 | 68 | 64 | 0 | 4 | 90 | 32 | 0 | 43 | 97 | 2 | 0 | 59 | 158 | 85 | 0 |
| 05:15 PM | 38 | 91 | 65 | 0 | 5 | 105 | 33 | 0 | 43 | 85 | 2 | 0 | 63 | 170 | 71 | 0 |
| 05:30 PM | 44 | 91 | 59 | 0 | 2 | 98 | 34 | 0 | 46 | 73 | 4 | 0 | 83 | 190 | 68 | 0 |
| 05:45 PM | 61 | 101 | 49 | 0 | 7 | 90 | 42 | 0 | 35 | 82 | 4 | 0 | 84 | 183 | 63 | 0 |

| 2-Axle Trucks | Evans Road Southbound | | | | Ramona Expressway Westbound | | | | Evans Road Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 0 |
| 04:15 PM | 1 | 1 | 2 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 5 | 0 | 0 |
| 04:30 PM | 1 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 1 | 0 |
| 05:00 PM | 1 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 |
| 05:15 PM | 1 | 2 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| 05:30 PM | 1 | 1 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |

| 3-Axle Trucks | Evans Road Southbound | | | | Ramona Expressway Westbound | | | | Evans Road Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Evans Road Southbound | | | | Ramona Expressway Westbound | | | | Evans Road Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:30 PM | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #104 AM

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Morgan Street
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Morgan Street Westbound | | | | Perris Boulevard Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 3 | 59 | 4 | 0 | 1 | 1 | 0 | 0 | 5 | 174 | 1 | 0 | 1 | 0 | 3 | 0 |
| 07:15 AM | 7 | 65 | 10 | 0 | 2 | 3 | 1 | 0 | 12 | 171 | 0 | 0 | 1 | 1 | 5 | 0 |
| 07:30 AM | 3 | 74 | 13 | 0 | 4 | 0 | 2 | 0 | 16 | 178 | 2 | 0 | 6 | 3 | 4 | 0 |
| 07:45 AM | 5 | 90 | 11 | 0 | 3 | 1 | 2 | 0 | 24 | 150 | 5 | 0 | 5 | 3 | 14 | 0 |
| 08:00 AM | 7 | 89 | 6 | 0 | 3 | 1 | 1 | 0 | 11 | 145 | 3 | 0 | 8 | 2 | 12 | 0 |
| 08:15 AM | 0 | 98 | 2 | 0 | 1 | 0 | 6 | 0 | 5 | 133 | 4 | 0 | 2 | 1 | 4 | 0 |
| 08:30 AM | 4 | 63 | 3 | 0 | 1 | 0 | 2 | 0 | 4 | 139 | 2 | 0 | 4 | 1 | 0 | 0 |
| 08:45 AM | 3 | 86 | 1 | 0 | 5 | 1 | 0 | 0 | 1 | 97 | 2 | 0 | 0 | 0 | 2 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Morgan Street Westbound | | | | Perris Boulevard Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 1 | 6 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:15 AM | 0 | 6 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Morgan Street Westbound | | | | Perris Boulevard Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Morgan Street Westbound | | | | Perris Boulevard Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:45 AM | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:15 AM | 0 | 2 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| 08:45 AM | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

**SITE #104 PM**

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Morgan Street
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Morgan Street Westbound | | | | Perris Boulevard Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 3 | 137 | 2 | 0 | 11 | 3 | 5 | 0 | 3 | 118 | 3 | 0 | 2 | 2 | 5 | 0 |
| 04:15 PM | 1 | 151 | 2 | 0 | 3 | 0 | 4 | 0 | 2 | 139 | 3 | 0 | 2 | 0 | 7 | 0 |
| 04:30 PM | 7 | 182 | 3 | 0 | 2 | 2 | 7 | 0 | 3 | 142 | 2 | 0 | 4 | 2 | 9 | 0 |
| 04:45 PM | 3 | 179 | 4 | 0 | 7 | 0 | 3 | 0 | 3 | 138 | 1 | 0 | 1 | 0 | 5 | 0 |
| 05:00 PM | 1 | 165 | 1 | 0 | 5 | 2 | 4 | 0 | 2 | 185 | 1 | 0 | 2 | 0 | 1 | 0 |
| 05:15 PM | 0 | 174 | 1 | 0 | 7 | 2 | 3 | 0 | 1 | 129 | 2 | 0 | 5 | 0 | 3 | 0 |
| 05:30 PM | 1 | 174 | 0 | 0 | 4 | 1 | 4 | 0 | 2 | 138 | 2 | 0 | 3 | 2 | 2 | 0 |
| 05:45 PM | 5 | 173 | 1 | 0 | 3 | 0 | 0 | 0 | 2 | 122 | 1 | 0 | 2 | 1 | 1 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Morgan Street Westbound | | | | Perris Boulevard Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Morgan Street Westbound | | | | Perris Boulevard Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Morgan Street Westbound | | | | Perris Boulevard Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #105 AM**

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Evans Road
Comment 3: E/W: Morgan Street
Comment 4: Weather: Sunny

| Cars | Evans Road Southbound | | | | May Ranch Parkway Westbound | | | | Evans Road Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 2 | 46 | 22 | 0 | 13 | 17 | 14 | 0 | 8 | 54 | 0 | 0 | 22 | 9 | 13 | 0 |
| 07:15 AM | 4 | 51 | 28 | 0 | 17 | 17 | 14 | 0 | 19 | 60 | 6 | 0 | 26 | 17 | 26 | 0 |
| 07:30 AM | 5 | 51 | 31 | 0 | 24 | 46 | 9 | 0 | 31 | 86 | 1 | 0 | 33 | 15 | 28 | 0 |
| 07:45 AM | 4 | 50 | 21 | 0 | 7 | 48 | 12 | 0 | 29 | 107 | 7 | 0 | 40 | 31 | 29 | 0 |
| 08:00 AM | 11 | 47 | 10 | 0 | 9 | 2 | 10 | 0 | 17 | 60 | 12 | 0 | 48 | 21 | 24 | 0 |
| 08:15 AM | 4 | 45 | 8 | 0 | 3 | 4 | 8 | 0 | 15 | 66 | 9 | 0 | 11 | 3 | 8 | 0 |
| 08:30 AM | 6 | 28 | 3 | 0 | 16 | 2 | 13 | 0 | 8 | 47 | 11 | 0 | 8 | 6 | 6 | 0 |
| 08:45 AM | 6 | 40 | 5 | 0 | 11 | 0 | 10 | 0 | 3 | 50 | 8 | 0 | 7 | 1 | 6 | 0 |

| 2-Axle Trucks | Evans Road Southbound | | | | May Ranch Parkway Westbound | | | | Evans Road Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 1 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Evans Road Southbound | | | | May Ranch Parkway Westbound | | | | Evans Road Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Evans Road Southbound | | | | May Ranch Parkway Westbound | | | | Evans Road Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #105 PM**

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Evans Road
Comment 3: E/W: Morgan Street
Comment 4: Weather: Sunny

| Cars | Evans Road Southbound | | | | May Ranch Parkway Westbound | | | | Evans Road Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 7 | 80 | 7 | 0 | 16 | 7 | 5 | 0 | 9 | 69 | 17 | 0 | 11 | 2 | 17 | 0 |
| 04:15 PM | 15 | 106 | 4 | 0 | 8 | 2 | 11 | 0 | 7 | 70 | 9 | 0 | 10 | 0 | 8 | 0 |
| 04:30 PM | 12 | 74 | 10 | 0 | 16 | 1 | 8 | 0 | 6 | 64 | 19 | 0 | 5 | 2 | 6 | 0 |
| 04:45 PM | 19 | 100 | 11 | 0 | 13 | 1 | 9 | 0 | 6 | 73 | 19 | 0 | 6 | 3 | 4 | 0 |
| 05:00 PM | 16 | 118 | 15 | 0 | 18 | 5 | 9 | 0 | 13 | 105 | 19 | 0 | 11 | 6 | 8 | 0 |
| 05:15 PM | 18 | 100 | 18 | 0 | 5 | 5 | 13 | 0 | 20 | 65 | 23 | 0 | 9 | 1 | 14 | 0 |
| 05:30 PM | 17 | 104 | 16 | 0 | 8 | 5 | 14 | 0 | 24 | 82 | 11 | 0 | 17 | 5 | 9 | 0 |
| 05:45 PM | 25 | 93 | 25 | 0 | 9 | 3 | 14 | 0 | 22 | 73 | 16 | 0 | 9 | 2 | 8 | 0 |

| 2-Axle Trucks | Evans Road Southbound | | | | May Ranch Parkway Westbound | | | | Evans Road Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:15 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |

| 3-Axle Trucks | Evans Road Southbound | | | | May Ranch Parkway Westbound | | | | Evans Road Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Evans Road Southbound | | | | May Ranch Parkway Westbound | | | | Evans Road Northbound | | | | Morgan Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #106 AM

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Rider Street
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Rider Street Westbound | | | | Perris Boulevard Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 10 | 45 | 3 | 0 | 32 | 35 | 73 | 0 | 1 | 106 | 15 | 0 | 3 | 10 | 1 | 0 |
| 07:15 AM | 12 | 56 | 4 | 0 | 29 | 32 | 81 | 0 | 1 | 98 | 13 | 0 | 1 | 20 | 2 | 0 |
| 07:30 AM | 5 | 41 | 5 | 0 | 22 | 58 | 55 | 0 | 5 | 105 | 10 | 0 | 2 | 26 | 0 | 0 |
| 07:45 AM | 8 | 72 | 6 | 0 | 39 | 44 | 72 | 0 | 12 | 97 | 15 | 0 | 3 | 23 | 6 | 0 |
| 08:00 AM | 12 | 82 | 2 | 0 | 30 | 23 | 47 | 0 | 4 | 89 | 18 | 0 | 5 | 33 | 10 | 0 |
| 08:15 AM | 7 | 66 | 10 | 0 | 29 | 20 | 42 | 0 | 2 | 92 | 16 | 0 | 2 | 11 | 2 | 0 |
| 08:30 AM | 3 | 73 | 4 | 0 | 21 | 15 | 39 | 0 | 2 | 93 | 11 | 0 | 2 | 4 | 2 | 0 |
| 08:45 AM | 8 | 86 | 1 | 0 | 23 | 13 | 35 | 0 | 2 | 67 | 16 | 0 | 4 | 10 | 4 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Rider Street Westbound | | | | Perris Boulevard Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 1 | 2 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 1 | 1 | 0 | 0 |
| 08:00 AM | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 1 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 4 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Rider Street Westbound | | | | Perris Boulevard Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Rider Street Westbound | | | | Perris Boulevard Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #106 PM**

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Rider Street
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Rider Street Westbound | | | | Perris Boulevard Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 26 | 110 | 4 | 0 | 21 | 16 | 29 | 0 | 6 | 94 | 39 | 0 | 4 | 29 | 8 | 0 |
| 04:15 PM | 39 | 114 | 2 | 0 | 31 | 13 | 23 | 0 | 3 | 99 | 43 | 0 | 8 | 21 | 12 | 0 |
| 04:30 PM | 41 | 130 | 4 | 0 | 32 | 11 | 28 | 0 | 2 | 99 | 29 | 0 | 13 | 37 | 8 | 0 |
| 04:45 PM | 47 | 134 | 3 | 0 | 24 | 11 | 29 | 0 | 4 | 91 | 33 | 0 | 5 | 27 | 8 | 0 |
| 05:00 PM | 27 | 138 | 3 | 0 | 32 | 19 | 21 | 0 | 1 | 148 | 34 | 0 | 8 | 33 | 7 | 0 |
| 05:15 PM | 38 | 151 | 1 | 0 | 40 | 11 | 28 | 0 | 1 | 102 | 41 | 0 | 7 | 22 | 6 | 0 |
| 05:30 PM | 27 | 134 | 1 | 0 | 37 | 16 | 26 | 0 | 5 | 113 | 30 | 0 | 5 | 28 | 7 | 0 |
| 05:45 PM | 34 | 140 | 4 | 0 | 37 | 13 | 25 | 0 | 3 | 92 | 44 | 0 | 1 | 26 | 9 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Rider Street Westbound | | | | Perris Boulevard Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 2 | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| 04:45 PM | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 2 | 1 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Rider Street Westbound | | | | Perris Boulevard Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Rider Street Westbound | | | | Perris Boulevard Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #107 AM**

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Evans Road
Comment 3: E/W: Rider Street
Comment 4: Weather: Sunny

| Cars | Evans Road Southbound | | | | Rider Street Westbound | | | | Evans Road Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 20 | 18 | 39 | 0 | 1 | 93 | 16 | 0 | 21 | 26 | 3 | 0 | 21 | 73 | 3 | 0 |
| 07:15 AM | 44 | 15 | 39 | 0 | 3 | 125 | 25 | 0 | 24 | 33 | 5 | 0 | 17 | 72 | 13 | 0 |
| 07:30 AM | 32 | 30 | 43 | 0 | 4 | 109 | 38 | 0 | 34 | 63 | 4 | 0 | 37 | 70 | 5 | 0 |
| 07:45 AM | 47 | 35 | 42 | 0 | 2 | 126 | 48 | 0 | 25 | 61 | 2 | 0 | 47 | 77 | 4 | 0 |
| 08:00 AM | 26 | 43 | 43 | 0 | 2 | 72 | 24 | 1 | 23 | 37 | 1 | 0 | 28 | 57 | 7 | 0 |
| 08:15 AM | 6 | 22 | 15 | 0 | 2 | 64 | 28 | 0 | 14 | 22 | 4 | 0 | 32 | 23 | 2 | 0 |
| 08:30 AM | 5 | 14 | 25 | 0 | 6 | 39 | 10 | 0 | 13 | 29 | 2 | 0 | 22 | 21 | 1 | 0 |
| 08:45 AM | 3 | 20 | 32 | 0 | 0 | 34 | 5 | 0 | 7 | 27 | 0 | 0 | 37 | 18 | 5 | 0 |

| 2-Axle Trucks | Evans Road Southbound | | | | Rider Street Westbound | | | | Evans Road Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:15 AM | 0 | 2 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:30 AM | 1 | 1 | 2 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 08:15 AM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:45 AM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |

| 3-Axle Trucks | Evans Road Southbound | | | | Rider Street Westbound | | | | Evans Road Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Evans Road Southbound | | | | Rider Street Westbound | | | | Evans Road Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #107 PM**

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Evans Road
Comment 3: E/W: Rider Street
Comment 4: Weather: Sunny

| Cars | Evans Road Southbound | | | | Rider Street Westbound | | | | Evans Road Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 10 | 42 | 42 | 0 | 6 | 46 | 8 | 0 | 6 | 39 | 2 | 0 | 53 | 63 | 17 | 0 |
| 04:15 PM | 19 | 61 | 40 | 0 | 2 | 33 | 7 | 0 | 8 | 38 | 1 | 0 | 47 | 64 | 15 | 0 |
| 04:30 PM | 8 | 43 | 35 | 0 | 3 | 43 | 10 | 0 | 7 | 35 | 2 | 0 | 46 | 73 | 21 | 0 |
| 04:45 PM | 11 | 41 | 43 | 0 | 1 | 36 | 9 | 0 | 9 | 28 | 3 | 0 | 47 | 50 | 17 | 0 |
| 05:00 PM | 10 | 41 | 52 | 0 | 2 | 39 | 9 | 0 | 11 | 43 | 2 | 0 | 57 | 71 | 13 | 0 |
| 05:15 PM | 11 | 60 | 60 | 0 | 3 | 40 | 5 | 0 | 7 | 51 | 4 | 0 | 80 | 54 | 15 | 0 |
| 05:30 PM | 14 | 48 | 65 | 1 | 2 | 58 | 6 | 0 | 11 | 41 | 7 | 0 | 64 | 51 | 17 | 0 |
| 05:45 PM | 14 | 55 | 46 | 0 | 3 | 38 | 7 | 0 | 12 | 48 | 8 | 0 | 50 | 61 | 21 | 0 |

| 2-Axle Trucks | Evans Road Southbound | | | | Rider Street Westbound | | | | Evans Road Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Evans Road Southbound | | | | Rider Street Westbound | | | | Evans Road Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Evans Road Southbound | | | | Rider Street Westbound | | | | Evans Road Northbound | | | | Rider Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #112 AM

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Placentia Avenue
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Placentia Avenue Westbound | | | | Perris Boulevard Northbound | | | | Placentia Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 3 | 74 | 0 | 0 | 4 | 4 | 26 | 0 | 2 | 78 | 4 | 0 | 2 | 1 | 2 | 0 |
| 07:15 AM | 4 | 81 | 2 | 0 | 7 | 29 | 35 | 0 | 9 | 70 | 2 | 0 | 1 | 10 | 3 | 0 |
| 07:30 AM | 5 | 70 | 8 | 0 | 6 | 36 | 40 | 0 | 19 | 96 | 5 | 0 | 6 | 14 | 4 | 0 |
| 07:45 AM | 13 | 115 | 3 | 1 | 3 | 40 | 33 | 0 | 27 | 96 | 6 | 1 | 7 | 27 | 10 | 0 |
| 08:00 AM | 14 | 98 | 2 | 0 | 8 | 4 | 21 | 0 | 0 | 95 | 8 | 2 | 4 | 24 | 7 | 0 |
| 08:15 AM | 7 | 96 | 1 | 2 | 4 | 0 | 19 | 0 | 1 | 94 | 10 | 1 | 0 | 2 | 1 | 0 |
| 08:30 AM | 6 | 84 | 3 | 0 | 10 | 2 | 23 | 0 | 2 | 96 | 5 | 0 | 0 | 0 | 2 | 0 |
| 08:45 AM | 9 | 111 | 3 | 0 | 5 | 2 | 8 | 0 | 0 | 76 | 6 | 0 | 1 | 1 | 2 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Placentia Avenue Westbound | | | | Perris Boulevard Northbound | | | | Placentia Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 0 |
| 07:15 AM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 1 | 5 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 1 | 0 |
| 08:00 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 1 | 0 |
| 08:45 AM | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Placentia Avenue Westbound | | | | Perris Boulevard Northbound | | | | Placentia Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Placentia Avenue Westbound | | | | Perris Boulevard Northbound | | | | Placentia Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

**SITE #112 PM**

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Perris Boulevard
Comment 3: E/W: Placentia Avenue
Comment 4: Weather: Sunny

| Cars | Perris Boulevard Southbound | | | | Placentia Avenue Westbound | | | | Perris Boulevard Northbound | | | | Placentia Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 23 | 131 | 2 | 1 | 10 | 3 | 13 | 0 | 1 | 133 | 12 | 0 | 1 | 9 | 1 | 0 |
| 04:15 PM | 25 | 134 | 2 | 1 | 13 | 6 | 10 | 0 | 4 | 142 | 7 | 0 | 2 | 8 | 3 | 0 |
| 04:30 PM | 23 | 172 | 4 | 0 | 10 | 8 | 18 | 0 | 1 | 128 | 11 | 1 | 5 | 12 | 1 | 0 |
| 04:45 PM | 34 | 139 | 2 | 0 | 9 | 1 | 10 | 0 | 1 | 138 | 10 | 0 | 9 | 10 | 2 | 0 |
| 05:00 PM | 18 | 164 | 0 | 0 | 5 | 4 | 18 | 0 | 0 | 147 | 7 | 0 | 4 | 5 | 2 | 0 |
| 05:15 PM | 21 | 170 | 4 | 0 | 19 | 5 | 14 | 0 | 1 | 145 | 9 | 0 | 5 | 11 | 1 | 0 |
| 05:30 PM | 41 | 141 | 2 | 1 | 11 | 4 | 19 | 0 | 1 | 141 | 14 | 0 | 4 | 6 | 4 | 0 |
| 05:45 PM | 31 | 149 | 2 | 0 | 8 | 2 | 18 | 0 | 1 | 120 | 15 | 0 | 3 | 5 | 1 | 0 |

| 2-Axle Trucks | Perris Boulevard Southbound | | | | Placentia Avenue Westbound | | | | Perris Boulevard Northbound | | | | Placentia Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Perris Boulevard Southbound | | | | Placentia Avenue Westbound | | | | Perris Boulevard Northbound | | | | Placentia Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Perris Boulevard Southbound | | | | Placentia Avenue Westbound | | | | Perris Boulevard Northbound | | | | Placentia Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #114 AM**

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Evans Road
Comment 3: E/W: Orange Avenue
Comment 4: Weather: Sunny

| Cars | Evans Road Southbound | | | | Orange Avenue Westbound | | | | Evans Road Northbound | | | | Orange Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 14 | 15 | 0 | 3 | 23 | 10 | 0 | 9 | 21 | 11 | 0 | 6 | 32 | 4 | 0 |
| 07:15 AM | 2 | 25 | 16 | 0 | 17 | 40 | 5 | 0 | 7 | 30 | 14 | 0 | 10 | 36 | 3 | 0 |
| 07:30 AM | 3 | 27 | 22 | 0 | 16 | 49 | 4 | 0 | 18 | 28 | 11 | 0 | 11 | 45 | 6 | 0 |
| 07:45 AM | 3 | 24 | 16 | 0 | 10 | 42 | 4 | 0 | 17 | 42 | 7 | 0 | 14 | 62 | 9 | 0 |
| 08:00 AM | 3 | 24 | 16 | 0 | 14 | 47 | 2 | 0 | 10 | 31 | 5 | 0 | 13 | 35 | 11 | 0 |
| 08:15 AM | 3 | 20 | 17 | 0 | 9 | 46 | 2 | 0 | 4 | 18 | 5 | 0 | 4 | 8 | 3 | 0 |
| 08:30 AM | 2 | 17 | 9 | 0 | 3 | 6 | 2 | 0 | 5 | 17 | 2 | 0 | 6 | 9 | 9 | 0 |
| 08:45 AM | 2 | 24 | 10 | 0 | 2 | 9 | 2 | 0 | 13 | 15 | 2 | 0 | 7 | 6 | 2 | 0 |

| 2-Axle Trucks | Evans Road Southbound | | | | Orange Avenue Westbound | | | | Evans Road Northbound | | | | Orange Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Evans Road Southbound | | | | Orange Avenue Westbound | | | | Evans Road Northbound | | | | Orange Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Evans Road Southbound | | | | Orange Avenue Westbound | | | | Evans Road Northbound | | | | Orange Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #114 PM**

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Evans Road
Comment 3: E/W: Orange Avenue
Comment 4: Weather: Sunny

| Cars | Evans Road Southbound | | | | Orange Avenue Westbound | | | | Evans Road Northbound | | | | Orange Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 17 | 9 | 0 | 5 | 14 | 1 | 0 | 1 | 18 | 5 | 0 | 21 | 19 | 3 | 0 |
| 04:15 PM | 9 | 36 | 14 | 0 | 4 | 12 | 2 | 0 | 12 | 21 | 3 | 0 | 12 | 15 | 5 | 0 |
| 04:30 PM | 2 | 35 | 19 | 0 | 5 | 18 | 5 | 0 | 12 | 21 | 6 | 0 | 17 | 33 | 8 | 0 |
| 04:45 PM | 4 | 35 | 14 | 0 | 4 | 14 | 2 | 0 | 5 | 27 | 6 | 0 | 20 | 30 | 11 | 0 |
| 05:00 PM | 4 | 36 | 19 | 0 | 4 | 16 | 8 | 0 | 9 | 36 | 4 | 0 | 14 | 24 | 18 | 0 |
| 05:15 PM | 3 | 28 | 22 | 0 | 5 | 23 | 8 | 0 | 9 | 27 | 7 | 0 | 29 | 26 | 7 | 0 |
| 05:30 PM | 3 | 41 | 17 | 0 | 2 | 10 | 2 | 0 | 5 | 50 | 5 | 0 | 19 | 28 | 13 | 0 |
| 05:45 PM | 0 | 33 | 18 | 0 | 1 | 18 | 7 | 0 | 11 | 45 | 3 | 0 | 22 | 21 | 8 | 0 |

| 2-Axle Trucks | Evans Road Southbound | | | | Orange Avenue Westbound | | | | Evans Road Northbound | | | | Orange Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Evans Road Southbound | | | | Orange Avenue Westbound | | | | Evans Road Northbound | | | | Orange Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Evans Road Southbound | | | | Orange Avenue Westbound | | | | Evans Road Northbound | | | | Orange Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #115 AM**

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Evans Road
Comment 3: E/W: Nuevo Road
Comment 4: Weather: Sunny

| Cars | Evans Road Southbound | | | | Nuevo Road Westbound | | | | Northbound | | | | Nuevo Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 5 | 0 | 22 | 0 | 0 | 75 | 12 | 0 | 0 | 0 | 0 | 0 | 29 | 47 | 0 | 0 |
| 07:15 AM | 8 | 0 | 72 | 0 | 0 | 91 | 11 | 0 | 0 | 0 | 0 | 0 | 23 | 42 | 0 | 0 |
| 07:30 AM | 9 | 0 | 77 | 0 | 0 | 111 | 13 | 0 | 0 | 0 | 0 | 0 | 34 | 66 | 0 | 0 |
| 07:45 AM | 4 | 0 | 76 | 0 | 0 | 107 | 22 | 0 | 0 | 0 | 0 | 0 | 28 | 85 | 0 | 0 |
| 08:00 AM | 6 | 0 | 51 | 0 | 0 | 72 | 22 | 0 | 0 | 0 | 0 | 0 | 45 | 66 | 0 | 0 |
| 08:15 AM | 5 | 0 | 66 | 0 | 0 | 73 | 10 | 0 | 0 | 0 | 0 | 0 | 21 | 47 | 0 | 0 |
| 08:30 AM | 8 | 0 | 35 | 0 | 0 | 54 | 4 | 0 | 0 | 0 | 0 | 0 | 27 | 35 | 0 | 0 |
| 08:45 AM | 9 | 0 | 45 | 0 | 0 | 75 | 6 | 0 | 0 | 0 | 0 | 0 | 16 | 46 | 0 | 0 |

| 2-Axle Trucks | Evans Road Southbound | | | | Nuevo Road Westbound | | | | Northbound | | | | Nuevo Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

| 3-Axle Trucks | Evans Road Southbound | | | | Nuevo Road Westbound | | | | Northbound | | | | Nuevo Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Evans Road Southbound | | | | Nuevo Road Westbound | | | | Northbound | | | | Nuevo Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #115 PM**

Start Date: 11/30/2011
Comment 1: City of Perris
Comment 2: N/S: Evans Road
Comment 3: E/W: Nuevo Road
Comment 4: Weather: Sunny

| Cars | Evans Road Southbound | | | | Nuevo Road Westbound | | | | Northbound | | | | Nuevo Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 6 | 0 | 29 | 0 | 0 | 42 | 5 | 0 | 0 | 0 | 0 | 0 | 25 | 58 | 0 | 0 |
| 04:15 PM | 11 | 0 | 43 | 0 | 0 | 70 | 6 | 0 | 0 | 0 | 0 | 0 | 27 | 92 | 0 | 0 |
| 04:30 PM | 17 | 0 | 47 | 0 | 0 | 68 | 6 | 0 | 0 | 0 | 0 | 0 | 43 | 108 | 0 | 0 |
| 04:45 PM | 13 | 0 | 41 | 0 | 0 | 68 | 3 | 0 | 0 | 0 | 0 | 0 | 40 | 111 | 0 | 0 |
| 05:00 PM | 14 | 0 | 46 | 0 | 0 | 107 | 10 | 0 | 0 | 0 | 0 | 0 | 44 | 122 | 0 | 0 |
| 05:15 PM | 18 | 0 | 46 | 0 | 0 | 87 | 15 | 0 | 0 | 0 | 0 | 0 | 51 | 109 | 0 | 0 |
| 05:30 PM | 9 | 0 | 39 | 0 | 0 | 75 | 9 | 0 | 0 | 0 | 0 | 0 | 57 | 116 | 0 | 0 |
| 05:45 PM | 11 | 0 | 34 | 0 | 0 | 82 | 11 | 0 | 0 | 0 | 0 | 0 | 46 | 113 | 0 | 0 |

| 2-Axle Trucks | Evans Road Southbound | | | | Nuevo Road Westbound | | | | Northbound | | | | Nuevo Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:15 PM | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Evans Road Southbound | | | | Nuevo Road Westbound | | | | Northbound | | | | Nuevo Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Evans Road Southbound | | | | Nuevo Road Westbound | | | | Northbound | | | | Nuevo Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #122 AM

Start Date: 10/18/2012
Comment 1: City of San Jacinto
Comment 2: N/S: Bridge Street
Comment 3: E/W: Ramona Expressw ay
Comment 4: Weather: Sunny

| Cars | Bridge Street Southbound | | | | Ramona Expressway Westbound | | | | Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 8 | 0 | 4 | 0 | 0 | 153 | 15 | 0 | 0 | 0 | 0 | 0 | 12 | 84 | 0 | 0 |
| 07:15 AM | 4 | 0 | 5 | 0 | 0 | 135 | 11 | 0 | 0 | 0 | 0 | 0 | 6 | 84 | 0 | 0 |
| 07:30 AM | 4 | 0 | 6 | 0 | 0 | 159 | 12 | 0 | 0 | 0 | 0 | 0 | 13 | 102 | 0 | 0 |
| 07:45 AM | 6 | 0 | 2 | 0 | 0 | 114 | 10 | 0 | 0 | 0 | 0 | 0 | 10 | 127 | 0 | 0 |
| 08:00 AM | 0 | 0 | 4 | 0 | 0 | 93 | 10 | 0 | 0 | 0 | 0 | 0 | 4 | 88 | 0 | 0 |
| 08:15 AM | 5 | 0 | 0 | 0 | 0 | 99 | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 85 | 0 | 0 |
| 08:30 AM | 4 | 0 | 4 | 0 | 0 | 74 | 7 | 0 | 0 | 0 | 0 | 0 | 4 | 81 | 0 | 0 |
| 08:45 AM | 4 | 0 | 4 | 0 | 0 | 78 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 73 | 0 | 0 |

| 2-Axle Trucks | Bridge Street Southbound | | | | Ramona Expressway Westbound | | | | Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 |

| 3-Axle Trucks | Bridge Street Southbound | | | | Ramona Expressway Westbound | | | | Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Bridge Street Southbound | | | | Ramona Expressway Westbound | | | | Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 3 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:30 AM | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 08:45 AM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |

**SITE #122 PM**

Start Date: 10/18/2012
Comment 1: City of San Jacinto
Comment 2: N/S: Bridge Street
Comment 3: E/W: Ramona Expressw ay
Comment 4: Weather: Sunny

| Cars | Bridge Street Southbound | | | | Ramona Expressway Westbound | | | | Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 9 | 0 | 5 | 0 | 0 | 95 | 11 | 0 | 0 | 0 | 0 | 0 | 6 | 143 | 0 | 0 |
| 04:15 PM | 7 | 0 | 5 | 0 | 0 | 102 | 6 | 0 | 0 | 0 | 0 | 0 | 3 | 161 | 0 | 0 |
| 04:30 PM | 6 | 0 | 5 | 0 | 0 | 86 | 4 | 0 | 0 | 0 | 0 | 0 | 6 | 168 | 0 | 0 |
| 04:45 PM | 7 | 0 | 10 | 0 | 0 | 117 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 165 | 0 | 0 |
| 05:00 PM | 17 | 0 | 7 | 0 | 0 | 87 | 9 | 0 | 0 | 0 | 0 | 0 | 2 | 168 | 0 | 0 |
| 05:15 PM | 13 | 0 | 9 | 0 | 0 | 122 | 10 | 0 | 0 | 0 | 0 | 0 | 1 | 154 | 0 | 0 |
| 05:30 PM | 12 | 0 | 12 | 0 | 0 | 97 | 5 | 0 | 0 | 0 | 0 | 0 | 3 | 140 | 0 | 0 |
| 05:45 PM | 11 | 0 | 7 | 0 | 0 | 99 | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 133 | 0 | 0 |

| 2-Axle Trucks | Bridge Street Southbound | | | | Ramona Expressway Westbound | | | | Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Bridge Street Southbound | | | | Ramona Expressway Westbound | | | | Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Bridge Street Southbound | | | | Ramona Expressway Westbound | | | | Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:45 PM | 1 | 0 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:30 PM | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #123 AM**

Start Date: 11/30/2011
Comment 1: County of Riverside
Comment 2: N/S: Bridge Street
Comment 3: E/W: Gilman Springs Road
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Gilman Springs Road Westbound | | | | Bridge Street Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 3 | 157 | 0 | 0 | 16 | 0 | 2 | 0 | 0 | 52 | 5 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 2 | 155 | 0 | 0 | 21 | 0 | 2 | 0 | 0 | 69 | 2 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 3 | 158 | 0 | 0 | 13 | 0 | 3 | 0 | 0 | 95 | 11 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 3 | 128 | 0 | 0 | 19 | 0 | 3 | 0 | 0 | 74 | 6 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 3 | 112 | 0 | 0 | 13 | 0 | 4 | 0 | 0 | 59 | 4 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 2 | 128 | 0 | 0 | 10 | 0 | 2 | 0 | 0 | 74 | 3 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 3 | 111 | 0 | 0 | 7 | 0 | 1 | 0 | 0 | 70 | 5 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 2 | 100 | 0 | 0 | 13 | 0 | 2 | 0 | 0 | 85 | 4 | 0 |

| 2-Axle Trucks | Southbound | | | | Gilman Springs Road Westbound | | | | Bridge Street Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |

| 3-Axle Trucks | Southbound | | | | Gilman Springs Road Westbound | | | | Bridge Street Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Gilman Springs Road Westbound | | | | Bridge Street Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 |

**SITE #123 PM**

Start Date: 11/30/2011
Comment 1: County of Riverside
Comment 2: N/S: Bridge Street
Comment 3: E/W: Gilman Springs Road
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Gilman Springs Road Westbound | | | | Bridge Street Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 2 | 66 | 0 | 0 | 8 | 0 | 4 | 0 | 0 | 135 | 8 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 91 | 0 | 0 | 6 | 0 | 3 | 0 | 0 | 159 | 6 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 77 | 0 | 0 | 2 | 0 | 5 | 0 | 0 | 168 | 9 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 2 | 78 | 0 | 0 | 8 | 0 | 3 | 0 | 0 | 167 | 15 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 94 | 0 | 0 | 7 | 0 | 4 | 0 | 0 | 145 | 11 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 95 | 0 | 0 | 8 | 0 | 4 | 0 | 0 | 166 | 11 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 3 | 78 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 142 | 12 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 3 | 83 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 172 | 14 | 0 |

| 2-Axle Trucks | Southbound | | | | Gilman Springs Road Westbound | | | | Bridge Street Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Southbound | | | | Gilman Springs Road Westbound | | | | Bridge Street Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Gilman Springs Road Westbound | | | | Bridge Street Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #124 AM

Start Date: 12/6/2011
Comment 1: County of Riverside
Comment 2: N/S: SR-79 Northbound (Sanderson Avenue)
Comment 3: E/W: Gilman Springs Road
Comment 4: Weather: Sunny

| Cars | SR-79 Southbound (Sanderson Avenue) | | | | Gilman Springs Road Westbound | | | | SR-79 Southbound (Sanderson Avenue) | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 96 | 47 | 0 | 53 | 0 | 0 | 0 | 2 | 49 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 80 | 65 | 0 | 62 | 0 | 0 | 0 | 3 | 57 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 81 | 68 | 0 | 51 | 0 | 0 | 0 | 3 | 72 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 60 | 47 | 0 | 68 | 0 | 0 | 0 | 3 | 73 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 60 | 44 | 0 | 44 | 0 | 0 | 0 | 4 | 48 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 72 | 50 | 0 | 50 | 0 | 2 | 0 | 1 | 54 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 59 | 52 | 0 | 57 | 0 | 0 | 0 | 0 | 56 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 55 | 43 | 0 | 49 | 0 | 0 | 0 | 3 | 62 | 0 | 0 |

| 2-Axle Trucks | SR-79 Southbound (Sanderson Avenue) | | | | Gilman Springs Road Westbound | | | | SR-79 Southbound (Sanderson Avenue) | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 5 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |

| 3-Axle Trucks | SR-79 Southbound (Sanderson Avenue) | | | | Gilman Springs Road Westbound | | | | SR-79 Southbound (Sanderson Avenue) | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | SR-79 Southbound (Sanderson Avenue) | | | | Gilman Springs Road Westbound | | | | SR-79 Southbound (Sanderson Avenue) | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

**SITE #124 PM**

Start Date: 12/6/2011
Comment 1: County of Riverside
Comment 2: N/S: SR-79 Northbound (Sanderson Avenue)
Comment 3: E/W: Gilman Springs Road
Comment 4: Weather: Sunny

| Cars | SR-79 Northbound (Sanderson Avenue) | | | | Gilman Springs Road Westbound | | | | SR-79 Northbound (Sanderson Avenue) | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 42 | 49 | 0 | 27 | 0 | 0 | 0 | 6 | 126 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 45 | 48 | 0 | 40 | 0 | 0 | 0 | 1 | 120 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 52 | 38 | 0 | 35 | 0 | 1 | 0 | 4 | 151 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 42 | 48 | 0 | 37 | 0 | 3 | 0 | 4 | 130 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 58 | 38 | 0 | 31 | 0 | 1 | 0 | 3 | 141 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 48 | 49 | 0 | 28 | 0 | 3 | 0 | 2 | 149 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 49 | 39 | 0 | 47 | 1 | 0 | 0 | 2 | 150 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 42 | 27 | 0 | 26 | 0 | 3 | 0 | 1 | 130 | 0 | 0 |

| 2-Axle Trucks | SR-79 Northbound (Sanderson Avenue) | | | | Gilman Springs Road Westbound | | | | SR-79 Northbound (Sanderson Avenue) | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | SR-79 Northbound (Sanderson Avenue) | | | | Gilman Springs Road Westbound | | | | SR-79 Northbound (Sanderson Avenue) | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | SR-79 Northbound (Sanderson Avenue) | | | | Gilman Springs Road Westbound | | | | SR-79 Northbound (Sanderson Avenue) | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

## SITE #125 AM

Start Date: 11/30/2011
Comment 1: County of Riverside
Comment 2: N/S: SR-79 Southbound (Sanderson Avenue)
Comment 3: E/W: Gilman Springs Road
Comment 4: Weather: Sunny

| Cars | SR-79 SB (Sanderson Avenue) Southbound | | | | Gilman Springs Road Westbound | | | | SR-79 SB (Sanderson Avenue) Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 25 | 0 | 2 | 0 | 1 | 163 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 21 | 0 |
| 07:15 AM | 25 | 0 | 4 | 0 | 0 | 153 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 34 | 0 |
| 07:30 AM | 31 | 0 | 2 | 0 | 1 | 142 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 49 | 0 |
| 07:45 AM | 33 | 0 | 1 | 0 | 0 | 133 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 42 | 0 |
| 08:00 AM | 18 | 0 | 3 | 0 | 0 | 106 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 21 | 0 |
| 08:15 AM | 21 | 0 | 2 | 0 | 0 | 122 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 32 | 0 |
| 08:30 AM | 17 | 0 | 2 | 0 | 2 | 115 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 25 | 0 |
| 08:45 AM | 24 | 1 | 0 | 0 | 0 | 104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 45 | 0 |

| 2-Axle Trucks | SR-79 SB (Sanderson Avenue) Southbound | | | | Gilman Springs Road Westbound | | | | SR-79 SB (Sanderson Avenue) Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 0 |
| 07:15 AM | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 |
| 07:30 AM | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 07:45 AM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 |
| 08:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 |

| 3-Axle Trucks | SR-79 SB (Sanderson Avenue) Southbound | | | | Gilman Springs Road Westbound | | | | SR-79 SB (Sanderson Avenue) Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | SR-79 SB (Sanderson Avenue) Southbound | | | | Gilman Springs Road Westbound | | | | SR-79 SB (Sanderson Avenue) Northbound | | | | Gilman Springs Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |

**SITE #125 PM**

Start Date: 11/30/2011
Comment 1: County of Riverside
Comment 2: N/S: SR-79 Southbound (Sanderson Avenue)
Comment 3: E/W: Gilman Springs Road
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 56 | 0 | 1 | 0 | 1 | 78 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 76 | 0 |
| 04:15 PM | 50 | 0 | 3 | 0 | 1 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 83 | 0 |
| 04:30 PM | 60 | 0 | 0 | 0 | 4 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 98 | 78 | 0 |
| 04:45 PM | 55 | 1 | 2 | 0 | 1 | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83 | 67 | 0 |
| 05:00 PM | 47 | 0 | 1 | 0 | 1 | 102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 102 | 72 | 0 |
| 05:15 PM | 52 | 1 | 1 | 0 | 1 | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 101 | 81 | 0 |
| 05:30 PM | 76 | 0 | 3 | 0 | 1 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 73 | 0 |
| 05:45 PM | 43 | 0 | 2 | 0 | 1 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 92 | 0 |

| 2-Axle Trucks | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 04:45 PM | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| 05:00 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| 05:45 PM | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Westbound | | | | Northbound | | | | Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |

**SITE #126 AM**

Start Date: 11/29/2011
Comment 1: City of San Jacinto
Comment 2: N/S: Sanderson Avenue
Comment 3: E/W: Ramona Expressw ay
Comment 4: Weather: Sunny

| Cars | Sanderson Avenue Southbound | | | | Ramona Expressway Westbound | | | | Sanderson Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 53 | 65 | 28 | 0 | 3 | 95 | 90 | 0 | 24 | 164 | 2 | 0 | 62 | 47 | 7 | 0 |
| 07:15 AM | 43 | 78 | 27 | 0 | 5 | 78 | 99 | 0 | 28 | 199 | 4 | 0 | 70 | 37 | 6 | 0 |
| 07:30 AM | 65 | 118 | 47 | 0 | 6 | 90 | 108 | 0 | 30 | 125 | 9 | 0 | 69 | 62 | 16 | 0 |
| 07:45 AM | 59 | 103 | 24 | 0 | 10 | 44 | 83 | 0 | 21 | 140 | 11 | 0 | 53 | 64 | 11 | 0 |
| 08:00 AM | 49 | 86 | 26 | 0 | 8 | 43 | 68 | 0 | 20 | 142 | 14 | 0 | 63 | 44 | 13 | 0 |
| 08:15 AM | 50 | 86 | 32 | 0 | 6 | 53 | 77 | 0 | 24 | 127 | 2 | 0 | 52 | 39 | 6 | 0 |
| 08:30 AM | 56 | 77 | 26 | 0 | 11 | 55 | 83 | 0 | 22 | 125 | 8 | 0 | 50 | 38 | 9 | 0 |
| 08:45 AM | 58 | 80 | 14 | 0 | 5 | 49 | 71 | 0 | 17 | 114 | 6 | 0 | 64 | 42 | 15 | 0 |

| 2-Axle Trucks | Sanderson Avenue Southbound | | | | Ramona Expressway Westbound | | | | Sanderson Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 9 | 3 | 0 | 0 | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 1 | 3 | 5 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 1 | 3 | 0 | 0 |
| 07:30 AM | 3 | 3 | 2 | 0 | 0 | 0 | 3 | 0 | 2 | 4 | 0 | 0 | 1 | 2 | 1 | 0 |
| 07:45 AM | 6 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 0 |
| 08:00 AM | 3 | 1 | 1 | 0 | 0 | 1 | 3 | 0 | 2 | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:15 AM | 2 | 2 | 0 | 0 | 0 | 3 | 3 | 0 | 1 | 3 | 0 | 0 | 1 | 5 | 1 | 0 |
| 08:30 AM | 3 | 4 | 3 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 2 | 0 |
| 08:45 AM | 3 | 4 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 0 |

| 3-Axle Trucks | Sanderson Avenue Southbound | | | | Ramona Expressway Westbound | | | | Sanderson Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 |
| 07:15 AM | 1 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 07:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |

| 4+ Axle Trucks | Sanderson Avenue Southbound | | | | Ramona Expressway Westbound | | | | Sanderson Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 4 | 1 | 0 | 0 | 2 | 4 | 0 | 2 | 3 | 0 | 0 | 4 | 0 | 0 | 0 |
| 07:15 AM | 3 | 1 | 5 | 0 | 0 | 6 | 2 | 0 | 3 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| 07:30 AM | 1 | 1 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 4 | 0 | 0 | 1 | 1 | 0 | 0 |
| 07:45 AM | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 2 | 4 | 0 | 0 | 3 | 0 | 0 | 0 |
| 08:00 AM | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 4 | 0 | 0 | 7 | 1 | 0 | 0 |
| 08:15 AM | 3 | 2 | 3 | 0 | 0 | 1 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 2 | 4 | 3 | 0 | 0 | 4 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 1 | 0 |
| 08:45 AM | 0 | 0 | 5 | 0 | 0 | 2 | 1 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 |

**SITE #126 PM**

Start Date: 11/29/2011
Comment 1: City of San Jacinto
Comment 2: N/S: Sanderson Avenue
Comment 3: E/W: Ramona Expressw ay
Comment 4: Weather: Sunny

| Cars | Sanderson Avenue Southbound | | | | Ramona Expressway Westbound | | | | Sanderson Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 89 | 180 | 37 | 0 | 12 | 62 | 62 | 0 | 14 | 118 | 18 | 0 | 43 | 81 | 23 | 0 |
| 04:15 PM | 90 | 226 | 52 | 0 | 8 | 52 | 68 | 0 | 14 | 105 | 3 | 0 | 36 | 78 | 35 | 0 |
| 04:30 PM | 93 | 188 | 51 | 0 | 10 | 45 | 58 | 0 | 13 | 90 | 12 | 0 | 33 | 62 | 25 | 0 |
| 04:45 PM | 94 | 207 | 68 | 0 | 7 | 56 | 50 | 0 | 24 | 93 | 7 | 0 | 52 | 95 | 34 | 0 |
| 05:00 PM | 103 | 201 | 63 | 0 | 6 | 53 | 67 | 0 | 18 | 144 | 22 | 0 | 37 | 69 | 27 | 0 |
| 05:15 PM | 100 | 177 | 67 | 0 | 10 | 70 | 72 | 0 | 14 | 116 | 11 | 0 | 46 | 83 | 22 | 0 |
| 05:30 PM | 104 | 209 | 56 | 0 | 7 | 53 | 43 | 0 | 9 | 103 | 4 | 0 | 38 | 83 | 27 | 0 |
| 05:45 PM | 91 | 233 | 63 | 0 | 7 | 36 | 39 | 0 | 19 | 84 | 4 | 0 | 29 | 74 | 24 | 0 |

| 2-Axle Trucks | Sanderson Avenue Southbound | | | | Ramona Expressway Westbound | | | | Sanderson Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 3 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 |
| 04:15 PM | 3 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 6 | 0 | 0 | 1 | 3 | 1 | 0 |
| 04:30 PM | 1 | 2 | 2 | 0 | 0 | 2 | 2 | 0 | 1 | 1 | 0 | 0 | 4 | 3 | 2 | 0 |
| 04:45 PM | 3 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 05:00 PM | 3 | 0 | 3 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 2 | 5 | 2 | 0 | 0 | 2 | 1 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 |
| 05:45 PM | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Sanderson Avenue Southbound | | | | Ramona Expressway Westbound | | | | Sanderson Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Sanderson Avenue Southbound | | | | Ramona Expressway Westbound | | | | Sanderson Avenue Northbound | | | | Ramona Expressway Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 4 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 3 | 1 | 0 | 0 |
| 04:15 PM | 3 | 2 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 1 | 3 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 04:45 PM | 2 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 05:00 PM | 2 | 2 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:15 PM | 0 | 3 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:30 PM | 4 | 4 | 5 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:45 PM | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #129 AM**

Start Date: 10/10/2012
Comment 1: City of Beaumont
Comment 2: N/S: California Avenue
Comment 3: E/W: 6th Street
Comment 4: Weather: Sunny

| Cars | California Avenue Southbound | | | | 0 | | | | 0 | | | | 0 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 4 | 4 | 1 | 0 | 0 | 8 | 1 | 54 | 1 | 0 | 0 | 85 | 4 | 8 | 0 | 1 |
| 07:15 AM | 4 | 14 | 0 | 2 | 0 | 10 | 1 | 58 | 1 | 0 | 0 | 69 | 5 | 12 | 0 | 1 |
| 07:30 AM | 6 | 13 | 1 | 1 | 0 | 9 | 1 | 45 | 0 | 0 | 0 | 68 | 6 | 9 | 0 | 0 |
| 07:45 AM | 9 | 14 | 0 | 0 | 0 | 10 | 1 | 52 | 3 | 0 | 0 | 41 | 7 | 10 | 0 | 1 |
| 08:00 AM | 8 | 9 | 1 | 0 | 0 | 11 | 2 | 51 | 1 | 0 | 0 | 36 | 6 | 9 | 0 | 1 |
| 08:15 AM | 4 | 9 | 0 | 2 | 0 | 10 | 0 | 42 | 1 | 0 | 0 | 28 | 5 | 11 | 0 | 0 |
| 08:30 AM | 3 | 8 | 1 | 2 | 0 | 12 | 0 | 41 | 2 | 0 | 0 | 36 | 6 | 10 | 0 | 2 |
| 08:45 AM | 2 | 7 | 0 | 1 | 0 | 8 | 4 | 44 | 1 | 0 | 0 | 31 | 5 | 8 | 0 | 0 |

| 2-Axle Trucks | California Avenue Southbound | | | | 0 | | | | 0 | | | | 0 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 |
| 07:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | California Avenue Southbound | | | | 0 | | | | 0 | | | | 0 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | California Avenue Southbound | | | | 0 | | | | 0 | | | | 0 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |

**SITE #129 PM**

Start Date: 10/10/2012
Comment 1: City of Beaumont
Comment 2: N/S: California Avenue/Grace Avenue
Comment 3: E/W: 6th Street
Comment 4: Weather: Sunny

| Cars | California Avenue Southbound | | | | 0 | | | | 0 | | | | 0 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 5 | 5 | 0 | 0 | 0 | 3 | 0 | 51 | 3 | 0 | 0 | 36 | 14 | 15 | 0 | 0 |
| 04:15 PM | 5 | 7 | 0 | 1 | 0 | 4 | 0 | 46 | 6 | 0 | 0 | 35 | 13 | 14 | 0 | 0 |
| 04:30 PM | 6 | 8 | 0 | 1 | 0 | 5 | 0 | 41 | 6 | 0 | 0 | 41 | 14 | 12 | 0 | 0 |
| 04:45 PM | 5 | 6 | 0 | 1 | 0 | 6 | 0 | 54 | 4 | 0 | 0 | 43 | 14 | 9 | 0 | 0 |
| 05:00 PM | 4 | 5 | 0 | 2 | 0 | 12 | 0 | 60 | 4 | 0 | 0 | 56 | 15 | 12 | 0 | 0 |
| 05:15 PM | 5 | 6 | 0 | 3 | 0 | 4 | 0 | 48 | 3 | 0 | 0 | 55 | 21 | 12 | 0 | 0 |
| 05:30 PM | 4 | 8 | 0 | 1 | 0 | 7 | 0 | 51 | 4 | 0 | 0 | 39 | 3 | 8 | 0 | 0 |
| 05:45 PM | 3 | 7 | 0 | 0 | 0 | 6 | 0 | 48 | 5 | 0 | 0 | 38 | 8 | 8 | 0 | 0 |

| 2-Axle Trucks | California Avenue Southbound | | | | 0 | | | | 0 | | | | 0 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | California Avenue Southbound | | | | 0 | | | | 0 | | | | 0 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | California Avenue Southbound | | | | 0 | | | | 0 | | | | 0 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 |
| 04:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

**SITE #130 AM**

Start Date: 10/10/2012
Comment 1: City of Beaumont
Comment 2: N/S: Beaumont Avenue
Comment 3: E/W: 6th Street
Comment 4: Weather: Sunny

| Cars | Beaumont Avenue Southbound | | | | 6th Street Westbound | | | | Beaumont Avenue Northbound | | | | 6th Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 12 | 48 | 11 | 0 | 18 | 36 | 8 | 0 | 14 | 26 | 11 | 0 | 11 | 32 | 6 | 0 |
| 07:15 AM | 16 | 47 | 14 | 0 | 14 | 42 | 10 | 0 | 15 | 68 | 12 | 0 | 15 | 30 | 6 | 0 |
| 07:30 AM | 23 | 49 | 15 | 0 | 16 | 28 | 14 | 0 | 12 | 42 | 14 | 0 | 22 | 38 | 8 | 0 |
| 07:45 AM | 26 | 62 | 12 | 0 | 15 | 42 | 15 | 0 | 15 | 45 | 15 | 0 | 16 | 56 | 9 | 0 |
| 08:00 AM | 29 | 58 | 14 | 0 | 14 | 44 | 21 | 0 | 8 | 51 | 14 | 0 | 18 | 36 | 11 | 0 |
| 08:15 AM | 31 | 69 | 22 | 0 | 34 | 41 | 23 | 0 | 6 | 32 | 12 | 0 | 19 | 35 | 9 | 0 |
| 08:30 AM | 28 | 56 | 17 | 0 | 18 | 36 | 18 | 0 | 8 | 36 | 12 | 0 | 11 | 44 | 8 | 0 |
| 08:45 AM | 24 | 61 | 14 | 0 | 21 | 29 | 21 | 0 | 9 | 42 | 14 | 0 | 12 | 32 | 6 | 0 |

| 2-Axle Trucks | Beaumont Avenue Southbound | | | | 6th Street Westbound | | | | Beaumont Avenue Northbound | | | | 6th Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:15 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 AM | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| 08:00 AM | 3 | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 |
| 08:30 AM | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| 08:45 AM | 1 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 1 | 0 | 0 |

| 3-Axle Trucks | Beaumont Avenue Southbound | | | | 6th Street Westbound | | | | Beaumont Avenue Northbound | | | | 6th Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 4+ Axle Trucks | Beaumont Avenue Southbound | | | | 6th Street Westbound | | | | Beaumont Avenue Northbound | | | | 6th Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #130 PM**

Start Date: 10/10/2012
Comment 1: City of Beaumont
Comment 2: N/S: Beaumont Avenue
Comment 3: E/W: 6th Street
Comment 4: Weather: Sunny

| Cars | Beaumont Avenue Southbound | | | | 6th Street Westbound | | | | Beaumont Avenue Northbound | | | | 6th Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 28 | 44 | 9 | 0 | 15 | 49 | 28 | 0 | 7 | 58 | 24 | 0 | 15 | 65 | 11 | 0 |
| 04:15 PM | 31 | 43 | 11 | 0 | 17 | 48 | 34 | 0 | 8 | 52 | 16 | 0 | 18 | 52 | 14 | 0 |
| 04:30 PM | 28 | 56 | 12 | 0 | 23 | 43 | 35 | 0 | 11 | 56 | 14 | 0 | 22 | 57 | 13 | 0 |
| 04:45 PM | 27 | 52 | 13 | 0 | 22 | 48 | 44 | 0 | 11 | 61 | 12 | 0 | 36 | 53 | 15 | 0 |
| 05:00 PM | 32 | 63 | 18 | 0 | 21 | 52 | 38 | 0 | 9 | 58 | 16 | 0 | 26 | 68 | 10 | 0 |
| 05:15 PM | 26 | 62 | 12 | 0 | 16 | 48 | 31 | 0 | 6 | 63 | 15 | 0 | 25 | 54 | 8 | 0 |
| 05:30 PM | 25 | 51 | 9 | 0 | 19 | 50 | 29 | 0 | 9 | 68 | 19 | 0 | 21 | 64 | 15 | 0 |
| 05:45 PM | 24 | 48 | 7 | 0 | 24 | 42 | 28 | 0 | 8 | 65 | 14 | 0 | 18 | 58 | 11 | 0 |

| 2-Axle Trucks | Beaumont Avenue Southbound | | | | 6th Street Westbound | | | | Beaumont Avenue Northbound | | | | 6th Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:45 PM | 0 | 1 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:00 PM | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:15 PM | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |

| 3-Axle Trucks | Beaumont Avenue Southbound | | | | 6th Street Westbound | | | | Beaumont Avenue Northbound | | | | 6th Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Beaumont Avenue Southbound | | | | 6th Street Westbound | | | | Beaumont Avenue Northbound | | | | 6th Street Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #131 AM

Start Date: 10/10/2012
Comment 1: County of Riverside
Comment 2: N/S: Reche Vista Road
Comment 3: E/W: Reche Canyon Road
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Reche Canyon Road Westbound | | | | Reche Vista Drive Northbound | | | | Reche Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 278 | 0 | 2 | 0 | 0 | 0 | 25 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 344 | 0 | 1 | 0 | 0 | 2 | 30 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 263 | 0 | 0 | 0 | 0 | 0 | 44 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 174 | 0 | 1 | 0 | 0 | 1 | 51 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 172 | 0 | 0 | 0 | 0 | 2 | 39 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 195 | 0 | 2 | 0 | 0 | 1 | 56 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 190 | 0 | 0 | 0 | 0 | 1 | 27 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 114 | 0 | 1 | 0 | 0 | 0 | 39 | 0 |

| 2-Axle Trucks | Southbound | | | | Reche Canyon Road Westbound | | | | Reche Vista Drive Northbound | | | | Reche Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |

| 3-Axle Trucks | Southbound | | | | Reche Canyon Road Westbound | | | | Reche Vista Drive Northbound | | | | Reche Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Reche Canyon Road Westbound | | | | Reche Vista Drive Northbound | | | | Reche Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #131 PM**

Start Date: 10/10/2012
Comment 1: County of Riverside
Comment 2: N/S: Reche Vista Drive
Comment 3: E/W: Reche Canyon Road
Comment 4: Weather: Sunny

| Cars | Southbound | | | | Reche Canyon Road Westbound | | | | Reche Vista Drive Northbound | | | | Reche Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 60 | 0 | 1 | 0 | 0 | 6 | 176 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 82 | 0 | 0 | 0 | 0 | 0 | 220 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 89 | 0 | 0 | 0 | 0 | 1 | 214 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 63 | 0 | 1 | 0 | 0 | 2 | 219 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 102 | 0 | 0 | 0 | 0 | 4 | 300 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 114 | 0 | 2 | 0 | 0 | 1 | 309 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 82 | 0 | 3 | 0 | 0 | 1 | 315 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 60 | 0 | 2 | 0 | 0 | 4 | 280 | 0 |

| 2-Axle Trucks | Southbound | | | | Reche Canyon Road Westbound | | | | Reche Vista Drive Northbound | | | | Reche Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Southbound | | | | Reche Canyon Road Westbound | | | | Reche Vista Drive Northbound | | | | Reche Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | Reche Canyon Road Westbound | | | | Reche Vista Drive Northbound | | | | Reche Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #132 AM

Start Date: 12/1/2011
Comment 1: County of Riverside
Comment 2: N/S: Live Oak Canyon Road
Comment 3: E/W: San Timoteo Canyon Road
Comment 4: Weather: Sunny

| Cars | Alessandro Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Alessandro Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 23 | 1 | 9 | 0 | 0 | 117 | 46 | 0 | 0 | 1 | 0 | 0 | 3 | 23 | 0 | 0 |
| 07:15 AM | 40 | 0 | 8 | 0 | 0 | 128 | 46 | 0 | 1 | 2 | 0 | 0 | 2 | 27 | 0 | 0 |
| 07:30 AM | 54 | 0 | 12 | 0 | 3 | 151 | 50 | 0 | 1 | 3 | 0 | 0 | 5 | 42 | 0 | 0 |
| 07:45 AM | 32 | 1 | 8 | 0 | 1 | 116 | 39 | 0 | 1 | 4 | 0 | 0 | 4 | 25 | 0 | 0 |
| 08:00 AM | 39 | 0 | 6 | 0 | 0 | 86 | 46 | 0 | 0 | 10 | 0 | 0 | 4 | 27 | 0 | 0 |
| 08:15 AM | 25 | 0 | 5 | 0 | 0 | 74 | 38 | 0 | 0 | 6 | 0 | 0 | 4 | 22 | 0 | 0 |
| 08:30 AM | 22 | 0 | 8 | 0 | 0 | 64 | 26 | 0 | 0 | 7 | 0 | 0 | 2 | 18 | 0 | 0 |
| 08:45 AM | 23 | 0 | 5 | 0 | 0 | 57 | 30 | 0 | 0 | 8 | 0 | 0 | 2 | 32 | 0 | 0 |

| 2-Axle Trucks | Alessandro Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Alessandro Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 07:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:45 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 1 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 08:15 AM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:30 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

| 3-Axle Trucks | Alessandro Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Alessandro Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Alessandro Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Alessandro Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #132 PM**

Start Date: 12/1/2011
Comment 1: County of Riverside
Comment 2: N/S: Live Oak Canyon Road
Comment 3: E/W: San Timoteo Canyon Road
Comment 4: Weather: Sunny

| Cars | Alessandro Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Alessandro Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 31 | 0 | 7 | 0 | 0 | 41 | 52 | 0 | 1 | 2 | 1 | 0 | 4 | 55 | 0 | 0 |
| 04:15 PM | 61 | 0 | 6 | 0 | 0 | 28 | 27 | 0 | 0 | 2 | 0 | 0 | 6 | 89 | 0 | 0 |
| 04:30 PM | 33 | 1 | 4 | 0 | 0 | 44 | 47 | 0 | 0 | 3 | 0 | 0 | 4 | 125 | 0 | 0 |
| 04:45 PM | 51 | 1 | 3 | 0 | 0 | 37 | 57 | 0 | 0 | 4 | 0 | 0 | 5 | 84 | 0 | 0 |
| 05:00 PM | 60 | 0 | 6 | 0 | 0 | 37 | 42 | 0 | 2 | 11 | 2 | 0 | 6 | 135 | 0 | 0 |
| 05:15 PM | 55 | 0 | 2 | 0 | 0 | 43 | 57 | 0 | 0 | 7 | 0 | 0 | 7 | 134 | 0 | 0 |
| 05:30 PM | 61 | 0 | 5 | 0 | 0 | 37 | 30 | 0 | 0 | 8 | 0 | 0 | 11 | 107 | 0 | 0 |
| 05:45 PM | 43 | 0 | 2 | 0 | 0 | 37 | 38 | 0 | 0 | 8 | 0 | 0 | 2 | 69 | 0 | 0 |

| 2-Axle Trucks | Alessandro Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Alessandro Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Alessandro Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Alessandro Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Alessandro Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Alessandro Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #133 AM**

Start Date: 12/1/2011
Comment 1: County of Riverside
Comment 2: N/S: Live Oak Canyon Road
Comment 3: E/W: San Timoteo Canyon Road
Comment 4: Weather: Sunny

| Cars | Live Oak Canyon Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Live Oak Canyon Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 33 | 0 | 5 | 0 | 1 | 139 | 14 | 0 | 1 | 0 | 0 | 0 | 3 | 39 | 3 | 0 |
| 07:15 AM | 37 | 0 | 3 | 0 | 0 | 168 | 19 | 0 | 2 | 0 | 1 | 0 | 2 | 63 | 0 | 0 |
| 07:30 AM | 33 | 1 | 8 | 0 | 0 | 183 | 13 | 0 | 2 | 2 | 0 | 0 | 2 | 59 | 0 | 0 |
| 07:45 AM | 40 | 0 | 16 | 0 | 0 | 141 | 20 | 0 | 1 | 2 | 1 | 0 | 5 | 77 | 0 | 0 |
| 08:00 AM | 24 | 1 | 7 | 0 | 2 | 124 | 9 | 0 | 0 | 0 | 0 | 0 | 2 | 49 | 0 | 0 |
| 08:15 AM | 13 | 0 | 6 | 0 | 2 | 102 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 41 | 0 | 0 |
| 08:30 AM | 28 | 0 | 4 | 0 | 1 | 108 | 19 | 0 | 0 | 0 | 0 | 0 | 4 | 39 | 2 | 0 |
| 08:45 AM | 24 | 0 | 1 | 0 | 1 | 71 | 15 | 0 | 2 | 0 | 1 | 0 | 2 | 41 | 2 | 0 |

| 2-Axle Trucks | Live Oak Canyon Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Live Oak Canyon Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 07:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |

| 3-Axle Trucks | Live Oak Canyon Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Live Oak Canyon Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Live Oak Canyon Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Live Oak Canyon Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #133 PM**

Start Date: 12/1/2011
Comment 1: County of Riverside
Comment 2: N/S: Live Oak Canyon Road
Comment 3: E/W: San Timoteo Canyon Road
Comment 4: Weather: Sunny

| Cars | Live Oak Canyon Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Live Oak Canyon Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 27 | 0 | 3 | 0 | 0 | 71 | 44 | 0 | 1 | 0 | 0 | 0 | 5 | 82 | 0 | 0 |
| 04:15 PM | 22 | 1 | 5 | 0 | 0 | 64 | 46 | 0 | 1 | 2 | 2 | 0 | 8 | 116 | 0 | 0 |
| 04:30 PM | 27 | 0 | 6 | 0 | 0 | 89 | 28 | 0 | 0 | 0 | 1 | 0 | 1 | 129 | 1 | 0 |
| 04:45 PM | 25 | 0 | 1 | 0 | 1 | 93 | 39 | 0 | 2 | 1 | 1 | 0 | 9 | 154 | 1 | 0 |
| 05:00 PM | 26 | 0 | 2 | 0 | 1 | 78 | 22 | 0 | 0 | 0 | 2 | 0 | 2 | 119 | 0 | 0 |
| 05:15 PM | 25 | 0 | 2 | 0 | 0 | 99 | 51 | 0 | 1 | 2 | 1 | 0 | 5 | 179 | 3 | 0 |
| 05:30 PM | 26 | 0 | 6 | 0 | 1 | 62 | 34 | 0 | 0 | 0 | 1 | 0 | 5 | 146 | 2 | 0 |
| 05:45 PM | 31 | 2 | 2 | 0 | 0 | 73 | 20 | 0 | 0 | 0 | 1 | 0 | 2 | 122 | 2 | 0 |

| 2-Axle Trucks | Live Oak Canyon Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Live Oak Canyon Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 04:15 PM | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Live Oak Canyon Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Live Oak Canyon Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Live Oak Canyon Road Southbound | | | | San Timoteo Canyon Road Westbound | | | | Live Oak Canyon Road Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #134 AM

Start Date: 12/1/2011
Comment 1: County of Riverside
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: San Timoteo Canyon Road
Comment 4: Weather: Sunny

| Cars | Southbound | | | | San Timoteo Canyon Road Westbound | | | | Redlands Boulevard Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 14 | 13 | 0 | 0 | 190 | 0 | 5 | 0 | 0 | 5 | 85 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 19 | 23 | 0 | 0 | 166 | 0 | 4 | 0 | 0 | 3 | 93 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 9 | 29 | 0 | 0 | 202 | 0 | 2 | 0 | 0 | 2 | 87 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 13 | 20 | 0 | 0 | 115 | 0 | 5 | 0 | 0 | 3 | 114 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 7 | 18 | 0 | 0 | 110 | 0 | 2 | 0 | 0 | 6 | 82 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 7 | 8 | 0 | 0 | 110 | 0 | 5 | 0 | 0 | 1 | 57 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 16 | 11 | 0 | 0 | 112 | 0 | 4 | 0 | 0 | 9 | 40 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 8 | 11 | 0 | 0 | 78 | 0 | 4 | 0 | 0 | 4 | 87 | 0 |

| 2-Axle Trucks | Southbound | | | | San Timoteo Canyon Road Westbound | | | | Redlands Boulevard Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| 3-Axle Trucks | Southbound | | | | San Timoteo Canyon Road Westbound | | | | Redlands Boulevard Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | San Timoteo Canyon Road Westbound | | | | Redlands Boulevard Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #134 PM**

Start Date: 12/1/2011
Comment 1: County of Riverside
Comment 2: N/S: Redlands Boulevard
Comment 3: E/W: San Timoteo Canyon Road
Comment 4: Weather: Sunny

| Cars | Southbound | | | | San Timoteo Canyon Road Westbound | | | | Redlands Boulevard Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 12 | 6 | 0 | 0 | 120 | 0 | 10 | 0 | 0 | 10 | 105 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 107 | 0 | 13 | 0 | 1 | 20 | 110 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 8 | 2 | 0 | 0 | 118 | 0 | 14 | 0 | 0 | 16 | 139 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 9 | 7 | 0 | 0 | 131 | 0 | 17 | 0 | 0 | 18 | 172 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 4 | 5 | 0 | 0 | 135 | 0 | 21 | 0 | 0 | 11 | 105 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 125 | 0 | 22 | 0 | 0 | 11 | 175 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 105 | 0 | 13 | 0 | 0 | 13 | 147 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 11 | 10 | 0 | 0 | 106 | 0 | 16 | 0 | 0 | 11 | 128 | 0 |

| 2-Axle Trucks | Southbound | | | | San Timoteo Canyon Road Westbound | | | | Redlands Boulevard Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Southbound | | | | San Timoteo Canyon Road Westbound | | | | Redlands Boulevard Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Southbound | | | | San Timoteo Canyon Road Westbound | | | | Redlands Boulevard Northbound | | | | San Timoteo Canyon Road Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SITE #135 AM

Start Date: 12/1/2011
Comment 1: City of Redlands
Comment 2: N/S: Alessandro Road/San Jacinto Street
Comment 3: E/W: Crescent Avenue
Comment 4: Weather: Sunny

| Cars | San Jacinto Street Southbound | | | | Crescent Avenue Westbound | | | | Alessandro Road Northbound | | | | Crescent Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 21 | 9 | 0 | 0 | 16 | 0 | 52 | 0 | 0 | 5 | 2 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 39 | 20 | 0 | 0 | 26 | 0 | 62 | 0 | 0 | 6 | 3 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 44 | 27 | 0 | 0 | 23 | 0 | 65 | 0 | 0 | 15 | 4 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 34 | 31 | 0 | 0 | 35 | 0 | 66 | 0 | 0 | 4 | 2 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 27 | 21 | 0 | 0 | 12 | 0 | 62 | 0 | 0 | 7 | 3 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 27 | 26 | 0 | 0 | 20 | 0 | 58 | 0 | 0 | 4 | 1 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 24 | 20 | 0 | 0 | 19 | 0 | 42 | 0 | 0 | 7 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 20 | 14 | 0 | 0 | 17 | 0 | 41 | 0 | 0 | 4 | 3 | 0 |

| 2-Axle Trucks | San Jacinto Street Southbound | | | | Crescent Avenue Westbound | | | | Alessandro Road Northbound | | | | Crescent Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | San Jacinto Street Southbound | | | | Crescent Avenue Westbound | | | | Alessandro Road Northbound | | | | Crescent Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | San Jacinto Street Southbound | | | | Crescent Avenue Westbound | | | | Alessandro Road Northbound | | | | Crescent Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #135 PM**

Start Date: 12/1/2011
Comment 1: City of Redlands
Comment 2: N/S: Alessandro Road/San Jacinto Street
Comment 3: E/W: Crescent Avenue
Comment 4: Weather: Sunny

| Cars | San Jacinto Street Southbound | | | | Crescent Avenue Westbound | | | | Alessandro Road Northbound | | | | Crescent Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 58 | 10 | 0 | 0 | 7 | 0 | 48 | 0 | 0 | 10 | 4 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 45 | 6 | 0 | 0 | 6 | 0 | 28 | 0 | 0 | 17 | 8 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 51 | 10 | 0 | 0 | 6 | 0 | 44 | 0 | 0 | 5 | 5 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 56 | 9 | 0 | 0 | 11 | 0 | 52 | 0 | 0 | 9 | 4 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 61 | 15 | 0 | 0 | 6 | 0 | 45 | 0 | 0 | 15 | 13 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 52 | 18 | 0 | 0 | 11 | 0 | 39 | 0 | 0 | 12 | 7 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 56 | 12 | 0 | 0 | 5 | 0 | 40 | 0 | 0 | 15 | 8 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 35 | 10 | 0 | 0 | 17 | 0 | 30 | 0 | 0 | 9 | 2 | 0 |

| 2-Axle Trucks | San Jacinto Street Southbound | | | | Crescent Avenue Westbound | | | | Alessandro Road Northbound | | | | Crescent Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | San Jacinto Street Southbound | | | | Crescent Avenue Westbound | | | | Alessandro Road Northbound | | | | Crescent Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | San Jacinto Street Southbound | | | | Crescent Avenue Westbound | | | | Alessandro Road Northbound | | | | Crescent Avenue Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #136 AM**

Start Date: 12/1/2011
Comment 1: City of Redlands
Comment 2: N/S: Alessandro Road
Comment 3: E/W: Sunset Drive
Comment 4: Weather: Sunny

| Cars | Alessandro Road Southbound | | | | Sunset Drive Westbound | | | | Alessandro Road Northbound | | | | Sunset Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 33 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 56 | 1 | 0 | 1 | 1 | 3 | 0 |
| 07:15 AM | 2 | 41 | 1 | 0 | 1 | 4 | 2 | 0 | 0 | 61 | 3 | 0 | 6 | 0 | 1 | 0 |
| 07:30 AM | 3 | 49 | 2 | 0 | 6 | 3 | 2 | 0 | 1 | 52 | 9 | 1 | 1 | 1 | 3 | 0 |
| 07:45 AM | 0 | 39 | 1 | 0 | 8 | 2 | 0 | 0 | 0 | 70 | 5 | 0 | 4 | 0 | 0 | 0 |
| 08:00 AM | 0 | 28 | 2 | 0 | 5 | 0 | 3 | 0 | 0 | 56 | 1 | 0 | 1 | 0 | 1 | 0 |
| 08:15 AM | 1 | 31 | 2 | 1 | 2 | 0 | 3 | 0 | 1 | 44 | 2 | 0 | 0 | 0 | 1 | 0 |
| 08:30 AM | 1 | 22 | 2 | 0 | 3 | 2 | 1 | 0 | 0 | 40 | 3 | 0 | 3 | 0 | 3 | 0 |
| 08:45 AM | 0 | 29 | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 33 | 0 | 0 | 0 | 0 | 1 | 0 |

| 2-Axle Trucks | Alessandro Road Southbound | | | | Sunset Drive Westbound | | | | Alessandro Road Northbound | | | | Sunset Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Alessandro Road Southbound | | | | Sunset Drive Westbound | | | | Alessandro Road Northbound | | | | Sunset Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Alessandro Road Southbound | | | | Sunset Drive Westbound | | | | Alessandro Road Northbound | | | | Sunset Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SITE #136 PM**

Start Date: 12/1/2011
Comment 1: City of Redlands
Comment 2: N/S: Alessandro Road
Comment 3: E/W: Sunset Drive
Comment 4: Weather: Sunny

| Cars | Alessandro Road Southbound | | | | Sunset Drive Westbound | | | | Alessandro Road Northbound | | | | Sunset Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 5 | 53 | 0 | 0 | 5 | 1 | 1 | 0 | 1 | 49 | 7 | 0 | 1 | 1 | 0 | 0 |
| 04:15 PM | 3 | 50 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 32 | 6 | 0 | 1 | 0 | 0 | 0 |
| 04:30 PM | 4 | 50 | 2 | 0 | 0 | 1 | 4 | 0 | 1 | 47 | 2 | 0 | 2 | 2 | 0 | 0 |
| 04:45 PM | 2 | 55 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 65 | 4 | 0 | 0 | 0 | 2 | 0 |
| 05:00 PM | 2 | 74 | 2 | 0 | 2 | 0 | 3 | 0 | 1 | 44 | 1 | 0 | 2 | 0 | 0 | 0 |
| 05:15 PM | 5 | 65 | 4 | 0 | 2 | 0 | 2 | 0 | 0 | 49 | 3 | 0 | 1 | 0 | 1 | 0 |
| 05:30 PM | 5 | 72 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 41 | 3 | 0 | 0 | 2 | 1 | 0 |
| 05:45 PM | 1 | 40 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 45 | 10 | 0 | 0 | 0 | 1 | 0 |

| 2-Axle Trucks | Alessandro Road Southbound | | | | Sunset Drive Westbound | | | | Alessandro Road Northbound | | | | Sunset Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 3-Axle Trucks | Alessandro Road Southbound | | | | Sunset Drive Westbound | | | | Alessandro Road Northbound | | | | Sunset Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 4+ Axle Trucks | Alessandro Road Southbound | | | | Sunset Drive Westbound | | | | Alessandro Road Northbound | | | | Sunset Drive Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Counts Unlimited, Inc
PO Box 1178
Corona, CA 92878
(951) 268-6268



City of Moreno Valley
Theodore Street
B/ State Route 60 - Ironwood Avenue
24 Hour Directional Classification Count
Northbound

MRV001
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 | 0 | 6 | 4 | 0 | 1 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 18 |
| 06:00 | 0 | 15 | 4 | **1** | 0 | **3** | 0 | 0 | 6 | 0 | **1** | 0 | 0 | 30 |
| 07:00 | **1** | **18** | 4 | 1 | 5 | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | **39** |
| 08:00 | 0 | 7 | 7 | 0 | 4 | 1 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 28 |
| 09:00 | 0 | 9 | **8** | 0 | 3 | 0 | 0 | **2** | **12** | 0 | 0 | 0 | 0 | 34 |
| 10:00 | 0 | 11 | 4 | 0 | **6** | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 28 |
| 11:00 | 0 | 14 | 6 | 1 | 2 | 1 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 33 |
| 12 PM | **1** | 9 | 5 | 1 | 5 | **1** | 0 | 0 | **6** | 0 | 0 | 0 | 0 | 28 |
| 13:00 | 1 | 6 | 4 | **3** | **6** | 1 | **1** | **1** | 6 | 0 | 0 | 0 | 0 | 29 |
| 14:00 | 1 | 16 | 2 | 0 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 26 |
| 15:00 | 0 | 10 | **9** | 1 | 6 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 31 |
| 16:00 | 0 | **25** | 2 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **32** |
| 17:00 | 0 | 13 | 7 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 22 |
| 18:00 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 19:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 20:00 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 10 |
| 21:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 22:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 23:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total | 4 | 187 | 68 | 9 | 44 | 7 | 1 | 7 | 81 | 0 | 1 | 0 | 0 | 409 |
| Percent | 1.0% | 45.7% | 16.6% | 2.2% | 10.8% | 1.7% | 0.2% | 1.7% | 19.8% | 0.0% | 0.2% | 0.0% | 0.0% | |
| AM Peak | 07:00 | 07:00 | 09:00 | 06:00 | 10:00 | 06:00 | | 09:00 | 09:00 | | 06:00 | | | 07:00 |
| Vol. | 1 | 18 | 8 | 1 | 6 | 3 | | 2 | 12 | | 1 | | | 39 |
| PM Peak | 12:00 | 16:00 | 15:00 | 13:00 | 13:00 | 12:00 | 13:00 | 13:00 | 12:00 | | | | | 16:00 |
| Vol. | 1 | 25 | 9 | 3 | 6 | 1 | 1 | 1 | 6 | | | | | 32 |
| Grand Total | 4 | 187 | 68 | 9 | 44 | 7 | 1 | 7 | 81 | 0 | 1 | 0 | 0 | 409 |
| Percent | 1.0% | 45.7% | 16.6% | 2.2% | 10.8% | 1.7% | 0.2% | 1.7% | 19.8% | 0.0% | 0.2% | 0.0% | 0.0% | |

Counts Unlimited, Inc
PO Box 1178
Corona, CA 92878
(951) 268-6268



City of Moreno Valley
Theodore Street
B/ State Route 60 - Ironwood Avenue
24 Hour Directional Classification Count
Southbound

MRV001
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:00 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 06:00 | 0 | 5 | 3 | **2** | 0 | **2** | 0 | 0 | 7 | 0 | **1** | 0 | 0 | 20 |
| 07:00 | 0 | 4 | 3 | 0 | **5** | 1 | 0 | **1** | 9 | 0 | 0 | 0 | 0 | 23 |
| 08:00 | 1 | 4 | 5 | 1 | 3 | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | 24 |
| 09:00 | 0 | 6 | 6 | 0 | 3 | 1 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 23 |
| 10:00 | **2** | 10 | 7 | 1 | 4 | 0 | 0 | 1 | **10** | 0 | 0 | 0 | 0 | **35** |
| 11:00 | 0 | **12** | **8** | 0 | 5 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 31 |
| 12 PM | 0 | 8 | 5 | 1 | 2 | **2** | 0 | 0 | **8** | 0 | 0 | 0 | 0 | 26 |
| 13:00 | 0 | 7 | 8 | 1 | 3 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 25 |
| 14:00 | **1** | 8 | 3 | 1 | 4 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 24 |
| 15:00 | 1 | 12 | 10 | **3** | **5** | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 34 |
| 16:00 | 1 | **25** | **12** | 1 | 3 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | **49** |
| 17:00 | 1 | 18 | 2 | 0 | 2 | 0 | 0 | **2** | 0 | 0 | 0 | 0 | 0 | 25 |
| 18:00 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 19:00 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 20:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 21:00 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 22:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 23:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Total | 7 | 144 | 80 | 12 | 39 | 7 | 0 | 8 | 75 | 0 | 1 | 0 | 0 | 373 |
| Percent | 1.9% | 38.6% | 21.4% | 3.2% | 10.5% | 1.9% | 0.0% | 2.1% | 20.1% | 0.0% | 0.3% | 0.0% | 0.0% | |
| AM Peak | 10:00 | 11:00 | 11:00 | 06:00 | 07:00 | 06:00 | | 07:00 | 10:00 | | 06:00 | | | 10:00 |
| Vol. | 2 | 12 | 8 | 2 | 5 | 2 | | 1 | 10 | | 1 | | | 35 |
| PM Peak | 14:00 | 16:00 | 16:00 | 15:00 | 15:00 | 12:00 | | 17:00 | 12:00 | | | | | 16:00 |
| Vol. | 1 | 25 | 12 | 3 | 5 | 2 | | 2 | 8 | | | | | 49 |
| Grand Total | 7 | 144 | 80 | 12 | 39 | 7 | 0 | 8 | 75 | 0 | 1 | 0 | 0 | 373 |
| Percent | 1.9% | 38.6% | 21.4% | 3.2% | 10.5% | 1.9% | 0.0% | 2.1% | 20.1% | 0.0% | 0.3% | 0.0% | 0.0% | |

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City of Moreno Valley
Theodore Street
B/ State Route 60 - Ironwood Avenue
24 Hour Directional Classification Count
Northbound, Southbound

MRV001
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 01:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:00 | 0 | 11 | 7 | 0 | 1 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 26 |
| 06:00 | 0 | 20 | 7 | **3** | 0 | **5** | 0 | 0 | 13 | 0 | **2** | 0 | 0 | 50 |
| 07:00 | 1 | 22 | 7 | 1 | **10** | 1 | 0 | 2 | **18** | 0 | 0 | 0 | 0 | 62 |
| 08:00 | 1 | 11 | 12 | 1 | 7 | 1 | 0 | 2 | 17 | 0 | 0 | 0 | 0 | 52 |
| 09:00 | 0 | 15 | **14** | 0 | 6 | 1 | 0 | **3** | 18 | 0 | 0 | 0 | 0 | 57 |
| 10:00 | **2** | 21 | 11 | 1 | 10 | 0 | 0 | 1 | 17 | 0 | 0 | 0 | 0 | 63 |
| 11:00 | 0 | **26** | 14 | 1 | 7 | 1 | 0 | 1 | 14 | 0 | 0 | 0 | 0 | **64** |
| 12 PM | 1 | 17 | 10 | 2 | 7 | **3** | 0 | 0 | **14** | 0 | 0 | 0 | 0 | 54 |
| 13:00 | 1 | 13 | 12 | **4** | 9 | 1 | **1** | 2 | 11 | 0 | 0 | 0 | 0 | 54 |
| 14:00 | **2** | 24 | 5 | 1 | 7 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 50 |
| 15:00 | 1 | 22 | **19** | 4 | **11** | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 65 |
| 16:00 | 1 | **50** | 14 | 2 | 6 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | **81** |
| 17:00 | 1 | 31 | 9 | 0 | 2 | 0 | 0 | **3** | 1 | 0 | 0 | 0 | 0 | 47 |
| 18:00 | 0 | 5 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 19:00 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 20:00 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12 |
| 21:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 22:00 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 23:00 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Total | 11 | 331 | 148 | 21 | 83 | 14 | 1 | 15 | 156 | 0 | 2 | 0 | 0 | 782 |
| Percent | 1.4% | 42.3% | 18.9% | 2.7% | 10.6% | 1.8% | 0.1% | 1.9% | 19.9% | 0.0% | 0.3% | 0.0% | 0.0% | |
| AM Peak | 10:00 | 11:00 | 09:00 | 06:00 | 07:00 | 06:00 | | 09:00 | 07:00 | | 06:00 | | | 11:00 |
| Vol. | 2 | 26 | 14 | 3 | 10 | 5 | | 3 | 18 | | 2 | | | 64 |
| PM Peak | 14:00 | 16:00 | 15:00 | 13:00 | 15:00 | 12:00 | 13:00 | 17:00 | 12:00 | | | | | 16:00 |
| Vol. | 2 | 50 | 19 | 4 | 11 | 3 | 1 | 3 | 14 | | | | | 81 |
| Grand Total | 11 | 331 | 148 | 21 | 83 | 14 | 1 | 15 | 156 | 0 | 2 | 0 | 0 | 782 |
| Percent | 1.4% | 42.3% | 18.9% | 2.7% | 10.6% | 1.8% | 0.1% | 1.9% | 19.9% | 0.0% | 0.3% | 0.0% | 0.0% | |

Segment #02

Counts Unlimited, Inc
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Moreno Valley
Theodore Street
B/ State Route 60 - Fir Avenue
24 Hour Directional Classification Count
Northbound

MRV002
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 01:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 02:00 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 7 |
| 03:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:00 | 0 | 2 | 1 | **2** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 05:00 | 0 | 13 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 15 |
| 06:00 | 0 | 7 | 11 | 1 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 23 |
| 07:00 | 0 | 25 | 7 | 0 | 4 | 0 | 0 | **2** | 0 | 0 | 0 | 0 | 0 | 38 |
| 08:00 | 2 | 15 | 9 | 0 | **6** | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 34 |
| 09:00 | **5** | 22 | 6 | 1 | 2 | **4** | 0 | 1 | **8** | 0 | 0 | 0 | 0 | 49 |
| 10:00 | 1 | **44** | **13** | 1 | 6 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | **67** |
| 11:00 | 1 | 30 | 9 | 0 | 3 | 3 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 51 |
| 12 PM | 3 | 41 | 16 | 1 | **8** | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 |
| 13:00 | 0 | 36 | 7 | 1 | 3 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 51 |
| 14:00 | 3 | **92** | **29** | 1 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **131** |
| 15:00 | 1 | 72 | 20 | **3** | 8 | 1 | **1** | 1 | 1 | 0 | 0 | 0 | 0 | 108 |
| 16:00 | 0 | 69 | 21 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 98 |
| 17:00 | 2 | 34 | 13 | 0 | 2 | 2 | 0 | **2** | 2 | 0 | 0 | 0 | 0 | 57 |
| 18:00 | 2 | 26 | 3 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 34 |
| 19:00 | 1 | 28 | 0 | 1 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 34 |
| 20:00 | **5** | 15 | 2 | 0 | 0 | **5** | 0 | 0 | **5** | 0 | 0 | 0 | 0 | 32 |
| 21:00 | 0 | 53 | 11 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 67 |
| 22:00 | 0 | 23 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| 23:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 9 |
| Total | 27 | 664 | 181 | 12 | 59 | 24 | 1 | 16 | 31 | 0 | 0 | 0 | 0 | 1015 |
| Percent | 2.7% | 65.4% | 17.8% | 1.2% | 5.8% | 2.4% | 0.1% | 1.6% | 3.1% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | 09:00 | 10:00 | 10:00 | 04:00 | 08:00 | 09:00 | | 07:00 | 09:00 | | | | | 10:00 |
| Vol. | 5 | 44 | 13 | 2 | 6 | 4 | | 2 | 8 | | | | | 67 |
| PM Peak | 20:00 | 14:00 | 14:00 | 15:00 | 12:00 | 20:00 | 15:00 | 17:00 | 20:00 | | | | | 14:00 |
| Vol. | 5 | 92 | 29 | 3 | 8 | 5 | 1 | 2 | 5 | | | | | 131 |
| Grand Total | 27 | 664 | 181 | 12 | 59 | 24 | 1 | 16 | 31 | 0 | 0 | 0 | 0 | 1015 |
| Percent | 2.7% | 65.4% | 17.8% | 1.2% | 5.8% | 2.4% | 0.1% | 1.6% | 3.1% | 0.0% | 0.0% | 0.0% | 0.0% | |

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City of Moreno Valley
Theodore Street
B/ State Route 60 - Fir Avenue
24 Hour Directional Classification Count
Southbound

MRV002
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 01:00 | 0 | 39 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 42 |
| 02:00 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 03:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 04:00 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 05:00 | 0 | **91** | **22** | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **115** |
| 06:00 | 0 | 47 | 12 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 67 |
| 07:00 | **2** | 50 | 14 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 72 |
| 08:00 | 2 | 78 | 10 | 0 | 2 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 97 |
| 09:00 | 1 | 35 | 8 | **2** | 5 | **2** | 0 | 0 | **11** | 0 | 0 | 0 | 0 | 64 |
| 10:00 | 1 | 22 | 9 | 1 | **9** | 1 | 0 | **5** | 4 | 0 | 0 | 0 | 0 | 52 |
| 11:00 | 0 | 40 | 15 | 0 | 3 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 63 |
| 12 PM | **1** | 50 | 10 | **3** | 2 | **3** | 0 | **2** | 1 | 0 | 0 | 0 | 0 | 72 |
| 13:00 | 0 | **58** | 9 | 1 | 3 | 2 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | **77** |
| 14:00 | 1 | 37 | **15** | 1 | 4 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 63 |
| 15:00 | 1 | 31 | 7 | 1 | **5** | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 47 |
| 16:00 | 0 | 32 | 11 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 48 |
| 17:00 | 1 | 28 | 8 | 0 | 1 | 0 | **1** | 1 | 0 | 0 | 0 | 0 | 0 | 40 |
| 18:00 | 1 | 5 | 4 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 14 |
| 19:00 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 16 |
| 20:00 | 0 | 19 | 2 | 0 | 1 | 0 | 0 | 0 | **7** | 0 | 0 | 0 | 0 | 29 |
| 21:00 | 0 | 27 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 34 |
| 22:00 | 0 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 23:00 | 0 | 7 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Total | 11 | 748 | 169 | 11 | 55 | 14 | 1 | 17 | 43 | 0 | 0 | 0 | 0 | 1069 |
| Percent | 1.0% | 70.0% | 15.8% | 1.0% | 5.1% | 1.3% | 0.1% | 1.6% | 4.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | 07:00 | 05:00 | 05:00 | 09:00 | 10:00 | 09:00 | | 10:00 | 09:00 | | | | | 05:00 |
| Vol. | 2 | 91 | 22 | 2 | 9 | 2 | | 5 | 11 | | | | | 115 |
| PM Peak | 12:00 | 13:00 | 14:00 | 12:00 | 15:00 | 12:00 | 17:00 | 12:00 | 20:00 | | | | | 13:00 |
| Vol. | 1 | 58 | 15 | 3 | 5 | 3 | 1 | 2 | 7 | | | | | 77 |
| Grand Total | 11 | 748 | 169 | 11 | 55 | 14 | 1 | 17 | 43 | 0 | 0 | 0 | 0 | 1069 |
| Percent | 1.0% | 70.0% | 15.8% | 1.0% | 5.1% | 1.3% | 0.1% | 1.6% | 4.0% | 0.0% | 0.0% | 0.0% | 0.0% | |

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City of Moreno Valley
Theodore Street
B/ State Route 60 - Fir Avenue
24 Hour Directional Classification Count
Northbound, Southbound

MRV002
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 01:00 | 0 | 42 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 45 |
| 02:00 | 1 | 10 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 14 |
| 03:00 | 0 | 7 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 10 |
| 04:00 | 0 | 17 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 05:00 | 0 | **104** | 22 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 130 |
| 06:00 | 0 | 54 | 23 | 2 | 9 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 90 |
| 07:00 | 2 | 75 | 21 | 1 | 8 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 110 |
| 08:00 | 4 | 93 | 19 | 0 | 8 | 2 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | **131** |
| 09:00 | **6** | 57 | 14 | **3** | 7 | **6** | 0 | 1 | **19** | 0 | 0 | 0 | 0 | 113 |
| 10:00 | 2 | 66 | 22 | 2 | **15** | 1 | 0 | **5** | 6 | 0 | 0 | 0 | 0 | 119 |
| 11:00 | 1 | 70 | **24** | 0 | 6 | 4 | 0 | 3 | 6 | 0 | 0 | 0 | 0 | 114 |
| 12 PM | 4 | 91 | 26 | **4** | 10 | **5** | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 143 |
| 13:00 | 0 | 94 | 16 | 2 | 6 | 3 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 128 |
| 14:00 | 4 | **129** | **44** | 2 | 7 | 4 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | **194** |
| 15:00 | 2 | 103 | 27 | 4 | **13** | 2 | **1** | 2 | 1 | 0 | 0 | 0 | 0 | 155 |
| 16:00 | 0 | 101 | 32 | 0 | 10 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 146 |
| 17:00 | 3 | 62 | 21 | 0 | 3 | 2 | 1 | **3** | 2 | 0 | 0 | 0 | 0 | 97 |
| 18:00 | 3 | 31 | 7 | 0 | 1 | 2 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 48 |
| 19:00 | 1 | 36 | 0 | 1 | 3 | 0 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 50 |
| 20:00 | **5** | 34 | 4 | 0 | 1 | 5 | 0 | 0 | **12** | 0 | 0 | 0 | 0 | 61 |
| 21:00 | 0 | 80 | 17 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 101 |
| 22:00 | 0 | 33 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| 23:00 | 0 | 14 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 18 |
| Total | 38 | 1412 | 350 | 23 | 114 | 38 | 2 | 33 | 74 | 0 | 0 | 0 | 0 | 2084 |
| Percent | 1.8% | 67.8% | 16.8% | 1.1% | 5.5% | 1.8% | 0.1% | 1.6% | 3.6% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | 09:00 | 05:00 | 11:00 | 09:00 | 10:00 | 09:00 | | 10:00 | 09:00 | | | | | 08:00 |
| Vol. | 6 | 104 | 24 | 3 | 15 | 6 | | 5 | 19 | | | | | 131 |
| PM Peak | 20:00 | 14:00 | 14:00 | 12:00 | 15:00 | 12:00 | 15:00 | 17:00 | 20:00 | | | | | 14:00 |
| Vol. | 5 | 129 | 44 | 4 | 13 | 5 | 1 | 3 | 12 | | | | | 194 |
| Grand Total | 38 | 1412 | 350 | 23 | 114 | 38 | 2 | 33 | 74 | 0 | 0 | 0 | 0 | 2084 |
| Percent | 1.8% | 67.8% | 16.8% | 1.1% | 5.5% | 1.8% | 0.1% | 1.6% | 3.6% | 0.0% | 0.0% | 0.0% | 0.0% | |

Counts Unlimited, Inc
PO Box 1178
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(951) 268-6268



City of Moreno Valley
Theodore Street
B/ Cottonwood Avenue - Allessandro Blvd
24 Hour Directional Classification Count
Northbound

MRV003
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:00 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 05:00 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 06:00 | 0 | 8 | **7** | 0 | 2 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 07:00 | 0 | **18** | 7 | 0 | **3** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **28** |
| 08:00 | 0 | 13 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 09:00 | 0 | 6 | 4 | 0 | 0 | 0 | 0 | **1** | **1** | 0 | 0 | 0 | 0 | 12 |
| 10:00 | 0 | 9 | 4 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 15 |
| 11:00 | 0 | 8 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 14 |
| 12 PM | 0 | 15 | 6 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 13:00 | 0 | 8 | 5 | 0 | 1 | **2** | 0 | **1** | **1** | 0 | 0 | 0 | 0 | 18 |
| 14:00 | 0 | 13 | 6 | 0 | 0 | 1 | 0 | 0 | 1 | **1** | 0 | 0 | 0 | 22 |
| 15:00 | 0 | 13 | **8** | 0 | **3** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **25** |
| 16:00 | 0 | **18** | 5 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 25 |
| 17:00 | 0 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 18:00 | 0 | 11 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 19:00 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 20:00 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 21:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 22:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 23:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total | 0 | 184 | 71 | 0 | 15 | 6 | 0 | 2 | 7 | 1 | 0 | 0 | 0 | 286 |
| Percent | 0.0% | 64.3% | 24.8% | 0.0% | 5.2% | 2.1% | 0.0% | 0.7% | 2.4% | 0.3% | 0.0% | 0.0% | 0.0% | |
| AM Peak | | 07:00 | 06:00 | | 07:00 | 06:00 | | 09:00 | 09:00 | | | | | 07:00 |
| Vol. | | 18 | 7 | | 3 | 1 | | 1 | 1 | | | | | 28 |
| PM Peak | | 16:00 | 15:00 | | 15:00 | 13:00 | | 13:00 | 13:00 | 14:00 | | | | 15:00 |
| Vol. | | 18 | 8 | | 3 | 2 | | 1 | 1 | 1 | | | | 25 |
| Grand Total | 0 | 184 | 71 | 0 | 15 | 6 | 0 | 2 | 7 | 1 | 0 | 0 | 0 | 286 |
| Percent | 0.0% | 64.3% | 24.8% | 0.0% | 5.2% | 2.1% | 0.0% | 0.7% | 2.4% | 0.3% | 0.0% | 0.0% | 0.0% | |

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City of Moreno Valley
Theodore Street
B/ Cottonwood Avenue - Allessandro Blvd
24 Hour Directional Classification Count
Southbound

MRV003
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 01:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:00 | 0 | 5 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 06:00 | 0 | 11 | 3 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 07:00 | 0 | **19** | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **26** |
| 08:00 | 0 | 12 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 09:00 | 0 | 9 | 4 | 0 | 2 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 10:00 | 0 | 5 | 4 | 0 | 1 | 0 | 0 | **2** | 0 | 0 | 0 | 0 | 0 | 12 |
| 11:00 | 0 | 14 | **7** | 0 | **3** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 12 PM | 0 | 12 | 3 | 0 | 1 | **2** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 13:00 | 0 | 23 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 14:00 | 0 | 14 | 7 | **1** | 2 | 1 | 0 | **1** | **1** | 0 | 0 | 0 | 0 | 27 |
| 15:00 | 0 | 15 | 8 | 0 | **3** | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 16:00 | 0 | **25** | **15** | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **42** |
| 17:00 | 0 | 25 | 5 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 18:00 | 0 | 9 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 19:00 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 20:00 | 0 | 7 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 21:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 22:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 23:00 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Total | 0 | 234 | 90 | 2 | 16 | 7 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 355 |
| Percent | 0.0% | 65.9% | 25.4% | 0.6% | 4.5% | 2.0% | 0.0% | 1.4% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | | 07:00 | 11:00 | 06:00 | 11:00 | 09:00 | | 10:00 | | | | | | 07:00 |
| Vol. | | 19 | 7 | 1 | 3 | 1 | | 2 | | | | | | 26 |
| PM Peak | | 16:00 | 16:00 | 14:00 | 15:00 | 12:00 | | 14:00 | 14:00 | | | | | 16:00 |
| Vol. | | 25 | 15 | 1 | 3 | 2 | | 1 | 1 | | | | | 42 |
| Grand Total | 0 | 234 | 90 | 2 | 16 | 7 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 355 |
| Percent | 0.0% | 65.9% | 25.4% | 0.6% | 4.5% | 2.0% | 0.0% | 1.4% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | |

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City of Moreno Valley
Theodore Street
B/ Cottonwood Avenue - Allessandro Blvd
24 Hour Directional Classification Count
Northbound, Southbound

MRV003
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 01:00 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:00 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 05:00 | 0 | 14 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 06:00 | 0 | 19 | 10 | **1** | 2 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 07:00 | 0 | **37** | **13** | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **54** |
| 08:00 | 0 | 25 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 09:00 | 0 | 15 | 8 | 0 | 2 | 1 | 0 | 1 | **1** | 0 | 0 | 0 | 0 | 28 |
| 10:00 | 0 | 14 | 8 | 0 | 2 | 0 | 0 | **2** | 1 | 0 | 0 | 0 | 0 | 27 |
| 11:00 | 0 | 22 | 9 | 0 | **5** | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 38 |
| 12 PM | 0 | 27 | 9 | 0 | 2 | **3** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| 13:00 | 0 | 31 | 14 | 0 | 1 | 3 | 0 | **1** | 1 | 0 | 0 | 0 | 0 | 51 |
| 14:00 | 0 | 27 | 13 | **1** | 2 | 2 | 0 | 1 | **2** | **1** | 0 | 0 | 0 | 49 |
| 15:00 | 0 | 28 | 16 | 0 | **6** | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 52 |
| 16:00 | 0 | **43** | **20** | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | **67** |
| 17:00 | 0 | 33 | 8 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 18:00 | 0 | 20 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 19:00 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 20:00 | 0 | 15 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 21:00 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 22:00 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 23:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Total | 0 | 418 | 161 | 2 | 31 | 13 | 0 | 7 | 8 | 1 | 0 | 0 | 0 | 641 |
| Percent | 0.0% | 65.2% | 25.1% | 0.3% | 4.8% | 2.0% | 0.0% | 1.1% | 1.2% | 0.2% | 0.0% | 0.0% | 0.0% | |
| AM Peak | | 07:00 | 07:00 | 06:00 | 11:00 | 06:00 | | 10:00 | 09:00 | | | | | 07:00 |
| Vol. | | 37 | 13 | 1 | 5 | 1 | | 2 | 1 | | | | | 54 |
| PM Peak | | 16:00 | 16:00 | 14:00 | 15:00 | 12:00 | | 13:00 | 14:00 | 14:00 | | | | 16:00 |
| Vol. | | 43 | 20 | 1 | 6 | 3 | | 1 | 2 | 1 | | | | 67 |
| Grand Total | 0 | 418 | 161 | 2 | 31 | 13 | 0 | 7 | 8 | 1 | 0 | 0 | 0 | 641 |
| Percent | 0.0% | 65.2% | 25.1% | 0.3% | 4.8% | 2.0% | 0.0% | 1.1% | 1.2% | 0.2% | 0.0% | 0.0% | 0.0% | |

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City of Moreno Valley
Allessandro Boulevard
B/ Theodore Street - Merwin Street
24 Hour Directional Classification Count
Eastbound

MRV004
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 01:00 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 02:00 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 03:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 04:00 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 9 |
| 05:00 | 0 | 15 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 06:00 | 0 | 45 | 11 | 0 | 3 | **1** | 0 | **2** | 0 | 0 | 0 | 0 | 0 | 62 |
| 07:00 | 0 | **74** | **13** | 0 | **6** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **94** |
| 08:00 | 1 | 53 | 11 | 0 | 1 | 0 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 67 |
| 09:00 | 0 | 48 | 10 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 61 |
| 10:00 | **2** | 47 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 |
| 11:00 | 0 | 42 | 9 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 |
| 12 PM | 0 | 49 | 11 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 |
| 13:00 | 0 | 49 | 18 | 0 | 2 | **2** | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 72 |
| 14:00 | 0 | 75 | 21 | 0 | 3 | 2 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 102 |
| 15:00 | **1** | 85 | 21 | 0 | **6** | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 114 |
| 16:00 | 1 | **103** | **28** | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **138** |
| 17:00 | 0 | 94 | 26 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 122 |
| 18:00 | 0 | 60 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 |
| 19:00 | 0 | 45 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 |
| 20:00 | 1 | 26 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 21:00 | 0 | 25 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 22:00 | 0 | 12 | 6 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 23:00 | 0 | 17 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| Total | 6 | 988 | 236 | 1 | 38 | 9 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 1287 |
| Percent | 0.5% | 76.8% | 18.3% | 0.1% | 3.0% | 0.7% | 0.0% | 0.5% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | 10:00 | 07:00 | 07:00 | | 07:00 | 06:00 | | 06:00 | 08:00 | | | | | 07:00 |
| Vol. | 2 | 74 | 13 | | 6 | 1 | | 2 | 1 | | | | | 94 |
| PM Peak | 15:00 | 16:00 | 16:00 | 22:00 | 15:00 | 13:00 | | 13:00 | 14:00 | | | | | 16:00 |
| Vol. | 1 | 103 | 28 | 1 | 6 | 2 | | 1 | 1 | | | | | 138 |
| Grand Total | 6 | 988 | 236 | 1 | 38 | 9 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 1287 |
| Percent | 0.5% | 76.8% | 18.3% | 0.1% | 3.0% | 0.7% | 0.0% | 0.5% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | |

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City of Moreno Valley
Allessandro Boulevard
B/ Theodore Street - Merwin Street
24 Hour Directional Classification Count
Westbound

MRV004
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 10 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 01:00 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 02:00 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 03:00 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 04:00 | 0 | 8 | 1 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 05:00 | 0 | 16 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 06:00 | 0 | 60 | **19** | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 83 |
| 07:00 | 0 | **113** | 16 | 0 | 0 | 0 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | **130** |
| 08:00 | 0 | 93 | 13 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 107 |
| 09:00 | 0 | 54 | 19 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 |
| 10:00 | 0 | 28 | 10 | 0 | 1 | 0 | 0 | **3** | 0 | 0 | 0 | 0 | 0 | 42 |
| 11:00 | 0 | 41 | 13 | 0 | **4** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 |
| 12 PM | **1** | 56 | 5 | 0 | 1 | **2** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 |
| 13:00 | 0 | 57 | 16 | **1** | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 |
| 14:00 | 0 | 64 | **21** | 1 | 2 | 1 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 90 |
| 15:00 | 0 | 59 | 20 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 |
| 16:00 | 1 | 63 | 19 | 0 | **5** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88 |
| 17:00 | 0 | **78** | 19 | 0 | 3 | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | **101** |
| 18:00 | 0 | 42 | 16 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| 19:00 | 0 | 24 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 20:00 | 0 | 29 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 21:00 | 0 | 21 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 22:00 | 0 | 18 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 23:00 | 0 | 11 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| Total | 2 | 961 | 248 | 2 | 29 | 8 | 1 | 5 | 2 | 0 | 0 | 0 | 0 | 1258 |
| Percent | 0.2% | 76.4% | 19.7% | 0.2% | 2.3% | 0.6% | 0.1% | 0.4% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | | 07:00 | 06:00 | | 11:00 | 04:00 | | 10:00 | 07:00 | | | | | 07:00 |
| Vol. | | 113 | 19 | | 4 | 1 | | 3 | 1 | | | | | 130 |
| PM Peak | 12:00 | 17:00 | 14:00 | 13:00 | 16:00 | 12:00 | 17:00 | | 14:00 | | | | | 17:00 |
| Vol. | 1 | 78 | 21 | 1 | 5 | 2 | 1 | | 1 | | | | | 101 |
| Grand Total | 2 | 961 | 248 | 2 | 29 | 8 | 1 | 5 | 2 | 0 | 0 | 0 | 0 | 1258 |
| Percent | 0.2% | 76.4% | 19.7% | 0.2% | 2.3% | 0.6% | 0.1% | 0.4% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | |

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City of Moreno Valley
Allessandro Boulevard
B/ Theodore Street - Merwin Street
24 Hour Directional Classification Count
Eastbound, Westbound

MRV004
Site Code: 098-11258
Date Start: 16-Nov-11
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| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 17 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 01:00 | 0 | 12 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 02:00 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 03:00 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 04:00 | 0 | 13 | 4 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 19 |
| 05:00 | 0 | 31 | 13 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| 06:00 | 0 | 105 | **30** | 0 | 5 | **2** | 0 | **3** | 0 | 0 | 0 | 0 | 0 | 145 |
| 07:00 | 0 | **187** | 29 | 0 | **6** | 0 | 0 | 1 | **1** | 0 | 0 | 0 | 0 | **224** |
| 08:00 | 1 | 146 | 24 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 174 |
| 09:00 | 0 | 102 | 29 | 0 | 4 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 137 |
| 10:00 | **2** | 75 | 20 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 102 |
| 11:00 | 0 | 83 | 22 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 112 |
| 12 PM | 1 | 105 | 16 | 0 | 2 | **3** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 127 |
| 13:00 | 0 | 106 | 34 | **1** | 4 | 3 | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 149 |
| 14:00 | 0 | 139 | 42 | 1 | 5 | 3 | 0 | 0 | **2** | 0 | 0 | 0 | 0 | 192 |
| 15:00 | 1 | 144 | 41 | 0 | **10** | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 198 |
| 16:00 | **2** | 166 | **47** | 0 | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **226** |
| 17:00 | 0 | **172** | 45 | 0 | 5 | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 223 |
| 18:00 | 0 | 102 | 29 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 132 |
| 19:00 | 0 | 69 | 14 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86 |
| 20:00 | 1 | 55 | 12 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 69 |
| 21:00 | 0 | 46 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| 22:00 | 0 | 30 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 23:00 | 0 | 28 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| Total | 8 | 1949 | 484 | 3 | 67 | 17 | 1 | 12 | 4 | 0 | 0 | 0 | 0 | 2545 |
| Percent | 0.3% | 76.6% | 19.0% | 0.1% | 2.6% | 0.7% | 0.0% | 0.5% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | 10:00 | 07:00 | 06:00 | | 07:00 | 06:00 | | 06:00 | 07:00 | | | | | 07:00 |
| Vol. | 2 | 187 | 30 | | 6 | 2 | | 3 | 1 | | | | | 224 |
| PM Peak | 16:00 | 17:00 | 16:00 | 13:00 | 15:00 | 12:00 | 17:00 | 13:00 | 14:00 | | | | | 16:00 |
| Vol. | 2 | 172 | 47 | 1 | 10 | 3 | 1 | 1 | 2 | | | | | 226 |
| Grand Total | 8 | 1949 | 484 | 3 | 67 | 17 | 1 | 12 | 4 | 0 | 0 | 0 | 0 | 2545 |
| Percent | 0.3% | 76.6% | 19.0% | 0.1% | 2.6% | 0.7% | 0.0% | 0.5% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | |

Counts Unlimited, Inc
PO Box 1178
Corona, CA 92878
(951) 268-6268



City of Moreno Valley
Gilman Springs Road
S/ Alessandro Boulevard
24 Hour Directional Classification Count
Northbound

MRVGSSAL
Site Code: 098-12125
Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05/08/12 | 0 | 25 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 00:15 | 0 | 22 | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 27 |
| 00:30 | 0 | 15 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 18 |
| 00:45 | 0 | 15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| | 0 | 77 | 10 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 90 |
| 01:00 | 0 | 22 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 01:15 | 0 | 9 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12 |
| 01:30 | 0 | 15 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 18 |
| 01:45 | 0 | 17 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 20 |
| | 0 | 63 | 6 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 73 |
| 02:00 | 0 | 17 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 02:15 | 0 | 7 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 02:30 | 0 | 15 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 02:45 | 0 | 22 | 3 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 28 |
| | 0 | 61 | 15 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 79 |
| 03:00 | 0 | 23 | 5 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 30 |
| 03:15 | 0 | 23 | 5 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 32 |
| 03:30 | 0 | 20 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| 03:45 | 0 | 29 | 6 | 0 | 2 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 41 |
| | 0 | 95 | 19 | 0 | 6 | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 128 |
| 04:00 | 0 | 33 | 6 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 41 |
| 04:15 | 1 | 60 | 11 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 77 |
| 04:30 | 0 | 75 | 11 | 1 | 6 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 96 |
| 04:45 | 0 | 73 | 26 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 102 |
| | 1 | 241 | 54 | 2 | 12 | 0 | 0 | 2 | 1 | 0 | 3 | 0 | 0 | 316 |
| 05:00 | 1 | 66 | 19 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 95 |
| 05:15 | 1 | 76 | 29 | 0 | 7 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 117 |
| 05:30 | 1 | 73 | 13 | 0 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 95 |
| 05:45 | 1 | 94 | 22 | 0 | 9 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 129 |
| | 4 | 309 | 83 | 0 | 30 | 1 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 436 |
| 06:00 | 1 | 69 | 24 | 0 | 6 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 102 |
| 06:15 | 1 | 113 | 32 | 0 | 11 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 159 |
| 06:30 | 0 | 142 | 36 | 0 | 7 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 190 |
| 06:45 | 1 | 122 | 23 | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 153 |
| | 3 | 446 | 115 | 0 | 29 | 0 | 0 | 7 | 2 | 0 | 2 | 0 | 0 | 604 |
| 07:00 | 1 | 148 | 22 | 0 | 7 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 181 |
| 07:15 | 1 | 147 | 20 | 1 | 6 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 179 |
| 07:30 | 3 | 152 | 20 | 1 | 5 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 185 |
| 07:45 | 0 | 131 | 30 | 1 | 5 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 170 |
| | 5 | 578 | 92 | 3 | 23 | 4 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 715 |
| 08:00 | 0 | 106 | 20 | 0 | 5 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 134 |
| 08:15 | 1 | 103 | 32 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 142 |
| 08:30 | 1 | 101 | 21 | 1 | 4 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 132 |
| 08:45 | 1 | 96 | 24 | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 127 |
| | 3 | 406 | 97 | 1 | 15 | 2 | 0 | 9 | 1 | 0 | 1 | 0 | 0 | 535 |
| 09:00 | 0 | 68 | 22 | 0 | 4 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 97 |
| 09:15 | 0 | 83 | 16 | 1 | 5 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 109 |
| 09:30 | 1 | 78 | 23 | 0 | 4 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 111 |
| 09:45 | 0 | 68 | 7 | 0 | 8 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 85 |
| | 1 | 297 | 68 | 1 | 21 | 2 | 0 | 8 | 2 | 0 | 2 | 0 | 0 | 402 |
| 10:00 | 0 | 58 | 14 | 1 | 4 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 81 |
| 10:15 | 0 | 72 | 16 | 3 | 3 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 97 |
| 10:30 | 0 | 76 | 13 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 92 |
| 10:45 | 0 | 63 | 13 | 2 | 2 | 1 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 86 |
| | 0 | 269 | 56 | 6 | 10 | 3 | 0 | 9 | 3 | 0 | 0 | 0 | 0 | 356 |
| 11:00 | 0 | 74 | 12 | 0 | 4 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 94 |
| 11:15 | 0 | 62 | 16 | 1 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 85 |
| 11:30 | 0 | 62 | 17 | 2 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 87 |
| 11:45 | 0 | 57 | 18 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 81 |
| | 0 | 255 | 63 | 3 | 15 | 2 | 0 | 4 | 3 | 0 | 2 | 0 | 0 | 347 |
| Total | 17 | 3097 | 678 | 16 | 163 | 14 | 0 | 68 | 18 | 0 | 10 | 0 | 0 | 4081 |
| Percent | 0.4% | 75.9% | 16.6% | 0.4% | 4.0% | 0.3% | 0.0% | 1.7% | 0.4% | 0.0% | 0.2% | 0.0% | 0.0% | |

City of Moreno Valley
Gilman Springs Road
S/ Alessandro Boulevard
24 Hour Directional Classification Count
Northbound

MRVGSSAL
Site Code: 098-12125
Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 1 | 50 | 16 | 1 | 4 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 75 |
| 12:15 | 1 | 60 | 14 | 1 | 6 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 86 |
| 12:30 | 2 | 64 | 6 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 78 |
| 12:45 | 0 | 65 | 15 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 87 |
| | 4 | 239 | 51 | 2 | 20 | 3 | 0 | 5 | 1 | 0 | 1 | 0 | 0 | 326 |
| 13:00 | 1 | 59 | 18 | 2 | 7 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 92 |
| 13:15 | 0 | 65 | 9 | 0 | 4 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 81 |
| 13:30 | 1 | 58 | 15 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 79 |
| 13:45 | 0 | 54 | 11 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 69 |
| | 2 | 236 | 53 | 3 | 15 | 1 | 0 | 8 | 1 | 0 | 2 | 0 | 0 | 321 |
| 14:00 | 0 | 57 | 12 | 1 | 4 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 78 |
| 14:15 | 0 | 75 | 15 | 0 | 5 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 101 |
| 14:30 | 0 | 70 | 29 | 1 | 5 | 2 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 112 |
| 14:45 | 0 | 59 | 17 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82 |
| | 0 | 261 | 73 | 2 | 20 | 3 | 0 | 7 | 6 | 0 | 1 | 0 | 0 | 373 |
| 15:00 | 0 | 57 | 17 | 0 | 4 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 81 |
| 15:15 | 1 | 68 | 17 | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 94 |
| 15:30 | 0 | 66 | 18 | 0 | 5 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 94 |
| 15:45 | 0 | 61 | 9 | 2 | 4 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 79 |
| | 1 | 252 | 61 | 2 | 18 | 0 | 0 | 8 | 3 | 1 | 2 | 0 | 0 | 348 |
| 16:00 | 0 | 75 | 19 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 100 |
| 16:15 | 0 | 63 | 17 | 0 | 2 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 85 |
| 16:30 | 0 | 85 | 16 | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 106 |
| 16:45 | 0 | 52 | 18 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 |
| | 0 | 275 | 70 | 1 | 15 | 2 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 368 |
| 17:00 | 0 | 55 | 10 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 70 |
| 17:15 | 1 | 65 | 18 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 |
| 17:30 | 0 | 82 | 17 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 104 |
| 17:45 | 0 | 78 | 7 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 90 |
| | 1 | 280 | 52 | 0 | 12 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 351 |
| 18:00 | 1 | 56 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 69 |
| 18:15 | 0 | 65 | 16 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 85 |
| 18:30 | 1 | 60 | 13 | 1 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 80 |
| 18:45 | 0 | 42 | 7 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 54 |
| | 2 | 223 | 46 | 1 | 10 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 288 |
| 19:00 | 0 | 38 | 10 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 51 |
| 19:15 | 0 | 35 | 11 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 50 |
| 19:30 | 0 | 34 | 8 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 44 |
| 19:45 | 0 | 31 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 44 |
| | 0 | 138 | 41 | 0 | 5 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 189 |
| 20:00 | 0 | 29 | 7 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 39 |
| 20:15 | 0 | 25 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| 20:30 | 0 | 31 | 7 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 40 |
| 20:45 | 0 | 31 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| | 0 | 116 | 25 | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 147 |
| 21:00 | 0 | 30 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 37 |
| 21:15 | 0 | 30 | 7 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 38 |
| 21:30 | 0 | 32 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 38 |
| 21:45 | 0 | 26 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| | 0 | 118 | 22 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 143 |
| 22:00 | 0 | 26 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 22:15 | 0 | 28 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 22:30 | 0 | 19 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 22 |
| 22:45 | 0 | 39 | 9 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 49 |
| | 0 | 112 | 21 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 136 |
| 23:00 | 0 | 17 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 22 |
| 23:15 | 0 | 15 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19 |
| 23:30 | 0 | 15 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 23:45 | 0 | 19 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| | 0 | 66 | 14 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 82 |
| Total | 10 | 2316 | 529 | 11 | 118 | 9 | 0 | 52 | 13 | 1 | 13 | 0 | 0 | 3072 |
| Percent | 0.3% | 75.4% | 17.2% | 0.4% | 3.8% | 0.3% | 0.0% | 1.7% | 0.4% | 0.0% | 0.4% | 0.0% | 0.0% | |
| Grand Total | 27 | 5413 | 1207 | 27 | 281 | 23 | 0 | 120 | 31 | 1 | 23 | 0 | 0 | 7153 |
| Percent | 0.4% | 75.7% | 16.9% | 0.4% | 3.9% | 0.3% | 0.0% | 1.7% | 0.4% | 0.0% | 0.3% | 0.0% | 0.0% | |

City of Moreno Valley
Gilman Springs Road
S/ Alessandro Boulevard
24 Hour Directional Classification Count
Southbound

MRVGSSAL
Site Code: 098-12125
Date Start: 08-May-12
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| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05/08/12 | 0 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 00:15 | 1 | 25 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 32 |
| 00:30 | 0 | 18 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 21 |
| 00:45 | 0 | 19 | 4 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 26 |
| | 1 | 84 | 13 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 103 |
| 01:00 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 01:15 | 0 | 15 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 18 |
| 01:30 | 0 | 15 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 01:45 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 10 |
| | 0 | 52 | 5 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 61 |
| 02:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 10 |
| 02:15 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 02:30 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 9 |
| 02:45 | 0 | 6 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 10 |
| | 0 | 26 | 5 | 0 | 1 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 37 |
| 03:00 | 0 | 5 | 3 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 13 |
| 03:15 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 8 |
| 03:30 | 0 | 10 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 14 |
| 03:45 | 0 | 11 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| | 0 | 32 | 11 | 0 | 1 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 50 |
| 04:00 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 9 |
| 04:15 | 1 | 11 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 16 |
| 04:30 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 13 |
| 04:45 | 0 | 5 | 0 | 3 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 13 |
| | 1 | 31 | 4 | 3 | 1 | 0 | 0 | 2 | 9 | 0 | 0 | 0 | 0 | 51 |
| 05:00 | 0 | 14 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 19 |
| 05:15 | 0 | 14 | 6 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 24 |
| 05:30 | 0 | 15 | 6 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 26 |
| 05:45 | 0 | 24 | 6 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 33 |
| | 0 | 67 | 20 | 1 | 4 | 1 | 0 | 1 | 7 | 0 | 1 | 0 | 0 | 102 |
| 06:00 | 0 | 24 | 10 | 0 | 6 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 45 |
| 06:15 | 0 | 38 | 11 | 1 | 3 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 56 |
| 06:30 | 0 | 60 | 18 | 0 | 5 | 1 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 90 |
| 06:45 | 1 | 59 | 16 | 1 | 4 | 1 | 0 | 7 | 3 | 0 | 0 | 0 | 0 | 92 |
| | 1 | 181 | 55 | 2 | 18 | 4 | 0 | 12 | 10 | 0 | 0 | 0 | 0 | 283 |
| 07:00 | 0 | 53 | 15 | 2 | 4 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 79 |
| 07:15 | 1 | 58 | 8 | 1 | 6 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 76 |
| 07:30 | 0 | 73 | 14 | 3 | 5 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 98 |
| 07:45 | 0 | 49 | 16 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 68 |
| | 1 | 233 | 53 | 7 | 15 | 0 | 0 | 6 | 5 | 0 | 1 | 0 | 0 | 321 |
| 08:00 | 0 | 49 | 15 | 1 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 71 |
| 08:15 | 1 | 58 | 20 | 2 | 5 | 0 | 1 | 2 | 4 | 0 | 0 | 0 | 0 | 93 |
| 08:30 | 0 | 54 | 9 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 67 |
| 08:45 | 1 | 52 | 18 | 2 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 79 |
| | 2 | 213 | 62 | 5 | 14 | 1 | 1 | 2 | 10 | 0 | 0 | 0 | 0 | 310 |
| 09:00 | 1 | 46 | 14 | 0 | 5 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 69 |
| 09:15 | 0 | 35 | 11 | 1 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 54 |
| 09:30 | 3 | 47 | 16 | 0 | 4 | 0 | 0 | 3 | 2 | 0 | 1 | 0 | 0 | 76 |
| 09:45 | 0 | 39 | 16 | 1 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 62 |
| | 4 | 167 | 57 | 2 | 18 | 0 | 0 | 4 | 8 | 0 | 1 | 0 | 0 | 261 |
| 10:00 | 0 | 39 | 6 | 3 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 53 |
| 10:15 | 0 | 51 | 13 | 2 | 4 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 73 |
| 10:30 | 0 | 52 | 14 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 72 |
| 10:45 | 0 | 47 | 16 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 68 |
| | 0 | 189 | 49 | 7 | 12 | 0 | 0 | 2 | 6 | 0 | 1 | 0 | 0 | 266 |
| 11:00 | 3 | 44 | 16 | 4 | 5 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 76 |
| 11:15 | 1 | 50 | 14 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 69 |
| 11:30 | 0 | 62 | 15 | 1 | 3 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 85 |
| 11:45 | 0 | 57 | 17 | 2 | 8 | 1 | 0 | 2 | 4 | 0 | 1 | 0 | 0 | 92 |
| | 4 | 213 | 62 | 7 | 17 | 2 | 0 | 9 | 6 | 0 | 2 | 0 | 0 | 322 |
| Total | 14 | 1488 | 396 | 34 | 103 | 8 | 1 | 40 | 77 | 0 | 6 | 0 | 0 | 2167 |
| Percent | 0.6% | 68.7% | 18.3% | 1.6% | 4.8% | 0.4% | 0.0% | 1.8% | 3.6% | 0.0% | 0.3% | 0.0% | 0.0% | |

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Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 2 | 59 | 22 | 2 | 5 | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 95 |
| 12:15 | 1 | 67 | 19 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 91 |
| 12:30 | 0 | 83 | 12 | 0 | 8 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 108 |
| 12:45 | 0 | 59 | 17 | 0 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 85 |
| | 3 | 268 | 70 | 2 | 21 | 3 | 0 | 2 | 7 | 0 | 2 | 1 | 0 | 379 |
| 13:00 | 0 | 55 | 15 | 0 | 2 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 76 |
| 13:15 | 2 | 91 | 31 | 1 | 4 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 132 |
| 13:30 | 0 | 80 | 22 | 0 | 4 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 109 |
| 13:45 | 0 | 76 | 15 | 0 | 3 | 0 | 0 | 4 | 2 | 0 | 1 | 0 | 0 | 101 |
| | 2 | 302 | 83 | 1 | 13 | 0 | 0 | 7 | 9 | 0 | 1 | 0 | 0 | 418 |
| 14:00 | 1 | 71 | 18 | 0 | 7 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 99 |
| 14:15 | 0 | 75 | 19 | 0 | 7 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 104 |
| 14:30 | 3 | 71 | 24 | 1 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 106 |
| 14:45 | 0 | 107 | 27 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 146 |
| | 4 | 324 | 88 | 1 | 30 | 2 | 0 | 2 | 3 | 0 | 1 | 0 | 0 | 455 |
| 15:00 | 1 | 93 | 20 | 0 | 6 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 122 |
| 15:15 | 1 | 103 | 33 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 143 |
| 15:30 | 1 | 114 | 30 | 0 | 4 | 0 | 0 | 2 | 3 | 0 | 1 | 0 | 0 | 155 |
| 15:45 | 1 | 141 | 24 | 0 | 9 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 176 |
| | 4 | 451 | 107 | 0 | 24 | 0 | 0 | 3 | 5 | 0 | 2 | 0 | 0 | 596 |
| 16:00 | 0 | 115 | 32 | 1 | 8 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 159 |
| 16:15 | 3 | 121 | 29 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 161 |
| 16:30 | 1 | 127 | 27 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 160 |
| 16:45 | 1 | 148 | 27 | 0 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 182 |
| | 5 | 511 | 115 | 1 | 19 | 1 | 0 | 5 | 4 | 0 | 1 | 0 | 0 | 662 |
| 17:00 | 2 | 137 | 36 | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 181 |
| 17:15 | 1 | 124 | 45 | 2 | 5 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 179 |
| 17:30 | 0 | 144 | 30 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 179 |
| 17:45 | 1 | 130 | 20 | 0 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 157 |
| | 4 | 535 | 131 | 2 | 15 | 0 | 0 | 5 | 3 | 0 | 1 | 0 | 0 | 696 |
| 18:00 | 0 | 134 | 26 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 168 |
| 18:15 | 1 | 119 | 19 | 1 | 2 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 147 |
| 18:30 | 0 | 122 | 35 | 0 | 5 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 165 |
| 18:45 | 0 | 108 | 23 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 134 |
| | 1 | 483 | 103 | 1 | 17 | 1 | 0 | 4 | 3 | 0 | 1 | 0 | 0 | 614 |
| 19:00 | 1 | 80 | 22 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 109 |
| 19:15 | 0 | 59 | 12 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 76 |
| 19:30 | 3 | 63 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80 |
| 19:45 | 0 | 67 | 9 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 79 |
| | 4 | 269 | 57 | 1 | 10 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 344 |
| 20:00 | 1 | 60 | 15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 |
| 20:15 | 1 | 71 | 13 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88 |
| 20:30 | 0 | 63 | 13 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 |
| 20:45 | 1 | 70 | 15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88 |
| | 3 | 264 | 56 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 332 |
| 21:00 | 0 | 70 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 |
| 21:15 | 0 | 64 | 11 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 78 |
| 21:30 | 0 | 66 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 |
| 21:45 | 0 | 46 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| | 0 | 246 | 33 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 284 |
| 22:00 | 0 | 48 | 12 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 63 |
| 22:15 | 0 | 46 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55 |
| 22:30 | 0 | 49 | 13 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 |
| 22:45 | 0 | 45 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 |
| | 0 | 188 | 38 | 0 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 232 |
| 23:00 | 1 | 44 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| 23:15 | 0 | 27 | 12 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 23:30 | 0 | 31 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 38 |
| 23:45 | 0 | 17 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| | 1 | 119 | 24 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 147 |
| Total | 31 | 3960 | 905 | 10 | 166 | 8 | 0 | 31 | 38 | 0 | 9 | 1 | 0 | 5159 |
| Percent | 0.6% | 76.8% | 17.5% | 0.2% | 3.2% | 0.2% | 0.0% | 0.6% | 0.7% | 0.0% | 0.2% | 0.0% | 0.0% | |
| Grand Total | 45 | 5448 | 1301 | 44 | 269 | 16 | 1 | 71 | 115 | 0 | 15 | 1 | 0 | 7326 |
| Percent | 0.6% | 74.4% | 17.8% | 0.6% | 3.7% | 0.2% | 0.0% | 1.0% | 1.6% | 0.0% | 0.2% | 0.0% | 0.0% | |

City of Moreno Valley
Gilman Springs Road
S/ Alessandro Boulevard
24 Hour Directional Classification Count
Northbound, Southbound

MRVGSSAL
Site Code: 098-12125
Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05/08/12 | 0 | 47 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 |
| 00:15 | 1 | 47 | 8 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 59 |
| 00:30 | 0 | 33 | 4 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 39 |
| 00:45 | 0 | 34 | 6 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 43 |
| | 1 | 161 | 23 | 0 | 1 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 193 |
| 01:00 | 0 | 36 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| 01:15 | 0 | 24 | 2 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 30 |
| 01:30 | 0 | 30 | 4 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 36 |
| 01:45 | 0 | 25 | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 30 |
| | 0 | 115 | 11 | 0 | 2 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 134 |
| 02:00 | 0 | 24 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 29 |
| 02:15 | 0 | 14 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 02:30 | 0 | 21 | 6 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 29 |
| 02:45 | 0 | 28 | 5 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 38 |
| | 0 | 87 | 20 | 0 | 2 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 116 |
| 03:00 | 0 | 28 | 8 | 0 | 1 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 43 |
| 03:15 | 0 | 29 | 6 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 40 |
| 03:30 | 0 | 30 | 6 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 39 |
| 03:45 | 0 | 40 | 10 | 0 | 2 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 56 |
| | 0 | 127 | 30 | 0 | 7 | 0 | 0 | 8 | 6 | 0 | 0 | 0 | 0 | 178 |
| 04:00 | 0 | 41 | 6 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 50 |
| 04:15 | 2 | 71 | 13 | 1 | 3 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 93 |
| 04:30 | 0 | 82 | 13 | 1 | 6 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 0 | 109 |
| 04:45 | 0 | 78 | 26 | 3 | 3 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 115 |
| | 2 | 272 | 58 | 5 | 13 | 0 | 0 | 4 | 10 | 0 | 3 | 0 | 0 | 367 |
| 05:00 | 1 | 80 | 21 | 0 | 8 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 114 |
| 05:15 | 1 | 90 | 35 | 0 | 8 | 1 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 141 |
| 05:30 | 1 | 88 | 19 | 1 | 8 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 121 |
| 05:45 | 1 | 118 | 28 | 0 | 10 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 162 |
| | 4 | 376 | 103 | 1 | 34 | 2 | 0 | 8 | 9 | 0 | 1 | 0 | 0 | 538 |
| 06:00 | 1 | 93 | 34 | 0 | 12 | 1 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 147 |
| 06:15 | 1 | 151 | 43 | 1 | 14 | 1 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 215 |
| 06:30 | 0 | 202 | 54 | 0 | 12 | 1 | 0 | 7 | 3 | 0 | 1 | 0 | 0 | 280 |
| 06:45 | 2 | 181 | 39 | 1 | 9 | 1 | 0 | 9 | 3 | 0 | 0 | 0 | 0 | 245 |
| | 4 | 627 | 170 | 2 | 47 | 4 | 0 | 19 | 12 | 0 | 2 | 0 | 0 | 887 |
| 07:00 | 1 | 201 | 37 | 2 | 11 | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 260 |
| 07:15 | 2 | 205 | 28 | 2 | 12 | 1 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 255 |
| 07:30 | 3 | 225 | 34 | 4 | 10 | 2 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 283 |
| 07:45 | 0 | 180 | 46 | 2 | 5 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 238 |
| | 6 | 811 | 145 | 10 | 38 | 4 | 0 | 15 | 6 | 0 | 1 | 0 | 0 | 1036 |
| 08:00 | 0 | 155 | 35 | 1 | 9 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 205 |
| 08:15 | 2 | 161 | 52 | 2 | 9 | 0 | 1 | 3 | 4 | 0 | 1 | 0 | 0 | 235 |
| 08:30 | 1 | 155 | 30 | 1 | 6 | 2 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 199 |
| 08:45 | 2 | 148 | 42 | 2 | 5 | 0 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 206 |
| | 5 | 619 | 159 | 6 | 29 | 3 | 1 | 11 | 11 | 0 | 1 | 0 | 0 | 845 |
| 09:00 | 1 | 114 | 36 | 0 | 9 | 1 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 166 |
| 09:15 | 0 | 118 | 27 | 2 | 11 | 1 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 163 |
| 09:30 | 4 | 125 | 39 | 0 | 8 | 0 | 0 | 6 | 3 | 0 | 2 | 0 | 0 | 187 |
| 09:45 | 0 | 107 | 23 | 1 | 11 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 147 |
| | 5 | 464 | 125 | 3 | 39 | 2 | 0 | 12 | 10 | 0 | 3 | 0 | 0 | 663 |
| 10:00 | 0 | 97 | 20 | 4 | 7 | 2 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 134 |
| 10:15 | 0 | 123 | 29 | 5 | 7 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 170 |
| 10:30 | 0 | 128 | 27 | 1 | 3 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 164 |
| 10:45 | 0 | 110 | 29 | 3 | 5 | 1 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 154 |
| | 0 | 458 | 105 | 13 | 22 | 3 | 0 | 11 | 9 | 0 | 1 | 0 | 0 | 622 |
| 11:00 | 3 | 118 | 28 | 4 | 9 | 0 | 0 | 2 | 4 | 0 | 2 | 0 | 0 | 170 |
| 11:15 | 1 | 112 | 30 | 1 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 154 |
| 11:30 | 0 | 124 | 32 | 3 | 8 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 172 |
| 11:45 | 0 | 114 | 35 | 2 | 10 | 3 | 0 | 2 | 5 | 0 | 2 | 0 | 0 | 173 |
| | 4 | 468 | 125 | 10 | 32 | 4 | 0 | 13 | 9 | 0 | 4 | 0 | 0 | 669 |
| Total | 31 | 4585 | 1074 | 50 | 266 | 22 | 1 | 108 | 95 | 0 | 16 | 0 | 0 | 6248 |
| Percent | 0.5% | 73.4% | 17.2% | 0.8% | 4.3% | 0.4% | 0.0% | 1.7% | 1.5% | 0.0% | 0.3% | 0.0% | 0.0% | |

City of Moreno Valley
Gilman Springs Road
S/ Alessandro Boulevard
24 Hour Directional Classification Count
Northbound, Southbound

MRVGSSAL
Site Code: 098-12125
Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 3 | 109 | 38 | 3 | 9 | 3 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 170 |
| 12:15 | 2 | 127 | 33 | 1 | 7 | 2 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 177 |
| 12:30 | 2 | 147 | 18 | 0 | 13 | 0 | 0 | 1 | 4 | 0 | 1 | 0 | 0 | 186 |
| 12:45 | 0 | 124 | 32 | 0 | 12 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 172 |
| | 7 | 507 | 121 | 4 | 41 | 6 | 0 | 7 | 8 | 0 | 3 | 1 | 0 | 705 |
| 13:00 | 1 | 114 | 33 | 2 | 9 | 0 | 0 | 5 | 3 | 0 | 1 | 0 | 0 | 168 |
| 13:15 | 2 | 156 | 40 | 1 | 8 | 1 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 213 |
| 13:30 | 1 | 138 | 37 | 1 | 6 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 188 |
| 13:45 | 0 | 130 | 26 | 0 | 5 | 0 | 0 | 5 | 2 | 0 | 2 | 0 | 0 | 170 |
| | 4 | 538 | 136 | 4 | 28 | 1 | 0 | 15 | 10 | 0 | 3 | 0 | 0 | 739 |
| 14:00 | 1 | 128 | 30 | 1 | 11 | 2 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 177 |
| 14:15 | 0 | 150 | 34 | 0 | 12 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 0 | 205 |
| 14:30 | 3 | 141 | 53 | 2 | 10 | 3 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 218 |
| 14:45 | 0 | 166 | 44 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 228 |
| | 4 | 585 | 161 | 3 | 50 | 5 | 0 | 9 | 9 | 0 | 2 | 0 | 0 | 828 |
| 15:00 | 1 | 150 | 37 | 0 | 10 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 203 |
| 15:15 | 2 | 171 | 50 | 0 | 10 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 237 |
| 15:30 | 1 | 180 | 48 | 0 | 9 | 0 | 0 | 5 | 5 | 0 | 1 | 0 | 0 | 249 |
| 15:45 | 1 | 202 | 33 | 2 | 13 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 255 |
| | 5 | 703 | 168 | 2 | 42 | 0 | 0 | 11 | 8 | 1 | 4 | 0 | 0 | 944 |
| 16:00 | 0 | 190 | 51 | 1 | 12 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 259 |
| 16:15 | 3 | 184 | 46 | 0 | 7 | 2 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 246 |
| 16:30 | 1 | 212 | 43 | 1 | 5 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 266 |
| 16:45 | 1 | 200 | 45 | 0 | 10 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 259 |
| | 5 | 786 | 185 | 2 | 34 | 3 | 0 | 9 | 5 | 0 | 1 | 0 | 0 | 1030 |
| 17:00 | 2 | 192 | 46 | 0 | 6 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 251 |
| 17:15 | 2 | 189 | 63 | 2 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 266 |
| 17:30 | 0 | 226 | 47 | 0 | 7 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 283 |
| 17:45 | 1 | 208 | 27 | 0 | 6 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 247 |
| | 5 | 815 | 183 | 2 | 27 | 0 | 0 | 9 | 3 | 0 | 3 | 0 | 0 | 1047 |
| 18:00 | 1 | 190 | 36 | 0 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 237 |
| 18:15 | 1 | 184 | 35 | 1 | 4 | 0 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 232 |
| 18:30 | 1 | 182 | 48 | 1 | 8 | 1 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 245 |
| 18:45 | 0 | 150 | 30 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 188 |
| | 3 | 706 | 149 | 2 | 27 | 1 | 0 | 9 | 3 | 0 | 2 | 0 | 0 | 902 |
| 19:00 | 1 | 118 | 32 | 0 | 7 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 160 |
| 19:15 | 0 | 94 | 23 | 1 | 6 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 126 |
| 19:30 | 3 | 97 | 22 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 124 |
| 19:45 | 0 | 98 | 21 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 123 |
| | 4 | 407 | 98 | 1 | 15 | 0 | 0 | 5 | 2 | 0 | 1 | 0 | 0 | 533 |
| 20:00 | 1 | 89 | 22 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 116 |
| 20:15 | 1 | 96 | 18 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 119 |
| 20:30 | 0 | 94 | 20 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 119 |
| 20:45 | 1 | 101 | 21 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 |
| | 3 | 380 | 81 | 1 | 10 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 479 |
| 21:00 | 0 | 100 | 12 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 114 |
| 21:15 | 0 | 94 | 18 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 116 |
| 21:30 | 0 | 98 | 15 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 114 |
| 21:45 | 0 | 72 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83 |
| | 0 | 364 | 55 | 0 | 3 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 427 |
| 22:00 | 0 | 74 | 18 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 96 |
| 22:15 | 0 | 74 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 |
| 22:30 | 0 | 68 | 15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 85 |
| 22:45 | 0 | 84 | 13 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 100 |
| | 0 | 300 | 59 | 0 | 5 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 368 |
| 23:00 | 1 | 61 | 7 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 71 |
| 23:15 | 0 | 42 | 15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 59 |
| 23:30 | 0 | 46 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 54 |
| 23:45 | 0 | 36 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| | 1 | 185 | 38 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 229 |
| Total | 41 | 6276 | 1434 | 21 | 284 | 17 | 0 | 83 | 51 | 1 | 22 | 1 | 0 | 8231 |
| Percent | 0.5% | 76.2% | 17.4% | 0.3% | 3.5% | 0.2% | 0.0% | 1.0% | 0.6% | 0.0% | 0.3% | 0.0% | 0.0% | |
| Grand Total | 72 | 10861 | 2508 | 71 | 550 | 39 | 1 | 191 | 146 | 1 | 38 | 1 | 0 | 14479 |
| Percent | 0.5% | 75.0% | 17.3% | 0.5% | 3.8% | 0.3% | 0.0% | 1.3% | 1.0% | 0.0% | 0.3% | 0.0% | 0.0% | |

Counts Unlimited, Inc
PO Box 1178
Corona, CA 92878
(951) 268-6268



City of Moreno Valley
Gilman Springs Road
B/ Eucalyptus Avenue - Virgina Street
24 Hour Directional Classification Count
Eastbound

MRV006EBRD
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 49 | 11 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 |
| 01:00 | **2** | 22 | 7 | 0 | 1 | **2** | 0 | 1 | 1 | 0 | **1** | 0 | 0 | 37 |
| 02:00 | 0 | 26 | 8 | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 40 |
| 03:00 | 0 | 25 | 5 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 34 |
| 04:00 | 0 | 18 | 12 | 0 | 2 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 38 |
| 05:00 | 0 | 41 | 24 | 2 | 12 | 0 | 0 | **6** | 5 | 0 | 0 | 0 | 0 | 90 |
| 06:00 | 0 | 141 | **51** | 1 | **20** | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 223 |
| 07:00 | 0 | 164 | 48 | 3 | 18 | 0 | 0 | 3 | **7** | 0 | 1 | 0 | 0 | 244 |
| 08:00 | 0 | 148 | 39 | 4 | 14 | 0 | 0 | 4 | 6 | 0 | 1 | 0 | 0 | 216 |
| 09:00 | 0 | 157 | 51 | **5** | 15 | 2 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 234 |
| 10:00 | 1 | 138 | 42 | 3 | 13 | 1 | **2** | 3 | 3 | 0 | 1 | 0 | 0 | 207 |
| 11:00 | 1 | **180** | 48 | 2 | 19 | 2 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | **260** |
| 12 PM | 2 | 214 | 56 | 1 | 21 | **2** | 0 | 4 | 5 | 0 | **1** | 0 | 0 | 306 |
| 13:00 | 0 | 249 | 78 | 2 | 15 | 0 | 0 | 1 | **6** | 0 | 0 | 0 | 0 | 351 |
| 14:00 | 0 | 280 | 88 | **3** | 12 | 0 | 0 | 2 | 4 | 0 | 1 | 0 | 0 | 390 |
| 15:00 | 2 | 347 | 105 | 1 | **30** | 0 | 0 | **5** | 2 | 0 | 0 | 0 | 0 | 492 |
| 16:00 | 0 | 403 | **140** | 3 | 23 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 571 |
| 17:00 | **3** | **490** | 130 | 0 | 24 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | **651** |
| 18:00 | 0 | 375 | 89 | 0 | 24 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 490 |
| 19:00 | 0 | 225 | 68 | 0 | 17 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 313 |
| 20:00 | 0 | 186 | 56 | 0 | 10 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 256 |
| 21:00 | 0 | 157 | 51 | 0 | 7 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 218 |
| 22:00 | 0 | 140 | 21 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 168 |
| 23:00 | 0 | 96 | 29 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 131 |
| Total | 11 | 4271 | 1257 | 32 | 309 | 14 | 3 | 44 | 74 | 0 | 7 | 0 | 0 | 6022 |
| Percent | 0.2% | 70.9% | 20.9% | 0.5% | 5.1% | 0.2% | 0.0% | 0.7% | 1.2% | 0.0% | 0.1% | 0.0% | 0.0% | |
| AM Peak | 01:00 | 11:00 | 06:00 | 09:00 | 06:00 | 01:00 | 10:00 | 05:00 | 07:00 | | 01:00 | | | 11:00 |
| Vol. | 2 | 180 | 51 | 5 | 20 | 2 | 2 | 6 | 7 | | 1 | | | 260 |
| PM Peak | 17:00 | 17:00 | 16:00 | 14:00 | 15:00 | 12:00 | | 15:00 | 13:00 | | 12:00 | | | 17:00 |
| Vol. | 3 | 490 | 140 | 3 | 30 | 2 | | 5 | 6 | | 1 | | | 651 |
| Grand Total | 11 | 4271 | 1257 | 32 | 309 | 14 | 3 | 44 | 74 | 0 | 7 | 0 | 0 | 6022 |
| Percent | 0.2% | 70.9% | 20.9% | 0.5% | 5.1% | 0.2% | 0.0% | 0.7% | 1.2% | 0.0% | 0.1% | 0.0% | 0.0% | |

Counts Unlimited, Inc
PO Box 1178
Corona, CA 92878
(951) 268-6268



City of Moreno Valley
Gilman Springs Road
B/ Eucalyptus Avenue - Virgina Street
24 Hour Directional Classification Count
Westbound

MRV006EBRD
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 42 | 17 | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 65 |
| 01:00 | 0 | 32 | 12 | 0 | 3 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 50 |
| 02:00 | 1 | 56 | 17 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 77 |
| 03:00 | 0 | 74 | 13 | 0 | 3 | 0 | 0 | 1 | 4 | 0 | **1** | 0 | 0 | 96 |
| 04:00 | 1 | 190 | 62 | 0 | 29 | 0 | 0 | 0 | **6** | 0 | 0 | 0 | 0 | 288 |
| 05:00 | 1 | 227 | 105 | 1 | 40 | 1 | 0 | 2 | 6 | 0 | 1 | 0 | 0 | 384 |
| 06:00 | 0 | 329 | 120 | 2 | **41** | 0 | 0 | 2 | 3 | 0 | 1 | 0 | 0 | 498 |
| 07:00 | 0 | **425** | **126** | 0 | 33 | 1 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | **592** |
| 08:00 | 0 | 314 | 109 | 3 | 19 | 0 | 0 | **3** | 3 | 0 | 0 | 0 | 0 | 451 |
| 09:00 | **2** | 246 | 70 | **5** | 21 | 1 | 0 | 1 | 4 | 0 | 1 | 0 | 0 | 351 |
| 10:00 | 1 | 192 | 57 | 1 | 18 | 3 | 0 | 3 | 3 | 0 | 1 | 0 | 0 | 279 |
| 11:00 | 2 | 203 | 62 | 4 | 10 | **7** | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 294 |
| 12 PM | 0 | 182 | 69 | **4** | 26 | 1 | 0 | **4** | 6 | 0 | 0 | 0 | 0 | 292 |
| 13:00 | **1** | 181 | 62 | 4 | 15 | **3** | 0 | 1 | **7** | 0 | **1** | 0 | 0 | 275 |
| 14:00 | 1 | 196 | 73 | 3 | 28 | 1 | 0 | 4 | 4 | 0 | 1 | 0 | 0 | 311 |
| 15:00 | 0 | 193 | **84** | 1 | **35** | 2 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | **323** |
| 16:00 | 1 | 193 | 69 | 3 | 19 | 0 | 0 | 4 | 6 | 0 | 1 | 0 | 0 | 296 |
| 17:00 | 1 | **207** | 81 | 0 | 12 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 303 |
| 18:00 | 0 | 147 | 36 | 0 | 9 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 194 |
| 19:00 | 0 | 120 | 45 | 0 | 6 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 174 |
| 20:00 | 0 | 82 | 30 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 120 |
| 21:00 | 0 | 77 | 25 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 105 |
| 22:00 | 0 | 69 | 16 | 1 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 92 |
| 23:00 | 0 | 41 | 18 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 64 |
| Total | 12 | 4018 | 1378 | 32 | 385 | 22 | 0 | 37 | 82 | 0 | 8 | 0 | 0 | 5974 |
| Percent | 0.2% | 67.3% | 23.1% | 0.5% | 6.4% | 0.4% | 0.0% | 0.6% | 1.4% | 0.0% | 0.1% | 0.0% | 0.0% | |
| AM Peak | 09:00 | 07:00 | 07:00 | 09:00 | 06:00 | 11:00 | | 08:00 | 04:00 | | 03:00 | | | 07:00 |
| Vol. | 2 | 425 | 126 | 5 | 41 | 7 | | 3 | 6 | | 1 | | | 592 |
| PM Peak | 13:00 | 17:00 | 15:00 | 12:00 | 15:00 | 13:00 | | 12:00 | 13:00 | | 13:00 | | | 15:00 |
| Vol. | 1 | 207 | 84 | 4 | 35 | 3 | | 4 | 7 | | 1 | | | 323 |
| Grand Total | 12 | 4018 | 1378 | 32 | 385 | 22 | 0 | 37 | 82 | 0 | 8 | 0 | 0 | 5974 |
| Percent | 0.2% | 67.3% | 23.1% | 0.5% | 6.4% | 0.4% | 0.0% | 0.6% | 1.4% | 0.0% | 0.1% | 0.0% | 0.0% | |

Counts Unlimited, Inc
PO Box 1178
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City of Moreno Valley
Gilman Springs Road
B/ Eucalyptus Avenue - Virgina Street
24 Hour Directional Classification Count
Eastbound, Westbound

MRV006EBRD
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 91 | 28 | 0 | 5 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 127 |
| 01:00 | 2 | 54 | 19 | 0 | 4 | 3 | 0 | 1 | 3 | 0 | 1 | 0 | 0 | 87 |
| 02:00 | 1 | 82 | 25 | 0 | 1 | 1 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 117 |
| 03:00 | 0 | 99 | 18 | 1 | 4 | 1 | 0 | 1 | 5 | 0 | 1 | 0 | 0 | 130 |
| 04:00 | 1 | 208 | 74 | 0 | 31 | 1 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 326 |
| 05:00 | 1 | 268 | 129 | 3 | 52 | 1 | 0 | **8** | 11 | 0 | 1 | 0 | 0 | 474 |
| 06:00 | 0 | 470 | 171 | 3 | **61** | 0 | 0 | 7 | 8 | 0 | 1 | 0 | 0 | 721 |
| 07:00 | 0 | **589** | **174** | 3 | 51 | 1 | 0 | 5 | **12** | 0 | 1 | 0 | 0 | **836** |
| 08:00 | 0 | 462 | 148 | 7 | 33 | 0 | 0 | 7 | 9 | 0 | 1 | 0 | 0 | 667 |
| 09:00 | 2 | 403 | 121 | **10** | 36 | 3 | 1 | 2 | 6 | 0 | 1 | 0 | 0 | 585 |
| 10:00 | 2 | 330 | 99 | 4 | 31 | 4 | **2** | 6 | 6 | 0 | **2** | 0 | 0 | 486 |
| 11:00 | **3** | 383 | 110 | 6 | 29 | **9** | 0 | 2 | 12 | 0 | 0 | 0 | 0 | 554 |
| 12 PM | 2 | 396 | 125 | 5 | 47 | **3** | 0 | **8** | 11 | 0 | 1 | 0 | 0 | 598 |
| 13:00 | 1 | 430 | 140 | **6** | 30 | 3 | 0 | 2 | **13** | 0 | 1 | 0 | 0 | 626 |
| 14:00 | 1 | 476 | 161 | 6 | 40 | 1 | 0 | 6 | 8 | 0 | **2** | 0 | 0 | 701 |
| 15:00 | 2 | 540 | 189 | 2 | **65** | 2 | 0 | 8 | 7 | 0 | 0 | 0 | 0 | 815 |
| 16:00 | 1 | 596 | 209 | 6 | 42 | 0 | 0 | 5 | 7 | 0 | 1 | 0 | 0 | 867 |
| 17:00 | **4** | **697** | **211** | 0 | 36 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | **954** |
| 18:00 | 0 | 522 | 125 | 0 | 33 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 684 |
| 19:00 | 0 | 345 | 113 | 0 | 23 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 487 |
| 20:00 | 0 | 268 | 86 | 0 | 17 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 376 |
| 21:00 | 0 | 234 | 76 | 0 | 9 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 323 |
| 22:00 | 0 | 209 | 37 | 2 | 10 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 260 |
| 23:00 | 0 | 137 | 47 | 0 | 4 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 195 |
| Total | 23 | 8289 | 2635 | 64 | 694 | 36 | 3 | 81 | 156 | 0 | 15 | 0 | 0 | 11996 |
| Percent | 0.2% | 69.1% | 22.0% | 0.5% | 5.8% | 0.3% | 0.0% | 0.7% | 1.3% | 0.0% | 0.1% | 0.0% | 0.0% | |
| AM Peak | 11:00 | 07:00 | 07:00 | 09:00 | 06:00 | 11:00 | 10:00 | 05:00 | 07:00 | | 10:00 | | | 07:00 |
| Vol. | 3 | 589 | 174 | 10 | 61 | 9 | 2 | 8 | 12 | | 2 | | | 836 |
| PM Peak | 17:00 | 17:00 | 17:00 | 13:00 | 15:00 | 12:00 | | 12:00 | 13:00 | | 14:00 | | | 17:00 |
| Vol. | 4 | 697 | 211 | 6 | 65 | 3 | | 8 | 13 | | 2 | | | 954 |
| Grand Total | 23 | 8289 | 2635 | 64 | 694 | 36 | 3 | 81 | 156 | 0 | 15 | 0 | 0 | 11996 |
| Percent | 0.2% | 69.1% | 22.0% | 0.5% | 5.8% | 0.3% | 0.0% | 0.7% | 1.3% | 0.0% | 0.1% | 0.0% | 0.0% | |

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City of Moreno Valley
Redlands Boulevard
B/ Eucalyptus Avenue - Dracaea Avenue
24 Hour Directional Classification Count
Northbound

MRV005
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 01:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 9 |
| 02:00 | 0 | 8 | 4 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 03:00 | 0 | 18 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 04:00 | 0 | 60 | 20 | 0 | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 88 |
| 05:00 | 0 | 108 | 39 | **2** | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **2** | 162 |
| 06:00 | 0 | 245 | 62 | 0 | 6 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 316 |
| 07:00 | **4** | **380** | **96** | 1 | 8 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | **492** |
| 08:00 | 1 | 241 | 38 | 0 | **13** | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 297 |
| 09:00 | 1 | 145 | 49 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 198 |
| 10:00 | 0 | 146 | 30 | 0 | 5 | 0 | 0 | **4** | 0 | 0 | 0 | 0 | 0 | 185 |
| 11:00 | 1 | 114 | 23 | 0 | 8 | **1** | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 150 |
| 12 PM | 2 | 126 | 35 | **1** | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 167 |
| 13:00 | 0 | 149 | 35 | 1 | 6 | **1** | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 193 |
| 14:00 | 1 | 148 | **48** | 0 | **10** | 0 | 0 | **3** | 0 | 0 | 0 | 0 | 0 | 210 |
| 15:00 | 0 | 168 | 48 | 1 | 10 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 229 |
| 16:00 | 0 | **199** | 47 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **253** |
| 17:00 | 0 | 178 | 44 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | 228 |
| 18:00 | **3** | 136 | 31 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 177 |
| 19:00 | 1 | 98 | 10 | 0 | 4 | 0 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 114 |
| 20:00 | 0 | 68 | 13 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82 |
| 21:00 | 0 | 49 | 13 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 |
| 22:00 | 0 | 39 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| 23:00 | 0 | 21 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| Total | 14 | 2860 | 709 | 7 | 120 | 3 | 0 | 16 | 7 | 0 | 0 | 0 | 6 | 3742 |
| Percent | 0.4% | 76.4% | 18.9% | 0.2% | 3.2% | 0.1% | 0.0% | 0.4% | 0.2% | 0.0% | 0.0% | 0.0% | 0.2% | |
| AM Peak | 07:00 | 07:00 | 07:00 | 05:00 | 08:00 | 11:00 | | 10:00 | 01:00 | | | | 05:00 | 07:00 |
| Vol. | 4 | 380 | 96 | 2 | 13 | 1 | | 4 | 1 | | | | 2 | 492 |
| PM Peak | 18:00 | 16:00 | 14:00 | 12:00 | 14:00 | 13:00 | | 14:00 | 19:00 | | | | 17:00 | 16:00 |
| Vol. | 3 | 199 | 48 | 1 | 10 | 1 | | 3 | 1 | | | | 1 | 253 |
| Grand Total | 14 | 2860 | 709 | 7 | 120 | 3 | 0 | 16 | 7 | 0 | 0 | 0 | 6 | 3742 |
| Percent | 0.4% | 76.4% | 18.9% | 0.2% | 3.2% | 0.1% | 0.0% | 0.4% | 0.2% | 0.0% | 0.0% | 0.0% | 0.2% | |

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City of Moreno Valley
Redlands Boulevard
B/ Eucalyptus Avenue - Dracaea Avenue
24 Hour Directional Classification Count
Southbound

MRV005
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 27 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 01:00 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 16 |
| 02:00 | 0 | 10 | 1 | **1** | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 03:00 | 0 | 8 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 04:00 | **1** | 19 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 29 |
| 05:00 | 1 | 31 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 |
| 06:00 | 1 | 117 | 19 | 0 | 3 | **1** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 142 |
| 07:00 | 0 | **165** | 28 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **197** |
| 08:00 | 1 | 119 | 29 | 0 | **8** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 158 |
| 09:00 | 0 | 89 | 18 | 0 | 6 | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 114 |
| 10:00 | 1 | 95 | **35** | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 135 |
| 11:00 | 1 | 96 | 27 | 0 | 5 | 0 | 0 | **3** | 1 | 0 | 0 | 0 | 0 | 133 |
| 12 PM | 0 | 112 | 38 | **1** | 6 | 0 | 0 | **4** | 0 | 0 | 0 | 0 | 0 | 161 |
| 13:00 | 2 | 122 | 29 | 0 | 7 | **1** | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 162 |
| 14:00 | 2 | 185 | 62 | 0 | 7 | 1 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 261 |
| 15:00 | 0 | 216 | 61 | 0 | **16** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 293 |
| 16:00 | **3** | 259 | **83** | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 353 |
| 17:00 | 3 | **339** | 68 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **421** |
| 18:00 | 3 | 260 | 46 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 318 |
| 19:00 | 0 | 162 | 32 | 0 | 4 | 0 | 0 | 1 | **2** | 0 | 0 | 0 | 0 | 201 |
| 20:00 | 1 | 130 | 24 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 159 |
| 21:00 | 0 | 112 | 19 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 133 |
| 22:00 | 0 | 68 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83 |
| 23:00 | 1 | 44 | 4 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 |
| Total | 21 | 2799 | 675 | 2 | 104 | 3 | 1 | 16 | 10 | 0 | 0 | 0 | 0 | 3631 |
| Percent | 0.6% | 77.1% | 18.6% | 0.1% | 2.9% | 0.1% | 0.0% | 0.4% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | 04:00 | 07:00 | 10:00 | 02:00 | 08:00 | 06:00 | 09:00 | 11:00 | 01:00 | | | | | 07:00 |
| Vol. | 1 | 165 | 35 | 1 | 8 | 1 | 1 | 3 | 1 | | | | | 197 |
| PM Peak | 16:00 | 17:00 | 16:00 | 12:00 | 15:00 | 13:00 | | 12:00 | 19:00 | | | | | 17:00 |
| Vol. | 3 | 339 | 83 | 1 | 16 | 1 | | 4 | 2 | | | | | 421 |
| Grand Total | 21 | 2799 | 675 | 2 | 104 | 3 | 1 | 16 | 10 | 0 | 0 | 0 | 0 | 3631 |
| Percent | 0.6% | 77.1% | 18.6% | 0.1% | 2.9% | 0.1% | 0.0% | 0.4% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | |

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City of Moreno Valley
Redlands Boulevard
B/ Eucalyptus Avenue - Dracaea Avenue
24 Hour Directional Classification Count
Northbound, Southbound

MRV005
Site Code: 098-11258
Date Start: 16-Nov-11
Date End: 16-Nov-11

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/16/11 | 0 | 36 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 01:00 | 0 | 21 | 2 | 0 | 0 | 0 | 0 | 0 | **2** | 0 | 0 | 0 | 0 | 25 |
| 02:00 | 0 | 18 | 5 | **2** | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 03:00 | 0 | 26 | 11 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 04:00 | 1 | 79 | 28 | 0 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 117 |
| 05:00 | 1 | 139 | 58 | 2 | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **2** | 213 |
| 06:00 | 1 | 362 | 81 | 0 | 9 | **1** | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 458 |
| 07:00 | **4** | **545** | **124** | 1 | 12 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | **689** |
| 08:00 | 2 | 360 | 67 | 0 | **21** | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 455 |
| 09:00 | 1 | 234 | 67 | 0 | 9 | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 312 |
| 10:00 | 1 | 241 | 65 | 0 | 7 | 0 | 0 | **5** | 1 | 0 | 0 | 0 | 0 | 320 |
| 11:00 | 2 | 210 | 50 | 0 | 13 | 1 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 283 |
| 12 PM | 2 | 238 | 73 | **2** | 9 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 328 |
| 13:00 | 2 | 271 | 64 | 1 | 13 | **2** | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 355 |
| 14:00 | 3 | 333 | 110 | 0 | 17 | 1 | 0 | **6** | 1 | 0 | 0 | 0 | 0 | 471 |
| 15:00 | 0 | 384 | 109 | 1 | **26** | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 522 |
| 16:00 | 3 | 458 | **130** | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 606 |
| 17:00 | 3 | **517** | 112 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | **649** |
| 18:00 | **6** | 396 | 77 | 0 | 15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 495 |
| 19:00 | 1 | 260 | 42 | 0 | 8 | 0 | 0 | 1 | **3** | 0 | 0 | 0 | 0 | 315 |
| 20:00 | 1 | 198 | 37 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 241 |
| 21:00 | 0 | 161 | 32 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 196 |
| 22:00 | 0 | 107 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 |
| 23:00 | 1 | 65 | 8 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 |
| Total | 35 | 5659 | 1384 | 9 | 224 | 6 | 1 | 32 | 17 | 0 | 0 | 0 | 6 | 7373 |
| Percent | 0.5% | 76.8% | 18.8% | 0.1% | 3.0% | 0.1% | 0.0% | 0.4% | 0.2% | 0.0% | 0.0% | 0.0% | 0.1% | |
| AM Peak | 07:00 | 07:00 | 07:00 | 02:00 | 08:00 | 06:00 | 09:00 | 10:00 | 01:00 | | | | 05:00 | 07:00 |
| Vol. | 4 | 545 | 124 | 2 | 21 | 1 | 1 | 5 | 2 | | | | 2 | 689 |
| PM Peak | 18:00 | 17:00 | 16:00 | 12:00 | 15:00 | 13:00 | | 14:00 | 19:00 | | | | 17:00 | 17:00 |
| Vol. | 6 | 517 | 130 | 2 | 26 | 2 | | 6 | 3 | | | | 1 | 649 |
| Grand Total | 35 | 5659 | 1384 | 9 | 224 | 6 | 1 | 32 | 17 | 0 | 0 | 0 | 6 | 7373 |
| Percent | 0.5% | 76.8% | 18.8% | 0.1% | 3.0% | 0.1% | 0.0% | 0.4% | 0.2% | 0.0% | 0.0% | 0.0% | 0.1% | |

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City of Moreno Valley
Redlands Boulevard
B/ Bay Avenue - Cottonwood Avenue
24 Hour Directional Classification Count
Northbound

MRVRDBACO
Site Code: 098-12158
Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05/08/12 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 00:15 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 00:30 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 00:45 | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| | 1 | 13 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 01:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:15 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 01:30 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 01:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 9 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:30 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 02:45 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| | 1 | 6 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 03:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 |
| 03:15 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 03:30 | 0 | 9 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 03:45 | 0 | 5 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| | 1 | 20 | 7 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 32 |
| 04:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:15 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 04:30 | 1 | 16 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 04:45 | 0 | 18 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| | 1 | 43 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 |
| 05:00 | 0 | 9 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 05:15 | 0 | 14 | 7 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 05:30 | 2 | 27 | 8 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 |
| 05:45 | 1 | 28 | 13 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 |
| | 3 | 78 | 33 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 121 |
| 06:00 | 2 | 33 | 8 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 |
| 06:15 | 0 | 39 | 12 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| 06:30 | 2 | 43 | 17 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 |
| 06:45 | 0 | 63 | 15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 |
| | 4 | 178 | 52 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 245 |
| 07:00 | 0 | 85 | 24 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 111 |
| 07:15 | 1 | 93 | 20 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 118 |
| 07:30 | 0 | 104 | 24 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 131 |
| 07:45 | 1 | 80 | 22 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 109 |
| | 2 | 362 | 90 | 0 | 12 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 469 |
| 08:00 | 1 | 53 | 17 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 76 |
| 08:15 | 0 | 54 | 13 | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 74 |
| 08:30 | 1 | 54 | 11 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 |
| 08:45 | 2 | 49 | 9 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 |
| | 4 | 210 | 50 | 1 | 16 | 2 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 287 |
| 09:00 | 0 | 51 | 14 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 66 |
| 09:15 | 1 | 41 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| 09:30 | 1 | 31 | 9 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 |
| 09:45 | 0 | 29 | 9 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 40 |
| | 2 | 152 | 35 | 0 | 5 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 197 |
| 10:00 | 0 | 40 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 |
| 10:15 | 0 | 30 | 6 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 |
| 10:30 | 0 | 25 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| 10:45 | 0 | 24 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| | 0 | 119 | 35 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 162 |
| 11:00 | 0 | 19 | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 11:15 | 0 | 27 | 10 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 40 |
| 11:30 | 0 | 22 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| 11:45 | 0 | 31 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| | 0 | 99 | 33 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 141 |
| Total | 19 | 1289 | 349 | 1 | 73 | 3 | 0 | 7 | 3 | 0 | 1 | 0 | 0 | 1745 |
| Percent | 1.1% | 73.9% | 20.0% | 0.1% | 4.2% | 0.2% | 0.0% | 0.4% | 0.2% | 0.0% | 0.1% | 0.0% | 0.0% | |

City of Moreno Valley
Redlands Boulevard
B/ Bay Avenue - Cottonwood Avenue
24 Hour Directional Classification Count
Northbound

MRVRDBACO
Site Code: 098-12158
Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 1 | 20 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 12:15 | 0 | 24 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 12:30 | 0 | 18 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 12:45 | 0 | 23 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| | 1 | 85 | 34 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 122 |
| 13:00 | 1 | 34 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 13:15 | 1 | 30 | 14 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| 13:30 | 0 | 22 | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 13:45 | 0 | 32 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| | 2 | 118 | 31 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157 |
| 14:00 | 0 | 23 | 3 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 29 |
| 14:15 | 0 | 36 | 7 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| 14:30 | 2 | 42 | 18 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 |
| 14:45 | 2 | 21 | 14 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| | 4 | 122 | 42 | 2 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 183 |
| 15:00 | 0 | 31 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 15:15 | 0 | 38 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| 15:30 | 0 | 40 | 21 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 67 |
| 15:45 | 2 | 47 | 21 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 72 |
| | 2 | 156 | 58 | 1 | 7 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 226 |
| 16:00 | 0 | 40 | 6 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| 16:15 | 0 | 41 | 9 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| 16:30 | 0 | 46 | 12 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 |
| 16:45 | 0 | 39 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 |
| | 0 | 166 | 42 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 218 |
| 17:00 | 2 | 39 | 8 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 |
| 17:15 | 0 | 49 | 11 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 |
| 17:30 | 0 | 53 | 17 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 72 |
| 17:45 | 1 | 34 | 13 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 |
| | 3 | 175 | 49 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 238 |
| 18:00 | 0 | 38 | 6 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 18:15 | 1 | 35 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| 18:30 | 1 | 33 | 13 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 50 |
| 18:45 | 0 | 24 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| | 2 | 130 | 30 | 1 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 169 |
| 19:00 | 1 | 20 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 19:15 | 0 | 23 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 19:30 | 0 | 25 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 19:45 | 0 | 28 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| | 1 | 96 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 126 |
| 20:00 | 0 | 17 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 20:15 | 0 | 17 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 20:30 | 0 | 13 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 20:45 | 0 | 11 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| | 0 | 58 | 19 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 |
| 21:00 | 0 | 17 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 21:15 | 0 | 13 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 21:30 | 0 | 7 | 4 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 13 |
| 21:45 | 0 | 10 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| | 0 | 47 | 16 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 68 |
| 22:00 | 0 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 22:15 | 0 | 10 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 22:30 | 0 | 17 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 22:45 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| | 0 | 40 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| 23:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 23:15 | 0 | 5 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 23:30 | 1 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 23:45 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| | 1 | 23 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| Total | 16 | 1216 | 366 | 7 | 56 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 1666 |
| Percent | 1.0% | 73.0% | 22.0% | 0.4% | 3.4% | 0.0% | 0.0% | 0.2% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | |
| Grand Total | 35 | 2505 | 715 | 8 | 129 | 3 | 0 | 11 | 4 | 0 | 1 | 0 | 0 | 3411 |
| Percent | 1.0% | 73.4% | 21.0% | 0.2% | 3.8% | 0.1% | 0.0% | 0.3% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | |

Counts Unlimited, Inc
PO Box 1178
Corona, CA 92878
(951) 268-6268



City of Moreno Valley
Redlands Boulevard
B/ Bay Avenue - Cottonwood Avenue
24 Hour Directional Classification Count
Southbound

MRVRDBACO
Site Code: 098-12158
Date Start: 08-May-12
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| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05/08/12 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 00:15 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 00:30 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 00:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 23 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 01:00 | 0 | 4 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 01:15 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 01:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:45 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 0 | 12 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 02:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 02:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:30 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 02:45 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| | 0 | 15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 03:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:30 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 03:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 1 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 04:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:15 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 04:30 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 04:45 | 0 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| | 0 | 19 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 05:00 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 05:15 | 1 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 05:30 | 0 | 17 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 05:45 | 1 | 11 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| | 2 | 40 | 11 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 |
| 06:00 | 0 | 13 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 06:15 | 1 | 22 | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| 06:30 | 0 | 20 | 9 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 32 |
| 06:45 | 0 | 43 | 14 | 0 | 5 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 64 |
| | 1 | 98 | 32 | 0 | 10 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 144 |
| 07:00 | 0 | 27 | 10 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 07:15 | 0 | 25 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| 07:30 | 0 | 35 | 14 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| 07:45 | 2 | 50 | 23 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 |
| | 2 | 137 | 56 | 3 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 205 |
| 08:00 | 0 | 35 | 12 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 52 |
| 08:15 | 0 | 27 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| 08:30 | 0 | 34 | 13 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| 08:45 | 0 | 32 | 6 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| | 0 | 128 | 42 | 1 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 180 |
| 09:00 | 0 | 19 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 09:15 | 0 | 23 | 6 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 09:30 | 0 | 19 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 09:45 | 0 | 17 | 4 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| | 0 | 78 | 25 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110 |
| 10:00 | 0 | 18 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 10:15 | 0 | 21 | 5 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 33 |
| 10:30 | 0 | 18 | 8 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 31 |
| 10:45 | 1 | 20 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| | 1 | 77 | 30 | 0 | 10 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 122 |
| 11:00 | 1 | 17 | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 11:15 | 0 | 19 | 7 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 29 |
| 11:30 | 0 | 14 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 11:45 | 0 | 20 | 8 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| | 1 | 70 | 30 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 109 |
| Total | 8 | 702 | 237 | 5 | 50 | 1 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 1011 |
| Percent | 0.8% | 69.4% | 23.4% | 0.5% | 4.9% | 0.1% | 0.0% | 0.7% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 1 | 17 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 12:15 | 0 | 22 | 11 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| 12:30 | 1 | 28 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 12:45 | 1 | 34 | 11 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| | 3 | 101 | 33 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 142 |
| 13:00 | 0 | 27 | 14 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 13:15 | 0 | 17 | 9 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 13:30 | 0 | 38 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| 13:45 | 1 | 35 | 12 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| | 1 | 117 | 44 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 171 |
| 14:00 | 2 | 40 | 13 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| 14:15 | 0 | 29 | 16 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 14:30 | 0 | 37 | 23 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 65 |
| 14:45 | 0 | 35 | 9 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 50 |
| | 2 | 141 | 61 | 2 | 12 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 220 |
| 15:00 | 0 | 45 | 12 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 |
| 15:15 | 1 | 34 | 13 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 54 |
| 15:30 | 0 | 63 | 15 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83 |
| 15:45 | 0 | 52 | 15 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 |
| | 1 | 194 | 55 | 1 | 17 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 269 |
| 16:00 | 0 | 64 | 15 | 0 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 87 |
| 16:15 | 0 | 49 | 15 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 68 |
| 16:30 | 0 | 43 | 17 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 |
| 16:45 | 0 | 66 | 18 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86 |
| | 0 | 222 | 65 | 1 | 14 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 305 |
| 17:00 | 0 | 51 | 16 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 69 |
| 17:15 | 3 | 54 | 25 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 86 |
| 17:30 | 1 | 98 | 31 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 134 |
| 17:45 | 0 | 66 | 23 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 91 |
| | 4 | 269 | 95 | 2 | 7 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 380 |
| 18:00 | 1 | 75 | 18 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 99 |
| 18:15 | 2 | 52 | 16 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 |
| 18:30 | 2 | 49 | 14 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 |
| 18:45 | 0 | 57 | 18 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 |
| | 5 | 233 | 66 | 0 | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 315 |
| 19:00 | 0 | 45 | 15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 |
| 19:15 | 0 | 39 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 |
| 19:30 | 1 | 47 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 |
| 19:45 | 1 | 34 | 9 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| | 2 | 165 | 41 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 217 |
| 20:00 | 0 | 27 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| 20:15 | 0 | 32 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 20:30 | 1 | 24 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| 20:45 | 3 | 35 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| | 4 | 118 | 25 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 149 |
| 21:00 | 0 | 18 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 21:15 | 0 | 25 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 21:30 | 0 | 22 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| 21:45 | 0 | 22 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| | 0 | 87 | 32 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 124 |
| 22:00 | 0 | 8 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 22:15 | 0 | 17 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 22:30 | 0 | 26 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| 22:45 | 0 | 10 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| | 0 | 61 | 23 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86 |
| 23:00 | 1 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 23:15 | 0 | 18 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 23:30 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 23:45 | 0 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| | 1 | 43 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 |
| Total | 23 | 1751 | 548 | 6 | 92 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 2430 |
| Percent | 0.9% | 72.1% | 22.6% | 0.2% | 3.8% | 0.0% | 0.0% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| Grand Total | 31 | 2453 | 785 | 11 | 142 | 1 | 0 | 17 | 1 | 0 | 0 | 0 | 0 | 3441 |
| Percent | 0.9% | 71.3% | 22.8% | 0.3% | 4.1% | 0.0% | 0.0% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |

Counts Unlimited, Inc
PO Box 1178
Corona, CA 92878
(951) 268-6268



City of Moreno Valley
Redlands Boulevard
B/ Bay Avenue - Cottonwood Avenue
24 Hour Directional Classification Count
Northbound, Southbound

MRVRDBACO
Site Code: 098-12158
Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05/08/12 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 00:15 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 00:30 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 00:45 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| | 1 | 36 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| 01:00 | 0 | 5 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 01:15 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 01:30 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 01:45 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 0 | 21 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 02:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 02:15 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 02:30 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 02:45 | 1 | 6 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| | 1 | 21 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 03:00 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| 03:15 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 03:30 | 1 | 11 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 03:45 | 0 | 7 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| | 2 | 25 | 8 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 39 |
| 04:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 04:15 | 0 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 04:30 | 1 | 20 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 04:45 | 0 | 26 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| | 1 | 62 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 |
| 05:00 | 0 | 13 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 05:15 | 1 | 22 | 8 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| 05:30 | 2 | 44 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 |
| 05:45 | 2 | 39 | 18 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 |
| | 5 | 118 | 44 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175 |
| 06:00 | 2 | 46 | 11 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 |
| 06:15 | 1 | 61 | 18 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 |
| 06:30 | 2 | 63 | 26 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 97 |
| 06:45 | 0 | 106 | 29 | 0 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 143 |
| | 5 | 276 | 84 | 0 | 21 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 389 |
| 07:00 | 0 | 112 | 34 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 151 |
| 07:15 | 1 | 118 | 29 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 152 |
| 07:30 | 0 | 139 | 38 | 2 | 3 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 184 |
| 07:45 | 3 | 130 | 45 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 187 |
| | 4 | 499 | 146 | 3 | 19 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 674 |
| 08:00 | 1 | 88 | 29 | 0 | 7 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 128 |
| 08:15 | 0 | 81 | 24 | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 112 |
| 08:30 | 1 | 88 | 24 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 120 |
| 08:45 | 2 | 81 | 15 | 2 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 107 |
| | 4 | 338 | 92 | 2 | 24 | 2 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 467 |
| 09:00 | 0 | 70 | 22 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 94 |
| 09:15 | 1 | 64 | 9 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 |
| 09:30 | 1 | 50 | 16 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 |
| 09:45 | 0 | 46 | 13 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 64 |
| | 2 | 230 | 60 | 1 | 11 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 307 |
| 10:00 | 0 | 58 | 18 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 |
| 10:15 | 0 | 51 | 11 | 0 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 72 |
| 10:30 | 0 | 43 | 18 | 0 | 4 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 68 |
| 10:45 | 1 | 44 | 18 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 |
| | 1 | 196 | 65 | 0 | 18 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 284 |
| 11:00 | 1 | 36 | 12 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| 11:15 | 0 | 46 | 17 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 69 |
| 11:30 | 0 | 36 | 19 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 |
| 11:45 | 0 | 51 | 15 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 |
| | 1 | 169 | 63 | 0 | 15 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 250 |
| Total | 27 | 1991 | 586 | 6 | 123 | 4 | 0 | 14 | 4 | 0 | 1 | 0 | 0 | 2756 |
| Percent | 1.0% | 72.2% | 21.3% | 0.2% | 4.5% | 0.1% | 0.0% | 0.5% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | |

City of Moreno Valley
Redlands Boulevard
B/ Bay Avenue - Cottonwood Avenue
24 Hour Directional Classification Count
Northbound, Southbound

MRVRDBACO
Site Code: 098-12158
Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 2 | 37 | 13 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| 12:15 | 0 | 46 | 19 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 67 |
| 12:30 | 1 | 46 | 17 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 |
| 12:45 | 1 | 57 | 18 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 |
| | 4 | 186 | 67 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 264 |
| 13:00 | 1 | 61 | 21 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 85 |
| 13:15 | 1 | 47 | 23 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 |
| 13:30 | 0 | 60 | 14 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 |
| 13:45 | 1 | 67 | 17 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88 |
| | 3 | 235 | 75 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 328 |
| 14:00 | 2 | 63 | 16 | 1 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 88 |
| 14:15 | 0 | 65 | 23 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 |
| 14:30 | 2 | 79 | 41 | 2 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 131 |
| 14:45 | 2 | 56 | 23 | 1 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 91 |
| | 6 | 263 | 103 | 4 | 24 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 403 |
| 15:00 | 0 | 76 | 22 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 |
| 15:15 | 1 | 72 | 19 | 1 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 99 |
| 15:30 | 0 | 103 | 36 | 0 | 9 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 150 |
| 15:45 | 2 | 99 | 36 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 143 |
| | 3 | 350 | 113 | 2 | 24 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 495 |
| 16:00 | 0 | 104 | 21 | 1 | 9 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 137 |
| 16:15 | 0 | 90 | 24 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 121 |
| 16:30 | 0 | 89 | 29 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 |
| 16:45 | 0 | 105 | 33 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 140 |
| | 0 | 388 | 107 | 2 | 23 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 523 |
| 17:00 | 2 | 90 | 24 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 120 |
| 17:15 | 3 | 103 | 36 | 0 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 150 |
| 17:30 | 1 | 151 | 48 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 206 |
| 17:45 | 1 | 100 | 36 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 142 |
| | 7 | 444 | 144 | 3 | 17 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 618 |
| 18:00 | 1 | 113 | 24 | 1 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 145 |
| 18:15 | 3 | 87 | 19 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 112 |
| 18:30 | 3 | 82 | 27 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 118 |
| 18:45 | 0 | 81 | 26 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 109 |
| | 7 | 363 | 96 | 1 | 15 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 484 |
| 19:00 | 1 | 65 | 24 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 |
| 19:15 | 0 | 62 | 17 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 |
| 19:30 | 1 | 72 | 12 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86 |
| 19:45 | 1 | 62 | 17 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83 |
| | 3 | 261 | 70 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 343 |
| 20:00 | 0 | 44 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55 |
| 20:15 | 0 | 49 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 |
| 20:30 | 1 | 37 | 11 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| 20:45 | 3 | 46 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 |
| | 4 | 176 | 44 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 |
| 21:00 | 0 | 35 | 12 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| 21:15 | 0 | 38 | 16 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 |
| 21:30 | 0 | 29 | 12 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 44 |
| 21:45 | 0 | 32 | 8 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| | 0 | 134 | 48 | 1 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 192 |
| 22:00 | 0 | 16 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 22:15 | 0 | 27 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| 22:30 | 0 | 43 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| 22:45 | 0 | 15 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| | 0 | 101 | 32 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 |
| 23:00 | 1 | 13 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 23:15 | 0 | 23 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 23:30 | 1 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 23:45 | 0 | 16 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| | 2 | 66 | 15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 |
| Total | 39 | 2967 | 914 | 13 | 148 | 0 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 4096 |
| Percent | 1.0% | 72.4% | 22.3% | 0.3% | 3.6% | 0.0% | 0.0% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| Grand Total | 66 | 4958 | 1500 | 19 | 271 | 4 | 0 | 28 | 5 | 0 | 1 | 0 | 0 | 6852 |
| Percent | 1.0% | 72.4% | 21.9% | 0.3% | 4.0% | 0.1% | 0.0% | 0.4% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | |

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City of Moreno Valley
Cactus Avenue
E/ Redlands Bouleveard
24 Hour Directional Classification Count
Eastbound

MRVCAERE
Site Code: 098-12158
Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05/08/12 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 00:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 00:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 00:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 06:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 06:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| 06:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 |
| 07:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 07:15 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 07:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:45 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 08:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 08:15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 08:30 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 08:45 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 11 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 09:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 09:15 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 09:30 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 09:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 9 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:15 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 10:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 10:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 11:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 11:15 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 11:30 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 11:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| Total | 0 | 39 | 13 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 55 |
| Percent | 0.0% | 70.9% | 23.6% | 0.0% | 3.6% | 0.0% | 0.0% | 1.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |

City of Moreno Valley
Cactus Avenue
E/ Redlands Bouleveard
24 Hour Directional Classification Count
Eastbound

MRVCAERE
Site Code: 098-12158
Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 12:15 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 12:30 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 12:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 13:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 13:15 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 13:30 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 13:45 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 6 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 14:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 14:15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 14:30 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 14:45 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 15:00 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 15:15 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 15:30 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 15:45 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| | 0 | 16 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 16:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 16:15 | 0 | 3 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 16:30 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 16:45 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 11 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 17:00 | 1 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 17:15 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 17:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 17:45 | 0 | 14 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| | 1 | 27 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 18:00 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 18:15 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 18:30 | 0 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 18:45 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 0 | 23 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 19:00 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 19:15 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 19:30 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 19:45 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 15 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 20:00 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 20:15 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 20:30 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 20:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 8 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 21:00 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 21:15 | 0 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 21:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21:45 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| | 0 | 11 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 22:00 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 22:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 22:30 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 22:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 23:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 23:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 23:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Total | 2 | 146 | 39 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 190 |
| Percent | 1.1% | 76.8% | 20.5% | 0.0% | 1.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| Grand Total | 2 | 185 | 52 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 245 |
| Percent | 0.8% | 75.5% | 21.2% | 0.0% | 2.0% | 0.0% | 0.0% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05/08/12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 00:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 00:30 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 00:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:30 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 03:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 05:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 06:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 06:15 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 06:30 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 06:45 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| | 0 | 19 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 07:00 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 07:15 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 07:30 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 07:45 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| | 0 | 25 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 08:00 | 0 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 08:15 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 08:30 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 6 | 4 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 13 |
| 09:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 09:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 09:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 09:45 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 10:00 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 10:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 10:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 10:45 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 2 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 11:00 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 11:15 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 11:30 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 11:45 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 12 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| Total | 3 | 86 | 16 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 109 |
| Percent | 2.8% | 78.9% | 14.7% | 0.0% | 2.8% | 0.0% | 0.0% | 0.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 12:15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 12:30 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 12:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 13:00 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 13:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 13:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 13:45 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| | 0 | 9 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 14:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 14:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 14:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 14:45 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 15:00 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 15:15 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 15:30 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 15:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 16:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 16:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 16:30 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 16:45 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 11 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 17:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 17:15 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 17:30 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 17:45 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 13 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 18:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 18:15 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 18:30 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 18:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 17 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 19:00 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 19:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 19:30 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 19:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 11 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 20:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 20:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 20:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 21:00 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 21:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 21:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 21:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 22:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 22:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 22:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 22:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 23:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23:15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 23:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 23:45 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Total | 0 | 99 | 23 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 123 |
| Percent | 0.0% | 80.5% | 18.7% | 0.0% | 0.0% | 0.0% | 0.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| Grand Total | 3 | 185 | 39 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 232 |
| Percent | 1.3% | 79.7% | 16.8% | 0.0% | 1.3% | 0.0% | 0.4% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05/08/12 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 00:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 00:30 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 00:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 01:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:30 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 03:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 04:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 05:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 06:00 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 06:15 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 06:30 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| 06:45 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| | 0 | 22 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 26 |
| 07:00 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 07:15 | 0 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 07:30 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 07:45 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| | 0 | 31 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| 08:00 | 0 | 6 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 08:15 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 08:30 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 08:45 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 0 | 17 | 5 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 26 |
| 09:00 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 09:15 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 09:30 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 09:45 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 15 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 10:00 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 10:15 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 10:30 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 10:45 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 2 | 8 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 11:00 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 11:15 | 0 | 6 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 11:30 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 11:45 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 0 | 18 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| Total | 3 | 125 | 29 | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 164 |
| Percent | 1.8% | 76.2% | 17.7% | 0.0% | 3.0% | 0.0% | 0.0% | 1.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |

City of Moreno Valley
Cactus Avenue
E/ Redlands Bouleveard
24 Hour Directional Classification Count
Eastbound, Westbound

MRVCAERE
Site Code: 098-12158
Date Start: 08-May-12
Date End: 08-May-12

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 12:15 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 12:30 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 12:45 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 1 | 20 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 13:00 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 13:15 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 13:30 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 13:45 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| | 0 | 15 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 14:00 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 14:15 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 14:30 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 14:45 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| | 0 | 19 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 15:00 | 0 | 7 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 15:15 | 0 | 9 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 15:30 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 15:45 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| | 0 | 27 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 16:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 16:15 | 0 | 5 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 16:30 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 16:45 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| | 0 | 22 | 5 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 17:00 | 1 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 17:15 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 17:30 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 17:45 | 0 | 16 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| | 1 | 40 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| 18:00 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 18:15 | 0 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 18:30 | 0 | 15 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 18:45 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| | 0 | 40 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 19:00 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 19:15 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 19:30 | 0 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 19:45 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 26 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 20:00 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 20:15 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 20:30 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 20:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 9 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 21:00 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 21:15 | 0 | 7 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 21:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 21:45 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| | 0 | 14 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 22:00 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 22:15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 22:30 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 22:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 23:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 23:30 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 23:45 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Total | 2 | 245 | 62 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 313 |
| Percent | 0.6% | 78.3% | 19.8% | 0.0% | 1.0% | 0.0% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| Grand Total | 5 | 370 | 91 | 0 | 8 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 477 |
| Percent | 1.0% | 77.6% | 19.1% | 0.0% | 1.7% | 0.0% | 0.2% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix B

## Intersection LOS Worksheets
## for Existing Conditions

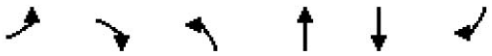
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| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 96 | 3 | 27 | 73 | 4 | 11 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 |
| Hourly flow rate (vph) | 122 | 4 | 34 | 92 | 5 | 14 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 109 | 85 | | | 127 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 109 | 85 | | | 127 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 86 | 100 | | | 100 | |
| cM capacity (veh/h) | 886 | 975 | | | 1472 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 125 | 127 | 19 |
| Volume Left | 122 | 0 | 5 |
| Volume Right | 4 | 92 | 0 |
| cSH | 888 | 1700 | 1472 |
| Volume to Capacity | 0.14 | 0.07 | 0.00 |
| Queue Length 95th (ft) | 12 | 0 | 0 |
| Control Delay (s) | 9.7 | 0.0 | 2.0 |
| Lane LOS | A | | A |
| Approach Delay (s) | 9.7 | 0.0 | 2.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.6 | | |
| Intersection Capacity Utilization | 18.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 69 | 102 | 578 | 240 | 1 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 0 | 78 | 115 | 649 | 270 | 1 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1154 | 275 | 271 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1154 | 275 | 271 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 90 | 91 | | | |
| cM capacity (veh/h) | 200 | 758 | 1287 | | | |

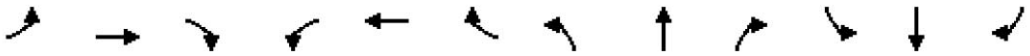
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 78 | 764 | 271 |
| Volume Left | 0 | 115 | 0 |
| Volume Right | 78 | 0 | 1 |
| cSH | 758 | 1287 | 1700 |
| Volume to Capacity | 0.10 | 0.09 | 0.16 |
| Queue Length 95th (ft) | 9 | 7 | 0 |
| Control Delay (s) | 10.3 | 2.2 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 10.3 | 2.2 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 63.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 28 | 0 | 18 | 1 | 0 | 1 | 9 | 592 | 0 | 0 | 397 | 14 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 32 | 0 | 20 | 1 | 0 | 1 | 10 | 673 | 0 | 0 | 451 | 16 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1155 | 1154 | 461 | 1175 | 1170 | 683 | 472 | | | 678 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1155 | 1154 | 461 | 1175 | 1170 | 683 | 472 | | | 678 | | |
| tC, single (s) | 7.1 | 6.5 | 6.3 | 8.1 | 6.5 | 6.2 | 4.3 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.4 | 4.4 | 4.0 | 3.3 | 2.4 | | | 2.2 | | |
| p0 queue free % | 81 | 100 | 97 | 99 | 100 | 100 | 99 | | | 100 | | |
| cM capacity (veh/h) | 168 | 195 | 587 | 103 | 191 | 449 | 989 | | | 920 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 52 | 2 | 10 | 673 | 0 | 0 | 451 | 16 |
| Volume Left | 32 | 1 | 10 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 20 | 1 | 0 | 0 | 0 | 0 | 0 | 16 |
| cSH | 233 | 168 | 989 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.22 | 0.01 | 0.01 | 0.40 | 0.00 | 0.00 | 0.27 | 0.01 |
| Queue Length 95th (ft) | 21 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 24.9 | 26.7 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | C | D | A | | | | | |
| Approach Delay (s) | 24.9 | 26.7 | 0.1 | | | 0.0 | | |
| Approach LOS | C | D | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.2 | | | |
| Intersection Capacity Utilization | 41.4% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



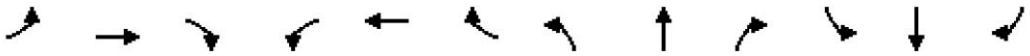
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 91 | 9 | 30 | 1 | 7 | 1 | 43 | 524 | 2 | 1 | 355 | 78 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1753 | | | 1859 | | 1805 | 1880 | | 1805 | 1881 | 1561 |
| Flt Permitted | | 0.97 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1753 | | | 1859 | | 1805 | 1880 | | 1805 | 1881 | 1561 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 108 | 11 | 36 | 1 | 8 | 1 | 51 | 624 | 2 | 1 | 423 | 93 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| Lane Group Flow (vph) | 0 | 149 | 0 | 0 | 9 | 0 | 51 | 626 | 0 | 1 | 423 | 60 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 56.2 | | | 1.5 | | 7.7 | 44.9 | | 1.4 | 38.6 | 38.6 |
| Effective Green, g (s) | | 56.2 | | | 1.5 | | 7.7 | 44.9 | | 1.4 | 38.6 | 38.6 |
| Actuated g/C Ratio | | 0.47 | | | 0.01 | | 0.06 | 0.37 | | 0.01 | 0.32 | 0.32 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 821 | | | 23 | | 116 | 703 | | 21 | 605 | 502 |
| v/s Ratio Prot | | c0.09 | | | c0.00 | | c0.03 | c0.33 | | 0.00 | 0.22 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.04 |
| v/c Ratio | | 0.18 | | | 0.39 | | 0.44 | 0.89 | | 0.05 | 0.70 | 0.12 |
| Uniform Delay, d1 | | 18.5 | | | 58.8 | | 54.1 | 35.2 | | 58.6 | 35.6 | 28.7 |
| Progression Factor | | 0.77 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.3 | | | 10.7 | | 2.7 | 13.5 | | 0.9 | 3.5 | 0.1 |
| Delay (s) | | 14.6 | | | 69.5 | | 56.7 | 48.7 | | 59.6 | 39.2 | 28.8 |
| Level of Service | | B | | | E | | E | D | | E | D | C |
| Approach Delay (s) | | 14.6 | | | 69.5 | | | 49.3 | | | 37.3 | |
| Approach LOS | | B | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 62.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 4 | 13 | 9 | 2 | 18 | 22 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Hourly flow rate (vph) | 5 | 16 | 11 | 2 | 22 | 27 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 82 | 5 | 68 | 54 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 82 | 5 | 68 | 54 | 5 | |
| tC, single (s) | 7.0 | 6.4 | 7.7 | 6.5 | 4.3 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.5 | 3.4 | 4.0 | 4.0 | 2.4 | |
| p0 queue free % | 99 | 98 | 99 | 100 | 99 | |
| cM capacity (veh/h) | 709 | 1037 | 774 | 821 | 1517 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 5 | 16 | 14 | 22 | 27 |
| Volume Left | 0 | 0 | 11 | 22 | 0 |
| Volume Right | 0 | 16 | 0 | 0 | 27 |
| cSH | 709 | 1037 | 782 | 1517 | 1700 |
| Volume to Capacity | 0.01 | 0.02 | 0.02 | 0.01 | 0.02 |
| Queue Length 95th (ft) | 1 | 1 | 1 | 1 | 0 |
| Control Delay (s) | 10.1 | 8.5 | 9.7 | 7.4 | 0.0 |
| Lane LOS | B | A | A | A | |
| Approach Delay (s) | 8.9 | | 9.7 | 3.3 | |
| Approach LOS | A | | A | | |

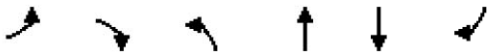
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.8 | | |
| Intersection Capacity Utilization | 17.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 4 | 2 | 1 | 2 | 46 | 6 | 491 | 112 | 213 | 173 | 1 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 0 | 5 | 2 | 1 | 2 | 55 | 7 | 585 | 133 | 254 | 206 | 1 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1378 | 1456 | 217 | 1393 | 1390 | 661 | 212 | | | 723 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1378 | 1456 | 217 | 1393 | 1390 | 661 | 212 | | | 723 | | |
| tC, single (s) | 7.1 | 7.0 | 6.2 | 7.1 | 7.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.5 | 3.3 | 3.5 | 4.9 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 93 | 100 | 99 | 96 | 88 | 99 | | | 71 | | |
| cM capacity (veh/h) | 81 | 72 | 821 | 87 | 64 | 462 | 1365 | | | 880 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 7 | 58 | 7 | 718 | 254 | 207 |
| Volume Left | 0 | 1 | 7 | 0 | 254 | 0 |
| Volume Right | 2 | 55 | 0 | 133 | 0 | 1 |
| cSH | 104 | 344 | 1365 | 1700 | 880 | 1700 |
| Volume to Capacity | 0.07 | 0.17 | 0.01 | 0.42 | 0.29 | 0.12 |
| Queue Length 95th (ft) | 5 | 15 | 0 | 0 | 30 | 0 |
| Control Delay (s) | 42.2 | 17.6 | 7.7 | 0.0 | 10.7 | 0.0 |
| Lane LOS | E | C | A | | B | |
| Approach Delay (s) | 42.2 | 17.6 | 0.1 | | 5.9 | |
| Approach LOS | E | C | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 3.3 | | | |
| Intersection Capacity Utilization | 58.3% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 180 | 27 | 48 | 440 | 166 | 22 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.98 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.96 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1720 | | 1703 | 1863 | 1900 | 1482 |
| Flt Permitted | 0.96 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1720 | | 1703 | 1863 | 1900 | 1482 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 212 | 32 | 56 | 518 | 195 | 26 |
| RTOR Reduction (vph) | 10 | 0 | 0 | 0 | 0 | 9 |
| Lane Group Flow (vph) | 234 | 0 | 56 | 518 | 195 | 17 |
| Confl. Peds. (#/hr) | | | | | | |
| Heavy Vehicles (%) | 4% | 4% | 6% | 2% | 0% | 9% |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 5 | 2 | 6 | 4 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 10.8 | | 2.4 | 22.0 | 15.6 | 26.4 |
| Effective Green, g (s) | 10.8 | | 2.4 | 22.0 | 15.6 | 26.4 |
| Actuated g/C Ratio | 0.26 | | 0.06 | 0.54 | 0.38 | 0.65 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 455 | | 100 | 1005 | 726 | 1104 |
| v/s Ratio Prot | c0.14 | | 0.03 | c0.28 | 0.10 | 0.00 |
| v/s Ratio Perm | | | | | | 0.01 |
| v/c Ratio | 0.52 | | 0.56 | 0.52 | 0.27 | 0.02 |
| Uniform Delay, d1 | 12.8 | | 18.7 | 6.0 | 8.7 | 2.6 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | | 7.0 | 0.4 | 0.2 | 0.0 |
| Delay (s) | 13.8 | | 25.7 | 6.4 | 8.9 | 2.6 |
| Level of Service | B | | C | A | A | A |
| Approach Delay (s) | 13.8 | | | 8.3 | 8.1 | |
| Approach LOS | B | | | A | A | |

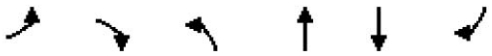
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 40.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 41.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 15 | 9 | 29 | 21 | 13 | 13 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 16 | 10 | 31 | 23 | 14 | 14 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 89 | 47 | | | 54 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 89 | 47 | | | 54 | |
| tC, single (s) | 6.5 | 6.2 | | | 4.6 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.3 | | | 2.6 | |
| p0 queue free % | 98 | 99 | | | 99 | |
| cM capacity (veh/h) | 886 | 1023 | | | 1312 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 26 | 54 | 28 |
| Volume Left | 16 | 0 | 14 |
| Volume Right | 10 | 23 | 0 |
| cSH | 933 | 1700 | 1312 |
| Volume to Capacity | 0.03 | 0.03 | 0.01 |
| Queue Length 95th (ft) | 2 | 0 | 1 |
| Control Delay (s) | 9.0 | 0.0 | 3.9 |
| Lane LOS | A | | A |
| Approach Delay (s) | 9.0 | 0.0 | 3.9 |
| Approach LOS | A | | |

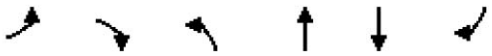
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.2 | | |
| Intersection Capacity Utilization | 18.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 32 | 87 | 18 | 26 | 13 | 8 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 |
| Hourly flow rate (vph) | 43 | 116 | 24 | 35 | 17 | 11 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 110 | 28 | 28 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 110 | 28 | 28 | | | |
| tC, single (s) | 6.9 | 6.3 | 4.2 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.9 | 3.4 | 2.3 | | | |
| p0 queue free % | 94 | 89 | 98 | | | |
| cM capacity (veh/h) | 773 | 1029 | 1529 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 159 | 24 | 35 | 28 |
| Volume Left | 43 | 24 | 0 | 0 |
| Volume Right | 116 | 0 | 0 | 11 |
| cSH | 1408 | 1529 | 1700 | 1700 |
| Volume to Capacity | 0.11 | 0.02 | 0.02 | 0.02 |
| Queue Length 95th (ft) | 10 | 1 | 0 | 0 |
| Control Delay (s) | 9.2 | 7.4 | 0.0 | 0.0 |
| Lane LOS | A | A | | |
| Approach Delay (s) | 9.2 | 3.0 | | 0.0 |
| Approach LOS | A | | | |

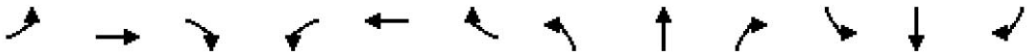
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.7 | | |
| Intersection Capacity Utilization | 17.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 17 | 1 | 7 | 29 | 11 | 91 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 20 | 1 | 8 | 33 | 13 | 105 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 67 | 18 | 117 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 67 | 18 | 117 | | | |
| tC, single (s) | 6.7 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.8 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 100 | 99 | | | |
| cM capacity (veh/h) | 867 | 1062 | 1484 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 21 | 8 | 33 | 13 | 105 |
| Volume Left | 20 | 8 | 0 | 0 | 0 |
| Volume Right | 1 | 0 | 0 | 0 | 105 |
| cSH | 918 | 1484 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.02 | 0.01 | 0.02 | 0.01 | 0.06 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 9.2 | 7.4 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | A | | | |
| Approach Delay (s) | 9.2 | 1.4 | | 0.0 | |
| Approach LOS | A | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 15.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



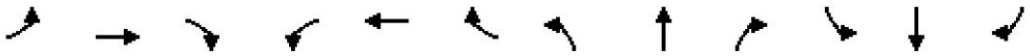
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 1 | 182 | 44 | 11 | 401 | 0 | 134 | 0 | 25 | 0 | 0 | 2 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 1 | 219 | 53 | 13 | 483 | 0 | 161 | 0 | 30 | 0 | 0 | 2 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 488 | | | 277 | | | 770 | 768 | 256 | 768 | 794 | 493 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 488 | | | 277 | | | 770 | 768 | 256 | 768 | 794 | 493 |
| tC, single (s) | 4.1 | | | 4.2 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.3 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 99 | | | 47 | 100 | 96 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1081 | | | 1241 | | | 308 | 328 | 772 | 301 | 316 | 575 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 273 | 496 | 161 | 30 | 2 |
| Volume Left | 1 | 13 | 161 | 0 | 0 |
| Volume Right | 53 | 0 | 0 | 30 | 2 |
| cSH | 1081 | 1241 | 308 | 772 | 575 |
| Volume to Capacity | 0.00 | 0.01 | 0.53 | 0.04 | 0.00 |
| Queue Length 95th (ft) | 0 | 1 | 72 | 3 | 0 |
| Control Delay (s) | 0.0 | 0.3 | 28.9 | 9.9 | 11.3 |
| Lane LOS | A | A | D | A | B |
| Approach Delay (s) | 0.0 | 0.3 | 25.9 | | 11.3 |
| Approach LOS | | | D | | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 5.4 | | | |
| Intersection Capacity Utilization | 49.7% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 58 | 79 | 49 | 27 | 165 | 11 | 81 | 550 | 26 | 11 | 385 | 185 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1653 | | 1626 | 1851 | | 1719 | 1867 | | 1421 | 1751 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1653 | | 1626 | 1851 | | 1719 | 1867 | | 1421 | 1751 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 67 | 91 | 56 | 31 | 190 | 13 | 93 | 632 | 30 | 13 | 443 | 213 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 67 | 116 | 0 | 31 | 200 | 0 | 93 | 661 | 0 | 13 | 638 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 8% | 6% | 11% | 1% | 9% | 5% | 1% | 0% | 27% | 3% | 1% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 4.5 | 13.6 | | 3.5 | 12.6 | | 7.7 | 37.5 | | 1.2 | 31.0 | |
| Effective Green, g (s) | 4.5 | 13.6 | | 3.5 | 12.6 | | 7.7 | 37.5 | | 1.2 | 31.0 | |
| Actuated g/C Ratio | 0.06 | 0.19 | | 0.05 | 0.18 | | 0.11 | 0.52 | | 0.02 | 0.43 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 113 | 313 | | 79 | 325 | | 184 | 975 | | 24 | 756 | |
| v/s Ratio Prot | c0.04 | 0.07 | | 0.02 | c0.11 | | 0.05 | c0.35 | | 0.01 | c0.36 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.59 | 0.37 | | 0.39 | 0.61 | | 0.51 | 0.68 | | 0.54 | 0.84 | |
| Uniform Delay, d1 | 32.8 | 25.4 | | 33.1 | 27.4 | | 30.3 | 12.7 | | 35.0 | 18.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.1 | 0.7 | | 3.2 | 3.4 | | 2.2 | 1.9 | | 22.7 | 8.6 | |
| Delay (s) | 40.8 | 26.1 | | 36.3 | 30.8 | | 32.4 | 14.6 | | 57.7 | 26.8 | |
| Level of Service | D | C | | D | C | | C | B | | E | C | |
| Approach Delay (s) | | 30.7 | | | 31.5 | | | 16.8 | | | 27.4 | |
| Approach LOS | | C | | | C | | | B | | | C | |

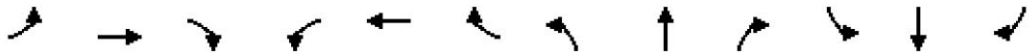
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 71.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 51 | 43 | 20 | 28 | 82 | 11 | 18 | 364 | 56 | 9 | 179 | 56 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 64 | 54 | 25 | 35 | 102 | 14 | 22 | 455 | 70 | 11 | 224 | 70 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 118 | 25 | 151 | 478 | 70 | 305 |
| Volume Left (vph) | 64 | 0 | 35 | 23 | 0 | 11 |
| Volume Right (vph) | 0 | 25 | 14 | 0 | 70 | 70 |
| Hadj (s) | 0.36 | -0.53 | 0.02 | 0.04 | -0.61 | -0.12 |
| Departure Headway (s) | 7.7 | 6.8 | 7.4 | 6.2 | 5.5 | 6.4 |
| Degree Utilization, x | 0.25 | 0.05 | 0.31 | 0.82 | 0.11 | 0.54 |
| Capacity (veh/h) | 429 | 479 | 449 | 574 | 637 | 530 |
| Control Delay (s) | 12.1 | 9.0 | 13.6 | 29.6 | 7.9 | 16.7 |
| Approach Delay (s) | 11.6 | | 13.6 | 26.9 | | 16.7 |
| Approach LOS | B | | B | D | | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 20.5 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 46.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

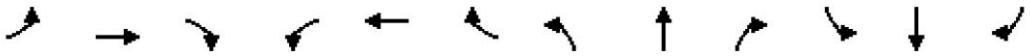


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 5 | 207 | 202 | 36 | 248 | 16 | 215 | 121 | 36 | 4 | 43 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 1.00 | |
| Satd. Flow (prot) | 1805 | 3235 | | 1752 | 1881 | 1482 | | 1805 | 1590 | | 1806 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 1.00 | |
| Satd. Flow (perm) | 1805 | 3235 | | 1752 | 1881 | 1482 | | 1805 | 1590 | | 1806 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 6 | 269 | 262 | 47 | 322 | 21 | 279 | 157 | 47 | 5 | 56 | 1 |
| RTOR Reduction (vph) | 0 | 182 | 0 | 0 | 0 | 15 | 0 | 0 | 31 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 6 | 349 | 0 | 47 | 322 | 6 | 0 | 436 | 16 | 0 | 61 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 3% | 1% | 3% | 1% | 6% | 2% | 2% | 0% | 0% | 5% | 0% |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.0 | 14.5 | | 6.0 | 19.5 | 19.5 | | 23.2 | 23.2 | | 8.6 | |
| Effective Green, g (s) | 1.0 | 14.5 | | 6.0 | 19.5 | 19.5 | | 23.2 | 23.2 | | 8.6 | |
| Actuated g/C Ratio | 0.01 | 0.21 | | 0.09 | 0.29 | 0.29 | | 0.34 | 0.34 | | 0.13 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 26 | 687 | | 154 | 537 | 423 | | 613 | 540 | | 227 | |
| v/s Ratio Prot | 0.00 | 0.11 | | c0.03 | c0.17 | | | c0.24 | | | c0.03 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.01 | | | |
| v/c Ratio | 0.23 | 0.51 | | 0.31 | 0.60 | 0.01 | | 0.71 | 0.03 | | 0.27 | |
| Uniform Delay, d1 | 33.3 | 23.8 | | 29.2 | 21.0 | 17.5 | | 19.6 | 15.0 | | 27.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 4.5 | 0.6 | | 1.1 | 1.8 | 0.0 | | 3.9 | 0.0 | | 0.6 | |
| Delay (s) | 37.8 | 24.3 | | 30.3 | 22.8 | 17.5 | | 23.5 | 15.1 | | 27.6 | |
| Level of Service | D | C | | C | C | B | | C | B | | C | |
| Approach Delay (s) | | 24.5 | | | 23.5 | | | 22.7 | | | 27.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 68.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 54.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 93 | 127 | 51 | 27 | 110 | 25 | 99 | 544 | 67 | 10 | 311 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1787 | 3354 | | 1736 | 3418 | | 1770 | 3539 | 1580 | 1641 | 4834 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1787 | 3354 | | 1736 | 3418 | | 1770 | 3539 | 1580 | 1641 | 4834 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 109 | 149 | 60 | 32 | 129 | 29 | 116 | 640 | 79 | 12 | 366 | 118 |
| RTOR Reduction (vph) | 0 | 50 | 0 | 0 | 26 | 0 | 0 | 0 | 39 | 0 | 65 | 0 |
| Lane Group Flow (vph) | 109 | 159 | 0 | 32 | 132 | 0 | 116 | 640 | 40 | 12 | 419 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 2% | 4% | 4% | 1% | 8% | 2% | 2% | 1% | 10% | 3% | 3% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 7.5 | 8.2 | | 5.3 | 6.0 | | 11.9 | 20.6 | 25.9 | 1.1 | 9.8 | |
| Effective Green, g (s) | 7.5 | 8.2 | | 5.3 | 6.0 | | 11.9 | 20.6 | 25.9 | 1.1 | 9.8 | |
| Actuated g/C Ratio | 0.15 | 0.16 | | 0.10 | 0.12 | | 0.23 | 0.40 | 0.51 | 0.02 | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 262 | 537 | | 180 | 401 | | 411 | 1424 | 923 | 35 | 925 | |
| v/s Ratio Prot | c0.06 | 0.05 | | 0.02 | c0.04 | | 0.07 | c0.18 | 0.00 | 0.01 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | |
| v/c Ratio | 0.42 | 0.30 | | 0.18 | 0.33 | | 0.28 | 0.45 | 0.04 | 0.34 | 0.45 | |
| Uniform Delay, d1 | 19.9 | 19.0 | | 21.0 | 20.8 | | 16.1 | 11.2 | 6.4 | 24.7 | 18.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.1 | 0.3 | | 0.5 | 0.5 | | 0.4 | 0.2 | 0.0 | 5.8 | 0.4 | |
| Delay (s) | 20.9 | 19.3 | | 21.4 | 21.2 | | 16.5 | 11.4 | 6.4 | 30.5 | 18.7 | |
| Level of Service | C | B | | C | C | | B | B | A | C | B | |
| Approach Delay (s) | | 19.8 | | | 21.3 | | | 11.6 | | | 19.0 | |
| Approach LOS | | B | | | C | | | B | | | B | |

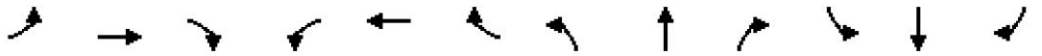
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 51.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 51.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 167 | 8 | 49 | 0 | 5 | 18 | 20 | 251 | 0 | 5 | 178 | 87 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Hourly flow rate (vph) | 229 | 11 | 67 | 0 | 7 | 25 | 27 | 344 | 0 | 7 | 244 | 119 |

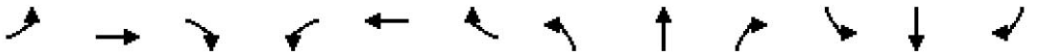
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 234 | 73 | 32 | 199 | 172 | 129 | 241 |
| Volume Left (vph) | 229 | 0 | 0 | 27 | 0 | 7 | 0 |
| Volume Right (vph) | 0 | 67 | 25 | 0 | 0 | 0 | 119 |
| Hadj (s) | 0.49 | -0.60 | -0.47 | 0.08 | 0.02 | 0.07 | -0.30 |
| Departure Headway (s) | 6.9 | 5.8 | 6.5 | 6.2 | 6.1 | 6.2 | 5.8 |
| Degree Utilization, x | 0.45 | 0.12 | 0.06 | 0.34 | 0.29 | 0.22 | 0.39 |
| Capacity (veh/h) | 494 | 577 | 494 | 556 | 560 | 550 | 590 |
| Control Delay (s) | 14.3 | 8.4 | 9.9 | 11.2 | 10.5 | 9.8 | 11.3 |
| Approach Delay (s) | 12.9 | | 9.9 | 10.9 | | 10.8 | |
| Approach LOS | B | | A | B | | B | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 11.4 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 43.2% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



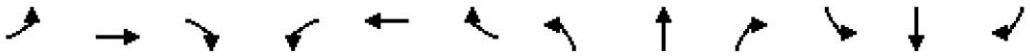
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 76 | 43 | 7 | 143 | 72 | 207 | 14 | 378 | 170 | 105 | 320 | 119 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1787 | 3528 | | 1787 | 3128 | | 1805 | 5036 | 1540 | 1752 | 4824 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1787 | 3528 | | 1787 | 3128 | | 1805 | 5036 | 1540 | 1752 | 4824 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 99 | 56 | 9 | 186 | 94 | 269 | 18 | 491 | 221 | 136 | 416 | 155 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 221 | 0 | 0 | 0 | 117 | 0 | 55 | 0 |
| Lane Group Flow (vph) | 99 | 57 | 0 | 186 | 142 | 0 | 18 | 491 | 104 | 136 | 516 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 0% | 0% | 1% | 3% | 1% | 0% | 3% | 4% | 3% | 3% | 2% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.7 | 5.1 | | 11.2 | 9.6 | | 1.2 | 13.9 | 25.1 | 7.2 | 19.9 | |
| Effective Green, g (s) | 6.7 | 5.1 | | 11.2 | 9.6 | | 1.2 | 13.9 | 25.1 | 7.2 | 19.9 | |
| Actuated g/C Ratio | 0.13 | 0.10 | | 0.21 | 0.18 | | 0.02 | 0.26 | 0.47 | 0.13 | 0.37 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 224 | 337 | | 375 | 562 | | 41 | 1311 | 839 | 236 | 1798 | |
| v/s Ratio Prot | 0.06 | 0.02 | | c0.10 | c0.05 | | 0.01 | c0.10 | 0.03 | c0.08 | 0.11 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | |
| v/c Ratio | 0.44 | 0.17 | | 0.50 | 0.25 | | 0.44 | 0.37 | 0.12 | 0.58 | 0.29 | |
| Uniform Delay, d1 | 21.6 | 22.2 | | 18.6 | 18.8 | | 25.8 | 16.2 | 8.0 | 21.7 | 11.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.4 | 0.2 | | 1.0 | 0.2 | | 7.3 | 0.2 | 0.1 | 3.4 | 0.1 | |
| Delay (s) | 23.0 | 22.4 | | 19.6 | 19.1 | | 33.1 | 16.4 | 8.0 | 25.1 | 11.9 | |
| Level of Service | C | C | | B | B | | C | B | A | C | B | |
| Approach Delay (s) | | 22.8 | | | 19.3 | | | 14.3 | | | 14.4 | |
| Approach LOS | | C | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 53.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 49.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



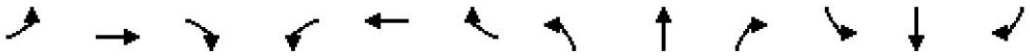
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 71 | 164 | 93 | 124 | 385 | 32 | 66 | 376 | 82 | 35 | 541 | 218 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3471 | 1583 | 1752 | 3460 | | 1719 | 3505 | 1530 | 1805 | 3539 | 1544 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3471 | 1583 | 1752 | 3460 | | 1719 | 3505 | 1530 | 1805 | 3539 | 1544 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 74 | 171 | 97 | 129 | 401 | 33 | 69 | 392 | 85 | 36 | 564 | 227 |
| RTOR Reduction (vph) | 0 | 0 | 75 | 0 | 7 | 0 | 0 | 0 | 26 | 0 | 0 | 88 |
| Lane Group Flow (vph) | 74 | 171 | 22 | 129 | 427 | 0 | 69 | 392 | 59 | 36 | 564 | 139 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 4% | 1% | 3% | 3% | 3% | 5% | 3% | 4% | 0% | 2% | 3% |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.1 | 16.6 | 27.3 | 13.3 | 20.8 | | 10.7 | 69.9 | 83.2 | 4.2 | 63.4 | 72.5 |
| Effective Green, g (s) | 9.1 | 16.6 | 27.3 | 13.3 | 20.8 | | 10.7 | 69.9 | 83.2 | 4.2 | 63.4 | 72.5 |
| Actuated g/C Ratio | 0.08 | 0.14 | 0.23 | 0.11 | 0.17 | | 0.09 | 0.58 | 0.69 | 0.04 | 0.53 | 0.60 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 137 | 480 | 360 | 194 | 600 | | 153 | 2042 | 1061 | 63 | 1870 | 933 |
| v/s Ratio Prot | 0.04 | 0.05 | 0.01 | c0.07 | c0.12 | | c0.04 | 0.11 | 0.01 | 0.02 | c0.16 | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.03 | | | 0.08 |
| v/c Ratio | 0.54 | 0.36 | 0.06 | 0.66 | 0.71 | | 0.45 | 0.19 | 0.06 | 0.57 | 0.30 | 0.15 |
| Uniform Delay, d1 | 53.4 | 46.9 | 36.3 | 51.2 | 46.8 | | 51.9 | 11.8 | 5.9 | 57.0 | 15.9 | 10.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.92 | 0.88 | 0.65 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.3 | 0.5 | 0.1 | 8.3 | 4.0 | | 2.1 | 0.2 | 0.0 | 11.9 | 0.4 | 0.1 |
| Delay (s) | 57.7 | 47.3 | 36.4 | 59.5 | 50.8 | | 49.8 | 10.6 | 3.9 | 68.9 | 16.3 | 10.4 |
| Level of Service | E | D | D | E | D | | D | B | A | E | B | B |
| Approach Delay (s) | | 46.5 | | | 52.8 | | | 14.5 | | | 17.0 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



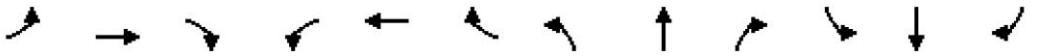
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 216 | 3 | 115 | 260 | 536 | 0 | 0 | 561 | 293 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1811 | 1572 | 1787 | 3610 | | | 3333 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1811 | 1572 | 1787 | 3610 | | | 3333 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 0 | 0 | 225 | 3 | 120 | 271 | 558 | 0 | 0 | 584 | 305 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 41 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 228 | 76 | 271 | 558 | 0 | 0 | 848 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 1% | 1% | 0% | 0% | 0% | 1% | 4% |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 20.6 | 20.6 | 23.3 | 91.4 | | | 64.1 | |
| Effective Green, g (s) | | | | | 20.6 | 20.6 | 23.3 | 91.4 | | | 64.1 | |
| Actuated g/C Ratio | | | | | 0.17 | 0.17 | 0.19 | 0.76 | | | 0.53 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 311 | 270 | 347 | 2750 | | | 1780 | |
| v/s Ratio Prot | | | | | c0.13 | | c0.15 | 0.15 | | | c0.25 | |
| v/s Ratio Perm | | | | | | 0.05 | | | | | | |
| v/c Ratio | | | | | 0.73 | 0.28 | 0.78 | 0.20 | | | 0.48 | |
| Uniform Delay, d1 | | | | | 47.1 | 43.3 | 45.9 | 4.0 | | | 17.5 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.66 | |
| Incremental Delay, d2 | | | | | 8.6 | 0.6 | 10.9 | 0.2 | | | 0.9 | |
| Delay (s) | | | | | 55.7 | 43.8 | 56.8 | 4.2 | | | 12.4 | |
| Level of Service | | | | | E | D | E | A | | | B | |
| Approach Delay (s) | | 0.0 | | | 51.6 | | | 21.4 | | | 12.4 | |
| Approach LOS | | A | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 252 | 0 | 325 | 0 | 0 | 0 | 0 | 511 | 97 | 132 | 702 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.98 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1681 | 1681 | 1531 | | | | | 4895 | | 1805 | 3505 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1681 | 1681 | 1531 | | | | | 4895 | | 1805 | 3505 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 277 | 0 | 357 | 0 | 0 | 0 | 0 | 562 | 107 | 145 | 771 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 77 | 0 | 0 | 0 | 0 | 36 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 138 | 139 | 280 | 0 | 0 | 0 | 0 | 633 | 0 | 145 | 771 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Heavy Vehicles (%) | 2% | 0% | 4% | 0% | 0% | 0% | 0% | 3% | 3% | 0% | 3% | 0% |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 16.0 | 16.0 | 16.0 | | | | | 14.1 | | 6.8 | 24.9 | |
| Effective Green, g (s) | 16.0 | 16.0 | 16.0 | | | | | 14.1 | | 6.8 | 24.9 | |
| Actuated g/C Ratio | 0.33 | 0.33 | 0.33 | | | | | 0.29 | | 0.14 | 0.51 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 550 | 550 | 501 | | | | | 1411 | | 251 | 1785 | |
| v/s Ratio Prot | 0.08 | 0.08 | | | | | | 0.13 | | c0.08 | c0.22 | |
| v/s Ratio Perm | | | c0.18 | | | | | | | | | |
| v/c Ratio | 0.25 | 0.25 | 0.56 | | | | | 0.45 | | 0.58 | 0.43 | |
| Uniform Delay, d1 | 12.1 | 12.1 | 13.5 | | | | | 14.2 | | 19.7 | 7.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.2 | 1.4 | | | | | 0.2 | | 3.2 | 0.2 | |
| Delay (s) | 12.3 | 12.3 | 14.9 | | | | | 14.4 | | 22.9 | 7.7 | |
| Level of Service | B | B | B | | | | | B | | C | A | |
| Approach Delay (s) | | 13.8 | | | 0.0 | | | 14.4 | | | 10.1 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 48.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

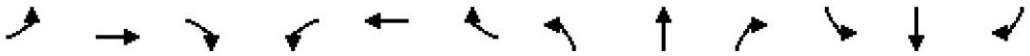


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 265 | 172 | 315 | 13 | 57 | 469 | 84 | 799 | 73 | 213 | 533 | 68 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.87 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3335 | 3574 | 1476 | 1805 | 3100 | | 1687 | 4887 | | 3433 | 3505 | 1594 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3335 | 3574 | 1476 | 1805 | 3100 | | 1687 | 4887 | | 3433 | 3505 | 1594 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 288 | 187 | 342 | 14 | 62 | 510 | 91 | 868 | 79 | 232 | 579 | 74 |
| RTOR Reduction (vph) | 0 | 0 | 137 | 0 | 202 | 0 | 0 | 8 | 0 | 0 | 0 | 31 |
| Lane Group Flow (vph) | 288 | 187 | 205 | 14 | 370 | 0 | 91 | 939 | 0 | 232 | 579 | 43 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Heavy Vehicles (%) | 5% | 1% | 8% | 0% | 0% | 1% | 7% | 4% | 12% | 2% | 3% | 0% |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 15.2 | 34.6 | 46.1 | 2.8 | 22.2 | | 11.5 | 54.0 | | 12.6 | 55.1 | 70.3 |
| Effective Green, g (s) | 15.2 | 34.6 | 46.1 | 2.8 | 22.2 | | 11.5 | 54.0 | | 12.6 | 55.1 | 70.3 |
| Actuated g/C Ratio | 0.13 | 0.29 | 0.38 | 0.02 | 0.18 | | 0.10 | 0.45 | | 0.10 | 0.46 | 0.59 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 422 | 1031 | 616 | 42 | 574 | | 162 | 2199 | | 360 | 1609 | 987 |
| v/s Ratio Prot | c0.09 | 0.05 | 0.03 | 0.01 | c0.12 | | 0.05 | c0.19 | | c0.07 | 0.17 | 0.01 |
| v/s Ratio Perm | | | 0.11 | | | | | | | | | 0.02 |
| v/c Ratio | 0.68 | 0.18 | 0.33 | 0.33 | 1.08dr | | 0.56 | 0.43 | | 0.64 | 0.36 | 0.04 |
| Uniform Delay, d1 | 50.1 | 32.1 | 26.1 | 57.7 | 45.2 | | 51.8 | 22.5 | | 51.5 | 21.0 | 10.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.24 | 0.47 | | 1.37 | 0.37 | 0.03 |
| Incremental Delay, d2 | 4.5 | 0.1 | 0.3 | 4.6 | 2.5 | | 4.1 | 0.6 | | 3.3 | 0.5 | 0.0 |
| Delay (s) | 54.6 | 32.2 | 26.4 | 62.3 | 47.7 | | 68.4 | 11.2 | | 73.9 | 8.3 | 0.4 |
| Level of Service | D | C | C | E | D | | E | B | | E | A | A |
| Approach Delay (s) | | 37.7 | | | 48.1 | | | 16.2 | | | 24.8 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 75.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

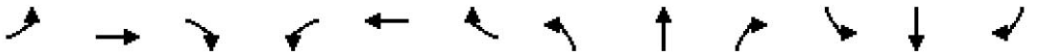
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 110 | 5 | 119 | 595 | 1039 | 0 | 0 | 786 | 390 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | | 0.97 | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.93 | | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1687 | | 3433 | 3505 | | | 4784 | |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1687 | | 3433 | 3505 | | | 4784 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 0 | 0 | 115 | 5 | 124 | 620 | 1082 | 0 | 0 | 819 | 406 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 66 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 210 | 0 | 620 | 1082 | 0 | 0 | 1159 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 1% | 20% | 1% | 2% | 3% | 0% | 0% | 2% | 3% |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 20.0 | | 34.0 | 92.0 | | | 54.0 | |
| Effective Green, g (s) | | | | | 20.0 | | 34.0 | 92.0 | | | 54.0 | |
| Actuated g/C Ratio | | | | | 0.17 | | 0.28 | 0.77 | | | 0.45 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 281 | | 973 | 2687 | | | 2153 | |
| v/s Ratio Prot | | | | | c0.12 | | c0.18 | 0.31 | | | c0.24 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.75 | | 0.64 | 0.40 | | | 0.54 | |
| Uniform Delay, d1 | | | | | 47.6 | | 37.6 | 4.7 | | | 24.0 | |
| Progression Factor | | | | | 1.00 | | 0.92 | 0.50 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 10.3 | | 1.2 | 0.4 | | | 1.0 | |
| Delay (s) | | | | | 57.9 | | 35.9 | 2.7 | | | 24.9 | |
| Level of Service | | | | | E | | D | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 57.9 | | | 14.8 | | | 24.9 | |
| Approach LOS | | A | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 17 | 74 | 37 | 55 | 140 | 156 | 48 | 837 | 34 | 117 | 819 | 14 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1612 | 1881 | 1512 | 1770 | 1863 | 1556 | 1805 | 3505 | 1479 | 1752 | 3471 | 1463 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1612 | 1881 | 1512 | 1770 | 1863 | 1556 | 1805 | 3505 | 1479 | 1752 | 3471 | 1463 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 19 | 82 | 41 | 61 | 156 | 173 | 53 | 930 | 38 | 130 | 910 | 16 |
| RTOR Reduction (vph) | 0 | 0 | 36 | 0 | 0 | 146 | 0 | 0 | 8 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 19 | 82 | 5 | 61 | 156 | 27 | 53 | 930 | 30 | 130 | 910 | 13 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 12% | 1% | 5% | 2% | 2% | 2% | 0% | 3% | 6% | 3% | 4% | 7% |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 2.8 | 14.5 | 14.5 | 7.0 | 18.7 | 18.7 | 7.2 | 68.4 | 68.4 | 14.1 | 75.3 | 75.3 |
| Effective Green, g (s) | 2.8 | 14.5 | 14.5 | 7.0 | 18.7 | 18.7 | 7.2 | 68.4 | 68.4 | 14.1 | 75.3 | 75.3 |
| Actuated g/C Ratio | 0.02 | 0.12 | 0.12 | 0.06 | 0.16 | 0.16 | 0.06 | 0.57 | 0.57 | 0.12 | 0.63 | 0.63 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 38 | 227 | 183 | 103 | 290 | 242 | 108 | 1998 | 843 | 206 | 2178 | 918 |
| v/s Ratio Prot | 0.01 | 0.04 | | c0.03 | c0.08 | | 0.03 | c0.27 | | c0.07 | 0.26 | |
| v/s Ratio Perm | | | 0.00 | | | 0.02 | | | 0.02 | | | 0.01 |
| v/c Ratio | 0.50 | 0.36 | 0.03 | 0.59 | 0.54 | 0.11 | 0.49 | 0.47 | 0.04 | 0.63 | 0.42 | 0.01 |
| Uniform Delay, d1 | 57.9 | 48.5 | 46.5 | 55.1 | 46.7 | 43.5 | 54.6 | 15.1 | 11.3 | 50.5 | 11.3 | 8.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.18 | 0.56 | 0.54 |
| Incremental Delay, d2 | 10.0 | 1.0 | 0.1 | 8.8 | 1.9 | 0.2 | 3.5 | 0.8 | 0.1 | 5.9 | 0.6 | 0.0 |
| Delay (s) | 67.9 | 49.5 | 46.6 | 63.9 | 48.6 | 43.7 | 58.1 | 15.9 | 11.4 | 65.3 | 6.9 | 4.5 |
| Level of Service | E | D | D | E | D | D | E | B | B | E | A | A |
| Approach Delay (s) | | 51.1 | | | 48.8 | | | 17.9 | | | 14.1 | |
| Approach LOS | | D | | | D | | | B | | | B | |

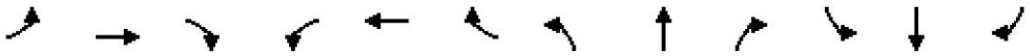
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 58.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 2 | 5 | 63 | 3 | 1 | 35 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 2 | 6 | 76 | 4 | 1 | 42 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 8 | | 166 | 10 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 8 | | 166 | 10 |
| tC, single (s) | | | 4.2 | | 6.4 | 6.3 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.3 | | 3.5 | 3.4 |
| p0 queue free % | | | 95 | | 100 | 96 |
| cM capacity (veh/h) | | | 1586 | | 786 | 1046 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 8 | 80 | 1 | 42 |
| Volume Left | 0 | 76 | 1 | 0 |
| Volume Right | 6 | 0 | 0 | 42 |
| cSH | 1700 | 1586 | 786 | 1046 |
| Volume to Capacity | 0.00 | 0.05 | 0.00 | 0.04 |
| Queue Length 95th (ft) | 0 | 4 | 0 | 3 |
| Control Delay (s) | 0.0 | 7.1 | 9.6 | 8.6 |
| Lane LOS | | A | A | A |
| Approach Delay (s) | 0.0 | 7.1 | 8.6 | |
| Approach LOS | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.1 | | |
| Intersection Capacity Utilization | 20.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



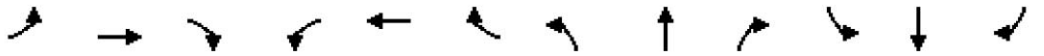
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 16 | 142 | 135 | 179 | 111 | 7 | 80 | 45 | 140 | 10 | 100 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.98 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.99 | | | 0.93 | | | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1724 | | 1805 | 1861 | | | 1693 | | | 1831 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1724 | | 1805 | 1861 | | | 1693 | | | 1831 | |
| Peak-hour factor, PHF | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| Adj. Flow (vph) | 23 | 200 | 190 | 252 | 156 | 10 | 113 | 63 | 197 | 14 | 141 | 38 |
| RTOR Reduction (vph) | 0 | 27 | 0 | 0 | 2 | 0 | 0 | 34 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 23 | 363 | 0 | 252 | 164 | 0 | 0 | 339 | 0 | 0 | 185 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 1% | 0% | 1% | 0% | 0% | 2% | 1% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 4.4 | 38.0 | | 22.6 | 56.2 | | | 26.4 | | | 17.0 | |
| Effective Green, g (s) | 4.4 | 38.0 | | 22.6 | 56.2 | | | 26.4 | | | 17.0 | |
| Actuated g/C Ratio | 0.04 | 0.32 | | 0.19 | 0.47 | | | 0.22 | | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 66 | 546 | | 340 | 872 | | | 372 | | | 259 | |
| v/s Ratio Prot | 0.01 | c0.21 | | c0.14 | 0.09 | | | c0.20 | | | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.35 | 0.67 | | 0.74 | 0.19 | | | 0.91 | | | 0.72 | |
| Uniform Delay, d1 | 56.4 | 35.5 | | 45.9 | 18.6 | | | 45.6 | | | 49.2 | |
| Progression Factor | 1.00 | 1.00 | | 0.87 | 0.78 | | | 1.00 | | | 1.01 | |
| Incremental Delay, d2 | 3.2 | 6.3 | | 8.4 | 0.5 | | | 25.7 | | | 9.0 | |
| Delay (s) | 59.6 | 41.8 | | 48.4 | 14.9 | | | 71.4 | | | 58.6 | |
| Level of Service | E | D | | D | B | | | E | | | E | |
| Approach Delay (s) | | 42.8 | | | 35.1 | | | 71.4 | | | 58.6 | |
| Approach LOS | | D | | | D | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 50.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 66.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# HCM Signalized Intersection Capacity Analysis
## 37: SR-60 EB Ramps & Moreno Beach Dr

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 78 | 54 | 498 | 10 | 2 | 14 | 101 | 772 | 20 | 21 | 330 | 25 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1610 | | 1641 | 1267 | 1590 | 1687 | 3574 | 1496 | 1805 | 5108 | |
| Flt Permitted | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1610 | | 1641 | 1267 | 1590 | 1687 | 3574 | 1496 | 1805 | 5108 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 92 | 64 | 586 | 12 | 2 | 16 | 119 | 908 | 24 | 25 | 388 | 29 |
| RTOR Reduction (vph) | 0 | 94 | 0 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 0 | 648 | 0 | 12 | 2 | 1 | 119 | 908 | 9 | 25 | 411 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 2% | 4% | 10% | 50% | 0% | 7% | 1% | 5% | 0% | 0% | 4% |
| Turn Type | Split | | | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 35.5 | | 3.9 | 3.9 | 3.9 | 11.2 | 28.4 | 28.4 | 2.5 | 19.7 | |
| Effective Green, g (s) | | 35.5 | | 3.9 | 3.9 | 3.9 | 11.2 | 28.4 | 28.4 | 2.5 | 19.7 | |
| Actuated g/C Ratio | | 0.41 | | 0.05 | 0.05 | 0.05 | 0.13 | 0.33 | 0.33 | 0.03 | 0.23 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 662 | | 74 | 57 | 72 | 219 | 1176 | 492 | 52 | 1166 | |
| v/s Ratio Prot | | c0.40 | | c0.01 | 0.00 | | c0.07 | c0.25 | | 0.01 | 0.08 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.01 | | | |
| v/c Ratio | | 0.98 | | 0.16 | 0.04 | 0.01 | 0.54 | 0.77 | 0.02 | 0.48 | 0.35 | |
| Uniform Delay, d1 | | 25.0 | | 39.6 | 39.4 | 39.4 | 35.2 | 26.0 | 19.5 | 41.3 | 27.9 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 29.5 | | 1.0 | 0.3 | 0.1 | 2.7 | 3.2 | 0.0 | 6.9 | 0.2 | |
| Delay (s) | | 54.5 | | 40.7 | 39.7 | 39.4 | 37.9 | 29.2 | 19.6 | 48.1 | 28.1 | |
| Level of Service | | D | | D | D | D | D | C | B | D | C | |
| Approach Delay (s) | | 54.5 | | | 39.9 | | | 30.0 | | | 29.3 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 86.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

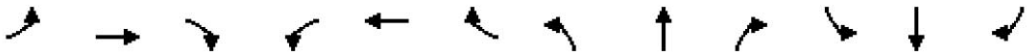


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 62 | 307 | 69 | 130 | 321 | 59 | 174 | 588 | 174 | 179 | 357 | 35 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3475 | | 1770 | 3471 | | 1787 | 3438 | 1511 | 1787 | 3471 | 1540 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3475 | | 1770 | 3471 | | 1787 | 3438 | 1511 | 1787 | 3471 | 1540 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 71 | 353 | 79 | 149 | 369 | 68 | 200 | 676 | 200 | 206 | 410 | 40 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 15 | 0 | 0 | 0 | 116 | 0 | 0 | 23 |
| Lane Group Flow (vph) | 71 | 413 | 0 | 149 | 422 | 0 | 200 | 676 | 84 | 206 | 410 | 17 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 2% | 1% | 3% | 1% | 5% | 5% | 1% | 4% | 3% |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.7 | 20.8 | | 13.6 | 26.7 | | 18.6 | 50.6 | 50.6 | 19.0 | 51.0 | 51.0 |
| Effective Green, g (s) | 7.7 | 20.8 | | 13.6 | 26.7 | | 18.6 | 50.6 | 50.6 | 19.0 | 51.0 | 51.0 |
| Actuated g/C Ratio | 0.06 | 0.17 | | 0.11 | 0.22 | | 0.16 | 0.42 | 0.42 | 0.16 | 0.42 | 0.42 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 116 | 602 | | 201 | 772 | | 277 | 1450 | 637 | 283 | 1475 | 655 |
| v/s Ratio Prot | 0.04 | c0.12 | | c0.08 | 0.12 | | 0.11 | c0.20 | | c0.12 | 0.12 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | 0.01 |
| v/c Ratio | 0.61 | 0.69 | | 0.74 | 0.55 | | 0.72 | 0.47 | 0.13 | 0.73 | 0.28 | 0.03 |
| Uniform Delay, d1 | 54.7 | 46.5 | | 51.5 | 41.3 | | 48.2 | 25.0 | 21.3 | 48.0 | 22.5 | 20.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.59 | 0.90 | 1.22 |
| Incremental Delay, d2 | 9.2 | 3.2 | | 13.7 | 0.8 | | 8.9 | 1.1 | 0.4 | 7.4 | 0.4 | 0.1 |
| Delay (s) | 63.9 | 49.8 | | 65.2 | 42.1 | | 57.2 | 26.1 | 21.7 | 36.0 | 20.6 | 24.4 |
| Level of Service | E | D | | E | D | | E | C | C | D | C | C |
| Approach Delay (s) | | 51.8 | | | 48.0 | | | 31.0 | | | 25.7 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 68 | 333 | 99 | 196 | 515 | 131 | 221 | 430 | 168 | 160 | 254 | 47 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1736 | 3407 | | 1703 | 3393 | | 1752 | 4988 | 1511 | 1719 | 4832 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1736 | 3407 | | 1703 | 3393 | | 1752 | 4988 | 1511 | 1719 | 4832 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 79 | 387 | 115 | 228 | 599 | 152 | 257 | 500 | 195 | 186 | 295 | 55 |
| RTOR Reduction (vph) | 0 | 26 | 0 | 0 | 21 | 0 | 0 | 0 | 125 | 0 | 21 | 0 |
| Lane Group Flow (vph) | 79 | 476 | 0 | 228 | 730 | 0 | 257 | 500 | 70 | 186 | 329 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 4% | 1% | 5% | 6% | 2% | 6% | 3% | 4% | 5% | 5% | 5% | 2% |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.8 | 26.5 | | 17.0 | 34.7 | | 23.3 | 42.8 | 42.8 | 17.7 | 37.2 | |
| Effective Green, g (s) | 8.8 | 26.5 | | 17.0 | 34.7 | | 23.3 | 42.8 | 42.8 | 17.7 | 37.2 | |
| Actuated g/C Ratio | 0.07 | 0.22 | | 0.14 | 0.29 | | 0.19 | 0.36 | 0.36 | 0.15 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 127 | 752 | | 241 | 981 | | 340 | 1779 | 539 | 254 | 1498 | |
| v/s Ratio Prot | 0.05 | 0.14 | | c0.13 | c0.22 | | c0.15 | c0.10 | | 0.11 | 0.07 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.62 | 0.63 | | 0.95 | 0.74 | | 0.76 | 0.28 | 0.13 | 0.73 | 0.22 | |
| Uniform Delay, d1 | 54.0 | 42.3 | | 51.0 | 38.6 | | 45.7 | 27.6 | 26.0 | 48.9 | 30.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.93 | 0.57 | 0.70 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.1 | 1.8 | | 42.8 | 3.1 | | 8.5 | 0.4 | 0.5 | 10.4 | 0.3 | |
| Delay (s) | 63.1 | 44.1 | | 93.9 | 41.7 | | 50.9 | 16.0 | 18.5 | 59.3 | 31.0 | |
| Level of Service | E | D | | F | D | | D | B | B | E | C | |
| Approach Delay (s) | | 46.7 | | | 53.9 | | | 25.9 | | | 40.8 | |
| Approach LOS | | D | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 73 | 541 | 64 | 107 | 548 | 54 | 132 | 174 | 85 | 46 | 162 | 105 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1787 | 3485 | | 1787 | 3574 | 1491 | 1770 | 3404 | | 1736 | 3330 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1787 | 3485 | | 1787 | 3574 | 1491 | 1770 | 3404 | | 1736 | 3330 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 85 | 629 | 74 | 124 | 637 | 63 | 153 | 202 | 99 | 53 | 188 | 122 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 37 | 0 | 60 | 0 | 0 | 101 | 0 |
| Lane Group Flow (vph) | 85 | 696 | 0 | 124 | 637 | 26 | 153 | 241 | 0 | 53 | 209 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 2% | 0% | 1% | 1% | 7% | 2% | 0% | 1% | 4% | 1% | 2% |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 7.2 | 21.4 | | 8.6 | 22.8 | 28.8 | 12.5 | 18.5 | | 6.0 | 12.0 | |
| Effective Green, g (s) | 7.2 | 21.4 | | 8.6 | 22.8 | 28.8 | 12.5 | 18.5 | | 6.0 | 12.0 | |
| Actuated g/C Ratio | 0.10 | 0.30 | | 0.12 | 0.32 | 0.41 | 0.18 | 0.26 | | 0.09 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 183 | 1058 | | 218 | 1156 | 694 | 314 | 893 | | 148 | 567 | |
| v/s Ratio Prot | 0.05 | c0.20 | | c0.07 | 0.18 | 0.00 | c0.09 | 0.07 | | 0.03 | c0.06 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | |
| v/c Ratio | 0.46 | 0.66 | | 0.57 | 0.55 | 0.04 | 0.49 | 0.27 | | 0.36 | 0.37 | |
| Uniform Delay, d1 | 29.8 | 21.4 | | 29.2 | 19.6 | 12.5 | 26.1 | 20.6 | | 30.4 | 25.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.9 | 1.5 | | 3.4 | 0.6 | 0.0 | 1.2 | 0.2 | | 1.5 | 0.4 | |
| Delay (s) | 31.7 | 22.9 | | 32.6 | 20.2 | 12.5 | 27.3 | 20.8 | | 31.9 | 26.3 | |
| Level of Service | C | C | | C | C | B | C | C | | C | C | |
| Approach Delay (s) | | 23.8 | | | 21.5 | | | 23.0 | | | 27.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

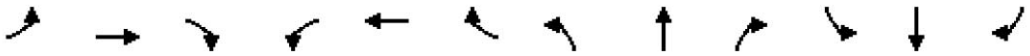
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 70.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 55.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 136 | 311 | 299 | 426 | 419 | 117 | 316 | 446 | 333 | 114 | 454 | 75 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 4700 | | 3467 | 4913 | | 3467 | 3574 | 1586 | 3400 | 3490 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 4700 | | 3467 | 4913 | | 3467 | 3574 | 1586 | 3400 | 3490 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 148 | 338 | 325 | 463 | 455 | 127 | 343 | 485 | 362 | 124 | 493 | 82 |
| RTOR Reduction (vph) | 0 | 169 | 0 | 0 | 46 | 0 | 0 | 0 | 107 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 148 | 494 | 0 | 463 | 536 | 0 | 343 | 485 | 255 | 124 | 562 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 2% | 1% | 2% | 1% | 1% | 1% | 1% | 3% | 1% | 1% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.3 | 14.0 | | 15.1 | 20.8 | | 11.1 | 21.1 | 36.2 | 7.7 | 17.7 | |
| Effective Green, g (s) | 8.3 | 14.0 | | 15.1 | 20.8 | | 11.1 | 21.1 | 36.2 | 7.7 | 17.7 | |
| Actuated g/C Ratio | 0.11 | 0.19 | | 0.20 | 0.28 | | 0.15 | 0.29 | 0.49 | 0.10 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 393 | 890 | | 708 | 1383 | | 521 | 1020 | 863 | 354 | 836 | |
| v/s Ratio Prot | 0.04 | c0.11 | | c0.13 | 0.11 | | c0.10 | c0.14 | 0.06 | 0.04 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.10 | | | |
| v/c Ratio | 0.38 | 0.56 | | 0.65 | 0.39 | | 0.66 | 0.48 | 0.30 | 0.35 | 0.67 | |
| Uniform Delay, d1 | 30.4 | 27.1 | | 27.0 | 21.4 | | 29.6 | 21.8 | 11.2 | 30.8 | 25.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.6 | 0.8 | | 2.2 | 0.2 | | 3.0 | 0.4 | 0.2 | 0.6 | 2.1 | |
| Delay (s) | 31.0 | 27.9 | | 29.2 | 21.6 | | 32.6 | 22.2 | 11.4 | 31.4 | 27.6 | |
| Level of Service | C | C | | C | C | | C | C | B | C | C | |
| Approach Delay (s) | | 28.5 | | | 25.0 | | | 21.9 | | | 28.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 73.9 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 159 | 453 | 12 | 20 | 523 | 6 | 42 | 94 | 40 | 3 | 30 | 124 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.97 | | | 0.89 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 5163 | | 1719 | 5126 | | | 1772 | | | 1641 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1787 | 5163 | | 1719 | 5126 | | | 1772 | | | 1641 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 181 | 515 | 14 | 23 | 594 | 7 | 48 | 107 | 45 | 3 | 34 | 141 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 121 | 0 |
| Lane Group Flow (vph) | 181 | 527 | 0 | 23 | 600 | 0 | 0 | 190 | 0 | 0 | 57 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 0% | 0% | 5% | 1% | 0% | 5% | 1% | 3% | 0% | 3% | 2% |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.2 | 22.5 | | 1.1 | 16.4 | | | 12.0 | | | 8.4 | |
| Effective Green, g (s) | 7.2 | 22.5 | | 1.1 | 16.4 | | | 12.0 | | | 8.4 | |
| Actuated g/C Ratio | 0.12 | 0.38 | | 0.02 | 0.27 | | | 0.20 | | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 214 | 1936 | | 32 | 1401 | | | 354 | | | 230 | |
| v/s Ratio Prot | c0.10 | 0.10 | | 0.01 | c0.12 | | | c0.11 | | | c0.03 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.85 | 0.27 | | 0.72 | 0.43 | | | 0.54 | | | 0.25 | |
| Uniform Delay, d1 | 25.9 | 13.1 | | 29.3 | 17.9 | | | 21.5 | | | 23.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 25.2 | 0.1 | | 55.4 | 0.2 | | | 1.6 | | | 0.6 | |
| Delay (s) | 51.0 | 13.1 | | 84.7 | 18.2 | | | 23.1 | | | 23.5 | |
| Level of Service | D | B | | F | B | | | C | | | C | |
| Approach Delay (s) | | 22.8 | | | 20.6 | | | 23.1 | | | 23.5 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 59.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



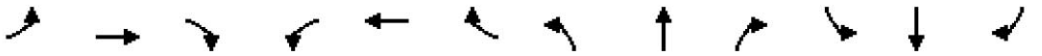
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 11 | 451 | 5 | 16 | 520 | 6 | 13 | 0 | 31 | 19 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 0.85 | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5178 | | 1805 | 5177 | | 1805 | | 1615 | 1805 | 1593 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5178 | | 1805 | 5177 | | 1805 | | 1615 | 1805 | 1593 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 13 | 550 | 6 | 20 | 634 | 7 | 16 | 0 | 38 | 23 | 0 | 24 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 24 | 0 |
| Lane Group Flow (vph) | 13 | 556 | 0 | 20 | 641 | 0 | 16 | 0 | 2 | 23 | 0 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.8 | 20.4 | | 2.5 | 22.1 | | 0.8 | | 2.5 | 5.6 | 0.8 | |
| Effective Green, g (s) | 0.8 | 20.4 | | 2.5 | 22.1 | | 0.8 | | 2.5 | 5.6 | 0.8 | |
| Actuated g/C Ratio | 0.02 | 0.50 | | 0.06 | 0.55 | | 0.02 | | 0.06 | 0.14 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 36 | 2608 | | 111 | 2825 | | 36 | | 100 | 250 | 31 | |
| v/s Ratio Prot | 0.01 | 0.11 | | c0.01 | c0.12 | | c0.01 | | 0.00 | c0.01 | 0.00 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.36 | 0.21 | | 0.18 | 0.23 | | 0.44 | | 0.02 | 0.09 | 0.02 | |
| Uniform Delay, d1 | 19.6 | 5.6 | | 18.0 | 4.8 | | 19.6 | | 17.9 | 15.2 | 19.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 6.1 | 0.0 | | 0.8 | 0.0 | | 8.5 | | 0.1 | 0.2 | 0.2 | |
| Delay (s) | 25.7 | 5.6 | | 18.8 | 4.8 | | 28.1 | | 17.9 | 15.4 | 19.7 | |
| Level of Service | C | A | | B | A | | C | | B | B | B | |
| Approach Delay (s) | | 6.1 | | | 5.2 | | | 21.0 | | | 17.6 | |
| Approach LOS | | A | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.19 | | |
| Actuated Cycle Length (s) | 40.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 34.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 160 | 55 | 153 | 186 | 137 | 40 | 608 | 190 | 77 | 415 | 12 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1794 | | 1687 | 1881 | 1556 | 1719 | 3341 | | 1752 | 1776 | 1555 |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1794 | | 1687 | 1881 | 1556 | 1719 | 3341 | | 1752 | 1776 | 1555 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 170 | 59 | 163 | 198 | 146 | 43 | 647 | 202 | 82 | 441 | 13 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 123 | 0 | 20 | 0 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 0 | 240 | 0 | 163 | 198 | 23 | 43 | 829 | 0 | 82 | 441 | 6 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 7% | 1% | 2% | 5% | 4% | 3% | 3% | 7% | 0% |
| Turn Type | Split | | | Split | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | 21.2 | | 18.8 | 18.8 | 18.8 | 7.3 | 53.0 | | 11.0 | 56.7 | 56.7 |
| Effective Green, g (s) | | 21.2 | | 18.8 | 18.8 | 18.8 | 7.3 | 53.0 | | 11.0 | 56.7 | 56.7 |
| Actuated g/C Ratio | | 0.18 | | 0.16 | 0.16 | 0.16 | 0.06 | 0.44 | | 0.09 | 0.47 | 0.47 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 317 | | 264 | 295 | 244 | 105 | 1476 | | 161 | 839 | 735 |
| v/s Ratio Prot | | c0.13 | | 0.10 | c0.11 | | 0.03 | c0.25 | | c0.05 | c0.25 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | 0.00 |
| v/c Ratio | | 0.76 | | 0.62 | 0.67 | 0.09 | 0.41 | 0.56 | | 0.51 | 0.53 | 0.01 |
| Uniform Delay, d1 | | 47.0 | | 47.2 | 47.7 | 43.3 | 54.3 | 24.9 | | 51.9 | 22.2 | 16.8 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.01 | 0.57 | 0.59 |
| Incremental Delay, d2 | | 9.9 | | 4.3 | 5.9 | 0.2 | 2.6 | 1.6 | | 2.2 | 2.0 | 0.0 |
| Delay (s) | | 56.9 | | 51.5 | 53.6 | 43.5 | 56.9 | 26.4 | | 54.7 | 14.7 | 9.8 |
| Level of Service | | E | | D | D | D | E | C | | D | B | A |
| Approach Delay (s) | | 56.9 | | | 50.0 | | | 27.9 | | | 20.7 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 72.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

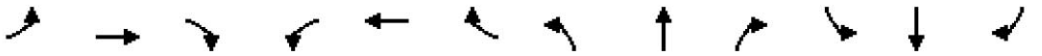


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 91 | 344 | 98 | 77 | 317 | 116 | 121 | 140 | 40 | 186 | 167 | 68 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.96 | | 1.00 | 0.97 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1787 | 3388 | | 1736 | 3375 | | 1736 | 3428 | | 1787 | 3385 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1787 | 3388 | | 1736 | 3375 | | 1736 | 3428 | | 1787 | 3385 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 111 | 420 | 120 | 94 | 387 | 141 | 148 | 171 | 49 | 227 | 204 | 83 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 42 | 0 | 0 | 34 | 0 | 0 | 57 | 0 |
| Lane Group Flow (vph) | 111 | 511 | 0 | 94 | 486 | 0 | 148 | 186 | 0 | 227 | 230 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 4% | 2% | 3% | 4% | 1% | 3% | 1% | 1% | 3% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 16.9 | | 5.5 | 15.3 | | 10.0 | 9.4 | | 11.1 | 10.5 | |
| Effective Green, g (s) | 7.1 | 16.9 | | 5.5 | 15.3 | | 10.0 | 9.4 | | 11.1 | 10.5 | |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.09 | 0.26 | | 0.17 | 0.16 | | 0.19 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 215 | 972 | | 162 | 877 | | 295 | 547 | | 337 | 603 | |
| v/s Ratio Prot | c0.06 | c0.15 | | 0.05 | 0.14 | | 0.09 | 0.05 | | c0.13 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.52 | 0.53 | | 0.58 | 0.55 | | 0.50 | 0.34 | | 0.67 | 0.38 | |
| Uniform Delay, d1 | 24.3 | 17.6 | | 25.6 | 18.8 | | 22.2 | 22.0 | | 22.2 | 21.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.1 | 0.5 | | 5.2 | 0.8 | | 1.3 | 0.4 | | 5.2 | 0.4 | |
| Delay (s) | 26.4 | 18.1 | | 30.8 | 19.6 | | 23.5 | 22.4 | | 27.5 | 21.7 | |
| Level of Service | C | B | | C | B | | C | C | | C | C | |
| Approach Delay (s) | | 19.6 | | | 21.3 | | | 22.8 | | | 24.3 | |
| Approach LOS | | B | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 58.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 272 | 258 | 215 | 150 | 148 | 116 | 215 | 751 | 199 | 107 | 552 | 116 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3433 | 3308 | | 1805 | 3324 | | 1787 | 3574 | 1599 | 1736 | 3432 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3433 | 3308 | | 1805 | 3324 | | 1787 | 3574 | 1599 | 1736 | 3432 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 309 | 293 | 244 | 170 | 168 | 132 | 244 | 853 | 226 | 122 | 627 | 132 |
| RTOR Reduction (vph) | 0 | 187 | 0 | 0 | 112 | 0 | 0 | 0 | 127 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 309 | 350 | 0 | 170 | 188 | 0 | 244 | 853 | 99 | 122 | 742 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Heavy Vehicles (%) | 2% | 1% | 1% | 0% | 1% | 2% | 1% | 1% | 1% | 4% | 2% | 3% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.7 | 13.8 | | 7.2 | 10.3 | | 7.2 | 23.1 | 30.3 | 9.4 | 25.3 | |
| Effective Green, g (s) | 10.7 | 13.8 | | 7.2 | 10.3 | | 7.2 | 23.1 | 30.3 | 9.4 | 25.3 | |
| Actuated g/C Ratio | 0.15 | 0.20 | | 0.10 | 0.15 | | 0.10 | 0.33 | 0.44 | 0.14 | 0.36 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 529 | 657 | | 187 | 493 | | 185 | 1188 | 789 | 235 | 1249 | |
| v/s Ratio Prot | 0.09 | c0.11 | | c0.09 | 0.06 | | c0.14 | c0.24 | 0.01 | 0.07 | 0.22 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.58 | 0.53 | | 0.91 | 0.38 | | 1.32 | 0.72 | 0.12 | 0.52 | 0.59 | |
| Uniform Delay, d1 | 27.3 | 25.0 | | 30.8 | 26.7 | | 31.1 | 20.3 | 11.7 | 27.9 | 17.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.6 | 0.8 | | 40.6 | 0.5 | | 176.3 | 2.1 | 0.1 | 1.9 | 0.8 | |
| Delay (s) | 29.0 | 25.8 | | 71.4 | 27.2 | | 207.4 | 22.4 | 11.8 | 29.9 | 18.7 | |
| Level of Service | C | C | | E | C | | F | C | B | C | B | |
| Approach Delay (s) | | 27.0 | | | 43.2 | | | 54.7 | | | 20.2 | |
| Approach LOS | | C | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 69.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 70.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

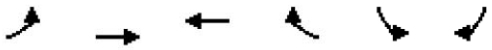


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 55 | 403 | 109 | 26 | 544 | 30 | 182 | 194 | 37 | 62 | 155 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 3505 | 1544 | 1736 | 3505 | 1445 | 3400 | 1805 | | 1770 | 3341 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1770 | 3505 | 1544 | 1736 | 3505 | 1445 | 3400 | 1805 | | 1770 | 3341 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 64 | 469 | 127 | 30 | 633 | 35 | 212 | 226 | 43 | 72 | 180 | 107 |
| RTOR Reduction (vph) | 0 | 0 | 45 | 0 | 0 | 14 | 0 | 7 | 0 | 0 | 88 | 0 |
| Lane Group Flow (vph) | 64 | 469 | 82 | 30 | 633 | 21 | 212 | 262 | 0 | 72 | 199 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 3% | 3% | 4% | 3% | 10% | 3% | 2% | 5% | 2% | 1% | 2% |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | |
| Actuated Green, G (s) | 8.5 | 65.7 | 77.6 | 5.2 | 62.4 | 71.4 | 11.9 | 24.1 | | 9.0 | 21.2 | |
| Effective Green, g (s) | 8.5 | 65.7 | 77.6 | 5.2 | 62.4 | 71.4 | 11.9 | 24.1 | | 9.0 | 21.2 | |
| Actuated g/C Ratio | 0.07 | 0.55 | 0.65 | 0.04 | 0.52 | 0.60 | 0.10 | 0.20 | | 0.08 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 1919 | 1050 | 75 | 1823 | 860 | 337 | 363 | | 133 | 590 | |
| v/s Ratio Prot | c0.04 | c0.13 | 0.01 | 0.02 | c0.18 | 0.00 | 0.06 | c0.15 | | c0.04 | 0.06 | |
| v/s Ratio Perm | | | 0.05 | | | 0.01 | | | | | | |
| v/c Ratio | 0.51 | 0.24 | 0.08 | 0.40 | 0.35 | 0.02 | 0.63 | 0.72 | | 0.54 | 0.34 | |
| Uniform Delay, d1 | 53.8 | 14.2 | 7.9 | 55.9 | 16.9 | 10.0 | 51.9 | 44.8 | | 53.5 | 43.2 | |
| Progression Factor | 0.95 | 1.20 | 2.65 | 1.00 | 1.00 | 1.00 | 0.71 | 0.73 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.4 | 0.3 | 0.0 | 3.5 | 0.5 | 0.0 | 3.5 | 6.6 | | 4.4 | 0.3 | |
| Delay (s) | 54.2 | 17.3 | 20.9 | 59.4 | 17.4 | 10.0 | 40.5 | 39.5 | | 58.0 | 43.6 | |
| Level of Service | D | B | C | E | B | A | D | D | | E | D | |
| Approach Delay (s) | | 21.6 | | | 18.8 | | | 39.9 | | | 46.5 | |
| Approach LOS | | C | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 65.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

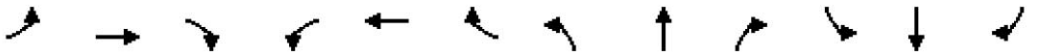
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 253 | 147 | 78 | 368 | 16 | 158 | 254 | 115 | 20 | 239 | 41 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1736 | 1845 | 1499 | 1736 | 1845 | 1576 | 1787 | 1827 | 1524 | 1719 | 1799 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1736 | 1845 | 1499 | 1736 | 1845 | 1576 | 1787 | 1827 | 1524 | 1719 | 1799 | |
| Peak-hour factor, PHF | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Adj. Flow (vph) | 29 | 324 | 188 | 100 | 472 | 21 | 203 | 326 | 147 | 26 | 306 | 53 |
| RTOR Reduction (vph) | 0 | 0 | 80 | 0 | 0 | 4 | 0 | 0 | 74 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 29 | 324 | 108 | 100 | 472 | 17 | 203 | 326 | 73 | 26 | 354 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 4% | 3% | 6% | 4% | 3% | 0% | 1% | 4% | 4% | 5% | 3% | 2% |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.6 | 22.5 | 22.5 | 14.3 | 33.2 | 40.7 | 15.6 | 31.5 | 45.8 | 7.5 | 23.4 | |
| Effective Green, g (s) | 3.6 | 22.5 | 22.5 | 14.3 | 33.2 | 40.7 | 15.6 | 31.5 | 45.8 | 7.5 | 23.4 | |
| Actuated g/C Ratio | 0.04 | 0.25 | 0.25 | 0.16 | 0.36 | 0.44 | 0.17 | 0.34 | 0.50 | 0.08 | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 68 | 452 | 367 | 270 | 667 | 767 | 304 | 627 | 760 | 140 | 459 | |
| v/s Ratio Prot | 0.02 | c0.18 | | 0.06 | c0.26 | 0.00 | c0.11 | 0.18 | 0.02 | 0.02 | c0.20 | |
| v/s Ratio Perm | | | 0.07 | | | 0.01 | | | 0.03 | | | |
| v/c Ratio | 0.43 | 0.72 | 0.29 | 0.37 | 0.71 | 0.02 | 0.67 | 0.52 | 0.10 | 0.19 | 0.77 | |
| Uniform Delay, d1 | 43.1 | 31.7 | 28.2 | 34.7 | 25.1 | 14.4 | 35.7 | 24.1 | 12.1 | 39.3 | 31.7 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.3 | 5.4 | 0.4 | 0.9 | 3.4 | 0.0 | 5.5 | 0.7 | 0.1 | 0.6 | 7.8 | |
| Delay (s) | 47.4 | 37.1 | 28.6 | 35.6 | 28.6 | 14.4 | 41.1 | 24.8 | 12.2 | 39.9 | 39.5 | |
| Level of Service | D | D | C | D | C | B | D | C | B | D | D | |
| Approach Delay (s) | | 34.7 | | | 29.3 | | | 27.0 | | | 39.6 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 91.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



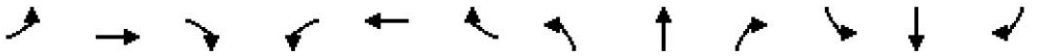
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 100 | 312 | 354 | 58 | 59 | 86 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1719 | 1776 | 3471 | 1547 | 1752 | 1556 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1719 | 1776 | 3471 | 1547 | 1752 | 1556 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 115 | 359 | 407 | 67 | 68 | 99 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 48 | 0 | 61 |
| Lane Group Flow (vph) | 115 | 359 | 407 | 19 | 68 | 38 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Heavy Vehicles (%) | 5% | 7% | 4% | 2% | 3% | 3% |
| Turn Type | Prot | | | Perm | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 6.2 | 20.4 | 10.2 | 10.2 | 7.8 | 14.0 |
| Effective Green, g (s) | 6.2 | 20.4 | 10.2 | 10.2 | 7.8 | 14.0 |
| Actuated g/C Ratio | 0.17 | 0.56 | 0.28 | 0.28 | 0.22 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 294 | 1001 | 978 | 436 | 378 | 774 |
| v/s Ratio Prot | 0.07 | c0.20 | 0.12 | | c0.04 | 0.01 |
| v/s Ratio Perm | | | | 0.01 | | 0.02 |
| v/c Ratio | 0.39 | 0.36 | 0.42 | 0.04 | 0.18 | 0.05 |
| Uniform Delay, d1 | 13.3 | 4.3 | 10.6 | 9.5 | 11.6 | 6.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 0.2 | 0.3 | 0.0 | 0.2 | 0.0 |
| Delay (s) | 14.2 | 4.5 | 10.9 | 9.5 | 11.8 | 7.0 |
| Level of Service | B | A | B | A | B | A |
| Approach Delay (s) | | 6.9 | 10.7 | | 8.9 | |
| Approach LOS | | A | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.31 | | |
| Actuated Cycle Length (s) | 36.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 37.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 63 | 162 | 144 | 171 | 285 | 77 | 70 | 198 | 35 | 29 | 262 | 64 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1752 | 1792 | 1545 | 1752 | 1845 | 1592 | 1736 | 3386 | | 1687 | 3471 | 1529 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1752 | 1792 | 1545 | 1752 | 1845 | 1592 | 1736 | 3386 | | 1687 | 3471 | 1529 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 74 | 191 | 169 | 201 | 335 | 91 | 82 | 233 | 41 | 34 | 308 | 75 |
| RTOR Reduction (vph) | 0 | 0 | 135 | 0 | 0 | 58 | 0 | 16 | 0 | 0 | 0 | 61 |
| Lane Group Flow (vph) | 74 | 191 | 34 | 201 | 335 | 33 | 82 | 258 | 0 | 34 | 308 | 14 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 3% | 6% | 3% | 3% | 3% | 0% | 4% | 4% | 3% | 7% | 4% | 3% |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 4.9 | 12.1 | 12.1 | 14.8 | 22.0 | 22.0 | 6.8 | 15.1 | | 2.8 | 11.1 | 11.1 |
| Effective Green, g (s) | 4.9 | 12.1 | 12.1 | 14.8 | 22.0 | 22.0 | 6.8 | 15.1 | | 2.8 | 11.1 | 11.1 |
| Actuated g/C Ratio | 0.08 | 0.20 | 0.20 | 0.24 | 0.36 | 0.36 | 0.11 | 0.25 | | 0.05 | 0.18 | 0.18 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 141 | 357 | 307 | 426 | 668 | 576 | 194 | 841 | | 78 | 634 | 279 |
| v/s Ratio Prot | 0.04 | 0.11 | | c0.11 | c0.18 | | c0.05 | 0.08 | | 0.02 | c0.09 | |
| v/s Ratio Perm | | | 0.02 | | | 0.02 | | | | | | 0.01 |
| v/c Ratio | 0.52 | 0.54 | 0.11 | 0.47 | 0.50 | 0.06 | 0.42 | 0.31 | | 0.44 | 0.49 | 0.05 |
| Uniform Delay, d1 | 26.8 | 21.8 | 19.9 | 19.7 | 15.1 | 12.6 | 25.2 | 18.6 | | 28.2 | 22.3 | 20.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.5 | 1.5 | 0.2 | 0.8 | 0.6 | 0.0 | 1.5 | 0.2 | | 3.9 | 0.6 | 0.1 |
| Delay (s) | 30.3 | 23.4 | 20.1 | 20.5 | 15.7 | 12.7 | 26.7 | 18.8 | | 32.1 | 22.9 | 20.6 |
| Level of Service | C | C | C | C | B | B | C | B | | C | C | C |
| Approach Delay (s) | | 23.3 | | | 16.8 | | | 20.6 | | | 23.2 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 60.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 52.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

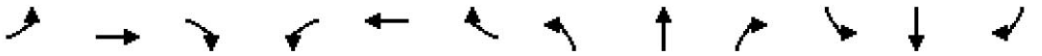


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 91 | 507 | 145 | 20 | 518 | 26 | 179 | 275 | 31 | 34 | 210 | 68 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1752 | 3415 | | 1719 | 3482 | | 1752 | 3506 | | 1805 | 1881 | 1570 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1752 | 3415 | | 1719 | 3482 | | 1752 | 3506 | | 1805 | 1881 | 1570 |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 114 | 634 | 181 | 25 | 648 | 32 | 224 | 344 | 39 | 42 | 262 | 85 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 2 | 0 | 0 | 8 | 0 | 0 | 0 | 69 |
| Lane Group Flow (vph) | 114 | 797 | 0 | 25 | 678 | 0 | 224 | 375 | 0 | 42 | 262 | 16 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 3% | 2% | 1% | 5% | 3% | 0% | 3% | 1% | 3% | 0% | 1% | 1% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 12.5 | 57.0 | | 4.5 | 49.0 | | 20.0 | 36.9 | | 5.6 | 22.5 | 22.5 |
| Effective Green, g (s) | 12.5 | 57.0 | | 4.5 | 49.0 | | 20.0 | 36.9 | | 5.6 | 22.5 | 22.5 |
| Actuated g/C Ratio | 0.10 | 0.48 | | 0.04 | 0.41 | | 0.17 | 0.31 | | 0.05 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 183 | 1622 | | 64 | 1422 | | 292 | 1078 | | 84 | 353 | 294 |
| v/s Ratio Prot | c0.07 | c0.23 | | 0.01 | 0.19 | | c0.13 | 0.11 | | 0.02 | c0.14 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.62 | 0.49 | | 0.39 | 0.48 | | 0.77 | 0.35 | | 0.50 | 0.74 | 0.05 |
| Uniform Delay, d1 | 51.5 | 21.6 | | 56.4 | 26.1 | | 47.8 | 32.2 | | 55.8 | 46.0 | 40.0 |
| Progression Factor | 0.61 | 1.18 | | 1.14 | 0.95 | | 1.00 | 1.00 | | 0.85 | 0.79 | 0.89 |
| Incremental Delay, d2 | 6.3 | 1.0 | | 3.5 | 1.0 | | 11.4 | 0.2 | | 4.6 | 8.1 | 0.1 |
| Delay (s) | 37.7 | 26.5 | | 68.1 | 25.8 | | 59.2 | 32.4 | | 52.2 | 44.4 | 35.5 |
| Level of Service | D | C | | E | C | | E | C | | D | D | D |
| Approach Delay (s) | | 27.8 | | | 27.3 | | | 42.3 | | | 43.3 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

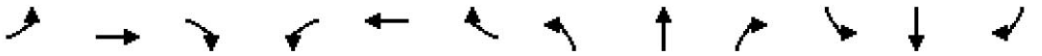
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 63 | 345 | 222 | 264 | 349 | 39 | 170 | 582 | 325 | 62 | 512 | 43 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1752 | 1845 | 1586 | 1770 | 3416 | | 1787 | 3574 | 1567 | 1770 | 3517 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1752 | 1845 | 1586 | 1770 | 3416 | | 1787 | 3574 | 1567 | 1770 | 3517 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 77 | 421 | 271 | 322 | 426 | 48 | 207 | 710 | 396 | 76 | 624 | 52 |
| RTOR Reduction (vph) | 0 | 0 | 196 | 0 | 7 | 0 | 0 | 0 | 278 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 77 | 421 | 75 | 322 | 467 | 0 | 207 | 710 | 118 | 76 | 671 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 0% | 2% | 4% | 3% | 1% | 1% | 0% | 2% | 1% | 5% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.3 | 33.0 | 33.0 | 26.8 | 51.5 | | 17.7 | 35.9 | 35.9 | 8.3 | 26.5 | |
| Effective Green, g (s) | 8.3 | 33.0 | 33.0 | 26.8 | 51.5 | | 17.7 | 35.9 | 35.9 | 8.3 | 26.5 | |
| Actuated g/C Ratio | 0.07 | 0.28 | 0.28 | 0.22 | 0.43 | | 0.15 | 0.30 | 0.30 | 0.07 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 121 | 507 | 436 | 395 | 1466 | | 264 | 1069 | 469 | 122 | 777 | |
| v/s Ratio Prot | 0.04 | c0.23 | | c0.18 | 0.14 | | c0.12 | 0.20 | | 0.04 | c0.19 | |
| v/s Ratio Perm | | | 0.05 | | | | | | 0.08 | | | |
| v/c Ratio | 0.64 | 0.83 | 0.17 | 0.82 | 0.32 | | 0.78 | 0.66 | 0.25 | 0.62 | 0.86 | |
| Uniform Delay, d1 | 54.4 | 40.9 | 33.1 | 44.2 | 22.6 | | 49.3 | 36.8 | 31.9 | 54.3 | 45.0 | |
| Progression Factor | 0.60 | 0.78 | 2.73 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.7 | 13.6 | 0.8 | 12.2 | 0.6 | | 14.1 | 1.6 | 0.3 | 9.5 | 9.8 | |
| Delay (s) | 42.2 | 45.4 | 91.1 | 56.4 | 23.2 | | 63.4 | 38.3 | 32.2 | 63.8 | 54.8 | |
| Level of Service | D | D | F | E | C | | E | D | C | E | D | |
| Approach Delay (s) | | 61.2 | | | 36.7 | | | 40.4 | | | 55.7 | |
| Approach LOS | | E | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 78.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



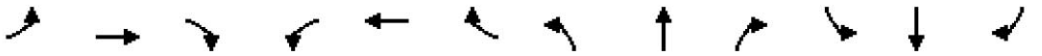
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 122 | 291 | 14 | 0 | 349 | 107 | 36 | 21 | 3 | 109 | 9 | 147 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1752 | 1827 | | | 1791 | | 1805 | 1810 | 1573 | 1719 | 1900 | 1486 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1752 | 1827 | | | 1791 | | 1805 | 1810 | 1573 | 1719 | 1900 | 1486 |
| Peak-hour factor, PHF | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Adj. Flow (vph) | 147 | 351 | 17 | 0 | 420 | 129 | 43 | 25 | 4 | 131 | 11 | 177 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 11 | 0 | 0 | 0 | 4 | 0 | 0 | 141 |
| Lane Group Flow (vph) | 147 | 367 | 0 | 0 | 538 | 0 | 43 | 25 | 0 | 131 | 11 | 36 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 7% | 0% | 2% | 2% | 0% | 5% | 0% | 5% | 0% | 7% |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.1 | 38.2 | | | 25.1 | | 3.9 | 7.3 | 7.3 | 10.4 | 13.8 | 13.8 |
| Effective Green, g (s) | 9.1 | 38.2 | | | 25.1 | | 3.9 | 7.3 | 7.3 | 10.4 | 13.8 | 13.8 |
| Actuated g/C Ratio | 0.13 | 0.56 | | | 0.37 | | 0.06 | 0.11 | 0.11 | 0.15 | 0.20 | 0.20 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 235 | 1028 | | | 662 | | 104 | 195 | 169 | 263 | 386 | 302 |
| v/s Ratio Prot | c0.08 | 0.20 | | | c0.30 | | c0.02 | 0.01 | | c0.08 | 0.01 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | c0.02 |
| v/c Ratio | 0.63 | 0.36 | | | 0.81 | | 0.41 | 0.13 | 0.00 | 0.50 | 0.03 | 0.12 |
| Uniform Delay, d1 | 27.8 | 8.1 | | | 19.3 | | 30.9 | 27.4 | 27.0 | 26.4 | 21.7 | 22.1 |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.1 | 0.2 | | | 7.5 | | 2.7 | 0.3 | 0.0 | 1.5 | 0.0 | 0.2 |
| Delay (s) | 32.9 | 8.3 | | | 26.8 | | 33.6 | 27.7 | 27.1 | 27.8 | 21.7 | 22.3 |
| Level of Service | C | A | | | C | | C | C | C | C | C | C |
| Approach Delay (s) | | 15.4 | | | 26.8 | | | 31.2 | | | 24.5 | |
| Approach LOS | | B | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 67.9 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 57.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



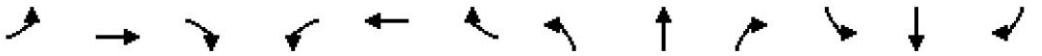
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 85 | 562 | 41 | 50 | 892 | 93 | 57 | 183 | 31 | 104 | 190 | 117 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 3505 | 1511 | 1770 | 4952 | | 3502 | 3421 | | 3502 | 3539 | 1573 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 3505 | 1511 | 1770 | 4952 | | 3502 | 3421 | | 3502 | 3539 | 1573 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 89 | 585 | 43 | 52 | 929 | 97 | 59 | 191 | 32 | 108 | 198 | 122 |
| RTOR Reduction (vph) | 0 | 0 | 17 | 0 | 7 | 0 | 0 | 15 | 0 | 0 | 0 | 105 |
| Lane Group Flow (vph) | 89 | 585 | 26 | 52 | 1019 | 0 | 59 | 208 | 0 | 108 | 198 | 17 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 3% | 5% | 2% | 3% | 4% | 0% | 3% | 3% | 0% | 2% | 1% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 12.8 | 73.6 | 73.6 | 7.8 | 68.6 | | 5.6 | 12.7 | | 9.9 | 17.0 | 17.0 |
| Effective Green, g (s) | 12.8 | 73.6 | 73.6 | 7.8 | 68.6 | | 5.6 | 12.7 | | 9.9 | 17.0 | 17.0 |
| Actuated g/C Ratio | 0.11 | 0.61 | 0.61 | 0.06 | 0.57 | | 0.05 | 0.11 | | 0.08 | 0.14 | 0.14 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 189 | 2150 | 927 | 115 | 2831 | | 163 | 362 | | 289 | 501 | 223 |
| v/s Ratio Prot | c0.05 | 0.17 | | c0.03 | c0.21 | | 0.02 | c0.06 | | 0.03 | c0.06 | |
| v/s Ratio Perm | | | 0.02 | | | | | | | | | 0.01 |
| v/c Ratio | 0.47 | 0.27 | 0.03 | 0.45 | 0.36 | | 0.36 | 0.57 | | 0.37 | 0.40 | 0.08 |
| Uniform Delay, d1 | 50.4 | 10.8 | 9.1 | 54.0 | 13.9 | | 55.5 | 51.1 | | 52.1 | 46.8 | 44.7 |
| Progression Factor | 0.70 | 0.66 | 0.32 | 0.72 | 0.63 | | 1.02 | 0.46 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.8 | 0.3 | 0.1 | 2.7 | 0.3 | | 1.3 | 2.1 | | 0.8 | 0.5 | 0.1 |
| Delay (s) | 37.1 | 7.4 | 3.0 | 41.5 | 9.0 | | 57.7 | 25.5 | | 52.9 | 47.3 | 44.8 |
| Level of Service | D | A | A | D | A | | E | C | | D | D | D |
| Approach Delay (s) | | 10.8 | | | 10.6 | | | 32.3 | | | 48.0 | |
| Approach LOS | | B | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



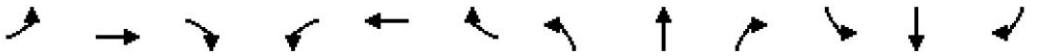
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 31 | 602 | 73 | 44 | 914 | 56 | 61 | 148 | 38 | 75 | 118 | 52 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1752 | 3539 | 1539 | 1805 | 5036 | | 1671 | 3432 | | 1752 | 3338 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1752 | 3539 | 1539 | 1805 | 5036 | | 1671 | 3432 | | 1752 | 3338 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 32 | 627 | 76 | 46 | 952 | 58 | 64 | 154 | 40 | 78 | 123 | 54 |
| RTOR Reduction (vph) | 0 | 0 | 28 | 0 | 3 | 0 | 0 | 27 | 0 | 0 | 49 | 0 |
| Lane Group Flow (vph) | 32 | 627 | 48 | 46 | 1007 | 0 | 64 | 167 | 0 | 78 | 128 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 3% | 2% | 3% | 0% | 2% | 2% | 8% | 2% | 0% | 3% | 3% | 2% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 4.8 | 76.3 | 76.3 | 7.3 | 78.8 | | 10.3 | 11.2 | | 9.2 | 10.1 | |
| Effective Green, g (s) | 4.8 | 76.3 | 76.3 | 7.3 | 78.8 | | 10.3 | 11.2 | | 9.2 | 10.1 | |
| Actuated g/C Ratio | 0.04 | 0.64 | 0.64 | 0.06 | 0.66 | | 0.09 | 0.09 | | 0.08 | 0.08 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 70 | 2250 | 979 | 110 | 3307 | | 143 | 320 | | 134 | 281 | |
| v/s Ratio Prot | c0.02 | 0.18 | | c0.03 | c0.20 | | 0.04 | c0.05 | | c0.04 | 0.04 | |
| v/s Ratio Perm | | | 0.03 | | | | | | | | | |
| v/c Ratio | 0.46 | 0.28 | 0.05 | 0.42 | 0.30 | | 0.45 | 0.52 | | 0.58 | 0.45 | |
| Uniform Delay, d1 | 56.3 | 9.7 | 8.2 | 54.3 | 8.8 | | 52.1 | 51.8 | | 53.5 | 52.3 | |
| Progression Factor | 0.90 | 0.56 | 0.99 | 0.96 | 0.69 | | 1.20 | 1.21 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.6 | 0.3 | 0.1 | 2.4 | 0.2 | | 2.2 | 1.5 | | 6.3 | 1.2 | |
| Delay (s) | 55.1 | 5.7 | 8.2 | 54.2 | 6.3 | | 65.0 | 64.3 | | 59.8 | 53.5 | |
| Level of Service | E | A | A | D | A | | E | E | | E | D | |
| Approach Delay (s) | | 8.1 | | | 8.4 | | | 64.5 | | | 55.4 | |
| Approach LOS | | A | | | A | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 59.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



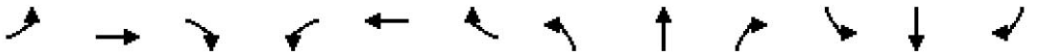
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 83 | 447 | 24 | 35 | 844 | 141 | 134 | 280 | 39 | 136 | 160 | 89 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 5036 | 1476 | 1805 | 4936 | | 1787 | 3426 | | 1736 | 3471 | 1555 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 5036 | 1476 | 1805 | 4936 | | 1787 | 3426 | | 1736 | 3471 | 1555 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 90 | 486 | 26 | 38 | 917 | 153 | 146 | 304 | 42 | 148 | 174 | 97 |
| RTOR Reduction (vph) | 0 | 0 | 7 | 0 | 13 | 0 | 0 | 12 | 0 | 0 | 0 | 79 |
| Lane Group Flow (vph) | 90 | 486 | 19 | 38 | 1057 | 0 | 146 | 334 | 0 | 148 | 174 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 3% | 8% | 0% | 2% | 6% | 1% | 3% | 5% | 4% | 4% | 3% |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.3 | 67.7 | 88.4 | 4.2 | 60.6 | | 20.7 | 17.3 | | 14.8 | 11.4 | 22.7 |
| Effective Green, g (s) | 11.3 | 67.7 | 88.4 | 4.2 | 60.6 | | 20.7 | 17.3 | | 14.8 | 11.4 | 22.7 |
| Actuated g/C Ratio | 0.09 | 0.56 | 0.74 | 0.04 | 0.51 | | 0.17 | 0.14 | | 0.12 | 0.10 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 168 | 2841 | 1137 | 63 | 2493 | | 308 | 494 | | 214 | 330 | 294 |
| v/s Ratio Prot | c0.05 | 0.10 | 0.00 | 0.02 | c0.21 | | c0.08 | c0.10 | | c0.09 | 0.05 | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | 0.01 |
| v/c Ratio | 0.54 | 0.17 | 0.02 | 0.60 | 0.42 | | 0.47 | 0.68 | | 0.69 | 0.53 | 0.06 |
| Uniform Delay, d1 | 51.8 | 12.6 | 4.2 | 57.1 | 18.7 | | 44.7 | 48.7 | | 50.4 | 51.7 | 39.9 |
| Progression Factor | 0.64 | 0.60 | 1.02 | 1.03 | 1.08 | | 0.51 | 0.53 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.2 | 0.1 | 0.0 | 14.5 | 0.5 | | 1.1 | 3.5 | | 9.3 | 1.5 | 0.1 |
| Delay (s) | 36.1 | 7.7 | 4.3 | 73.6 | 20.6 | | 24.0 | 29.4 | | 59.7 | 53.3 | 40.0 |
| Level of Service | D | A | A | E | C | | C | C | | E | D | D |
| Approach Delay (s) | | 11.8 | | | 22.5 | | | 27.8 | | | 52.5 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 67.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



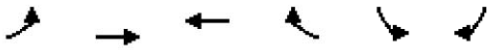
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 38 | 432 | 59 | 58 | 779 | 62 | 138 | 229 | 60 | 63 | 195 | 79 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1752 | 4934 | | 1770 | 4974 | | 1787 | 3396 | | 1752 | 3375 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1752 | 4934 | | 1770 | 4974 | | 1787 | 3396 | | 1752 | 3375 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 42 | 480 | 66 | 64 | 866 | 69 | 153 | 254 | 67 | 70 | 217 | 88 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 5 | 0 | 0 | 30 | 0 | 0 | 50 | 0 |
| Lane Group Flow (vph) | 42 | 537 | 0 | 64 | 930 | 0 | 153 | 291 | 0 | 70 | 255 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 2% | 3% | 3% | 1% | 2% | 5% | 3% | 1% | 4% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.2 | 65.3 | | 8.0 | 66.1 | | 16.3 | 18.3 | | 12.4 | 14.4 | |
| Effective Green, g (s) | 7.2 | 65.3 | | 8.0 | 66.1 | | 16.3 | 18.3 | | 12.4 | 14.4 | |
| Actuated g/C Ratio | 0.06 | 0.54 | | 0.07 | 0.55 | | 0.14 | 0.15 | | 0.10 | 0.12 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 105 | 2685 | | 118 | 2740 | | 243 | 518 | | 181 | 405 | |
| v/s Ratio Prot | c0.02 | 0.11 | | c0.04 | c0.19 | | c0.09 | 0.09 | | 0.04 | c0.08 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.40 | 0.20 | | 0.54 | 0.34 | | 0.63 | 0.56 | | 0.39 | 0.63 | |
| Uniform Delay, d1 | 54.3 | 14.0 | | 54.2 | 14.9 | | 49.0 | 47.1 | | 50.2 | 50.3 | |
| Progression Factor | 1.13 | 0.52 | | 0.64 | 0.24 | | 0.63 | 0.27 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.4 | 0.2 | | 4.6 | 0.3 | | 4.7 | 1.3 | | 1.4 | 3.1 | |
| Delay (s) | 63.9 | 7.5 | | 39.4 | 3.9 | | 35.6 | 14.2 | | 51.6 | 53.3 | |
| Level of Service | E | A | | D | A | | D | B | | D | D | |
| Approach Delay (s) | | 11.5 | | | 6.2 | | | 21.1 | | | 53.0 | |
| Approach LOS | | B | | | A | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 64.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



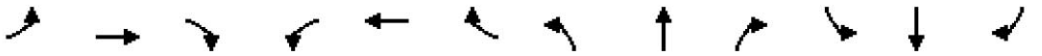
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 135 | 277 | 75 | 78 | 593 | 74 | 197 | 519 | 62 | 156 | 381 | 155 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3505 | 1541 | 1752 | 4916 | | 1770 | 3471 | 1589 | 1752 | 3406 | 1542 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 3505 | 1541 | 1752 | 4916 | | 1770 | 3471 | 1589 | 1752 | 3406 | 1542 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 155 | 318 | 86 | 90 | 682 | 85 | 226 | 597 | 71 | 179 | 438 | 178 |
| RTOR Reduction (vph) | 0 | 0 | 51 | 0 | 11 | 0 | 0 | 0 | 55 | 0 | 0 | 146 |
| Lane Group Flow (vph) | 155 | 318 | 35 | 90 | 756 | 0 | 226 | 597 | 16 | 179 | 438 | 32 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 3% | 3% | 3% | 3% | 8% | 2% | 4% | 0% | 3% | 6% | 3% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 13.0 | 48.6 | 48.6 | 10.4 | 46.0 | | 23.4 | 27.3 | 27.3 | 17.7 | 21.6 | 21.6 |
| Effective Green, g (s) | 13.0 | 48.6 | 48.6 | 10.4 | 46.0 | | 23.4 | 27.3 | 27.3 | 17.7 | 21.6 | 21.6 |
| Actuated g/C Ratio | 0.11 | 0.41 | 0.41 | 0.09 | 0.38 | | 0.19 | 0.23 | 0.23 | 0.15 | 0.18 | 0.18 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 194 | 1420 | 624 | 152 | 1884 | | 345 | 790 | 361 | 258 | 613 | 278 |
| v/s Ratio Prot | c0.09 | 0.09 | | c0.05 | c0.15 | | c0.13 | c0.17 | | 0.10 | 0.13 | |
| v/s Ratio Perm | | | 0.02 | | | | | | 0.01 | | | 0.02 |
| v/c Ratio | 0.80 | 0.22 | 0.06 | 0.59 | 0.40 | | 0.66 | 0.76 | 0.04 | 0.69 | 0.71 | 0.12 |
| Uniform Delay, d1 | 52.2 | 23.4 | 21.7 | 52.8 | 27.0 | | 44.6 | 43.2 | 36.2 | 48.6 | 46.3 | 41.2 |
| Progression Factor | 0.86 | 0.87 | 1.49 | 1.29 | 0.81 | | 0.63 | 0.34 | 0.02 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 19.9 | 0.4 | 0.2 | 5.7 | 0.6 | | 3.8 | 3.5 | 0.0 | 7.8 | 4.0 | 0.2 |
| Delay (s) | 64.6 | 20.6 | 32.6 | 73.7 | 22.4 | | 32.0 | 18.1 | 0.9 | 56.4 | 50.2 | 41.4 |
| Level of Service | E | C | C | E | C | | C | B | A | E | D | D |
| Approach Delay (s) | | 34.6 | | | 27.8 | | | 20.2 | | | 49.7 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 74.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



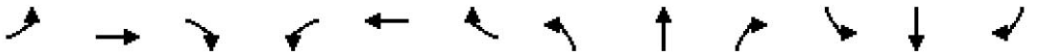
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 123 | 887 | 1441 | 149 | 118 | 68 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1787 | 3505 | 3539 | 1574 | 3467 | 1557 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1787 | 3505 | 3539 | 1574 | 3467 | 1557 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 131 | 944 | 1533 | 159 | 126 | 72 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 34 | 0 | 16 |
| Lane Group Flow (vph) | 131 | 944 | 1533 | 125 | 126 | 56 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Heavy Vehicles (%) | 1% | 3% | 2% | 1% | 1% | 3% |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 14.0 | 102.3 | 84.3 | 94.0 | 9.7 | 23.7 |
| Effective Green, g (s) | 14.0 | 102.3 | 84.3 | 94.0 | 9.7 | 23.7 |
| Actuated g/C Ratio | 0.12 | 0.85 | 0.70 | 0.78 | 0.08 | 0.20 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 208 | 2988 | 2486 | 1285 | 280 | 359 |
| v/s Ratio Prot | c0.07 | 0.27 | c0.43 | 0.01 | c0.04 | 0.02 |
| v/s Ratio Perm | | | | 0.07 | | 0.02 |
| v/c Ratio | 0.63 | 0.32 | 0.62 | 0.10 | 0.45 | 0.16 |
| Uniform Delay, d1 | 50.5 | 1.8 | 9.4 | 3.0 | 52.6 | 39.9 |
| Progression Factor | 0.86 | 1.00 | 0.98 | 1.94 | 0.48 | 0.29 |
| Incremental Delay, d2 | 5.6 | 0.3 | 1.0 | 0.0 | 1.1 | 0.2 |
| Delay (s) | 48.9 | 2.0 | 10.2 | 5.9 | 26.6 | 11.7 |
| Level of Service | D | A | B | A | C | B |
| Approach Delay (s) | | 7.8 | 9.8 | | 21.2 | |
| Approach LOS | | A | A | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 68 | 724 | 181 | 12 | 1404 | 63 | 160 | 36 | 11 | 54 | 51 | 53 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1703 | 3539 | 1571 | 1671 | 5047 | | 3400 | 3322 | | 1770 | 3539 | 1541 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1703 | 3539 | 1571 | 1671 | 5047 | | 3400 | 3322 | | 1770 | 3539 | 1541 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 72 | 770 | 193 | 13 | 1494 | 67 | 170 | 38 | 12 | 57 | 54 | 56 |
| RTOR Reduction (vph) | 0 | 0 | 62 | 0 | 3 | 0 | 0 | 11 | 0 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 72 | 770 | 131 | 13 | 1558 | 0 | 170 | 39 | 0 | 57 | 54 | 41 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 6% | 2% | 1% | 8% | 2% | 3% | 3% | 0% | 18% | 2% | 2% | 4% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 9.4 | 81.5 | 81.5 | 2.8 | 74.9 | | 12.1 | 9.8 | | 9.9 | 7.6 | 17.0 |
| Effective Green, g (s) | 9.4 | 81.5 | 81.5 | 2.8 | 74.9 | | 12.1 | 9.8 | | 9.9 | 7.6 | 17.0 |
| Actuated g/C Ratio | 0.08 | 0.68 | 0.68 | 0.02 | 0.62 | | 0.10 | 0.08 | | 0.08 | 0.06 | 0.14 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 133 | 2404 | 1067 | 39 | 3150 | | 343 | 271 | | 146 | 224 | 270 |
| v/s Ratio Prot | c0.04 | 0.22 | | 0.01 | c0.31 | | c0.05 | 0.01 | | 0.03 | c0.02 | 0.01 |
| v/s Ratio Perm | | | 0.08 | | | | | | | | | 0.01 |
| v/c Ratio | 0.54 | 0.32 | 0.12 | 0.33 | 0.49 | | 0.50 | 0.14 | | 0.39 | 0.24 | 0.15 |
| Uniform Delay, d1 | 53.2 | 7.9 | 6.7 | 57.7 | 12.3 | | 51.1 | 51.2 | | 52.2 | 53.5 | 45.2 |
| Progression Factor | 1.11 | 0.59 | 0.64 | 0.78 | 0.45 | | 1.00 | 1.00 | | 1.13 | 0.89 | 0.81 |
| Incremental Delay, d2 | 4.3 | 0.3 | 0.2 | 3.8 | 0.4 | | 1.1 | 0.2 | | 1.7 | 0.6 | 0.3 |
| Delay (s) | 63.2 | 5.0 | 4.6 | 48.5 | 5.9 | | 52.2 | 51.4 | | 60.5 | 48.0 | 37.0 |
| Level of Service | E | A | A | D | A | | D | D | | E | D | D |
| Approach Delay (s) | | 8.9 | | | 6.3 | | | 52.0 | | | 48.6 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



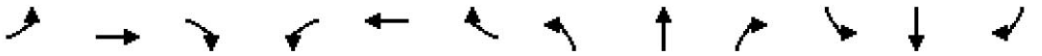
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 57 | 544 | 220 | 14 | 801 | 65 | 691 | 369 | 9 | 40 | 183 | 28 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 3505 | 1581 | 1492 | 3501 | | 3467 | 3527 | | 1752 | 3483 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1770 | 3505 | 1581 | 1492 | 3501 | | 3467 | 3527 | | 1752 | 3483 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 60 | 573 | 232 | 15 | 843 | 68 | 727 | 388 | 9 | 42 | 193 | 29 |
| RTOR Reduction (vph) | 0 | 0 | 61 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 60 | 573 | 171 | 15 | 907 | 0 | 727 | 395 | 0 | 42 | 209 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 3% | 1% | 21% | 1% | 12% | 1% | 2% | 0% | 3% | 1% | 4% |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 56.2 | 88.2 | 3.2 | 52.3 | | 32.0 | 39.0 | | 5.6 | 12.6 | |
| Effective Green, g (s) | 7.1 | 56.2 | 88.2 | 3.2 | 52.3 | | 32.0 | 39.0 | | 5.6 | 12.6 | |
| Actuated g/C Ratio | 0.06 | 0.47 | 0.74 | 0.03 | 0.44 | | 0.27 | 0.32 | | 0.05 | 0.10 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 105 | 1642 | 1162 | 40 | 1526 | | 925 | 1146 | | 82 | 366 | |
| v/s Ratio Prot | c0.03 | 0.16 | 0.04 | 0.01 | c0.26 | | c0.21 | 0.11 | | 0.02 | c0.06 | |
| v/s Ratio Perm | | | 0.07 | | | | | | | | | |
| v/c Ratio | 0.57 | 0.35 | 0.15 | 0.38 | 0.59 | | 0.79 | 0.34 | | 0.51 | 0.57 | |
| Uniform Delay, d1 | 55.0 | 20.3 | 4.7 | 57.4 | 25.8 | | 40.8 | 30.8 | | 55.9 | 51.1 | |
| Progression Factor | 0.84 | 0.76 | 2.86 | 1.08 | 1.21 | | 1.00 | 1.00 | | 0.29 | 0.24 | |
| Incremental Delay, d2 | 7.1 | 0.6 | 0.1 | 5.4 | 1.6 | | 4.5 | 0.2 | | 5.3 | 2.2 | |
| Delay (s) | 53.0 | 16.0 | 13.5 | 67.3 | 32.7 | | 45.3 | 31.0 | | 21.5 | 14.5 | |
| Level of Service | D | B | B | E | C | | D | C | | C | B | |
| Approach Delay (s) | | 17.9 | | | 33.2 | | | 40.2 | | | 15.6 | |
| Approach LOS | | B | | | C | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 75.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# HCM Signalized Intersection Capacity Analysis
## 64: Cactus Ave & Indian St

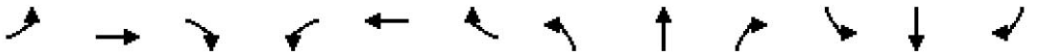
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 487 | 80 | 39 | 726 | 43 | 90 | 327 | 52 | 42 | 243 | 22 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1752 | 3436 | | 1752 | 3500 | | 1787 | 3458 | | 1770 | 3450 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1752 | 3436 | | 1752 | 3500 | | 1787 | 3458 | | 1770 | 3450 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 45 | 547 | 90 | 44 | 816 | 48 | 101 | 367 | 58 | 47 | 273 | 25 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 3 | 0 | 0 | 12 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 45 | 629 | 0 | 44 | 861 | 0 | 101 | 413 | 0 | 47 | 291 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 0% | 3% | 2% | 5% | 1% | 2% | 2% | 2% | 3% | 5% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.4 | 67.7 | | 7.2 | 67.5 | | 13.7 | 21.6 | | 7.5 | 15.4 | |
| Effective Green, g (s) | 7.4 | 67.7 | | 7.2 | 67.5 | | 13.7 | 21.6 | | 7.5 | 15.4 | |
| Actuated g/C Ratio | 0.06 | 0.56 | | 0.06 | 0.56 | | 0.11 | 0.18 | | 0.06 | 0.13 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 108 | 1938 | | 105 | 1969 | | 204 | 622 | | 111 | 443 | |
| v/s Ratio Prot | c0.03 | 0.18 | | 0.03 | c0.25 | | c0.06 | c0.12 | | 0.03 | 0.08 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.42 | 0.32 | | 0.42 | 0.44 | | 0.50 | 0.66 | | 0.42 | 0.66 | |
| Uniform Delay, d1 | 54.2 | 14.0 | | 54.4 | 15.2 | | 49.9 | 45.8 | | 54.2 | 49.8 | |
| Progression Factor | 0.64 | 1.71 | | 0.61 | 0.52 | | 1.00 | 1.00 | | 0.65 | 0.36 | |
| Incremental Delay, d2 | 2.5 | 0.4 | | 2.4 | 0.6 | | 1.9 | 2.7 | | 2.5 | 3.4 | |
| Delay (s) | 37.0 | 24.2 | | 35.4 | 8.6 | | 51.8 | 48.5 | | 37.7 | 21.1 | |
| Level of Service | D | C | | D | A | | D | D | | D | C | |
| Approach Delay (s) | | 25.1 | | | 9.9 | | | 49.1 | | | 23.4 | |
| Approach LOS | | C | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



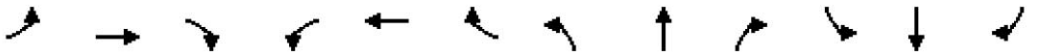
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 51 | 448 | 107 | 62 | 620 | 68 | 171 | 627 | 64 | 78 | 462 | 39 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 3398 | | 1703 | 3457 | | 1752 | 3505 | 1509 | 1787 | 3406 | 1539 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 3398 | | 1703 | 3457 | | 1752 | 3505 | 1509 | 1787 | 3406 | 1539 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 56 | 492 | 118 | 68 | 681 | 75 | 188 | 689 | 70 | 86 | 508 | 43 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 7 | 0 | 0 | 0 | 48 | 0 | 0 | 33 |
| Lane Group Flow (vph) | 56 | 594 | 0 | 68 | 749 | 0 | 188 | 689 | 22 | 86 | 508 | 10 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 3% | 2% | 6% | 3% | 0% | 3% | 3% | 5% | 1% | 6% | 3% |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.2 | 48.3 | | 7.9 | 49.0 | | 19.8 | 38.3 | 38.3 | 9.5 | 28.0 | 28.0 |
| Effective Green, g (s) | 7.2 | 48.3 | | 7.9 | 49.0 | | 19.8 | 38.3 | 38.3 | 9.5 | 28.0 | 28.0 |
| Actuated g/C Ratio | 0.06 | 0.40 | | 0.07 | 0.41 | | 0.17 | 0.32 | 0.32 | 0.08 | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 106 | 1368 | | 112 | 1412 | | 289 | 1119 | 482 | 141 | 795 | 359 |
| v/s Ratio Prot | 0.03 | c0.17 | | 0.04 | c0.22 | | c0.11 | c0.20 | | 0.05 | 0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | 0.01 |
| v/c Ratio | 0.53 | 0.43 | | 0.61 | 0.53 | | 0.65 | 0.62 | 0.05 | 0.61 | 0.64 | 0.03 |
| Uniform Delay, d1 | 54.8 | 26.0 | | 54.5 | 26.8 | | 46.9 | 34.6 | 28.2 | 53.5 | 41.4 | 35.5 |
| Progression Factor | 0.62 | 0.42 | | 1.21 | 0.72 | | 0.76 | 0.64 | 0.18 | 1.09 | 0.87 | 1.41 |
| Incremental Delay, d2 | 4.5 | 1.0 | | 8.1 | 1.3 | | 4.9 | 2.4 | 0.2 | 6.9 | 3.7 | 0.1 |
| Delay (s) | 38.6 | 12.0 | | 74.2 | 20.5 | | 40.3 | 24.4 | 5.4 | 65.4 | 39.6 | 50.2 |
| Level of Service | D | B | | E | C | | D | C | A | E | D | D |
| Approach Delay (s) | | 14.2 | | | 24.9 | | | 26.1 | | | 43.8 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 78.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



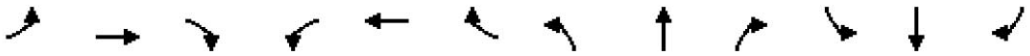
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 186 | 920 | 66 | 23 | 1526 | 429 | 281 | 224 | 2 | 41 | 18 | 57 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 5136 | 1583 | 3502 | 5136 | 1545 | 3467 | 3471 | 2796 | 3273 | 3252 | 1530 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 5136 | 1583 | 3502 | 5136 | 1545 | 3467 | 3471 | 2796 | 3273 | 3252 | 1530 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 202 | 1000 | 72 | 25 | 1659 | 466 | 305 | 243 | 2 | 45 | 20 | 62 |
| RTOR Reduction (vph) | 0 | 0 | 31 | 0 | 0 | 109 | 0 | 0 | 2 | 0 | 0 | 58 |
| Lane Group Flow (vph) | 202 | 1000 | 41 | 25 | 1659 | 357 | 305 | 243 | 0 | 45 | 20 | 4 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 0% | 1% | 3% | 1% | 4% | 0% | 7% | 11% | 4% |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.1 | 45.3 | 45.3 | 2.6 | 40.8 | 40.8 | 10.8 | 12.4 | 15.0 | 3.9 | 5.5 | 5.5 |
| Effective Green, g (s) | 7.1 | 45.3 | 45.3 | 2.6 | 40.8 | 40.8 | 10.8 | 12.4 | 15.0 | 3.9 | 5.5 | 5.5 |
| Actuated g/C Ratio | 0.09 | 0.56 | 0.56 | 0.03 | 0.51 | 0.51 | 0.13 | 0.15 | 0.19 | 0.05 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 158 | 2901 | 894 | 114 | 2613 | 786 | 467 | 537 | 662 | 159 | 223 | 105 |
| v/s Ratio Prot | c0.11 | 0.19 | | 0.01 | c0.32 | | c0.09 | 0.07 | 0.00 | c0.01 | 0.01 | |
| v/s Ratio Perm | | | 0.03 | | | 0.23 | | | 0.00 | | | 0.00 |
| v/c Ratio | 1.28 | 0.34 | 0.05 | 0.22 | 0.63 | 0.45 | 0.65 | 0.45 | 0.00 | 0.28 | 0.09 | 0.04 |
| Uniform Delay, d1 | 36.6 | 9.4 | 7.8 | 37.8 | 14.3 | 12.6 | 32.9 | 30.8 | 26.5 | 36.8 | 35.0 | 34.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 165.0 | 0.1 | 0.0 | 1.0 | 0.5 | 0.4 | 3.3 | 0.6 | 0.0 | 1.0 | 0.2 | 0.2 |
| Delay (s) | 201.6 | 9.5 | 7.8 | 38.8 | 14.8 | 13.0 | 36.2 | 31.4 | 26.5 | 37.8 | 35.2 | 35.0 |
| Level of Service | F | A | A | D | B | B | D | C | C | D | D | D |
| Approach Delay (s) | | 39.9 | | | 14.7 | | | 34.0 | | | 36.0 | |
| Approach LOS | | D | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 80.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



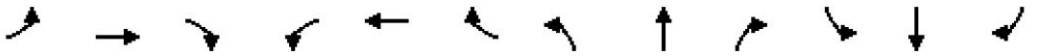
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 1 | 701 | 314 | 0 | 1643 | 0 | 0 | 0 | 0 | 172 | 0 | 284 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.95 | | | 1.00 | | | | | 1.00 | 0.87 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (prot) | | 4882 | | | 5136 | | | | | 1531 | 1397 | 1447 |
| Flt Permitted | | 0.94 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (perm) | | 4585 | | | 5136 | | | | | 1531 | 1397 | 1447 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 1 | 770 | 345 | 0 | 1805 | 0 | 0 | 0 | 0 | 189 | 0 | 312 |
| RTOR Reduction (vph) | 0 | 92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 16 |
| Lane Group Flow (vph) | 0 | 1024 | 0 | 0 | 1805 | 0 | 0 | 0 | 0 | 170 | 150 | 149 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Heavy Vehicles (%) | 0% | 1% | 2% | 0% | 1% | 0% | 0% | 0% | 0% | 12% | 0% | 6% |
| Turn Type | Perm | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | 4 | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 48.4 | | | 48.4 | | | | | 13.6 | 13.6 | 13.6 |
| Effective Green, g (s) | | 48.4 | | | 48.4 | | | | | 13.6 | 13.6 | 13.6 |
| Actuated g/C Ratio | | 0.69 | | | 0.69 | | | | | 0.19 | 0.19 | 0.19 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3170 | | | 3551 | | | | | 297 | 271 | 281 |
| v/s Ratio Prot | | | | | c0.35 | | | | | | | |
| v/s Ratio Perm | | 0.22 | | | | | | | | c0.11 | 0.11 | 0.10 |
| v/c Ratio | | 0.32 | | | 0.51 | | | | | 0.57 | 0.55 | 0.53 |
| Uniform Delay, d1 | | 4.3 | | | 5.1 | | | | | 25.6 | 25.5 | 25.3 |
| Progression Factor | | 1.00 | | | 0.24 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.3 | | | 0.4 | | | | | 2.7 | 2.4 | 1.8 |
| Delay (s) | | 4.6 | | | 1.7 | | | | | 28.2 | 27.9 | 27.1 |
| Level of Service | | A | | | A | | | | | C | C | C |
| Approach Delay (s) | | 4.6 | | | 1.7 | | | 0.0 | | | 27.8 | |
| Approach LOS | | A | | | A | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 70.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 50.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



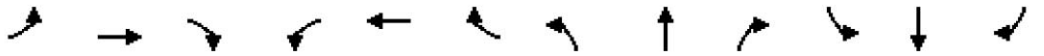
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 113 | 740 | 0 | 0 | 956 | 156 | 753 | 1 | 294 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1719 | 5036 | | | 4967 | | 1681 | 1601 | 1490 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1719 | 5036 | | | 4967 | | 1681 | 1601 | 1490 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 123 | 804 | 0 | 0 | 1039 | 170 | 818 | 1 | 320 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 4 | 106 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 123 | 804 | 0 | 0 | 1179 | 0 | 425 | 422 | 182 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Heavy Vehicles (%) | 5% | 3% | 0% | 0% | 2% | 2% | 2% | 0% | 3% | 0% | 0% | 0% |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.4 | 39.5 | | | 29.1 | | 22.5 | 22.5 | 22.5 | | | |
| Effective Green, g (s) | 6.4 | 39.5 | | | 29.1 | | 22.5 | 22.5 | 22.5 | | | |
| Actuated g/C Ratio | 0.09 | 0.56 | | | 0.42 | | 0.32 | 0.32 | 0.32 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 157 | 2842 | | | 2065 | | 540 | 515 | 479 | | | |
| v/s Ratio Prot | c0.07 | 0.16 | | | c0.24 | | 0.25 | c0.26 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.12 | | | |
| v/c Ratio | 0.78 | 0.28 | | | 0.57 | | 0.79 | 0.82 | 0.38 | | | |
| Uniform Delay, d1 | 31.1 | 7.9 | | | 15.7 | | 21.6 | 21.9 | 18.4 | | | |
| Progression Factor | 0.98 | 0.86 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 21.1 | 0.2 | | | 1.2 | | 7.5 | 9.8 | 0.5 | | | |
| Delay (s) | 51.6 | 7.0 | | | 16.8 | | 29.0 | 31.7 | 18.9 | | | |
| Level of Service | D | A | | | B | | C | C | B | | | |
| Approach Delay (s) | | 12.9 | | | 16.8 | | | 27.5 | | | 0.0 | |
| Approach LOS | | B | | | B | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 70.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



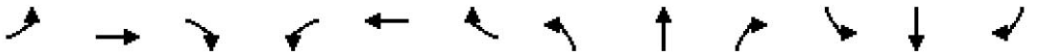
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 311 | 725 | 7 | 0 | 928 | 92 | 48 | 155 | 1 | 21 | 11 | 155 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 3496 | | | 3539 | 1599 | 3367 | 3571 | | 1719 | 3312 | 1599 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 3496 | | | 3539 | 1599 | 3367 | 3571 | | 1719 | 3312 | 1599 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 331 | 771 | 7 | 0 | 987 | 98 | 51 | 165 | 1 | 22 | 12 | 165 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 153 |
| Lane Group Flow (vph) | 331 | 778 | 0 | 0 | 987 | 53 | 51 | 166 | 0 | 22 | 12 | 12 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Heavy Vehicles (%) | 2% | 3% | 14% | 0% | 2% | 1% | 4% | 1% | 0% | 5% | 9% | 1% |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 22.0 | 90.6 | | | 64.6 | 64.6 | 8.8 | 12.6 | | 4.8 | 8.6 | 8.6 |
| Effective Green, g (s) | 22.0 | 90.6 | | | 64.6 | 64.6 | 8.8 | 12.6 | | 4.8 | 8.6 | 8.6 |
| Actuated g/C Ratio | 0.18 | 0.75 | | | 0.54 | 0.54 | 0.07 | 0.10 | | 0.04 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 629 | 2639 | | | 1905 | 861 | 247 | 375 | | 69 | 237 | 115 |
| v/s Ratio Prot | c0.10 | 0.22 | | | c0.28 | | c0.02 | c0.05 | | c0.01 | 0.00 | |
| v/s Ratio Perm | | | | | | 0.03 | | | | | | 0.01 |
| v/c Ratio | 0.53 | 0.29 | | | 0.52 | 0.06 | 0.21 | 0.44 | | 0.32 | 0.05 | 0.10 |
| Uniform Delay, d1 | 44.3 | 4.6 | | | 17.7 | 13.2 | 52.3 | 50.4 | | 56.0 | 51.9 | 52.1 |
| Progression Factor | 1.00 | 1.00 | | | 0.34 | 0.05 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | 0.3 | | | 1.0 | 0.1 | 0.4 | 0.8 | | 2.7 | 0.1 | 0.4 |
| Delay (s) | 45.1 | 4.9 | | | 6.9 | 0.7 | 52.7 | 51.2 | | 58.7 | 52.0 | 52.5 |
| Level of Service | D | A | | | A | A | D | D | | E | D | D |
| Approach Delay (s) | | 16.9 | | | 6.4 | | | 51.6 | | | 53.1 | |
| Approach LOS | | B | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 69.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 29 | 701 | 18 | 7 | 992 | 25 | 4 | 3 | 14 | 10 | 2 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.88 | | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1752 | 4989 | | 1583 | 3574 | 1349 | 1027 | 1473 | | 1798 | 1480 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.74 | 1.00 | | 0.75 | 1.00 | |
| Satd. Flow (perm) | 1752 | 4989 | | 1583 | 3574 | 1349 | 802 | 1473 | | 1412 | 1480 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 30 | 723 | 19 | 7 | 1023 | 26 | 4 | 3 | 14 | 10 | 2 | 21 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 13 | 0 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 30 | 741 | 0 | 7 | 1023 | 24 | 4 | 4 | 0 | 10 | 3 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 22% | 14% | 1% | 16% | 75% | 0% | 14% | 0% | 0% | 10% |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 6.6 | 99.3 | | 1.4 | 94.1 | 94.1 | 7.3 | 7.3 | | 7.3 | 7.3 | |
| Effective Green, g (s) | 6.6 | 99.3 | | 1.4 | 94.1 | 94.1 | 7.3 | 7.3 | | 7.3 | 7.3 | |
| Actuated g/C Ratio | 0.05 | 0.83 | | 0.01 | 0.78 | 0.78 | 0.06 | 0.06 | | 0.06 | 0.06 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 96 | 4128 | | 18 | 2803 | 1058 | 49 | 90 | | 86 | 90 | |
| v/s Ratio Prot | c0.02 | 0.15 | | 0.00 | c0.29 | | | 0.00 | | | 0.00 | |
| v/s Ratio Perm | | | | | | 0.02 | 0.00 | | | c0.01 | | |
| v/c Ratio | 0.31 | 0.18 | | 0.39 | 0.36 | 0.02 | 0.08 | 0.04 | | 0.12 | 0.04 | |
| Uniform Delay, d1 | 54.5 | 2.1 | | 58.9 | 3.9 | 2.8 | 53.2 | 53.1 | | 53.3 | 53.0 | |
| Progression Factor | 0.90 | 0.97 | | 1.15 | 0.42 | 0.27 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.8 | 0.1 | | 13.0 | 0.4 | 0.0 | 0.7 | 0.2 | | 0.6 | 0.2 | |
| Delay (s) | 50.9 | 2.1 | | 80.5 | 2.0 | 0.8 | 53.9 | 53.3 | | 53.9 | 53.2 | |
| Level of Service | D | A | | F | A | A | D | D | | D | D | |
| Approach Delay (s) | | 4.0 | | | 2.5 | | | 53.4 | | | 53.4 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 48.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

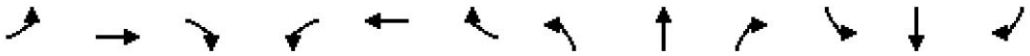


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 39 | 649 | 72 | 97 | 873 | 71 | 63 | 88 | 35 | 39 | 119 | 69 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1752 | 5005 | | 1805 | 5070 | | 1770 | 1797 | | 1752 | 1845 | 1542 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1752 | 5005 | | 1805 | 5070 | | 1770 | 1797 | | 1752 | 1845 | 1542 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 40 | 662 | 73 | 99 | 891 | 72 | 64 | 90 | 36 | 40 | 121 | 70 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 4 | 0 | 0 | 18 | 0 | 0 | 0 | 62 |
| Lane Group Flow (vph) | 40 | 728 | 0 | 99 | 959 | 0 | 64 | 108 | 0 | 40 | 121 | 8 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 3% | 2% | 1% | 0% | 1% | 0% | 2% | 1% | 0% | 3% | 3% | 3% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 6.6 | 68.9 | | 13.6 | 75.9 | | 8.2 | 12.7 | | 8.8 | 13.3 | 13.3 |
| Effective Green, g (s) | 6.6 | 68.9 | | 13.6 | 75.9 | | 8.2 | 12.7 | | 8.8 | 13.3 | 13.3 |
| Actuated g/C Ratio | 0.05 | 0.57 | | 0.11 | 0.63 | | 0.07 | 0.11 | | 0.07 | 0.11 | 0.11 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 96 | 2874 | | 205 | 3207 | | 121 | 190 | | 128 | 204 | 171 |
| v/s Ratio Prot | 0.02 | 0.15 | | c0.05 | c0.19 | | 0.04 | c0.06 | | 0.02 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.42 | 0.25 | | 0.48 | 0.30 | | 0.53 | 0.57 | | 0.31 | 0.59 | 0.05 |
| Uniform Delay, d1 | 54.8 | 12.7 | | 49.9 | 10.0 | | 54.0 | 51.0 | | 52.7 | 50.8 | 47.7 |
| Progression Factor | 1.09 | 0.66 | | 0.66 | 0.30 | | 1.45 | 1.58 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.9 | 0.2 | | 1.7 | 0.2 | | 3.4 | 3.2 | | 1.4 | 4.6 | 0.1 |
| Delay (s) | 62.6 | 8.6 | | 34.7 | 3.2 | | 81.5 | 83.6 | | 54.1 | 55.3 | 47.8 |
| Level of Service | E | A | | C | A | | F | F | | D | E | D |
| Approach Delay (s) | | 11.4 | | | 6.1 | | | 82.9 | | | 52.8 | |
| Approach LOS | | B | | | A | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 59.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 105 | 35 | 466 | 623 | 0 | 0 | 0 | 0 | 0 | 0 | 132 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 2959 | 1379 | 1770 | 3539 | | | | | | | 1370 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 2959 | 1379 | 1770 | 3539 | | | | | | | 1370 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 114 | 38 | 507 | 677 | 0 | 0 | 0 | 0 | 0 | 0 | 143 |
| RTOR Reduction (vph) | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 134 |
| Lane Group Flow (vph) | 0 | 114 | 15 | 507 | 677 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Heavy Vehicles (%) | 0% | 22% | 14% | 2% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 20% |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 46.3 | 46.3 | 65.7 | 104.3 | | | | | | | 7.7 |
| Effective Green, g (s) | | 46.3 | 46.3 | 65.7 | 104.3 | | | | | | | 7.7 |
| Actuated g/C Ratio | | 0.39 | 0.39 | 0.55 | 0.87 | | | | | | | 0.06 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1142 | 532 | 969 | 3076 | | | | | | | 88 |
| v/s Ratio Prot | | 0.04 | | c0.29 | c0.19 | | | | | | | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | |
| v/c Ratio | | 0.10 | 0.03 | 0.52 | 0.22 | | | | | | | 0.10 |
| Uniform Delay, d1 | | 23.5 | 22.9 | 17.2 | 1.3 | | | | | | | 52.9 |
| Progression Factor | | 1.00 | 1.00 | 0.63 | 1.06 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 0.2 | 0.1 | 0.4 | 0.1 | | | | | | | 0.5 |
| Delay (s) | | 23.7 | 23.0 | 11.2 | 1.5 | | | | | | | 53.4 |
| Level of Service | | C | C | B | A | | | | | | | D |
| Approach Delay (s) | | 23.5 | | | 5.7 | | | 0.0 | | | 53.4 | |
| Approach LOS | | C | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 45.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 564 | 20 | 0 | 1399 | 117 | 216 | 87 | 6 | 10 | 0 | 15 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1289 | 3376 | | | 3467 | | 1770 | 1798 | | 1805 | 1056 | |
| Flt Permitted | 0.11 | 1.00 | | | 1.00 | | 0.75 | 1.00 | | 0.65 | 1.00 | |
| Satd. Flow (perm) | 148 | 3376 | | | 3467 | | 1392 | 1798 | | 1237 | 1056 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 11 | 600 | 21 | 0 | 1488 | 124 | 230 | 93 | 6 | 11 | 0 | 16 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 11 | 619 | 0 | 0 | 1608 | 0 | 230 | 97 | 0 | 11 | 3 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Heavy Vehicles (%) | 40% | 4% | 75% | 0% | 2% | 11% | 2% | 5% | 0% | 0% | 0% | 53% |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 86.8 | 86.8 | | | 86.8 | | 25.2 | 25.2 | | 25.2 | 25.2 | |
| Effective Green, g (s) | 86.8 | 86.8 | | | 86.8 | | 25.2 | 25.2 | | 25.2 | 25.2 | |
| Actuated g/C Ratio | 0.72 | 0.72 | | | 0.72 | | 0.21 | 0.21 | | 0.21 | 0.21 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 107 | 2442 | | | 2508 | | 292 | 378 | | 260 | 222 | |
| v/s Ratio Prot | | 0.18 | | | c0.46 | | | 0.05 | | | 0.00 | |
| v/s Ratio Perm | 0.07 | | | | | | c0.17 | | | 0.01 | | |
| v/c Ratio | 0.10 | 0.25 | | | 0.64 | | 0.79 | 0.26 | | 0.04 | 0.02 | |
| Uniform Delay, d1 | 5.0 | 5.6 | | | 8.6 | | 44.9 | 39.6 | | 37.8 | 37.6 | |
| Progression Factor | 0.87 | 0.85 | | | 0.38 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.9 | 0.3 | | | 1.2 | | 13.1 | 0.4 | | 0.1 | 0.0 | |
| Delay (s) | 6.2 | 5.0 | | | 4.5 | | 58.0 | 39.9 | | 37.8 | 37.6 | |
| Level of Service | A | A | | | A | | E | D | | D | D | |
| Approach Delay (s) | | 5.0 | | | 4.5 | | | 52.5 | | | 37.7 | |
| Approach LOS | | A | | | A | | | D | | | D | |

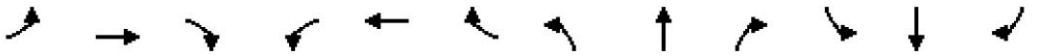
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 67.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 99 | 861 | 248 | 117 | 1190 | 54 | 44 | 21 | 27 | 57 | 111 | 82 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3574 | 1585 | 1787 | 5085 | 1564 | 1633 | 1604 | | 1715 | 1784 | 1556 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 3574 | 1585 | 1787 | 5085 | 1564 | 1633 | 1604 | | 1715 | 1784 | 1556 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 105 | 916 | 264 | 124 | 1266 | 57 | 47 | 22 | 29 | 61 | 118 | 87 |
| RTOR Reduction (vph) | 0 | 0 | 88 | 0 | 0 | 17 | 0 | 27 | 0 | 0 | 0 | 77 |
| Lane Group Flow (vph) | 105 | 916 | 176 | 124 | 1266 | 40 | 42 | 29 | 0 | 55 | 124 | 10 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 0% | 1% | 2% | 0% | 5% | 5% | 0% | 0% | 1% | 2% |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 7.0 | 74.4 | 74.4 | 7.0 | 74.4 | 74.4 | 8.9 | 8.9 | | 13.7 | 13.7 | 13.7 |
| Effective Green, g (s) | 7.0 | 74.4 | 74.4 | 7.0 | 74.4 | 74.4 | 8.9 | 8.9 | | 13.7 | 13.7 | 13.7 |
| Actuated g/C Ratio | 0.06 | 0.62 | 0.62 | 0.06 | 0.62 | 0.62 | 0.07 | 0.07 | | 0.11 | 0.11 | 0.11 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 104 | 2216 | 983 | 104 | 3153 | 970 | 121 | 119 | | 196 | 204 | 178 |
| v/s Ratio Prot | 0.06 | c0.26 | | c0.07 | 0.25 | | c0.03 | 0.02 | | 0.03 | c0.07 | |
| v/s Ratio Perm | | | 0.11 | | | 0.03 | | | | | | 0.01 |
| v/c Ratio | 1.01 | 0.41 | 0.18 | 1.19 | 0.40 | 0.04 | 0.35 | 0.24 | | 0.28 | 0.61 | 0.06 |
| Uniform Delay, d1 | 56.5 | 11.6 | 9.7 | 56.5 | 11.5 | 8.9 | 52.8 | 52.4 | | 48.6 | 50.6 | 47.4 |
| Progression Factor | 0.92 | 1.02 | 1.19 | 0.83 | 0.34 | 0.14 | 1.00 | 1.00 | | 1.01 | 1.02 | 2.28 |
| Incremental Delay, d2 | 90.8 | 0.6 | 0.4 | 139.9 | 0.3 | 0.1 | 1.7 | 1.1 | | 0.8 | 4.9 | 0.1 |
| Delay (s) | 142.6 | 12.4 | 12.0 | 186.9 | 4.2 | 1.3 | 54.5 | 53.5 | | 49.7 | 56.7 | 108.3 |
| Level of Service | F | B | B | F | A | A | D | D | | D | E | F |
| Approach Delay (s) | | 23.0 | | | 19.7 | | | 53.9 | | | 72.1 | |
| Approach LOS | | C | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 54.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

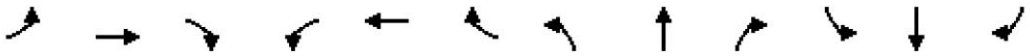
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 514 | 59 | 5 | 525 | 270 | 56 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.98 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3441 | | 1805 | 3539 | 1770 | 1521 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3441 | | 1805 | 3539 | 1770 | 1521 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 612 | 70 | 6 | 625 | 321 | 67 |
| RTOR Reduction (vph) | 11 | 0 | 0 | 0 | 0 | 40 |
| Lane Group Flow (vph) | 671 | 0 | 6 | 625 | 321 | 27 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 12% | 0% | 2% | 2% | 5% |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 15.4 | | 3.4 | 22.8 | 14.8 | 18.2 |
| Effective Green, g (s) | 15.4 | | 3.4 | 22.8 | 14.8 | 18.2 |
| Actuated g/C Ratio | 0.34 | | 0.07 | 0.50 | 0.32 | 0.40 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1162 | | 135 | 1770 | 574 | 740 |
| v/s Ratio Prot | c0.19 | | 0.00 | c0.18 | c0.18 | 0.00 |
| v/s Ratio Perm | | | | | | 0.01 |
| v/c Ratio | 0.58 | | 0.04 | 0.35 | 0.56 | 0.04 |
| Uniform Delay, d1 | 12.4 | | 19.6 | 6.9 | 12.7 | 8.4 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | | 0.1 | 0.1 | 1.2 | 0.0 |
| Delay (s) | 13.1 | | 19.7 | 7.0 | 13.9 | 8.4 |
| Level of Service | B | | B | A | B | A |
| Approach Delay (s) | 13.1 | | | 7.2 | 12.9 | |
| Approach LOS | B | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 45.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 40.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 6 | 484 | 116 | 24 | 218 | 26 | 436 | 275 | 720 | 53 | 18 | 6 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5085 | 1552 | 3502 | 3416 | | 1770 | 1900 | 1599 | 1805 | 3252 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5085 | 1552 | 3502 | 3416 | | 1770 | 1900 | 1599 | 1805 | 3252 | 1590 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 7 | 532 | 127 | 26 | 240 | 29 | 479 | 302 | 791 | 58 | 20 | 7 |
| RTOR Reduction (vph) | 0 | 0 | 103 | 0 | 8 | 0 | 0 | 0 | 134 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 7 | 532 | 24 | 26 | 261 | 0 | 479 | 302 | 657 | 58 | 20 | 0 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 3% | 12% | 2% | 0% | 1% | 0% | 11% | 0% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.6 | 16.0 | 16.0 | 2.1 | 16.5 | | 48.5 | 45.1 | 45.1 | 5.5 | 2.1 | 2.1 |
| Effective Green, g (s) | 1.6 | 16.0 | 16.0 | 2.1 | 16.5 | | 48.5 | 45.1 | 45.1 | 5.5 | 2.1 | 2.1 |
| Actuated g/C Ratio | 0.02 | 0.19 | 0.19 | 0.02 | 0.19 | | 0.57 | 0.53 | 0.53 | 0.06 | 0.02 | 0.02 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 34 | 961 | 293 | 87 | 665 | | 1014 | 1012 | 851 | 117 | 81 | 39 |
| v/s Ratio Prot | 0.00 | c0.10 | | 0.01 | c0.08 | | c0.27 | 0.16 | | c0.03 | 0.01 | |
| v/s Ratio Perm | | | 0.02 | | | | | | c0.41 | | | 0.00 |
| v/c Ratio | 0.21 | 0.55 | 0.08 | 0.30 | 0.39 | | 0.47 | 0.30 | 0.77 | 0.50 | 0.25 | 0.00 |
| Uniform Delay, d1 | 40.9 | 31.1 | 28.3 | 40.6 | 29.7 | | 10.6 | 11.0 | 15.7 | 38.3 | 40.5 | 40.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.0 | 0.7 | 0.1 | 1.9 | 0.4 | | 0.3 | 0.2 | 4.4 | 3.3 | 1.6 | 0.0 |
| Delay (s) | 43.9 | 31.8 | 28.4 | 42.5 | 30.1 | | 11.0 | 11.2 | 20.1 | 41.5 | 42.1 | 40.3 |
| Level of Service | D | C | C | D | C | | B | B | C | D | D | D |
| Approach Delay (s) | | 31.3 | | | 31.2 | | | 15.6 | | | 41.6 | |
| Approach LOS | | C | | | C | | | B | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 84.7 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 70.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 18 | 5 | 46 | 0 | 0 | 0 | 0 | 1039 | 271 | 78 | 192 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1543 | 1532 | 1475 | | | | | 3574 | 1599 | 3467 | 3505 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1543 | 1532 | 1475 | | | | | 3574 | 1599 | 3467 | 3505 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 20 | 5 | 51 | 0 | 0 | 0 | 0 | 1142 | 298 | 86 | 211 | 0 |
| RTOR Reduction (vph) | 0 | 21 | 26 | 0 | 0 | 0 | 0 | 0 | 122 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 20 | 7 | 2 | 0 | 0 | 0 | 0 | 1142 | 176 | 86 | 211 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Heavy Vehicles (%) | 17% | 0% | 4% | 0% | 0% | 0% | 0% | 1% | 1% | 1% | 3% | 0% |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 4.2 | 4.2 | 4.2 | | | | | 29.6 | 29.6 | 4.2 | 37.8 | |
| Effective Green, g (s) | 4.2 | 4.2 | 4.2 | | | | | 29.6 | 29.6 | 4.2 | 37.8 | |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.08 | | | | | 0.59 | 0.59 | 0.08 | 0.76 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 130 | 129 | 124 | | | | | 2116 | 947 | 291 | 2650 | |
| v/s Ratio Prot | c0.01 | 0.00 | | | | | | c0.32 | | c0.02 | 0.06 | |
| v/s Ratio Perm | | | 0.00 | | | | | | 0.11 | | | |
| v/c Ratio | 0.15 | 0.05 | 0.02 | | | | | 0.54 | 0.19 | 0.30 | 0.08 | |
| Uniform Delay, d1 | 21.3 | 21.1 | 21.0 | | | | | 6.1 | 4.7 | 21.5 | 1.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.91 | 0.70 | |
| Incremental Delay, d2 | 0.6 | 0.2 | 0.1 | | | | | 1.0 | 0.4 | 0.6 | 0.1 | |
| Delay (s) | 21.8 | 21.2 | 21.1 | | | | | 7.1 | 5.1 | 20.1 | 1.2 | |
| Level of Service | C | C | C | | | | | A | A | C | A | |
| Approach Delay (s) | | 21.3 | | | 0.0 | | | 6.7 | | | 6.7 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 50.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



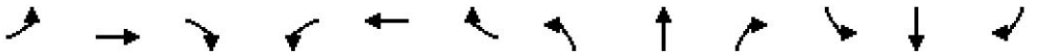
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 129 | 255 | 1005 | 0 | 0 | 135 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3433 | 1599 | 3539 | | | 3539 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3433 | 1599 | 3539 | | | 3539 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 152 | 300 | 1182 | 0 | 0 | 159 |
| RTOR Reduction (vph) | 0 | 43 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 152 | 257 | 1182 | 0 | 0 | 159 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Heavy Vehicles (%) | 2% | 1% | 2% | 0% | 0% | 2% |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 12.1 | 12.1 | 29.9 | | | 29.9 |
| Effective Green, g (s) | 12.1 | 12.1 | 29.9 | | | 29.9 |
| Actuated g/C Ratio | 0.24 | 0.24 | 0.60 | | | 0.60 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 831 | 387 | 2116 | | | 2116 |
| v/s Ratio Prot | 0.04 | | c0.33 | | | 0.04 |
| v/s Ratio Perm | | c0.16 | | | | |
| v/c Ratio | 0.18 | 0.66 | 0.56 | | | 0.08 |
| Uniform Delay, d1 | 15.0 | 17.1 | 6.1 | | | 4.2 |
| Progression Factor | 1.00 | 1.00 | 0.23 | | | 1.00 |
| Incremental Delay, d2 | 0.1 | 4.2 | 1.0 | | | 0.1 |
| Delay (s) | 15.1 | 21.4 | 2.4 | | | 4.3 |
| Level of Service | B | C | A | | | A |
| Approach Delay (s) | 19.3 | | 2.4 | | | 4.3 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 50.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



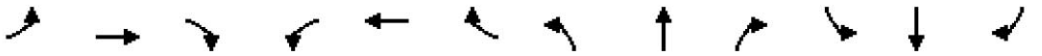
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 682 | 1 | 104 | 1783 | 1893 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5084 | | 3335 | 5136 | 5047 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5084 | | 3335 | 5136 | 5047 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 741 | 1 | 113 | 1938 | 2058 | 9 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 742 | 0 | 113 | 1938 | 2066 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Heavy Vehicles (%) | 2% | 0% | 5% | 1% | 1% | 13% |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 24.0 | | 14.7 | 42.7 | 38.0 | |
| Effective Green, g (s) | 24.0 | | 14.7 | 42.7 | 38.0 | |
| Actuated g/C Ratio | 0.27 | | 0.17 | 0.48 | 0.43 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 1376 | | 553 | 2472 | 2162 | |
| v/s Ratio Prot | 0.15 | | 0.03 | c0.38 | c0.41 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.54 | | 0.20 | 0.78 | 0.96 | |
| Uniform Delay, d1 | 27.6 | | 32.0 | 19.2 | 24.5 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | | 0.2 | 1.7 | 10.8 | |
| Delay (s) | 28.0 | | 32.1 | 20.9 | 35.3 | |
| Level of Service | C | | C | C | D | |
| Approach Delay (s) | 28.0 | | | 21.5 | 35.3 | |
| Approach LOS | C | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 88.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



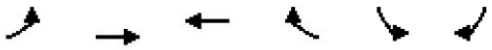
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 41 | 806 | 32 | 148 | 1618 | 12 | 118 | 109 | 178 | 90 | 98 | 39 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5085 | 1407 | 3400 | 5076 | | 3303 | 1863 | 1545 | 1787 | 3443 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5085 | 1407 | 3400 | 5076 | | 3303 | 1863 | 1545 | 1787 | 3443 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 44 | 857 | 34 | 157 | 1721 | 13 | 126 | 116 | 189 | 96 | 104 | 41 |
| RTOR Reduction (vph) | 0 | 0 | 19 | 0 | 1 | 0 | 0 | 0 | 162 | 0 | 36 | 0 |
| Lane Group Flow (vph) | 44 | 857 | 15 | 157 | 1733 | 0 | 126 | 116 | 27 | 96 | 109 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 2% | 13% | 3% | 2% | 8% | 6% | 2% | 3% | 1% | 0% | 0% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 3.7 | 30.8 | 30.8 | 7.3 | 34.4 | | 9.3 | 10.2 | 10.2 | 7.3 | 8.2 | |
| Effective Green, g (s) | 3.7 | 30.8 | 30.8 | 7.3 | 34.4 | | 9.3 | 10.2 | 10.2 | 7.3 | 8.2 | |
| Actuated g/C Ratio | 0.05 | 0.43 | 0.43 | 0.10 | 0.48 | | 0.13 | 0.14 | 0.14 | 0.10 | 0.11 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 93 | 2187 | 605 | 347 | 2439 | | 429 | 265 | 220 | 182 | 394 | |
| v/s Ratio Prot | 0.02 | c0.17 | | 0.05 | c0.34 | | 0.04 | c0.06 | | c0.05 | 0.03 | |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.02 | | | |
| v/c Ratio | 0.47 | 0.39 | 0.02 | 0.45 | 0.71 | | 0.29 | 0.44 | 0.12 | 0.53 | 0.28 | |
| Uniform Delay, d1 | 33.0 | 14.0 | 11.7 | 30.3 | 14.7 | | 28.2 | 28.1 | 26.8 | 30.5 | 29.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.8 | 0.1 | 0.0 | 0.9 | 1.0 | | 0.4 | 1.2 | 0.3 | 2.7 | 0.4 | |
| Delay (s) | 36.8 | 14.1 | 11.8 | 31.2 | 15.7 | | 28.6 | 29.2 | 27.0 | 33.3 | 29.4 | |
| Level of Service | D | B | B | C | B | | C | C | C | C | C | |
| Approach Delay (s) | | 15.1 | | | 17.0 | | | 28.1 | | | 30.9 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 71.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



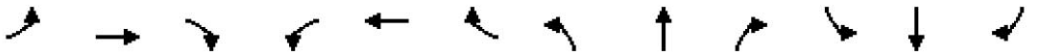
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 104 | 412 | 91 | 44 | 521 | 133 | 408 | 869 | 189 | 63 | 199 | 99 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1719 | 3610 | 1566 | 3335 | 3539 | 1565 | 3467 | 3505 | 1564 | 3242 | 3223 | 1506 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1719 | 3610 | 1566 | 3335 | 3539 | 1565 | 3467 | 3505 | 1564 | 3242 | 3223 | 1506 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 118 | 468 | 103 | 50 | 592 | 151 | 464 | 988 | 215 | 72 | 226 | 112 |
| RTOR Reduction (vph) | 0 | 0 | 64 | 0 | 0 | 38 | 0 | 0 | 94 | 0 | 0 | 40 |
| Lane Group Flow (vph) | 118 | 468 | 39 | 50 | 592 | 113 | 464 | 988 | 121 | 72 | 226 | 72 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 5% | 0% | 2% | 5% | 2% | 2% | 1% | 3% | 2% | 8% | 12% | 6% |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.7 | 22.9 | 32.1 | 7.2 | 20.4 | 27.6 | 9.2 | 30.9 | 38.1 | 7.2 | 28.9 | 38.6 |
| Effective Green, g (s) | 9.7 | 22.9 | 32.1 | 7.2 | 20.4 | 27.6 | 9.2 | 30.9 | 38.1 | 7.2 | 28.9 | 38.6 |
| Actuated g/C Ratio | 0.12 | 0.27 | 0.38 | 0.09 | 0.24 | 0.33 | 0.11 | 0.37 | 0.45 | 0.09 | 0.34 | 0.46 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 198 | 982 | 671 | 285 | 857 | 587 | 379 | 1286 | 782 | 277 | 1106 | 762 |
| v/s Ratio Prot | c0.07 | 0.13 | 0.01 | 0.01 | c0.17 | 0.02 | c0.13 | c0.28 | 0.01 | 0.02 | 0.07 | 0.01 |
| v/s Ratio Perm | | | 0.02 | | | 0.06 | | | 0.06 | | | 0.04 |
| v/c Ratio | 0.60 | 0.48 | 0.06 | 0.18 | 0.69 | 0.19 | 1.22 | 0.77 | 0.16 | 0.26 | 0.20 | 0.09 |
| Uniform Delay, d1 | 35.4 | 25.6 | 16.5 | 35.7 | 29.0 | 20.3 | 37.5 | 23.5 | 13.6 | 36.0 | 19.5 | 12.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.8 | 0.4 | 0.0 | 0.3 | 2.4 | 0.2 | 122.3 | 2.8 | 0.1 | 0.5 | 0.1 | 0.1 |
| Delay (s) | 40.1 | 26.0 | 16.5 | 36.0 | 31.4 | 20.5 | 159.8 | 26.3 | 13.7 | 36.5 | 19.6 | 13.0 |
| Level of Service | D | C | B | D | C | C | F | C | B | D | B | B |
| Approach Delay (s) | | 27.0 | | | 29.6 | | | 61.8 | | | 20.8 | |
| Approach LOS | | C | | | C | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 84.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



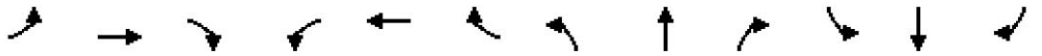
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 152 | 528 | 583 | 390 | 158 | 91 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 0.99 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1770 | 3574 | 3539 | 1570 | 3345 | 1416 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1770 | 3574 | 3539 | 1570 | 3345 | 1416 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 171 | 593 | 655 | 438 | 178 | 102 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 38 | 11 | 49 |
| Lane Group Flow (vph) | 171 | 593 | 655 | 400 | 182 | 38 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Heavy Vehicles (%) | 2% | 1% | 2% | 2% | 4% | 3% |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.1 | 24.5 | 13.4 | 21.8 | 8.4 | 15.5 |
| Effective Green, g (s) | 7.1 | 24.5 | 13.4 | 21.8 | 8.4 | 15.5 |
| Actuated g/C Ratio | 0.17 | 0.60 | 0.33 | 0.53 | 0.21 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 307 | 2141 | 1159 | 990 | 687 | 675 |
| v/s Ratio Prot | c0.10 | 0.17 | c0.19 | c0.08 | 0.05 | 0.01 |
| v/s Ratio Perm | | | | 0.17 | | 0.02 |
| v/c Ratio | 0.56 | 0.28 | 0.57 | 0.40 | 0.26 | 0.06 |
| Uniform Delay, d1 | 15.5 | 3.9 | 11.3 | 5.7 | 13.7 | 8.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.2 | 0.1 | 0.6 | 0.3 | 0.2 | 0.0 |
| Delay (s) | 17.6 | 4.0 | 12.0 | 6.0 | 13.9 | 8.1 |
| Level of Service | B | A | B | A | B | A |
| Approach Delay (s) | | 7.1 | 9.6 | | 12.1 | |
| Approach LOS | | A | A | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 40.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 44.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 125 | 254 | 121 | 147 | 614 | 123 | 780 | 346 | 740 | 23 | 46 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 5136 | 1526 | 3400 | 3610 | 1591 | 3433 | 3574 | 1591 | 3367 | 3471 | 1395 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 5136 | 1526 | 3400 | 3610 | 1591 | 3433 | 3574 | 1591 | 3367 | 3471 | 1395 |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 152 | 310 | 148 | 179 | 749 | 150 | 951 | 422 | 902 | 28 | 56 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 63 | 0 | 0 | 106 | 0 | 0 | 370 | 0 | 0 | 25 |
| Lane Group Flow (vph) | 152 | 310 | 85 | 179 | 749 | 44 | 951 | 422 | 532 | 28 | 56 | 8 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 5% | 3% | 0% | 0% | 2% | 1% | 0% | 4% | 4% | 15% |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.1 | 26.2 | 48.3 | 9.6 | 24.7 | 24.7 | 22.1 | 29.3 | 29.3 | 2.6 | 9.8 | 20.9 |
| Effective Green, g (s) | 11.1 | 26.2 | 48.3 | 9.6 | 24.7 | 24.7 | 22.1 | 29.3 | 29.3 | 2.6 | 9.8 | 20.9 |
| Actuated g/C Ratio | 0.13 | 0.31 | 0.58 | 0.11 | 0.30 | 0.30 | 0.26 | 0.35 | 0.35 | 0.03 | 0.12 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 237 | 1608 | 954 | 390 | 1065 | 470 | 906 | 1251 | 557 | 105 | 406 | 415 |
| v/s Ratio Prot | c0.09 | 0.06 | 0.02 | 0.05 | c0.21 | | c0.28 | 0.12 | | 0.01 | 0.02 | 0.00 |
| v/s Ratio Perm | | | 0.03 | | | 0.03 | | | c0.33 | | | 0.00 |
| v/c Ratio | 0.64 | 0.19 | 0.09 | 0.46 | 0.70 | 0.09 | 1.05 | 0.34 | 0.96 | 0.27 | 0.14 | 0.02 |
| Uniform Delay, d1 | 34.4 | 21.0 | 7.9 | 34.6 | 26.2 | 21.4 | 30.8 | 20.0 | 26.6 | 39.6 | 33.2 | 23.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.8 | 0.1 | 0.0 | 0.9 | 2.1 | 0.1 | 43.8 | 0.2 | 27.1 | 1.4 | 0.2 | 0.0 |
| Delay (s) | 40.2 | 21.1 | 7.9 | 35.5 | 28.4 | 21.5 | 74.6 | 20.2 | 53.7 | 41.0 | 33.3 | 23.7 |
| Level of Service | D | C | A | D | C | C | E | C | D | D | C | C |
| Approach Delay (s) | | 22.7 | | | 28.6 | | | 56.2 | | | 32.4 | |
| Approach LOS | | C | | | C | | | E | | | C | |

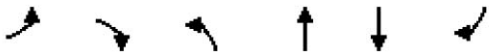
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 83.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 766 | 240 | 2 | 480 | 0 | 0 | 0 | 0 | 4 | 0 | 414 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3408 | 1455 | 1203 | 3574 | | | | | 1203 | 1599 | |
| Flt Permitted | | 1.00 | 1.00 | 0.24 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3408 | 1455 | 303 | 3574 | | | | | 1203 | 1599 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 0 | 870 | 273 | 2 | 545 | 0 | 0 | 0 | 0 | 5 | 0 | 470 |
| RTOR Reduction (vph) | 0 | 4 | 132 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 144 | 0 |
| Lane Group Flow (vph) | 0 | 893 | 114 | 2 | 545 | 0 | 0 | 0 | 0 | 5 | 326 | 0 |
| Heavy Vehicles (%) | 0% | 1% | 1% | 50% | 1% | 0% | 0% | 0% | 0% | 50% | 0% | 1% |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 18.0 | 18.0 | 18.0 | 18.0 | | | | | 13.0 | 13.0 | |
| Effective Green, g (s) | | 18.0 | 18.0 | 18.0 | 18.0 | | | | | 13.0 | 13.0 | |
| Actuated g/C Ratio | | 0.46 | 0.46 | 0.46 | 0.46 | | | | | 0.33 | 0.33 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1573 | 672 | 140 | 1650 | | | | | 401 | 533 | |
| v/s Ratio Prot | | c0.26 | | | 0.15 | | | | | | c0.20 | |
| v/s Ratio Perm | | | 0.08 | 0.01 | | | | | | 0.00 | | |
| v/c Ratio | | 0.57 | 0.17 | 0.01 | 0.33 | | | | | 0.01 | 0.61 | |
| Uniform Delay, d1 | | 7.7 | 6.1 | 5.7 | 6.7 | | | | | 8.7 | 10.9 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.5 | 0.1 | 0.0 | 0.1 | | | | | 0.0 | 2.1 | |
| Delay (s) | | 8.1 | 6.3 | 5.7 | 6.8 | | | | | 8.7 | 13.0 | |
| Level of Service | | A | A | A | A | | | | | A | B | |
| Approach Delay (s) | | 7.7 | | | 6.8 | | | 0.0 | | | 12.9 | |
| Approach LOS | | A | | | A | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 39.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 61.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

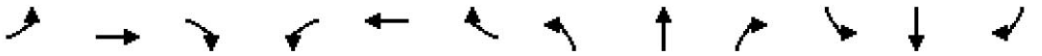
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 780 | 0 | 474 | 0 | 0 | 0 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 830 | 0 | 504 | 0 | 0 | 0 |

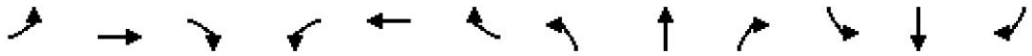
| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 415 | 415 | 336 | 168 |
| Volume Left (vph) | 415 | 415 | 336 | 168 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 6.7 | 6.7 | 7.3 | 7.3 |
| Degree Utilization, x | 0.77 | 0.77 | 0.68 | 0.34 |
| Capacity (veh/h) | 533 | 529 | 482 | 481 |
| Control Delay (s) | 27.2 | 27.2 | 23.0 | 12.7 |
| Approach Delay (s) | 27.2 | | 19.5 | |
| Approach LOS | D | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 24.3 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 72.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



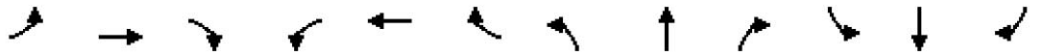
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 5 | 1 | 0 | 534 | 9 | 433 | 5 | 1010 | 390 | 75 | 245 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | 3467 | 1900 | 1583 | 1504 | 3539 | 1560 | 3273 | 3374 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | 3467 | 1900 | 1583 | 1504 | 3539 | 1560 | 3273 | 3374 | 1615 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 6 | 1 | 0 | 593 | 10 | 481 | 6 | 1122 | 433 | 83 | 272 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 223 | 0 | 0 | 126 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 6 | 1 | 0 | 593 | 10 | 258 | 6 | 1122 | 307 | 83 | 272 | 1 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Heavy Vehicles (%) | 0% | 0% | 0% | 1% | 0% | 2% | 20% | 2% | 2% | 7% | 7% | 0% |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 0.9 | 4.1 | | 14.1 | 17.3 | 17.3 | 0.9 | 33.4 | 33.4 | 5.2 | 37.7 | 37.7 |
| Effective Green, g (s) | 0.9 | 4.1 | | 14.1 | 17.3 | 17.3 | 0.9 | 33.4 | 33.4 | 5.2 | 37.7 | 37.7 |
| Actuated g/C Ratio | 0.01 | 0.06 | | 0.19 | 0.24 | 0.24 | 0.01 | 0.46 | 0.46 | 0.07 | 0.52 | 0.52 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 22 | 107 | | 671 | 452 | 376 | 19 | 1624 | 716 | 234 | 1747 | 836 |
| v/s Ratio Prot | 0.00 | 0.00 | | c0.17 | 0.01 | | 0.00 | c0.32 | | c0.03 | 0.08 | |
| v/s Ratio Perm | | | | | | c0.16 | | | 0.20 | | | 0.00 |
| v/c Ratio | 0.27 | 0.01 | | 0.88 | 0.02 | 0.69 | 0.32 | 0.69 | 0.43 | 0.35 | 0.16 | 0.00 |
| Uniform Delay, d1 | 35.6 | 32.4 | | 28.6 | 21.3 | 25.3 | 35.6 | 15.6 | 13.3 | 32.2 | 9.2 | 8.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.6 | 0.0 | | 13.2 | 0.0 | 5.1 | 9.3 | 1.3 | 0.4 | 0.9 | 0.0 | 0.0 |
| Delay (s) | 42.2 | 32.5 | | 41.7 | 21.3 | 30.4 | 45.0 | 16.9 | 13.7 | 33.1 | 9.2 | 8.5 |
| Level of Service | D | C | | D | C | C | D | B | B | C | A | A |
| Approach Delay (s) | | 40.8 | | | 36.5 | | | 16.1 | | | 14.8 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 72.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 71.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 117 | 327 | 12 | 7 | 693 | 31 | 68 | 64 | 21 | 26 | 8 | 131 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.98 | | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 3513 | | 1805 | 3551 | | | 1773 | | 1733 | 1590 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.79 | | 0.69 | 1.00 | |
| Satd. Flow (perm) | 1770 | 3513 | | 1805 | 3551 | | | 1427 | | 1254 | 1590 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 124 | 348 | 13 | 7 | 737 | 33 | 72 | 68 | 22 | 28 | 9 | 139 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 9 | 0 | 0 | 115 | 0 |
| Lane Group Flow (vph) | 124 | 359 | 0 | 7 | 767 | 0 | 0 | 153 | 0 | 28 | 33 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Heavy Vehicles (%) | 2% | 2% | 8% | 0% | 1% | 0% | 3% | 0% | 10% | 4% | 13% | 2% |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 5.6 | 25.6 | | 1.0 | 21.0 | | | 8.2 | | 8.2 | 8.2 | |
| Effective Green, g (s) | 5.6 | 25.6 | | 1.0 | 21.0 | | | 8.2 | | 8.2 | 8.2 | |
| Actuated g/C Ratio | 0.12 | 0.55 | | 0.02 | 0.45 | | | 0.18 | | 0.18 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 212 | 1922 | | 39 | 1593 | | | 250 | | 220 | 279 | |
| v/s Ratio Prot | c0.07 | 0.10 | | 0.00 | c0.22 | | | | | | 0.02 | |
| v/s Ratio Perm | | | | | | | | c0.11 | | 0.02 | | |
| v/c Ratio | 0.58 | 0.19 | | 0.18 | 0.48 | | | 0.61 | | 0.13 | 0.12 | |
| Uniform Delay, d1 | 19.5 | 5.3 | | 22.5 | 9.1 | | | 17.8 | | 16.3 | 16.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.1 | 0.0 | | 2.2 | 0.2 | | | 4.4 | | 0.3 | 0.2 | |
| Delay (s) | 23.6 | 5.4 | | 24.7 | 9.3 | | | 22.2 | | 16.5 | 16.5 | |
| Level of Service | C | A | | C | A | | | C | | B | B | |
| Approach Delay (s) | | 10.0 | | | 9.4 | | | 22.2 | | | 16.5 | |
| Approach LOS | | B | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 46.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 60.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



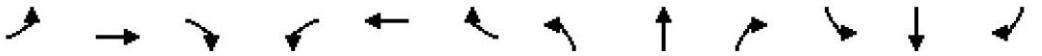
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 34 | 319 | 70 | 87 | 644 | 256 | 146 | 979 | 160 | 77 | 194 | 38 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1752 | 3440 | | 1719 | 3539 | 1564 | 1805 | 3574 | 1548 | 3467 | 3428 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1752 | 3440 | | 1719 | 3539 | 1564 | 1805 | 3574 | 1548 | 3467 | 3428 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 38 | 354 | 78 | 97 | 716 | 284 | 162 | 1088 | 178 | 86 | 216 | 42 |
| RTOR Reduction (vph) | 0 | 21 | 0 | 0 | 0 | 60 | 0 | 0 | 42 | 0 | 15 | 0 |
| Lane Group Flow (vph) | 38 | 411 | 0 | 97 | 716 | 224 | 162 | 1088 | 136 | 86 | 243 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 3% | 2% | 1% | 5% | 2% | 2% | 0% | 1% | 3% | 1% | 2% | 5% |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.7 | 22.7 | | 7.3 | 26.3 | 33.6 | 9.3 | 31.5 | 38.8 | 7.3 | 29.5 | |
| Effective Green, g (s) | 3.7 | 22.7 | | 7.3 | 26.3 | 33.6 | 9.3 | 31.5 | 38.8 | 7.3 | 29.5 | |
| Actuated g/C Ratio | 0.04 | 0.27 | | 0.09 | 0.31 | 0.40 | 0.11 | 0.37 | 0.46 | 0.09 | 0.35 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 76 | 921 | | 148 | 1098 | 693 | 198 | 1328 | 781 | 298 | 1193 | |
| v/s Ratio Prot | 0.02 | 0.12 | | c0.06 | c0.20 | 0.03 | c0.09 | c0.30 | 0.01 | 0.02 | 0.07 | |
| v/s Ratio Perm | | | | | | 0.12 | | | 0.07 | | | |
| v/c Ratio | 0.50 | 0.45 | | 0.66 | 0.65 | 0.32 | 0.82 | 0.82 | 0.17 | 0.29 | 0.20 | |
| Uniform Delay, d1 | 39.6 | 25.8 | | 37.5 | 25.3 | 17.7 | 36.9 | 24.1 | 13.6 | 36.3 | 19.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.1 | 0.3 | | 10.0 | 1.4 | 0.3 | 22.4 | 4.1 | 0.1 | 0.5 | 0.1 | |
| Delay (s) | 44.7 | 26.2 | | 47.5 | 26.7 | 18.0 | 59.3 | 28.2 | 13.7 | 36.9 | 19.5 | |
| Level of Service | D | C | | D | C | B | E | C | B | D | B | |
| Approach Delay (s) | | 27.7 | | | 26.3 | | | 29.9 | | | 23.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 84.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



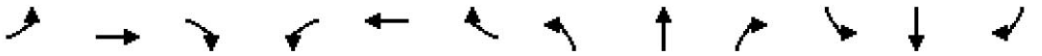
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 50 | 75 | 1361 | 37 | 13 | 766 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1765 | 1576 | 3505 | 1420 | 1570 | 3471 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1765 | 1576 | 3505 | 1420 | 1570 | 3471 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 56 | 84 | 1529 | 42 | 15 | 861 |
| RTOR Reduction (vph) | 0 | 75 | 0 | 6 | 0 | 0 |
| Lane Group Flow (vph) | 56 | 9 | 1529 | 36 | 15 | 861 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Heavy Vehicles (%) | 2% | 1% | 3% | 11% | 15% | 4% |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 5.8 | 5.8 | 33.9 | 33.9 | 1.1 | 39.0 |
| Effective Green, g (s) | 5.8 | 5.8 | 33.9 | 33.9 | 1.1 | 39.0 |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.64 | 0.64 | 0.02 | 0.74 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 194 | 173 | 2250 | 912 | 33 | 2564 |
| v/s Ratio Prot | | | c0.44 | | 0.01 | c0.25 |
| v/s Ratio Perm | c0.03 | 0.01 | | 0.03 | | |
| v/c Ratio | 0.29 | 0.05 | 0.68 | 0.04 | 0.45 | 0.34 |
| Uniform Delay, d1 | 21.6 | 21.0 | 6.0 | 3.5 | 25.6 | 2.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | 0.1 | 0.8 | 0.0 | 9.6 | 0.1 |
| Delay (s) | 22.4 | 21.2 | 6.8 | 3.5 | 35.2 | 2.5 |
| Level of Service | C | C | A | A | D | A |
| Approach Delay (s) | 21.7 | | 6.7 | | | 3.0 |
| Approach LOS | C | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 52.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



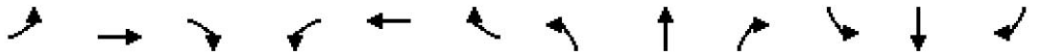
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 68 | 742 | 119 | 492 | 898 | 256 | 0 | 0 | 0 | 498 | 45 | 482 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1752 | 4988 | 1541 | 1787 | 3539 | 1525 | | | | 1649 | 1671 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1752 | 4988 | 1541 | 1787 | 3539 | 1525 | | | | 1649 | 1671 | 1566 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 74 | 807 | 129 | 535 | 976 | 278 | 0 | 0 | 0 | 541 | 49 | 524 |
| RTOR Reduction (vph) | 0 | 0 | 79 | 0 | 0 | 127 | 0 | 0 | 0 | 0 | 0 | 23 |
| Lane Group Flow (vph) | 74 | 807 | 50 | 535 | 976 | 151 | 0 | 0 | 0 | 292 | 298 | 501 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Heavy Vehicles (%) | 3% | 4% | 2% | 1% | 2% | 3% | 0% | 0% | 0% | 4% | 2% | 2% |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 20.5 | 35.4 | 35.4 | 54.0 | 68.9 | 68.9 | | | | 28.6 | 28.6 | 49.1 |
| Effective Green, g (s) | 20.5 | 35.4 | 35.4 | 54.0 | 68.9 | 68.9 | | | | 28.6 | 28.6 | 49.1 |
| Actuated g/C Ratio | 0.16 | 0.27 | 0.27 | 0.42 | 0.53 | 0.53 | | | | 0.22 | 0.22 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 276 | 1358 | 420 | 742 | 1876 | 808 | | | | 363 | 368 | 640 |
| v/s Ratio Prot | 0.04 | c0.16 | | c0.30 | 0.28 | | | | | 0.18 | 0.18 | c0.12 |
| v/s Ratio Perm | | | 0.03 | | | 0.10 | | | | | | 0.20 |
| v/c Ratio | 0.27 | 0.59 | 0.12 | 0.72 | 0.52 | 0.19 | | | | 0.80 | 0.81 | 0.78 |
| Uniform Delay, d1 | 48.2 | 41.1 | 35.6 | 31.7 | 19.8 | 15.9 | | | | 48.0 | 48.1 | 35.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.56 | 0.49 | 0.09 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 1.9 | 0.6 | 3.1 | 0.9 | 0.5 | | | | 12.2 | 12.4 | 6.2 |
| Delay (s) | 48.7 | 43.0 | 36.1 | 21.0 | 10.6 | 1.9 | | | | 60.2 | 60.5 | 42.0 |
| Level of Service | D | D | D | C | B | A | | | | E | E | D |
| Approach Delay (s) | | 42.5 | | | 12.4 | | | 0.0 | | | 51.7 | |
| Approach LOS | | D | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 73.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



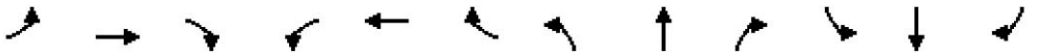
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 266 | 762 | 198 | 120 | 1408 | 388 | 207 | 407 | 419 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1719 | 3471 | 1519 | 1787 | 6471 | 1496 | 1626 | 3384 | 2707 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1719 | 3471 | 1519 | 1787 | 6471 | 1496 | 1626 | 3384 | 2707 | | | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 283 | 811 | 211 | 128 | 1498 | 413 | 220 | 433 | 446 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 50 | 0 | 0 | 104 | 0 | 0 | 315 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 283 | 811 | 161 | 128 | 1498 | 309 | 198 | 455 | 131 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Heavy Vehicles (%) | 5% | 4% | 5% | 1% | 1% | 6% | 1% | 2% | 5% | 0% | 0% | 0% |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 26.7 | 71.9 | 99.0 | 19.0 | 64.2 | 64.2 | 27.1 | 27.1 | 27.1 | | | |
| Effective Green, g (s) | 26.7 | 71.9 | 99.0 | 19.0 | 64.2 | 64.2 | 27.1 | 27.1 | 27.1 | | | |
| Actuated g/C Ratio | 0.21 | 0.55 | 0.76 | 0.15 | 0.49 | 0.49 | 0.21 | 0.21 | 0.21 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 353 | 1920 | 1204 | 261 | 3196 | 739 | 339 | 705 | 564 | | | |
| v/s Ratio Prot | c0.16 | 0.23 | 0.03 | 0.07 | c0.23 | | 0.12 | c0.13 | | | | |
| v/s Ratio Perm | | | 0.08 | | | 0.21 | | | 0.05 | | | |
| v/c Ratio | 0.80 | 0.42 | 0.13 | 0.49 | 0.47 | 0.42 | 0.58 | 0.65 | 0.23 | | | |
| Uniform Delay, d1 | 49.1 | 16.9 | 4.1 | 51.0 | 21.7 | 21.0 | 46.4 | 47.1 | 42.8 | | | |
| Progression Factor | 0.53 | 0.34 | 0.22 | 0.71 | 0.55 | 0.32 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 9.9 | 0.5 | 0.0 | 1.3 | 0.4 | 1.5 | 2.6 | 2.0 | 0.2 | | | |
| Delay (s) | 35.9 | 6.3 | 0.9 | 37.5 | 12.3 | 8.3 | 48.9 | 49.1 | 43.0 | | | |
| Level of Service | D | A | A | D | B | A | D | D | D | | | |
| Approach Delay (s) | | 11.8 | | | 13.0 | | | 46.6 | | | 0.0 | |
| Approach LOS | | B | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



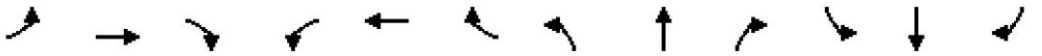
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 34 | 948 | 228 | 44 | 1542 | 5 | 259 | 4 | 146 | 1 | 4 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 4840 | | 1719 | 5083 | | 1752 | 1580 | | | 1762 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.75 | 1.00 | | | 0.99 | |
| Satd. Flow (perm) | 1805 | 4840 | | 1719 | 5083 | | 1385 | 1580 | | | 1747 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 37 | 1019 | 245 | 47 | 1658 | 5 | 278 | 4 | 157 | 1 | 4 | 5 |
| RTOR Reduction (vph) | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 118 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 37 | 1240 | 0 | 47 | 1663 | 0 | 278 | 43 | 0 | 0 | 6 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Heavy Vehicles (%) | 0% | 3% | 5% | 5% | 2% | 0% | 3% | 0% | 1% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 4.2 | 77.0 | | 8.9 | 81.7 | | 32.1 | 32.1 | | | 32.1 | |
| Effective Green, g (s) | 4.2 | 77.0 | | 8.9 | 81.7 | | 32.1 | 32.1 | | | 32.1 | |
| Actuated g/C Ratio | 0.03 | 0.59 | | 0.07 | 0.63 | | 0.25 | 0.25 | | | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 58 | 2867 | | 118 | 3194 | | 342 | 390 | | | 431 | |
| v/s Ratio Prot | 0.02 | 0.26 | | c0.03 | c0.33 | | | 0.03 | | | | |
| v/s Ratio Perm | | | | | | | c0.20 | | | | 0.00 | |
| v/c Ratio | 0.64 | 0.43 | | 0.40 | 0.52 | | 0.81 | 0.11 | | | 0.01 | |
| Uniform Delay, d1 | 62.1 | 14.5 | | 58.0 | 13.3 | | 46.1 | 37.9 | | | 37.0 | |
| Progression Factor | 0.95 | 0.32 | | 0.63 | 0.56 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 19.3 | 0.4 | | 1.8 | 0.5 | | 13.7 | 0.1 | | | 0.0 | |
| Delay (s) | 78.4 | 5.1 | | 38.6 | 8.0 | | 59.8 | 38.0 | | | 37.0 | |
| Level of Service | E | A | | D | A | | E | D | | | D | |
| Approach Delay (s) | | 7.2 | | | 8.9 | | | 51.8 | | | 37.0 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 66.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



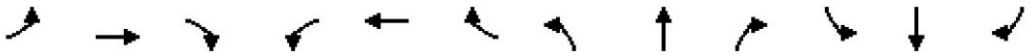
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 25 | 912 | 184 | 84 | 1292 | 2 | 203 | 79 | 31 | 4 | 35 | 81 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | | | 0.99 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1736 | 3375 | | 1684 | 3606 | | | 1633 | | | 1890 | 1571 |
| Flt Permitted | 0.13 | 1.00 | | 0.18 | 1.00 | | | 0.78 | | | 0.97 | 1.00 |
| Satd. Flow (perm) | 232 | 3375 | | 317 | 3606 | | | 1313 | | | 1847 | 1571 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 27 | 991 | 200 | 91 | 1404 | 2 | 221 | 86 | 34 | 4 | 38 | 88 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 30 |
| Lane Group Flow (vph) | 27 | 1180 | 0 | 91 | 1406 | 0 | 0 | 337 | 0 | 0 | 42 | 58 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 4% | 2% | 12% | 7% | 0% | 50% | 13% | 1% | 19% | 0% | 0% | 1% |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 84.1 | 84.1 | | 84.1 | 84.1 | | | 37.9 | | | 37.9 | 37.9 |
| Effective Green, g (s) | 84.1 | 84.1 | | 84.1 | 84.1 | | | 37.9 | | | 37.9 | 37.9 |
| Actuated g/C Ratio | 0.65 | 0.65 | | 0.65 | 0.65 | | | 0.29 | | | 0.29 | 0.29 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 150 | 2183 | | 205 | 2333 | | | 383 | | | 538 | 458 |
| v/s Ratio Prot | | 0.35 | | | c0.39 | | | | | | | |
| v/s Ratio Perm | 0.12 | | | 0.29 | | | | c0.26 | | | 0.02 | 0.04 |
| v/c Ratio | 0.18 | 0.54 | | 0.44 | 0.60 | | | 0.88 | | | 0.08 | 0.13 |
| Uniform Delay, d1 | 9.2 | 12.5 | | 11.4 | 13.3 | | | 43.9 | | | 33.4 | 33.9 |
| Progression Factor | 0.59 | 0.52 | | 0.19 | 0.14 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.5 | 0.9 | | 3.3 | 0.6 | | | 20.4 | | | 0.1 | 0.1 |
| Delay (s) | 7.9 | 7.4 | | 5.5 | 2.5 | | | 64.3 | | | 33.4 | 34.0 |
| Level of Service | A | A | | A | A | | | E | | | C | C |
| Approach Delay (s) | | 7.4 | | | 2.7 | | | 64.3 | | | 33.8 | |
| Approach LOS | | A | | | A | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 75.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 129 | 625 | 35 | 442 | 1199 | 264 | 28 | 349 | 395 | 142 | 279 | 108 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1752 | 3471 | | 1770 | 3431 | | 1530 | 1827 | 1497 | 1805 | 1845 | 1540 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1752 | 3471 | | 1770 | 3431 | | 1530 | 1827 | 1497 | 1805 | 1845 | 1540 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 136 | 658 | 37 | 465 | 1262 | 278 | 29 | 367 | 416 | 149 | 294 | 114 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 14 | 0 | 0 | 0 | 24 | 0 | 0 | 73 |
| Lane Group Flow (vph) | 136 | 692 | 0 | 465 | 1526 | 0 | 29 | 367 | 392 | 149 | 294 | 41 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 2% | 2% | 1% | 18% | 4% | 7% | 0% | 3% | 3% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.0 | 30.7 | | 38.3 | 58.0 | | 4.2 | 34.0 | 72.3 | 11.0 | 40.8 | 40.8 |
| Effective Green, g (s) | 11.0 | 30.7 | | 38.3 | 58.0 | | 4.2 | 34.0 | 72.3 | 11.0 | 40.8 | 40.8 |
| Actuated g/C Ratio | 0.08 | 0.24 | | 0.29 | 0.45 | | 0.03 | 0.26 | 0.56 | 0.08 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 148 | 820 | | 521 | 1531 | | 49 | 478 | 833 | 153 | 579 | 483 |
| v/s Ratio Prot | 0.08 | c0.20 | | 0.26 | c0.44 | | 0.02 | c0.20 | 0.14 | c0.08 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.12 | | | 0.03 |
| v/c Ratio | 0.92 | 0.84 | | 0.89 | 1.00 | | 0.59 | 0.77 | 0.47 | 0.97 | 0.51 | 0.09 |
| Uniform Delay, d1 | 59.1 | 47.4 | | 43.9 | 35.9 | | 62.1 | 44.4 | 17.3 | 59.4 | 36.4 | 31.4 |
| Progression Factor | 1.27 | 0.85 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 44.8 | 6.8 | | 17.4 | 22.0 | | 17.7 | 11.2 | 0.4 | 64.4 | 3.2 | 0.3 |
| Delay (s) | 119.9 | 46.9 | | 61.3 | 57.9 | | 79.7 | 55.6 | 17.8 | 123.8 | 39.6 | 31.8 |
| Level of Service | F | D | | E | E | | E | E | B | F | D | C |
| Approach Delay (s) | | 58.8 | | | 58.7 | | | 37.1 | | | 60.5 | |
| Approach LOS | | E | | | E | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 98.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



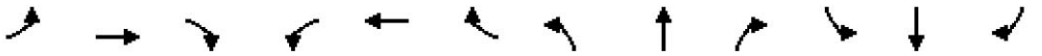
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 35 | 449 | 575 | 118 | 567 | 229 | 1153 | 1566 | 435 | 178 | 428 | 22 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1752 | 3505 | 2770 | 3183 | 3539 | 1578 | 3467 | 3574 | 1530 | 3433 | 5085 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1752 | 3505 | 2770 | 3183 | 3539 | 1578 | 3467 | 3574 | 1530 | 3433 | 5085 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 39 | 499 | 639 | 131 | 630 | 254 | 1281 | 1740 | 483 | 198 | 476 | 24 |
| RTOR Reduction (vph) | 0 | 0 | 74 | 0 | 0 | 46 | 0 | 0 | 52 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 39 | 499 | 565 | 131 | 630 | 208 | 1281 | 1740 | 431 | 198 | 494 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 2% | 10% | 2% | 1% | 1% | 1% | 4% | 2% | 1% | 5% |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 4.0 | 23.9 | 63.8 | 7.0 | 26.9 | 33.9 | 39.9 | 48.2 | 55.2 | 7.0 | 15.3 | |
| Effective Green, g (s) | 4.0 | 23.9 | 63.8 | 7.0 | 26.9 | 33.9 | 39.9 | 48.2 | 55.2 | 7.0 | 15.3 | |
| Actuated g/C Ratio | 0.04 | 0.23 | 0.62 | 0.07 | 0.26 | 0.33 | 0.39 | 0.47 | 0.54 | 0.07 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 69 | 820 | 1731 | 218 | 932 | 524 | 1355 | 1687 | 887 | 235 | 762 | |
| v/s Ratio Prot | 0.02 | c0.14 | 0.13 | 0.04 | c0.18 | 0.03 | 0.37 | c0.49 | 0.03 | c0.06 | 0.10 | |
| v/s Ratio Perm | | | 0.08 | | | 0.10 | | | 0.25 | | | |
| v/c Ratio | 0.57 | 0.61 | 0.33 | 0.60 | 0.68 | 0.40 | 0.95 | 1.03 | 0.49 | 0.84 | 0.65 | |
| Uniform Delay, d1 | 48.2 | 34.9 | 9.0 | 46.2 | 33.7 | 26.2 | 30.0 | 26.9 | 14.6 | 47.0 | 40.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.2 | 1.3 | 0.1 | 4.6 | 2.0 | 0.5 | 13.4 | 30.4 | 0.4 | 23.0 | 1.9 | |
| Delay (s) | 58.4 | 36.2 | 9.1 | 50.8 | 35.7 | 26.7 | 43.5 | 57.4 | 15.0 | 70.0 | 42.8 | |
| Level of Service | E | D | A | D | D | C | D | E | B | E | D | |
| Approach Delay (s) | | 22.2 | | | 35.4 | | | 46.5 | | | 50.5 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 102.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 85.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# HCM Signalized Intersection Capacity Analysis
## 96: Century Ave & Alessandro Blvd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 35 | 19 | 6 | 28 | 15 | 106 | 9 | 3021 | 18 | 51 | 1005 | 14 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.99 | | | 0.90 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1784 | | | 1613 | | 1805 | 5131 | | 1805 | 5074 | |
| Flt Permitted | | 0.46 | | | 0.94 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 850 | | | 1532 | | 1805 | 5131 | | 1805 | 5074 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 39 | 21 | 7 | 31 | 17 | 119 | 10 | 3394 | 20 | 57 | 1129 | 16 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 98 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 63 | 0 | 0 | 69 | 0 | 10 | 3414 | 0 | 57 | 1144 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 3% | 0% | 0% | 0% | 0% | 6% | 0% | 1% | 0% | 0% | 2% | 0% |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 9.9 | | | 9.9 | | 1.3 | 64.7 | | 5.4 | 68.8 | |
| Effective Green, g (s) | | 9.9 | | | 9.9 | | 1.3 | 64.7 | | 5.4 | 68.8 | |
| Actuated g/C Ratio | | 0.11 | | | 0.11 | | 0.01 | 0.70 | | 0.06 | 0.75 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 91 | | | 165 | | 26 | 3608 | | 106 | 3794 | |
| v/s Ratio Prot | | | | | | | 0.01 | c0.67 | | c0.03 | 0.23 | |
| v/s Ratio Perm | | c0.07 | | | 0.04 | | | | | | | |
| v/c Ratio | | 0.69 | | | 0.42 | | 0.38 | 0.95 | | 0.54 | 0.30 | |
| Uniform Delay, d1 | | 39.6 | | | 38.4 | | 45.0 | 12.1 | | 42.1 | 3.8 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 19.4 | | | 1.7 | | 9.2 | 6.3 | | 5.2 | 0.0 | |
| Delay (s) | | 59.0 | | | 40.1 | | 54.2 | 18.4 | | 47.3 | 3.8 | |
| Level of Service | | E | | | D | | D | B | | D | A | |
| Approach Delay (s) | | 59.0 | | | 40.1 | | | 18.5 | | | 5.9 | |
| Approach LOS | | E | | | D | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 92.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 78.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



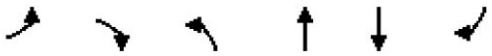
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 151 | 31 | 46 | 15 | 21 | 98 | 50 | 2791 | 14 | 19 | 839 | 36 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 1845 | 1615 | 1805 | 1810 | 1542 | 1770 | 5126 | | 1719 | 4959 | |
| Flt Permitted | 0.54 | 1.00 | 1.00 | 0.73 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1015 | 1845 | 1615 | 1395 | 1810 | 1542 | 1770 | 5126 | | 1719 | 4959 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 170 | 35 | 52 | 17 | 24 | 110 | 56 | 3136 | 16 | 21 | 943 | 40 |
| RTOR Reduction (vph) | 0 | 0 | 44 | 0 | 0 | 98 | 0 | 0 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 170 | 35 | 8 | 17 | 24 | 12 | 56 | 3152 | 0 | 21 | 980 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 0% | 5% | 3% | 2% | 1% | 21% | 5% | 4% | 0% |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 21.4 | 14.8 | 14.8 | 13.0 | 10.4 | 10.4 | 6.5 | 56.3 | | 2.6 | 52.4 | |
| Effective Green, g (s) | 21.4 | 14.8 | 14.8 | 13.0 | 10.4 | 10.4 | 6.5 | 56.3 | | 2.6 | 52.4 | |
| Actuated g/C Ratio | 0.23 | 0.16 | 0.16 | 0.14 | 0.11 | 0.11 | 0.07 | 0.61 | | 0.03 | 0.57 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 295 | 296 | 259 | 208 | 204 | 174 | 125 | 3127 | | 48 | 2815 | |
| v/s Ratio Prot | c0.04 | 0.02 | | 0.00 | 0.01 | | 0.03 | c0.61 | | 0.01 | c0.20 | |
| v/s Ratio Perm | c0.09 | | 0.01 | 0.01 | | 0.01 | | | | | | |
| v/c Ratio | 0.58 | 0.12 | 0.03 | 0.08 | 0.12 | 0.07 | 0.45 | 1.01 | | 0.44 | 0.35 | |
| Uniform Delay, d1 | 30.4 | 33.2 | 32.7 | 34.4 | 36.8 | 36.6 | 41.2 | 18.0 | | 44.1 | 10.7 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.7 | 0.2 | 0.1 | 0.2 | 0.3 | 0.2 | 2.5 | 18.0 | | 6.3 | 0.1 | |
| Delay (s) | 33.1 | 33.3 | 32.8 | 34.6 | 37.1 | 36.8 | 43.7 | 36.0 | | 50.4 | 10.8 | |
| Level of Service | C | C | C | C | D | D | D | D | | D | B | |
| Approach Delay (s) | | 33.0 | | | 36.6 | | | 36.2 | | | 11.7 | |
| Approach LOS | | C | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 92.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 81.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# HCM Signalized Intersection Capacity Analysis
## 98: Canyon Crest Dr & Alessandro Blvd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 13 | 2 | 271 | 4 | 81 | 4 | 2854 | 822 | 22 | 927 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.86 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3536 | | 5040 | 1575 | | 1805 | 5136 | 1579 | 1656 | 5077 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3536 | | 5040 | 1575 | | 1805 | 5136 | 1579 | 1656 | 5077 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 14 | 2 | 288 | 4 | 86 | 4 | 3036 | 874 | 23 | 986 | 4 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 76 | 0 | 0 | 0 | 149 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 21 | 14 | 0 | 288 | 14 | 0 | 4 | 3036 | 725 | 23 | 990 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 1% | 0% | 2% | 0% | 1% | 1% | 9% | 2% | 25% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 3.0 | 1.2 | | 10.6 | 8.8 | | 4.1 | 45.6 | 56.2 | 2.4 | 43.9 | |
| Effective Green, g (s) | 3.0 | 1.2 | | 10.6 | 8.8 | | 4.1 | 45.6 | 56.2 | 2.4 | 43.9 | |
| Actuated g/C Ratio | 0.04 | 0.02 | | 0.14 | 0.12 | | 0.05 | 0.60 | 0.74 | 0.03 | 0.58 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 71 | 56 | | 705 | 183 | | 98 | 3090 | 1254 | 52 | 2940 | |
| v/s Ratio Prot | c0.01 | 0.00 | | 0.06 | 0.01 | | 0.00 | c0.59 | c0.08 | 0.01 | c0.19 | |
| v/s Ratio Perm | | | | | | | | | 0.38 | | | |
| v/c Ratio | 0.30 | 0.25 | | 0.41 | 0.08 | | 0.04 | 0.98 | 0.58 | 0.44 | 0.34 | |
| Uniform Delay, d1 | 35.4 | 36.9 | | 29.7 | 29.9 | | 34.0 | 14.7 | 4.4 | 36.0 | 8.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.3 | 2.3 | | 0.4 | 0.2 | | 0.2 | 12.3 | 0.7 | 5.9 | 0.1 | |
| Delay (s) | 37.7 | 39.2 | | 30.1 | 30.1 | | 34.2 | 27.1 | 5.1 | 41.9 | 8.4 | |
| Level of Service | D | D | | C | C | | C | C | A | D | A | |
| Approach Delay (s) | | 38.3 | | | 30.1 | | | 22.2 | | | 9.2 | |
| Approach LOS | | D | | | C | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 75.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

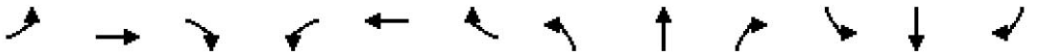


| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 56 | 84 | 774 | 477 | 113 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1670 | 1234 | 1641 | 1810 | 1776 | 1516 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1670 | 1234 | 1641 | 1810 | 1776 | 1516 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 151 | 65 | 98 | 900 | 555 | 131 |
| RTOR Reduction (vph) | 0 | 56 | 0 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 151 | 9 | 98 | 900 | 555 | 112 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Heavy Vehicles (%) | 7% | 27% | 10% | 5% | 7% | 4% |
| Turn Type | | custom | Prot | | | Perm |
| Protected Phases | | | 5 | 2 | 6 | |
| Permitted Phases | 4 | 4 | | | | 6 |
| Actuated Green, G (s) | 15.3 | 15.3 | 13.0 | 86.7 | 69.7 | 69.7 |
| Effective Green, g (s) | 15.3 | 15.3 | 13.0 | 86.7 | 69.7 | 69.7 |
| Actuated g/C Ratio | 0.14 | 0.14 | 0.12 | 0.79 | 0.63 | 0.63 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 232 | 172 | 194 | 1427 | 1125 | 961 |
| v/s Ratio Prot | | | 0.06 | c0.50 | 0.31 | |
| v/s Ratio Perm | c0.09 | 0.01 | | | | 0.07 |
| v/c Ratio | 0.65 | 0.05 | 0.51 | 0.63 | 0.49 | 0.12 |
| Uniform Delay, d1 | 44.8 | 41.1 | 45.5 | 4.9 | 10.7 | 8.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.4 | 0.1 | 2.1 | 2.1 | 1.5 | 0.2 |
| Delay (s) | 51.2 | 41.2 | 47.5 | 7.0 | 12.3 | 8.2 |
| Level of Service | D | D | D | A | B | A |
| Approach Delay (s) | 48.2 | | | 11.0 | 11.5 | |
| Approach LOS | D | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

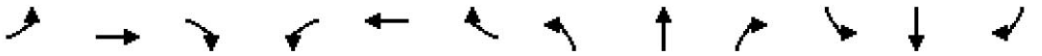
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 891 | 52 | 53 | 1637 | 0 | 33 | 0 | 14 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | |
| Lane Util. Factor | | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | |
| Frt | | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (prot) | | 4804 | | 1671 | 4988 | | 1188 | 2820 | | | | |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (perm) | | 4804 | | 1671 | 4988 | | 1188 | 2820 | | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 919 | 54 | 55 | 1688 | 0 | 34 | 0 | 14 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 971 | 0 | 55 | 1688 | 0 | 34 | 1 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 6% | 23% | 8% | 4% | 0% | 52% | 0% | 7% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | | | | 4 |
| Actuated Green, G (s) | | 83.1 | | 7.9 | 95.0 | | 5.0 | 4.4 | | | | |
| Effective Green, g (s) | | 83.1 | | 7.9 | 95.0 | | 5.0 | 4.4 | | | | |
| Actuated g/C Ratio | | 0.76 | | 0.07 | 0.86 | | 0.05 | 0.04 | | | | |
| Clearance Time (s) | | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | |
| Lane Grp Cap (vph) | | 3629 | | 120 | 4308 | | 54 | 113 | | | | |
| v/s Ratio Prot | | 0.20 | | 0.03 | c0.34 | | c0.03 | 0.00 | | | | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | 0.27 | | 0.46 | 0.39 | | 0.63 | 0.00 | | | | |
| Uniform Delay, d1 | | 4.1 | | 49.0 | 1.5 | | 51.6 | 50.7 | | | | |
| Progression Factor | | 0.07 | | 0.85 | 1.06 | | 1.00 | 1.00 | | | | |
| Incremental Delay, d2 | | 0.2 | | 2.2 | 0.2 | | 20.8 | 0.0 | | | | |
| Delay (s) | | 0.5 | | 43.7 | 1.8 | | 72.4 | 50.7 | | | | |
| Level of Service | | A | | D | A | | E | D | | | | |
| Approach Delay (s) | | 0.5 | | | 3.2 | | | 66.0 | | | 0.0 | |
| Approach LOS | | A | | | A | | | E | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 58.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



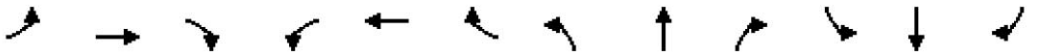
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 257 | 533 | 108 | 106 | 1192 | 184 | 307 | 356 | 96 | 88 | 200 | 189 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3242 | 4848 | 1483 | 3502 | 4916 | | 3335 | 3438 | 1526 | 3400 | 3343 | 1484 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3242 | 4848 | 1483 | 3502 | 4916 | | 3335 | 3438 | 1526 | 3400 | 3343 | 1484 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 265 | 549 | 111 | 109 | 1229 | 190 | 316 | 367 | 99 | 91 | 206 | 195 |
| RTOR Reduction (vph) | 0 | 0 | 56 | 0 | 15 | 0 | 0 | 0 | 78 | 0 | 0 | 159 |
| Lane Group Flow (vph) | 265 | 549 | 55 | 109 | 1404 | 0 | 316 | 367 | 21 | 91 | 206 | 36 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 8% | 7% | 7% | 0% | 3% | 4% | 5% | 5% | 4% | 3% | 8% | 7% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 16.1 | 54.2 | 54.2 | 8.8 | 46.9 | | 14.6 | 22.9 | 22.9 | 4.8 | 13.1 | 13.1 |
| Effective Green, g (s) | 16.1 | 54.2 | 54.2 | 8.8 | 46.9 | | 14.6 | 22.9 | 22.9 | 4.8 | 13.1 | 13.1 |
| Actuated g/C Ratio | 0.15 | 0.49 | 0.49 | 0.08 | 0.43 | | 0.13 | 0.21 | 0.21 | 0.04 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 475 | 2389 | 731 | 280 | 2096 | | 443 | 716 | 318 | 148 | 398 | 177 |
| v/s Ratio Prot | c0.08 | 0.11 | | 0.03 | c0.29 | | c0.09 | c0.11 | | 0.03 | 0.06 | |
| v/s Ratio Perm | | | 0.04 | | | | | | 0.01 | | | 0.02 |
| v/c Ratio | 0.56 | 0.23 | 0.07 | 0.39 | 0.67 | | 0.71 | 0.51 | 0.06 | 0.61 | 0.52 | 0.20 |
| Uniform Delay, d1 | 43.6 | 16.0 | 14.7 | 48.0 | 25.3 | | 45.7 | 38.6 | 35.0 | 51.7 | 45.5 | 43.7 |
| Progression Factor | 1.24 | 1.03 | 1.44 | 1.34 | 0.64 | | 0.96 | 1.12 | 1.76 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.2 | 0.2 | 0.2 | 0.4 | | 5.3 | 0.6 | 0.1 | 7.4 | 1.1 | 0.6 |
| Delay (s) | 55.4 | 16.7 | 21.4 | 64.6 | 16.7 | | 49.0 | 43.9 | 61.6 | 59.1 | 46.6 | 44.3 |
| Level of Service | E | B | C | E | B | | D | D | E | E | D | D |
| Approach Delay (s) | | 28.4 | | | 20.1 | | | 48.2 | | | 48.0 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



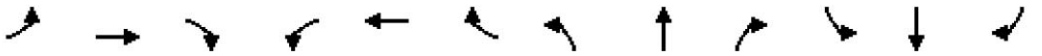
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 345 | 358 | 140 | 7 | 834 | 386 | 364 | 734 | 21 | 277 | 629 | 490 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 4848 | 1532 | 1805 | 3505 | 1570 | 3433 | 3515 | | 3467 | 3539 | 1572 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 4848 | 1532 | 1805 | 3505 | 1570 | 3433 | 3515 | | 3467 | 3539 | 1572 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 401 | 416 | 163 | 8 | 970 | 449 | 423 | 853 | 24 | 322 | 731 | 570 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 196 | 0 | 2 | 0 | 0 | 0 | 134 |
| Lane Group Flow (vph) | 401 | 416 | 163 | 8 | 970 | 253 | 423 | 875 | 0 | 322 | 731 | 436 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 2% | 7% | 4% | 0% | 3% | 1% | 2% | 2% | 10% | 1% | 2% | 1% |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 13.0 | 42.8 | 110.0 | 1.2 | 31.0 | 31.0 | 13.0 | 33.3 | | 12.7 | 33.0 | 33.0 |
| Effective Green, g (s) | 13.0 | 42.8 | 110.0 | 1.2 | 31.0 | 31.0 | 13.0 | 33.3 | | 12.7 | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.39 | 1.00 | 0.01 | 0.28 | 0.28 | 0.12 | 0.30 | | 0.12 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 406 | 1886 | 1532 | 20 | 988 | 442 | 406 | 1064 | | 400 | 1062 | 472 |
| v/s Ratio Prot | c0.12 | 0.09 | | 0.00 | c0.28 | | c0.12 | 0.25 | | 0.09 | 0.21 | |
| v/s Ratio Perm | | | c0.11 | | | 0.16 | | | | | | c0.28 |
| v/c Ratio | 0.99 | 0.22 | 0.11 | 0.40 | 0.98 | 0.57 | 1.04 | 0.82 | | 0.81 | 0.69 | 0.92 |
| Uniform Delay, d1 | 48.4 | 22.5 | 0.0 | 54.0 | 39.2 | 33.8 | 48.5 | 35.6 | | 47.4 | 34.0 | 37.3 |
| Progression Factor | 0.86 | 1.42 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 40.8 | 0.3 | 0.1 | 12.6 | 24.6 | 5.3 | 56.0 | 7.2 | | 11.2 | 3.6 | 26.1 |
| Delay (s) | 82.5 | 32.2 | 0.1 | 66.7 | 63.8 | 39.1 | 104.5 | 42.8 | | 58.6 | 37.6 | 63.3 |
| Level of Service | F | C | A | E | E | D | F | D | | E | D | E |
| Approach Delay (s) | | 47.5 | | | 56.0 | | | 62.9 | | | 50.8 | |
| Approach LOS | | D | | | E | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 87.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 24 | 10 | 35 | 12 | 5 | 8 | 64 | 670 | 10 | 26 | 343 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.88 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1543 | 3030 | | 1805 | 1900 | 1265 | 1770 | 3464 | | 1570 | 3374 | 1461 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1543 | 3030 | | 1805 | 1900 | 1265 | 1770 | 3464 | | 1570 | 3374 | 1461 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 26 | 11 | 38 | 13 | 5 | 9 | 69 | 720 | 11 | 28 | 369 | 47 |
| RTOR Reduction (vph) | 0 | 36 | 0 | 0 | 0 | 9 | 0 | 1 | 0 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 26 | 13 | 0 | 13 | 5 | 0 | 69 | 730 | 0 | 28 | 369 | 32 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 17% | 10% | 0% | 0% | 0% | 25% | 2% | 4% | 0% | 15% | 7% | 9% |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.1 | 6.4 | | 2.4 | 3.8 | 3.8 | 8.4 | 78.5 | | 5.2 | 75.3 | 75.3 |
| Effective Green, g (s) | 5.1 | 6.4 | | 2.4 | 3.8 | 3.8 | 8.4 | 78.5 | | 5.2 | 75.3 | 75.3 |
| Actuated g/C Ratio | 0.05 | 0.06 | | 0.02 | 0.03 | 0.03 | 0.08 | 0.71 | | 0.05 | 0.68 | 0.68 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 72 | 176 | | 39 | 66 | 44 | 135 | 2472 | | 74 | 2310 | 1000 |
| v/s Ratio Prot | c0.02 | c0.00 | | 0.01 | 0.00 | | c0.04 | c0.21 | | 0.02 | 0.11 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.02 |
| v/c Ratio | 0.36 | 0.08 | | 0.33 | 0.08 | 0.01 | 0.51 | 0.30 | | 0.38 | 0.16 | 0.03 |
| Uniform Delay, d1 | 50.9 | 49.0 | | 53.0 | 51.4 | 51.3 | 48.8 | 5.7 | | 50.8 | 6.1 | 5.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.08 | 0.86 | | 1.19 | 0.47 | 0.23 |
| Incremental Delay, d2 | 3.1 | 0.2 | | 5.0 | 0.5 | 0.1 | 3.2 | 0.3 | | 3.2 | 0.1 | 0.1 |
| Delay (s) | 53.9 | 49.2 | | 58.0 | 51.9 | 51.3 | 56.1 | 5.2 | | 63.9 | 3.0 | 1.4 |
| Level of Service | D | D | | E | D | D | E | A | | E | A | A |
| Approach Delay (s) | | 50.8 | | | 54.7 | | | 9.6 | | | 6.7 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.31 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.5 |
| Intersection Capacity Utilization | 42.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

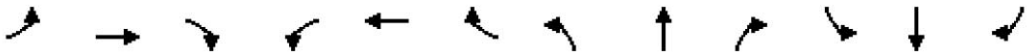


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 148 | 86 | 108 | 59 | 115 | 46 | 98 | 323 | 27 | 25 | 204 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 1863 | 1572 | 1752 | 1863 | 1556 | 1770 | 3453 | | 1736 | 3539 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 1863 | 1572 | 1752 | 1863 | 1556 | 1770 | 3453 | | 1736 | 3539 | 1586 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 174 | 101 | 127 | 69 | 135 | 54 | 115 | 380 | 32 | 29 | 240 | 106 |
| RTOR Reduction (vph) | 0 | 0 | 101 | 0 | 0 | 47 | 0 | 4 | 0 | 0 | 0 | 56 |
| Lane Group Flow (vph) | 174 | 101 | 26 | 69 | 135 | 7 | 115 | 408 | 0 | 29 | 240 | 50 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 3% | 2% | 2% | 2% | 3% | 4% | 4% | 2% | 0% |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 15.1 | 22.2 | 22.2 | 7.0 | 14.1 | 14.1 | 12.4 | 59.8 | | 5.0 | 52.4 | 52.4 |
| Effective Green, g (s) | 15.1 | 22.2 | 22.2 | 7.0 | 14.1 | 14.1 | 12.4 | 59.8 | | 5.0 | 52.4 | 52.4 |
| Actuated g/C Ratio | 0.14 | 0.20 | 0.20 | 0.06 | 0.13 | 0.13 | 0.11 | 0.54 | | 0.05 | 0.48 | 0.48 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 245 | 376 | 317 | 111 | 239 | 199 | 200 | 1877 | | 79 | 1686 | 756 |
| v/s Ratio Prot | c0.10 | 0.05 | | 0.04 | c0.07 | | c0.06 | c0.12 | | 0.02 | 0.07 | |
| v/s Ratio Perm | | | 0.02 | | | 0.00 | | | | | | 0.03 |
| v/c Ratio | 0.71 | 0.27 | 0.08 | 0.62 | 0.56 | 0.03 | 0.57 | 0.22 | | 0.37 | 0.14 | 0.07 |
| Uniform Delay, d1 | 45.4 | 37.0 | 35.6 | 50.2 | 45.1 | 42.0 | 46.3 | 13.0 | | 51.0 | 16.2 | 15.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.22 | 1.09 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.3 | 0.4 | 0.1 | 10.3 | 3.0 | 0.1 | 3.6 | 0.2 | | 2.9 | 0.2 | 0.2 |
| Delay (s) | 54.7 | 37.4 | 35.7 | 60.6 | 48.1 | 42.1 | 60.1 | 14.4 | | 53.8 | 16.4 | 15.7 |
| Level of Service | D | D | D | E | D | D | E | B | | D | B | B |
| Approach Delay (s) | | 44.4 | | | 50.2 | | | 24.4 | | | 19.1 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 54.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

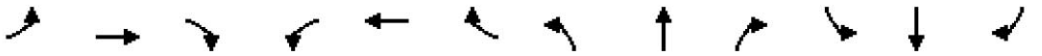
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 13 | 105 | 18 | 125 | 159 | 256 | 22 | 408 | 59 | 38 | 267 | 19 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1561 | 1807 | | 1726 | 1881 | 1583 | 1805 | 3360 | | 1752 | 3354 | |
| Flt Permitted | 0.49 | 1.00 | | 0.59 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 800 | 1807 | | 1075 | 1881 | 1583 | 1805 | 3360 | | 1752 | 3354 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 15 | 118 | 20 | 140 | 179 | 288 | 25 | 458 | 66 | 43 | 300 | 21 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 237 | 0 | 6 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 15 | 131 | 0 | 140 | 179 | 51 | 25 | 518 | 0 | 43 | 318 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 15% | 3% | 0% | 4% | 1% | 0% | 0% | 5% | 5% | 3% | 6% | 11% |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 19.3 | 19.3 | | 19.3 | 19.3 | 19.3 | 4.8 | 70.4 | | 5.7 | 71.3 | |
| Effective Green, g (s) | 19.3 | 19.3 | | 19.3 | 19.3 | 19.3 | 4.8 | 70.4 | | 5.7 | 71.3 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.18 | 0.18 | 0.18 | 0.04 | 0.64 | | 0.05 | 0.65 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 140 | 317 | | 189 | 330 | 278 | 79 | 2150 | | 91 | 2174 | |
| v/s Ratio Prot | | 0.07 | | | 0.10 | | 0.01 | c0.15 | | c0.02 | 0.09 | |
| v/s Ratio Perm | 0.02 | | | c0.13 | | 0.03 | | | | | | |
| v/c Ratio | 0.11 | 0.41 | | 0.74 | 0.54 | 0.18 | 0.32 | 0.24 | | 0.47 | 0.15 | |
| Uniform Delay, d1 | 38.1 | 40.3 | | 43.0 | 41.3 | 38.6 | 51.0 | 8.4 | | 50.7 | 7.5 | |
| Progression Factor | 1.00 | 1.00 | | 0.72 | 0.70 | 1.22 | 0.96 | 0.91 | | 1.40 | 0.33 | |
| Incremental Delay, d2 | 0.3 | 0.9 | | 12.6 | 1.6 | 0.3 | 2.3 | 0.3 | | 3.8 | 0.1 | |
| Delay (s) | 38.4 | 41.2 | | 43.6 | 30.5 | 47.3 | 51.3 | 8.0 | | 75.0 | 2.6 | |
| Level of Service | D | D | | D | C | D | D | A | | E | A | |
| Approach Delay (s) | | 40.9 | | | 41.5 | | | 9.9 | | | 11.2 | |
| Approach LOS | | D | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 55.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



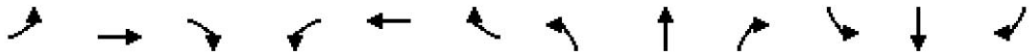
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 133 | 281 | 29 | 12 | 440 | 136 | 106 | 202 | 13 | 150 | 126 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1752 | 3489 | | 1671 | 3408 | | 1805 | 3429 | | 1787 | 3203 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1752 | 3489 | | 1671 | 3408 | | 1805 | 3429 | | 1787 | 3203 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 155 | 327 | 34 | 14 | 512 | 158 | 123 | 235 | 15 | 174 | 147 | 198 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 28 | 0 | 0 | 4 | 0 | 0 | 134 | 0 |
| Lane Group Flow (vph) | 155 | 354 | 0 | 14 | 642 | 0 | 123 | 246 | 0 | 174 | 211 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 3% | 2% | 0% | 8% | 2% | 1% | 0% | 4% | 8% | 1% | 2% | 2% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 14.7 | 41.3 | | 3.0 | 29.6 | | 13.9 | 33.1 | | 16.6 | 35.8 | |
| Effective Green, g (s) | 14.7 | 41.3 | | 3.0 | 29.6 | | 13.9 | 33.1 | | 16.6 | 35.8 | |
| Actuated g/C Ratio | 0.13 | 0.38 | | 0.03 | 0.27 | | 0.13 | 0.30 | | 0.15 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 234 | 1310 | | 46 | 917 | | 228 | 1032 | | 270 | 1042 | |
| v/s Ratio Prot | c0.09 | 0.10 | | 0.01 | c0.19 | | 0.07 | c0.07 | | c0.10 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.66 | 0.27 | | 0.30 | 0.70 | | 0.54 | 0.24 | | 0.64 | 0.20 | |
| Uniform Delay, d1 | 45.3 | 23.9 | | 52.5 | 36.2 | | 45.0 | 29.0 | | 43.9 | 26.8 | |
| Progression Factor | 0.85 | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.92 | 0.90 | |
| Incremental Delay, d2 | 6.9 | 0.1 | | 3.7 | 2.4 | | 2.4 | 0.5 | | 5.2 | 0.4 | |
| Delay (s) | 45.5 | 22.8 | | 56.2 | 38.6 | | 47.5 | 29.5 | | 45.4 | 24.5 | |
| Level of Service | D | C | | E | D | | D | C | | D | C | |
| Approach Delay (s) | | 29.6 | | | 39.0 | | | 35.4 | | | 31.5 | |
| Approach LOS | | C | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 72.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 75 | 25 | 24 | 110 | 132 | 55 | 372 | 21 | 38 | 383 | 15 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1641 | 1801 | | 1805 | 1881 | 1555 | 1805 | 3447 | | 1719 | 3420 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1641 | 1801 | | 1805 | 1881 | 1555 | 1805 | 3447 | | 1719 | 3420 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 25 | 94 | 31 | 30 | 138 | 165 | 69 | 465 | 26 | 48 | 479 | 19 |
| RTOR Reduction (vph) | 0 | 14 | 0 | 0 | 0 | 145 | 0 | 2 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 25 | 111 | 0 | 30 | 138 | 20 | 69 | 489 | 0 | 48 | 496 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 10% | 0% | 4% | 0% | 1% | 2% | 0% | 4% | 0% | 5% | 5% | 0% |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 4.6 | 13.4 | | 4.6 | 13.4 | 13.4 | 8.4 | 66.4 | | 7.4 | 65.4 | |
| Effective Green, g (s) | 4.6 | 13.4 | | 4.6 | 13.4 | 13.4 | 8.4 | 66.4 | | 7.4 | 65.4 | |
| Actuated g/C Ratio | 0.04 | 0.12 | | 0.04 | 0.12 | 0.12 | 0.08 | 0.60 | | 0.07 | 0.59 | |
| Clearance Time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 69 | 219 | | 75 | 229 | 189 | 138 | 2081 | | 116 | 2033 | |
| v/s Ratio Prot | 0.02 | 0.06 | | c0.02 | c0.07 | | c0.04 | 0.14 | | 0.03 | c0.15 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | |
| v/c Ratio | 0.36 | 0.51 | | 0.40 | 0.60 | 0.11 | 0.50 | 0.23 | | 0.41 | 0.24 | |
| Uniform Delay, d1 | 51.3 | 45.2 | | 51.4 | 45.8 | 43.0 | 48.8 | 10.1 | | 49.2 | 10.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.86 | 2.48 | | 0.92 | 1.33 | |
| Incremental Delay, d2 | 3.2 | 1.8 | | 3.5 | 4.4 | 0.2 | 2.7 | 0.3 | | 2.4 | 0.3 | |
| Delay (s) | 54.5 | 47.0 | | 54.8 | 50.2 | 43.2 | 44.7 | 25.2 | | 47.5 | 14.3 | |
| Level of Service | D | D | | D | D | D | D | C | | D | B | |
| Approach Delay (s) | | 48.3 | | | 47.2 | | | 27.6 | | | 17.2 | |
| Approach LOS | | D | | | D | | | C | | | B | |

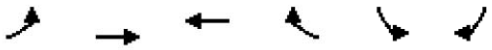
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.33 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 18.2 |
| Intersection Capacity Utilization | 45.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 48 | 181 | 30 | 57 | 179 | 18 | 52 | 134 | 37 | 11 | 102 | 72 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 53 | 199 | 33 | 63 | 197 | 20 | 57 | 147 | 41 | 12 | 112 | 79 |

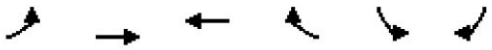
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 285 | 279 | 57 | 188 | 12 | 191 |
| Volume Left (vph) | 53 | 63 | 57 | 0 | 12 | 0 |
| Volume Right (vph) | 33 | 20 | 0 | 41 | 0 | 79 |
| Hadj (s) | 0.00 | 0.03 | 0.50 | -0.12 | 0.50 | -0.25 |
| Departure Headway (s) | 5.8 | 5.8 | 7.1 | 6.4 | 7.2 | 6.4 |
| Degree Utilization, x | 0.46 | 0.45 | 0.11 | 0.34 | 0.02 | 0.34 |
| Capacity (veh/h) | 581 | 577 | 469 | 504 | 456 | 504 |
| Control Delay (s) | 13.5 | 13.5 | 9.8 | 11.5 | 9.1 | 11.4 |
| Approach Delay (s) | 13.5 | 13.5 | 11.1 | | 11.3 | |
| Approach LOS | B | B | B | | B | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 12.5 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 42.7% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 131 | 271 | 388 | 70 | 27 | 278 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1787 | 1827 | 1863 | 1523 | 1805 | 1548 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1787 | 1827 | 1863 | 1523 | 1805 | 1548 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 146 | 301 | 431 | 78 | 30 | 309 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 38 | 0 | 230 |
| Lane Group Flow (vph) | 146 | 301 | 431 | 40 | 30 | 79 |
| Confl. Peds. (#/hr) | 5 | | | 5 | 5 | 5 |
| Heavy Vehicles (%) | 1% | 4% | 2% | 3% | 0% | 1% |
| Turn Type | Prot | | | Perm | | Perm |
| Protected Phases | 7 | 4 | 8 | | 6 | |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 14.2 | 74.0 | 55.8 | 55.8 | 28.0 | 28.0 |
| Effective Green, g (s) | 14.2 | 74.0 | 55.8 | 55.8 | 28.0 | 28.0 |
| Actuated g/C Ratio | 0.13 | 0.67 | 0.51 | 0.51 | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 231 | 1229 | 945 | 773 | 459 | 394 |
| v/s Ratio Prot | c0.08 | 0.16 | c0.23 | | 0.02 | |
| v/s Ratio Perm | | | | 0.03 | | c0.05 |
| v/c Ratio | 0.63 | 0.24 | 0.46 | 0.05 | 0.07 | 0.20 |
| Uniform Delay, d1 | 45.4 | 7.1 | 17.4 | 13.7 | 31.1 | 32.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.5 | 0.5 | 1.6 | 0.1 | 0.3 | 1.1 |
| Delay (s) | 51.0 | 7.5 | 19.0 | 13.8 | 31.4 | 33.3 |
| Level of Service | D | A | B | B | C | C |
| Approach Delay (s) | | 21.7 | 18.2 | | 33.2 | |
| Approach LOS | | C | B | | C | |

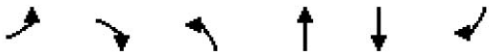
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 43 | 422 | 583 | 54 | 27 | 24 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 47 | 459 | 634 | 59 | 29 | 26 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | 2 |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 692 | | | | 1215 | 663 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 692 | | | | 1215 | 663 |
| tC, single (s) | 4.1 | | | | 6.6 | 6.5 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.7 | 3.6 |
| p0 queue free % | 95 | | | | 83 | 94 |
| cM capacity (veh/h) | 889 | | | | 175 | 417 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 47 | 459 | 692 | 55 |
| Volume Left | 47 | 0 | 0 | 29 |
| Volume Right | 0 | 0 | 59 | 26 |
| cSH | 889 | 1700 | 1700 | 331 |
| Volume to Capacity | 0.05 | 0.27 | 0.41 | 0.17 |
| Queue Length 95th (ft) | 4 | 0 | 0 | 15 |
| Control Delay (s) | 9.3 | 0.0 | 0.0 | 22.4 |
| Lane LOS | A | | | C |
| Approach Delay (s) | 0.9 | | 0.0 | 22.4 |
| Approach LOS | | | | C |

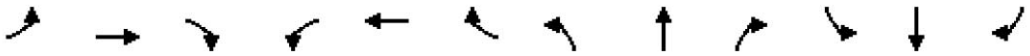
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.3 | | |
| Intersection Capacity Utilization | 45.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 73 | 12 | 12 | 611 | 312 | 32 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 81 | 13 | 13 | 679 | 347 | 36 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1075 | 369 | 382 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1075 | 369 | 382 | | | |
| tC, single (s) | 6.4 | 6.4 | 4.2 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.5 | 2.3 | | | |
| p0 queue free % | 66 | 98 | 99 | | | |
| cM capacity (veh/h) | 236 | 641 | 1144 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 94 | 13 | 679 | 382 |
| Volume Left | 81 | 13 | 0 | 0 |
| Volume Right | 13 | 0 | 0 | 36 |
| cSH | 259 | 1144 | 1700 | 1700 |
| Volume to Capacity | 0.36 | 0.01 | 0.40 | 0.22 |
| Queue Length 95th (ft) | 40 | 1 | 0 | 0 |
| Control Delay (s) | 26.6 | 8.2 | 0.0 | 0.0 |
| Lane LOS | D | A | | |
| Approach Delay (s) | 26.6 | 0.2 | | 0.0 |
| Approach LOS | D | | | |

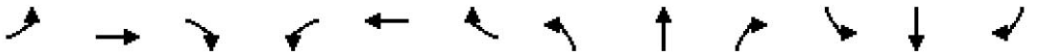
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 43.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 12 | 272 | 0 | 0 | 323 | 230 | 243 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 12 | 283 | 0 | 0 | 336 | 240 | 253 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 581 | | | 288 | | | 655 | 894 | 293 | 655 | 655 | 346 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 581 | | | 288 | | | 655 | 894 | 293 | 655 | 655 | 346 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 100 | | | 31 | 100 | 100 | 100 | 100 | 100 |
| cM capacity (veh/h) | 964 | | | 1280 | | | 369 | 278 | 744 | 376 | 382 | 698 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 12 | 283 | 336 | 240 | 253 |
| Volume Left | 12 | 0 | 0 | 0 | 253 |
| Volume Right | 0 | 0 | 0 | 240 | 0 |
| cSH | 964 | 1700 | 1700 | 1700 | 363 |
| Volume to Capacity | 0.01 | 0.17 | 0.20 | 0.14 | 0.70 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 126 |
| Control Delay (s) | 8.8 | 0.0 | 0.0 | 0.0 | 34.7 |
| Lane LOS | A | | | | D |
| Approach Delay (s) | 0.4 | | 0.0 | | 34.7 |
| Approach LOS | | | | | D |

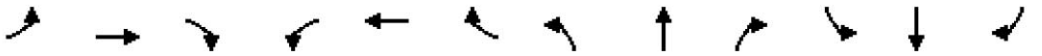
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.9 | | |
| Intersection Capacity Utilization | 45.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 187 | 162 | 2 | 606 | 0 | 0 | 0 | 0 | 123 | 0 | 11 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 199 | 172 | 2 | 645 | 0 | 0 | 0 | 0 | 131 | 0 | 12 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 650 | | | 376 | | | 864 | 858 | 209 | 858 | 1030 | 655 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 650 | | | 376 | | | 864 | 858 | 209 | 858 | 1030 | 655 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.4 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.5 |
| p0 queue free % | 100 | | | 100 | | | 100 | 100 | 100 | 51 | 100 | 97 |
| cM capacity (veh/h) | 942 | | | 1193 | | | 267 | 295 | 833 | 268 | 234 | 436 |

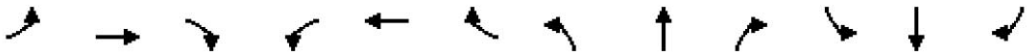
| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 199 | 172 | 2 | 645 | 143 |
| Volume Left | 0 | 0 | 2 | 0 | 131 |
| Volume Right | 0 | 172 | 0 | 0 | 12 |
| cSH | 1700 | 1700 | 1193 | 1700 | 292 |
| Volume to Capacity | 0.12 | 0.10 | 0.00 | 0.38 | 0.49 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 63 |
| Control Delay (s) | 0.0 | 0.0 | 8.0 | 0.0 | 29.2 |
| Lane LOS | | | A | | D |
| Approach Delay (s) | 0.0 | | 0.0 | | 29.2 |
| Approach LOS | | | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.6 | | |
| Intersection Capacity Utilization | 45.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 268 | 231 | 43 | 24 | 323 | 396 | 113 | 654 | 26 | 236 | 390 | 152 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3335 | 3312 | 1492 | 3502 | 3438 | 1553 | 3213 | 3471 | 1595 | 3273 | 3374 | 1366 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3335 | 3312 | 1492 | 3502 | 3438 | 1553 | 3213 | 3471 | 1595 | 3273 | 3374 | 1366 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 295 | 254 | 47 | 26 | 355 | 435 | 124 | 719 | 29 | 259 | 429 | 167 |
| RTOR Reduction (vph) | 0 | 0 | 25 | 0 | 0 | 45 | 0 | 0 | 20 | 0 | 0 | 95 |
| Lane Group Flow (vph) | 295 | 254 | 22 | 26 | 355 | 390 | 124 | 719 | 9 | 259 | 429 | 72 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 5% | 9% | 7% | 0% | 5% | 4% | 9% | 4% | 0% | 7% | 7% | 17% |
| Turn Type | Prot | | pm+ov | Prot | | pt+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 8 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.4 | 31.5 | 39.9 | 3.8 | 23.9 | 38.2 | 8.4 | 23.4 | 27.2 | 10.3 | 25.3 | 36.7 |
| Effective Green, g (s) | 11.4 | 31.5 | 39.9 | 3.8 | 23.9 | 38.2 | 8.4 | 23.4 | 27.2 | 10.3 | 25.3 | 36.7 |
| Actuated g/C Ratio | 0.13 | 0.37 | 0.47 | 0.04 | 0.28 | 0.45 | 0.10 | 0.28 | 0.32 | 0.12 | 0.30 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 447 | 1227 | 771 | 157 | 967 | 698 | 318 | 956 | 585 | 397 | 1004 | 654 |
| v/s Ratio Prot | c0.09 | 0.08 | 0.00 | 0.01 | 0.10 | c0.25 | 0.04 | c0.21 | 0.00 | 0.08 | 0.13 | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.01 | | | 0.04 |
| v/c Ratio | 0.66 | 0.21 | 0.03 | 0.17 | 0.37 | 0.56 | 0.39 | 0.75 | 0.02 | 0.65 | 0.43 | 0.11 |
| Uniform Delay, d1 | 35.0 | 18.2 | 12.1 | 39.1 | 24.5 | 17.2 | 35.9 | 28.1 | 19.8 | 35.6 | 24.0 | 14.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.5 | 0.1 | 0.0 | 0.5 | 0.2 | 1.0 | 0.8 | 3.4 | 0.0 | 3.8 | 0.3 | 0.1 |
| Delay (s) | 38.5 | 18.3 | 12.1 | 39.6 | 24.7 | 18.2 | 36.7 | 31.5 | 19.8 | 39.5 | 24.3 | 14.5 |
| Level of Service | D | B | B | D | C | B | D | C | B | D | C | B |
| Approach Delay (s) | | 27.8 | | | 21.7 | | | 31.9 | | | 27.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 85.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 4 | 180 | 106 | 37 | 214 | 5 | 275 | 23 | 45 | 25 | 45 | 3 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 5 | 209 | 123 | 43 | 249 | 6 | 320 | 27 | 52 | 29 | 52 | 3 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 5 | 333 | 43 | 255 | 320 | 79 | 85 |
| Volume Left (vph) | 5 | 0 | 43 | 0 | 320 | 0 | 29 |
| Volume Right (vph) | 0 | 123 | 0 | 6 | 0 | 52 | 3 |
| Hadj (s) | 0.50 | -0.17 | 0.50 | -0.02 | 0.57 | -0.29 | 0.04 |
| Departure Headway (s) | 7.2 | 6.5 | 7.3 | 6.8 | 7.2 | 6.3 | 7.4 |
| Degree Utilization, x | 0.01 | 0.60 | 0.09 | 0.48 | 0.64 | 0.14 | 0.17 |
| Capacity (veh/h) | 467 | 521 | 464 | 496 | 479 | 537 | 424 |
| Control Delay (s) | 9.1 | 17.9 | 9.8 | 14.7 | 20.9 | 9.2 | 11.9 |
| Approach Delay (s) | 17.7 | | 14.0 | | 18.6 | | 11.9 |
| Approach LOS | C | | B | | C | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 16.6 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 51.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# HCM Signalized Intersection Capacity Analysis
## 130: 6th St & Beaumont Ave

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 67 | 178 | 39 | 83 | 169 | 84 | 39 | 169 | 56 | 119 | 249 | 68 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1733 | 3364 | | 1767 | 1644 | 1335 | 1719 | 3345 | | 1736 | 3394 | |
| Flt Permitted | 0.65 | 1.00 | | 0.61 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1181 | 3364 | | 1138 | 1644 | 1335 | 1719 | 3345 | | 1736 | 3394 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 69 | 184 | 40 | 86 | 174 | 87 | 40 | 174 | 58 | 123 | 257 | 70 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 0 | 57 | 0 | 38 | 0 | 0 | 29 | 0 |
| Lane Group Flow (vph) | 69 | 193 | 0 | 86 | 174 | 30 | 40 | 194 | 0 | 123 | 298 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 4% | 4% | 5% | 2% | 4% | 8% | 5% | 3% | 5% | 4% | 2% | 4% |
| Parking (#/hr) | | | | | 0 | 0 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 7.1 | 7.1 | | 7.1 | 7.1 | 13.0 | 1.1 | 13.1 | | 5.9 | 17.9 | |
| Effective Green, g (s) | 7.1 | 7.1 | | 7.1 | 7.1 | 13.0 | 1.1 | 13.1 | | 5.9 | 17.9 | |
| Actuated g/C Ratio | 0.19 | 0.19 | | 0.19 | 0.19 | 0.34 | 0.03 | 0.34 | | 0.15 | 0.47 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 220 | 627 | | 212 | 306 | 596 | 50 | 1150 | | 269 | 1595 | |
| v/s Ratio Prot | | 0.06 | | | c0.11 | 0.01 | 0.02 | 0.06 | | c0.07 | c0.09 | |
| v/s Ratio Perm | 0.06 | | | 0.08 | | 0.01 | | | | | | |
| v/c Ratio | 0.31 | 0.31 | | 0.41 | 0.57 | 0.05 | 0.80 | 0.17 | | 0.46 | 0.19 | |
| Uniform Delay, d1 | 13.4 | 13.4 | | 13.6 | 14.1 | 8.4 | 18.4 | 8.7 | | 14.6 | 5.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 0.3 | | 1.3 | 2.4 | 0.0 | 59.1 | 0.1 | | 1.2 | 0.1 | |
| Delay (s) | 14.2 | 13.7 | | 14.9 | 16.5 | 8.4 | 77.5 | 8.8 | | 15.9 | 5.9 | |
| Level of Service | B | B | | B | B | A | E | A | | B | A | |
| Approach Delay (s) | | 13.8 | | | 14.1 | | | 18.9 | | | 8.6 | |
| Approach LOS | | B | | | B | | | B | | | A | |

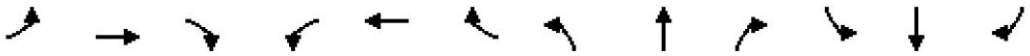
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 38.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 47.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 6 | 153 | 5 | 6 | 1065 | 5 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1700 | 1800 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1200 | 1499 | | 1490 | 1599 | 1275 |
| Flt Permitted | 1.00 | 1.00 | | 0.85 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1200 | 1499 | | 1294 | 1599 | 1275 |
| Peak-hour factor, PHF | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Adj. Flow (vph) | 7 | 189 | 6 | 7 | 1315 | 6 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 7 | 189 | 0 | 13 | 1315 | 6 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Heavy Vehicles (%) | 50% | 2% | 0% | 33% | 1% | 20% |
| Turn Type | | pm+ov | Perm | | | Prot |
| Protected Phases | 4 | 2 | | 8 | 2 | 2 |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 4.1 | 88.3 | | 4.1 | 84.2 | 84.2 |
| Effective Green, g (s) | 4.1 | 88.3 | | 4.1 | 84.2 | 84.2 |
| Actuated g/C Ratio | 0.04 | 0.90 | | 0.04 | 0.86 | 0.86 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 50 | 1499 | | 54 | 1370 | 1092 |
| v/s Ratio Prot | 0.01 | c0.11 | | | c0.82 | 0.00 |
| v/s Ratio Perm | | 0.02 | | 0.01 | | |
| v/c Ratio | 0.14 | 0.13 | | 0.24 | 0.96 | 0.01 |
| Uniform Delay, d1 | 45.4 | 0.6 | | 45.6 | 5.7 | 1.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.3 | 0.0 | | 2.3 | 15.5 | 0.0 |
| Delay (s) | 46.7 | 0.6 | | 47.9 | 21.2 | 1.0 |
| Level of Service | D | A | | D | C | A |
| Approach Delay (s) | 2.3 | | | 47.9 | 21.1 | |
| Approach LOS | A | | | D | C | |

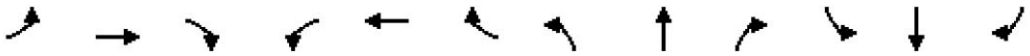
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 98.3 | Sum of lost time (s) | 5.0 |
| Intersection Capacity Utilization | 82.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 19 | 128 | 0 | 4 | 483 | 186 | 3 | 19 | 0 | 169 | 1 | 35 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 24 | 160 | 0 | 5 | 604 | 232 | 4 | 24 | 0 | 211 | 1 | 44 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 184 | 841 | 28 | 256 |
| Volume Left (vph) | 24 | 5 | 4 | 211 |
| Volume Right (vph) | 0 | 233 | 0 | 44 |
| Hadj (s) | 0.15 | -0.15 | 0.03 | 0.10 |
| Departure Headway (s) | 6.0 | 5.0 | 6.9 | 6.3 |
| Degree Utilization, x | 0.31 | 1.18 | 0.05 | 0.45 |
| Capacity (veh/h) | 575 | 705 | 484 | 552 |
| Control Delay (s) | 11.6 | 112.8 | 10.3 | 14.4 |
| Approach Delay (s) | 11.6 | 112.8 | 10.3 | 14.4 |
| Approach LOS | B | F | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | | 77.2 | | |
| HCM Level of Service | | F | | |
| Intersection Capacity Utilization | | 65.0% | ICU Level of Service | C |
| Analysis Period (min) | | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 13 | 245 | 4 | 1 | 641 | 70 | 6 | 4 | 2 | 144 | 1 | 34 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 14 | 263 | 4 | 1 | 689 | 75 | 6 | 4 | 2 | 155 | 1 | 37 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 282 | 766 | 13 | 192 |
| Volume Left (vph) | 14 | 1 | 6 | 155 |
| Volume Right (vph) | 4 | 75 | 2 | 37 |
| Hadj (s) | 0.06 | -0.02 | 0.00 | 0.08 |
| Departure Headway (s) | 5.6 | 5.0 | 6.9 | 6.4 |
| Degree Utilization, x | 0.44 | 1.07 | 0.02 | 0.34 |
| Capacity (veh/h) | 623 | 706 | 476 | 538 |
| Control Delay (s) | 12.9 | 75.1 | 10.1 | 12.7 |
| Approach Delay (s) | 12.9 | 75.1 | 10.1 | 12.7 |
| Approach LOS | B | F | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 50.9 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 63.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 16 | 384 | 56 | 88 | 676 | 17 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 17 | 417 | 61 | 96 | 735 | 18 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 435 | 157 | 753 |
| Volume Left (vph) | 0 | 61 | 735 |
| Volume Right (vph) | 417 | 0 | 18 |
| Hadj (s) | -0.55 | 0.12 | 0.18 |
| Departure Headway (s) | 5.6 | 6.7 | 5.8 |
| Degree Utilization, x | 0.67 | 0.29 | 1.22 |
| Capacity (veh/h) | 630 | 521 | 627 |
| Control Delay (s) | 19.4 | 12.5 | 132.3 |
| Approach Delay (s) | 19.4 | 12.5 | 132.3 |
| Approach LOS | C | B | F |

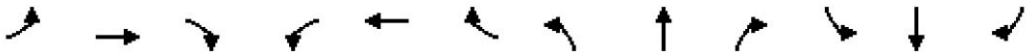
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 81.8 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 84.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 33 | 12 | 146 | 101 | 98 | 256 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 37 | 13 | 162 | 112 | 109 | 284 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 50 | | 480 | 43 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 50 | | 480 | 43 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 90 | | 78 | 72 |
| cM capacity (veh/h) | | | 1563 | | 488 | 1033 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 50 | 274 | 393 |
| Volume Left | 0 | 162 | 109 |
| Volume Right | 13 | 0 | 284 |
| cSH | 1700 | 1563 | 789 |
| Volume to Capacity | 0.03 | 0.10 | 0.50 |
| Queue Length 95th (ft) | 0 | 9 | 71 |
| Control Delay (s) | 0.0 | 4.8 | 14.0 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 4.8 | 14.0 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 9.5 | | |
| Intersection Capacity Utilization | 49.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 12 | 1 | 5 | 20 | 9 | 7 | 2 | 240 | 18 | 5 | 159 | 6 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 13 | 1 | 5 | 22 | 10 | 8 | 2 | 264 | 20 | 5 | 175 | 7 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 20 | 40 | 286 | 187 |
| Volume Left (vph) | 13 | 22 | 2 | 5 |
| Volume Right (vph) | 5 | 8 | 20 | 7 |
| Hadj (s) | -0.03 | -0.01 | -0.03 | 0.00 |
| Departure Headway (s) | 5.0 | 5.0 | 4.2 | 4.3 |
| Degree Utilization, x | 0.03 | 0.05 | 0.33 | 0.23 |
| Capacity (veh/h) | 650 | 653 | 834 | 799 |
| Control Delay (s) | 8.1 | 8.2 | 9.3 | 8.6 |
| Approach Delay (s) | 8.1 | 8.2 | 9.3 | 8.6 |
| Approach LOS | A | A | A | A |

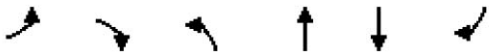
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 8.9 | | | |
| HCM Level of Service | A | | | |
| Intersection Capacity Utilization | 25.4% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 58 | 3 | 19 | 143 | 13 | 32 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Hourly flow rate (vph) | 72 | 4 | 23 | 177 | 16 | 40 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 188 | 117 | | | 200 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 188 | 117 | | | 200 | |
| tC, single (s) | 6.4 | 6.9 | | | 4.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.9 | | | 2.3 | |
| p0 queue free % | 91 | 100 | | | 99 | |
| cM capacity (veh/h) | 786 | 783 | | | 1337 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 75 | 200 | 56 |
| Volume Left | 72 | 0 | 16 |
| Volume Right | 4 | 177 | 0 |
| cSH | 785 | 1700 | 1337 |
| Volume to Capacity | 0.10 | 0.12 | 0.01 |
| Queue Length 95th (ft) | 8 | 0 | 1 |
| Control Delay (s) | 10.1 | 0.0 | 2.3 |
| Lane LOS | B | | A |
| Approach Delay (s) | 10.1 | 0.0 | 2.3 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 23.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 2 | 130 | 76 | 296 | 611 | 3 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 2 | 134 | 78 | 305 | 630 | 3 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1098 | 636 | 633 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1098 | 636 | 633 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 99 | 72 | 92 | | | |
| cM capacity (veh/h) | 217 | 479 | 960 | | | |

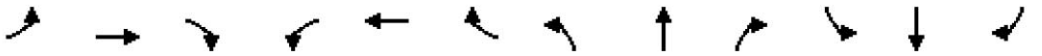
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 136 | 384 | 633 |
| Volume Left | 2 | 78 | 0 |
| Volume Right | 134 | 0 | 3 |
| cSH | 471 | 960 | 1700 |
| Volume to Capacity | 0.29 | 0.08 | 0.37 |
| Queue Length 95th (ft) | 30 | 7 | 0 |
| Control Delay (s) | 15.7 | 2.6 | 0.0 |
| Lane LOS | C | A | |
| Approach Delay (s) | 15.7 | 2.6 | 0.0 |
| Approach LOS | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 70.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 12 | 0 | 12 | 1 | 3 | 2 | 21 | 528 | 0 | 8 | 730 | 21 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 14 | 0 | 14 | 1 | 4 | 2 | 25 | 629 | 0 | 10 | 869 | 25 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1581 | 1577 | 879 | 1591 | 1602 | 639 | 899 | | | 634 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1581 | 1577 | 879 | 1591 | 1602 | 639 | 899 | | | 634 | | |
| tC, single (s) | 7.3 | 6.5 | 6.2 | 8.1 | 6.5 | 6.2 | 4.2 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.7 | 4.0 | 3.3 | 4.4 | 4.0 | 3.3 | 2.3 | | | 2.2 | | |
| p0 queue free % | 81 | 100 | 96 | 97 | 96 | 99 | 97 | | | 99 | | |
| cM capacity (veh/h) | 75 | 105 | 347 | 47 | 101 | 476 | 720 | | | 955 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 29 | 7 | 25 | 629 | 0 | 10 | 869 | 25 |
| Volume Left | 14 | 1 | 25 | 0 | 0 | 10 | 0 | 0 |
| Volume Right | 14 | 2 | 0 | 0 | 0 | 0 | 0 | 25 |
| cSH | 123 | 109 | 720 | 1700 | 1700 | 955 | 1700 | 1700 |
| Volume to Capacity | 0.23 | 0.07 | 0.03 | 0.37 | 0.00 | 0.01 | 0.51 | 0.01 |
| Queue Length 95th (ft) | 21 | 5 | 3 | 0 | 0 | 1 | 0 | 0 |
| Control Delay (s) | 42.8 | 40.3 | 10.2 | 0.0 | 0.0 | 8.8 | 0.0 | 0.0 |
| Lane LOS | E | E | B | | | A | | |
| Approach Delay (s) | 42.8 | 40.3 | 0.4 | | | 0.1 | | |
| Approach LOS | E | E | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.2 | | | |
| Intersection Capacity Utilization | 48.5% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



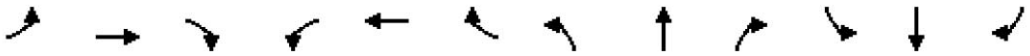
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 75 | 6 | 23 | 5 | 5 | 0 | 15 | 512 | 7 | 1 | 584 | 139 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.96 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1752 | | | 1854 | | 1687 | 1859 | | 1805 | 1863 | 1546 |
| Flt Permitted | | 0.96 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1752 | | | 1854 | | 1687 | 1859 | | 1805 | 1863 | 1546 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 80 | 6 | 24 | 5 | 5 | 0 | 16 | 545 | 7 | 1 | 621 | 148 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 33 |
| Lane Group Flow (vph) | 0 | 104 | 0 | 0 | 10 | 0 | 16 | 551 | 0 | 1 | 621 | 115 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 0% | 0% | 0% | 7% | 2% | 0% | 0% | 2% | 1% |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 53.2 | | | 1.5 | | 3.2 | 47.9 | | 1.4 | 46.1 | 46.1 |
| Effective Green, g (s) | | 53.2 | | | 1.5 | | 3.2 | 47.9 | | 1.4 | 46.1 | 46.1 |
| Actuated g/C Ratio | | 0.44 | | | 0.01 | | 0.03 | 0.40 | | 0.01 | 0.38 | 0.38 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 777 | | | 23 | | 45 | 742 | | 21 | 716 | 594 |
| v/s Ratio Prot | | c0.06 | | | c0.01 | | c0.01 | 0.30 | | 0.00 | c0.33 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.07 |
| v/c Ratio | | 0.13 | | | 0.43 | | 0.36 | 0.74 | | 0.05 | 0.87 | 0.19 |
| Uniform Delay, d1 | | 19.8 | | | 58.8 | | 57.4 | 30.8 | | 58.6 | 34.1 | 24.6 |
| Progression Factor | | 0.80 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.3 | | | 12.6 | | 4.8 | 4.0 | | 0.9 | 10.8 | 0.2 |
| Delay (s) | | 16.1 | | | 71.4 | | 62.2 | 34.8 | | 59.6 | 44.9 | 24.7 |
| Level of Service | | B | | | E | | E | C | | E | D | C |
| Approach Delay (s) | | 16.1 | | | 71.4 | | | 35.6 | | | 41.1 | |
| Approach LOS | | B | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 57.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 3 | 13 | 11 | 10 | 24 | 4 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Hourly flow rate (vph) | 4 | 17 | 14 | 13 | 31 | 5 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 78 | 5 | 86 | 72 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 78 | 5 | 86 | 72 | 5 | |
| tC, single (s) | 6.8 | 6.4 | 7.5 | 6.7 | 4.3 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.3 | 3.5 | 3.8 | 4.2 | 2.4 | |
| p0 queue free % | 99 | 98 | 98 | 98 | 98 | |
| cM capacity (veh/h) | 735 | 1016 | 786 | 762 | 1494 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 4 | 17 | 27 | 31 | 5 |
| Volume Left | 0 | 0 | 14 | 31 | 0 |
| Volume Right | 0 | 17 | 0 | 0 | 5 |
| cSH | 735 | 1016 | 774 | 1494 | 1700 |
| Volume to Capacity | 0.01 | 0.02 | 0.04 | 0.02 | 0.00 |
| Queue Length 95th (ft) | 0 | 1 | 3 | 2 | 0 |
| Control Delay (s) | 9.9 | 8.6 | 9.8 | 7.5 | 0.0 |
| Lane LOS | A | A | A | A | |
| Approach Delay (s) | 8.9 | | 9.8 | 6.4 | |
| Approach LOS | A | | A | | |

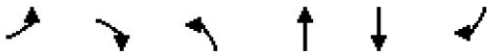
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.1 | | |
| Intersection Capacity Utilization | 17.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 2 | 1 | 6 | 15 | 1 | 22 | 3 | 498 | 97 | 263 | 349 | 1 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 2 | 1 | 7 | 17 | 1 | 25 | 3 | 566 | 110 | 299 | 397 | 1 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1603 | 1688 | 407 | 1640 | 1633 | 631 | 403 | | | 681 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1603 | 1688 | 407 | 1640 | 1633 | 631 | 403 | | | 681 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.2 | 4.4 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.3 | 2.5 | | | 2.2 | | |
| p0 queue free % | 96 | 98 | 99 | 69 | 98 | 95 | 100 | | | 67 | | |
| cM capacity (veh/h) | 59 | 63 | 643 | 56 | 68 | 472 | 1003 | | | 908 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 10 | 43 | 3 | 676 | 299 | 398 |
| Volume Left | 2 | 17 | 3 | 0 | 299 | 0 |
| Volume Right | 7 | 25 | 0 | 110 | 0 | 1 |
| cSH | 152 | 115 | 1003 | 1700 | 908 | 1700 |
| Volume to Capacity | 0.07 | 0.38 | 0.00 | 0.40 | 0.33 | 0.23 |
| Queue Length 95th (ft) | 5 | 38 | 0 | 0 | 36 | 0 |
| Control Delay (s) | 30.4 | 54.0 | 8.6 | 0.0 | 10.9 | 0.0 |
| Lane LOS | D | F | A | | B | |
| Approach Delay (s) | 30.4 | 54.0 | 0.0 | | 4.7 | |
| Approach LOS | D | F | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 4.1 | | | |
| Intersection Capacity Utilization | 60.5% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 309 | 125 | 30 | 276 | 337 | 41 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.96 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.97 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1717 | | 1752 | 1881 | 1863 | 1583 |
| Flt Permitted | 0.97 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1717 | | 1752 | 1881 | 1863 | 1583 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 359 | 145 | 35 | 321 | 392 | 48 |
| RTOR Reduction (vph) | 23 | 0 | 0 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 481 | 0 | 35 | 321 | 392 | 33 |
| Confl. Peds. (#/hr) | | | | | | |
| Heavy Vehicles (%) | 3% | 2% | 3% | 1% | 2% | 2% |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 5 | 2 | 6 | 4 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 16.9 | | 2.0 | 20.6 | 14.6 | 31.5 |
| Effective Green, g (s) | 16.9 | | 2.0 | 20.6 | 14.6 | 31.5 |
| Actuated g/C Ratio | 0.37 | | 0.04 | 0.45 | 0.32 | 0.69 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 638 | | 77 | 852 | 598 | 1235 |
| v/s Ratio Prot | c0.28 | | 0.02 | c0.17 | c0.21 | 0.01 |
| v/s Ratio Perm | | | | | | 0.01 |
| v/c Ratio | 0.75 | | 0.45 | 0.38 | 0.66 | 0.03 |
| Uniform Delay, d1 | 12.5 | | 21.2 | 8.2 | 13.3 | 2.2 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.0 | | 4.2 | 0.3 | 2.6 | 0.0 |
| Delay (s) | 17.5 | | 25.4 | 8.5 | 15.9 | 2.2 |
| Level of Service | B | | C | A | B | A |
| Approach Delay (s) | 17.5 | | | 10.2 | 14.4 | |
| Approach LOS | B | | | B | B | |

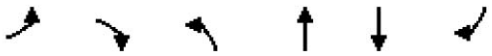
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 45.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 56.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 17 | 9 | 22 | 118 | 13 | 14 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 |
| Hourly flow rate (vph) | 24 | 12 | 31 | 164 | 18 | 19 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 173 | 118 | | | 194 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 173 | 118 | | | 194 | |
| tC, single (s) | 6.5 | 6.2 | | | 4.5 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.3 | | | 2.5 | |
| p0 queue free % | 97 | 99 | | | 98 | |
| cM capacity (veh/h) | 779 | 936 | | | 1190 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 36 | 194 | 38 |
| Volume Left | 24 | 0 | 18 |
| Volume Right | 12 | 164 | 0 |
| cSH | 827 | 1700 | 1190 |
| Volume to Capacity | 0.04 | 0.11 | 0.02 |
| Queue Length 95th (ft) | 3 | 0 | 1 |
| Control Delay (s) | 9.6 | 0.0 | 4.0 |
| Lane LOS | A | | A |
| Approach Delay (s) | 9.6 | 0.0 | 4.0 |
| Approach LOS | A | | |

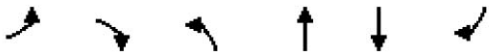
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.8 | | |
| Intersection Capacity Utilization | 22.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 9 | 21 | 19 | 112 | 21 | 6 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 |
| Hourly flow rate (vph) | 13 | 30 | 28 | 162 | 30 | 9 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 257 | 40 | 39 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 257 | 40 | 39 | | | |
| tC, single (s) | 7.0 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.4 | 2.2 | | | |
| p0 queue free % | 98 | 97 | 98 | | | |
| cM capacity (veh/h) | 615 | 994 | 1584 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 43 | 28 | 162 | 39 |
| Volume Left | 13 | 28 | 0 | 0 |
| Volume Right | 30 | 0 | 0 | 9 |
| cSH | 1420 | 1584 | 1700 | 1700 |
| Volume to Capacity | 0.03 | 0.02 | 0.10 | 0.02 |
| Queue Length 95th (ft) | 2 | 1 | 0 | 0 |
| Control Delay (s) | 9.4 | 7.3 | 0.0 | 0.0 |
| Lane LOS | A | A | | |
| Approach Delay (s) | 9.4 | 1.1 | | 0.0 |
| Approach LOS | A | | | |

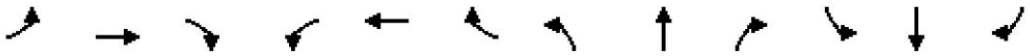
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 17.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 115 | 15 | 7 | 19 | 16 | 19 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| Hourly flow rate (vph) | 177 | 23 | 11 | 29 | 25 | 29 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 80 | 30 | 54 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 80 | 30 | 54 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.2 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.3 | | | |
| p0 queue free % | 80 | 98 | 99 | | | |
| cM capacity (veh/h) | 904 | 1046 | 1478 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 200 | 11 | 29 | 25 | 29 |
| Volume Left | 177 | 11 | 0 | 0 | 0 |
| Volume Right | 23 | 0 | 0 | 0 | 29 |
| cSH | 1022 | 1478 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.20 | 0.01 | 0.02 | 0.01 | 0.02 |
| Queue Length 95th (ft) | 18 | 1 | 0 | 0 | 0 |
| Control Delay (s) | 9.8 | 7.5 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | A | | | |
| Approach Delay (s) | 9.8 | 2.0 | | 0.0 | |
| Approach LOS | A | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.9 | | | |
| Intersection Capacity Utilization | 18.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



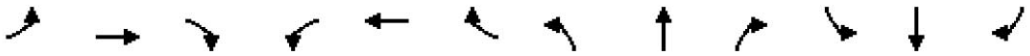
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 301 | 45 | 9 | 226 | 1 | 57 | 0 | 15 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 324 | 48 | 10 | 243 | 1 | 61 | 0 | 16 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 249 | | | 377 | | | 621 | 621 | 358 | 621 | 645 | 254 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 249 | | | 377 | | | 621 | 621 | 358 | 621 | 645 | 254 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 99 | | | 84 | 100 | 98 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1323 | | | 1188 | | | 394 | 399 | 685 | 385 | 387 | 783 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 372 | 254 | 61 | 16 | 0 |
| Volume Left | 0 | 10 | 61 | 0 | 0 |
| Volume Right | 48 | 1 | 0 | 16 | 0 |
| cSH | 1323 | 1188 | 394 | 685 | 1700 |
| Volume to Capacity | 0.00 | 0.01 | 0.16 | 0.02 | 0.00 |
| Queue Length 95th (ft) | 0 | 1 | 14 | 2 | 0 |
| Control Delay (s) | 0.0 | 0.4 | 15.8 | 10.4 | 0.0 |
| Lane LOS | | A | C | B | A |
| Approach Delay (s) | 0.0 | 0.4 | 14.7 | | 0.0 |
| Approach LOS | | | B | | A |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.8 | | | |
| Intersection Capacity Utilization | 29.3% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 157 | 67 | 39 | 91 | 11 | 53 | 521 | 47 | 16 | 691 | 84 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1784 | | 1752 | 1863 | | 1736 | 1832 | | 1805 | 1829 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1784 | | 1752 | 1863 | | 1736 | 1832 | | 1805 | 1829 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 97 | 169 | 72 | 42 | 98 | 12 | 57 | 560 | 51 | 17 | 743 | 90 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 97 | 223 | 0 | 42 | 105 | 0 | 57 | 608 | 0 | 17 | 829 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 3% | 3% | 0% | 0% | 4% | 2% | 4% | 0% | 2% | 1% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 9.8 | 16.7 | | 3.7 | 10.6 | | 5.2 | 44.8 | | 1.2 | 40.8 | |
| Effective Green, g (s) | 9.8 | 16.7 | | 3.7 | 10.6 | | 5.2 | 44.8 | | 1.2 | 40.8 | |
| Actuated g/C Ratio | 0.12 | 0.20 | | 0.04 | 0.13 | | 0.06 | 0.54 | | 0.01 | 0.50 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 215 | 362 | | 79 | 240 | | 110 | 996 | | 26 | 906 | |
| v/s Ratio Prot | c0.05 | c0.13 | | 0.02 | 0.06 | | 0.03 | c0.33 | | 0.01 | c0.45 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.45 | 0.62 | | 0.53 | 0.44 | | 0.52 | 0.61 | | 0.65 | 0.91 | |
| Uniform Delay, d1 | 33.8 | 29.9 | | 38.5 | 33.1 | | 37.4 | 12.8 | | 40.4 | 19.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.5 | 3.1 | | 6.7 | 1.3 | | 4.1 | 1.1 | | 46.4 | 13.5 | |
| Delay (s) | 35.3 | 33.1 | | 45.2 | 34.4 | | 41.5 | 14.0 | | 86.8 | 32.7 | |
| Level of Service | D | C | | D | C | | D | B | | F | C | |
| Approach Delay (s) | | 33.7 | | | 37.4 | | | 16.3 | | | 33.8 | |
| Approach LOS | | C | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 82.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 73.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

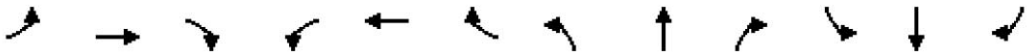


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 82 | 84 | 17 | 35 | 42 | 13 | 7 | 178 | 36 | 17 | 289 | 64 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 86 | 88 | 18 | 37 | 44 | 14 | 7 | 187 | 38 | 18 | 304 | 67 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 175 | 18 | 95 | 195 | 38 | 389 |
| Volume Left (vph) | 86 | 0 | 37 | 7 | 0 | 18 |
| Volume Right (vph) | 0 | 18 | 14 | 0 | 38 | 67 |
| Hadj (s) | 0.25 | -0.70 | 0.01 | 0.04 | -0.70 | -0.09 |
| Departure Headway (s) | 6.7 | 5.7 | 6.7 | 6.1 | 5.3 | 5.7 |
| Degree Utilization, x | 0.33 | 0.03 | 0.18 | 0.33 | 0.06 | 0.62 |
| Capacity (veh/h) | 495 | 568 | 475 | 561 | 630 | 606 |
| Control Delay (s) | 11.7 | 7.7 | 11.2 | 10.8 | 7.4 | 17.7 |
| Approach Delay (s) | 11.3 | | 11.2 | 10.2 | | 17.7 |
| Approach LOS | B | | B | B | | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 13.8 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 52.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

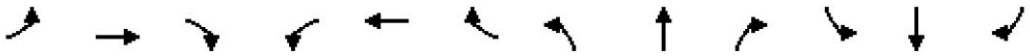
# HCM Signalized Intersection Capacity Analysis
## 24: Cactus Ave & Oliver St



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 2 | 230 | 152 | 50 | 214 | 6 | 91 | 60 | 29 | 4 | 35 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.99 | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 1.00 | |
| Satd. Flow (prot) | 1203 | 3342 | | 1805 | 1900 | 1574 | | 1830 | 1591 | | 1832 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 1.00 | |
| Satd. Flow (perm) | 1203 | 3342 | | 1805 | 1900 | 1574 | | 1830 | 1591 | | 1832 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 2 | 256 | 169 | 56 | 238 | 7 | 101 | 67 | 32 | 4 | 39 | 11 |
| RTOR Reduction (vph) | 0 | 113 | 0 | 0 | 0 | 5 | 0 | 0 | 25 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 2 | 312 | 0 | 56 | 238 | 2 | 0 | 168 | 7 | 0 | 45 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 50% | 1% | 0% | 0% | 0% | 0% | 0% | 2% | 0% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.0 | 10.8 | | 5.3 | 15.1 | 15.1 | | 10.6 | 10.6 | | 7.9 | |
| Effective Green, g (s) | 1.0 | 10.8 | | 5.3 | 15.1 | 15.1 | | 10.6 | 10.6 | | 7.9 | |
| Actuated g/C Ratio | 0.02 | 0.21 | | 0.10 | 0.30 | 0.30 | | 0.21 | 0.21 | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 24 | 713 | | 189 | 567 | 470 | | 383 | 333 | | 286 | |
| v/s Ratio Prot | 0.00 | 0.09 | | c0.03 | c0.13 | | | c0.09 | | | c0.02 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.00 | | | |
| v/c Ratio | 0.08 | 0.44 | | 0.30 | 0.42 | 0.00 | | 0.44 | 0.02 | | 0.16 | |
| Uniform Delay, d1 | 24.3 | 17.3 | | 20.9 | 14.2 | 12.5 | | 17.4 | 15.9 | | 18.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 1.5 | 0.4 | | 0.9 | 0.5 | 0.0 | | 0.8 | 0.0 | | 0.3 | |
| Delay (s) | 25.8 | 17.7 | | 21.8 | 14.7 | 12.5 | | 18.2 | 15.9 | | 18.7 | |
| Level of Service | C | B | | C | B | B | | B | B | | B | |
| Approach Delay (s) | | 17.7 | | | 16.0 | | | 17.8 | | | 18.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

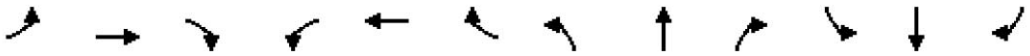
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 50.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 45.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# HCM Signalized Intersection Capacity Analysis
## 25: Cactus Ave & Moreno Beach Dr



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 95 | 127 | 118 | 20 | 99 | 16 | 88 | 401 | 21 | 24 | 554 | 117 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 3311 | | 1719 | 3494 | | 1805 | 3539 | 1518 | 1805 | 4939 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1770 | 3311 | | 1719 | 3494 | | 1805 | 3539 | 1518 | 1805 | 4939 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 102 | 137 | 127 | 22 | 106 | 17 | 95 | 431 | 23 | 26 | 596 | 126 |
| RTOR Reduction (vph) | 0 | 95 | 0 | 0 | 14 | 0 | 0 | 0 | 13 | 0 | 34 | 0 |
| Lane Group Flow (vph) | 102 | 169 | 0 | 22 | 109 | 0 | 95 | 431 | 10 | 26 | 688 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 0% | 1% | 5% | 1% | 0% | 0% | 2% | 5% | 0% | 2% | 2% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 7.4 | 13.2 | | 2.4 | 8.2 | | 7.2 | 19.4 | 21.8 | 1.1 | 13.3 | |
| Effective Green, g (s) | 7.4 | 13.2 | | 2.4 | 8.2 | | 7.2 | 19.4 | 21.8 | 1.1 | 13.3 | |
| Actuated g/C Ratio | 0.14 | 0.25 | | 0.05 | 0.16 | | 0.14 | 0.37 | 0.42 | 0.02 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 251 | 839 | | 79 | 550 | | 249 | 1318 | 752 | 38 | 1261 | |
| v/s Ratio Prot | c0.06 | 0.05 | | 0.01 | c0.03 | | 0.05 | c0.12 | 0.00 | 0.01 | c0.14 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.41 | 0.20 | | 0.28 | 0.20 | | 0.38 | 0.33 | 0.01 | 0.68 | 0.55 | |
| Uniform Delay, d1 | 20.4 | 15.3 | | 24.0 | 19.1 | | 20.4 | 11.7 | 8.9 | 25.3 | 16.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.1 | 0.1 | | 1.9 | 0.2 | | 1.0 | 0.1 | 0.0 | 40.6 | 0.5 | |
| Delay (s) | 21.4 | 15.4 | | 25.9 | 19.3 | | 21.4 | 11.8 | 8.9 | 65.9 | 17.3 | |
| Level of Service | C | B | | C | B | | C | B | A | E | B | |
| Approach Delay (s) | | 17.1 | | | 20.3 | | | 13.4 | | | 19.0 | |
| Approach LOS | | B | | | C | | | B | | | B | |

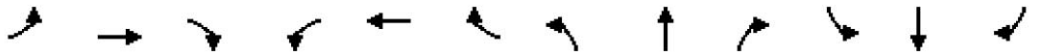
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 52.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 50.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 78 | 9 | 15 | 1 | 4 | 5 | 5 | 126 | 1 | 9 | 242 | 86 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 83 | 10 | 16 | 1 | 4 | 5 | 5 | 134 | 1 | 10 | 257 | 91 |

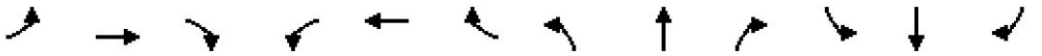
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 88 | 21 | 11 | 72 | 68 | 138 | 220 |
| Volume Left (vph) | 83 | 0 | 1 | 5 | 0 | 10 | 0 |
| Volume Right (vph) | 0 | 16 | 5 | 0 | 1 | 0 | 91 |
| Hadj (s) | 0.49 | -0.54 | 0.06 | 0.07 | 0.02 | 0.05 | -0.27 |
| Departure Headway (s) | 6.1 | 5.1 | 5.8 | 5.3 | 5.2 | 5.0 | 4.7 |
| Degree Utilization, x | 0.15 | 0.03 | 0.02 | 0.11 | 0.10 | 0.19 | 0.29 |
| Capacity (veh/h) | 550 | 653 | 568 | 659 | 664 | 690 | 740 |
| Control Delay (s) | 9.0 | 7.0 | 8.9 | 7.7 | 7.6 | 8.1 | 8.4 |
| Approach Delay (s) | 8.6 | | 8.9 | 7.6 | | 8.3 | |
| Approach LOS | A | | A | A | | A | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 8.2 | | | |
| HCM Level of Service | A | | | |
| Intersection Capacity Utilization | 34.3% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



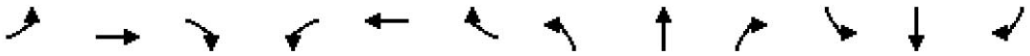
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 42 | 17 | 12 | 222 | 38 | 81 | 9 | 324 | 103 | 98 | 487 | 79 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 3364 | | 1787 | 3181 | | 1805 | 5085 | 1603 | 1805 | 4982 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1770 | 3364 | | 1787 | 3181 | | 1805 | 5085 | 1603 | 1805 | 4982 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 45 | 18 | 13 | 239 | 41 | 87 | 10 | 348 | 111 | 105 | 524 | 85 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 69 | 0 | 0 | 0 | 57 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 45 | 18 | 0 | 239 | 59 | 0 | 10 | 348 | 54 | 105 | 591 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 0% | 0% | 1% | 3% | 0% | 0% | 2% | 0% | 0% | 2% | 0% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 2.3 | 1.1 | | 10.9 | 9.7 | | 1.1 | 12.5 | 23.4 | 7.2 | 18.6 | |
| Effective Green, g (s) | 2.3 | 1.1 | | 10.9 | 9.7 | | 1.1 | 12.5 | 23.4 | 7.2 | 18.6 | |
| Actuated g/C Ratio | 0.05 | 0.02 | | 0.23 | 0.20 | | 0.02 | 0.26 | 0.49 | 0.15 | 0.39 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 85 | 78 | | 408 | 647 | | 42 | 1333 | 921 | 272 | 1943 | |
| v/s Ratio Prot | 0.03 | 0.01 | | c0.13 | c0.02 | | 0.01 | 0.07 | 0.01 | c0.06 | c0.12 | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | |
| v/c Ratio | 0.53 | 0.23 | | 0.59 | 0.09 | | 0.24 | 0.26 | 0.06 | 0.39 | 0.30 | |
| Uniform Delay, d1 | 22.2 | 22.9 | | 16.4 | 15.4 | | 22.9 | 13.9 | 6.4 | 18.3 | 10.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.8 | 1.5 | | 2.1 | 0.1 | | 2.9 | 0.1 | 0.0 | 0.9 | 0.1 | |
| Delay (s) | 28.0 | 24.4 | | 18.5 | 15.5 | | 25.8 | 14.0 | 6.4 | 19.2 | 10.2 | |
| Level of Service | C | C | | B | B | | C | B | A | B | B | |
| Approach Delay (s) | | 26.6 | | | 17.5 | | | 12.5 | | | 11.5 | |
| Approach LOS | | C | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 47.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 50.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



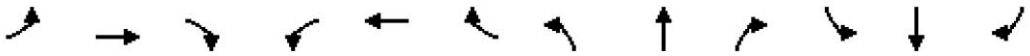
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 148 | 318 | 129 | 137 | 282 | 68 | 163 | 699 | 109 | 49 | 664 | 169 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3610 | 1585 | 1770 | 3465 | | 1805 | 3574 | 1530 | 1805 | 3539 | 1593 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 3610 | 1585 | 1770 | 3465 | | 1805 | 3574 | 1530 | 1805 | 3539 | 1593 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 153 | 328 | 133 | 141 | 291 | 70 | 168 | 721 | 112 | 51 | 685 | 174 |
| RTOR Reduction (vph) | 0 | 0 | 62 | 0 | 21 | 0 | 0 | 0 | 29 | 0 | 0 | 60 |
| Lane Group Flow (vph) | 153 | 328 | 71 | 141 | 340 | 0 | 168 | 721 | 83 | 51 | 685 | 114 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 0% | 1% | 2% | 1% | 0% | 0% | 1% | 4% | 0% | 2% | 0% |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 14.8 | 19.2 | 34.8 | 12.9 | 17.3 | | 15.6 | 65.6 | 78.5 | 6.3 | 56.3 | 71.1 |
| Effective Green, g (s) | 14.8 | 19.2 | 34.8 | 12.9 | 17.3 | | 15.6 | 65.6 | 78.5 | 6.3 | 56.3 | 71.1 |
| Actuated g/C Ratio | 0.12 | 0.16 | 0.29 | 0.11 | 0.14 | | 0.13 | 0.55 | 0.65 | 0.05 | 0.47 | 0.59 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 220 | 578 | 460 | 190 | 500 | | 235 | 1954 | 1001 | 95 | 1660 | 944 |
| v/s Ratio Prot | c0.09 | 0.09 | 0.02 | 0.08 | c0.10 | | c0.09 | 0.20 | 0.01 | 0.03 | c0.19 | 0.01 |
| v/s Ratio Perm | | | 0.02 | | | | | | 0.05 | | | 0.06 |
| v/c Ratio | 0.70 | 0.57 | 0.15 | 0.74 | 0.68 | | 0.71 | 0.37 | 0.08 | 0.54 | 0.41 | 0.12 |
| Uniform Delay, d1 | 50.4 | 46.6 | 31.7 | 51.9 | 48.7 | | 50.1 | 15.4 | 7.6 | 55.4 | 21.0 | 10.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.92 | 0.83 | 0.55 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.2 | 1.3 | 0.2 | 14.4 | 3.7 | | 9.2 | 0.5 | 0.0 | 5.7 | 0.8 | 0.1 |
| Delay (s) | 59.6 | 47.8 | 31.8 | 66.4 | 52.4 | | 55.3 | 13.2 | 4.2 | 61.2 | 21.7 | 10.8 |
| Level of Service | E | D | C | E | D | | E | B | A | E | C | B |
| Approach Delay (s) | | 47.3 | | | 56.3 | | | 19.3 | | | 21.8 | |
| Approach LOS | | D | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



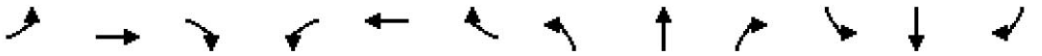
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 176 | 8 | 125 | 434 | 1134 | 0 | 0 | 624 | 351 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1769 | 1556 | 1752 | 3574 | | | 3357 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1769 | 1556 | 1752 | 3574 | | | 3357 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 0 | 0 | 187 | 9 | 133 | 462 | 1206 | 0 | 0 | 664 | 373 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 0 | 0 | 54 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 196 | 76 | 462 | 1206 | 0 | 0 | 983 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 13% | 2% | 3% | 1% | 0% | 0% | 1% | 1% |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 18.8 | 18.8 | 37.1 | 93.2 | | | 52.1 | |
| Effective Green, g (s) | | | | | 18.8 | 18.8 | 37.1 | 93.2 | | | 52.1 | |
| Actuated g/C Ratio | | | | | 0.16 | 0.16 | 0.31 | 0.78 | | | 0.43 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 277 | 244 | 542 | 2776 | | | 1457 | |
| v/s Ratio Prot | | | | | c0.11 | | c0.26 | 0.34 | | | c0.29 | |
| v/s Ratio Perm | | | | | | 0.05 | | | | | | |
| v/c Ratio | | | | | 0.71 | 0.31 | 0.85 | 0.43 | | | 0.67 | |
| Uniform Delay, d1 | | | | | 48.0 | 44.9 | 38.9 | 4.5 | | | 27.2 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.57 | |
| Incremental Delay, d2 | | | | | 8.0 | 0.7 | 12.3 | 0.5 | | | 2.4 | |
| Delay (s) | | | | | 56.0 | 45.6 | 51.2 | 5.0 | | | 18.0 | |
| Level of Service | | | | | E | D | D | A | | | B | |
| Approach Delay (s) | | 0.0 | | | 51.8 | | | 17.8 | | | 18.0 | |
| Approach LOS | | A | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 537 | 3 | 417 | 0 | 0 | 0 | 0 | 848 | 196 | 132 | 721 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1698 | 1703 | 1591 | | | | | 4926 | | 1770 | 3574 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1698 | 1703 | 1591 | | | | | 4926 | | 1770 | 3574 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 554 | 3 | 430 | 0 | 0 | 0 | 0 | 874 | 202 | 136 | 743 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 80 | 0 | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 277 | 280 | 350 | 0 | 0 | 0 | 0 | 1029 | 0 | 136 | 743 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Heavy Vehicles (%) | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 2% | 1% | 2% | 1% | 0% |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 21.2 | 21.2 | 21.2 | | | | | 19.4 | | 6.5 | 29.9 | |
| Effective Green, g (s) | 21.2 | 21.2 | 21.2 | | | | | 19.4 | | 6.5 | 29.9 | |
| Actuated g/C Ratio | 0.36 | 0.36 | 0.36 | | | | | 0.33 | | 0.11 | 0.51 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 609 | 611 | 571 | | | | | 1617 | | 195 | 1808 | |
| v/s Ratio Prot | 0.16 | 0.16 | | | | | | c0.21 | | c0.08 | 0.21 | |
| v/s Ratio Perm | | | c0.22 | | | | | | | | | |
| v/c Ratio | 0.45 | 0.46 | 0.61 | | | | | 0.64 | | 0.70 | 0.41 | |
| Uniform Delay, d1 | 14.5 | 14.5 | 15.6 | | | | | 16.9 | | 25.4 | 9.1 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.5 | 0.5 | 2.0 | | | | | 0.8 | | 10.4 | 0.2 | |
| Delay (s) | 15.1 | 15.1 | 17.5 | | | | | 17.7 | | 35.7 | 9.3 | |
| Level of Service | B | B | B | | | | | B | | D | A | |
| Approach Delay (s) | | 16.1 | | | 0.0 | | | 17.7 | | | 13.4 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 59.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

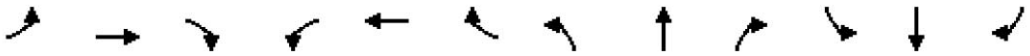


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 517 | 551 | 555 | 59 | 92 | 350 | 131 | 789 | 89 | 322 | 700 | 106 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.88 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 3574 | 1566 | 1805 | 3150 | | 1752 | 5023 | | 3467 | 3574 | 1565 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 3574 | 1566 | 1805 | 3150 | | 1752 | 5023 | | 3467 | 3574 | 1565 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 556 | 592 | 597 | 63 | 99 | 376 | 141 | 848 | 96 | 346 | 753 | 114 |
| RTOR Reduction (vph) | 0 | 0 | 48 | 0 | 250 | 0 | 0 | 10 | 0 | 0 | 0 | 44 |
| Lane Group Flow (vph) | 556 | 592 | 549 | 63 | 225 | 0 | 141 | 934 | 0 | 346 | 753 | 70 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 1% | 2% | 0% | 1% | 1% | 3% | 1% | 6% | 1% | 1% | 2% |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 22.7 | 31.4 | 47.8 | 5.6 | 14.3 | | 16.4 | 50.6 | | 16.4 | 50.6 | 73.3 |
| Effective Green, g (s) | 22.7 | 31.4 | 47.8 | 5.6 | 14.3 | | 16.4 | 50.6 | | 16.4 | 50.6 | 73.3 |
| Actuated g/C Ratio | 0.19 | 0.26 | 0.40 | 0.05 | 0.12 | | 0.14 | 0.42 | | 0.14 | 0.42 | 0.61 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 649 | 935 | 676 | 84 | 375 | | 239 | 2118 | | 474 | 1507 | 1008 |
| v/s Ratio Prot | c0.16 | 0.17 | c0.11 | 0.03 | 0.07 | | 0.08 | 0.19 | | 0.10 | c0.21 | 0.01 |
| v/s Ratio Perm | | | 0.24 | | | | | | | | | 0.03 |
| v/c Ratio | 0.86 | 0.63 | 0.81 | 0.75 | 0.87dr | | 0.59 | 0.44 | | 0.73 | 0.50 | 0.07 |
| Uniform Delay, d1 | 47.1 | 39.2 | 32.1 | 56.5 | 50.1 | | 48.6 | 24.6 | | 49.7 | 25.4 | 9.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.89 | 0.56 | | 1.36 | 0.44 | 0.02 |
| Incremental Delay, d2 | 10.8 | 1.4 | 7.4 | 30.8 | 2.6 | | 3.4 | 0.6 | | 4.9 | 1.0 | 0.0 |
| Delay (s) | 57.9 | 40.6 | 39.5 | 87.3 | 52.7 | | 46.6 | 14.5 | | 72.6 | 12.3 | 0.2 |
| Level of Service | E | D | D | F | D | | D | B | | E | B | A |
| Approach Delay (s) | | 45.7 | | | 56.8 | | | 18.7 | | | 28.4 | |
| Approach LOS | | D | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 82.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

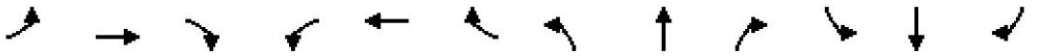
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 138 | 1 | 111 | 485 | 1141 | 0 | 0 | 966 | 269 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | | 0.97 | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.94 | | 1.00 | 1.00 | | | 0.97 | |
| Flt Protected | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1706 | | 3467 | 3574 | | | 4946 | |
| Flt Permitted | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1706 | | 3467 | 3574 | | | 4946 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 142 | 1 | 114 | 500 | 1176 | 0 | 0 | 996 | 277 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 36 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 230 | 0 | 500 | 1176 | 0 | 0 | 1237 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 1% | 0% | 1% | 1% | 1% | 0% | 0% | 1% | 1% |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 21.3 | | 29.0 | 90.7 | | | 57.7 | |
| Effective Green, g (s) | | | | | 21.3 | | 29.0 | 90.7 | | | 57.7 | |
| Actuated g/C Ratio | | | | | 0.18 | | 0.24 | 0.76 | | | 0.48 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 303 | | 838 | 2701 | | | 2378 | |
| v/s Ratio Prot | | | | | c0.13 | | c0.14 | 0.33 | | | c0.25 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.76 | | 0.60 | 0.44 | | | 0.52 | |
| Uniform Delay, d1 | | | | | 46.9 | | 40.3 | 5.3 | | | 21.6 | |
| Progression Factor | | | | | 1.00 | | 0.84 | 0.33 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 10.4 | | 0.9 | 0.4 | | | 0.8 | |
| Delay (s) | | | | | 57.3 | | 34.8 | 2.2 | | | 22.4 | |
| Level of Service | | | | | E | | C | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 57.3 | | | 11.9 | | | 22.4 | |
| Approach LOS | | A | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 33 | 147 | 52 | 46 | 102 | 74 | 52 | 884 | 39 | 135 | 1019 | 47 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1881 | 1587 | 1805 | 1900 | 1587 | 1805 | 3574 | 1567 | 1787 | 3574 | 1535 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1881 | 1587 | 1805 | 1900 | 1587 | 1805 | 3574 | 1567 | 1787 | 3574 | 1535 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 36 | 162 | 57 | 51 | 112 | 81 | 57 | 971 | 43 | 148 | 1120 | 52 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 0 | 68 | 0 | 0 | 9 | 0 | 0 | 9 |
| Lane Group Flow (vph) | 36 | 162 | 8 | 51 | 112 | 13 | 57 | 971 | 34 | 148 | 1120 | 43 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 1% | 1% | 2% |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 4.2 | 16.5 | 16.5 | 6.3 | 18.6 | 18.6 | 7.2 | 66.0 | 66.0 | 15.2 | 74.0 | 74.0 |
| Effective Green, g (s) | 4.2 | 16.5 | 16.5 | 6.3 | 18.6 | 18.6 | 7.2 | 66.0 | 66.0 | 15.2 | 74.0 | 74.0 |
| Actuated g/C Ratio | 0.04 | 0.14 | 0.14 | 0.05 | 0.16 | 0.16 | 0.06 | 0.55 | 0.55 | 0.13 | 0.62 | 0.62 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 63 | 259 | 218 | 95 | 295 | 246 | 108 | 1966 | 862 | 226 | 2204 | 947 |
| v/s Ratio Prot | 0.02 | c0.09 | | c0.03 | 0.06 | | 0.03 | c0.27 | | c0.08 | c0.31 | |
| v/s Ratio Perm | | | 0.00 | | | 0.01 | | | 0.02 | | | 0.03 |
| v/c Ratio | 0.57 | 0.63 | 0.04 | 0.54 | 0.38 | 0.05 | 0.53 | 0.49 | 0.04 | 0.65 | 0.51 | 0.05 |
| Uniform Delay, d1 | 57.0 | 48.8 | 44.9 | 55.4 | 45.5 | 43.2 | 54.7 | 16.7 | 12.4 | 49.9 | 12.8 | 9.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.15 | 0.75 | 0.74 |
| Incremental Delay, d2 | 11.9 | 4.7 | 0.1 | 5.7 | 0.8 | 0.1 | 4.6 | 0.9 | 0.1 | 5.2 | 0.7 | 0.1 |
| Delay (s) | 68.9 | 53.5 | 44.9 | 61.2 | 46.3 | 43.3 | 59.3 | 17.6 | 12.5 | 62.6 | 10.3 | 6.8 |
| Level of Service | E | D | D | E | D | D | E | B | B | E | B | A |
| Approach Delay (s) | | 53.8 | | | 48.4 | | | 19.6 | | | 16.0 | |
| Approach LOS | | D | | | D | | | B | | | B | |

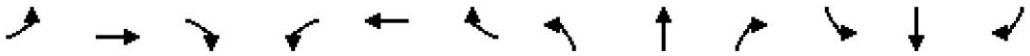
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 6 | 43 | 0 | 3 | 56 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 6 | 45 | 0 | 3 | 58 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 6 | | 98 | 8 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 6 | | 98 | 8 |
| tC, single (s) | | | 4.1 | | 6.7 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.8 | 3.3 |
| p0 queue free % | | | 97 | | 100 | 95 |
| cM capacity (veh/h) | | | 1615 | | 805 | 1064 |

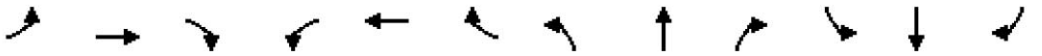
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 6 | 45 | 3 | 58 |
| Volume Left | 0 | 45 | 3 | 0 |
| Volume Right | 6 | 0 | 0 | 58 |
| cSH | 1700 | 1615 | 805 | 1064 |
| Volume to Capacity | 0.00 | 0.03 | 0.00 | 0.05 |
| Queue Length 95th (ft) | 0 | 2 | 0 | 4 |
| Control Delay (s) | 0.0 | 7.3 | 9.5 | 8.6 |
| Lane LOS | | A | A | A |
| Approach Delay (s) | 0.0 | 7.3 | 8.6 | |
| Approach LOS | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.6 | | |
| Intersection Capacity Utilization | 19.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



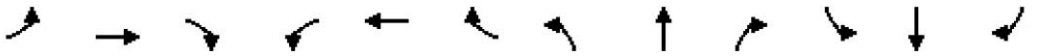
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 21 | 83 | 105 | 103 | 93 | 2 | 119 | 94 | 84 | 0 | 79 | 13 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 1.00 | | | 0.96 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1679 | | 1787 | 1875 | | | 1774 | | | 1856 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1679 | | 1787 | 1875 | | | 1774 | | | 1856 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 22 | 86 | 108 | 106 | 96 | 2 | 123 | 97 | 87 | 0 | 81 | 13 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 22 | 165 | 0 | 106 | 98 | 0 | 0 | 294 | 0 | 0 | 89 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 1% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 4.7 | 50.2 | | 17.6 | 63.1 | | | 25.1 | | | 11.1 | |
| Effective Green, g (s) | 4.7 | 50.2 | | 17.6 | 63.1 | | | 25.1 | | | 11.1 | |
| Actuated g/C Ratio | 0.04 | 0.42 | | 0.15 | 0.53 | | | 0.21 | | | 0.09 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 71 | 702 | | 262 | 986 | | | 371 | | | 172 | |
| v/s Ratio Prot | c0.01 | c0.10 | | c0.06 | 0.05 | | | c0.17 | | | c0.05 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.31 | 0.24 | | 0.40 | 0.10 | | | 0.79 | | | 0.51 | |
| Uniform Delay, d1 | 56.1 | 22.5 | | 46.4 | 14.2 | | | 45.0 | | | 51.9 | |
| Progression Factor | 1.00 | 1.00 | | 0.73 | 0.65 | | | 1.00 | | | 1.02 | |
| Incremental Delay, d2 | 2.5 | 0.8 | | 1.0 | 0.2 | | | 11.0 | | | 2.6 | |
| Delay (s) | 58.6 | 23.3 | | 35.0 | 9.4 | | | 55.9 | | | 55.3 | |
| Level of Service | E | C | | C | A | | | E | | | E | |
| Approach Delay (s) | | 26.9 | | | 22.7 | | | 55.9 | | | 55.3 | |
| Approach LOS | | C | | | C | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 56.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



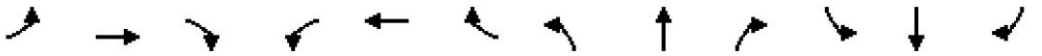
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 127 | 42 | 801 | 32 | 20 | 93 | 91 | 558 | 20 | 16 | 334 | 15 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1633 | | 1752 | 1900 | 1590 | 1770 | 3574 | 1571 | 1805 | 5051 | |
| Flt Permitted | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1633 | | 1752 | 1900 | 1590 | 1770 | 3574 | 1571 | 1805 | 5051 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 131 | 43 | 826 | 33 | 21 | 96 | 94 | 575 | 21 | 16 | 344 | 15 |
| RTOR Reduction (vph) | 0 | 111 | 0 | 0 | 0 | 89 | 0 | 0 | 15 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 889 | 0 | 33 | 21 | 7 | 94 | 575 | 6 | 16 | 355 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 4% | 0% | 1% | 3% | 0% | 0% | 2% | 1% | 0% | 0% | 2% | 0% |
| Turn Type | Split | | | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 36.1 | | 5.9 | 5.9 | 5.9 | 7.7 | 21.7 | 21.7 | 1.2 | 15.2 | |
| Effective Green, g (s) | | 36.1 | | 5.9 | 5.9 | 5.9 | 7.7 | 21.7 | 21.7 | 1.2 | 15.2 | |
| Actuated g/C Ratio | | 0.45 | | 0.07 | 0.07 | 0.07 | 0.10 | 0.27 | 0.27 | 0.01 | 0.19 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 729 | | 128 | 139 | 116 | 168 | 959 | 421 | 27 | 949 | |
| v/s Ratio Prot | | c0.54 | | c0.02 | 0.01 | | c0.05 | c0.16 | | 0.01 | 0.07 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.00 | | | |
| v/c Ratio | | 1.22 | | 0.26 | 0.15 | 0.06 | 0.56 | 0.60 | 0.01 | 0.59 | 0.37 | |
| Uniform Delay, d1 | | 22.4 | | 35.4 | 35.2 | 34.9 | 35.0 | 25.8 | 21.7 | 39.6 | 28.7 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 110.8 | | 1.1 | 0.5 | 0.2 | 4.0 | 1.0 | 0.0 | 30.3 | 0.2 | |
| Delay (s) | | 133.2 | | 36.5 | 35.7 | 35.1 | 39.0 | 26.8 | 21.8 | 69.9 | 28.9 | |
| Level of Service | | F | | D | D | D | D | C | C | E | C | |
| Approach Delay (s) | | 133.2 | | | 35.5 | | | 28.3 | | | 30.7 | |
| Approach LOS | | F | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 76.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 80.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 98.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 53 | 290 | 141 | 119 | 166 | 33 | 105 | 469 | 98 | 93 | 529 | 49 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3402 | | 1805 | 3474 | | 1805 | 3539 | 1587 | 1770 | 3574 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3402 | | 1805 | 3474 | | 1805 | 3539 | 1587 | 1770 | 3574 | 1586 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 59 | 322 | 157 | 132 | 184 | 37 | 117 | 521 | 109 | 103 | 588 | 54 |
| RTOR Reduction (vph) | 0 | 59 | 0 | 0 | 17 | 0 | 0 | 0 | 57 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 59 | 420 | 0 | 132 | 204 | 0 | 117 | 521 | 52 | 103 | 588 | 25 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 1% | 0% | 0% | 6% | 0% | 2% | 0% | 2% | 1% | 0% |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 21.6 | | 13.3 | 27.9 | | 13.0 | 56.8 | 56.8 | 12.3 | 56.1 | 56.1 |
| Effective Green, g (s) | 7.0 | 21.6 | | 13.3 | 27.9 | | 13.0 | 56.8 | 56.8 | 12.3 | 56.1 | 56.1 |
| Actuated g/C Ratio | 0.06 | 0.18 | | 0.11 | 0.23 | | 0.11 | 0.47 | 0.47 | 0.10 | 0.47 | 0.47 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 612 | | 200 | 808 | | 196 | 1675 | 751 | 181 | 1671 | 741 |
| v/s Ratio Prot | 0.03 | c0.12 | | c0.07 | 0.06 | | c0.06 | 0.15 | | 0.06 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | 0.02 |
| v/c Ratio | 0.56 | 0.69 | | 0.66 | 0.25 | | 0.60 | 0.31 | 0.07 | 0.57 | 0.35 | 0.03 |
| Uniform Delay, d1 | 55.0 | 46.0 | | 51.2 | 37.5 | | 51.0 | 19.5 | 17.2 | 51.3 | 20.4 | 17.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.33 | 0.36 | 0.09 |
| Incremental Delay, d2 | 6.7 | 3.2 | | 7.9 | 0.2 | | 4.8 | 0.5 | 0.2 | 3.3 | 0.5 | 0.1 |
| Delay (s) | 61.7 | 49.2 | | 59.1 | 37.7 | | 55.8 | 20.0 | 17.4 | 71.5 | 7.9 | 1.6 |
| Level of Service | E | D | | E | D | | E | C | B | E | A | A |
| Approach Delay (s) | | 50.6 | | | 45.7 | | | 25.2 | | | 16.2 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 68.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 31 | 431 | 160 | 125 | 306 | 108 | 156 | 455 | 151 | 205 | 403 | 13 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1752 | 3438 | | 1770 | 3401 | | 1787 | 5085 | 1571 | 1770 | 4946 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1752 | 3438 | | 1770 | 3401 | | 1787 | 5085 | 1571 | 1770 | 4946 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 32 | 444 | 165 | 129 | 315 | 111 | 161 | 469 | 156 | 211 | 415 | 13 |
| RTOR Reduction (vph) | 0 | 35 | 0 | 0 | 33 | 0 | 0 | 0 | 98 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 32 | 574 | 0 | 129 | 393 | 0 | 161 | 469 | 58 | 211 | 426 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 3% | 0% | 1% | 2% | 1% | 3% | 1% | 2% | 1% | 2% | 4% | 15% |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 4.2 | 27.5 | | 12.5 | 35.8 | | 16.0 | 44.7 | 44.7 | 19.3 | 48.0 | |
| Effective Green, g (s) | 4.2 | 27.5 | | 12.5 | 35.8 | | 16.0 | 44.7 | 44.7 | 19.3 | 48.0 | |
| Actuated g/C Ratio | 0.04 | 0.23 | | 0.10 | 0.30 | | 0.13 | 0.37 | 0.37 | 0.16 | 0.40 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 61 | 788 | | 184 | 1015 | | 238 | 1894 | 585 | 285 | 1978 | |
| v/s Ratio Prot | 0.02 | c0.17 | | c0.07 | 0.12 | | 0.09 | c0.09 | | c0.12 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | |
| v/c Ratio | 0.52 | 0.73 | | 0.70 | 0.39 | | 0.68 | 0.25 | 0.10 | 0.74 | 0.22 | |
| Uniform Delay, d1 | 56.9 | 42.8 | | 51.9 | 33.4 | | 49.5 | 26.0 | 24.5 | 48.0 | 23.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.95 | 0.58 | 1.18 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.9 | 3.4 | | 11.4 | 0.2 | | 6.9 | 0.3 | 0.3 | 9.9 | 0.2 | |
| Delay (s) | 64.8 | 46.2 | | 63.4 | 33.6 | | 54.0 | 15.4 | 29.3 | 57.9 | 23.9 | |
| Level of Service | E | D | | E | C | | D | B | C | E | C | |
| Approach Delay (s) | | 47.1 | | | 40.6 | | | 26.1 | | | 35.1 | |
| Approach LOS | | D | | | D | | | C | | | D | |

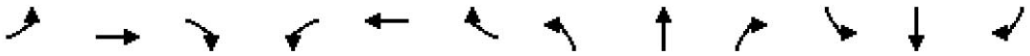
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 56 | 663 | 104 | 88 | 584 | 69 | 50 | 81 | 76 | 57 | 137 | 72 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 3499 | | 1805 | 3574 | 1580 | 1736 | 3229 | | 1805 | 3350 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1770 | 3499 | | 1805 | 3574 | 1580 | 1736 | 3229 | | 1805 | 3350 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 59 | 698 | 109 | 93 | 615 | 73 | 53 | 85 | 80 | 60 | 144 | 76 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 36 | 0 | 68 | 0 | 0 | 62 | 0 |
| Lane Group Flow (vph) | 59 | 798 | 0 | 93 | 615 | 37 | 53 | 97 | 0 | 60 | 158 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 1% | 0% | 0% | 1% | 1% | 4% | 2% | 4% | 0% | 2% | 1% |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 5.2 | 22.3 | | 7.2 | 24.3 | 30.3 | 3.8 | 8.7 | | 6.0 | 10.9 | |
| Effective Green, g (s) | 5.2 | 22.3 | | 7.2 | 24.3 | 30.3 | 3.8 | 8.7 | | 6.0 | 10.9 | |
| Actuated g/C Ratio | 0.09 | 0.37 | | 0.12 | 0.40 | 0.50 | 0.06 | 0.14 | | 0.10 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 153 | 1296 | | 216 | 1443 | 900 | 110 | 467 | | 180 | 607 | |
| v/s Ratio Prot | 0.03 | c0.23 | | c0.05 | 0.17 | 0.00 | c0.03 | 0.03 | | 0.03 | c0.05 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.39 | 0.62 | | 0.43 | 0.43 | 0.04 | 0.48 | 0.21 | | 0.33 | 0.26 | |
| Uniform Delay, d1 | 26.0 | 15.5 | | 24.6 | 12.9 | 7.6 | 27.2 | 22.7 | | 25.2 | 21.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.6 | 0.9 | | 1.4 | 0.2 | 0.0 | 3.3 | 0.2 | | 1.1 | 0.2 | |
| Delay (s) | 27.6 | 16.3 | | 26.0 | 13.1 | 7.6 | 30.5 | 22.9 | | 26.3 | 21.4 | |
| Level of Service | C | B | | C | B | A | C | C | | C | C | |
| Approach Delay (s) | | 17.1 | | | 14.1 | | | 24.8 | | | 22.5 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 60.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 57.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

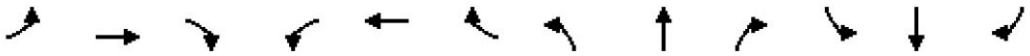
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 158 | 317 | 282 | 407 | 395 | 65 | 262 | 509 | 274 | 204 | 638 | 81 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3467 | 4764 | | 3467 | 5066 | | 3502 | 3610 | 1600 | 3502 | 3539 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3467 | 4764 | | 3467 | 5066 | | 3502 | 3610 | 1600 | 3502 | 3539 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 165 | 330 | 294 | 424 | 411 | 68 | 273 | 530 | 285 | 212 | 665 | 84 |
| RTOR Reduction (vph) | 0 | 157 | 0 | 0 | 21 | 0 | 0 | 0 | 101 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 165 | 467 | 0 | 424 | 458 | 0 | 273 | 530 | 184 | 212 | 740 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 0% | 1% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.9 | 13.8 | | 15.1 | 20.0 | | 10.1 | 24.3 | 39.4 | 8.1 | 22.3 | |
| Effective Green, g (s) | 8.9 | 13.8 | | 15.1 | 20.0 | | 10.1 | 24.3 | 39.4 | 8.1 | 22.3 | |
| Actuated g/C Ratio | 0.12 | 0.18 | | 0.20 | 0.26 | | 0.13 | 0.31 | 0.51 | 0.10 | 0.29 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 399 | 850 | | 677 | 1311 | | 458 | 1135 | 898 | 367 | 1021 | |
| v/s Ratio Prot | 0.05 | c0.10 | | c0.12 | 0.09 | | c0.08 | 0.15 | 0.04 | 0.06 | c0.21 | |
| v/s Ratio Perm | | | | | | | | | 0.07 | | | |
| v/c Ratio | 0.41 | 0.55 | | 0.63 | 0.35 | | 0.60 | 0.47 | 0.20 | 0.58 | 0.72 | |
| Uniform Delay, d1 | 31.8 | 28.9 | | 28.5 | 23.3 | | 31.7 | 21.3 | 10.4 | 33.0 | 24.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | 0.7 | | 1.8 | 0.2 | | 2.1 | 0.3 | 0.1 | 2.2 | 2.6 | |
| Delay (s) | 32.5 | 29.6 | | 30.3 | 23.5 | | 33.8 | 21.6 | 10.5 | 35.2 | 27.3 | |
| Level of Service | C | C | | C | C | | C | C | B | D | C | |
| Approach Delay (s) | | 30.2 | | | 26.7 | | | 21.7 | | | 29.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 77.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 70.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



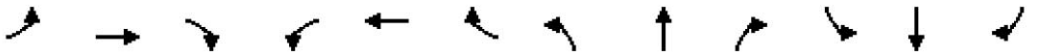
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 98 | 513 | 29 | 64 | 498 | 7 | 34 | 18 | 28 | 2 | 52 | 101 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.95 | | | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5138 | | 1805 | 5125 | | | 1697 | | | 1716 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5138 | | 1805 | 5125 | | | 1697 | | | 1716 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 104 | 546 | 31 | 68 | 530 | 7 | 36 | 19 | 30 | 2 | 55 | 107 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 20 | 0 | 0 | 71 | 0 |
| Lane Group Flow (vph) | 104 | 573 | 0 | 68 | 536 | 0 | 0 | 65 | 0 | 0 | 93 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 1% | 0% | 6% | 6% | 0% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 8.0 | 19.5 | | 4.4 | 15.9 | | | 6.1 | | | 6.8 | |
| Effective Green, g (s) | 8.0 | 19.5 | | 4.4 | 15.9 | | | 6.1 | | | 6.8 | |
| Actuated g/C Ratio | 0.15 | 0.37 | | 0.08 | 0.30 | | | 0.12 | | | 0.13 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 273 | 1898 | | 150 | 1543 | | | 196 | | | 221 | |
| v/s Ratio Prot | c0.06 | c0.11 | | 0.04 | 0.10 | | | c0.04 | | | c0.05 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.38 | 0.30 | | 0.45 | 0.35 | | | 0.33 | | | 0.42 | |
| Uniform Delay, d1 | 20.2 | 11.8 | | 23.1 | 14.4 | | | 21.5 | | | 21.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.9 | 0.1 | | 2.2 | 0.1 | | | 1.0 | | | 1.3 | |
| Delay (s) | 21.1 | 11.9 | | 25.2 | 14.5 | | | 22.5 | | | 22.5 | |
| Level of Service | C | B | | C | B | | | C | | | C | |
| Approach Delay (s) | | 13.3 | | | 15.7 | | | 22.5 | | | 22.5 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 52.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 53.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



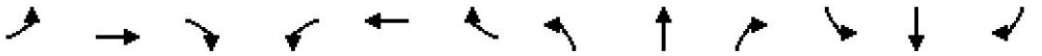
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 15 | 512 | 17 | 20 | 554 | 0 | 14 | 1 | 16 | 7 | 1 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5091 | | 1805 | 5187 | | 1805 | 1900 | 1604 | 1805 | 1624 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5091 | | 1805 | 5187 | | 1805 | 1900 | 1604 | 1805 | 1624 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 16 | 551 | 18 | 22 | 596 | 0 | 15 | 1 | 17 | 8 | 1 | 9 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 16 | 567 | 0 | 22 | 596 | 0 | 15 | 1 | 1 | 8 | 1 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 12% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.8 | 22.4 | | 0.8 | 22.4 | | 0.8 | 0.8 | 1.6 | 0.8 | 0.8 | |
| Effective Green, g (s) | 0.8 | 22.4 | | 0.8 | 22.4 | | 0.8 | 0.8 | 1.6 | 0.8 | 0.8 | |
| Actuated g/C Ratio | 0.02 | 0.55 | | 0.02 | 0.55 | | 0.02 | 0.02 | 0.04 | 0.02 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 35 | 2795 | | 35 | 2848 | | 35 | 37 | 220 | 35 | 32 | |
| v/s Ratio Prot | 0.01 | 0.11 | | c0.01 | c0.11 | | c0.01 | 0.00 | 0.00 | 0.00 | c0.00 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | |
| v/c Ratio | 0.46 | 0.20 | | 0.63 | 0.21 | | 0.43 | 0.03 | 0.00 | 0.23 | 0.04 | |
| Uniform Delay, d1 | 19.8 | 4.7 | | 19.9 | 4.7 | | 19.8 | 19.6 | 18.8 | 19.7 | 19.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.2 | 0.0 | | 30.3 | 0.0 | | 8.2 | 0.3 | 0.0 | 3.3 | 0.5 | |
| Delay (s) | 29.0 | 4.7 | | 50.2 | 4.7 | | 28.0 | 19.9 | 18.8 | 23.0 | 20.1 | |
| Level of Service | C | A | | D | A | | C | B | B | C | C | |
| Approach Delay (s) | | 5.4 | | | 6.3 | | | 23.0 | | | 21.4 | |
| Approach LOS | | A | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.22 | | |
| Actuated Cycle Length (s) | 40.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 36.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 116 | 50 | 100 | 67 | 94 | 28 | 598 | 126 | 124 | 452 | 23 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1765 | | 1787 | 1845 | 1587 | 1805 | 3430 | | 1752 | 1845 | 1555 |
| Flt Permitted | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1765 | | 1787 | 1845 | 1587 | 1805 | 3430 | | 1752 | 1845 | 1555 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 21 | 122 | 53 | 105 | 71 | 99 | 29 | 629 | 133 | 131 | 476 | 24 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 0 | 89 | 0 | 10 | 0 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 0 | 183 | 0 | 105 | 71 | 10 | 29 | 752 | 0 | 131 | 476 | 14 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 5% | 2% | 2% | 1% | 3% | 0% | 0% | 2% | 3% | 3% | 3% | 0% |
| Turn Type | Split | | | Split | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | 17.7 | | 12.6 | 12.6 | 12.6 | 5.1 | 59.0 | | 14.7 | 68.6 | 68.6 |
| Effective Green, g (s) | | 17.7 | | 12.6 | 12.6 | 12.6 | 5.1 | 59.0 | | 14.7 | 68.6 | 68.6 |
| Actuated g/C Ratio | | 0.15 | | 0.10 | 0.10 | 0.10 | 0.04 | 0.49 | | 0.12 | 0.57 | 0.57 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 260 | | 188 | 194 | 167 | 77 | 1686 | | 215 | 1055 | 889 |
| v/s Ratio Prot | | c0.10 | | c0.06 | 0.04 | | 0.02 | 0.22 | | c0.07 | c0.26 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | 0.01 |
| v/c Ratio | | 0.70 | | 0.56 | 0.37 | 0.06 | 0.38 | 0.45 | | 0.61 | 0.45 | 0.02 |
| Uniform Delay, d1 | | 48.7 | | 51.1 | 50.0 | 48.4 | 55.9 | 19.9 | | 49.9 | 14.8 | 11.1 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.83 | 0.82 | 0.92 |
| Incremental Delay, d2 | | 8.4 | | 3.6 | 1.2 | 0.2 | 3.1 | 0.9 | | 4.6 | 1.3 | 0.0 |
| Delay (s) | | 57.1 | | 54.6 | 51.2 | 48.5 | 59.0 | 20.7 | | 46.0 | 13.5 | 10.2 |
| Level of Service | | E | | D | D | D | E | C | | D | B | B |
| Approach Delay (s) | | 57.1 | | | 51.5 | | | 22.1 | | | 20.1 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

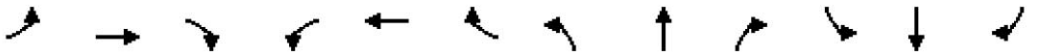


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 101 | 64 | 150 | 63 | 51 | 58 | 93 | 694 | 38 | 96 | 774 | 61 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.90 | | 1.00 | 0.92 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1752 | 3175 | | 1805 | 3297 | | 1805 | 3545 | | 1787 | 3513 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1752 | 3175 | | 1805 | 3297 | | 1805 | 3545 | | 1787 | 3513 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 109 | 69 | 161 | 68 | 55 | 62 | 100 | 746 | 41 | 103 | 832 | 66 |
| RTOR Reduction (vph) | 0 | 131 | 0 | 0 | 52 | 0 | 0 | 4 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 109 | 99 | 0 | 68 | 65 | 0 | 100 | 783 | 0 | 103 | 892 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 3% | 0% | 1% | 0% | 0% | 0% | 0% | 1% | 0% | 1% | 1% | 8% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 6.3 | 11.3 | | 4.4 | 9.4 | | 5.7 | 22.3 | | 5.7 | 22.3 | |
| Effective Green, g (s) | 6.3 | 11.3 | | 4.4 | 9.4 | | 5.7 | 22.3 | | 5.7 | 22.3 | |
| Actuated g/C Ratio | 0.11 | 0.19 | | 0.07 | 0.16 | | 0.10 | 0.37 | | 0.10 | 0.37 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 185 | 601 | | 133 | 519 | | 172 | 1324 | | 171 | 1312 | |
| v/s Ratio Prot | c0.06 | c0.03 | | 0.04 | 0.02 | | 0.06 | 0.22 | | c0.06 | c0.25 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.59 | 0.17 | | 0.51 | 0.12 | | 0.58 | 0.59 | | 0.60 | 0.68 | |
| Uniform Delay, d1 | 25.5 | 20.3 | | 26.6 | 21.6 | | 25.9 | 15.0 | | 25.9 | 15.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.7 | 0.1 | | 3.3 | 0.1 | | 4.9 | 0.7 | | 5.9 | 1.5 | |
| Delay (s) | 30.2 | 20.4 | | 29.9 | 21.7 | | 30.8 | 15.8 | | 31.8 | 17.2 | |
| Level of Service | C | C | | C | C | | C | B | | C | B | |
| Approach Delay (s) | | 23.5 | | | 24.7 | | | 17.4 | | | 18.7 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 59.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 58.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

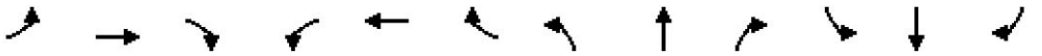
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 114 | 66 | 80 | 16 | 43 | 16 | 50 | 254 | 11 | 13 | 169 | 69 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3467 | 3235 | | 1805 | 3464 | | 1805 | 3574 | 1615 | 1805 | 3387 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3467 | 3235 | | 1805 | 3464 | | 1805 | 3574 | 1615 | 1805 | 3387 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 121 | 70 | 85 | 17 | 46 | 17 | 53 | 270 | 12 | 14 | 180 | 73 |
| RTOR Reduction (vph) | 0 | 65 | 0 | 0 | 15 | 0 | 0 | 0 | 8 | 0 | 46 | 0 |
| Lane Group Flow (vph) | 121 | 90 | 0 | 17 | 48 | 0 | 53 | 270 | 4 | 14 | 207 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Heavy Vehicles (%) | 1% | 0% | 3% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 1% | 3% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.8 | 9.9 | | 1.0 | 5.1 | | 2.1 | 14.5 | 15.5 | 1.0 | 13.4 | |
| Effective Green, g (s) | 5.8 | 9.9 | | 1.0 | 5.1 | | 2.1 | 14.5 | 15.5 | 1.0 | 13.4 | |
| Actuated g/C Ratio | 0.14 | 0.23 | | 0.02 | 0.12 | | 0.05 | 0.34 | 0.37 | 0.02 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 474 | 755 | | 43 | 417 | | 89 | 1222 | 743 | 43 | 1070 | |
| v/s Ratio Prot | c0.03 | c0.03 | | 0.01 | 0.01 | | c0.03 | c0.08 | 0.00 | 0.01 | 0.06 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | |
| v/c Ratio | 0.26 | 0.12 | | 0.40 | 0.12 | | 0.60 | 0.22 | 0.01 | 0.33 | 0.19 | |
| Uniform Delay, d1 | 16.4 | 12.8 | | 20.4 | 16.6 | | 19.7 | 9.9 | 8.6 | 20.4 | 10.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.1 | | 5.9 | 0.1 | | 10.3 | 0.1 | 0.0 | 4.4 | 0.1 | |
| Delay (s) | 16.7 | 12.9 | | 26.3 | 16.8 | | 30.0 | 10.0 | 8.6 | 24.8 | 10.7 | |
| Level of Service | B | B | | C | B | | C | B | A | C | B | |
| Approach Delay (s) | | 14.5 | | | 18.8 | | | 13.1 | | | 11.4 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.20 | | |
| Actuated Cycle Length (s) | 42.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 39.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



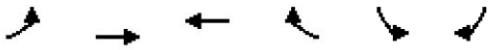
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 123 | 490 | 122 | 14 | 466 | 39 | 107 | 185 | 7 | 36 | 171 | 77 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1787 | 3574 | 1588 | 1805 | 3574 | 1513 | 3502 | 1871 | | 1805 | 3423 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1787 | 3574 | 1588 | 1805 | 3574 | 1513 | 3502 | 1871 | | 1805 | 3423 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 126 | 500 | 124 | 14 | 476 | 40 | 109 | 189 | 7 | 37 | 174 | 79 |
| RTOR Reduction (vph) | 0 | 0 | 39 | 0 | 0 | 16 | 0 | 2 | 0 | 0 | 64 | 0 |
| Lane Group Flow (vph) | 126 | 500 | 85 | 14 | 476 | 24 | 109 | 194 | 0 | 37 | 189 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 0% | 0% | 1% | 5% | 0% | 1% | 0% | 0% | 0% | 0% |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | |
| Actuated Green, G (s) | 13.7 | 74.8 | 82.6 | 3.0 | 64.1 | 71.0 | 7.8 | 19.3 | | 6.9 | 18.4 | |
| Effective Green, g (s) | 13.7 | 74.8 | 82.6 | 3.0 | 64.1 | 71.0 | 7.8 | 19.3 | | 6.9 | 18.4 | |
| Actuated g/C Ratio | 0.11 | 0.62 | 0.69 | 0.02 | 0.53 | 0.59 | 0.06 | 0.16 | | 0.06 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 204 | 2228 | 1146 | 45 | 1909 | 895 | 228 | 301 | | 104 | 525 | |
| v/s Ratio Prot | c0.07 | 0.14 | 0.00 | 0.01 | c0.13 | 0.00 | 0.03 | c0.10 | | 0.02 | c0.06 | |
| v/s Ratio Perm | | | 0.05 | | | 0.01 | | | | | | |
| v/c Ratio | 0.62 | 0.22 | 0.07 | 0.31 | 0.25 | 0.03 | 0.48 | 0.65 | | 0.36 | 0.36 | |
| Uniform Delay, d1 | 50.7 | 9.9 | 6.1 | 57.5 | 15.0 | 10.2 | 54.1 | 47.1 | | 54.4 | 45.5 | |
| Progression Factor | 1.09 | 0.84 | 1.15 | 1.00 | 1.00 | 1.00 | 0.74 | 0.63 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.0 | 0.2 | 0.0 | 3.9 | 0.3 | 0.0 | 1.6 | 4.7 | | 2.1 | 0.4 | |
| Delay (s) | 59.9 | 8.5 | 7.1 | 61.4 | 15.3 | 10.2 | 41.8 | 34.4 | | 56.5 | 45.9 | |
| Level of Service | E | A | A | E | B | B | D | C | | E | D | |
| Approach Delay (s) | | 16.9 | | | 16.2 | | | 37.0 | | | 47.3 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



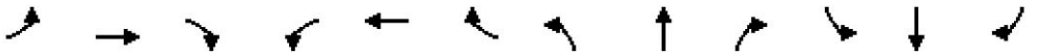
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 48 | 348 | 180 | 75 | 262 | 8 | 150 | 281 | 70 | 11 | 250 | 31 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1881 | 1559 | 1504 | 1792 | 1579 | 1787 | 1900 | 1538 | 1656 | 1847 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1881 | 1559 | 1504 | 1792 | 1579 | 1787 | 1900 | 1538 | 1656 | 1847 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 50 | 362 | 188 | 78 | 273 | 8 | 156 | 293 | 73 | 11 | 260 | 32 |
| RTOR Reduction (vph) | 0 | 0 | 69 | 0 | 0 | 3 | 0 | 0 | 43 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 50 | 362 | 119 | 78 | 273 | 5 | 156 | 293 | 30 | 11 | 288 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 2% | 20% | 6% | 0% | 1% | 0% | 3% | 9% | 1% | 0% |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 4.0 | 22.6 | 22.6 | 8.7 | 27.3 | 35.1 | 13.1 | 24.5 | 33.2 | 7.8 | 19.2 | |
| Effective Green, g (s) | 4.0 | 22.6 | 22.6 | 8.7 | 27.3 | 35.1 | 13.1 | 24.5 | 33.2 | 7.8 | 19.2 | |
| Actuated g/C Ratio | 0.05 | 0.28 | 0.28 | 0.11 | 0.34 | 0.44 | 0.16 | 0.31 | 0.42 | 0.10 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 91 | 534 | 443 | 164 | 615 | 776 | 294 | 585 | 641 | 162 | 446 | |
| v/s Ratio Prot | 0.03 | c0.19 | | 0.05 | c0.15 | 0.00 | c0.09 | 0.15 | 0.01 | 0.01 | c0.16 | |
| v/s Ratio Perm | | | 0.08 | | | 0.00 | | | 0.01 | | | |
| v/c Ratio | 0.55 | 0.68 | 0.27 | 0.48 | 0.44 | 0.01 | 0.53 | 0.50 | 0.05 | 0.07 | 0.65 | |
| Uniform Delay, d1 | 36.9 | 25.3 | 22.1 | 33.3 | 20.3 | 12.5 | 30.4 | 22.5 | 13.8 | 32.6 | 27.1 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 6.6 | 3.4 | 0.3 | 2.2 | 0.5 | 0.0 | 1.8 | 0.7 | 0.0 | 0.2 | 3.2 | |
| Delay (s) | 43.6 | 28.7 | 22.4 | 35.5 | 20.8 | 12.5 | 32.3 | 23.2 | 13.8 | 32.8 | 30.4 | |
| Level of Service | D | C | C | D | C | B | C | C | B | C | C | |
| Approach Delay (s) | | 28.0 | | | 23.8 | | | 24.6 | | | 30.4 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 79.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



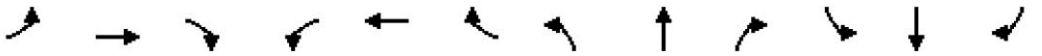
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 71 | 348 | 315 | 25 | 31 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1597 | 1776 | 3252 | 1578 | 1805 | 1601 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1597 | 1776 | 3252 | 1578 | 1805 | 1601 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 75 | 366 | 332 | 26 | 33 | 53 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 19 | 0 | 35 |
| Lane Group Flow (vph) | 75 | 366 | 332 | 7 | 33 | 18 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Heavy Vehicles (%) | 13% | 7% | 11% | 0% | 0% | 0% |
| Turn Type | Prot | | | Perm | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 4.1 | 17.6 | 9.5 | 9.5 | 7.4 | 11.5 |
| Effective Green, g (s) | 4.1 | 17.6 | 9.5 | 9.5 | 7.4 | 11.5 |
| Actuated g/C Ratio | 0.12 | 0.53 | 0.29 | 0.29 | 0.22 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 198 | 947 | 936 | 454 | 405 | 752 |
| v/s Ratio Prot | 0.05 | c0.21 | 0.10 | | c0.02 | 0.00 |
| v/s Ratio Perm | | | | 0.00 | | 0.01 |
| v/c Ratio | 0.38 | 0.39 | 0.35 | 0.02 | 0.08 | 0.02 |
| Uniform Delay, d1 | 13.3 | 4.5 | 9.3 | 8.4 | 10.1 | 7.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.2 | 0.3 | 0.2 | 0.0 | 0.1 | 0.0 |
| Delay (s) | 14.5 | 4.8 | 9.6 | 8.4 | 10.2 | 7.1 |
| Level of Service | B | A | A | A | B | A |
| Approach Delay (s) | | 6.4 | 9.5 | | 8.3 | |
| Approach LOS | | A | A | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.30 | | |
| Actuated Cycle Length (s) | 33.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 37.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 62 | 253 | 61 | 32 | 197 | 52 | 91 | 311 | 67 | 27 | 197 | 36 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1881 | 1516 | 1703 | 1827 | 1592 | 1787 | 3452 | | 1687 | 3574 | 1576 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1881 | 1516 | 1703 | 1827 | 1592 | 1787 | 3452 | | 1687 | 3574 | 1576 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 67 | 275 | 66 | 35 | 214 | 57 | 99 | 338 | 73 | 29 | 214 | 39 |
| RTOR Reduction (vph) | 0 | 0 | 47 | 0 | 0 | 43 | 0 | 18 | 0 | 0 | 0 | 32 |
| Lane Group Flow (vph) | 67 | 275 | 19 | 35 | 214 | 14 | 99 | 393 | 0 | 29 | 214 | 7 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 5% | 6% | 4% | 0% | 1% | 1% | 3% | 7% | 1% | 0% |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 4.7 | 15.1 | 15.1 | 2.1 | 12.5 | 12.5 | 8.6 | 16.3 | | 2.1 | 9.8 | 9.8 |
| Effective Green, g (s) | 4.7 | 15.1 | 15.1 | 2.1 | 12.5 | 12.5 | 8.6 | 16.3 | | 2.1 | 9.8 | 9.8 |
| Actuated g/C Ratio | 0.09 | 0.29 | 0.29 | 0.04 | 0.24 | 0.24 | 0.17 | 0.32 | | 0.04 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 164 | 550 | 444 | 69 | 443 | 386 | 298 | 1090 | | 69 | 679 | 299 |
| v/s Ratio Prot | c0.04 | c0.15 | | 0.02 | 0.12 | | c0.06 | c0.11 | | 0.02 | 0.06 | |
| v/s Ratio Perm | | | 0.01 | | | 0.01 | | | | | | 0.00 |
| v/c Ratio | 0.41 | 0.50 | 0.04 | 0.51 | 0.48 | 0.04 | 0.33 | 0.36 | | 0.42 | 0.32 | 0.02 |
| Uniform Delay, d1 | 22.1 | 15.1 | 13.1 | 24.2 | 16.8 | 14.9 | 19.0 | 13.6 | | 24.2 | 18.0 | 17.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.7 | 0.7 | 0.0 | 5.8 | 0.8 | 0.0 | 0.7 | 0.2 | | 4.1 | 0.3 | 0.0 |
| Delay (s) | 23.8 | 15.8 | 13.1 | 30.0 | 17.6 | 15.0 | 19.6 | 13.8 | | 28.3 | 18.3 | 17.0 |
| Level of Service | C | B | B | C | B | B | B | B | | C | B | B |
| Approach Delay (s) | | 16.7 | | | 18.5 | | | 15.0 | | | 19.1 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 51.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 53.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

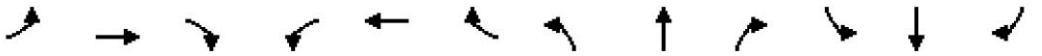


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 512 | 154 | 31 | 438 | 27 | 81 | 181 | 5 | 40 | 252 | 56 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3454 | | 1752 | 3575 | | 1787 | 3560 | | 1805 | 1881 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3454 | | 1752 | 3575 | | 1787 | 3560 | | 1805 | 1881 | 1585 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 41 | 528 | 159 | 32 | 452 | 28 | 84 | 187 | 5 | 41 | 260 | 58 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 47 |
| Lane Group Flow (vph) | 41 | 671 | 0 | 32 | 477 | 0 | 84 | 190 | 0 | 41 | 260 | 11 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 3% | 0% | 0% | 1% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 7.1 | 67.2 | | 5.3 | 65.4 | | 9.6 | 24.9 | | 6.6 | 21.9 | 21.9 |
| Effective Green, g (s) | 7.1 | 67.2 | | 5.3 | 65.4 | | 9.6 | 24.9 | | 6.6 | 21.9 | 21.9 |
| Actuated g/C Ratio | 0.06 | 0.56 | | 0.04 | 0.55 | | 0.08 | 0.21 | | 0.05 | 0.18 | 0.18 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 107 | 1934 | | 77 | 1948 | | 143 | 739 | | 99 | 343 | 289 |
| v/s Ratio Prot | c0.02 | c0.19 | | 0.02 | 0.13 | | c0.05 | c0.05 | | 0.02 | c0.14 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.38 | 0.35 | | 0.42 | 0.25 | | 0.59 | 0.26 | | 0.41 | 0.76 | 0.04 |
| Uniform Delay, d1 | 54.3 | 14.4 | | 55.8 | 14.3 | | 53.3 | 39.8 | | 54.8 | 46.5 | 40.4 |
| Progression Factor | 1.36 | 0.24 | | 1.27 | 0.60 | | 1.00 | 1.00 | | 1.33 | 0.87 | 0.56 |
| Incremental Delay, d2 | 2.0 | 0.4 | | 3.5 | 0.3 | | 6.0 | 0.2 | | 2.8 | 9.2 | 0.1 |
| Delay (s) | 75.9 | 3.9 | | 74.6 | 8.9 | | 59.3 | 40.0 | | 76.0 | 49.5 | 22.7 |
| Level of Service | E | A | | E | A | | E | D | | E | D | C |
| Approach Delay (s) | | 8.0 | | | 13.0 | | | 45.9 | | | 48.2 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 63.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

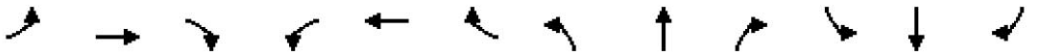
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 280 | 149 | 310 | 364 | 37 | 109 | 475 | 222 | 35 | 435 | 17 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1881 | 1586 | 1787 | 3545 | | 1805 | 3610 | 1567 | 1805 | 3520 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1881 | 1586 | 1787 | 3545 | | 1805 | 3610 | 1567 | 1805 | 3520 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 304 | 162 | 337 | 396 | 40 | 118 | 516 | 241 | 38 | 473 | 18 |
| RTOR Reduction (vph) | 0 | 0 | 114 | 0 | 6 | 0 | 0 | 0 | 178 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 43 | 304 | 48 | 337 | 430 | 0 | 118 | 516 | 63 | 38 | 489 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 0% | 1% | 0% | 3% | 0% | 0% | 0% | 0% | 2% | 0% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.2 | 35.5 | 35.5 | 32.8 | 62.1 | | 13.7 | 31.5 | 31.5 | 4.2 | 22.0 | |
| Effective Green, g (s) | 6.2 | 35.5 | 35.5 | 32.8 | 62.1 | | 13.7 | 31.5 | 31.5 | 4.2 | 22.0 | |
| Actuated g/C Ratio | 0.05 | 0.30 | 0.30 | 0.27 | 0.52 | | 0.11 | 0.26 | 0.26 | 0.04 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 93 | 556 | 469 | 488 | 1835 | | 206 | 948 | 411 | 63 | 645 | |
| v/s Ratio Prot | 0.02 | c0.16 | | c0.19 | 0.12 | | 0.07 | c0.14 | | 0.02 | c0.14 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.04 | | | |
| v/c Ratio | 0.46 | 0.55 | 0.10 | 0.69 | 0.23 | | 0.57 | 0.54 | 0.15 | 0.60 | 0.76 | |
| Uniform Delay, d1 | 55.3 | 35.5 | 30.7 | 39.1 | 15.9 | | 50.4 | 38.1 | 34.0 | 57.1 | 46.5 | |
| Progression Factor | 0.55 | 0.65 | 1.96 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.5 | 3.7 | 0.4 | 4.2 | 0.3 | | 3.8 | 0.6 | 0.2 | 15.2 | 5.1 | |
| Delay (s) | 33.8 | 26.6 | 60.7 | 43.2 | 16.2 | | 54.2 | 38.7 | 34.2 | 72.3 | 51.5 | |
| Level of Service | C | C | E | D | B | | D | D | C | E | D | |
| Approach Delay (s) | | 38.1 | | | 28.0 | | | 39.6 | | | 53.0 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 126 | 248 | 22 | 1 | 250 | 68 | 20 | 18 | 1 | 139 | 34 | 199 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 1832 | | 1805 | 1833 | | 1719 | 1900 | 1574 | 1787 | 1900 | 1575 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 1832 | | 1805 | 1833 | | 1719 | 1900 | 1574 | 1787 | 1900 | 1575 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 147 | 288 | 26 | 1 | 291 | 79 | 23 | 21 | 1 | 162 | 40 | 231 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 11 | 0 | 0 | 0 | 1 | 0 | 0 | 163 |
| Lane Group Flow (vph) | 147 | 311 | 0 | 1 | 359 | 0 | 23 | 21 | 0 | 162 | 40 | 68 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 0% | 0% | 0% | 5% | 0% | 0% | 1% | 0% | 1% |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.1 | 26.2 | | 1.2 | 19.3 | | 1.2 | 7.1 | 7.1 | 12.8 | 18.7 | 18.7 |
| Effective Green, g (s) | 8.1 | 26.2 | | 1.2 | 19.3 | | 1.2 | 7.1 | 7.1 | 12.8 | 18.7 | 18.7 |
| Actuated g/C Ratio | 0.13 | 0.41 | | 0.02 | 0.30 | | 0.02 | 0.11 | 0.11 | 0.20 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 229 | 758 | | 34 | 559 | | 33 | 213 | 177 | 361 | 561 | 465 |
| v/s Ratio Prot | c0.08 | 0.17 | | 0.00 | c0.20 | | c0.01 | 0.01 | | c0.09 | 0.02 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | c0.04 |
| v/c Ratio | 0.64 | 0.41 | | 0.03 | 0.64 | | 0.70 | 0.10 | 0.00 | 0.45 | 0.07 | 0.15 |
| Uniform Delay, d1 | 26.2 | 13.1 | | 30.5 | 19.0 | | 30.9 | 25.2 | 24.9 | 22.2 | 16.1 | 16.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.0 | 0.4 | | 0.4 | 2.5 | | 48.5 | 0.2 | 0.0 | 0.9 | 0.1 | 0.1 |
| Delay (s) | 32.3 | 13.5 | | 30.8 | 21.5 | | 79.4 | 25.4 | 25.0 | 23.0 | 16.1 | 16.6 |
| Level of Service | C | B | | C | C | | E | C | C | C | B | B |
| Approach Delay (s) | | 19.5 | | | 21.6 | | | 53.0 | | | 18.9 | |
| Approach LOS | | B | | | C | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 63.3 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 52.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

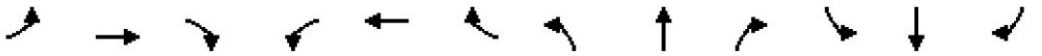


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 187 | 1033 | 98 | 67 | 752 | 196 | 74 | 276 | 36 | 263 | 363 | 108 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3574 | 1586 | 1787 | 4959 | | 3467 | 3509 | | 3502 | 3574 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 3574 | 1586 | 1787 | 4959 | | 3467 | 3509 | | 3502 | 3574 | 1589 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 201 | 1111 | 105 | 72 | 809 | 211 | 80 | 297 | 39 | 283 | 390 | 116 |
| RTOR Reduction (vph) | 0 | 0 | 46 | 0 | 30 | 0 | 0 | 11 | 0 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 201 | 1111 | 59 | 72 | 990 | 0 | 80 | 325 | 0 | 283 | 390 | 26 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 0% | 1% | 1% | 1% | 1% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 16.8 | 61.9 | 61.9 | 9.2 | 54.3 | | 5.6 | 16.5 | | 16.4 | 27.3 | 27.3 |
| Effective Green, g (s) | 16.8 | 61.9 | 61.9 | 9.2 | 54.3 | | 5.6 | 16.5 | | 16.4 | 27.3 | 27.3 |
| Actuated g/C Ratio | 0.14 | 0.52 | 0.52 | 0.08 | 0.45 | | 0.05 | 0.14 | | 0.14 | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 250 | 1844 | 818 | 137 | 2244 | | 162 | 482 | | 479 | 813 | 361 |
| v/s Ratio Prot | c0.11 | c0.31 | | c0.04 | 0.20 | | 0.02 | c0.09 | | c0.08 | 0.11 | |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | 0.02 |
| v/c Ratio | 0.80 | 0.60 | 0.07 | 0.53 | 0.44 | | 0.49 | 0.67 | | 0.59 | 0.48 | 0.07 |
| Uniform Delay, d1 | 50.0 | 20.4 | 14.6 | 53.3 | 22.5 | | 55.8 | 49.2 | | 48.6 | 40.2 | 36.4 |
| Progression Factor | 0.65 | 0.64 | 0.81 | 0.69 | 0.54 | | 0.86 | 0.77 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 16.0 | 1.4 | 0.2 | 3.4 | 0.6 | | 2.3 | 3.7 | | 2.0 | 0.4 | 0.1 |
| Delay (s) | 48.6 | 14.4 | 12.0 | 40.0 | 12.6 | | 50.2 | 41.7 | | 50.6 | 40.6 | 36.5 |
| Level of Service | D | B | B | D | B | | D | D | | D | D | D |
| Approach Delay (s) | | 19.0 | | | 14.4 | | | 43.3 | | | 43.6 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 73.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 64 | 1130 | 147 | 116 | 914 | 109 | 100 | 150 | 47 | 118 | 123 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 3574 | 1585 | 1805 | 5049 | | 1770 | 3442 | | 1805 | 3446 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1770 | 3574 | 1585 | 1805 | 5049 | | 1770 | 3442 | | 1805 | 3446 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 67 | 1189 | 155 | 122 | 962 | 115 | 105 | 158 | 49 | 124 | 129 | 31 |
| RTOR Reduction (vph) | 0 | 0 | 58 | 0 | 7 | 0 | 0 | 34 | 0 | 0 | 25 | 0 |
| Lane Group Flow (vph) | 67 | 1189 | 97 | 122 | 1070 | 0 | 105 | 173 | 0 | 124 | 135 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 1% | 0% | 0% | 1% | 0% | 2% | 1% | 0% | 0% | 1% | 3% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 8.0 | 65.9 | 65.9 | 14.9 | 72.8 | | 13.1 | 14.2 | | 9.0 | 10.1 | |
| Effective Green, g (s) | 8.0 | 65.9 | 65.9 | 14.9 | 72.8 | | 13.1 | 14.2 | | 9.0 | 10.1 | |
| Actuated g/C Ratio | 0.07 | 0.55 | 0.55 | 0.12 | 0.61 | | 0.11 | 0.12 | | 0.08 | 0.08 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 118 | 1963 | 870 | 224 | 3063 | | 193 | 407 | | 135 | 290 | |
| v/s Ratio Prot | 0.04 | c0.33 | | c0.07 | 0.21 | | c0.06 | 0.05 | | c0.07 | 0.04 | |
| v/s Ratio Perm | | | 0.06 | | | | | | | | | |
| v/c Ratio | 0.57 | 0.61 | 0.11 | 0.54 | 0.35 | | 0.54 | 0.43 | | 0.92 | 0.47 | |
| Uniform Delay, d1 | 54.3 | 18.3 | 13.0 | 49.4 | 11.8 | | 50.6 | 49.1 | | 55.1 | 52.4 | |
| Progression Factor | 0.93 | 0.90 | 0.94 | 0.91 | 0.56 | | 0.98 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.0 | 1.1 | 0.2 | 2.5 | 0.3 | | 3.1 | 0.7 | | 52.8 | 1.2 | |
| Delay (s) | 55.8 | 17.6 | 12.4 | 47.6 | 6.9 | | 52.7 | 49.8 | | 107.9 | 53.6 | |
| Level of Service | E | B | B | D | A | | D | D | | F | D | |
| Approach Delay (s) | | 18.8 | | | 11.0 | | | 50.8 | | | 77.3 | |
| Approach LOS | | B | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 67.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

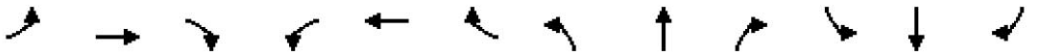


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 82 | 909 | 112 | 46 | 720 | 166 | 140 | 286 | 50 | 206 | 365 | 165 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5136 | 1562 | 1736 | 4926 | | 1787 | 3433 | | 1770 | 3574 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5136 | 1562 | 1736 | 4926 | | 1787 | 3433 | | 1770 | 3574 | 1583 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 87 | 967 | 119 | 49 | 766 | 177 | 149 | 304 | 53 | 219 | 388 | 176 |
| RTOR Reduction (vph) | 0 | 0 | 40 | 0 | 23 | 0 | 0 | 15 | 0 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 87 | 967 | 79 | 49 | 920 | 0 | 149 | 342 | 0 | 219 | 388 | 86 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 2% | 4% | 2% | 2% | 1% | 3% | 0% | 2% | 1% | 1% |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.3 | 62.2 | 79.7 | 5.6 | 56.5 | | 17.5 | 18.0 | | 18.2 | 18.7 | 30.0 |
| Effective Green, g (s) | 11.3 | 62.2 | 79.7 | 5.6 | 56.5 | | 17.5 | 18.0 | | 18.2 | 18.7 | 30.0 |
| Actuated g/C Ratio | 0.09 | 0.52 | 0.66 | 0.05 | 0.47 | | 0.15 | 0.15 | | 0.15 | 0.16 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 170 | 2662 | 1089 | 81 | 2319 | | 261 | 515 | | 268 | 557 | 396 |
| v/s Ratio Prot | c0.05 | 0.19 | 0.01 | c0.03 | c0.19 | | 0.08 | c0.10 | | c0.12 | 0.11 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | 0.03 |
| v/c Ratio | 0.51 | 0.36 | 0.07 | 0.60 | 0.40 | | 0.57 | 0.66 | | 0.82 | 0.70 | 0.22 |
| Uniform Delay, d1 | 51.7 | 17.1 | 7.1 | 56.1 | 20.7 | | 47.8 | 48.1 | | 49.3 | 48.0 | 35.7 |
| Progression Factor | 1.01 | 0.44 | 0.27 | 0.76 | 0.55 | | 0.55 | 0.52 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.0 | 0.3 | 0.0 | 11.1 | 0.5 | | 2.9 | 3.1 | | 17.3 | 3.8 | 0.3 |
| Delay (s) | 54.4 | 7.8 | 2.0 | 53.8 | 11.8 | | 29.3 | 28.2 | | 66.6 | 51.7 | 36.0 |
| Level of Service | D | A | A | D | B | | C | C | | E | D | D |
| Approach Delay (s) | | 10.6 | | | 13.9 | | | 28.5 | | | 52.3 | |
| Approach LOS | | B | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

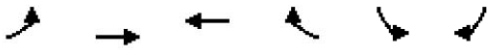
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 79 | 806 | 99 | 59 | 733 | 102 | 182 | 257 | 97 | 200 | 328 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1787 | 5041 | | 1805 | 4981 | | 1787 | 3396 | | 1805 | 3472 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1787 | 5041 | | 1805 | 4981 | | 1787 | 3396 | | 1805 | 3472 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 87 | 886 | 109 | 65 | 805 | 112 | 200 | 282 | 107 | 220 | 360 | 66 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 11 | 0 | 0 | 43 | 0 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 87 | 986 | 0 | 65 | 906 | 0 | 200 | 346 | 0 | 220 | 409 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 2% | 2% | 1% | 2% | 0% | 0% | 1% | 3% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 11.2 | 58.1 | | 7.2 | 54.1 | | 18.7 | 17.8 | | 20.9 | 20.0 | |
| Effective Green, g (s) | 11.2 | 58.1 | | 7.2 | 54.1 | | 18.7 | 17.8 | | 20.9 | 20.0 | |
| Actuated g/C Ratio | 0.09 | 0.48 | | 0.06 | 0.45 | | 0.16 | 0.15 | | 0.17 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 167 | 2441 | | 108 | 2246 | | 278 | 504 | | 314 | 579 | |
| v/s Ratio Prot | c0.05 | c0.20 | | c0.04 | 0.18 | | 0.11 | 0.10 | | c0.12 | c0.12 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.52 | 0.40 | | 0.60 | 0.40 | | 0.72 | 0.69 | | 0.70 | 0.71 | |
| Uniform Delay, d1 | 51.8 | 19.8 | | 55.0 | 22.1 | | 48.2 | 48.4 | | 46.6 | 47.2 | |
| Progression Factor | 0.79 | 1.14 | | 0.50 | 0.33 | | 0.75 | 0.63 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.7 | 0.5 | | 8.1 | 0.5 | | 8.6 | 3.8 | | 6.9 | 3.9 | |
| Delay (s) | 43.5 | 23.0 | | 35.8 | 7.8 | | 44.9 | 34.4 | | 53.5 | 51.2 | |
| Level of Service | D | C | | D | A | | D | C | | D | D | |
| Approach Delay (s) | | 24.7 | | | 9.7 | | | 38.0 | | | 52.0 | |
| Approach LOS | | C | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



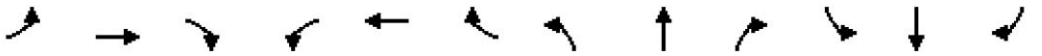
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 257 | 579 | 206 | 136 | 520 | 102 | 262 | 466 | 60 | 190 | 624 | 164 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3574 | 1572 | 1805 | 4938 | | 1770 | 3574 | 1513 | 1787 | 3574 | 1573 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 3574 | 1572 | 1805 | 4938 | | 1770 | 3574 | 1513 | 1787 | 3574 | 1573 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 265 | 597 | 212 | 140 | 536 | 105 | 270 | 480 | 62 | 196 | 643 | 169 |
| RTOR Reduction (vph) | 0 | 0 | 141 | 0 | 24 | 0 | 0 | 0 | 50 | 0 | 0 | 129 |
| Lane Group Flow (vph) | 265 | 597 | 71 | 140 | 617 | 0 | 270 | 480 | 12 | 196 | 643 | 40 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 2% | 3% | 2% | 1% | 5% | 1% | 1% | 1% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 15.0 | 40.0 | 40.0 | 10.0 | 35.0 | | 25.3 | 22.3 | 22.3 | 31.7 | 28.7 | 28.7 |
| Effective Green, g (s) | 15.0 | 40.0 | 40.0 | 10.0 | 35.0 | | 25.3 | 22.3 | 22.3 | 31.7 | 28.7 | 28.7 |
| Actuated g/C Ratio | 0.12 | 0.33 | 0.33 | 0.08 | 0.29 | | 0.21 | 0.19 | 0.19 | 0.26 | 0.24 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 223 | 1191 | 524 | 150 | 1440 | | 373 | 664 | 281 | 472 | 855 | 376 |
| v/s Ratio Prot | c0.15 | c0.17 | | c0.08 | 0.12 | | c0.15 | 0.13 | | 0.11 | c0.18 | |
| v/s Ratio Perm | | | 0.04 | | | | | | 0.01 | | | 0.03 |
| v/c Ratio | 1.19 | 0.50 | 0.13 | 0.93 | 0.43 | | 0.72 | 0.72 | 0.04 | 0.42 | 0.75 | 0.11 |
| Uniform Delay, d1 | 52.5 | 32.0 | 27.9 | 54.7 | 34.4 | | 44.1 | 45.9 | 40.1 | 36.5 | 42.3 | 35.6 |
| Progression Factor | 0.66 | 0.56 | 0.80 | 0.93 | 0.88 | | 0.83 | 0.35 | 0.04 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 118.2 | 1.4 | 0.5 | 53.0 | 0.9 | | 6.0 | 3.4 | 0.1 | 0.6 | 3.8 | 0.1 |
| Delay (s) | 152.8 | 19.5 | 22.8 | 104.0 | 31.3 | | 42.7 | 19.4 | 1.7 | 37.1 | 46.1 | 35.8 |
| Level of Service | F | B | C | F | C | | D | B | A | D | D | D |
| Approach Delay (s) | | 53.0 | | | 44.4 | | | 25.8 | | | 42.6 | |
| Approach LOS | | D | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 89.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 89 | 1433 | 1004 | 185 | 281 | 102 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3539 | 3539 | 1575 | 3502 | 1585 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3539 | 3539 | 1575 | 3502 | 1585 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 91 | 1462 | 1024 | 189 | 287 | 104 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 43 | 0 | 52 |
| Lane Group Flow (vph) | 91 | 1462 | 1024 | 146 | 287 | 52 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 2% | 2% | 1% | 0% | 1% |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 15.0 | 96.8 | 77.8 | 93.0 | 15.2 | 30.2 |
| Effective Green, g (s) | 15.0 | 96.8 | 77.8 | 93.0 | 15.2 | 30.2 |
| Actuated g/C Ratio | 0.12 | 0.81 | 0.65 | 0.78 | 0.13 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 226 | 2855 | 2294 | 1273 | 444 | 452 |
| v/s Ratio Prot | 0.05 | c0.41 | 0.29 | 0.01 | c0.08 | 0.01 |
| v/s Ratio Perm | | | | 0.08 | | 0.02 |
| v/c Ratio | 0.40 | 0.51 | 0.45 | 0.12 | 0.65 | 0.12 |
| Uniform Delay, d1 | 48.4 | 3.8 | 10.4 | 3.3 | 49.8 | 34.6 |
| Progression Factor | 0.81 | 1.37 | 1.05 | 5.36 | 0.55 | 0.28 |
| Incremental Delay, d2 | 0.9 | 0.5 | 0.6 | 0.0 | 3.1 | 0.1 |
| Delay (s) | 40.1 | 5.8 | 11.6 | 17.9 | 30.4 | 9.7 |
| Level of Service | D | A | B | B | C | A |
| Approach Delay (s) | | 7.8 | 12.6 | | 24.8 | |
| Approach LOS | | A | B | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



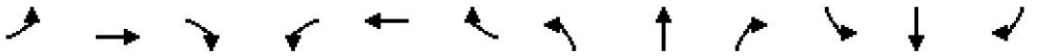
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 65 | 1277 | 338 | 15 | 838 | 60 | 239 | 65 | 12 | 113 | 78 | 77 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 3574 | 1571 | 1687 | 5082 | | 3467 | 3478 | | 1787 | 3610 | 1542 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 3574 | 1571 | 1687 | 5082 | | 3467 | 3478 | | 1787 | 3610 | 1542 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 68 | 1330 | 352 | 16 | 873 | 62 | 249 | 68 | 12 | 118 | 81 | 80 |
| RTOR Reduction (vph) | 0 | 0 | 84 | 0 | 5 | 0 | 0 | 11 | 0 | 0 | 0 | 40 |
| Lane Group Flow (vph) | 68 | 1330 | 268 | 16 | 930 | 0 | 249 | 69 | 0 | 118 | 81 | 40 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 1% | 1% | 7% | 1% | 0% | 1% | 0% | 8% | 1% | 0% | 4% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.4 | 78.7 | 78.7 | 2.8 | 70.1 | | 14.2 | 8.1 | | 14.4 | 8.3 | 19.7 |
| Effective Green, g (s) | 11.4 | 78.7 | 78.7 | 2.8 | 70.1 | | 14.2 | 8.1 | | 14.4 | 8.3 | 19.7 |
| Actuated g/C Ratio | 0.10 | 0.66 | 0.66 | 0.02 | 0.58 | | 0.12 | 0.07 | | 0.12 | 0.07 | 0.16 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 168 | 2344 | 1030 | 39 | 2969 | | 410 | 235 | | 214 | 250 | 305 |
| v/s Ratio Prot | c0.04 | c0.37 | | 0.01 | 0.18 | | c0.07 | 0.02 | | 0.07 | c0.02 | 0.01 |
| v/s Ratio Perm | | | 0.17 | | | | | | | | | 0.01 |
| v/c Ratio | 0.40 | 0.57 | 0.26 | 0.41 | 0.31 | | 0.61 | 0.29 | | 0.55 | 0.32 | 0.13 |
| Uniform Delay, d1 | 51.1 | 11.3 | 8.6 | 57.8 | 12.7 | | 50.3 | 53.2 | | 49.8 | 53.2 | 42.8 |
| Progression Factor | 0.97 | 0.64 | 0.30 | 0.98 | 1.06 | | 1.00 | 1.00 | | 0.70 | 0.85 | 0.84 |
| Incremental Delay, d2 | 1.4 | 0.9 | 0.5 | 6.4 | 0.3 | | 2.5 | 0.7 | | 3.0 | 0.7 | 0.2 |
| Delay (s) | 50.8 | 8.1 | 3.1 | 62.8 | 13.7 | | 52.8 | 53.9 | | 37.7 | 45.7 | 36.1 |
| Level of Service | D | A | A | E | B | | D | D | | D | D | D |
| Approach Delay (s) | | 8.8 | | | 14.6 | | | 53.1 | | | 39.6 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# HCM Signalized Intersection Capacity Analysis
## 63: Cactus Ave & Heacock St

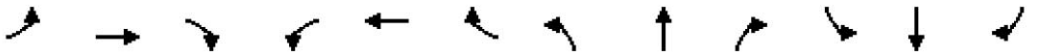
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 58 | 843 | 575 | 12 | 501 | 61 | 340 | 305 | 19 | 104 | 389 | 31 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 3574 | 1548 | 1805 | 3513 | | 3433 | 3541 | | 1770 | 3565 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1770 | 3574 | 1548 | 1805 | 3513 | | 3433 | 3541 | | 1770 | 3565 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 63 | 916 | 625 | 13 | 545 | 66 | 370 | 332 | 21 | 113 | 423 | 34 |
| RTOR Reduction (vph) | 0 | 0 | 80 | 0 | 6 | 0 | 0 | 5 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 63 | 916 | 545 | 13 | 605 | 0 | 370 | 348 | 0 | 113 | 451 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 1% | 3% | 0% | 1% | 0% | 2% | 1% | 0% | 2% | 0% | 0% |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 8.8 | 58.9 | 80.4 | 2.8 | 52.9 | | 21.5 | 29.9 | | 12.4 | 20.8 | |
| Effective Green, g (s) | 8.8 | 58.9 | 80.4 | 2.8 | 52.9 | | 21.5 | 29.9 | | 12.4 | 20.8 | |
| Actuated g/C Ratio | 0.07 | 0.49 | 0.67 | 0.02 | 0.44 | | 0.18 | 0.25 | | 0.10 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 130 | 1754 | 1037 | 42 | 1549 | | 615 | 882 | | 183 | 618 | |
| v/s Ratio Prot | 0.04 | 0.26 | c0.09 | 0.01 | c0.17 | | c0.11 | 0.10 | | 0.06 | c0.13 | |
| v/s Ratio Perm | | | 0.26 | | | | | | | | | |
| v/c Ratio | 0.48 | 0.52 | 0.53 | 0.31 | 0.39 | | 0.60 | 0.40 | | 0.62 | 0.73 | |
| Uniform Delay, d1 | 53.4 | 20.9 | 10.1 | 57.6 | 22.7 | | 45.3 | 37.5 | | 51.5 | 46.9 | |
| Progression Factor | 0.78 | 0.53 | 0.80 | 1.04 | 0.57 | | 1.00 | 1.00 | | 0.35 | 0.37 | |
| Incremental Delay, d2 | 2.5 | 1.0 | 0.4 | 4.1 | 0.7 | | 1.7 | 0.3 | | 5.9 | 4.3 | |
| Delay (s) | 44.1 | 12.0 | 8.5 | 64.0 | 13.7 | | 47.0 | 37.8 | | 23.8 | 21.7 | |
| Level of Service | D | B | A | E | B | | D | D | | C | C | |
| Approach Delay (s) | | 11.9 | | | 14.8 | | | 42.5 | | | 22.1 | |
| Approach LOS | | B | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 70.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



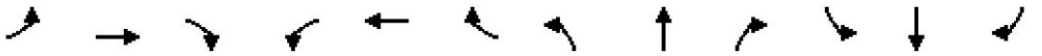
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 59 | 678 | 102 | 26 | 481 | 42 | 50 | 227 | 29 | 55 | 346 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 3491 | | 1805 | 3529 | | 1736 | 3499 | | 1805 | 3535 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1770 | 3491 | | 1805 | 3529 | | 1736 | 3499 | | 1805 | 3535 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 60 | 685 | 103 | 26 | 486 | 42 | 51 | 229 | 29 | 56 | 349 | 26 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 4 | 0 | 0 | 10 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 60 | 781 | 0 | 26 | 524 | 0 | 51 | 248 | 0 | 56 | 370 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 1% | 2% | 0% | 1% | 0% | 4% | 1% | 3% | 0% | 1% | 0% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 8.3 | 72.7 | | 5.4 | 69.8 | | 7.8 | 14.5 | | 11.4 | 18.1 | |
| Effective Green, g (s) | 8.3 | 72.7 | | 5.4 | 69.8 | | 7.8 | 14.5 | | 11.4 | 18.1 | |
| Actuated g/C Ratio | 0.07 | 0.61 | | 0.05 | 0.58 | | 0.06 | 0.12 | | 0.10 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 122 | 2115 | | 81 | 2053 | | 113 | 423 | | 171 | 533 | |
| v/s Ratio Prot | c0.03 | c0.22 | | 0.01 | c0.15 | | c0.03 | 0.07 | | c0.03 | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.49 | 0.37 | | 0.32 | 0.26 | | 0.45 | 0.59 | | 0.33 | 0.69 | |
| Uniform Delay, d1 | 53.8 | 12.0 | | 55.5 | 12.3 | | 54.0 | 49.9 | | 50.7 | 48.3 | |
| Progression Factor | 1.00 | 0.48 | | 0.78 | 0.97 | | 1.00 | 1.00 | | 0.64 | 0.35 | |
| Incremental Delay, d2 | 2.7 | 0.4 | | 2.2 | 0.3 | | 2.8 | 2.1 | | 1.1 | 3.7 | |
| Delay (s) | 56.4 | 6.2 | | 45.6 | 12.3 | | 56.9 | 52.0 | | 33.7 | 20.8 | |
| Level of Service | E | A | | D | B | | E | D | | C | C | |
| Approach Delay (s) | | 9.7 | | | 13.9 | | | 52.8 | | | 22.5 | |
| Approach LOS | | A | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 61.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



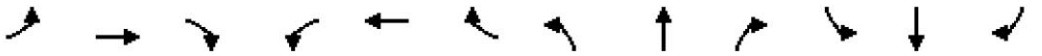
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 46 | 571 | 158 | 56 | 407 | 101 | 102 | 602 | 45 | 111 | 654 | 53 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3445 | | 1805 | 3456 | | 1787 | 3574 | 1585 | 1719 | 3539 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3445 | | 1805 | 3456 | | 1787 | 3574 | 1585 | 1719 | 3539 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 46 | 571 | 158 | 56 | 407 | 101 | 102 | 602 | 45 | 111 | 654 | 53 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 17 | 0 | 0 | 0 | 32 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 46 | 710 | 0 | 56 | 491 | 0 | 102 | 602 | 13 | 111 | 654 | 16 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 1% | 0% | 1% | 1% | 1% | 1% | 0% | 5% | 2% | 0% |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.1 | 48.5 | | 7.7 | 48.1 | | 11.8 | 34.0 | 34.0 | 13.8 | 36.0 | 36.0 |
| Effective Green, g (s) | 8.1 | 48.5 | | 7.7 | 48.1 | | 11.8 | 34.0 | 34.0 | 13.8 | 36.0 | 36.0 |
| Actuated g/C Ratio | 0.07 | 0.40 | | 0.06 | 0.40 | | 0.10 | 0.28 | 0.28 | 0.12 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 122 | 1392 | | 116 | 1385 | | 176 | 1013 | 449 | 198 | 1062 | 476 |
| v/s Ratio Prot | 0.03 | c0.21 | | c0.03 | 0.14 | | 0.06 | 0.17 | | c0.06 | c0.18 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | 0.01 |
| v/c Ratio | 0.38 | 0.51 | | 0.48 | 0.35 | | 0.58 | 0.59 | 0.03 | 0.56 | 0.62 | 0.03 |
| Uniform Delay, d1 | 53.5 | 26.8 | | 54.2 | 25.1 | | 51.7 | 37.1 | 31.1 | 50.2 | 36.1 | 29.7 |
| Progression Factor | 0.64 | 0.39 | | 0.86 | 1.00 | | 1.18 | 0.90 | 1.40 | 1.07 | 0.98 | 1.26 |
| Incremental Delay, d2 | 1.9 | 1.3 | | 3.1 | 0.7 | | 4.5 | 2.5 | 0.1 | 3.0 | 2.2 | 0.1 |
| Delay (s) | 36.2 | 11.8 | | 49.6 | 25.9 | | 65.7 | 35.7 | 43.6 | 57.0 | 37.5 | 37.5 |
| Level of Service | D | B | | D | C | | E | D | D | E | D | D |
| Approach Delay (s) | | 13.3 | | | 28.2 | | | 40.3 | | | 40.2 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



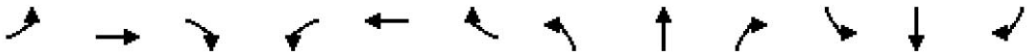
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 82 | 1552 | 108 | 12 | 1198 | 58 | 127 | 20 | 17 | 103 | 92 | 192 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1703 | 5136 | 1599 | 3502 | 5136 | 1460 | 3467 | 3282 | 2636 | 3400 | 3539 | 1561 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1703 | 5136 | 1599 | 3502 | 5136 | 1460 | 3467 | 3282 | 2636 | 3400 | 3539 | 1561 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 85 | 1600 | 111 | 12 | 1235 | 60 | 131 | 21 | 18 | 106 | 95 | 198 |
| RTOR Reduction (vph) | 0 | 0 | 39 | 0 | 0 | 22 | 0 | 0 | 15 | 0 | 0 | 130 |
| Lane Group Flow (vph) | 85 | 1600 | 72 | 12 | 1235 | 38 | 131 | 21 | 3 | 106 | 95 | 68 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 6% | 1% | 1% | 0% | 1% | 9% | 1% | 10% | 6% | 3% | 2% | 2% |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 35.2 | 35.2 | 2.3 | 30.5 | 30.5 | 10.2 | 9.0 | 11.3 | 10.6 | 9.4 | 9.4 |
| Effective Green, g (s) | 7.0 | 35.2 | 35.2 | 2.3 | 30.5 | 30.5 | 10.2 | 9.0 | 11.3 | 10.6 | 9.4 | 9.4 |
| Actuated g/C Ratio | 0.10 | 0.48 | 0.48 | 0.03 | 0.42 | 0.42 | 0.14 | 0.12 | 0.15 | 0.15 | 0.13 | 0.13 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 163 | 2473 | 770 | 110 | 2143 | 609 | 484 | 404 | 552 | 493 | 455 | 201 |
| v/s Ratio Prot | c0.05 | c0.31 | | 0.00 | 0.24 | | c0.04 | 0.01 | 0.00 | 0.03 | 0.03 | |
| v/s Ratio Perm | | | 0.05 | | | 0.03 | | | 0.00 | | | c0.04 |
| v/c Ratio | 0.52 | 0.65 | 0.09 | 0.11 | 0.58 | 0.06 | 0.27 | 0.05 | 0.01 | 0.22 | 0.21 | 0.34 |
| Uniform Delay, d1 | 31.5 | 14.3 | 10.3 | 34.4 | 16.3 | 12.7 | 28.1 | 28.3 | 26.1 | 27.6 | 28.5 | 29.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.0 | 0.6 | 0.1 | 0.4 | 0.4 | 0.0 | 0.3 | 0.1 | 0.0 | 0.2 | 0.2 | 1.0 |
| Delay (s) | 34.4 | 14.9 | 10.3 | 34.8 | 16.7 | 12.8 | 28.4 | 28.3 | 26.1 | 27.8 | 28.7 | 30.0 |
| Level of Service | C | B | B | C | B | B | C | C | C | C | C | C |
| Approach Delay (s) | | 15.5 | | | 16.7 | | | 28.2 | | | 29.1 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 73.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 59.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



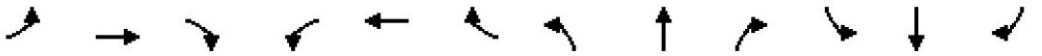
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1185 | 525 | 0 | 892 | 0 | 0 | 0 | 0 | 218 | 0 | 410 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.95 | | | 1.00 | | | | | 1.00 | 0.87 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (prot) | | 4884 | | | 5136 | | | | | 1633 | 1442 | 1490 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (perm) | | 4884 | | | 5136 | | | | | 1633 | 1442 | 1490 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1222 | 541 | 0 | 920 | 0 | 0 | 0 | 0 | 225 | 0 | 423 |
| RTOR Reduction (vph) | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 123 | 123 |
| Lane Group Flow (vph) | 0 | 1720 | 0 | 0 | 920 | 0 | 0 | 0 | 0 | 202 | 103 | 97 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Heavy Vehicles (%) | 0% | 1% | 2% | 0% | 1% | 0% | 0% | 0% | 0% | 5% | 0% | 3% |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 90.1 | | | 90.1 | | | | | 21.9 | 21.9 | 21.9 |
| Effective Green, g (s) | | 90.1 | | | 90.1 | | | | | 21.9 | 21.9 | 21.9 |
| Actuated g/C Ratio | | 0.75 | | | 0.75 | | | | | 0.18 | 0.18 | 0.18 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3667 | | | 3856 | | | | | 298 | 263 | 272 |
| v/s Ratio Prot | | c0.35 | | | 0.18 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | c0.12 | 0.07 | 0.07 |
| v/c Ratio | | 0.47 | | | 0.24 | | | | | 0.68 | 0.39 | 0.36 |
| Uniform Delay, d1 | | 5.7 | | | 4.5 | | | | | 45.8 | 43.2 | 42.9 |
| Progression Factor | | 1.00 | | | 0.18 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.4 | | | 0.1 | | | | | 6.0 | 1.0 | 0.8 |
| Delay (s) | | 6.2 | | | 0.9 | | | | | 51.8 | 44.2 | 43.7 |
| Level of Service | | A | | | A | | | | | D | D | D |
| Approach Delay (s) | | 6.2 | | | 0.9 | | | 0.0 | | | 46.4 | |
| Approach LOS | | A | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 61.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



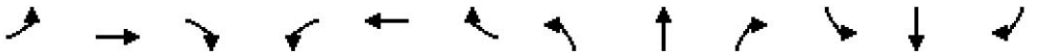
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 365 | 1039 | 0 | 0 | 723 | 234 | 313 | 6 | 165 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.96 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1770 | 5136 | | | 4889 | | 1649 | 1573 | 1490 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1770 | 5136 | | | 4889 | | 1649 | 1573 | 1490 | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 376 | 1071 | 0 | 0 | 745 | 241 | 323 | 6 | 170 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 3 | 129 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 376 | 1071 | 0 | 0 | 942 | 0 | 174 | 169 | 24 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Heavy Vehicles (%) | 2% | 1% | 0% | 0% | 1% | 4% | 4% | 0% | 3% | 0% | 0% | 0% |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 44.0 | 93.4 | | | 45.4 | | 18.6 | 18.6 | 18.6 | | | |
| Effective Green, g (s) | 44.0 | 93.4 | | | 45.4 | | 18.6 | 18.6 | 18.6 | | | |
| Actuated g/C Ratio | 0.37 | 0.78 | | | 0.38 | | 0.16 | 0.16 | 0.16 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 649 | 3998 | | | 1850 | | 256 | 244 | 231 | | | |
| v/s Ratio Prot | c0.21 | 0.21 | | | c0.19 | | 0.11 | c0.11 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | |
| v/c Ratio | 0.58 | 0.27 | | | 0.51 | | 0.68 | 0.69 | 0.10 | | | |
| Uniform Delay, d1 | 30.6 | 3.7 | | | 28.7 | | 47.9 | 48.0 | 43.5 | | | |
| Progression Factor | 1.03 | 0.73 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 1.1 | 0.1 | | | 1.0 | | 7.0 | 8.2 | 0.2 | | | |
| Delay (s) | 32.7 | 2.9 | | | 29.7 | | 54.9 | 56.1 | 43.7 | | | |
| Level of Service | C | A | | | C | | D | E | D | | | |
| Approach Delay (s) | | 10.6 | | | 29.7 | | | 51.9 | | | 0.0 | |
| Approach LOS | | B | | | C | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



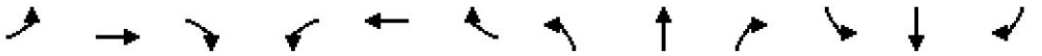
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 185 | 998 | 16 | 3 | 800 | 92 | 13 | 34 | 3 | 73 | 35 | 153 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3467 | 3524 | | 1805 | 3574 | 1599 | 3242 | 3566 | | 1752 | 3610 | 1583 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3467 | 3524 | | 1805 | 3574 | 1599 | 3242 | 3566 | | 1752 | 3610 | 1583 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 187 | 1008 | 16 | 3 | 808 | 93 | 13 | 34 | 3 | 74 | 35 | 155 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 40 | 0 | 3 | 0 | 0 | 0 | 137 |
| Lane Group Flow (vph) | 187 | 1023 | 0 | 3 | 808 | 53 | 13 | 34 | 0 | 74 | 35 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Heavy Vehicles (%) | 1% | 2% | 13% | 0% | 1% | 1% | 8% | 0% | 0% | 3% | 0% | 2% |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 18.2 | 84.7 | | 1.4 | 67.9 | 67.9 | 4.1 | 7.2 | | 10.7 | 13.8 | 13.8 |
| Effective Green, g (s) | 18.2 | 84.7 | | 1.4 | 67.9 | 67.9 | 4.1 | 7.2 | | 10.7 | 13.8 | 13.8 |
| Actuated g/C Ratio | 0.15 | 0.71 | | 0.01 | 0.57 | 0.57 | 0.03 | 0.06 | | 0.09 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 526 | 2487 | | 21 | 2022 | 905 | 111 | 214 | | 156 | 415 | 182 |
| v/s Ratio Prot | 0.05 | c0.29 | | 0.00 | c0.23 | | 0.00 | c0.01 | | c0.04 | 0.01 | |
| v/s Ratio Perm | | | | | | 0.03 | | | | | | 0.01 |
| v/c Ratio | 0.36 | 0.41 | | 0.14 | 0.40 | 0.06 | 0.12 | 0.16 | | 0.47 | 0.08 | 0.10 |
| Uniform Delay, d1 | 45.6 | 7.3 | | 58.7 | 14.6 | 11.7 | 56.2 | 53.5 | | 52.0 | 47.5 | 47.5 |
| Progression Factor | 1.00 | 1.00 | | 0.67 | 0.88 | 1.59 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.5 | | 3.0 | 0.6 | 0.1 | 0.5 | 0.4 | | 2.3 | 0.1 | 0.2 |
| Delay (s) | 46.1 | 7.8 | | 42.3 | 13.4 | 18.7 | 56.7 | 53.9 | | 54.2 | 47.5 | 47.8 |
| Level of Service | D | A | | D | B | B | E | D | | D | D | D |
| Approach Delay (s) | | 13.7 | | | 14.0 | | | 54.6 | | | 49.6 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 64.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



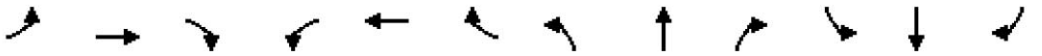
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 49 | 1001 | 12 | 5 | 830 | 52 | 11 | 12 | 13 | 10 | 1 | 25 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5106 | | 1805 | 3574 | 1534 | 1648 | 1668 | | 1798 | 1600 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.74 | 1.00 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5106 | | 1805 | 3574 | 1534 | 1283 | 1668 | | 1402 | 1600 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 51 | 1032 | 12 | 5 | 856 | 54 | 11 | 12 | 13 | 10 | 1 | 26 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 12 | 0 | 0 | 24 | 0 |
| Lane Group Flow (vph) | 51 | 1044 | 0 | 5 | 856 | 49 | 11 | 13 | 0 | 10 | 3 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 33% | 0% | 1% | 2% | 9% | 0% | 8% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 10.1 | 99.2 | | 1.4 | 90.5 | 90.5 | 7.4 | 7.4 | | 7.4 | 7.4 | |
| Effective Green, g (s) | 10.1 | 99.2 | | 1.4 | 90.5 | 90.5 | 7.4 | 7.4 | | 7.4 | 7.4 | |
| Actuated g/C Ratio | 0.08 | 0.83 | | 0.01 | 0.75 | 0.75 | 0.06 | 0.06 | | 0.06 | 0.06 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 152 | 4221 | | 21 | 2695 | 1157 | 79 | 103 | | 86 | 99 | |
| v/s Ratio Prot | c0.03 | 0.20 | | 0.00 | c0.24 | | | 0.01 | | | 0.00 | |
| v/s Ratio Perm | | | | | | 0.03 | c0.01 | | | 0.01 | | |
| v/c Ratio | 0.34 | 0.25 | | 0.24 | 0.32 | 0.04 | 0.14 | 0.12 | | 0.12 | 0.03 | |
| Uniform Delay, d1 | 51.8 | 2.3 | | 58.8 | 4.8 | 3.7 | 53.3 | 53.2 | | 53.2 | 52.9 | |
| Progression Factor | 0.85 | 0.92 | | 1.00 | 1.85 | 1.45 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.2 | 0.1 | | 5.5 | 0.3 | 0.1 | 0.8 | 0.5 | | 0.6 | 0.1 | |
| Delay (s) | 45.5 | 2.2 | | 64.1 | 9.1 | 5.5 | 54.1 | 53.8 | | 53.8 | 53.0 | |
| Level of Service | D | A | | E | A | A | D | D | | D | D | |
| Approach Delay (s) | | 4.2 | | | 9.2 | | | 53.9 | | | 53.2 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.31 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 53.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



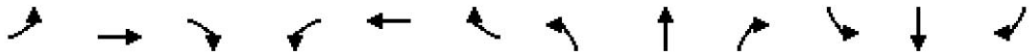
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1048 | 65 | 77 | 755 | 80 | 98 | 152 | 93 | 81 | 155 | 73 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 5080 | | 1805 | 5038 | | 1770 | 1770 | | 1787 | 1881 | 1573 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 5080 | | 1805 | 5038 | | 1770 | 1770 | | 1787 | 1881 | 1573 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 105 | 1103 | 68 | 81 | 795 | 84 | 103 | 160 | 98 | 85 | 163 | 77 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 23 | 0 | 0 | 0 | 63 |
| Lane Group Flow (vph) | 105 | 1167 | 0 | 81 | 871 | 0 | 103 | 235 | 0 | 85 | 163 | 14 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 3% | 0% | 1% | 3% | 2% | 1% | 0% | 1% | 1% | 1% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 13.0 | 63.0 | | 8.3 | 58.3 | | 11.2 | 23.0 | | 9.7 | 21.5 | 21.5 |
| Effective Green, g (s) | 13.0 | 63.0 | | 8.3 | 58.3 | | 11.2 | 23.0 | | 9.7 | 21.5 | 21.5 |
| Actuated g/C Ratio | 0.11 | 0.52 | | 0.07 | 0.49 | | 0.09 | 0.19 | | 0.08 | 0.18 | 0.18 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 194 | 2667 | | 125 | 2448 | | 165 | 339 | | 144 | 337 | 282 |
| v/s Ratio Prot | c0.06 | c0.23 | | 0.04 | 0.17 | | 0.06 | c0.13 | | 0.05 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.54 | 0.44 | | 0.65 | 0.36 | | 0.62 | 0.69 | | 0.59 | 0.48 | 0.05 |
| Uniform Delay, d1 | 50.7 | 17.6 | | 54.4 | 19.2 | | 52.4 | 45.2 | | 53.2 | 44.3 | 40.8 |
| Progression Factor | 1.07 | 1.29 | | 0.55 | 0.89 | | 0.81 | 0.58 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.0 | 0.5 | | 10.3 | 0.4 | | 6.3 | 5.3 | | 6.3 | 1.1 | 0.1 |
| Delay (s) | 57.2 | 23.1 | | 40.3 | 17.4 | | 49.0 | 31.8 | | 59.6 | 45.4 | 40.9 |
| Level of Service | E | C | | D | B | | D | C | | E | D | D |
| Approach Delay (s) | | 25.9 | | | 19.4 | | | 36.7 | | | 48.0 | |
| Approach LOS | | C | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 65.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



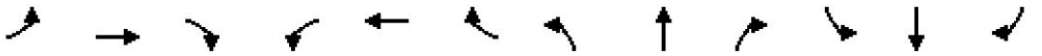
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | ↰ | ↑↑ | | | | | | | ↱ |
| Volume (vph) | 0 | 257 | 104 | 690 | 121 | 0 | 0 | 0 | 0 | 0 | 0 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 3471 | 1538 | 1787 | 3406 | | | | | | | 1442 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 3471 | 1538 | 1787 | 3406 | | | | | | | 1442 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 0 | 276 | 112 | 742 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| RTOR Reduction (vph) | 0 | 0 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| Lane Group Flow (vph) | 0 | 276 | 32 | 742 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Heavy Vehicles (%) | 0% | 4% | 2% | 1% | 6% | 0% | 0% | 0% | 0% | 0% | 0% | 14% |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 34.8 | 34.8 | 77.2 | 102.8 | | | | | | | 9.2 |
| Effective Green, g (s) | | 34.8 | 34.8 | 77.2 | 102.8 | | | | | | | 9.2 |
| Actuated g/C Ratio | | 0.29 | 0.29 | 0.64 | 0.86 | | | | | | | 0.08 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1007 | 446 | 1150 | 2918 | | | | | | | 111 |
| v/s Ratio Prot | | c0.08 | | c0.42 | 0.04 | | | | | | | 0.00 |
| v/s Ratio Perm | | | 0.02 | | | | | | | | | |
| v/c Ratio | | 0.27 | 0.07 | 0.65 | 0.04 | | | | | | | 0.03 |
| Uniform Delay, d1 | | 32.9 | 30.9 | 13.0 | 1.3 | | | | | | | 51.3 |
| Progression Factor | | 1.00 | 1.00 | 0.99 | 1.44 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 0.7 | 0.3 | 1.1 | 0.0 | | | | | | | 0.1 |
| Delay (s) | | 33.5 | 31.2 | 14.0 | 1.9 | | | | | | | 51.4 |
| Level of Service | | C | C | B | A | | | | | | | D |
| Approach Delay (s) | | 32.9 | | | 12.2 | | | 0.0 | | | 51.4 | |
| Approach LOS | | C | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 58.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 13 | 815 | 75 | 0 | 1526 | 67 | 25 | 14 | 2 | 43 | 0 | 22 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1378 | 3463 | | | 3496 | | 1736 | 1661 | | 1770 | 1538 | |
| Flt Permitted | 0.14 | 1.00 | | | 1.00 | | 0.74 | 1.00 | | 0.75 | 1.00 | |
| Satd. Flow (perm) | 200 | 3463 | | | 3496 | | 1357 | 1661 | | 1392 | 1538 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 13 | 823 | 76 | 0 | 1541 | 68 | 25 | 14 | 2 | 43 | 0 | 22 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 13 | 895 | 0 | 0 | 1607 | 0 | 25 | 14 | 0 | 43 | 2 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Heavy Vehicles (%) | 31% | 2% | 13% | 0% | 1% | 36% | 4% | 14% | 0% | 2% | 0% | 5% |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 102.5 | 102.5 | | | 102.5 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Effective Green, g (s) | 102.5 | 102.5 | | | 102.5 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Actuated g/C Ratio | 0.85 | 0.85 | | | 0.85 | | 0.08 | 0.08 | | 0.08 | 0.08 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 171 | 2958 | | | 2986 | | 107 | 131 | | 110 | 122 | |
| v/s Ratio Prot | | 0.26 | | | c0.46 | | | 0.01 | | | 0.00 | |
| v/s Ratio Perm | 0.07 | | | | | | 0.02 | | | c0.03 | | |
| v/c Ratio | 0.08 | 0.30 | | | 0.54 | | 0.23 | 0.11 | | 0.39 | 0.01 | |
| Uniform Delay, d1 | 1.4 | 1.7 | | | 2.4 | | 51.8 | 51.3 | | 52.5 | 50.9 | |
| Progression Factor | 0.66 | 0.75 | | | 0.42 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 0.3 | | | 0.6 | | 1.1 | 0.4 | | 2.3 | 0.0 | |
| Delay (s) | 1.8 | 1.6 | | | 1.6 | | 53.0 | 51.7 | | 54.8 | 51.0 | |
| Level of Service | A | A | | | A | | D | D | | D | D | |
| Approach Delay (s) | | 1.6 | | | 1.6 | | | 52.5 | | | 53.5 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 60.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

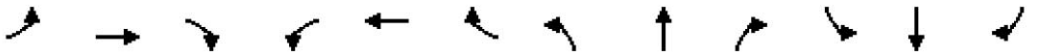


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 95 | 1154 | 19 | 34 | 997 | 89 | 423 | 112 | 177 | 122 | 39 | 133 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | | 0.95 | 0.97 | 1.00 |
| Satd. Flow (prot) | 1770 | 3539 | 1509 | 1805 | 5085 | 1564 | 1715 | 1634 | | 1665 | 1708 | 1556 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | | 0.95 | 0.97 | 1.00 |
| Satd. Flow (perm) | 1770 | 3539 | 1509 | 1805 | 5085 | 1564 | 1715 | 1634 | | 1665 | 1708 | 1556 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 98 | 1190 | 20 | 35 | 1028 | 92 | 436 | 115 | 182 | 126 | 40 | 137 |
| RTOR Reduction (vph) | 0 | 0 | 7 | 0 | 0 | 52 | 0 | 33 | 0 | 0 | 0 | 124 |
| Lane Group Flow (vph) | 98 | 1190 | 13 | 35 | 1028 | 40 | 375 | 325 | 0 | 82 | 84 | 13 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 2% | 2% | 5% | 0% | 2% | 0% | 0% | 1% | 0% | 3% | 3% | 2% |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 8.6 | 56.8 | 56.8 | 4.2 | 52.4 | 52.4 | 31.5 | 31.5 | | 11.5 | 11.5 | 11.5 |
| Effective Green, g (s) | 8.6 | 56.8 | 56.8 | 4.2 | 52.4 | 52.4 | 31.5 | 31.5 | | 11.5 | 11.5 | 11.5 |
| Actuated g/C Ratio | 0.07 | 0.47 | 0.47 | 0.04 | 0.44 | 0.44 | 0.26 | 0.26 | | 0.10 | 0.10 | 0.10 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 127 | 1675 | 714 | 63 | 2220 | 683 | 450 | 429 | | 160 | 164 | 149 |
| v/s Ratio Prot | c0.06 | c0.34 | | 0.02 | 0.20 | | c0.22 | 0.20 | | c0.05 | 0.05 | |
| v/s Ratio Perm | | | 0.01 | | | 0.03 | | | | | | 0.01 |
| v/c Ratio | 0.77 | 0.71 | 0.02 | 0.56 | 0.46 | 0.06 | 0.83 | 0.76 | | 0.51 | 0.51 | 0.09 |
| Uniform Delay, d1 | 54.7 | 25.1 | 16.8 | 57.0 | 23.9 | 19.5 | 41.8 | 40.7 | | 51.6 | 51.6 | 49.5 |
| Progression Factor | 0.88 | 0.76 | 0.71 | 0.56 | 0.43 | 0.40 | 1.00 | 1.00 | | 0.80 | 0.80 | 1.76 |
| Incremental Delay, d2 | 24.4 | 2.6 | 0.0 | 9.5 | 0.6 | 0.2 | 12.5 | 7.5 | | 2.6 | 2.6 | 0.2 |
| Delay (s) | 72.6 | 21.6 | 11.9 | 41.4 | 10.8 | 7.9 | 54.3 | 48.2 | | 43.8 | 43.6 | 87.2 |
| Level of Service | E | C | B | D | B | A | D | D | | D | D | F |
| Approach Delay (s) | | 25.3 | | | 11.5 | | | 51.3 | | | 63.4 | |
| Approach LOS | | C | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

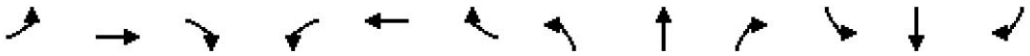
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 888 | 217 | 44 | 564 | 91 | 16 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.97 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3458 | | 1805 | 3574 | 1805 | 1602 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3458 | | 1805 | 3574 | 1805 | 1602 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 965 | 236 | 48 | 613 | 99 | 17 |
| RTOR Reduction (vph) | 17 | 0 | 0 | 0 | 0 | 14 |
| Lane Group Flow (vph) | 1184 | 0 | 48 | 613 | 99 | 3 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Heavy Vehicles (%) | 1% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 26.7 | | 3.2 | 33.9 | 4.4 | 7.6 |
| Effective Green, g (s) | 26.7 | | 3.2 | 33.9 | 4.4 | 7.6 |
| Actuated g/C Ratio | 0.58 | | 0.07 | 0.73 | 0.10 | 0.16 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1994 | | 125 | 2617 | 172 | 401 |
| v/s Ratio Prot | c0.34 | | c0.03 | 0.17 | c0.05 | 0.00 |
| v/s Ratio Perm | | | | | | 0.00 |
| v/c Ratio | 0.59 | | 0.38 | 0.23 | 0.58 | 0.01 |
| Uniform Delay, d1 | 6.3 | | 20.6 | 2.0 | 20.1 | 16.2 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | | 2.0 | 0.0 | 4.6 | 0.0 |
| Delay (s) | 6.8 | | 22.6 | 2.1 | 24.7 | 16.2 |
| Level of Service | A | | C | A | C | B |
| Approach Delay (s) | 6.8 | | | 3.5 | 23.4 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 46.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 52.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 12 | 523 | 411 | 177 | 431 | 57 | 155 | 35 | 42 | 38 | 78 | 12 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1671 | 5136 | 1587 | 3467 | 3515 | | 1752 | 1845 | 1615 | 1805 | 3574 | 1592 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1671 | 5136 | 1587 | 3467 | 3515 | | 1752 | 1845 | 1615 | 1805 | 3574 | 1592 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 13 | 556 | 437 | 188 | 459 | 61 | 165 | 37 | 45 | 40 | 83 | 13 |
| RTOR Reduction (vph) | 0 | 0 | 313 | 0 | 8 | 0 | 0 | 0 | 33 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 13 | 556 | 124 | 188 | 512 | 0 | 165 | 37 | 12 | 40 | 83 | 1 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Heavy Vehicles (%) | 8% | 1% | 0% | 1% | 1% | 0% | 3% | 3% | 0% | 0% | 1% | 0% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.8 | 16.9 | 16.9 | 8.7 | 23.8 | | 12.3 | 15.3 | 15.3 | 2.5 | 5.5 | 5.5 |
| Effective Green, g (s) | 1.8 | 16.9 | 16.9 | 8.7 | 23.8 | | 12.3 | 15.3 | 15.3 | 2.5 | 5.5 | 5.5 |
| Actuated g/C Ratio | 0.03 | 0.28 | 0.28 | 0.15 | 0.40 | | 0.21 | 0.26 | 0.26 | 0.04 | 0.09 | 0.09 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 51 | 1461 | 452 | 508 | 1408 | | 363 | 475 | 416 | 76 | 331 | 147 |
| v/s Ratio Prot | 0.01 | c0.11 | | 0.05 | c0.15 | | c0.09 | c0.02 | | c0.02 | 0.02 | |
| v/s Ratio Perm | | | 0.08 | | | | | | 0.01 | | | 0.00 |
| v/c Ratio | 0.25 | 0.38 | 0.28 | 0.37 | 0.36 | | 0.45 | 0.08 | 0.03 | 0.53 | 0.25 | 0.01 |
| Uniform Delay, d1 | 28.1 | 17.1 | 16.5 | 22.9 | 12.5 | | 20.6 | 16.7 | 16.5 | 27.9 | 25.0 | 24.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.6 | 0.2 | 0.3 | 0.5 | 0.2 | | 0.9 | 0.1 | 0.0 | 6.4 | 0.4 | 0.0 |
| Delay (s) | 30.8 | 17.2 | 16.8 | 23.3 | 12.6 | | 21.5 | 16.8 | 16.5 | 34.3 | 25.4 | 24.5 |
| Level of Service | C | B | B | C | B | | C | B | B | C | C | C |
| Approach Delay (s) | | 17.2 | | | 15.5 | | | 19.9 | | | 28.0 | |
| Approach LOS | | B | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 59.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 51.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 16 | 2 | 90 | 0 | 0 | 0 | 0 | 160 | 414 | 490 | 579 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.86 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1543 | 1488 | 1475 | | | | | 3574 | 1599 | 3467 | 3505 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1543 | 1488 | 1475 | | | | | 3574 | 1599 | 3467 | 3505 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 18 | 2 | 99 | 0 | 0 | 0 | 0 | 176 | 455 | 538 | 636 | 0 |
| RTOR Reduction (vph) | 0 | 45 | 46 | 0 | 0 | 0 | 0 | 0 | 236 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 18 | 6 | 4 | 0 | 0 | 0 | 0 | 176 | 219 | 538 | 636 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Heavy Vehicles (%) | 17% | 0% | 4% | 0% | 0% | 0% | 0% | 1% | 1% | 1% | 3% | 0% |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 4.2 | 4.2 | 4.2 | | | | | 21.9 | 21.9 | 11.9 | 37.8 | |
| Effective Green, g (s) | 4.2 | 4.2 | 4.2 | | | | | 21.9 | 21.9 | 11.9 | 37.8 | |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.08 | | | | | 0.44 | 0.44 | 0.24 | 0.76 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 130 | 125 | 124 | | | | | 1565 | 700 | 825 | 2650 | |
| v/s Ratio Prot | c0.01 | 0.00 | | | | | | 0.05 | | c0.16 | 0.18 | |
| v/s Ratio Perm | | | 0.00 | | | | | | c0.14 | | | |
| v/c Ratio | 0.14 | 0.05 | 0.03 | | | | | 0.11 | 0.31 | 0.65 | 0.24 | |
| Uniform Delay, d1 | 21.2 | 21.1 | 21.0 | | | | | 8.3 | 9.1 | 17.2 | 1.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 0.67 | |
| Incremental Delay, d2 | 0.5 | 0.2 | 0.1 | | | | | 0.1 | 1.2 | 1.8 | 0.2 | |
| Delay (s) | 21.7 | 21.2 | 21.1 | | | | | 8.5 | 10.3 | 19.0 | 1.4 | |
| Level of Service | C | C | C | | | | | A | B | B | A | |
| Approach Delay (s) | | 21.3 | | | 0.0 | | | 9.8 | | | 9.5 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



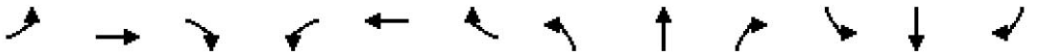
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 303 | 136 | 178 | 0 | 0 | 761 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3467 | 1615 | 3574 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3467 | 1615 | 3574 | | | 3610 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 329 | 148 | 193 | 0 | 0 | 827 |
| RTOR Reduction (vph) | 0 | 118 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 329 | 30 | 193 | 0 | 0 | 827 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Heavy Vehicles (%) | 1% | 0% | 1% | 0% | 0% | 0% |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 10.2 | 10.2 | 31.8 | | | 31.8 |
| Effective Green, g (s) | 10.2 | 10.2 | 31.8 | | | 31.8 |
| Actuated g/C Ratio | 0.20 | 0.20 | 0.64 | | | 0.64 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 707 | 329 | 2273 | | | 2296 |
| v/s Ratio Prot | c0.09 | | 0.05 | | | c0.23 |
| v/s Ratio Perm | | 0.02 | | | | |
| v/c Ratio | 0.47 | 0.09 | 0.08 | | | 0.36 |
| Uniform Delay, d1 | 17.5 | 16.1 | 3.5 | | | 4.3 |
| Progression Factor | 1.00 | 1.00 | 0.14 | | | 1.00 |
| Incremental Delay, d2 | 0.5 | 0.1 | 0.1 | | | 0.4 |
| Delay (s) | 18.0 | 16.3 | 0.6 | | | 4.7 |
| Level of Service | B | B | A | | | A |
| Approach Delay (s) | 17.5 | | 0.6 | | | 4.7 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 55.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



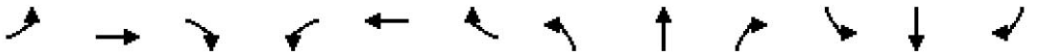
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1917 | 9 | 252 | 1079 | 631 | 7 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5132 | | 3467 | 5136 | 5047 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5132 | | 3467 | 5136 | 5047 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 1956 | 9 | 257 | 1101 | 644 | 7 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 1965 | 0 | 257 | 1101 | 649 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Heavy Vehicles (%) | 1% | 0% | 1% | 1% | 1% | 0% |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 33.0 | | 7.1 | 44.1 | 13.9 | |
| Effective Green, g (s) | 33.0 | | 7.1 | 44.1 | 13.9 | |
| Actuated g/C Ratio | 0.50 | | 0.11 | 0.67 | 0.21 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2566 | | 373 | 3432 | 1063 | |
| v/s Ratio Prot | c0.38 | | c0.07 | 0.21 | c0.13 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.77 | | 0.69 | 0.32 | 0.61 | |
| Uniform Delay, d1 | 13.4 | | 28.4 | 4.6 | 23.6 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.4 | | 5.2 | 0.1 | 1.0 | |
| Delay (s) | 14.8 | | 33.6 | 4.7 | 24.6 | |
| Level of Service | B | | C | A | C | |
| Approach Delay (s) | 14.8 | | | 10.2 | 24.6 | |
| Approach LOS | B | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 66.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



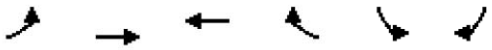
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 89 | 2039 | 104 | 367 | 1229 | 53 | 166 | 174 | 248 | 117 | 136 | 34 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5136 | 1573 | 3467 | 5100 | | 3433 | 1881 | 1575 | 1787 | 3491 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5136 | 1573 | 3467 | 5100 | | 3433 | 1881 | 1575 | 1787 | 3491 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 92 | 2102 | 107 | 378 | 1267 | 55 | 171 | 179 | 256 | 121 | 140 | 35 |
| RTOR Reduction (vph) | 0 | 0 | 58 | 0 | 4 | 0 | 0 | 0 | 181 | 0 | 28 | 0 |
| Lane Group Flow (vph) | 92 | 2102 | 49 | 378 | 1318 | 0 | 171 | 179 | 75 | 121 | 147 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 1% | 1% | 1% | 0% | 2% | 1% | 1% | 1% | 0% | 0% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 13.5 | 41.1 | 41.1 | 9.0 | 36.6 | | 15.2 | 14.2 | 14.2 | 10.2 | 9.2 | |
| Effective Green, g (s) | 13.5 | 41.1 | 41.1 | 9.0 | 36.6 | | 15.2 | 14.2 | 14.2 | 10.2 | 9.2 | |
| Actuated g/C Ratio | 0.15 | 0.45 | 0.45 | 0.10 | 0.40 | | 0.17 | 0.16 | 0.16 | 0.11 | 0.10 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 269 | 2332 | 714 | 345 | 2063 | | 577 | 295 | 247 | 201 | 355 | |
| v/s Ratio Prot | 0.05 | c0.41 | | c0.11 | 0.26 | | 0.05 | c0.10 | | c0.07 | 0.04 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.05 | | | |
| v/c Ratio | 0.34 | 0.90 | 0.07 | 1.10 | 0.64 | | 0.30 | 0.61 | 0.30 | 0.60 | 0.41 | |
| Uniform Delay, d1 | 34.5 | 22.8 | 13.9 | 40.8 | 21.6 | | 33.0 | 35.5 | 33.8 | 38.2 | 38.1 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 5.3 | 0.0 | 76.6 | 0.7 | | 0.3 | 3.5 | 0.7 | 5.0 | 0.8 | |
| Delay (s) | 35.3 | 28.1 | 14.0 | 117.4 | 22.3 | | 33.3 | 39.1 | 34.5 | 43.2 | 38.9 | |
| Level of Service | D | C | B | F | C | | C | D | C | D | D | |
| Approach Delay (s) | | 27.7 | | | 43.4 | | | 35.5 | | | 40.7 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 90.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



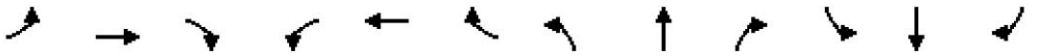
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 148 | 1099 | 428 | 173 | 511 | 123 | 161 | 346 | 48 | 261 | 916 | 169 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1752 | 3574 | 1578 | 3502 | 3574 | 1563 | 3467 | 3574 | 1594 | 3467 | 3574 | 1549 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1752 | 3574 | 1578 | 3502 | 3574 | 1563 | 3467 | 3574 | 1594 | 3467 | 3574 | 1549 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 156 | 1157 | 451 | 182 | 538 | 129 | 169 | 364 | 51 | 275 | 964 | 178 |
| RTOR Reduction (vph) | 0 | 0 | 19 | 0 | 0 | 75 | 0 | 0 | 7 | 0 | 0 | 55 |
| Lane Group Flow (vph) | 156 | 1157 | 432 | 182 | 538 | 54 | 169 | 364 | 44 | 275 | 964 | 123 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 3% | 1% | 1% | 0% | 1% | 2% | 1% | 1% | 0% | 1% | 1% | 3% |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.1 | 36.3 | 43.4 | 7.1 | 33.3 | 42.4 | 7.1 | 31.9 | 39.0 | 9.1 | 33.9 | 44.0 |
| Effective Green, g (s) | 10.1 | 36.3 | 43.4 | 7.1 | 33.3 | 42.4 | 7.1 | 31.9 | 39.0 | 9.1 | 33.9 | 44.0 |
| Actuated g/C Ratio | 0.10 | 0.36 | 0.43 | 0.07 | 0.33 | 0.42 | 0.07 | 0.32 | 0.39 | 0.09 | 0.34 | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 176 | 1292 | 745 | 248 | 1185 | 722 | 245 | 1136 | 683 | 314 | 1207 | 741 |
| v/s Ratio Prot | c0.09 | c0.32 | 0.04 | 0.05 | 0.15 | 0.01 | 0.05 | 0.10 | 0.00 | c0.08 | c0.27 | 0.02 |
| v/s Ratio Perm | | | 0.23 | | | 0.03 | | | 0.02 | | | 0.06 |
| v/c Ratio | 0.89 | 0.90 | 0.58 | 0.73 | 0.45 | 0.08 | 0.69 | 0.32 | 0.06 | 0.88 | 0.80 | 0.17 |
| Uniform Delay, d1 | 44.6 | 30.3 | 21.6 | 45.7 | 26.4 | 17.3 | 45.6 | 26.0 | 19.3 | 45.1 | 30.2 | 17.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 37.3 | 8.4 | 1.2 | 10.7 | 0.3 | 0.0 | 7.9 | 0.2 | 0.0 | 22.8 | 3.8 | 0.1 |
| Delay (s) | 81.9 | 38.6 | 22.8 | 56.4 | 26.7 | 17.3 | 53.4 | 26.2 | 19.3 | 67.8 | 33.9 | 17.2 |
| Level of Service | F | D | C | E | C | B | D | C | B | E | C | B |
| Approach Delay (s) | | 38.4 | | | 31.6 | | | 33.5 | | | 38.4 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 100.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



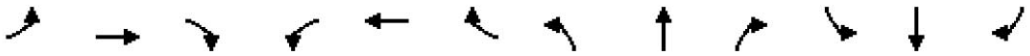
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 102 | 1275 | 580 | 276 | 552 | 219 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 0.99 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1787 | 3610 | 3574 | 1588 | 3460 | 1454 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1787 | 3610 | 3574 | 1588 | 3460 | 1454 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 112 | 1401 | 637 | 303 | 607 | 241 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 70 | 4 | 46 |
| Lane Group Flow (vph) | 112 | 1401 | 637 | 233 | 627 | 171 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Heavy Vehicles (%) | 1% | 0% | 1% | 1% | 1% | 0% |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.4 | 29.9 | 18.5 | 37.2 | 18.7 | 26.1 |
| Effective Green, g (s) | 7.4 | 29.9 | 18.5 | 37.2 | 18.7 | 26.1 |
| Actuated g/C Ratio | 0.13 | 0.53 | 0.33 | 0.66 | 0.33 | 0.46 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 234 | 1907 | 1168 | 1156 | 1143 | 773 |
| v/s Ratio Prot | 0.06 | c0.39 | 0.18 | 0.07 | c0.18 | 0.03 |
| v/s Ratio Perm | | | | 0.08 | | 0.09 |
| v/c Ratio | 0.48 | 0.73 | 0.55 | 0.20 | 0.55 | 0.22 |
| Uniform Delay, d1 | 22.8 | 10.3 | 15.6 | 3.8 | 15.5 | 9.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.5 | 1.5 | 0.5 | 0.1 | 0.5 | 0.1 |
| Delay (s) | 24.4 | 11.8 | 16.1 | 3.9 | 16.0 | 9.3 |
| Level of Service | C | B | B | A | B | A |
| Approach Delay (s) | | 12.7 | 12.2 | | 14.3 | |
| Approach LOS | | B | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 56.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 61.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 97 | 1253 | 675 | 238 | 292 | 37 | 291 | 132 | 246 | 190 | 358 | 157 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1581 | 3502 | 3505 | 1591 | 3467 | 3539 | 1591 | 3467 | 3574 | 1585 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1581 | 3502 | 3505 | 1591 | 3467 | 3539 | 1591 | 3467 | 3574 | 1585 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 109 | 1408 | 758 | 267 | 328 | 42 | 327 | 148 | 276 | 213 | 402 | 176 |
| RTOR Reduction (vph) | 0 | 0 | 165 | 0 | 0 | 26 | 0 | 0 | 220 | 0 | 0 | 121 |
| Lane Group Flow (vph) | 109 | 1408 | 593 | 267 | 328 | 16 | 327 | 148 | 56 | 213 | 402 | 55 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 1% | 0% | 3% | 0% | 1% | 2% | 0% | 1% | 1% | 1% |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.3 | 31.7 | 41.2 | 12.7 | 33.1 | 33.1 | 9.5 | 17.1 | 17.1 | 7.4 | 15.0 | 26.3 |
| Effective Green, g (s) | 11.3 | 31.7 | 41.2 | 12.7 | 33.1 | 33.1 | 9.5 | 17.1 | 17.1 | 7.4 | 15.0 | 26.3 |
| Actuated g/C Ratio | 0.13 | 0.37 | 0.49 | 0.15 | 0.39 | 0.39 | 0.11 | 0.20 | 0.20 | 0.09 | 0.18 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 240 | 1937 | 842 | 524 | 1366 | 620 | 388 | 713 | 320 | 302 | 631 | 566 |
| v/s Ratio Prot | 0.06 | 0.27 | c0.08 | c0.08 | 0.09 | | 0.09 | 0.04 | | 0.06 | c0.11 | 0.01 |
| v/s Ratio Perm | | | 0.30 | | | 0.01 | | | 0.03 | | | 0.02 |
| v/c Ratio | 0.45 | 0.73 | 0.70 | 0.51 | 0.24 | 0.03 | 0.84 | 0.21 | 0.17 | 0.71 | 0.64 | 0.10 |
| Uniform Delay, d1 | 34.0 | 22.9 | 17.1 | 33.2 | 17.4 | 16.0 | 37.0 | 28.3 | 28.1 | 37.7 | 32.4 | 20.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 1.4 | 2.7 | 0.8 | 0.1 | 0.0 | 15.2 | 0.1 | 0.3 | 7.3 | 2.1 | 0.1 |
| Delay (s) | 35.3 | 24.3 | 19.8 | 34.0 | 17.5 | 16.0 | 52.2 | 28.4 | 28.3 | 45.0 | 34.5 | 20.9 |
| Level of Service | D | C | B | C | B | B | D | C | C | D | C | C |
| Approach Delay (s) | | 23.3 | | | 24.3 | | | 38.7 | | | 34.3 | |
| Approach LOS | | C | | | C | | | D | | | C | |

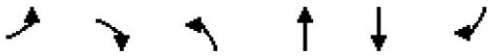
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 84.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 400 | 1264 | 2 | 337 | 0 | 0 | 0 | 0 | 3 | 0 | 251 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.91 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3121 | 1455 | 1805 | 3539 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.21 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3121 | 1455 | 390 | 3539 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 440 | 1389 | 2 | 370 | 0 | 0 | 0 | 0 | 3 | 0 | 276 |
| RTOR Reduction (vph) | 0 | 263 | 262 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 235 | 0 |
| Lane Group Flow (vph) | 0 | 872 | 432 | 2 | 370 | 0 | 0 | 0 | 0 | 3 | 41 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 1% | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 21.7 | 21.7 | 21.7 | 21.7 | | | | | 5.2 | 5.2 | |
| Effective Green, g (s) | | 21.7 | 21.7 | 21.7 | 21.7 | | | | | 5.2 | 5.2 | |
| Actuated g/C Ratio | | 0.62 | 0.62 | 0.62 | 0.62 | | | | | 0.15 | 0.15 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1941 | 905 | 242 | 2200 | | | | | 269 | 241 | |
| v/s Ratio Prot | | 0.28 | | | 0.10 | | | | | | c0.03 | |
| v/s Ratio Perm | | | c0.30 | 0.01 | | | | | | 0.00 | | |
| v/c Ratio | | 0.45 | 0.48 | 0.01 | 0.17 | | | | | 0.01 | 0.17 | |
| Uniform Delay, d1 | | 3.5 | 3.5 | 2.5 | 2.8 | | | | | 12.7 | 13.0 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.2 | 0.4 | 0.0 | 0.0 | | | | | 0.0 | 0.3 | |
| Delay (s) | | 3.6 | 3.9 | 2.5 | 2.8 | | | | | 12.7 | 13.3 | |
| Level of Service | | A | A | A | A | | | | | B | B | |
| Approach Delay (s) | | 3.8 | | | 2.8 | | | 0.0 | | | 13.3 | |
| Approach LOS | | A | | | A | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 34.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 75.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

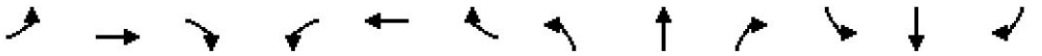
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 401 | 0 | 337 | 0 | 0 | 0 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 466 | 0 | 392 | 0 | 0 | 0 |

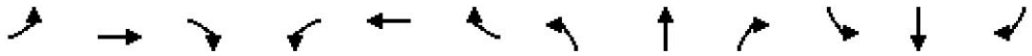
| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 233 | 233 | 261 | 131 |
| Volume Left (vph) | 233 | 233 | 261 | 131 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.53 | 0.53 |
| Departure Headway (s) | 6.2 | 6.2 | 6.4 | 6.4 |
| Degree Utilization, x | 0.40 | 0.40 | 0.46 | 0.23 |
| Capacity (veh/h) | 561 | 564 | 548 | 543 |
| Control Delay (s) | 12.0 | 12.0 | 13.5 | 10.1 |
| Approach Delay (s) | 12.0 | | 12.3 | |
| Approach LOS | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 12.2 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 83.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



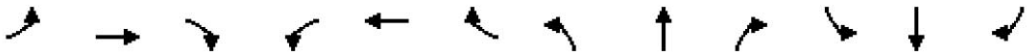
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 13 | 12 | 8 | 489 | 29 | 160 | 61 | 327 | 649 | 566 | 948 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1773 | | 3502 | 1900 | 1568 | 1805 | 3574 | 1576 | 3502 | 3574 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1773 | | 3502 | 1900 | 1568 | 1805 | 3574 | 1576 | 3502 | 3574 | 1615 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 14 | 13 | 9 | 543 | 32 | 178 | 68 | 363 | 721 | 629 | 1053 | 1 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 138 | 0 | 0 | 502 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 14 | 13 | 0 | 543 | 32 | 40 | 68 | 363 | 219 | 629 | 1053 | 1 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 3% | 0% | 1% | 1% | 0% | 1% | 0% |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.1 | 3.0 | | 12.5 | 14.4 | 14.4 | 5.5 | 19.6 | 19.6 | 13.5 | 27.6 | 27.6 |
| Effective Green, g (s) | 1.1 | 3.0 | | 12.5 | 14.4 | 14.4 | 5.5 | 19.6 | 19.6 | 13.5 | 27.6 | 27.6 |
| Actuated g/C Ratio | 0.02 | 0.05 | | 0.19 | 0.22 | 0.22 | 0.09 | 0.30 | 0.30 | 0.21 | 0.43 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 31 | 82 | | 678 | 424 | 350 | 154 | 1084 | 478 | 732 | 1527 | 690 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.16 | 0.02 | | 0.04 | 0.10 | | c0.18 | c0.29 | |
| v/s Ratio Perm | | | | | | c0.03 | | | 0.14 | | | 0.00 |
| v/c Ratio | 0.45 | 0.16 | | 0.80 | 0.08 | 0.11 | 0.44 | 0.33 | 0.46 | 0.86 | 0.69 | 0.00 |
| Uniform Delay, d1 | 31.5 | 29.6 | | 24.9 | 19.8 | 20.0 | 28.1 | 17.4 | 18.2 | 24.6 | 15.0 | 10.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 10.1 | 0.9 | | 6.8 | 0.1 | 0.1 | 2.0 | 0.2 | 0.7 | 9.9 | 1.3 | 0.0 |
| Delay (s) | 41.6 | 30.5 | | 31.6 | 19.9 | 20.2 | 30.1 | 17.6 | 18.9 | 34.5 | 16.3 | 10.6 |
| Level of Service | D | C | | C | B | C | C | B | B | C | B | B |
| Approach Delay (s) | | 34.8 | | | 28.4 | | | 19.2 | | | 23.1 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 64.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 76.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 165 | 908 | 55 | 34 | 474 | 43 | 28 | 38 | 22 | 63 | 43 | 171 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.97 | | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3579 | | 1805 | 3514 | | | 1777 | | 1802 | 1672 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.79 | | 0.82 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3579 | | 1805 | 3514 | | | 1418 | | 1553 | 1672 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 185 | 1020 | 62 | 38 | 533 | 48 | 31 | 43 | 25 | 71 | 48 | 192 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 7 | 0 | 0 | 20 | 0 | 0 | 156 | 0 |
| Lane Group Flow (vph) | 185 | 1078 | 0 | 38 | 574 | 0 | 0 | 79 | 0 | 71 | 84 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 1% | 5% | 0% | 3% | 0% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.4 | 25.6 | | 2.2 | 19.4 | | | 9.1 | | 9.1 | 9.1 | |
| Effective Green, g (s) | 8.4 | 25.6 | | 2.2 | 19.4 | | | 9.1 | | 9.1 | 9.1 | |
| Actuated g/C Ratio | 0.17 | 0.52 | | 0.04 | 0.40 | | | 0.19 | | 0.19 | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 310 | 1874 | | 81 | 1394 | | | 264 | | 289 | 311 | |
| v/s Ratio Prot | c0.10 | c0.30 | | 0.02 | 0.16 | | | | | | 0.05 | |
| v/s Ratio Perm | | | | | | | | c0.06 | | 0.05 | | |
| v/c Ratio | 0.60 | 0.58 | | 0.47 | 0.41 | | | 0.30 | | 0.25 | 0.27 | |
| Uniform Delay, d1 | 18.7 | 7.9 | | 22.8 | 10.6 | | | 17.2 | | 17.0 | 17.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.1 | 0.4 | | 4.2 | 0.2 | | | 0.6 | | 0.4 | 0.5 | |
| Delay (s) | 21.8 | 8.4 | | 27.0 | 10.8 | | | 17.8 | | 17.4 | 17.5 | |
| Level of Service | C | A | | C | B | | | B | | B | B | |
| Approach Delay (s) | | 10.3 | | | 11.8 | | | 17.8 | | | 17.5 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 48.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



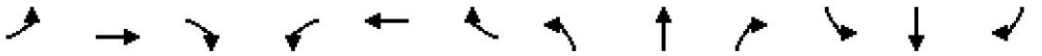
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 36 | 805 | 222 | 120 | 500 | 100 | 114 | 272 | 111 | 303 | 646 | 86 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1703 | 3481 | | 1787 | 3574 | 1548 | 1770 | 3574 | 1595 | 3467 | 3501 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1703 | 3481 | | 1787 | 3574 | 1548 | 1770 | 3574 | 1595 | 3467 | 3501 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 39 | 866 | 239 | 129 | 538 | 108 | 123 | 292 | 119 | 326 | 695 | 92 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 0 | 51 | 0 | 0 | 21 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 39 | 1082 | 0 | 129 | 538 | 57 | 123 | 292 | 98 | 326 | 776 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 6% | 0% | 0% | 1% | 1% | 3% | 2% | 1% | 0% | 1% | 1% | 2% |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.9 | 35.5 | | 8.1 | 39.7 | 49.8 | 8.1 | 25.2 | 33.3 | 10.1 | 27.2 | |
| Effective Green, g (s) | 3.9 | 35.5 | | 8.1 | 39.7 | 49.8 | 8.1 | 25.2 | 33.3 | 10.1 | 27.2 | |
| Actuated g/C Ratio | 0.04 | 0.37 | | 0.09 | 0.42 | 0.52 | 0.09 | 0.27 | 0.35 | 0.11 | 0.29 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 70 | 1302 | | 153 | 1495 | 878 | 151 | 949 | 627 | 369 | 1003 | |
| v/s Ratio Prot | 0.02 | c0.31 | | c0.07 | 0.15 | 0.01 | 0.07 | 0.08 | 0.01 | c0.09 | c0.22 | |
| v/s Ratio Perm | | | | | | 0.03 | | | 0.05 | | | |
| v/c Ratio | 0.56 | 0.83 | | 0.84 | 0.36 | 0.06 | 0.81 | 0.31 | 0.16 | 0.88 | 0.77 | |
| Uniform Delay, d1 | 44.7 | 27.0 | | 42.8 | 18.9 | 11.1 | 42.7 | 27.9 | 21.1 | 41.8 | 31.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.3 | 4.7 | | 32.3 | 0.1 | 0.0 | 27.4 | 0.2 | 0.1 | 21.3 | 3.8 | |
| Delay (s) | 53.9 | 31.6 | | 75.1 | 19.0 | 11.1 | 70.1 | 28.1 | 21.3 | 63.1 | 34.8 | |
| Level of Service | D | C | | E | B | B | E | C | C | E | C | |
| Approach Delay (s) | | 32.4 | | | 27.3 | | | 36.2 | | | 43.1 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 94.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 78.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



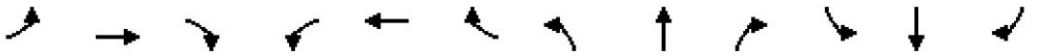
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 25 | 31 | 916 | 72 | 59 | 1345 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1732 | 1546 | 3574 | 1577 | 1805 | 3574 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1732 | 1546 | 3574 | 1577 | 1805 | 3574 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 27 | 33 | 974 | 77 | 63 | 1431 |
| RTOR Reduction (vph) | 0 | 30 | 0 | 24 | 0 | 0 |
| Lane Group Flow (vph) | 27 | 3 | 974 | 53 | 63 | 1431 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Heavy Vehicles (%) | 4% | 3% | 1% | 0% | 0% | 1% |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 3.3 | 3.3 | 21.7 | 21.7 | 3.2 | 28.9 |
| Effective Green, g (s) | 3.3 | 3.3 | 21.7 | 21.7 | 3.2 | 28.9 |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.54 | 0.54 | 0.08 | 0.72 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 142 | 127 | 1929 | 851 | 144 | 2569 |
| v/s Ratio Prot | | | 0.27 | | 0.03 | c0.40 |
| v/s Ratio Perm | c0.02 | 0.00 | | 0.03 | | |
| v/c Ratio | 0.19 | 0.02 | 0.50 | 0.06 | 0.44 | 0.56 |
| Uniform Delay, d1 | 17.2 | 17.0 | 5.9 | 4.4 | 17.6 | 2.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | 0.1 | 0.2 | 0.0 | 2.1 | 0.3 |
| Delay (s) | 17.9 | 17.0 | 6.1 | 4.4 | 19.8 | 2.9 |
| Level of Service | B | B | A | A | B | A |
| Approach Delay (s) | 17.4 | | 5.9 | | | 3.6 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 40.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



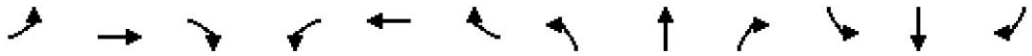
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 47 | 1067 | 190 | 466 | 646 | 222 | 0 | 0 | 0 | 657 | 88 | 356 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5136 | 1563 | 1787 | 3539 | 1559 | | | | 1698 | 1717 | 1579 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5136 | 1563 | 1787 | 3539 | 1559 | | | | 1698 | 1717 | 1579 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 48 | 1089 | 194 | 476 | 659 | 227 | 0 | 0 | 0 | 670 | 90 | 363 |
| RTOR Reduction (vph) | 0 | 0 | 122 | 0 | 0 | 110 | 0 | 0 | 0 | 0 | 0 | 104 |
| Lane Group Flow (vph) | 48 | 1089 | 72 | 476 | 659 | 117 | 0 | 0 | 0 | 375 | 385 | 259 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 1% | 1% | 2% | 1% | 0% | 0% | 0% | 1% | 2% | 1% |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 8.0 | 26.9 | 26.9 | 30.0 | 48.9 | 48.9 | | | | 26.1 | 26.1 | 34.1 |
| Effective Green, g (s) | 8.0 | 26.9 | 26.9 | 30.0 | 48.9 | 48.9 | | | | 26.1 | 26.1 | 34.1 |
| Actuated g/C Ratio | 0.08 | 0.28 | 0.28 | 0.32 | 0.51 | 0.51 | | | | 0.27 | 0.27 | 0.36 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 152 | 1454 | 443 | 564 | 1822 | 802 | | | | 467 | 472 | 633 |
| v/s Ratio Prot | 0.03 | c0.21 | | c0.27 | 0.19 | | | | | 0.22 | c0.22 | 0.03 |
| v/s Ratio Perm | | | 0.05 | | | 0.07 | | | | | | 0.13 |
| v/c Ratio | 0.32 | 0.75 | 0.16 | 0.84 | 0.36 | 0.15 | | | | 0.80 | 0.82 | 0.41 |
| Uniform Delay, d1 | 40.9 | 31.0 | 25.6 | 30.3 | 13.7 | 12.1 | | | | 32.1 | 32.2 | 22.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.2 | 3.6 | 0.8 | 11.1 | 0.6 | 0.4 | | | | 9.6 | 10.4 | 0.4 |
| Delay (s) | 42.1 | 34.6 | 26.4 | 41.4 | 14.3 | 12.5 | | | | 41.7 | 42.6 | 23.3 |
| Level of Service | D | C | C | D | B | B | | | | D | D | C |
| Approach Delay (s) | | 33.6 | | | 23.5 | | | 0.0 | | | 36.1 | |
| Approach LOS | | C | | | C | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 95.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



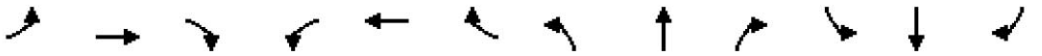
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 339 | 1025 | 221 | 154 | 1142 | 232 | 176 | 311 | 469 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1787 | 3574 | 1581 | 1752 | 6471 | 1573 | 1610 | 3350 | 2814 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1787 | 3574 | 1581 | 1752 | 6471 | 1573 | 1610 | 3350 | 2814 | | | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 361 | 1090 | 235 | 164 | 1215 | 247 | 187 | 331 | 499 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 69 | 0 | 0 | 111 | 0 | 0 | 406 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 361 | 1090 | 166 | 164 | 1215 | 136 | 168 | 350 | 93 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 1% | 1% | 2% | 3% | 1% | 0% | 0% | 0% |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 22.7 | 45.2 | 62.0 | 16.0 | 38.5 | 38.5 | 16.8 | 16.8 | 16.8 | | | |
| Effective Green, g (s) | 22.7 | 45.2 | 62.0 | 16.0 | 38.5 | 38.5 | 16.8 | 16.8 | 16.8 | | | |
| Actuated g/C Ratio | 0.25 | 0.50 | 0.69 | 0.18 | 0.43 | 0.43 | 0.19 | 0.19 | 0.19 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 451 | 1795 | 1159 | 311 | 2768 | 673 | 301 | 625 | 525 | | | |
| v/s Ratio Prot | c0.20 | c0.30 | 0.03 | c0.09 | 0.19 | | 0.10 | c0.10 | | | | |
| v/s Ratio Perm | | | 0.08 | | | 0.09 | | | 0.03 | | | |
| v/c Ratio | 0.80 | 0.61 | 0.14 | 0.53 | 0.44 | 0.20 | 0.56 | 0.56 | 0.18 | | | |
| Uniform Delay, d1 | 31.5 | 16.0 | 4.8 | 33.6 | 18.1 | 16.1 | 33.2 | 33.2 | 30.8 | | | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.74 | 0.66 | 0.40 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 9.8 | 1.5 | 0.1 | 1.6 | 0.5 | 0.7 | 2.2 | 1.2 | 0.2 | | | |
| Delay (s) | 41.3 | 17.6 | 4.9 | 26.5 | 12.4 | 7.1 | 35.5 | 34.4 | 31.0 | | | |
| Level of Service | D | B | A | C | B | A | D | C | C | | | |
| Approach Delay (s) | | 20.9 | | | 13.0 | | | 32.9 | | | 0.0 | |
| Approach LOS | | C | | | B | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



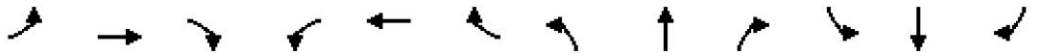
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 7 | 1481 | 156 | 90 | 1266 | 3 | 132 | 0 | 60 | 2 | 0 | 6 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | 1805 | 5053 | | 1805 | 5134 | | 1787 | 1590 | | | 1685 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.75 | 1.00 | | | 0.96 | |
| Satd. Flow (perm) | 1805 | 5053 | | 1805 | 5134 | | 1415 | 1590 | | | 1634 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 7 | 1527 | 161 | 93 | 1305 | 3 | 136 | 0 | 62 | 2 | 0 | 6 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 52 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 7 | 1680 | 0 | 93 | 1308 | 0 | 136 | 10 | 0 | 0 | 3 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Heavy Vehicles (%) | 0% | 1% | 0% | 0% | 1% | 0% | 1% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 1.4 | 55.8 | | 8.0 | 62.4 | | 14.2 | 14.2 | | | 14.2 | |
| Effective Green, g (s) | 1.4 | 55.8 | | 8.0 | 62.4 | | 14.2 | 14.2 | | | 14.2 | |
| Actuated g/C Ratio | 0.02 | 0.62 | | 0.09 | 0.69 | | 0.16 | 0.16 | | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 28 | 3133 | | 160 | 3560 | | 223 | 251 | | | 258 | |
| v/s Ratio Prot | 0.00 | c0.33 | | c0.05 | 0.25 | | | 0.01 | | | | |
| v/s Ratio Perm | | | | | | | c0.10 | | | | 0.00 | |
| v/c Ratio | 0.25 | 0.54 | | 0.58 | 0.37 | | 0.61 | 0.04 | | | 0.01 | |
| Uniform Delay, d1 | 43.8 | 9.7 | | 39.4 | 5.7 | | 35.3 | 32.1 | | | 32.0 | |
| Progression Factor | 1.14 | 0.78 | | 1.04 | 1.36 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 4.0 | 0.6 | | 5.0 | 0.3 | | 4.7 | 0.1 | | | 0.0 | |
| Delay (s) | 53.9 | 8.2 | | 45.8 | 8.0 | | 40.0 | 32.2 | | | 32.0 | |
| Level of Service | D | A | | D | A | | D | C | | | C | |
| Approach Delay (s) | | 8.3 | | | 10.5 | | | 37.5 | | | 32.0 | |
| Approach LOS | | A | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



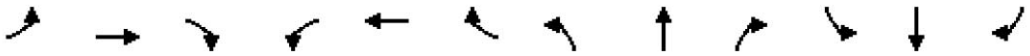
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1237 | 99 | 28 | 1027 | 6 | 124 | 20 | 43 | 6 | 11 | 66 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1802 | 3560 | | 1803 | 3571 | | | 1747 | | | 1867 | 1589 |
| Flt Permitted | 0.23 | 1.00 | | 0.15 | 1.00 | | | 0.79 | | | 0.93 | 1.00 |
| Satd. Flow (perm) | 434 | 3560 | | 282 | 3571 | | | 1425 | | | 1758 | 1589 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 53 | 1316 | 105 | 30 | 1093 | 6 | 132 | 21 | 46 | 6 | 12 | 70 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 57 |
| Lane Group Flow (vph) | 53 | 1417 | 0 | 30 | 1099 | 0 | 0 | 184 | 0 | 0 | 18 | 13 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 1% | 0% | 1% | 0% | 2% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 65.2 | 65.2 | | 65.2 | 65.2 | | | 16.8 | | | 16.8 | 16.8 |
| Effective Green, g (s) | 65.2 | 65.2 | | 65.2 | 65.2 | | | 16.8 | | | 16.8 | 16.8 |
| Actuated g/C Ratio | 0.72 | 0.72 | | 0.72 | 0.72 | | | 0.19 | | | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 314 | 2579 | | 204 | 2587 | | | 266 | | | 328 | 297 |
| v/s Ratio Prot | | c0.40 | | | 0.31 | | | | | | | |
| v/s Ratio Perm | 0.12 | | | 0.11 | | | | c0.13 | | | 0.01 | 0.01 |
| v/c Ratio | 0.17 | 0.55 | | 0.15 | 0.42 | | | 0.69 | | | 0.05 | 0.04 |
| Uniform Delay, d1 | 3.9 | 5.7 | | 3.8 | 4.9 | | | 34.2 | | | 30.1 | 30.0 |
| Progression Factor | 0.04 | 0.31 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | 0.8 | | 1.5 | 0.5 | | | 7.5 | | | 0.1 | 0.1 |
| Delay (s) | 1.2 | 2.5 | | 5.3 | 5.4 | | | 41.7 | | | 30.1 | 30.1 |
| Level of Service | A | A | | A | A | | | D | | | C | C |
| Approach Delay (s) | | 2.5 | | | 5.4 | | | 41.7 | | | 30.1 | |
| Approach LOS | | A | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 66.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 77 | 1215 | 25 | 261 | 988 | 36 | 22 | 123 | 417 | 48 | 227 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3556 | | 1752 | 3553 | | 1719 | 1881 | 1587 | 1805 | 1845 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3556 | | 1752 | 3553 | | 1719 | 1881 | 1587 | 1805 | 1845 | 1588 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 82 | 1293 | 27 | 278 | 1051 | 38 | 23 | 131 | 444 | 51 | 241 | 85 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 37 | 0 | 0 | 68 |
| Lane Group Flow (vph) | 82 | 1319 | 0 | 278 | 1087 | 0 | 23 | 131 | 407 | 51 | 241 | 17 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 1% | 8% | 3% | 1% | 0% | 5% | 1% | 1% | 0% | 3% | 0% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.8 | 43.4 | | 20.1 | 55.7 | | 2.6 | 17.6 | 37.7 | 5.4 | 20.4 | 20.4 |
| Effective Green, g (s) | 7.8 | 43.4 | | 20.1 | 55.7 | | 2.6 | 17.6 | 37.7 | 5.4 | 20.4 | 20.4 |
| Actuated g/C Ratio | 0.08 | 0.42 | | 0.20 | 0.54 | | 0.03 | 0.17 | 0.37 | 0.05 | 0.20 | 0.20 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 137 | 1506 | | 344 | 1931 | | 44 | 323 | 584 | 95 | 367 | 316 |
| v/s Ratio Prot | 0.05 | c0.37 | | c0.16 | 0.31 | | 0.01 | 0.07 | c0.14 | 0.03 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.12 | | | 0.01 |
| v/c Ratio | 0.60 | 0.88 | | 0.81 | 0.56 | | 0.52 | 0.41 | 0.70 | 0.54 | 0.66 | 0.05 |
| Uniform Delay, d1 | 45.8 | 27.1 | | 39.4 | 15.4 | | 49.3 | 37.8 | 27.5 | 47.3 | 37.8 | 33.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.9 | 6.0 | | 13.0 | 0.4 | | 10.8 | 0.8 | 3.6 | 5.7 | 4.2 | 0.1 |
| Delay (s) | 52.7 | 33.1 | | 52.4 | 15.8 | | 60.1 | 38.6 | 31.1 | 53.1 | 42.0 | 33.3 |
| Level of Service | D | C | | D | B | | E | D | C | D | D | C |
| Approach Delay (s) | | 34.2 | | | 23.2 | | | 33.9 | | | 41.6 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 102.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



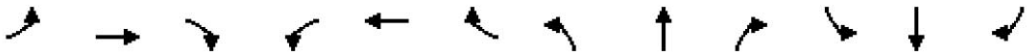
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 33 | 566 | 1022 | 467 | 663 | 311 | 608 | 748 | 158 | 386 | 1467 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2814 | 3467 | 3574 | 1597 | 3467 | 3574 | 1548 | 3467 | 5123 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2814 | 3467 | 3574 | 1597 | 3467 | 3574 | 1548 | 3467 | 5123 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 36 | 615 | 1111 | 508 | 721 | 338 | 661 | 813 | 172 | 420 | 1595 | 26 |
| RTOR Reduction (vph) | 0 | 0 | 1 | 0 | 0 | 63 | 0 | 0 | 34 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 36 | 615 | 1110 | 508 | 721 | 275 | 661 | 813 | 138 | 420 | 1620 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 1% | 1% | 0% | 1% | 1% | 3% | 1% | 1% | 0% |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 4.8 | 24.7 | 39.7 | 12.0 | 31.9 | 47.8 | 15.0 | 34.2 | 46.2 | 15.9 | 35.1 | |
| Effective Green, g (s) | 4.8 | 24.7 | 39.7 | 12.0 | 31.9 | 47.8 | 15.0 | 34.2 | 46.2 | 15.9 | 35.1 | |
| Actuated g/C Ratio | 0.05 | 0.24 | 0.39 | 0.12 | 0.31 | 0.46 | 0.15 | 0.33 | 0.45 | 0.15 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 84 | 867 | 1087 | 405 | 1109 | 743 | 506 | 1189 | 756 | 536 | 1749 | |
| v/s Ratio Prot | 0.02 | 0.17 | c0.15 | c0.15 | 0.20 | 0.06 | c0.19 | 0.23 | 0.02 | 0.12 | c0.32 | |
| v/s Ratio Perm | | | 0.25 | | | 0.12 | | | 0.07 | | | |
| v/c Ratio | 0.43 | 0.71 | 1.02 | 1.25 | 0.65 | 0.37 | 1.31 | 0.68 | 0.18 | 0.78 | 0.93 | |
| Uniform Delay, d1 | 47.7 | 35.8 | 31.5 | 45.4 | 30.6 | 17.8 | 43.9 | 29.6 | 17.0 | 41.8 | 32.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.5 | 2.7 | 32.9 | 133.3 | 1.4 | 0.3 | 151.6 | 1.6 | 0.1 | 7.4 | 8.9 | |
| Delay (s) | 51.2 | 38.4 | 64.4 | 178.7 | 32.0 | 18.1 | 195.5 | 31.3 | 17.1 | 49.2 | 41.5 | |
| Level of Service | D | D | E | F | C | B | F | C | B | D | D | |
| Approach Delay (s) | | 55.1 | | | 76.5 | | | 95.8 | | | 43.1 | |
| Approach LOS | | E | | | E | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 65.9 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.06 | | |
| Actuated Cycle Length (s) | 102.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 90.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 27 | 2 | 9 | 19 | 1 | 37 | 12 | 1329 | 9 | 45 | 2727 | 34 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.97 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1767 | | | 1686 | | 1805 | 5181 | | 1805 | 5176 | |
| Flt Permitted | | 0.81 | | | 0.90 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1491 | | | 1547 | | 1805 | 5181 | | 1805 | 5176 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 31 | 2 | 10 | 22 | 1 | 43 | 14 | 1528 | 10 | 52 | 3134 | 39 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 34 | 0 | 0 | 26 | 0 | 14 | 1538 | 0 | 52 | 3173 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 6.3 | | | 6.3 | | 1.2 | 59.1 | | 4.8 | 62.7 | |
| Effective Green, g (s) | | 6.3 | | | 6.3 | | 1.2 | 59.1 | | 4.8 | 62.7 | |
| Actuated g/C Ratio | | 0.08 | | | 0.08 | | 0.01 | 0.72 | | 0.06 | 0.76 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 114 | | | 119 | | 26 | 3725 | | 105 | 3948 | |
| v/s Ratio Prot | | | | | | | 0.01 | 0.30 | | c0.03 | c0.61 | |
| v/s Ratio Perm | | c0.02 | | | 0.02 | | | | | | | |
| v/c Ratio | | 0.30 | | | 0.22 | | 0.54 | 0.41 | | 0.50 | 0.80 | |
| Uniform Delay, d1 | | 35.9 | | | 35.6 | | 40.2 | 4.6 | | 37.5 | 6.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.5 | | | 0.9 | | 19.8 | 0.1 | | 3.6 | 1.3 | |
| Delay (s) | | 37.3 | | | 36.6 | | 60.0 | 4.7 | | 41.2 | 7.2 | |
| Level of Service | | D | | | D | | E | A | | D | A | |
| Approach Delay (s) | | 37.3 | | | 36.6 | | | 5.2 | | | 7.8 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 82.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 70.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



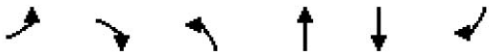
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 22 | 50 | 16 | 29 | 39 | 49 | 1386 | 14 | 92 | 2538 | 81 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 1900 | 1615 | 1805 | 1900 | 1542 | 1805 | 5127 | | 1805 | 5109 | |
| Flt Permitted | 0.54 | 1.00 | 1.00 | 0.74 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1026 | 1900 | 1615 | 1409 | 1900 | 1542 | 1805 | 5127 | | 1805 | 5109 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 65 | 24 | 54 | 17 | 32 | 42 | 53 | 1507 | 15 | 100 | 2759 | 88 |
| RTOR Reduction (vph) | 0 | 0 | 48 | 0 | 0 | 39 | 0 | 1 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 65 | 24 | 6 | 17 | 32 | 3 | 53 | 1521 | 0 | 100 | 2845 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 3% | 0% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 15.0 | 9.8 | 9.8 | 9.8 | 7.2 | 7.2 | 5.2 | 44.2 | | 18.8 | 57.8 | |
| Effective Green, g (s) | 15.0 | 9.8 | 9.8 | 9.8 | 7.2 | 7.2 | 5.2 | 44.2 | | 18.8 | 57.8 | |
| Actuated g/C Ratio | 0.16 | 0.11 | 0.11 | 0.11 | 0.08 | 0.08 | 0.06 | 0.48 | | 0.21 | 0.63 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 212 | 204 | 173 | 162 | 150 | 121 | 103 | 2479 | | 371 | 3231 | |
| v/s Ratio Prot | c0.02 | 0.01 | | 0.00 | 0.02 | | 0.03 | c0.30 | | 0.06 | c0.56 | |
| v/s Ratio Perm | c0.03 | | 0.00 | 0.01 | | 0.00 | | | | | | |
| v/c Ratio | 0.31 | 0.12 | 0.03 | 0.10 | 0.21 | 0.03 | 0.51 | 0.61 | | 0.27 | 0.88 | |
| Uniform Delay, d1 | 33.2 | 36.9 | 36.6 | 36.8 | 39.4 | 38.9 | 41.9 | 17.3 | | 30.5 | 13.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 0.3 | 0.1 | 0.3 | 0.7 | 0.1 | 4.3 | 0.5 | | 0.4 | 3.1 | |
| Delay (s) | 34.0 | 37.1 | 36.6 | 37.1 | 40.2 | 39.0 | 46.2 | 17.8 | | 30.9 | 17.1 | |
| Level of Service | C | D | D | D | D | D | D | B | | C | B | |
| Approach Delay (s) | | 35.5 | | | 39.0 | | | 18.7 | | | 17.5 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 91.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 76.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# HCM Signalized Intersection Capacity Analysis
## 98: Canyon Crest Dr & Alessandro Blvd

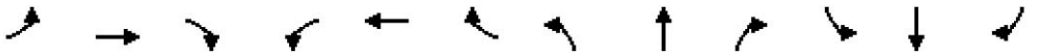
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 3 | 0 | 3 | 587 | 9 | 24 | 7 | 1352 | 257 | 73 | 2626 | 11 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3023 | | 5040 | 1625 | | 1805 | 5136 | 1579 | 1805 | 5132 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3023 | | 5040 | 1625 | | 1805 | 5136 | 1579 | 1805 | 5132 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 3 | 0 | 3 | 611 | 9 | 25 | 7 | 1408 | 268 | 76 | 2735 | 11 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 22 | 0 | 0 | 0 | 85 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 3 | 0 | 0 | 611 | 12 | 0 | 7 | 1408 | 183 | 76 | 2746 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 1% | 0% | 4% | 0% | 1% | 1% | 0% | 1% | 0% |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 1.3 | 1.2 | | 9.1 | 9.0 | | 1.1 | 40.2 | 49.3 | 5.6 | 44.7 | |
| Effective Green, g (s) | 1.3 | 1.2 | | 9.1 | 9.0 | | 1.1 | 40.2 | 49.3 | 5.6 | 44.7 | |
| Actuated g/C Ratio | 0.02 | 0.02 | | 0.13 | 0.12 | | 0.02 | 0.56 | 0.68 | 0.08 | 0.62 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 33 | 50 | | 636 | 203 | | 28 | 2864 | 1167 | 140 | 3182 | |
| v/s Ratio Prot | c0.00 | 0.00 | | c0.12 | 0.01 | | 0.00 | c0.27 | 0.02 | 0.04 | c0.53 | |
| v/s Ratio Perm | | | | | | | | | 0.10 | | | |
| v/c Ratio | 0.09 | 0.00 | | 0.96 | 0.06 | | 0.25 | 0.49 | 0.16 | 0.54 | 0.86 | |
| Uniform Delay, d1 | 34.8 | 34.9 | | 31.3 | 27.8 | | 35.1 | 9.7 | 4.0 | 32.0 | 11.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.2 | 0.0 | | 26.1 | 0.1 | | 4.7 | 0.1 | 0.1 | 4.2 | 2.6 | |
| Delay (s) | 36.0 | 34.9 | | 57.5 | 27.9 | | 39.7 | 9.9 | 4.1 | 36.3 | 13.8 | |
| Level of Service | D | C | | E | C | | D | A | A | D | B | |
| Approach Delay (s) | | 35.4 | | | 55.9 | | | 9.1 | | | 14.4 | |
| Approach LOS | | D | | | E | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 72.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 87.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



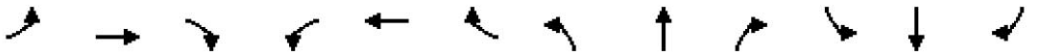
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 115 | 177 | 28 | 433 | 580 | 82 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1686 | 1522 | 1583 | 1845 | 1845 | 1421 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1686 | 1522 | 1583 | 1845 | 1845 | 1421 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 122 | 188 | 30 | 461 | 617 | 87 |
| RTOR Reduction (vph) | 0 | 165 | 0 | 0 | 0 | 9 |
| Lane Group Flow (vph) | 122 | 23 | 30 | 461 | 617 | 78 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Heavy Vehicles (%) | 6% | 3% | 14% | 3% | 3% | 11% |
| Turn Type | | custom | Prot | | | Perm |
| Protected Phases | | | 5 | 2 | 6 | |
| Permitted Phases | 4 | 4 | | | | 6 |
| Actuated Green, G (s) | 13.7 | 13.7 | 6.0 | 88.3 | 78.3 | 78.3 |
| Effective Green, g (s) | 13.7 | 13.7 | 6.0 | 88.3 | 78.3 | 78.3 |
| Actuated g/C Ratio | 0.12 | 0.12 | 0.05 | 0.80 | 0.71 | 0.71 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 210 | 190 | 86 | 1481 | 1313 | 1011 |
| v/s Ratio Prot | | | 0.02 | c0.25 | c0.33 | |
| v/s Ratio Perm | c0.07 | 0.02 | | | | 0.05 |
| v/c Ratio | 0.58 | 0.12 | 0.35 | 0.31 | 0.47 | 0.08 |
| Uniform Delay, d1 | 45.4 | 42.8 | 50.1 | 2.9 | 6.9 | 4.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.0 | 0.3 | 2.4 | 0.5 | 1.2 | 0.1 |
| Delay (s) | 49.5 | 43.1 | 52.6 | 3.4 | 8.1 | 5.0 |
| Level of Service | D | D | D | A | A | A |
| Approach Delay (s) | 45.6 | | | 6.4 | 7.7 | |
| Approach LOS | D | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 50.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



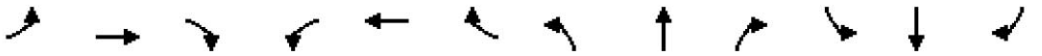
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 2 | 1233 | 49 | 36 | 997 | 0 | 122 | 0 | 89 | 0 | 0 | 2 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | 4.9 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | | | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | 1.00 |
| Satd. Flow (prot) | 1805 | 4923 | | 1480 | 4988 | | 1530 | 2846 | | | | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | 1.00 |
| Satd. Flow (perm) | 1805 | 4923 | | 1480 | 4988 | | 1530 | 2846 | | | | 1588 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 2 | 1340 | 53 | 39 | 1084 | 0 | 133 | 0 | 97 | 0 | 0 | 2 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 81 | 0 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 2 | 1391 | 0 | 39 | 1084 | 0 | 133 | 16 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 3% | 47% | 22% | 4% | 0% | 18% | 0% | 6% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | | | | 4 |
| Actuated Green, G (s) | 1.2 | 69.2 | | 7.5 | 75.5 | | 13.3 | 18.7 | | | | 1.1 |
| Effective Green, g (s) | 1.2 | 69.2 | | 7.5 | 75.5 | | 13.3 | 18.7 | | | | 1.1 |
| Actuated g/C Ratio | 0.01 | 0.63 | | 0.07 | 0.69 | | 0.12 | 0.17 | | | | 0.01 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | 4.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | 3.0 |
| Lane Grp Cap (vph) | 20 | 3097 | | 101 | 3424 | | 185 | 484 | | | | 16 |
| v/s Ratio Prot | 0.00 | c0.28 | | c0.03 | 0.22 | | c0.09 | c0.01 | | | | |
| v/s Ratio Perm | | | | | | | | | | | | 0.00 |
| v/c Ratio | 0.10 | 0.45 | | 0.39 | 0.32 | | 0.72 | 0.03 | | | | 0.00 |
| Uniform Delay, d1 | 53.9 | 10.5 | | 49.0 | 6.9 | | 46.6 | 38.1 | | | | 53.9 |
| Progression Factor | 1.20 | 0.32 | | 0.78 | 0.58 | | 1.00 | 1.00 | | | | 1.00 |
| Incremental Delay, d2 | 2.0 | 0.4 | | 2.3 | 0.2 | | 12.5 | 0.0 | | | | 0.0 |
| Delay (s) | 66.5 | 3.9 | | 40.6 | 4.3 | | 59.1 | 38.1 | | | | 53.9 |
| Level of Service | E | A | | D | A | | E | D | | | | D |
| Approach Delay (s) | | 4.0 | | | 5.5 | | | 50.3 | | | 53.9 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 54.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



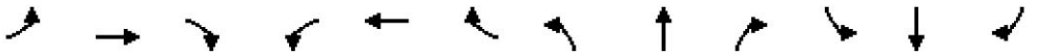
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 183 | 950 | 195 | 63 | 690 | 55 | 225 | 260 | 76 | 235 | 381 | 121 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3400 | 5036 | 1540 | 3502 | 4877 | | 3367 | 3539 | 1587 | 3467 | 3505 | 1470 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3400 | 5036 | 1540 | 3502 | 4877 | | 3367 | 3539 | 1587 | 3467 | 3505 | 1470 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 203 | 1056 | 217 | 70 | 767 | 61 | 250 | 289 | 84 | 261 | 423 | 134 |
| RTOR Reduction (vph) | 0 | 0 | 114 | 0 | 7 | 0 | 0 | 0 | 69 | 0 | 0 | 110 |
| Lane Group Flow (vph) | 203 | 1056 | 103 | 70 | 821 | 0 | 250 | 289 | 15 | 261 | 423 | 24 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 0% | 4% | 18% | 4% | 2% | 0% | 1% | 3% | 8% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 11.8 | 52.4 | 52.4 | 6.4 | 47.0 | | 12.6 | 19.2 | 19.2 | 12.7 | 19.3 | 19.3 |
| Effective Green, g (s) | 11.8 | 52.4 | 52.4 | 6.4 | 47.0 | | 12.6 | 19.2 | 19.2 | 12.7 | 19.3 | 19.3 |
| Actuated g/C Ratio | 0.11 | 0.48 | 0.48 | 0.06 | 0.43 | | 0.11 | 0.17 | 0.17 | 0.12 | 0.18 | 0.18 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 365 | 2399 | 734 | 204 | 2084 | | 386 | 618 | 277 | 400 | 615 | 258 |
| v/s Ratio Prot | c0.06 | c0.21 | | 0.02 | 0.17 | | 0.07 | 0.08 | | c0.08 | c0.12 | |
| v/s Ratio Perm | | | 0.07 | | | | | | 0.01 | | | 0.02 |
| v/c Ratio | 0.56 | 0.44 | 0.14 | 0.34 | 0.39 | | 0.65 | 0.47 | 0.05 | 0.65 | 0.69 | 0.09 |
| Uniform Delay, d1 | 46.6 | 19.1 | 16.2 | 49.8 | 21.7 | | 46.6 | 40.8 | 37.8 | 46.5 | 42.5 | 38.0 |
| Progression Factor | 1.47 | 0.43 | 0.27 | 0.72 | 1.72 | | 0.89 | 1.28 | 2.99 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.7 | 0.6 | 0.4 | 0.9 | 0.5 | | 3.7 | 0.6 | 0.1 | 3.8 | 3.2 | 0.2 |
| Delay (s) | 70.4 | 8.7 | 4.8 | 36.6 | 37.8 | | 45.0 | 52.9 | 113.3 | 50.3 | 45.7 | 38.2 |
| Level of Service | E | A | A | D | D | | D | D | F | D | D | D |
| Approach Delay (s) | | 16.6 | | | 37.7 | | | 57.9 | | | 46.0 | |
| Approach LOS | | B | | | D | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



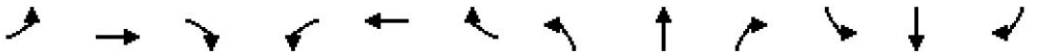
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 292 | 717 | 292 | 19 | 409 | 145 | 168 | 339 | 12 | 180 | 356 | 239 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3467 | 5085 | 1562 | 1719 | 3406 | 1539 | 3467 | 3556 | | 3433 | 3574 | 1572 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3467 | 5085 | 1562 | 1719 | 3406 | 1539 | 3467 | 3556 | | 3433 | 3574 | 1572 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 301 | 739 | 301 | 20 | 422 | 149 | 173 | 349 | 12 | 186 | 367 | 246 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 105 | 0 | 2 | 0 | 0 | 0 | 169 |
| Lane Group Flow (vph) | 301 | 739 | 301 | 20 | 422 | 44 | 173 | 359 | 0 | 186 | 367 | 77 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 5% | 6% | 3% | 1% | 1% | 0% | 2% | 1% | 1% |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 13.7 | 43.6 | 110.0 | 2.4 | 32.3 | 32.3 | 9.5 | 33.8 | | 10.2 | 34.5 | 34.5 |
| Effective Green, g (s) | 13.7 | 43.6 | 110.0 | 2.4 | 32.3 | 32.3 | 9.5 | 33.8 | | 10.2 | 34.5 | 34.5 |
| Actuated g/C Ratio | 0.12 | 0.40 | 1.00 | 0.02 | 0.29 | 0.29 | 0.09 | 0.31 | | 0.09 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 432 | 2016 | 1562 | 38 | 1000 | 452 | 299 | 1093 | | 318 | 1121 | 493 |
| v/s Ratio Prot | c0.09 | 0.15 | | 0.01 | c0.12 | | 0.05 | 0.10 | | c0.05 | c0.10 | |
| v/s Ratio Perm | | | c0.19 | | | 0.03 | | | | | | 0.05 |
| v/c Ratio | 0.70 | 0.37 | 0.19 | 0.53 | 0.42 | 0.10 | 0.58 | 0.33 | | 0.58 | 0.33 | 0.16 |
| Uniform Delay, d1 | 46.2 | 23.4 | 0.0 | 53.2 | 31.3 | 28.2 | 48.3 | 29.4 | | 47.9 | 28.9 | 27.2 |
| Progression Factor | 0.91 | 0.77 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.4 | 0.5 | 0.3 | 12.5 | 1.3 | 0.4 | 2.7 | 0.8 | | 2.7 | 0.8 | 0.7 |
| Delay (s) | 46.4 | 18.6 | 0.3 | 65.8 | 32.6 | 28.7 | 51.0 | 30.2 | | 50.6 | 29.7 | 27.9 |
| Level of Service | D | B | A | E | C | C | D | C | | D | C | C |
| Approach Delay (s) | | 20.7 | | | 32.8 | | | 36.9 | | | 34.0 | |
| Approach LOS | | C | | | C | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 79.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 18 | 4 | 20 | 21 | 8 | 19 | 10 | 607 | 6 | 12 | 711 | 12 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.96 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.87 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1357 | 2598 | | 1805 | 1520 | 1424 | 1641 | 3534 | | 1671 | 3539 | 1274 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1357 | 2598 | | 1805 | 1520 | 1424 | 1641 | 3534 | | 1671 | 3539 | 1274 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 19 | 4 | 21 | 22 | 8 | 20 | 11 | 639 | 6 | 13 | 748 | 13 |
| RTOR Reduction (vph) | 0 | 24 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 19 | 1 | 0 | 22 | 8 | 1 | 11 | 645 | 0 | 13 | 748 | 10 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 33% | 50% | 10% | 0% | 25% | 11% | 10% | 2% | 0% | 8% | 2% | 25% |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 3.5 | 4.3 | | 3.3 | 4.2 | 4.2 | 1.5 | 83.3 | | 1.6 | 83.4 | 83.4 |
| Effective Green, g (s) | 3.5 | 4.3 | | 3.3 | 4.2 | 4.2 | 1.5 | 83.3 | | 1.6 | 83.4 | 83.4 |
| Actuated g/C Ratio | 0.03 | 0.04 | | 0.03 | 0.04 | 0.04 | 0.01 | 0.76 | | 0.01 | 0.76 | 0.76 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 43 | 102 | | 54 | 58 | 54 | 22 | 2676 | | 24 | 2683 | 966 |
| v/s Ratio Prot | c0.01 | 0.00 | | 0.01 | c0.01 | | 0.01 | 0.18 | | c0.01 | c0.21 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.01 |
| v/c Ratio | 0.44 | 0.01 | | 0.41 | 0.14 | 0.01 | 0.50 | 0.24 | | 0.54 | 0.28 | 0.01 |
| Uniform Delay, d1 | 52.3 | 50.8 | | 52.4 | 51.1 | 50.9 | 53.9 | 4.0 | | 53.8 | 4.1 | 3.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.37 | 0.44 | | 0.91 | 0.59 | 0.47 |
| Incremental Delay, d2 | 7.1 | 0.0 | | 4.9 | 1.1 | 0.1 | 16.3 | 0.2 | | 22.0 | 0.3 | 0.0 |
| Delay (s) | 59.4 | 50.8 | | 57.3 | 52.2 | 51.0 | 90.2 | 1.9 | | 70.9 | 2.7 | 1.5 |
| Level of Service | E | D | | E | D | D | F | A | | E | A | A |
| Approach Delay (s) | | 54.5 | | | 54.0 | | | 3.4 | | | 3.8 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.27 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.1 |
| Intersection Capacity Utilization | 36.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 47 | 14 | 39 | 41 | 18 | 50 | 79 | 329 | 70 | 76 | 419 | 75 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 1900 | 1587 | 1770 | 1900 | 1587 | 1805 | 3461 | | 1805 | 3574 | 1570 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 1900 | 1587 | 1770 | 1900 | 1587 | 1805 | 3461 | | 1805 | 3574 | 1570 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 52 | 15 | 43 | 45 | 20 | 55 | 87 | 362 | 77 | 84 | 460 | 82 |
| RTOR Reduction (vph) | 0 | 0 | 39 | 0 | 0 | 52 | 0 | 9 | 0 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 52 | 15 | 4 | 45 | 20 | 3 | 87 | 430 | 0 | 84 | 460 | 53 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 2% | 0% | 0% | 2% | 0% | 0% | 0% | 1% | 1% | 0% | 1% | 1% |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 7.4 | 9.8 | 9.8 | 4.2 | 6.6 | 6.6 | 9.3 | 70.9 | | 9.1 | 70.7 | 70.7 |
| Effective Green, g (s) | 7.4 | 9.8 | 9.8 | 4.2 | 6.6 | 6.6 | 9.3 | 70.9 | | 9.1 | 70.7 | 70.7 |
| Actuated g/C Ratio | 0.07 | 0.09 | 0.09 | 0.04 | 0.06 | 0.06 | 0.08 | 0.64 | | 0.08 | 0.64 | 0.64 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 119 | 169 | 141 | 68 | 114 | 95 | 153 | 2231 | | 149 | 2297 | 1009 |
| v/s Ratio Prot | 0.03 | c0.01 | | c0.03 | c0.01 | | c0.05 | 0.12 | | 0.05 | c0.13 | |
| v/s Ratio Perm | | | 0.00 | | | 0.00 | | | | | | 0.03 |
| v/c Ratio | 0.44 | 0.09 | 0.03 | 0.66 | 0.18 | 0.03 | 0.57 | 0.19 | | 0.56 | 0.20 | 0.05 |
| Uniform Delay, d1 | 49.3 | 46.0 | 45.7 | 52.2 | 49.1 | 48.7 | 48.4 | 7.9 | | 48.5 | 8.1 | 7.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.09 | 0.62 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.6 | 0.2 | 0.1 | 21.6 | 0.7 | 0.1 | 4.5 | 0.2 | | 4.8 | 0.2 | 0.1 |
| Delay (s) | 51.9 | 46.2 | 45.8 | 73.8 | 49.9 | 48.8 | 57.2 | 5.1 | | 53.4 | 8.3 | 7.4 |
| Level of Service | D | D | D | E | D | D | E | A | | D | A | A |
| Approach Delay (s) | | 48.7 | | | 58.4 | | | 13.7 | | | 14.2 | |
| Approach LOS | | D | | | E | | | B | | | B | |

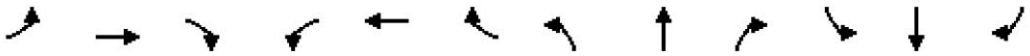
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.26 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 48.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 22 | 111 | 29 | 147 | 59 | 101 | 10 | 463 | 150 | 129 | 570 | 11 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1706 | 1805 | | 1778 | 1900 | 1567 | 1805 | 3391 | | 1770 | 3550 | |
| Flt Permitted | 0.72 | 1.00 | | 0.57 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1287 | 1805 | | 1068 | 1900 | 1567 | 1805 | 3391 | | 1770 | 3550 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 23 | 117 | 31 | 155 | 62 | 106 | 11 | 487 | 158 | 136 | 600 | 12 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 87 | 0 | 20 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 23 | 137 | 0 | 155 | 62 | 19 | 11 | 625 | 0 | 136 | 611 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 5% | 2% | 0% | 1% | 0% | 1% | 0% | 2% | 1% | 2% | 1% | 18% |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 19.9 | 19.9 | | 19.9 | 19.9 | 19.9 | 1.5 | 61.8 | | 13.7 | 74.0 | |
| Effective Green, g (s) | 19.9 | 19.9 | | 19.9 | 19.9 | 19.9 | 1.5 | 61.8 | | 13.7 | 74.0 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.18 | 0.18 | 0.18 | 0.01 | 0.56 | | 0.12 | 0.67 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 233 | 327 | | 193 | 344 | 283 | 25 | 1905 | | 220 | 2388 | |
| v/s Ratio Prot | | 0.08 | | | 0.03 | | 0.01 | c0.18 | | c0.08 | 0.17 | |
| v/s Ratio Perm | 0.02 | | | c0.15 | | 0.01 | | | | | | |
| v/c Ratio | 0.10 | 0.42 | | 0.80 | 0.18 | 0.07 | 0.44 | 0.33 | | 0.62 | 0.26 | |
| Uniform Delay, d1 | 37.6 | 39.9 | | 43.2 | 38.1 | 37.4 | 53.8 | 12.9 | | 45.7 | 7.1 | |
| Progression Factor | 1.00 | 1.00 | | 0.90 | 0.89 | 1.03 | 1.43 | 0.29 | | 1.00 | 2.40 | |
| Incremental Delay, d2 | 0.2 | 0.9 | | 20.6 | 0.2 | 0.1 | 11.6 | 0.5 | | 5.0 | 0.3 | |
| Delay (s) | 37.8 | 40.8 | | 59.4 | 34.1 | 38.7 | 88.7 | 4.2 | | 50.5 | 17.3 | |
| Level of Service | D | D | | E | C | D | F | A | | D | B | |
| Approach Delay (s) | | 40.4 | | | 47.8 | | | 5.7 | | | 23.3 | |
| Approach LOS | | D | | | D | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 61.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

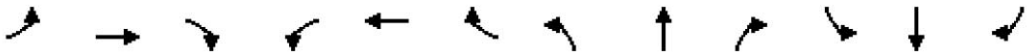
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 252 | 238 | 67 | 10 | 176 | 28 | 41 | 184 | 21 | 50 | 205 | 225 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3468 | | 1805 | 3479 | | 1805 | 3518 | | 1770 | 3280 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3468 | | 1805 | 3479 | | 1805 | 3518 | | 1770 | 3280 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 265 | 251 | 71 | 11 | 185 | 29 | 43 | 194 | 22 | 53 | 216 | 237 |
| RTOR Reduction (vph) | 0 | 30 | 0 | 0 | 14 | 0 | 0 | 6 | 0 | 0 | 122 | 0 |
| Lane Group Flow (vph) | 265 | 292 | 0 | 11 | 200 | 0 | 43 | 210 | 0 | 53 | 331 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 1% | 0% | 1% | 4% | 0% | 1% | 0% | 2% | 0% | 1% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 20.4 | 34.0 | | 1.2 | 14.8 | | 5.6 | 51.2 | | 7.6 | 53.2 | |
| Effective Green, g (s) | 20.4 | 34.0 | | 1.2 | 14.8 | | 5.6 | 51.2 | | 7.6 | 53.2 | |
| Actuated g/C Ratio | 0.19 | 0.31 | | 0.01 | 0.13 | | 0.05 | 0.47 | | 0.07 | 0.48 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 335 | 1072 | | 20 | 468 | | 92 | 1637 | | 122 | 1586 | |
| v/s Ratio Prot | c0.15 | 0.08 | | 0.01 | c0.06 | | 0.02 | 0.06 | | c0.03 | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.79 | 0.27 | | 0.55 | 0.43 | | 0.47 | 0.13 | | 0.43 | 0.21 | |
| Uniform Delay, d1 | 42.8 | 28.7 | | 54.1 | 43.7 | | 50.8 | 16.7 | | 49.1 | 16.3 | |
| Progression Factor | 0.88 | 0.90 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.52 | 0.36 | |
| Incremental Delay, d2 | 11.8 | 0.1 | | 28.9 | 0.6 | | 3.7 | 0.2 | | 2.4 | 0.3 | |
| Delay (s) | 49.3 | 25.8 | | 83.0 | 44.3 | | 54.5 | 16.9 | | 77.2 | 6.2 | |
| Level of Service | D | C | | F | D | | D | B | | E | A | |
| Approach Delay (s) | | 36.4 | | | 46.2 | | | 23.1 | | | 13.7 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 38 | 8 | 43 | 18 | 60 | 4 | 566 | 37 | 97 | 655 | 11 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1769 | | 1805 | 1900 | 1586 | 1444 | 3539 | | 1787 | 3524 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1769 | | 1805 | 1900 | 1586 | 1444 | 3539 | | 1787 | 3524 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 24 | 40 | 8 | 45 | 19 | 63 | 4 | 596 | 39 | 102 | 689 | 12 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 57 | 0 | 3 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 24 | 41 | 0 | 45 | 19 | 6 | 4 | 632 | 0 | 102 | 700 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 25% | 0% | 0% | 0% | 25% | 1% | 0% | 1% | 2% | 9% |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 4.2 | 7.8 | | 6.6 | 10.2 | 10.2 | 1.4 | 65.8 | | 11.6 | 76.0 | |
| Effective Green, g (s) | 4.2 | 7.8 | | 6.6 | 10.2 | 10.2 | 1.4 | 65.8 | | 11.6 | 76.0 | |
| Actuated g/C Ratio | 0.04 | 0.07 | | 0.06 | 0.09 | 0.09 | 0.01 | 0.60 | | 0.11 | 0.69 | |
| Clearance Time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 69 | 125 | | 108 | 176 | 147 | 18 | 2117 | | 188 | 2435 | |
| v/s Ratio Prot | 0.01 | c0.02 | | c0.02 | 0.01 | | 0.00 | c0.18 | | c0.06 | 0.20 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | |
| v/c Ratio | 0.35 | 0.32 | | 0.42 | 0.11 | 0.04 | 0.22 | 0.30 | | 0.54 | 0.29 | |
| Uniform Delay, d1 | 51.6 | 48.6 | | 49.8 | 45.7 | 45.4 | 53.8 | 10.8 | | 46.7 | 6.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.23 | 0.28 | | 0.85 | 1.34 | |
| Incremental Delay, d2 | 3.0 | 1.5 | | 2.6 | 0.3 | 0.1 | 5.6 | 0.3 | | 3.1 | 0.3 | |
| Delay (s) | 54.6 | 50.1 | | 52.4 | 46.0 | 45.6 | 71.7 | 3.3 | | 42.6 | 9.1 | |
| Level of Service | D | D | | D | D | D | E | A | | D | A | |
| Approach Delay (s) | | 51.6 | | | 48.1 | | | 3.8 | | | 13.3 | |
| Approach LOS | | D | | | D | | | A | | | B | |

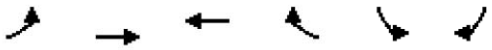
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 18.2 |
| Intersection Capacity Utilization | 47.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 85 | 100 | 46 | 12 | 69 | 25 | 34 | 158 | 19 | 10 | 138 | 78 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 87 | 102 | 47 | 12 | 70 | 26 | 35 | 161 | 19 | 10 | 141 | 80 |

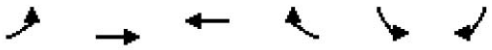
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 236 | 108 | 35 | 181 | 10 | 220 |
| Volume Left (vph) | 87 | 12 | 35 | 0 | 10 | 0 |
| Volume Right (vph) | 47 | 26 | 0 | 19 | 0 | 80 |
| Hadj (s) | -0.03 | -0.09 | 0.50 | -0.08 | 0.50 | -0.23 |
| Departure Headway (s) | 5.2 | 5.4 | 6.3 | 5.7 | 6.3 | 5.5 |
| Degree Utilization, x | 0.34 | 0.16 | 0.06 | 0.29 | 0.02 | 0.34 |
| Capacity (veh/h) | 639 | 600 | 539 | 594 | 539 | 614 |
| Control Delay (s) | 10.9 | 9.4 | 8.5 | 9.8 | 8.2 | 10.1 |
| Approach Delay (s) | 10.9 | 9.4 | 9.5 | | 10.0 | |
| Approach LOS | B | A | A | | B | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 10.1 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 44.8% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 199 | 468 | 353 | 45 | 52 | 167 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1787 | 1863 | 1881 | 1569 | 1805 | 1548 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1787 | 1863 | 1881 | 1569 | 1805 | 1548 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 216 | 509 | 384 | 49 | 57 | 182 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 25 | 0 | 139 |
| Lane Group Flow (vph) | 216 | 509 | 384 | 24 | 57 | 43 |
| Confl. Peds. (#/hr) | 5 | | | 5 | 5 | 5 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 0% | 0% | 1% |
| Turn Type | Prot | | | Perm | | Perm |
| Protected Phases | 7 | 4 | 8 | | 6 | |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 18.5 | 76.0 | 53.5 | 53.5 | 26.0 | 26.0 |
| Effective Green, g (s) | 18.5 | 76.0 | 53.5 | 53.5 | 26.0 | 26.0 |
| Actuated g/C Ratio | 0.17 | 0.69 | 0.49 | 0.49 | 0.24 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 301 | 1287 | 915 | 763 | 427 | 366 |
| v/s Ratio Prot | c0.12 | 0.27 | c0.20 | | c0.03 | |
| v/s Ratio Perm | | | | 0.02 | | 0.03 |
| v/c Ratio | 0.72 | 0.40 | 0.42 | 0.03 | 0.13 | 0.12 |
| Uniform Delay, d1 | 43.3 | 7.2 | 18.2 | 14.7 | 33.1 | 33.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.9 | 0.9 | 1.4 | 0.1 | 0.6 | 0.7 |
| Delay (s) | 51.2 | 8.1 | 19.6 | 14.8 | 33.8 | 33.6 |
| Level of Service | D | A | B | B | C | C |
| Approach Delay (s) | | 21.0 | 19.1 | | 33.7 | |
| Approach LOS | | C | B | | C | |

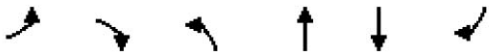
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 12 | 676 | 435 | 29 | 44 | 32 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 12 | 697 | 448 | 30 | 45 | 33 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | 2 |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 478 | | | | 1185 | 463 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 478 | | | | 1185 | 463 |
| tC, single (s) | 4.2 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.3 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 78 | 94 |
| cM capacity (veh/h) | 1053 | | | | 206 | 597 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 12 | 697 | 478 | 78 |
| Volume Left | 12 | 0 | 0 | 45 |
| Volume Right | 0 | 0 | 30 | 33 |
| cSH | 1053 | 1700 | 1700 | 356 |
| Volume to Capacity | 0.01 | 0.41 | 0.28 | 0.22 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 21 |
| Control Delay (s) | 8.5 | 0.0 | 0.0 | 20.6 |
| Lane LOS | A | | | C |
| Approach Delay (s) | 0.1 | | 0.0 | 20.6 |
| Approach LOS | | | | C |

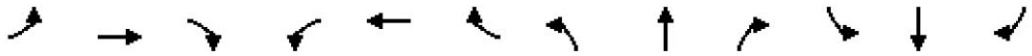
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 45.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 28 | 17 | 3 | 353 | 659 | 47 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 29 | 18 | 3 | 368 | 686 | 49 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1090 | 716 | 735 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1090 | 716 | 735 | | | |
| tC, single (s) | 6.5 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.4 | 2.2 | | | |
| p0 queue free % | 87 | 96 | 100 | | | |
| cM capacity (veh/h) | 227 | 422 | 879 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 47 | 3 | 368 | 735 |
| Volume Left | 29 | 3 | 0 | 0 |
| Volume Right | 18 | 0 | 0 | 49 |
| cSH | 275 | 879 | 1700 | 1700 |
| Volume to Capacity | 0.17 | 0.00 | 0.22 | 0.43 |
| Queue Length 95th (ft) | 15 | 0 | 0 | 0 |
| Control Delay (s) | 20.8 | 9.1 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 20.8 | 0.1 | | 0.0 |
| Approach LOS | C | | | |

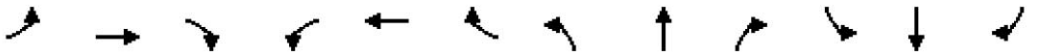
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.9 | | |
| Intersection Capacity Utilization | 47.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 13 | 577 | 0 | 0 | 204 | 180 | 143 | 2 | 9 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 13 | 595 | 0 | 0 | 210 | 186 | 147 | 2 | 9 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 401 | | | 600 | | | 842 | 1028 | 605 | 848 | 842 | 220 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 401 | | | 600 | | | 842 | 1028 | 605 | 848 | 842 | 220 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 7.0 | 6.4 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.5 | 3.5 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 100 | | | 47 | 99 | 98 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1091 | | | 983 | | | 280 | 191 | 459 | 271 | 298 | 821 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 13 | 595 | 210 | 186 | 159 |
| Volume Left | 13 | 0 | 0 | 0 | 147 |
| Volume Right | 0 | 0 | 0 | 186 | 9 |
| cSH | 1091 | 1700 | 1700 | 1700 | 296 |
| Volume to Capacity | 0.01 | 0.35 | 0.12 | 0.11 | 0.54 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 74 |
| Control Delay (s) | 8.3 | 0.0 | 0.0 | 0.0 | 30.7 |
| Lane LOS | A | | | | D |
| Approach Delay (s) | 0.2 | | 0.0 | | 30.7 |
| Approach LOS | | | | | D |

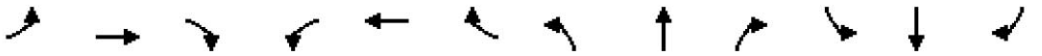
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.3 | | |
| Intersection Capacity Utilization | 46.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 391 | 307 | 7 | 355 | 0 | 0 | 0 | 0 | 218 | 2 | 4 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 407 | 320 | 7 | 370 | 0 | 0 | 0 | 0 | 227 | 2 | 4 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 375 | | | 732 | | | 805 | 802 | 417 | 802 | 1121 | 380 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 375 | | | 732 | | | 805 | 802 | 417 | 802 | 1121 | 380 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 99 | | | 100 | 100 | 100 | 24 | 99 | 99 |
| cM capacity (veh/h) | 1190 | | | 882 | | | 295 | 316 | 637 | 297 | 205 | 666 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 407 | 320 | 7 | 370 | 233 |
| Volume Left | 0 | 0 | 7 | 0 | 227 |
| Volume Right | 0 | 320 | 0 | 0 | 4 |
| cSH | 1700 | 1700 | 882 | 1700 | 302 |
| Volume to Capacity | 0.24 | 0.19 | 0.01 | 0.22 | 0.77 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 150 |
| Control Delay (s) | 0.0 | 0.0 | 9.1 | 0.0 | 48.2 |
| Lane LOS | | | A | | E |
| Approach Delay (s) | 0.0 | | 0.2 | | 48.2 |
| Approach LOS | | | | | E |

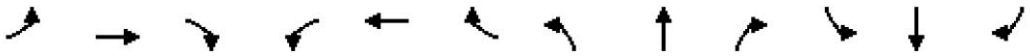
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.5 | | |
| Intersection Capacity Utilization | 46.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 177 | 340 | 112 | 30 | 243 | 238 | 66 | 462 | 44 | 418 | 819 | 278 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 3505 | 1568 | 3502 | 3438 | 1557 | 3433 | 3574 | 1598 | 3367 | 3505 | 1466 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 3505 | 1568 | 3502 | 3438 | 1557 | 3433 | 3574 | 1598 | 3367 | 3505 | 1466 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 182 | 351 | 115 | 31 | 251 | 245 | 68 | 476 | 45 | 431 | 844 | 287 |
| RTOR Reduction (vph) | 0 | 0 | 77 | 0 | 0 | 111 | 0 | 0 | 30 | 0 | 0 | 156 |
| Lane Group Flow (vph) | 182 | 351 | 38 | 31 | 251 | 134 | 68 | 476 | 15 | 431 | 844 | 131 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 2% | 3% | 2% | 0% | 5% | 3% | 2% | 1% | 0% | 4% | 3% | 9% |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.1 | 14.8 | 21.9 | 5.4 | 13.1 | 27.3 | 7.1 | 16.0 | 21.4 | 14.2 | 23.1 | 30.2 |
| Effective Green, g (s) | 7.1 | 14.8 | 21.9 | 5.4 | 13.1 | 27.3 | 7.1 | 16.0 | 21.4 | 14.2 | 23.1 | 30.2 |
| Actuated g/C Ratio | 0.11 | 0.22 | 0.33 | 0.08 | 0.20 | 0.41 | 0.11 | 0.24 | 0.32 | 0.21 | 0.35 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 367 | 781 | 612 | 285 | 678 | 734 | 367 | 861 | 611 | 720 | 1219 | 755 |
| v/s Ratio Prot | c0.05 | c0.10 | 0.01 | 0.01 | 0.07 | 0.04 | 0.02 | 0.13 | 0.00 | c0.13 | c0.24 | 0.02 |
| v/s Ratio Perm | | | 0.02 | | | 0.05 | | | 0.01 | | | 0.07 |
| v/c Ratio | 0.50 | 0.45 | 0.06 | 0.11 | 0.37 | 0.18 | 0.19 | 0.55 | 0.02 | 0.60 | 0.69 | 0.17 |
| Uniform Delay, d1 | 28.0 | 22.3 | 15.2 | 28.3 | 23.1 | 12.4 | 27.0 | 22.1 | 15.4 | 23.5 | 18.6 | 10.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 0.4 | 0.0 | 0.2 | 0.3 | 0.1 | 0.2 | 0.8 | 0.0 | 1.3 | 1.7 | 0.1 |
| Delay (s) | 29.0 | 22.7 | 15.3 | 28.4 | 23.4 | 12.6 | 27.3 | 22.8 | 15.4 | 24.9 | 20.3 | 10.8 |
| Level of Service | C | C | B | C | C | B | C | C | B | C | C | B |
| Approach Delay (s) | | 23.2 | | | 18.7 | | | 22.8 | | | 19.8 | |
| Approach LOS | | C | | | B | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 66.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

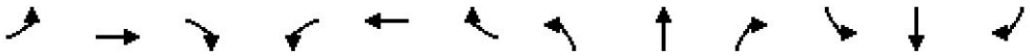
# HCM Unsignalized Intersection Capacity Analysis
## 129: 6th St & California Ave



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 17 | 284 | 151 | 31 | 218 | 15 | 199 | 53 | 44 | 18 | 25 | 1 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 18 | 305 | 162 | 33 | 234 | 16 | 214 | 57 | 47 | 19 | 27 | 1 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 18 | 468 | 33 | 251 | 214 | 104 | 47 |
| Volume Left (vph) | 18 | 0 | 33 | 0 | 214 | 0 | 19 |
| Volume Right (vph) | 0 | 162 | 0 | 16 | 0 | 47 | 1 |
| Hadj (s) | 0.58 | -0.24 | 2.20 | -0.01 | 0.55 | -0.27 | 0.11 |
| Departure Headway (s) | 6.8 | 6.0 | 8.7 | 6.5 | 7.3 | 6.5 | 7.5 |
| Degree Utilization, x | 0.03 | 0.78 | 0.08 | 0.45 | 0.43 | 0.19 | 0.10 |
| Capacity (veh/h) | 504 | 585 | 394 | 533 | 459 | 516 | 426 |
| Control Delay (s) | 8.8 | 25.3 | 11.3 | 13.4 | 14.6 | 9.8 | 11.3 |
| Approach Delay (s) | 24.7 | | 13.1 | | 13.0 | | 11.3 |
| Approach LOS | C | | B | | B | | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 18.0 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 50.1% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



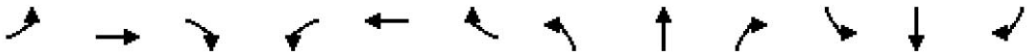
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 244 | 48 | 78 | 203 | 146 | 35 | 253 | 63 | 112 | 233 | 55 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1767 | 3455 | | 1802 | 1602 | 1336 | 1805 | 3451 | | 1770 | 3402 | |
| Flt Permitted | 0.62 | 1.00 | | 0.56 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1148 | 3455 | | 1068 | 1602 | 1336 | 1805 | 3451 | | 1770 | 3402 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 117 | 260 | 51 | 83 | 216 | 155 | 37 | 269 | 67 | 119 | 248 | 59 |
| RTOR Reduction (vph) | 0 | 25 | 0 | 0 | 0 | 90 | 0 | 33 | 0 | 0 | 27 | 0 |
| Lane Group Flow (vph) | 117 | 286 | 0 | 83 | 216 | 65 | 37 | 303 | 0 | 119 | 280 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 2% | 2% | 0% | 0% | 2% | 3% | 0% | 1% | 2% | 2% | 2% | 5% |
| Parking (#/hr) | | | | | 8 | 8 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 11.3 | 11.3 | | 11.3 | 11.3 | 17.4 | 1.1 | 12.0 | | 6.1 | 17.0 | |
| Effective Green, g (s) | 11.3 | 11.3 | | 11.3 | 11.3 | 17.4 | 1.1 | 12.0 | | 6.1 | 17.0 | |
| Actuated g/C Ratio | 0.27 | 0.27 | | 0.27 | 0.27 | 0.42 | 0.03 | 0.29 | | 0.15 | 0.41 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 313 | 943 | | 292 | 437 | 691 | 48 | 1000 | | 261 | 1397 | |
| v/s Ratio Prot | | 0.08 | | | c0.13 | 0.01 | 0.02 | c0.09 | | c0.07 | 0.08 | |
| v/s Ratio Perm | 0.10 | | | 0.08 | | 0.03 | | | | | | |
| v/c Ratio | 0.37 | 0.30 | | 0.28 | 0.49 | 0.09 | 0.77 | 0.30 | | 0.46 | 0.20 | |
| Uniform Delay, d1 | 12.2 | 11.9 | | 11.9 | 12.6 | 7.2 | 20.0 | 11.4 | | 16.1 | 7.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 0.2 | | 0.5 | 0.9 | 0.1 | 53.1 | 0.2 | | 1.3 | 0.1 | |
| Delay (s) | 12.9 | 12.1 | | 12.4 | 13.5 | 7.3 | 73.1 | 11.6 | | 17.4 | 7.9 | |
| Level of Service | B | B | | B | B | A | E | B | | B | A | |
| Approach Delay (s) | | 12.3 | | | 11.2 | | | 17.7 | | | 10.6 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 41.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 49.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 1208 | 3 | 2 | 362 | 8 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1700 | 1800 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.97 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1800 | 1529 | | 1456 | 1599 | 1354 |
| Flt Permitted | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1800 | 1529 | | 1499 | 1599 | 1354 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 11 | 1299 | 3 | 2 | 389 | 9 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 11 | 1299 | 0 | 5 | 389 | 8 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Heavy Vehicles (%) | 0% | 0% | 33% | 0% | 1% | 13% |
| Turn Type | | pm+ov | Perm | | | Prot |
| Protected Phases | 4 | 2 | | 8 | 2 | 2 |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 1.2 | 54.8 | | 1.2 | 53.6 | 53.6 |
| Effective Green, g (s) | 1.2 | 54.8 | | 1.2 | 53.6 | 53.6 |
| Actuated g/C Ratio | 0.02 | 0.85 | | 0.02 | 0.83 | 0.83 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 33 | 1529 | | 28 | 1323 | 1120 |
| v/s Ratio Prot | 0.01 | c0.70 | | | 0.24 | 0.01 |
| v/s Ratio Perm | | 0.15 | | 0.00 | | |
| v/c Ratio | 0.33 | 0.85 | | 0.18 | 0.29 | 0.01 |
| Uniform Delay, d1 | 31.4 | 2.7 | | 31.3 | 1.3 | 1.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.9 | 4.6 | | 3.0 | 0.1 | 0.0 |
| Delay (s) | 37.3 | 7.4 | | 34.4 | 1.4 | 1.0 |
| Level of Service | D | A | | C | A | A |
| Approach Delay (s) | 7.6 | | | 34.4 | 1.4 | |
| Approach LOS | A | | | C | A | |

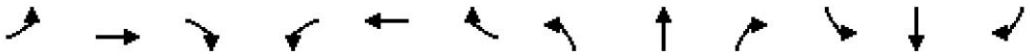
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 64.8 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 93.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 22 | 479 | 0 | 0 | 164 | 204 | 2 | 25 | 2 | 202 | 2 | 16 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 24 | 532 | 0 | 0 | 182 | 227 | 2 | 28 | 2 | 224 | 2 | 18 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 557 | 409 | 32 | 244 |
| Volume Left (vph) | 24 | 0 | 2 | 224 |
| Volume Right (vph) | 0 | 227 | 2 | 18 |
| Hadj (s) | 0.01 | -0.32 | -0.03 | 0.16 |
| Departure Headway (s) | 5.6 | 5.5 | 7.3 | 6.7 |
| Degree Utilization, x | 0.86 | 0.62 | 0.07 | 0.46 |
| Capacity (veh/h) | 635 | 622 | 417 | 503 |
| Control Delay (s) | 33.3 | 17.2 | 10.8 | 15.2 |
| Approach Delay (s) | 33.3 | 17.2 | 10.8 | 15.2 |
| Approach LOS | D | C | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 23.9 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 71.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 21 | 601 | 6 | 3 | 362 | 149 | 3 | 3 | 5 | 105 | 0 | 11 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 25 | 715 | 7 | 4 | 431 | 177 | 4 | 4 | 6 | 125 | 0 | 13 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 748 | 612 | 13 | 138 |
| Volume Left (vph) | 25 | 4 | 4 | 125 |
| Volume Right (vph) | 7 | 177 | 6 | 13 |
| Hadj (s) | 0.02 | -0.15 | -0.22 | 0.15 |
| Departure Headway (s) | 5.3 | 5.2 | 7.3 | 7.1 |
| Degree Utilization, x | 1.11 | 0.89 | 0.03 | 0.27 |
| Capacity (veh/h) | 667 | 682 | 461 | 487 |
| Control Delay (s) | 90.4 | 35.2 | 10.5 | 12.7 |
| Approach Delay (s) | 90.4 | 35.2 | 10.5 | 12.7 |
| Approach LOS | F | E | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 60.2 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 69.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 56 | 593 | 24 | 18 | 517 | 74 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 62 | 659 | 27 | 20 | 574 | 82 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 721 | 47 | 657 |
| Volume Left (vph) | 0 | 27 | 574 |
| Volume Right (vph) | 659 | 0 | 82 |
| Hadj (s) | -0.55 | 0.11 | 0.13 |
| Departure Headway (s) | 5.3 | 7.1 | 6.0 |
| Degree Utilization, x | 1.07 | 0.09 | 1.10 |
| Capacity (veh/h) | 686 | 500 | 602 |
| Control Delay (s) | 76.9 | 10.8 | 89.4 |
| Approach Delay (s) | 76.9 | 10.8 | 89.4 |
| Approach LOS | F | B | F |

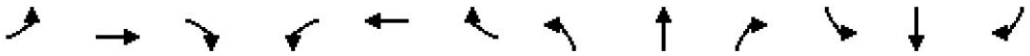
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 80.5 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 83.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 51 | 32 | 226 | 54 | 34 | 176 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 55 | 35 | 246 | 59 | 37 | 191 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 90 | | 623 | 73 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 90 | | 623 | 73 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 84 | | 90 | 81 |
| cM capacity (veh/h) | | | 1518 | | 376 | 995 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 90 | 304 | 228 |
| Volume Left | 0 | 246 | 37 |
| Volume Right | 35 | 0 | 191 |
| cSH | 1700 | 1518 | 785 |
| Volume to Capacity | 0.05 | 0.16 | 0.29 |
| Queue Length 95th (ft) | 0 | 14 | 30 |
| Control Delay (s) | 0.0 | 6.6 | 11.5 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 6.6 | 11.5 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.4 | | |
| Intersection Capacity Utilization | 43.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 3 | 2 | 4 | 4 | 1 | 7 | 1 | 200 | 11 | 14 | 268 | 11 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 3 | 2 | 4 | 4 | 1 | 7 | 1 | 204 | 11 | 14 | 273 | 11 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 9 | 12 | 216 | 299 |
| Volume Left (vph) | 3 | 4 | 1 | 14 |
| Volume Right (vph) | 4 | 7 | 11 | 11 |
| Hadj (s) | -0.20 | -0.28 | -0.01 | 0.00 |
| Departure Headway (s) | 4.8 | 4.7 | 4.2 | 4.2 |
| Degree Utilization, x | 0.01 | 0.02 | 0.25 | 0.35 |
| Capacity (veh/h) | 665 | 675 | 831 | 843 |
| Control Delay (s) | 7.9 | 7.8 | 8.7 | 9.4 |
| Approach Delay (s) | 7.9 | 7.8 | 8.7 | 9.4 |
| Approach LOS | A | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 9.0 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 36.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix C

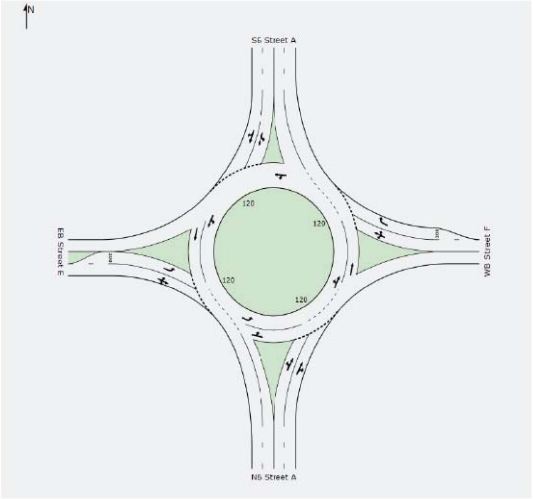
## Intersection LOS Worksheets
## for Existing Plus Phase 1 Conditions

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**Title:** Intersection 1 - Existing Plus Phase 1 - AM Peak Hour
**Intersection Type:** Roundabout

**Lane Use & Performance**

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street A | | | | | | | | | | |
| Lane 1 | 325 | 0.0 | 822 | 0.395 | 100 | 8.0 | LOS A | 1.9 | 48.3 | 0.0 |
| Lane 2 | 335 | 0.0 | 849 | 0.395 | 100 | 6.8 | LOS A | 1.9 | 48.6 | 0.0 |
| Approach | 660 | 0.0 | | 0.395 | | 7.4 | LOS A | 1.9 | 48.6 | |
| East: WB Street F | | | | | | | | | | |
| Lane 1 | 80 | 0.0 | 740 | 0.108 | 100 | 11.0 | LOS B | 0.4 | 10.2 | 0.0 |
| Lane 2 | 20 | 0.0 | 406 | 0.049 | 45 | 11.0 | LOS B | 0.2 | 3.9 | 0.0 |
| Approach | 100 | 0.0 | | 0.108 | | 11.0 | LOS B | 0.4 | 10.2 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 968 | 0.0 | 1305 | 0.742 | 100 | 6.4 | LOS A | 8.2 | 204.1 | 0.0 |
| Lane 2 | 1082 | 0.0 | 1459 | 0.742 | 100 | 7.0 | LOS A | 8.2 | 205.3 | 0.0 |
| Approach | 2050 | 0.0 | | 0.742 | | 6.7 | LOS A | 8.2 | 205.3 | |
| West: EB Street E | | | | | | | | | | |
| Lane 1 | 319 | 0.0 | 553 | 0.577 | 100 | 21.1 | LOS C | 4.0 | 98.8 | 0.0 |
| Lane 2 | 351 | 0.0 | 608 | 0.577 | 100 | 18.8 | LOS B | 4.1 | 103.3 | 0.0 |
| Approach | 670 | 0.0 | | 0.577 | | 19.9 | LOS B | 4.1 | 103.3 | |
| All Vehicles | 3480 | | | 0.742 | | 9.5 | LOS A | 8.2 | 205.3 | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 60 | 60 | 110 | 170 | 320 | 200 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 65 | 65 | 120 | 185 | 348 | 217 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 65 | 65 | 120 | 185 | 348 | 217 |
| Volume Left (vph) | 0 | 0 | 120 | 0 | 348 | 0 |
| Volume Right (vph) | 0 | 65 | 0 | 0 | 0 | 217 |
| Hadj (s) | 0.00 | -0.70 | 0.50 | 0.00 | 0.50 | -0.70 |
| Departure Headway (s) | 6.5 | 5.8 | 6.8 | 6.3 | 6.2 | 5.0 |
| Degree Utilization, x | 0.12 | 0.11 | 0.22 | 0.32 | 0.60 | 0.30 |
| Capacity (veh/h) | 513 | 573 | 506 | 549 | 557 | 689 |
| Control Delay (s) | 9.2 | 8.3 | 10.5 | 11.0 | 17.0 | 9.0 |
| Approach Delay (s) | 8.8 | | 10.8 | | 13.9 | |
| Approach LOS | A | | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 12.3 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 37.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

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# LANE OUTPUT

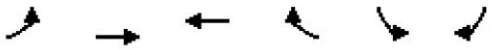
*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 3 - Existing Plus Phase 1 - AM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 150 | 0.0 | 1274 | 0.118 | 100 | 5.7 | LOS A | 0.6 | 15.4 | 0.0 |
| Lane 2 | 150 | 0.0 | 1279 | 0.118 | 100 | 6.6 | LOS A | 0.6 | 15.4 | 0.0 |
| Approach | 300 | 0.0 | | 0.118 | | 6.2 | LOS A | 0.6 | 15.4 | |
| East: WB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 100 | 0.0 | 955 | 0.105 | 100 | 13.2 | LOS B | 0.4 | 10.5 | 0.0 |
| Lane 2 | 160 | 0.0 | 1060 | 0.151 | 100 | 7.3 | LOS A | 0.6 | 15.9 | 0.0 |
| Approach | 260 | 0.0 | | 0.151 | | 9.5 | LOS A | 0.6 | 15.9 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 70 | 0.0 | 938 | 0.075 | 100 | 12.7 | LOS B | 0.3 | 8.1 | 0.0 |
| Lane 2 | 190 | 0.0 | 1295 | 0.147 | 100 | 6.1 | LOS A | 0.7 | 17.7 | 0.0 |
| Approach | 260 | 0.0 | | 0.147 | | 7.9 | LOS A | 0.7 | 17.7 | |
| All Vehicles | 820 | | | 0.151 | | 7.8 | LOS A | 0.7 | 17.7 | |

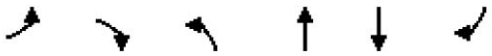




| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 110 | 250 | 30 | 30 | 10 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 120 | 272 | 33 | 33 | 11 |
| Pedestrians | | 5 | 5 | | 5 | |
| Lane Width (ft) | | 12.0 | 12.0 | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | 4.0 | | 4.0 | |
| Percent Blockage | | 0 | 0 | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 309 | | | | 439 | 298 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 309 | | | | 439 | 298 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 94 | 99 |
| cM capacity (veh/h) | 1257 | | | | 569 | 740 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 130 | 304 | 43 |
| Volume Left | 11 | 0 | 33 |
| Volume Right | 0 | 33 | 11 |
| cSH | 1257 | 1700 | 604 |
| Volume to Capacity | 0.01 | 0.18 | 0.07 |
| Queue Length 95th (ft) | 1 | 0 | 6 |
| Control Delay (s) | 0.7 | 0.0 | 11.4 |
| Lane LOS | A | | B |
| Approach Delay (s) | 0.7 | 0.0 | 11.4 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.2 | | |
| Intersection Capacity Utilization | 26.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 20 | 100 | 230 | 600 | 270 | 40 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 22 | 112 | 258 | 674 | 303 | 45 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1522 | 331 | 348 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1522 | 331 | 348 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 78 | 84 | 79 | | | |
| cM capacity (veh/h) | 103 | 712 | 1222 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 135 | 933 | 348 |
| Volume Left | 22 | 258 | 0 |
| Volume Right | 112 | 0 | 45 |
| cSH | 360 | 1222 | 1700 |
| Volume to Capacity | 0.38 | 0.21 | 0.20 |
| Queue Length 95th (ft) | 42 | 20 | 0 |
| Control Delay (s) | 20.9 | 4.6 | 0.0 |
| Lane LOS | C | A | |
| Approach Delay (s) | 20.9 | 4.6 | 0.0 |
| Approach LOS | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.0 | | |
| Intersection Capacity Utilization | 78.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 30 | 0 | 30 | 5 | 0 | 5 | 10 | 760 | 0 | 0 | 550 | 20 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 34 | 0 | 34 | 6 | 0 | 6 | 11 | 864 | 0 | 0 | 625 | 23 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1527 | 1521 | 635 | 1555 | 1544 | 874 | 653 | | | 869 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1527 | 1521 | 635 | 1555 | 1544 | 874 | 653 | | | 869 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 63 | 100 | 93 | 93 | 100 | 98 | 99 | | | 100 | | |
| cM capacity (veh/h) | 93 | 117 | 478 | 84 | 114 | 349 | 940 | | | 781 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 68 | 11 | 11 | 864 | 0 | 0 | 625 | 23 |
| Volume Left | 34 | 6 | 11 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 34 | 6 | 0 | 0 | 0 | 0 | 0 | 23 |
| cSH | 156 | 136 | 940 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.44 | 0.08 | 0.01 | 0.51 | 0.00 | 0.00 | 0.37 | 0.01 |
| Queue Length 95th (ft) | 49 | 7 | 1 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 44.8 | 34.0 | 8.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | E | D | A | | | | | |
| Approach Delay (s) | 44.8 | 34.0 | 0.1 | | | 0.0 | | |
| Approach LOS | E | D | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.2 | | | |
| Intersection Capacity Utilization | 51.0% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 10 | 30 | 10 | 10 | 10 | 50 | 580 | 10 | 10 | 430 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1769 | | | 1766 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Flt Permitted | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1769 | | | 1766 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 119 | 12 | 36 | 12 | 12 | 12 | 60 | 690 | 12 | 12 | 512 | 95 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 26 |
| Lane Group Flow (vph) | 0 | 161 | 0 | 0 | 25 | 0 | 60 | 701 | 0 | 12 | 512 | 69 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 45.2 | | | 5.0 | | 8.2 | 50.8 | | 3.0 | 45.6 | 45.6 |
| Effective Green, g (s) | | 45.2 | | | 5.0 | | 8.2 | 50.8 | | 3.0 | 45.6 | 45.6 |
| Actuated g/C Ratio | | 0.38 | | | 0.04 | | 0.07 | 0.42 | | 0.02 | 0.38 | 0.38 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 666 | | | 74 | | 123 | 802 | | 45 | 722 | 593 |
| v/s Ratio Prot | | c0.09 | | | c0.01 | | c0.03 | c0.37 | | 0.01 | 0.27 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.04 |
| v/c Ratio | | 0.24 | | | 0.33 | | 0.49 | 0.87 | | 0.27 | 0.71 | 0.12 |
| Uniform Delay, d1 | | 25.6 | | | 55.9 | | 53.9 | 31.7 | | 57.4 | 31.6 | 24.1 |
| Progression Factor | | 0.78 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.5 | | | 2.6 | | 3.0 | 10.5 | | 3.2 | 3.2 | 0.1 |
| Delay (s) | | 20.5 | | | 58.5 | | 56.9 | 42.1 | | 60.6 | 34.8 | 24.2 |
| Level of Service | | C | | | E | | E | D | | E | C | C |
| Approach Delay (s) | | 20.5 | | | 58.5 | | | 43.3 | | | 33.7 | |
| Approach LOS | | C | | | E | | | D | | | C | |

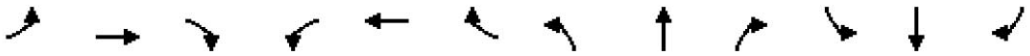
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 67.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 130 | 30 | 10 | 70 | 60 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Hourly flow rate (vph) | 12 | 160 | 37 | 12 | 86 | 74 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 257 | 5 | 345 | 183 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 257 | 5 | 345 | 183 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 98 | 85 | 92 | 98 | 95 | |
| cM capacity (veh/h) | 611 | 1080 | 488 | 671 | 1623 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 12 | 160 | 49 | 86 | 74 |
| Volume Left | 0 | 0 | 37 | 86 | 0 |
| Volume Right | 0 | 160 | 0 | 0 | 74 |
| cSH | 611 | 1080 | 524 | 1623 | 1700 |
| Volume to Capacity | 0.02 | 0.15 | 0.09 | 0.05 | 0.04 |
| Queue Length 95th (ft) | 2 | 13 | 8 | 4 | 0 |
| Control Delay (s) | 11.0 | 8.9 | 12.6 | 7.3 | 0.0 |
| Lane LOS | B | A | B | A | |
| Approach Delay (s) | 9.1 | | 12.6 | 4.0 | |
| Approach LOS | A | | B | | |

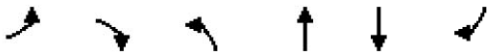
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.4 | | |
| Intersection Capacity Utilization | 19.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 10 | 10 | 20 | 10 | 100 | 10 | 500 | 130 | 220 | 240 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 0 | 12 | 12 | 24 | 12 | 119 | 12 | 595 | 155 | 262 | 286 | 12 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1570 | 1599 | 302 | 1534 | 1528 | 683 | 303 | | | 755 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1570 | 1599 | 302 | 1534 | 1528 | 683 | 303 | | | 755 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 84 | 98 | 62 | 85 | 73 | 99 | | | 70 | | |
| cM capacity (veh/h) | 45 | 73 | 737 | 62 | 81 | 449 | 1265 | | | 861 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 24 | 155 | 12 | 750 | 262 | 298 |
| Volume Left | 0 | 24 | 12 | 0 | 262 | 0 |
| Volume Right | 12 | 119 | 0 | 155 | 0 | 12 |
| cSH | 133 | 195 | 1265 | 1700 | 861 | 1700 |
| Volume to Capacity | 0.18 | 0.79 | 0.01 | 0.44 | 0.30 | 0.18 |
| Queue Length 95th (ft) | 16 | 138 | 1 | 0 | 32 | 0 |
| Control Delay (s) | 37.8 | 70.5 | 7.9 | 0.0 | 11.0 | 0.0 |
| Lane LOS | E | F | A | | B | |
| Approach Delay (s) | 37.8 | 70.5 | 0.1 | | 5.1 | |
| Approach LOS | E | F | | | | |

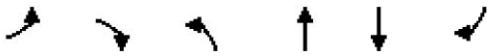
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 9.9 | | | |
| Intersection Capacity Utilization | 70.9% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 190 | 190 | 60 | 470 | 280 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.93 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.98 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1729 | | 1805 | 1900 | 1900 | 1615 |
| Flt Permitted | 0.98 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1729 | | 1805 | 1900 | 1900 | 1615 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 224 | 224 | 71 | 553 | 329 | 35 |
| RTOR Reduction (vph) | 60 | 0 | 0 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 388 | 0 | 71 | 553 | 329 | 23 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 5 | 2 | 6 | 4 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 14.6 | | 3.4 | 22.5 | 15.1 | 29.7 |
| Effective Green, g (s) | 14.6 | | 3.4 | 22.5 | 15.1 | 29.7 |
| Actuated g/C Ratio | 0.32 | | 0.08 | 0.50 | 0.33 | 0.66 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 560 | | 136 | 948 | 636 | 1207 |
| v/s Ratio Prot | c0.22 | | 0.04 | c0.29 | 0.17 | 0.01 |
| v/s Ratio Perm | | | | | | 0.01 |
| v/c Ratio | 0.69 | | 0.52 | 0.58 | 0.52 | 0.02 |
| Uniform Delay, d1 | 13.3 | | 20.1 | 8.0 | 12.1 | 2.7 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.7 | | 3.6 | 0.9 | 0.7 | 0.0 |
| Delay (s) | 17.0 | | 23.7 | 8.9 | 12.8 | 2.7 |
| Level of Service | B | | C | A | B | A |
| Approach Delay (s) | 17.0 | | | 10.6 | 11.8 | |
| Approach LOS | B | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 45.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

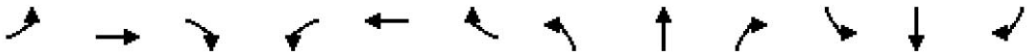
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 260 | 930 | 90 | 120 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1592 | 3502 | 5187 | 5187 | 1591 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1592 | 3502 | 5187 | 5187 | 1591 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 22 | 280 | 1000 | 97 | 129 | 65 |
| RTOR Reduction (vph) | 0 | 232 | 0 | 0 | 0 | 55 |
| Lane Group Flow (vph) | 22 | 48 | 1000 | 97 | 129 | 10 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 7.7 | 7.7 | 18.0 | 29.1 | 7.1 | 7.1 |
| Effective Green, g (s) | 7.7 | 7.7 | 18.0 | 29.1 | 7.1 | 7.1 |
| Actuated g/C Ratio | 0.17 | 0.17 | 0.40 | 0.65 | 0.16 | 0.16 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 310 | 274 | 1407 | 3369 | 822 | 252 |
| v/s Ratio Prot | 0.01 | | c0.29 | 0.02 | c0.02 | |
| v/s Ratio Perm | | c0.03 | | | | 0.01 |
| v/c Ratio | 0.07 | 0.18 | 0.71 | 0.03 | 0.16 | 0.04 |
| Uniform Delay, d1 | 15.6 | 15.8 | 11.2 | 2.8 | 16.3 | 16.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.1 | 0.3 | 1.7 | 0.0 | 0.1 | 0.1 |
| Delay (s) | 15.6 | 16.1 | 12.9 | 2.8 | 16.4 | 16.0 |
| Level of Service | B | B | B | A | B | B |
| Approach Delay (s) | 16.1 | | | 12.0 | 16.2 | |
| Approach LOS | B | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 44.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 48.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 0 | 1580 | 0 | 0 | 0 | 0 | 1030 | 140 | 0 | 370 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 0.88 | | | | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 0.99 | | | | | 1.00 | 0.99 | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 2804 | | | | | 5187 | 1591 | | 5187 | 1575 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 2804 | | | | | 5187 | 1591 | | 5187 | 1575 |
| Peak-hour factor, PHF | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 |
| Adj. Flow (vph) | 80 | 0 | 2107 | 0 | 0 | 0 | 0 | 1373 | 187 | 0 | 493 | 13 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 0 | 0 | 4 |
| Lane Group Flow (vph) | 80 | 0 | 2107 | 0 | 0 | 0 | 0 | 1373 | 133 | 0 | 493 | 9 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | custom | | Free | | | | | | Perm | | | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | Free | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 4.4 | | 42.8 | | | | | 30.4 | 30.4 | | 30.4 | 30.4 |
| Effective Green, g (s) | 4.4 | | 42.8 | | | | | 30.4 | 30.4 | | 30.4 | 30.4 |
| Actuated g/C Ratio | 0.10 | | 1.00 | | | | | 0.71 | 0.71 | | 0.71 | 0.71 |
| Clearance Time (s) | 4.0 | | | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 186 | | 2804 | | | | | 3684 | 1130 | | 3684 | 1119 |
| v/s Ratio Prot | | | | | | | | 0.26 | | | 0.10 | |
| v/s Ratio Perm | 0.04 | | c0.75 | | | | | | 0.08 | | | 0.01 |
| v/c Ratio | 0.43 | | 0.75 | | | | | 0.37 | 0.12 | | 0.13 | 0.01 |
| Uniform Delay, d1 | 18.0 | | 0.0 | | | | | 2.4 | 2.0 | | 2.0 | 1.8 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.6 | | 1.9 | | | | | 0.1 | 0.0 | | 0.0 | 0.0 |
| Delay (s) | 19.6 | | 1.9 | | | | | 2.5 | 2.0 | | 2.0 | 1.8 |
| Level of Service | B | | A | | | | | A | A | | A | A |
| Approach Delay (s) | | 2.6 | | | 0.0 | | | 2.4 | | | 2.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 2.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 42.8 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 31.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

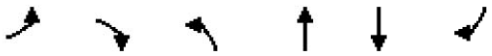
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 60 | 460 | 50 | 280 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1574 | 1900 | 1591 | 1805 | 1900 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1574 | 1900 | 1591 | 1805 | 1900 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 11 | 65 | 500 | 54 | 304 | 217 |
| RTOR Reduction (vph) | 0 | 60 | 0 | 25 | 0 | 0 |
| Lane Group Flow (vph) | 11 | 5 | 500 | 29 | 304 | 217 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | | |
| Turn Type | | Perm | | Perm | Prot | |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 3.7 | 3.7 | 17.8 | 17.8 | 13.2 | 35.0 |
| Effective Green, g (s) | 3.7 | 3.7 | 17.8 | 17.8 | 13.2 | 35.0 |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.38 | 0.38 | 0.28 | 0.75 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 143 | 125 | 724 | 606 | 510 | 1424 |
| v/s Ratio Prot | c0.01 | | c0.26 | | c0.17 | 0.11 |
| v/s Ratio Perm | | 0.00 | | 0.02 | | |
| v/c Ratio | 0.08 | 0.04 | 0.69 | 0.05 | 0.60 | 0.15 |
| Uniform Delay, d1 | 19.9 | 19.9 | 12.1 | 9.1 | 14.5 | 1.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.1 | 2.8 | 0.0 | 1.9 | 0.0 |
| Delay (s) | 20.1 | 20.0 | 15.0 | 9.1 | 16.3 | 1.7 |
| Level of Service | C | B | B | A | B | A |
| Approach Delay (s) | 20.0 | | 14.4 | | | 10.2 |
| Approach LOS | C | | B | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 46.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 57.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

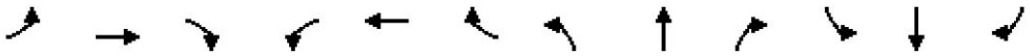
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 100 | 120 | 150 | 1190 | 2020 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1591 | 1805 | 3610 | 5187 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1591 | 1805 | 3610 | 5187 | 1589 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 115 | 138 | 172 | 1368 | 2322 | 57 |
| RTOR Reduction (vph) | 0 | 118 | 0 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 115 | 20 | 172 | 1368 | 2322 | 47 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 9.6 | 9.6 | 8.0 | 49.1 | 37.1 | 37.1 |
| Effective Green, g (s) | 9.6 | 9.6 | 8.0 | 49.1 | 37.1 | 37.1 |
| Actuated g/C Ratio | 0.14 | 0.14 | 0.12 | 0.74 | 0.56 | 0.56 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 260 | 229 | 216 | 2657 | 2885 | 884 |
| v/s Ratio Prot | c0.06 | | c0.10 | 0.38 | c0.45 | |
| v/s Ratio Perm | | 0.01 | | | | 0.03 |
| v/c Ratio | 0.44 | 0.09 | 0.80 | 0.51 | 0.80 | 0.05 |
| Uniform Delay, d1 | 26.1 | 24.7 | 28.6 | 3.7 | 11.9 | 6.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.2 | 0.2 | 18.1 | 0.2 | 1.7 | 0.0 |
| Delay (s) | 27.3 | 24.9 | 46.7 | 3.9 | 13.6 | 6.8 |
| Level of Service | C | C | D | A | B | A |
| Approach Delay (s) | 26.0 | | | 8.7 | 13.4 | |
| Approach LOS | C | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 66.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

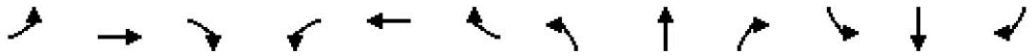
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 210 | 50 | 20 | 410 | 0 | 170 | 0 | 30 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 0 | 253 | 60 | 24 | 494 | 0 | 205 | 0 | 36 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 499 | | | 318 | | | 835 | 835 | 293 | 835 | 865 | 504 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 499 | | | 318 | | | 835 | 835 | 293 | 835 | 865 | 504 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 98 | | | 27 | 100 | 95 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1071 | | | 1248 | | | 281 | 297 | 745 | 267 | 286 | 567 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 313 | 518 | 205 | 36 | 0 |
| Volume Left | 0 | 24 | 205 | 0 | 0 |
| Volume Right | 60 | 0 | 0 | 36 | 0 |
| cSH | 1071 | 1248 | 281 | 745 | 1700 |
| Volume to Capacity | 0.00 | 0.02 | 0.73 | 0.05 | 0.00 |
| Queue Length 95th (ft) | 0 | 1 | 130 | 4 | 0 |
| Control Delay (s) | 0.0 | 0.6 | 45.9 | 10.1 | 0.0 |
| Lane LOS | | A | E | B | A |
| Approach Delay (s) | 0.0 | 0.6 | 40.5 | | 0.0 |
| Approach LOS | | | E | | A |

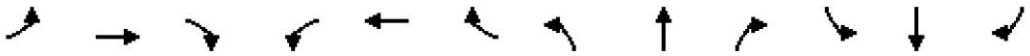
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 9.4 | | | |
| Intersection Capacity Utilization | 53.9% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 90 | 60 | 30 | 170 | 20 | 90 | 560 | 50 | 30 | 400 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1766 | | 1805 | 1865 | | 1805 | 1873 | | 1805 | 1793 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1766 | | 1805 | 1865 | | 1805 | 1873 | | 1805 | 1793 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 69 | 103 | 69 | 34 | 195 | 23 | 103 | 644 | 57 | 34 | 460 | 218 |
| RTOR Reduction (vph) | 0 | 32 | 0 | 0 | 6 | 0 | 0 | 3 | 0 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 69 | 140 | 0 | 34 | 212 | 0 | 103 | 698 | 0 | 34 | 661 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 6.7 | 16.3 | | 3.5 | 13.1 | | 6.7 | 34.6 | | 2.5 | 30.4 | |
| Effective Green, g (s) | 6.7 | 16.3 | | 3.5 | 13.1 | | 6.7 | 34.6 | | 2.5 | 30.4 | |
| Actuated g/C Ratio | 0.09 | 0.22 | | 0.05 | 0.18 | | 0.09 | 0.47 | | 0.03 | 0.42 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 166 | 395 | | 87 | 335 | | 166 | 889 | | 62 | 748 | |
| v/s Ratio Prot | c0.04 | 0.08 | | 0.02 | c0.11 | | 0.06 | c0.37 | | 0.02 | c0.37 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.42 | 0.35 | | 0.39 | 0.63 | | 0.62 | 0.78 | | 0.55 | 0.88 | |
| Uniform Delay, d1 | 31.3 | 23.9 | | 33.7 | 27.7 | | 31.9 | 16.0 | | 34.6 | 19.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.7 | 0.6 | | 2.9 | 3.9 | | 7.0 | 4.6 | | 9.6 | 12.0 | |
| Delay (s) | 32.9 | 24.4 | | 36.6 | 31.6 | | 38.9 | 20.6 | | 44.2 | 31.6 | |
| Level of Service | C | C | | D | C | | D | C | | D | C | |
| Approach Delay (s) | | 26.9 | | | 32.2 | | | 23.0 | | | 32.2 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 72.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

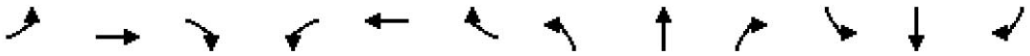
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 80 | 10 | 30 | 10 | 10 | 10 | 20 | 370 | 10 | 10 | 190 | 60 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 100 | 12 | 38 | 12 | 12 | 12 | 25 | 462 | 12 | 12 | 238 | 75 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 113 | 38 | 38 | 488 | 13 | 325 |
| Volume Left (vph) | 100 | 0 | 13 | 25 | 0 | 13 |
| Volume Right (vph) | 0 | 38 | 13 | 0 | 13 | 75 |
| Hadj (s) | 0.44 | -0.70 | -0.13 | 0.03 | -0.70 | -0.13 |
| Departure Headway (s) | 7.2 | 6.1 | 7.0 | 5.6 | 4.9 | 5.7 |
| Degree Utilization, x | 0.23 | 0.06 | 0.07 | 0.76 | 0.02 | 0.52 |
| Capacity (veh/h) | 456 | 533 | 452 | 631 | 717 | 606 |
| Control Delay (s) | 11.1 | 8.3 | 10.6 | 22.6 | 6.7 | 14.8 |
| Approach Delay (s) | 10.4 | | 10.6 | 22.2 | | 14.8 |
| Approach LOS | B | | B | C | | B |

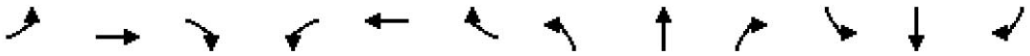
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 17.6 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 45.6% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 240 | 210 | 40 | 260 | 20 | 220 | 130 | 40 | 30 | 50 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.98 | |
| Satd. Flow (prot) | 1805 | 3316 | | 1805 | 1900 | 1571 | | 1842 | 1589 | | 1835 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.98 | |
| Satd. Flow (perm) | 1805 | 3316 | | 1805 | 1900 | 1571 | | 1842 | 1589 | | 1835 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 13 | 312 | 273 | 52 | 338 | 26 | 286 | 169 | 52 | 39 | 65 | 13 |
| RTOR Reduction (vph) | 0 | 161 | 0 | 0 | 0 | 19 | 0 | 0 | 34 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 13 | 424 | 0 | 52 | 338 | 7 | 0 | 455 | 18 | 0 | 112 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.1 | 16.2 | | 6.0 | 21.1 | 21.1 | | 24.8 | 24.8 | | 10.4 | |
| Effective Green, g (s) | 1.1 | 16.2 | | 6.0 | 21.1 | 21.1 | | 24.8 | 24.8 | | 10.4 | |
| Actuated g/C Ratio | 0.01 | 0.22 | | 0.08 | 0.29 | 0.29 | | 0.34 | 0.34 | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 27 | 732 | | 148 | 546 | 452 | | 622 | 537 | | 260 | |
| v/s Ratio Prot | 0.01 | 0.13 | | c0.03 | c0.18 | | | c0.25 | | | c0.06 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.01 | | | |
| v/c Ratio | 0.48 | 0.58 | | 0.35 | 0.62 | 0.02 | | 0.73 | 0.03 | | 0.43 | |
| Uniform Delay, d1 | 35.9 | 25.6 | | 31.9 | 22.7 | 18.7 | | 21.4 | 16.3 | | 28.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 12.9 | 1.1 | | 1.4 | 2.1 | 0.0 | | 4.4 | 0.0 | | 1.1 | |
| Delay (s) | 48.8 | 26.7 | | 33.3 | 24.8 | 18.7 | | 25.8 | 16.3 | | 29.9 | |
| Level of Service | D | C | | C | C | B | | C | B | | C | |
| Approach Delay (s) | | 27.2 | | | 25.5 | | | 24.8 | | | 29.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 73.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

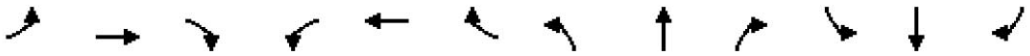


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 170 | 60 | 30 | 120 | 30 | 120 | 560 | 80 | 20 | 320 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3455 | | 1805 | 3486 | | 1805 | 3610 | 1596 | 1805 | 4969 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3455 | | 1805 | 3486 | | 1805 | 3610 | 1596 | 1805 | 4969 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 129 | 200 | 71 | 35 | 141 | 35 | 141 | 659 | 94 | 24 | 376 | 129 |
| RTOR Reduction (vph) | 0 | 48 | 0 | 0 | 30 | 0 | 0 | 0 | 49 | 0 | 70 | 0 |
| Lane Group Flow (vph) | 129 | 223 | 0 | 35 | 146 | 0 | 141 | 659 | 45 | 24 | 435 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.9 | 11.5 | | 5.5 | 8.1 | | 11.7 | 20.7 | 26.2 | 1.1 | 10.1 | |
| Effective Green, g (s) | 8.9 | 11.5 | | 5.5 | 8.1 | | 11.7 | 20.7 | 26.2 | 1.1 | 10.1 | |
| Actuated g/C Ratio | 0.16 | 0.21 | | 0.10 | 0.15 | | 0.21 | 0.38 | 0.48 | 0.02 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 293 | 725 | | 181 | 515 | | 385 | 1364 | 880 | 36 | 916 | |
| v/s Ratio Prot | c0.07 | c0.06 | | 0.02 | c0.04 | | 0.08 | c0.18 | 0.01 | 0.01 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | |
| v/c Ratio | 0.44 | 0.31 | | 0.19 | 0.28 | | 0.37 | 0.48 | 0.05 | 0.67 | 0.47 | |
| Uniform Delay, d1 | 20.7 | 18.3 | | 22.6 | 20.8 | | 18.4 | 13.0 | 7.6 | 26.7 | 20.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.1 | 0.2 | | 0.5 | 0.3 | | 0.6 | 0.3 | 0.0 | 38.0 | 0.4 | |
| Delay (s) | 21.8 | 18.5 | | 23.1 | 21.1 | | 19.0 | 13.2 | 7.7 | 64.7 | 20.4 | |
| Level of Service | C | B | | C | C | | B | B | A | E | C | |
| Approach Delay (s) | | 19.6 | | | 21.4 | | | 13.6 | | | 22.4 | |
| Approach LOS | | B | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 54.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 52.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

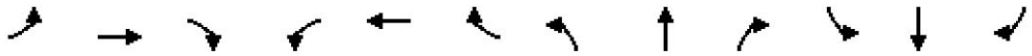
## HCM Unsignalized Intersection Capacity Analysis
## 27: Cactus Ave & Redlands Blvd



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 150 | 60 | 50 | 110 | 10 | 40 | 30 | 210 | 280 | 60 | 180 | 90 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Hourly flow rate (vph) | 205 | 82 | 68 | 151 | 14 | 55 | 41 | 288 | 384 | 82 | 247 | 123 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 247 | 110 | 219 | 185 | 527 | 205 | 247 |
| Volume Left (vph) | 205 | 0 | 151 | 41 | 0 | 82 | 0 |
| Volume Right (vph) | 0 | 68 | 55 | 0 | 384 | 0 | 123 |
| Hadj (s) | 0.42 | -0.44 | -0.01 | 0.11 | -0.51 | 0.20 | -0.35 |
| Departure Headway (s) | 8.7 | 7.9 | 8.4 | 7.9 | 7.2 | 8.3 | 7.7 |
| Degree Utilization, x | 0.60 | 0.24 | 0.51 | 0.41 | 1.06 | 0.47 | 0.53 |
| Capacity (veh/h) | 395 | 443 | 412 | 449 | 501 | 416 | 447 |
| Control Delay (s) | 22.6 | 12.1 | 20.1 | 14.9 | 83.4 | 17.2 | 17.8 |
| Approach Delay (s) | 19.4 | | 20.1 | 65.6 | | 17.5 | |
| Approach LOS | C | | C | F | | C | |

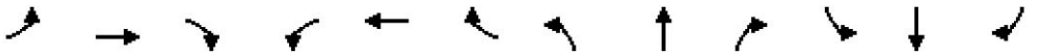
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 37.9 | | | |
| HCM Level of Service | E | | | |
| Intersection Capacity Utilization | 52.1% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 50 | 10 | 220 | 80 | 210 | 20 | 420 | 440 | 110 | 330 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3512 | | 1805 | 3185 | | 1805 | 5187 | 1602 | 1805 | 4960 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3512 | | 1805 | 3185 | | 1805 | 5187 | 1602 | 1805 | 4960 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 104 | 65 | 13 | 286 | 104 | 273 | 26 | 545 | 571 | 143 | 429 | 156 |
| RTOR Reduction (vph) | 0 | 12 | 0 | 0 | 223 | 0 | 0 | 0 | 299 | 0 | 54 | 0 |
| Lane Group Flow (vph) | 104 | 66 | 0 | 286 | 154 | 0 | 26 | 545 | 272 | 143 | 531 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.8 | 5.2 | | 11.2 | 9.6 | | 1.2 | 14.6 | 25.8 | 7.2 | 20.6 | |
| Effective Green, g (s) | 6.8 | 5.2 | | 11.2 | 9.6 | | 1.2 | 14.6 | 25.8 | 7.2 | 20.6 | |
| Actuated g/C Ratio | 0.13 | 0.10 | | 0.21 | 0.18 | | 0.02 | 0.27 | 0.48 | 0.13 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 226 | 337 | | 373 | 564 | | 40 | 1397 | 881 | 240 | 1885 | |
| v/s Ratio Prot | 0.06 | 0.02 | | c0.16 | c0.05 | | 0.01 | c0.11 | 0.06 | c0.08 | 0.11 | |
| v/s Ratio Perm | | | | | | | | | 0.11 | | | |
| v/c Ratio | 0.46 | 0.20 | | 0.77 | 0.27 | | 0.65 | 0.39 | 0.31 | 0.60 | 0.28 | |
| Uniform Delay, d1 | 22.0 | 22.6 | | 20.3 | 19.3 | | 26.3 | 16.2 | 8.7 | 22.1 | 11.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.5 | 0.3 | | 9.1 | 0.3 | | 32.0 | 0.2 | 0.2 | 3.9 | 0.1 | |
| Delay (s) | 23.5 | 22.9 | | 29.4 | 19.5 | | 58.2 | 16.3 | 8.9 | 26.1 | 11.7 | |
| Level of Service | C | C | | C | B | | E | B | A | C | B | |
| Approach Delay (s) | | 23.2 | | | 23.8 | | | 13.6 | | | 14.6 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 54.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 54.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

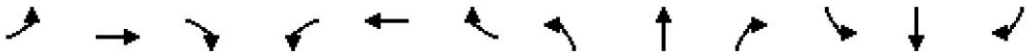
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 180 | 100 | 130 | 400 | 40 | 70 | 390 | 90 | 40 | 560 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1598 | 1805 | 3555 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1598 | 1805 | 3555 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 83 | 188 | 104 | 135 | 417 | 42 | 73 | 406 | 94 | 42 | 583 | 240 |
| RTOR Reduction (vph) | 0 | 0 | 80 | 0 | 8 | 0 | 0 | 0 | 30 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 83 | 188 | 24 | 135 | 451 | 0 | 73 | 406 | 64 | 42 | 583 | 150 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.2 | 17.0 | 27.2 | 13.4 | 21.2 | | 10.2 | 68.0 | 81.4 | 5.6 | 63.4 | 72.6 |
| Effective Green, g (s) | 9.2 | 17.0 | 27.2 | 13.4 | 21.2 | | 10.2 | 68.0 | 81.4 | 5.6 | 63.4 | 72.6 |
| Actuated g/C Ratio | 0.08 | 0.14 | 0.23 | 0.11 | 0.18 | | 0.08 | 0.57 | 0.68 | 0.05 | 0.53 | 0.60 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 138 | 511 | 362 | 202 | 628 | | 153 | 2046 | 1080 | 84 | 1907 | 963 |
| v/s Ratio Prot | 0.05 | 0.05 | 0.01 | c0.07 | c0.13 | | c0.04 | 0.11 | 0.01 | 0.02 | c0.16 | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.03 | | | 0.08 |
| v/c Ratio | 0.60 | 0.37 | 0.07 | 0.67 | 0.72 | | 0.48 | 0.20 | 0.06 | 0.50 | 0.31 | 0.16 |
| Uniform Delay, d1 | 53.6 | 46.6 | 36.4 | 51.2 | 46.6 | | 52.4 | 12.7 | 6.5 | 55.8 | 15.9 | 10.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.91 | 0.87 | 0.62 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.2 | 0.5 | 0.1 | 8.1 | 3.9 | | 2.3 | 0.2 | 0.0 | 4.6 | 0.4 | 0.1 |
| Delay (s) | 60.8 | 47.1 | 36.5 | 59.3 | 50.5 | | 49.9 | 11.3 | 4.0 | 60.5 | 16.3 | 10.4 |
| Level of Service | E | D | D | E | D | | D | B | A | E | B | B |
| Approach Delay (s) | | 47.2 | | | 52.5 | | | 15.0 | | | 16.8 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

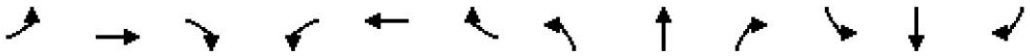
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 230 | 10 | 120 | 270 | 540 | 0 | 0 | 570 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3399 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3399 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 0 | 0 | 240 | 10 | 125 | 281 | 562 | 0 | 0 | 594 | 312 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 42 | 0 | 0 | 0 | 0 | 42 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 250 | 83 | 281 | 562 | 0 | 0 | 864 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 22.1 | 22.1 | 23.8 | 89.9 | | | 62.1 | |
| Effective Green, g (s) | | | | | 22.1 | 22.1 | 23.8 | 89.9 | | | 62.1 | |
| Actuated g/C Ratio | | | | | 0.18 | 0.18 | 0.20 | 0.75 | | | 0.52 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 334 | 292 | 358 | 2704 | | | 1759 | |
| v/s Ratio Prot | | | | | c0.14 | | c0.16 | 0.16 | | | c0.25 | |
| v/s Ratio Perm | | | | | | 0.05 | | | | | | |
| v/c Ratio | | | | | 0.75 | 0.29 | 0.78 | 0.21 | | | 0.49 | |
| Uniform Delay, d1 | | | | | 46.3 | 42.2 | 45.7 | 4.5 | | | 18.7 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.67 | |
| Incremental Delay, d2 | | | | | 8.9 | 0.5 | 10.8 | 0.2 | | | 1.0 | |
| Delay (s) | | | | | 55.2 | 42.7 | 56.4 | 4.6 | | | 13.4 | |
| Level of Service | | | | | E | D | E | A | | | B | |
| Approach Delay (s) | | 0.0 | | | 51.0 | | | 21.9 | | | 13.4 | |
| Approach LOS | | A | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

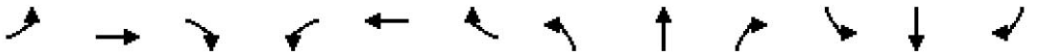
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 270 | 0 | 350 | 0 | 0 | 0 | 0 | 530 | 130 | 180 | 720 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1715 | 1592 | | | | | 5007 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1715 | 1592 | | | | | 5007 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 297 | 0 | 385 | 0 | 0 | 0 | 0 | 582 | 143 | 198 | 791 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 73 | 0 | 0 | 0 | 0 | 56 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 148 | 149 | 312 | 0 | 0 | 0 | 0 | 669 | 0 | 198 | 791 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 16.9 | 16.9 | 16.9 | | | | | 13.9 | | 10.0 | 27.9 | |
| Effective Green, g (s) | 16.9 | 16.9 | 16.9 | | | | | 13.9 | | 10.0 | 27.9 | |
| Actuated g/C Ratio | 0.32 | 0.32 | 0.32 | | | | | 0.26 | | 0.19 | 0.53 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 549 | 549 | 510 | | | | | 1318 | | 342 | 1908 | |
| v/s Ratio Prot | 0.09 | 0.09 | | | | | | c0.13 | | c0.11 | 0.22 | |
| v/s Ratio Perm | | | c0.20 | | | | | | | | | |
| v/c Ratio | 0.27 | 0.27 | 0.61 | | | | | 0.51 | | 0.58 | 0.41 | |
| Uniform Delay, d1 | 13.4 | 13.4 | 15.2 | | | | | 16.5 | | 19.5 | 7.5 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.3 | 2.2 | | | | | 0.3 | | 2.4 | 0.1 | |
| Delay (s) | 13.6 | 13.6 | 17.3 | | | | | 16.8 | | 21.9 | 7.7 | |
| Level of Service | B | B | B | | | | | B | | C | A | |
| Approach Delay (s) | | 15.7 | | | 0.0 | | | 16.8 | | | 10.5 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 52.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

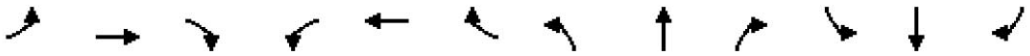


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 180 | 340 | 20 | 60 | 480 | 100 | 830 | 90 | 280 | 570 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.87 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1595 | 1805 | 3128 | | 1805 | 5102 | | 3502 | 3610 | 1594 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1595 | 1805 | 3128 | | 1805 | 5102 | | 3502 | 3610 | 1594 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 304 | 196 | 370 | 22 | 65 | 522 | 109 | 902 | 98 | 304 | 620 | 76 |
| RTOR Reduction (vph) | 0 | 0 | 118 | 0 | 198 | 0 | 0 | 10 | 0 | 0 | 0 | 32 |
| Lane Group Flow (vph) | 304 | 196 | 252 | 22 | 389 | 0 | 109 | 990 | 0 | 304 | 620 | 44 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 15.3 | 33.0 | 45.1 | 4.2 | 21.9 | | 12.1 | 52.4 | | 14.4 | 54.7 | 70.0 |
| Effective Green, g (s) | 15.3 | 33.0 | 45.1 | 4.2 | 21.9 | | 12.1 | 52.4 | | 14.4 | 54.7 | 70.0 |
| Actuated g/C Ratio | 0.13 | 0.28 | 0.38 | 0.04 | 0.18 | | 0.10 | 0.44 | | 0.12 | 0.46 | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 447 | 993 | 653 | 63 | 571 | | 182 | 2228 | | 420 | 1646 | 983 |
| v/s Ratio Prot | c0.09 | 0.05 | 0.04 | 0.01 | c0.12 | | 0.06 | c0.19 | | c0.09 | 0.17 | 0.01 |
| v/s Ratio Perm | | | 0.12 | | | | | | | | | 0.02 |
| v/c Ratio | 0.68 | 0.20 | 0.39 | 0.35 | 1.10dr | | 0.60 | 0.44 | | 0.72 | 0.38 | 0.05 |
| Uniform Delay, d1 | 50.0 | 33.3 | 27.3 | 56.6 | 45.8 | | 51.6 | 23.6 | | 50.9 | 21.4 | 10.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.29 | 0.46 | | 1.36 | 0.36 | 0.05 |
| Incremental Delay, d2 | 4.2 | 0.1 | 0.4 | 3.3 | 3.3 | | 4.8 | 0.6 | | 4.8 | 0.5 | 0.0 |
| Delay (s) | 54.2 | 33.4 | 27.7 | 59.9 | 49.1 | | 71.5 | 11.5 | | 73.9 | 8.1 | 0.5 |
| Level of Service | D | C | C | E | D | | E | B | | E | A | A |
| Approach Delay (s) | | 38.3 | | | 49.5 | | | 17.4 | | | 27.5 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 76.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

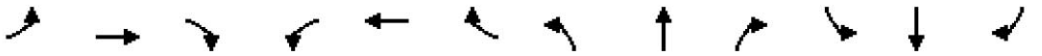
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 160 | 10 | 130 | 600 | 1060 | 0 | 0 | 840 | 400 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | | 0.97 | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.94 | | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1728 | | 3502 | 3610 | | | 4903 | |
| Flt Permitted | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1728 | | 3502 | 3610 | | | 4903 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 0 | 0 | 167 | 10 | 135 | 625 | 1104 | 0 | 0 | 875 | 417 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 67 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 288 | 0 | 625 | 1104 | 0 | 0 | 1225 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 24.1 | | 34.0 | 87.9 | | | 49.9 | |
| Effective Green, g (s) | | | | | 24.1 | | 34.0 | 87.9 | | | 49.9 | |
| Actuated g/C Ratio | | | | | 0.20 | | 0.28 | 0.73 | | | 0.42 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 347 | | 992 | 2644 | | | 2039 | |
| v/s Ratio Prot | | | | | c0.17 | | c0.18 | 0.31 | | | c0.25 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.83 | | 0.63 | 0.42 | | | 0.60 | |
| Uniform Delay, d1 | | | | | 46.0 | | 37.5 | 6.2 | | | 27.3 | |
| Progression Factor | | | | | 1.00 | | 0.90 | 0.53 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 15.4 | | 1.1 | 0.4 | | | 1.3 | |
| Delay (s) | | | | | 61.3 | | 35.0 | 3.7 | | | 28.6 | |
| Level of Service | | | | | E | | D | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 61.3 | | | 15.0 | | | 28.6 | |
| Approach LOS | | A | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 70.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 80 | 40 | 60 | 150 | 160 | 50 | 870 | 40 | 130 | 860 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 22 | 89 | 44 | 67 | 167 | 178 | 56 | 967 | 44 | 144 | 956 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 39 | 0 | 0 | 152 | 0 | 0 | 9 | 0 | 0 | 5 |
| Lane Group Flow (vph) | 22 | 89 | 5 | 67 | 167 | 26 | 56 | 967 | 35 | 144 | 956 | 17 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 4.2 | 14.9 | 14.9 | 7.0 | 17.7 | 17.7 | 7.2 | 67.3 | 67.3 | 14.8 | 74.9 | 74.9 |
| Effective Green, g (s) | 4.2 | 14.9 | 14.9 | 7.0 | 17.7 | 17.7 | 7.2 | 67.3 | 67.3 | 14.8 | 74.9 | 74.9 |
| Actuated g/C Ratio | 0.04 | 0.12 | 0.12 | 0.06 | 0.15 | 0.15 | 0.06 | 0.56 | 0.56 | 0.12 | 0.62 | 0.62 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 63 | 236 | 197 | 105 | 280 | 234 | 108 | 2025 | 879 | 223 | 2253 | 977 |
| v/s Ratio Prot | 0.01 | 0.05 | | c0.04 | c0.09 | | 0.03 | c0.27 | | c0.08 | 0.26 | |
| v/s Ratio Perm | | | 0.00 | | | 0.02 | | | 0.02 | | | 0.01 |
| v/c Ratio | 0.35 | 0.38 | 0.03 | 0.64 | 0.60 | 0.11 | 0.52 | 0.48 | 0.04 | 0.65 | 0.42 | 0.02 |
| Uniform Delay, d1 | 56.6 | 48.3 | 46.2 | 55.3 | 47.8 | 44.3 | 54.7 | 15.8 | 11.8 | 50.1 | 11.5 | 8.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.15 | 0.65 | 0.62 |
| Incremental Delay, d2 | 3.3 | 1.0 | 0.1 | 12.0 | 3.4 | 0.2 | 4.2 | 0.8 | 0.1 | 6.0 | 0.6 | 0.0 |
| Delay (s) | 59.9 | 49.3 | 46.2 | 67.3 | 51.2 | 44.6 | 58.9 | 16.6 | 11.9 | 63.4 | 8.1 | 5.3 |
| Level of Service | E | D | D | E | D | D | E | B | B | E | A | A |
| Approach Delay (s) | | 49.9 | | | 51.0 | | | 18.6 | | | 15.1 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 61.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

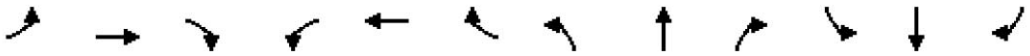
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 10 | 70 | 10 | 10 | 40 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 12 | 12 | 84 | 12 | 12 | 48 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 24 | | 204 | 23 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 24 | | 204 | 23 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 95 | | 98 | 95 |
| cM capacity (veh/h) | | | 1604 | | 745 | 1055 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 24 | 96 | 12 | 48 |
| Volume Left | 0 | 84 | 12 | 0 |
| Volume Right | 12 | 0 | 0 | 48 |
| cSH | 1700 | 1604 | 745 | 1055 |
| Volume to Capacity | 0.01 | 0.05 | 0.02 | 0.05 |
| Queue Length 95th (ft) | 0 | 4 | 1 | 4 |
| Control Delay (s) | 0.0 | 6.5 | 9.9 | 8.6 |
| Lane LOS | | A | A | A |
| Approach Delay (s) | 0.0 | 6.5 | 8.8 | |
| Approach LOS | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.4 | | |
| Intersection Capacity Utilization | 21.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 150 | 140 | 180 | 120 | 10 | 80 | 50 | 150 | 10 | 100 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.98 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.99 | | | 0.93 | | | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1733 | | 1805 | 1873 | | | 1707 | | | 1826 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1733 | | 1805 | 1873 | | | 1707 | | | 1826 | |
| Peak-hour factor, PHF | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| Adj. Flow (vph) | 28 | 211 | 197 | 254 | 169 | 14 | 113 | 70 | 211 | 14 | 141 | 42 |
| RTOR Reduction (vph) | 0 | 27 | 0 | 0 | 2 | 0 | 0 | 35 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 28 | 381 | 0 | 254 | 181 | 0 | 0 | 359 | 0 | 0 | 188 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 4.5 | 37.2 | | 22.6 | 55.3 | | | 27.0 | | | 17.2 | |
| Effective Green, g (s) | 4.5 | 37.2 | | 22.6 | 55.3 | | | 27.0 | | | 17.2 | |
| Actuated g/C Ratio | 0.04 | 0.31 | | 0.19 | 0.46 | | | 0.22 | | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 68 | 537 | | 340 | 863 | | | 384 | | | 262 | |
| v/s Ratio Prot | 0.02 | c0.22 | | c0.14 | 0.10 | | | c0.21 | | | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.41 | 0.71 | | 0.75 | 0.21 | | | 0.94 | | | 0.72 | |
| Uniform Delay, d1 | 56.5 | 36.6 | | 46.0 | 19.3 | | | 45.6 | | | 49.1 | |
| Progression Factor | 1.00 | 1.00 | | 0.84 | 0.78 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 4.0 | 7.7 | | 8.7 | 0.6 | | | 29.7 | | | 9.1 | |
| Delay (s) | 60.5 | 44.4 | | 47.3 | 15.6 | | | 75.4 | | | 58.1 | |
| Level of Service | E | D | | D | B | | | E | | | E | |
| Approach Delay (s) | | 45.4 | | | 34.1 | | | 75.4 | | | 58.1 | |
| Approach LOS | | D | | | C | | | E | | | E | |

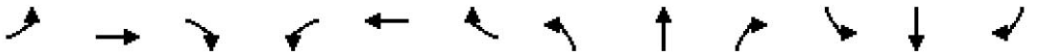
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 67.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 60 | 520 | 20 | 10 | 20 | 120 | 780 | 30 | 30 | 330 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1667 | | 1805 | 1900 | 1589 | 1805 | 3610 | 1570 | 1805 | 5086 | |
| Flt Permitted | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1667 | | 1805 | 1900 | 1589 | 1805 | 3610 | 1570 | 1805 | 5086 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 94 | 71 | 612 | 24 | 12 | 24 | 141 | 918 | 35 | 35 | 388 | 47 |
| RTOR Reduction (vph) | 0 | 93 | 0 | 0 | 0 | 23 | 0 | 0 | 21 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 0 | 684 | 0 | 24 | 12 | 1 | 141 | 918 | 14 | 35 | 424 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 35.6 | | 4.1 | 4.1 | 4.1 | 11.7 | 28.5 | 28.5 | 3.8 | 20.6 | |
| Effective Green, g (s) | | 35.6 | | 4.1 | 4.1 | 4.1 | 11.7 | 28.5 | 28.5 | 3.8 | 20.6 | |
| Actuated g/C Ratio | | 0.40 | | 0.05 | 0.05 | 0.05 | 0.13 | 0.32 | 0.32 | 0.04 | 0.23 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 674 | | 84 | 89 | 74 | 240 | 1169 | 508 | 78 | 1191 | |
| v/s Ratio Prot | | c0.41 | | c0.01 | 0.01 | | c0.08 | c0.25 | | 0.02 | 0.08 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.01 | | | |
| v/c Ratio | | 1.01 | | 0.29 | 0.13 | 0.02 | 0.59 | 0.79 | 0.03 | 0.45 | 0.36 | |
| Uniform Delay, d1 | | 26.2 | | 40.5 | 40.2 | 40.0 | 35.9 | 27.0 | 20.3 | 41.1 | 28.2 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 38.2 | | 1.9 | 0.7 | 0.1 | 3.6 | 3.5 | 0.0 | 4.1 | 0.2 | |
| Delay (s) | | 64.4 | | 42.4 | 40.9 | 40.1 | 39.5 | 30.5 | 20.3 | 45.1 | 28.3 | |
| Level of Service | | E | | D | D | D | D | C | C | D | C | |
| Approach Delay (s) | | 64.4 | | | 41.2 | | | 31.4 | | | 29.6 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 88.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 84.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

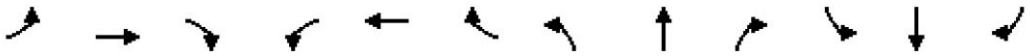
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 330 | 80 | 140 | 330 | 70 | 180 | 620 | 190 | 180 | 370 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3493 | | 1805 | 3505 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3493 | | 1805 | 3505 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 80 | 379 | 92 | 161 | 379 | 80 | 207 | 713 | 218 | 207 | 425 | 46 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 18 | 0 | 0 | 0 | 129 | 0 | 0 | 27 |
| Lane Group Flow (vph) | 80 | 451 | 0 | 161 | 441 | 0 | 207 | 713 | 89 | 207 | 425 | 19 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.8 | 22.1 | | 13.9 | 28.2 | | 18.9 | 49.1 | 49.1 | 18.9 | 49.1 | 49.1 |
| Effective Green, g (s) | 7.8 | 22.1 | | 13.9 | 28.2 | | 18.9 | 49.1 | 49.1 | 18.9 | 49.1 | 49.1 |
| Actuated g/C Ratio | 0.06 | 0.18 | | 0.12 | 0.23 | | 0.16 | 0.41 | 0.41 | 0.16 | 0.41 | 0.41 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 117 | 643 | | 209 | 824 | | 284 | 1477 | 649 | 284 | 1477 | 649 |
| v/s Ratio Prot | 0.04 | c0.13 | | c0.09 | 0.13 | | c0.11 | c0.20 | | 0.11 | 0.12 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | 0.01 |
| v/c Ratio | 0.68 | 0.70 | | 0.77 | 0.54 | | 0.73 | 0.48 | 0.14 | 0.73 | 0.29 | 0.03 |
| Uniform Delay, d1 | 54.9 | 45.9 | | 51.5 | 40.2 | | 48.1 | 26.1 | 22.2 | 48.1 | 23.7 | 21.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.58 | 0.90 | 1.31 |
| Incremental Delay, d2 | 15.3 | 3.5 | | 16.0 | 0.7 | | 9.0 | 1.1 | 0.4 | 7.4 | 0.4 | 0.1 |
| Delay (s) | 70.2 | 49.3 | | 67.5 | 40.8 | | 57.1 | 27.2 | 22.6 | 35.1 | 21.7 | 27.9 |
| Level of Service | E | D | | E | D | | E | C | C | D | C | C |
| Approach Delay (s) | | 52.3 | | | 47.8 | | | 31.8 | | | 26.2 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

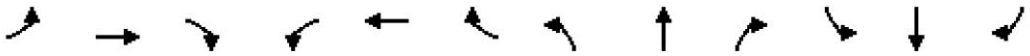
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 350 | 110 | 220 | 530 | 150 | 230 | 460 | 210 | 190 | 270 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3466 | | 1805 | 3477 | | 1805 | 5187 | 1587 | 1805 | 5052 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3466 | | 1805 | 3477 | | 1805 | 5187 | 1587 | 1805 | 5052 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 81 | 407 | 128 | 256 | 616 | 174 | 267 | 535 | 244 | 221 | 314 | 58 |
| RTOR Reduction (vph) | 0 | 28 | 0 | 0 | 23 | 0 | 0 | 0 | 162 | 0 | 21 | 0 |
| Lane Group Flow (vph) | 81 | 507 | 0 | 256 | 767 | 0 | 267 | 535 | 82 | 221 | 351 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.7 | 27.3 | | 17.0 | 35.6 | | 23.2 | 40.4 | 40.4 | 19.3 | 36.5 | |
| Effective Green, g (s) | 8.7 | 27.3 | | 17.0 | 35.6 | | 23.2 | 40.4 | 40.4 | 19.3 | 36.5 | |
| Actuated g/C Ratio | 0.07 | 0.23 | | 0.14 | 0.30 | | 0.19 | 0.34 | 0.34 | 0.16 | 0.30 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 131 | 789 | | 256 | 1032 | | 349 | 1746 | 534 | 290 | 1537 | |
| v/s Ratio Prot | 0.04 | 0.15 | | c0.14 | c0.22 | | c0.15 | c0.10 | | 0.12 | 0.07 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.62 | 0.64 | | 1.00 | 0.74 | | 0.77 | 0.31 | 0.15 | 0.76 | 0.23 | |
| Uniform Delay, d1 | 54.0 | 41.9 | | 51.5 | 38.1 | | 45.8 | 29.4 | 27.8 | 48.2 | 31.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.98 | 0.54 | 0.82 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.4 | 1.8 | | 56.2 | 2.9 | | 8.4 | 0.4 | 0.5 | 11.2 | 0.3 | |
| Delay (s) | 62.4 | 43.7 | | 107.8 | 41.0 | | 53.3 | 16.4 | 23.4 | 59.4 | 31.6 | |
| Level of Service | E | D | | F | D | | D | B | C | E | C | |
| Approach Delay (s) | | 46.2 | | | 57.3 | | | 27.5 | | | 41.9 | |
| Approach LOS | | D | | | E | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

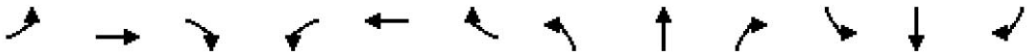
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 640 | 70 | 110 | 580 | 60 | 140 | 180 | 160 | 60 | 170 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3551 | | 1805 | 3610 | 1594 | 1805 | 3332 | | 1805 | 3377 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3551 | | 1805 | 3610 | 1594 | 1805 | 3332 | | 1805 | 3377 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 93 | 744 | 81 | 128 | 674 | 70 | 163 | 209 | 186 | 70 | 198 | 128 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 38 | 0 | 142 | 0 | 0 | 107 | 0 |
| Lane Group Flow (vph) | 93 | 818 | 0 | 128 | 674 | 32 | 163 | 253 | 0 | 70 | 219 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 7.8 | 25.8 | | 11.2 | 29.2 | 35.7 | 12.8 | 18.2 | | 6.5 | 11.9 | |
| Effective Green, g (s) | 7.8 | 25.8 | | 11.2 | 29.2 | 35.7 | 12.8 | 18.2 | | 6.5 | 11.9 | |
| Actuated g/C Ratio | 0.10 | 0.33 | | 0.14 | 0.38 | 0.46 | 0.16 | 0.23 | | 0.08 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 181 | 1179 | | 260 | 1357 | 814 | 297 | 780 | | 151 | 517 | |
| v/s Ratio Prot | 0.05 | c0.23 | | c0.07 | c0.19 | 0.00 | c0.09 | 0.08 | | 0.04 | c0.06 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.51 | 0.69 | | 0.49 | 0.50 | 0.04 | 0.55 | 0.32 | | 0.46 | 0.42 | |
| Uniform Delay, d1 | 33.2 | 22.5 | | 30.6 | 18.6 | 11.6 | 29.8 | 24.7 | | 33.9 | 29.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.5 | 1.8 | | 1.5 | 0.3 | 0.0 | 2.1 | 0.2 | | 2.2 | 0.6 | |
| Delay (s) | 35.6 | 24.3 | | 32.1 | 18.9 | 11.6 | 31.9 | 24.9 | | 36.2 | 30.4 | |
| Level of Service | D | C | | C | B | B | C | C | | D | C | |
| Approach Delay (s) | | 25.5 | | | 20.2 | | | 26.9 | | | 31.4 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 77.7 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 60.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

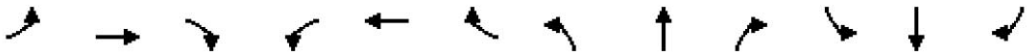
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 500 | 310 | 460 | 460 | 120 | 320 | 450 | 420 | 140 | 460 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 4860 | | 3502 | 5010 | | 3502 | 3610 | 1601 | 3502 | 3522 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 4860 | | 3502 | 5010 | | 3502 | 3610 | 1601 | 3502 | 3522 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 152 | 543 | 337 | 500 | 500 | 130 | 348 | 489 | 457 | 152 | 500 | 87 |
| RTOR Reduction (vph) | 0 | 101 | 0 | 0 | 40 | 0 | 0 | 0 | 46 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 152 | 779 | 0 | 500 | 590 | 0 | 348 | 489 | 411 | 152 | 573 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.4 | 20.1 | | 15.2 | 26.9 | | 11.1 | 22.7 | 37.9 | 7.9 | 19.5 | |
| Effective Green, g (s) | 8.4 | 20.1 | | 15.2 | 26.9 | | 11.1 | 22.7 | 37.9 | 7.9 | 19.5 | |
| Actuated g/C Ratio | 0.10 | 0.25 | | 0.19 | 0.33 | | 0.14 | 0.28 | 0.46 | 0.10 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 359 | 1193 | | 650 | 1646 | | 475 | 1001 | 819 | 338 | 839 | |
| v/s Ratio Prot | 0.04 | c0.16 | | c0.14 | 0.12 | | c0.10 | 0.14 | c0.09 | 0.04 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.16 | | | |
| v/c Ratio | 0.42 | 0.65 | | 0.77 | 0.36 | | 0.73 | 0.49 | 0.50 | 0.45 | 0.68 | |
| Uniform Delay, d1 | 34.5 | 27.8 | | 31.7 | 20.9 | | 34.0 | 24.7 | 15.4 | 34.9 | 28.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 1.3 | | 5.5 | 0.1 | | 5.8 | 0.4 | 0.5 | 1.0 | 2.3 | |
| Delay (s) | 35.3 | 29.1 | | 37.2 | 21.1 | | 39.7 | 25.1 | 15.9 | 35.9 | 30.7 | |
| Level of Service | D | C | | D | C | | D | C | B | D | C | |
| Approach Delay (s) | | 30.0 | | | 28.2 | | | 25.8 | | | 31.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 81.9 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 72.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 760 | 20 | 30 | 590 | 10 | 50 | 100 | 50 | 10 | 40 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.97 | | | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5163 | | 1805 | 5173 | | | 1806 | | | 1691 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5163 | | 1805 | 5173 | | | 1806 | | | 1691 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 193 | 864 | 23 | 34 | 670 | 11 | 57 | 114 | 57 | 11 | 45 | 148 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 11 | 0 | 0 | 98 | 0 |
| Lane Group Flow (vph) | 193 | 885 | 0 | 34 | 680 | 0 | 0 | 217 | 0 | 0 | 106 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.3 | 24.5 | | 2.3 | 19.5 | | | 13.8 | | | 10.1 | |
| Effective Green, g (s) | 7.3 | 24.5 | | 2.3 | 19.5 | | | 13.8 | | | 10.1 | |
| Actuated g/C Ratio | 0.11 | 0.37 | | 0.03 | 0.29 | | | 0.21 | | | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 198 | 1896 | | 62 | 1512 | | | 374 | | | 256 | |
| v/s Ratio Prot | c0.11 | c0.17 | | 0.02 | 0.13 | | | c0.12 | | | c0.06 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.97 | 0.47 | | 0.55 | 0.45 | | | 0.58 | | | 0.42 | |
| Uniform Delay, d1 | 29.6 | 16.1 | | 31.7 | 19.2 | | | 23.8 | | | 25.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 56.2 | 0.2 | | 9.6 | 0.2 | | | 2.2 | | | 1.1 | |
| Delay (s) | 85.8 | 16.3 | | 41.3 | 19.4 | | | 26.0 | | | 26.7 | |
| Level of Service | F | B | | D | B | | | C | | | C | |
| Approach Delay (s) | | 28.7 | | | 20.5 | | | 26.0 | | | 26.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 66.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 60.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 760 | 10 | 20 | 600 | 10 | 20 | 0 | 40 | 20 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 0.85 | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5176 | | 1805 | 5172 | | 1805 | | 1615 | 1805 | 1593 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5176 | | 1805 | 5172 | | 1805 | | 1615 | 1805 | 1593 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 24 | 927 | 12 | 24 | 732 | 12 | 24 | 0 | 49 | 24 | 0 | 24 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 46 | 0 | 24 | 0 |
| Lane Group Flow (vph) | 24 | 938 | 0 | 24 | 743 | 0 | 24 | 0 | 3 | 24 | 0 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.8 | 23.7 | | 2.3 | 25.2 | | 0.8 | | 2.3 | 5.6 | 0.8 | |
| Effective Green, g (s) | 0.8 | 23.7 | | 2.3 | 25.2 | | 0.8 | | 2.3 | 5.6 | 0.8 | |
| Actuated g/C Ratio | 0.02 | 0.54 | | 0.05 | 0.58 | | 0.02 | | 0.05 | 0.13 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 33 | 2814 | | 95 | 2989 | | 33 | | 85 | 232 | 29 | |
| v/s Ratio Prot | c0.01 | c0.18 | | 0.01 | 0.14 | | c0.01 | | 0.00 | c0.01 | 0.00 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.73 | 0.33 | | 0.25 | 0.25 | | 0.73 | | 0.03 | 0.10 | 0.02 | |
| Uniform Delay, d1 | 21.3 | 5.5 | | 19.8 | 4.5 | | 21.3 | | 19.6 | 16.8 | 21.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 56.6 | 0.1 | | 1.4 | 0.0 | | 56.6 | | 0.1 | 0.2 | 0.2 | |
| Delay (s) | 77.8 | 5.6 | | 21.2 | 4.6 | | 77.8 | | 19.7 | 17.0 | 21.2 | |
| Level of Service | E | A | | C | A | | E | | B | B | C | |
| Approach Delay (s) | | 7.4 | | | 5.1 | | | 38.8 | | | 19.1 | |
| Approach LOS | | A | | | A | | | D | | | B | |

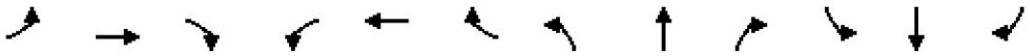
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.30 | | |
| Actuated Cycle Length (s) | 43.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 39.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 170 | 60 | 160 | 190 | 140 | 50 | 690 | 250 | 80 | 460 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1818 | | 1805 | 1900 | 1587 | 1805 | 3450 | | 1805 | 1900 | 1555 |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1818 | | 1805 | 1900 | 1587 | 1805 | 3450 | | 1805 | 1900 | 1555 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 181 | 64 | 170 | 202 | 149 | 53 | 734 | 266 | 85 | 489 | 21 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 125 | 0 | 24 | 0 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 0 | 255 | 0 | 170 | 202 | 24 | 53 | 976 | 0 | 85 | 489 | 10 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | 21.9 | | 19.1 | 19.1 | 19.1 | 7.8 | 52.0 | | 11.0 | 55.2 | 55.2 |
| Effective Green, g (s) | | 21.9 | | 19.1 | 19.1 | 19.1 | 7.8 | 52.0 | | 11.0 | 55.2 | 55.2 |
| Actuated g/C Ratio | | 0.18 | | 0.16 | 0.16 | 0.16 | 0.06 | 0.43 | | 0.09 | 0.46 | 0.46 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 332 | | 287 | 302 | 253 | 117 | 1495 | | 165 | 874 | 715 |
| v/s Ratio Prot | | c0.14 | | 0.09 | c0.11 | | 0.03 | c0.28 | | c0.05 | c0.26 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | 0.01 |
| v/c Ratio | | 0.77 | | 0.59 | 0.67 | 0.09 | 0.45 | 0.65 | | 0.52 | 0.56 | 0.01 |
| Uniform Delay, d1 | | 46.6 | | 46.8 | 47.5 | 43.1 | 54.0 | 26.9 | | 52.0 | 23.6 | 17.6 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.02 | 0.58 | 0.61 |
| Incremental Delay, d2 | | 10.3 | | 3.3 | 5.5 | 0.2 | 2.8 | 2.2 | | 2.3 | 2.2 | 0.0 |
| Delay (s) | | 56.9 | | 50.1 | 53.0 | 43.2 | 56.8 | 29.1 | | 55.4 | 15.7 | 10.8 |
| Level of Service | | E | | D | D | D | E | C | | E | B | B |
| Approach Delay (s) | | 56.9 | | | 49.3 | | | 30.5 | | | 21.2 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 74.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

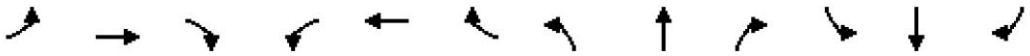
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 350 | 110 | 80 | 330 | 120 | 130 | 150 | 50 | 190 | 170 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3468 | | 1805 | 3452 | | 1805 | 3462 | | 1805 | 3437 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3468 | | 1805 | 3452 | | 1805 | 3462 | | 1805 | 3437 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 183 | 427 | 134 | 98 | 402 | 146 | 159 | 183 | 61 | 232 | 207 | 85 |
| RTOR Reduction (vph) | 0 | 33 | 0 | 0 | 42 | 0 | 0 | 43 | 0 | 0 | 57 | 0 |
| Lane Group Flow (vph) | 183 | 528 | 0 | 98 | 506 | 0 | 159 | 201 | 0 | 232 | 235 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 17.4 | | 5.5 | 15.8 | | 10.1 | 9.4 | | 11.1 | 10.4 | |
| Effective Green, g (s) | 7.1 | 17.4 | | 5.5 | 15.8 | | 10.1 | 9.4 | | 11.1 | 10.4 | |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.09 | 0.27 | | 0.17 | 0.16 | | 0.19 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 216 | 1016 | | 167 | 918 | | 307 | 548 | | 337 | 602 | |
| v/s Ratio Prot | c0.10 | c0.15 | | 0.05 | 0.15 | | 0.09 | 0.06 | | c0.13 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.85 | 0.52 | | 0.59 | 0.55 | | 0.52 | 0.37 | | 0.69 | 0.39 | |
| Uniform Delay, d1 | 25.6 | 17.5 | | 25.9 | 18.8 | | 22.4 | 22.3 | | 22.5 | 21.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 25.2 | 0.5 | | 5.2 | 0.7 | | 1.5 | 0.4 | | 5.8 | 0.4 | |
| Delay (s) | 50.8 | 18.0 | | 31.0 | 19.5 | | 23.9 | 22.8 | | 28.3 | 22.1 | |
| Level of Service | D | B | | C | B | | C | C | | C | C | |
| Approach Delay (s) | | 26.1 | | | 21.2 | | | 23.2 | | | 24.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 59.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 56.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

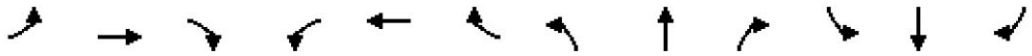
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 260 | 220 | 150 | 150 | 120 | 220 | 830 | 200 | 110 | 580 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3338 | | 1805 | 3369 | | 1805 | 3610 | 1615 | 1805 | 3508 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3338 | | 1805 | 3369 | | 1805 | 3610 | 1615 | 1805 | 3508 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 318 | 295 | 250 | 170 | 170 | 136 | 250 | 943 | 227 | 125 | 659 | 136 |
| RTOR Reduction (vph) | 0 | 186 | 0 | 0 | 116 | 0 | 0 | 0 | 125 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 318 | 359 | 0 | 170 | 190 | 0 | 250 | 943 | 102 | 125 | 778 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.8 | 14.1 | | 7.1 | 10.4 | | 7.1 | 25.1 | 32.2 | 9.4 | 27.4 | |
| Effective Green, g (s) | 10.8 | 14.1 | | 7.1 | 10.4 | | 7.1 | 25.1 | 32.2 | 9.4 | 27.4 | |
| Actuated g/C Ratio | 0.15 | 0.20 | | 0.10 | 0.15 | | 0.10 | 0.35 | 0.45 | 0.13 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 527 | 656 | | 179 | 489 | | 179 | 1264 | 815 | 237 | 1341 | |
| v/s Ratio Prot | 0.09 | c0.11 | | c0.09 | 0.06 | | c0.14 | c0.26 | 0.01 | 0.07 | 0.22 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.60 | 0.55 | | 0.95 | 0.39 | | 1.40 | 0.75 | 0.13 | 0.53 | 0.58 | |
| Uniform Delay, d1 | 28.4 | 25.9 | | 32.1 | 27.8 | | 32.3 | 20.5 | 11.5 | 29.1 | 17.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.0 | 0.9 | | 52.0 | 0.5 | | 208.8 | 2.4 | 0.1 | 2.1 | 0.6 | |
| Delay (s) | 30.4 | 26.9 | | 84.2 | 28.3 | | 241.1 | 22.9 | 11.6 | 31.2 | 18.2 | |
| Level of Service | C | C | | F | C | | F | C | B | C | B | |
| Approach Delay (s) | | 28.2 | | | 48.2 | | | 59.5 | | | 20.0 | |
| Approach LOS | | C | | | D | | | E | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 71.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

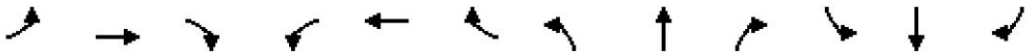
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 420 | 120 | 30 | 560 | 40 | 190 | 200 | 40 | 70 | 160 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1590 | 1805 | 3610 | 1590 | 3502 | 1847 | | 1805 | 3381 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1590 | 1805 | 3610 | 1590 | 3502 | 1847 | | 1805 | 3381 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 70 | 488 | 140 | 35 | 651 | 47 | 221 | 233 | 47 | 81 | 186 | 116 |
| RTOR Reduction (vph) | 0 | 0 | 51 | 0 | 0 | 19 | 0 | 7 | 0 | 0 | 95 | 0 |
| Lane Group Flow (vph) | 70 | 488 | 89 | 35 | 651 | 28 | 221 | 273 | 0 | 81 | 207 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | |
| Actuated Green, G (s) | 8.7 | 64.8 | 76.7 | 5.4 | 61.5 | 70.9 | 11.9 | 24.4 | | 9.4 | 21.9 | |
| Effective Green, g (s) | 8.7 | 64.8 | 76.7 | 5.4 | 61.5 | 70.9 | 11.9 | 24.4 | | 9.4 | 21.9 | |
| Actuated g/C Ratio | 0.07 | 0.54 | 0.64 | 0.05 | 0.51 | 0.59 | 0.10 | 0.20 | | 0.08 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 131 | 1949 | 1069 | 81 | 1850 | 939 | 347 | 376 | | 141 | 617 | |
| v/s Ratio Prot | c0.04 | c0.14 | 0.01 | 0.02 | c0.18 | 0.00 | 0.06 | c0.15 | | c0.04 | 0.06 | |
| v/s Ratio Perm | | | 0.05 | | | 0.02 | | | | | | |
| v/c Ratio | 0.53 | 0.25 | 0.08 | 0.43 | 0.35 | 0.03 | 0.64 | 0.73 | | 0.57 | 0.34 | |
| Uniform Delay, d1 | 53.7 | 14.7 | 8.3 | 55.8 | 17.4 | 10.2 | 52.0 | 44.7 | | 53.4 | 42.7 | |
| Progression Factor | 0.93 | 1.21 | 2.84 | 1.00 | 1.00 | 1.00 | 0.73 | 0.77 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.0 | 0.3 | 0.0 | 3.7 | 0.5 | 0.0 | 3.6 | 6.5 | | 5.6 | 0.3 | |
| Delay (s) | 53.8 | 18.1 | 23.4 | 59.5 | 17.9 | 10.2 | 41.7 | 40.7 | | 58.9 | 43.0 | |
| Level of Service | D | B | C | E | B | B | D | D | | E | D | |
| Approach Delay (s) | | 22.8 | | | 19.4 | | | 41.2 | | | 46.4 | |
| Approach LOS | | C | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 65.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

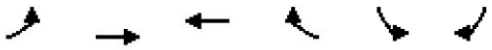
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 260 | 160 | 80 | 380 | 20 | 160 | 260 | 120 | 30 | 250 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1589 | 1805 | 1900 | 1576 | 1805 | 1900 | 1585 | 1805 | 1844 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1589 | 1805 | 1900 | 1576 | 1805 | 1900 | 1585 | 1805 | 1844 | |
| Peak-hour factor, PHF | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Adj. Flow (vph) | 38 | 333 | 205 | 103 | 487 | 26 | 205 | 333 | 154 | 38 | 321 | 64 |
| RTOR Reduction (vph) | 0 | 0 | 85 | 0 | 0 | 4 | 0 | 0 | 77 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 38 | 333 | 120 | 103 | 487 | 22 | 205 | 333 | 77 | 38 | 379 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.6 | 22.8 | 22.8 | 14.2 | 33.4 | 40.9 | 15.7 | 32.5 | 46.7 | 7.5 | 24.3 | |
| Effective Green, g (s) | 3.6 | 22.8 | 22.8 | 14.2 | 33.4 | 40.9 | 15.7 | 32.5 | 46.7 | 7.5 | 24.3 | |
| Actuated g/C Ratio | 0.04 | 0.25 | 0.25 | 0.15 | 0.36 | 0.44 | 0.17 | 0.35 | 0.50 | 0.08 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 70 | 466 | 390 | 276 | 682 | 761 | 305 | 664 | 796 | 146 | 482 | |
| v/s Ratio Prot | 0.02 | c0.18 | | 0.06 | c0.26 | 0.00 | c0.11 | 0.18 | 0.01 | 0.02 | c0.21 | |
| v/s Ratio Perm | | | 0.08 | | | 0.01 | | | 0.03 | | | |
| v/c Ratio | 0.54 | 0.71 | 0.31 | 0.37 | 0.71 | 0.03 | 0.67 | 0.50 | 0.10 | 0.26 | 0.79 | |
| Uniform Delay, d1 | 43.9 | 32.1 | 28.7 | 35.4 | 25.7 | 14.8 | 36.2 | 23.9 | 12.1 | 40.1 | 31.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.3 | 5.2 | 0.5 | 0.9 | 3.6 | 0.0 | 5.7 | 0.6 | 0.1 | 1.0 | 8.3 | |
| Delay (s) | 52.2 | 37.3 | 29.1 | 36.3 | 29.2 | 14.8 | 42.0 | 24.5 | 12.2 | 41.1 | 40.2 | |
| Level of Service | D | D | C | D | C | B | D | C | B | D | D | |
| Approach Delay (s) | | 35.4 | | | 29.8 | | | 26.9 | | | 40.3 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 93.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

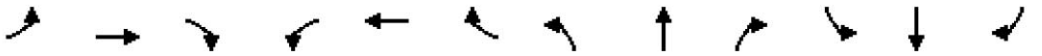
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 110 | 350 | 370 | 60 | 60 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 3610 | 1578 | 1805 | 1603 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 3610 | 1578 | 1805 | 1603 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 126 | 402 | 425 | 69 | 69 | 103 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 49 | 0 | 63 |
| Lane Group Flow (vph) | 126 | 402 | 425 | 20 | 69 | 40 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 6.3 | 20.6 | 10.3 | 10.3 | 7.8 | 14.1 |
| Effective Green, g (s) | 6.3 | 20.6 | 10.3 | 10.3 | 7.8 | 14.1 |
| Actuated g/C Ratio | 0.17 | 0.57 | 0.28 | 0.28 | 0.21 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 312 | 1075 | 1022 | 447 | 387 | 797 |
| v/s Ratio Prot | 0.07 | c0.21 | 0.12 | | c0.04 | 0.01 |
| v/s Ratio Perm | | | | 0.01 | | 0.02 |
| v/c Ratio | 0.40 | 0.37 | 0.42 | 0.04 | 0.18 | 0.05 |
| Uniform Delay, d1 | 13.4 | 4.3 | 10.6 | 9.5 | 11.7 | 7.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 0.2 | 0.3 | 0.0 | 0.2 | 0.0 |
| Delay (s) | 14.2 | 4.6 | 10.9 | 9.5 | 11.9 | 7.0 |
| Level of Service | B | A | B | A | B | A |
| Approach Delay (s) | | 6.9 | 10.7 | | 9.0 | |
| Approach LOS | | A | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 36.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 38.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

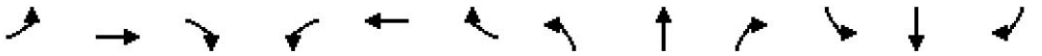
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 180 | 150 | 180 | 290 | 80 | 80 | 210 | 40 | 40 | 270 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1591 | 1805 | 1900 | 1592 | 1805 | 3510 | | 1805 | 3610 | 1575 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1591 | 1805 | 1900 | 1592 | 1805 | 3510 | | 1805 | 3610 | 1575 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 82 | 212 | 176 | 212 | 341 | 94 | 94 | 247 | 47 | 47 | 318 | 82 |
| RTOR Reduction (vph) | 0 | 0 | 139 | 0 | 0 | 63 | 0 | 18 | 0 | 0 | 0 | 67 |
| Lane Group Flow (vph) | 82 | 212 | 37 | 212 | 341 | 31 | 94 | 276 | 0 | 47 | 318 | 15 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 7.0 | 12.5 | 12.5 | 14.1 | 19.6 | 19.6 | 6.0 | 13.0 | | 4.2 | 11.2 | 11.2 |
| Effective Green, g (s) | 7.0 | 12.5 | 12.5 | 14.1 | 19.6 | 19.6 | 6.0 | 13.0 | | 4.2 | 11.2 | 11.2 |
| Actuated g/C Ratio | 0.12 | 0.21 | 0.21 | 0.24 | 0.33 | 0.33 | 0.10 | 0.22 | | 0.07 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 211 | 397 | 333 | 426 | 623 | 522 | 181 | 763 | | 127 | 676 | 295 |
| v/s Ratio Prot | 0.05 | 0.11 | | c0.12 | c0.18 | | c0.05 | 0.08 | | 0.03 | c0.09 | |
| v/s Ratio Perm | | | 0.02 | | | 0.02 | | | | | | 0.01 |
| v/c Ratio | 0.39 | 0.53 | 0.11 | 0.50 | 0.55 | 0.06 | 0.52 | 0.36 | | 0.37 | 0.47 | 0.05 |
| Uniform Delay, d1 | 24.4 | 21.1 | 19.1 | 19.8 | 16.5 | 13.8 | 25.5 | 19.9 | | 26.5 | 21.7 | 19.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.2 | 1.4 | 0.1 | 0.9 | 1.0 | 0.0 | 2.5 | 0.3 | | 1.8 | 0.5 | 0.1 |
| Delay (s) | 25.6 | 22.4 | 19.3 | 20.7 | 17.5 | 13.8 | 28.0 | 20.2 | | 28.4 | 22.2 | 20.0 |
| Level of Service | C | C | B | C | B | B | C | C | | C | C | C |
| Approach Delay (s) | | 21.8 | | | 18.0 | | | 22.1 | | | 22.4 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 59.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

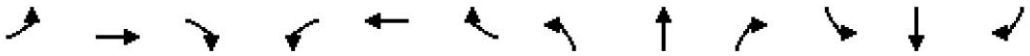
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 540 | 150 | 30 | 530 | 30 | 190 | 280 | 40 | 40 | 220 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3478 | | 1805 | 3577 | | 1805 | 3534 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3478 | | 1805 | 3577 | | 1805 | 3534 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 125 | 675 | 188 | 38 | 662 | 38 | 238 | 350 | 50 | 50 | 275 | 88 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 0 | 71 |
| Lane Group Flow (vph) | 125 | 845 | 0 | 38 | 697 | 0 | 238 | 390 | 0 | 50 | 275 | 17 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 12.8 | 55.8 | | 4.8 | 47.8 | | 20.4 | 37.8 | | 5.6 | 23.0 | 23.0 |
| Effective Green, g (s) | 12.8 | 55.8 | | 4.8 | 47.8 | | 20.4 | 37.8 | | 5.6 | 23.0 | 23.0 |
| Actuated g/C Ratio | 0.11 | 0.46 | | 0.04 | 0.40 | | 0.17 | 0.31 | | 0.05 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 193 | 1617 | | 72 | 1425 | | 307 | 1113 | | 84 | 364 | 304 |
| v/s Ratio Prot | c0.07 | c0.24 | | 0.02 | 0.19 | | c0.13 | 0.11 | | 0.03 | c0.14 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.65 | 0.52 | | 0.53 | 0.49 | | 0.78 | 0.35 | | 0.60 | 0.76 | 0.06 |
| Uniform Delay, d1 | 51.4 | 22.7 | | 56.5 | 27.0 | | 47.6 | 31.6 | | 56.1 | 45.8 | 39.6 |
| Progression Factor | 0.63 | 1.15 | | 1.11 | 0.97 | | 1.00 | 1.00 | | 0.87 | 0.79 | 0.86 |
| Incremental Delay, d2 | 7.1 | 1.2 | | 6.0 | 1.1 | | 11.6 | 0.2 | | 10.8 | 8.6 | 0.1 |
| Delay (s) | 39.3 | 27.2 | | 68.8 | 27.2 | | 59.2 | 31.8 | | 59.6 | 44.6 | 34.2 |
| Level of Service | D | C | | E | C | | E | C | | E | D | C |
| Approach Delay (s) | | 28.7 | | | 29.3 | | | 42.0 | | | 44.2 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

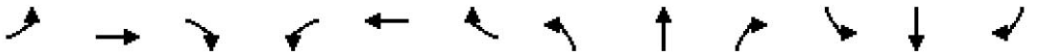
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 380 | 230 | 270 | 360 | 40 | 180 | 590 | 340 | 70 | 520 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1586 | 1805 | 3549 | | 1805 | 3610 | 1567 | 1805 | 3557 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1586 | 1805 | 3549 | | 1805 | 3610 | 1567 | 1805 | 3557 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 85 | 463 | 280 | 329 | 439 | 49 | 220 | 720 | 415 | 85 | 634 | 61 |
| RTOR Reduction (vph) | 0 | 0 | 198 | 0 | 7 | 0 | 0 | 0 | 290 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 85 | 463 | 82 | 329 | 481 | 0 | 220 | 720 | 125 | 85 | 689 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.4 | 32.7 | 32.7 | 26.7 | 51.0 | | 17.9 | 36.2 | 36.2 | 8.4 | 26.7 | |
| Effective Green, g (s) | 8.4 | 32.7 | 32.7 | 26.7 | 51.0 | | 17.9 | 36.2 | 36.2 | 8.4 | 26.7 | |
| Actuated g/C Ratio | 0.07 | 0.27 | 0.27 | 0.22 | 0.42 | | 0.15 | 0.30 | 0.30 | 0.07 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 126 | 518 | 432 | 402 | 1508 | | 269 | 1089 | 473 | 126 | 791 | |
| v/s Ratio Prot | 0.05 | c0.24 | | c0.18 | 0.14 | | c0.12 | 0.20 | | 0.05 | c0.19 | |
| v/s Ratio Perm | | | 0.05 | | | | | | 0.08 | | | |
| v/c Ratio | 0.67 | 0.89 | 0.19 | 0.82 | 0.32 | | 0.82 | 0.66 | 0.26 | 0.67 | 0.87 | |
| Uniform Delay, d1 | 54.5 | 42.0 | 33.5 | 44.3 | 22.9 | | 49.5 | 36.6 | 31.8 | 54.5 | 45.0 | |
| Progression Factor | 0.61 | 0.77 | 2.29 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 12.2 | 18.9 | 0.9 | 12.2 | 0.6 | | 17.3 | 1.5 | 0.3 | 13.4 | 10.3 | |
| Delay (s) | 45.5 | 51.2 | 77.5 | 56.6 | 23.5 | | 66.7 | 38.1 | 32.1 | 67.8 | 55.3 | |
| Level of Service | D | D | E | E | C | | E | D | C | E | E | |
| Approach Delay (s) | | 59.5 | | | 36.8 | | | 40.9 | | | 56.7 | |
| Approach LOS | | E | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 79.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

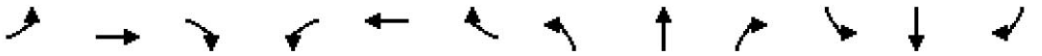
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 330 | 20 | 0 | 360 | 110 | 40 | 30 | 10 | 120 | 10 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1881 | | | 1827 | | 1805 | 1900 | 1573 | 1805 | 1900 | 1590 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1881 | | | 1827 | | 1805 | 1900 | 1573 | 1805 | 1900 | 1590 |
| Peak-hour factor, PHF | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Adj. Flow (vph) | 157 | 398 | 24 | 0 | 434 | 133 | 48 | 36 | 12 | 145 | 12 | 193 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 11 | 0 | 0 | 0 | 11 | 0 | 0 | 154 |
| Lane Group Flow (vph) | 157 | 420 | 0 | 0 | 556 | 0 | 48 | 36 | 1 | 145 | 12 | 39 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.1 | 38.9 | | | 25.8 | | 3.9 | 7.6 | 7.6 | 10.2 | 13.9 | 13.9 |
| Effective Green, g (s) | 9.1 | 38.9 | | | 25.8 | | 3.9 | 7.6 | 7.6 | 10.2 | 13.9 | 13.9 |
| Actuated g/C Ratio | 0.13 | 0.57 | | | 0.38 | | 0.06 | 0.11 | 0.11 | 0.15 | 0.20 | 0.20 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 239 | 1065 | | | 686 | | 102 | 210 | 174 | 268 | 384 | 322 |
| v/s Ratio Prot | c0.09 | 0.22 | | | c0.30 | | c0.03 | 0.02 | | c0.08 | 0.01 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | c0.02 |
| v/c Ratio | 0.66 | 0.39 | | | 0.81 | | 0.47 | 0.17 | 0.01 | 0.54 | 0.03 | 0.12 |
| Uniform Delay, d1 | 28.3 | 8.3 | | | 19.3 | | 31.4 | 27.7 | 27.2 | 27.1 | 22.0 | 22.4 |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.4 | 0.2 | | | 7.2 | | 3.4 | 0.4 | 0.0 | 2.2 | 0.0 | 0.2 |
| Delay (s) | 34.7 | 8.6 | | | 26.4 | | 34.8 | 28.1 | 27.2 | 29.3 | 22.0 | 22.6 |
| Level of Service | C | A | | | C | | C | C | C | C | C | C |
| Approach Delay (s) | | 15.6 | | | 26.4 | | | 31.3 | | | 25.3 | |
| Approach LOS | | B | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 68.7 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 58.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

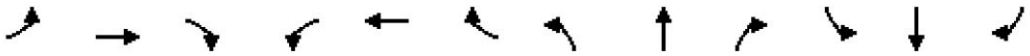
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 610 | 50 | 60 | 920 | 100 | 60 | 190 | 40 | 110 | 200 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5102 | | 3502 | 3505 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5102 | | 3502 | 3505 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 94 | 635 | 52 | 62 | 958 | 104 | 62 | 198 | 42 | 115 | 208 | 125 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 7 | 0 | 0 | 21 | 0 | 0 | 0 | 107 |
| Lane Group Flow (vph) | 94 | 635 | 32 | 62 | 1055 | 0 | 62 | 219 | 0 | 115 | 208 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 12.8 | 72.7 | 72.7 | 8.3 | 68.2 | | 5.6 | 12.9 | | 10.1 | 17.4 | 17.4 |
| Effective Green, g (s) | 12.8 | 72.7 | 72.7 | 8.3 | 68.2 | | 5.6 | 12.9 | | 10.1 | 17.4 | 17.4 |
| Actuated g/C Ratio | 0.11 | 0.61 | 0.61 | 0.07 | 0.57 | | 0.05 | 0.11 | | 0.08 | 0.14 | 0.14 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 193 | 2187 | 961 | 125 | 2900 | | 163 | 377 | | 295 | 523 | 230 |
| v/s Ratio Prot | c0.05 | 0.18 | | c0.03 | c0.21 | | 0.02 | c0.06 | | 0.03 | c0.06 | |
| v/s Ratio Perm | | | 0.02 | | | | | | | | | 0.01 |
| v/c Ratio | 0.49 | 0.29 | 0.03 | 0.50 | 0.36 | | 0.38 | 0.58 | | 0.39 | 0.40 | 0.08 |
| Uniform Delay, d1 | 50.5 | 11.3 | 9.5 | 53.8 | 14.1 | | 55.5 | 51.0 | | 52.0 | 46.5 | 44.4 |
| Progression Factor | 0.68 | 0.64 | 0.28 | 0.69 | 0.66 | | 1.02 | 0.43 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.9 | 0.3 | 0.1 | 3.0 | 0.3 | | 1.4 | 2.2 | | 0.9 | 0.5 | 0.1 |
| Delay (s) | 36.4 | 7.5 | 2.7 | 39.9 | 9.6 | | 58.0 | 24.0 | | 52.9 | 47.0 | 44.5 |
| Level of Service | D | A | A | D | A | | E | C | | D | D | D |
| Approach Delay (s) | | 10.7 | | | 11.3 | | | 30.9 | | | 47.8 | |
| Approach LOS | | B | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

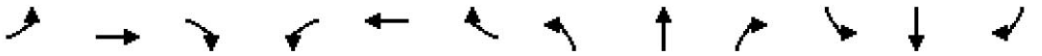
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 630 | 90 | 50 | 930 | 60 | 70 | 150 | 40 | 80 | 120 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5135 | | 1805 | 3483 | | 1805 | 3412 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5135 | | 1805 | 3483 | | 1805 | 3412 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 42 | 656 | 94 | 52 | 969 | 62 | 73 | 156 | 42 | 83 | 125 | 62 |
| RTOR Reduction (vph) | 0 | 0 | 35 | 0 | 3 | 0 | 0 | 28 | 0 | 0 | 57 | 0 |
| Lane Group Flow (vph) | 42 | 656 | 59 | 52 | 1028 | 0 | 73 | 170 | 0 | 83 | 130 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 6.4 | 75.7 | 75.7 | 7.7 | 77.0 | | 10.4 | 11.3 | | 9.3 | 10.2 | |
| Effective Green, g (s) | 6.4 | 75.7 | 75.7 | 7.7 | 77.0 | | 10.4 | 11.3 | | 9.3 | 10.2 | |
| Actuated g/C Ratio | 0.05 | 0.63 | 0.63 | 0.06 | 0.64 | | 0.09 | 0.09 | | 0.08 | 0.08 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 96 | 2277 | 1000 | 116 | 3295 | | 156 | 328 | | 140 | 290 | |
| v/s Ratio Prot | c0.02 | 0.18 | | c0.03 | c0.20 | | 0.04 | c0.05 | | c0.05 | 0.04 | |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | |
| v/c Ratio | 0.44 | 0.29 | 0.06 | 0.45 | 0.31 | | 0.47 | 0.52 | | 0.59 | 0.45 | |
| Uniform Delay, d1 | 55.1 | 10.0 | 8.5 | 54.1 | 9.6 | | 52.2 | 51.8 | | 53.5 | 52.2 | |
| Progression Factor | 0.89 | 0.55 | 1.01 | 0.95 | 0.68 | | 1.22 | 1.23 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.1 | 0.3 | 0.1 | 2.5 | 0.2 | | 2.1 | 1.3 | | 6.6 | 1.1 | |
| Delay (s) | 52.1 | 5.8 | 8.7 | 54.0 | 6.8 | | 65.6 | 65.2 | | 60.1 | 53.3 | |
| Level of Service | D | A | A | D | A | | E | E | | E | D | |
| Approach Delay (s) | | 8.6 | | | 9.1 | | | 65.3 | | | 55.4 | |
| Approach LOS | | A | | | A | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 59.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

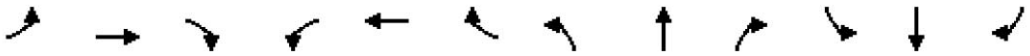
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 490 | 30 | 40 | 870 | 150 | 140 | 290 | 40 | 150 | 170 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1594 | 1805 | 5060 | | 1805 | 3538 | | 1805 | 3610 | 1602 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1594 | 1805 | 5060 | | 1805 | 3538 | | 1805 | 3610 | 1602 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 98 | 533 | 33 | 43 | 946 | 163 | 152 | 315 | 43 | 163 | 185 | 109 |
| RTOR Reduction (vph) | 0 | 0 | 9 | 0 | 14 | 0 | 0 | 12 | 0 | 0 | 0 | 79 |
| Lane Group Flow (vph) | 98 | 533 | 24 | 43 | 1095 | 0 | 152 | 346 | 0 | 163 | 185 | 30 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.8 | 65.9 | 86.9 | 5.6 | 59.7 | | 21.0 | 17.3 | | 15.2 | 11.5 | 23.3 |
| Effective Green, g (s) | 11.8 | 65.9 | 86.9 | 5.6 | 59.7 | | 21.0 | 17.3 | | 15.2 | 11.5 | 23.3 |
| Actuated g/C Ratio | 0.10 | 0.55 | 0.72 | 0.05 | 0.50 | | 0.18 | 0.14 | | 0.13 | 0.10 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 177 | 2849 | 1207 | 84 | 2517 | | 316 | 510 | | 229 | 346 | 311 |
| v/s Ratio Prot | c0.05 | 0.10 | 0.00 | 0.02 | c0.22 | | c0.08 | c0.10 | | c0.09 | 0.05 | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | 0.01 |
| v/c Ratio | 0.55 | 0.19 | 0.02 | 0.51 | 0.44 | | 0.48 | 0.68 | | 0.71 | 0.53 | 0.10 |
| Uniform Delay, d1 | 51.6 | 13.6 | 4.6 | 55.9 | 19.3 | | 44.6 | 48.7 | | 50.3 | 51.7 | 39.7 |
| Progression Factor | 0.67 | 0.62 | 0.99 | 1.02 | 1.07 | | 0.52 | 0.54 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.6 | 0.1 | 0.0 | 4.9 | 0.5 | | 1.1 | 3.4 | | 10.0 | 1.6 | 0.1 |
| Delay (s) | 38.0 | 8.6 | 4.6 | 62.1 | 21.2 | | 24.5 | 30.0 | | 60.3 | 53.3 | 39.8 |
| Level of Service | D | A | A | E | C | | C | C | | E | D | D |
| Approach Delay (s) | | 12.7 | | | 22.7 | | | 28.3 | | | 52.6 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

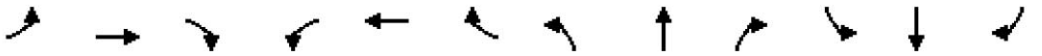
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 460 | 70 | 70 | 800 | 70 | 140 | 240 | 70 | 80 | 220 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5072 | | 1805 | 5117 | | 1805 | 3475 | | 1805 | 3450 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5072 | | 1805 | 5117 | | 1805 | 3475 | | 1805 | 3450 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 44 | 511 | 78 | 78 | 889 | 78 | 156 | 267 | 78 | 89 | 244 | 89 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 5 | 0 | 0 | 35 | 0 | 0 | 43 | 0 |
| Lane Group Flow (vph) | 44 | 578 | 0 | 78 | 962 | 0 | 156 | 310 | 0 | 89 | 290 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.2 | 64.9 | | 8.0 | 65.7 | | 15.6 | 16.4 | | 14.7 | 15.5 | |
| Effective Green, g (s) | 7.2 | 64.9 | | 8.0 | 65.7 | | 15.6 | 16.4 | | 14.7 | 15.5 | |
| Actuated g/C Ratio | 0.06 | 0.54 | | 0.07 | 0.55 | | 0.13 | 0.14 | | 0.12 | 0.13 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 108 | 2743 | | 120 | 2802 | | 235 | 475 | | 221 | 446 | |
| v/s Ratio Prot | c0.02 | 0.11 | | c0.04 | c0.19 | | c0.09 | c0.09 | | 0.05 | 0.08 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.41 | 0.21 | | 0.65 | 0.34 | | 0.66 | 0.65 | | 0.40 | 0.65 | |
| Uniform Delay, d1 | 54.3 | 14.3 | | 54.6 | 15.1 | | 49.7 | 49.1 | | 48.6 | 49.7 | |
| Progression Factor | 1.13 | 0.56 | | 0.65 | 0.26 | | 0.66 | 0.32 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.4 | 0.2 | | 10.9 | 0.3 | | 6.4 | 3.0 | | 1.2 | 3.4 | |
| Delay (s) | 63.9 | 8.2 | | 46.7 | 4.2 | | 39.3 | 18.5 | | 49.8 | 53.1 | |
| Level of Service | E | A | | D | A | | D | B | | D | D | |
| Approach Delay (s) | | 12.1 | | | 7.4 | | | 25.0 | | | 52.4 | |
| Approach LOS | | B | | | A | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 65.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

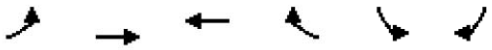
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 290 | 80 | 80 | 620 | 80 | 200 | 550 | 70 | 160 | 410 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5088 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5088 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 161 | 333 | 92 | 92 | 713 | 92 | 230 | 632 | 80 | 184 | 471 | 195 |
| RTOR Reduction (vph) | 0 | 0 | 55 | 0 | 12 | 0 | 0 | 0 | 62 | 0 | 0 | 159 |
| Lane Group Flow (vph) | 161 | 333 | 37 | 92 | 793 | 0 | 230 | 632 | 18 | 184 | 471 | 36 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 13.1 | 48.3 | 48.3 | 10.4 | 45.6 | | 23.0 | 27.6 | 27.6 | 17.7 | 22.3 | 22.3 |
| Effective Green, g (s) | 13.1 | 48.3 | 48.3 | 10.4 | 45.6 | | 23.0 | 27.6 | 27.6 | 17.7 | 22.3 | 22.3 |
| Actuated g/C Ratio | 0.11 | 0.40 | 0.40 | 0.09 | 0.38 | | 0.19 | 0.23 | 0.23 | 0.15 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 197 | 1453 | 639 | 156 | 1933 | | 346 | 830 | 365 | 266 | 671 | 295 |
| v/s Ratio Prot | c0.09 | 0.09 | | c0.05 | c0.16 | | c0.13 | c0.18 | | 0.10 | 0.13 | |
| v/s Ratio Perm | | | 0.02 | | | | | | 0.01 | | | 0.02 |
| v/c Ratio | 0.82 | 0.23 | 0.06 | 0.59 | 0.41 | | 0.66 | 0.76 | 0.05 | 0.69 | 0.70 | 0.12 |
| Uniform Delay, d1 | 52.3 | 23.6 | 21.9 | 52.7 | 27.3 | | 44.9 | 43.1 | 36.0 | 48.6 | 45.7 | 40.7 |
| Progression Factor | 0.89 | 0.92 | 1.73 | 1.32 | 0.82 | | 0.63 | 0.32 | 0.03 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 22.1 | 0.4 | 0.2 | 5.3 | 0.6 | | 3.9 | 3.4 | 0.0 | 7.5 | 3.3 | 0.2 |
| Delay (s) | 68.8 | 22.1 | 38.2 | 74.8 | 23.0 | | 32.2 | 17.2 | 1.0 | 56.1 | 49.1 | 40.9 |
| Level of Service | E | C | D | E | C | | C | B | A | E | D | D |
| Approach Delay (s) | | 37.5 | | | 28.3 | | | 19.5 | | | 48.7 | |
| Approach LOS | | D | | | C | | | B | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

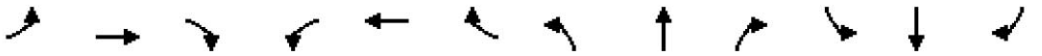
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 950 | 1470 | 150 | 120 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1589 | 3502 | 1603 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1589 | 3502 | 1603 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 138 | 1011 | 1564 | 160 | 128 | 74 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 35 | 0 | 14 |
| Lane Group Flow (vph) | 138 | 1011 | 1564 | 125 | 128 | 60 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 14.0 | 102.2 | 84.2 | 94.0 | 9.8 | 23.8 |
| Effective Green, g (s) | 14.0 | 102.2 | 84.2 | 94.0 | 9.8 | 23.8 |
| Actuated g/C Ratio | 0.12 | 0.85 | 0.70 | 0.78 | 0.08 | 0.20 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 211 | 3075 | 2533 | 1298 | 286 | 371 |
| v/s Ratio Prot | c0.08 | 0.28 | c0.43 | 0.01 | c0.04 | 0.02 |
| v/s Ratio Perm | | | | 0.07 | | 0.02 |
| v/c Ratio | 0.65 | 0.33 | 0.62 | 0.10 | 0.45 | 0.16 |
| Uniform Delay, d1 | 50.7 | 1.8 | 9.4 | 3.0 | 52.5 | 39.8 |
| Progression Factor | 0.91 | 1.24 | 0.99 | 1.75 | 0.52 | 0.35 |
| Incremental Delay, d2 | 6.7 | 0.3 | 1.0 | 0.0 | 1.1 | 0.2 |
| Delay (s) | 52.9 | 2.5 | 10.4 | 5.4 | 28.2 | 14.3 |
| Level of Service | D | A | B | A | C | B |
| Approach Delay (s) | | 8.6 | 9.9 | | 23.1 | |
| Approach LOS | | A | A | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

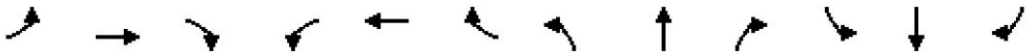
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 770 | 190 | 20 | 1440 | 70 | 170 | 40 | 20 | 60 | 60 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5147 | | 3502 | 3413 | | 1805 | 3610 | 1604 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5147 | | 3502 | 3413 | | 1805 | 3610 | 1604 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 819 | 202 | 21 | 1532 | 74 | 181 | 43 | 21 | 64 | 64 | 64 |
| RTOR Reduction (vph) | 0 | 0 | 65 | 0 | 3 | 0 | 0 | 19 | 0 | 0 | 0 | 13 |
| Lane Group Flow (vph) | 85 | 819 | 137 | 21 | 1603 | 0 | 181 | 45 | 0 | 64 | 64 | 51 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.7 | 81.1 | 81.1 | 2.8 | 72.2 | | 12.3 | 10.0 | | 10.1 | 7.8 | 19.5 |
| Effective Green, g (s) | 11.7 | 81.1 | 81.1 | 2.8 | 72.2 | | 12.3 | 10.0 | | 10.1 | 7.8 | 19.5 |
| Actuated g/C Ratio | 0.10 | 0.68 | 0.68 | 0.02 | 0.60 | | 0.10 | 0.08 | | 0.08 | 0.06 | 0.16 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 176 | 2440 | 1073 | 42 | 3097 | | 359 | 284 | | 152 | 235 | 314 |
| v/s Ratio Prot | c0.05 | 0.23 | | 0.01 | c0.31 | | c0.05 | 0.01 | | 0.04 | c0.02 | 0.02 |
| v/s Ratio Perm | | | 0.09 | | | | | | | | | 0.02 |
| v/c Ratio | 0.48 | 0.34 | 0.13 | 0.50 | 0.52 | | 0.50 | 0.16 | | 0.42 | 0.27 | 0.16 |
| Uniform Delay, d1 | 51.3 | 8.2 | 6.9 | 57.9 | 13.8 | | 51.0 | 51.1 | | 52.2 | 53.4 | 43.2 |
| Progression Factor | 1.05 | 0.58 | 0.57 | 0.80 | 0.45 | | 1.00 | 1.00 | | 1.09 | 0.87 | 0.79 |
| Incremental Delay, d2 | 2.0 | 0.4 | 0.2 | 6.9 | 0.5 | | 1.1 | 0.3 | | 1.9 | 0.6 | 0.2 |
| Delay (s) | 55.9 | 5.1 | 4.2 | 53.3 | 6.7 | | 52.1 | 51.3 | | 58.8 | 47.2 | 34.2 |
| Level of Service | E | A | A | D | A | | D | D | | E | D | C |
| Approach Delay (s) | | 8.8 | | | 7.3 | | | 51.9 | | | 46.7 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

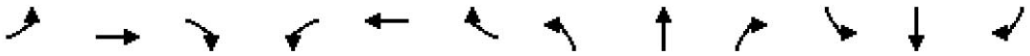
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 580 | 240 | 20 | 810 | 70 | 700 | 380 | 10 | 50 | 190 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1597 | 1805 | 3562 | | 3502 | 3594 | | 1805 | 3527 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1597 | 1805 | 3562 | | 3502 | 3594 | | 1805 | 3527 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 63 | 611 | 253 | 21 | 853 | 74 | 737 | 400 | 11 | 53 | 200 | 32 |
| RTOR Reduction (vph) | 0 | 0 | 68 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 63 | 611 | 185 | 21 | 923 | 0 | 737 | 409 | 0 | 53 | 219 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 7.2 | 55.6 | 87.9 | 3.3 | 51.7 | | 32.3 | 39.5 | | 5.6 | 12.8 | |
| Effective Green, g (s) | 7.2 | 55.6 | 87.9 | 3.3 | 51.7 | | 32.3 | 39.5 | | 5.6 | 12.8 | |
| Actuated g/C Ratio | 0.06 | 0.46 | 0.73 | 0.03 | 0.43 | | 0.27 | 0.33 | | 0.05 | 0.11 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 108 | 1673 | 1170 | 50 | 1535 | | 943 | 1183 | | 84 | 376 | |
| v/s Ratio Prot | c0.03 | 0.17 | 0.04 | 0.01 | c0.26 | | c0.21 | 0.11 | | 0.03 | c0.06 | |
| v/s Ratio Perm | | | 0.07 | | | | | | | | | |
| v/c Ratio | 0.58 | 0.37 | 0.16 | 0.42 | 0.60 | | 0.78 | 0.35 | | 0.63 | 0.58 | |
| Uniform Delay, d1 | 54.9 | 20.8 | 4.9 | 57.4 | 26.2 | | 40.6 | 30.5 | | 56.2 | 51.0 | |
| Progression Factor | 0.85 | 0.82 | 3.54 | 1.06 | 1.22 | | 1.00 | 1.00 | | 0.31 | 0.26 | |
| Incremental Delay, d2 | 7.5 | 0.6 | 0.1 | 5.1 | 1.6 | | 4.3 | 0.2 | | 14.4 | 2.3 | |
| Delay (s) | 54.5 | 17.6 | 17.2 | 66.2 | 33.7 | | 44.9 | 30.6 | | 31.7 | 15.4 | |
| Level of Service | D | B | B | E | C | | D | C | | C | B | |
| Approach Delay (s) | | 20.0 | | | 34.5 | | | 39.8 | | | 18.4 | |
| Approach LOS | | C | | | C | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 76.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

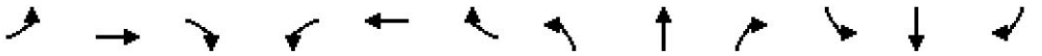
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 520 | 80 | 50 | 740 | 50 | 100 | 340 | 60 | 50 | 250 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3529 | | 1805 | 3572 | | 1805 | 3520 | | 1805 | 3545 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3529 | | 1805 | 3572 | | 1805 | 3520 | | 1805 | 3545 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 56 | 584 | 90 | 56 | 831 | 56 | 112 | 382 | 67 | 56 | 281 | 34 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 3 | 0 | 0 | 14 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 56 | 666 | 0 | 56 | 884 | 0 | 112 | 435 | 0 | 56 | 306 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 8.0 | 66.6 | | 7.2 | 65.8 | | 14.5 | 22.2 | | 8.0 | 15.7 | |
| Effective Green, g (s) | 8.0 | 66.6 | | 7.2 | 65.8 | | 14.5 | 22.2 | | 8.0 | 15.7 | |
| Actuated g/C Ratio | 0.07 | 0.55 | | 0.06 | 0.55 | | 0.12 | 0.18 | | 0.07 | 0.13 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 120 | 1959 | | 108 | 1959 | | 218 | 651 | | 120 | 464 | |
| v/s Ratio Prot | c0.03 | 0.19 | | 0.03 | c0.25 | | c0.06 | c0.12 | | 0.03 | 0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.47 | 0.34 | | 0.52 | 0.45 | | 0.51 | 0.67 | | 0.47 | 0.66 | |
| Uniform Delay, d1 | 53.9 | 14.6 | | 54.7 | 16.3 | | 49.4 | 45.5 | | 53.9 | 49.6 | |
| Progression Factor | 0.65 | 1.78 | | 0.61 | 0.51 | | 1.00 | 1.00 | | 0.65 | 0.34 | |
| Incremental Delay, d2 | 2.7 | 0.5 | | 3.6 | 0.7 | | 2.0 | 2.6 | | 2.8 | 3.4 | |
| Delay (s) | 38.1 | 26.5 | | 37.1 | 9.0 | | 51.5 | 48.1 | | 37.6 | 20.3 | |
| Level of Service | D | C | | D | A | | D | D | | D | C | |
| Approach Delay (s) | | 27.3 | | | 10.7 | | | 48.8 | | | 22.9 | |
| Approach LOS | | C | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

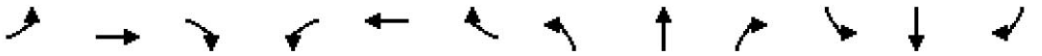
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 470 | 110 | 70 | 630 | 70 | 180 | 660 | 70 | 80 | 490 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3496 | | 1805 | 3550 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3496 | | 1805 | 3550 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 66 | 516 | 121 | 77 | 692 | 77 | 198 | 725 | 77 | 88 | 538 | 44 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 7 | 0 | 0 | 0 | 53 | 0 | 0 | 34 |
| Lane Group Flow (vph) | 66 | 621 | 0 | 77 | 762 | 0 | 198 | 725 | 24 | 88 | 538 | 10 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.2 | 48.0 | | 8.1 | 48.9 | | 19.9 | 37.0 | 37.0 | 10.9 | 28.0 | 28.0 |
| Effective Green, g (s) | 7.2 | 48.0 | | 8.1 | 48.9 | | 19.9 | 37.0 | 37.0 | 10.9 | 28.0 | 28.0 |
| Actuated g/C Ratio | 0.06 | 0.40 | | 0.07 | 0.41 | | 0.17 | 0.31 | 0.31 | 0.09 | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 108 | 1398 | | 122 | 1447 | | 299 | 1113 | 489 | 164 | 842 | 370 |
| v/s Ratio Prot | c0.04 | 0.18 | | c0.04 | c0.21 | | c0.11 | c0.20 | | 0.05 | 0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | 0.01 |
| v/c Ratio | 0.61 | 0.44 | | 0.63 | 0.53 | | 0.66 | 0.65 | 0.05 | 0.54 | 0.64 | 0.03 |
| Uniform Delay, d1 | 55.0 | 26.3 | | 54.5 | 26.8 | | 46.9 | 35.9 | 29.1 | 52.1 | 41.4 | 35.5 |
| Progression Factor | 0.60 | 0.38 | | 1.25 | 0.71 | | 0.72 | 0.63 | 0.17 | 1.10 | 0.86 | 1.42 |
| Incremental Delay, d2 | 9.4 | 1.0 | | 9.0 | 1.2 | | 5.0 | 2.8 | 0.2 | 3.2 | 3.5 | 0.1 |
| Delay (s) | 42.4 | 10.9 | | 77.0 | 20.3 | | 39.0 | 25.2 | 5.2 | 60.4 | 39.2 | 50.4 |
| Level of Service | D | B | | E | C | | D | C | A | E | D | D |
| Approach Delay (s) | | 13.9 | | | 25.5 | | | 26.4 | | | 42.7 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

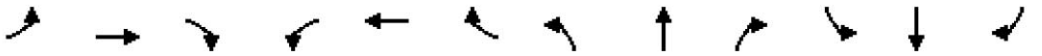
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1020 | 70 | 30 | 1550 | 450 | 290 | 240 | 10 | 50 | 30 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1591 | 3502 | 3610 | 2801 | 3502 | 3610 | 1591 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1591 | 3502 | 3610 | 2801 | 3502 | 3610 | 1591 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 207 | 1109 | 76 | 33 | 1685 | 489 | 315 | 261 | 11 | 54 | 33 | 76 |
| RTOR Reduction (vph) | 0 | 0 | 34 | 0 | 0 | 113 | 0 | 0 | 9 | 0 | 0 | 71 |
| Lane Group Flow (vph) | 207 | 1109 | 42 | 33 | 1685 | 376 | 315 | 261 | 2 | 54 | 33 | 5 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.1 | 43.3 | 43.3 | 3.9 | 40.1 | 40.1 | 10.9 | 12.6 | 16.5 | 3.9 | 5.6 | 5.6 |
| Effective Green, g (s) | 7.1 | 43.3 | 43.3 | 3.9 | 40.1 | 40.1 | 10.9 | 12.6 | 16.5 | 3.9 | 5.6 | 5.6 |
| Actuated g/C Ratio | 0.09 | 0.54 | 0.54 | 0.05 | 0.50 | 0.50 | 0.14 | 0.16 | 0.21 | 0.05 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 161 | 2818 | 877 | 171 | 2610 | 800 | 479 | 571 | 720 | 171 | 254 | 112 |
| v/s Ratio Prot | c0.11 | c0.21 | | 0.01 | c0.32 | | c0.09 | 0.07 | 0.00 | c0.02 | 0.01 | |
| v/s Ratio Perm | | | 0.03 | | | 0.24 | | | 0.00 | | | 0.00 |
| v/c Ratio | 1.29 | 0.39 | 0.05 | 0.19 | 0.65 | 0.47 | 0.66 | 0.46 | 0.00 | 0.32 | 0.13 | 0.05 |
| Uniform Delay, d1 | 36.3 | 10.6 | 8.5 | 36.4 | 14.6 | 12.9 | 32.6 | 30.4 | 25.1 | 36.6 | 34.8 | 34.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 167.2 | 0.1 | 0.0 | 0.6 | 0.6 | 0.4 | 3.3 | 0.6 | 0.0 | 1.1 | 0.2 | 0.2 |
| Delay (s) | 203.5 | 10.7 | 8.6 | 36.9 | 15.1 | 13.3 | 35.9 | 31.0 | 25.1 | 37.7 | 35.0 | 34.7 |
| Level of Service | F | B | A | D | B | B | D | C | C | D | C | C |
| Approach Delay (s) | | 39.2 | | | 15.1 | | | 33.5 | | | 35.8 | |
| Approach LOS | | D | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 79.7 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 73.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 780 | 340 | 0 | 1660 | 0 | 0 | 0 | 0 | 200 | 0 | 310 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.95 | | | 1.00 | | | | | 1.00 | 0.87 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (prot) | | 4951 | | | 5187 | | | | | 1715 | 1494 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (perm) | | 4951 | | | 5187 | | | | | 1715 | 1494 | 1534 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 857 | 374 | 0 | 1824 | 0 | 0 | 0 | 0 | 220 | 0 | 341 |
| RTOR Reduction (vph) | 0 | 91 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 15 |
| Lane Group Flow (vph) | 0 | 1140 | 0 | 0 | 1824 | 0 | 0 | 0 | 0 | 196 | 169 | 166 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 48.1 | | | 48.1 | | | | | 13.9 | 13.9 | 13.9 |
| Effective Green, g (s) | | 48.1 | | | 48.1 | | | | | 13.9 | 13.9 | 13.9 |
| Actuated g/C Ratio | | 0.69 | | | 0.69 | | | | | 0.20 | 0.20 | 0.20 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3402 | | | 3564 | | | | | 341 | 297 | 305 |
| v/s Ratio Prot | | 0.23 | | | c0.35 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | c0.11 | 0.11 | 0.11 |
| v/c Ratio | | 0.33 | | | 0.51 | | | | | 0.57 | 0.57 | 0.54 |
| Uniform Delay, d1 | | 4.5 | | | 5.3 | | | | | 25.4 | 25.3 | 25.2 |
| Progression Factor | | 1.00 | | | 0.23 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.3 | | | 0.4 | | | | | 2.3 | 2.5 | 2.0 |
| Delay (s) | | 4.7 | | | 1.6 | | | | | 27.7 | 27.8 | 27.2 |
| Level of Service | | A | | | A | | | | | C | C | C |
| Approach Delay (s) | | 4.7 | | | 1.6 | | | 0.0 | | | 27.6 | |
| Approach LOS | | A | | | A | | | A | | | C | |

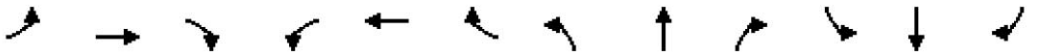
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 70.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 65.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 810 | 0 | 0 | 970 | 170 | 780 | 10 | 300 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 5059 | | 1715 | 1636 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 5059 | | 1715 | 1636 | 1534 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 152 | 880 | 0 | 0 | 1054 | 185 | 848 | 11 | 326 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 4 | 86 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 152 | 880 | 0 | 0 | 1205 | 0 | 449 | 439 | 207 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.0 | 39.2 | | | 27.2 | | 22.8 | 22.8 | 22.8 | | | |
| Effective Green, g (s) | 8.0 | 39.2 | | | 27.2 | | 22.8 | 22.8 | 22.8 | | | |
| Actuated g/C Ratio | 0.11 | 0.56 | | | 0.39 | | 0.33 | 0.33 | 0.33 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 206 | 2905 | | | 1966 | | 559 | 533 | 500 | | | |
| v/s Ratio Prot | c0.08 | 0.17 | | | c0.24 | | 0.26 | c0.27 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | |
| v/c Ratio | 0.74 | 0.30 | | | 0.61 | | 0.80 | 0.82 | 0.41 | | | |
| Uniform Delay, d1 | 30.0 | 8.2 | | | 17.2 | | 21.6 | 21.7 | 18.4 | | | |
| Progression Factor | 0.98 | 0.85 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 12.3 | 0.3 | | | 1.4 | | 8.2 | 10.0 | 0.6 | | | |
| Delay (s) | 41.7 | 7.2 | | | 18.6 | | 29.7 | 31.7 | 18.9 | | | |
| Level of Service | D | A | | | B | | C | C | B | | | |
| Approach Delay (s) | | 12.3 | | | 18.6 | | | 27.8 | | | 0.0 | |
| Approach LOS | | B | | | B | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 70.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

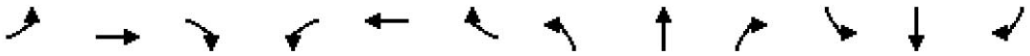
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 800 | 10 | 0 | 950 | 100 | 50 | 160 | 10 | 30 | 20 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3602 | | | 3610 | 1615 | 3502 | 3577 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3602 | | | 3610 | 1615 | 3502 | 3577 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 340 | 851 | 11 | 0 | 1011 | 106 | 53 | 170 | 11 | 32 | 21 | 170 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 49 | 0 | 4 | 0 | 0 | 0 | 158 |
| Lane Group Flow (vph) | 340 | 862 | 0 | 0 | 1011 | 57 | 53 | 177 | 0 | 32 | 21 | 12 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 22.0 | 90.0 | | | 64.0 | 64.0 | 9.3 | 12.8 | | 5.2 | 8.7 | 8.7 |
| Effective Green, g (s) | 22.0 | 90.0 | | | 64.0 | 64.0 | 9.3 | 12.8 | | 5.2 | 8.7 | 8.7 |
| Actuated g/C Ratio | 0.18 | 0.75 | | | 0.53 | 0.53 | 0.08 | 0.11 | | 0.04 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 642 | 2702 | | | 1925 | 861 | 271 | 382 | | 78 | 262 | 117 |
| v/s Ratio Prot | c0.10 | 0.24 | | | c0.28 | | 0.02 | c0.05 | | c0.02 | 0.01 | |
| v/s Ratio Perm | | | | | | 0.04 | | | | | | 0.01 |
| v/c Ratio | 0.53 | 0.32 | | | 0.53 | 0.07 | 0.20 | 0.46 | | 0.41 | 0.08 | 0.11 |
| Uniform Delay, d1 | 44.3 | 4.9 | | | 18.2 | 13.5 | 51.8 | 50.4 | | 55.9 | 51.9 | 52.0 |
| Progression Factor | 1.00 | 1.00 | | | 0.33 | 0.05 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | 0.3 | | | 1.0 | 0.1 | 0.4 | 0.9 | | 3.5 | 0.1 | 0.4 |
| Delay (s) | 45.1 | 5.2 | | | 7.0 | 0.8 | 52.2 | 51.3 | | 59.4 | 52.0 | 52.4 |
| Level of Service | D | A | | | A | A | D | D | | E | D | D |
| Approach Delay (s) | | 16.5 | | | 6.4 | | | 51.5 | | | 53.4 | |
| Approach LOS | | B | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 69.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 750 | 30 | 10 | 1010 | 30 | 10 | 10 | 20 | 10 | 10 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.90 | | 1.00 | 0.89 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5151 | | 1805 | 3610 | 1564 | 1797 | 1688 | | 1798 | 1663 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.73 | 1.00 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5151 | | 1805 | 3610 | 1564 | 1381 | 1688 | | 1395 | 1663 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 52 | 773 | 31 | 10 | 1041 | 31 | 10 | 10 | 21 | 10 | 10 | 31 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 20 | 0 | 0 | 29 | 0 |
| Lane Group Flow (vph) | 52 | 803 | 0 | 10 | 1041 | 28 | 10 | 11 | 0 | 10 | 12 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 9.2 | 99.0 | | 1.4 | 91.2 | 91.2 | 7.6 | 7.6 | | 7.6 | 7.6 | |
| Effective Green, g (s) | 9.2 | 99.0 | | 1.4 | 91.2 | 91.2 | 7.6 | 7.6 | | 7.6 | 7.6 | |
| Actuated g/C Ratio | 0.08 | 0.82 | | 0.01 | 0.76 | 0.76 | 0.06 | 0.06 | | 0.06 | 0.06 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 138 | 4250 | | 21 | 2744 | 1189 | 87 | 107 | | 88 | 105 | |
| v/s Ratio Prot | c0.03 | 0.16 | | 0.01 | c0.29 | | | 0.01 | | | 0.01 | |
| v/s Ratio Perm | | | | | | 0.02 | c0.01 | | | 0.01 | | |
| v/c Ratio | 0.38 | 0.19 | | 0.48 | 0.38 | 0.02 | 0.11 | 0.11 | | 0.11 | 0.11 | |
| Uniform Delay, d1 | 52.7 | 2.2 | | 58.9 | 4.9 | 3.5 | 53.0 | 53.0 | | 53.0 | 53.0 | |
| Progression Factor | 0.91 | 0.94 | | 1.14 | 0.42 | 0.29 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.7 | 0.1 | | 15.6 | 0.4 | 0.0 | 0.6 | 0.4 | | 0.6 | 0.5 | |
| Delay (s) | 49.6 | 2.1 | | 82.9 | 2.4 | 1.1 | 53.6 | 53.4 | | 53.6 | 53.5 | |
| Level of Service | D | A | | F | A | A | D | D | | D | D | |
| Approach Delay (s) | | 5.0 | | | 3.1 | | | 53.5 | | | 53.5 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 700 | 80 | 100 | 890 | 80 | 70 | 90 | 40 | 40 | 130 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5097 | | 1805 | 5110 | | 1805 | 1803 | | 1805 | 1900 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5097 | | 1805 | 5110 | | 1805 | 1803 | | 1805 | 1900 | 1589 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 41 | 714 | 82 | 102 | 908 | 82 | 71 | 92 | 41 | 41 | 133 | 82 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 5 | 0 | 0 | 20 | 0 | 0 | 0 | 73 |
| Lane Group Flow (vph) | 41 | 789 | 0 | 102 | 985 | 0 | 71 | 113 | 0 | 41 | 133 | 9 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 6.6 | 68.0 | | 13.7 | 75.1 | | 8.4 | 13.2 | | 9.1 | 13.9 | 13.9 |
| Effective Green, g (s) | 6.6 | 68.0 | | 13.7 | 75.1 | | 8.4 | 13.2 | | 9.1 | 13.9 | 13.9 |
| Actuated g/C Ratio | 0.05 | 0.57 | | 0.11 | 0.63 | | 0.07 | 0.11 | | 0.08 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 99 | 2888 | | 206 | 3198 | | 126 | 198 | | 137 | 220 | 184 |
| v/s Ratio Prot | 0.02 | 0.15 | | c0.06 | c0.19 | | 0.04 | c0.06 | | 0.02 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.41 | 0.27 | | 0.50 | 0.31 | | 0.56 | 0.57 | | 0.30 | 0.60 | 0.05 |
| Uniform Delay, d1 | 54.8 | 13.3 | | 49.9 | 10.4 | | 54.0 | 50.7 | | 52.4 | 50.4 | 47.2 |
| Progression Factor | 1.09 | 0.66 | | 0.65 | 0.29 | | 1.45 | 1.60 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.8 | 0.2 | | 1.8 | 0.2 | | 4.3 | 3.0 | | 1.2 | 4.6 | 0.1 |
| Delay (s) | 62.6 | 9.0 | | 34.1 | 3.3 | | 82.4 | 84.2 | | 53.7 | 55.1 | 47.3 |
| Level of Service | E | A | | C | A | | F | F | | D | E | D |
| Approach Delay (s) | | 11.6 | | | 6.2 | | | 83.6 | | | 52.4 | |
| Approach LOS | | B | | | A | | | F | | | D | |

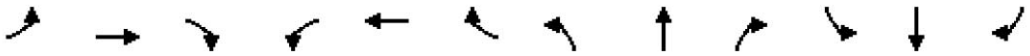
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 59.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 640 | 50 | 490 | 640 | 0 | 0 | 0 | 0 | 0 | 0 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 3610 | 1572 | 1805 | 3610 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 3610 | 1572 | 1805 | 3610 | | | | | | | 1644 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 696 | 54 | 533 | 696 | 0 | 0 | 0 | 0 | 0 | 0 | 228 |
| RTOR Reduction (vph) | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 212 |
| Lane Group Flow (vph) | 0 | 696 | 21 | 533 | 696 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 45.8 | 45.8 | 66.2 | 103.8 | | | | | | | 8.2 |
| Effective Green, g (s) | | 45.8 | 45.8 | 66.2 | 103.8 | | | | | | | 8.2 |
| Actuated g/C Ratio | | 0.38 | 0.38 | 0.55 | 0.86 | | | | | | | 0.07 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1378 | 600 | 996 | 3123 | | | | | | | 112 |
| v/s Ratio Prot | | c0.19 | | c0.30 | 0.19 | | | | | | | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | |
| v/c Ratio | | 0.51 | 0.03 | 0.54 | 0.22 | | | | | | | 0.14 |
| Uniform Delay, d1 | | 28.4 | 23.2 | 17.1 | 1.4 | | | | | | | 52.6 |
| Progression Factor | | 1.00 | 1.00 | 0.64 | 1.04 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 1.3 | 0.1 | 0.4 | 0.1 | | | | | | | 0.6 |
| Delay (s) | | 29.7 | 23.4 | 11.4 | 1.5 | | | | | | | 53.2 |
| Level of Service | | C | C | B | A | | | | | | | D |
| Approach Delay (s) | | 29.3 | | | 5.8 | | | 0.0 | | | 53.2 | |
| Approach LOS | | C | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 51.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

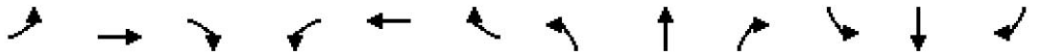
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 620 | 50 | 0 | 1420 | 140 | 230 | 100 | 10 | 10 | 0 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3570 | | | 3553 | | 1805 | 1873 | | 1805 | 1615 | |
| Flt Permitted | 0.10 | 1.00 | | | 1.00 | | 0.74 | 1.00 | | 0.62 | 1.00 | |
| Satd. Flow (perm) | 188 | 3570 | | | 3553 | | 1399 | 1873 | | 1171 | 1615 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 660 | 53 | 0 | 1511 | 149 | 245 | 106 | 11 | 11 | 0 | 32 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 25 | 0 |
| Lane Group Flow (vph) | 21 | 709 | 0 | 0 | 1655 | 0 | 245 | 114 | 0 | 11 | 7 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 85.8 | 85.8 | | | 85.8 | | 26.2 | 26.2 | | 26.2 | 26.2 | |
| Effective Green, g (s) | 85.8 | 85.8 | | | 85.8 | | 26.2 | 26.2 | | 26.2 | 26.2 | |
| Actuated g/C Ratio | 0.71 | 0.71 | | | 0.71 | | 0.22 | 0.22 | | 0.22 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 134 | 2553 | | | 2540 | | 305 | 409 | | 256 | 353 | |
| v/s Ratio Prot | | 0.20 | | | c0.47 | | | 0.06 | | | 0.00 | |
| v/s Ratio Perm | 0.11 | | | | | | c0.18 | | | 0.01 | | |
| v/c Ratio | 0.16 | 0.28 | | | 0.65 | | 0.80 | 0.28 | | 0.04 | 0.02 | |
| Uniform Delay, d1 | 5.5 | 6.1 | | | 9.1 | | 44.5 | 39.0 | | 37.0 | 36.8 | |
| Progression Factor | 0.11 | 0.03 | | | 0.38 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.2 | 0.2 | | | 1.3 | | 14.1 | 0.4 | | 0.1 | 0.0 | |
| Delay (s) | 2.8 | 0.4 | | | 4.7 | | 58.6 | 39.4 | | 37.1 | 36.8 | |
| Level of Service | A | A | | | A | | E | D | | D | D | |
| Approach Delay (s) | | 0.5 | | | 4.7 | | | 52.4 | | | 36.9 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 910 | 250 | 120 | 1230 | 60 | 50 | 30 | 30 | 60 | 120 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5187 | 1564 | 1715 | 1660 | | 1715 | 1801 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5187 | 1564 | 1715 | 1660 | | 1715 | 1801 | 1587 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 117 | 968 | 266 | 128 | 1309 | 64 | 53 | 32 | 32 | 64 | 128 | 96 |
| RTOR Reduction (vph) | 0 | 0 | 85 | 0 | 0 | 19 | 0 | 30 | 0 | 0 | 0 | 84 |
| Lane Group Flow (vph) | 117 | 968 | 181 | 128 | 1309 | 45 | 48 | 39 | 0 | 58 | 134 | 12 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 7.0 | 73.4 | 73.4 | 7.0 | 73.4 | 73.4 | 9.1 | 9.1 | | 14.5 | 14.5 | 14.5 |
| Effective Green, g (s) | 7.0 | 73.4 | 73.4 | 7.0 | 73.4 | 73.4 | 9.1 | 9.1 | | 14.5 | 14.5 | 14.5 |
| Actuated g/C Ratio | 0.06 | 0.61 | 0.61 | 0.06 | 0.61 | 0.61 | 0.08 | 0.08 | | 0.12 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 2208 | 969 | 105 | 3173 | 957 | 130 | 126 | | 207 | 218 | 192 |
| v/s Ratio Prot | 0.06 | c0.27 | | c0.07 | 0.25 | | c0.03 | 0.02 | | 0.03 | c0.07 | |
| v/s Ratio Perm | | | 0.11 | | | 0.03 | | | | | | 0.01 |
| v/c Ratio | 1.11 | 0.44 | 0.19 | 1.22 | 0.41 | 0.05 | 0.37 | 0.31 | | 0.28 | 0.61 | 0.06 |
| Uniform Delay, d1 | 56.5 | 12.4 | 10.2 | 56.5 | 12.1 | 9.3 | 52.7 | 52.5 | | 48.0 | 50.1 | 46.7 |
| Progression Factor | 0.78 | 1.22 | 2.26 | 0.82 | 0.38 | 0.19 | 1.00 | 1.00 | | 1.01 | 1.02 | 2.33 |
| Incremental Delay, d2 | 121.8 | 0.6 | 0.4 | 149.2 | 0.3 | 0.1 | 1.8 | 1.4 | | 0.7 | 4.9 | 0.1 |
| Delay (s) | 165.6 | 15.8 | 23.5 | 195.3 | 4.9 | 1.8 | 54.5 | 53.9 | | 49.0 | 56.2 | 109.1 |
| Level of Service | F | B | C | F | A | A | D | D | | D | E | F |
| Approach Delay (s) | | 30.3 | | | 21.0 | | | 54.2 | | | 72.4 | |
| Approach LOS | | C | | | C | | | D | | | E | |

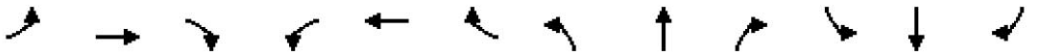
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 55.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 570 | 100 | 10 | 560 | 280 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.98 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3516 | | 1805 | 3610 | 1805 | 1596 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3516 | | 1805 | 3610 | 1805 | 1596 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 679 | 119 | 12 | 667 | 333 | 71 |
| RTOR Reduction (vph) | 17 | 0 | 0 | 0 | 0 | 33 |
| Lane Group Flow (vph) | 781 | 0 | 12 | 667 | 333 | 38 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 17.1 | | 3.4 | 24.5 | 15.3 | 18.7 |
| Effective Green, g (s) | 17.1 | | 3.4 | 24.5 | 15.3 | 18.7 |
| Actuated g/C Ratio | 0.36 | | 0.07 | 0.51 | 0.32 | 0.39 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1258 | | 128 | 1850 | 578 | 758 |
| v/s Ratio Prot | c0.22 | | 0.01 | c0.18 | c0.18 | 0.00 |
| v/s Ratio Perm | | | | | | 0.02 |
| v/c Ratio | 0.62 | | 0.09 | 0.36 | 0.58 | 0.05 |
| Uniform Delay, d1 | 12.7 | | 20.8 | 7.0 | 13.5 | 9.0 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | | 0.3 | 0.1 | 1.4 | 0.0 |
| Delay (s) | 13.6 | | 21.1 | 7.1 | 14.9 | 9.1 |
| Level of Service | B | | C | A | B | A |
| Approach Delay (s) | 13.6 | | | 7.3 | 13.9 | |
| Approach LOS | B | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 47.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 43.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

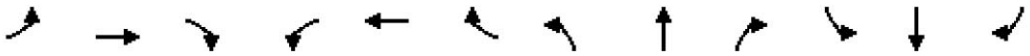
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 510 | 120 | 30 | 230 | 30 | 460 | 280 | 730 | 60 | 20 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1584 | 3502 | 3548 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1584 | 3502 | 3548 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 11 | 560 | 132 | 33 | 253 | 33 | 505 | 308 | 802 | 66 | 22 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 106 | 0 | 9 | 0 | 0 | 0 | 130 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 11 | 560 | 26 | 33 | 277 | 0 | 505 | 308 | 672 | 66 | 22 | 0 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.7 | 17.3 | 17.3 | 3.4 | 19.0 | | 47.7 | 45.8 | 45.8 | 5.4 | 3.5 | 3.5 |
| Effective Green, g (s) | 1.7 | 17.3 | 17.3 | 3.4 | 19.0 | | 47.7 | 45.8 | 45.8 | 5.4 | 3.5 | 3.5 |
| Actuated g/C Ratio | 0.02 | 0.20 | 0.20 | 0.04 | 0.22 | | 0.54 | 0.52 | 0.52 | 0.06 | 0.04 | 0.04 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 35 | 1021 | 312 | 135 | 767 | | 980 | 990 | 841 | 111 | 144 | 63 |
| v/s Ratio Prot | 0.01 | c0.11 | | 0.01 | c0.08 | | 0.28 | 0.16 | | c0.04 | 0.01 | |
| v/s Ratio Perm | | | 0.02 | | | | | | c0.42 | | | 0.00 |
| v/c Ratio | 0.31 | 0.55 | 0.08 | 0.24 | 0.36 | | 0.52 | 0.31 | 0.80 | 0.59 | 0.15 | 0.01 |
| Uniform Delay, d1 | 42.5 | 31.8 | 28.8 | 41.0 | 29.3 | | 12.8 | 12.0 | 17.3 | 40.2 | 40.8 | 40.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.1 | 0.6 | 0.1 | 0.9 | 0.3 | | 0.5 | 0.2 | 5.3 | 8.3 | 0.5 | 0.0 |
| Delay (s) | 47.6 | 32.4 | 28.9 | 41.9 | 29.6 | | 13.2 | 12.2 | 22.6 | 48.5 | 41.3 | 40.6 |
| Level of Service | D | C | C | D | C | | B | B | C | D | D | D |
| Approach Delay (s) | | 32.0 | | | 30.9 | | | 17.7 | | | 46.0 | |
| Approach LOS | | C | | | C | | | B | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 87.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 10 | 50 | 0 | 0 | 0 | 0 | 1050 | 340 | 100 | 200 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.90 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1622 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1622 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 33 | 11 | 55 | 0 | 0 | 0 | 0 | 1154 | 374 | 110 | 220 | 0 |
| RTOR Reduction (vph) | 0 | 21 | 29 | 0 | 0 | 0 | 0 | 0 | 163 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 33 | 13 | 3 | 0 | 0 | 0 | 0 | 1154 | 211 | 110 | 220 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 4.2 | 4.2 | 4.2 | | | | | 28.2 | 28.2 | 5.6 | 37.8 | |
| Effective Green, g (s) | 4.2 | 4.2 | 4.2 | | | | | 28.2 | 28.2 | 5.6 | 37.8 | |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.08 | | | | | 0.56 | 0.56 | 0.11 | 0.76 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 152 | 136 | 129 | | | | | 2036 | 911 | 392 | 2729 | |
| v/s Ratio Prot | c0.02 | 0.01 | | | | | | c0.32 | | c0.03 | 0.06 | |
| v/s Ratio Perm | | | 0.00 | | | | | | 0.13 | | | |
| v/c Ratio | 0.22 | 0.10 | 0.02 | | | | | 0.57 | 0.23 | 0.28 | 0.08 | |
| Uniform Delay, d1 | 21.4 | 21.1 | 21.0 | | | | | 7.0 | 5.5 | 20.4 | 1.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 0.70 | |
| Incremental Delay, d2 | 0.7 | 0.3 | 0.1 | | | | | 1.1 | 0.6 | 0.4 | 0.1 | |
| Delay (s) | 22.1 | 21.5 | 21.1 | | | | | 8.1 | 6.1 | 19.7 | 1.2 | |
| Level of Service | C | C | C | | | | | A | A | B | A | |
| Approach Delay (s) | | 21.5 | | | 0.0 | | | 7.6 | | | 7.3 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 51.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 270 | 1020 | 0 | 0 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 153 | 318 | 1200 | 0 | 0 | 188 |
| RTOR Reduction (vph) | 0 | 41 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 153 | 277 | 1200 | 0 | 0 | 188 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 12.4 | 12.4 | 29.6 | | | 29.6 |
| Effective Green, g (s) | 12.4 | 12.4 | 29.6 | | | 29.6 |
| Actuated g/C Ratio | 0.25 | 0.25 | 0.59 | | | 0.59 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 868 | 401 | 2137 | | | 2137 |
| v/s Ratio Prot | 0.04 | | c0.33 | | | 0.05 |
| v/s Ratio Perm | | c0.17 | | | | |
| v/c Ratio | 0.18 | 0.69 | 0.56 | | | 0.09 |
| Uniform Delay, d1 | 14.8 | 17.1 | 6.2 | | | 4.4 |
| Progression Factor | 1.00 | 1.00 | 0.19 | | | 1.00 |
| Incremental Delay, d2 | 0.1 | 5.1 | 0.9 | | | 0.1 |
| Delay (s) | 14.9 | 22.2 | 2.1 | | | 4.5 |
| Level of Service | B | C | A | | | A |
| Approach Delay (s) | 19.8 | | 2.1 | | | 4.5 |
| Approach LOS | B | | A | | | A |

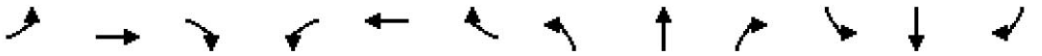
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 51.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 740 | 10 | 110 | 1800 | 1910 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5175 | | 3502 | 5187 | 5100 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5175 | | 3502 | 5187 | 5100 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 804 | 11 | 120 | 1957 | 2076 | 11 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 814 | 0 | 120 | 1957 | 2086 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 25.0 | | 13.9 | 42.9 | 38.0 | |
| Effective Green, g (s) | 25.0 | | 13.9 | 42.9 | 38.0 | |
| Actuated g/C Ratio | 0.28 | | 0.16 | 0.48 | 0.43 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 1455 | | 548 | 2503 | 2180 | |
| v/s Ratio Prot | 0.16 | | 0.03 | c0.38 | c0.41 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.56 | | 0.22 | 0.78 | 0.96 | |
| Uniform Delay, d1 | 27.3 | | 32.8 | 19.1 | 24.7 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.5 | | 0.2 | 1.7 | 10.8 | |
| Delay (s) | 27.7 | | 33.0 | 20.8 | 35.5 | |
| Level of Service | C | | C | C | D | |
| Approach Delay (s) | 27.7 | | | 21.5 | 35.5 | |
| Approach LOS | C | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 88.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 78.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

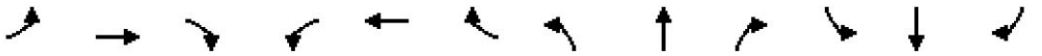
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 870 | 40 | 160 | 1640 | 20 | 130 | 110 | 210 | 100 | 100 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1590 | 3502 | 5176 | | 3502 | 1900 | 1591 | 1805 | 3439 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1590 | 3502 | 5176 | | 3502 | 1900 | 1591 | 1805 | 3439 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 53 | 926 | 43 | 170 | 1745 | 21 | 138 | 117 | 223 | 106 | 106 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 25 | 0 | 1 | 0 | 0 | 0 | 184 | 0 | 38 | 0 |
| Lane Group Flow (vph) | 53 | 926 | 18 | 170 | 1765 | 0 | 138 | 117 | 39 | 106 | 111 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 3.8 | 30.3 | 30.3 | 7.1 | 33.6 | | 12.7 | 12.9 | 12.9 | 7.9 | 8.1 | |
| Effective Green, g (s) | 3.8 | 30.3 | 30.3 | 7.1 | 33.6 | | 12.7 | 12.9 | 12.9 | 7.9 | 8.1 | |
| Actuated g/C Ratio | 0.05 | 0.41 | 0.41 | 0.10 | 0.45 | | 0.17 | 0.17 | 0.17 | 0.11 | 0.11 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 92 | 2118 | 649 | 335 | 2344 | | 599 | 330 | 277 | 192 | 375 | |
| v/s Ratio Prot | 0.03 | c0.18 | | 0.05 | c0.34 | | 0.04 | c0.06 | | c0.06 | 0.03 | |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.02 | | | |
| v/c Ratio | 0.58 | 0.44 | 0.03 | 0.51 | 0.75 | | 0.23 | 0.35 | 0.14 | 0.55 | 0.30 | |
| Uniform Delay, d1 | 34.4 | 15.8 | 13.1 | 31.9 | 16.9 | | 26.5 | 27.0 | 26.0 | 31.5 | 30.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.5 | 0.1 | 0.0 | 1.2 | 1.4 | | 0.2 | 0.7 | 0.2 | 3.4 | 0.4 | |
| Delay (s) | 42.9 | 16.0 | 13.1 | 33.1 | 18.3 | | 26.7 | 27.6 | 26.2 | 34.9 | 30.9 | |
| Level of Service | D | B | B | C | B | | C | C | C | C | C | |
| Approach Delay (s) | | 17.2 | | | 19.6 | | | 26.7 | | | 32.5 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 74.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

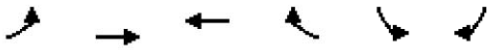
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 470 | 100 | 50 | 530 | 140 | 420 | 890 | 200 | 70 | 220 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1597 | 3502 | 3610 | 1596 | 3502 | 3610 | 1595 | 3502 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1597 | 3502 | 3610 | 1596 | 3502 | 3610 | 1595 | 3502 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 125 | 534 | 114 | 57 | 602 | 159 | 477 | 1011 | 227 | 80 | 250 | 125 |
| RTOR Reduction (vph) | 0 | 0 | 70 | 0 | 0 | 35 | 0 | 0 | 82 | 0 | 0 | 39 |
| Lane Group Flow (vph) | 125 | 534 | 44 | 57 | 602 | 124 | 477 | 1011 | 145 | 80 | 250 | 86 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.7 | 23.0 | 32.2 | 7.2 | 20.5 | 27.7 | 9.2 | 30.8 | 38.0 | 7.2 | 28.8 | 38.5 |
| Effective Green, g (s) | 9.7 | 23.0 | 32.2 | 7.2 | 20.5 | 27.7 | 9.2 | 30.8 | 38.0 | 7.2 | 28.8 | 38.5 |
| Actuated g/C Ratio | 0.12 | 0.27 | 0.38 | 0.09 | 0.24 | 0.33 | 0.11 | 0.37 | 0.45 | 0.09 | 0.34 | 0.46 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 208 | 986 | 687 | 299 | 879 | 601 | 383 | 1321 | 796 | 299 | 1235 | 806 |
| v/s Ratio Prot | c0.07 | 0.15 | 0.01 | 0.02 | c0.17 | 0.02 | c0.14 | c0.28 | 0.02 | 0.02 | 0.07 | 0.01 |
| v/s Ratio Perm | | | 0.02 | | | 0.06 | | | 0.08 | | | 0.04 |
| v/c Ratio | 0.60 | 0.54 | 0.06 | 0.19 | 0.68 | 0.21 | 1.25 | 0.77 | 0.18 | 0.27 | 0.20 | 0.11 |
| Uniform Delay, d1 | 35.4 | 26.1 | 16.5 | 35.8 | 28.9 | 20.3 | 37.5 | 23.5 | 13.8 | 36.0 | 19.6 | 13.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.8 | 0.6 | 0.0 | 0.3 | 2.2 | 0.2 | 130.6 | 2.7 | 0.1 | 0.5 | 0.1 | 0.1 |
| Delay (s) | 40.2 | 26.7 | 16.5 | 36.1 | 31.1 | 20.5 | 168.1 | 26.2 | 13.9 | 36.5 | 19.7 | 13.1 |
| Level of Service | D | C | B | D | C | C | F | C | B | D | B | B |
| Approach Delay (s) | | 27.4 | | | 29.4 | | | 64.1 | | | 20.8 | |
| Approach LOS | | C | | | C | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 84.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

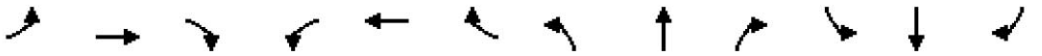
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 170 | 580 | 600 | 400 | 170 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 0.99 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1601 | 3473 | 1459 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1601 | 3473 | 1459 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 191 | 652 | 674 | 449 | 191 | 112 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 27 | 13 | 45 |
| Lane Group Flow (vph) | 191 | 652 | 674 | 422 | 196 | 49 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.1 | 24.6 | 13.5 | 22.0 | 8.5 | 15.6 |
| Effective Green, g (s) | 7.1 | 24.6 | 13.5 | 22.0 | 8.5 | 15.6 |
| Actuated g/C Ratio | 0.17 | 0.60 | 0.33 | 0.54 | 0.21 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 312 | 2161 | 1186 | 1013 | 718 | 696 |
| v/s Ratio Prot | c0.11 | 0.18 | c0.19 | c0.09 | 0.06 | 0.01 |
| v/s Ratio Perm | | | | 0.18 | | 0.02 |
| v/c Ratio | 0.61 | 0.30 | 0.57 | 0.42 | 0.27 | 0.07 |
| Uniform Delay, d1 | 15.7 | 4.0 | 11.4 | 5.7 | 13.7 | 8.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.5 | 0.1 | 0.6 | 0.3 | 0.2 | 0.0 |
| Delay (s) | 19.3 | 4.1 | 12.0 | 6.0 | 13.9 | 8.2 |
| Level of Service | B | A | B | A | B | A |
| Approach Delay (s) | | 7.6 | 9.6 | | 12.1 | |
| Approach LOS | | A | A | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 41.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 46.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

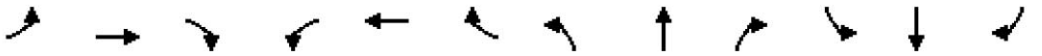
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 290 | 130 | 160 | 620 | 130 | 800 | 350 | 750 | 30 | 50 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1602 | 3502 | 3610 | 1591 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1602 | 3502 | 3610 | 1591 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 171 | 354 | 159 | 195 | 756 | 159 | 976 | 427 | 915 | 37 | 61 | 61 |
| RTOR Reduction (vph) | 0 | 0 | 67 | 0 | 0 | 111 | 0 | 0 | 385 | 0 | 0 | 46 |
| Lane Group Flow (vph) | 171 | 354 | 92 | 195 | 756 | 48 | 976 | 427 | 530 | 37 | 61 | 15 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.1 | 26.5 | 48.6 | 9.9 | 25.3 | 25.3 | 22.1 | 27.1 | 27.1 | 4.1 | 9.1 | 20.2 |
| Effective Green, g (s) | 11.1 | 26.5 | 48.6 | 9.9 | 25.3 | 25.3 | 22.1 | 27.1 | 27.1 | 4.1 | 9.1 | 20.2 |
| Actuated g/C Ratio | 0.13 | 0.32 | 0.58 | 0.12 | 0.30 | 0.30 | 0.26 | 0.32 | 0.32 | 0.05 | 0.11 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 240 | 1644 | 1008 | 415 | 1093 | 481 | 926 | 1170 | 516 | 172 | 393 | 464 |
| v/s Ratio Prot | c0.09 | 0.07 | 0.02 | 0.06 | c0.21 | | c0.28 | 0.12 | | 0.01 | 0.02 | 0.00 |
| v/s Ratio Perm | | | 0.03 | | | 0.03 | | | c0.33 | | | 0.00 |
| v/c Ratio | 0.71 | 0.22 | 0.09 | 0.47 | 0.69 | 0.10 | 1.05 | 0.36 | 1.03 | 0.22 | 0.16 | 0.03 |
| Uniform Delay, d1 | 34.7 | 20.9 | 7.7 | 34.4 | 25.7 | 21.0 | 30.7 | 21.7 | 28.2 | 38.2 | 33.8 | 24.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.6 | 0.1 | 0.0 | 0.8 | 1.9 | 0.1 | 44.9 | 0.2 | 47.0 | 0.6 | 0.2 | 0.0 |
| Delay (s) | 44.3 | 21.0 | 7.8 | 35.2 | 27.6 | 21.1 | 75.6 | 21.8 | 75.2 | 38.8 | 34.0 | 24.3 |
| Level of Service | D | C | A | D | C | C | E | C | E | D | C | C |
| Approach Delay (s) | | 23.8 | | | 28.0 | | | 65.5 | | | 31.4 | |
| Approach LOS | | C | | | C | | | E | | | C | |

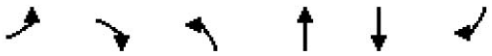
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 83.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 780 | 290 | 10 | 500 | 0 | 0 | 0 | 0 | 10 | 0 | 420 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.99 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3439 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.23 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3439 | 1470 | 434 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 0 | 886 | 330 | 11 | 568 | 0 | 0 | 0 | 0 | 11 | 0 | 477 |
| RTOR Reduction (vph) | 0 | 5 | 159 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 133 | 0 |
| Lane Group Flow (vph) | 0 | 914 | 138 | 11 | 568 | 0 | 0 | 0 | 0 | 11 | 344 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 18.5 | 18.5 | 18.5 | 18.5 | | | | | 13.4 | 13.4 | |
| Effective Green, g (s) | | 18.5 | 18.5 | 18.5 | 18.5 | | | | | 13.4 | 13.4 | |
| Actuated g/C Ratio | | 0.46 | 0.46 | 0.46 | 0.46 | | | | | 0.34 | 0.34 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1595 | 682 | 201 | 1674 | | | | | 606 | 542 | |
| v/s Ratio Prot | | c0.27 | | | 0.16 | | | | | | c0.21 | |
| v/s Ratio Perm | | | 0.09 | 0.03 | | | | | | 0.01 | | |
| v/c Ratio | | 0.57 | 0.20 | 0.05 | 0.34 | | | | | 0.02 | 0.63 | |
| Uniform Delay, d1 | | 7.8 | 6.3 | 5.9 | 6.8 | | | | | 8.9 | 11.2 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.5 | 0.1 | 0.1 | 0.1 | | | | | 0.0 | 2.4 | |
| Delay (s) | | 8.3 | 6.5 | 6.0 | 6.9 | | | | | 8.9 | 13.6 | |
| Level of Service | | A | A | A | A | | | | | A | B | |
| Approach Delay (s) | | 7.9 | | | 6.9 | | | 0.0 | | | 13.5 | |
| Approach LOS | | A | | | A | | | A | | | B | |

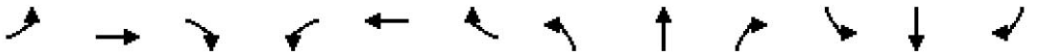
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 39.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 800 | 0 | 500 | 0 | 0 | 0 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 851 | 0 | 532 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 426 | 426 | 355 | 177 |
| Volume Left (vph) | 426 | 426 | 355 | 177 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 6.8 | 6.8 | 7.3 | 7.3 |
| Degree Utilization, x | 0.80 | 0.80 | 0.72 | 0.36 |
| Capacity (veh/h) | 527 | 524 | 480 | 478 |
| Control Delay (s) | 30.1 | 30.1 | 25.8 | 13.2 |
| Approach Delay (s) | 30.1 | | 21.6 | |
| Approach LOS | D | | C | |

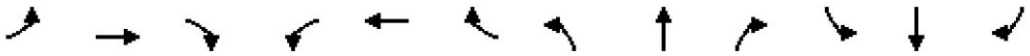
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 26.9 | | |
| HCM Level of Service | D | | |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 10 | 0 | 550 | 10 | 440 | 10 | 1020 | 460 | 90 | 260 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1591 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1591 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 11 | 11 | 0 | 611 | 11 | 489 | 11 | 1133 | 511 | 100 | 289 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 212 | 0 | 0 | 147 | 0 | 0 | 5 |
| Lane Group Flow (vph) | 11 | 11 | 0 | 611 | 11 | 277 | 11 | 1133 | 364 | 100 | 289 | 6 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.0 | 4.3 | | 14.7 | 18.0 | 18.0 | 1.0 | 34.2 | 34.2 | 5.2 | 38.4 | 38.4 |
| Effective Green, g (s) | 1.0 | 4.3 | | 14.7 | 18.0 | 18.0 | 1.0 | 34.2 | 34.2 | 5.2 | 38.4 | 38.4 |
| Actuated g/C Ratio | 0.01 | 0.06 | | 0.20 | 0.24 | 0.24 | 0.01 | 0.46 | 0.46 | 0.07 | 0.52 | 0.52 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 24 | 110 | | 692 | 460 | 391 | 24 | 1659 | 731 | 245 | 1863 | 834 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.17 | 0.01 | | 0.01 | c0.31 | | c0.03 | 0.08 | |
| v/s Ratio Perm | | | | | | c0.17 | | | 0.23 | | | 0.00 |
| v/c Ratio | 0.46 | 0.10 | | 0.88 | 0.02 | 0.71 | 0.46 | 0.68 | 0.50 | 0.41 | 0.16 | 0.01 |
| Uniform Delay, d1 | 36.4 | 33.2 | | 29.0 | 21.5 | 25.8 | 36.4 | 15.8 | 14.1 | 33.1 | 9.5 | 8.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 13.2 | 0.4 | | 12.8 | 0.0 | 5.8 | 13.2 | 1.2 | 0.5 | 1.1 | 0.0 | 0.0 |
| Delay (s) | 49.7 | 33.6 | | 41.8 | 21.5 | 31.6 | 49.7 | 17.0 | 14.6 | 34.2 | 9.5 | 8.7 |
| Level of Service | D | C | | D | C | C | D | B | B | C | A | A |
| Approach Delay (s) | | 41.6 | | | 37.1 | | | 16.5 | | | 15.7 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 74.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 71.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

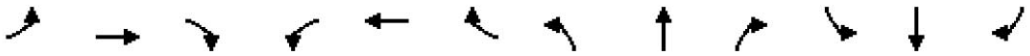
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 400 | 20 | 10 | 710 | 40 | 70 | 70 | 30 | 30 | 10 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.98 | | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3585 | | 1805 | 3578 | | | 1812 | | 1802 | 1635 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.81 | | 0.64 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3585 | | 1805 | 3578 | | | 1490 | | 1218 | 1635 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 128 | 426 | 21 | 11 | 755 | 43 | 74 | 74 | 32 | 32 | 11 | 149 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 5 | 0 | 0 | 12 | 0 | 0 | 117 | 0 |
| Lane Group Flow (vph) | 128 | 444 | 0 | 11 | 793 | 0 | 0 | 168 | 0 | 32 | 43 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.0 | 27.6 | | 1.1 | 20.7 | | | 11.3 | | 11.3 | 11.3 | |
| Effective Green, g (s) | 8.0 | 27.6 | | 1.1 | 20.7 | | | 11.3 | | 11.3 | 11.3 | |
| Actuated g/C Ratio | 0.15 | 0.53 | | 0.02 | 0.40 | | | 0.22 | | 0.22 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 278 | 1903 | | 38 | 1424 | | | 324 | | 265 | 355 | |
| v/s Ratio Prot | c0.07 | 0.12 | | 0.01 | c0.22 | | | | | | 0.03 | |
| v/s Ratio Perm | | | | | | | | c0.11 | | 0.03 | | |
| v/c Ratio | 0.46 | 0.23 | | 0.29 | 0.56 | | | 0.52 | | 0.12 | 0.12 | |
| Uniform Delay, d1 | 20.0 | 6.5 | | 25.1 | 12.1 | | | 18.0 | | 16.4 | 16.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.2 | 0.1 | | 4.2 | 0.5 | | | 1.4 | | 0.2 | 0.2 | |
| Delay (s) | 21.2 | 6.6 | | 29.3 | 12.6 | | | 19.4 | | 16.6 | 16.5 | |
| Level of Service | C | A | | C | B | | | B | | B | B | |
| Approach Delay (s) | | 9.9 | | | 12.8 | | | 19.4 | | | 16.5 | |
| Approach LOS | | A | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 52.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 400 | 80 | 90 | 670 | 260 | 150 | 990 | 180 | 90 | 200 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3511 | | 1805 | 3610 | 1595 | 1805 | 3610 | 1594 | 3502 | 3511 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3511 | | 1805 | 3610 | 1595 | 1805 | 3610 | 1594 | 3502 | 3511 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 44 | 444 | 89 | 100 | 744 | 289 | 167 | 1100 | 200 | 100 | 222 | 44 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 0 | 54 | 0 | 0 | 48 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 44 | 515 | 0 | 100 | 744 | 235 | 167 | 1100 | 152 | 100 | 250 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.7 | 24.0 | | 7.2 | 27.5 | 34.7 | 9.3 | 31.9 | 39.1 | 7.2 | 29.8 | |
| Effective Green, g (s) | 3.7 | 24.0 | | 7.2 | 27.5 | 34.7 | 9.3 | 31.9 | 39.1 | 7.2 | 29.8 | |
| Actuated g/C Ratio | 0.04 | 0.28 | | 0.08 | 0.32 | 0.40 | 0.11 | 0.37 | 0.45 | 0.08 | 0.35 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 77 | 976 | | 151 | 1150 | 715 | 195 | 1334 | 796 | 292 | 1212 | |
| v/s Ratio Prot | 0.02 | 0.15 | | c0.06 | c0.21 | 0.03 | c0.09 | c0.30 | 0.02 | 0.03 | 0.07 | |
| v/s Ratio Perm | | | | | | 0.12 | | | 0.08 | | | |
| v/c Ratio | 0.57 | 0.53 | | 0.66 | 0.65 | 0.33 | 0.86 | 0.82 | 0.19 | 0.34 | 0.21 | |
| Uniform Delay, d1 | 40.5 | 26.4 | | 38.4 | 25.2 | 17.8 | 37.8 | 24.7 | 14.1 | 37.3 | 19.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.8 | 0.5 | | 10.4 | 1.3 | 0.3 | 28.9 | 4.3 | 0.1 | 0.7 | 0.1 | |
| Delay (s) | 50.4 | 26.9 | | 48.8 | 26.5 | 18.0 | 66.8 | 28.9 | 14.3 | 38.0 | 20.0 | |
| Level of Service | D | C | | D | C | B | E | C | B | D | C | |
| Approach Delay (s) | | 28.7 | | | 26.3 | | | 31.2 | | | 24.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 86.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

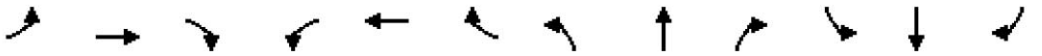
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 60 | 80 | 1420 | 40 | 20 | 800 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1801 | 1592 | 3610 | 1576 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1801 | 1592 | 3610 | 1576 | 1805 | 3610 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 67 | 90 | 1596 | 45 | 22 | 899 |
| RTOR Reduction (vph) | 0 | 80 | 0 | 7 | 0 | 0 |
| Lane Group Flow (vph) | 67 | 10 | 1596 | 38 | 22 | 899 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 6.1 | 6.1 | 33.9 | 33.9 | 1.1 | 39.0 |
| Effective Green, g (s) | 6.1 | 6.1 | 33.9 | 33.9 | 1.1 | 39.0 |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.64 | 0.64 | 0.02 | 0.73 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 207 | 183 | 2305 | 1006 | 37 | 2651 |
| v/s Ratio Prot | | | c0.44 | | 0.01 | c0.25 |
| v/s Ratio Perm | c0.04 | 0.01 | | 0.02 | | |
| v/c Ratio | 0.32 | 0.06 | 0.69 | 0.04 | 0.59 | 0.34 |
| Uniform Delay, d1 | 21.6 | 20.9 | 6.2 | 3.6 | 25.8 | 2.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 0.1 | 0.9 | 0.0 | 23.1 | 0.1 |
| Delay (s) | 22.5 | 21.1 | 7.1 | 3.6 | 48.8 | 2.6 |
| Level of Service | C | C | A | A | D | A |
| Approach Delay (s) | 21.7 | | 7.0 | | | 3.7 |
| Approach LOS | C | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 53.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 55.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

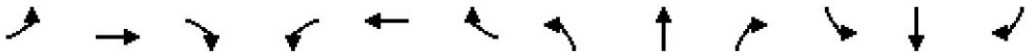
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 780 | 120 | 500 | 910 | 260 | 0 | 0 | 0 | 520 | 50 | 490 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1734 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1734 | 1598 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 76 | 848 | 130 | 543 | 989 | 283 | 0 | 0 | 0 | 565 | 54 | 533 |
| RTOR Reduction (vph) | 0 | 0 | 76 | 0 | 0 | 128 | 0 | 0 | 0 | 0 | 0 | 22 |
| Lane Group Flow (vph) | 76 | 848 | 54 | 543 | 989 | 155 | 0 | 0 | 0 | 311 | 308 | 511 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 20.2 | 35.1 | 35.1 | 54.0 | 68.9 | 68.9 | | | | 28.9 | 28.9 | 49.1 |
| Effective Green, g (s) | 20.2 | 35.1 | 35.1 | 54.0 | 68.9 | 68.9 | | | | 28.9 | 28.9 | 49.1 |
| Actuated g/C Ratio | 0.16 | 0.27 | 0.27 | 0.42 | 0.53 | 0.53 | | | | 0.22 | 0.22 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 280 | 1400 | 424 | 750 | 1913 | 833 | | | | 381 | 385 | 653 |
| v/s Ratio Prot | 0.04 | c0.16 | | c0.30 | 0.27 | | | | | 0.18 | 0.18 | c0.12 |
| v/s Ratio Perm | | | 0.03 | | | 0.10 | | | | | | 0.20 |
| v/c Ratio | 0.27 | 0.61 | 0.13 | 0.72 | 0.52 | 0.19 | | | | 0.82 | 0.80 | 0.78 |
| Uniform Delay, d1 | 48.4 | 41.4 | 35.9 | 31.8 | 19.8 | 15.9 | | | | 48.0 | 47.8 | 35.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.56 | 0.49 | 0.09 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 2.0 | 0.6 | 3.2 | 0.9 | 0.4 | | | | 12.7 | 11.3 | 6.1 |
| Delay (s) | 48.9 | 43.4 | 36.5 | 20.9 | 10.5 | 1.8 | | | | 60.7 | 59.1 | 41.8 |
| Level of Service | D | D | D | C | B | A | | | | E | E | D |
| Approach Delay (s) | | 42.9 | | | 12.3 | | | 0.0 | | | 51.5 | |
| Approach LOS | | D | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 74.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

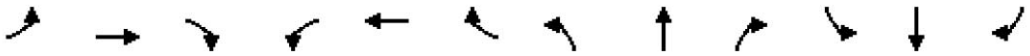
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 810 | 210 | 130 | 1420 | 400 | 210 | 420 | 480 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3450 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3450 | 2842 | | | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 298 | 862 | 223 | 138 | 1511 | 426 | 223 | 447 | 511 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 53 | 0 | 0 | 98 | 0 | 0 | 348 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 298 | 862 | 170 | 138 | 1511 | 328 | 201 | 469 | 163 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 26.7 | 71.4 | 99.0 | 19.0 | 63.7 | 63.7 | 27.6 | 27.6 | 27.6 | | | |
| Effective Green, g (s) | 26.7 | 71.4 | 99.0 | 19.0 | 63.7 | 63.7 | 27.6 | 27.6 | 27.6 | | | |
| Actuated g/C Ratio | 0.21 | 0.55 | 0.76 | 0.15 | 0.49 | 0.49 | 0.21 | 0.21 | 0.21 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 371 | 1983 | 1265 | 264 | 3203 | 777 | 349 | 732 | 603 | | | |
| v/s Ratio Prot | c0.17 | 0.24 | 0.03 | 0.08 | c0.23 | | 0.12 | c0.14 | | | | |
| v/s Ratio Perm | | | 0.08 | | | 0.21 | | | 0.06 | | | |
| v/c Ratio | 0.80 | 0.43 | 0.13 | 0.52 | 0.47 | 0.42 | 0.58 | 0.64 | 0.27 | | | |
| Uniform Delay, d1 | 49.2 | 17.3 | 4.1 | 51.3 | 22.0 | 21.3 | 45.9 | 46.7 | 42.8 | | | |
| Progression Factor | 0.53 | 0.34 | 0.21 | 0.71 | 0.52 | 0.34 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 9.4 | 0.5 | 0.0 | 1.6 | 0.4 | 1.5 | 2.3 | 1.9 | 0.2 | | | |
| Delay (s) | 35.6 | 6.4 | 0.9 | 37.8 | 11.9 | 8.7 | 48.2 | 48.6 | 43.0 | | | |
| Level of Service | D | A | A | D | B | A | D | D | D | | | |
| Approach Delay (s) | | 11.8 | | | 13.0 | | | 46.1 | | | 0.0 | |
| Approach LOS | | B | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

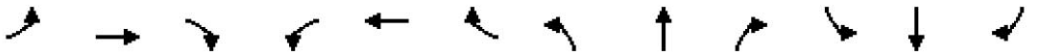
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 1040 | 240 | 50 | 1570 | 10 | 270 | 10 | 150 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | | 1.00 | 0.86 | | | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5010 | | 1805 | 5181 | | 1805 | 1607 | | | 1783 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.78 | 1.00 | | | 0.91 | |
| Satd. Flow (perm) | 1805 | 5010 | | 1805 | 5181 | | 1488 | 1607 | | | 1650 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 1118 | 258 | 54 | 1688 | 11 | 290 | 11 | 161 | 11 | 11 | 11 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 113 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 43 | 1353 | 0 | 54 | 1699 | 0 | 290 | 59 | 0 | 0 | 25 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 5.6 | 76.2 | | 8.8 | 79.4 | | 33.0 | 33.0 | | | 33.0 | |
| Effective Green, g (s) | 5.6 | 76.2 | | 8.8 | 79.4 | | 33.0 | 33.0 | | | 33.0 | |
| Actuated g/C Ratio | 0.04 | 0.59 | | 0.07 | 0.61 | | 0.25 | 0.25 | | | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 78 | 2937 | | 122 | 3164 | | 378 | 408 | | | 419 | |
| v/s Ratio Prot | 0.02 | 0.27 | | c0.03 | c0.33 | | | 0.04 | | | | |
| v/s Ratio Perm | | | | | | | c0.19 | | | | 0.02 | |
| v/c Ratio | 0.55 | 0.46 | | 0.44 | 0.54 | | 0.77 | 0.15 | | | 0.06 | |
| Uniform Delay, d1 | 61.0 | 15.3 | | 58.2 | 14.7 | | 44.9 | 37.6 | | | 36.7 | |
| Progression Factor | 0.96 | 0.35 | | 0.65 | 0.59 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 7.5 | 0.5 | | 2.1 | 0.5 | | 9.0 | 0.2 | | | 0.1 | |
| Delay (s) | 66.0 | 5.8 | | 40.0 | 9.1 | | 54.0 | 37.7 | | | 36.8 | |
| Level of Service | E | A | | D | A | | D | D | | | D | |
| Approach Delay (s) | | 7.6 | | | 10.1 | | | 47.9 | | | 36.8 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 1000 | 200 | 90 | 1300 | 10 | 220 | 80 | 40 | 10 | 40 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.98 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1805 | 3500 | | 1805 | 3605 | | | 1801 | | | 1880 | 1586 |
| Flt Permitted | 0.12 | 1.00 | | 0.15 | 1.00 | | | 0.77 | | | 0.92 | 1.00 |
| Satd. Flow (perm) | 235 | 3500 | | 287 | 3605 | | | 1435 | | | 1755 | 1586 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 1087 | 217 | 98 | 1413 | 11 | 239 | 87 | 43 | 11 | 43 | 98 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 33 | 1293 | 0 | 98 | 1424 | 0 | 0 | 365 | 0 | 0 | 54 | 69 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 84.3 | 84.3 | | 84.3 | 84.3 | | | 37.7 | | | 37.7 | 37.7 |
| Effective Green, g (s) | 84.3 | 84.3 | | 84.3 | 84.3 | | | 37.7 | | | 37.7 | 37.7 |
| Actuated g/C Ratio | 0.65 | 0.65 | | 0.65 | 0.65 | | | 0.29 | | | 0.29 | 0.29 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 152 | 2270 | | 186 | 2338 | | | 416 | | | 509 | 460 |
| v/s Ratio Prot | | 0.37 | | | c0.39 | | | | | | | |
| v/s Ratio Perm | 0.14 | | | 0.34 | | | | c0.25 | | | 0.03 | 0.04 |
| v/c Ratio | 0.22 | 0.57 | | 0.53 | 0.61 | | | 0.88 | | | 0.11 | 0.15 |
| Uniform Delay, d1 | 9.3 | 12.7 | | 12.2 | 13.3 | | | 43.9 | | | 33.8 | 34.3 |
| Progression Factor | 0.58 | 0.58 | | 0.28 | 0.16 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.0 | 1.0 | | 5.1 | 0.6 | | | 18.3 | | | 0.1 | 0.2 |
| Delay (s) | 8.5 | 8.4 | | 8.6 | 2.7 | | | 62.3 | | | 33.9 | 34.4 |
| Level of Service | A | A | | A | A | | | E | | | C | C |
| Approach Delay (s) | | 8.4 | | | 3.1 | | | 62.3 | | | 34.2 | |
| Approach LOS | | A | | | A | | | E | | | C | |

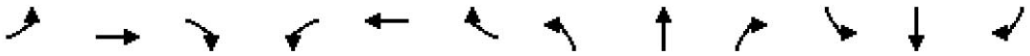
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 710 | 40 | 450 | 1210 | 270 | 40 | 360 | 430 | 150 | 290 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3576 | | 1805 | 3492 | | 1805 | 1900 | 1601 | 1805 | 1900 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3576 | | 1805 | 3492 | | 1805 | 1900 | 1601 | 1805 | 1900 | 1586 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 147 | 747 | 42 | 474 | 1274 | 284 | 42 | 379 | 453 | 158 | 305 | 116 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 14 | 0 | 0 | 0 | 18 | 0 | 0 | 72 |
| Lane Group Flow (vph) | 147 | 786 | 0 | 474 | 1544 | 0 | 42 | 379 | 435 | 158 | 305 | 44 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.0 | 32.4 | | 36.6 | 58.0 | | 5.6 | 34.0 | 70.6 | 11.0 | 39.4 | 39.4 |
| Effective Green, g (s) | 11.0 | 32.4 | | 36.6 | 58.0 | | 5.6 | 34.0 | 70.6 | 11.0 | 39.4 | 39.4 |
| Actuated g/C Ratio | 0.08 | 0.25 | | 0.28 | 0.45 | | 0.04 | 0.26 | 0.54 | 0.08 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 153 | 891 | | 508 | 1558 | | 78 | 497 | 869 | 153 | 576 | 481 |
| v/s Ratio Prot | 0.08 | c0.22 | | 0.26 | c0.44 | | 0.02 | c0.20 | 0.14 | c0.09 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | 0.03 |
| v/c Ratio | 0.96 | 0.88 | | 0.93 | 0.99 | | 0.54 | 0.76 | 0.50 | 1.03 | 0.53 | 0.09 |
| Uniform Delay, d1 | 59.3 | 47.0 | | 45.5 | 35.7 | | 60.9 | 44.3 | 18.6 | 59.5 | 37.6 | 32.5 |
| Progression Factor | 1.25 | 0.79 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 54.5 | 8.7 | | 24.3 | 20.5 | | 7.0 | 10.6 | 0.5 | 81.7 | 3.5 | 0.4 |
| Delay (s) | 128.8 | 45.9 | | 69.8 | 56.3 | | 67.9 | 54.9 | 19.1 | 141.2 | 41.1 | 32.8 |
| Level of Service | F | D | | E | E | | E | D | B | F | D | C |
| Approach Delay (s) | | 59.0 | | | 59.4 | | | 36.9 | | | 66.7 | |
| Approach LOS | | E | | | E | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 55.8 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 99.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

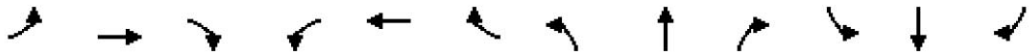
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 500 | 630 | 130 | 580 | 240 | 1170 | 1590 | 450 | 190 | 450 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2825 | 3502 | 3610 | 1594 | 3502 | 3610 | 1591 | 3502 | 5134 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2825 | 3502 | 3610 | 1594 | 3502 | 3610 | 1591 | 3502 | 5134 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 44 | 556 | 700 | 144 | 644 | 267 | 1300 | 1767 | 500 | 211 | 500 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 66 | 0 | 0 | 41 | 0 | 0 | 41 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 44 | 556 | 634 | 144 | 644 | 226 | 1300 | 1767 | 459 | 211 | 525 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 4.0 | 24.4 | 63.5 | 7.0 | 27.4 | 34.4 | 39.1 | 48.2 | 55.2 | 7.0 | 16.1 | |
| Effective Green, g (s) | 4.0 | 24.4 | 63.5 | 7.0 | 27.4 | 34.4 | 39.1 | 48.2 | 55.2 | 7.0 | 16.1 | |
| Actuated g/C Ratio | 0.04 | 0.24 | 0.62 | 0.07 | 0.27 | 0.34 | 0.38 | 0.47 | 0.54 | 0.07 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 70 | 859 | 1748 | 239 | 964 | 534 | 1335 | 1696 | 918 | 239 | 806 | |
| v/s Ratio Prot | 0.02 | c0.15 | 0.14 | 0.04 | c0.18 | 0.03 | 0.37 | c0.49 | 0.03 | c0.06 | 0.10 | |
| v/s Ratio Perm | | | 0.09 | | | 0.11 | | | 0.25 | | | |
| v/c Ratio | 0.63 | 0.65 | 0.36 | 0.60 | 0.67 | 0.42 | 0.97 | 1.04 | 0.50 | 0.88 | 0.65 | |
| Uniform Delay, d1 | 48.6 | 35.2 | 9.6 | 46.4 | 33.5 | 26.4 | 31.2 | 27.2 | 15.0 | 47.4 | 40.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 16.3 | 1.7 | 0.1 | 4.2 | 1.8 | 0.5 | 18.5 | 33.6 | 0.4 | 29.4 | 1.9 | |
| Delay (s) | 64.9 | 36.9 | 9.7 | 50.7 | 35.3 | 27.0 | 49.8 | 60.8 | 15.4 | 76.8 | 42.5 | |
| Level of Service | E | D | A | D | D | C | D | E | B | E | D | |
| Approach Delay (s) | | 23.2 | | | 35.3 | | | 50.4 | | | 52.2 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 102.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 86.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

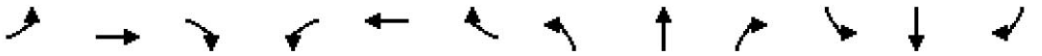
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 20 | 10 | 30 | 20 | 110 | 10 | 3040 | 20 | 60 | 1070 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.98 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1805 | | | 1688 | | 1805 | 5181 | | 1805 | 5170 | |
| Flt Permitted | | 0.45 | | | 0.94 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 842 | | | 1594 | | 1805 | 5181 | | 1805 | 5170 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 45 | 22 | 11 | 34 | 22 | 124 | 11 | 3416 | 22 | 67 | 1202 | 22 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 87 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 72 | 0 | 0 | 93 | 0 | 11 | 3438 | 0 | 67 | 1223 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 10.8 | | | 10.8 | | 1.3 | 64.8 | | 5.4 | 68.9 | |
| Effective Green, g (s) | | 10.8 | | | 10.8 | | 1.3 | 64.8 | | 5.4 | 68.9 | |
| Actuated g/C Ratio | | 0.12 | | | 0.12 | | 0.01 | 0.70 | | 0.06 | 0.74 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 98 | | | 185 | | 25 | 3610 | | 105 | 3830 | |
| v/s Ratio Prot | | | | | | | 0.01 | c0.66 | | c0.04 | 0.24 | |
| v/s Ratio Perm | | c0.09 | | | 0.06 | | | | | | | |
| v/c Ratio | | 0.73 | | | 0.50 | | 0.44 | 0.95 | | 0.64 | 0.32 | |
| Uniform Delay, d1 | | 39.7 | | | 38.6 | | 45.5 | 12.7 | | 42.8 | 4.1 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 24.4 | | | 2.2 | | 11.9 | 6.9 | | 12.0 | 0.0 | |
| Delay (s) | | 64.1 | | | 40.7 | | 57.4 | 19.6 | | 54.9 | 4.1 | |
| Level of Service | | E | | | D | | E | B | | D | A | |
| Approach Delay (s) | | 64.1 | | | 40.7 | | | 19.7 | | | 6.8 | |
| Approach LOS | | E | | | D | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 93.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

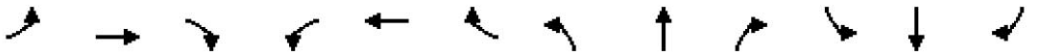
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 40 | 50 | 20 | 30 | 100 | 60 | 2810 | 20 | 20 | 910 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 1900 | 1615 | 1805 | 1900 | 1588 | 1805 | 5181 | | 1805 | 5148 | |
| Flt Permitted | 0.53 | 1.00 | 1.00 | 0.73 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1012 | 1900 | 1615 | 1383 | 1900 | 1588 | 1805 | 5181 | | 1805 | 5148 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 180 | 45 | 56 | 22 | 34 | 112 | 67 | 3157 | 22 | 22 | 1022 | 45 |
| RTOR Reduction (vph) | 0 | 0 | 47 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 180 | 45 | 9 | 22 | 34 | 13 | 67 | 3179 | 0 | 22 | 1064 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 21.6 | 15.0 | 15.0 | 13.2 | 10.6 | 10.6 | 6.6 | 56.3 | | 2.6 | 52.3 | |
| Effective Green, g (s) | 21.6 | 15.0 | 15.0 | 13.2 | 10.6 | 10.6 | 6.6 | 56.3 | | 2.6 | 52.3 | |
| Actuated g/C Ratio | 0.23 | 0.16 | 0.16 | 0.14 | 0.11 | 0.11 | 0.07 | 0.61 | | 0.03 | 0.57 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 296 | 308 | 262 | 209 | 218 | 182 | 129 | 3153 | | 51 | 2911 | |
| v/s Ratio Prot | c0.05 | 0.02 | | 0.00 | 0.02 | | 0.04 | c0.61 | | 0.01 | c0.21 | |
| v/s Ratio Perm | c0.10 | | 0.01 | 0.01 | | 0.01 | | | | | | |
| v/c Ratio | 0.61 | 0.15 | 0.03 | 0.11 | 0.16 | 0.07 | 0.52 | 1.01 | | 0.43 | 0.37 | |
| Uniform Delay, d1 | 30.7 | 33.3 | 32.6 | 34.4 | 36.9 | 36.6 | 41.4 | 18.1 | | 44.2 | 11.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.5 | 0.2 | 0.1 | 0.2 | 0.3 | 0.2 | 3.5 | 18.0 | | 5.8 | 0.1 | |
| Delay (s) | 34.2 | 33.5 | 32.7 | 34.6 | 37.3 | 36.7 | 44.9 | 36.1 | | 50.0 | 11.1 | |
| Level of Service | C | C | C | C | D | D | D | D | | D | B | |
| Approach Delay (s) | | 33.8 | | | 36.6 | | | 36.3 | | | 11.9 | |
| Approach LOS | | C | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 92.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 83.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

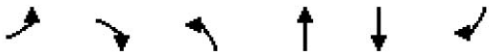
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 20 | 10 | 280 | 10 | 90 | 10 | 2880 | 830 | 30 | 990 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.87 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3406 | | 5090 | 1622 | | 1805 | 5187 | 1594 | 1805 | 5178 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3406 | | 5090 | 1622 | | 1805 | 5187 | 1594 | 1805 | 5178 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 21 | 11 | 298 | 11 | 96 | 11 | 3064 | 883 | 32 | 1053 | 11 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 82 | 0 | 0 | 0 | 172 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 21 | 22 | 0 | 298 | 25 | 0 | 11 | 3064 | 711 | 32 | 1064 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 2.7 | 4.8 | | 9.1 | 11.2 | | 4.0 | 45.6 | 54.7 | 2.4 | 44.0 | |
| Effective Green, g (s) | 2.7 | 4.8 | | 9.1 | 11.2 | | 4.0 | 45.6 | 54.7 | 2.4 | 44.0 | |
| Actuated g/C Ratio | 0.03 | 0.06 | | 0.12 | 0.14 | | 0.05 | 0.59 | 0.70 | 0.03 | 0.56 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 63 | 210 | | 595 | 233 | | 93 | 3036 | 1201 | 56 | 2925 | |
| v/s Ratio Prot | c0.01 | 0.01 | | 0.06 | 0.02 | | 0.01 | c0.59 | c0.07 | 0.02 | c0.21 | |
| v/s Ratio Perm | | | | | | | | | 0.38 | | | |
| v/c Ratio | 0.33 | 0.10 | | 0.50 | 0.11 | | 0.12 | 1.01 | 0.59 | 0.57 | 0.36 | |
| Uniform Delay, d1 | 36.7 | 34.5 | | 32.3 | 29.0 | | 35.3 | 16.2 | 5.9 | 37.2 | 9.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.1 | 0.2 | | 0.7 | 0.2 | | 0.6 | 18.6 | 0.8 | 13.3 | 0.1 | |
| Delay (s) | 39.8 | 34.7 | | 32.9 | 29.2 | | 35.8 | 34.8 | 6.7 | 50.6 | 9.4 | |
| Level of Service | D | C | | C | C | | D | C | A | D | A | |
| Approach Delay (s) | | 36.8 | | | 31.9 | | | 28.5 | | | 10.6 | |
| Approach LOS | | D | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 77.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

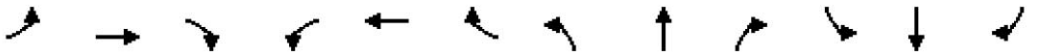
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 150 | 80 | 100 | 850 | 530 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 174 | 93 | 116 | 988 | 616 | 140 |
| RTOR Reduction (vph) | 0 | 79 | 0 | 0 | 0 | 18 |
| Lane Group Flow (vph) | 174 | 14 | 116 | 988 | 616 | 122 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Turn Type | | custom | Prot | | | Perm |
| Protected Phases | | | 5 | 2 | 6 | |
| Permitted Phases | 4 | 4 | | | | 6 |
| Actuated Green, G (s) | 16.0 | 16.0 | 13.0 | 86.0 | 69.0 | 69.0 |
| Effective Green, g (s) | 16.0 | 16.0 | 13.0 | 86.0 | 69.0 | 69.0 |
| Actuated g/C Ratio | 0.15 | 0.15 | 0.12 | 0.78 | 0.63 | 0.63 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 260 | 228 | 213 | 1485 | 1192 | 989 |
| v/s Ratio Prot | | | 0.06 | c0.52 | 0.32 | |
| v/s Ratio Perm | c0.10 | 0.01 | | | | 0.08 |
| v/c Ratio | 0.67 | 0.06 | 0.54 | 0.67 | 0.52 | 0.12 |
| Uniform Delay, d1 | 44.5 | 40.5 | 45.7 | 5.5 | 11.3 | 8.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.4 | 0.1 | 2.8 | 2.4 | 1.6 | 0.3 |
| Delay (s) | 50.9 | 40.6 | 48.5 | 7.8 | 12.9 | 8.5 |
| Level of Service | D | D | D | A | B | A |
| Approach Delay (s) | 47.3 | | | 12.1 | 12.1 | |
| Approach LOS | D | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

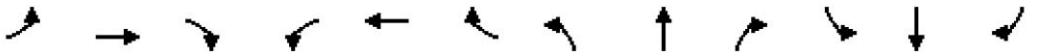
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 950 | 80 | 60 | 1720 | 0 | 70 | 0 | 20 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | |
| Lane Util. Factor | | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | |
| Frt | | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (prot) | | 5118 | | 1805 | 5187 | | 1805 | 3017 | | | | |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (perm) | | 5118 | | 1805 | 5187 | | 1805 | 3017 | | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 979 | 82 | 62 | 1773 | 0 | 72 | 0 | 21 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1057 | 0 | 62 | 1773 | 0 | 72 | 1 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | | | | 4 |
| Actuated Green, G (s) | | 81.5 | | 8.0 | 93.5 | | 6.5 | 5.9 | | | | |
| Effective Green, g (s) | | 81.5 | | 8.0 | 93.5 | | 6.5 | 5.9 | | | | |
| Actuated g/C Ratio | | 0.74 | | 0.07 | 0.85 | | 0.06 | 0.05 | | | | |
| Clearance Time (s) | | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | |
| Lane Grp Cap (vph) | | 3792 | | 131 | 4409 | | 107 | 162 | | | | |
| v/s Ratio Prot | | 0.21 | | 0.03 | c0.34 | | c0.04 | 0.00 | | | | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | 0.28 | | 0.47 | 0.40 | | 0.67 | 0.01 | | | | |
| Uniform Delay, d1 | | 4.7 | | 49.0 | 1.9 | | 50.7 | 49.3 | | | | |
| Progression Factor | | 0.08 | | 0.84 | 1.20 | | 1.00 | 1.00 | | | | |
| Incremental Delay, d2 | | 0.2 | | 2.0 | 0.2 | | 15.4 | 0.0 | | | | |
| Delay (s) | | 0.5 | | 42.9 | 2.5 | | 66.1 | 49.3 | | | | |
| Level of Service | | A | | D | A | | E | D | | | | |
| Approach Delay (s) | | 0.5 | | | 3.8 | | | 62.3 | | | 0.0 | |
| Approach LOS | | A | | | A | | | E | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 62.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

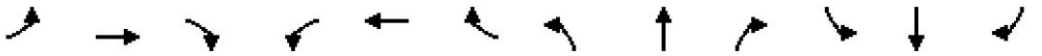
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 570 | 120 | 110 | 1230 | 200 | 370 | 400 | 120 | 100 | 230 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1586 | 3502 | 5065 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1586 | 3502 | 5065 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 289 | 588 | 124 | 113 | 1268 | 206 | 381 | 412 | 124 | 103 | 237 | 216 |
| RTOR Reduction (vph) | 0 | 0 | 64 | 0 | 17 | 0 | 0 | 0 | 99 | 0 | 0 | 153 |
| Lane Group Flow (vph) | 289 | 588 | 60 | 113 | 1457 | 0 | 381 | 412 | 25 | 103 | 237 | 63 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 16.2 | 53.3 | 53.3 | 8.9 | 46.0 | | 15.3 | 22.5 | 22.5 | 6.0 | 13.2 | 13.2 |
| Effective Green, g (s) | 16.2 | 53.3 | 53.3 | 8.9 | 46.0 | | 15.3 | 22.5 | 22.5 | 6.0 | 13.2 | 13.2 |
| Actuated g/C Ratio | 0.15 | 0.48 | 0.48 | 0.08 | 0.42 | | 0.14 | 0.20 | 0.20 | 0.05 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 516 | 2513 | 768 | 283 | 2118 | | 487 | 738 | 325 | 191 | 433 | 191 |
| v/s Ratio Prot | c0.08 | 0.11 | | 0.03 | c0.29 | | c0.11 | c0.11 | | 0.03 | 0.07 | |
| v/s Ratio Perm | | | 0.04 | | | | | | 0.02 | | | 0.04 |
| v/c Ratio | 0.56 | 0.23 | 0.08 | 0.40 | 0.69 | | 0.78 | 0.56 | 0.08 | 0.54 | 0.55 | 0.33 |
| Uniform Delay, d1 | 43.6 | 16.5 | 15.2 | 48.0 | 26.1 | | 45.7 | 39.3 | 35.4 | 50.7 | 45.6 | 44.3 |
| Progression Factor | 1.28 | 1.01 | 1.40 | 1.34 | 0.65 | | 0.92 | 1.06 | 1.52 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.2 | 0.2 | 0.2 | 0.4 | | 7.8 | 0.9 | 0.1 | 2.9 | 1.4 | 1.0 |
| Delay (s) | 57.2 | 16.9 | 21.4 | 64.5 | 17.5 | | 50.0 | 42.5 | 53.8 | 53.6 | 47.0 | 45.4 |
| Level of Service | E | B | C | E | B | | D | D | D | D | D | D |
| Approach Delay (s) | | 29.1 | | | 20.9 | | | 47.2 | | | 47.6 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 72.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 390 | 390 | 150 | 10 | 870 | 420 | 370 | 750 | 30 | 280 | 640 | 500 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3587 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3587 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 453 | 453 | 174 | 12 | 1012 | 488 | 430 | 872 | 35 | 326 | 744 | 581 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 195 | 0 | 3 | 0 | 0 | 0 | 134 |
| Lane Group Flow (vph) | 453 | 453 | 174 | 12 | 1012 | 293 | 430 | 904 | 0 | 326 | 744 | 447 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 13.0 | 42.8 | 110.0 | 1.2 | 31.0 | 31.0 | 13.0 | 33.3 | | 12.7 | 33.0 | 33.0 |
| Effective Green, g (s) | 13.0 | 42.8 | 110.0 | 1.2 | 31.0 | 31.0 | 13.0 | 33.3 | | 12.7 | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.39 | 1.00 | 0.01 | 0.28 | 0.28 | 0.12 | 0.30 | | 0.12 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 414 | 2018 | 1593 | 20 | 1017 | 447 | 414 | 1086 | | 404 | 1083 | 476 |
| v/s Ratio Prot | c0.13 | 0.09 | | 0.01 | c0.28 | | c0.12 | 0.25 | | 0.09 | 0.21 | |
| v/s Ratio Perm | | | c0.11 | | | 0.19 | | | | | | c0.28 |
| v/c Ratio | 1.09 | 0.22 | 0.11 | 0.60 | 1.00 | 0.66 | 1.04 | 0.83 | | 0.81 | 0.69 | 0.94 |
| Uniform Delay, d1 | 48.5 | 22.5 | 0.0 | 54.2 | 39.4 | 34.8 | 48.5 | 35.8 | | 47.5 | 33.9 | 37.5 |
| Progression Factor | 0.87 | 1.41 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 71.9 | 0.3 | 0.1 | 40.2 | 27.1 | 7.3 | 54.6 | 7.5 | | 11.2 | 3.6 | 28.7 |
| Delay (s) | 114.2 | 31.9 | 0.1 | 94.3 | 66.5 | 42.1 | 103.1 | 43.2 | | 58.7 | 37.5 | 66.2 |
| Level of Service | F | C | A | F | E | D | F | D | | E | D | E |
| Approach Delay (s) | | 61.3 | | | 58.9 | | | 62.5 | | | 51.8 | |
| Approach LOS | | E | | | E | | | E | | | D | |

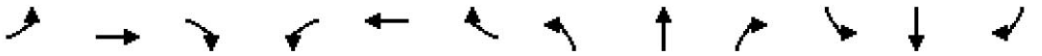
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 58.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 89.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 20 | 40 | 20 | 10 | 20 | 70 | 790 | 10 | 30 | 370 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3187 | | 1805 | 1900 | 1581 | 1805 | 3602 | | 1805 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3187 | | 1805 | 1900 | 1581 | 1805 | 3602 | | 1805 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 22 | 43 | 22 | 11 | 22 | 75 | 849 | 11 | 32 | 398 | 54 |
| RTOR Reduction (vph) | 0 | 39 | 0 | 0 | 0 | 21 | 0 | 1 | 0 | 0 | 0 | 18 |
| Lane Group Flow (vph) | 43 | 26 | 0 | 22 | 11 | 1 | 75 | 859 | 0 | 32 | 398 | 36 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.4 | 9.0 | | 2.4 | 6.1 | 6.1 | 8.7 | 76.0 | | 5.1 | 72.4 | 72.4 |
| Effective Green, g (s) | 5.4 | 9.0 | | 2.4 | 6.1 | 6.1 | 8.7 | 76.0 | | 5.1 | 72.4 | 72.4 |
| Actuated g/C Ratio | 0.05 | 0.08 | | 0.02 | 0.06 | 0.06 | 0.08 | 0.69 | | 0.05 | 0.66 | 0.66 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 89 | 261 | | 39 | 105 | 88 | 143 | 2489 | | 84 | 2376 | 1048 |
| v/s Ratio Prot | c0.02 | c0.01 | | 0.01 | 0.01 | | c0.04 | c0.24 | | 0.02 | 0.11 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.02 |
| v/c Ratio | 0.48 | 0.10 | | 0.56 | 0.10 | 0.01 | 0.52 | 0.35 | | 0.38 | 0.17 | 0.03 |
| Uniform Delay, d1 | 50.9 | 46.7 | | 53.3 | 49.4 | 49.1 | 48.7 | 6.9 | | 50.9 | 7.2 | 6.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.13 | 0.80 | | 1.23 | 0.46 | 0.22 |
| Incremental Delay, d2 | 4.1 | 0.2 | | 17.3 | 0.4 | 0.1 | 3.3 | 0.4 | | 2.8 | 0.1 | 0.1 |
| Delay (s) | 55.0 | 46.9 | | 70.6 | 49.8 | 49.2 | 58.2 | 5.9 | | 65.5 | 3.5 | 1.5 |
| Level of Service | E | D | | E | D | D | E | A | | E | A | A |
| Approach Delay (s) | | 50.1 | | | 57.9 | | | 10.1 | | | 7.4 | |
| Approach LOS | | D | | | E | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.5 |
| Intersection Capacity Utilization | 46.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

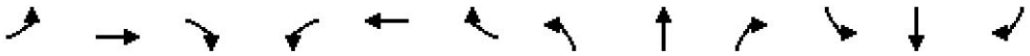
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 90 | 110 | 60 | 120 | 50 | 100 | 340 | 30 | 30 | 210 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3557 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3557 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 176 | 106 | 129 | 71 | 141 | 59 | 118 | 400 | 35 | 35 | 247 | 106 |
| RTOR Reduction (vph) | 0 | 0 | 103 | 0 | 0 | 51 | 0 | 4 | 0 | 0 | 0 | 56 |
| Lane Group Flow (vph) | 176 | 106 | 26 | 71 | 141 | 8 | 118 | 431 | 0 | 35 | 247 | 50 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 15.1 | 22.4 | 22.4 | 7.0 | 14.3 | 14.3 | 12.4 | 59.4 | | 5.2 | 52.2 | 52.2 |
| Effective Green, g (s) | 15.1 | 22.4 | 22.4 | 7.0 | 14.3 | 14.3 | 12.4 | 59.4 | | 5.2 | 52.2 | 52.2 |
| Actuated g/C Ratio | 0.14 | 0.20 | 0.20 | 0.06 | 0.13 | 0.13 | 0.11 | 0.54 | | 0.05 | 0.47 | 0.47 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 248 | 387 | 323 | 115 | 247 | 206 | 203 | 1921 | | 85 | 1713 | 753 |
| v/s Ratio Prot | c0.10 | 0.06 | | 0.04 | c0.07 | | c0.07 | c0.12 | | 0.02 | 0.07 | |
| v/s Ratio Perm | | | 0.02 | | | 0.00 | | | | | | 0.03 |
| v/c Ratio | 0.71 | 0.27 | 0.08 | 0.62 | 0.57 | 0.04 | 0.58 | 0.22 | | 0.41 | 0.14 | 0.07 |
| Uniform Delay, d1 | 45.4 | 36.9 | 35.5 | 50.2 | 45.0 | 41.8 | 46.3 | 13.2 | | 50.9 | 16.3 | 15.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.23 | 1.06 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.0 | 0.4 | 0.1 | 9.5 | 3.2 | 0.1 | 3.8 | 0.2 | | 3.2 | 0.2 | 0.2 |
| Delay (s) | 54.3 | 37.3 | 35.6 | 59.7 | 48.1 | 41.9 | 61.0 | 14.3 | | 54.1 | 16.5 | 15.9 |
| Level of Service | D | D | D | E | D | D | E | B | | D | B | B |
| Approach Delay (s) | | 44.1 | | | 49.8 | | | 24.3 | | | 19.7 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 54.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 110 | 20 | 130 | 160 | 260 | 30 | 510 | 70 | 40 | 290 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1795 | 1852 | | 1795 | 1900 | 1583 | 1805 | 3531 | | 1805 | 3568 | |
| Flt Permitted | 0.49 | 1.00 | | 0.57 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 922 | 1852 | | 1083 | 1900 | 1583 | 1805 | 3531 | | 1805 | 3568 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 22 | 124 | 22 | 146 | 180 | 292 | 34 | 573 | 79 | 45 | 326 | 22 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 240 | 0 | 6 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 22 | 139 | 0 | 146 | 180 | 52 | 34 | 646 | 0 | 45 | 345 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 19.6 | 19.6 | | 19.6 | 19.6 | 19.6 | 5.2 | 68.7 | | 7.1 | 70.6 | |
| Effective Green, g (s) | 19.6 | 19.6 | | 19.6 | 19.6 | 19.6 | 5.2 | 68.7 | | 7.1 | 70.6 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.18 | 0.18 | 0.18 | 0.05 | 0.62 | | 0.06 | 0.64 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 164 | 330 | | 193 | 339 | 282 | 85 | 2205 | | 117 | 2290 | |
| v/s Ratio Prot | | 0.07 | | | 0.09 | | 0.02 | c0.18 | | c0.02 | 0.10 | |
| v/s Ratio Perm | 0.02 | | | c0.13 | | 0.03 | | | | | | |
| v/c Ratio | 0.13 | 0.42 | | 0.76 | 0.53 | 0.18 | 0.40 | 0.29 | | 0.38 | 0.15 | |
| Uniform Delay, d1 | 38.1 | 40.2 | | 42.9 | 41.0 | 38.4 | 50.9 | 9.5 | | 49.4 | 7.8 | |
| Progression Factor | 1.00 | 1.00 | | 0.73 | 0.70 | 1.21 | 0.93 | 1.13 | | 1.46 | 0.37 | |
| Incremental Delay, d2 | 0.4 | 0.9 | | 13.5 | 1.4 | 0.3 | 3.0 | 0.3 | | 2.1 | 0.1 | |
| Delay (s) | 38.4 | 41.0 | | 44.7 | 30.3 | 46.6 | 50.1 | 11.1 | | 74.3 | 3.0 | |
| Level of Service | D | D | | D | C | D | D | B | | E | A | |
| Approach Delay (s) | | 40.7 | | | 41.4 | | | 13.0 | | | 11.2 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 56.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis
## 107: Rider St & Evans Rd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 290 | 30 | 20 | 450 | 140 | 110 | 220 | 20 | 160 | 130 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3553 | | 1805 | 3467 | | 1805 | 3560 | | 1805 | 3263 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3553 | | 1805 | 3467 | | 1805 | 3560 | | 1805 | 3263 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 163 | 337 | 35 | 23 | 523 | 163 | 128 | 256 | 23 | 186 | 151 | 209 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 28 | 0 | 0 | 6 | 0 | 0 | 142 | 0 |
| Lane Group Flow (vph) | 163 | 365 | 0 | 23 | 658 | 0 | 128 | 273 | 0 | 186 | 218 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 14.8 | 41.5 | | 3.1 | 29.8 | | 14.3 | 31.8 | | 17.6 | 35.1 | |
| Effective Green, g (s) | 14.8 | 41.5 | | 3.1 | 29.8 | | 14.3 | 31.8 | | 17.6 | 35.1 | |
| Actuated g/C Ratio | 0.13 | 0.38 | | 0.03 | 0.27 | | 0.13 | 0.29 | | 0.16 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 243 | 1340 | | 51 | 939 | | 235 | 1029 | | 289 | 1041 | |
| v/s Ratio Prot | c0.09 | 0.10 | | 0.01 | c0.19 | | 0.07 | c0.08 | | c0.10 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.67 | 0.27 | | 0.45 | 0.70 | | 0.54 | 0.27 | | 0.64 | 0.21 | |
| Uniform Delay, d1 | 45.3 | 23.8 | | 52.6 | 36.1 | | 44.8 | 30.1 | | 43.3 | 27.3 | |
| Progression Factor | 0.87 | 0.93 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.92 | 0.90 | |
| Incremental Delay, d2 | 7.1 | 0.1 | | 6.2 | 2.4 | | 2.6 | 0.6 | | 4.8 | 0.5 | |
| Delay (s) | 46.5 | 22.2 | | 58.8 | 38.5 | | 47.4 | 30.7 | | 44.7 | 25.0 | |
| Level of Service | D | C | | E | D | | D | C | | D | C | |
| Approach Delay (s) | | 29.6 | | | 39.1 | | | 36.0 | | | 31.7 | |
| Approach LOS | | C | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 80 | 30 | 30 | 120 | 140 | 60 | 470 | 30 | 40 | 400 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1810 | | 1805 | 1900 | 1586 | 1805 | 3573 | | 1805 | 3578 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1810 | | 1805 | 1900 | 1586 | 1805 | 3573 | | 1805 | 3578 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 38 | 100 | 38 | 38 | 150 | 175 | 75 | 588 | 38 | 50 | 500 | 25 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 0 | 152 | 0 | 3 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 38 | 122 | 0 | 38 | 150 | 23 | 75 | 623 | 0 | 50 | 523 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 4.7 | 14.2 | | 4.7 | 14.2 | 14.2 | 8.7 | 65.5 | | 7.4 | 64.2 | |
| Effective Green, g (s) | 4.7 | 14.2 | | 4.7 | 14.2 | 14.2 | 8.7 | 65.5 | | 7.4 | 64.2 | |
| Actuated g/C Ratio | 0.04 | 0.13 | | 0.04 | 0.13 | 0.13 | 0.08 | 0.60 | | 0.07 | 0.58 | |
| Clearance Time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 77 | 234 | | 77 | 245 | 205 | 143 | 2128 | | 121 | 2088 | |
| v/s Ratio Prot | c0.02 | 0.07 | | 0.02 | c0.08 | | c0.04 | c0.17 | | 0.03 | 0.15 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | |
| v/c Ratio | 0.49 | 0.52 | | 0.49 | 0.61 | 0.11 | 0.52 | 0.29 | | 0.41 | 0.25 | |
| Uniform Delay, d1 | 51.5 | 44.7 | | 51.5 | 45.3 | 42.3 | 48.7 | 10.9 | | 49.2 | 11.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.89 | 2.14 | | 0.94 | 1.31 | |
| Incremental Delay, d2 | 4.9 | 2.1 | | 4.9 | 4.5 | 0.2 | 3.4 | 0.3 | | 2.3 | 0.3 | |
| Delay (s) | 56.4 | 46.8 | | 56.4 | 49.8 | 42.6 | 46.9 | 23.7 | | 48.5 | 14.9 | |
| Level of Service | E | D | | E | D | D | D | C | | D | B | |
| Approach Delay (s) | | 48.9 | | | 47.0 | | | 26.2 | | | 17.9 | |
| Approach LOS | | D | | | D | | | C | | | B | |

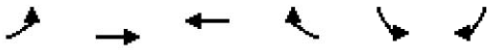
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.9 |
| Intersection Capacity Utilization | 45.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 50 | 190 | 40 | 60 | 180 | 30 | 60 | 140 | 40 | 20 | 110 | 80 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 55 | 209 | 44 | 66 | 198 | 33 | 66 | 154 | 44 | 22 | 121 | 88 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 308 | 297 | 66 | 198 | 22 | 209 |
| Volume Left (vph) | 55 | 66 | 66 | 0 | 22 | 0 |
| Volume Right (vph) | 44 | 33 | 0 | 44 | 0 | 88 |
| Hadj (s) | -0.05 | -0.02 | 0.50 | -0.16 | 0.50 | -0.29 |
| Departure Headway (s) | 6.0 | 6.0 | 7.4 | 6.7 | 7.4 | 6.6 |
| Degree Utilization, x | 0.51 | 0.50 | 0.13 | 0.37 | 0.05 | 0.38 |
| Capacity (veh/h) | 561 | 555 | 439 | 484 | 440 | 487 |
| Control Delay (s) | 15.1 | 14.9 | 10.3 | 12.3 | 9.6 | 12.5 |
| Approach Delay (s) | 15.1 | 14.9 | 11.8 | | 12.2 | |
| Approach LOS | C | B | B | | B | |

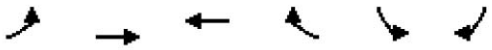
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 13.6 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 45.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 140 | 280 | 400 | 80 | 30 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1900 | 1569 | 1805 | 1564 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1900 | 1569 | 1805 | 1564 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 156 | 311 | 444 | 89 | 33 | 311 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 44 | 0 | 232 |
| Lane Group Flow (vph) | 156 | 311 | 444 | 45 | 33 | 79 |
| Confl. Peds. (#/hr) | 5 | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | Perm |
| Protected Phases | 7 | 4 | 8 | | 6 | |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 14.7 | 74.0 | 55.3 | 55.3 | 28.0 | 28.0 |
| Effective Green, g (s) | 14.7 | 74.0 | 55.3 | 55.3 | 28.0 | 28.0 |
| Actuated g/C Ratio | 0.13 | 0.67 | 0.50 | 0.50 | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 241 | 1278 | 955 | 789 | 459 | 398 |
| v/s Ratio Prot | c0.09 | 0.16 | c0.23 | | 0.02 | |
| v/s Ratio Perm | | | | 0.03 | | c0.05 |
| v/c Ratio | 0.65 | 0.24 | 0.46 | 0.06 | 0.07 | 0.20 |
| Uniform Delay, d1 | 45.2 | 7.0 | 17.7 | 14.0 | 31.1 | 32.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.9 | 0.5 | 1.6 | 0.1 | 0.3 | 1.1 |
| Delay (s) | 51.1 | 7.5 | 19.4 | 14.1 | 31.4 | 33.3 |
| Level of Service | D | A | B | B | C | C |
| Approach Delay (s) | | 22.0 | 18.5 | | 33.1 | |
| Approach LOS | | C | B | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

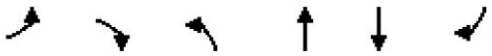
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 60 | 460 | 640 | 70 | 40 | 40 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 65 | 500 | 696 | 76 | 43 | 43 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | 2 |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 772 | | | | 1364 | 734 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 772 | | | | 1364 | 734 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 92 | | | | 71 | 90 |
| cM capacity (veh/h) | 852 | | | | 152 | 424 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 65 | 500 | 772 | 87 |
| Volume Left | 65 | 0 | 0 | 43 |
| Volume Right | 0 | 0 | 76 | 43 |
| cSH | 852 | 1700 | 1700 | 303 |
| Volume to Capacity | 0.08 | 0.29 | 0.45 | 0.29 |
| Queue Length 95th (ft) | 6 | 0 | 0 | 29 |
| Control Delay (s) | 9.6 | 0.0 | 0.0 | 26.2 |
| Lane LOS | A | | | D |
| Approach Delay (s) | 1.1 | | 0.0 | 26.2 |
| Approach LOS | | | | D |

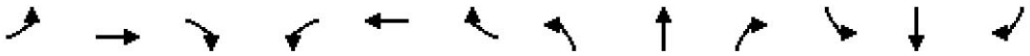
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 54.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 100 | 20 | 20 | 640 | 340 | 50 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 111 | 22 | 22 | 711 | 378 | 56 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1166 | 411 | 433 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1166 | 411 | 433 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 47 | 97 | 98 | | | |
| cM capacity (veh/h) | 211 | 643 | 1137 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 133 | 22 | 711 | 433 |
| Volume Left | 111 | 22 | 0 | 0 |
| Volume Right | 22 | 0 | 0 | 56 |
| cSH | 238 | 1137 | 1700 | 1700 |
| Volume to Capacity | 0.56 | 0.02 | 0.42 | 0.25 |
| Queue Length 95th (ft) | 77 | 1 | 0 | 0 |
| Control Delay (s) | 37.9 | 8.2 | 0.0 | 0.0 |
| Lane LOS | E | A | | |
| Approach Delay (s) | 37.9 | 0.2 | | 0.0 |
| Approach LOS | E | | | |

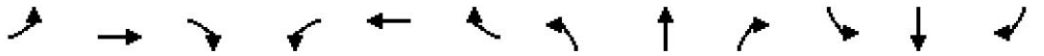
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.0 | | |
| Intersection Capacity Utilization | 47.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 20 | 310 | 0 | 0 | 340 | 240 | 270 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 21 | 323 | 0 | 0 | 354 | 250 | 281 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 609 | | | 328 | | | 729 | 979 | 333 | 729 | 729 | 364 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 609 | | | 328 | | | 729 | 979 | 333 | 729 | 729 | 364 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 100 | | | 15 | 100 | 100 | 100 | 100 | 100 |
| cM capacity (veh/h) | 979 | | | 1238 | | | 332 | 246 | 708 | 333 | 343 | 682 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 21 | 323 | 354 | 250 | 281 |
| Volume Left | 21 | 0 | 0 | 0 | 281 |
| Volume Right | 0 | 0 | 0 | 250 | 0 |
| cSH | 979 | 1700 | 1700 | 1700 | 327 |
| Volume to Capacity | 0.02 | 0.19 | 0.21 | 0.15 | 0.86 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 195 |
| Control Delay (s) | 8.8 | 0.0 | 0.0 | 0.0 | 56.8 |
| Lane LOS | A | | | | F |
| Approach Delay (s) | 0.5 | | 0.0 | | 56.8 |
| Approach LOS | | | | | F |

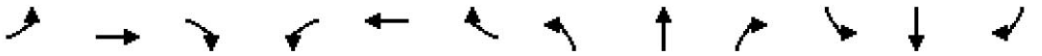
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 13.1 | | |
| Intersection Capacity Utilization | 48.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 220 | 180 | 10 | 650 | 0 | 0 | 0 | 0 | 130 | 0 | 20 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 234 | 191 | 11 | 691 | 0 | 0 | 0 | 0 | 138 | 0 | 21 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 696 | | | 431 | | | 967 | 957 | 244 | 957 | 1148 | 701 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 696 | | | 431 | | | 967 | 957 | 244 | 957 | 1148 | 701 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 99 | | | 100 | 100 | 100 | 41 | 100 | 95 |
| cM capacity (veh/h) | 905 | | | 1140 | | | 221 | 256 | 796 | 235 | 198 | 438 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 234 | 191 | 11 | 691 | 160 |
| Volume Left | 0 | 0 | 11 | 0 | 138 |
| Volume Right | 0 | 191 | 0 | 0 | 21 |
| cSH | 1700 | 1700 | 1140 | 1700 | 271 |
| Volume to Capacity | 0.14 | 0.11 | 0.01 | 0.41 | 0.59 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 86 |
| Control Delay (s) | 0.0 | 0.0 | 8.2 | 0.0 | 36.6 |
| Lane LOS | | | A | | E |
| Approach Delay (s) | 0.0 | | 0.1 | | 36.6 |
| Approach LOS | | | | | E |

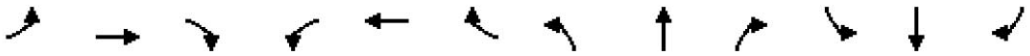
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 4.6 | | | |
| Intersection Capacity Utilization | 48.1% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 300 | 250 | 50 | 30 | 370 | 420 | 140 | 690 | 30 | 260 | 420 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1596 | 3502 | 3610 | 1615 | 3502 | 3610 | 1594 | 3502 | 3610 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1596 | 3502 | 3610 | 1615 | 3502 | 3610 | 1594 | 3502 | 3610 | 1598 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 330 | 275 | 55 | 33 | 407 | 462 | 154 | 758 | 33 | 286 | 462 | 209 |
| RTOR Reduction (vph) | 0 | 0 | 29 | 0 | 0 | 39 | 0 | 0 | 22 | 0 | 0 | 87 |
| Lane Group Flow (vph) | 330 | 275 | 26 | 33 | 407 | 423 | 154 | 758 | 11 | 286 | 462 | 122 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pt+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 8 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.3 | 33.1 | 41.6 | 3.8 | 25.6 | 39.9 | 8.5 | 24.6 | 28.4 | 10.3 | 26.4 | 37.7 |
| Effective Green, g (s) | 11.3 | 33.1 | 41.6 | 3.8 | 25.6 | 39.9 | 8.5 | 24.6 | 28.4 | 10.3 | 26.4 | 37.7 |
| Actuated g/C Ratio | 0.13 | 0.38 | 0.47 | 0.04 | 0.29 | 0.45 | 0.10 | 0.28 | 0.32 | 0.12 | 0.30 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 451 | 1361 | 829 | 152 | 1053 | 734 | 339 | 1011 | 588 | 411 | 1085 | 759 |
| v/s Ratio Prot | c0.09 | 0.08 | 0.00 | 0.01 | 0.11 | c0.26 | 0.04 | c0.21 | 0.00 | 0.08 | 0.13 | 0.02 |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.01 | | | 0.06 |
| v/c Ratio | 0.73 | 0.20 | 0.03 | 0.22 | 0.39 | 0.58 | 0.45 | 0.75 | 0.02 | 0.70 | 0.43 | 0.16 |
| Uniform Delay, d1 | 36.8 | 18.4 | 12.3 | 40.6 | 24.8 | 17.7 | 37.5 | 28.8 | 20.2 | 37.2 | 24.6 | 15.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.0 | 0.1 | 0.0 | 0.7 | 0.2 | 1.1 | 1.0 | 3.1 | 0.0 | 5.1 | 0.3 | 0.1 |
| Delay (s) | 42.8 | 18.5 | 12.4 | 41.3 | 25.1 | 18.8 | 38.4 | 31.9 | 20.2 | 42.3 | 24.9 | 15.5 |
| Level of Service | D | B | B | D | C | B | D | C | C | D | C | B |
| Approach Delay (s) | | 30.2 | | | 22.5 | | | 32.5 | | | 28.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 87.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 200 | 120 | 40 | 220 | 10 | 300 | 30 | 50 | 30 | 50 | 10 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 12 | 233 | 140 | 47 | 256 | 12 | 349 | 35 | 58 | 35 | 58 | 12 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 12 | 372 | 47 | 267 | 349 | 93 | 105 |
| Volume Left (vph) | 12 | 0 | 47 | 0 | 349 | 0 | 35 |
| Volume Right (vph) | 0 | 140 | 0 | 12 | 0 | 58 | 12 |
| Hadj (s) | 0.50 | -0.26 | 0.50 | -0.03 | 0.50 | -0.44 | 0.00 |
| Departure Headway (s) | 7.6 | 6.8 | 7.7 | 7.2 | 7.5 | 6.5 | 7.7 |
| Degree Utilization, x | 0.02 | 0.70 | 0.10 | 0.53 | 0.72 | 0.17 | 0.23 |
| Capacity (veh/h) | 448 | 508 | 439 | 469 | 466 | 524 | 404 |
| Control Delay (s) | 9.6 | 23.1 | 10.4 | 16.9 | 26.5 | 9.6 | 13.0 |
| Approach Delay (s) | 22.7 | | 15.9 | | 22.9 | | 13.0 |
| Approach LOS | C | | C | | C | | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 20.2 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 54.7% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

# HCM Signalized Intersection Capacity Analysis
## 130: 6th St & Beaumont Ave

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 190 | 50 | 90 | 180 | 90 | 40 | 180 | 60 | 130 | 260 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1802 | 3486 | | 1802 | 1710 | 1441 | 1805 | 3462 | | 1805 | 3478 | |
| Flt Permitted | 0.64 | 1.00 | | 0.60 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1215 | 3486 | | 1134 | 1710 | 1441 | 1805 | 3462 | | 1805 | 3478 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 72 | 196 | 52 | 93 | 186 | 93 | 41 | 186 | 62 | 134 | 268 | 72 |
| RTOR Reduction (vph) | 0 | 36 | 0 | 0 | 0 | 54 | 0 | 45 | 0 | 0 | 31 | 0 |
| Lane Group Flow (vph) | 72 | 212 | 0 | 93 | 186 | 39 | 41 | 203 | 0 | 134 | 309 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 0 | 0 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 9.9 | 9.9 | | 9.9 | 9.9 | 16.1 | 1.1 | 10.6 | | 6.2 | 15.7 | |
| Effective Green, g (s) | 9.9 | 9.9 | | 9.9 | 9.9 | 16.1 | 1.1 | 10.6 | | 6.2 | 15.7 | |
| Actuated g/C Ratio | 0.26 | 0.26 | | 0.26 | 0.26 | 0.42 | 0.03 | 0.27 | | 0.16 | 0.41 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 311 | 892 | | 290 | 437 | 748 | 51 | 948 | | 289 | 1411 | |
| v/s Ratio Prot | | 0.06 | | | c0.11 | 0.01 | 0.02 | 0.06 | | c0.07 | c0.09 | |
| v/s Ratio Perm | 0.06 | | | 0.08 | | 0.02 | | | | | | |
| v/c Ratio | 0.23 | 0.24 | | 0.32 | 0.43 | 0.05 | 0.80 | 0.21 | | 0.46 | 0.22 | |
| Uniform Delay, d1 | 11.4 | 11.4 | | 11.7 | 12.0 | 6.7 | 18.7 | 10.8 | | 14.7 | 7.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | 0.1 | | 0.6 | 0.7 | 0.0 | 59.0 | 0.1 | | 1.2 | 0.1 | |
| Delay (s) | 11.8 | 11.5 | | 12.3 | 12.7 | 6.8 | 77.7 | 11.0 | | 15.9 | 7.6 | |
| Level of Service | B | B | | B | B | A | E | B | | B | A | |
| Approach Delay (s) | | 11.6 | | | 11.1 | | | 20.4 | | | 9.9 | |
| Approach LOS | | B | | | B | | | C | | | A | |

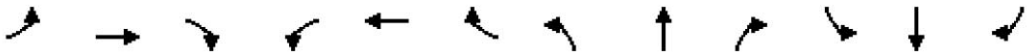
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 38.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 48.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 180 | 10 | 10 | 1070 | 10 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1700 | 1800 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1800 | 1528 | | 1751 | 1615 | 1530 |
| Flt Permitted | 1.00 | 1.00 | | 0.84 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1800 | 1528 | | 1500 | 1615 | 1530 |
| Peak-hour factor, PHF | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Adj. Flow (vph) | 12 | 222 | 12 | 12 | 1321 | 12 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 12 | 222 | 0 | 24 | 1321 | 12 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | pm+ov | Perm | | | Prot |
| Protected Phases | 4 | 2 | | 8 | 2 | 2 |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 5.7 | 89.9 | | 5.7 | 84.2 | 84.2 |
| Effective Green, g (s) | 5.7 | 89.9 | | 5.7 | 84.2 | 84.2 |
| Actuated g/C Ratio | 0.06 | 0.90 | | 0.06 | 0.84 | 0.84 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 103 | 1528 | | 86 | 1361 | 1290 |
| v/s Ratio Prot | 0.01 | 0.12 | | | c0.82 | 0.01 |
| v/s Ratio Perm | | 0.02 | | c0.02 | | |
| v/c Ratio | 0.12 | 0.15 | | 0.28 | 0.97 | 0.01 |
| Uniform Delay, d1 | 44.7 | 0.6 | | 45.1 | 6.8 | 1.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 0.0 | | 1.8 | 17.8 | 0.0 |
| Delay (s) | 45.2 | 0.6 | | 46.9 | 24.5 | 1.2 |
| Level of Service | D | A | | D | C | A |
| Approach Delay (s) | 2.9 | | | 46.9 | 24.3 | |
| Approach LOS | A | | | D | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 99.9 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 82.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

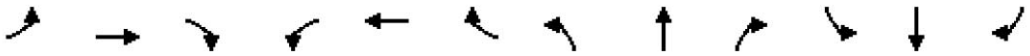
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 210 | 0 | 10 | 530 | 200 | 10 | 20 | 0 | 230 | 10 | 40 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 38 | 262 | 0 | 12 | 662 | 250 | 12 | 25 | 0 | 288 | 12 | 50 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 300 | 925 | 38 | 350 |
| Volume Left (vph) | 38 | 13 | 13 | 288 |
| Volume Right (vph) | 0 | 250 | 0 | 50 |
| Hadj (s) | 0.03 | -0.16 | 0.07 | 0.08 |
| Departure Headway (s) | 6.4 | 5.7 | 7.7 | 6.6 |
| Degree Utilization, x | 0.53 | 1.48 | 0.08 | 0.65 |
| Capacity (veh/h) | 543 | 631 | 404 | 526 |
| Control Delay (s) | 16.5 | 239.7 | 11.4 | 21.0 |
| Approach Delay (s) | 16.5 | 239.7 | 11.4 | 21.0 |
| Approach LOS | C | F | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 145.4 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 74.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 390 | 10 | 10 | 720 | 80 | 10 | 10 | 10 | 160 | 10 | 40 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 22 | 419 | 11 | 11 | 774 | 86 | 11 | 11 | 11 | 172 | 11 | 43 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 452 | 871 | 32 | 226 |
| Volume Left (vph) | 22 | 11 | 11 | 172 |
| Volume Right (vph) | 11 | 86 | 11 | 43 |
| Hadj (s) | 0.00 | -0.06 | -0.13 | 0.04 |
| Departure Headway (s) | 5.8 | 5.6 | 7.5 | 6.8 |
| Degree Utilization, x | 0.73 | 1.35 | 0.07 | 0.43 |
| Capacity (veh/h) | 605 | 652 | 416 | 501 |
| Control Delay (s) | 23.1 | 183.8 | 11.0 | 14.9 |
| Approach Delay (s) | 23.1 | 183.8 | 11.0 | 14.9 |
| Approach LOS | C | F | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 110.2 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 20 | 540 | 60 | 90 | 750 | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 587 | 65 | 98 | 815 | 22 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 609 | 163 | 837 |
| Volume Left (vph) | 0 | 65 | 815 |
| Volume Right (vph) | 587 | 0 | 22 |
| Hadj (s) | -0.58 | 0.08 | 0.18 |
| Departure Headway (s) | 5.6 | 7.0 | 6.3 |
| Degree Utilization, x | 0.94 | 0.32 | 1.47 |
| Capacity (veh/h) | 635 | 504 | 574 |
| Control Delay (s) | 46.2 | 13.2 | 238.2 |
| Approach Delay (s) | 46.2 | 13.2 | 238.2 |
| Approach LOS | E | B | F |

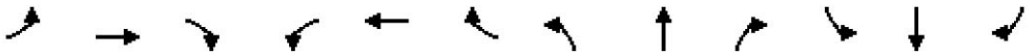
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 142.8 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 100.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 40 | 30 | 180 | 110 | 110 | 260 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 44 | 33 | 200 | 122 | 122 | 289 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 78 | | 583 | 61 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 78 | | 583 | 61 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 87 | | 71 | 71 |
| cM capacity (veh/h) | | | 1534 | | 415 | 1010 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 78 | 322 | 411 |
| Volume Left | 0 | 200 | 122 |
| Volume Right | 33 | 0 | 289 |
| cSH | 1700 | 1534 | 708 |
| Volume to Capacity | 0.05 | 0.13 | 0.58 |
| Queue Length 95th (ft) | 0 | 11 | 94 |
| Control Delay (s) | 0.0 | 5.2 | 16.9 |
| Lane LOS | | A | C |
| Approach Delay (s) | 0.0 | 5.2 | 16.9 |
| Approach LOS | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 10.6 | | |
| Intersection Capacity Utilization | 53.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 10 | 10 | 30 | 10 | 10 | 10 | 250 | 20 | 10 | 210 | 10 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 22 | 11 | 11 | 33 | 11 | 11 | 11 | 275 | 22 | 11 | 231 | 11 |

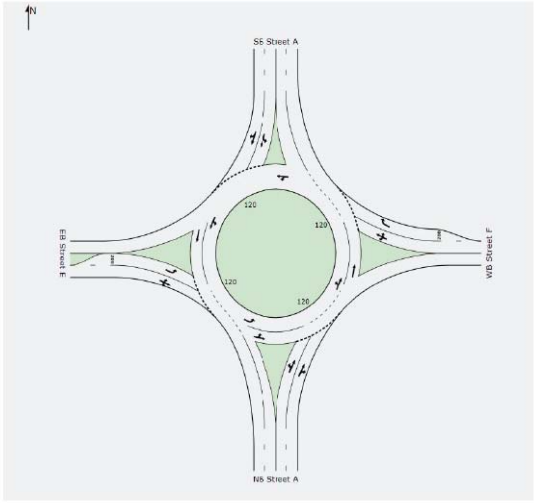
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 44 | 55 | 308 | 253 |
| Volume Left (vph) | 22 | 33 | 11 | 11 |
| Volume Right (vph) | 11 | 11 | 22 | 11 |
| Hadj (s) | -0.05 | 0.00 | -0.04 | -0.02 |
| Departure Headway (s) | 5.2 | 5.2 | 4.4 | 4.5 |
| Degree Utilization, x | 0.06 | 0.08 | 0.38 | 0.32 |
| Capacity (veh/h) | 612 | 611 | 790 | 770 |
| Control Delay (s) | 8.6 | 8.7 | 10.1 | 9.5 |
| Approach Delay (s) | 8.6 | 8.7 | 10.1 | 9.5 |
| Approach LOS | A | A | B | A |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | | 9.7 | | |
| HCM Level of Service | | A | | |
| Intersection Capacity Utilization | | 29.6% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

**Title:** Intersection 1 - Existing Plus Phase 1 - PM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street A | | | | | | | | | | |
| Lane 1 | 557 | 0.0 | 658 | 0.846 | 100 | 15.0 | LOS B | 7.6 | 189.2 | 0.0 |
| Lane 2 | 603 | 0.0 | 713 | 0.846 | 100 | 13.5 | LOS B | 7.8 | 195.6 | 0.0 |
| Approach | 1160 | 0.0 | | 0.846 | | 14.2 | LOS B | 7.8 | 195.6 | |
| East: WB Street F | | | | | | | | | | |
| Lane 1 | 60 | 0.0 | 475 | 0.126 | 100 | 14.3 | LOS B | 0.6 | 14.2 | 0.0 |
| Lane 2 | 30 | 0.0 | 344 | 0.087 | 69 | 13.6 | LOS B | 0.3 | 8.7 | 0.0 |
| Approach | 90 | 0.0 | | 0.126 | | 14.1 | LOS B | 0.6 | 14.2 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 641 | 0.0 | 1304 | 0.491 | 100 | 5.7 | LOS A | 3.6 | 89.7 | 0.0 |
| Lane 2 | 709 | 0.0 | 1444 | 0.491 | 100 | 6.7 | LOS A | 3.6 | 90.9 | 0.0 |
| Approach | 1350 | 0.0 | | 0.491 | | 6.2 | LOS A | 3.6 | 90.9 | |
| West: EB Street E | | | | | | | | | | |
| Lane 1 | 512 | 0.0 | 826 | 0.619 | 100 | 17.9 | LOS B | 4.8 | 119.1 | 0.0 |
| Lane 2 | 528 | 0.0 | 853 | 0.619 | 100 | 16.6 | LOS B | 4.8 | 120.4 | 0.0 |
| Approach | 1040 | 0.0 | | 0.619 | | 17.2 | LOS B | 4.8 | 120.4 | |
| All Vehicles | 3640 | | | 0.846 | | 12.1 | LOS B | 7.8 | 195.6 | |





| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 200 | 460 | 220 | 50 | 70 | 130 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 217 | 500 | 239 | 54 | 76 | 141 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 217 | 500 | 239 | 54 | 76 | 141 |
| Volume Left (vph) | 0 | 0 | 239 | 0 | 76 | 0 |
| Volume Right (vph) | 0 | 500 | 0 | 0 | 0 | 141 |
| Hadj (s) | 0.00 | -0.70 | 0.50 | 0.00 | 0.50 | -0.70 |
| Departure Headway (s) | 5.6 | 4.9 | 6.5 | 6.0 | 7.2 | 6.0 |
| Degree Utilization, x | 0.34 | 0.68 | 0.43 | 0.09 | 0.15 | 0.24 |
| Capacity (veh/h) | 619 | 722 | 535 | 570 | 461 | 548 |
| Control Delay (s) | 10.2 | 16.5 | 13.2 | 8.4 | 10.3 | 9.7 |
| Approach Delay (s) | 14.6 | | 12.3 | | 9.9 | |
| Approach LOS | B | | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 13.2 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 47.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

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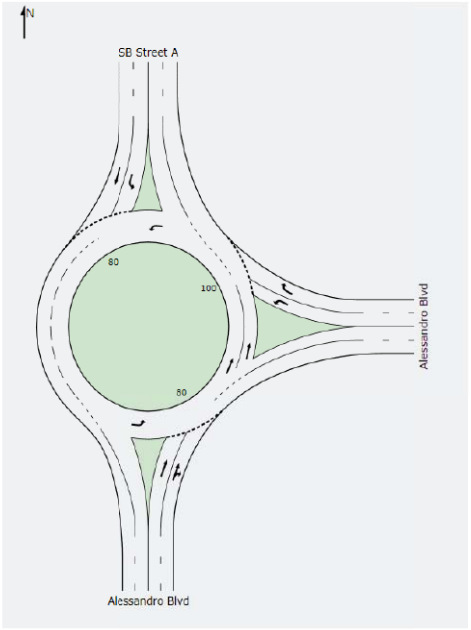
# LANE OUTPUT

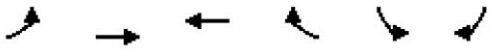
*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 3 - Existing Plus Phase 1 - PM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 179 | 0.0 | 1169 | 0.153 | 100 | 6.2 | LOS A | 0.8 | 20.2 | 0.0 |
| Lane 2 | 181 | 0.0 | 1185 | 0.153 | 100 | 7.6 | LOS A | 0.8 | 20.2 | 0.0 |
| Approach | 360 | 0.0 | | 0.153 | | 6.9 | LOS A | 0.8 | 20.2 | |
| East: WB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 60 | 0.0 | 1058 | 0.057 | 100 | 12.9 | LOS B | 0.2 | 5.8 | 0.0 |
| Lane 2 | 60 | 0.0 | 1058 | 0.057 | 100 | 7.2 | LOS A | 0.2 | 5.8 | 0.0 |
| Approach | 120 | 0.0 | | 0.057 | | 10.1 | LOS B | 0.2 | 5.8 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 160 | 0.0 | 1275 | 0.126 | 100 | 12.3 | LOS B | 0.6 | 14.7 | 0.0 |
| Lane 2 | 200 | 0.0 | 1379 | 0.145 | 100 | 5.9 | LOS A | 0.7 | 17.5 | 0.0 |
| Approach | 360 | 0.0 | | 0.145 | | 8.8 | LOS A | 0.7 | 17.5 | |
| All Vehicles | 840 | | | 0.153 | | 8.1 | LOS A | 0.8 | 20.2 | |

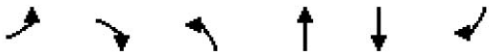




| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 280 | 100 | 20 | 20 | 10 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 304 | 109 | 22 | 22 | 11 |
| Pedestrians | | 5 | 5 | | 5 | |
| Lane Width (ft) | | 12.0 | 12.0 | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | 4.0 | | 4.0 | |
| Percent Blockage | | 0 | 0 | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 135 | | | | 456 | 130 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 135 | | | | 456 | 130 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 96 | 99 |
| cM capacity (veh/h) | 1455 | | | | 557 | 918 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 315 | 130 | 33 |
| Volume Left | 11 | 0 | 22 |
| Volume Right | 0 | 22 | 11 |
| cSH | 1455 | 1700 | 641 |
| Volume to Capacity | 0.01 | 0.08 | 0.05 |
| Queue Length 95th (ft) | 1 | 0 | 4 |
| Control Delay (s) | 0.3 | 0.0 | 10.9 |
| Lane LOS | A | | B |
| Approach Delay (s) | 0.3 | 0.0 | 10.9 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.0 | | |
| Intersection Capacity Utilization | 33.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 30 | 220 | 110 | 300 | 630 | 30 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 31 | 227 | 113 | 309 | 649 | 31 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1206 | 670 | 680 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1206 | 670 | 680 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 83 | 51 | 88 | | | |
| cM capacity (veh/h) | 179 | 459 | 922 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 258 | 423 | 680 |
| Volume Left | 31 | 113 | 0 |
| Volume Right | 227 | 0 | 31 |
| cSH | 386 | 922 | 1700 |
| Volume to Capacity | 0.67 | 0.12 | 0.40 |
| Queue Length 95th (ft) | 117 | 10 | 0 |
| Control Delay (s) | 31.2 | 3.6 | 0.0 |
| Lane LOS | D | A | |
| Approach Delay (s) | 31.2 | 3.6 | 0.0 |
| Approach LOS | D | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.0 | | |
| Intersection Capacity Utilization | 82.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 30 | 0 | 20 | 5 | 5 | 5 | 50 | 650 | 0 | 10 | 860 | 60 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 36 | 0 | 24 | 6 | 6 | 6 | 60 | 774 | 0 | 12 | 1024 | 71 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1959 | 1950 | 1034 | 1974 | 2022 | 784 | 1100 | | | 779 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1959 | 1950 | 1034 | 1974 | 2022 | 784 | 1100 | | | 779 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 9 | 100 | 92 | 85 | 89 | 98 | 91 | | | 99 | | |
| cM capacity (veh/h) | 39 | 58 | 282 | 39 | 52 | 393 | 639 | | | 844 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 60 | 18 | 60 | 774 | 0 | 12 | 1024 | 71 |
| Volume Left | 36 | 6 | 60 | 0 | 0 | 12 | 0 | 0 |
| Volume Right | 24 | 6 | 0 | 0 | 0 | 0 | 0 | 71 |
| cSH | 60 | 63 | 639 | 1700 | 1700 | 844 | 1700 | 1700 |
| Volume to Capacity | 0.99 | 0.28 | 0.09 | 0.46 | 0.00 | 0.01 | 0.60 | 0.04 |
| Queue Length 95th (ft) | 117 | 25 | 8 | 0 | 0 | 1 | 0 | 0 |
| Control Delay (s) | 226.7 | 82.7 | 11.2 | 0.0 | 0.0 | 9.3 | 0.0 | 0.0 |
| Lane LOS | F | F | B | | | A | | |
| Approach Delay (s) | 226.7 | 82.7 | 0.8 | | | 0.1 | | |
| Approach LOS | F | F | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 7.8 | | | |
| Intersection Capacity Utilization | 57.0% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 10 | 30 | 20 | 20 | 0 | 20 | 590 | 10 | 10 | 650 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1763 | | | 1854 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Flt Permitted | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1763 | | | 1854 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 11 | 32 | 21 | 21 | 0 | 21 | 628 | 11 | 11 | 691 | 149 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 28 |
| Lane Group Flow (vph) | 0 | 120 | 0 | 0 | 42 | 0 | 21 | 638 | 0 | 11 | 691 | 121 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 42.7 | | | 7.1 | | 3.3 | 52.7 | | 1.5 | 50.9 | 50.9 |
| Effective Green, g (s) | | 42.7 | | | 7.1 | | 3.3 | 52.7 | | 1.5 | 50.9 | 50.9 |
| Actuated g/C Ratio | | 0.36 | | | 0.06 | | 0.03 | 0.44 | | 0.01 | 0.42 | 0.42 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 627 | | | 110 | | 50 | 832 | | 23 | 806 | 662 |
| v/s Ratio Prot | | c0.07 | | | c0.02 | | c0.01 | 0.34 | | 0.01 | c0.36 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.08 |
| v/c Ratio | | 0.19 | | | 0.38 | | 0.42 | 0.77 | | 0.48 | 0.86 | 0.18 |
| Uniform Delay, d1 | | 26.7 | | | 54.3 | | 57.4 | 28.5 | | 58.9 | 31.3 | 21.6 |
| Progression Factor | | 0.77 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.6 | | | 2.2 | | 5.6 | 4.3 | | 14.8 | 9.0 | 0.1 |
| Delay (s) | | 21.1 | | | 56.5 | | 63.0 | 32.7 | | 73.7 | 40.2 | 21.7 |
| Level of Service | | C | | | E | | E | C | | E | D | C |
| Approach Delay (s) | | 21.1 | | | 56.5 | | | 33.7 | | | 37.4 | |
| Approach LOS | | C | | | E | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 60.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

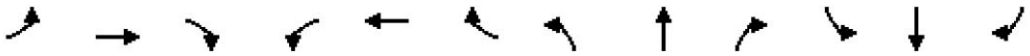
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 80 | 30 | 20 | 160 | 10 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Hourly flow rate (vph) | 13 | 104 | 39 | 26 | 208 | 13 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 439 | 5 | 531 | 426 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 439 | 5 | 531 | 426 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 97 | 90 | 89 | 94 | 87 | |
| cM capacity (veh/h) | 445 | 1080 | 365 | 453 | 1623 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 13 | 104 | 65 | 208 | 13 |
| Volume Left | 0 | 0 | 39 | 208 | 0 |
| Volume Right | 0 | 104 | 0 | 0 | 13 |
| cSH | 445 | 1080 | 395 | 1623 | 1700 |
| Volume to Capacity | 0.03 | 0.10 | 0.16 | 0.13 | 0.01 |
| Queue Length 95th (ft) | 2 | 8 | 15 | 11 | 0 |
| Control Delay (s) | 13.3 | 8.7 | 15.9 | 7.5 | 0.0 |
| Lane LOS | B | A | C | A | |
| Approach Delay (s) | 9.2 | | 15.9 | 7.1 | |
| Approach LOS | A | | C | | |

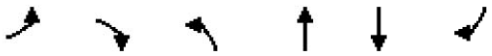
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 9.1 | | |
| Intersection Capacity Utilization | 24.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 10 | 10 | 10 | 20 | 10 | 30 | 10 | 580 | 410 | 270 | 420 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 11 | 11 | 11 | 23 | 11 | 34 | 11 | 659 | 466 | 307 | 477 | 11 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1828 | 2254 | 493 | 2033 | 2027 | 902 | 494 | | | 1130 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1828 | 2254 | 493 | 2033 | 2027 | 902 | 494 | | | 1130 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 51 | 46 | 98 | 0 | 61 | 90 | 99 | | | 51 | | |
| cM capacity (veh/h) | 23 | 21 | 575 | 15 | 29 | 336 | 1076 | | | 623 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 34 | 68 | 11 | 1125 | 307 | 489 |
| Volume Left | 11 | 23 | 11 | 0 | 307 | 0 |
| Volume Right | 11 | 34 | 0 | 466 | 0 | 11 |
| cSH | 32 | 34 | 1076 | 1700 | 623 | 1700 |
| Volume to Capacity | 1.05 | 2.00 | 0.01 | 0.66 | 0.49 | 0.29 |
| Queue Length 95th (ft) | 92 | 190 | 1 | 0 | 68 | 0 |
| Control Delay (s) | 358.5 | 715.5 | 8.4 | 0.0 | 16.3 | 0.0 |
| Lane LOS | F | F | A | | C | |
| Approach Delay (s) | 358.5 | 715.5 | 0.1 | | 6.3 | |
| Approach LOS | F | F | | | | |

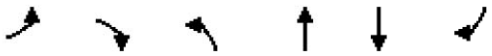
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 32.5 | | | |
| Intersection Capacity Utilization | 85.1% | ICU Level of Service | E | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 330 | 130 | 70 | 700 | 390 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.96 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.97 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1764 | | 1805 | 1900 | 1900 | 1615 |
| Flt Permitted | 0.97 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1764 | | 1805 | 1900 | 1900 | 1615 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 384 | 151 | 81 | 814 | 453 | 70 |
| RTOR Reduction (vph) | 24 | 0 | 0 | 0 | 0 | 20 |
| Lane Group Flow (vph) | 511 | 0 | 81 | 814 | 453 | 50 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 5 | 2 | 6 | 4 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 18.7 | | 3.8 | 28.6 | 20.8 | 39.5 |
| Effective Green, g (s) | 18.7 | | 3.8 | 28.6 | 20.8 | 39.5 |
| Actuated g/C Ratio | 0.34 | | 0.07 | 0.52 | 0.38 | 0.71 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 597 | | 124 | 983 | 715 | 1270 |
| v/s Ratio Prot | c0.29 | | 0.04 | c0.43 | 0.24 | 0.01 |
| v/s Ratio Perm | | | | | | 0.02 |
| v/c Ratio | 0.86 | | 0.65 | 0.83 | 0.63 | 0.04 |
| Uniform Delay, d1 | 17.0 | | 25.1 | 11.3 | 14.1 | 2.3 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 11.6 | | 11.7 | 5.8 | 1.8 | 0.0 |
| Delay (s) | 28.6 | | 36.8 | 17.1 | 16.0 | 2.3 |
| Level of Service | C | | D | B | B | A |
| Approach Delay (s) | 28.6 | | | 18.9 | 14.1 | |
| Approach LOS | C | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 55.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

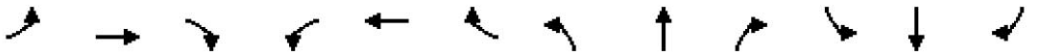
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 130 | 1310 | 160 | 90 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1588 | 3502 | 5187 | 5187 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1588 | 3502 | 5187 | 5187 | 1586 |
| Peak-hour factor, PHF | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 |
| Adj. Flow (vph) | 14 | 181 | 1819 | 222 | 125 | 28 |
| RTOR Reduction (vph) | 0 | 164 | 0 | 0 | 0 | 25 |
| Lane Group Flow (vph) | 14 | 17 | 1819 | 222 | 125 | 3 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 8.0 | 8.0 | 58.0 | 69.7 | 7.7 | 7.7 |
| Effective Green, g (s) | 8.0 | 8.0 | 58.0 | 69.7 | 7.7 | 7.7 |
| Actuated g/C Ratio | 0.09 | 0.09 | 0.68 | 0.81 | 0.09 | 0.09 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 168 | 148 | 2370 | 4219 | 466 | 142 |
| v/s Ratio Prot | 0.01 | | c0.52 | 0.04 | c0.02 | |
| v/s Ratio Perm | | c0.01 | | | | 0.00 |
| v/c Ratio | 0.08 | 0.11 | 0.77 | 0.05 | 0.27 | 0.02 |
| Uniform Delay, d1 | 35.5 | 35.6 | 9.3 | 1.6 | 36.4 | 35.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.3 | 1.5 | 0.0 | 0.3 | 0.1 |
| Delay (s) | 35.7 | 35.9 | 10.9 | 1.6 | 36.7 | 35.6 |
| Level of Service | D | D | B | A | D | D |
| Approach Delay (s) | 35.9 | | | 9.8 | 36.5 | |
| Approach LOS | D | | | A | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 85.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 59.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 0 | 1150 | 0 | 0 | 0 | 0 | 1440 | 280 | 0 | 200 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 0.88 | | | | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 0.99 | | | | | 1.00 | 0.98 | | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 2804 | | | | | 5187 | 1590 | | 5187 | 1574 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 2804 | | | | | 5187 | 1590 | | 5187 | 1574 |
| Peak-hour factor, PHF | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 |
| Adj. Flow (vph) | 29 | 0 | 1667 | 0 | 0 | 0 | 0 | 2087 | 406 | 0 | 290 | 29 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 0 | 0 | 5 |
| Lane Group Flow (vph) | 29 | 0 | 1667 | 0 | 0 | 0 | 0 | 2087 | 330 | 0 | 290 | 24 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | custom | | Free | | | | | | Perm | | | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | Free | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.3 | | 49.7 | | | | | 40.4 | 40.4 | | 40.4 | 40.4 |
| Effective Green, g (s) | 1.3 | | 49.7 | | | | | 40.4 | 40.4 | | 40.4 | 40.4 |
| Actuated g/C Ratio | 0.03 | | 1.00 | | | | | 0.81 | 0.81 | | 0.81 | 0.81 |
| Clearance Time (s) | 4.0 | | | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 47 | | 2804 | | | | | 4216 | 1292 | | 4216 | 1279 |
| v/s Ratio Prot | | | | | | | | 0.40 | | | 0.06 | |
| v/s Ratio Perm | 0.02 | | c0.59 | | | | | | 0.21 | | | 0.01 |
| v/c Ratio | 0.62 | | 0.59 | | | | | 0.50 | 0.26 | | 0.07 | 0.02 |
| Uniform Delay, d1 | 24.0 | | 0.0 | | | | | 1.5 | 1.1 | | 0.9 | 0.9 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 21.7 | | 0.9 | | | | | 0.1 | 0.1 | | 0.0 | 0.0 |
| Delay (s) | 45.7 | | 0.9 | | | | | 1.5 | 1.2 | | 0.9 | 0.9 |
| Level of Service | D | | A | | | | | A | A | | A | A |
| Approach Delay (s) | | 1.7 | | | 0.0 | | | 1.5 | | | 0.9 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 1.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 49.7 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 39.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

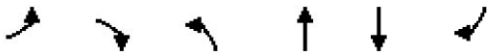
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 90 | 500 | 300 | 10 | 80 | 410 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1576 | 1900 | 1576 | 1805 | 1900 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1576 | 1900 | 1576 | 1805 | 1900 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 98 | 543 | 326 | 11 | 87 | 446 |
| RTOR Reduction (vph) | 0 | 380 | 0 | 7 | 0 | 0 |
| Lane Group Flow (vph) | 98 | 163 | 326 | 4 | 87 | 446 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | | |
| Turn Type | | Perm | | Perm | Prot | |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 10.5 | 10.5 | 13.2 | 13.2 | 3.8 | 21.0 |
| Effective Green, g (s) | 10.5 | 10.5 | 13.2 | 13.2 | 3.8 | 21.0 |
| Actuated g/C Ratio | 0.27 | 0.27 | 0.33 | 0.33 | 0.10 | 0.53 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 480 | 419 | 635 | 527 | 174 | 1010 |
| v/s Ratio Prot | 0.05 | | 0.17 | | 0.05 | c0.23 |
| v/s Ratio Perm | | c0.10 | | 0.00 | | |
| v/c Ratio | 0.20 | 0.39 | 0.51 | 0.01 | 0.50 | 0.44 |
| Uniform Delay, d1 | 11.3 | 11.9 | 10.6 | 8.8 | 16.9 | 5.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.6 | 0.7 | 0.0 | 2.3 | 0.3 |
| Delay (s) | 11.5 | 12.5 | 11.3 | 8.8 | 19.2 | 6.0 |
| Level of Service | B | B | B | A | B | A |
| Approach Delay (s) | 12.3 | | 11.2 | | | 8.1 |
| Approach LOS | B | | B | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 39.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

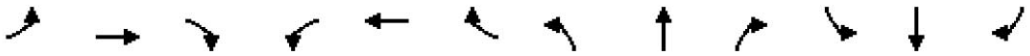
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 50 | 160 | 440 | 1820 | 1180 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1589 | 1805 | 3610 | 5187 | 1567 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1589 | 1805 | 3610 | 5187 | 1567 |
| Peak-hour factor, PHF | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| Adj. Flow (vph) | 77 | 246 | 677 | 2800 | 1815 | 262 |
| RTOR Reduction (vph) | 0 | 221 | 0 | 0 | 0 | 52 |
| Lane Group Flow (vph) | 77 | 25 | 677 | 2800 | 1815 | 210 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 9.7 | 9.7 | 37.0 | 79.0 | 38.0 | 38.0 |
| Effective Green, g (s) | 9.7 | 9.7 | 37.0 | 79.0 | 38.0 | 38.0 |
| Actuated g/C Ratio | 0.10 | 0.10 | 0.38 | 0.82 | 0.39 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 181 | 159 | 691 | 2949 | 2038 | 616 |
| v/s Ratio Prot | c0.04 | | 0.38 | c0.78 | 0.35 | |
| v/s Ratio Perm | | 0.02 | | | | 0.13 |
| v/c Ratio | 0.43 | 0.16 | 0.98 | 0.95 | 0.89 | 0.34 |
| Uniform Delay, d1 | 40.9 | 39.8 | 29.5 | 7.2 | 27.4 | 20.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.6 | 0.5 | 28.8 | 7.7 | 5.3 | 0.3 |
| Delay (s) | 42.5 | 40.2 | 58.3 | 15.0 | 32.8 | 20.9 |
| Level of Service | D | D | E | B | C | C |
| Approach Delay (s) | 40.8 | | | 23.4 | 31.3 | |
| Approach LOS | D | | | C | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 96.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 66.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

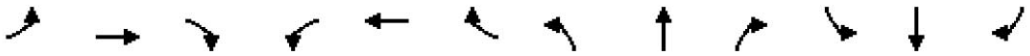
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 320 | 80 | 20 | 290 | 10 | 80 | 0 | 20 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 344 | 86 | 22 | 312 | 11 | 86 | 0 | 22 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 328 | | | 435 | | | 757 | 763 | 397 | 757 | 800 | 327 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 328 | | | 435 | | | 757 | 763 | 397 | 757 | 800 | 327 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 98 | | | 73 | 100 | 97 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1238 | | | 1131 | | | 317 | 328 | 651 | 306 | 312 | 713 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 430 | 344 | 86 | 22 | 0 |
| Volume Left | 0 | 22 | 86 | 0 | 0 |
| Volume Right | 86 | 11 | 0 | 22 | 0 |
| cSH | 1238 | 1131 | 317 | 651 | 1700 |
| Volume to Capacity | 0.00 | 0.02 | 0.27 | 0.03 | 0.00 |
| Queue Length 95th (ft) | 0 | 1 | 27 | 3 | 0 |
| Control Delay (s) | 0.0 | 0.7 | 20.5 | 10.7 | 0.0 |
| Lane LOS | | A | C | B | A |
| Approach Delay (s) | 0.0 | 0.7 | 18.6 | | 0.0 |
| Approach LOS | | | C | | A |

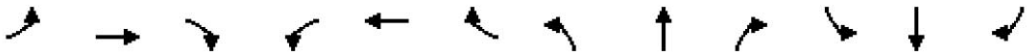
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.5 | | |
| Intersection Capacity Utilization | 43.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 160 | 70 | 80 | 130 | 30 | 60 | 530 | 50 | 20 | 710 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1798 | | 1805 | 1837 | | 1805 | 1871 | | 1805 | 1862 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1798 | | 1805 | 1837 | | 1805 | 1871 | | 1805 | 1862 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 108 | 172 | 75 | 86 | 140 | 32 | 65 | 570 | 54 | 22 | 763 | 97 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 10 | 0 | 0 | 3 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 108 | 229 | 0 | 86 | 162 | 0 | 65 | 621 | 0 | 22 | 856 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 10.7 | 18.0 | | 5.3 | 12.6 | | 7.0 | 43.9 | | 2.6 | 39.5 | |
| Effective Green, g (s) | 10.7 | 18.0 | | 5.3 | 12.6 | | 7.0 | 43.9 | | 2.6 | 39.5 | |
| Actuated g/C Ratio | 0.12 | 0.21 | | 0.06 | 0.15 | | 0.08 | 0.51 | | 0.03 | 0.46 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 225 | 377 | | 111 | 270 | | 147 | 957 | | 55 | 857 | |
| v/s Ratio Prot | 0.06 | c0.13 | | c0.05 | 0.09 | | 0.04 | c0.33 | | 0.01 | c0.46 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.48 | 0.61 | | 0.77 | 0.60 | | 0.44 | 0.65 | | 0.40 | 1.00 | |
| Uniform Delay, d1 | 35.0 | 30.7 | | 39.7 | 34.2 | | 37.5 | 15.3 | | 40.8 | 23.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.6 | 2.8 | | 27.9 | 3.6 | | 2.1 | 1.5 | | 4.7 | 30.1 | |
| Delay (s) | 36.6 | 33.5 | | 67.6 | 37.8 | | 39.7 | 16.8 | | 45.6 | 53.2 | |
| Level of Service | D | C | | E | D | | D | B | | D | D | |
| Approach Delay (s) | | 34.4 | | | 47.7 | | | 19.0 | | | 53.1 | |
| Approach LOS | | C | | | D | | | B | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 85.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

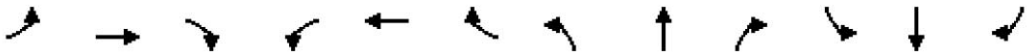
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 50 | 10 | 20 | 10 | 10 | 10 | 60 | 370 | 10 | 10 | 190 | 140 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 53 | 11 | 21 | 11 | 11 | 11 | 63 | 389 | 11 | 11 | 200 | 147 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 63 | 21 | 32 | 453 | 11 | 358 |
| Volume Left (vph) | 53 | 0 | 11 | 63 | 0 | 11 |
| Volume Right (vph) | 0 | 21 | 11 | 0 | 11 | 147 |
| Hadj (s) | 0.42 | -0.70 | -0.13 | 0.07 | -0.70 | -0.24 |
| Departure Headway (s) | 7.1 | 5.9 | 6.7 | 5.3 | 4.6 | 5.3 |
| Degree Utilization, x | 0.12 | 0.03 | 0.06 | 0.67 | 0.01 | 0.52 |
| Capacity (veh/h) | 455 | 532 | 465 | 657 | 766 | 668 |
| Control Delay (s) | 9.9 | 7.9 | 10.1 | 17.2 | 6.4 | 13.9 |
| Approach Delay (s) | 9.4 | | 10.1 | 17.0 | | 13.9 |
| Approach LOS | A | | B | C | | B |

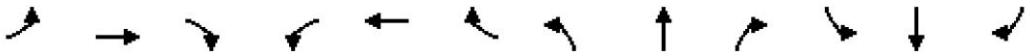
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 14.9 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 61.4% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 240 | 160 | 50 | 270 | 50 | 100 | 70 | 30 | 20 | 40 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.99 | |
| Satd. Flow (prot) | 1805 | 3360 | | 1805 | 1900 | 1574 | | 1846 | 1591 | | 1831 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.99 | |
| Satd. Flow (perm) | 1805 | 3360 | | 1805 | 1900 | 1574 | | 1846 | 1591 | | 1831 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 11 | 267 | 178 | 56 | 300 | 56 | 111 | 78 | 33 | 22 | 44 | 11 |
| RTOR Reduction (vph) | 0 | 116 | 0 | 0 | 0 | 39 | 0 | 0 | 26 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 11 | 329 | 0 | 56 | 300 | 17 | 0 | 189 | 7 | 0 | 70 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.0 | 12.0 | | 5.8 | 16.8 | 16.8 | | 11.5 | 11.5 | | 8.6 | |
| Effective Green, g (s) | 1.0 | 12.0 | | 5.8 | 16.8 | 16.8 | | 11.5 | 11.5 | | 8.6 | |
| Actuated g/C Ratio | 0.02 | 0.22 | | 0.11 | 0.31 | 0.31 | | 0.21 | 0.21 | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 33 | 748 | | 194 | 592 | 491 | | 394 | 339 | | 292 | |
| v/s Ratio Prot | 0.01 | 0.10 | | c0.03 | c0.16 | | | c0.10 | | | c0.04 | |
| v/s Ratio Perm | | | | | | 0.01 | | | 0.00 | | | |
| v/c Ratio | 0.33 | 0.44 | | 0.29 | 0.51 | 0.04 | | 0.48 | 0.02 | | 0.24 | |
| Uniform Delay, d1 | 26.1 | 18.1 | | 22.2 | 15.2 | 12.9 | | 18.6 | 16.8 | | 19.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 5.9 | 0.4 | | 0.8 | 0.7 | 0.0 | | 0.9 | 0.0 | | 0.4 | |
| Delay (s) | 32.0 | 18.5 | | 23.0 | 15.8 | 12.9 | | 19.5 | 16.8 | | 20.2 | |
| Level of Service | C | B | | C | B | B | | B | B | | C | |
| Approach Delay (s) | | 18.8 | | | 16.4 | | | 19.1 | | | 20.2 | |
| Approach LOS | | B | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 53.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 48.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 130 | 140 | 30 | 140 | 20 | 140 | 410 | 30 | 30 | 610 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3305 | | 1805 | 3531 | | 1805 | 3610 | 1595 | 1805 | 5047 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3305 | | 1805 | 3531 | | 1805 | 3610 | 1595 | 1805 | 5047 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 108 | 140 | 151 | 32 | 151 | 22 | 151 | 441 | 32 | 32 | 656 | 129 |
| RTOR Reduction (vph) | 0 | 115 | 0 | 0 | 16 | 0 | 0 | 0 | 18 | 0 | 31 | 0 |
| Lane Group Flow (vph) | 108 | 176 | 0 | 32 | 157 | 0 | 151 | 441 | 14 | 32 | 754 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 9.6 | 13.7 | | 4.0 | 8.1 | | 9.6 | 21.1 | 25.1 | 2.6 | 14.1 | |
| Effective Green, g (s) | 9.6 | 13.7 | | 4.0 | 8.1 | | 9.6 | 21.1 | 25.1 | 2.6 | 14.1 | |
| Actuated g/C Ratio | 0.17 | 0.24 | | 0.07 | 0.14 | | 0.17 | 0.37 | 0.44 | 0.05 | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 302 | 789 | | 126 | 498 | | 302 | 1327 | 809 | 82 | 1240 | |
| v/s Ratio Prot | c0.06 | 0.05 | | 0.02 | c0.04 | | c0.08 | 0.12 | 0.00 | 0.02 | c0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.36 | 0.22 | | 0.25 | 0.31 | | 0.50 | 0.33 | 0.02 | 0.39 | 0.61 | |
| Uniform Delay, d1 | 21.2 | 17.6 | | 25.3 | 22.2 | | 21.7 | 13.1 | 9.2 | 26.6 | 19.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | 0.1 | | 1.1 | 0.4 | | 1.3 | 0.1 | 0.0 | 3.1 | 0.9 | |
| Delay (s) | 21.9 | 17.7 | | 26.4 | 22.5 | | 23.0 | 13.2 | 9.2 | 29.7 | 20.1 | |
| Level of Service | C | B | | C | C | | C | B | A | C | C | |
| Approach Delay (s) | | 18.8 | | | 23.1 | | | 15.4 | | | 20.4 | |
| Approach LOS | | B | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 57.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 55.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

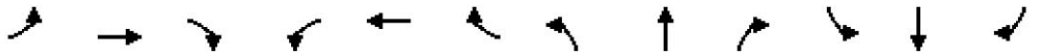
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 150 | 10 | 50 | 480 | 80 | 120 | 50 | 180 | 30 | 40 | 180 | 90 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 160 | 11 | 53 | 511 | 85 | 128 | 53 | 191 | 32 | 43 | 191 | 96 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 165 | 59 | 723 | 149 | 128 | 138 | 191 |
| Volume Left (vph) | 160 | 0 | 511 | 53 | 0 | 43 | 0 |
| Volume Right (vph) | 0 | 53 | 128 | 0 | 32 | 0 | 96 |
| Hadj (s) | 0.48 | -0.64 | 0.04 | 0.18 | -0.17 | 0.15 | -0.35 |
| Departure Headway (s) | 8.0 | 6.9 | 6.9 | 7.9 | 7.5 | 7.8 | 7.3 |
| Degree Utilization, x | 0.37 | 0.11 | 1.39 | 0.33 | 0.27 | 0.30 | 0.39 |
| Capacity (veh/h) | 430 | 496 | 522 | 442 | 461 | 449 | 481 |
| Control Delay (s) | 14.4 | 9.6 | 206.0 | 13.5 | 12.1 | 12.9 | 13.6 |
| Approach Delay (s) | 13.2 | | 206.0 | 12.8 | | 13.3 | |
| Approach LOS | B | | F | B | | B | |

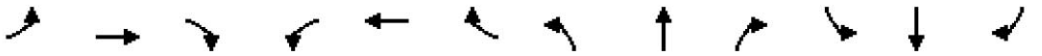
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 103.0 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 73.0% | ICU Level of Service | | D |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 20 | 20 | 470 | 50 | 90 | 10 | 330 | 150 | 100 | 570 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3317 | | 1805 | 3233 | | 1805 | 5187 | 1601 | 1805 | 5082 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3317 | | 1805 | 3233 | | 1805 | 5187 | 1601 | 1805 | 5082 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 54 | 22 | 22 | 505 | 54 | 97 | 11 | 355 | 161 | 108 | 613 | 86 |
| RTOR Reduction (vph) | 0 | 21 | 0 | 0 | 78 | 0 | 0 | 0 | 86 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 54 | 23 | 0 | 505 | 73 | 0 | 11 | 355 | 75 | 108 | 685 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 2.3 | 2.3 | | 9.3 | 9.3 | | 1.1 | 13.1 | 22.4 | 7.2 | 19.2 | |
| Effective Green, g (s) | 2.3 | 2.3 | | 9.3 | 9.3 | | 1.1 | 13.1 | 22.4 | 7.2 | 19.2 | |
| Actuated g/C Ratio | 0.05 | 0.05 | | 0.19 | 0.19 | | 0.02 | 0.27 | 0.47 | 0.15 | 0.40 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 87 | 159 | | 350 | 628 | | 41 | 1419 | 882 | 271 | 2037 | |
| v/s Ratio Prot | 0.03 | 0.01 | | c0.28 | c0.02 | | 0.01 | 0.07 | 0.02 | c0.06 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | |
| v/c Ratio | 0.62 | 0.15 | | 1.44 | 0.12 | | 0.27 | 0.25 | 0.09 | 0.40 | 0.34 | |
| Uniform Delay, d1 | 22.4 | 21.9 | | 19.3 | 15.9 | | 23.0 | 13.6 | 7.1 | 18.4 | 9.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 13.0 | 0.4 | | 214.8 | 0.1 | | 3.5 | 0.1 | 0.0 | 1.0 | 0.1 | |
| Delay (s) | 35.3 | 22.3 | | 234.1 | 16.0 | | 26.5 | 13.7 | 7.1 | 19.4 | 10.0 | |
| Level of Service | D | C | | F | B | | C | B | A | B | B | |
| Approach Delay (s) | | 29.5 | | | 183.9 | | | 11.9 | | | 11.3 | |
| Approach LOS | | C | | | F | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 66.5 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 47.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 70.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

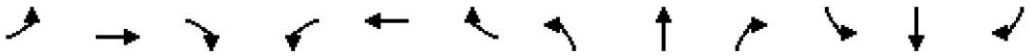
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 320 | 130 | 140 | 290 | 70 | 170 | 710 | 120 | 50 | 680 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1600 | 1805 | 3493 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1593 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1600 | 1805 | 3493 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1593 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 155 | 330 | 134 | 144 | 299 | 72 | 175 | 732 | 124 | 52 | 701 | 175 |
| RTOR Reduction (vph) | 0 | 0 | 59 | 0 | 21 | 0 | 0 | 0 | 32 | 0 | 0 | 60 |
| Lane Group Flow (vph) | 155 | 330 | 75 | 144 | 350 | 0 | 175 | 732 | 92 | 52 | 701 | 115 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 14.9 | 19.5 | 35.3 | 12.9 | 17.5 | | 15.8 | 65.3 | 78.2 | 6.3 | 55.8 | 70.7 |
| Effective Green, g (s) | 14.9 | 19.5 | 35.3 | 12.9 | 17.5 | | 15.8 | 65.3 | 78.2 | 6.3 | 55.8 | 70.7 |
| Actuated g/C Ratio | 0.12 | 0.16 | 0.29 | 0.11 | 0.15 | | 0.13 | 0.54 | 0.65 | 0.05 | 0.46 | 0.59 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 224 | 587 | 471 | 194 | 509 | | 238 | 1964 | 1037 | 95 | 1679 | 939 |
| v/s Ratio Prot | c0.09 | 0.09 | 0.02 | 0.08 | c0.10 | | c0.10 | 0.20 | 0.01 | 0.03 | c0.19 | 0.02 |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.05 | | | 0.06 |
| v/c Ratio | 0.69 | 0.56 | 0.16 | 0.74 | 0.69 | | 0.74 | 0.37 | 0.09 | 0.55 | 0.42 | 0.12 |
| Uniform Delay, d1 | 50.4 | 46.3 | 31.4 | 51.9 | 48.6 | | 50.1 | 15.6 | 7.7 | 55.5 | 21.3 | 10.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.92 | 0.82 | 0.53 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.9 | 1.2 | 0.2 | 14.2 | 3.8 | | 10.4 | 0.5 | 0.0 | 6.3 | 0.8 | 0.1 |
| Delay (s) | 59.2 | 47.6 | 31.5 | 66.1 | 52.5 | | 56.7 | 13.4 | 4.2 | 61.8 | 22.1 | 11.0 |
| Level of Service | E | D | C | E | D | | E | B | A | E | C | B |
| Approach Delay (s) | | 47.0 | | | 56.3 | | | 19.6 | | | 22.2 | |
| Approach LOS | | D | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 72.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

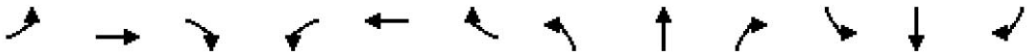
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 180 | 10 | 130 | 450 | 1140 | 0 | 0 | 630 | 360 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1814 | 1587 | 1805 | 3610 | | | 3388 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1814 | 1587 | 1805 | 3610 | | | 3388 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 0 | 0 | 191 | 11 | 138 | 479 | 1213 | 0 | 0 | 670 | 383 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 58 | 0 | 0 | 0 | 0 | 56 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 202 | 80 | 479 | 1213 | 0 | 0 | 997 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 18.9 | 18.9 | 37.3 | 93.1 | | | 51.8 | |
| Effective Green, g (s) | | | | | 18.9 | 18.9 | 37.3 | 93.1 | | | 51.8 | |
| Actuated g/C Ratio | | | | | 0.16 | 0.16 | 0.31 | 0.78 | | | 0.43 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 286 | 250 | 561 | 2801 | | | 1462 | |
| v/s Ratio Prot | | | | | c0.11 | | c0.27 | 0.34 | | | c0.29 | |
| v/s Ratio Perm | | | | | | 0.05 | | | | | | |
| v/c Ratio | | | | | 0.71 | 0.32 | 0.85 | 0.43 | | | 0.68 | |
| Uniform Delay, d1 | | | | | 47.9 | 44.8 | 38.8 | 4.5 | | | 27.5 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.57 | |
| Incremental Delay, d2 | | | | | 7.7 | 0.7 | 12.0 | 0.5 | | | 2.4 | |
| Delay (s) | | | | | 55.6 | 45.6 | 50.8 | 5.0 | | | 18.1 | |
| Level of Service | | | | | E | D | D | A | | | B | |
| Approach Delay (s) | | 0.0 | | | 51.6 | | | 18.0 | | | 18.1 | |
| Approach LOS | | A | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 95.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

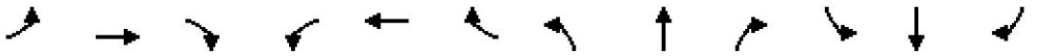
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 540 | 10 | 430 | 0 | 0 | 0 | 0 | 860 | 210 | 150 | 730 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1722 | 1591 | | | | | 5007 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1722 | 1591 | | | | | 5007 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 557 | 10 | 443 | 0 | 0 | 0 | 0 | 887 | 216 | 155 | 753 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 79 | 0 | 0 | 0 | 0 | 53 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 284 | 283 | 364 | 0 | 0 | 0 | 0 | 1050 | 0 | 155 | 753 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 21.7 | 21.7 | 21.7 | | | | | 19.2 | | 8.8 | 32.0 | |
| Effective Green, g (s) | 21.7 | 21.7 | 21.7 | | | | | 19.2 | | 8.8 | 32.0 | |
| Actuated g/C Ratio | 0.35 | 0.35 | 0.35 | | | | | 0.31 | | 0.14 | 0.52 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 603 | 606 | 560 | | | | | 1558 | | 257 | 1872 | |
| v/s Ratio Prot | 0.17 | 0.16 | | | | | | c0.21 | | c0.09 | 0.21 | |
| v/s Ratio Perm | | | c0.23 | | | | | | | | | |
| v/c Ratio | 0.47 | 0.47 | 0.65 | | | | | 0.67 | | 0.60 | 0.40 | |
| Uniform Delay, d1 | 15.5 | 15.5 | 16.8 | | | | | 18.5 | | 24.8 | 9.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.6 | 0.6 | 2.6 | | | | | 1.2 | | 4.0 | 0.1 | |
| Delay (s) | 16.1 | 16.1 | 19.4 | | | | | 19.7 | | 28.8 | 9.2 | |
| Level of Service | B | B | B | | | | | B | | C | A | |
| Approach Delay (s) | | 17.6 | | | 0.0 | | | 19.7 | | | 12.5 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 61.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 95.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

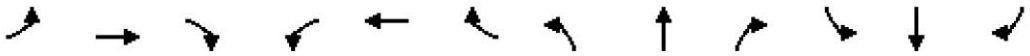


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 530 | 560 | 570 | 60 | 100 | 360 | 140 | 800 | 100 | 340 | 730 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.88 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1597 | 1805 | 3187 | | 1805 | 5090 | | 3502 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1597 | 1805 | 3187 | | 1805 | 5090 | | 3502 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 570 | 602 | 613 | 65 | 108 | 387 | 151 | 860 | 108 | 366 | 785 | 118 |
| RTOR Reduction (vph) | 0 | 0 | 43 | 0 | 247 | 0 | 0 | 12 | 0 | 0 | 0 | 47 |
| Lane Group Flow (vph) | 570 | 602 | 570 | 65 | 248 | 0 | 151 | 956 | 0 | 366 | 785 | 71 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 22.8 | 32.1 | 48.5 | 5.6 | 14.9 | | 16.4 | 49.4 | | 16.9 | 49.9 | 72.7 |
| Effective Green, g (s) | 22.8 | 32.1 | 48.5 | 5.6 | 14.9 | | 16.4 | 49.4 | | 16.9 | 49.9 | 72.7 |
| Actuated g/C Ratio | 0.19 | 0.27 | 0.40 | 0.05 | 0.12 | | 0.14 | 0.41 | | 0.14 | 0.42 | 0.61 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 665 | 966 | 699 | 84 | 396 | | 247 | 2095 | | 493 | 1501 | 1021 |
| v/s Ratio Prot | c0.16 | 0.17 | c0.11 | 0.04 | 0.08 | | 0.08 | 0.19 | | 0.10 | c0.22 | 0.01 |
| v/s Ratio Perm | | | 0.25 | | | | | | | | | 0.03 |
| v/c Ratio | 0.86 | 0.62 | 0.81 | 0.77 | 0.88dr | | 0.61 | 0.46 | | 0.74 | 0.52 | 0.07 |
| Uniform Delay, d1 | 47.0 | 38.6 | 31.8 | 56.6 | 49.9 | | 48.8 | 25.6 | | 49.5 | 26.2 | 9.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.89 | 0.57 | | 1.34 | 0.49 | 0.04 |
| Incremental Delay, d2 | 10.6 | 1.3 | 7.3 | 34.8 | 3.1 | | 4.0 | 0.6 | | 5.1 | 1.1 | 0.0 |
| Delay (s) | 57.6 | 39.9 | 39.0 | 91.4 | 53.0 | | 47.7 | 15.3 | | 71.5 | 13.9 | 0.4 |
| Level of Service | E | D | D | F | D | | D | B | | E | B | A |
| Approach Delay (s) | | 45.3 | | | 57.4 | | | 19.7 | | | 29.3 | |
| Approach LOS | | D | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 4.0 |
| Intersection Capacity Utilization | 83.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

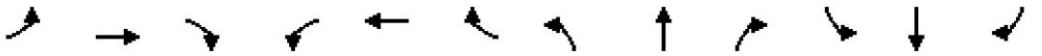
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 160 | 10 | 130 | 490 | 1160 | 0 | 0 | 980 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | | 0.97 | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.94 | | 1.00 | 1.00 | | | 0.97 | |
| Flt Protected | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1728 | | 3502 | 3610 | | | 4991 | |
| Flt Permitted | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1728 | | 3502 | 3610 | | | 4991 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 165 | 10 | 134 | 505 | 1196 | 0 | 0 | 1010 | 289 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 39 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 284 | 0 | 505 | 1196 | 0 | 0 | 1260 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 24.6 | | 29.0 | 87.4 | | | 54.4 | |
| Effective Green, g (s) | | | | | 24.6 | | 29.0 | 87.4 | | | 54.4 | |
| Actuated g/C Ratio | | | | | 0.21 | | 0.24 | 0.73 | | | 0.45 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 354 | | 846 | 2629 | | | 2263 | |
| v/s Ratio Prot | | | | | c0.16 | | c0.14 | 0.33 | | | c0.25 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.80 | | 0.60 | 0.45 | | | 0.56 | |
| Uniform Delay, d1 | | | | | 45.4 | | 40.3 | 6.6 | | | 24.0 | |
| Progression Factor | | | | | 1.00 | | 0.83 | 0.38 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 12.4 | | 0.9 | 0.5 | | | 1.0 | |
| Delay (s) | | | | | 57.8 | | 34.4 | 3.0 | | | 25.0 | |
| Level of Service | | | | | E | | C | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 57.8 | | | 12.3 | | | 25.0 | |
| Approach LOS | | A | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 150 | 60 | 50 | 110 | 80 | 60 | 900 | 40 | 140 | 1050 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 44 | 165 | 66 | 55 | 121 | 88 | 66 | 989 | 44 | 154 | 1154 | 55 |
| RTOR Reduction (vph) | 0 | 0 | 57 | 0 | 0 | 76 | 0 | 0 | 9 | 0 | 0 | 9 |
| Lane Group Flow (vph) | 44 | 165 | 9 | 55 | 121 | 12 | 66 | 989 | 35 | 154 | 1154 | 46 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 5.6 | 15.8 | 15.8 | 6.3 | 16.5 | 16.5 | 7.2 | 66.5 | 66.5 | 15.4 | 74.7 | 74.7 |
| Effective Green, g (s) | 5.6 | 15.8 | 15.8 | 6.3 | 16.5 | 16.5 | 7.2 | 66.5 | 66.5 | 15.4 | 74.7 | 74.7 |
| Actuated g/C Ratio | 0.05 | 0.13 | 0.13 | 0.05 | 0.14 | 0.14 | 0.06 | 0.55 | 0.55 | 0.13 | 0.62 | 0.62 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 84 | 250 | 209 | 95 | 261 | 218 | 108 | 2001 | 868 | 232 | 2247 | 975 |
| v/s Ratio Prot | 0.02 | c0.09 | | c0.03 | 0.06 | | 0.04 | c0.27 | | c0.09 | c0.32 | |
| v/s Ratio Perm | | | 0.01 | | | 0.01 | | | 0.02 | | | 0.03 |
| v/c Ratio | 0.52 | 0.66 | 0.04 | 0.58 | 0.46 | 0.06 | 0.61 | 0.49 | 0.04 | 0.66 | 0.51 | 0.05 |
| Uniform Delay, d1 | 55.9 | 49.5 | 45.5 | 55.6 | 47.7 | 45.0 | 55.0 | 16.4 | 12.2 | 49.8 | 12.6 | 8.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.15 | 0.74 | 0.73 |
| Incremental Delay, d2 | 5.8 | 6.4 | 0.1 | 8.3 | 1.3 | 0.1 | 9.8 | 0.9 | 0.1 | 5.4 | 0.6 | 0.1 |
| Delay (s) | 61.7 | 55.9 | 45.6 | 63.8 | 49.0 | 45.1 | 64.9 | 17.3 | 12.3 | 62.6 | 10.0 | 6.5 |
| Level of Service | E | E | D | E | D | D | E | B | B | E | A | A |
| Approach Delay (s) | | 54.4 | | | 50.8 | | | 20.0 | | | 15.8 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

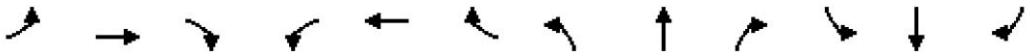
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 10 | 100 | 10 | 10 | 80 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 10 | 10 | 104 | 10 | 10 | 83 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 21 | | 239 | 21 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 21 | | 239 | 21 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 94 | | 99 | 92 |
| cM capacity (veh/h) | | | 1608 | | 702 | 1058 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 21 | 115 | 10 | 83 |
| Volume Left | 0 | 104 | 10 | 0 |
| Volume Right | 10 | 0 | 0 | 83 |
| cSH | 1700 | 1608 | 702 | 1058 |
| Volume to Capacity | 0.01 | 0.06 | 0.01 | 0.08 |
| Queue Length 95th (ft) | 0 | 5 | 1 | 6 |
| Control Delay (s) | 0.0 | 6.8 | 10.2 | 8.7 |
| Lane LOS | | A | B | A |
| Approach Delay (s) | 0.0 | 6.8 | 8.9 | |
| Approach LOS | | | A | |

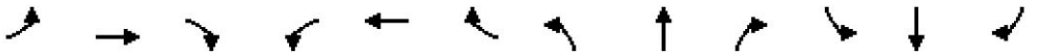
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.0 | | |
| Intersection Capacity Utilization | 22.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 90 | 110 | 110 | 100 | 10 | 130 | 100 | 90 | 0 | 100 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.99 | | | 0.96 | | | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1711 | | 1805 | 1869 | | | 1775 | | | 1810 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1711 | | 1805 | 1869 | | | 1775 | | | 1810 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 41 | 93 | 113 | 113 | 103 | 10 | 134 | 103 | 93 | 0 | 103 | 41 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 2 | 0 | 0 | 13 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 41 | 177 | 0 | 113 | 111 | 0 | 0 | 317 | 0 | 0 | 131 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 46.7 | | 16.8 | 56.4 | | | 26.6 | | | 13.9 | |
| Effective Green, g (s) | 7.1 | 46.7 | | 16.8 | 56.4 | | | 26.6 | | | 13.9 | |
| Actuated g/C Ratio | 0.06 | 0.39 | | 0.14 | 0.47 | | | 0.22 | | | 0.12 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 107 | 666 | | 253 | 878 | | | 393 | | | 210 | |
| v/s Ratio Prot | c0.02 | c0.10 | | c0.06 | 0.06 | | | c0.18 | | | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.38 | 0.27 | | 0.45 | 0.13 | | | 0.81 | | | 0.62 | |
| Uniform Delay, d1 | 54.3 | 25.0 | | 47.3 | 17.9 | | | 44.3 | | | 50.6 | |
| Progression Factor | 1.00 | 1.00 | | 0.72 | 0.66 | | | 1.00 | | | 0.98 | |
| Incremental Delay, d2 | 2.3 | 1.0 | | 1.2 | 0.3 | | | 11.4 | | | 5.6 | |
| Delay (s) | 56.6 | 25.9 | | 35.3 | 12.1 | | | 55.7 | | | 55.2 | |
| Level of Service | E | C | | D | B | | | E | | | E | |
| Approach Delay (s) | | 31.0 | | | 23.7 | | | 55.7 | | | 55.2 | |
| Approach LOS | | C | | | C | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 64.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

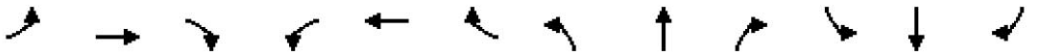
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 50 | 820 | 40 | 20 | 100 | 110 | 580 | 20 | 20 | 390 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1659 | | 1805 | 1900 | 1590 | 1805 | 3610 | 1571 | 1805 | 5119 | |
| Flt Permitted | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1659 | | 1805 | 1900 | 1590 | 1805 | 3610 | 1571 | 1805 | 5119 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 144 | 52 | 845 | 41 | 21 | 103 | 113 | 598 | 21 | 21 | 402 | 31 |
| RTOR Reduction (vph) | 0 | 106 | 0 | 0 | 0 | 95 | 0 | 0 | 15 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 935 | 0 | 41 | 21 | 8 | 113 | 598 | 6 | 21 | 426 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 35.6 | | 6.2 | 6.2 | 6.2 | 10.1 | 24.2 | 24.2 | 2.5 | 16.6 | |
| Effective Green, g (s) | | 35.6 | | 6.2 | 6.2 | 6.2 | 10.1 | 24.2 | 24.2 | 2.5 | 16.6 | |
| Actuated g/C Ratio | | 0.42 | | 0.07 | 0.07 | 0.07 | 0.12 | 0.29 | 0.29 | 0.03 | 0.20 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 699 | | 132 | 139 | 117 | 216 | 1034 | 450 | 53 | 1006 | |
| v/s Ratio Prot | | c0.56 | | c0.02 | 0.01 | | c0.06 | c0.17 | | 0.01 | 0.08 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.00 | | | |
| v/c Ratio | | 1.34 | | 0.31 | 0.15 | 0.06 | 0.52 | 0.58 | 0.01 | 0.40 | 0.42 | |
| Uniform Delay, d1 | | 24.4 | | 37.1 | 36.7 | 36.5 | 34.9 | 25.8 | 21.6 | 40.3 | 29.8 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 161.6 | | 1.3 | 0.5 | 0.2 | 2.3 | 0.8 | 0.0 | 4.8 | 0.3 | |
| Delay (s) | | 186.0 | | 38.5 | 37.2 | 36.7 | 37.2 | 26.6 | 21.6 | 45.1 | 30.0 | |
| Level of Service | | F | | D | D | D | D | C | C | D | C | |
| Approach Delay (s) | | 186.0 | | | 37.2 | | | 28.1 | | | 30.7 | |
| Approach LOS | | F | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 98.0 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 84.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 101.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

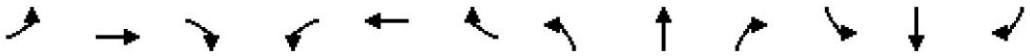
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 290 | 150 | 130 | 190 | 40 | 110 | 490 | 100 | 100 | 550 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3405 | | 1805 | 3506 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3405 | | 1805 | 3506 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 67 | 322 | 167 | 144 | 211 | 44 | 122 | 544 | 111 | 111 | 611 | 67 |
| RTOR Reduction (vph) | 0 | 66 | 0 | 0 | 18 | 0 | 0 | 0 | 59 | 0 | 0 | 36 |
| Lane Group Flow (vph) | 67 | 423 | 0 | 144 | 237 | 0 | 122 | 544 | 52 | 111 | 611 | 31 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 21.6 | | 13.7 | 28.3 | | 13.4 | 56.0 | 56.0 | 12.7 | 55.3 | 55.3 |
| Effective Green, g (s) | 7.0 | 21.6 | | 13.7 | 28.3 | | 13.4 | 56.0 | 56.0 | 12.7 | 55.3 | 55.3 |
| Actuated g/C Ratio | 0.06 | 0.18 | | 0.11 | 0.24 | | 0.11 | 0.47 | 0.47 | 0.11 | 0.46 | 0.46 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 613 | | 206 | 827 | | 202 | 1685 | 741 | 191 | 1664 | 731 |
| v/s Ratio Prot | 0.04 | c0.12 | | c0.08 | 0.07 | | c0.07 | 0.15 | | 0.06 | c0.17 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | 0.02 |
| v/c Ratio | 0.64 | 0.69 | | 0.70 | 0.29 | | 0.60 | 0.32 | 0.07 | 0.58 | 0.37 | 0.04 |
| Uniform Delay, d1 | 55.3 | 46.1 | | 51.2 | 37.6 | | 50.8 | 20.1 | 17.6 | 51.1 | 21.0 | 17.8 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.34 | 0.36 | 0.07 |
| Incremental Delay, d2 | 12.0 | 3.4 | | 9.9 | 0.2 | | 5.0 | 0.5 | 0.2 | 3.6 | 0.5 | 0.1 |
| Delay (s) | 67.3 | 49.4 | | 61.1 | 37.8 | | 55.8 | 20.6 | 17.8 | 72.0 | 8.1 | 1.3 |
| Level of Service | E | D | | E | D | | E | C | B | E | A | A |
| Approach Delay (s) | | 51.6 | | | 46.2 | | | 25.7 | | | 16.5 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 69.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

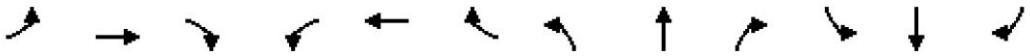
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 440 | 170 | 140 | 330 | 120 | 170 | 480 | 160 | 220 | 440 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3443 | | 1805 | 3449 | | 1805 | 5187 | 1587 | 1805 | 5149 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3443 | | 1805 | 3449 | | 1805 | 5187 | 1587 | 1805 | 5149 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 41 | 454 | 175 | 144 | 340 | 124 | 175 | 495 | 165 | 227 | 454 | 21 |
| RTOR Reduction (vph) | 0 | 38 | 0 | 0 | 35 | 0 | 0 | 0 | 105 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 41 | 591 | 0 | 144 | 429 | 0 | 175 | 495 | 60 | 227 | 471 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.6 | 27.3 | | 12.9 | 34.6 | | 16.6 | 43.9 | 43.9 | 19.9 | 47.2 | |
| Effective Green, g (s) | 5.6 | 27.3 | | 12.9 | 34.6 | | 16.6 | 43.9 | 43.9 | 19.9 | 47.2 | |
| Actuated g/C Ratio | 0.05 | 0.23 | | 0.11 | 0.29 | | 0.14 | 0.37 | 0.37 | 0.17 | 0.39 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 84 | 783 | | 194 | 994 | | 250 | 1898 | 581 | 299 | 2025 | |
| v/s Ratio Prot | 0.02 | c0.17 | | c0.08 | 0.12 | | 0.10 | c0.10 | | c0.13 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | |
| v/c Ratio | 0.49 | 0.75 | | 0.74 | 0.43 | | 0.70 | 0.26 | 0.10 | 0.76 | 0.23 | |
| Uniform Delay, d1 | 55.8 | 43.2 | | 51.9 | 34.7 | | 49.3 | 26.7 | 25.1 | 47.8 | 24.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.26 | 0.47 | 0.64 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.4 | 4.2 | | 14.2 | 0.3 | | 7.4 | 0.3 | 0.3 | 10.6 | 0.3 | |
| Delay (s) | 60.2 | 47.4 | | 66.1 | 35.0 | | 69.7 | 12.9 | 16.5 | 58.3 | 24.6 | |
| Level of Service | E | D | | E | D | | E | B | B | E | C | |
| Approach Delay (s) | | 48.2 | | | 42.4 | | | 25.5 | | | 35.5 | |
| Approach LOS | | D | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 79.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

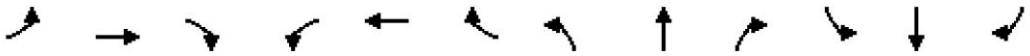
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 690 | 110 | 170 | 670 | 80 | 60 | 90 | 100 | 70 | 140 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3528 | | 1805 | 3610 | 1595 | 1805 | 3301 | | 1805 | 3395 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3528 | | 1805 | 3610 | 1595 | 1805 | 3301 | | 1805 | 3395 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 63 | 726 | 116 | 179 | 705 | 84 | 63 | 95 | 105 | 74 | 147 | 84 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 40 | 0 | 91 | 0 | 0 | 72 | 0 |
| Lane Group Flow (vph) | 63 | 834 | 0 | 179 | 705 | 44 | 63 | 109 | 0 | 74 | 159 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 5.3 | 24.8 | | 7.1 | 26.6 | 32.9 | 5.3 | 8.0 | | 6.3 | 9.0 | |
| Effective Green, g (s) | 5.3 | 24.8 | | 7.1 | 26.6 | 32.9 | 5.3 | 8.0 | | 6.3 | 9.0 | |
| Actuated g/C Ratio | 0.09 | 0.40 | | 0.11 | 0.43 | 0.53 | 0.09 | 0.13 | | 0.10 | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 154 | 1407 | | 206 | 1544 | 946 | 154 | 425 | | 183 | 491 | |
| v/s Ratio Prot | 0.03 | c0.24 | | c0.10 | 0.20 | 0.00 | 0.03 | 0.03 | | c0.04 | c0.05 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.41 | 0.59 | | 0.87 | 0.46 | 0.05 | 0.41 | 0.26 | | 0.40 | 0.32 | |
| Uniform Delay, d1 | 27.0 | 14.7 | | 27.1 | 12.7 | 7.1 | 27.0 | 24.4 | | 26.2 | 23.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.8 | 0.7 | | 29.8 | 0.2 | 0.0 | 1.8 | 0.3 | | 1.5 | 0.4 | |
| Delay (s) | 28.7 | 15.4 | | 56.9 | 12.9 | 7.1 | 28.7 | 24.7 | | 27.7 | 24.3 | |
| Level of Service | C | B | | E | B | A | C | C | | C | C | |
| Approach Delay (s) | | 16.3 | | | 20.5 | | | 25.7 | | | 25.1 | |
| Approach LOS | | B | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 62.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

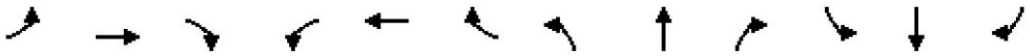
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 350 | 290 | 520 | 590 | 80 | 270 | 510 | 290 | 210 | 640 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 4801 | | 3502 | 5085 | | 3502 | 3610 | 1600 | 3502 | 3537 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 4801 | | 3502 | 5085 | | 3502 | 3610 | 1600 | 3502 | 3537 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 167 | 365 | 302 | 542 | 615 | 83 | 281 | 531 | 302 | 219 | 667 | 94 |
| RTOR Reduction (vph) | 0 | 144 | 0 | 0 | 16 | 0 | 0 | 0 | 86 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 167 | 523 | 0 | 542 | 682 | 0 | 281 | 531 | 216 | 219 | 751 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.9 | 15.0 | | 15.2 | 21.3 | | 10.1 | 25.4 | 40.6 | 8.1 | 23.4 | |
| Effective Green, g (s) | 8.9 | 15.0 | | 15.2 | 21.3 | | 10.1 | 25.4 | 40.6 | 8.1 | 23.4 | |
| Actuated g/C Ratio | 0.11 | 0.19 | | 0.19 | 0.27 | | 0.13 | 0.32 | 0.51 | 0.10 | 0.29 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 391 | 904 | | 668 | 1359 | | 444 | 1150 | 895 | 356 | 1038 | |
| v/s Ratio Prot | 0.05 | 0.11 | | c0.15 | c0.13 | | c0.08 | 0.15 | 0.05 | 0.06 | c0.21 | |
| v/s Ratio Perm | | | | | | | | | 0.09 | | | |
| v/c Ratio | 0.43 | 0.58 | | 0.81 | 0.50 | | 0.63 | 0.46 | 0.24 | 0.62 | 0.72 | |
| Uniform Delay, d1 | 33.0 | 29.5 | | 30.9 | 24.7 | | 33.0 | 21.7 | 10.9 | 34.3 | 25.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 0.9 | | 7.4 | 0.3 | | 2.9 | 0.3 | 0.1 | 3.1 | 2.5 | |
| Delay (s) | 33.8 | 30.4 | | 38.3 | 25.0 | | 36.0 | 22.0 | 11.1 | 37.5 | 27.8 | |
| Level of Service | C | C | | D | C | | D | C | B | D | C | |
| Approach Delay (s) | | 31.1 | | | 30.8 | | | 22.6 | | | 29.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 79.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 74.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

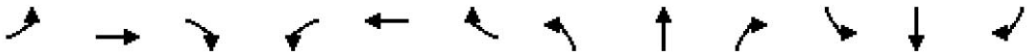
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 560 | 30 | 70 | 820 | 10 | 40 | 20 | 30 | 10 | 60 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.95 | | | 0.92 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5140 | | 1805 | 5176 | | | 1766 | | | 1723 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5140 | | 1805 | 5176 | | | 1766 | | | 1723 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 106 | 596 | 32 | 74 | 872 | 11 | 43 | 21 | 32 | 11 | 64 | 117 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 19 | 0 | 0 | 56 | 0 |
| Lane Group Flow (vph) | 106 | 624 | 0 | 74 | 882 | 0 | 0 | 77 | 0 | 0 | 136 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.4 | 19.7 | | 6.4 | 18.7 | | | 6.7 | | | 10.7 | |
| Effective Green, g (s) | 7.4 | 19.7 | | 6.4 | 18.7 | | | 6.7 | | | 10.7 | |
| Actuated g/C Ratio | 0.12 | 0.33 | | 0.11 | 0.31 | | | 0.11 | | | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 224 | 1702 | | 194 | 1627 | | | 199 | | | 310 | |
| v/s Ratio Prot | c0.06 | 0.12 | | 0.04 | c0.17 | | | c0.04 | | | c0.08 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.47 | 0.37 | | 0.38 | 0.54 | | | 0.39 | | | 0.44 | |
| Uniform Delay, d1 | 24.2 | 15.2 | | 24.7 | 16.9 | | | 24.5 | | | 21.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 1.6 | 0.1 | | 1.3 | 0.4 | | | 1.3 | | | 1.0 | |
| Delay (s) | 25.8 | 15.3 | | 26.0 | 17.2 | | | 25.8 | | | 22.7 | |
| Level of Service | C | B | | C | B | | | C | | | C | |
| Approach Delay (s) | | 16.8 | | | 17.9 | | | 25.8 | | | 22.7 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 59.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 54.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

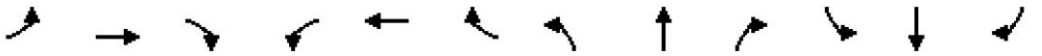
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 560 | 20 | 20 | 880 | 0 | 20 | 10 | 20 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5157 | | 1805 | 5187 | | 1805 | 1900 | 1610 | 1805 | 1746 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5157 | | 1805 | 5187 | | 1805 | 1900 | 1610 | 1805 | 1746 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 22 | 602 | 22 | 22 | 946 | 0 | 22 | 11 | 22 | 11 | 11 | 11 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 22 | 622 | 0 | 22 | 946 | 0 | 22 | 11 | 2 | 11 | 11 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.8 | 22.8 | | 2.6 | 24.6 | | 0.8 | 0.8 | 3.4 | 0.8 | 0.8 | |
| Effective Green, g (s) | 0.8 | 22.8 | | 2.6 | 24.6 | | 0.8 | 0.8 | 3.4 | 0.8 | 0.8 | |
| Actuated g/C Ratio | 0.02 | 0.53 | | 0.06 | 0.57 | | 0.02 | 0.02 | 0.08 | 0.02 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 34 | 2734 | | 109 | 2967 | | 34 | 35 | 277 | 34 | 32 | |
| v/s Ratio Prot | c0.01 | 0.12 | | 0.01 | c0.18 | | c0.01 | 0.01 | 0.00 | 0.01 | c0.01 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | |
| v/c Ratio | 0.65 | 0.23 | | 0.20 | 0.32 | | 0.65 | 0.31 | 0.01 | 0.32 | 0.35 | |
| Uniform Delay, d1 | 21.0 | 5.4 | | 19.2 | 4.8 | | 21.0 | 20.8 | 18.2 | 20.8 | 20.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 35.3 | 0.0 | | 0.9 | 0.1 | | 35.3 | 5.1 | 0.0 | 5.5 | 6.5 | |
| Delay (s) | 56.2 | 5.4 | | 20.1 | 4.9 | | 56.2 | 25.9 | 18.3 | 26.3 | 27.4 | |
| Level of Service | E | A | | C | A | | E | C | B | C | C | |
| Approach Delay (s) | | 7.2 | | | 5.2 | | | 35.0 | | | 27.0 | |
| Approach LOS | | A | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.30 | | |
| Actuated Cycle Length (s) | 43.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 36.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

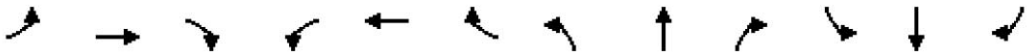
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 120 | 60 | 180 | 80 | 130 | 30 | 620 | 150 | 130 | 490 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1798 | | 1805 | 1900 | 1587 | 1805 | 3492 | | 1805 | 1900 | 1555 |
| Flt Permitted | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1798 | | 1805 | 1900 | 1587 | 1805 | 3492 | | 1805 | 1900 | 1555 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 32 | 126 | 63 | 189 | 84 | 137 | 32 | 653 | 158 | 137 | 516 | 32 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 0 | 116 | 0 | 14 | 0 | 0 | 0 | 14 |
| Lane Group Flow (vph) | 0 | 208 | 0 | 189 | 84 | 21 | 32 | 797 | 0 | 137 | 516 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | 19.0 | | 18.4 | 18.4 | 18.4 | 5.2 | 51.8 | | 14.8 | 61.4 | 61.4 |
| Effective Green, g (s) | | 19.0 | | 18.4 | 18.4 | 18.4 | 5.2 | 51.8 | | 14.8 | 61.4 | 61.4 |
| Actuated g/C Ratio | | 0.16 | | 0.15 | 0.15 | 0.15 | 0.04 | 0.43 | | 0.12 | 0.51 | 0.51 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 285 | | 277 | 291 | 243 | 78 | 1507 | | 223 | 972 | 796 |
| v/s Ratio Prot | | c0.12 | | c0.10 | 0.04 | | 0.02 | 0.23 | | c0.08 | c0.27 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | 0.01 |
| v/c Ratio | | 0.73 | | 0.68 | 0.29 | 0.09 | 0.41 | 0.53 | | 0.61 | 0.53 | 0.02 |
| Uniform Delay, d1 | | 48.0 | | 48.0 | 45.0 | 43.6 | 55.9 | 25.1 | | 49.9 | 19.6 | 14.5 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.88 | 0.85 | 1.02 |
| Incremental Delay, d2 | | 9.0 | | 6.8 | 0.6 | 0.2 | 3.5 | 1.3 | | 4.6 | 1.9 | 0.0 |
| Delay (s) | | 57.0 | | 54.8 | 45.6 | 43.7 | 59.4 | 26.5 | | 48.5 | 18.6 | 14.8 |
| Level of Service | | E | | D | D | D | E | C | | D | B | B |
| Approach Delay (s) | | 57.0 | | | 49.2 | | | 27.7 | | | 24.4 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

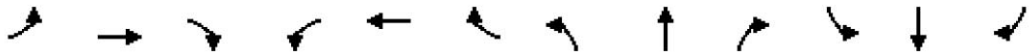
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 70 | 160 | 70 | 60 | 60 | 120 | 700 | 40 | 100 | 780 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.90 | | 1.00 | 0.93 | | 1.00 | 0.99 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3199 | | 1805 | 3314 | | 1805 | 3578 | | 1805 | 3503 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3199 | | 1805 | 3314 | | 1805 | 3578 | | 1805 | 3503 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 129 | 75 | 172 | 75 | 65 | 65 | 129 | 753 | 43 | 108 | 839 | 183 |
| RTOR Reduction (vph) | 0 | 150 | 0 | 0 | 59 | 0 | 0 | 4 | 0 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 129 | 97 | 0 | 75 | 71 | 0 | 129 | 792 | 0 | 108 | 1005 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 8.8 | 8.6 | | 6.3 | 6.1 | | 8.2 | 29.4 | | 6.0 | 27.2 | |
| Effective Green, g (s) | 8.8 | 8.6 | | 6.3 | 6.1 | | 8.2 | 29.4 | | 6.0 | 27.2 | |
| Actuated g/C Ratio | 0.13 | 0.13 | | 0.10 | 0.09 | | 0.12 | 0.44 | | 0.09 | 0.41 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 240 | 415 | | 172 | 305 | | 223 | 1587 | | 163 | 1437 | |
| v/s Ratio Prot | c0.07 | c0.03 | | 0.04 | 0.02 | | c0.07 | 0.22 | | 0.06 | c0.29 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.54 | 0.23 | | 0.44 | 0.23 | | 0.58 | 0.50 | | 0.66 | 0.70 | |
| Uniform Delay, d1 | 26.8 | 25.9 | | 28.3 | 27.9 | | 27.4 | 13.2 | | 29.2 | 16.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.3 | 0.3 | | 1.8 | 0.4 | | 3.6 | 0.2 | | 9.7 | 1.5 | |
| Delay (s) | 29.2 | 26.2 | | 30.1 | 28.3 | | 31.0 | 13.4 | | 38.9 | 17.7 | |
| Level of Service | C | C | | C | C | | C | B | | D | B | |
| Approach Delay (s) | | 27.2 | | | 29.0 | | | 15.9 | | | 19.7 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 66.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

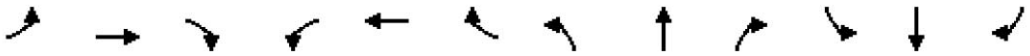
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 70 | 80 | 20 | 40 | 20 | 70 | 250 | 20 | 20 | 270 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3296 | | 1805 | 3432 | | 1805 | 3610 | 1615 | 1805 | 3475 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3296 | | 1805 | 3432 | | 1805 | 3610 | 1615 | 1805 | 3475 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 128 | 74 | 85 | 21 | 43 | 21 | 74 | 266 | 21 | 21 | 287 | 85 |
| RTOR Reduction (vph) | 0 | 70 | 0 | 0 | 19 | 0 | 0 | 0 | 12 | 0 | 27 | 0 |
| Lane Group Flow (vph) | 128 | 89 | 0 | 21 | 45 | 0 | 74 | 266 | 9 | 21 | 345 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.6 | 7.7 | | 2.2 | 4.3 | | 3.4 | 18.1 | 20.3 | 1.1 | 15.8 | |
| Effective Green, g (s) | 5.6 | 7.7 | | 2.2 | 4.3 | | 3.4 | 18.1 | 20.3 | 1.1 | 15.8 | |
| Actuated g/C Ratio | 0.12 | 0.17 | | 0.05 | 0.10 | | 0.08 | 0.40 | 0.45 | 0.02 | 0.35 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 435 | 563 | | 88 | 327 | | 136 | 1449 | 870 | 44 | 1217 | |
| v/s Ratio Prot | c0.04 | c0.03 | | 0.01 | 0.01 | | c0.04 | 0.07 | 0.00 | 0.01 | c0.10 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.29 | 0.16 | | 0.24 | 0.14 | | 0.54 | 0.18 | 0.01 | 0.48 | 0.28 | |
| Uniform Delay, d1 | 18.0 | 15.9 | | 20.6 | 18.7 | | 20.1 | 8.7 | 6.9 | 21.7 | 10.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | 0.1 | | 1.4 | 0.2 | | 4.4 | 0.1 | 0.0 | 7.9 | 0.1 | |
| Delay (s) | 18.3 | 16.1 | | 22.0 | 18.9 | | 24.5 | 8.8 | 6.9 | 29.7 | 10.7 | |
| Level of Service | B | B | | C | B | | C | A | A | C | B | |
| Approach Delay (s) | | 17.1 | | | 19.7 | | | 11.9 | | | 11.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.28 | | |
| Actuated Cycle Length (s) | 45.1 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 45.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

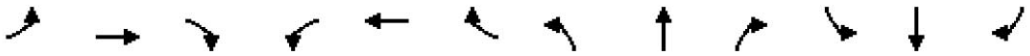
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 500 | 130 | 20 | 490 | 50 | 110 | 190 | 10 | 40 | 180 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1588 | 1805 | 3610 | 1589 | 3502 | 1885 | | 1805 | 3397 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1588 | 1805 | 3610 | 1589 | 3502 | 1885 | | 1805 | 3397 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 133 | 510 | 133 | 20 | 500 | 51 | 112 | 194 | 10 | 41 | 184 | 102 |
| RTOR Reduction (vph) | 0 | 0 | 42 | 0 | 0 | 21 | 0 | 2 | 0 | 0 | 86 | 0 |
| Lane Group Flow (vph) | 133 | 510 | 91 | 20 | 500 | 30 | 112 | 202 | 0 | 41 | 200 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | |
| Actuated Green, G (s) | 14.1 | 73.9 | 81.7 | 3.3 | 63.1 | 70.2 | 7.8 | 19.7 | | 7.1 | 19.0 | |
| Effective Green, g (s) | 14.1 | 73.9 | 81.7 | 3.3 | 63.1 | 70.2 | 7.8 | 19.7 | | 7.1 | 19.0 | |
| Actuated g/C Ratio | 0.12 | 0.62 | 0.68 | 0.03 | 0.53 | 0.59 | 0.06 | 0.16 | | 0.06 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 212 | 2223 | 1134 | 50 | 1898 | 930 | 228 | 309 | | 107 | 538 | |
| v/s Ratio Prot | c0.07 | 0.14 | 0.01 | 0.01 | c0.14 | 0.00 | 0.03 | c0.11 | | 0.02 | c0.06 | |
| v/s Ratio Perm | | | 0.05 | | | 0.02 | | | | | | |
| v/c Ratio | 0.63 | 0.23 | 0.08 | 0.40 | 0.26 | 0.03 | 0.49 | 0.65 | | 0.38 | 0.37 | |
| Uniform Delay, d1 | 50.4 | 10.3 | 6.5 | 57.4 | 15.7 | 10.5 | 54.2 | 47.0 | | 54.3 | 45.2 | |
| Progression Factor | 1.02 | 0.88 | 1.34 | 1.00 | 1.00 | 1.00 | 0.74 | 0.65 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.2 | 0.2 | 0.0 | 5.2 | 0.3 | 0.0 | 1.7 | 4.9 | | 2.3 | 0.4 | |
| Delay (s) | 56.5 | 9.3 | 8.7 | 62.6 | 16.0 | 10.5 | 41.8 | 35.4 | | 56.6 | 45.6 | |
| Level of Service | E | A | A | E | B | B | D | D | | E | D | |
| Approach Delay (s) | | 17.3 | | | 17.1 | | | 37.7 | | | 47.0 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

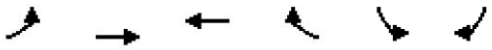
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 360 | 190 | 110 | 300 | 10 | 160 | 290 | 80 | 20 | 260 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1589 | 1805 | 1900 | 1577 | 1805 | 1900 | 1587 | 1805 | 1855 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1589 | 1805 | 1900 | 1577 | 1805 | 1900 | 1587 | 1805 | 1855 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 52 | 375 | 198 | 115 | 312 | 10 | 167 | 302 | 83 | 21 | 271 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 72 | 0 | 0 | 3 | 0 | 0 | 45 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 52 | 375 | 126 | 115 | 312 | 7 | 167 | 302 | 38 | 21 | 308 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 4.1 | 23.6 | 23.6 | 12.9 | 32.4 | 39.9 | 13.4 | 26.3 | 39.2 | 7.5 | 20.4 | |
| Effective Green, g (s) | 4.1 | 23.6 | 23.6 | 12.9 | 32.4 | 39.9 | 13.4 | 26.3 | 39.2 | 7.5 | 20.4 | |
| Actuated g/C Ratio | 0.05 | 0.27 | 0.27 | 0.15 | 0.38 | 0.46 | 0.16 | 0.30 | 0.45 | 0.09 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 86 | 520 | 435 | 270 | 713 | 802 | 280 | 579 | 721 | 157 | 438 | |
| v/s Ratio Prot | 0.03 | c0.20 | | 0.06 | c0.16 | 0.00 | c0.09 | 0.16 | 0.01 | 0.01 | c0.17 | |
| v/s Ratio Perm | | | 0.08 | | | 0.00 | | | 0.02 | | | |
| v/c Ratio | 0.60 | 0.72 | 0.29 | 0.43 | 0.44 | 0.01 | 0.60 | 0.52 | 0.05 | 0.13 | 0.70 | |
| Uniform Delay, d1 | 40.3 | 28.4 | 24.7 | 33.3 | 20.1 | 12.5 | 33.9 | 24.8 | 13.2 | 36.4 | 30.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 11.4 | 4.9 | 0.4 | 1.1 | 0.4 | 0.0 | 3.4 | 0.9 | 0.0 | 0.4 | 5.1 | |
| Delay (s) | 51.7 | 33.3 | 25.1 | 34.4 | 20.6 | 12.5 | 37.3 | 25.7 | 13.2 | 36.8 | 35.3 | |
| Level of Service | D | C | C | C | C | B | D | C | B | D | D | |
| Approach Delay (s) | | 32.2 | | | 24.0 | | | 27.3 | | | 35.4 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 86.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 80 | 410 | 390 | 30 | 40 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 3610 | 1578 | 1805 | 1603 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 3610 | 1578 | 1805 | 1603 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 84 | 432 | 411 | 32 | 42 | 53 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 23 | 0 | 33 |
| Lane Group Flow (vph) | 84 | 432 | 411 | 9 | 42 | 20 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 5.8 | 19.7 | 9.9 | 9.9 | 7.4 | 13.2 |
| Effective Green, g (s) | 5.8 | 19.7 | 9.9 | 9.9 | 7.4 | 13.2 |
| Actuated g/C Ratio | 0.17 | 0.56 | 0.28 | 0.28 | 0.21 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 298 | 1066 | 1018 | 445 | 381 | 786 |
| v/s Ratio Prot | 0.05 | c0.23 | 0.11 | | c0.02 | 0.00 |
| v/s Ratio Perm | | | | 0.01 | | 0.01 |
| v/c Ratio | 0.28 | 0.41 | 0.40 | 0.02 | 0.11 | 0.03 |
| Uniform Delay, d1 | 12.8 | 4.4 | 10.2 | 9.1 | 11.2 | 6.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 0.3 | 0.3 | 0.0 | 0.1 | 0.0 |
| Delay (s) | 13.3 | 4.6 | 10.5 | 9.1 | 11.3 | 6.9 |
| Level of Service | B | A | B | A | B | A |
| Approach Delay (s) | | 6.0 | 10.4 | | 8.9 | |
| Approach LOS | | A | B | | A | |

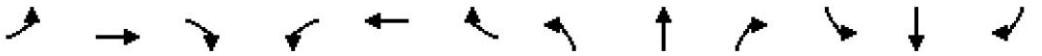
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 35.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 38.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 270 | 70 | 50 | 240 | 70 | 100 | 320 | 70 | 30 | 200 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1592 | 1805 | 1900 | 1592 | 1805 | 3498 | | 1805 | 3610 | 1576 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1592 | 1805 | 1900 | 1592 | 1805 | 3498 | | 1805 | 3610 | 1576 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 76 | 293 | 76 | 54 | 261 | 76 | 109 | 348 | 76 | 33 | 217 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 53 | 0 | 0 | 57 | 0 | 20 | 0 | 0 | 0 | 35 |
| Lane Group Flow (vph) | 76 | 293 | 23 | 54 | 261 | 19 | 109 | 404 | 0 | 33 | 217 | 8 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 6.5 | 16.8 | 16.8 | 3.6 | 13.9 | 13.9 | 8.5 | 16.2 | | 2.2 | 9.9 | 9.9 |
| Effective Green, g (s) | 6.5 | 16.8 | 16.8 | 3.6 | 13.9 | 13.9 | 8.5 | 16.2 | | 2.2 | 9.9 | 9.9 |
| Actuated g/C Ratio | 0.12 | 0.31 | 0.31 | 0.07 | 0.25 | 0.25 | 0.16 | 0.30 | | 0.04 | 0.18 | 0.18 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 214 | 582 | 488 | 119 | 482 | 404 | 280 | 1034 | | 72 | 652 | 285 |
| v/s Ratio Prot | c0.04 | c0.15 | | 0.03 | 0.14 | | c0.06 | c0.12 | | 0.02 | 0.06 | |
| v/s Ratio Perm | | | 0.01 | | | 0.01 | | | | | | 0.00 |
| v/c Ratio | 0.36 | 0.50 | 0.05 | 0.45 | 0.54 | 0.05 | 0.39 | 0.39 | | 0.46 | 0.33 | 0.03 |
| Uniform Delay, d1 | 22.2 | 15.6 | 13.4 | 24.7 | 17.7 | 15.4 | 20.8 | 15.4 | | 25.7 | 19.6 | 18.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | 0.7 | 0.0 | 2.7 | 1.2 | 0.0 | 0.9 | 0.2 | | 4.6 | 0.3 | 0.0 |
| Delay (s) | 23.2 | 16.3 | 13.4 | 27.4 | 18.9 | 15.5 | 21.7 | 15.6 | | 30.3 | 19.9 | 18.5 |
| Level of Service | C | B | B | C | B | B | C | B | | C | B | B |
| Approach Delay (s) | | 17.0 | | | 19.4 | | | 16.9 | | | 20.8 | |
| Approach LOS | | B | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 54.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 54.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

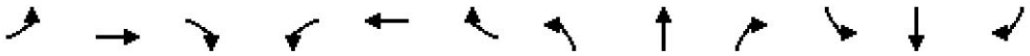
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 520 | 160 | 40 | 480 | 30 | 90 | 190 | 10 | 40 | 260 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3468 | | 1805 | 3574 | | 1805 | 3581 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3468 | | 1805 | 3574 | | 1805 | 3581 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 41 | 536 | 165 | 41 | 495 | 31 | 93 | 196 | 10 | 41 | 268 | 62 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 50 |
| Lane Group Flow (vph) | 41 | 683 | 0 | 41 | 523 | 0 | 93 | 202 | 0 | 41 | 268 | 12 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 7.1 | 62.3 | | 7.1 | 62.3 | | 11.5 | 28.0 | | 6.6 | 23.1 | 23.1 |
| Effective Green, g (s) | 7.1 | 62.3 | | 7.1 | 62.3 | | 11.5 | 28.0 | | 6.6 | 23.1 | 23.1 |
| Actuated g/C Ratio | 0.06 | 0.52 | | 0.06 | 0.52 | | 0.10 | 0.23 | | 0.05 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 107 | 1800 | | 107 | 1856 | | 173 | 836 | | 99 | 366 | 305 |
| v/s Ratio Prot | c0.02 | c0.20 | | 0.02 | 0.15 | | c0.05 | 0.06 | | 0.02 | c0.14 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.38 | 0.38 | | 0.38 | 0.28 | | 0.54 | 0.24 | | 0.41 | 0.73 | 0.04 |
| Uniform Delay, d1 | 54.3 | 17.3 | | 54.3 | 16.2 | | 51.7 | 37.4 | | 54.8 | 45.5 | 39.4 |
| Progression Factor | 1.36 | 0.27 | | 1.28 | 0.59 | | 1.00 | 1.00 | | 1.32 | 0.87 | 0.58 |
| Incremental Delay, d2 | 2.0 | 0.5 | | 2.2 | 0.4 | | 3.2 | 0.2 | | 2.8 | 7.3 | 0.1 |
| Delay (s) | 76.0 | 5.3 | | 71.8 | 10.0 | | 54.9 | 37.5 | | 75.4 | 46.8 | 23.0 |
| Level of Service | E | A | | E | A | | D | D | | E | D | C |
| Approach Delay (s) | | 9.2 | | | 14.5 | | | 42.9 | | | 46.0 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 63.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

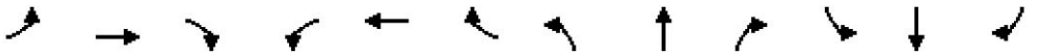
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 290 | 150 | 330 | 420 | 50 | 110 | 480 | 230 | 40 | 440 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1586 | 1805 | 3546 | | 1805 | 3610 | 1567 | 1805 | 3583 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1586 | 1805 | 3546 | | 1805 | 3610 | 1567 | 1805 | 3583 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 315 | 163 | 359 | 457 | 54 | 120 | 522 | 250 | 43 | 478 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 114 | 0 | 7 | 0 | 0 | 0 | 189 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 43 | 315 | 49 | 359 | 504 | 0 | 120 | 522 | 61 | 43 | 497 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.2 | 36.2 | 36.2 | 32.8 | 62.8 | | 13.0 | 29.4 | 29.4 | 5.6 | 22.0 | |
| Effective Green, g (s) | 6.2 | 36.2 | 36.2 | 32.8 | 62.8 | | 13.0 | 29.4 | 29.4 | 5.6 | 22.0 | |
| Actuated g/C Ratio | 0.05 | 0.30 | 0.30 | 0.27 | 0.52 | | 0.11 | 0.24 | 0.24 | 0.05 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 93 | 573 | 478 | 493 | 1856 | | 196 | 884 | 384 | 84 | 657 | |
| v/s Ratio Prot | 0.02 | c0.17 | | c0.20 | 0.14 | | 0.07 | c0.14 | | 0.02 | c0.14 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.04 | | | |
| v/c Ratio | 0.46 | 0.55 | 0.10 | 0.73 | 0.27 | | 0.61 | 0.59 | 0.16 | 0.51 | 0.76 | |
| Uniform Delay, d1 | 55.3 | 35.1 | 30.2 | 39.6 | 15.9 | | 51.1 | 40.0 | 35.6 | 55.9 | 46.5 | |
| Progression Factor | 0.54 | 0.65 | 1.88 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.4 | 3.6 | 0.4 | 5.3 | 0.4 | | 5.6 | 1.1 | 0.2 | 5.2 | 5.0 | |
| Delay (s) | 33.2 | 26.3 | 57.3 | 44.9 | 16.3 | | 56.7 | 41.0 | 35.8 | 61.0 | 51.4 | |
| Level of Service | C | C | E | D | B | | E | D | D | E | D | |
| Approach Delay (s) | | 36.6 | | | 28.1 | | | 41.7 | | | 52.2 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

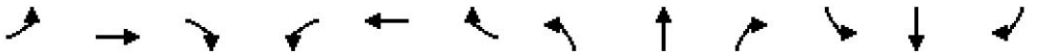
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 260 | 30 | 10 | 320 | 70 | 30 | 20 | 10 | 140 | 40 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1866 | | 1805 | 1844 | | 1805 | 1900 | 1573 | 1805 | 1900 | 1590 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1866 | | 1805 | 1844 | | 1805 | 1900 | 1573 | 1805 | 1900 | 1590 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 151 | 302 | 35 | 12 | 372 | 81 | 35 | 23 | 12 | 163 | 47 | 256 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 9 | 0 | 0 | 0 | 11 | 0 | 0 | 191 |
| Lane Group Flow (vph) | 151 | 333 | 0 | 12 | 444 | 0 | 35 | 23 | 1 | 163 | 47 | 65 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.1 | 29.8 | | 1.2 | 22.9 | | 2.5 | 7.2 | 7.2 | 12.2 | 16.9 | 16.9 |
| Effective Green, g (s) | 8.1 | 29.8 | | 1.2 | 22.9 | | 2.5 | 7.2 | 7.2 | 12.2 | 16.9 | 16.9 |
| Actuated g/C Ratio | 0.12 | 0.45 | | 0.02 | 0.34 | | 0.04 | 0.11 | 0.11 | 0.18 | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 220 | 837 | | 33 | 636 | | 68 | 206 | 171 | 332 | 484 | 405 |
| v/s Ratio Prot | c0.08 | 0.18 | | 0.01 | c0.24 | | c0.02 | c0.01 | | c0.09 | 0.02 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | 0.04 |
| v/c Ratio | 0.69 | 0.40 | | 0.36 | 0.70 | | 0.51 | 0.11 | 0.01 | 0.49 | 0.10 | 0.16 |
| Uniform Delay, d1 | 27.9 | 12.3 | | 32.2 | 18.8 | | 31.4 | 26.7 | 26.4 | 24.3 | 18.9 | 19.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.6 | 0.3 | | 6.7 | 3.4 | | 6.4 | 0.2 | 0.0 | 1.1 | 0.1 | 0.2 |
| Delay (s) | 36.5 | 12.6 | | 38.9 | 22.1 | | 37.8 | 27.0 | 26.4 | 25.5 | 19.0 | 19.4 |
| Level of Service | D | B | | D | C | | D | C | C | C | B | B |
| Approach Delay (s) | | 20.0 | | | 22.6 | | | 32.3 | | | 21.5 | |
| Approach LOS | | B | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 66.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 55.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

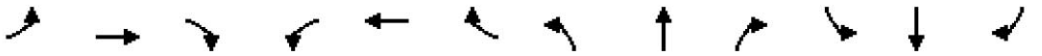
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1050 | 100 | 70 | 840 | 200 | 80 | 280 | 40 | 270 | 370 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5021 | | 3502 | 3535 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5021 | | 3502 | 3535 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 204 | 1129 | 108 | 75 | 903 | 215 | 86 | 301 | 43 | 290 | 398 | 118 |
| RTOR Reduction (vph) | 0 | 0 | 48 | 0 | 26 | 0 | 0 | 12 | 0 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 204 | 1129 | 60 | 75 | 1092 | 0 | 86 | 332 | 0 | 290 | 398 | 28 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 16.1 | 59.5 | 59.5 | 10.8 | 54.2 | | 5.6 | 16.9 | | 16.8 | 28.1 | 28.1 |
| Effective Green, g (s) | 16.1 | 59.5 | 59.5 | 10.8 | 54.2 | | 5.6 | 16.9 | | 16.8 | 28.1 | 28.1 |
| Actuated g/C Ratio | 0.13 | 0.50 | 0.50 | 0.09 | 0.45 | | 0.05 | 0.14 | | 0.14 | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 242 | 1790 | 786 | 162 | 2268 | | 163 | 498 | | 490 | 845 | 372 |
| v/s Ratio Prot | c0.11 | c0.31 | | 0.04 | c0.22 | | 0.02 | c0.09 | | c0.08 | 0.11 | |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | 0.02 |
| v/c Ratio | 0.84 | 0.63 | 0.08 | 0.46 | 0.48 | | 0.53 | 0.67 | | 0.59 | 0.47 | 0.07 |
| Uniform Delay, d1 | 50.7 | 22.2 | 15.8 | 51.8 | 23.1 | | 55.9 | 48.9 | | 48.4 | 39.6 | 35.8 |
| Progression Factor | 0.68 | 0.69 | 0.96 | 0.69 | 0.52 | | 0.88 | 0.77 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 21.2 | 1.6 | 0.2 | 2.0 | 0.7 | | 3.0 | 3.3 | | 1.9 | 0.4 | 0.1 |
| Delay (s) | 55.9 | 16.9 | 15.5 | 37.7 | 12.7 | | 52.0 | 41.0 | | 50.3 | 40.0 | 35.9 |
| Level of Service | E | B | B | D | B | | D | D | | D | D | D |
| Approach Delay (s) | | 22.3 | | | 14.3 | | | 43.2 | | | 43.1 | |
| Approach LOS | | C | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

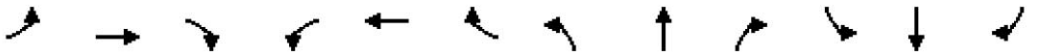
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 1140 | 150 | 120 | 990 | 110 | 120 | 160 | 50 | 130 | 130 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5100 | | 1805 | 3467 | | 1805 | 3470 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5100 | | 1805 | 3467 | | 1805 | 3470 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 74 | 1200 | 158 | 126 | 1042 | 116 | 126 | 168 | 53 | 137 | 137 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 61 | 0 | 7 | 0 | 0 | 34 | 0 | 0 | 34 | 0 |
| Lane Group Flow (vph) | 74 | 1200 | 97 | 126 | 1151 | 0 | 126 | 187 | 0 | 137 | 145 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 8.0 | 63.7 | 63.7 | 15.3 | 71.0 | | 14.7 | 16.0 | | 9.0 | 10.3 | |
| Effective Green, g (s) | 8.0 | 63.7 | 63.7 | 15.3 | 71.0 | | 14.7 | 16.0 | | 9.0 | 10.3 | |
| Actuated g/C Ratio | 0.07 | 0.53 | 0.53 | 0.13 | 0.59 | | 0.12 | 0.13 | | 0.08 | 0.09 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 120 | 1916 | 841 | 230 | 3018 | | 221 | 462 | | 135 | 298 | |
| v/s Ratio Prot | 0.04 | c0.33 | | c0.07 | 0.23 | | c0.07 | 0.05 | | c0.08 | 0.04 | |
| v/s Ratio Perm | | | 0.06 | | | | | | | | | |
| v/c Ratio | 0.62 | 0.63 | 0.12 | 0.55 | 0.38 | | 0.57 | 0.41 | | 1.01 | 0.49 | |
| Uniform Delay, d1 | 54.5 | 19.8 | 14.1 | 49.1 | 12.9 | | 49.7 | 47.6 | | 55.5 | 52.3 | |
| Progression Factor | 0.94 | 0.90 | 1.00 | 0.91 | 0.48 | | 0.95 | 0.96 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.3 | 1.2 | 0.2 | 2.5 | 0.3 | | 3.5 | 0.6 | | 81.4 | 1.3 | |
| Delay (s) | 58.5 | 19.0 | 14.3 | 47.3 | 6.6 | | 50.5 | 46.1 | | 136.9 | 53.6 | |
| Level of Service | E | B | B | D | A | | D | D | | F | D | |
| Approach Delay (s) | | 20.5 | | | 10.6 | | | 47.7 | | | 89.7 | |
| Approach LOS | | C | | | B | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 69.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 920 | 110 | 50 | 830 | 170 | 140 | 300 | 60 | 220 | 380 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1593 | 1805 | 5040 | | 1805 | 3510 | | 1805 | 3610 | 1599 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1593 | 1805 | 5040 | | 1805 | 3510 | | 1805 | 3610 | 1599 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 96 | 979 | 117 | 53 | 883 | 181 | 149 | 319 | 64 | 234 | 404 | 170 |
| RTOR Reduction (vph) | 0 | 0 | 40 | 0 | 20 | 0 | 0 | 18 | 0 | 0 | 0 | 84 |
| Lane Group Flow (vph) | 96 | 979 | 77 | 53 | 1044 | 0 | 149 | 365 | 0 | 234 | 404 | 86 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 12.1 | 61.4 | 79.3 | 5.6 | 54.9 | | 17.9 | 18.4 | | 18.6 | 19.1 | 31.2 |
| Effective Green, g (s) | 12.1 | 61.4 | 79.3 | 5.6 | 54.9 | | 17.9 | 18.4 | | 18.6 | 19.1 | 31.2 |
| Actuated g/C Ratio | 0.10 | 0.51 | 0.66 | 0.05 | 0.46 | | 0.15 | 0.15 | | 0.16 | 0.16 | 0.26 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 182 | 2654 | 1106 | 84 | 2306 | | 269 | 538 | | 280 | 575 | 416 |
| v/s Ratio Prot | c0.05 | 0.19 | 0.01 | 0.03 | c0.21 | | 0.08 | c0.10 | | c0.13 | 0.11 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | 0.03 |
| v/c Ratio | 0.53 | 0.37 | 0.07 | 0.63 | 0.45 | | 0.55 | 0.68 | | 0.84 | 0.70 | 0.21 |
| Uniform Delay, d1 | 51.2 | 17.6 | 7.2 | 56.2 | 22.3 | | 47.3 | 48.0 | | 49.2 | 47.8 | 34.7 |
| Progression Factor | 1.05 | 0.43 | 0.31 | 0.74 | 0.53 | | 0.58 | 0.55 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.1 | 0.3 | 0.0 | 12.7 | 0.6 | | 2.3 | 3.2 | | 18.9 | 3.9 | 0.2 |
| Delay (s) | 55.9 | 7.8 | 2.3 | 54.3 | 12.4 | | 29.7 | 29.4 | | 68.2 | 51.6 | 35.0 |
| Level of Service | E | A | A | D | B | | C | C | | E | D | C |
| Approach Delay (s) | | 11.1 | | | 14.4 | | | 29.5 | | | 52.9 | |
| Approach LOS | | B | | | B | | | C | | | D | |

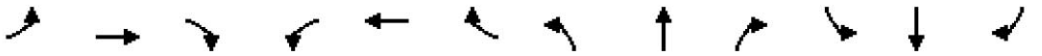
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 820 | 100 | 60 | 820 | 110 | 210 | 270 | 100 | 200 | 340 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5092 | | 1805 | 5084 | | 1805 | 3449 | | 1805 | 3508 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5092 | | 1805 | 5084 | | 1805 | 3449 | | 1805 | 3508 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 99 | 901 | 110 | 66 | 901 | 121 | 231 | 297 | 110 | 220 | 374 | 77 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 11 | 0 | 0 | 42 | 0 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 99 | 1002 | 0 | 66 | 1011 | 0 | 231 | 365 | 0 | 220 | 432 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 12.1 | 55.1 | | 7.2 | 50.2 | | 21.1 | 18.3 | | 23.4 | 20.6 | |
| Effective Green, g (s) | 12.1 | 55.1 | | 7.2 | 50.2 | | 21.1 | 18.3 | | 23.4 | 20.6 | |
| Actuated g/C Ratio | 0.10 | 0.46 | | 0.06 | 0.42 | | 0.18 | 0.15 | | 0.19 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 182 | 2338 | | 108 | 2127 | | 317 | 526 | | 352 | 602 | |
| v/s Ratio Prot | c0.05 | 0.20 | | 0.04 | c0.20 | | c0.13 | 0.11 | | 0.12 | c0.12 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.54 | 0.43 | | 0.61 | 0.48 | | 0.73 | 0.69 | | 0.62 | 0.72 | |
| Uniform Delay, d1 | 51.3 | 21.8 | | 55.0 | 25.3 | | 46.7 | 48.2 | | 44.3 | 47.0 | |
| Progression Factor | 0.82 | 1.12 | | 0.53 | 0.37 | | 0.78 | 0.66 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.0 | 0.5 | | 8.6 | 0.7 | | 8.1 | 3.9 | | 3.4 | 4.1 | |
| Delay (s) | 45.0 | 25.0 | | 37.6 | 9.9 | | 44.5 | 35.8 | | 47.7 | 51.0 | |
| Level of Service | D | C | | D | A | | D | D | | D | D | |
| Approach Delay (s) | | 26.7 | | | 11.6 | | | 39.0 | | | 49.9 | |
| Approach LOS | | C | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

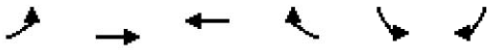
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 590 | 210 | 140 | 570 | 110 | 280 | 470 | 70 | 200 | 650 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5047 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5047 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 268 | 608 | 216 | 144 | 588 | 113 | 289 | 485 | 72 | 206 | 670 | 186 |
| RTOR Reduction (vph) | 0 | 0 | 144 | 0 | 23 | 0 | 0 | 0 | 59 | 0 | 0 | 140 |
| Lane Group Flow (vph) | 268 | 608 | 72 | 144 | 678 | 0 | 289 | 485 | 13 | 206 | 670 | 46 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 15.0 | 40.0 | 40.0 | 10.0 | 35.0 | | 24.5 | 22.3 | 22.3 | 31.7 | 29.5 | 29.5 |
| Effective Green, g (s) | 15.0 | 40.0 | 40.0 | 10.0 | 35.0 | | 24.5 | 22.3 | 22.3 | 31.7 | 29.5 | 29.5 |
| Actuated g/C Ratio | 0.12 | 0.33 | 0.33 | 0.08 | 0.29 | | 0.20 | 0.19 | 0.19 | 0.26 | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 226 | 1203 | 529 | 150 | 1472 | | 369 | 671 | 295 | 477 | 887 | 390 |
| v/s Ratio Prot | c0.15 | c0.17 | | c0.08 | 0.13 | | c0.16 | 0.13 | | 0.11 | c0.19 | |
| v/s Ratio Perm | | | 0.05 | | | | | | 0.01 | | | 0.03 |
| v/c Ratio | 1.19 | 0.51 | 0.14 | 0.96 | 0.46 | | 0.78 | 0.72 | 0.05 | 0.43 | 0.76 | 0.12 |
| Uniform Delay, d1 | 52.5 | 32.1 | 27.9 | 54.8 | 34.8 | | 45.2 | 45.9 | 40.1 | 36.7 | 41.9 | 35.1 |
| Progression Factor | 0.71 | 0.67 | 1.26 | 0.95 | 0.88 | | 0.85 | 0.37 | 0.05 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 116.8 | 1.4 | 0.5 | 60.1 | 1.0 | | 9.2 | 3.4 | 0.1 | 0.6 | 3.7 | 0.1 |
| Delay (s) | 154.1 | 22.9 | 35.8 | 111.9 | 31.6 | | 47.6 | 20.5 | 1.9 | 37.3 | 45.6 | 35.3 |
| Level of Service | F | C | D | F | C | | D | C | A | D | D | D |
| Approach Delay (s) | | 57.6 | | | 45.3 | | | 28.2 | | | 42.2 | |
| Approach LOS | | E | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 44.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 90.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

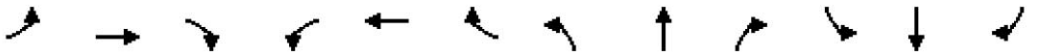
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 90 | 1470 | 1060 | 190 | 290 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1591 | 3502 | 1600 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1591 | 3502 | 1600 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 92 | 1500 | 1082 | 194 | 296 | 112 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 44 | 0 | 44 |
| Lane Group Flow (vph) | 92 | 1500 | 1082 | 150 | 296 | 68 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 15.0 | 96.5 | 77.5 | 93.0 | 15.5 | 30.5 |
| Effective Green, g (s) | 15.0 | 96.5 | 77.5 | 93.0 | 15.5 | 30.5 |
| Actuated g/C Ratio | 0.12 | 0.80 | 0.65 | 0.78 | 0.13 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 226 | 2903 | 2331 | 1286 | 452 | 460 |
| v/s Ratio Prot | 0.05 | c0.42 | 0.30 | 0.02 | c0.08 | 0.02 |
| v/s Ratio Perm | | | | 0.08 | | 0.02 |
| v/c Ratio | 0.41 | 0.52 | 0.46 | 0.12 | 0.65 | 0.15 |
| Uniform Delay, d1 | 48.4 | 3.9 | 10.7 | 3.3 | 49.7 | 34.7 |
| Progression Factor | 0.95 | 2.02 | 1.16 | 5.76 | 0.56 | 0.31 |
| Incremental Delay, d2 | 0.9 | 0.5 | 0.6 | 0.0 | 3.3 | 0.1 |
| Delay (s) | 46.9 | 8.4 | 13.1 | 19.3 | 31.1 | 11.0 |
| Level of Service | D | A | B | B | C | B |
| Approach Delay (s) | | 10.7 | 14.1 | | 25.6 | |
| Approach LOS | | B | B | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 58.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

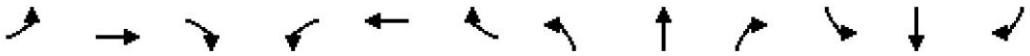
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 1300 | 340 | 20 | 880 | 60 | 250 | 70 | 20 | 120 | 80 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5132 | | 3502 | 3476 | | 1805 | 3610 | 1603 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5132 | | 3502 | 3476 | | 1805 | 3610 | 1603 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 73 | 1354 | 354 | 21 | 917 | 62 | 260 | 73 | 21 | 125 | 83 | 94 |
| RTOR Reduction (vph) | 0 | 0 | 84 | 0 | 4 | 0 | 0 | 20 | 0 | 0 | 0 | 33 |
| Lane Group Flow (vph) | 73 | 1354 | 270 | 21 | 975 | 0 | 260 | 74 | 0 | 125 | 83 | 61 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.5 | 78.2 | 78.2 | 2.8 | 69.5 | | 14.6 | 8.2 | | 14.8 | 8.4 | 19.9 |
| Effective Green, g (s) | 11.5 | 78.2 | 78.2 | 2.8 | 69.5 | | 14.6 | 8.2 | | 14.8 | 8.4 | 19.9 |
| Actuated g/C Ratio | 0.10 | 0.65 | 0.65 | 0.02 | 0.58 | | 0.12 | 0.07 | | 0.12 | 0.07 | 0.17 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 173 | 2353 | 1034 | 42 | 2972 | | 426 | 238 | | 223 | 253 | 319 |
| v/s Ratio Prot | c0.04 | c0.38 | | 0.01 | 0.19 | | c0.07 | 0.02 | | 0.07 | c0.02 | 0.02 |
| v/s Ratio Perm | | | 0.17 | | | | | | | | | 0.02 |
| v/c Ratio | 0.42 | 0.58 | 0.26 | 0.50 | 0.33 | | 0.61 | 0.31 | | 0.56 | 0.33 | 0.19 |
| Uniform Delay, d1 | 51.1 | 11.6 | 8.8 | 57.9 | 13.1 | | 50.0 | 53.2 | | 49.5 | 53.1 | 43.1 |
| Progression Factor | 0.91 | 0.55 | 0.24 | 0.93 | 1.13 | | 1.00 | 1.00 | | 0.72 | 0.89 | 0.89 |
| Incremental Delay, d2 | 1.5 | 0.9 | 0.5 | 8.0 | 0.3 | | 2.6 | 0.8 | | 3.1 | 0.7 | 0.3 |
| Delay (s) | 47.8 | 7.4 | 2.7 | 61.6 | 15.0 | | 52.6 | 54.0 | | 38.6 | 48.1 | 38.6 |
| Level of Service | D | A | A | E | B | | D | D | | D | D | D |
| Approach Delay (s) | | 8.1 | | | 16.0 | | | 53.0 | | | 41.2 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

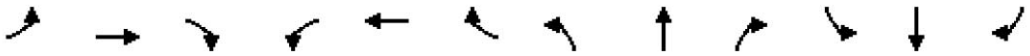
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 880 | 550 | 30 | 490 | 90 | 410 | 350 | 20 | 90 | 410 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1595 | 1805 | 3516 | | 3502 | 3577 | | 1805 | 3557 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1595 | 1805 | 3516 | | 3502 | 3577 | | 1805 | 3557 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 87 | 957 | 598 | 33 | 533 | 98 | 446 | 380 | 22 | 98 | 446 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 66 | 0 | 11 | 0 | 0 | 4 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 87 | 957 | 532 | 33 | 620 | 0 | 446 | 398 | 0 | 98 | 482 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 10.6 | 54.5 | 77.0 | 4.7 | 48.6 | | 22.5 | 33.3 | | 11.5 | 22.3 | |
| Effective Green, g (s) | 10.6 | 54.5 | 77.0 | 4.7 | 48.6 | | 22.5 | 33.3 | | 11.5 | 22.3 | |
| Actuated g/C Ratio | 0.09 | 0.45 | 0.64 | 0.04 | 0.41 | | 0.19 | 0.28 | | 0.10 | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 159 | 1640 | 1023 | 71 | 1424 | | 657 | 993 | | 173 | 661 | |
| v/s Ratio Prot | 0.05 | c0.27 | 0.10 | 0.02 | c0.18 | | c0.13 | 0.11 | | 0.05 | c0.14 | |
| v/s Ratio Perm | | | 0.24 | | | | | | | | | |
| v/c Ratio | 0.55 | 0.58 | 0.52 | 0.46 | 0.44 | | 0.68 | 0.40 | | 0.57 | 0.73 | |
| Uniform Delay, d1 | 52.4 | 24.3 | 11.6 | 56.4 | 25.8 | | 45.4 | 35.2 | | 51.9 | 46.0 | |
| Progression Factor | 0.79 | 0.59 | 0.94 | 1.04 | 0.59 | | 1.00 | 1.00 | | 0.34 | 0.35 | |
| Incremental Delay, d2 | 3.3 | 1.3 | 0.4 | 4.6 | 1.0 | | 2.8 | 0.3 | | 4.1 | 3.9 | |
| Delay (s) | 44.7 | 15.6 | 11.2 | 63.6 | 16.0 | | 48.2 | 35.5 | | 21.6 | 20.2 | |
| Level of Service | D | B | B | E | B | | D | D | | C | C | |
| Approach Delay (s) | | 15.5 | | | 18.4 | | | 42.2 | | | 20.4 | |
| Approach LOS | | B | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

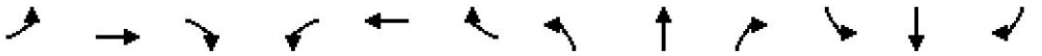
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 690 | 110 | 30 | 520 | 50 | 60 | 230 | 30 | 60 | 350 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3527 | | 1805 | 3556 | | 1805 | 3541 | | 1805 | 3563 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3527 | | 1805 | 3556 | | 1805 | 3541 | | 1805 | 3563 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 61 | 697 | 111 | 30 | 525 | 51 | 61 | 232 | 30 | 61 | 354 | 30 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 4 | 0 | 0 | 10 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 61 | 801 | 0 | 30 | 572 | 0 | 61 | 252 | 0 | 61 | 378 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 8.2 | 72.1 | | 5.4 | 69.3 | | 8.3 | 14.6 | | 11.9 | 18.2 | |
| Effective Green, g (s) | 8.2 | 72.1 | | 5.4 | 69.3 | | 8.3 | 14.6 | | 11.9 | 18.2 | |
| Actuated g/C Ratio | 0.07 | 0.60 | | 0.05 | 0.58 | | 0.07 | 0.12 | | 0.10 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 123 | 2119 | | 81 | 2054 | | 125 | 431 | | 179 | 540 | |
| v/s Ratio Prot | c0.03 | c0.23 | | 0.02 | c0.16 | | c0.03 | 0.07 | | c0.03 | c0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.50 | 0.38 | | 0.37 | 0.28 | | 0.49 | 0.59 | | 0.34 | 0.70 | |
| Uniform Delay, d1 | 53.9 | 12.4 | | 55.6 | 12.8 | | 53.8 | 49.8 | | 50.4 | 48.3 | |
| Progression Factor | 1.08 | 0.30 | | 0.84 | 1.06 | | 1.00 | 1.00 | | 0.64 | 0.34 | |
| Incremental Delay, d2 | 2.6 | 0.4 | | 2.7 | 0.3 | | 3.0 | 2.0 | | 1.1 | 3.8 | |
| Delay (s) | 60.7 | 4.1 | | 49.4 | 13.8 | | 56.8 | 51.9 | | 33.1 | 20.3 | |
| Level of Service | E | A | | D | B | | E | D | | C | C | |
| Approach Delay (s) | | 8.1 | | | 15.6 | | | 52.8 | | | 22.1 | |
| Approach LOS | | A | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 61.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

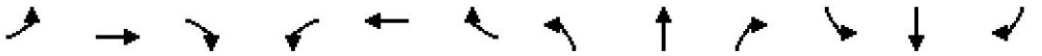
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 580 | 160 | 60 | 440 | 110 | 110 | 610 | 50 | 120 | 680 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3480 | | 1805 | 3489 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3480 | | 1805 | 3489 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 580 | 160 | 60 | 440 | 110 | 110 | 610 | 50 | 120 | 680 | 60 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 17 | 0 | 0 | 0 | 36 | 0 | 0 | 42 |
| Lane Group Flow (vph) | 50 | 721 | 0 | 60 | 533 | 0 | 110 | 610 | 14 | 120 | 680 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.0 | 48.1 | | 7.8 | 47.9 | | 12.1 | 34.0 | 34.0 | 14.1 | 36.0 | 36.0 |
| Effective Green, g (s) | 8.0 | 48.1 | | 7.8 | 47.9 | | 12.1 | 34.0 | 34.0 | 14.1 | 36.0 | 36.0 |
| Actuated g/C Ratio | 0.07 | 0.40 | | 0.06 | 0.40 | | 0.10 | 0.28 | 0.28 | 0.12 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 120 | 1395 | | 117 | 1393 | | 182 | 1023 | 449 | 212 | 1083 | 476 |
| v/s Ratio Prot | 0.03 | c0.21 | | c0.03 | 0.15 | | 0.06 | 0.17 | | c0.07 | c0.19 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | 0.01 |
| v/c Ratio | 0.42 | 0.52 | | 0.51 | 0.38 | | 0.60 | 0.60 | 0.03 | 0.57 | 0.63 | 0.04 |
| Uniform Delay, d1 | 53.8 | 27.2 | | 54.3 | 25.6 | | 51.7 | 37.1 | 31.1 | 50.1 | 36.2 | 29.7 |
| Progression Factor | 0.63 | 0.37 | | 0.84 | 0.98 | | 1.17 | 0.88 | 1.45 | 1.06 | 0.97 | 1.32 |
| Incremental Delay, d2 | 2.2 | 1.3 | | 3.7 | 0.8 | | 5.4 | 2.5 | 0.1 | 2.8 | 2.3 | 0.1 |
| Delay (s) | 36.0 | 11.4 | | 49.4 | 25.8 | | 66.0 | 35.1 | 45.3 | 56.1 | 37.2 | 39.5 |
| Level of Service | D | B | | D | C | | E | D | D | E | D | D |
| Approach Delay (s) | | 13.0 | | | 28.1 | | | 40.2 | | | 40.0 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

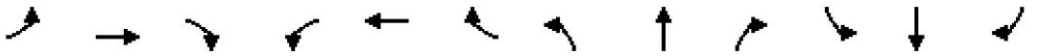
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1570 | 120 | 10 | 1290 | 70 | 140 | 30 | 20 | 120 | 100 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1591 | 3502 | 3610 | 2794 | 3502 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1591 | 3502 | 3610 | 2794 | 3502 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 82 | 1619 | 124 | 10 | 1330 | 72 | 144 | 31 | 21 | 124 | 103 | 196 |
| RTOR Reduction (vph) | 0 | 0 | 42 | 0 | 0 | 24 | 0 | 0 | 18 | 0 | 0 | 127 |
| Lane Group Flow (vph) | 82 | 1619 | 82 | 10 | 1330 | 48 | 144 | 31 | 3 | 124 | 103 | 69 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 6.8 | 35.9 | 35.9 | 2.3 | 31.4 | 31.4 | 10.2 | 9.1 | 11.4 | 10.5 | 9.4 | 9.4 |
| Effective Green, g (s) | 6.8 | 35.9 | 35.9 | 2.3 | 31.4 | 31.4 | 10.2 | 9.1 | 11.4 | 10.5 | 9.4 | 9.4 |
| Actuated g/C Ratio | 0.09 | 0.49 | 0.49 | 0.03 | 0.43 | 0.43 | 0.14 | 0.12 | 0.15 | 0.14 | 0.13 | 0.13 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 166 | 2523 | 786 | 109 | 2207 | 677 | 484 | 445 | 583 | 498 | 460 | 203 |
| v/s Ratio Prot | c0.05 | c0.31 | | 0.00 | 0.26 | | c0.04 | 0.01 | 0.00 | 0.04 | 0.03 | |
| v/s Ratio Perm | | | 0.05 | | | 0.03 | | | 0.00 | | | c0.04 |
| v/c Ratio | 0.49 | 0.64 | 0.10 | 0.09 | 0.60 | 0.07 | 0.30 | 0.07 | 0.01 | 0.25 | 0.22 | 0.34 |
| Uniform Delay, d1 | 31.9 | 14.1 | 10.3 | 34.7 | 16.4 | 12.6 | 28.6 | 28.6 | 26.4 | 28.1 | 28.9 | 29.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.3 | 0.6 | 0.1 | 0.4 | 0.5 | 0.0 | 0.3 | 0.1 | 0.0 | 0.3 | 0.2 | 1.0 |
| Delay (s) | 34.2 | 14.7 | 10.3 | 35.1 | 16.8 | 12.6 | 28.9 | 28.7 | 26.4 | 28.4 | 29.2 | 30.4 |
| Level of Service | C | B | B | D | B | B | C | C | C | C | C | C |
| Approach Delay (s) | | 15.3 | | | 16.8 | | | 28.6 | | | 29.5 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 73.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 60.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

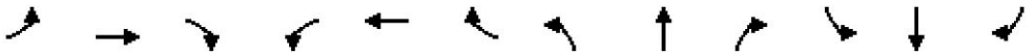
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1210 | 530 | 0 | 980 | 0 | 0 | 0 | 0 | 230 | 0 | 430 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.95 | | | 1.00 | | | | | 1.00 | 0.87 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (prot) | | 4950 | | | 5187 | | | | | 1715 | 1488 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (perm) | | 4950 | | | 5187 | | | | | 1715 | 1488 | 1534 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1247 | 546 | 0 | 1010 | 0 | 0 | 0 | 0 | 237 | 0 | 443 |
| RTOR Reduction (vph) | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 100 |
| Lane Group Flow (vph) | 0 | 1750 | 0 | 0 | 1010 | 0 | 0 | 0 | 0 | 213 | 137 | 130 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 90.0 | | | 90.0 | | | | | 22.0 | 22.0 | 22.0 |
| Effective Green, g (s) | | 90.0 | | | 90.0 | | | | | 22.0 | 22.0 | 22.0 |
| Actuated g/C Ratio | | 0.75 | | | 0.75 | | | | | 0.18 | 0.18 | 0.18 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3713 | | | 3890 | | | | | 314 | 273 | 281 |
| v/s Ratio Prot | | c0.35 | | | 0.19 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | c0.12 | 0.09 | 0.08 |
| v/c Ratio | | 0.47 | | | 0.26 | | | | | 0.68 | 0.50 | 0.46 |
| Uniform Delay, d1 | | 5.8 | | | 4.7 | | | | | 45.7 | 44.1 | 43.7 |
| Progression Factor | | 1.00 | | | 0.17 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.4 | | | 0.1 | | | | | 5.7 | 1.4 | 1.2 |
| Delay (s) | | 6.2 | | | 0.9 | | | | | 51.4 | 45.5 | 44.9 |
| Level of Service | | A | | | A | | | | | D | D | D |
| Approach Delay (s) | | 6.2 | | | 0.9 | | | 0.0 | | | 47.2 | |
| Approach LOS | | A | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

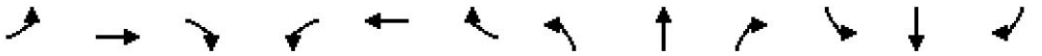
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 380 | 1060 | 0 | 0 | 790 | 280 | 330 | 10 | 170 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.96 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 4958 | | 1715 | 1634 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 4958 | | 1715 | 1634 | 1534 | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 392 | 1093 | 0 | 0 | 814 | 289 | 340 | 10 | 175 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 3 | 124 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 392 | 1093 | 0 | 0 | 1054 | 0 | 184 | 181 | 33 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 44.0 | 92.9 | | | 44.9 | | 19.1 | 19.1 | 19.1 | | | |
| Effective Green, g (s) | 44.0 | 92.9 | | | 44.9 | | 19.1 | 19.1 | 19.1 | | | |
| Actuated g/C Ratio | 0.37 | 0.77 | | | 0.37 | | 0.16 | 0.16 | 0.16 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 662 | 4016 | | | 1855 | | 273 | 260 | 244 | | | |
| v/s Ratio Prot | c0.22 | 0.21 | | | c0.21 | | 0.11 | c0.11 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | |
| v/c Ratio | 0.59 | 0.27 | | | 0.57 | | 0.67 | 0.69 | 0.14 | | | |
| Uniform Delay, d1 | 30.7 | 3.9 | | | 29.8 | | 47.5 | 47.7 | 43.4 | | | |
| Progression Factor | 1.04 | 0.75 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 1.3 | 0.2 | | | 1.3 | | 6.4 | 7.8 | 0.3 | | | |
| Delay (s) | 33.3 | 3.0 | | | 31.1 | | 53.9 | 55.5 | 43.6 | | | |
| Level of Service | C | A | | | C | | D | E | D | | | |
| Approach Delay (s) | | 11.0 | | | 31.1 | | | 51.4 | | | 0.0 | |
| Approach LOS | | B | | | C | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

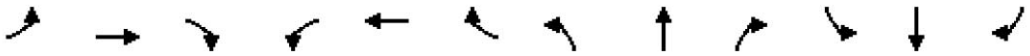
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1020 | 20 | 10 | 920 | 100 | 20 | 40 | 10 | 80 | 40 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3599 | | 1805 | 3610 | 1615 | 3502 | 3502 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3599 | | 1805 | 3610 | 1615 | 3502 | 3502 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 192 | 1030 | 20 | 10 | 929 | 101 | 20 | 40 | 10 | 81 | 40 | 162 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 44 | 0 | 9 | 0 | 0 | 0 | 143 |
| Lane Group Flow (vph) | 192 | 1049 | 0 | 10 | 929 | 57 | 20 | 41 | 0 | 81 | 40 | 19 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 18.2 | 84.1 | | 1.5 | 67.4 | 67.4 | 4.4 | 7.4 | | 11.0 | 14.0 | 14.0 |
| Effective Green, g (s) | 18.2 | 84.1 | | 1.5 | 67.4 | 67.4 | 4.4 | 7.4 | | 11.0 | 14.0 | 14.0 |
| Actuated g/C Ratio | 0.15 | 0.70 | | 0.01 | 0.56 | 0.56 | 0.04 | 0.06 | | 0.09 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 531 | 2522 | | 23 | 2028 | 907 | 128 | 216 | | 165 | 421 | 188 |
| v/s Ratio Prot | 0.05 | c0.29 | | 0.01 | c0.26 | | 0.01 | c0.01 | | c0.04 | 0.01 | |
| v/s Ratio Perm | | | | | | 0.04 | | | | | | 0.01 |
| v/c Ratio | 0.36 | 0.42 | | 0.43 | 0.46 | 0.06 | 0.16 | 0.19 | | 0.49 | 0.10 | 0.10 |
| Uniform Delay, d1 | 45.7 | 7.6 | | 58.8 | 15.5 | 11.9 | 56.0 | 53.4 | | 51.8 | 47.3 | 47.4 |
| Progression Factor | 1.00 | 1.00 | | 0.72 | 1.01 | 1.41 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.5 | | 12.2 | 0.7 | 0.1 | 0.6 | 0.4 | | 2.3 | 0.1 | 0.2 |
| Delay (s) | 46.1 | 8.1 | | 54.7 | 16.5 | 16.9 | 56.6 | 53.9 | | 54.1 | 47.4 | 47.6 |
| Level of Service | D | A | | D | B | B | E | D | | D | D | D |
| Approach Delay (s) | | 14.0 | | | 16.9 | | | 54.6 | | | 49.5 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

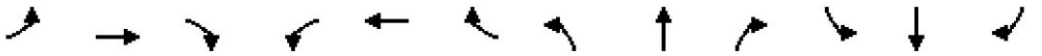
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1010 | 20 | 10 | 940 | 60 | 20 | 20 | 20 | 10 | 10 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | 1.00 | 0.89 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5169 | | 1805 | 3610 | 1564 | 1797 | 1743 | | 1798 | 1663 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.73 | 1.00 | | 0.73 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5169 | | 1805 | 3610 | 1564 | 1381 | 1743 | | 1381 | 1663 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 52 | 1041 | 21 | 10 | 969 | 62 | 21 | 21 | 21 | 10 | 10 | 31 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 6 | 0 | 20 | 0 | 0 | 29 | 0 |
| Lane Group Flow (vph) | 52 | 1061 | 0 | 10 | 969 | 57 | 21 | 22 | 0 | 10 | 12 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 10.1 | 98.7 | | 1.4 | 90.0 | 90.0 | 7.9 | 7.9 | | 7.9 | 7.9 | |
| Effective Green, g (s) | 10.1 | 98.7 | | 1.4 | 90.0 | 90.0 | 7.9 | 7.9 | | 7.9 | 7.9 | |
| Actuated g/C Ratio | 0.08 | 0.82 | | 0.01 | 0.75 | 0.75 | 0.07 | 0.07 | | 0.07 | 0.07 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 152 | 4252 | | 21 | 2708 | 1173 | 91 | 115 | | 91 | 109 | |
| v/s Ratio Prot | c0.03 | 0.21 | | 0.01 | c0.27 | | | 0.01 | | | 0.01 | |
| v/s Ratio Perm | | | | | | 0.04 | c0.02 | | | 0.01 | | |
| v/c Ratio | 0.34 | 0.25 | | 0.48 | 0.36 | 0.05 | 0.23 | 0.19 | | 0.11 | 0.11 | |
| Uniform Delay, d1 | 51.8 | 2.4 | | 58.9 | 5.1 | 3.9 | 53.2 | 53.0 | | 52.7 | 52.7 | |
| Progression Factor | 0.85 | 0.92 | | 0.92 | 2.01 | 1.77 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.3 | 0.1 | | 15.1 | 0.3 | 0.1 | 1.3 | 0.8 | | 0.5 | 0.5 | |
| Delay (s) | 45.2 | 2.3 | | 69.4 | 10.7 | 7.0 | 54.5 | 53.9 | | 53.3 | 53.2 | |
| Level of Service | D | A | | E | B | A | D | D | | D | D | |
| Approach Delay (s) | | 4.3 | | | 11.0 | | | 54.1 | | | 53.2 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 54.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

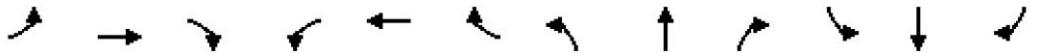
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 1060 | 70 | 80 | 840 | 90 | 100 | 160 | 100 | 90 | 160 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5133 | | 1805 | 5096 | | 1805 | 1779 | | 1805 | 1900 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5133 | | 1805 | 5096 | | 1805 | 1779 | | 1805 | 1900 | 1589 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 116 | 1116 | 74 | 84 | 884 | 95 | 105 | 168 | 105 | 95 | 168 | 84 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 24 | 0 | 0 | 0 | 68 |
| Lane Group Flow (vph) | 116 | 1186 | 0 | 84 | 971 | 0 | 105 | 249 | 0 | 95 | 168 | 16 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 13.2 | 61.7 | | 8.4 | 56.9 | | 11.3 | 22.3 | | 11.6 | 22.6 | 22.6 |
| Effective Green, g (s) | 13.2 | 61.7 | | 8.4 | 56.9 | | 11.3 | 22.3 | | 11.6 | 22.6 | 22.6 |
| Actuated g/C Ratio | 0.11 | 0.51 | | 0.07 | 0.47 | | 0.09 | 0.19 | | 0.10 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 199 | 2639 | | 126 | 2416 | | 170 | 331 | | 174 | 358 | 299 |
| v/s Ratio Prot | c0.06 | c0.23 | | 0.05 | 0.19 | | 0.06 | c0.14 | | 0.05 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.58 | 0.45 | | 0.67 | 0.40 | | 0.62 | 0.75 | | 0.55 | 0.47 | 0.05 |
| Uniform Delay, d1 | 50.8 | 18.4 | | 54.4 | 20.5 | | 52.3 | 46.2 | | 51.7 | 43.4 | 39.9 |
| Progression Factor | 1.07 | 1.25 | | 0.53 | 1.00 | | 0.82 | 0.61 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.3 | 0.5 | | 11.5 | 0.5 | | 5.7 | 8.1 | | 3.5 | 1.0 | 0.1 |
| Delay (s) | 58.4 | 23.7 | | 40.1 | 20.9 | | 48.4 | 36.4 | | 55.2 | 44.3 | 40.0 |
| Level of Service | E | C | | D | C | | D | D | | E | D | D |
| Approach Delay (s) | | 26.7 | | | 22.4 | | | 39.7 | | | 46.2 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 66.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

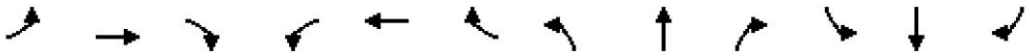
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 940 | 110 | 740 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 3610 | 1569 | 1805 | 3610 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 3610 | 1569 | 1805 | 3610 | | | | | | | 1644 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 0 | 1011 | 118 | 796 | 161 | 0 | 0 | 0 | 0 | 0 | 0 | 65 |
| RTOR Reduction (vph) | 0 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 |
| Lane Group Flow (vph) | 0 | 1011 | 45 | 796 | 161 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 34.3 | 34.3 | 77.7 | 102.3 | | | | | | | 9.7 |
| Effective Green, g (s) | | 34.3 | 34.3 | 77.7 | 102.3 | | | | | | | 9.7 |
| Actuated g/C Ratio | | 0.29 | 0.29 | 0.65 | 0.85 | | | | | | | 0.08 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1032 | 448 | 1169 | 3078 | | | | | | | 133 |
| v/s Ratio Prot | | c0.28 | | c0.44 | 0.04 | | | | | | | 0.00 |
| v/s Ratio Perm | | | 0.03 | | | | | | | | | |
| v/c Ratio | | 0.98 | 0.10 | 0.68 | 0.05 | | | | | | | 0.04 |
| Uniform Delay, d1 | | 42.5 | 31.5 | 13.3 | 1.4 | | | | | | | 50.9 |
| Progression Factor | | 1.00 | 1.00 | 1.02 | 1.31 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 23.5 | 0.4 | 1.6 | 0.0 | | | | | | | 0.1 |
| Delay (s) | | 66.0 | 32.0 | 15.3 | 1.8 | | | | | | | 51.0 |
| Level of Service | | E | C | B | A | | | | | | | D |
| Approach Delay (s) | | 62.5 | | | 13.0 | | | 0.0 | | | 51.0 | |
| Approach LOS | | E | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 73.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

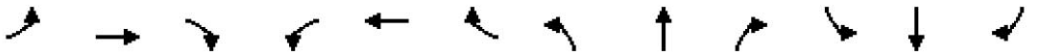
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 840 | 100 | 0 | 830 | 90 | 30 | 20 | 10 | 50 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | | 0.99 | | 1.00 | 0.95 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3552 | | | 3547 | | 1805 | 1805 | | 1805 | 1615 | |
| Flt Permitted | 0.30 | 1.00 | | | 1.00 | | 0.74 | 1.00 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | 569 | 3552 | | | 3547 | | 1414 | 1805 | | 1401 | 1615 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 20 | 848 | 101 | 0 | 838 | 91 | 30 | 20 | 10 | 51 | 0 | 20 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 4 | 0 | 0 | 9 | 0 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 20 | 944 | 0 | 0 | 925 | 0 | 30 | 21 | 0 | 51 | 2 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 102.0 | 102.0 | | | 102.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Effective Green, g (s) | 102.0 | 102.0 | | | 102.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Actuated g/C Ratio | 0.85 | 0.85 | | | 0.85 | | 0.08 | 0.08 | | 0.08 | 0.08 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 484 | 3019 | | | 3015 | | 118 | 150 | | 117 | 135 | |
| v/s Ratio Prot | | c0.27 | | | 0.26 | | | 0.01 | | | 0.00 | |
| v/s Ratio Perm | 0.04 | | | | | | 0.02 | | | c0.04 | | |
| v/c Ratio | 0.04 | 0.31 | | | 0.31 | | 0.25 | 0.14 | | 0.44 | 0.01 | |
| Uniform Delay, d1 | 1.4 | 1.8 | | | 1.8 | | 51.5 | 51.0 | | 52.3 | 50.5 | |
| Progression Factor | 0.00 | 0.56 | | | 0.11 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.0 | 0.1 | | | 0.2 | | 1.1 | 0.4 | | 2.6 | 0.0 | |
| Delay (s) | 0.0 | 1.1 | | | 0.4 | | 52.6 | 51.4 | | 54.9 | 50.5 | |
| Level of Service | A | A | | | A | | D | D | | D | D | |
| Approach Delay (s) | | 1.1 | | | 0.4 | | | 52.0 | | | 53.7 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 47.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1180 | 30 | 40 | 1070 | 90 | 430 | 120 | 180 | 130 | 50 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5187 | 1564 | 1715 | 1641 | | 1715 | 1765 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5187 | 1564 | 1715 | 1641 | | 1715 | 1765 | 1587 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 103 | 1216 | 31 | 41 | 1103 | 93 | 443 | 124 | 186 | 134 | 52 | 144 |
| RTOR Reduction (vph) | 0 | 0 | 11 | 0 | 0 | 49 | 0 | 32 | 0 | 0 | 0 | 130 |
| Lane Group Flow (vph) | 103 | 1216 | 20 | 41 | 1103 | 44 | 385 | 336 | 0 | 91 | 95 | 14 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 7.8 | 54.2 | 54.2 | 5.6 | 52.0 | 52.0 | 32.2 | 32.2 | | 12.0 | 12.0 | 12.0 |
| Effective Green, g (s) | 7.8 | 54.2 | 54.2 | 5.6 | 52.0 | 52.0 | 32.2 | 32.2 | | 12.0 | 12.0 | 12.0 |
| Actuated g/C Ratio | 0.06 | 0.45 | 0.45 | 0.05 | 0.43 | 0.43 | 0.27 | 0.27 | | 0.10 | 0.10 | 0.10 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 117 | 1631 | 716 | 84 | 2248 | 678 | 460 | 440 | | 172 | 177 | 159 |
| v/s Ratio Prot | c0.06 | c0.34 | | 0.02 | 0.21 | | c0.22 | 0.20 | | 0.05 | c0.05 | |
| v/s Ratio Perm | | | 0.01 | | | 0.03 | | | | | | 0.01 |
| v/c Ratio | 0.88 | 0.75 | 0.03 | 0.49 | 0.49 | 0.07 | 0.84 | 0.76 | | 0.53 | 0.54 | 0.09 |
| Uniform Delay, d1 | 55.6 | 27.2 | 18.3 | 55.8 | 24.5 | 19.8 | 41.4 | 40.4 | | 51.3 | 51.4 | 49.0 |
| Progression Factor | 0.59 | 0.63 | 0.83 | 0.57 | 0.42 | 0.48 | 1.00 | 1.00 | | 0.82 | 0.82 | 1.75 |
| Incremental Delay, d2 | 47.9 | 3.1 | 0.1 | 4.1 | 0.7 | 0.2 | 12.5 | 7.7 | | 2.8 | 3.0 | 0.2 |
| Delay (s) | 80.5 | 20.1 | 15.2 | 35.9 | 11.1 | 9.7 | 53.9 | 48.1 | | 44.9 | 44.9 | 85.8 |
| Level of Service | F | C | B | D | B | A | D | D | | D | D | F |
| Approach Delay (s) | | 24.6 | | | 11.8 | | | 51.1 | | | 62.8 | |
| Approach LOS | | C | | | B | | | D | | | E | |

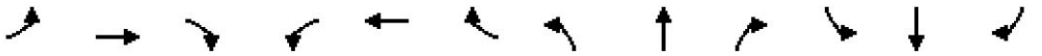
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 83.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 930 | 220 | 50 | 640 | 100 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.97 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3489 | | 1805 | 3610 | 1805 | 1600 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3489 | | 1805 | 3610 | 1805 | 1600 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1011 | 239 | 54 | 696 | 109 | 33 |
| RTOR Reduction (vph) | 17 | 0 | 0 | 0 | 0 | 17 |
| Lane Group Flow (vph) | 1233 | 0 | 54 | 696 | 109 | 16 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 28.2 | | 3.5 | 35.7 | 6.7 | 10.2 |
| Effective Green, g (s) | 28.2 | | 3.5 | 35.7 | 6.7 | 10.2 |
| Actuated g/C Ratio | 0.56 | | 0.07 | 0.71 | 0.13 | 0.20 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1952 | | 125 | 2557 | 240 | 451 |
| v/s Ratio Prot | c0.35 | | c0.03 | 0.19 | c0.06 | 0.00 |
| v/s Ratio Perm | | | | | | 0.01 |
| v/c Ratio | 0.63 | | 0.43 | 0.27 | 0.45 | 0.04 |
| Uniform Delay, d1 | 7.6 | | 22.5 | 2.7 | 20.2 | 16.1 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | | 2.4 | 0.1 | 1.4 | 0.0 |
| Delay (s) | 8.2 | | 24.9 | 2.7 | 21.5 | 16.2 |
| Level of Service | A | | C | A | C | B |
| Approach Delay (s) | 8.2 | | | 4.3 | 20.3 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 50.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 57.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

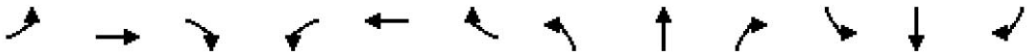
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 550 | 430 | 180 | 440 | 60 | 230 | 50 | 60 | 40 | 80 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 3502 | 3545 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 3502 | 3545 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 585 | 457 | 191 | 468 | 64 | 245 | 53 | 64 | 43 | 85 | 21 |
| RTOR Reduction (vph) | 0 | 0 | 324 | 0 | 9 | 0 | 0 | 0 | 47 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 21 | 585 | 133 | 191 | 523 | 0 | 245 | 53 | 17 | 43 | 85 | 2 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.9 | 17.6 | 17.6 | 8.6 | 24.3 | | 13.0 | 16.0 | 16.0 | 2.5 | 5.5 | 5.5 |
| Effective Green, g (s) | 1.9 | 17.6 | 17.6 | 8.6 | 24.3 | | 13.0 | 16.0 | 16.0 | 2.5 | 5.5 | 5.5 |
| Actuated g/C Ratio | 0.03 | 0.29 | 0.29 | 0.14 | 0.40 | | 0.21 | 0.26 | 0.26 | 0.04 | 0.09 | 0.09 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 56 | 1504 | 460 | 496 | 1419 | | 387 | 501 | 426 | 74 | 327 | 144 |
| v/s Ratio Prot | 0.01 | c0.11 | | 0.05 | c0.15 | | c0.14 | c0.03 | | c0.02 | 0.02 | |
| v/s Ratio Perm | | | 0.08 | | | | | | 0.01 | | | 0.00 |
| v/c Ratio | 0.38 | 0.39 | 0.29 | 0.39 | 0.37 | | 0.63 | 0.11 | 0.04 | 0.58 | 0.26 | 0.01 |
| Uniform Delay, d1 | 28.8 | 17.2 | 16.7 | 23.6 | 12.8 | | 21.7 | 16.9 | 16.6 | 28.6 | 25.7 | 25.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.2 | 0.2 | 0.3 | 0.5 | 0.2 | | 3.4 | 0.1 | 0.0 | 11.1 | 0.4 | 0.0 |
| Delay (s) | 33.0 | 17.4 | 17.0 | 24.1 | 13.0 | | 25.0 | 17.0 | 16.7 | 39.7 | 26.1 | 25.2 |
| Level of Service | C | B | B | C | B | | C | B | B | D | C | C |
| Approach Delay (s) | | 17.6 | | | 15.9 | | | 22.4 | | | 29.9 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 60.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 52.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 10 | 100 | 0 | 0 | 0 | 0 | 160 | 440 | 500 | 590 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1582 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1582 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 22 | 11 | 110 | 0 | 0 | 0 | 0 | 176 | 484 | 549 | 648 | 0 |
| RTOR Reduction (vph) | 0 | 47 | 54 | 0 | 0 | 0 | 0 | 0 | 218 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 22 | 15 | 5 | 0 | 0 | 0 | 0 | 176 | 266 | 549 | 648 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 4.2 | 4.2 | 4.2 | | | | | 21.9 | 21.9 | 11.9 | 37.8 | |
| Effective Green, g (s) | 4.2 | 4.2 | 4.2 | | | | | 21.9 | 21.9 | 11.9 | 37.8 | |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.08 | | | | | 0.44 | 0.44 | 0.24 | 0.76 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 152 | 133 | 129 | | | | | 1581 | 707 | 833 | 2729 | |
| v/s Ratio Prot | c0.01 | 0.01 | | | | | | 0.05 | | c0.16 | 0.18 | |
| v/s Ratio Perm | | | 0.00 | | | | | | c0.16 | | | |
| v/c Ratio | 0.14 | 0.11 | 0.04 | | | | | 0.11 | 0.38 | 0.66 | 0.24 | |
| Uniform Delay, d1 | 21.2 | 21.2 | 21.0 | | | | | 8.3 | 9.5 | 17.2 | 1.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 0.67 | |
| Incremental Delay, d2 | 0.4 | 0.4 | 0.1 | | | | | 0.1 | 1.5 | 1.8 | 0.2 | |
| Delay (s) | 21.7 | 21.6 | 21.2 | | | | | 8.4 | 11.0 | 19.0 | 1.4 | |
| Level of Service | C | C | C | | | | | A | B | B | A | |
| Approach Delay (s) | | 21.4 | | | 0.0 | | | 10.3 | | | 9.5 | |
| Approach LOS | | C | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 57.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 310 | 140 | 180 | 0 | 0 | 770 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 337 | 152 | 196 | 0 | 0 | 837 |
| RTOR Reduction (vph) | 0 | 121 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 337 | 31 | 196 | 0 | 0 | 837 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 10.2 | 10.2 | 31.8 | | | 31.8 |
| Effective Green, g (s) | 10.2 | 10.2 | 31.8 | | | 31.8 |
| Actuated g/C Ratio | 0.20 | 0.20 | 0.64 | | | 0.64 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 714 | 329 | 2296 | | | 2296 |
| v/s Ratio Prot | c0.10 | | 0.05 | | | c0.23 |
| v/s Ratio Perm | | 0.02 | | | | |
| v/c Ratio | 0.47 | 0.09 | 0.09 | | | 0.36 |
| Uniform Delay, d1 | 17.5 | 16.2 | 3.5 | | | 4.3 |
| Progression Factor | 1.00 | 1.00 | 0.14 | | | 1.00 |
| Incremental Delay, d2 | 0.5 | 0.1 | 0.1 | | | 0.4 |
| Delay (s) | 18.0 | 16.3 | 0.6 | | | 4.8 |
| Level of Service | B | B | A | | | A |
| Approach Delay (s) | 17.5 | | 0.6 | | | 4.8 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

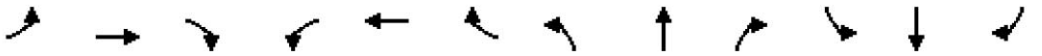
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1930 | 10 | 260 | 1140 | 640 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5183 | | 3502 | 5187 | 5095 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5183 | | 3502 | 5187 | 5095 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 1969 | 10 | 265 | 1163 | 653 | 10 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 1978 | 0 | 265 | 1163 | 661 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 33.0 | | 7.1 | 44.1 | 14.0 | |
| Effective Green, g (s) | 33.0 | | 7.1 | 44.1 | 14.0 | |
| Actuated g/C Ratio | 0.50 | | 0.11 | 0.67 | 0.21 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2588 | | 376 | 3461 | 1079 | |
| v/s Ratio Prot | c0.38 | | c0.08 | 0.22 | c0.13 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.76 | | 0.70 | 0.34 | 0.61 | |
| Uniform Delay, d1 | 13.4 | | 28.5 | 4.7 | 23.6 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.4 | | 5.9 | 0.1 | 1.0 | |
| Delay (s) | 14.8 | | 34.4 | 4.8 | 24.6 | |
| Level of Service | B | | C | A | C | |
| Approach Delay (s) | 14.8 | | | 10.3 | 24.6 | |
| Approach LOS | B | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 66.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

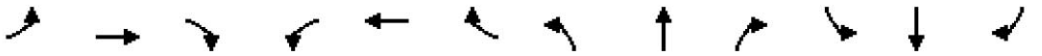
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 2050 | 110 | 390 | 1290 | 60 | 170 | 180 | 250 | 120 | 140 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1589 | 3502 | 5146 | | 3502 | 1900 | 1590 | 1805 | 3479 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1589 | 3502 | 5146 | | 3502 | 1900 | 1590 | 1805 | 3479 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 93 | 2113 | 113 | 402 | 1330 | 62 | 175 | 186 | 258 | 124 | 144 | 41 |
| RTOR Reduction (vph) | 0 | 0 | 62 | 0 | 4 | 0 | 0 | 0 | 180 | 0 | 33 | 0 |
| Lane Group Flow (vph) | 93 | 2113 | 51 | 402 | 1388 | 0 | 175 | 186 | 78 | 124 | 152 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 12.3 | 41.0 | 41.0 | 9.0 | 37.7 | | 15.5 | 14.5 | 14.5 | 10.3 | 9.3 | |
| Effective Green, g (s) | 12.3 | 41.0 | 41.0 | 9.0 | 37.7 | | 15.5 | 14.5 | 14.5 | 10.3 | 9.3 | |
| Actuated g/C Ratio | 0.14 | 0.45 | 0.45 | 0.10 | 0.42 | | 0.17 | 0.16 | 0.16 | 0.11 | 0.10 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 245 | 2342 | 718 | 347 | 2137 | | 598 | 303 | 254 | 205 | 356 | |
| v/s Ratio Prot | 0.05 | c0.41 | | c0.11 | 0.27 | | 0.05 | c0.10 | | c0.07 | 0.04 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.05 | | | |
| v/c Ratio | 0.38 | 0.90 | 0.07 | 1.16 | 0.65 | | 0.29 | 0.61 | 0.31 | 0.60 | 0.43 | |
| Uniform Delay, d1 | 35.8 | 23.0 | 14.1 | 40.9 | 21.3 | | 32.9 | 35.5 | 33.7 | 38.3 | 38.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.0 | 5.3 | 0.0 | 98.7 | 0.7 | | 0.3 | 3.7 | 0.7 | 5.0 | 0.8 | |
| Delay (s) | 36.8 | 28.4 | 14.2 | 139.6 | 22.0 | | 33.1 | 39.2 | 34.4 | 43.3 | 39.1 | |
| Level of Service | D | C | B | F | C | | C | D | C | D | D | |
| Approach Delay (s) | | 28.0 | | | 48.3 | | | 35.5 | | | 40.8 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 90.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 84.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

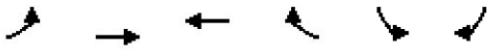
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 1150 | 430 | 180 | 550 | 130 | 170 | 360 | 50 | 270 | 920 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1593 | 3502 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1595 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1593 | 3502 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1595 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 168 | 1211 | 453 | 189 | 579 | 137 | 179 | 379 | 53 | 284 | 968 | 189 |
| RTOR Reduction (vph) | 0 | 0 | 18 | 0 | 0 | 78 | 0 | 0 | 6 | 0 | 0 | 46 |
| Lane Group Flow (vph) | 168 | 1211 | 435 | 189 | 579 | 59 | 179 | 379 | 47 | 284 | 968 | 143 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.0 | 37.4 | 44.4 | 7.0 | 34.4 | 43.4 | 7.0 | 31.9 | 38.9 | 9.0 | 33.9 | 43.9 |
| Effective Green, g (s) | 10.0 | 37.4 | 44.4 | 7.0 | 34.4 | 43.4 | 7.0 | 31.9 | 38.9 | 9.0 | 33.9 | 43.9 |
| Actuated g/C Ratio | 0.10 | 0.37 | 0.44 | 0.07 | 0.34 | 0.43 | 0.07 | 0.31 | 0.38 | 0.09 | 0.33 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 178 | 1333 | 761 | 242 | 1226 | 746 | 242 | 1137 | 675 | 311 | 1208 | 754 |
| v/s Ratio Prot | c0.09 | c0.34 | 0.04 | 0.05 | 0.16 | 0.01 | 0.05 | 0.10 | 0.00 | c0.08 | c0.27 | 0.02 |
| v/s Ratio Perm | | | 0.23 | | | 0.03 | | | 0.02 | | | 0.07 |
| v/c Ratio | 0.94 | 0.91 | 0.57 | 0.78 | 0.47 | 0.08 | 0.74 | 0.33 | 0.07 | 0.91 | 0.80 | 0.19 |
| Uniform Delay, d1 | 45.4 | 30.3 | 21.3 | 46.4 | 26.3 | 17.1 | 46.3 | 26.6 | 19.8 | 45.8 | 30.6 | 17.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 50.9 | 9.2 | 1.0 | 15.0 | 0.3 | 0.0 | 11.2 | 0.2 | 0.0 | 29.6 | 3.9 | 0.1 |
| Delay (s) | 96.3 | 39.5 | 22.4 | 61.4 | 26.6 | 17.2 | 57.5 | 26.7 | 19.8 | 75.4 | 34.6 | 17.8 |
| Level of Service | F | D | C | E | C | B | E | C | B | E | C | B |
| Approach Delay (s) | | 40.5 | | | 32.4 | | | 35.1 | | | 40.4 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 101.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 83.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

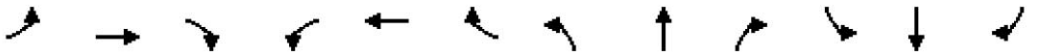
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 110 | 1330 | 630 | 280 | 560 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 0.99 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1603 | 3494 | 1454 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1603 | 3494 | 1454 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 121 | 1462 | 692 | 308 | 615 | 242 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 59 | 4 | 37 |
| Lane Group Flow (vph) | 121 | 1462 | 692 | 249 | 635 | 181 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.4 | 31.3 | 19.9 | 38.8 | 18.9 | 26.3 |
| Effective Green, g (s) | 7.4 | 31.3 | 19.9 | 38.8 | 18.9 | 26.3 |
| Actuated g/C Ratio | 0.13 | 0.54 | 0.34 | 0.67 | 0.32 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 230 | 1941 | 1234 | 1179 | 1135 | 757 |
| v/s Ratio Prot | 0.07 | c0.40 | 0.19 | 0.07 | c0.18 | 0.03 |
| v/s Ratio Perm | | | | 0.09 | | 0.09 |
| v/c Ratio | 0.53 | 0.75 | 0.56 | 0.21 | 0.56 | 0.24 |
| Uniform Delay, d1 | 23.8 | 10.4 | 15.6 | 3.8 | 16.2 | 9.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.2 | 1.7 | 0.6 | 0.1 | 0.6 | 0.2 |
| Delay (s) | 25.9 | 12.2 | 16.2 | 3.9 | 16.8 | 10.0 |
| Level of Service | C | B | B | A | B | A |
| Approach Delay (s) | | 13.2 | 12.4 | | 15.1 | |
| Approach LOS | | B | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 58.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

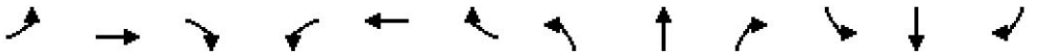
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 1300 | 680 | 240 | 330 | 40 | 300 | 140 | 250 | 200 | 360 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1596 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1602 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1596 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1602 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 124 | 1461 | 764 | 270 | 371 | 45 | 337 | 157 | 281 | 225 | 404 | 191 |
| RTOR Reduction (vph) | 0 | 0 | 161 | 0 | 0 | 27 | 0 | 0 | 225 | 0 | 0 | 131 |
| Lane Group Flow (vph) | 124 | 1461 | 603 | 270 | 371 | 18 | 337 | 157 | 56 | 225 | 404 | 60 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.1 | 33.1 | 42.6 | 12.9 | 33.9 | 33.9 | 9.5 | 17.2 | 17.2 | 7.4 | 15.1 | 27.2 |
| Effective Green, g (s) | 12.1 | 33.1 | 42.6 | 12.9 | 33.9 | 33.9 | 9.5 | 17.2 | 17.2 | 7.4 | 15.1 | 27.2 |
| Actuated g/C Ratio | 0.14 | 0.38 | 0.49 | 0.15 | 0.39 | 0.39 | 0.11 | 0.20 | 0.20 | 0.09 | 0.17 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 252 | 1983 | 859 | 522 | 1413 | 622 | 384 | 717 | 316 | 299 | 629 | 577 |
| v/s Ratio Prot | 0.07 | c0.28 | c0.08 | c0.08 | 0.10 | | 0.10 | 0.04 | | 0.06 | c0.11 | 0.01 |
| v/s Ratio Perm | | | 0.30 | | | 0.01 | | | 0.04 | | | 0.02 |
| v/c Ratio | 0.49 | 0.74 | 0.70 | 0.52 | 0.26 | 0.03 | 0.88 | 0.22 | 0.18 | 0.75 | 0.64 | 0.10 |
| Uniform Delay, d1 | 34.4 | 23.0 | 17.1 | 34.0 | 17.9 | 16.2 | 38.0 | 29.1 | 28.8 | 38.7 | 33.2 | 21.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.5 | 1.5 | 2.6 | 0.9 | 0.1 | 0.0 | 19.6 | 0.2 | 0.3 | 10.2 | 2.2 | 0.1 |
| Delay (s) | 35.9 | 24.5 | 19.7 | 34.8 | 18.0 | 16.2 | 57.6 | 29.2 | 29.1 | 48.9 | 35.5 | 21.1 |
| Level of Service | D | C | B | C | B | B | E | C | C | D | D | C |
| Approach Delay (s) | | 23.5 | | | 24.5 | | | 41.5 | | | 35.8 | |
| Approach LOS | | C | | | C | | | D | | | D | |

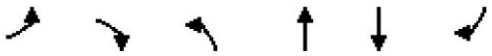
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 86.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 410 | 1330 | 10 | 380 | 0 | 0 | 0 | 0 | 10 | 0 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.91 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3137 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.19 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3137 | 1470 | 352 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 451 | 1462 | 11 | 418 | 0 | 0 | 0 | 0 | 11 | 0 | 286 |
| RTOR Reduction (vph) | 0 | 307 | 307 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 228 | 0 |
| Lane Group Flow (vph) | 0 | 875 | 424 | 11 | 418 | 0 | 0 | 0 | 0 | 11 | 58 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 21.6 | 21.6 | 21.6 | 21.6 | | | | | 7.6 | 7.6 | |
| Effective Green, g (s) | | 21.6 | 21.6 | 21.6 | 21.6 | | | | | 7.6 | 7.6 | |
| Actuated g/C Ratio | | 0.58 | 0.58 | 0.58 | 0.58 | | | | | 0.20 | 0.20 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1821 | 854 | 204 | 2096 | | | | | 369 | 330 | |
| v/s Ratio Prot | | 0.28 | | | 0.12 | | | | | | c0.04 | |
| v/s Ratio Perm | | | c0.29 | 0.03 | | | | | | 0.01 | | |
| v/c Ratio | | 0.48 | 0.50 | 0.05 | 0.20 | | | | | 0.03 | 0.18 | |
| Uniform Delay, d1 | | 4.5 | 4.6 | 3.4 | 3.7 | | | | | 11.8 | 12.2 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.2 | 0.5 | 0.1 | 0.0 | | | | | 0.0 | 0.3 | |
| Delay (s) | | 4.7 | 5.1 | 3.5 | 3.7 | | | | | 11.9 | 12.5 | |
| Level of Service | | A | A | A | A | | | | | B | B | |
| Approach Delay (s) | | 4.9 | | | 3.7 | | | 0.0 | | | 12.5 | |
| Approach LOS | | A | | | A | | | A | | | B | |

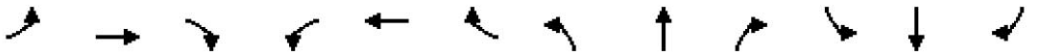
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 37.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 80.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 410 | 0 | 380 | 0 | 0 | 0 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 477 | 0 | 442 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 238 | 238 | 295 | 147 |
| Volume Left (vph) | 238 | 238 | 295 | 147 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 6.3 | 6.3 | 6.4 | 6.4 |
| Degree Utilization, x | 0.42 | 0.42 | 0.52 | 0.26 |
| Capacity (veh/h) | 549 | 552 | 540 | 543 |
| Control Delay (s) | 12.6 | 12.6 | 14.9 | 10.4 |
| Approach Delay (s) | 12.6 | | 13.4 | |
| Approach LOS | B | | B | |

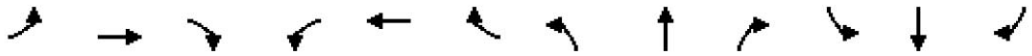
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 13.0 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 91.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 20 | 10 | 520 | 30 | 200 | 70 | 330 | 660 | 580 | 960 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1796 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1591 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1796 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1591 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 22 | 22 | 11 | 578 | 33 | 222 | 78 | 367 | 733 | 644 | 1067 | 11 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 174 | 0 | 0 | 506 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 22 | 23 | 0 | 578 | 33 | 48 | 78 | 367 | 227 | 644 | 1067 | 8 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 2.4 | 4.7 | | 12.5 | 14.8 | 14.8 | 5.4 | 21.0 | 21.0 | 13.6 | 29.2 | 29.2 |
| Effective Green, g (s) | 2.4 | 4.7 | | 12.5 | 14.8 | 14.8 | 5.4 | 21.0 | 21.0 | 13.6 | 29.2 | 29.2 |
| Actuated g/C Ratio | 0.04 | 0.07 | | 0.18 | 0.22 | 0.22 | 0.08 | 0.31 | 0.31 | 0.20 | 0.43 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 64 | 125 | | 646 | 415 | 353 | 144 | 1118 | 493 | 702 | 1555 | 696 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.17 | 0.02 | | 0.04 | 0.10 | | c0.18 | c0.30 | |
| v/s Ratio Perm | | | | | | c0.03 | | | 0.14 | | | 0.01 |
| v/c Ratio | 0.34 | 0.18 | | 0.89 | 0.08 | 0.14 | 0.54 | 0.33 | 0.46 | 0.92 | 0.69 | 0.01 |
| Uniform Delay, d1 | 31.9 | 29.7 | | 27.0 | 21.1 | 21.4 | 30.0 | 18.0 | 18.8 | 26.5 | 15.6 | 11.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.2 | 0.7 | | 14.9 | 0.1 | 0.2 | 4.1 | 0.2 | 0.7 | 16.8 | 1.3 | 0.0 |
| Delay (s) | 35.1 | 30.4 | | 41.9 | 21.2 | 21.5 | 34.1 | 18.2 | 19.5 | 43.3 | 16.9 | 11.1 |
| Level of Service | D | C | | D | C | C | C | B | B | D | B | B |
| Approach Delay (s) | | 32.3 | | | 35.6 | | | 20.1 | | | 26.7 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 67.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

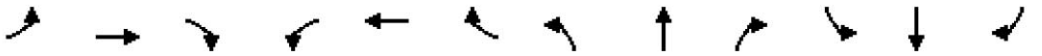
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 920 | 60 | 40 | 540 | 50 | 30 | 40 | 30 | 70 | 50 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.96 | | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3577 | | 1805 | 3560 | | | 1788 | | 1802 | 1677 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.72 | | 0.77 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3577 | | 1805 | 3560 | | | 1310 | | 1466 | 1677 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 191 | 1034 | 67 | 45 | 607 | 56 | 34 | 45 | 34 | 79 | 56 | 202 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 24 | 0 | 0 | 164 | 0 |
| Lane Group Flow (vph) | 191 | 1097 | 0 | 45 | 655 | 0 | 0 | 89 | 0 | 79 | 94 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.4 | 26.6 | | 2.2 | 20.4 | | | 9.4 | | 9.4 | 9.4 | |
| Effective Green, g (s) | 8.4 | 26.6 | | 2.2 | 20.4 | | | 9.4 | | 9.4 | 9.4 | |
| Actuated g/C Ratio | 0.17 | 0.53 | | 0.04 | 0.41 | | | 0.19 | | 0.19 | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 302 | 1895 | | 79 | 1447 | | | 245 | | 275 | 314 | |
| v/s Ratio Prot | c0.11 | c0.31 | | 0.02 | 0.18 | | | | | | 0.06 | |
| v/s Ratio Perm | | | | | | | | c0.07 | | 0.05 | | |
| v/c Ratio | 0.63 | 0.58 | | 0.57 | 0.45 | | | 0.36 | | 0.29 | 0.30 | |
| Uniform Delay, d1 | 19.5 | 8.0 | | 23.5 | 10.8 | | | 17.8 | | 17.5 | 17.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.3 | 0.4 | | 9.1 | 0.2 | | | 0.9 | | 0.6 | 0.5 | |
| Delay (s) | 23.7 | 8.4 | | 32.6 | 11.1 | | | 18.7 | | 18.1 | 18.1 | |
| Level of Service | C | A | | C | B | | | B | | B | B | |
| Approach Delay (s) | | 10.7 | | | 12.4 | | | 18.7 | | | 18.1 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 50.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 820 | 230 | 130 | 560 | 110 | 120 | 280 | 120 | 310 | 650 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3479 | | 1805 | 3610 | 1595 | 1805 | 3610 | 1595 | 3502 | 3537 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3479 | | 1805 | 3610 | 1595 | 1805 | 3610 | 1595 | 3502 | 3537 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 882 | 247 | 140 | 602 | 118 | 129 | 301 | 129 | 333 | 699 | 97 |
| RTOR Reduction (vph) | 0 | 24 | 0 | 0 | 0 | 56 | 0 | 0 | 20 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 43 | 1105 | 0 | 140 | 602 | 62 | 129 | 301 | 109 | 333 | 785 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.9 | 36.0 | | 8.1 | 40.2 | 50.3 | 8.1 | 25.3 | 33.4 | 10.1 | 27.3 | |
| Effective Green, g (s) | 3.9 | 36.0 | | 8.1 | 40.2 | 50.3 | 8.1 | 25.3 | 33.4 | 10.1 | 27.3 | |
| Actuated g/C Ratio | 0.04 | 0.38 | | 0.08 | 0.42 | 0.53 | 0.08 | 0.26 | 0.35 | 0.11 | 0.29 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 74 | 1311 | | 153 | 1520 | 907 | 153 | 956 | 625 | 370 | 1011 | |
| v/s Ratio Prot | 0.02 | c0.32 | | c0.08 | 0.17 | 0.01 | 0.07 | 0.08 | 0.01 | c0.10 | c0.22 | |
| v/s Ratio Perm | | | | | | 0.03 | | | 0.05 | | | |
| v/c Ratio | 0.58 | 0.84 | | 0.92 | 0.40 | 0.07 | 0.84 | 0.31 | 0.17 | 0.90 | 0.78 | |
| Uniform Delay, d1 | 45.0 | 27.2 | | 43.4 | 19.2 | 11.1 | 43.1 | 28.1 | 21.5 | 42.2 | 31.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 11.1 | 5.1 | | 48.1 | 0.2 | 0.0 | 32.3 | 0.2 | 0.1 | 24.0 | 3.8 | |
| Delay (s) | 56.1 | 32.3 | | 91.4 | 19.4 | 11.1 | 75.4 | 28.3 | 21.6 | 66.2 | 35.1 | |
| Level of Service | E | C | | F | B | B | E | C | C | E | D | |
| Approach Delay (s) | | 33.2 | | | 30.0 | | | 37.6 | | | 44.3 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 95.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

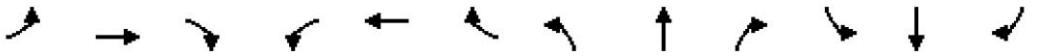
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 30 | 40 | 930 | 80 | 60 | 1360 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1802 | 1593 | 3610 | 1577 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1802 | 1593 | 3610 | 1577 | 1805 | 3610 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 32 | 43 | 989 | 85 | 64 | 1447 |
| RTOR Reduction (vph) | 0 | 40 | 0 | 25 | 0 | 0 |
| Lane Group Flow (vph) | 32 | 3 | 989 | 60 | 64 | 1447 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 3.3 | 3.3 | 22.3 | 22.3 | 3.2 | 29.5 |
| Effective Green, g (s) | 3.3 | 3.3 | 22.3 | 22.3 | 3.2 | 29.5 |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.55 | 0.55 | 0.08 | 0.72 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 146 | 129 | 1973 | 862 | 142 | 2610 |
| v/s Ratio Prot | | | 0.27 | | 0.04 | c0.40 |
| v/s Ratio Perm | c0.02 | 0.00 | | 0.04 | | |
| v/c Ratio | 0.22 | 0.03 | 0.50 | 0.07 | 0.45 | 0.55 |
| Uniform Delay, d1 | 17.5 | 17.3 | 5.8 | 4.4 | 18.0 | 2.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | 0.1 | 0.2 | 0.0 | 2.3 | 0.3 |
| Delay (s) | 18.3 | 17.4 | 6.0 | 4.4 | 20.2 | 2.9 |
| Level of Service | B | B | A | A | C | A |
| Approach Delay (s) | 17.8 | | 5.9 | | | 3.6 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 40.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

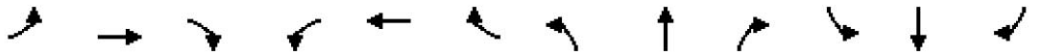
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1080 | 200 | 480 | 680 | 230 | 0 | 0 | 0 | 670 | 90 | 380 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1578 | 1805 | 3610 | 1574 | | | | 1715 | 1738 | 1594 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1578 | 1805 | 3610 | 1574 | | | | 1715 | 1738 | 1594 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 51 | 1102 | 204 | 490 | 694 | 235 | 0 | 0 | 0 | 684 | 92 | 388 |
| RTOR Reduction (vph) | 0 | 0 | 127 | 0 | 0 | 115 | 0 | 0 | 0 | 0 | 0 | 94 |
| Lane Group Flow (vph) | 51 | 1102 | 77 | 490 | 694 | 120 | 0 | 0 | 0 | 383 | 393 | 294 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 8.0 | 26.6 | 26.6 | 30.0 | 48.6 | 48.6 | | | | 26.4 | 26.4 | 34.4 |
| Effective Green, g (s) | 8.0 | 26.6 | 26.6 | 30.0 | 48.6 | 48.6 | | | | 26.4 | 26.4 | 34.4 |
| Actuated g/C Ratio | 0.08 | 0.28 | 0.28 | 0.32 | 0.51 | 0.51 | | | | 0.28 | 0.28 | 0.36 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 152 | 1452 | 442 | 570 | 1847 | 805 | | | | 477 | 483 | 644 |
| v/s Ratio Prot | 0.03 | c0.21 | | c0.27 | 0.19 | | | | | 0.22 | c0.23 | 0.04 |
| v/s Ratio Perm | | | 0.05 | | | 0.08 | | | | | | 0.15 |
| v/c Ratio | 0.34 | 0.76 | 0.17 | 0.86 | 0.38 | 0.15 | | | | 0.80 | 0.81 | 0.46 |
| Uniform Delay, d1 | 41.0 | 31.3 | 25.9 | 30.5 | 14.0 | 12.3 | | | | 31.9 | 32.0 | 23.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.3 | 3.8 | 0.9 | 12.3 | 0.6 | 0.4 | | | | 9.4 | 10.1 | 0.5 |
| Delay (s) | 42.3 | 35.0 | 26.7 | 42.8 | 14.6 | 12.7 | | | | 41.3 | 42.1 | 23.7 |
| Level of Service | D | D | C | D | B | B | | | | D | D | C |
| Approach Delay (s) | | 34.1 | | | 24.0 | | | 0.0 | | | 35.7 | |
| Approach LOS | | C | | | C | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 95.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

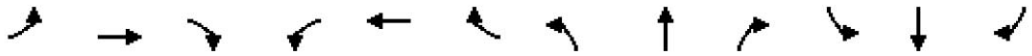
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 350 | 1040 | 230 | 160 | 1170 | 240 | 180 | 320 | 480 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1597 | 1805 | 6536 | 1589 | 1643 | 3449 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1597 | 1805 | 6536 | 1589 | 1643 | 3449 | 2842 | | | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 372 | 1106 | 245 | 170 | 1245 | 255 | 191 | 340 | 511 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 71 | 0 | 0 | 106 | 0 | 0 | 416 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 372 | 1106 | 174 | 170 | 1245 | 149 | 172 | 359 | 95 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 23.0 | 45.2 | 62.0 | 16.0 | 38.2 | 38.2 | 16.8 | 16.8 | 16.8 | | | |
| Effective Green, g (s) | 23.0 | 45.2 | 62.0 | 16.0 | 38.2 | 38.2 | 16.8 | 16.8 | 16.8 | | | |
| Actuated g/C Ratio | 0.26 | 0.50 | 0.69 | 0.18 | 0.42 | 0.42 | 0.19 | 0.19 | 0.19 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 461 | 1813 | 1171 | 321 | 2774 | 674 | 307 | 644 | 531 | | | |
| v/s Ratio Prot | c0.21 | c0.31 | 0.03 | c0.09 | 0.19 | | c0.10 | 0.10 | | | | |
| v/s Ratio Perm | | | 0.08 | | | 0.09 | | | 0.03 | | | |
| v/c Ratio | 0.81 | 0.61 | 0.15 | 0.53 | 0.45 | 0.22 | 0.56 | 0.56 | 0.18 | | | |
| Uniform Delay, d1 | 31.4 | 16.1 | 4.9 | 33.6 | 18.4 | 16.4 | 33.2 | 33.2 | 30.8 | | | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.75 | 0.67 | 0.41 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 10.0 | 1.5 | 0.1 | 1.5 | 0.5 | 0.7 | 2.3 | 1.1 | 0.2 | | | |
| Delay (s) | 41.4 | 17.6 | 4.9 | 26.8 | 12.8 | 7.4 | 35.6 | 34.3 | 31.0 | | | |
| Level of Service | D | B | A | C | B | A | D | C | C | | | |
| Approach Delay (s) | | 20.9 | | | 13.4 | | | 32.9 | | | 0.0 | |
| Approach LOS | | C | | | B | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

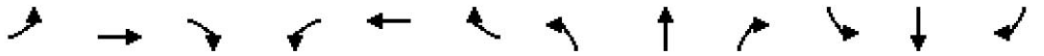
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 1490 | 160 | 90 | 1300 | 10 | 140 | 0 | 60 | 10 | 0 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5097 | | 1805 | 5180 | | 1805 | 1590 | | | 1726 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.74 | 1.00 | | | 0.89 | |
| Satd. Flow (perm) | 1805 | 5097 | | 1805 | 5180 | | 1414 | 1590 | | | 1576 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 10 | 1536 | 165 | 93 | 1340 | 10 | 144 | 0 | 62 | 10 | 0 | 10 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 52 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 10 | 1693 | 0 | 93 | 1350 | 0 | 144 | 10 | 0 | 0 | 12 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 1.4 | 55.3 | | 8.0 | 61.9 | | 14.7 | 14.7 | | | 14.7 | |
| Effective Green, g (s) | 1.4 | 55.3 | | 8.0 | 61.9 | | 14.7 | 14.7 | | | 14.7 | |
| Actuated g/C Ratio | 0.02 | 0.61 | | 0.09 | 0.69 | | 0.16 | 0.16 | | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 28 | 3132 | | 160 | 3563 | | 231 | 260 | | | 257 | |
| v/s Ratio Prot | 0.01 | c0.33 | | c0.05 | 0.26 | | | 0.01 | | | | |
| v/s Ratio Perm | | | | | | | c0.10 | | | | 0.01 | |
| v/c Ratio | 0.36 | 0.54 | | 0.58 | 0.38 | | 0.62 | 0.04 | | | 0.05 | |
| Uniform Delay, d1 | 43.9 | 10.0 | | 39.4 | 5.9 | | 35.1 | 31.7 | | | 31.7 | |
| Progression Factor | 1.15 | 0.79 | | 1.06 | 1.37 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 6.5 | 0.6 | | 5.0 | 0.3 | | 5.2 | 0.1 | | | 0.1 | |
| Delay (s) | 56.7 | 8.5 | | 46.7 | 8.4 | | 40.2 | 31.8 | | | 31.8 | |
| Level of Service | E | A | | D | A | | D | C | | | C | |
| Approach Delay (s) | | 8.8 | | | 10.9 | | | 37.7 | | | 31.8 | |
| Approach LOS | | A | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

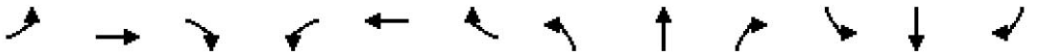
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1250 | 100 | 30 | 1060 | 10 | 130 | 20 | 50 | 10 | 20 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1802 | 3562 | | 1803 | 3604 | | | 1766 | | | 1866 | 1589 |
| Flt Permitted | 0.22 | 1.00 | | 0.14 | 1.00 | | | 0.78 | | | 0.91 | 1.00 |
| Satd. Flow (perm) | 409 | 3562 | | 272 | 3604 | | | 1430 | | | 1736 | 1589 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 53 | 1330 | 106 | 32 | 1128 | 11 | 138 | 21 | 53 | 11 | 21 | 74 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 17 | 0 | 0 | 0 | 54 |
| Lane Group Flow (vph) | 53 | 1432 | 0 | 32 | 1138 | 0 | 0 | 195 | 0 | 0 | 32 | 20 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 64.5 | 64.5 | | 64.5 | 64.5 | | | 17.5 | | | 17.5 | 17.5 |
| Effective Green, g (s) | 64.5 | 64.5 | | 64.5 | 64.5 | | | 17.5 | | | 17.5 | 17.5 |
| Actuated g/C Ratio | 0.72 | 0.72 | | 0.72 | 0.72 | | | 0.19 | | | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 293 | 2553 | | 195 | 2583 | | | 278 | | | 338 | 309 |
| v/s Ratio Prot | | c0.40 | | | 0.32 | | | | | | | |
| v/s Ratio Perm | 0.13 | | | 0.12 | | | | c0.14 | | | 0.02 | 0.01 |
| v/c Ratio | 0.18 | 0.56 | | 0.16 | 0.44 | | | 0.70 | | | 0.09 | 0.06 |
| Uniform Delay, d1 | 4.2 | 6.0 | | 4.1 | 5.3 | | | 33.8 | | | 29.7 | 29.6 |
| Progression Factor | 0.04 | 0.32 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.2 | 0.8 | | 1.8 | 0.5 | | | 7.8 | | | 0.1 | 0.1 |
| Delay (s) | 1.4 | 2.7 | | 5.9 | 5.8 | | | 41.6 | | | 29.9 | 29.7 |
| Level of Service | A | A | | A | A | | | D | | | C | C |
| Approach Delay (s) | | 2.7 | | | 5.8 | | | 41.6 | | | 29.7 | |
| Approach LOS | | A | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 67.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

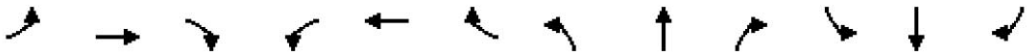
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1220 | 30 | 290 | 1020 | 40 | 30 | 130 | 430 | 50 | 240 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3595 | | 1805 | 3586 | | 1805 | 1900 | 1602 | 1805 | 1900 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3595 | | 1805 | 3586 | | 1805 | 1900 | 1602 | 1805 | 1900 | 1588 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 1298 | 32 | 309 | 1085 | 43 | 32 | 138 | 457 | 53 | 255 | 85 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 36 | 0 | 0 | 69 |
| Lane Group Flow (vph) | 85 | 1329 | 0 | 309 | 1126 | 0 | 32 | 138 | 421 | 53 | 255 | 16 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.8 | 43.4 | | 20.1 | 55.7 | | 3.9 | 18.4 | 38.5 | 5.4 | 19.9 | 19.9 |
| Effective Green, g (s) | 7.8 | 43.4 | | 20.1 | 55.7 | | 3.9 | 18.4 | 38.5 | 5.4 | 19.9 | 19.9 |
| Actuated g/C Ratio | 0.08 | 0.42 | | 0.19 | 0.54 | | 0.04 | 0.18 | 0.37 | 0.05 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 136 | 1510 | | 351 | 1934 | | 68 | 338 | 597 | 94 | 366 | 306 |
| v/s Ratio Prot | 0.05 | c0.37 | | c0.17 | 0.31 | | 0.02 | 0.07 | c0.14 | 0.03 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | 0.01 |
| v/c Ratio | 0.62 | 0.88 | | 0.88 | 0.58 | | 0.47 | 0.41 | 0.71 | 0.56 | 0.70 | 0.05 |
| Uniform Delay, d1 | 46.3 | 27.6 | | 40.4 | 16.0 | | 48.7 | 37.6 | 27.6 | 47.8 | 38.9 | 34.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.6 | 6.3 | | 21.7 | 0.5 | | 5.1 | 0.8 | 3.8 | 7.5 | 5.7 | 0.1 |
| Delay (s) | 55.0 | 33.9 | | 62.2 | 16.4 | | 53.8 | 38.4 | 31.4 | 55.3 | 44.6 | 34.1 |
| Level of Service | D | C | | E | B | | D | D | C | E | D | C |
| Approach Delay (s) | | 35.1 | | | 26.3 | | | 34.1 | | | 43.8 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 103.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

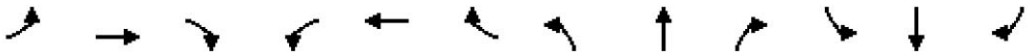
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 570 | 1030 | 470 | 690 | 320 | 650 | 790 | 170 | 390 | 1480 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2814 | 3502 | 3610 | 1597 | 3502 | 3610 | 1595 | 3502 | 5170 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2814 | 3502 | 3610 | 1597 | 3502 | 3610 | 1595 | 3502 | 5170 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 620 | 1120 | 511 | 750 | 348 | 707 | 859 | 185 | 424 | 1609 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 1 | 0 | 0 | 53 | 0 | 0 | 34 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 43 | 620 | 1119 | 511 | 750 | 295 | 707 | 859 | 151 | 424 | 1640 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 4.4 | 24.8 | 39.8 | 12.0 | 32.4 | 48.3 | 15.0 | 34.2 | 46.2 | 15.9 | 35.1 | |
| Effective Green, g (s) | 4.4 | 24.8 | 39.8 | 12.0 | 32.4 | 48.3 | 15.0 | 34.2 | 46.2 | 15.9 | 35.1 | |
| Actuated g/C Ratio | 0.04 | 0.24 | 0.39 | 0.12 | 0.31 | 0.47 | 0.15 | 0.33 | 0.45 | 0.15 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 77 | 870 | 1088 | 408 | 1137 | 750 | 510 | 1200 | 778 | 541 | 1764 | |
| v/s Ratio Prot | 0.02 | 0.17 | c0.15 | c0.15 | 0.21 | 0.06 | c0.20 | 0.24 | 0.02 | 0.12 | c0.32 | |
| v/s Ratio Perm | | | 0.25 | | | 0.12 | | | 0.07 | | | |
| v/c Ratio | 0.56 | 0.71 | 1.03 | 1.25 | 0.66 | 0.39 | 1.39 | 0.72 | 0.19 | 0.78 | 0.93 | |
| Uniform Delay, d1 | 48.3 | 35.8 | 31.6 | 45.5 | 30.5 | 17.8 | 44.0 | 30.1 | 17.1 | 41.8 | 32.7 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.5 | 2.8 | 34.9 | 132.4 | 1.4 | 0.3 | 185.7 | 2.1 | 0.1 | 7.3 | 9.1 | |
| Delay (s) | 56.8 | 38.6 | 66.5 | 177.8 | 31.9 | 18.1 | 229.6 | 32.2 | 17.2 | 49.2 | 41.8 | |
| Level of Service | E | D | E | F | C | B | F | C | B | D | D | |
| Approach Delay (s) | | 56.5 | | | 75.3 | | | 110.3 | | | 43.3 | |
| Approach LOS | | E | | | E | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 70.0 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 102.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 92.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

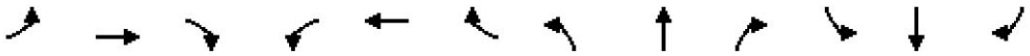
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 10 | 10 | 20 | 10 | 40 | 20 | 1400 | 10 | 50 | 2730 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.97 | | | 0.92 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1787 | | | 1711 | | 1805 | 5181 | | 1805 | 5174 | |
| Flt Permitted | | 0.77 | | | 0.92 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1417 | | | 1598 | | 1805 | 5181 | | 1805 | 5174 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 34 | 11 | 11 | 23 | 11 | 46 | 23 | 1609 | 11 | 57 | 3138 | 46 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 46 | 0 | 0 | 38 | 0 | 23 | 1620 | 0 | 57 | 3183 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 6.7 | | | 6.7 | | 2.5 | 60.5 | | 4.9 | 62.9 | |
| Effective Green, g (s) | | 6.7 | | | 6.7 | | 2.5 | 60.5 | | 4.9 | 62.9 | |
| Actuated g/C Ratio | | 0.08 | | | 0.08 | | 0.03 | 0.72 | | 0.06 | 0.75 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 113 | | | 127 | | 54 | 3727 | | 105 | 3870 | |
| v/s Ratio Prot | | | | | | | 0.01 | 0.31 | | c0.03 | c0.62 | |
| v/s Ratio Perm | | c0.03 | | | 0.02 | | | | | | | |
| v/c Ratio | | 0.41 | | | 0.30 | | 0.43 | 0.43 | | 0.54 | 0.82 | |
| Uniform Delay, d1 | | 36.8 | | | 36.5 | | 40.1 | 4.8 | | 38.5 | 6.9 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 2.4 | | | 1.3 | | 5.3 | 0.1 | | 5.6 | 1.5 | |
| Delay (s) | | 39.2 | | | 37.8 | | 45.4 | 4.9 | | 44.1 | 8.5 | |
| Level of Service | | D | | | D | | D | A | | D | A | |
| Approach Delay (s) | | 39.2 | | | 37.8 | | | 5.5 | | | 9.1 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 84.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 70.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

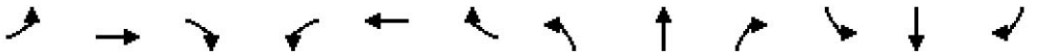
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 30 | 50 | 20 | 30 | 40 | 50 | 1460 | 20 | 100 | 2550 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 1900 | 1615 | 1805 | 1900 | 1588 | 1805 | 5174 | | 1805 | 5155 | |
| Flt Permitted | 0.54 | 1.00 | 1.00 | 0.74 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1025 | 1900 | 1615 | 1398 | 1900 | 1588 | 1805 | 5174 | | 1805 | 5155 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 65 | 33 | 54 | 22 | 33 | 43 | 54 | 1587 | 22 | 109 | 2772 | 98 |
| RTOR Reduction (vph) | 0 | 0 | 48 | 0 | 0 | 40 | 0 | 1 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 65 | 33 | 6 | 22 | 33 | 3 | 54 | 1608 | 0 | 109 | 2868 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 15.0 | 9.8 | 9.8 | 9.8 | 7.2 | 7.2 | 5.2 | 45.4 | | 17.6 | 57.8 | |
| Effective Green, g (s) | 15.0 | 9.8 | 9.8 | 9.8 | 7.2 | 7.2 | 5.2 | 45.4 | | 17.6 | 57.8 | |
| Actuated g/C Ratio | 0.16 | 0.11 | 0.11 | 0.11 | 0.08 | 0.08 | 0.06 | 0.50 | | 0.19 | 0.63 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 212 | 204 | 173 | 161 | 150 | 125 | 103 | 2570 | | 348 | 3260 | |
| v/s Ratio Prot | c0.02 | 0.02 | | 0.00 | 0.02 | | 0.03 | c0.31 | | 0.06 | c0.56 | |
| v/s Ratio Perm | c0.03 | | 0.00 | 0.01 | | 0.00 | | | | | | |
| v/c Ratio | 0.31 | 0.16 | 0.03 | 0.14 | 0.22 | 0.03 | 0.52 | 0.63 | | 0.31 | 0.88 | |
| Uniform Delay, d1 | 33.2 | 37.1 | 36.6 | 36.9 | 39.5 | 38.9 | 41.9 | 16.8 | | 31.7 | 13.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 0.4 | 0.1 | 0.4 | 0.7 | 0.1 | 4.7 | 0.5 | | 0.5 | 3.0 | |
| Delay (s) | 34.0 | 37.4 | 36.6 | 37.3 | 40.2 | 39.0 | 46.6 | 17.3 | | 32.2 | 16.9 | |
| Level of Service | C | D | D | D | D | D | D | B | | C | B | |
| Approach Delay (s) | | 35.7 | | | 39.0 | | | 18.2 | | | 17.5 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 91.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

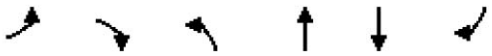
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 0 | 10 | 590 | 10 | 30 | 10 | 1430 | 280 | 80 | 2640 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3023 | | 5090 | 1666 | | 1805 | 5187 | 1595 | 1805 | 5181 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3023 | | 5090 | 1666 | | 1805 | 5187 | 1595 | 1805 | 5181 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 10 | 0 | 10 | 615 | 10 | 31 | 10 | 1490 | 292 | 83 | 2750 | 21 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 27 | 0 | 0 | 0 | 92 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 10 | 0 | 0 | 615 | 14 | 0 | 10 | 1490 | 200 | 83 | 2771 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 1.2 | 1.1 | | 9.1 | 9.0 | | 1.1 | 40.2 | 49.3 | 5.6 | 44.7 | |
| Effective Green, g (s) | 1.2 | 1.1 | | 9.1 | 9.0 | | 1.1 | 40.2 | 49.3 | 5.6 | 44.7 | |
| Actuated g/C Ratio | 0.02 | 0.02 | | 0.13 | 0.12 | | 0.02 | 0.56 | 0.68 | 0.08 | 0.62 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 30 | 46 | | 643 | 208 | | 28 | 2896 | 1181 | 140 | 3217 | |
| v/s Ratio Prot | c0.01 | 0.00 | | c0.12 | 0.01 | | 0.01 | c0.29 | 0.02 | 0.05 | c0.53 | |
| v/s Ratio Perm | | | | | | | | | 0.10 | | | |
| v/c Ratio | 0.33 | 0.00 | | 0.96 | 0.07 | | 0.36 | 0.51 | 0.17 | 0.59 | 0.86 | |
| Uniform Delay, d1 | 35.0 | 34.9 | | 31.3 | 27.8 | | 35.1 | 9.9 | 4.0 | 32.1 | 11.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 6.5 | 0.0 | | 24.9 | 0.1 | | 7.7 | 0.2 | 0.1 | 6.6 | 2.6 | |
| Delay (s) | 41.5 | 34.9 | | 56.2 | 27.9 | | 42.8 | 10.0 | 4.1 | 38.7 | 13.7 | |
| Level of Service | D | C | | E | C | | D | B | A | D | B | |
| Approach Delay (s) | | 38.2 | | | 54.4 | | | 9.2 | | | 14.4 | |
| Approach LOS | | D | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 72.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

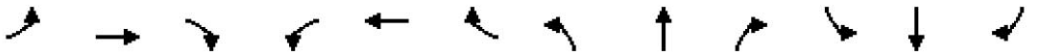
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 120 | 210 | 40 | 480 | 600 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 1567 | 1805 | 1900 | 1900 | 1577 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 1567 | 1805 | 1900 | 1900 | 1577 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 128 | 223 | 43 | 511 | 638 | 117 |
| RTOR Reduction (vph) | 0 | 195 | 0 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 128 | 28 | 43 | 511 | 638 | 105 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Turn Type | | custom | Prot | | | Perm |
| Protected Phases | | | 5 | 2 | 6 | |
| Permitted Phases | 4 | 4 | | | | 6 |
| Actuated Green, G (s) | 13.6 | 13.6 | 6.0 | 88.4 | 78.4 | 78.4 |
| Effective Green, g (s) | 13.6 | 13.6 | 6.0 | 88.4 | 78.4 | 78.4 |
| Actuated g/C Ratio | 0.12 | 0.12 | 0.05 | 0.80 | 0.71 | 0.71 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 221 | 194 | 98 | 1527 | 1354 | 1124 |
| v/s Ratio Prot | | | 0.02 | c0.27 | c0.34 | |
| v/s Ratio Perm | c0.07 | 0.02 | | | | 0.07 |
| v/c Ratio | 0.58 | 0.14 | 0.44 | 0.33 | 0.47 | 0.09 |
| Uniform Delay, d1 | 45.5 | 43.0 | 50.4 | 2.9 | 6.8 | 4.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.7 | 0.3 | 3.1 | 0.6 | 1.2 | 0.2 |
| Delay (s) | 49.2 | 43.3 | 53.5 | 3.5 | 8.0 | 5.0 |
| Level of Service | D | D | D | A | A | A |
| Approach Delay (s) | 45.5 | | | 7.4 | 7.6 | |
| Approach LOS | D | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

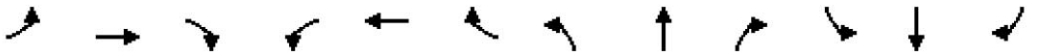
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 1290 | 110 | 60 | 1050 | 0 | 170 | 0 | 100 | 0 | 0 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | 4.9 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | | | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | 1.00 |
| Satd. Flow (prot) | 1805 | 5117 | | 1805 | 5187 | | 1805 | 3017 | | | | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | 1.00 |
| Satd. Flow (perm) | 1805 | 5117 | | 1805 | 5187 | | 1805 | 3017 | | | | 1588 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 11 | 1402 | 120 | 65 | 1141 | 0 | 185 | 0 | 109 | 0 | 0 | 11 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 11 | 1517 | 0 | 65 | 1141 | 0 | 185 | 19 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | | | | 4 |
| Actuated Green, G (s) | 1.5 | 67.2 | | 8.7 | 74.4 | | 14.1 | 19.5 | | | | 1.1 |
| Effective Green, g (s) | 1.5 | 67.2 | | 8.7 | 74.4 | | 14.1 | 19.5 | | | | 1.1 |
| Actuated g/C Ratio | 0.01 | 0.61 | | 0.08 | 0.68 | | 0.13 | 0.18 | | | | 0.01 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | 4.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | 3.0 |
| Lane Grp Cap (vph) | 25 | 3126 | | 143 | 3508 | | 231 | 535 | | | | 16 |
| v/s Ratio Prot | 0.01 | c0.30 | | c0.04 | 0.22 | | c0.10 | c0.01 | | | | |
| v/s Ratio Perm | | | | | | | | | | | | 0.00 |
| v/c Ratio | 0.44 | 0.49 | | 0.45 | 0.33 | | 0.80 | 0.04 | | | | 0.01 |
| Uniform Delay, d1 | 53.8 | 11.8 | | 48.4 | 7.4 | | 46.6 | 37.5 | | | | 53.9 |
| Progression Factor | 1.23 | 0.36 | | 0.78 | 0.75 | | 1.00 | 1.00 | | | | 1.00 |
| Incremental Delay, d2 | 11.2 | 0.5 | | 2.1 | 0.2 | | 17.8 | 0.0 | | | | 0.2 |
| Delay (s) | 77.4 | 4.7 | | 39.7 | 5.8 | | 64.4 | 37.5 | | | | 54.1 |
| Level of Service | E | A | | D | A | | E | D | | | | D |
| Approach Delay (s) | | 5.3 | | | 7.6 | | | 54.4 | | | 54.1 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 60.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

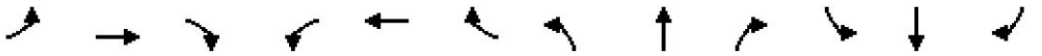
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 990 | 210 | 70 | 730 | 80 | 240 | 280 | 80 | 240 | 410 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1586 | 3502 | 5101 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1586 | 3502 | 5101 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 222 | 1100 | 233 | 78 | 811 | 89 | 267 | 311 | 89 | 267 | 456 | 156 |
| RTOR Reduction (vph) | 0 | 0 | 125 | 0 | 10 | 0 | 0 | 0 | 72 | 0 | 0 | 127 |
| Lane Group Flow (vph) | 222 | 1100 | 108 | 78 | 890 | 0 | 267 | 311 | 17 | 267 | 456 | 29 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 12.2 | 50.9 | 50.9 | 6.7 | 45.4 | | 12.7 | 20.4 | 20.4 | 12.7 | 20.4 | 20.4 |
| Effective Green, g (s) | 12.2 | 50.9 | 50.9 | 6.7 | 45.4 | | 12.7 | 20.4 | 20.4 | 12.7 | 20.4 | 20.4 |
| Actuated g/C Ratio | 0.11 | 0.46 | 0.46 | 0.06 | 0.41 | | 0.12 | 0.19 | 0.19 | 0.12 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 388 | 2400 | 734 | 213 | 2105 | | 404 | 669 | 294 | 404 | 669 | 295 |
| v/s Ratio Prot | c0.06 | c0.21 | | 0.02 | 0.17 | | c0.08 | 0.09 | | 0.08 | c0.13 | |
| v/s Ratio Perm | | | 0.07 | | | | | | 0.01 | | | 0.02 |
| v/c Ratio | 0.57 | 0.46 | 0.15 | 0.37 | 0.42 | | 0.66 | 0.46 | 0.06 | 0.66 | 0.68 | 0.10 |
| Uniform Delay, d1 | 46.4 | 20.1 | 17.0 | 49.6 | 23.0 | | 46.6 | 39.9 | 36.9 | 46.6 | 41.8 | 37.2 |
| Progression Factor | 1.50 | 0.44 | 0.25 | 0.72 | 1.70 | | 0.84 | 1.20 | 3.01 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.9 | 0.6 | 0.4 | 1.0 | 0.6 | | 4.0 | 0.5 | 0.1 | 4.0 | 2.9 | 0.1 |
| Delay (s) | 71.5 | 9.4 | 4.7 | 36.7 | 39.7 | | 43.0 | 48.6 | 111.2 | 50.6 | 44.6 | 37.3 |
| Level of Service | E | A | A | D | D | | D | D | F | D | D | D |
| Approach Delay (s) | | 17.6 | | | 39.4 | | | 54.7 | | | 45.2 | |
| Approach LOS | | B | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 13.3 |
| Intersection Capacity Utilization | 64.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

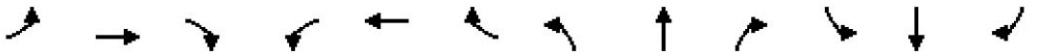
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 300 | 740 | 310 | 20 | 450 | 150 | 170 | 350 | 20 | 190 | 380 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3577 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3577 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 309 | 763 | 320 | 21 | 464 | 155 | 175 | 361 | 21 | 196 | 392 | 247 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 110 | 0 | 3 | 0 | 0 | 0 | 170 |
| Lane Group Flow (vph) | 309 | 763 | 320 | 21 | 464 | 45 | 175 | 379 | 0 | 196 | 392 | 77 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 13.8 | 43.6 | 110.0 | 2.4 | 32.2 | 32.2 | 9.5 | 33.7 | | 10.3 | 34.5 | 34.5 |
| Effective Green, g (s) | 13.8 | 43.6 | 110.0 | 2.4 | 32.2 | 32.2 | 9.5 | 33.7 | | 10.3 | 34.5 | 34.5 |
| Actuated g/C Ratio | 0.13 | 0.40 | 1.00 | 0.02 | 0.29 | 0.29 | 0.09 | 0.31 | | 0.09 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 439 | 2056 | 1593 | 39 | 1057 | 464 | 302 | 1096 | | 328 | 1132 | 498 |
| v/s Ratio Prot | c0.09 | 0.15 | | 0.01 | c0.13 | | 0.05 | 0.11 | | c0.06 | c0.11 | |
| v/s Ratio Perm | | | c0.20 | | | 0.03 | | | | | | 0.05 |
| v/c Ratio | 0.70 | 0.37 | 0.20 | 0.54 | 0.44 | 0.10 | 0.58 | 0.35 | | 0.60 | 0.35 | 0.16 |
| Uniform Delay, d1 | 46.1 | 23.5 | 0.0 | 53.3 | 31.6 | 28.3 | 48.3 | 29.6 | | 47.9 | 29.1 | 27.2 |
| Progression Factor | 0.89 | 0.76 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.6 | 0.5 | 0.3 | 13.5 | 1.3 | 0.4 | 2.7 | 0.9 | | 2.9 | 0.8 | 0.7 |
| Delay (s) | 45.8 | 18.2 | 0.3 | 66.8 | 32.9 | 28.7 | 51.0 | 30.5 | | 50.8 | 29.9 | 27.9 |
| Level of Service | D | B | A | E | C | C | D | C | | D | C | C |
| Approach Delay (s) | | 20.2 | | | 33.0 | | | 36.9 | | | 34.2 | |
| Approach LOS | | C | | | C | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

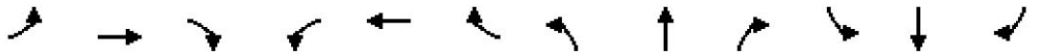
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 10 | 30 | 30 | 10 | 20 | 20 | 630 | 10 | 20 | 740 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.96 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3086 | | 1805 | 1900 | 1581 | 1805 | 3600 | | 1805 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3086 | | 1805 | 1900 | 1581 | 1805 | 3600 | | 1805 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 32 | 11 | 32 | 32 | 11 | 21 | 21 | 663 | 11 | 21 | 779 | 21 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 0 | 20 | 0 | 1 | 0 | 0 | 0 | 6 |
| Lane Group Flow (vph) | 32 | 12 | 0 | 32 | 11 | 1 | 21 | 673 | 0 | 21 | 779 | 15 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.1 | 4.2 | | 4.9 | 4.1 | 4.1 | 3.2 | 80.2 | | 3.2 | 80.2 | 80.2 |
| Effective Green, g (s) | 5.1 | 4.2 | | 4.9 | 4.1 | 4.1 | 3.2 | 80.2 | | 3.2 | 80.2 | 80.2 |
| Actuated g/C Ratio | 0.05 | 0.04 | | 0.04 | 0.04 | 0.04 | 0.03 | 0.73 | | 0.03 | 0.73 | 0.73 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 84 | 118 | | 80 | 71 | 59 | 53 | 2625 | | 53 | 2632 | 1161 |
| v/s Ratio Prot | c0.02 | 0.00 | | 0.02 | c0.01 | | c0.01 | 0.19 | | 0.01 | c0.22 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.01 |
| v/c Ratio | 0.38 | 0.10 | | 0.40 | 0.15 | 0.01 | 0.40 | 0.26 | | 0.40 | 0.30 | 0.01 |
| Uniform Delay, d1 | 50.9 | 51.1 | | 51.1 | 51.3 | 51.0 | 52.5 | 5.0 | | 52.5 | 5.1 | 4.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.42 | 0.39 | | 0.88 | 0.64 | 0.50 |
| Incremental Delay, d2 | 2.9 | 0.4 | | 3.3 | 1.0 | 0.1 | 4.7 | 0.2 | | 4.6 | 0.3 | 0.0 |
| Delay (s) | 53.8 | 51.5 | | 54.4 | 52.3 | 51.1 | 79.2 | 2.2 | | 51.0 | 3.6 | 2.1 |
| Level of Service | D | D | | D | D | D | E | A | | D | A | A |
| Approach Delay (s) | | 52.5 | | | 52.9 | | | 4.5 | | | 4.8 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.30 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 37.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

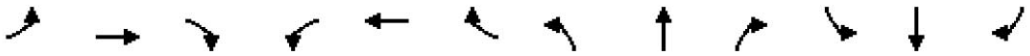
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 20 | 40 | 50 | 20 | 50 | 80 | 340 | 80 | 80 | 470 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3486 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3486 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 55 | 22 | 44 | 55 | 22 | 55 | 88 | 374 | 88 | 88 | 516 | 88 |
| RTOR Reduction (vph) | 0 | 0 | 41 | 0 | 0 | 52 | 0 | 10 | 0 | 0 | 0 | 31 |
| Lane Group Flow (vph) | 55 | 22 | 3 | 55 | 22 | 3 | 88 | 452 | 0 | 88 | 516 | 57 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 7.4 | 7.7 | 7.7 | 5.6 | 5.9 | 5.9 | 9.4 | 71.3 | | 9.4 | 71.3 | 71.3 |
| Effective Green, g (s) | 7.4 | 7.7 | 7.7 | 5.6 | 5.9 | 5.9 | 9.4 | 71.3 | | 9.4 | 71.3 | 71.3 |
| Actuated g/C Ratio | 0.07 | 0.07 | 0.07 | 0.05 | 0.05 | 0.05 | 0.09 | 0.65 | | 0.09 | 0.65 | 0.65 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 121 | 133 | 111 | 92 | 102 | 85 | 154 | 2260 | | 154 | 2340 | 1028 |
| v/s Ratio Prot | 0.03 | c0.01 | | c0.03 | 0.01 | | c0.05 | 0.13 | | 0.05 | c0.14 | |
| v/s Ratio Perm | | | 0.00 | | | 0.00 | | | | | | 0.04 |
| v/c Ratio | 0.45 | 0.17 | 0.03 | 0.60 | 0.22 | 0.03 | 0.57 | 0.20 | | 0.57 | 0.22 | 0.06 |
| Uniform Delay, d1 | 49.4 | 48.1 | 47.7 | 51.1 | 49.8 | 49.4 | 48.4 | 7.8 | | 48.4 | 7.9 | 7.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.13 | 0.66 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.7 | 0.6 | 0.1 | 10.0 | 1.1 | 0.2 | 4.7 | 0.2 | | 5.0 | 0.2 | 0.1 |
| Delay (s) | 52.1 | 48.7 | 47.8 | 61.1 | 50.9 | 49.5 | 59.4 | 5.4 | | 53.4 | 8.2 | 7.2 |
| Level of Service | D | D | D | E | D | D | E | A | | D | A | A |
| Approach Delay (s) | | 49.9 | | | 54.6 | | | 14.0 | | | 13.8 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.26 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 49.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

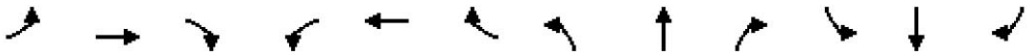


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 130 | 40 | 160 | 60 | 110 | 20 | 460 | 140 | 160 | 580 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1791 | 1825 | | 1796 | 1900 | 1583 | 1805 | 3459 | | 1805 | 3588 | |
| Flt Permitted | 0.72 | 1.00 | | 0.52 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1350 | 1825 | | 975 | 1900 | 1583 | 1805 | 3459 | | 1805 | 3588 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 53 | 137 | 42 | 168 | 63 | 116 | 21 | 484 | 147 | 168 | 611 | 21 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 93 | 0 | 19 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 53 | 168 | 0 | 168 | 63 | 23 | 21 | 612 | 0 | 168 | 630 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 22.1 | 22.1 | | 22.1 | 22.1 | 22.1 | 2.9 | 57.9 | | 15.4 | 70.4 | |
| Effective Green, g (s) | 22.1 | 22.1 | | 22.1 | 22.1 | 22.1 | 2.9 | 57.9 | | 15.4 | 70.4 | |
| Actuated g/C Ratio | 0.20 | 0.20 | | 0.20 | 0.20 | 0.20 | 0.03 | 0.53 | | 0.14 | 0.64 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 271 | 367 | | 196 | 382 | 318 | 48 | 1821 | | 253 | 2296 | |
| v/s Ratio Prot | | 0.09 | | | 0.03 | | 0.01 | c0.18 | | c0.09 | 0.18 | |
| v/s Ratio Perm | 0.04 | | | c0.17 | | 0.01 | | | | | | |
| v/c Ratio | 0.20 | 0.46 | | 0.86 | 0.16 | 0.07 | 0.44 | 0.34 | | 0.66 | 0.27 | |
| Uniform Delay, d1 | 36.6 | 38.7 | | 42.4 | 36.3 | 35.6 | 52.7 | 15.0 | | 44.8 | 8.6 | |
| Progression Factor | 1.00 | 1.00 | | 0.94 | 0.93 | 1.15 | 1.46 | 0.39 | | 1.09 | 2.16 | |
| Incremental Delay, d2 | 0.4 | 0.9 | | 28.4 | 0.2 | 0.1 | 6.1 | 0.5 | | 6.3 | 0.3 | |
| Delay (s) | 36.9 | 39.6 | | 68.1 | 34.1 | 41.3 | 83.2 | 6.3 | | 55.0 | 19.0 | |
| Level of Service | D | D | | E | C | D | F | A | | E | B | |
| Approach Delay (s) | | 39.0 | | | 53.0 | | | 8.7 | | | 26.6 | |
| Approach LOS | | D | | | D | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 65.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

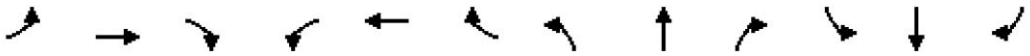
# HCM Signalized Intersection Capacity Analysis
## 107: Rider St & Evans Rd



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 240 | 70 | 10 | 180 | 30 | 50 | 190 | 30 | 60 | 230 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3472 | | 1805 | 3523 | | 1805 | 3528 | | 1805 | 3293 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3472 | | 1805 | 3523 | | 1805 | 3528 | | 1805 | 3293 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 274 | 253 | 74 | 11 | 189 | 32 | 53 | 200 | 32 | 63 | 242 | 274 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 15 | 0 | 0 | 9 | 0 | 0 | 144 | 0 |
| Lane Group Flow (vph) | 274 | 296 | 0 | 11 | 206 | 0 | 53 | 223 | 0 | 63 | 372 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 20.7 | 34.5 | | 1.2 | 15.0 | | 7.6 | 50.3 | | 8.0 | 50.7 | |
| Effective Green, g (s) | 20.7 | 34.5 | | 1.2 | 15.0 | | 7.6 | 50.3 | | 8.0 | 50.7 | |
| Actuated g/C Ratio | 0.19 | 0.31 | | 0.01 | 0.14 | | 0.07 | 0.46 | | 0.07 | 0.46 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 340 | 1089 | | 20 | 480 | | 125 | 1613 | | 131 | 1518 | |
| v/s Ratio Prot | c0.15 | 0.09 | | 0.01 | c0.06 | | 0.03 | 0.06 | | c0.03 | c0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.81 | 0.27 | | 0.55 | 0.43 | | 0.42 | 0.14 | | 0.48 | 0.25 | |
| Uniform Delay, d1 | 42.7 | 28.3 | | 54.1 | 43.6 | | 49.1 | 17.3 | | 49.0 | 18.0 | |
| Progression Factor | 0.85 | 0.82 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.52 | 0.38 | |
| Incremental Delay, d2 | 12.7 | 0.1 | | 28.9 | 0.6 | | 2.3 | 0.2 | | 2.7 | 0.4 | |
| Delay (s) | 49.1 | 23.4 | | 83.0 | 44.2 | | 51.4 | 17.5 | | 77.4 | 7.2 | |
| Level of Service | D | C | | F | D | | D | B | | E | A | |
| Approach Delay (s) | | 35.1 | | | 46.0 | | | 23.8 | | | 14.8 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

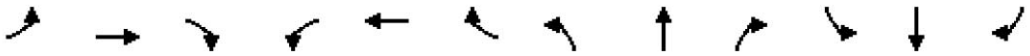
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 40 | 10 | 50 | 20 | 60 | 10 | 580 | 40 | 100 | 680 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1828 | | 1805 | 1900 | 1586 | 1805 | 3571 | | 1805 | 3591 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1828 | | 1805 | 1900 | 1586 | 1805 | 3571 | | 1805 | 3591 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 32 | 42 | 11 | 53 | 21 | 63 | 11 | 611 | 42 | 105 | 716 | 21 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 57 | 0 | 3 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 32 | 43 | 0 | 53 | 21 | 6 | 11 | 650 | 0 | 105 | 736 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 4.2 | 7.7 | | 6.8 | 10.3 | 10.3 | 1.5 | 65.6 | | 11.7 | 75.8 | |
| Effective Green, g (s) | 4.2 | 7.7 | | 6.8 | 10.3 | 10.3 | 1.5 | 65.6 | | 11.7 | 75.8 | |
| Actuated g/C Ratio | 0.04 | 0.07 | | 0.06 | 0.09 | 0.09 | 0.01 | 0.60 | | 0.11 | 0.69 | |
| Clearance Time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 69 | 128 | | 112 | 178 | 149 | 25 | 2130 | | 192 | 2475 | |
| v/s Ratio Prot | 0.02 | c0.02 | | c0.03 | c0.01 | | 0.01 | 0.18 | | c0.06 | c0.20 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | |
| v/c Ratio | 0.46 | 0.33 | | 0.47 | 0.12 | 0.04 | 0.44 | 0.31 | | 0.55 | 0.30 | |
| Uniform Delay, d1 | 51.8 | 48.7 | | 49.9 | 45.7 | 45.4 | 53.8 | 11.0 | | 46.6 | 6.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.22 | 0.30 | | 1.15 | 1.12 | |
| Incremental Delay, d2 | 4.9 | 1.5 | | 3.1 | 0.3 | 0.1 | 10.9 | 0.3 | | 3.0 | 0.3 | |
| Delay (s) | 56.7 | 50.3 | | 53.0 | 46.0 | 45.5 | 76.7 | 3.6 | | 56.6 | 7.8 | |
| Level of Service | E | D | | D | D | D | E | A | | E | A | |
| Approach Delay (s) | | 52.7 | | | 48.5 | | | 4.8 | | | 13.9 | |
| Approach LOS | | D | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 48.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

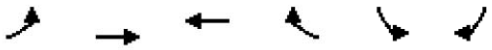
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 90 | 110 | 50 | 20 | 80 | 30 | 40 | 160 | 30 | 20 | 150 | 80 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 92 | 112 | 51 | 20 | 82 | 31 | 41 | 163 | 31 | 20 | 153 | 82 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 255 | 133 | 41 | 194 | 20 | 235 |
| Volume Left (vph) | 92 | 20 | 41 | 0 | 20 | 0 |
| Volume Right (vph) | 51 | 31 | 0 | 31 | 0 | 82 |
| Hadj (s) | -0.05 | -0.11 | 0.50 | -0.11 | 0.50 | -0.24 |
| Departure Headway (s) | 5.4 | 5.6 | 6.5 | 5.9 | 6.5 | 5.7 |
| Degree Utilization, x | 0.38 | 0.21 | 0.07 | 0.32 | 0.04 | 0.37 |
| Capacity (veh/h) | 617 | 579 | 518 | 573 | 519 | 591 |
| Control Delay (s) | 11.7 | 10.0 | 8.8 | 10.4 | 8.5 | 10.9 |
| Approach Delay (s) | 11.7 | 10.0 | 10.1 | | 10.7 | |
| Approach LOS | B | B | B | | B | |

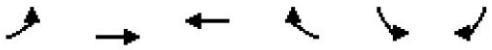
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 10.7 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 46.6% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 200 | 480 | 360 | 50 | 60 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1900 | 1569 | 1805 | 1564 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1900 | 1569 | 1805 | 1564 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 217 | 522 | 391 | 54 | 65 | 185 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 28 | 0 | 141 |
| Lane Group Flow (vph) | 217 | 522 | 391 | 26 | 65 | 44 |
| Confl. Peds. (#/hr) | 5 | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | Perm |
| Protected Phases | 7 | 4 | 8 | | 6 | |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 18.5 | 76.0 | 53.5 | 53.5 | 26.0 | 26.0 |
| Effective Green, g (s) | 18.5 | 76.0 | 53.5 | 53.5 | 26.0 | 26.0 |
| Actuated g/C Ratio | 0.17 | 0.69 | 0.49 | 0.49 | 0.24 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 304 | 1313 | 924 | 763 | 427 | 370 |
| v/s Ratio Prot | c0.12 | 0.27 | c0.21 | | c0.04 | |
| v/s Ratio Perm | | | | 0.02 | | 0.03 |
| v/c Ratio | 0.71 | 0.40 | 0.42 | 0.03 | 0.15 | 0.12 |
| Uniform Delay, d1 | 43.2 | 7.2 | 18.3 | 14.8 | 33.3 | 33.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.7 | 0.9 | 1.4 | 0.1 | 0.8 | 0.7 |
| Delay (s) | 51.0 | 8.1 | 19.7 | 14.8 | 34.0 | 33.6 |
| Level of Service | D | A | B | B | C | C |
| Approach Delay (s) | | 20.7 | 19.1 | | 33.7 | |
| Approach LOS | | C | B | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

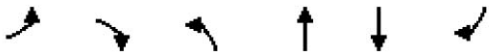
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 20 | 730 | 480 | 40 | 60 | 50 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 21 | 753 | 495 | 41 | 62 | 52 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | 2 |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 536 | | | | 1309 | 515 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 536 | | | | 1309 | 515 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 98 | | | | 64 | 91 |
| cM capacity (veh/h) | 1042 | | | | 174 | 563 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 21 | 753 | 536 | 113 |
| Volume Left | 21 | 0 | 0 | 62 |
| Volume Right | 0 | 0 | 41 | 52 |
| cSH | 1042 | 1700 | 1700 | 319 |
| Volume to Capacity | 0.02 | 0.44 | 0.32 | 0.36 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 39 |
| Control Delay (s) | 8.5 | 0.0 | 0.0 | 25.5 |
| Lane LOS | A | | | D |
| Approach Delay (s) | 0.2 | | 0.0 | 25.5 |
| Approach LOS | | | | D |

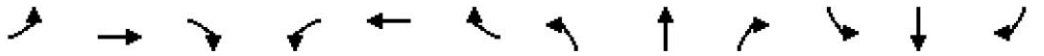
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 48.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 40 | 30 | 10 | 380 | 690 | 70 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 42 | 31 | 10 | 396 | 719 | 73 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1177 | 760 | 792 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1177 | 760 | 792 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 80 | 92 | 99 | | | |
| cM capacity (veh/h) | 210 | 407 | 838 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 73 | 10 | 396 | 792 |
| Volume Left | 42 | 10 | 0 | 0 |
| Volume Right | 31 | 0 | 0 | 73 |
| cSH | 265 | 838 | 1700 | 1700 |
| Volume to Capacity | 0.28 | 0.01 | 0.23 | 0.47 |
| Queue Length 95th (ft) | 27 | 1 | 0 | 0 |
| Control Delay (s) | 23.7 | 9.4 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 23.7 | 0.2 | | 0.0 |
| Approach LOS | C | | | |

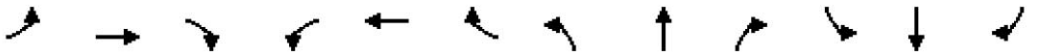
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 51.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 20 | 590 | 0 | 0 | 210 | 190 | 160 | 10 | 10 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 21 | 608 | 0 | 0 | 216 | 196 | 165 | 10 | 10 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 417 | | | 613 | | | 876 | 1072 | 618 | 886 | 876 | 226 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 417 | | | 613 | | | 876 | 1072 | 618 | 886 | 876 | 226 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 100 | | | 38 | 95 | 98 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1153 | | | 972 | | | 265 | 217 | 489 | 247 | 283 | 814 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 21 | 608 | 216 | 196 | 186 |
| Volume Left | 21 | 0 | 0 | 0 | 165 |
| Volume Right | 0 | 0 | 0 | 196 | 10 |
| cSH | 1153 | 1700 | 1700 | 1700 | 277 |
| Volume to Capacity | 0.02 | 0.36 | 0.13 | 0.12 | 0.67 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 110 |
| Control Delay (s) | 8.2 | 0.0 | 0.0 | 0.0 | 41.0 |
| Lane LOS | A | | | | E |
| Approach Delay (s) | 0.3 | | 0.0 | | 41.0 |
| Approach LOS | | | | | E |

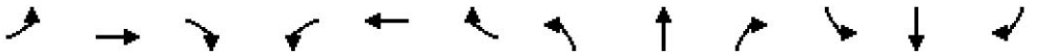
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.3 | | |
| Intersection Capacity Utilization | 47.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 400 | 330 | 10 | 380 | 0 | 0 | 0 | 0 | 220 | 10 | 10 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 417 | 344 | 10 | 396 | 0 | 0 | 0 | 0 | 229 | 10 | 10 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 401 | | | 765 | | | 854 | 843 | 427 | 843 | 1187 | 406 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 401 | | | 765 | | | 854 | 843 | 427 | 843 | 1187 | 406 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 99 | | | 100 | 100 | 100 | 18 | 94 | 98 |
| cM capacity (veh/h) | 1164 | | | 857 | | | 260 | 298 | 630 | 280 | 187 | 644 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 417 | 344 | 10 | 396 | 250 |
| Volume Left | 0 | 0 | 10 | 0 | 229 |
| Volume Right | 0 | 344 | 0 | 0 | 10 |
| cSH | 1700 | 1700 | 857 | 1700 | 288 |
| Volume to Capacity | 0.25 | 0.20 | 0.01 | 0.23 | 0.87 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 190 |
| Control Delay (s) | 0.0 | 0.0 | 9.3 | 0.0 | 63.6 |
| Lane LOS | | | A | | F |
| Approach Delay (s) | 0.0 | | 0.2 | | 63.6 |
| Approach LOS | | | | | F |

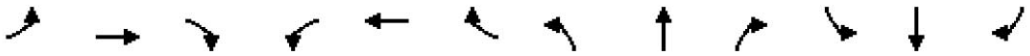
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 11.3 | | | |
| Intersection Capacity Utilization | 47.1% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 360 | 120 | 30 | 260 | 250 | 70 | 470 | 50 | 440 | 860 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1600 | 3502 | 3610 | 1604 | 3502 | 3610 | 1598 | 3502 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1600 | 3502 | 3610 | 1604 | 3502 | 3610 | 1598 | 3502 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 196 | 371 | 124 | 31 | 268 | 258 | 72 | 485 | 52 | 454 | 887 | 330 |
| RTOR Reduction (vph) | 0 | 0 | 81 | 0 | 0 | 108 | 0 | 0 | 35 | 0 | 0 | 164 |
| Lane Group Flow (vph) | 196 | 371 | 43 | 31 | 268 | 150 | 72 | 485 | 17 | 454 | 887 | 166 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.1 | 15.1 | 22.2 | 5.4 | 13.4 | 27.6 | 7.1 | 16.6 | 22.0 | 14.2 | 23.7 | 30.8 |
| Effective Green, g (s) | 7.1 | 15.1 | 22.2 | 5.4 | 13.4 | 27.6 | 7.1 | 16.6 | 22.0 | 14.2 | 23.7 | 30.8 |
| Actuated g/C Ratio | 0.11 | 0.22 | 0.33 | 0.08 | 0.20 | 0.41 | 0.11 | 0.25 | 0.33 | 0.21 | 0.35 | 0.46 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 369 | 810 | 623 | 281 | 719 | 753 | 369 | 890 | 617 | 739 | 1271 | 826 |
| v/s Ratio Prot | c0.06 | c0.10 | 0.01 | 0.01 | 0.07 | 0.04 | 0.02 | 0.13 | 0.00 | c0.13 | c0.25 | 0.02 |
| v/s Ratio Perm | | | 0.02 | | | 0.05 | | | 0.01 | | | 0.08 |
| v/c Ratio | 0.53 | 0.46 | 0.07 | 0.11 | 0.37 | 0.20 | 0.20 | 0.54 | 0.03 | 0.61 | 0.70 | 0.20 |
| Uniform Delay, d1 | 28.5 | 22.6 | 15.5 | 28.7 | 23.3 | 12.8 | 27.5 | 22.1 | 15.4 | 24.1 | 18.7 | 10.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.5 | 0.4 | 0.0 | 0.2 | 0.3 | 0.1 | 0.3 | 0.7 | 0.0 | 1.5 | 1.7 | 0.1 |
| Delay (s) | 30.0 | 23.0 | 15.5 | 28.9 | 23.6 | 12.9 | 27.8 | 22.7 | 15.4 | 25.6 | 20.4 | 11.0 |
| Level of Service | C | C | B | C | C | B | C | C | B | C | C | B |
| Approach Delay (s) | | 23.6 | | | 19.0 | | | 22.7 | | | 20.0 | |
| Approach LOS | | C | | | B | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 67.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 65.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 290 | 160 | 30 | 230 | 20 | 210 | 70 | 50 | 20 | 30 | 10 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 22 | 312 | 172 | 32 | 247 | 22 | 226 | 75 | 54 | 22 | 32 | 11 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 22 | 484 | 32 | 269 | 226 | 129 | 65 |
| Volume Left (vph) | 22 | 0 | 32 | 0 | 226 | 0 | 22 |
| Volume Right (vph) | 0 | 172 | 0 | 22 | 0 | 54 | 11 |
| Hadj (s) | 0.50 | -0.25 | 0.50 | -0.06 | 0.50 | -0.29 | -0.03 |
| Departure Headway (s) | 7.0 | 6.2 | 7.3 | 6.7 | 7.5 | 6.7 | 7.6 |
| Degree Utilization, x | 0.04 | 0.83 | 0.07 | 0.50 | 0.47 | 0.24 | 0.14 |
| Capacity (veh/h) | 492 | 567 | 468 | 514 | 451 | 504 | 425 |
| Control Delay (s) | 9.1 | 31.8 | 9.6 | 15.0 | 15.7 | 10.6 | 11.8 |
| Approach Delay (s) | 30.8 | | 14.5 | | 13.9 | | 11.8 |
| Approach LOS | D | | B | | B | | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 20.9 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 50.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

# HCM Signalized Intersection Capacity Analysis
## 130: 6th St & Beaumont Ave

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 250 | 50 | 80 | 210 | 150 | 40 | 280 | 70 | 120 | 240 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1802 | 3512 | | 1802 | 1634 | 1376 | 1805 | 3492 | | 1805 | 3485 | |
| Flt Permitted | 0.61 | 1.00 | | 0.56 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1151 | 3512 | | 1059 | 1634 | 1376 | 1805 | 3492 | | 1805 | 3485 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 128 | 266 | 53 | 85 | 223 | 160 | 43 | 298 | 74 | 128 | 255 | 64 |
| RTOR Reduction (vph) | 0 | 25 | 0 | 0 | 0 | 91 | 0 | 32 | 0 | 0 | 30 | 0 |
| Lane Group Flow (vph) | 128 | 294 | 0 | 85 | 223 | 69 | 43 | 340 | 0 | 128 | 289 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 8 | 8 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 11.7 | 11.7 | | 11.7 | 11.7 | 17.9 | 2.3 | 11.7 | | 6.2 | 15.6 | |
| Effective Green, g (s) | 11.7 | 11.7 | | 11.7 | 11.7 | 17.9 | 2.3 | 11.7 | | 6.2 | 15.6 | |
| Actuated g/C Ratio | 0.28 | 0.28 | | 0.28 | 0.28 | 0.43 | 0.06 | 0.28 | | 0.15 | 0.37 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 324 | 988 | | 298 | 460 | 724 | 100 | 982 | | 269 | 1307 | |
| v/s Ratio Prot | | 0.08 | | | c0.14 | 0.01 | 0.02 | c0.10 | | c0.07 | c0.08 | |
| v/s Ratio Perm | 0.11 | | | 0.08 | | 0.04 | | | | | | |
| v/c Ratio | 0.40 | 0.30 | | 0.29 | 0.48 | 0.10 | 0.43 | 0.35 | | 0.48 | 0.22 | |
| Uniform Delay, d1 | 12.1 | 11.7 | | 11.7 | 12.4 | 7.0 | 19.0 | 11.9 | | 16.2 | 8.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 0.2 | | 0.5 | 0.8 | 0.1 | 3.0 | 0.2 | | 1.3 | 0.1 | |
| Delay (s) | 12.9 | 11.9 | | 12.2 | 13.2 | 7.1 | 22.0 | 12.1 | | 17.5 | 8.9 | |
| Level of Service | B | B | | B | B | A | C | B | | B | A | |
| Approach Delay (s) | | 12.2 | | | 11.0 | | | 13.1 | | | 11.4 | |
| Approach LOS | | B | | | B | | | B | | | B | |

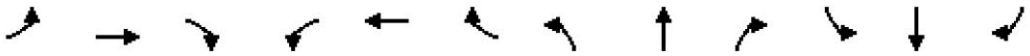
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 41.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 51.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 1210 | 10 | 10 | 410 | 10 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1700 | 1800 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1800 | 1529 | | 1753 | 1615 | 1530 |
| Flt Permitted | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1800 | 1529 | | 1797 | 1615 | 1530 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 11 | 1301 | 11 | 11 | 441 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 11 | 1301 | 0 | 22 | 441 | 10 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | pm+ov | Perm | | | Prot |
| Protected Phases | 4 | 2 | | 8 | 2 | 2 |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 2.6 | 56.5 | | 2.6 | 53.9 | 53.9 |
| Effective Green, g (s) | 2.6 | 56.5 | | 2.6 | 53.9 | 53.9 |
| Actuated g/C Ratio | 0.04 | 0.85 | | 0.04 | 0.81 | 0.81 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 70 | 1529 | | 70 | 1309 | 1240 |
| v/s Ratio Prot | 0.01 | c0.69 | | | 0.27 | 0.01 |
| v/s Ratio Perm | | 0.16 | | 0.01 | | |
| v/c Ratio | 0.16 | 0.85 | | 0.31 | 0.34 | 0.01 |
| Uniform Delay, d1 | 30.9 | 2.7 | | 31.1 | 1.6 | 1.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 4.8 | | 2.6 | 0.2 | 0.0 |
| Delay (s) | 31.9 | 7.5 | | 33.7 | 1.8 | 1.2 |
| Level of Service | C | A | | C | A | A |
| Approach Delay (s) | 7.7 | | | 33.7 | 1.8 | |
| Approach LOS | A | | | C | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 66.5 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 93.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

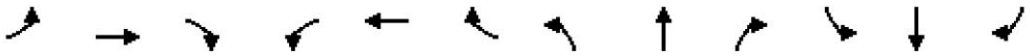
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 560 | 0 | 0 | 250 | 260 | 10 | 30 | 10 | 220 | 10 | 20 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 33 | 622 | 0 | 0 | 278 | 289 | 11 | 33 | 11 | 244 | 11 | 22 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 656 | 567 | 56 | 278 |
| Volume Left (vph) | 33 | 0 | 11 | 244 |
| Volume Right (vph) | 0 | 289 | 11 | 22 |
| Hadj (s) | 0.01 | -0.31 | -0.08 | 0.13 |
| Departure Headway (s) | 6.3 | 6.0 | 8.3 | 7.4 |
| Degree Utilization, x | 1.16 | 0.95 | 0.13 | 0.57 |
| Capacity (veh/h) | 558 | 595 | 405 | 473 |
| Control Delay (s) | 111.7 | 48.7 | 12.5 | 19.6 |
| Approach Delay (s) | 111.7 | 48.7 | 12.5 | 19.6 |
| Approach LOS | F | E | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 68.8 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 85.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 700 | 10 | 10 | 470 | 170 | 10 | 10 | 10 | 110 | 0 | 20 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 24 | 833 | 12 | 12 | 560 | 202 | 12 | 12 | 12 | 131 | 0 | 24 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 869 | 774 | 36 | 155 |
| Volume Left (vph) | 24 | 12 | 12 | 131 |
| Volume Right (vph) | 12 | 202 | 12 | 24 |
| Hadj (s) | 0.00 | -0.15 | -0.13 | 0.08 |
| Departure Headway (s) | 5.6 | 5.4 | 7.7 | 7.3 |
| Degree Utilization, x | 1.35 | 1.17 | 0.08 | 0.31 |
| Capacity (veh/h) | 633 | 668 | 450 | 483 |
| Control Delay (s) | 184.3 | 111.5 | 11.3 | 13.5 |
| Approach Delay (s) | 184.3 | 111.5 | 11.3 | 13.5 |
| Approach LOS | F | F | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 135.8 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 72.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 60 | 700 | 30 | 20 | 670 | 80 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 67 | 778 | 33 | 22 | 744 | 89 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 844 | 56 | 833 |
| Volume Left (vph) | 0 | 33 | 744 |
| Volume Right (vph) | 778 | 0 | 89 |
| Hadj (s) | -0.55 | 0.12 | 0.11 |
| Departure Headway (s) | 5.4 | 7.1 | 6.0 |
| Degree Utilization, x | 1.26 | 0.11 | 1.39 |
| Capacity (veh/h) | 683 | 500 | 602 |
| Control Delay (s) | 145.6 | 11.0 | 205.3 |
| Approach Delay (s) | 145.6 | 11.0 | 205.3 |
| Approach LOS | F | B | F |

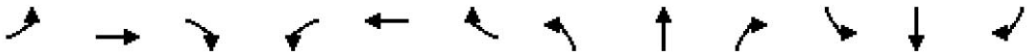
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 170.0 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 100.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 60 | 40 | 230 | 60 | 60 | 190 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 65 | 43 | 250 | 65 | 65 | 207 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 109 | | 652 | 87 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 109 | | 652 | 87 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 83 | | 82 | 79 |
| cM capacity (veh/h) | | | 1494 | | 363 | 977 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 109 | 315 | 272 |
| Volume Left | 0 | 250 | 65 |
| Volume Right | 43 | 0 | 207 |
| cSH | 1700 | 1494 | 695 |
| Volume to Capacity | 0.06 | 0.17 | 0.39 |
| Queue Length 95th (ft) | 0 | 15 | 47 |
| Control Delay (s) | 0.0 | 6.5 | 13.5 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 6.5 | 13.5 |
| Approach LOS | | | B |

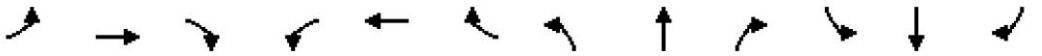
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.2 | | |
| Intersection Capacity Utilization | 46.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 240 | 20 | 20 | 290 | 20 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 245 | 20 | 20 | 296 | 20 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 31 | 31 | 276 | 337 |
| Volume Left (vph) | 10 | 10 | 10 | 20 |
| Volume Right (vph) | 10 | 10 | 20 | 20 |
| Hadj (s) | -0.13 | -0.13 | -0.04 | -0.02 |
| Departure Headway (s) | 5.2 | 5.2 | 4.4 | 4.3 |
| Degree Utilization, x | 0.04 | 0.04 | 0.34 | 0.41 |
| Capacity (veh/h) | 614 | 613 | 798 | 807 |
| Control Delay (s) | 8.4 | 8.4 | 9.6 | 10.3 |
| Approach Delay (s) | 8.4 | 8.4 | 9.6 | 10.3 |
| Approach LOS | A | A | A | B |

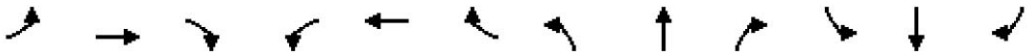
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 9.8 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 35.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 0 | 30 | 5 | 0 | 5 | 10 | 760 | 0 | 0 | 550 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1794 | 1573 | | 1795 | 1573 | | 1805 | 1900 | | | 1900 | 1573 |
| Flt Permitted | 0.98 | 1.00 | | 0.98 | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1843 | 1573 | | 1843 | 1573 | | 1805 | 1900 | | | 1900 | 1573 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 34 | 0 | 34 | 6 | 0 | 6 | 11 | 864 | 0 | 0 | 625 | 23 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 34 | 3 | 0 | 6 | 0 | 0 | 11 | 864 | 0 | 0 | 625 | 16 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 4.1 | 4.1 | | 4.1 | 4.1 | | 1.1 | 40.9 | | | 35.8 | 35.8 |
| Effective Green, g (s) | 4.1 | 4.1 | | 4.1 | 4.1 | | 1.1 | 40.9 | | | 35.8 | 35.8 |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.08 | 0.08 | | 0.02 | 0.77 | | | 0.68 | 0.68 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 143 | 122 | | 143 | 122 | | 37 | 1466 | | | 1283 | 1063 |
| v/s Ratio Prot | | 0.00 | | | 0.00 | | 0.01 | c0.45 | | | 0.33 | |
| v/s Ratio Perm | c0.02 | | | 0.00 | | | | | | | | 0.01 |
| v/c Ratio | 0.24 | 0.02 | | 0.04 | 0.00 | | 0.30 | 0.59 | | | 0.49 | 0.01 |
| Uniform Delay, d1 | 23.0 | 22.6 | | 22.6 | 22.6 | | 25.6 | 2.5 | | | 4.2 | 2.8 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 0.1 | | 0.1 | 0.0 | | 4.5 | 0.6 | | | 0.3 | 0.0 |
| Delay (s) | 23.8 | 22.7 | | 22.8 | 22.6 | | 30.0 | 3.1 | | | 4.5 | 2.8 |
| Level of Service | C | C | | C | C | | C | A | | | A | A |
| Approach Delay (s) | | 23.3 | | | 22.7 | | | 3.5 | | | 4.4 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 53.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 56.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

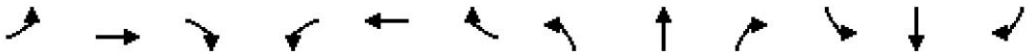
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 10 | 10 | 20 | 10 | 100 | 10 | 500 | 130 | 220 | 240 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 0.98 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.93 | | | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1749 | | | 1655 | | 1805 | 1900 | 1573 | 1805 | 1887 | |
| Flt Permitted | | 1.00 | | | 0.94 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1749 | | | 1568 | | 1805 | 1900 | 1573 | 1805 | 1887 | |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 0 | 12 | 12 | 24 | 12 | 119 | 12 | 595 | 155 | 262 | 286 | 12 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 106 | 0 | 0 | 0 | 83 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 13 | 0 | 0 | 49 | 0 | 12 | 595 | 72 | 262 | 297 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | |
| Actuated Green, G (s) | | 6.1 | | | 6.1 | | 1.2 | 25.3 | 25.3 | 11.3 | 35.4 | |
| Effective Green, g (s) | | 6.1 | | | 6.1 | | 1.2 | 25.3 | 25.3 | 11.3 | 35.4 | |
| Actuated g/C Ratio | | 0.11 | | | 0.11 | | 0.02 | 0.46 | 0.46 | 0.21 | 0.65 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 195 | | | 175 | | 40 | 879 | 728 | 373 | 1221 | |
| v/s Ratio Prot | | 0.01 | | | | | 0.01 | c0.31 | | c0.15 | 0.16 | |
| v/s Ratio Perm | | | | | c0.03 | | | | 0.05 | | | |
| v/c Ratio | | 0.07 | | | 0.28 | | 0.30 | 0.68 | 0.10 | 0.70 | 0.24 | |
| Uniform Delay, d1 | | 21.8 | | | 22.3 | | 26.3 | 11.5 | 8.3 | 20.1 | 4.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.1 | | | 0.9 | | 4.2 | 2.1 | 0.1 | 5.9 | 0.1 | |
| Delay (s) | | 21.9 | | | 23.2 | | 30.5 | 13.6 | 8.3 | 26.0 | 4.1 | |
| Level of Service | | C | | | C | | C | B | A | C | A | |
| Approach Delay (s) | | 21.9 | | | 23.2 | | | 12.8 | | | 14.4 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 54.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

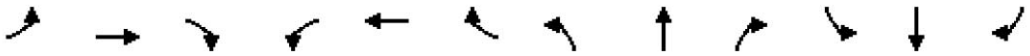
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 210 | 50 | 20 | 410 | 0 | 170 | 0 | 30 | 0 | 0 | 0 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 0 | 253 | 60 | 24 | 494 | 0 | 205 | 0 | 36 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total (vph) | 313 | 518 | 205 | 36 | 0 |
| Volume Left (vph) | 0 | 24 | 205 | 0 | 0 |
| Volume Right (vph) | 60 | 0 | 0 | 36 | 0 |
| Hadj (s) | -0.12 | 0.01 | 0.20 | -0.60 | 0.00 |
| Departure Headway (s) | 5.2 | 5.0 | 6.1 | 3.2 | 6.5 |
| Degree Utilization, x | 0.45 | 0.72 | 0.35 | 0.03 | 0.00 |
| Capacity (veh/h) | 658 | 700 | 529 | 1121 | 471 |
| Control Delay (s) | 12.3 | 20.1 | 12.4 | 6.3 | 9.5 |
| Approach Delay (s) | 12.3 | 20.1 | 11.5 | | 0.0 |
| Approach LOS | B | C | B | | A |

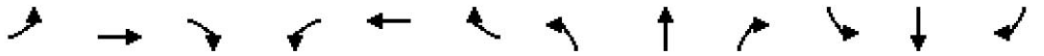
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 15.9 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 53.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 60 | 50 | 110 | 10 | 40 | 30 | 210 | 280 | 60 | 180 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.88 | | | 0.92 | | | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | 1805 | 3343 | | 1805 | 1654 | | | 3265 | | | 3409 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.91 | | | 0.74 | |
| Satd. Flow (perm) | 1805 | 3343 | | 1805 | 1654 | | | 2981 | | | 2532 | |
| Peak-hour factor, PHF | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Adj. Flow (vph) | 205 | 82 | 68 | 151 | 14 | 55 | 41 | 288 | 384 | 82 | 247 | 123 |
| RTOR Reduction (vph) | 0 | 56 | 0 | 0 | 51 | 0 | 0 | 256 | 0 | 0 | 60 | 0 |
| Lane Group Flow (vph) | 205 | 94 | 0 | 151 | 18 | 0 | 0 | 457 | 0 | 0 | 392 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 11.6 | 7.2 | | 7.1 | 2.7 | | | 13.2 | | | 13.2 | |
| Effective Green, g (s) | 11.6 | 7.2 | | 7.1 | 2.7 | | | 13.2 | | | 13.2 | |
| Actuated g/C Ratio | 0.29 | 0.18 | | 0.18 | 0.07 | | | 0.33 | | | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 530 | 609 | | 324 | 113 | | | 996 | | | 846 | |
| v/s Ratio Prot | c0.11 | c0.03 | | 0.08 | 0.01 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.15 | | | c0.15 | |
| v/c Ratio | 0.39 | 0.15 | | 0.47 | 0.16 | | | 0.46 | | | 0.46 | |
| Uniform Delay, d1 | 11.1 | 13.6 | | 14.5 | 17.3 | | | 10.3 | | | 10.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.5 | 0.1 | | 1.1 | 0.7 | | | 0.3 | | | 0.4 | |
| Delay (s) | 11.6 | 13.7 | | 15.6 | 18.0 | | | 10.7 | | | 10.8 | |
| Level of Service | B | B | | B | B | | | B | | | B | |
| Approach Delay (s) | | 12.5 | | | 16.3 | | | 10.7 | | | 10.8 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 39.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 50 | 10 | 220 | 80 | 210 | 20 | 420 | 440 | 110 | 330 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3512 | | 3502 | 3185 | | 1805 | 5187 | 1602 | 1805 | 4960 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3512 | | 3502 | 3185 | | 1805 | 5187 | 1602 | 1805 | 4960 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 104 | 65 | 13 | 286 | 104 | 273 | 26 | 545 | 571 | 143 | 429 | 156 |
| RTOR Reduction (vph) | 0 | 12 | 0 | 0 | 223 | 0 | 0 | 0 | 299 | 0 | 54 | 0 |
| Lane Group Flow (vph) | 104 | 66 | 0 | 286 | 154 | 0 | 26 | 545 | 272 | 143 | 531 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.8 | 5.2 | | 11.2 | 9.6 | | 1.2 | 14.6 | 25.8 | 7.2 | 20.6 | |
| Effective Green, g (s) | 6.8 | 5.2 | | 11.2 | 9.6 | | 1.2 | 14.6 | 25.8 | 7.2 | 20.6 | |
| Actuated g/C Ratio | 0.13 | 0.10 | | 0.21 | 0.18 | | 0.02 | 0.27 | 0.48 | 0.13 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 226 | 337 | | 724 | 564 | | 40 | 1397 | 881 | 240 | 1885 | |
| v/s Ratio Prot | 0.06 | 0.02 | | c0.08 | c0.05 | | 0.01 | c0.11 | c0.06 | c0.08 | 0.11 | |
| v/s Ratio Perm | | | | | | | | | 0.11 | | | |
| v/c Ratio | 0.46 | 0.20 | | 0.40 | 0.27 | | 0.65 | 0.39 | 0.31 | 0.60 | 0.28 | |
| Uniform Delay, d1 | 22.0 | 22.6 | | 18.6 | 19.3 | | 26.3 | 16.2 | 8.7 | 22.1 | 11.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.5 | 0.3 | | 0.4 | 0.3 | | 32.0 | 0.2 | 0.2 | 3.9 | 0.1 | |
| Delay (s) | 23.5 | 22.9 | | 18.9 | 19.5 | | 58.2 | 16.3 | 8.9 | 26.1 | 11.7 | |
| Level of Service | C | C | | B | B | | E | B | A | C | B | |
| Approach Delay (s) | | 23.2 | | | 19.3 | | | 13.6 | | | 14.6 | |
| Approach LOS | | C | | | B | | | B | | | B | |

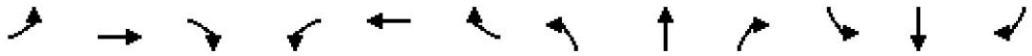
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 54.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 60 | 520 | 20 | 10 | 20 | 120 | 780 | 30 | 30 | 330 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | | 0.97 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1847 | 1591 | 1805 | 1900 | 1591 | 1805 | 3610 | 1573 | 1805 | 5088 | |
| Flt Permitted | | 0.97 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1847 | 1591 | 1805 | 1900 | 1591 | 1805 | 3610 | 1573 | 1805 | 5088 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 94 | 71 | 612 | 24 | 12 | 24 | 141 | 918 | 35 | 35 | 388 | 47 |
| RTOR Reduction (vph) | 0 | 0 | 480 | 0 | 0 | 23 | 0 | 0 | 17 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 0 | 165 | 132 | 24 | 12 | 1 | 141 | 918 | 18 | 35 | 425 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 14.2 | 14.2 | 3.8 | 3.8 | 3.8 | 8.8 | 29.4 | 29.4 | 2.2 | 22.8 | |
| Effective Green, g (s) | | 14.2 | 14.2 | 3.8 | 3.8 | 3.8 | 8.8 | 29.4 | 29.4 | 2.2 | 22.8 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | 0.06 | 0.06 | 0.06 | 0.13 | 0.45 | 0.45 | 0.03 | 0.35 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 400 | 344 | 105 | 110 | 92 | 242 | 1618 | 705 | 61 | 1768 | |
| v/s Ratio Prot | | c0.09 | | c0.01 | 0.01 | | c0.08 | c0.25 | | 0.02 | 0.08 | |
| v/s Ratio Perm | | | 0.08 | | | 0.00 | | | 0.01 | | | |
| v/c Ratio | | 0.41 | 0.39 | 0.23 | 0.11 | 0.02 | 0.58 | 0.57 | 0.03 | 0.57 | 0.24 | |
| Uniform Delay, d1 | | 22.1 | 22.0 | 29.5 | 29.3 | 29.1 | 26.7 | 13.4 | 10.1 | 31.2 | 15.2 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.7 | 0.7 | 1.1 | 0.4 | 0.1 | 3.5 | 0.5 | 0.0 | 12.4 | 0.1 | |
| Delay (s) | | 22.8 | 22.7 | 30.6 | 29.7 | 29.2 | 30.2 | 13.9 | 10.1 | 43.6 | 15.3 | |
| Level of Service | | C | C | C | C | C | C | B | B | D | B | |
| Approach Delay (s) | | 22.7 | | | 29.9 | | | 15.8 | | | 17.4 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 65.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 60.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

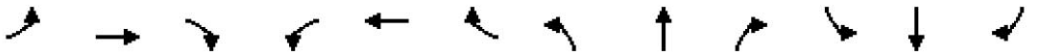
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 380 | 230 | 270 | 360 | 40 | 180 | 590 | 340 | 70 | 520 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1592 | 3502 | 3549 | | 3502 | 3610 | 1583 | 3502 | 3557 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1592 | 3502 | 3549 | | 3502 | 3610 | 1583 | 3502 | 3557 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 85 | 463 | 280 | 329 | 439 | 49 | 220 | 720 | 415 | 85 | 634 | 61 |
| RTOR Reduction (vph) | 0 | 0 | 22 | 0 | 7 | 0 | 0 | 0 | 126 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 85 | 463 | 258 | 329 | 481 | 0 | 220 | 720 | 289 | 85 | 689 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.8 | 44.6 | 57.8 | 17.8 | 53.6 | | 13.2 | 34.5 | 52.3 | 7.1 | 28.4 | |
| Effective Green, g (s) | 8.8 | 44.6 | 57.8 | 17.8 | 53.6 | | 13.2 | 34.5 | 52.3 | 7.1 | 28.4 | |
| Actuated g/C Ratio | 0.07 | 0.37 | 0.48 | 0.15 | 0.45 | | 0.11 | 0.29 | 0.44 | 0.06 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 132 | 706 | 820 | 519 | 1585 | | 385 | 1038 | 690 | 207 | 842 | |
| v/s Ratio Prot | 0.05 | c0.24 | 0.03 | c0.09 | 0.14 | | 0.06 | c0.20 | 0.06 | 0.02 | c0.19 | |
| v/s Ratio Perm | | | 0.13 | | | | | | 0.12 | | | |
| v/c Ratio | 0.64 | 0.66 | 0.31 | 0.63 | 0.30 | | 0.57 | 0.69 | 0.42 | 0.41 | 0.82 | |
| Uniform Delay, d1 | 54.1 | 31.3 | 19.0 | 48.0 | 21.3 | | 50.7 | 38.0 | 23.4 | 54.4 | 43.4 | |
| Progression Factor | 0.60 | 0.86 | 0.45 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.3 | 4.3 | 0.2 | 2.5 | 0.5 | | 2.0 | 2.0 | 0.4 | 1.3 | 6.2 | |
| Delay (s) | 41.7 | 31.3 | 8.8 | 50.6 | 21.7 | | 52.8 | 40.1 | 23.8 | 55.8 | 49.6 | |
| Level of Service | D | C | A | D | C | | D | D | C | E | D | |
| Approach Delay (s) | | 24.8 | | | 33.4 | | | 37.1 | | | 50.3 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

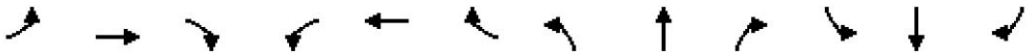
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 710 | 40 | 450 | 1210 | 270 | 40 | 360 | 430 | 150 | 290 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3576 | | 1805 | 3492 | | 1805 | 1900 | 1601 | 1805 | 1900 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3576 | | 1805 | 3492 | | 1805 | 1900 | 1601 | 1805 | 1900 | 1586 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 147 | 747 | 42 | 474 | 1274 | 284 | 42 | 379 | 453 | 158 | 305 | 116 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 15 | 0 | 0 | 0 | 23 | 0 | 0 | 72 |
| Lane Group Flow (vph) | 147 | 786 | 0 | 474 | 1543 | 0 | 42 | 379 | 430 | 158 | 305 | 44 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.0 | 32.9 | | 36.1 | 59.0 | | 5.6 | 33.0 | 69.1 | 12.0 | 39.4 | 39.4 |
| Effective Green, g (s) | 10.0 | 32.9 | | 36.1 | 59.0 | | 5.6 | 33.0 | 69.1 | 12.0 | 39.4 | 39.4 |
| Actuated g/C Ratio | 0.08 | 0.25 | | 0.28 | 0.45 | | 0.04 | 0.25 | 0.53 | 0.09 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 139 | 905 | | 501 | 1585 | | 78 | 482 | 851 | 167 | 576 | 481 |
| v/s Ratio Prot | c0.08 | 0.22 | | 0.26 | c0.44 | | 0.02 | c0.20 | 0.14 | c0.09 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | 0.03 |
| v/c Ratio | 1.06 | 0.87 | | 0.95 | 0.97 | | 0.54 | 0.79 | 0.51 | 0.95 | 0.53 | 0.09 |
| Uniform Delay, d1 | 60.0 | 46.5 | | 46.0 | 34.7 | | 60.9 | 45.2 | 19.5 | 58.7 | 37.6 | 32.5 |
| Progression Factor | 1.27 | 0.81 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 85.5 | 7.5 | | 27.0 | 16.6 | | 7.0 | 12.2 | 0.5 | 53.4 | 3.5 | 0.4 |
| Delay (s) | 161.7 | 45.0 | | 73.0 | 51.4 | | 67.9 | 57.4 | 20.0 | 112.1 | 41.1 | 32.8 |
| Level of Service | F | D | | E | D | | E | E | B | F | D | C |
| Approach Delay (s) | | 63.3 | | | 56.4 | | | 38.5 | | | 58.8 | |
| Approach LOS | | E | | | E | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 99.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

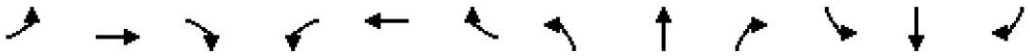


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 500 | 630 | 130 | 580 | 240 | 1170 | 1590 | 450 | 190 | 450 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.94 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2825 | 3502 | 3610 | 1594 | 5090 | 3610 | 1591 | 3502 | 5134 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2825 | 3502 | 3610 | 1594 | 5090 | 3610 | 1591 | 3502 | 5134 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 44 | 556 | 700 | 144 | 644 | 267 | 1300 | 1767 | 500 | 211 | 500 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 66 | 0 | 0 | 41 | 0 | 0 | 41 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 44 | 556 | 634 | 144 | 644 | 226 | 1300 | 1767 | 459 | 211 | 525 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 4.0 | 24.4 | 63.5 | 7.0 | 27.4 | 34.4 | 39.1 | 48.2 | 55.2 | 7.0 | 16.1 | |
| Effective Green, g (s) | 4.0 | 24.4 | 63.5 | 7.0 | 27.4 | 34.4 | 39.1 | 48.2 | 55.2 | 7.0 | 16.1 | |
| Actuated g/C Ratio | 0.04 | 0.24 | 0.62 | 0.07 | 0.27 | 0.34 | 0.38 | 0.47 | 0.54 | 0.07 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 70 | 859 | 1748 | 239 | 964 | 534 | 1940 | 1696 | 918 | 239 | 806 | |
| v/s Ratio Prot | 0.02 | c0.15 | 0.14 | 0.04 | c0.18 | 0.03 | 0.26 | c0.49 | 0.03 | c0.06 | 0.10 | |
| v/s Ratio Perm | | | 0.09 | | | 0.11 | | | 0.25 | | | |
| v/c Ratio | 0.63 | 0.65 | 0.36 | 0.60 | 0.67 | 0.42 | 0.67 | 1.04 | 0.50 | 0.88 | 0.65 | |
| Uniform Delay, d1 | 48.6 | 35.2 | 9.6 | 46.4 | 33.5 | 26.4 | 26.4 | 27.2 | 15.0 | 47.4 | 40.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 16.3 | 1.7 | 0.1 | 4.2 | 1.8 | 0.5 | 0.9 | 33.6 | 0.4 | 29.4 | 1.9 | |
| Delay (s) | 64.9 | 36.9 | 9.7 | 50.7 | 35.3 | 27.0 | 27.3 | 60.8 | 15.4 | 76.8 | 42.5 | |
| Level of Service | E | D | A | D | D | C | C | E | B | E | D | |
| Approach Delay (s) | | 23.2 | | | 35.3 | | | 42.2 | | | 52.2 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 102.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 86.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

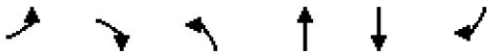
# HCM Signalized Intersection Capacity Analysis
## 107: Rider St & Evans Rd



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 290 | 30 | 20 | 450 | 140 | 110 | 220 | 20 | 160 | 130 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3553 | | 1805 | 3467 | | 1802 | 3561 | | 1802 | 3263 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.51 | 1.00 | | 0.52 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3553 | | 1805 | 3467 | | 969 | 3561 | | 986 | 3263 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 163 | 337 | 35 | 23 | 523 | 163 | 128 | 256 | 23 | 186 | 151 | 209 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 28 | 0 | 0 | 5 | 0 | 0 | 130 | 0 |
| Lane Group Flow (vph) | 163 | 365 | 0 | 23 | 658 | 0 | 128 | 274 | 0 | 186 | 230 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | pm+pt | | | pm+pt | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 13.5 | 40.2 | | 2.4 | 29.1 | | 49.3 | 39.6 | | 53.5 | 41.7 | |
| Effective Green, g (s) | 13.5 | 40.2 | | 2.4 | 29.1 | | 49.3 | 39.6 | | 53.5 | 41.7 | |
| Actuated g/C Ratio | 0.12 | 0.37 | | 0.02 | 0.26 | | 0.45 | 0.36 | | 0.49 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 222 | 1298 | | 39 | 917 | | 508 | 1282 | | 567 | 1237 | |
| v/s Ratio Prot | c0.09 | 0.10 | | 0.01 | c0.19 | | 0.02 | 0.08 | | c0.04 | 0.07 | |
| v/s Ratio Perm | | | | | | | 0.09 | | | c0.12 | | |
| v/c Ratio | 0.73 | 0.28 | | 0.59 | 0.72 | | 0.25 | 0.21 | | 0.33 | 0.19 | |
| Uniform Delay, d1 | 46.5 | 24.7 | | 53.3 | 36.7 | | 18.0 | 24.4 | | 16.3 | 22.8 | |
| Progression Factor | 0.90 | 0.97 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.71 | 0.81 | |
| Incremental Delay, d2 | 11.8 | 0.1 | | 20.8 | 2.7 | | 0.3 | 0.4 | | 0.3 | 0.3 | |
| Delay (s) | 53.7 | 24.0 | | 74.1 | 39.4 | | 18.3 | 24.8 | | 11.8 | 18.8 | |
| Level of Service | D | C | | E | D | | B | C | | B | B | |
| Approach Delay (s) | | 33.0 | | | 40.5 | | | 22.7 | | | 16.4 | |
| Approach LOS | | C | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

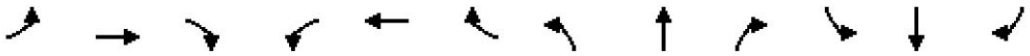
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 100 | 20 | 20 | 640 | 340 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.98 | | 1.00 | 1.00 | 0.98 | |
| Flt Protected | 0.96 | | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1783 | | 1805 | 1900 | 1867 | |
| Flt Permitted | 0.96 | | 0.50 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1783 | | 943 | 1900 | 1867 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 111 | 22 | 22 | 711 | 378 | 56 |
| RTOR Reduction (vph) | 15 | 0 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 118 | 0 | 22 | 711 | 426 | 0 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | 6.2 | | 19.0 | 19.0 | 19.0 | |
| Effective Green, g (s) | 6.2 | | 19.0 | 19.0 | 19.0 | |
| Actuated g/C Ratio | 0.19 | | 0.57 | 0.57 | 0.57 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 333 | | 540 | 1087 | 1068 | |
| v/s Ratio Prot | c0.07 | | | c0.37 | 0.23 | |
| v/s Ratio Perm | | | 0.02 | | | |
| v/c Ratio | 0.36 | | 0.04 | 0.65 | 0.40 | |
| Uniform Delay, d1 | 11.8 | | 3.1 | 4.9 | 3.9 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | | 0.0 | 1.4 | 0.2 | |
| Delay (s) | 12.4 | | 3.1 | 6.3 | 4.2 | |
| Level of Service | B | | A | A | A | |
| Approach Delay (s) | 12.4 | | | 6.2 | 4.2 | |
| Approach LOS | B | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 33.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 47.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

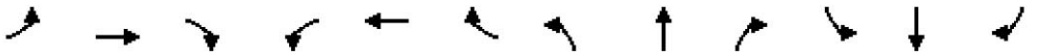
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 310 | 0 | 0 | 340 | 240 | 270 | 0 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | 0.95 | | | | |
| Satd. Flow (prot) | 1805 | 1900 | | | 1900 | 1615 | | 1805 | | | | |
| Flt Permitted | 0.55 | 1.00 | | | 1.00 | 1.00 | | 0.95 | | | | |
| Satd. Flow (perm) | 1043 | 1900 | | | 1900 | 1615 | | 1805 | | | | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 21 | 323 | 0 | 0 | 354 | 250 | 281 | 0 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 139 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 21 | 323 | 0 | 0 | 354 | 111 | 0 | 281 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | Perm | | | | | Perm | Perm | | Perm | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | 2 | | | |
| Actuated Green, G (s) | 12.9 | 12.9 | | | 12.9 | 12.9 | | 8.2 | | | | |
| Effective Green, g (s) | 12.9 | 12.9 | | | 12.9 | 12.9 | | 8.2 | | | | |
| Actuated g/C Ratio | 0.44 | 0.44 | | | 0.44 | 0.44 | | 0.28 | | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | | | | |
| Lane Grp Cap (vph) | 462 | 842 | | | 842 | 716 | | 509 | | | | |
| v/s Ratio Prot | | 0.17 | | | c0.19 | | | | | | | |
| v/s Ratio Perm | 0.02 | | | | | 0.07 | | 0.16 | | | | |
| v/c Ratio | 0.05 | 0.38 | | | 0.42 | 0.15 | | 0.55 | | | | |
| Uniform Delay, d1 | 4.6 | 5.4 | | | 5.5 | 4.8 | | 8.9 | | | | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Incremental Delay, d2 | 0.0 | 0.3 | | | 0.3 | 0.1 | | 1.3 | | | | |
| Delay (s) | 4.6 | 5.7 | | | 5.9 | 4.9 | | 10.2 | | | | |
| Level of Service | A | A | | | A | A | | B | | | | |
| Approach Delay (s) | | 5.7 | | | 5.5 | | | 10.2 | | | 0.0 | |
| Approach LOS | | A | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 29.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 48.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

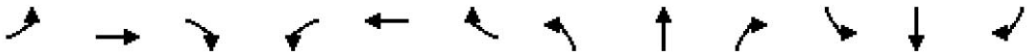
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 220 | 180 | 10 | 650 | 0 | 0 | 0 | 0 | 130 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1900 | 1615 | 1805 | 1900 | | | | | | 1805 | 1615 |
| Flt Permitted | | 1.00 | 1.00 | 0.61 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1900 | 1615 | 1165 | 1900 | | | | | | 1805 | 1615 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 234 | 191 | 11 | 691 | 0 | 0 | 0 | 0 | 138 | 0 | 21 |
| RTOR Reduction (vph) | 0 | 0 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| Lane Group Flow (vph) | 0 | 234 | 110 | 11 | 691 | 0 | 0 | 0 | 0 | 0 | 138 | 4 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | | | Perm | Perm | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 19.5 | 19.5 | 19.5 | 19.5 | | | | | | 6.5 | 6.5 |
| Effective Green, g (s) | | 19.5 | 19.5 | 19.5 | 19.5 | | | | | | 6.5 | 6.5 |
| Actuated g/C Ratio | | 0.57 | 0.57 | 0.57 | 0.57 | | | | | | 0.19 | 0.19 |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 1090 | 926 | 668 | 1090 | | | | | | 345 | 309 |
| v/s Ratio Prot | | 0.12 | | | c0.36 | | | | | | | |
| v/s Ratio Perm | | | 0.07 | 0.01 | | | | | | | 0.08 | 0.00 |
| v/c Ratio | | 0.21 | 0.12 | 0.02 | 0.63 | | | | | | 0.40 | 0.01 |
| Uniform Delay, d1 | | 3.5 | 3.3 | 3.1 | 4.9 | | | | | | 12.0 | 11.1 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.1 | 0.1 | 0.0 | 1.2 | | | | | | 0.8 | 0.0 |
| Delay (s) | | 3.6 | 3.4 | 3.1 | 6.1 | | | | | | 12.8 | 11.2 |
| Level of Service | | A | A | A | A | | | | | | B | B |
| Approach Delay (s) | | 3.5 | | | 6.0 | | | 0.0 | | | 12.6 | |
| Approach LOS | | A | | | A | | | A | | | B | |

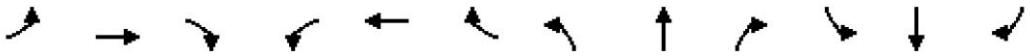
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 34.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 48.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 210 | 0 | 10 | 530 | 200 | 10 | 20 | 0 | 230 | 10 | 40 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.96 | | | 1.00 | | | 0.98 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 0.98 | | | 0.96 | |
| Satd. Flow (prot) | | 1789 | | | 1733 | | | 1771 | | | 1696 | |
| Flt Permitted | | 0.85 | | | 1.00 | | | 0.88 | | | 0.74 | |
| Satd. Flow (perm) | | 1521 | | | 1726 | | | 1576 | | | 1303 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 38 | 262 | 0 | 12 | 662 | 250 | 12 | 25 | 0 | 288 | 12 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 300 | 0 | 0 | 909 | 0 | 0 | 37 | 0 | 0 | 343 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 46.5 | | | 46.5 | | | 24.9 | | | 24.9 | |
| Effective Green, g (s) | | 46.5 | | | 46.5 | | | 24.9 | | | 24.9 | |
| Actuated g/C Ratio | | 0.57 | | | 0.57 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 869 | | | 986 | | | 482 | | | 399 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.20 | | | c0.53 | | | 0.02 | | | c0.26 | |
| v/c Ratio | | 0.35 | | | 0.92 | | | 0.08 | | | 0.86 | |
| Uniform Delay, d1 | | 9.3 | | | 15.8 | | | 20.1 | | | 26.6 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.2 | | | 13.6 | | | 0.1 | | | 16.6 | |
| Delay (s) | | 9.6 | | | 29.4 | | | 20.1 | | | 43.2 | |
| Level of Service | | A | | | C | | | C | | | D | |
| Approach Delay (s) | | 9.6 | | | 29.4 | | | 20.1 | | | 43.2 | |
| Approach LOS | | A | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 81.4 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 75.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



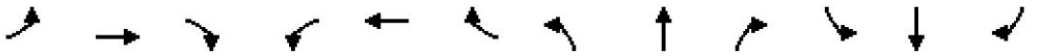
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 390 | 10 | 10 | 720 | 80 | 10 | 10 | 10 | 160 | 10 | 40 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.95 | | | 0.97 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.96 | |
| Satd. Flow (prot) | | 1790 | | | 1775 | | | 1691 | | | 1689 | |
| Flt Permitted | | 0.95 | | | 0.99 | | | 0.88 | | | 0.76 | |
| Satd. Flow (perm) | | 1702 | | | 1765 | | | 1520 | | | 1325 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 22 | 419 | 11 | 11 | 774 | 86 | 11 | 11 | 11 | 172 | 11 | 43 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 8 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 0 | 451 | 0 | 0 | 866 | 0 | 0 | 25 | 0 | 0 | 213 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | | 2 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 34.5 | | | 34.5 | | | 15.3 | | | 15.3 | |
| Effective Green, g (s) | | 34.5 | | | 34.5 | | | 15.3 | | | 15.3 | |
| Actuated g/C Ratio | | 0.58 | | | 0.58 | | | 0.26 | | | 0.26 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 982 | | | 1018 | | | 389 | | | 339 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.26 | | | c0.49 | | | 0.02 | | | c0.16 | |
| v/c Ratio | | 0.46 | | | 0.85 | | | 0.06 | | | 0.63 | |
| Uniform Delay, d1 | | 7.3 | | | 10.5 | | | 16.8 | | | 19.7 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.3 | | | 7.0 | | | 0.1 | | | 3.6 | |
| Delay (s) | | 7.6 | | | 17.5 | | | 16.9 | | | 23.4 | |
| Level of Service | | A | | | B | | | B | | | C | |
| Approach Delay (s) | | 7.6 | | | 17.5 | | | 16.9 | | | 23.4 | |
| Approach LOS | | A | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 59.8 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 76.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 540 | 60 | 90 | 750 | 20 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | 5.0 | | | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.87 | | | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | | 0.98 | 0.95 | |
| Satd. Flow (prot) | 1566 | | | 1765 | 1710 | |
| Flt Permitted | 1.00 | | | 0.30 | 0.95 | |
| Satd. Flow (perm) | 1566 | | | 536 | 1710 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 22 | 587 | 65 | 98 | 815 | 22 |
| RTOR Reduction (vph) | 382 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 227 | 0 | 0 | 163 | 836 | 0 |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 8 | 2 | |
| Permitted Phases | | | 8 | | | |
| Actuated Green, G (s) | 28.4 | | | 28.4 | 42.8 | |
| Effective Green, g (s) | 28.4 | | | 28.4 | 42.8 | |
| Actuated g/C Ratio | 0.35 | | | 0.35 | 0.53 | |
| Clearance Time (s) | 5.0 | | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 548 | | | 187 | 901 | |
| v/s Ratio Prot | 0.15 | | | | c0.49 | |
| v/s Ratio Perm | | | | c0.30 | | |
| v/c Ratio | 0.41 | | | 0.87 | 0.93 | |
| Uniform Delay, d1 | 20.1 | | | 24.7 | 17.8 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.5 | | | 33.0 | 15.3 | |
| Delay (s) | 20.6 | | | 57.7 | 33.0 | |
| Level of Service | C | | | E | C | |
| Approach Delay (s) | 20.6 | | | 57.7 | 33.0 | |
| Approach LOS | C | | | E | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 81.2 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 102.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 0 | 20 | 5 | 5 | 5 | 50 | 650 | 0 | 10 | 860 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.93 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1790 | 1570 | | 1791 | 1733 | | 1805 | 1900 | | 1805 | 1900 | 1570 |
| Flt Permitted | 0.89 | 1.00 | | 0.89 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1675 | 1570 | | 1675 | 1733 | | 1805 | 1900 | | 1805 | 1900 | 1570 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 36 | 0 | 24 | 6 | 6 | 6 | 60 | 774 | 0 | 12 | 1024 | 71 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 36 | 1 | 0 | 6 | 6 | 0 | 60 | 774 | 0 | 12 | 1024 | 59 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | 3.7 | 54.5 | | 1.2 | 52.0 | 52.0 |
| Effective Green, g (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | 3.7 | 54.5 | | 1.2 | 52.0 | 52.0 |
| Actuated g/C Ratio | 0.06 | 0.06 | | 0.06 | 0.06 | | 0.05 | 0.75 | | 0.02 | 0.72 | 0.72 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 104 | 98 | | 104 | 108 | | 93 | 1434 | | 30 | 1368 | 1131 |
| v/s Ratio Prot | | 0.00 | | | 0.00 | | c0.03 | 0.41 | | 0.01 | c0.54 | |
| v/s Ratio Perm | c0.02 | | | 0.00 | | | | | | | | 0.04 |
| v/c Ratio | 0.35 | 0.02 | | 0.06 | 0.06 | | 0.65 | 0.54 | | 0.40 | 0.75 | 0.05 |
| Uniform Delay, d1 | 32.4 | 31.8 | | 31.9 | 31.9 | | 33.6 | 3.7 | | 35.1 | 6.1 | 2.9 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.0 | 0.1 | | 0.2 | 0.2 | | 14.3 | 0.4 | | 8.5 | 2.3 | 0.0 |
| Delay (s) | 34.4 | 31.8 | | 32.1 | 32.1 | | 47.9 | 4.1 | | 43.7 | 8.4 | 3.0 |
| Level of Service | C | C | | C | C | | D | A | | D | A | A |
| Approach Delay (s) | | 33.4 | | | 32.1 | | | 7.2 | | | 8.5 | |
| Approach LOS | | C | | | C | | | A | | | A | |

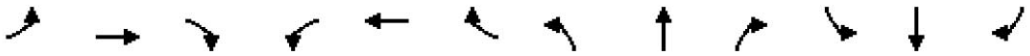
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 72.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 10 | 10 | 20 | 10 | 30 | 10 | 580 | 410 | 270 | 420 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.95 | | | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.98 | | | 0.98 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1765 | | | 1715 | | 1805 | 1900 | 1572 | 1805 | 1892 | |
| Flt Permitted | | 0.94 | | | 0.87 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1682 | | | 1525 | | 1805 | 1900 | 1572 | 1805 | 1892 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 11 | 11 | 11 | 23 | 11 | 34 | 11 | 659 | 466 | 307 | 477 | 11 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 32 | 0 | 0 | 0 | 234 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 23 | 0 | 0 | 36 | 0 | 11 | 659 | 232 | 307 | 487 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | |
| Actuated Green, G (s) | | 4.3 | | | 4.3 | | 1.2 | 30.9 | 30.9 | 14.9 | 44.6 | |
| Effective Green, g (s) | | 4.3 | | | 4.3 | | 1.2 | 30.9 | 30.9 | 14.9 | 44.6 | |
| Actuated g/C Ratio | | 0.07 | | | 0.07 | | 0.02 | 0.50 | 0.50 | 0.24 | 0.72 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 116 | | | 106 | | 35 | 945 | 782 | 433 | 1359 | |
| v/s Ratio Prot | | | | | | | 0.01 | c0.35 | | c0.17 | 0.26 | |
| v/s Ratio Perm | | 0.01 | | | c0.02 | | | | 0.15 | | | |
| v/c Ratio | | 0.20 | | | 0.34 | | 0.31 | 0.70 | 0.30 | 0.71 | 0.36 | |
| Uniform Delay, d1 | | 27.3 | | | 27.6 | | 30.0 | 12.0 | 9.2 | 21.6 | 3.3 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.8 | | | 1.9 | | 5.1 | 2.3 | 0.2 | 5.3 | 0.2 | |
| Delay (s) | | 28.1 | | | 29.5 | | 35.1 | 14.3 | 9.4 | 26.9 | 3.5 | |
| Level of Service | | C | | | C | | D | B | A | C | A | |
| Approach Delay (s) | | 28.1 | | | 29.5 | | | 12.5 | | | 12.5 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 62.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 320 | 80 | 20 | 290 | 10 | 80 | 0 | 20 | 0 | 0 | 0 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 344 | 86 | 22 | 312 | 11 | 86 | 0 | 22 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total (vph) | 430 | 344 | 86 | 22 | 0 |
| Volume Left (vph) | 0 | 22 | 86 | 0 | 0 |
| Volume Right (vph) | 86 | 11 | 0 | 22 | 0 |
| Hadj (s) | -0.12 | -0.01 | 0.20 | -0.60 | 0.00 |
| Departure Headway (s) | 4.4 | 4.6 | 5.8 | 3.2 | 5.8 |
| Degree Utilization, x | 0.53 | 0.44 | 0.14 | 0.02 | 0.00 |
| Capacity (veh/h) | 792 | 752 | 542 | 1121 | 528 |
| Control Delay (s) | 12.3 | 11.2 | 9.7 | 6.3 | 8.8 |
| Approach Delay (s) | 12.3 | 11.2 | 9.0 | | 0.0 |
| Approach LOS | B | B | A | | A |

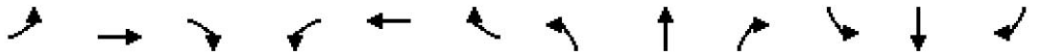
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 11.5 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 43.5% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

# HCM Signalized Intersection Capacity Analysis
## 27: Cactus Ave & Redlands Blvd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 10 | 50 | 480 | 80 | 120 | 50 | 180 | 30 | 40 | 180 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.88 | | 1.00 | 0.91 | | | 0.98 | | | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | 1805 | 3123 | | 1805 | 1713 | | | 3503 | | | 3405 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.83 | | | 0.88 | |
| Satd. Flow (perm) | 1805 | 3123 | | 1805 | 1713 | | | 2936 | | | 3005 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 160 | 11 | 53 | 511 | 85 | 128 | 53 | 191 | 32 | 43 | 191 | 96 |
| RTOR Reduction (vph) | 0 | 49 | 0 | 0 | 70 | 0 | 0 | 14 | 0 | 0 | 61 | 0 |
| Lane Group Flow (vph) | 160 | 15 | 0 | 511 | 143 | 0 | 0 | 262 | 0 | 0 | 269 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 7.9 | 3.7 | | 22.4 | 18.2 | | | 9.5 | | | 9.5 | |
| Effective Green, g (s) | 7.9 | 3.7 | | 22.4 | 18.2 | | | 9.5 | | | 9.5 | |
| Actuated g/C Ratio | 0.17 | 0.08 | | 0.47 | 0.38 | | | 0.20 | | | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 300 | 243 | | 849 | 655 | | | 586 | | | 600 | |
| v/s Ratio Prot | 0.09 | 0.00 | | c0.28 | c0.08 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.09 | | | c0.09 | |
| v/c Ratio | 0.53 | 0.06 | | 0.60 | 0.22 | | | 0.45 | | | 0.45 | |
| Uniform Delay, d1 | 18.2 | 20.3 | | 9.3 | 9.9 | | | 16.7 | | | 16.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 1.8 | 0.1 | | 1.2 | 0.2 | | | 0.5 | | | 0.5 | |
| Delay (s) | 20.0 | 20.5 | | 10.5 | 10.1 | | | 17.3 | | | 17.3 | |
| Level of Service | B | C | | B | B | | | B | | | B | |
| Approach Delay (s) | | 20.1 | | | 10.4 | | | 17.3 | | | 17.3 | |
| Approach LOS | | C | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 47.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 20 | 20 | 470 | 50 | 90 | 10 | 330 | 150 | 100 | 570 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3317 | | 3502 | 3233 | | 1805 | 5187 | 1601 | 1805 | 5082 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3317 | | 3502 | 3233 | | 1805 | 5187 | 1601 | 1805 | 5082 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 54 | 22 | 22 | 505 | 54 | 97 | 11 | 355 | 161 | 108 | 613 | 86 |
| RTOR Reduction (vph) | 0 | 21 | 0 | 0 | 79 | 0 | 0 | 0 | 86 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 54 | 23 | 0 | 505 | 72 | 0 | 11 | 355 | 75 | 108 | 685 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 2.5 | 2.3 | | 9.3 | 9.1 | | 1.1 | 13.2 | 22.5 | 7.2 | 19.3 | |
| Effective Green, g (s) | 2.5 | 2.3 | | 9.3 | 9.1 | | 1.1 | 13.2 | 22.5 | 7.2 | 19.3 | |
| Actuated g/C Ratio | 0.05 | 0.05 | | 0.19 | 0.19 | | 0.02 | 0.27 | 0.47 | 0.15 | 0.40 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 94 | 159 | | 679 | 613 | | 41 | 1426 | 884 | 271 | 2043 | |
| v/s Ratio Prot | 0.03 | 0.01 | | c0.14 | c0.02 | | 0.01 | 0.07 | 0.02 | c0.06 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | |
| v/c Ratio | 0.57 | 0.14 | | 0.74 | 0.12 | | 0.27 | 0.25 | 0.09 | 0.40 | 0.34 | |
| Uniform Delay, d1 | 22.2 | 21.9 | | 18.2 | 16.1 | | 23.1 | 13.5 | 7.1 | 18.4 | 9.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.2 | 0.4 | | 4.4 | 0.1 | | 3.5 | 0.1 | 0.0 | 1.0 | 0.1 | |
| Delay (s) | 30.5 | 22.3 | | 22.6 | 16.2 | | 26.6 | 13.6 | 7.1 | 19.4 | 10.0 | |
| Level of Service | C | C | | C | B | | C | B | A | B | B | |
| Approach Delay (s) | | 26.8 | | | 21.2 | | | 11.9 | | | 11.3 | |
| Approach LOS | | C | | | C | | | B | | | B | |

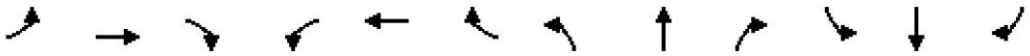
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 48.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 50 | 820 | 40 | 20 | 100 | 110 | 580 | 20 | 20 | 390 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1833 | 1590 | 1805 | 1900 | 1590 | 1805 | 3610 | 1572 | 1805 | 5120 | |
| Flt Permitted | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1833 | 1590 | 1805 | 1900 | 1590 | 1805 | 3610 | 1572 | 1805 | 5120 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 144 | 52 | 845 | 41 | 21 | 103 | 113 | 598 | 21 | 21 | 402 | 31 |
| RTOR Reduction (vph) | 0 | 0 | 365 | 0 | 0 | 95 | 0 | 0 | 15 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 196 | 480 | 41 | 21 | 8 | 113 | 598 | 6 | 21 | 426 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 31.0 | 31.0 | 5.8 | 5.8 | 5.8 | 7.8 | 22.2 | 22.2 | 2.3 | 16.7 | |
| Effective Green, g (s) | | 31.0 | 31.0 | 5.8 | 5.8 | 5.8 | 7.8 | 22.2 | 22.2 | 2.3 | 16.7 | |
| Actuated g/C Ratio | | 0.40 | 0.40 | 0.08 | 0.08 | 0.08 | 0.10 | 0.29 | 0.29 | 0.03 | 0.22 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 735 | 638 | 135 | 143 | 119 | 182 | 1037 | 451 | 54 | 1106 | |
| v/s Ratio Prot | | 0.11 | | c0.02 | 0.01 | | c0.06 | c0.17 | | 0.01 | 0.08 | |
| v/s Ratio Perm | | | c0.30 | | | 0.00 | | | 0.00 | | | |
| v/c Ratio | | 0.27 | 0.75 | 0.30 | 0.15 | 0.06 | 0.62 | 0.58 | 0.01 | 0.39 | 0.39 | |
| Uniform Delay, d1 | | 15.5 | 19.9 | 33.8 | 33.4 | 33.2 | 33.3 | 23.5 | 19.7 | 36.8 | 25.9 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.2 | 5.0 | 1.3 | 0.5 | 0.2 | 6.4 | 0.8 | 0.0 | 4.6 | 0.2 | |
| Delay (s) | | 15.7 | 24.8 | 35.1 | 33.9 | 33.5 | 39.8 | 24.3 | 19.7 | 41.4 | 26.1 | |
| Level of Service | | B | C | D | C | C | D | C | B | D | C | |
| Approach Delay (s) | | 23.1 | | | 33.9 | | | 26.6 | | | 26.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 77.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

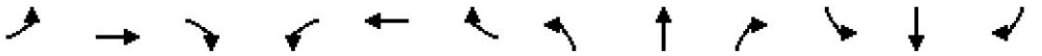
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 290 | 150 | 330 | 420 | 50 | 110 | 480 | 230 | 40 | 440 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1591 | 3502 | 3546 | | 3502 | 3610 | 1588 | 3502 | 3583 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1591 | 3502 | 3546 | | 3502 | 3610 | 1588 | 3502 | 3583 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 315 | 163 | 359 | 457 | 54 | 120 | 522 | 250 | 43 | 478 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 35 | 0 | 6 | 0 | 0 | 0 | 148 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 43 | 315 | 128 | 359 | 505 | 0 | 120 | 522 | 102 | 43 | 497 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 7.2 | 49.6 | 60.2 | 21.8 | 64.2 | | 10.6 | 27.0 | 48.8 | 5.6 | 22.0 | |
| Effective Green, g (s) | 7.2 | 49.6 | 60.2 | 21.8 | 64.2 | | 10.6 | 27.0 | 48.8 | 5.6 | 22.0 | |
| Actuated g/C Ratio | 0.06 | 0.41 | 0.50 | 0.18 | 0.54 | | 0.09 | 0.22 | 0.41 | 0.05 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 108 | 785 | 851 | 636 | 1897 | | 309 | 812 | 646 | 163 | 657 | |
| v/s Ratio Prot | 0.02 | c0.17 | 0.01 | c0.10 | 0.14 | | 0.03 | c0.14 | 0.03 | 0.01 | c0.14 | |
| v/s Ratio Perm | | | 0.07 | | | | | | 0.04 | | | |
| v/c Ratio | 0.40 | 0.40 | 0.15 | 0.56 | 0.27 | | 0.39 | 0.64 | 0.16 | 0.26 | 0.76 | |
| Uniform Delay, d1 | 54.3 | 24.8 | 16.1 | 44.8 | 15.1 | | 51.6 | 42.1 | 22.6 | 55.2 | 46.5 | |
| Progression Factor | 0.49 | 0.65 | 0.22 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.3 | 1.4 | 0.1 | 1.2 | 0.3 | | 0.8 | 1.8 | 0.1 | 0.9 | 5.0 | |
| Delay (s) | 28.7 | 17.6 | 3.6 | 45.9 | 15.5 | | 52.5 | 43.9 | 22.7 | 56.1 | 51.4 | |
| Level of Service | C | B | A | D | B | | D | D | C | E | D | |
| Approach Delay (s) | | 14.1 | | | 28.0 | | | 39.1 | | | 51.8 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

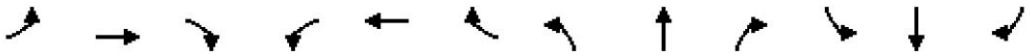
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1220 | 30 | 290 | 1020 | 40 | 30 | 130 | 430 | 50 | 240 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3595 | | 1805 | 3586 | | 1805 | 1900 | 1602 | 1805 | 1900 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3595 | | 1805 | 3586 | | 1805 | 1900 | 1602 | 1805 | 1900 | 1588 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 1298 | 32 | 309 | 1085 | 43 | 32 | 138 | 457 | 53 | 255 | 85 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 36 | 0 | 0 | 69 |
| Lane Group Flow (vph) | 85 | 1329 | 0 | 309 | 1126 | 0 | 32 | 138 | 421 | 53 | 255 | 16 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.8 | 43.4 | | 20.1 | 55.7 | | 3.9 | 18.4 | 38.5 | 5.4 | 19.9 | 19.9 |
| Effective Green, g (s) | 7.8 | 43.4 | | 20.1 | 55.7 | | 3.9 | 18.4 | 38.5 | 5.4 | 19.9 | 19.9 |
| Actuated g/C Ratio | 0.08 | 0.42 | | 0.19 | 0.54 | | 0.04 | 0.18 | 0.37 | 0.05 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 136 | 1510 | | 351 | 1934 | | 68 | 338 | 597 | 94 | 366 | 306 |
| v/s Ratio Prot | 0.05 | c0.37 | | c0.17 | 0.31 | | 0.02 | 0.07 | c0.14 | 0.03 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | 0.01 |
| v/c Ratio | 0.62 | 0.88 | | 0.88 | 0.58 | | 0.47 | 0.41 | 0.71 | 0.56 | 0.70 | 0.05 |
| Uniform Delay, d1 | 46.3 | 27.6 | | 40.4 | 16.0 | | 48.7 | 37.6 | 27.6 | 47.8 | 38.9 | 34.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.6 | 6.3 | | 21.7 | 0.5 | | 5.1 | 0.8 | 3.8 | 7.5 | 5.7 | 0.1 |
| Delay (s) | 55.0 | 33.9 | | 62.2 | 16.4 | | 53.8 | 38.4 | 31.4 | 55.3 | 44.6 | 34.1 |
| Level of Service | D | C | | E | B | | D | D | C | E | D | C |
| Approach Delay (s) | | 35.1 | | | 26.3 | | | 34.1 | | | 43.8 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 103.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 570 | 1030 | 470 | 690 | 320 | 650 | 790 | 170 | 390 | 1480 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.94 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2814 | 3502 | 3610 | 1597 | 5090 | 3610 | 1595 | 3502 | 5170 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2814 | 3502 | 3610 | 1597 | 5090 | 3610 | 1595 | 3502 | 5170 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 620 | 1120 | 511 | 750 | 348 | 707 | 859 | 185 | 424 | 1609 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 1 | 0 | 0 | 53 | 0 | 0 | 34 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 43 | 620 | 1119 | 511 | 750 | 295 | 707 | 859 | 151 | 424 | 1640 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 4.4 | 24.8 | 39.8 | 12.0 | 32.4 | 48.3 | 15.0 | 34.2 | 46.2 | 15.9 | 35.1 | |
| Effective Green, g (s) | 4.4 | 24.8 | 39.8 | 12.0 | 32.4 | 48.3 | 15.0 | 34.2 | 46.2 | 15.9 | 35.1 | |
| Actuated g/C Ratio | 0.04 | 0.24 | 0.39 | 0.12 | 0.31 | 0.47 | 0.15 | 0.33 | 0.45 | 0.15 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 77 | 870 | 1088 | 408 | 1137 | 750 | 742 | 1200 | 778 | 541 | 1764 | |
| v/s Ratio Prot | 0.02 | 0.17 | c0.15 | c0.15 | 0.21 | 0.06 | 0.14 | 0.24 | 0.02 | 0.12 | c0.32 | |
| v/s Ratio Perm | | | 0.25 | | | 0.12 | | | 0.07 | | | |
| v/c Ratio | 0.56 | 0.71 | 1.03 | 1.25 | 0.66 | 0.39 | 0.95 | 0.72 | 0.19 | 0.78 | 0.93 | |
| Uniform Delay, d1 | 48.3 | 35.8 | 31.6 | 45.5 | 30.5 | 17.8 | 43.6 | 30.1 | 17.1 | 41.8 | 32.7 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.5 | 2.8 | 34.9 | 132.4 | 1.4 | 0.3 | 22.1 | 2.1 | 0.1 | 7.3 | 9.1 | |
| Delay (s) | 56.8 | 38.6 | 66.5 | 177.8 | 31.9 | 18.1 | 65.7 | 32.2 | 17.2 | 49.2 | 41.8 | |
| Level of Service | E | D | E | F | C | B | E | C | B | D | D | |
| Approach Delay (s) | | 56.5 | | | 75.3 | | | 44.1 | | | 43.3 | |
| Approach LOS | | E | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 53.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 102.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 89.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

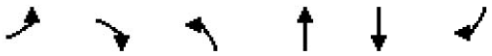
c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis
## 107: Rider St & Evans Rd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 240 | 70 | 10 | 180 | 30 | 50 | 190 | 30 | 60 | 230 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3472 | | 1805 | 3523 | | 1803 | 3528 | | 1801 | 3293 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.41 | 1.00 | | 0.60 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3472 | | 1805 | 3523 | | 778 | 3528 | | 1141 | 3293 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 274 | 253 | 74 | 11 | 189 | 32 | 53 | 200 | 32 | 63 | 242 | 274 |
| RTOR Reduction (vph) | 0 | 30 | 0 | 0 | 15 | 0 | 0 | 8 | 0 | 0 | 140 | 0 |
| Lane Group Flow (vph) | 274 | 297 | 0 | 11 | 206 | 0 | 53 | 224 | 0 | 63 | 376 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | pm+pt | | | pm+pt | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 20.4 | 34.2 | | 1.2 | 15.0 | | 58.3 | 52.5 | | 58.9 | 52.8 | |
| Effective Green, g (s) | 20.4 | 34.2 | | 1.2 | 15.0 | | 58.3 | 52.5 | | 58.9 | 52.8 | |
| Actuated g/C Ratio | 0.19 | 0.31 | | 0.01 | 0.14 | | 0.53 | 0.48 | | 0.54 | 0.48 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 335 | 1079 | | 20 | 480 | | 466 | 1684 | | 648 | 1581 | |
| v/s Ratio Prot | c0.15 | 0.09 | | 0.01 | c0.06 | | c0.01 | 0.06 | | 0.01 | c0.11 | |
| v/s Ratio Perm | | | | | | | 0.05 | | | 0.05 | | |
| v/c Ratio | 0.82 | 0.27 | | 0.55 | 0.43 | | 0.11 | 0.13 | | 0.10 | 0.24 | |
| Uniform Delay, d1 | 43.0 | 28.6 | | 54.1 | 43.6 | | 12.7 | 16.0 | | 12.3 | 16.8 | |
| Progression Factor | 0.83 | 0.86 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.79 | 0.47 | |
| Incremental Delay, d2 | 14.0 | 0.1 | | 28.9 | 0.6 | | 0.1 | 0.2 | | 0.1 | 0.4 | |
| Delay (s) | 49.9 | 24.6 | | 83.0 | 44.2 | | 12.8 | 16.2 | | 9.8 | 8.3 | |
| Level of Service | D | C | | F | D | | B | B | | A | A | |
| Approach Delay (s) | | 36.1 | | | 46.0 | | | 15.6 | | | 8.5 | |
| Approach LOS | | D | | | D | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

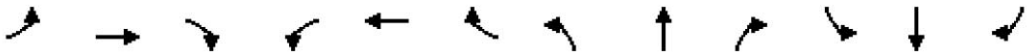
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 40 | 30 | 10 | 380 | 690 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.94 | | 1.00 | 1.00 | 0.99 | |
| Flt Protected | 0.97 | | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1741 | | 1805 | 1900 | 1876 | |
| Flt Permitted | 0.97 | | 0.28 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1741 | | 524 | 1900 | 1876 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 42 | 31 | 10 | 396 | 719 | 73 |
| RTOR Reduction (vph) | 28 | 0 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 45 | 0 | 10 | 396 | 787 | 0 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | 3.4 | | 20.1 | 20.1 | 20.1 | |
| Effective Green, g (s) | 3.4 | | 20.1 | 20.1 | 20.1 | |
| Actuated g/C Ratio | 0.11 | | 0.64 | 0.64 | 0.64 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 188 | | 334 | 1212 | 1197 | |
| v/s Ratio Prot | c0.03 | | | 0.21 | c0.42 | |
| v/s Ratio Perm | | | 0.02 | | | |
| v/c Ratio | 0.24 | | 0.03 | 0.33 | 0.66 | |
| Uniform Delay, d1 | 12.9 | | 2.1 | 2.6 | 3.6 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | | 0.0 | 0.2 | 1.3 | |
| Delay (s) | 13.5 | | 2.1 | 2.8 | 4.9 | |
| Level of Service | B | | A | A | A | |
| Approach Delay (s) | 13.5 | | | 2.7 | 4.9 | |
| Approach LOS | B | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 31.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

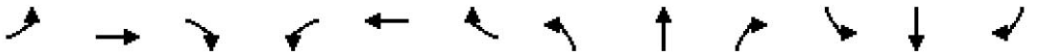
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 590 | 0 | 0 | 210 | 190 | 160 | 10 | 10 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 1900 | | | 1900 | 1615 | | 1814 | 1615 | | | |
| Flt Permitted | 0.62 | 1.00 | | | 1.00 | 1.00 | | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | 1184 | 1900 | | | 1900 | 1615 | | 1814 | 1615 | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 21 | 608 | 0 | 0 | 216 | 196 | 165 | 10 | 10 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 107 | 0 | 0 | 7 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 21 | 608 | 0 | 0 | 216 | 89 | 0 | 175 | 3 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | Perm | | | | | Perm | Perm | | Perm | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | 2 | | | |
| Actuated Green, G (s) | 12.4 | 12.4 | | | 12.4 | 12.4 | | 7.0 | 7.0 | | | |
| Effective Green, g (s) | 12.4 | 12.4 | | | 12.4 | 12.4 | | 7.0 | 7.0 | | | |
| Actuated g/C Ratio | 0.45 | 0.45 | | | 0.45 | 0.45 | | 0.26 | 0.26 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 536 | 860 | | | 860 | 731 | | 463 | 413 | | | |
| v/s Ratio Prot | | c0.32 | | | 0.11 | | | | | | | |
| v/s Ratio Perm | 0.02 | | | | | 0.05 | | 0.10 | 0.00 | | | |
| v/c Ratio | 0.04 | 0.71 | | | 0.25 | 0.12 | | 0.38 | 0.01 | | | |
| Uniform Delay, d1 | 4.2 | 6.0 | | | 4.6 | 4.3 | | 8.4 | 7.6 | | | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 0.0 | 2.7 | | | 0.2 | 0.1 | | 0.5 | 0.0 | | | |
| Delay (s) | 4.2 | 8.7 | | | 4.8 | 4.4 | | 8.9 | 7.6 | | | |
| Level of Service | A | A | | | A | A | | A | A | | | |
| Approach Delay (s) | | 8.6 | | | 4.6 | | | 8.9 | | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 27.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 49.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

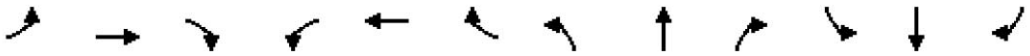
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 400 | 330 | 10 | 380 | 0 | 0 | 0 | 0 | 220 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1900 | 1615 | 1805 | 1900 | | | | | | 1813 | 1615 |
| Flt Permitted | | 1.00 | 1.00 | 0.49 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1900 | 1615 | 933 | 1900 | | | | | | 1813 | 1615 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 417 | 344 | 10 | 396 | 0 | 0 | 0 | 0 | 229 | 10 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 179 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 0 | 417 | 165 | 10 | 396 | 0 | 0 | 0 | 0 | 0 | 239 | 3 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | | | Perm | Perm | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 14.6 | 14.6 | 14.6 | 14.6 | | | | | | 7.8 | 7.8 |
| Effective Green, g (s) | | 14.6 | 14.6 | 14.6 | 14.6 | | | | | | 7.8 | 7.8 |
| Actuated g/C Ratio | | 0.48 | 0.48 | 0.48 | 0.48 | | | | | | 0.26 | 0.26 |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 913 | 776 | 448 | 913 | | | | | | 465 | 414 |
| v/s Ratio Prot | | c0.22 | | | 0.21 | | | | | | | |
| v/s Ratio Perm | | | 0.10 | 0.01 | | | | | | | 0.13 | 0.00 |
| v/c Ratio | | 0.46 | 0.21 | 0.02 | 0.43 | | | | | | 0.51 | 0.01 |
| Uniform Delay, d1 | | 5.3 | 4.6 | 4.2 | 5.2 | | | | | | 9.7 | 8.4 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.4 | 0.1 | 0.0 | 0.3 | | | | | | 1.0 | 0.0 |
| Delay (s) | | 5.6 | 4.7 | 4.2 | 5.5 | | | | | | 10.6 | 8.4 |
| Level of Service | | A | A | A | A | | | | | | B | A |
| Approach Delay (s) | | 5.2 | | | 5.5 | | | 0.0 | | | 10.5 | |
| Approach LOS | | A | | | A | | | A | | | B | |

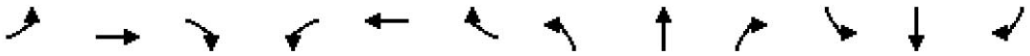
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 30.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 49.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 560 | 0 | 0 | 250 | 260 | 10 | 30 | 10 | 220 | 10 | 20 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.93 | | | 0.97 | | | 0.99 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.96 | |
| Satd. Flow (prot) | | 1795 | | | 1676 | | | 1734 | | | 1706 | |
| Flt Permitted | | 0.96 | | | 1.00 | | | 0.92 | | | 0.71 | |
| Satd. Flow (perm) | | 1724 | | | 1676 | | | 1611 | | | 1268 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 33 | 622 | 0 | 0 | 278 | 289 | 11 | 33 | 11 | 244 | 11 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 8 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 655 | 0 | 0 | 502 | 0 | 0 | 47 | 0 | 0 | 272 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 22.9 | | | 22.9 | | | 15.1 | | | 15.1 | |
| Effective Green, g (s) | | 22.9 | | | 22.9 | | | 15.1 | | | 15.1 | |
| Actuated g/C Ratio | | 0.48 | | | 0.48 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 822 | | | 800 | | | 507 | | | 399 | |
| v/s Ratio Prot | | | | | 0.30 | | | | | | | |
| v/s Ratio Perm | | c0.38 | | | | | | 0.03 | | | c0.21 | |
| v/c Ratio | | 0.80 | | | 0.63 | | | 0.09 | | | 0.68 | |
| Uniform Delay, d1 | | 10.6 | | | 9.4 | | | 11.6 | | | 14.3 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 5.4 | | | 1.5 | | | 0.1 | | | 4.7 | |
| Delay (s) | | 16.0 | | | 10.9 | | | 11.7 | | | 19.1 | |
| Level of Service | | B | | | B | | | B | | | B | |
| Approach Delay (s) | | 16.0 | | | 10.9 | | | 11.7 | | | 19.1 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 48.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 86.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 700 | 10 | 10 | 470 | 170 | 10 | 10 | 10 | 110 | 0 | 20 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.96 | | | 0.95 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.96 | |
| Satd. Flow (prot) | | 1794 | | | 1735 | | | 1691 | | | 1691 | |
| Flt Permitted | | 0.97 | | | 0.99 | | | 0.89 | | | 0.73 | |
| Satd. Flow (perm) | | 1749 | | | 1713 | | | 1528 | | | 1293 | |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 24 | 833 | 12 | 12 | 560 | 202 | 12 | 12 | 12 | 131 | 0 | 24 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 10 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 0 | 869 | 0 | 0 | 761 | 0 | 0 | 26 | 0 | 0 | 144 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | | 2 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 34.3 | | | 34.3 | | | 9.4 | | | 9.4 | |
| Effective Green, g (s) | | 34.3 | | | 34.3 | | | 9.4 | | | 9.4 | |
| Actuated g/C Ratio | | 0.64 | | | 0.64 | | | 0.18 | | | 0.18 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1117 | | | 1094 | | | 267 | | | 226 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.50 | | | 0.44 | | | 0.02 | | | c0.11 | |
| v/c Ratio | | 0.78 | | | 0.70 | | | 0.10 | | | 0.64 | |
| Uniform Delay, d1 | | 7.0 | | | 6.3 | | | 18.6 | | | 20.6 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 3.5 | | | 1.9 | | | 0.2 | | | 5.8 | |
| Delay (s) | | 10.4 | | | 8.2 | | | 18.8 | | | 26.4 | |
| Level of Service | | B | | | A | | | B | | | C | |
| Approach Delay (s) | | 10.4 | | | 8.2 | | | 18.8 | | | 26.4 | |
| Approach LOS | | B | | | A | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 53.7 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 74.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 60 | 700 | 30 | 20 | 670 | 80 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | 5.0 | | | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.88 | | | 1.00 | 0.99 | |
| Flt Protected | 1.00 | | | 0.97 | 0.96 | |
| Satd. Flow (prot) | 1576 | | | 1748 | 1698 | |
| Flt Permitted | 1.00 | | | 0.23 | 0.96 | |
| Satd. Flow (perm) | 1576 | | | 419 | 1698 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 67 | 778 | 33 | 22 | 744 | 89 |
| RTOR Reduction (vph) | 572 | 0 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 273 | 0 | 0 | 55 | 828 | 0 |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 8 | 2 | |
| Permitted Phases | | | 8 | | | |
| Actuated Green, G (s) | 15.4 | | | 15.4 | 33.6 | |
| Effective Green, g (s) | 15.4 | | | 15.4 | 33.6 | |
| Actuated g/C Ratio | 0.26 | | | 0.26 | 0.57 | |
| Clearance Time (s) | 5.0 | | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 411 | | | 109 | 967 | |
| v/s Ratio Prot | c0.17 | | | | c0.49 | |
| v/s Ratio Perm | | | | 0.13 | | |
| v/c Ratio | 0.66 | | | 0.50 | 0.86 | |
| Uniform Delay, d1 | 19.5 | | | 18.6 | 10.7 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.0 | | | 3.6 | 7.5 | |
| Delay (s) | 23.5 | | | 22.2 | 18.2 | |
| Level of Service | C | | | C | B | |
| Approach Delay (s) | 23.5 | | | 22.2 | 18.2 | |
| Approach LOS | C | | | C | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 59.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 101.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix D

## Intersection LOS Worksheets
## for Existing Plus Build-out Conditions

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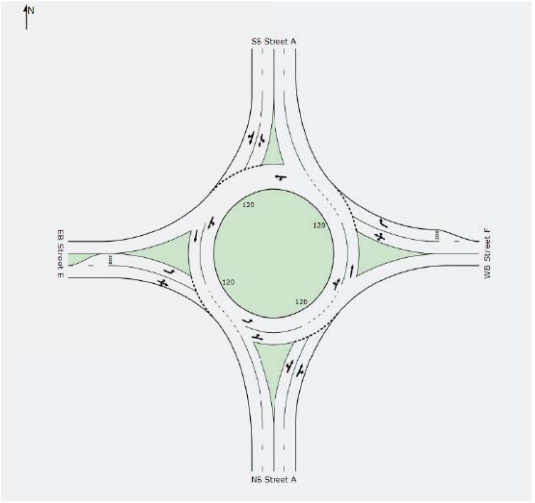
# LANE OUTPUT

*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 1 - Existing Plus Build-out - AM Peak Hour
**Intersection Type:** Roundabout

**Lane Use & Performance**

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street A | | | | | | | | | | |
| Lane 1 | 441 | 0.0 | 686 | 0.643 | 100 | 11.7 | LOS B | 4.7 | 117.7 | 0.0 |
| Lane 2 | 469 | 0.0 | 729 | 0.643 | 100 | 10.9 | LOS B | 4.8 | 120.7 | 0.0 |
| Approach | 910 | 0.0 | | 0.643 | | 11.3 | LOS B | 4.8 | 120.7 | |
| East: WB Street F | | | | | | | | | | |
| Lane 1 | 145 | 0.0 | 586 | 0.247 | 100 | 11.2 | LOS B | 1.0 | 24.7 | 0.0 |
| Lane 2 | 165 | 0.0 | 668 | 0.247 | 100 | 9.1 | LOS A | 1.0 | 25.7 | 0.0 |
| Approach | 310 | 0.0 | | 0.247 | | 10.0 | LOS B | 1.0 | 25.7 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 1270 | 0.0 | 1305 | 0.973 | 100 | 15.7 | LOS B | 496.6 | 870.5 | 0.0 |
| Lane 2 | 1430 | 0.0 | 1470 | 0.973 | 100 | 11.6 | LOS B | 583.3 | 864.3 | 0.0 |
| Approach | 2700 | 0.0 | | 0.973 | | 13.5 | LOS B | 583.3 | 870.5 | |
| West: EB Street E | | | | | | | | | | |
| Lane 1 | 271 | 0.0 | 239 | 1.133 | 100 | 111.7 | LOS F | 19.9 | 496.3 | 49.8 |
| Lane 2 | 329 | 0.0 | 290 | 1.133 | 100 | 113.2 | LOS F | 23.3 | 583.3 | 0.0 |
| Approach | 600 | 0.0 | | 1.133 | | 115.0 | LOS F | 23.3 | 583.3 | |
| All Vehicles | 4520 | | | 1.133 | | 26.3 | LOS C | 34.8 | 870.5 | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 50 | 70 | 180 | 80 | 310 | 580 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1900 | 1591 | 3502 | 1900 | 1805 | 1592 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1900 | 1591 | 3502 | 1900 | 1805 | 1592 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 54 | 76 | 196 | 87 | 337 | 630 |
| RTOR Reduction (vph) | 0 | 66 | 0 | 0 | 0 | 356 |
| Lane Group Flow (vph) | 54 | 10 | 196 | 87 | 337 | 274 |
| Confl. Peds. (#/hr) | | 5 | | | 5 | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | 4 | | | | 2 |
| Actuated Green, G (s) | 5.6 | 5.6 | 5.7 | 15.3 | 17.9 | 17.9 |
| Effective Green, g (s) | 5.6 | 5.6 | 5.7 | 15.3 | 17.9 | 17.9 |
| Actuated g/C Ratio | 0.14 | 0.14 | 0.14 | 0.37 | 0.43 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 258 | 216 | 485 | 706 | 784 | 692 |
| v/s Ratio Prot | c0.03 | | c0.06 | 0.05 | c0.19 | |
| v/s Ratio Perm | | 0.01 | | | | 0.17 |
| v/c Ratio | 0.21 | 0.05 | 0.40 | 0.12 | 0.43 | 0.40 |
| Uniform Delay, d1 | 15.8 | 15.5 | 16.2 | 8.5 | 8.1 | 8.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.1 | 0.6 | 0.1 | 0.4 | 0.4 |
| Delay (s) | 16.2 | 15.6 | 16.8 | 8.6 | 8.5 | 8.3 |
| Level of Service | B | B | B | A | A | A |
| Approach Delay (s) | 15.8 | | | 14.2 | 8.4 | |
| Approach LOS | B | | | B | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 41.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 51.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

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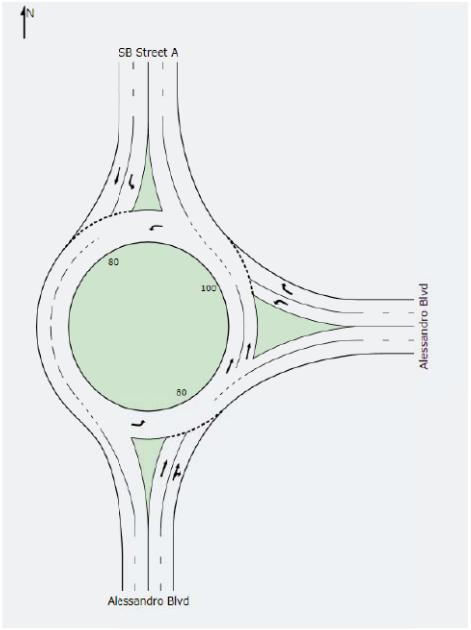
# LANE OUTPUT

*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 3 - Existing Plus Build-out - AM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 260 | 0.0 | 781 | 0.333 | 100 | 9.5 | LOS A | 2.1 | 52.2 | 0.0 |
| Lane 2 | 280 | 0.0 | 839 | 0.334 | 100 | 10.8 | LOS B | 2.1 | 53.6 | 0.0 |
| Approach | 540 | 0.0 | | 0.334 | | 10.2 | LOS B | 2.1 | 53.6 | |
| East: WB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 110 | 0.0 | 604 | 0.182 | 100 | 14.7 | LOS B | 0.8 | 20.8 | 0.0 |
| Lane 2 | 400 | 0.0 | 996 | 0.402 | 100 | 7.9 | LOS A | 2.5 | 62.3 | 0.0 |
| Approach | 510 | 0.0 | | 0.402 | | 9.4 | LOS A | 2.5 | 62.3 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 570 | 0.0 | 1353 | 0.421 | 100 | 12.6 | LOS B | 2.9 | 71.4 | 0.0 |
| Lane 2 | 140 | 0.0 | 778 | 0.180 | 100 | 6.8 | LOS A | 0.9 | 21.6 | 0.0 |
| Approach | 710 | 0.0 | | 0.421 | | 11.5 | LOS B | 2.9 | 71.4 | |
| All Vehicles | 1760 | | | 0.421 | | 10.5 | LOS B | 2.9 | 71.4 | |



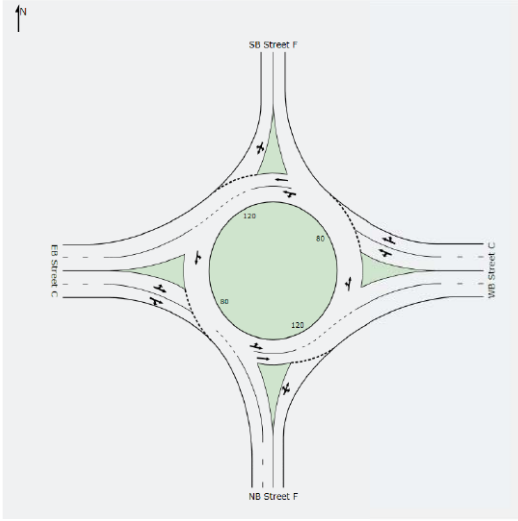
# LANE OUTPUT

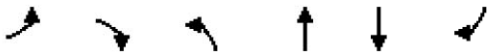
*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 4 - Existing Plus Build-out - AM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street F | | | | | | | | | | |
| Lane 1 | 300 | 0.0 | 713 | 0.421 | 100 | 15.1 | LOS C | 2.4 | 60.0 | 0.0 |
| Approach | 300 | 0.0 | | 0.421 | | 15.1 | LOS C | 2.4 | 60.0 | |
| East: WB Street C | | | | | | | | | | |
| Lane 1 | 255 | 0.0 | 1002 | 0.255 | 100 | 9.6 | LOS A | 1.4 | 34.3 | 0.0 |
| Lane 2 | 265 | 0.0 | 1040 | 0.255 | 100 | 7.4 | LOS A | 1.4 | 34.7 | 0.0 |
| Approach | 520 | 0.0 | | 0.255 | | 8.5 | LOS A | 1.4 | 34.7 | |
| North: SB Street F | | | | | | | | | | |
| Lane 1 | 120 | 0.0 | 720 | 0.167 | 100 | 12.1 | LOS B | 0.6 | 15.9 | 0.0 |
| Approach | 120 | 0.0 | | 0.167 | | 12.1 | LOS B | 0.6 | 15.9 | |
| West: EB Street C | | | | | | | | | | |
| Lane 1 | 400 | 0.0 | 1141 | 0.351 | 85 | 8.1 | LOS A | 2.0 | 48.9 | 0.0 |
| Lane 2 | 520 | 0.0 | 1258 | 0.414 | 100 | 8.1 | LOS A | 2.5 | 62.7 | 0.0 |
| Approach | 920 | 0.0 | | 0.414 | | 8.1 | LOS A | 2.5 | 62.7 | |
| All Vehicles | 1860 | | 0 | 0.421 | | 9.6 | LOS A | 2.5 | 62.7 | |

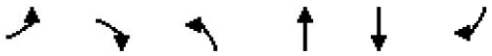




| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 220 | 140 | 340 | 600 | 270 | 550 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1569 | 1715 | 1800 | 1900 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 0.98 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1569 | 1715 | 1776 | 1900 | 1589 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 247 | 157 | 382 | 674 | 303 | 618 |
| RTOR Reduction (vph) | 0 | 124 | 0 | 0 | 0 | 392 |
| Lane Group Flow (vph) | 247 | 33 | 344 | 712 | 303 | 226 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 13.8 | 13.8 | 15.4 | 43.1 | 23.7 | 23.7 |
| Effective Green, g (s) | 13.8 | 13.8 | 15.4 | 43.1 | 23.7 | 23.7 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.24 | 0.66 | 0.37 | 0.37 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 384 | 334 | 407 | 1185 | 694 | 580 |
| v/s Ratio Prot | c0.14 | | c0.20 | 0.14 | 0.16 | |
| v/s Ratio Perm | | 0.02 | | c0.26 | | 0.14 |
| v/c Ratio | 0.64 | 0.10 | 0.85 | 0.60 | 0.44 | 0.39 |
| Uniform Delay, d1 | 23.3 | 20.6 | 23.6 | 6.1 | 15.6 | 15.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.7 | 0.1 | 14.8 | 0.9 | 0.4 | 0.4 |
| Delay (s) | 27.0 | 20.7 | 38.4 | 7.0 | 16.0 | 15.7 |
| Level of Service | C | C | D | A | B | B |
| Approach Delay (s) | 24.5 | | | 17.2 | 15.8 | |
| Approach LOS | C | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 64.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 72.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 40 | 40 | 600 | 780 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1571 | 1805 | 1900 | 1900 | 1571 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1571 | 1805 | 1900 | 1900 | 1571 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 11 | 43 | 43 | 652 | 848 | 11 |
| RTOR Reduction (vph) | 0 | 40 | 0 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 11 | 3 | 43 | 652 | 848 | 9 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 3.6 | 3.6 | 3.5 | 43.8 | 36.3 | 36.3 |
| Effective Green, g (s) | 3.6 | 3.6 | 3.5 | 43.8 | 36.3 | 36.3 |
| Actuated g/C Ratio | 0.06 | 0.06 | 0.06 | 0.79 | 0.66 | 0.66 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 117 | 102 | 114 | 1502 | 1245 | 1029 |
| v/s Ratio Prot | c0.01 | | 0.02 | c0.34 | c0.45 | |
| v/s Ratio Perm | | 0.00 | | | | 0.01 |
| v/c Ratio | 0.09 | 0.03 | 0.38 | 0.43 | 0.68 | 0.01 |
| Uniform Delay, d1 | 24.4 | 24.3 | 24.9 | 1.8 | 5.9 | 3.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.1 | 2.1 | 0.2 | 1.6 | 0.0 |
| Delay (s) | 24.7 | 24.4 | 27.0 | 2.1 | 7.5 | 3.3 |
| Level of Service | C | C | C | A | A | A |
| Approach Delay (s) | 24.4 | | | 3.6 | 7.4 | |
| Approach LOS | C | | | A | A | |

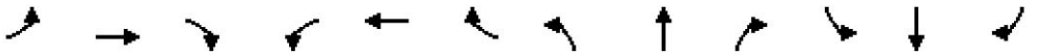
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 55.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 40 | 0 | 60 | 5 | 0 | 5 | 20 | 830 | 0 | 0 | 610 | 20 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 45 | 0 | 68 | 6 | 0 | 6 | 23 | 943 | 0 | 0 | 693 | 23 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1698 | 1692 | 703 | 1760 | 1715 | 953 | 721 | | | 948 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1698 | 1692 | 703 | 1760 | 1715 | 953 | 721 | | | 948 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 35 | 100 | 84 | 90 | 100 | 98 | 97 | | | 100 | | |
| cM capacity (veh/h) | 70 | 91 | 437 | 54 | 88 | 314 | 886 | | | 729 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 114 | 11 | 23 | 943 | 0 | 0 | 693 | 23 |
| Volume Left | 45 | 6 | 23 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 68 | 6 | 0 | 0 | 0 | 0 | 0 | 23 |
| cSH | 141 | 93 | 886 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.80 | 0.12 | 0.03 | 0.55 | 0.00 | 0.00 | 0.41 | 0.01 |
| Queue Length 95th (ft) | 126 | 10 | 2 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 92.2 | 49.1 | 9.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | E | A | | | | | |
| Approach Delay (s) | 92.2 | 49.1 | 0.2 | | | 0.0 | | |
| Approach LOS | F | E | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.2 | | | |
| Intersection Capacity Utilization | 57.2% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 20 | 30 | 10 | 10 | 10 | 50 | 600 | 10 | 10 | 460 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1777 | | | 1766 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Flt Permitted | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1777 | | | 1766 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 119 | 24 | 36 | 12 | 12 | 12 | 60 | 714 | 12 | 12 | 548 | 95 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 23 |
| Lane Group Flow (vph) | 0 | 173 | 0 | 0 | 25 | 0 | 60 | 725 | 0 | 12 | 548 | 72 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 42.9 | | | 5.0 | | 8.2 | 53.1 | | 3.0 | 47.9 | 47.9 |
| Effective Green, g (s) | | 42.9 | | | 5.0 | | 8.2 | 53.1 | | 3.0 | 47.9 | 47.9 |
| Actuated g/C Ratio | | 0.36 | | | 0.04 | | 0.07 | 0.44 | | 0.02 | 0.40 | 0.40 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 635 | | | 74 | | 123 | 838 | | 45 | 758 | 623 |
| v/s Ratio Prot | | c0.10 | | | c0.01 | | c0.03 | c0.38 | | 0.01 | 0.29 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.05 |
| v/c Ratio | | 0.27 | | | 0.33 | | 0.49 | 0.87 | | 0.27 | 0.72 | 0.11 |
| Uniform Delay, d1 | | 27.4 | | | 55.9 | | 53.9 | 30.2 | | 57.4 | 30.4 | 22.7 |
| Progression Factor | | 0.77 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.5 | | | 2.6 | | 3.0 | 9.3 | | 3.2 | 3.4 | 0.1 |
| Delay (s) | | 21.8 | | | 58.5 | | 56.9 | 39.5 | | 60.6 | 33.9 | 22.8 |
| Level of Service | | C | | | E | | E | D | | E | C | C |
| Approach Delay (s) | | 21.8 | | | 58.5 | | | 40.9 | | | 32.8 | |
| Approach LOS | | C | | | E | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 68.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

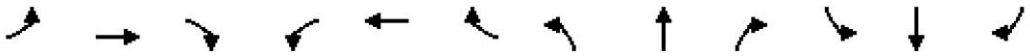
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 200 | 30 | 10 | 110 | 60 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Hourly flow rate (vph) | 12 | 247 | 37 | 12 | 136 | 74 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 356 | 5 | 530 | 282 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 356 | 5 | 530 | 282 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 98 | 77 | 89 | 98 | 92 | |
| cM capacity (veh/h) | 521 | 1080 | 325 | 573 | 1623 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 12 | 247 | 49 | 136 | 74 |
| Volume Left | 0 | 0 | 37 | 136 | 0 |
| Volume Right | 0 | 247 | 0 | 0 | 74 |
| cSH | 521 | 1080 | 364 | 1623 | 1700 |
| Volume to Capacity | 0.02 | 0.23 | 0.14 | 0.08 | 0.04 |
| Queue Length 95th (ft) | 2 | 22 | 12 | 7 | 0 |
| Control Delay (s) | 12.1 | 9.3 | 16.4 | 7.4 | 0.0 |
| Lane LOS | B | A | C | A | |
| Approach Delay (s) | 9.5 | | 16.4 | 4.8 | |
| Approach LOS | A | | C | | |

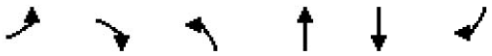
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.2 | | |
| Intersection Capacity Utilization | 22.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 10 | 10 | 10 | 10 | 130 | 10 | 500 | 130 | 220 | 280 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 0 | 12 | 12 | 12 | 12 | 155 | 12 | 595 | 155 | 262 | 333 | 12 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1653 | 1647 | 349 | 1581 | 1575 | 683 | 350 | | | 755 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1653 | 1647 | 349 | 1581 | 1575 | 683 | 350 | | | 755 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 83 | 98 | 79 | 84 | 66 | 99 | | | 70 | | |
| cM capacity (veh/h) | 34 | 69 | 693 | 57 | 76 | 449 | 1215 | | | 861 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 24 | 179 | 12 | 750 | 262 | 345 |
| Volume Left | 0 | 12 | 12 | 0 | 262 | 0 |
| Volume Right | 12 | 155 | 0 | 155 | 0 | 12 |
| cSH | 125 | 252 | 1215 | 1700 | 861 | 1700 |
| Volume to Capacity | 0.19 | 0.71 | 0.01 | 0.44 | 0.30 | 0.20 |
| Queue Length 95th (ft) | 17 | 120 | 1 | 0 | 32 | 0 |
| Control Delay (s) | 40.6 | 48.0 | 8.0 | 0.0 | 11.0 | 0.0 |
| Lane LOS | E | E | A | | B | |
| Approach Delay (s) | 40.6 | 48.0 | 0.1 | | 4.7 | |
| Approach LOS | E | E | | | | |

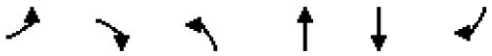
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 8.0 | | | |
| Intersection Capacity Utilization | 72.2% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 190 | 340 | 70 | 470 | 330 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.91 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.98 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1705 | | 1805 | 1900 | 1900 | 1615 |
| Flt Permitted | 0.98 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1705 | | 1805 | 1900 | 1900 | 1615 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 224 | 400 | 82 | 553 | 388 | 35 |
| RTOR Reduction (vph) | 99 | 0 | 0 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 525 | 0 | 82 | 553 | 388 | 24 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 5 | 2 | 6 | 4 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 19.0 | | 3.7 | 24.2 | 16.5 | 35.5 |
| Effective Green, g (s) | 19.0 | | 3.7 | 24.2 | 16.5 | 35.5 |
| Actuated g/C Ratio | 0.37 | | 0.07 | 0.47 | 0.32 | 0.69 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 633 | | 130 | 898 | 612 | 1246 |
| v/s Ratio Prot | c0.31 | | 0.05 | c0.29 | 0.20 | 0.01 |
| v/s Ratio Perm | | | | | | 0.01 |
| v/c Ratio | 0.83 | | 0.63 | 0.62 | 0.63 | 0.02 |
| Uniform Delay, d1 | 14.6 | | 23.1 | 10.0 | 14.8 | 2.4 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.8 | | 9.6 | 1.3 | 2.2 | 0.0 |
| Delay (s) | 23.5 | | 32.7 | 11.3 | 16.9 | 2.4 |
| Level of Service | C | | C | B | B | A |
| Approach Delay (s) | 23.5 | | | 14.1 | 15.7 | |
| Approach LOS | C | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 51.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

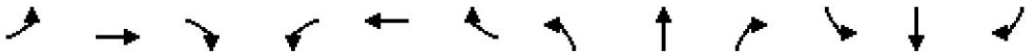
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 290 | 1280 | 120 | 210 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1590 | 3502 | 5187 | 5187 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1590 | 3502 | 5187 | 5187 | 1588 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 22 | 312 | 1376 | 129 | 226 | 65 |
| RTOR Reduction (vph) | 0 | 272 | 0 | 0 | 0 | 57 |
| Lane Group Flow (vph) | 22 | 40 | 1376 | 129 | 226 | 8 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 8.4 | 8.4 | 37.2 | 49.6 | 8.4 | 8.4 |
| Effective Green, g (s) | 8.4 | 8.4 | 37.2 | 49.6 | 8.4 | 8.4 |
| Actuated g/C Ratio | 0.13 | 0.13 | 0.56 | 0.75 | 0.13 | 0.13 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 230 | 202 | 1974 | 3898 | 660 | 202 |
| v/s Ratio Prot | 0.01 | | c0.39 | 0.02 | c0.04 | |
| v/s Ratio Perm | | c0.02 | | | | 0.01 |
| v/c Ratio | 0.10 | 0.20 | 0.70 | 0.03 | 0.34 | 0.04 |
| Uniform Delay, d1 | 25.4 | 25.8 | 10.4 | 2.1 | 26.3 | 25.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.5 | 1.1 | 0.0 | 0.3 | 0.1 |
| Delay (s) | 25.6 | 26.3 | 11.4 | 2.1 | 26.6 | 25.3 |
| Level of Service | C | C | B | A | C | C |
| Approach Delay (s) | 26.2 | | | 10.6 | 26.3 | |
| Approach LOS | C | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 66.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 0 | 1990 | 0 | 0 | 0 | 0 | 1410 | 180 | 0 | 480 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 0.88 | | | | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 0.99 | | | | | 1.00 | 0.99 | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 2804 | | | | | 5187 | 1591 | | 5187 | 1575 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 2804 | | | | | 5187 | 1591 | | 5187 | 1575 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 65 | 0 | 2163 | 0 | 0 | 0 | 0 | 1533 | 196 | 0 | 522 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 65 | 0 | 2163 | 0 | 0 | 0 | 0 | 1533 | 148 | 0 | 522 | 8 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | custom | | Free | | | | | | Perm | | | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | Free | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 2.7 | | 43.4 | | | | | 32.7 | 32.7 | | 32.7 | 32.7 |
| Effective Green, g (s) | 2.7 | | 43.4 | | | | | 32.7 | 32.7 | | 32.7 | 32.7 |
| Actuated g/C Ratio | 0.06 | | 1.00 | | | | | 0.75 | 0.75 | | 0.75 | 0.75 |
| Clearance Time (s) | 4.0 | | | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 112 | | 2804 | | | | | 3908 | 1199 | | 3908 | 1187 |
| v/s Ratio Prot | | | | | | | | 0.30 | | | 0.10 | |
| v/s Ratio Perm | 0.04 | | c0.77 | | | | | | 0.09 | | | 0.01 |
| v/c Ratio | 0.58 | | 0.77 | | | | | 0.39 | 0.12 | | 0.13 | 0.01 |
| Uniform Delay, d1 | 19.8 | | 0.0 | | | | | 1.9 | 1.5 | | 1.5 | 1.3 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.4 | | 2.1 | | | | | 0.1 | 0.0 | | 0.0 | 0.0 |
| Delay (s) | 27.2 | | 2.1 | | | | | 1.9 | 1.5 | | 1.5 | 1.3 |
| Level of Service | C | | A | | | | | A | A | | A | A |
| Approach Delay (s) | | 2.9 | | | 0.0 | | | 1.9 | | | 1.5 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 2.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 43.4 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 38.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

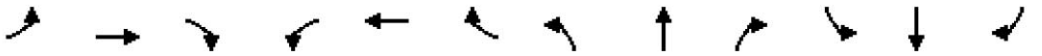
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 60 | 500 | 70 | 470 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.98 | 0.97 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.89 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.99 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1641 | 1492 | 1900 | 1589 | 1805 | 1900 |
| Flt Permitted | 0.99 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1641 | 1492 | 1900 | 1589 | 1805 | 1900 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 11 | 65 | 543 | 76 | 511 | 250 |
| RTOR Reduction (vph) | 25 | 36 | 0 | 25 | 0 | 0 |
| Lane Group Flow (vph) | 13 | 2 | 543 | 51 | 511 | 250 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | | |
| Turn Type | | Perm | | Perm | Prot | |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 3.7 | 3.7 | 25.1 | 25.1 | 24.5 | 53.6 |
| Effective Green, g (s) | 3.7 | 3.7 | 25.1 | 25.1 | 24.5 | 53.6 |
| Actuated g/C Ratio | 0.06 | 0.06 | 0.38 | 0.38 | 0.38 | 0.82 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 93 | 85 | 730 | 611 | 677 | 1560 |
| v/s Ratio Prot | c0.01 | | c0.29 | | c0.28 | 0.13 |
| v/s Ratio Perm | | 0.00 | | 0.03 | | |
| v/c Ratio | 0.13 | 0.03 | 0.74 | 0.08 | 0.75 | 0.16 |
| Uniform Delay, d1 | 29.3 | 29.1 | 17.3 | 12.8 | 17.8 | 1.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | 0.1 | 4.1 | 0.1 | 4.8 | 0.0 |
| Delay (s) | 29.9 | 29.2 | 21.4 | 12.8 | 22.6 | 1.3 |
| Level of Service | C | C | C | B | C | A |
| Approach Delay (s) | 29.6 | | 20.4 | | | 15.6 |
| Approach LOS | C | | C | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 65.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 70.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

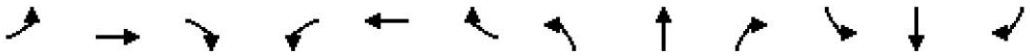
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 10 | 350 | 80 | 0 | 20 | 110 | 1490 | 100 | 40 | 2480 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1799 | 1900 | 2799 | 1799 | 1590 | | 3502 | 5187 | 1569 | 1805 | 5187 | 1589 |
| Flt Permitted | 0.74 | 1.00 | 1.00 | 0.75 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1407 | 1900 | 2799 | 1421 | 1590 | | 3502 | 5187 | 1569 | 1805 | 5187 | 1589 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 109 | 11 | 380 | 87 | 0 | 22 | 120 | 1620 | 109 | 43 | 2696 | 54 |
| RTOR Reduction (vph) | 0 | 0 | 205 | 0 | 19 | 0 | 0 | 0 | 20 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 109 | 11 | 175 | 87 | 3 | 0 | 120 | 1620 | 89 | 43 | 2696 | 47 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | Perm | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.1 | 12.1 | 12.1 | 12.1 | 12.1 | | 7.0 | 53.7 | 53.7 | 4.1 | 50.8 | 50.8 |
| Effective Green, g (s) | 12.1 | 12.1 | 12.1 | 12.1 | 12.1 | | 7.0 | 53.7 | 53.7 | 4.1 | 50.8 | 50.8 |
| Actuated g/C Ratio | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | | 0.09 | 0.66 | 0.66 | 0.05 | 0.62 | 0.62 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 208 | 281 | 414 | 210 | 235 | | 299 | 3401 | 1029 | 90 | 3217 | 986 |
| v/s Ratio Prot | | 0.01 | | | 0.00 | | c0.03 | c0.31 | | 0.02 | c0.52 | |
| v/s Ratio Perm | c0.08 | | 0.06 | 0.06 | | | | | 0.06 | | | 0.03 |
| v/c Ratio | 0.52 | 0.04 | 0.42 | 0.41 | 0.01 | | 0.40 | 0.48 | 0.09 | 0.48 | 0.84 | 0.05 |
| Uniform Delay, d1 | 32.2 | 29.9 | 31.7 | 31.7 | 29.8 | | 35.5 | 7.1 | 5.1 | 37.9 | 12.3 | 6.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.4 | 0.1 | 0.7 | 1.3 | 0.0 | | 0.9 | 0.1 | 0.0 | 4.0 | 2.1 | 0.0 |
| Delay (s) | 34.6 | 30.0 | 32.4 | 33.0 | 29.8 | | 36.4 | 7.2 | 5.2 | 41.8 | 14.3 | 6.1 |
| Level of Service | C | C | C | C | C | | D | A | A | D | B | A |
| Approach Delay (s) | | 32.9 | | | 32.4 | | | 8.9 | | | 14.6 | |
| Approach LOS | | C | | | C | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 81.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 79.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

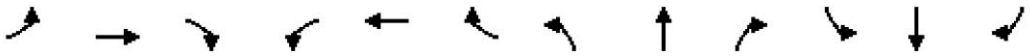
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 260 | 50 | 20 | 420 | 0 | 190 | 0 | 30 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 0 | 313 | 60 | 24 | 506 | 0 | 229 | 0 | 36 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 511 | | | 378 | | | 908 | 908 | 353 | 908 | 938 | 516 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 511 | | | 378 | | | 908 | 908 | 353 | 908 | 938 | 516 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 98 | | | 9 | 100 | 95 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1060 | | | 1186 | | | 251 | 270 | 689 | 238 | 259 | 558 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 373 | 530 | 229 | 36 | 0 |
| Volume Left | 0 | 24 | 229 | 0 | 0 |
| Volume Right | 60 | 0 | 0 | 36 | 0 |
| cSH | 1060 | 1186 | 251 | 689 | 1700 |
| Volume to Capacity | 0.00 | 0.02 | 0.91 | 0.05 | 0.00 |
| Queue Length 95th (ft) | 0 | 2 | 200 | 4 | 0 |
| Control Delay (s) | 0.0 | 0.6 | 79.0 | 10.5 | 0.0 |
| Lane LOS | | A | F | B | A |
| Approach Delay (s) | 0.0 | 0.6 | 69.7 | | 0.0 |
| Approach LOS | | | F | | A |

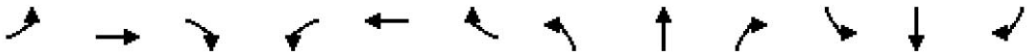
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 16.1 | | |
| Intersection Capacity Utilization | 55.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 130 | 60 | 30 | 170 | 20 | 90 | 560 | 80 | 40 | 400 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1794 | | 1805 | 1865 | | 1805 | 1858 | | 1805 | 1793 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1794 | | 1805 | 1865 | | 1805 | 1858 | | 1805 | 1793 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 69 | 149 | 69 | 34 | 195 | 23 | 103 | 644 | 92 | 46 | 460 | 218 |
| RTOR Reduction (vph) | 0 | 21 | 0 | 0 | 6 | 0 | 0 | 5 | 0 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 69 | 197 | 0 | 34 | 212 | 0 | 103 | 731 | 0 | 46 | 661 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 6.7 | 17.2 | | 2.6 | 13.1 | | 5.9 | 32.4 | | 3.8 | 30.3 | |
| Effective Green, g (s) | 6.7 | 17.2 | | 2.6 | 13.1 | | 5.9 | 32.4 | | 3.8 | 30.3 | |
| Actuated g/C Ratio | 0.09 | 0.24 | | 0.04 | 0.18 | | 0.08 | 0.45 | | 0.05 | 0.42 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 168 | 429 | | 65 | 339 | | 148 | 836 | | 95 | 755 | |
| v/s Ratio Prot | c0.04 | c0.11 | | 0.02 | c0.11 | | 0.06 | c0.39 | | 0.03 | c0.37 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.41 | 0.46 | | 0.52 | 0.63 | | 0.70 | 0.87 | | 0.48 | 0.88 | |
| Uniform Delay, d1 | 30.8 | 23.4 | | 34.1 | 27.2 | | 32.2 | 18.0 | | 33.1 | 19.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.6 | 0.8 | | 7.4 | 3.6 | | 13.3 | 10.1 | | 3.8 | 11.0 | |
| Delay (s) | 32.4 | 24.2 | | 41.5 | 30.8 | | 45.5 | 28.0 | | 37.0 | 30.2 | |
| Level of Service | C | C | | D | C | | D | C | | D | C | |
| Approach Delay (s) | | 26.2 | | | 32.2 | | | 30.2 | | | 30.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 72.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 71.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

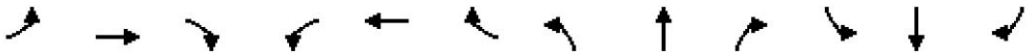
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 140 | 10 | 70 | 10 | 10 | 10 | 20 | 370 | 10 | 10 | 190 | 60 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 175 | 12 | 88 | 12 | 12 | 12 | 25 | 462 | 12 | 12 | 238 | 75 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 188 | 88 | 38 | 488 | 13 | 325 |
| Volume Left (vph) | 175 | 0 | 13 | 25 | 0 | 13 |
| Volume Right (vph) | 0 | 88 | 13 | 0 | 13 | 75 |
| Hadj (s) | 0.47 | -0.70 | -0.13 | 0.03 | -0.70 | -0.13 |
| Departure Headway (s) | 7.5 | 6.3 | 7.6 | 6.1 | 5.4 | 6.3 |
| Degree Utilization, x | 0.39 | 0.15 | 0.08 | 0.83 | 0.02 | 0.57 |
| Capacity (veh/h) | 455 | 533 | 419 | 577 | 644 | 542 |
| Control Delay (s) | 14.0 | 9.2 | 11.3 | 31.0 | 7.3 | 17.3 |
| Approach Delay (s) | 12.4 | | 11.3 | 30.4 | | 17.3 |
| Approach LOS | B | | B | D | | C |

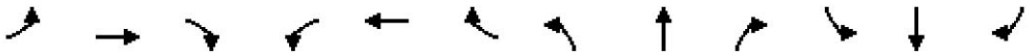
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 21.7 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 48.9% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 290 | 210 | 40 | 260 | 20 | 220 | 130 | 40 | 60 | 50 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.98 | |
| Satd. Flow (prot) | 1805 | 3345 | | 1805 | 1900 | 1570 | | 1842 | 1589 | | 1829 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.98 | |
| Satd. Flow (perm) | 1805 | 3345 | | 1805 | 1900 | 1570 | | 1842 | 1589 | | 1829 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 13 | 377 | 273 | 52 | 338 | 26 | 286 | 169 | 52 | 78 | 65 | 13 |
| RTOR Reduction (vph) | 0 | 130 | 0 | 0 | 0 | 18 | 0 | 0 | 35 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 13 | 520 | 0 | 52 | 338 | 8 | 0 | 455 | 17 | 0 | 153 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.1 | 18.4 | | 5.3 | 22.6 | 22.6 | | 25.5 | 25.5 | | 12.3 | |
| Effective Green, g (s) | 1.1 | 18.4 | | 5.3 | 22.6 | 22.6 | | 25.5 | 25.5 | | 12.3 | |
| Actuated g/C Ratio | 0.01 | 0.24 | | 0.07 | 0.29 | 0.29 | | 0.33 | 0.33 | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 26 | 794 | | 123 | 554 | 458 | | 606 | 523 | | 290 | |
| v/s Ratio Prot | 0.01 | 0.16 | | c0.03 | c0.18 | | | c0.25 | | | c0.08 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.01 | | | |
| v/c Ratio | 0.50 | 0.66 | | 0.42 | 0.61 | 0.02 | | 0.75 | 0.03 | | 0.53 | |
| Uniform Delay, d1 | 37.9 | 26.7 | | 34.6 | 23.7 | 19.5 | | 23.2 | 17.6 | | 29.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 14.3 | 2.0 | | 2.3 | 2.0 | 0.0 | | 5.2 | 0.0 | | 1.7 | |
| Delay (s) | 52.2 | 28.6 | | 37.0 | 25.6 | 19.6 | | 28.4 | 17.7 | | 31.6 | |
| Level of Service | D | C | | D | C | B | | C | B | | C | |
| Approach Delay (s) | | 29.1 | | | 26.7 | | | 27.3 | | | 31.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 77.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

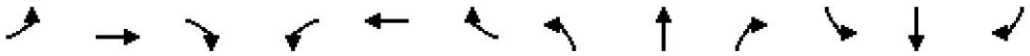


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 200 | 90 | 30 | 120 | 30 | 130 | 590 | 100 | 20 | 320 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3427 | | 1805 | 3486 | | 1805 | 3610 | 1596 | 1805 | 4969 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3427 | | 1805 | 3486 | | 1805 | 3610 | 1596 | 1805 | 4969 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 129 | 235 | 106 | 35 | 141 | 35 | 153 | 694 | 118 | 24 | 376 | 129 |
| RTOR Reduction (vph) | 0 | 70 | 0 | 0 | 30 | 0 | 0 | 0 | 62 | 0 | 70 | 0 |
| Lane Group Flow (vph) | 129 | 271 | 0 | 35 | 146 | 0 | 153 | 694 | 56 | 24 | 435 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 9.7 | 12.3 | | 5.5 | 8.1 | | 11.9 | 21.1 | 26.6 | 1.1 | 10.3 | |
| Effective Green, g (s) | 9.7 | 12.3 | | 5.5 | 8.1 | | 11.9 | 21.1 | 26.6 | 1.1 | 10.3 | |
| Actuated g/C Ratio | 0.17 | 0.22 | | 0.10 | 0.14 | | 0.21 | 0.38 | 0.48 | 0.02 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 313 | 753 | | 177 | 504 | | 384 | 1360 | 872 | 35 | 914 | |
| v/s Ratio Prot | 0.07 | c0.08 | | 0.02 | c0.04 | | 0.08 | c0.19 | 0.01 | 0.01 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | |
| v/c Ratio | 0.41 | 0.36 | | 0.20 | 0.29 | | 0.40 | 0.51 | 0.06 | 0.69 | 0.48 | |
| Uniform Delay, d1 | 20.6 | 18.5 | | 23.2 | 21.4 | | 19.0 | 13.5 | 8.0 | 27.3 | 20.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 0.3 | | 0.6 | 0.3 | | 0.7 | 0.3 | 0.0 | 43.6 | 0.4 | |
| Delay (s) | 21.5 | 18.8 | | 23.8 | 21.7 | | 19.7 | 13.8 | 8.0 | 70.9 | 20.8 | |
| Level of Service | C | B | | C | C | | B | B | A | E | C | |
| Approach Delay (s) | | 19.5 | | | 22.0 | | | 14.0 | | | 23.1 | |
| Approach LOS | | B | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 56.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 54.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

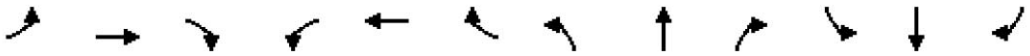
# HCM Unsignalized Intersection Capacity Analysis
## 27: Cactus Ave & Redlands Blvd



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 150 | 150 | 50 | 180 | 40 | 30 | 20 | 210 | 410 | 130 | 180 | 90 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Hourly flow rate (vph) | 205 | 205 | 68 | 247 | 55 | 41 | 27 | 288 | 562 | 178 | 247 | 123 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 308 | 171 | 247 | 96 | 171 | 705 | 301 | 247 |
| Volume Left (vph) | 205 | 0 | 247 | 0 | 27 | 0 | 178 | 0 |
| Volume Right (vph) | 0 | 68 | 0 | 41 | 0 | 562 | 0 | 123 |
| Hadj (s) | 0.33 | -0.28 | 0.50 | -0.30 | 0.08 | -0.56 | 0.30 | -0.35 |
| Departure Headway (s) | 9.0 | 8.4 | 9.4 | 8.7 | 8.6 | 8.0 | 8.9 | 8.3 |
| Degree Utilization, x | 0.77 | 0.40 | 0.65 | 0.23 | 0.41 | 1.56 | 0.75 | 0.57 |
| Capacity (veh/h) | 390 | 419 | 368 | 403 | 410 | 454 | 395 | 420 |
| Control Delay (s) | 35.4 | 15.7 | 26.9 | 13.0 | 16.2 | 283.1 | 32.7 | 20.4 |
| Approach Delay (s) | 28.4 | | 23.0 | | 231.0 | | 27.2 | |
| Approach LOS | D | | C | | F | | D | |

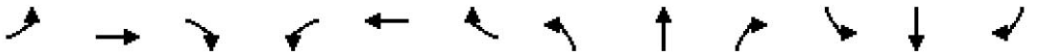
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 106.3 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 66.4% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 50 | 10 | 280 | 80 | 210 | 20 | 490 | 560 | 110 | 330 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3512 | | 1805 | 3185 | | 1805 | 5187 | 1601 | 1805 | 4960 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3512 | | 1805 | 3185 | | 1805 | 5187 | 1601 | 1805 | 4960 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 104 | 65 | 13 | 364 | 104 | 273 | 26 | 636 | 727 | 143 | 429 | 156 |
| RTOR Reduction (vph) | 0 | 12 | 0 | 0 | 208 | 0 | 0 | 0 | 373 | 0 | 53 | 0 |
| Lane Group Flow (vph) | 104 | 66 | 0 | 364 | 169 | 0 | 26 | 636 | 354 | 143 | 532 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.9 | 5.5 | | 11.3 | 9.9 | | 1.2 | 16.0 | 27.3 | 7.2 | 22.0 | |
| Effective Green, g (s) | 6.9 | 5.5 | | 11.3 | 9.9 | | 1.2 | 16.0 | 27.3 | 7.2 | 22.0 | |
| Actuated g/C Ratio | 0.12 | 0.10 | | 0.20 | 0.18 | | 0.02 | 0.29 | 0.49 | 0.13 | 0.39 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 222 | 345 | | 364 | 563 | | 39 | 1482 | 895 | 232 | 1949 | |
| v/s Ratio Prot | 0.06 | 0.02 | | c0.20 | c0.05 | | 0.01 | 0.12 | c0.08 | c0.08 | 0.11 | |
| v/s Ratio Perm | | | | | | | | | 0.14 | | | |
| v/c Ratio | 0.47 | 0.19 | | 1.00 | 0.30 | | 0.67 | 0.43 | 0.40 | 0.62 | 0.27 | |
| Uniform Delay, d1 | 22.8 | 23.2 | | 22.4 | 20.0 | | 27.2 | 16.3 | 9.1 | 23.1 | 11.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.6 | 0.3 | | 47.2 | 0.3 | | 35.5 | 0.2 | 0.3 | 4.8 | 0.1 | |
| Delay (s) | 24.4 | 23.5 | | 69.5 | 20.3 | | 62.7 | 16.5 | 9.4 | 27.9 | 11.6 | |
| Level of Service | C | C | | E | C | | E | B | A | C | B | |
| Approach Delay (s) | | 24.0 | | | 44.5 | | | 13.6 | | | 14.8 | |
| Approach LOS | | C | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 56.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

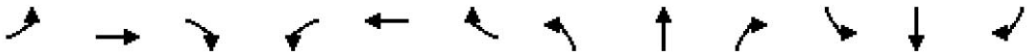
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 180 | 100 | 130 | 400 | 40 | 70 | 390 | 90 | 40 | 560 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1598 | 1805 | 3555 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1598 | 1805 | 3555 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 83 | 188 | 104 | 135 | 417 | 42 | 73 | 406 | 94 | 42 | 583 | 240 |
| RTOR Reduction (vph) | 0 | 0 | 80 | 0 | 8 | 0 | 0 | 0 | 30 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 83 | 188 | 24 | 135 | 451 | 0 | 73 | 406 | 64 | 42 | 583 | 150 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.2 | 17.0 | 27.2 | 13.4 | 21.2 | | 10.2 | 68.0 | 81.4 | 5.6 | 63.4 | 72.6 |
| Effective Green, g (s) | 9.2 | 17.0 | 27.2 | 13.4 | 21.2 | | 10.2 | 68.0 | 81.4 | 5.6 | 63.4 | 72.6 |
| Actuated g/C Ratio | 0.08 | 0.14 | 0.23 | 0.11 | 0.18 | | 0.08 | 0.57 | 0.68 | 0.05 | 0.53 | 0.60 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 138 | 511 | 362 | 202 | 628 | | 153 | 2046 | 1080 | 84 | 1907 | 963 |
| v/s Ratio Prot | 0.05 | 0.05 | 0.01 | c0.07 | c0.13 | | c0.04 | 0.11 | 0.01 | 0.02 | c0.16 | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.03 | | | 0.08 |
| v/c Ratio | 0.60 | 0.37 | 0.07 | 0.67 | 0.72 | | 0.48 | 0.20 | 0.06 | 0.50 | 0.31 | 0.16 |
| Uniform Delay, d1 | 53.6 | 46.6 | 36.4 | 51.2 | 46.6 | | 52.4 | 12.7 | 6.5 | 55.8 | 15.9 | 10.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.91 | 0.87 | 0.62 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.2 | 0.5 | 0.1 | 8.1 | 3.9 | | 2.3 | 0.2 | 0.0 | 4.6 | 0.4 | 0.1 |
| Delay (s) | 60.8 | 47.1 | 36.5 | 59.3 | 50.5 | | 49.8 | 11.3 | 4.0 | 60.5 | 16.3 | 10.4 |
| Level of Service | E | D | D | E | D | | D | B | A | E | B | B |
| Approach Delay (s) | | 47.2 | | | 52.5 | | | 15.0 | | | 16.8 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

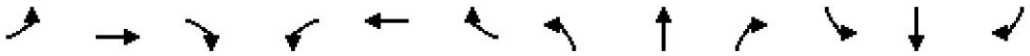
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 240 | 10 | 120 | 270 | 540 | 0 | 0 | 570 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3399 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3399 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 0 | 0 | 250 | 10 | 125 | 281 | 562 | 0 | 0 | 594 | 312 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 43 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 260 | 85 | 281 | 562 | 0 | 0 | 863 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 22.7 | 22.7 | 23.8 | 89.3 | | | 61.5 | |
| Effective Green, g (s) | | | | | 22.7 | 22.7 | 23.8 | 89.3 | | | 61.5 | |
| Actuated g/C Ratio | | | | | 0.19 | 0.19 | 0.20 | 0.74 | | | 0.51 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 343 | 300 | 358 | 2686 | | | 1742 | |
| v/s Ratio Prot | | | | | c0.14 | | c0.16 | 0.16 | | | c0.25 | |
| v/s Ratio Perm | | | | | | 0.05 | | | | | | |
| v/c Ratio | | | | | 0.76 | 0.28 | 0.78 | 0.21 | | | 0.50 | |
| Uniform Delay, d1 | | | | | 46.1 | 41.7 | 45.7 | 4.7 | | | 19.1 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.67 | |
| Incremental Delay, d2 | | | | | 9.2 | 0.5 | 10.8 | 0.2 | | | 1.0 | |
| Delay (s) | | | | | 55.3 | 42.2 | 56.4 | 4.8 | | | 13.8 | |
| Level of Service | | | | | E | D | E | A | | | B | |
| Approach Delay (s) | | 0.0 | | | 51.0 | | | 22.0 | | | 13.8 | |
| Approach LOS | | A | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

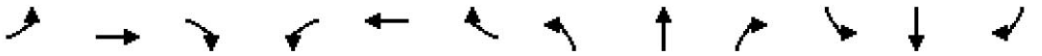
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 0 | 350 | 0 | 0 | 0 | 0 | 530 | 120 | 180 | 720 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1715 | 1592 | | | | | 5018 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1715 | 1592 | | | | | 5018 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 286 | 0 | 385 | 0 | 0 | 0 | 0 | 582 | 132 | 198 | 791 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 73 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 143 | 143 | 312 | 0 | 0 | 0 | 0 | 665 | 0 | 198 | 791 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 16.9 | 16.9 | 16.9 | | | | | 13.8 | | 10.0 | 27.8 | |
| Effective Green, g (s) | 16.9 | 16.9 | 16.9 | | | | | 13.8 | | 10.0 | 27.8 | |
| Actuated g/C Ratio | 0.32 | 0.32 | 0.32 | | | | | 0.26 | | 0.19 | 0.53 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 550 | 550 | 511 | | | | | 1314 | | 343 | 1904 | |
| v/s Ratio Prot | 0.08 | 0.08 | | | | | | c0.13 | | c0.11 | 0.22 | |
| v/s Ratio Perm | | | c0.20 | | | | | | | | | |
| v/c Ratio | 0.26 | 0.26 | 0.61 | | | | | 0.51 | | 0.58 | 0.42 | |
| Uniform Delay, d1 | 13.3 | 13.3 | 15.1 | | | | | 16.6 | | 19.4 | 7.5 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.3 | 2.1 | | | | | 0.3 | | 2.4 | 0.1 | |
| Delay (s) | 13.5 | 13.5 | 17.2 | | | | | 16.9 | | 21.8 | 7.7 | |
| Level of Service | B | B | B | | | | | B | | C | A | |
| Approach Delay (s) | | 15.6 | | | 0.0 | | | 16.9 | | | 10.5 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 52.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

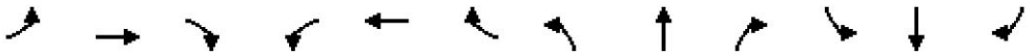


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 180 | 340 | 20 | 60 | 480 | 100 | 830 | 100 | 290 | 590 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.87 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1595 | 1805 | 3128 | | 1805 | 5094 | | 3502 | 3610 | 1594 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1595 | 1805 | 3128 | | 1805 | 5094 | | 3502 | 3610 | 1594 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 304 | 196 | 370 | 22 | 65 | 522 | 109 | 902 | 109 | 315 | 641 | 76 |
| RTOR Reduction (vph) | 0 | 0 | 114 | 0 | 198 | 0 | 0 | 11 | 0 | 0 | 0 | 32 |
| Lane Group Flow (vph) | 304 | 196 | 256 | 22 | 389 | 0 | 109 | 1000 | 0 | 315 | 641 | 44 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 15.3 | 33.0 | 45.1 | 4.2 | 21.9 | | 12.1 | 52.1 | | 14.7 | 54.7 | 70.0 |
| Effective Green, g (s) | 15.3 | 33.0 | 45.1 | 4.2 | 21.9 | | 12.1 | 52.1 | | 14.7 | 54.7 | 70.0 |
| Actuated g/C Ratio | 0.13 | 0.28 | 0.38 | 0.04 | 0.18 | | 0.10 | 0.43 | | 0.12 | 0.46 | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 447 | 993 | 653 | 63 | 571 | | 182 | 2212 | | 429 | 1646 | 983 |
| v/s Ratio Prot | c0.09 | 0.05 | 0.04 | 0.01 | c0.12 | | 0.06 | c0.20 | | c0.09 | c0.18 | 0.01 |
| v/s Ratio Perm | | | 0.12 | | | | | | | | | 0.02 |
| v/c Ratio | 0.68 | 0.20 | 0.39 | 0.35 | 1.10dr | | 0.60 | 0.45 | | 0.73 | 0.39 | 0.05 |
| Uniform Delay, d1 | 50.0 | 33.3 | 27.4 | 56.6 | 45.8 | | 51.6 | 23.9 | | 50.8 | 21.6 | 10.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.29 | 0.46 | | 1.35 | 0.36 | 0.06 |
| Incremental Delay, d2 | 4.2 | 0.1 | 0.4 | 3.3 | 3.3 | | 4.8 | 0.6 | | 4.9 | 0.5 | 0.0 |
| Delay (s) | 54.2 | 33.4 | 27.8 | 59.9 | 49.1 | | 71.6 | 11.6 | | 73.7 | 8.3 | 0.6 |
| Level of Service | D | C | C | E | D | | E | B | | E | A | A |
| Approach Delay (s) | | 38.3 | | | 49.5 | | | 17.5 | | | 27.7 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 76.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

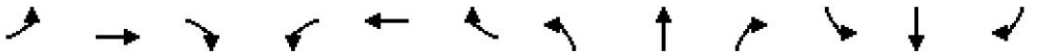
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 170 | 10 | 130 | 600 | 1060 | 0 | 0 | 860 | 400 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | | 0.97 | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.94 | | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1731 | | 3502 | 3610 | | | 4908 | |
| Flt Permitted | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1731 | | 3502 | 3610 | | | 4908 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 0 | 0 | 177 | 10 | 135 | 625 | 1104 | 0 | 0 | 896 | 417 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 66 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 299 | 0 | 625 | 1104 | 0 | 0 | 1247 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 24.7 | | 34.0 | 87.3 | | | 49.3 | |
| Effective Green, g (s) | | | | | 24.7 | | 34.0 | 87.3 | | | 49.3 | |
| Actuated g/C Ratio | | | | | 0.21 | | 0.28 | 0.73 | | | 0.41 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 356 | | 992 | 2626 | | | 2016 | |
| v/s Ratio Prot | | | | | c0.17 | | c0.18 | 0.31 | | | c0.25 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.84 | | 0.63 | 0.42 | | | 0.62 | |
| Uniform Delay, d1 | | | | | 45.8 | | 37.5 | 6.4 | | | 27.9 | |
| Progression Factor | | | | | 1.00 | | 0.90 | 0.53 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 15.8 | | 1.1 | 0.4 | | | 1.4 | |
| Delay (s) | | | | | 61.6 | | 34.9 | 3.8 | | | 29.4 | |
| Level of Service | | | | | E | | C | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 61.6 | | | 15.1 | | | 29.4 | |
| Approach LOS | | A | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 71.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 80 | 40 | 60 | 150 | 160 | 50 | 880 | 40 | 130 | 870 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 22 | 89 | 44 | 67 | 167 | 178 | 56 | 978 | 44 | 144 | 967 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 39 | 0 | 0 | 152 | 0 | 0 | 9 | 0 | 0 | 4 |
| Lane Group Flow (vph) | 22 | 89 | 5 | 67 | 167 | 26 | 56 | 978 | 35 | 144 | 967 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 4.2 | 14.9 | 14.9 | 7.0 | 17.7 | 17.7 | 7.2 | 67.3 | 67.3 | 14.8 | 74.9 | 74.9 |
| Effective Green, g (s) | 4.2 | 14.9 | 14.9 | 7.0 | 17.7 | 17.7 | 7.2 | 67.3 | 67.3 | 14.8 | 74.9 | 74.9 |
| Actuated g/C Ratio | 0.04 | 0.12 | 0.12 | 0.06 | 0.15 | 0.15 | 0.06 | 0.56 | 0.56 | 0.12 | 0.62 | 0.62 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 63 | 236 | 197 | 105 | 280 | 234 | 108 | 2025 | 879 | 223 | 2253 | 977 |
| v/s Ratio Prot | 0.01 | 0.05 | | c0.04 | c0.09 | | 0.03 | c0.27 | | c0.08 | 0.27 | |
| v/s Ratio Perm | | | 0.00 | | | 0.02 | | | 0.02 | | | 0.01 |
| v/c Ratio | 0.35 | 0.38 | 0.03 | 0.64 | 0.60 | 0.11 | 0.52 | 0.48 | 0.04 | 0.65 | 0.43 | 0.02 |
| Uniform Delay, d1 | 56.6 | 48.3 | 46.2 | 55.3 | 47.8 | 44.3 | 54.7 | 15.9 | 11.8 | 50.1 | 11.6 | 8.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.14 | 0.64 | 0.64 |
| Incremental Delay, d2 | 3.3 | 1.0 | 0.1 | 12.0 | 3.4 | 0.2 | 4.2 | 0.8 | 0.1 | 5.9 | 0.6 | 0.0 |
| Delay (s) | 59.9 | 49.3 | 46.2 | 67.3 | 51.2 | 44.6 | 58.9 | 16.7 | 11.9 | 63.0 | 8.0 | 5.5 |
| Level of Service | E | D | D | E | D | D | E | B | B | E | A | A |
| Approach Delay (s) | | 49.9 | | | 51.0 | | | 18.7 | | | 15.0 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 61.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

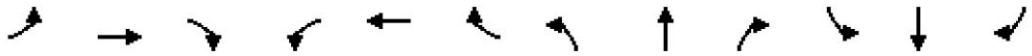
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 10 | 70 | 10 | 10 | 80 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 12 | 12 | 84 | 12 | 12 | 96 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 24 | | 204 | 23 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 24 | | 204 | 23 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 95 | | 98 | 91 |
| cM capacity (veh/h) | | | 1604 | | 745 | 1055 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 24 | 96 | 12 | 96 |
| Volume Left | 0 | 84 | 12 | 0 |
| Volume Right | 12 | 0 | 0 | 96 |
| cSH | 1700 | 1604 | 745 | 1055 |
| Volume to Capacity | 0.01 | 0.05 | 0.02 | 0.09 |
| Queue Length 95th (ft) | 0 | 4 | 1 | 8 |
| Control Delay (s) | 0.0 | 6.5 | 9.9 | 8.8 |
| Lane LOS | | A | A | A |
| Approach Delay (s) | 0.0 | 6.5 | 8.9 | |
| Approach LOS | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.9 | | |
| Intersection Capacity Utilization | 21.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 150 | 140 | 180 | 120 | 10 | 80 | 70 | 150 | 10 | 100 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.98 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.99 | | | 0.93 | | | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1733 | | 1805 | 1873 | | | 1720 | | | 1826 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1733 | | 1805 | 1873 | | | 1720 | | | 1826 | |
| Peak-hour factor, PHF | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| Adj. Flow (vph) | 42 | 211 | 197 | 254 | 169 | 14 | 113 | 99 | 211 | 14 | 141 | 42 |
| RTOR Reduction (vph) | 0 | 27 | 0 | 0 | 2 | 0 | 0 | 30 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 42 | 381 | 0 | 254 | 181 | 0 | 0 | 393 | 0 | 0 | 188 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 6.2 | 37.0 | | 21.8 | 52.6 | | | 28.0 | | | 17.2 | |
| Effective Green, g (s) | 6.2 | 37.0 | | 21.8 | 52.6 | | | 28.0 | | | 17.2 | |
| Actuated g/C Ratio | 0.05 | 0.31 | | 0.18 | 0.44 | | | 0.23 | | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 93 | 534 | | 328 | 821 | | | 401 | | | 262 | |
| v/s Ratio Prot | 0.02 | c0.22 | | c0.14 | 0.10 | | | c0.23 | | | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.45 | 0.71 | | 0.77 | 0.22 | | | 0.98 | | | 0.72 | |
| Uniform Delay, d1 | 55.2 | 36.8 | | 46.8 | 20.9 | | | 45.7 | | | 49.1 | |
| Progression Factor | 1.00 | 1.00 | | 0.84 | 0.78 | | | 1.00 | | | 0.99 | |
| Incremental Delay, d2 | 3.5 | 7.9 | | 10.8 | 0.6 | | | 39.6 | | | 9.1 | |
| Delay (s) | 58.7 | 44.7 | | 50.1 | 17.0 | | | 85.3 | | | 57.8 | |
| Level of Service | E | D | | D | B | | | F | | | E | |
| Approach Delay (s) | | 46.0 | | | 36.3 | | | 85.3 | | | 57.8 | |
| Approach LOS | | D | | | D | | | F | | | E | |

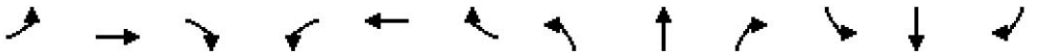
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 55.8 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 67.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 60 | 530 | 20 | 10 | 20 | 120 | 780 | 30 | 30 | 340 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1668 | | 1805 | 1900 | 1589 | 1805 | 3610 | 1570 | 1805 | 5067 | |
| Flt Permitted | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1668 | | 1805 | 1900 | 1589 | 1805 | 3610 | 1570 | 1805 | 5067 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 106 | 71 | 624 | 24 | 12 | 24 | 141 | 918 | 35 | 35 | 400 | 59 |
| RTOR Reduction (vph) | 0 | 89 | 0 | 0 | 0 | 23 | 0 | 0 | 21 | 0 | 15 | 0 |
| Lane Group Flow (vph) | 0 | 712 | 0 | 24 | 12 | 1 | 141 | 918 | 14 | 35 | 444 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 35.6 | | 4.1 | 4.1 | 4.1 | 11.7 | 28.5 | 28.5 | 3.8 | 20.6 | |
| Effective Green, g (s) | | 35.6 | | 4.1 | 4.1 | 4.1 | 11.7 | 28.5 | 28.5 | 3.8 | 20.6 | |
| Actuated g/C Ratio | | 0.40 | | 0.05 | 0.05 | 0.05 | 0.13 | 0.32 | 0.32 | 0.04 | 0.23 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 675 | | 84 | 89 | 74 | 240 | 1169 | 508 | 78 | 1186 | |
| v/s Ratio Prot | | c0.43 | | c0.01 | 0.01 | | c0.08 | c0.25 | | 0.02 | 0.09 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.01 | | | |
| v/c Ratio | | 1.06 | | 0.29 | 0.13 | 0.02 | 0.59 | 0.79 | 0.03 | 0.45 | 0.37 | |
| Uniform Delay, d1 | | 26.2 | | 40.5 | 40.2 | 40.0 | 35.9 | 27.0 | 20.3 | 41.1 | 28.3 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 50.1 | | 1.9 | 0.7 | 0.1 | 3.6 | 3.5 | 0.0 | 4.1 | 0.2 | |
| Delay (s) | | 76.3 | | 42.4 | 40.9 | 40.1 | 39.5 | 30.5 | 20.3 | 45.1 | 28.5 | |
| Level of Service | | E | | D | D | D | D | C | C | D | C | |
| Approach Delay (s) | | 76.3 | | | 41.2 | | | 31.4 | | | 29.7 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 46.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 88.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 85.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

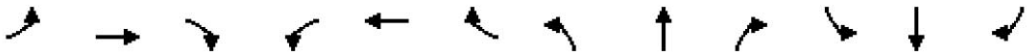
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 340 | 80 | 140 | 330 | 70 | 180 | 630 | 190 | 190 | 370 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3496 | | 1805 | 3505 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3496 | | 1805 | 3505 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 80 | 391 | 92 | 161 | 379 | 80 | 207 | 724 | 218 | 218 | 425 | 46 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 17 | 0 | 0 | 0 | 132 | 0 | 0 | 27 |
| Lane Group Flow (vph) | 80 | 464 | 0 | 161 | 442 | 0 | 207 | 724 | 86 | 218 | 425 | 19 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.8 | 22.7 | | 13.9 | 28.8 | | 18.9 | 47.6 | 47.6 | 19.8 | 48.5 | 48.5 |
| Effective Green, g (s) | 7.8 | 22.7 | | 13.9 | 28.8 | | 18.9 | 47.6 | 47.6 | 19.8 | 48.5 | 48.5 |
| Actuated g/C Ratio | 0.06 | 0.19 | | 0.12 | 0.24 | | 0.16 | 0.40 | 0.40 | 0.17 | 0.40 | 0.40 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 117 | 661 | | 209 | 841 | | 284 | 1432 | 630 | 298 | 1459 | 641 |
| v/s Ratio Prot | 0.04 | c0.13 | | c0.09 | 0.13 | | 0.11 | c0.20 | | c0.12 | 0.12 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | 0.01 |
| v/c Ratio | 0.68 | 0.70 | | 0.77 | 0.52 | | 0.73 | 0.51 | 0.14 | 0.73 | 0.29 | 0.03 |
| Uniform Delay, d1 | 54.9 | 45.5 | | 51.5 | 39.7 | | 48.1 | 27.3 | 23.1 | 47.6 | 24.1 | 21.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.54 | 0.91 | 1.33 |
| Incremental Delay, d2 | 15.3 | 3.4 | | 16.0 | 0.6 | | 9.0 | 1.3 | 0.5 | 7.3 | 0.4 | 0.1 |
| Delay (s) | 70.2 | 48.8 | | 67.5 | 40.2 | | 57.1 | 28.6 | 23.6 | 33.2 | 22.3 | 28.7 |
| Level of Service | E | D | | E | D | | E | C | C | C | C | C |
| Approach Delay (s) | | 51.9 | | | 47.3 | | | 32.8 | | | 26.2 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

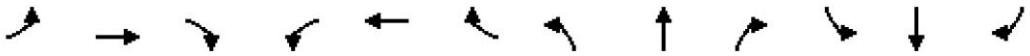
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 380 | 110 | 240 | 530 | 150 | 230 | 460 | 210 | 180 | 270 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3475 | | 1805 | 3477 | | 1805 | 5187 | 1587 | 1805 | 5052 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3475 | | 1805 | 3477 | | 1805 | 5187 | 1587 | 1805 | 5052 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 81 | 442 | 128 | 279 | 616 | 174 | 267 | 535 | 244 | 209 | 314 | 58 |
| RTOR Reduction (vph) | 0 | 25 | 0 | 0 | 23 | 0 | 0 | 0 | 160 | 0 | 21 | 0 |
| Lane Group Flow (vph) | 81 | 545 | 0 | 279 | 767 | 0 | 267 | 535 | 84 | 209 | 351 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.7 | 27.5 | | 17.0 | 35.8 | | 23.2 | 41.1 | 41.1 | 18.4 | 36.3 | |
| Effective Green, g (s) | 8.7 | 27.5 | | 17.0 | 35.8 | | 23.2 | 41.1 | 41.1 | 18.4 | 36.3 | |
| Actuated g/C Ratio | 0.07 | 0.23 | | 0.14 | 0.30 | | 0.19 | 0.34 | 0.34 | 0.15 | 0.30 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 131 | 796 | | 256 | 1037 | | 349 | 1777 | 544 | 277 | 1528 | |
| v/s Ratio Prot | 0.04 | 0.16 | | c0.15 | c0.22 | | c0.15 | c0.10 | | 0.12 | 0.07 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.62 | 0.69 | | 1.09 | 0.74 | | 0.77 | 0.30 | 0.15 | 0.75 | 0.23 | |
| Uniform Delay, d1 | 54.0 | 42.3 | | 51.5 | 37.9 | | 45.8 | 28.9 | 27.4 | 48.6 | 31.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.02 | 0.52 | 0.62 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.4 | 2.5 | | 82.3 | 2.8 | | 8.1 | 0.4 | 0.5 | 11.1 | 0.4 | |
| Delay (s) | 62.4 | 44.7 | | 133.8 | 40.7 | | 54.8 | 15.5 | 17.5 | 59.7 | 31.7 | |
| Level of Service | E | D | | F | D | | D | B | B | E | C | |
| Approach Delay (s) | | 46.9 | | | 65.0 | | | 26.0 | | | 41.8 | |
| Approach LOS | | D | | | E | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 81.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

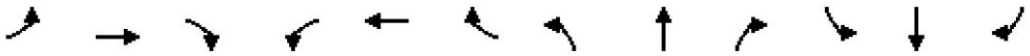
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 650 | 70 | 110 | 600 | 60 | 140 | 180 | 260 | 60 | 170 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.91 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3552 | | 1805 | 3610 | 1594 | 1805 | 3261 | | 1805 | 3377 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3552 | | 1805 | 3610 | 1594 | 1805 | 3261 | | 1805 | 3377 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 93 | 756 | 81 | 128 | 698 | 70 | 163 | 209 | 302 | 70 | 198 | 128 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 38 | 0 | 230 | 0 | 0 | 107 | 0 |
| Lane Group Flow (vph) | 93 | 831 | 0 | 128 | 698 | 32 | 163 | 281 | 0 | 70 | 219 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 7.8 | 26.3 | | 11.2 | 29.7 | 36.1 | 12.9 | 18.3 | | 6.4 | 11.8 | |
| Effective Green, g (s) | 7.8 | 26.3 | | 11.2 | 29.7 | 36.1 | 12.9 | 18.3 | | 6.4 | 11.8 | |
| Actuated g/C Ratio | 0.10 | 0.34 | | 0.14 | 0.38 | 0.46 | 0.16 | 0.23 | | 0.08 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 180 | 1195 | | 259 | 1371 | 817 | 298 | 763 | | 148 | 510 | |
| v/s Ratio Prot | 0.05 | c0.23 | | c0.07 | c0.19 | 0.00 | c0.09 | c0.09 | | 0.04 | 0.06 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.52 | 0.70 | | 0.49 | 0.51 | 0.04 | 0.55 | 0.37 | | 0.47 | 0.43 | |
| Uniform Delay, d1 | 33.4 | 22.5 | | 30.9 | 18.6 | 11.5 | 30.0 | 25.1 | | 34.3 | 30.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.5 | 1.8 | | 1.5 | 0.3 | 0.0 | 2.1 | 0.3 | | 2.4 | 0.6 | |
| Delay (s) | 35.9 | 24.3 | | 32.4 | 18.9 | 11.6 | 32.0 | 25.4 | | 36.7 | 30.7 | |
| Level of Service | D | C | | C | B | B | C | C | | D | C | |
| Approach Delay (s) | | 25.4 | | | 20.3 | | | 27.0 | | | 31.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 78.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 63.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

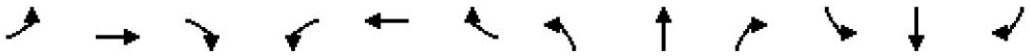
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 620 | 310 | 480 | 490 | 120 | 320 | 450 | 490 | 140 | 460 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 4902 | | 3502 | 5019 | | 3502 | 3610 | 1600 | 3502 | 3522 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 4902 | | 3502 | 5019 | | 3502 | 3610 | 1600 | 3502 | 3522 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 152 | 674 | 337 | 522 | 533 | 130 | 348 | 489 | 533 | 152 | 500 | 87 |
| RTOR Reduction (vph) | 0 | 78 | 0 | 0 | 34 | 0 | 0 | 0 | 27 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 152 | 933 | 0 | 522 | 629 | 0 | 348 | 489 | 506 | 152 | 573 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.5 | 24.1 | | 15.2 | 30.8 | | 11.2 | 23.6 | 38.8 | 7.9 | 20.3 | |
| Effective Green, g (s) | 8.5 | 24.1 | | 15.2 | 30.8 | | 11.2 | 23.6 | 38.8 | 7.9 | 20.3 | |
| Actuated g/C Ratio | 0.10 | 0.28 | | 0.18 | 0.35 | | 0.13 | 0.27 | 0.45 | 0.09 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 343 | 1361 | | 613 | 1781 | | 452 | 982 | 789 | 319 | 824 | |
| v/s Ratio Prot | 0.04 | c0.19 | | c0.15 | 0.13 | | c0.10 | 0.14 | c0.11 | 0.04 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.20 | | | |
| v/c Ratio | 0.44 | 0.69 | | 0.85 | 0.35 | | 0.77 | 0.50 | 0.64 | 0.48 | 0.70 | |
| Uniform Delay, d1 | 36.9 | 28.0 | | 34.7 | 20.7 | | 36.6 | 26.6 | 18.6 | 37.5 | 30.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 1.4 | | 11.0 | 0.1 | | 7.7 | 0.4 | 1.8 | 1.1 | 2.6 | |
| Delay (s) | 37.8 | 29.4 | | 45.7 | 20.8 | | 44.3 | 27.0 | 20.4 | 38.6 | 33.0 | |
| Level of Service | D | C | | D | C | | D | C | C | D | C | |
| Approach Delay (s) | | 30.5 | | | 31.8 | | | 28.8 | | | 34.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 86.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 75.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

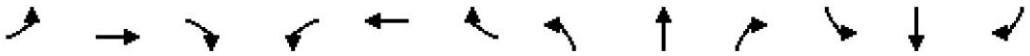
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 950 | 20 | 30 | 650 | 10 | 50 | 100 | 50 | 10 | 40 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.97 | | | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5168 | | 1805 | 5174 | | | 1806 | | | 1691 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5168 | | 1805 | 5174 | | | 1806 | | | 1691 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 193 | 1080 | 23 | 34 | 739 | 11 | 57 | 114 | 57 | 11 | 45 | 148 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 11 | 0 | 0 | 98 | 0 |
| Lane Group Flow (vph) | 193 | 1102 | 0 | 34 | 749 | 0 | 0 | 217 | 0 | 0 | 106 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.3 | 25.7 | | 2.3 | 20.7 | | | 13.8 | | | 10.2 | |
| Effective Green, g (s) | 7.3 | 25.7 | | 2.3 | 20.7 | | | 13.8 | | | 10.2 | |
| Actuated g/C Ratio | 0.11 | 0.38 | | 0.03 | 0.30 | | | 0.20 | | | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 194 | 1953 | | 61 | 1575 | | | 367 | | | 254 | |
| v/s Ratio Prot | c0.11 | c0.21 | | 0.02 | 0.14 | | | c0.12 | | | c0.06 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.99 | 0.56 | | 0.56 | 0.48 | | | 0.59 | | | 0.42 | |
| Uniform Delay, d1 | 30.3 | 16.7 | | 32.3 | 19.2 | | | 24.5 | | | 26.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 62.8 | 0.4 | | 10.6 | 0.2 | | | 2.5 | | | 1.1 | |
| Delay (s) | 93.1 | 17.1 | | 42.9 | 19.5 | | | 27.1 | | | 27.3 | |
| Level of Service | F | B | | D | B | | | C | | | C | |
| Approach Delay (s) | | 28.4 | | | 20.5 | | | 27.1 | | | 27.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 68.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 950 | 10 | 20 | 650 | 10 | 20 | 0 | 40 | 20 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 0.85 | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5178 | | 1805 | 5174 | | 1805 | | 1615 | 1805 | 1593 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5178 | | 1805 | 5174 | | 1805 | | 1615 | 1805 | 1593 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 24 | 1159 | 12 | 24 | 793 | 12 | 24 | 0 | 49 | 24 | 0 | 24 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 45 | 0 | 24 | 0 |
| Lane Group Flow (vph) | 24 | 1171 | 0 | 24 | 804 | 0 | 24 | 0 | 4 | 24 | 0 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.8 | 26.0 | | 4.1 | 29.3 | | 0.8 | | 4.1 | 5.6 | 0.8 | |
| Effective Green, g (s) | 0.8 | 26.0 | | 4.1 | 29.3 | | 0.8 | | 4.1 | 5.6 | 0.8 | |
| Actuated g/C Ratio | 0.02 | 0.55 | | 0.09 | 0.61 | | 0.02 | | 0.09 | 0.12 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 30 | 2822 | | 155 | 3178 | | 30 | | 139 | 212 | 27 | |
| v/s Ratio Prot | c0.01 | c0.23 | | 0.01 | c0.16 | | c0.01 | | 0.00 | c0.01 | 0.00 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.80 | 0.41 | | 0.15 | 0.25 | | 0.80 | | 0.03 | 0.11 | 0.01 | |
| Uniform Delay, d1 | 23.4 | 6.4 | | 20.2 | 4.2 | | 23.4 | | 20.0 | 18.8 | 23.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 84.3 | 0.1 | | 0.5 | 0.0 | | 84.3 | | 0.1 | 0.2 | 0.2 | |
| Delay (s) | 107.6 | 6.5 | | 20.7 | 4.2 | | 107.6 | | 20.1 | 19.1 | 23.3 | |
| Level of Service | F | A | | C | A | | F | | C | B | C | |
| Approach Delay (s) | | 8.5 | | | 4.7 | | | 48.9 | | | 21.2 | |
| Approach LOS | | A | | | A | | | D | | | C | |

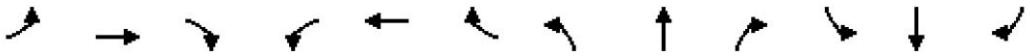
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 47.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 42.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 170 | 60 | 160 | 190 | 140 | 50 | 690 | 330 | 90 | 470 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1818 | | 1805 | 1900 | 1587 | 1805 | 3415 | | 1805 | 1900 | 1555 |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1818 | | 1805 | 1900 | 1587 | 1805 | 3415 | | 1805 | 1900 | 1555 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 181 | 64 | 170 | 202 | 149 | 53 | 734 | 351 | 96 | 500 | 21 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 125 | 0 | 39 | 0 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 0 | 255 | 0 | 170 | 202 | 24 | 53 | 1046 | 0 | 96 | 500 | 10 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | 21.9 | | 19.1 | 19.1 | 19.1 | 7.8 | 51.1 | | 11.9 | 55.2 | 55.2 |
| Effective Green, g (s) | | 21.9 | | 19.1 | 19.1 | 19.1 | 7.8 | 51.1 | | 11.9 | 55.2 | 55.2 |
| Actuated g/C Ratio | | 0.18 | | 0.16 | 0.16 | 0.16 | 0.06 | 0.43 | | 0.10 | 0.46 | 0.46 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 332 | | 287 | 302 | 253 | 117 | 1454 | | 179 | 874 | 715 |
| v/s Ratio Prot | | c0.14 | | 0.09 | c0.11 | | 0.03 | c0.31 | | c0.05 | 0.26 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | 0.01 |
| v/c Ratio | | 0.77 | | 0.59 | 0.67 | 0.09 | 0.45 | 0.72 | | 0.54 | 0.57 | 0.01 |
| Uniform Delay, d1 | | 46.6 | | 46.8 | 47.5 | 43.1 | 54.0 | 28.5 | | 51.4 | 23.7 | 17.6 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.05 | 0.57 | 0.59 |
| Incremental Delay, d2 | | 10.3 | | 3.3 | 5.5 | 0.2 | 2.8 | 3.1 | | 2.4 | 2.1 | 0.0 |
| Delay (s) | | 56.9 | | 50.1 | 53.0 | 43.2 | 56.8 | 31.6 | | 56.3 | 15.8 | 10.5 |
| Level of Service | | E | | D | D | D | E | C | | E | B | B |
| Approach Delay (s) | | 56.9 | | | 49.3 | | | 32.8 | | | 21.9 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

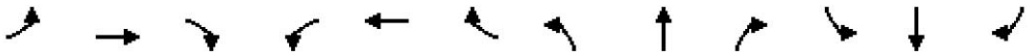
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 250 | 350 | 110 | 80 | 330 | 120 | 130 | 150 | 50 | 190 | 170 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3468 | | 1805 | 3452 | | 1805 | 3462 | | 1805 | 3437 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3468 | | 1805 | 3452 | | 1805 | 3462 | | 1805 | 3437 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 305 | 427 | 134 | 98 | 402 | 146 | 159 | 183 | 61 | 232 | 207 | 85 |
| RTOR Reduction (vph) | 0 | 33 | 0 | 0 | 42 | 0 | 0 | 43 | 0 | 0 | 57 | 0 |
| Lane Group Flow (vph) | 305 | 528 | 0 | 98 | 506 | 0 | 159 | 201 | 0 | 232 | 235 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 17.4 | | 5.5 | 15.8 | | 10.1 | 9.4 | | 11.1 | 10.4 | |
| Effective Green, g (s) | 7.1 | 17.4 | | 5.5 | 15.8 | | 10.1 | 9.4 | | 11.1 | 10.4 | |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.09 | 0.27 | | 0.17 | 0.16 | | 0.19 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 216 | 1016 | | 167 | 918 | | 307 | 548 | | 337 | 602 | |
| v/s Ratio Prot | c0.17 | c0.15 | | 0.05 | 0.15 | | 0.09 | 0.06 | | c0.13 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 1.41 | 0.52 | | 0.59 | 0.55 | | 0.52 | 0.37 | | 0.69 | 0.39 | |
| Uniform Delay, d1 | 26.1 | 17.5 | | 25.9 | 18.8 | | 22.4 | 22.3 | | 22.5 | 21.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 210.6 | 0.5 | | 5.2 | 0.7 | | 1.5 | 0.4 | | 5.8 | 0.4 | |
| Delay (s) | 236.7 | 18.0 | | 31.0 | 19.5 | | 23.9 | 22.8 | | 28.3 | 22.1 | |
| Level of Service | F | B | | C | B | | C | C | | C | C | |
| Approach Delay (s) | | 95.0 | | | 21.2 | | | 23.2 | | | 24.9 | |
| Approach LOS | | F | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 59.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 61.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

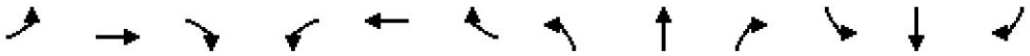
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 260 | 220 | 150 | 150 | 120 | 220 | 890 | 200 | 110 | 600 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3338 | | 1805 | 3369 | | 1805 | 3610 | 1615 | 1805 | 3511 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3338 | | 1805 | 3369 | | 1805 | 3610 | 1615 | 1805 | 3511 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 318 | 295 | 250 | 170 | 170 | 136 | 250 | 1011 | 227 | 125 | 682 | 136 |
| RTOR Reduction (vph) | 0 | 182 | 0 | 0 | 116 | 0 | 0 | 0 | 119 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 318 | 363 | 0 | 170 | 190 | 0 | 250 | 1011 | 108 | 125 | 802 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.8 | 14.3 | | 7.1 | 10.6 | | 7.1 | 27.1 | 34.2 | 9.4 | 29.4 | |
| Effective Green, g (s) | 10.8 | 14.3 | | 7.1 | 10.6 | | 7.1 | 27.1 | 34.2 | 9.4 | 29.4 | |
| Actuated g/C Ratio | 0.15 | 0.19 | | 0.10 | 0.14 | | 0.10 | 0.37 | 0.46 | 0.13 | 0.40 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 512 | 646 | | 173 | 483 | | 173 | 1324 | 835 | 230 | 1397 | |
| v/s Ratio Prot | 0.09 | c0.11 | | c0.09 | 0.06 | | c0.14 | c0.28 | 0.01 | 0.07 | 0.23 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.62 | 0.56 | | 0.98 | 0.39 | | 1.45 | 0.76 | 0.13 | 0.54 | 0.57 | |
| Uniform Delay, d1 | 29.6 | 27.0 | | 33.3 | 28.7 | | 33.4 | 20.6 | 11.3 | 30.2 | 17.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.3 | 1.1 | | 62.9 | 0.5 | | 229.7 | 2.7 | 0.1 | 2.6 | 0.6 | |
| Delay (s) | 32.0 | 28.1 | | 96.3 | 29.3 | | 263.1 | 23.3 | 11.4 | 32.9 | 17.9 | |
| Level of Service | C | C | | F | C | | F | C | B | C | B | |
| Approach Delay (s) | | 29.5 | | | 53.2 | | | 61.8 | | | 19.9 | |
| Approach LOS | | C | | | D | | | E | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 73.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 72.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

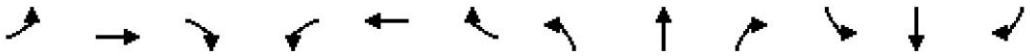
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 440 | 120 | 30 | 560 | 40 | 190 | 200 | 40 | 70 | 160 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1590 | 1805 | 3610 | 1590 | 3502 | 1847 | | 1805 | 3381 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1590 | 1805 | 3610 | 1590 | 3502 | 1847 | | 1805 | 3381 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 70 | 512 | 140 | 35 | 651 | 47 | 221 | 233 | 47 | 81 | 186 | 116 |
| RTOR Reduction (vph) | 0 | 0 | 51 | 0 | 0 | 19 | 0 | 7 | 0 | 0 | 95 | 0 |
| Lane Group Flow (vph) | 70 | 512 | 89 | 35 | 651 | 28 | 221 | 273 | 0 | 81 | 207 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | |
| Actuated Green, G (s) | 8.7 | 64.8 | 76.7 | 5.4 | 61.5 | 70.9 | 11.9 | 24.4 | | 9.4 | 21.9 | |
| Effective Green, g (s) | 8.7 | 64.8 | 76.7 | 5.4 | 61.5 | 70.9 | 11.9 | 24.4 | | 9.4 | 21.9 | |
| Actuated g/C Ratio | 0.07 | 0.54 | 0.64 | 0.05 | 0.51 | 0.59 | 0.10 | 0.20 | | 0.08 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 131 | 1949 | 1069 | 81 | 1850 | 939 | 347 | 376 | | 141 | 617 | |
| v/s Ratio Prot | c0.04 | c0.14 | 0.01 | 0.02 | c0.18 | 0.00 | 0.06 | c0.15 | | c0.04 | 0.06 | |
| v/s Ratio Perm | | | 0.05 | | | 0.02 | | | | | | |
| v/c Ratio | 0.53 | 0.26 | 0.08 | 0.43 | 0.35 | 0.03 | 0.64 | 0.73 | | 0.57 | 0.34 | |
| Uniform Delay, d1 | 53.7 | 14.8 | 8.3 | 55.8 | 17.4 | 10.2 | 52.0 | 44.7 | | 53.4 | 42.7 | |
| Progression Factor | 0.91 | 1.26 | 2.89 | 1.00 | 1.00 | 1.00 | 0.73 | 0.77 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.0 | 0.3 | 0.0 | 3.7 | 0.5 | 0.0 | 3.6 | 6.5 | | 5.6 | 0.3 | |
| Delay (s) | 52.8 | 19.0 | 23.9 | 59.5 | 17.9 | 10.2 | 41.8 | 40.8 | | 58.9 | 43.0 | |
| Level of Service | D | B | C | E | B | B | D | D | | E | D | |
| Approach Delay (s) | | 23.2 | | | 19.4 | | | 41.2 | | | 46.4 | |
| Approach LOS | | C | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 65.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

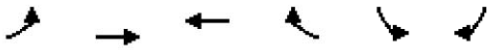
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 280 | 160 | 80 | 380 | 20 | 160 | 260 | 120 | 30 | 250 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1589 | 1805 | 1900 | 1575 | 1805 | 1900 | 1584 | 1805 | 1844 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1589 | 1805 | 1900 | 1575 | 1805 | 1900 | 1584 | 1805 | 1844 | |
| Peak-hour factor, PHF | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Adj. Flow (vph) | 38 | 359 | 205 | 103 | 487 | 26 | 205 | 333 | 154 | 38 | 321 | 64 |
| RTOR Reduction (vph) | 0 | 0 | 77 | 0 | 0 | 4 | 0 | 0 | 79 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 38 | 359 | 128 | 103 | 487 | 22 | 205 | 333 | 75 | 38 | 379 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.6 | 24.2 | 24.2 | 13.3 | 33.9 | 41.4 | 15.7 | 32.5 | 45.8 | 7.5 | 24.3 | |
| Effective Green, g (s) | 3.6 | 24.2 | 24.2 | 13.3 | 33.9 | 41.4 | 15.7 | 32.5 | 45.8 | 7.5 | 24.3 | |
| Actuated g/C Ratio | 0.04 | 0.26 | 0.26 | 0.14 | 0.36 | 0.44 | 0.17 | 0.35 | 0.49 | 0.08 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 69 | 492 | 411 | 257 | 689 | 765 | 303 | 660 | 776 | 145 | 479 | |
| v/s Ratio Prot | 0.02 | c0.19 | | 0.06 | c0.26 | 0.00 | c0.11 | 0.18 | 0.01 | 0.02 | c0.21 | |
| v/s Ratio Perm | | | 0.08 | | | 0.01 | | | 0.03 | | | |
| v/c Ratio | 0.55 | 0.73 | 0.31 | 0.40 | 0.71 | 0.03 | 0.68 | 0.50 | 0.10 | 0.26 | 0.79 | |
| Uniform Delay, d1 | 44.2 | 31.7 | 27.9 | 36.5 | 25.5 | 14.7 | 36.5 | 24.1 | 12.8 | 40.4 | 32.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.2 | 5.4 | 0.4 | 1.0 | 3.3 | 0.0 | 5.9 | 0.6 | 0.1 | 1.0 | 8.7 | |
| Delay (s) | 53.3 | 37.0 | 28.4 | 37.5 | 28.9 | 14.7 | 42.4 | 24.7 | 12.8 | 41.4 | 40.9 | |
| Level of Service | D | D | C | D | C | B | D | C | B | D | D | |
| Approach Delay (s) | | 35.1 | | | 29.7 | | | 27.3 | | | 41.0 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 93.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

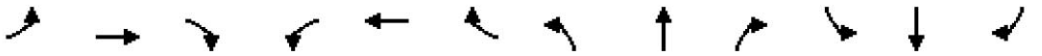
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 110 | 360 | 370 | 60 | 60 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 3610 | 1578 | 1805 | 1603 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 3610 | 1578 | 1805 | 1603 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 126 | 414 | 425 | 69 | 69 | 103 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 49 | 0 | 63 |
| Lane Group Flow (vph) | 126 | 414 | 425 | 20 | 69 | 40 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 6.3 | 20.6 | 10.3 | 10.3 | 7.8 | 14.1 |
| Effective Green, g (s) | 6.3 | 20.6 | 10.3 | 10.3 | 7.8 | 14.1 |
| Actuated g/C Ratio | 0.17 | 0.57 | 0.28 | 0.28 | 0.21 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 312 | 1075 | 1022 | 447 | 387 | 797 |
| v/s Ratio Prot | 0.07 | c0.22 | 0.12 | | c0.04 | 0.01 |
| v/s Ratio Perm | | | | 0.01 | | 0.02 |
| v/c Ratio | 0.40 | 0.39 | 0.42 | 0.04 | 0.18 | 0.05 |
| Uniform Delay, d1 | 13.4 | 4.4 | 10.6 | 9.5 | 11.7 | 7.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 0.2 | 0.3 | 0.0 | 0.2 | 0.0 |
| Delay (s) | 14.2 | 4.6 | 10.9 | 9.5 | 11.9 | 7.0 |
| Level of Service | B | A | B | A | B | A |
| Approach Delay (s) | | 6.9 | 10.7 | | 9.0 | |
| Approach LOS | | A | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.33 | | |
| Actuated Cycle Length (s) | 36.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 38.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

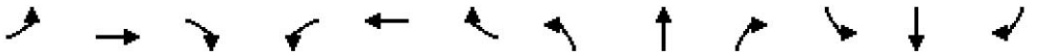
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 210 | 150 | 180 | 290 | 80 | 80 | 210 | 50 | 60 | 270 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1591 | 1805 | 1900 | 1592 | 1805 | 3489 | | 1805 | 3610 | 1575 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1591 | 1805 | 1900 | 1592 | 1805 | 3489 | | 1805 | 3610 | 1575 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 82 | 247 | 176 | 212 | 341 | 94 | 94 | 247 | 59 | 71 | 318 | 82 |
| RTOR Reduction (vph) | 0 | 0 | 136 | 0 | 0 | 63 | 0 | 25 | 0 | 0 | 0 | 67 |
| Lane Group Flow (vph) | 82 | 247 | 40 | 212 | 341 | 31 | 94 | 281 | 0 | 71 | 318 | 15 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 7.8 | 13.6 | 13.6 | 14.1 | 19.9 | 19.9 | 5.2 | 10.7 | | 5.7 | 11.2 | 11.2 |
| Effective Green, g (s) | 7.8 | 13.6 | 13.6 | 14.1 | 19.9 | 19.9 | 5.2 | 10.7 | | 5.7 | 11.2 | 11.2 |
| Actuated g/C Ratio | 0.13 | 0.23 | 0.23 | 0.23 | 0.33 | 0.33 | 0.09 | 0.18 | | 0.09 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 234 | 430 | 360 | 423 | 629 | 527 | 156 | 621 | | 171 | 673 | 294 |
| v/s Ratio Prot | 0.05 | 0.13 | | c0.12 | c0.18 | | c0.05 | 0.08 | | 0.04 | c0.09 | |
| v/s Ratio Perm | | | 0.03 | | | 0.02 | | | | | | 0.01 |
| v/c Ratio | 0.35 | 0.57 | 0.11 | 0.50 | 0.54 | 0.06 | 0.60 | 0.45 | | 0.42 | 0.47 | 0.05 |
| Uniform Delay, d1 | 23.8 | 20.7 | 18.5 | 19.9 | 16.4 | 13.7 | 26.5 | 22.1 | | 25.6 | 21.8 | 20.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 1.9 | 0.1 | 0.9 | 1.0 | 0.0 | 6.4 | 0.5 | | 1.6 | 0.5 | 0.1 |
| Delay (s) | 24.8 | 22.5 | 18.6 | 20.9 | 17.3 | 13.8 | 32.9 | 22.6 | | 27.3 | 22.3 | 20.2 |
| Level of Service | C | C | B | C | B | B | C | C | | C | C | C |
| Approach Delay (s) | | 21.5 | | | 18.0 | | | 25.0 | | | 22.7 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 60.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 52.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

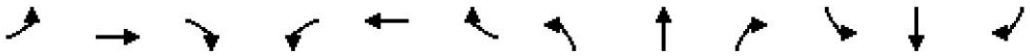
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 570 | 150 | 30 | 530 | 30 | 190 | 280 | 40 | 40 | 220 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3484 | | 1805 | 3577 | | 1805 | 3534 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3484 | | 1805 | 3577 | | 1805 | 3534 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 125 | 712 | 188 | 38 | 662 | 38 | 238 | 350 | 50 | 50 | 275 | 88 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 0 | 71 |
| Lane Group Flow (vph) | 125 | 883 | 0 | 38 | 697 | 0 | 238 | 390 | 0 | 50 | 275 | 17 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 12.8 | 55.8 | | 4.8 | 47.8 | | 20.4 | 37.8 | | 5.6 | 23.0 | 23.0 |
| Effective Green, g (s) | 12.8 | 55.8 | | 4.8 | 47.8 | | 20.4 | 37.8 | | 5.6 | 23.0 | 23.0 |
| Actuated g/C Ratio | 0.11 | 0.46 | | 0.04 | 0.40 | | 0.17 | 0.31 | | 0.05 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 193 | 1620 | | 72 | 1425 | | 307 | 1113 | | 84 | 364 | 304 |
| v/s Ratio Prot | c0.07 | c0.25 | | 0.02 | 0.19 | | c0.13 | 0.11 | | 0.03 | c0.14 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.65 | 0.55 | | 0.53 | 0.49 | | 0.78 | 0.35 | | 0.60 | 0.76 | 0.06 |
| Uniform Delay, d1 | 51.4 | 23.0 | | 56.5 | 27.0 | | 47.6 | 31.6 | | 56.1 | 45.8 | 39.6 |
| Progression Factor | 0.63 | 1.14 | | 1.11 | 0.97 | | 1.00 | 1.00 | | 0.87 | 0.78 | 0.86 |
| Incremental Delay, d2 | 7.1 | 1.3 | | 6.0 | 1.1 | | 11.6 | 0.2 | | 10.8 | 8.6 | 0.1 |
| Delay (s) | 39.4 | 27.5 | | 68.8 | 27.2 | | 59.2 | 31.8 | | 59.7 | 44.3 | 34.1 |
| Level of Service | D | C | | E | C | | E | C | | E | D | C |
| Approach Delay (s) | | 29.0 | | | 29.3 | | | 42.0 | | | 44.0 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

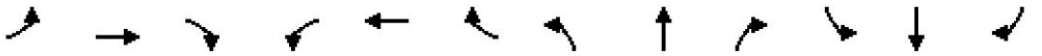
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 430 | 230 | 280 | 360 | 40 | 180 | 590 | 350 | 80 | 520 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1586 | 1805 | 3549 | | 1805 | 3610 | 1567 | 1805 | 3557 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1586 | 1805 | 3549 | | 1805 | 3610 | 1567 | 1805 | 3557 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 85 | 524 | 280 | 341 | 439 | 49 | 220 | 720 | 427 | 98 | 634 | 61 |
| RTOR Reduction (vph) | 0 | 0 | 173 | 0 | 7 | 0 | 0 | 0 | 307 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 85 | 524 | 107 | 341 | 481 | 0 | 220 | 720 | 120 | 98 | 689 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.4 | 33.4 | 33.4 | 26.7 | 51.7 | | 17.2 | 33.8 | 33.8 | 10.1 | 26.7 | |
| Effective Green, g (s) | 8.4 | 33.4 | 33.4 | 26.7 | 51.7 | | 17.2 | 33.8 | 33.8 | 10.1 | 26.7 | |
| Actuated g/C Ratio | 0.07 | 0.28 | 0.28 | 0.22 | 0.43 | | 0.14 | 0.28 | 0.28 | 0.08 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 126 | 529 | 441 | 402 | 1529 | | 259 | 1017 | 441 | 152 | 791 | |
| v/s Ratio Prot | 0.05 | c0.28 | | c0.19 | 0.14 | | c0.12 | 0.20 | | 0.05 | c0.19 | |
| v/s Ratio Perm | | | 0.07 | | | | | | 0.08 | | | |
| v/c Ratio | 0.67 | 0.99 | 0.24 | 0.85 | 0.31 | | 0.85 | 0.71 | 0.27 | 0.64 | 0.87 | |
| Uniform Delay, d1 | 54.5 | 43.1 | 33.5 | 44.7 | 22.5 | | 50.1 | 38.7 | 33.5 | 53.2 | 45.0 | |
| Progression Factor | 0.63 | 0.78 | 1.54 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 12.1 | 34.9 | 1.2 | 15.2 | 0.5 | | 22.0 | 2.3 | 0.3 | 9.0 | 10.3 | |
| Delay (s) | 46.3 | 68.6 | 52.7 | 59.9 | 23.0 | | 72.2 | 40.9 | 33.9 | 62.2 | 55.3 | |
| Level of Service | D | E | D | E | C | | E | D | C | E | E | |
| Approach Delay (s) | | 61.4 | | | 38.2 | | | 43.8 | | | 56.2 | |
| Approach LOS | | E | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 49.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 80.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

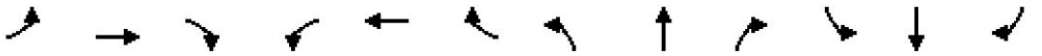
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 380 | 20 | 0 | 370 | 110 | 40 | 30 | 10 | 120 | 10 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1884 | | | 1828 | | 1805 | 1900 | 1573 | 1805 | 1900 | 1590 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1884 | | | 1828 | | 1805 | 1900 | 1573 | 1805 | 1900 | 1590 |
| Peak-hour factor, PHF | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Adj. Flow (vph) | 157 | 458 | 24 | 0 | 446 | 133 | 48 | 36 | 12 | 145 | 12 | 205 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 11 | 0 | 0 | 0 | 11 | 0 | 0 | 164 |
| Lane Group Flow (vph) | 157 | 481 | 0 | 0 | 568 | 0 | 48 | 36 | 1 | 145 | 12 | 41 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.1 | 39.7 | | | 26.6 | | 3.9 | 7.6 | 7.6 | 10.2 | 13.9 | 13.9 |
| Effective Green, g (s) | 9.1 | 39.7 | | | 26.6 | | 3.9 | 7.6 | 7.6 | 10.2 | 13.9 | 13.9 |
| Actuated g/C Ratio | 0.13 | 0.57 | | | 0.38 | | 0.06 | 0.11 | 0.11 | 0.15 | 0.20 | 0.20 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 236 | 1076 | | | 700 | | 101 | 208 | 172 | 265 | 380 | 318 |
| v/s Ratio Prot | c0.09 | 0.26 | | | c0.31 | | c0.03 | 0.02 | | c0.08 | 0.01 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | c0.03 |
| v/c Ratio | 0.67 | 0.45 | | | 0.81 | | 0.48 | 0.17 | 0.01 | 0.55 | 0.03 | 0.13 |
| Uniform Delay, d1 | 28.8 | 8.6 | | | 19.2 | | 31.8 | 28.1 | 27.6 | 27.5 | 22.4 | 22.8 |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.9 | 0.3 | | | 7.1 | | 3.5 | 0.4 | 0.0 | 2.3 | 0.0 | 0.2 |
| Delay (s) | 35.6 | 8.9 | | | 26.3 | | 35.3 | 28.5 | 27.6 | 29.8 | 22.4 | 23.0 |
| Level of Service | D | A | | | C | | D | C | C | C | C | C |
| Approach Delay (s) | | 15.5 | | | 26.3 | | | 31.8 | | | 25.7 | |
| Approach LOS | | B | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 69.5 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 59.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

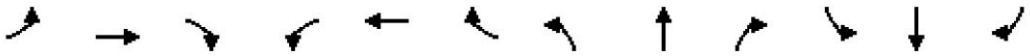
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 640 | 50 | 60 | 920 | 100 | 60 | 190 | 40 | 110 | 200 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5102 | | 3502 | 3505 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5102 | | 3502 | 3505 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 104 | 667 | 52 | 62 | 958 | 104 | 62 | 198 | 42 | 115 | 208 | 125 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 7 | 0 | 0 | 21 | 0 | 0 | 0 | 107 |
| Lane Group Flow (vph) | 104 | 667 | 32 | 62 | 1055 | 0 | 62 | 219 | 0 | 115 | 208 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 12.8 | 72.7 | 72.7 | 8.3 | 68.2 | | 5.6 | 12.9 | | 10.1 | 17.4 | 17.4 |
| Effective Green, g (s) | 12.8 | 72.7 | 72.7 | 8.3 | 68.2 | | 5.6 | 12.9 | | 10.1 | 17.4 | 17.4 |
| Actuated g/C Ratio | 0.11 | 0.61 | 0.61 | 0.07 | 0.57 | | 0.05 | 0.11 | | 0.08 | 0.14 | 0.14 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 193 | 2187 | 961 | 125 | 2900 | | 163 | 377 | | 295 | 523 | 230 |
| v/s Ratio Prot | c0.06 | 0.18 | | c0.03 | c0.21 | | 0.02 | c0.06 | | 0.03 | c0.06 | |
| v/s Ratio Perm | | | 0.02 | | | | | | | | | 0.01 |
| v/c Ratio | 0.54 | 0.30 | 0.03 | 0.50 | 0.36 | | 0.38 | 0.58 | | 0.39 | 0.40 | 0.08 |
| Uniform Delay, d1 | 50.8 | 11.4 | 9.5 | 53.8 | 14.1 | | 55.5 | 51.0 | | 52.0 | 46.5 | 44.4 |
| Progression Factor | 0.69 | 0.64 | 0.29 | 0.67 | 0.66 | | 1.02 | 0.43 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.8 | 0.4 | 0.1 | 3.0 | 0.3 | | 1.4 | 2.2 | | 0.9 | 0.5 | 0.1 |
| Delay (s) | 37.7 | 7.7 | 2.8 | 38.8 | 9.6 | | 58.1 | 24.0 | | 52.9 | 47.0 | 44.5 |
| Level of Service | D | A | A | D | A | | E | C | | D | D | D |
| Approach Delay (s) | | 11.1 | | | 11.2 | | | 31.0 | | | 47.8 | |
| Approach LOS | | B | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

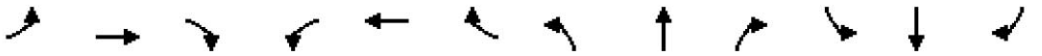
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 660 | 100 | 50 | 940 | 60 | 70 | 150 | 40 | 80 | 120 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5135 | | 1805 | 3483 | | 1805 | 3412 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5135 | | 1805 | 3483 | | 1805 | 3412 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 42 | 688 | 104 | 52 | 979 | 62 | 73 | 156 | 42 | 83 | 125 | 62 |
| RTOR Reduction (vph) | 0 | 0 | 38 | 0 | 3 | 0 | 0 | 28 | 0 | 0 | 57 | 0 |
| Lane Group Flow (vph) | 42 | 688 | 66 | 52 | 1038 | 0 | 73 | 170 | 0 | 83 | 130 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 6.4 | 75.7 | 75.7 | 7.7 | 77.0 | | 10.4 | 11.3 | | 9.3 | 10.2 | |
| Effective Green, g (s) | 6.4 | 75.7 | 75.7 | 7.7 | 77.0 | | 10.4 | 11.3 | | 9.3 | 10.2 | |
| Actuated g/C Ratio | 0.05 | 0.63 | 0.63 | 0.06 | 0.64 | | 0.09 | 0.09 | | 0.08 | 0.08 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 96 | 2277 | 1000 | 116 | 3295 | | 156 | 328 | | 140 | 290 | |
| v/s Ratio Prot | c0.02 | 0.19 | | c0.03 | c0.20 | | 0.04 | c0.05 | | c0.05 | 0.04 | |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | |
| v/c Ratio | 0.44 | 0.30 | 0.07 | 0.45 | 0.31 | | 0.47 | 0.52 | | 0.59 | 0.45 | |
| Uniform Delay, d1 | 55.1 | 10.1 | 8.5 | 54.1 | 9.7 | | 52.2 | 51.8 | | 53.5 | 52.2 | |
| Progression Factor | 0.90 | 0.56 | 1.06 | 0.94 | 0.68 | | 1.22 | 1.23 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.1 | 0.3 | 0.1 | 2.5 | 0.2 | | 2.1 | 1.3 | | 6.6 | 1.1 | |
| Delay (s) | 52.5 | 6.0 | 9.1 | 53.5 | 6.8 | | 65.6 | 65.2 | | 60.1 | 53.3 | |
| Level of Service | D | A | A | D | A | | E | E | | E | D | |
| Approach Delay (s) | | 8.7 | | | 9.1 | | | 65.3 | | | 55.4 | |
| Approach LOS | | A | | | A | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 59.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 520 | 30 | 40 | 880 | 150 | 140 | 290 | 40 | 150 | 170 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1594 | 1805 | 5061 | | 1805 | 3538 | | 1805 | 3610 | 1602 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1594 | 1805 | 5061 | | 1805 | 3538 | | 1805 | 3610 | 1602 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 98 | 565 | 33 | 43 | 957 | 163 | 152 | 315 | 43 | 163 | 185 | 109 |
| RTOR Reduction (vph) | 0 | 0 | 9 | 0 | 14 | 0 | 0 | 12 | 0 | 0 | 0 | 79 |
| Lane Group Flow (vph) | 98 | 565 | 24 | 43 | 1106 | 0 | 152 | 346 | 0 | 163 | 185 | 30 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.8 | 65.9 | 86.9 | 5.6 | 59.7 | | 21.0 | 17.3 | | 15.2 | 11.5 | 23.3 |
| Effective Green, g (s) | 11.8 | 65.9 | 86.9 | 5.6 | 59.7 | | 21.0 | 17.3 | | 15.2 | 11.5 | 23.3 |
| Actuated g/C Ratio | 0.10 | 0.55 | 0.72 | 0.05 | 0.50 | | 0.18 | 0.14 | | 0.13 | 0.10 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 177 | 2849 | 1207 | 84 | 2518 | | 316 | 510 | | 229 | 346 | 311 |
| v/s Ratio Prot | c0.05 | 0.11 | 0.00 | 0.02 | c0.22 | | c0.08 | c0.10 | | c0.09 | 0.05 | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | 0.01 |
| v/c Ratio | 0.55 | 0.20 | 0.02 | 0.51 | 0.44 | | 0.48 | 0.68 | | 0.71 | 0.53 | 0.10 |
| Uniform Delay, d1 | 51.6 | 13.7 | 4.6 | 55.9 | 19.4 | | 44.6 | 48.7 | | 50.3 | 51.7 | 39.7 |
| Progression Factor | 0.68 | 0.61 | 0.91 | 1.06 | 1.13 | | 0.52 | 0.54 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.6 | 0.2 | 0.0 | 4.9 | 0.5 | | 1.1 | 3.4 | | 10.0 | 1.6 | 0.1 |
| Delay (s) | 38.9 | 8.4 | 4.2 | 63.9 | 22.4 | | 24.5 | 30.0 | | 60.3 | 53.3 | 39.8 |
| Level of Service | D | A | A | E | C | | C | C | | E | D | D |
| Approach Delay (s) | | 12.5 | | | 23.9 | | | 28.3 | | | 52.6 | |
| Approach LOS | | B | | | C | | | C | | | D | |

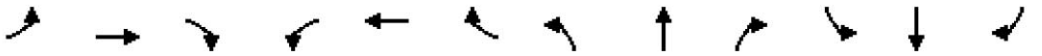
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 480 | 70 | 70 | 810 | 70 | 140 | 240 | 70 | 80 | 220 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5076 | | 1805 | 5118 | | 1805 | 3475 | | 1805 | 3450 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5076 | | 1805 | 5118 | | 1805 | 3475 | | 1805 | 3450 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 44 | 533 | 78 | 78 | 900 | 78 | 156 | 267 | 78 | 89 | 244 | 89 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 5 | 0 | 0 | 35 | 0 | 0 | 43 | 0 |
| Lane Group Flow (vph) | 44 | 601 | 0 | 78 | 973 | 0 | 156 | 310 | 0 | 89 | 290 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.2 | 64.9 | | 8.0 | 65.7 | | 15.6 | 16.4 | | 14.7 | 15.5 | |
| Effective Green, g (s) | 7.2 | 64.9 | | 8.0 | 65.7 | | 15.6 | 16.4 | | 14.7 | 15.5 | |
| Actuated g/C Ratio | 0.06 | 0.54 | | 0.07 | 0.55 | | 0.13 | 0.14 | | 0.12 | 0.13 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 108 | 2745 | | 120 | 2802 | | 235 | 475 | | 221 | 446 | |
| v/s Ratio Prot | c0.02 | 0.12 | | c0.04 | c0.19 | | c0.09 | c0.09 | | 0.05 | 0.08 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.41 | 0.22 | | 0.65 | 0.35 | | 0.66 | 0.65 | | 0.40 | 0.65 | |
| Uniform Delay, d1 | 54.3 | 14.3 | | 54.6 | 15.2 | | 49.7 | 49.1 | | 48.6 | 49.7 | |
| Progression Factor | 1.13 | 0.61 | | 0.65 | 0.25 | | 0.66 | 0.32 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.4 | 0.2 | | 10.9 | 0.3 | | 6.4 | 3.0 | | 1.2 | 3.4 | |
| Delay (s) | 64.0 | 8.9 | | 46.2 | 4.1 | | 39.3 | 18.5 | | 49.8 | 53.1 | |
| Level of Service | E | A | | D | A | | D | B | | D | D | |
| Approach Delay (s) | | 12.6 | | | 7.2 | | | 25.0 | | | 52.4 | |
| Approach LOS | | B | | | A | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 65.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

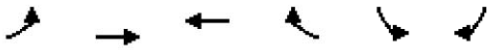
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 310 | 80 | 80 | 620 | 80 | 210 | 560 | 70 | 170 | 420 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5088 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5088 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 172 | 356 | 92 | 92 | 713 | 92 | 241 | 644 | 80 | 195 | 483 | 195 |
| RTOR Reduction (vph) | 0 | 0 | 56 | 0 | 12 | 0 | 0 | 0 | 61 | 0 | 0 | 158 |
| Lane Group Flow (vph) | 172 | 356 | 36 | 92 | 793 | 0 | 241 | 644 | 19 | 195 | 483 | 37 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 13.1 | 47.0 | 47.0 | 10.4 | 44.3 | | 23.9 | 28.2 | 28.2 | 18.4 | 22.7 | 22.7 |
| Effective Green, g (s) | 13.1 | 47.0 | 47.0 | 10.4 | 44.3 | | 23.9 | 28.2 | 28.2 | 18.4 | 22.7 | 22.7 |
| Actuated g/C Ratio | 0.11 | 0.39 | 0.39 | 0.09 | 0.37 | | 0.20 | 0.23 | 0.23 | 0.15 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 197 | 1414 | 622 | 156 | 1878 | | 359 | 848 | 373 | 277 | 683 | 300 |
| v/s Ratio Prot | c0.10 | 0.10 | | c0.05 | c0.16 | | c0.13 | c0.18 | | 0.11 | 0.13 | |
| v/s Ratio Perm | | | 0.02 | | | | | | 0.01 | | | 0.02 |
| v/c Ratio | 0.87 | 0.25 | 0.06 | 0.59 | 0.42 | | 0.67 | 0.76 | 0.05 | 0.70 | 0.71 | 0.12 |
| Uniform Delay, d1 | 52.6 | 24.6 | 22.7 | 52.7 | 28.3 | | 44.4 | 42.7 | 35.5 | 48.2 | 45.5 | 40.4 |
| Progression Factor | 0.91 | 0.94 | 1.85 | 1.26 | 0.82 | | 0.64 | 0.34 | 0.05 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 31.5 | 0.4 | 0.2 | 5.3 | 0.7 | | 4.0 | 3.3 | 0.0 | 7.9 | 3.4 | 0.2 |
| Delay (s) | 79.2 | 23.6 | 42.2 | 71.9 | 23.8 | | 32.6 | 18.0 | 1.8 | 56.1 | 48.9 | 40.6 |
| Level of Service | E | C | D | E | C | | C | B | A | E | D | D |
| Approach Delay (s) | | 41.8 | | | 28.7 | | | 20.3 | | | 48.6 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 970 | 1470 | 150 | 120 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1589 | 3502 | 1603 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1589 | 3502 | 1603 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 138 | 1032 | 1564 | 160 | 128 | 74 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 35 | 0 | 14 |
| Lane Group Flow (vph) | 138 | 1032 | 1564 | 125 | 128 | 60 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 14.0 | 102.2 | 84.2 | 94.0 | 9.8 | 23.8 |
| Effective Green, g (s) | 14.0 | 102.2 | 84.2 | 94.0 | 9.8 | 23.8 |
| Actuated g/C Ratio | 0.12 | 0.85 | 0.70 | 0.78 | 0.08 | 0.20 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 211 | 3075 | 2533 | 1298 | 286 | 371 |
| v/s Ratio Prot | c0.08 | 0.29 | c0.43 | 0.01 | c0.04 | 0.02 |
| v/s Ratio Perm | | | | 0.07 | | 0.02 |
| v/c Ratio | 0.65 | 0.34 | 0.62 | 0.10 | 0.45 | 0.16 |
| Uniform Delay, d1 | 50.7 | 1.8 | 9.4 | 3.0 | 52.5 | 39.8 |
| Progression Factor | 0.92 | 1.29 | 0.99 | 1.75 | 0.51 | 0.35 |
| Incremental Delay, d2 | 6.7 | 0.3 | 1.0 | 0.0 | 1.1 | 0.2 |
| Delay (s) | 53.3 | 2.7 | 10.4 | 5.3 | 28.1 | 14.2 |
| Level of Service | D | A | B | A | C | B |
| Approach Delay (s) | | 8.6 | 9.9 | | 23.0 | |
| Approach LOS | | A | A | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 800 | 190 | 20 | 1440 | 70 | 170 | 40 | 20 | 60 | 60 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5147 | | 3502 | 3413 | | 1805 | 3610 | 1604 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5147 | | 3502 | 3413 | | 1805 | 3610 | 1604 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 851 | 202 | 21 | 1532 | 74 | 181 | 43 | 21 | 64 | 64 | 64 |
| RTOR Reduction (vph) | 0 | 0 | 65 | 0 | 3 | 0 | 0 | 19 | 0 | 0 | 0 | 13 |
| Lane Group Flow (vph) | 85 | 851 | 137 | 21 | 1603 | 0 | 181 | 45 | 0 | 64 | 64 | 51 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.7 | 81.1 | 81.1 | 2.8 | 72.2 | | 12.3 | 10.0 | | 10.1 | 7.8 | 19.5 |
| Effective Green, g (s) | 11.7 | 81.1 | 81.1 | 2.8 | 72.2 | | 12.3 | 10.0 | | 10.1 | 7.8 | 19.5 |
| Actuated g/C Ratio | 0.10 | 0.68 | 0.68 | 0.02 | 0.60 | | 0.10 | 0.08 | | 0.08 | 0.06 | 0.16 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 176 | 2440 | 1073 | 42 | 3097 | | 359 | 284 | | 152 | 235 | 314 |
| v/s Ratio Prot | c0.05 | 0.24 | | 0.01 | c0.31 | | c0.05 | 0.01 | | 0.04 | c0.02 | 0.02 |
| v/s Ratio Perm | | | 0.09 | | | | | | | | | 0.02 |
| v/c Ratio | 0.48 | 0.35 | 0.13 | 0.50 | 0.52 | | 0.50 | 0.16 | | 0.42 | 0.27 | 0.16 |
| Uniform Delay, d1 | 51.3 | 8.2 | 6.9 | 57.9 | 13.8 | | 51.0 | 51.1 | | 52.2 | 53.4 | 43.2 |
| Progression Factor | 1.05 | 0.58 | 0.55 | 0.80 | 0.45 | | 1.00 | 1.00 | | 1.08 | 0.87 | 0.79 |
| Incremental Delay, d2 | 2.0 | 0.4 | 0.2 | 6.9 | 0.5 | | 1.1 | 0.3 | | 1.9 | 0.6 | 0.2 |
| Delay (s) | 55.7 | 5.2 | 4.0 | 53.3 | 6.8 | | 52.1 | 51.3 | | 58.4 | 47.1 | 34.4 |
| Level of Service | E | A | A | D | A | | D | D | | E | D | C |
| Approach Delay (s) | | 8.7 | | | 7.4 | | | 51.9 | | | 46.6 | |
| Approach LOS | | A | | | A | | | D | | | D | |

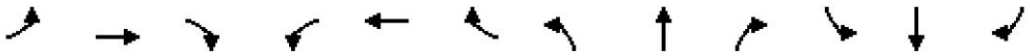
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 610 | 240 | 20 | 810 | 70 | 700 | 380 | 10 | 50 | 190 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1597 | 1805 | 3562 | | 3502 | 3594 | | 1805 | 3527 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1597 | 1805 | 3562 | | 3502 | 3594 | | 1805 | 3527 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 63 | 642 | 253 | 21 | 853 | 74 | 737 | 400 | 11 | 53 | 200 | 32 |
| RTOR Reduction (vph) | 0 | 0 | 68 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 63 | 642 | 185 | 21 | 923 | 0 | 737 | 409 | 0 | 53 | 219 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 7.2 | 55.6 | 87.9 | 3.3 | 51.7 | | 32.3 | 39.5 | | 5.6 | 12.8 | |
| Effective Green, g (s) | 7.2 | 55.6 | 87.9 | 3.3 | 51.7 | | 32.3 | 39.5 | | 5.6 | 12.8 | |
| Actuated g/C Ratio | 0.06 | 0.46 | 0.73 | 0.03 | 0.43 | | 0.27 | 0.33 | | 0.05 | 0.11 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 108 | 1673 | 1170 | 50 | 1535 | | 943 | 1183 | | 84 | 376 | |
| v/s Ratio Prot | c0.03 | 0.18 | 0.04 | 0.01 | c0.26 | | c0.21 | 0.11 | | 0.03 | c0.06 | |
| v/s Ratio Perm | | | 0.07 | | | | | | | | | |
| v/c Ratio | 0.58 | 0.38 | 0.16 | 0.42 | 0.60 | | 0.78 | 0.35 | | 0.63 | 0.58 | |
| Uniform Delay, d1 | 54.9 | 21.0 | 4.9 | 57.4 | 26.2 | | 40.6 | 30.5 | | 56.2 | 51.0 | |
| Progression Factor | 0.86 | 0.82 | 3.64 | 1.06 | 1.23 | | 1.00 | 1.00 | | 0.30 | 0.25 | |
| Incremental Delay, d2 | 7.5 | 0.6 | 0.1 | 5.1 | 1.6 | | 4.3 | 0.2 | | 14.4 | 2.3 | |
| Delay (s) | 54.7 | 17.9 | 17.7 | 66.2 | 33.7 | | 44.9 | 30.6 | | 31.3 | 14.9 | |
| Level of Service | D | B | B | E | C | | D | C | | C | B | |
| Approach Delay (s) | | 20.3 | | | 34.5 | | | 39.8 | | | 17.9 | |
| Approach LOS | | C | | | C | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 76.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

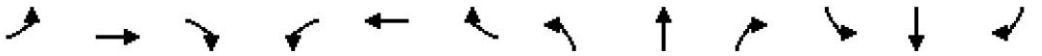
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 550 | 80 | 50 | 740 | 50 | 100 | 340 | 60 | 50 | 250 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3533 | | 1805 | 3572 | | 1805 | 3520 | | 1805 | 3545 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3533 | | 1805 | 3572 | | 1805 | 3520 | | 1805 | 3545 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 56 | 618 | 90 | 56 | 831 | 56 | 112 | 382 | 67 | 56 | 281 | 34 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 3 | 0 | 0 | 14 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 56 | 701 | 0 | 56 | 884 | 0 | 112 | 435 | 0 | 56 | 306 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 8.0 | 66.6 | | 7.2 | 65.8 | | 14.5 | 22.2 | | 8.0 | 15.7 | |
| Effective Green, g (s) | 8.0 | 66.6 | | 7.2 | 65.8 | | 14.5 | 22.2 | | 8.0 | 15.7 | |
| Actuated g/C Ratio | 0.07 | 0.55 | | 0.06 | 0.55 | | 0.12 | 0.18 | | 0.07 | 0.13 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 120 | 1961 | | 108 | 1959 | | 218 | 651 | | 120 | 464 | |
| v/s Ratio Prot | c0.03 | 0.20 | | 0.03 | c0.25 | | c0.06 | c0.12 | | 0.03 | 0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.47 | 0.36 | | 0.52 | 0.45 | | 0.51 | 0.67 | | 0.47 | 0.66 | |
| Uniform Delay, d1 | 53.9 | 14.8 | | 54.7 | 16.3 | | 49.4 | 45.5 | | 53.9 | 49.6 | |
| Progression Factor | 0.65 | 1.78 | | 0.61 | 0.51 | | 1.00 | 1.00 | | 0.64 | 0.34 | |
| Incremental Delay, d2 | 2.7 | 0.5 | | 3.6 | 0.7 | | 2.0 | 2.6 | | 2.8 | 3.4 | |
| Delay (s) | 37.7 | 26.8 | | 37.1 | 9.0 | | 51.5 | 48.1 | | 37.6 | 20.3 | |
| Level of Service | D | C | | D | A | | D | D | | D | C | |
| Approach Delay (s) | | 27.6 | | | 10.7 | | | 48.8 | | | 22.9 | |
| Approach LOS | | C | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

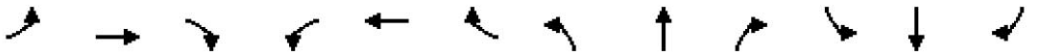
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 490 | 110 | 70 | 630 | 70 | 180 | 670 | 70 | 80 | 490 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3499 | | 1805 | 3550 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3499 | | 1805 | 3550 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 66 | 538 | 121 | 77 | 692 | 77 | 198 | 736 | 77 | 88 | 538 | 44 |
| RTOR Reduction (vph) | 0 | 15 | 0 | 0 | 7 | 0 | 0 | 0 | 53 | 0 | 0 | 34 |
| Lane Group Flow (vph) | 66 | 644 | 0 | 77 | 762 | 0 | 198 | 736 | 24 | 88 | 538 | 10 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.2 | 48.0 | | 8.1 | 48.9 | | 19.9 | 37.0 | 37.0 | 10.9 | 28.0 | 28.0 |
| Effective Green, g (s) | 7.2 | 48.0 | | 8.1 | 48.9 | | 19.9 | 37.0 | 37.0 | 10.9 | 28.0 | 28.0 |
| Actuated g/C Ratio | 0.06 | 0.40 | | 0.07 | 0.41 | | 0.17 | 0.31 | 0.31 | 0.09 | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 108 | 1400 | | 122 | 1447 | | 299 | 1113 | 489 | 164 | 842 | 370 |
| v/s Ratio Prot | 0.04 | c0.18 | | c0.04 | c0.21 | | c0.11 | c0.20 | | 0.05 | 0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | 0.01 |
| v/c Ratio | 0.61 | 0.46 | | 0.63 | 0.53 | | 0.66 | 0.66 | 0.05 | 0.54 | 0.64 | 0.03 |
| Uniform Delay, d1 | 55.0 | 26.5 | | 54.5 | 26.8 | | 46.9 | 36.1 | 29.1 | 52.1 | 41.4 | 35.5 |
| Progression Factor | 0.59 | 0.37 | | 1.25 | 0.71 | | 0.70 | 0.60 | 0.15 | 1.09 | 0.88 | 1.41 |
| Incremental Delay, d2 | 9.4 | 1.0 | | 9.0 | 1.2 | | 5.0 | 2.9 | 0.2 | 3.1 | 3.5 | 0.1 |
| Delay (s) | 41.7 | 10.9 | | 77.0 | 20.3 | | 37.9 | 24.6 | 4.4 | 60.2 | 39.9 | 50.3 |
| Level of Service | D | B | | E | C | | D | C | A | E | D | D |
| Approach Delay (s) | | 13.7 | | | 25.5 | | | 25.6 | | | 43.3 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 79.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

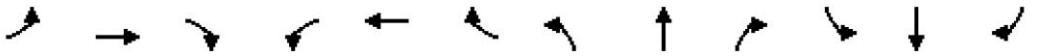
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1070 | 70 | 30 | 1550 | 460 | 290 | 240 | 10 | 50 | 30 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1591 | 3502 | 3610 | 2801 | 3502 | 3610 | 1591 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1591 | 3502 | 3610 | 2801 | 3502 | 3610 | 1591 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 207 | 1163 | 76 | 33 | 1685 | 500 | 315 | 261 | 11 | 54 | 33 | 76 |
| RTOR Reduction (vph) | 0 | 0 | 32 | 0 | 0 | 116 | 0 | 0 | 9 | 0 | 0 | 71 |
| Lane Group Flow (vph) | 207 | 1163 | 44 | 33 | 1685 | 384 | 315 | 261 | 2 | 54 | 33 | 5 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.1 | 43.3 | 43.3 | 3.9 | 40.1 | 40.1 | 10.9 | 12.6 | 16.5 | 3.9 | 5.6 | 5.6 |
| Effective Green, g (s) | 7.1 | 43.3 | 43.3 | 3.9 | 40.1 | 40.1 | 10.9 | 12.6 | 16.5 | 3.9 | 5.6 | 5.6 |
| Actuated g/C Ratio | 0.09 | 0.54 | 0.54 | 0.05 | 0.50 | 0.50 | 0.14 | 0.16 | 0.21 | 0.05 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 161 | 2818 | 877 | 171 | 2610 | 800 | 479 | 571 | 720 | 171 | 254 | 112 |
| v/s Ratio Prot | c0.11 | c0.22 | | 0.01 | c0.32 | | c0.09 | 0.07 | 0.00 | c0.02 | 0.01 | |
| v/s Ratio Perm | | | 0.03 | | | 0.24 | | | 0.00 | | | 0.00 |
| v/c Ratio | 1.29 | 0.41 | 0.05 | 0.19 | 0.65 | 0.48 | 0.66 | 0.46 | 0.00 | 0.32 | 0.13 | 0.05 |
| Uniform Delay, d1 | 36.3 | 10.7 | 8.5 | 36.4 | 14.6 | 13.0 | 32.6 | 30.4 | 25.1 | 36.6 | 34.8 | 34.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 167.2 | 0.1 | 0.0 | 0.6 | 0.6 | 0.5 | 3.3 | 0.6 | 0.0 | 1.1 | 0.2 | 0.2 |
| Delay (s) | 203.5 | 10.8 | 8.6 | 36.9 | 15.1 | 13.4 | 35.9 | 31.0 | 25.1 | 37.7 | 35.0 | 34.7 |
| Level of Service | F | B | A | D | B | B | D | C | C | D | C | C |
| Approach Delay (s) | | 38.3 | | | 15.1 | | | 33.5 | | | 35.8 | |
| Approach LOS | | D | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 79.7 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 73.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

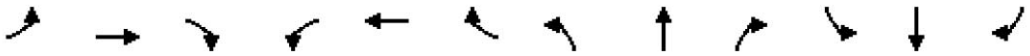
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 820 | 340 | 0 | 1670 | 0 | 0 | 0 | 0 | 200 | 0 | 310 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.96 | | | 1.00 | | | | | 1.00 | 0.87 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (prot) | | 4959 | | | 5187 | | | | | 1715 | 1494 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (perm) | | 4959 | | | 5187 | | | | | 1715 | 1494 | 1534 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 901 | 374 | 0 | 1835 | 0 | 0 | 0 | 0 | 220 | 0 | 341 |
| RTOR Reduction (vph) | 0 | 87 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 14 |
| Lane Group Flow (vph) | 0 | 1188 | 0 | 0 | 1835 | 0 | 0 | 0 | 0 | 196 | 170 | 167 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 48.1 | | | 48.1 | | | | | 13.9 | 13.9 | 13.9 |
| Effective Green, g (s) | | 48.1 | | | 48.1 | | | | | 13.9 | 13.9 | 13.9 |
| Actuated g/C Ratio | | 0.69 | | | 0.69 | | | | | 0.20 | 0.20 | 0.20 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3408 | | | 3564 | | | | | 341 | 297 | 305 |
| v/s Ratio Prot | | 0.24 | | | c0.35 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | c0.11 | 0.11 | 0.11 |
| v/c Ratio | | 0.35 | | | 0.51 | | | | | 0.57 | 0.57 | 0.55 |
| Uniform Delay, d1 | | 4.5 | | | 5.3 | | | | | 25.4 | 25.4 | 25.2 |
| Progression Factor | | 1.00 | | | 0.23 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.3 | | | 0.4 | | | | | 2.3 | 2.6 | 2.0 |
| Delay (s) | | 4.8 | | | 1.6 | | | | | 27.7 | 28.0 | 27.2 |
| Level of Service | | A | | | A | | | | | C | C | C |
| Approach Delay (s) | | 4.8 | | | 1.6 | | | 0.0 | | | 27.6 | |
| Approach LOS | | A | | | A | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 70.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 65.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

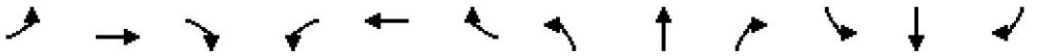
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 860 | 0 | 0 | 970 | 170 | 780 | 10 | 300 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 5059 | | 1715 | 1636 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 5059 | | 1715 | 1636 | 1534 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 152 | 935 | 0 | 0 | 1054 | 185 | 848 | 11 | 326 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 4 | 76 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 152 | 935 | 0 | 0 | 1205 | 0 | 449 | 439 | 217 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.0 | 39.2 | | | 27.2 | | 22.8 | 22.8 | 22.8 | | | |
| Effective Green, g (s) | 8.0 | 39.2 | | | 27.2 | | 22.8 | 22.8 | 22.8 | | | |
| Actuated g/C Ratio | 0.11 | 0.56 | | | 0.39 | | 0.33 | 0.33 | 0.33 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 206 | 2905 | | | 1966 | | 559 | 533 | 500 | | | |
| v/s Ratio Prot | c0.08 | 0.18 | | | c0.24 | | 0.26 | c0.27 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.14 | | | |
| v/c Ratio | 0.74 | 0.32 | | | 0.61 | | 0.80 | 0.82 | 0.43 | | | |
| Uniform Delay, d1 | 30.0 | 8.3 | | | 17.2 | | 21.6 | 21.7 | 18.5 | | | |
| Progression Factor | 0.97 | 0.84 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 12.2 | 0.3 | | | 1.4 | | 8.2 | 10.0 | 0.6 | | | |
| Delay (s) | 41.4 | 7.2 | | | 18.6 | | 29.7 | 31.7 | 19.1 | | | |
| Level of Service | D | A | | | B | | C | C | B | | | |
| Approach Delay (s) | | 12.0 | | | 18.6 | | | 27.9 | | | 0.0 | |
| Approach LOS | | B | | | B | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 70.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

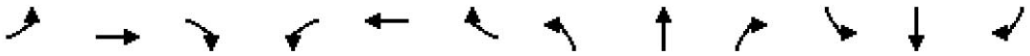
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 850 | 10 | 0 | 950 | 100 | 50 | 160 | 10 | 30 | 20 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3603 | | | 3610 | 1615 | 3502 | 3577 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3603 | | | 3610 | 1615 | 3502 | 3577 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 340 | 904 | 11 | 0 | 1011 | 106 | 53 | 170 | 11 | 32 | 21 | 170 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 49 | 0 | 4 | 0 | 0 | 0 | 158 |
| Lane Group Flow (vph) | 340 | 915 | 0 | 0 | 1011 | 57 | 53 | 177 | 0 | 32 | 21 | 12 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 22.0 | 90.0 | | | 64.0 | 64.0 | 9.3 | 12.8 | | 5.2 | 8.7 | 8.7 |
| Effective Green, g (s) | 22.0 | 90.0 | | | 64.0 | 64.0 | 9.3 | 12.8 | | 5.2 | 8.7 | 8.7 |
| Actuated g/C Ratio | 0.18 | 0.75 | | | 0.53 | 0.53 | 0.08 | 0.11 | | 0.04 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 642 | 2702 | | | 1925 | 861 | 271 | 382 | | 78 | 262 | 117 |
| v/s Ratio Prot | c0.10 | 0.25 | | | c0.28 | | 0.02 | c0.05 | | c0.02 | 0.01 | |
| v/s Ratio Perm | | | | | | 0.04 | | | | | | 0.01 |
| v/c Ratio | 0.53 | 0.34 | | | 0.53 | 0.07 | 0.20 | 0.46 | | 0.41 | 0.08 | 0.11 |
| Uniform Delay, d1 | 44.3 | 5.0 | | | 18.2 | 13.5 | 51.8 | 50.4 | | 55.9 | 51.9 | 52.0 |
| Progression Factor | 1.00 | 1.00 | | | 0.33 | 0.05 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | 0.3 | | | 1.0 | 0.1 | 0.4 | 0.9 | | 3.5 | 0.1 | 0.4 |
| Delay (s) | 45.1 | 5.4 | | | 7.0 | 0.8 | 52.2 | 51.3 | | 59.4 | 52.0 | 52.4 |
| Level of Service | D | A | | | A | A | D | D | | E | D | D |
| Approach Delay (s) | | 16.1 | | | 6.4 | | | 51.5 | | | 53.4 | |
| Approach LOS | | B | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 69.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

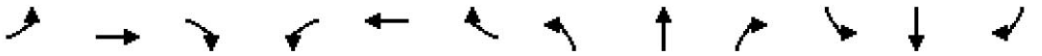
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 780 | 40 | 10 | 1010 | 30 | 10 | 10 | 20 | 10 | 10 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.90 | | 1.00 | 0.89 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5142 | | 1805 | 3610 | 1564 | 1797 | 1688 | | 1798 | 1663 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.73 | 1.00 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5142 | | 1805 | 3610 | 1564 | 1381 | 1688 | | 1395 | 1663 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 52 | 804 | 41 | 10 | 1041 | 31 | 10 | 10 | 21 | 10 | 10 | 31 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 20 | 0 | 0 | 29 | 0 |
| Lane Group Flow (vph) | 52 | 843 | 0 | 10 | 1041 | 28 | 10 | 11 | 0 | 10 | 12 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 9.2 | 99.0 | | 1.4 | 91.2 | 91.2 | 7.6 | 7.6 | | 7.6 | 7.6 | |
| Effective Green, g (s) | 9.2 | 99.0 | | 1.4 | 91.2 | 91.2 | 7.6 | 7.6 | | 7.6 | 7.6 | |
| Actuated g/C Ratio | 0.08 | 0.82 | | 0.01 | 0.76 | 0.76 | 0.06 | 0.06 | | 0.06 | 0.06 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 138 | 4242 | | 21 | 2744 | 1189 | 87 | 107 | | 88 | 105 | |
| v/s Ratio Prot | c0.03 | 0.16 | | 0.01 | c0.29 | | | 0.01 | | | 0.01 | |
| v/s Ratio Perm | | | | | | 0.02 | c0.01 | | | 0.01 | | |
| v/c Ratio | 0.38 | 0.20 | | 0.48 | 0.38 | 0.02 | 0.11 | 0.11 | | 0.11 | 0.11 | |
| Uniform Delay, d1 | 52.7 | 2.2 | | 58.9 | 4.9 | 3.5 | 53.0 | 53.0 | | 53.0 | 53.0 | |
| Progression Factor | 0.90 | 0.94 | | 1.14 | 0.42 | 0.29 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.7 | 0.1 | | 15.6 | 0.4 | 0.0 | 0.6 | 0.4 | | 0.6 | 0.5 | |
| Delay (s) | 49.3 | 2.2 | | 82.7 | 2.4 | 1.0 | 53.6 | 53.4 | | 53.6 | 53.5 | |
| Level of Service | D | A | | F | A | A | D | D | | D | D | |
| Approach Delay (s) | | 4.9 | | | 3.1 | | | 53.5 | | | 53.5 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

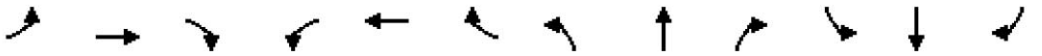
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 720 | 80 | 100 | 890 | 80 | 70 | 90 | 40 | 40 | 130 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5099 | | 1805 | 5110 | | 1805 | 1803 | | 1805 | 1900 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5099 | | 1805 | 5110 | | 1805 | 1803 | | 1805 | 1900 | 1589 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 41 | 735 | 82 | 102 | 908 | 82 | 71 | 92 | 41 | 41 | 133 | 82 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 5 | 0 | 0 | 20 | 0 | 0 | 0 | 73 |
| Lane Group Flow (vph) | 41 | 810 | 0 | 102 | 985 | 0 | 71 | 113 | 0 | 41 | 133 | 9 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 6.6 | 68.0 | | 13.7 | 75.1 | | 8.4 | 13.2 | | 9.1 | 13.9 | 13.9 |
| Effective Green, g (s) | 6.6 | 68.0 | | 13.7 | 75.1 | | 8.4 | 13.2 | | 9.1 | 13.9 | 13.9 |
| Actuated g/C Ratio | 0.05 | 0.57 | | 0.11 | 0.63 | | 0.07 | 0.11 | | 0.08 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 99 | 2889 | | 206 | 3198 | | 126 | 198 | | 137 | 220 | 184 |
| v/s Ratio Prot | 0.02 | 0.16 | | c0.06 | c0.19 | | 0.04 | c0.06 | | 0.02 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.41 | 0.28 | | 0.50 | 0.31 | | 0.56 | 0.57 | | 0.30 | 0.60 | 0.05 |
| Uniform Delay, d1 | 54.8 | 13.4 | | 49.9 | 10.4 | | 54.0 | 50.7 | | 52.4 | 50.4 | 47.2 |
| Progression Factor | 1.08 | 0.65 | | 0.65 | 0.29 | | 1.44 | 1.60 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.8 | 0.2 | | 1.8 | 0.2 | | 4.3 | 3.0 | | 1.2 | 4.6 | 0.1 |
| Delay (s) | 62.2 | 8.9 | | 34.0 | 3.2 | | 82.4 | 84.1 | | 53.7 | 55.1 | 47.3 |
| Level of Service | E | A | | C | A | | F | F | | D | E | D |
| Approach Delay (s) | | 11.5 | | | 6.1 | | | 83.5 | | | 52.4 | |
| Approach LOS | | B | | | A | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 59.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

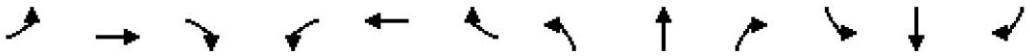
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↱ | ↰ | ↑↑ | | | | | | | ↱ |
| Volume (vph) | 0 | 650 | 50 | 490 | 640 | 0 | 0 | 0 | 0 | 0 | 0 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 3610 | 1572 | 1805 | 3610 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 3610 | 1572 | 1805 | 3610 | | | | | | | 1644 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 707 | 54 | 533 | 696 | 0 | 0 | 0 | 0 | 0 | 0 | 228 |
| RTOR Reduction (vph) | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 212 |
| Lane Group Flow (vph) | 0 | 707 | 21 | 533 | 696 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 45.8 | 45.8 | 66.2 | 103.8 | | | | | | | 8.2 |
| Effective Green, g (s) | | 45.8 | 45.8 | 66.2 | 103.8 | | | | | | | 8.2 |
| Actuated g/C Ratio | | 0.38 | 0.38 | 0.55 | 0.86 | | | | | | | 0.07 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1378 | 600 | 996 | 3123 | | | | | | | 112 |
| v/s Ratio Prot | | c0.20 | | c0.30 | 0.19 | | | | | | | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | |
| v/c Ratio | | 0.51 | 0.03 | 0.54 | 0.22 | | | | | | | 0.14 |
| Uniform Delay, d1 | | 28.5 | 23.2 | 17.1 | 1.4 | | | | | | | 52.6 |
| Progression Factor | | 1.00 | 1.00 | 0.64 | 1.04 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 1.4 | 0.1 | 0.4 | 0.1 | | | | | | | 0.6 |
| Delay (s) | | 29.9 | 23.4 | 11.4 | 1.5 | | | | | | | 53.2 |
| Level of Service | | C | C | B | A | | | | | | | D |
| Approach Delay (s) | | 29.4 | | | 5.8 | | | 0.0 | | | 53.2 | |
| Approach LOS | | C | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 51.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

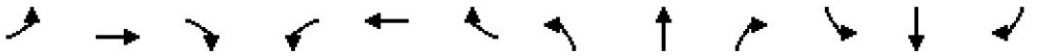
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 630 | 50 | 0 | 1420 | 140 | 230 | 100 | 10 | 10 | 0 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3570 | | | 3553 | | 1805 | 1873 | | 1805 | 1615 | |
| Flt Permitted | 0.10 | 1.00 | | | 1.00 | | 0.74 | 1.00 | | 0.62 | 1.00 | |
| Satd. Flow (perm) | 188 | 3570 | | | 3553 | | 1399 | 1873 | | 1171 | 1615 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 670 | 53 | 0 | 1511 | 149 | 245 | 106 | 11 | 11 | 0 | 32 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 25 | 0 |
| Lane Group Flow (vph) | 21 | 719 | 0 | 0 | 1655 | 0 | 245 | 114 | 0 | 11 | 7 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 85.8 | 85.8 | | | 85.8 | | 26.2 | 26.2 | | 26.2 | 26.2 | |
| Effective Green, g (s) | 85.8 | 85.8 | | | 85.8 | | 26.2 | 26.2 | | 26.2 | 26.2 | |
| Actuated g/C Ratio | 0.71 | 0.71 | | | 0.71 | | 0.22 | 0.22 | | 0.22 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 134 | 2553 | | | 2540 | | 305 | 409 | | 256 | 353 | |
| v/s Ratio Prot | | 0.20 | | | c0.47 | | | 0.06 | | | 0.00 | |
| v/s Ratio Perm | 0.11 | | | | | | c0.18 | | | 0.01 | | |
| v/c Ratio | 0.16 | 0.28 | | | 0.65 | | 0.80 | 0.28 | | 0.04 | 0.02 | |
| Uniform Delay, d1 | 5.5 | 6.1 | | | 9.1 | | 44.5 | 39.0 | | 37.0 | 36.8 | |
| Progression Factor | 0.11 | 0.03 | | | 0.38 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.2 | 0.2 | | | 1.3 | | 14.1 | 0.4 | | 0.1 | 0.0 | |
| Delay (s) | 2.8 | 0.4 | | | 4.7 | | 58.6 | 39.4 | | 37.1 | 36.8 | |
| Level of Service | A | A | | | A | | E | D | | D | D | |
| Approach Delay (s) | | 0.5 | | | 4.7 | | | 52.4 | | | 36.9 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 930 | 250 | 120 | 1230 | 60 | 50 | 30 | 30 | 60 | 120 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5187 | 1564 | 1715 | 1660 | | 1715 | 1801 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5187 | 1564 | 1715 | 1660 | | 1715 | 1801 | 1587 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 117 | 989 | 266 | 128 | 1309 | 64 | 53 | 32 | 32 | 64 | 128 | 96 |
| RTOR Reduction (vph) | 0 | 0 | 83 | 0 | 0 | 19 | 0 | 30 | 0 | 0 | 0 | 84 |
| Lane Group Flow (vph) | 117 | 989 | 183 | 128 | 1309 | 45 | 48 | 39 | 0 | 58 | 134 | 12 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 7.0 | 73.4 | 73.4 | 7.0 | 73.4 | 73.4 | 9.1 | 9.1 | | 14.5 | 14.5 | 14.5 |
| Effective Green, g (s) | 7.0 | 73.4 | 73.4 | 7.0 | 73.4 | 73.4 | 9.1 | 9.1 | | 14.5 | 14.5 | 14.5 |
| Actuated g/C Ratio | 0.06 | 0.61 | 0.61 | 0.06 | 0.61 | 0.61 | 0.08 | 0.08 | | 0.12 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 2208 | 969 | 105 | 3173 | 957 | 130 | 126 | | 207 | 218 | 192 |
| v/s Ratio Prot | 0.06 | c0.27 | | c0.07 | 0.25 | | c0.03 | 0.02 | | 0.03 | c0.07 | |
| v/s Ratio Perm | | | 0.12 | | | 0.03 | | | | | | 0.01 |
| v/c Ratio | 1.11 | 0.45 | 0.19 | 1.22 | 0.41 | 0.05 | 0.37 | 0.31 | | 0.28 | 0.61 | 0.06 |
| Uniform Delay, d1 | 56.5 | 12.5 | 10.2 | 56.5 | 12.1 | 9.3 | 52.7 | 52.5 | | 48.0 | 50.1 | 46.7 |
| Progression Factor | 0.78 | 1.23 | 2.25 | 0.82 | 0.38 | 0.19 | 1.00 | 1.00 | | 1.01 | 1.02 | 2.33 |
| Incremental Delay, d2 | 121.8 | 0.7 | 0.4 | 149.2 | 0.3 | 0.1 | 1.8 | 1.4 | | 0.7 | 4.9 | 0.1 |
| Delay (s) | 165.7 | 16.0 | 23.4 | 195.2 | 4.9 | 1.8 | 54.5 | 53.9 | | 49.0 | 56.1 | 108.8 |
| Level of Service | F | B | C | F | A | A | D | D | | D | E | F |
| Approach Delay (s) | | 30.2 | | | 21.0 | | | 54.2 | | | 72.3 | |
| Approach LOS | | C | | | C | | | D | | | E | |

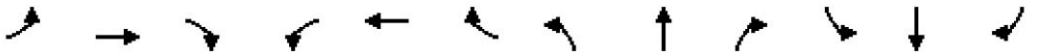
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 56.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 600 | 110 | 10 | 580 | 280 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.98 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3512 | | 1805 | 3610 | 1805 | 1596 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3512 | | 1805 | 3610 | 1805 | 1596 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 714 | 131 | 12 | 690 | 333 | 71 |
| RTOR Reduction (vph) | 18 | 0 | 0 | 0 | 0 | 28 |
| Lane Group Flow (vph) | 827 | 0 | 12 | 690 | 333 | 43 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 17.9 | | 3.4 | 25.3 | 15.4 | 18.8 |
| Effective Green, g (s) | 17.9 | | 3.4 | 25.3 | 15.4 | 18.8 |
| Actuated g/C Ratio | 0.37 | | 0.07 | 0.52 | 0.32 | 0.39 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1291 | | 126 | 1875 | 571 | 747 |
| v/s Ratio Prot | c0.24 | | 0.01 | c0.19 | c0.18 | 0.00 |
| v/s Ratio Perm | | | | | | 0.02 |
| v/c Ratio | 0.64 | | 0.10 | 0.37 | 0.58 | 0.06 |
| Uniform Delay, d1 | 12.7 | | 21.2 | 7.0 | 14.0 | 9.4 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | | 0.3 | 0.1 | 1.5 | 0.0 |
| Delay (s) | 13.8 | | 21.5 | 7.1 | 15.5 | 9.4 |
| Level of Service | B | | C | A | B | A |
| Approach Delay (s) | 13.8 | | | 7.3 | 14.4 | |
| Approach LOS | B | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 48.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 44.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

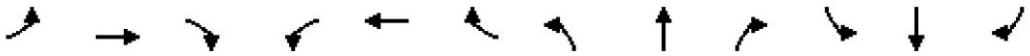
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 520 | 120 | 30 | 240 | 30 | 460 | 280 | 730 | 60 | 20 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1583 | 3502 | 3550 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1583 | 3502 | 3550 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 22 | 571 | 132 | 33 | 264 | 33 | 505 | 308 | 802 | 66 | 22 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 106 | 0 | 8 | 0 | 0 | 0 | 129 | 0 | 0 | 21 |
| Lane Group Flow (vph) | 22 | 571 | 26 | 33 | 289 | 0 | 505 | 308 | 673 | 66 | 22 | 1 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 3.4 | 17.1 | 17.1 | 3.4 | 17.1 | | 47.8 | 46.0 | 46.0 | 5.4 | 3.6 | 3.6 |
| Effective Green, g (s) | 3.4 | 17.1 | 17.1 | 3.4 | 17.1 | | 47.8 | 46.0 | 46.0 | 5.4 | 3.6 | 3.6 |
| Actuated g/C Ratio | 0.04 | 0.19 | 0.19 | 0.04 | 0.19 | | 0.54 | 0.52 | 0.52 | 0.06 | 0.04 | 0.04 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 70 | 1009 | 308 | 135 | 691 | | 982 | 994 | 845 | 111 | 148 | 65 |
| v/s Ratio Prot | 0.01 | c0.11 | | 0.01 | c0.08 | | 0.28 | 0.16 | | c0.04 | 0.01 | |
| v/s Ratio Perm | | | 0.02 | | | | | | c0.42 | | | 0.00 |
| v/c Ratio | 0.31 | 0.57 | 0.08 | 0.24 | 0.42 | | 0.51 | 0.31 | 0.80 | 0.59 | 0.15 | 0.01 |
| Uniform Delay, d1 | 41.1 | 32.0 | 29.0 | 41.0 | 31.0 | | 12.7 | 11.9 | 17.1 | 40.2 | 40.7 | 40.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.6 | 0.7 | 0.1 | 0.9 | 0.4 | | 0.5 | 0.2 | 5.2 | 8.3 | 0.5 | 0.1 |
| Delay (s) | 43.7 | 32.8 | 29.1 | 41.9 | 31.4 | | 13.2 | 12.1 | 22.4 | 48.5 | 41.1 | 40.5 |
| Level of Service | D | C | C | D | C | | B | B | C | D | D | D |
| Approach Delay (s) | | 32.4 | | | 32.5 | | | 17.5 | | | 45.4 | |
| Approach LOS | | C | | | C | | | B | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 87.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 10 | 50 | 0 | 0 | 0 | 0 | 1050 | 380 | 110 | 210 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.90 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1622 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1622 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 33 | 11 | 55 | 0 | 0 | 0 | 0 | 1154 | 418 | 121 | 231 | 0 |
| RTOR Reduction (vph) | 0 | 21 | 29 | 0 | 0 | 0 | 0 | 0 | 182 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 33 | 13 | 3 | 0 | 0 | 0 | 0 | 1154 | 236 | 121 | 231 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 4.2 | 4.2 | 4.2 | | | | | 28.2 | 28.2 | 5.6 | 37.8 | |
| Effective Green, g (s) | 4.2 | 4.2 | 4.2 | | | | | 28.2 | 28.2 | 5.6 | 37.8 | |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.08 | | | | | 0.56 | 0.56 | 0.11 | 0.76 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 152 | 136 | 129 | | | | | 2036 | 911 | 392 | 2729 | |
| v/s Ratio Prot | c0.02 | 0.01 | | | | | | c0.32 | | c0.03 | 0.06 | |
| v/s Ratio Perm | | | 0.00 | | | | | | 0.15 | | | |
| v/c Ratio | 0.22 | 0.10 | 0.02 | | | | | 0.57 | 0.26 | 0.31 | 0.08 | |
| Uniform Delay, d1 | 21.4 | 21.1 | 21.0 | | | | | 7.0 | 5.6 | 20.4 | 1.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.97 | 0.70 | |
| Incremental Delay, d2 | 0.7 | 0.3 | 0.1 | | | | | 1.1 | 0.7 | 0.4 | 0.1 | |
| Delay (s) | 22.1 | 21.5 | 21.1 | | | | | 8.1 | 6.3 | 20.2 | 1.2 | |
| Level of Service | C | C | C | | | | | A | A | C | A | |
| Approach Delay (s) | | 21.5 | | | 0.0 | | | 7.6 | | | 7.7 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 52.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 290 | 1020 | 0 | 0 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 153 | 341 | 1200 | 0 | 0 | 200 |
| RTOR Reduction (vph) | 0 | 40 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 153 | 301 | 1200 | 0 | 0 | 200 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 12.9 | 12.9 | 29.1 | | | 29.1 |
| Effective Green, g (s) | 12.9 | 12.9 | 29.1 | | | 29.1 |
| Actuated g/C Ratio | 0.26 | 0.26 | 0.58 | | | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 904 | 417 | 2101 | | | 2101 |
| v/s Ratio Prot | 0.04 | | c0.33 | | | 0.06 |
| v/s Ratio Perm | | c0.19 | | | | |
| v/c Ratio | 0.17 | 0.72 | 0.57 | | | 0.10 |
| Uniform Delay, d1 | 14.4 | 16.9 | 6.5 | | | 4.6 |
| Progression Factor | 1.00 | 1.00 | 0.20 | | | 1.00 |
| Incremental Delay, d2 | 0.1 | 6.1 | 1.0 | | | 0.1 |
| Delay (s) | 14.5 | 23.0 | 2.3 | | | 4.7 |
| Level of Service | B | C | A | | | A |
| Approach Delay (s) | 20.3 | | 2.3 | | | 4.7 |
| Approach LOS | C | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

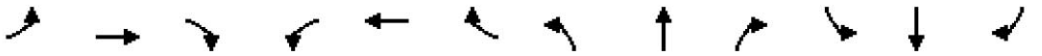
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 760 | 10 | 110 | 1800 | 1930 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5176 | | 3502 | 5187 | 5100 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5176 | | 3502 | 5187 | 5100 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 826 | 11 | 120 | 1957 | 2098 | 11 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 836 | 0 | 120 | 1957 | 2108 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 25.3 | | 13.6 | 42.9 | 38.1 | |
| Effective Green, g (s) | 25.3 | | 13.6 | 42.9 | 38.1 | |
| Actuated g/C Ratio | 0.28 | | 0.15 | 0.48 | 0.43 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 1471 | | 535 | 2500 | 2183 | |
| v/s Ratio Prot | 0.16 | | 0.03 | c0.38 | c0.41 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.57 | | 0.22 | 0.78 | 0.97 | |
| Uniform Delay, d1 | 27.2 | | 33.1 | 19.2 | 24.8 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.5 | | 0.2 | 1.7 | 12.2 | |
| Delay (s) | 27.7 | | 33.3 | 20.8 | 37.0 | |
| Level of Service | C | | C | C | D | |
| Approach Delay (s) | 27.7 | | | 21.6 | 37.0 | |
| Approach LOS | C | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 89.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 78.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

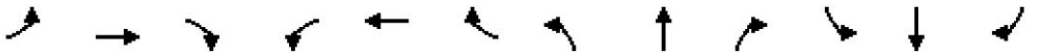
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 890 | 40 | 160 | 1640 | 20 | 130 | 110 | 230 | 100 | 100 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1590 | 3502 | 5176 | | 3502 | 1900 | 1591 | 1805 | 3439 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1590 | 3502 | 5176 | | 3502 | 1900 | 1591 | 1805 | 3439 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 53 | 947 | 43 | 170 | 1745 | 21 | 138 | 117 | 245 | 106 | 106 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 25 | 0 | 1 | 0 | 0 | 0 | 197 | 0 | 38 | 0 |
| Lane Group Flow (vph) | 53 | 947 | 18 | 170 | 1765 | 0 | 138 | 117 | 48 | 106 | 111 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 3.8 | 30.3 | 30.3 | 7.1 | 33.6 | | 12.7 | 12.9 | 12.9 | 7.9 | 8.1 | |
| Effective Green, g (s) | 3.8 | 30.3 | 30.3 | 7.1 | 33.6 | | 12.7 | 12.9 | 12.9 | 7.9 | 8.1 | |
| Actuated g/C Ratio | 0.05 | 0.41 | 0.41 | 0.10 | 0.45 | | 0.17 | 0.17 | 0.17 | 0.11 | 0.11 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 92 | 2118 | 649 | 335 | 2344 | | 599 | 330 | 277 | 192 | 375 | |
| v/s Ratio Prot | 0.03 | c0.18 | | 0.05 | c0.34 | | 0.04 | c0.06 | | c0.06 | 0.03 | |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.03 | | | |
| v/c Ratio | 0.58 | 0.45 | 0.03 | 0.51 | 0.75 | | 0.23 | 0.35 | 0.17 | 0.55 | 0.30 | |
| Uniform Delay, d1 | 34.4 | 15.9 | 13.1 | 31.9 | 16.9 | | 26.5 | 27.0 | 26.1 | 31.5 | 30.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.5 | 0.2 | 0.0 | 1.2 | 1.4 | | 0.2 | 0.7 | 0.3 | 3.4 | 0.4 | |
| Delay (s) | 42.9 | 16.0 | 13.1 | 33.1 | 18.3 | | 26.7 | 27.6 | 26.4 | 34.9 | 30.9 | |
| Level of Service | D | B | B | C | B | | C | C | C | C | C | |
| Approach Delay (s) | | 17.3 | | | 19.6 | | | 26.8 | | | 32.5 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 74.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

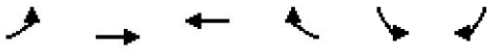
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 540 | 100 | 50 | 530 | 140 | 420 | 890 | 200 | 70 | 220 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1597 | 3502 | 3610 | 1596 | 3502 | 3610 | 1595 | 3502 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1597 | 3502 | 3610 | 1596 | 3502 | 3610 | 1595 | 3502 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 125 | 614 | 114 | 57 | 602 | 159 | 477 | 1011 | 227 | 80 | 250 | 125 |
| RTOR Reduction (vph) | 0 | 0 | 70 | 0 | 0 | 35 | 0 | 0 | 65 | 0 | 0 | 39 |
| Lane Group Flow (vph) | 125 | 614 | 44 | 57 | 602 | 124 | 477 | 1011 | 162 | 80 | 250 | 86 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.7 | 23.0 | 32.2 | 7.2 | 20.5 | 27.7 | 9.2 | 30.8 | 38.0 | 7.2 | 28.8 | 38.5 |
| Effective Green, g (s) | 9.7 | 23.0 | 32.2 | 7.2 | 20.5 | 27.7 | 9.2 | 30.8 | 38.0 | 7.2 | 28.8 | 38.5 |
| Actuated g/C Ratio | 0.12 | 0.27 | 0.38 | 0.09 | 0.24 | 0.33 | 0.11 | 0.37 | 0.45 | 0.09 | 0.34 | 0.46 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 208 | 986 | 687 | 299 | 879 | 601 | 383 | 1321 | 796 | 299 | 1235 | 806 |
| v/s Ratio Prot | c0.07 | c0.17 | 0.01 | 0.02 | 0.17 | 0.02 | c0.14 | c0.28 | 0.02 | 0.02 | 0.07 | 0.01 |
| v/s Ratio Perm | | | 0.02 | | | 0.06 | | | 0.08 | | | 0.04 |
| v/c Ratio | 0.60 | 0.62 | 0.06 | 0.19 | 0.68 | 0.21 | 1.25 | 0.77 | 0.20 | 0.27 | 0.20 | 0.11 |
| Uniform Delay, d1 | 35.4 | 26.8 | 16.5 | 35.8 | 28.9 | 20.3 | 37.5 | 23.5 | 14.0 | 36.0 | 19.6 | 13.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.8 | 1.2 | 0.0 | 0.3 | 2.2 | 0.2 | 130.6 | 2.7 | 0.1 | 0.5 | 0.1 | 0.1 |
| Delay (s) | 40.2 | 28.0 | 16.5 | 36.1 | 31.1 | 20.5 | 168.1 | 26.2 | 14.1 | 36.5 | 19.7 | 13.1 |
| Level of Service | D | C | B | D | C | C | F | C | B | D | B | B |
| Approach Delay (s) | | 28.3 | | | 29.4 | | | 64.1 | | | 20.8 | |
| Approach LOS | | C | | | C | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 84.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

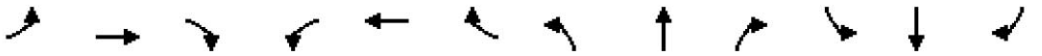
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 180 | 640 | 600 | 400 | 170 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 0.99 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1601 | 3473 | 1459 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1601 | 3473 | 1459 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 202 | 719 | 674 | 449 | 191 | 112 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 23 | 13 | 45 |
| Lane Group Flow (vph) | 202 | 719 | 674 | 426 | 196 | 49 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.1 | 24.6 | 13.5 | 22.0 | 8.5 | 15.6 |
| Effective Green, g (s) | 7.1 | 24.6 | 13.5 | 22.0 | 8.5 | 15.6 |
| Actuated g/C Ratio | 0.17 | 0.60 | 0.33 | 0.54 | 0.21 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 312 | 2161 | 1186 | 1013 | 718 | 696 |
| v/s Ratio Prot | c0.11 | 0.20 | c0.19 | c0.09 | 0.06 | 0.01 |
| v/s Ratio Perm | | | | 0.18 | | 0.02 |
| v/c Ratio | 0.65 | 0.33 | 0.57 | 0.42 | 0.27 | 0.07 |
| Uniform Delay, d1 | 15.8 | 4.1 | 11.4 | 5.7 | 13.7 | 8.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.6 | 0.1 | 0.6 | 0.3 | 0.2 | 0.0 |
| Delay (s) | 20.4 | 4.2 | 12.0 | 6.0 | 13.9 | 8.2 |
| Level of Service | C | A | B | A | B | A |
| Approach Delay (s) | | 7.8 | 9.6 | | 12.1 | |
| Approach LOS | | A | A | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 41.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 46.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

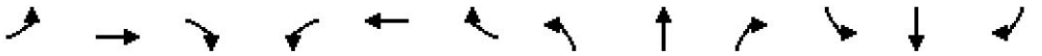
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 350 | 140 | 160 | 620 | 130 | 800 | 350 | 750 | 30 | 50 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1602 | 3502 | 3610 | 1591 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1602 | 3502 | 3610 | 1591 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 183 | 427 | 171 | 195 | 756 | 159 | 976 | 427 | 915 | 37 | 61 | 61 |
| RTOR Reduction (vph) | 0 | 0 | 72 | 0 | 0 | 111 | 0 | 0 | 385 | 0 | 0 | 46 |
| Lane Group Flow (vph) | 183 | 427 | 99 | 195 | 756 | 48 | 976 | 427 | 530 | 37 | 61 | 15 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.1 | 26.5 | 48.6 | 9.9 | 25.3 | 25.3 | 22.1 | 27.1 | 27.1 | 4.1 | 9.1 | 20.2 |
| Effective Green, g (s) | 11.1 | 26.5 | 48.6 | 9.9 | 25.3 | 25.3 | 22.1 | 27.1 | 27.1 | 4.1 | 9.1 | 20.2 |
| Actuated g/C Ratio | 0.13 | 0.32 | 0.58 | 0.12 | 0.30 | 0.30 | 0.26 | 0.32 | 0.32 | 0.05 | 0.11 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 240 | 1644 | 1008 | 415 | 1093 | 481 | 926 | 1170 | 516 | 172 | 393 | 464 |
| v/s Ratio Prot | c0.10 | 0.08 | 0.03 | 0.06 | c0.21 | | c0.28 | 0.12 | | 0.01 | 0.02 | 0.00 |
| v/s Ratio Perm | | | 0.04 | | | 0.03 | | | c0.33 | | | 0.00 |
| v/c Ratio | 0.76 | 0.26 | 0.10 | 0.47 | 0.69 | 0.10 | 1.05 | 0.36 | 1.03 | 0.22 | 0.16 | 0.03 |
| Uniform Delay, d1 | 35.0 | 21.2 | 7.8 | 34.4 | 25.7 | 21.0 | 30.7 | 21.7 | 28.2 | 38.2 | 33.8 | 24.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 13.4 | 0.1 | 0.0 | 0.8 | 1.9 | 0.1 | 44.9 | 0.2 | 47.0 | 0.6 | 0.2 | 0.0 |
| Delay (s) | 48.3 | 21.3 | 7.8 | 35.2 | 27.6 | 21.1 | 75.6 | 21.8 | 75.2 | 38.8 | 34.0 | 24.3 |
| Level of Service | D | C | A | D | C | C | E | C | E | D | C | C |
| Approach Delay (s) | | 24.7 | | | 28.0 | | | 65.5 | | | 31.4 | |
| Approach LOS | | C | | | C | | | E | | | C | |

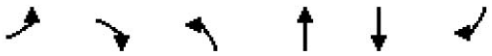
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 83.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 790 | 380 | 10 | 510 | 0 | 0 | 0 | 0 | 10 | 0 | 420 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.99 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3434 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.22 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3434 | 1470 | 420 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 0 | 898 | 432 | 11 | 580 | 0 | 0 | 0 | 0 | 11 | 0 | 477 |
| RTOR Reduction (vph) | 0 | 6 | 205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 |
| Lane Group Flow (vph) | 0 | 935 | 184 | 11 | 580 | 0 | 0 | 0 | 0 | 11 | 347 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 19.2 | 19.2 | 19.2 | 19.2 | | | | | 13.5 | 13.5 | |
| Effective Green, g (s) | | 19.2 | 19.2 | 19.2 | 19.2 | | | | | 13.5 | 13.5 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | 0.47 | 0.47 | | | | | 0.33 | 0.33 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1620 | 693 | 198 | 1703 | | | | | 599 | 536 | |
| v/s Ratio Prot | | c0.27 | | | 0.16 | | | | | | c0.22 | |
| v/s Ratio Perm | | | 0.12 | 0.03 | | | | | | 0.01 | | |
| v/c Ratio | | 0.58 | 0.26 | 0.06 | 0.34 | | | | | 0.02 | 0.65 | |
| Uniform Delay, d1 | | 7.8 | 6.5 | 5.8 | 6.8 | | | | | 9.1 | 11.6 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.5 | 0.2 | 0.1 | 0.1 | | | | | 0.0 | 2.7 | |
| Delay (s) | | 8.3 | 6.7 | 5.9 | 6.9 | | | | | 9.2 | 14.3 | |
| Level of Service | | A | A | A | A | | | | | A | B | |
| Approach Delay (s) | | 7.8 | | | 6.9 | | | 0.0 | | | 14.2 | |
| Approach LOS | | A | | | A | | | A | | | B | |

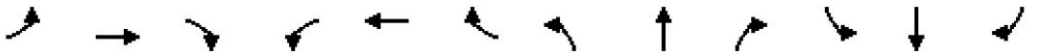
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 40.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 800 | 0 | 510 | 0 | 0 | 0 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 851 | 0 | 543 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 426 | 426 | 362 | 181 |
| Volume Left (vph) | 426 | 426 | 362 | 181 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 6.8 | 6.8 | 7.3 | 7.3 |
| Degree Utilization, x | 0.80 | 0.80 | 0.74 | 0.37 |
| Capacity (veh/h) | 524 | 522 | 480 | 478 |
| Control Delay (s) | 30.6 | 30.6 | 26.9 | 13.3 |
| Approach Delay (s) | 30.6 | | 22.4 | |
| Approach LOS | D | | C | |

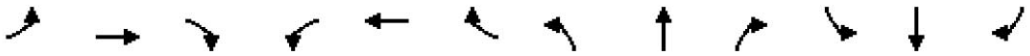
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 27.4 | | |
| HCM Level of Service | D | | |
| Intersection Capacity Utilization | 76.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 10 | 0 | 560 | 10 | 450 | 10 | 1020 | 480 | 100 | 260 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1591 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1591 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 11 | 11 | 0 | 622 | 11 | 500 | 11 | 1133 | 533 | 111 | 289 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 212 | 0 | 0 | 151 | 0 | 0 | 5 |
| Lane Group Flow (vph) | 11 | 11 | 0 | 622 | 11 | 288 | 11 | 1133 | 382 | 111 | 289 | 6 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.0 | 4.6 | | 14.9 | 18.5 | 18.5 | 1.0 | 35.6 | 35.6 | 5.2 | 39.8 | 39.8 |
| Effective Green, g (s) | 1.0 | 4.6 | | 14.9 | 18.5 | 18.5 | 1.0 | 35.6 | 35.6 | 5.2 | 39.8 | 39.8 |
| Actuated g/C Ratio | 0.01 | 0.06 | | 0.20 | 0.24 | 0.24 | 0.01 | 0.47 | 0.47 | 0.07 | 0.52 | 0.52 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 24 | 115 | | 684 | 461 | 392 | 24 | 1684 | 742 | 239 | 1883 | 842 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.18 | 0.01 | | 0.01 | c0.31 | | c0.03 | 0.08 | |
| v/s Ratio Perm | | | | | | c0.18 | | | 0.24 | | | 0.00 |
| v/c Ratio | 0.46 | 0.10 | | 0.91 | 0.02 | 0.73 | 0.46 | 0.67 | 0.51 | 0.46 | 0.15 | 0.01 |
| Uniform Delay, d1 | 37.4 | 33.9 | | 30.0 | 22.0 | 26.6 | 37.4 | 15.8 | 14.3 | 34.2 | 9.5 | 8.8 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 13.2 | 0.4 | | 15.9 | 0.0 | 7.0 | 13.2 | 1.1 | 0.6 | 1.4 | 0.0 | 0.0 |
| Delay (s) | 50.6 | 34.2 | | 46.0 | 22.0 | 33.6 | 50.6 | 16.9 | 14.9 | 35.6 | 9.5 | 8.8 |
| Level of Service | D | C | | D | C | C | D | B | B | D | A | A |
| Approach Delay (s) | | 42.4 | | | 40.3 | | | 16.5 | | | 16.6 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 76.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

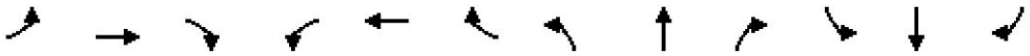
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 440 | 20 | 10 | 720 | 40 | 70 | 70 | 30 | 30 | 10 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.98 | | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3587 | | 1805 | 3578 | | | 1812 | | 1802 | 1635 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.81 | | 0.64 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3587 | | 1805 | 3578 | | | 1490 | | 1216 | 1635 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 128 | 468 | 21 | 11 | 766 | 43 | 74 | 74 | 32 | 32 | 11 | 149 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 4 | 0 | 0 | 12 | 0 | 0 | 117 | 0 |
| Lane Group Flow (vph) | 128 | 486 | 0 | 11 | 805 | 0 | 0 | 168 | 0 | 32 | 43 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.0 | 27.8 | | 1.1 | 20.9 | | | 11.3 | | 11.3 | 11.3 | |
| Effective Green, g (s) | 8.0 | 27.8 | | 1.1 | 20.9 | | | 11.3 | | 11.3 | 11.3 | |
| Actuated g/C Ratio | 0.15 | 0.53 | | 0.02 | 0.40 | | | 0.22 | | 0.22 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 277 | 1910 | | 38 | 1433 | | | 323 | | 263 | 354 | |
| v/s Ratio Prot | c0.07 | 0.14 | | 0.01 | c0.22 | | | | | | 0.03 | |
| v/s Ratio Perm | | | | | | | | c0.11 | | 0.03 | | |
| v/c Ratio | 0.46 | 0.25 | | 0.29 | 0.56 | | | 0.52 | | 0.12 | 0.12 | |
| Uniform Delay, d1 | 20.1 | 6.6 | | 25.2 | 12.1 | | | 18.1 | | 16.5 | 16.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.2 | 0.1 | | 4.2 | 0.5 | | | 1.5 | | 0.2 | 0.2 | |
| Delay (s) | 21.4 | 6.7 | | 29.4 | 12.6 | | | 19.6 | | 16.7 | 16.6 | |
| Level of Service | C | A | | C | B | | | B | | B | B | |
| Approach Delay (s) | | 9.7 | | | 12.8 | | | 19.6 | | | 16.6 | |
| Approach LOS | | A | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 52.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 430 | 80 | 90 | 670 | 260 | 150 | 990 | 180 | 90 | 200 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3516 | | 1805 | 3610 | 1595 | 1805 | 3610 | 1594 | 3502 | 3511 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3516 | | 1805 | 3610 | 1595 | 1805 | 3610 | 1594 | 3502 | 3511 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 44 | 478 | 89 | 100 | 744 | 289 | 167 | 1100 | 200 | 100 | 222 | 44 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 0 | 54 | 0 | 0 | 48 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 44 | 550 | 0 | 100 | 744 | 235 | 167 | 1100 | 152 | 100 | 250 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.7 | 24.4 | | 7.2 | 27.9 | 35.1 | 9.3 | 32.0 | 39.2 | 7.2 | 29.9 | |
| Effective Green, g (s) | 3.7 | 24.4 | | 7.2 | 27.9 | 35.1 | 9.3 | 32.0 | 39.2 | 7.2 | 29.9 | |
| Actuated g/C Ratio | 0.04 | 0.28 | | 0.08 | 0.32 | 0.40 | 0.11 | 0.37 | 0.45 | 0.08 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 77 | 988 | | 150 | 1160 | 718 | 193 | 1331 | 793 | 290 | 1209 | |
| v/s Ratio Prot | 0.02 | 0.16 | | c0.06 | c0.21 | 0.03 | c0.09 | c0.30 | 0.02 | 0.03 | 0.07 | |
| v/s Ratio Perm | | | | | | 0.12 | | | 0.08 | | | |
| v/c Ratio | 0.57 | 0.56 | | 0.67 | 0.64 | 0.33 | 0.87 | 0.83 | 0.19 | 0.34 | 0.21 | |
| Uniform Delay, d1 | 40.8 | 26.6 | | 38.6 | 25.2 | 17.8 | 38.1 | 24.9 | 14.3 | 37.6 | 20.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.8 | 0.7 | | 10.7 | 1.2 | 0.3 | 30.8 | 4.3 | 0.1 | 0.7 | 0.1 | |
| Delay (s) | 50.6 | 27.3 | | 49.3 | 26.4 | 18.0 | 69.0 | 29.2 | 14.4 | 38.3 | 20.2 | |
| Level of Service | D | C | | D | C | B | E | C | B | D | C | |
| Approach Delay (s) | | 29.0 | | | 26.3 | | | 31.7 | | | 25.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 86.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

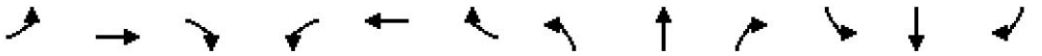
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 60 | 80 | 1430 | 40 | 20 | 800 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1801 | 1592 | 3610 | 1576 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1801 | 1592 | 3610 | 1576 | 1805 | 3610 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 67 | 90 | 1607 | 45 | 22 | 899 |
| RTOR Reduction (vph) | 0 | 80 | 0 | 7 | 0 | 0 |
| Lane Group Flow (vph) | 67 | 10 | 1607 | 38 | 22 | 899 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 6.1 | 6.1 | 33.9 | 33.9 | 1.1 | 39.0 |
| Effective Green, g (s) | 6.1 | 6.1 | 33.9 | 33.9 | 1.1 | 39.0 |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.64 | 0.64 | 0.02 | 0.73 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 207 | 183 | 2305 | 1006 | 37 | 2651 |
| v/s Ratio Prot | | | c0.45 | | 0.01 | c0.25 |
| v/s Ratio Perm | c0.04 | 0.01 | | 0.02 | | |
| v/c Ratio | 0.32 | 0.06 | 0.70 | 0.04 | 0.59 | 0.34 |
| Uniform Delay, d1 | 21.6 | 20.9 | 6.3 | 3.6 | 25.8 | 2.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 0.1 | 0.9 | 0.0 | 23.1 | 0.1 |
| Delay (s) | 22.5 | 21.1 | 7.2 | 3.6 | 48.8 | 2.6 |
| Level of Service | C | C | A | A | D | A |
| Approach Delay (s) | 21.7 | | 7.1 | | | 3.7 |
| Approach LOS | C | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 53.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 55.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

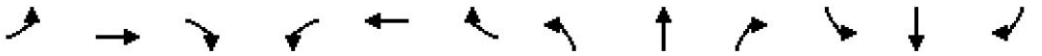
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 800 | 120 | 500 | 920 | 260 | 0 | 0 | 0 | 530 | 50 | 490 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1733 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1733 | 1597 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 76 | 870 | 130 | 543 | 1000 | 283 | 0 | 0 | 0 | 576 | 54 | 533 |
| RTOR Reduction (vph) | 0 | 0 | 75 | 0 | 0 | 127 | 0 | 0 | 0 | 0 | 0 | 21 |
| Lane Group Flow (vph) | 76 | 870 | 55 | 543 | 1000 | 156 | 0 | 0 | 0 | 311 | 319 | 512 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 19.9 | 34.9 | 34.9 | 54.0 | 69.0 | 69.0 | | | | 29.1 | 29.1 | 49.0 |
| Effective Green, g (s) | 19.9 | 34.9 | 34.9 | 54.0 | 69.0 | 69.0 | | | | 29.1 | 29.1 | 49.0 |
| Actuated g/C Ratio | 0.15 | 0.27 | 0.27 | 0.42 | 0.53 | 0.53 | | | | 0.22 | 0.22 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 276 | 1393 | 422 | 750 | 1916 | 834 | | | | 384 | 388 | 651 |
| v/s Ratio Prot | 0.04 | c0.17 | | c0.30 | 0.28 | | | | | 0.18 | 0.18 | c0.12 |
| v/s Ratio Perm | | | 0.04 | | | 0.10 | | | | | | 0.20 |
| v/c Ratio | 0.28 | 0.62 | 0.13 | 0.72 | 0.52 | 0.19 | | | | 0.81 | 0.82 | 0.79 |
| Uniform Delay, d1 | 48.7 | 41.8 | 36.1 | 31.8 | 19.8 | 15.9 | | | | 47.8 | 48.0 | 35.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.56 | 0.49 | 0.09 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 2.1 | 0.6 | 3.1 | 0.9 | 0.4 | | | | 11.9 | 13.1 | 6.2 |
| Delay (s) | 49.2 | 43.9 | 36.7 | 20.9 | 10.5 | 1.8 | | | | 59.7 | 61.1 | 42.1 |
| Level of Service | D | D | D | C | B | A | | | | E | E | D |
| Approach Delay (s) | | 43.4 | | | 12.3 | | | 0.0 | | | 52.0 | |
| Approach LOS | | D | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 74.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

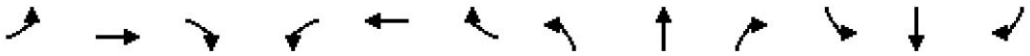
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 830 | 210 | 130 | 1430 | 400 | 210 | 420 | 460 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3450 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3450 | 2842 | | | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 298 | 883 | 223 | 138 | 1521 | 426 | 223 | 447 | 489 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 53 | 0 | 0 | 98 | 0 | 0 | 334 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 298 | 883 | 170 | 138 | 1521 | 328 | 201 | 469 | 155 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 26.7 | 71.6 | 99.0 | 19.0 | 63.9 | 63.9 | 27.4 | 27.4 | 27.4 | | | |
| Effective Green, g (s) | 26.7 | 71.6 | 99.0 | 19.0 | 63.9 | 63.9 | 27.4 | 27.4 | 27.4 | | | |
| Actuated g/C Ratio | 0.21 | 0.55 | 0.76 | 0.15 | 0.49 | 0.49 | 0.21 | 0.21 | 0.21 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 371 | 1988 | 1265 | 264 | 3213 | 780 | 346 | 727 | 599 | | | |
| v/s Ratio Prot | c0.17 | 0.24 | 0.03 | 0.08 | c0.23 | | 0.12 | c0.14 | | | | |
| v/s Ratio Perm | | | 0.08 | | | 0.21 | | | 0.05 | | | |
| v/c Ratio | 0.80 | 0.44 | 0.13 | 0.52 | 0.47 | 0.42 | 0.58 | 0.65 | 0.26 | | | |
| Uniform Delay, d1 | 49.2 | 17.4 | 4.1 | 51.3 | 21.9 | 21.2 | 46.1 | 46.9 | 42.8 | | | |
| Progression Factor | 0.58 | 0.33 | 0.21 | 0.71 | 0.52 | 0.34 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 9.3 | 0.5 | 0.0 | 1.6 | 0.4 | 1.5 | 2.5 | 2.0 | 0.2 | | | |
| Delay (s) | 37.8 | 6.3 | 0.9 | 37.9 | 11.9 | 8.7 | 48.6 | 48.8 | 43.1 | | | |
| Level of Service | D | A | A | D | B | A | D | D | D | | | |
| Approach Delay (s) | | 12.1 | | | 13.0 | | | 46.4 | | | 0.0 | |
| Approach LOS | | B | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

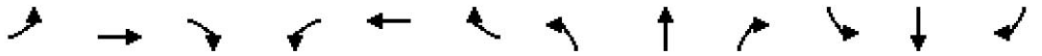
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 1040 | 240 | 50 | 1570 | 10 | 270 | 10 | 150 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | | 1.00 | 0.86 | | | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5010 | | 1805 | 5181 | | 1805 | 1607 | | | 1783 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.78 | 1.00 | | | 0.91 | |
| Satd. Flow (perm) | 1805 | 5010 | | 1805 | 5181 | | 1488 | 1607 | | | 1650 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 1118 | 258 | 54 | 1688 | 11 | 290 | 11 | 161 | 11 | 11 | 11 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 113 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 43 | 1353 | 0 | 54 | 1699 | 0 | 290 | 59 | 0 | 0 | 25 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 5.6 | 76.2 | | 8.8 | 79.4 | | 33.0 | 33.0 | | | 33.0 | |
| Effective Green, g (s) | 5.6 | 76.2 | | 8.8 | 79.4 | | 33.0 | 33.0 | | | 33.0 | |
| Actuated g/C Ratio | 0.04 | 0.59 | | 0.07 | 0.61 | | 0.25 | 0.25 | | | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 78 | 2937 | | 122 | 3164 | | 378 | 408 | | | 419 | |
| v/s Ratio Prot | 0.02 | 0.27 | | c0.03 | c0.33 | | | 0.04 | | | | |
| v/s Ratio Perm | | | | | | | c0.19 | | | | 0.02 | |
| v/c Ratio | 0.55 | 0.46 | | 0.44 | 0.54 | | 0.77 | 0.15 | | | 0.06 | |
| Uniform Delay, d1 | 61.0 | 15.3 | | 58.2 | 14.7 | | 44.9 | 37.6 | | | 36.7 | |
| Progression Factor | 0.95 | 0.33 | | 0.65 | 0.59 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 7.5 | 0.5 | | 2.1 | 0.5 | | 9.0 | 0.2 | | | 0.1 | |
| Delay (s) | 65.2 | 5.5 | | 40.1 | 9.2 | | 54.0 | 37.7 | | | 36.8 | |
| Level of Service | E | A | | D | A | | D | D | | | D | |
| Approach Delay (s) | | 7.3 | | | 10.2 | | | 47.9 | | | 36.8 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

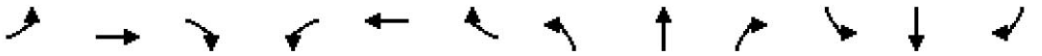
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 1000 | 200 | 90 | 1300 | 10 | 220 | 80 | 40 | 10 | 40 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.98 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1805 | 3500 | | 1805 | 3605 | | | 1801 | | | 1880 | 1586 |
| Flt Permitted | 0.12 | 1.00 | | 0.15 | 1.00 | | | 0.77 | | | 0.92 | 1.00 |
| Satd. Flow (perm) | 235 | 3500 | | 287 | 3605 | | | 1435 | | | 1755 | 1586 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 1087 | 217 | 98 | 1413 | 11 | 239 | 87 | 43 | 11 | 43 | 98 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 33 | 1293 | 0 | 98 | 1424 | 0 | 0 | 365 | 0 | 0 | 54 | 69 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 84.3 | 84.3 | | 84.3 | 84.3 | | | 37.7 | | | 37.7 | 37.7 |
| Effective Green, g (s) | 84.3 | 84.3 | | 84.3 | 84.3 | | | 37.7 | | | 37.7 | 37.7 |
| Actuated g/C Ratio | 0.65 | 0.65 | | 0.65 | 0.65 | | | 0.29 | | | 0.29 | 0.29 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 152 | 2270 | | 186 | 2338 | | | 416 | | | 509 | 460 |
| v/s Ratio Prot | | 0.37 | | | c0.39 | | | | | | | |
| v/s Ratio Perm | 0.14 | | | 0.34 | | | | c0.25 | | | 0.03 | 0.04 |
| v/c Ratio | 0.22 | 0.57 | | 0.53 | 0.61 | | | 0.88 | | | 0.11 | 0.15 |
| Uniform Delay, d1 | 9.3 | 12.7 | | 12.2 | 13.3 | | | 43.9 | | | 33.8 | 34.3 |
| Progression Factor | 0.60 | 0.59 | | 0.28 | 0.15 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.0 | 1.0 | | 4.9 | 0.6 | | | 18.3 | | | 0.1 | 0.2 |
| Delay (s) | 8.6 | 8.4 | | 8.3 | 2.6 | | | 62.3 | | | 33.9 | 34.4 |
| Level of Service | A | A | | A | A | | | E | | | C | C |
| Approach Delay (s) | | 8.4 | | | 3.0 | | | 62.3 | | | 34.2 | |
| Approach LOS | | A | | | A | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

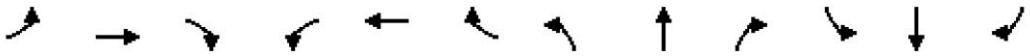
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 700 | 40 | 450 | 1220 | 270 | 40 | 360 | 440 | 150 | 290 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3575 | | 1805 | 3493 | | 1805 | 1900 | 1601 | 1805 | 1900 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3575 | | 1805 | 3493 | | 1805 | 1900 | 1601 | 1805 | 1900 | 1586 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 147 | 737 | 42 | 474 | 1284 | 284 | 42 | 379 | 463 | 158 | 305 | 116 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 14 | 0 | 0 | 0 | 19 | 0 | 0 | 72 |
| Lane Group Flow (vph) | 147 | 776 | 0 | 474 | 1554 | 0 | 42 | 379 | 444 | 158 | 305 | 44 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.0 | 32.2 | | 36.8 | 58.0 | | 5.6 | 34.0 | 70.8 | 11.0 | 39.4 | 39.4 |
| Effective Green, g (s) | 11.0 | 32.2 | | 36.8 | 58.0 | | 5.6 | 34.0 | 70.8 | 11.0 | 39.4 | 39.4 |
| Actuated g/C Ratio | 0.08 | 0.25 | | 0.28 | 0.45 | | 0.04 | 0.26 | 0.54 | 0.08 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 153 | 886 | | 511 | 1558 | | 78 | 497 | 872 | 153 | 576 | 481 |
| v/s Ratio Prot | 0.08 | c0.22 | | 0.26 | c0.44 | | 0.02 | c0.20 | 0.14 | c0.09 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | 0.03 |
| v/c Ratio | 0.96 | 0.88 | | 0.93 | 1.00 | | 0.54 | 0.76 | 0.51 | 1.03 | 0.53 | 0.09 |
| Uniform Delay, d1 | 59.3 | 47.0 | | 45.3 | 35.9 | | 60.9 | 44.3 | 18.7 | 59.5 | 37.6 | 32.5 |
| Progression Factor | 1.25 | 0.81 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 54.5 | 8.2 | | 23.0 | 22.0 | | 7.0 | 10.6 | 0.5 | 81.7 | 3.5 | 0.4 |
| Delay (s) | 128.5 | 46.3 | | 68.4 | 57.9 | | 67.9 | 54.9 | 19.1 | 141.2 | 41.1 | 32.8 |
| Level of Service | F | D | | E | E | | E | D | B | F | D | C |
| Approach Delay (s) | | 59.3 | | | 60.3 | | | 36.8 | | | 66.7 | |
| Approach LOS | | E | | | E | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 56.2 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 100.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

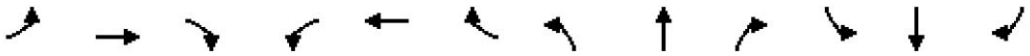
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 500 | 630 | 130 | 590 | 240 | 1170 | 1590 | 450 | 200 | 470 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2824 | 3502 | 3610 | 1594 | 3502 | 3610 | 1591 | 3502 | 5136 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2824 | 3502 | 3610 | 1594 | 3502 | 3610 | 1591 | 3502 | 5136 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 56 | 556 | 700 | 144 | 656 | 267 | 1300 | 1767 | 500 | 222 | 522 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 61 | 0 | 0 | 33 | 0 | 0 | 41 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 56 | 556 | 639 | 144 | 656 | 234 | 1300 | 1767 | 459 | 222 | 547 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.5 | 24.7 | 63.1 | 7.0 | 26.2 | 33.2 | 38.4 | 48.2 | 55.2 | 7.0 | 16.8 | |
| Effective Green, g (s) | 5.5 | 24.7 | 63.1 | 7.0 | 26.2 | 33.2 | 38.4 | 48.2 | 55.2 | 7.0 | 16.8 | |
| Actuated g/C Ratio | 0.05 | 0.24 | 0.61 | 0.07 | 0.25 | 0.32 | 0.37 | 0.47 | 0.54 | 0.07 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 96 | 867 | 1732 | 238 | 919 | 514 | 1307 | 1691 | 915 | 238 | 839 | |
| v/s Ratio Prot | 0.03 | c0.15 | 0.14 | 0.04 | c0.18 | 0.03 | 0.37 | c0.49 | 0.03 | c0.06 | 0.11 | |
| v/s Ratio Perm | | | 0.09 | | | 0.12 | | | 0.25 | | | |
| v/c Ratio | 0.58 | 0.64 | 0.37 | 0.61 | 0.71 | 0.46 | 0.99 | 1.04 | 0.50 | 0.93 | 0.65 | |
| Uniform Delay, d1 | 47.6 | 35.1 | 9.9 | 46.6 | 34.9 | 27.7 | 32.1 | 27.4 | 15.1 | 47.7 | 40.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.7 | 1.6 | 0.1 | 4.3 | 2.7 | 0.6 | 23.5 | 34.7 | 0.4 | 40.1 | 1.8 | |
| Delay (s) | 56.3 | 36.8 | 10.1 | 50.9 | 37.6 | 28.3 | 55.6 | 62.0 | 15.6 | 87.8 | 42.1 | |
| Level of Service | E | D | B | D | D | C | E | E | B | F | D | |
| Approach Delay (s) | | 23.4 | | | 37.1 | | | 53.2 | | | 55.2 | |
| Approach LOS | | C | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 102.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 86.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

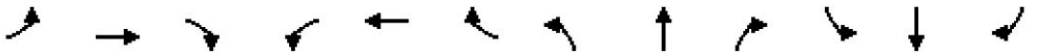
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 20 | 10 | 30 | 20 | 110 | 10 | 3040 | 20 | 60 | 1090 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.98 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1805 | | | 1688 | | 1805 | 5181 | | 1805 | 5171 | |
| Flt Permitted | | 0.45 | | | 0.94 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 842 | | | 1594 | | 1805 | 5181 | | 1805 | 5171 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 45 | 22 | 11 | 34 | 22 | 124 | 11 | 3416 | 22 | 67 | 1225 | 22 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 87 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 72 | 0 | 0 | 93 | 0 | 11 | 3438 | 0 | 67 | 1246 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 10.8 | | | 10.8 | | 1.3 | 64.8 | | 5.4 | 68.9 | |
| Effective Green, g (s) | | 10.8 | | | 10.8 | | 1.3 | 64.8 | | 5.4 | 68.9 | |
| Actuated g/C Ratio | | 0.12 | | | 0.12 | | 0.01 | 0.70 | | 0.06 | 0.74 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 98 | | | 185 | | 25 | 3610 | | 105 | 3831 | |
| v/s Ratio Prot | | | | | | | 0.01 | c0.66 | | c0.04 | 0.24 | |
| v/s Ratio Perm | | c0.09 | | | 0.06 | | | | | | | |
| v/c Ratio | | 0.73 | | | 0.50 | | 0.44 | 0.95 | | 0.64 | 0.33 | |
| Uniform Delay, d1 | | 39.7 | | | 38.6 | | 45.5 | 12.7 | | 42.8 | 4.1 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 24.4 | | | 2.2 | | 11.9 | 6.9 | | 12.0 | 0.0 | |
| Delay (s) | | 64.1 | | | 40.7 | | 57.4 | 19.6 | | 54.9 | 4.2 | |
| Level of Service | | E | | | D | | E | B | | D | A | |
| Approach Delay (s) | | 64.1 | | | 40.7 | | | 19.7 | | | 6.8 | |
| Approach LOS | | E | | | D | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 93.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

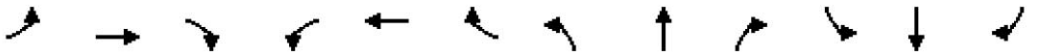
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 40 | 50 | 20 | 30 | 100 | 60 | 2810 | 20 | 20 | 930 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 1900 | 1615 | 1805 | 1900 | 1588 | 1805 | 5181 | | 1805 | 5149 | |
| Flt Permitted | 0.53 | 1.00 | 1.00 | 0.73 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1012 | 1900 | 1615 | 1383 | 1900 | 1588 | 1805 | 5181 | | 1805 | 5149 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 180 | 45 | 56 | 22 | 34 | 112 | 67 | 3157 | 22 | 22 | 1045 | 45 |
| RTOR Reduction (vph) | 0 | 0 | 47 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 180 | 45 | 9 | 22 | 34 | 13 | 67 | 3179 | 0 | 22 | 1087 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 21.6 | 15.0 | 15.0 | 13.2 | 10.6 | 10.6 | 6.6 | 56.3 | | 2.6 | 52.3 | |
| Effective Green, g (s) | 21.6 | 15.0 | 15.0 | 13.2 | 10.6 | 10.6 | 6.6 | 56.3 | | 2.6 | 52.3 | |
| Actuated g/C Ratio | 0.23 | 0.16 | 0.16 | 0.14 | 0.11 | 0.11 | 0.07 | 0.61 | | 0.03 | 0.57 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 296 | 308 | 262 | 209 | 218 | 182 | 129 | 3153 | | 51 | 2911 | |
| v/s Ratio Prot | c0.05 | 0.02 | | 0.00 | 0.02 | | 0.04 | c0.61 | | 0.01 | c0.21 | |
| v/s Ratio Perm | c0.10 | | 0.01 | 0.01 | | 0.01 | | | | | | |
| v/c Ratio | 0.61 | 0.15 | 0.03 | 0.11 | 0.16 | 0.07 | 0.52 | 1.01 | | 0.43 | 0.37 | |
| Uniform Delay, d1 | 30.7 | 33.3 | 32.6 | 34.4 | 36.9 | 36.6 | 41.4 | 18.1 | | 44.2 | 11.1 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.5 | 0.2 | 0.1 | 0.2 | 0.3 | 0.2 | 3.5 | 18.0 | | 5.8 | 0.1 | |
| Delay (s) | 34.2 | 33.5 | 32.7 | 34.6 | 37.3 | 36.7 | 44.9 | 36.1 | | 50.0 | 11.2 | |
| Level of Service | C | C | C | C | D | D | D | D | | D | B | |
| Approach Delay (s) | | 33.8 | | | 36.6 | | | 36.3 | | | 11.9 | |
| Approach LOS | | C | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 92.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 83.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

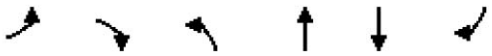
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 20 | 10 | 280 | 10 | 90 | 10 | 2880 | 830 | 30 | 1010 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.87 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3406 | | 5090 | 1622 | | 1805 | 5187 | 1594 | 1805 | 5178 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3406 | | 5090 | 1622 | | 1805 | 5187 | 1594 | 1805 | 5178 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 21 | 11 | 298 | 11 | 96 | 11 | 3064 | 883 | 32 | 1074 | 11 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 82 | 0 | 0 | 0 | 172 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 21 | 22 | 0 | 298 | 25 | 0 | 11 | 3064 | 711 | 32 | 1085 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 2.7 | 4.8 | | 9.1 | 11.2 | | 4.0 | 45.6 | 54.7 | 2.4 | 44.0 | |
| Effective Green, g (s) | 2.7 | 4.8 | | 9.1 | 11.2 | | 4.0 | 45.6 | 54.7 | 2.4 | 44.0 | |
| Actuated g/C Ratio | 0.03 | 0.06 | | 0.12 | 0.14 | | 0.05 | 0.59 | 0.70 | 0.03 | 0.56 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 63 | 210 | | 595 | 233 | | 93 | 3036 | 1201 | 56 | 2925 | |
| v/s Ratio Prot | c0.01 | 0.01 | | 0.06 | 0.02 | | 0.01 | c0.59 | c0.07 | 0.02 | c0.21 | |
| v/s Ratio Perm | | | | | | | | | 0.38 | | | |
| v/c Ratio | 0.33 | 0.10 | | 0.50 | 0.11 | | 0.12 | 1.01 | 0.59 | 0.57 | 0.37 | |
| Uniform Delay, d1 | 36.7 | 34.5 | | 32.3 | 29.0 | | 35.3 | 16.2 | 5.9 | 37.2 | 9.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.1 | 0.2 | | 0.7 | 0.2 | | 0.6 | 18.6 | 0.8 | 13.3 | 0.1 | |
| Delay (s) | 39.8 | 34.7 | | 32.9 | 29.2 | | 35.8 | 34.8 | 6.7 | 50.6 | 9.4 | |
| Level of Service | D | C | | C | C | | D | C | A | D | A | |
| Approach Delay (s) | | 36.8 | | | 31.9 | | | 28.5 | | | 10.6 | |
| Approach LOS | | D | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 77.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

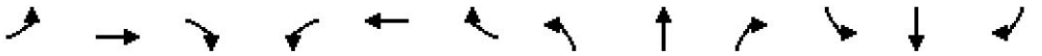
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 150 | 80 | 100 | 860 | 550 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 174 | 93 | 116 | 1000 | 640 | 140 |
| RTOR Reduction (vph) | 0 | 79 | 0 | 0 | 0 | 18 |
| Lane Group Flow (vph) | 174 | 14 | 116 | 1000 | 640 | 122 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Turn Type | | custom | Prot | | | Perm |
| Protected Phases | | | 5 | 2 | 6 | |
| Permitted Phases | 4 | 4 | | | | 6 |
| Actuated Green, G (s) | 16.0 | 16.0 | 13.0 | 86.0 | 69.0 | 69.0 |
| Effective Green, g (s) | 16.0 | 16.0 | 13.0 | 86.0 | 69.0 | 69.0 |
| Actuated g/C Ratio | 0.15 | 0.15 | 0.12 | 0.78 | 0.63 | 0.63 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 260 | 228 | 213 | 1485 | 1192 | 989 |
| v/s Ratio Prot | | | 0.06 | c0.53 | 0.34 | |
| v/s Ratio Perm | c0.10 | 0.01 | | | | 0.08 |
| v/c Ratio | 0.67 | 0.06 | 0.54 | 0.67 | 0.54 | 0.12 |
| Uniform Delay, d1 | 44.5 | 40.5 | 45.7 | 5.5 | 11.5 | 8.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.4 | 0.1 | 2.8 | 2.5 | 1.7 | 0.3 |
| Delay (s) | 50.9 | 40.6 | 48.5 | 8.0 | 13.3 | 8.5 |
| Level of Service | D | D | D | A | B | A |
| Approach Delay (s) | 47.3 | | | 12.2 | 12.4 | |
| Approach LOS | D | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

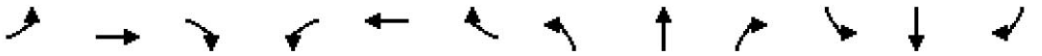
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 970 | 110 | 60 | 1750 | 0 | 80 | 0 | 20 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | |
| Lane Util. Factor | | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | | | |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | |
| Frt | | 0.98 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (prot) | | 5097 | | 1805 | 5187 | | 1805 | 3017 | | | | |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | |
| Satd. Flow (perm) | | 5097 | | 1805 | 5187 | | 1805 | 3017 | | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1000 | 113 | 62 | 1804 | 0 | 82 | 0 | 21 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1108 | 0 | 62 | 1804 | 0 | 82 | 1 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | | | | 4 |
| Actuated Green, G (s) | | 81.5 | | 8.0 | 93.5 | | 6.5 | 5.9 | | | | |
| Effective Green, g (s) | | 81.5 | | 8.0 | 93.5 | | 6.5 | 5.9 | | | | |
| Actuated g/C Ratio | | 0.74 | | 0.07 | 0.85 | | 0.06 | 0.05 | | | | |
| Clearance Time (s) | | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | |
| Lane Grp Cap (vph) | | 3776 | | 131 | 4409 | | 107 | 162 | | | | |
| v/s Ratio Prot | | 0.22 | | 0.03 | c0.35 | | c0.05 | 0.00 | | | | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | 0.29 | | 0.47 | 0.41 | | 0.77 | 0.01 | | | | |
| Uniform Delay, d1 | | 4.7 | | 49.0 | 1.9 | | 51.0 | 49.3 | | | | |
| Progression Factor | | 0.11 | | 0.83 | 1.23 | | 1.00 | 1.00 | | | | |
| Incremental Delay, d2 | | 0.2 | | 2.0 | 0.2 | | 27.3 | 0.0 | | | | |
| Delay (s) | | 0.7 | | 42.5 | 2.5 | | 78.3 | 49.3 | | | | |
| Level of Service | | A | | D | A | | E | D | | | | |
| Approach Delay (s) | | 0.7 | | | 3.9 | | | 72.4 | | | 0.0 | |
| Approach LOS | | A | | | A | | | E | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 63.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

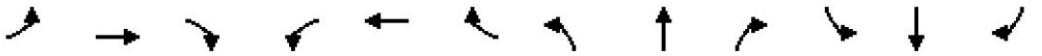
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 570 | 120 | 120 | 1230 | 200 | 380 | 410 | 130 | 110 | 240 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1586 | 3502 | 5065 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1586 | 3502 | 5065 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 289 | 588 | 124 | 124 | 1268 | 206 | 392 | 423 | 134 | 113 | 247 | 216 |
| RTOR Reduction (vph) | 0 | 0 | 65 | 0 | 17 | 0 | 0 | 0 | 106 | 0 | 0 | 153 |
| Lane Group Flow (vph) | 289 | 588 | 59 | 124 | 1457 | 0 | 392 | 423 | 28 | 113 | 247 | 63 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 16.2 | 52.7 | 52.7 | 9.2 | 45.7 | | 15.4 | 22.8 | 22.8 | 6.0 | 13.4 | 13.4 |
| Effective Green, g (s) | 16.2 | 52.7 | 52.7 | 9.2 | 45.7 | | 15.4 | 22.8 | 22.8 | 6.0 | 13.4 | 13.4 |
| Actuated g/C Ratio | 0.15 | 0.48 | 0.48 | 0.08 | 0.42 | | 0.14 | 0.21 | 0.21 | 0.05 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 516 | 2485 | 760 | 293 | 2104 | | 490 | 748 | 329 | 191 | 440 | 193 |
| v/s Ratio Prot | c0.08 | 0.11 | | 0.04 | c0.29 | | c0.11 | c0.12 | | 0.03 | 0.07 | |
| v/s Ratio Perm | | | 0.04 | | | | | | 0.02 | | | 0.04 |
| v/c Ratio | 0.56 | 0.24 | 0.08 | 0.42 | 0.69 | | 0.80 | 0.57 | 0.08 | 0.59 | 0.56 | 0.33 |
| Uniform Delay, d1 | 43.6 | 16.8 | 15.5 | 47.9 | 26.4 | | 45.8 | 39.2 | 35.2 | 50.8 | 45.5 | 44.2 |
| Progression Factor | 1.29 | 1.00 | 1.33 | 1.33 | 0.67 | | 0.94 | 1.05 | 1.50 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.2 | 0.2 | 0.1 | 0.2 | | 8.8 | 0.9 | 0.1 | 4.8 | 1.6 | 1.0 |
| Delay (s) | 57.7 | 17.0 | 20.9 | 63.9 | 17.9 | | 51.6 | 42.0 | 52.9 | 55.6 | 47.2 | 45.2 |
| Level of Service | E | B | C | E | B | | D | D | D | E | D | D |
| Approach Delay (s) | | 29.3 | | | 21.5 | | | 47.5 | | | 48.1 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 73.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 430 | 400 | 150 | 10 | 870 | 430 | 370 | 750 | 30 | 280 | 640 | 520 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3587 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3587 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 500 | 465 | 174 | 12 | 1012 | 500 | 430 | 872 | 35 | 326 | 744 | 605 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 194 | 0 | 3 | 0 | 0 | 0 | 134 |
| Lane Group Flow (vph) | 500 | 465 | 174 | 12 | 1012 | 306 | 430 | 904 | 0 | 326 | 744 | 471 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 13.0 | 42.8 | 110.0 | 1.2 | 31.0 | 31.0 | 13.0 | 33.3 | | 12.7 | 33.0 | 33.0 |
| Effective Green, g (s) | 13.0 | 42.8 | 110.0 | 1.2 | 31.0 | 31.0 | 13.0 | 33.3 | | 12.7 | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.39 | 1.00 | 0.01 | 0.28 | 0.28 | 0.12 | 0.30 | | 0.12 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 414 | 2018 | 1593 | 20 | 1017 | 447 | 414 | 1086 | | 404 | 1083 | 476 |
| v/s Ratio Prot | c0.14 | 0.09 | | 0.01 | c0.28 | | c0.12 | 0.25 | | 0.09 | 0.21 | |
| v/s Ratio Perm | | | c0.11 | | | 0.19 | | | | | | c0.30 |
| v/c Ratio | 1.21 | 0.23 | 0.11 | 0.60 | 1.00 | 0.68 | 1.04 | 0.83 | | 0.81 | 0.69 | 0.99 |
| Uniform Delay, d1 | 48.5 | 22.5 | 0.0 | 54.2 | 39.4 | 35.2 | 48.5 | 35.8 | | 47.5 | 33.9 | 38.3 |
| Progression Factor | 0.88 | 1.37 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 114.0 | 0.3 | 0.1 | 40.2 | 27.1 | 8.3 | 54.6 | 7.5 | | 11.2 | 3.6 | 38.9 |
| Delay (s) | 156.4 | 31.2 | 0.1 | 94.3 | 66.5 | 43.4 | 103.1 | 43.2 | | 58.7 | 37.5 | 77.2 |
| Level of Service | F | C | A | F | E | D | F | D | | E | D | E |
| Approach Delay (s) | | 81.4 | | | 59.1 | | | 62.5 | | | 56.0 | |
| Approach LOS | | F | | | E | | | E | | | E | |

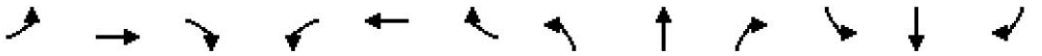
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 63.5 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.03 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 91.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 20 | 40 | 20 | 10 | 20 | 70 | 820 | 10 | 30 | 380 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3187 | | 1805 | 1900 | 1581 | 1805 | 3602 | | 1805 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3187 | | 1805 | 1900 | 1581 | 1805 | 3602 | | 1805 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 22 | 43 | 22 | 11 | 22 | 75 | 882 | 11 | 32 | 409 | 54 |
| RTOR Reduction (vph) | 0 | 39 | 0 | 0 | 0 | 21 | 0 | 1 | 0 | 0 | 0 | 18 |
| Lane Group Flow (vph) | 43 | 26 | 0 | 22 | 11 | 1 | 75 | 892 | 0 | 32 | 409 | 36 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.4 | 9.0 | | 2.4 | 6.1 | 6.1 | 8.7 | 76.0 | | 5.1 | 72.4 | 72.4 |
| Effective Green, g (s) | 5.4 | 9.0 | | 2.4 | 6.1 | 6.1 | 8.7 | 76.0 | | 5.1 | 72.4 | 72.4 |
| Actuated g/C Ratio | 0.05 | 0.08 | | 0.02 | 0.06 | 0.06 | 0.08 | 0.69 | | 0.05 | 0.66 | 0.66 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 89 | 261 | | 39 | 105 | 88 | 143 | 2489 | | 84 | 2376 | 1048 |
| v/s Ratio Prot | c0.02 | c0.01 | | 0.01 | 0.01 | | c0.04 | c0.25 | | 0.02 | 0.11 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.02 |
| v/c Ratio | 0.48 | 0.10 | | 0.56 | 0.10 | 0.01 | 0.52 | 0.36 | | 0.38 | 0.17 | 0.03 |
| Uniform Delay, d1 | 50.9 | 46.7 | | 53.3 | 49.4 | 49.1 | 48.7 | 7.0 | | 50.9 | 7.2 | 6.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.14 | 0.79 | | 1.23 | 0.42 | 0.16 |
| Incremental Delay, d2 | 4.1 | 0.2 | | 17.3 | 0.4 | 0.1 | 3.3 | 0.4 | | 2.8 | 0.2 | 0.1 |
| Delay (s) | 55.0 | 46.9 | | 70.6 | 49.8 | 49.2 | 58.6 | 5.9 | | 65.6 | 3.2 | 1.1 |
| Level of Service | E | D | | E | D | D | E | A | | E | A | A |
| Approach Delay (s) | | 50.1 | | | 57.9 | | | 10.0 | | | 7.0 | |
| Approach LOS | | D | | | E | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.5 |
| Intersection Capacity Utilization | 47.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

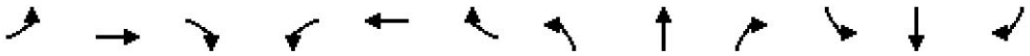
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 90 | 110 | 60 | 120 | 50 | 110 | 350 | 30 | 30 | 220 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3559 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3559 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 176 | 106 | 129 | 71 | 141 | 59 | 129 | 412 | 35 | 35 | 259 | 106 |
| RTOR Reduction (vph) | 0 | 0 | 103 | 0 | 0 | 51 | 0 | 4 | 0 | 0 | 0 | 56 |
| Lane Group Flow (vph) | 176 | 106 | 26 | 71 | 141 | 8 | 129 | 443 | 0 | 35 | 259 | 50 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 15.1 | 22.4 | 22.4 | 7.0 | 14.3 | 14.3 | 13.1 | 59.4 | | 5.2 | 51.5 | 51.5 |
| Effective Green, g (s) | 15.1 | 22.4 | 22.4 | 7.0 | 14.3 | 14.3 | 13.1 | 59.4 | | 5.2 | 51.5 | 51.5 |
| Actuated g/C Ratio | 0.14 | 0.20 | 0.20 | 0.06 | 0.13 | 0.13 | 0.12 | 0.54 | | 0.05 | 0.47 | 0.47 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 248 | 387 | 323 | 115 | 247 | 206 | 215 | 1922 | | 85 | 1690 | 743 |
| v/s Ratio Prot | c0.10 | 0.06 | | 0.04 | c0.07 | | c0.07 | c0.12 | | 0.02 | 0.07 | |
| v/s Ratio Perm | | | 0.02 | | | 0.00 | | | | | | 0.03 |
| v/c Ratio | 0.71 | 0.27 | 0.08 | 0.62 | 0.57 | 0.04 | 0.60 | 0.23 | | 0.41 | 0.15 | 0.07 |
| Uniform Delay, d1 | 45.4 | 36.9 | 35.5 | 50.2 | 45.0 | 41.8 | 46.0 | 13.3 | | 50.9 | 16.8 | 16.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.26 | 1.04 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.0 | 0.4 | 0.1 | 9.5 | 3.2 | 0.1 | 4.0 | 0.3 | | 3.2 | 0.2 | 0.2 |
| Delay (s) | 54.3 | 37.3 | 35.6 | 59.7 | 48.1 | 41.9 | 61.8 | 14.1 | | 54.1 | 17.0 | 16.2 |
| Level of Service | D | D | D | E | D | D | E | B | | D | B | B |
| Approach Delay (s) | | 44.1 | | | 49.8 | | | 24.8 | | | 20.0 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

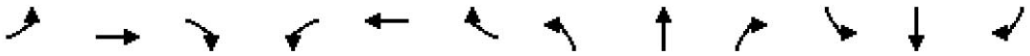
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 110 | 20 | 130 | 160 | 260 | 30 | 530 | 70 | 40 | 290 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1795 | 1852 | | 1795 | 1900 | 1583 | 1805 | 3534 | | 1805 | 3547 | |
| Flt Permitted | 0.49 | 1.00 | | 0.57 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 922 | 1852 | | 1083 | 1900 | 1583 | 1805 | 3534 | | 1805 | 3547 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 22 | 124 | 22 | 146 | 180 | 292 | 34 | 596 | 79 | 45 | 326 | 34 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 240 | 0 | 6 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 22 | 139 | 0 | 146 | 180 | 52 | 34 | 669 | 0 | 45 | 356 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 19.6 | 19.6 | | 19.6 | 19.6 | 19.6 | 5.2 | 68.7 | | 7.1 | 70.6 | |
| Effective Green, g (s) | 19.6 | 19.6 | | 19.6 | 19.6 | 19.6 | 5.2 | 68.7 | | 7.1 | 70.6 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.18 | 0.18 | 0.18 | 0.05 | 0.62 | | 0.06 | 0.64 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 164 | 330 | | 193 | 339 | 282 | 85 | 2207 | | 117 | 2277 | |
| v/s Ratio Prot | | 0.07 | | | 0.09 | | 0.02 | c0.19 | | c0.02 | 0.10 | |
| v/s Ratio Perm | 0.02 | | | c0.13 | | 0.03 | | | | | | |
| v/c Ratio | 0.13 | 0.42 | | 0.76 | 0.53 | 0.18 | 0.40 | 0.30 | | 0.38 | 0.16 | |
| Uniform Delay, d1 | 38.1 | 40.2 | | 42.9 | 41.0 | 38.4 | 50.9 | 9.6 | | 49.4 | 7.8 | |
| Progression Factor | 1.00 | 1.00 | | 0.73 | 0.71 | 1.21 | 0.91 | 1.16 | | 1.46 | 0.35 | |
| Incremental Delay, d2 | 0.4 | 0.9 | | 13.5 | 1.4 | 0.3 | 3.0 | 0.3 | | 2.1 | 0.1 | |
| Delay (s) | 38.4 | 41.0 | | 44.7 | 30.3 | 46.7 | 49.3 | 11.4 | | 73.9 | 2.9 | |
| Level of Service | D | D | | D | C | D | D | B | | E | A | |
| Approach Delay (s) | | 40.7 | | | 41.4 | | | 13.2 | | | 10.8 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 56.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 290 | 30 | 20 | 450 | 140 | 110 | 230 | 20 | 160 | 130 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3553 | | 1805 | 3467 | | 1805 | 3562 | | 1805 | 3263 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3553 | | 1805 | 3467 | | 1805 | 3562 | | 1805 | 3263 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 163 | 337 | 35 | 23 | 523 | 163 | 128 | 267 | 23 | 186 | 151 | 209 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 28 | 0 | 0 | 6 | 0 | 0 | 142 | 0 |
| Lane Group Flow (vph) | 163 | 365 | 0 | 23 | 658 | 0 | 128 | 284 | 0 | 186 | 218 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 14.8 | 41.5 | | 3.1 | 29.8 | | 14.3 | 31.8 | | 17.6 | 35.1 | |
| Effective Green, g (s) | 14.8 | 41.5 | | 3.1 | 29.8 | | 14.3 | 31.8 | | 17.6 | 35.1 | |
| Actuated g/C Ratio | 0.13 | 0.38 | | 0.03 | 0.27 | | 0.13 | 0.29 | | 0.16 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 243 | 1340 | | 51 | 939 | | 235 | 1030 | | 289 | 1041 | |
| v/s Ratio Prot | c0.09 | 0.10 | | 0.01 | c0.19 | | 0.07 | c0.08 | | c0.10 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.67 | 0.27 | | 0.45 | 0.70 | | 0.54 | 0.28 | | 0.64 | 0.21 | |
| Uniform Delay, d1 | 45.3 | 23.8 | | 52.6 | 36.1 | | 44.8 | 30.2 | | 43.3 | 27.3 | |
| Progression Factor | 0.87 | 0.93 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.93 | 0.85 | |
| Incremental Delay, d2 | 7.1 | 0.1 | | 6.2 | 2.4 | | 2.6 | 0.7 | | 4.8 | 0.5 | |
| Delay (s) | 46.6 | 22.2 | | 58.8 | 38.5 | | 47.4 | 30.9 | | 45.2 | 23.7 | |
| Level of Service | D | C | | E | D | | D | C | | D | C | |
| Approach Delay (s) | | 29.6 | | | 39.1 | | | 35.9 | | | 31.0 | |
| Approach LOS | | C | | | D | | | D | | | C | |

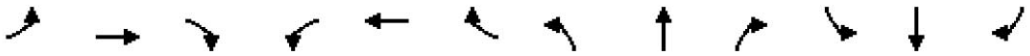
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 80 | 30 | 30 | 120 | 140 | 60 | 490 | 30 | 40 | 410 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1810 | | 1805 | 1900 | 1586 | 1805 | 3574 | | 1805 | 3579 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1810 | | 1805 | 1900 | 1586 | 1805 | 3574 | | 1805 | 3579 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 38 | 100 | 38 | 38 | 150 | 175 | 75 | 612 | 38 | 50 | 512 | 25 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 0 | 152 | 0 | 2 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 38 | 122 | 0 | 38 | 150 | 23 | 75 | 648 | 0 | 50 | 535 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 4.7 | 14.2 | | 4.7 | 14.2 | 14.2 | 8.7 | 65.5 | | 7.4 | 64.2 | |
| Effective Green, g (s) | 4.7 | 14.2 | | 4.7 | 14.2 | 14.2 | 8.7 | 65.5 | | 7.4 | 64.2 | |
| Actuated g/C Ratio | 0.04 | 0.13 | | 0.04 | 0.13 | 0.13 | 0.08 | 0.60 | | 0.07 | 0.58 | |
| Clearance Time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 77 | 234 | | 77 | 245 | 205 | 143 | 2128 | | 121 | 2089 | |
| v/s Ratio Prot | c0.02 | 0.07 | | 0.02 | c0.08 | | c0.04 | c0.18 | | 0.03 | 0.15 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | |
| v/c Ratio | 0.49 | 0.52 | | 0.49 | 0.61 | 0.11 | 0.52 | 0.30 | | 0.41 | 0.26 | |
| Uniform Delay, d1 | 51.5 | 44.7 | | 51.5 | 45.3 | 42.3 | 48.7 | 11.0 | | 49.2 | 11.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.90 | 2.10 | | 0.94 | 1.30 | |
| Incremental Delay, d2 | 4.9 | 2.1 | | 4.9 | 4.5 | 0.2 | 3.4 | 0.4 | | 2.3 | 0.3 | |
| Delay (s) | 56.4 | 46.8 | | 56.4 | 49.8 | 42.6 | 47.1 | 23.5 | | 48.7 | 14.8 | |
| Level of Service | E | D | | E | D | D | D | C | | D | B | |
| Approach Delay (s) | | 48.9 | | | 47.0 | | | 25.9 | | | 17.7 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.9 |
| Intersection Capacity Utilization | 45.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

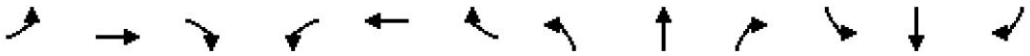
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | TWLTL | |
| Median storage veh) | | | | | | | | 2 | | | 2 | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| vC1, stage 1 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vC2, stage 2 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vCu, unblocked vol | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | 6.1 | 5.5 | | 6.1 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 100 | 100 | 100 | 100 | | | 100 | | |
| cM capacity (veh/h) | 1029 | 900 | 1091 | 1029 | 900 | 1091 | 1636 | | | 1636 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | A | | | | |

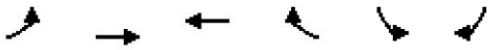
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.0 | | | |
| Intersection Capacity Utilization | 0.0% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 50 | 190 | 40 | 60 | 180 | 30 | 60 | 140 | 40 | 20 | 110 | 80 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 55 | 209 | 44 | 66 | 198 | 33 | 66 | 154 | 44 | 22 | 121 | 88 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 308 | 297 | 66 | 198 | 22 | 209 |
| Volume Left (vph) | 55 | 66 | 66 | 0 | 22 | 0 |
| Volume Right (vph) | 44 | 33 | 0 | 44 | 0 | 88 |
| Hadj (s) | -0.05 | -0.02 | 0.50 | -0.16 | 0.50 | -0.29 |
| Departure Headway (s) | 6.0 | 6.0 | 7.4 | 6.7 | 7.4 | 6.6 |
| Degree Utilization, x | 0.51 | 0.50 | 0.13 | 0.37 | 0.05 | 0.38 |
| Capacity (veh/h) | 561 | 555 | 439 | 484 | 440 | 487 |
| Control Delay (s) | 15.1 | 14.9 | 10.3 | 12.3 | 9.6 | 12.5 |
| Approach Delay (s) | 15.1 | 14.9 | 11.8 | | 12.2 | |
| Approach LOS | C | B | B | | B | |

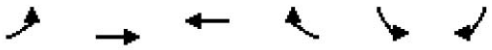
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 13.6 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 45.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 140 | 280 | 400 | 80 | 30 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1900 | 1569 | 1805 | 1564 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1900 | 1569 | 1805 | 1564 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 156 | 311 | 444 | 89 | 33 | 311 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 44 | 0 | 232 |
| Lane Group Flow (vph) | 156 | 311 | 444 | 45 | 33 | 79 |
| Confl. Peds. (#/hr) | 5 | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | Perm |
| Protected Phases | 7 | 4 | 8 | | 6 | |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 14.7 | 74.0 | 55.3 | 55.3 | 28.0 | 28.0 |
| Effective Green, g (s) | 14.7 | 74.0 | 55.3 | 55.3 | 28.0 | 28.0 |
| Actuated g/C Ratio | 0.13 | 0.67 | 0.50 | 0.50 | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 241 | 1278 | 955 | 789 | 459 | 398 |
| v/s Ratio Prot | c0.09 | 0.16 | c0.23 | | 0.02 | |
| v/s Ratio Perm | | | | 0.03 | | c0.05 |
| v/c Ratio | 0.65 | 0.24 | 0.46 | 0.06 | 0.07 | 0.20 |
| Uniform Delay, d1 | 45.2 | 7.0 | 17.7 | 14.0 | 31.1 | 32.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.9 | 0.5 | 1.6 | 0.1 | 0.3 | 1.1 |
| Delay (s) | 51.1 | 7.5 | 19.4 | 14.1 | 31.4 | 33.3 |
| Level of Service | D | A | B | B | C | C |
| Approach Delay (s) | | 22.0 | 18.5 | | 33.1 | |
| Approach LOS | | C | B | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

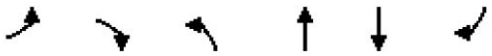
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 70 | 460 | 680 | 80 | 40 | 40 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 76 | 500 | 739 | 87 | 43 | 43 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | 2 |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 826 | | | | 1435 | 783 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 826 | | | | 1435 | 783 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 91 | | | | 68 | 89 |
| cM capacity (veh/h) | 813 | | | | 135 | 397 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 76 | 500 | 826 | 87 |
| Volume Left | 76 | 0 | 0 | 43 |
| Volume Right | 0 | 0 | 87 | 43 |
| cSH | 813 | 1700 | 1700 | 270 |
| Volume to Capacity | 0.09 | 0.29 | 0.49 | 0.32 |
| Queue Length 95th (ft) | 8 | 0 | 0 | 34 |
| Control Delay (s) | 9.9 | 0.0 | 0.0 | 29.5 |
| Lane LOS | A | | | D |
| Approach Delay (s) | 1.3 | | 0.0 | 29.5 |
| Approach LOS | | | | D |

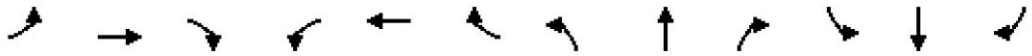
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 57.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 120 | 30 | 20 | 660 | 340 | 50 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 133 | 33 | 22 | 733 | 378 | 56 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1188 | 411 | 433 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1188 | 411 | 433 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 35 | 95 | 98 | | | |
| cM capacity (veh/h) | 205 | 643 | 1137 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 167 | 22 | 733 | 433 |
| Volume Left | 133 | 22 | 0 | 0 |
| Volume Right | 33 | 0 | 0 | 56 |
| cSH | 237 | 1137 | 1700 | 1700 |
| Volume to Capacity | 0.70 | 0.02 | 0.43 | 0.25 |
| Queue Length 95th (ft) | 116 | 1 | 0 | 0 |
| Control Delay (s) | 49.6 | 8.2 | 0.0 | 0.0 |
| Lane LOS | E | A | | |
| Approach Delay (s) | 49.6 | 0.2 | | 0.0 |
| Approach LOS | E | | | |

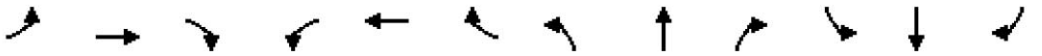
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.2 | | |
| Intersection Capacity Utilization | 49.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 20 | 310 | 0 | 0 | 350 | 240 | 280 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 21 | 323 | 0 | 0 | 365 | 250 | 292 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 620 | | | 328 | | | 739 | 989 | 333 | 739 | 739 | 375 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 620 | | | 328 | | | 739 | 989 | 333 | 739 | 739 | 375 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 100 | | | 11 | 100 | 100 | 100 | 100 | 100 |
| cM capacity (veh/h) | 971 | | | 1238 | | | 326 | 242 | 708 | 328 | 339 | 673 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 21 | 323 | 365 | 250 | 292 |
| Volume Left | 21 | 0 | 0 | 0 | 292 |
| Volume Right | 0 | 0 | 0 | 250 | 0 |
| cSH | 971 | 1700 | 1700 | 1700 | 322 |
| Volume to Capacity | 0.02 | 0.19 | 0.21 | 0.15 | 0.90 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 218 |
| Control Delay (s) | 8.8 | 0.0 | 0.0 | 0.0 | 65.5 |
| Lane LOS | A | | | | F |
| Approach Delay (s) | 0.5 | | 0.0 | | 65.5 |
| Approach LOS | | | | | F |

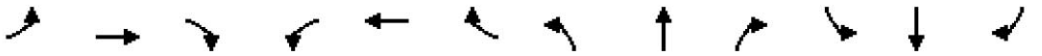
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 15.4 | | |
| Intersection Capacity Utilization | 49.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 210 | 190 | 10 | 660 | 0 | 0 | 0 | 0 | 150 | 0 | 40 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 223 | 202 | 11 | 702 | 0 | 0 | 0 | 0 | 160 | 0 | 43 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 707 | | | 431 | | | 978 | 957 | 233 | 957 | 1159 | 712 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 707 | | | 431 | | | 978 | 957 | 233 | 957 | 1159 | 712 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 99 | | | 100 | 100 | 100 | 32 | 100 | 90 |
| cM capacity (veh/h) | 897 | | | 1140 | | | 206 | 256 | 807 | 235 | 195 | 432 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 223 | 202 | 11 | 702 | 202 |
| Volume Left | 0 | 0 | 11 | 0 | 160 |
| Volume Right | 0 | 202 | 0 | 0 | 43 |
| cSH | 1700 | 1700 | 1140 | 1700 | 298 |
| Volume to Capacity | 0.13 | 0.12 | 0.01 | 0.41 | 0.68 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 115 |
| Control Delay (s) | 0.0 | 0.0 | 8.2 | 0.0 | 40.6 |
| Lane LOS | | | A | | E |
| Approach Delay (s) | 0.0 | | 0.1 | | 40.6 |
| Approach LOS | | | | | E |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.2 | | |
| Intersection Capacity Utilization | 49.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

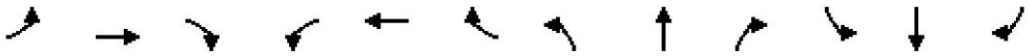


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 310 | 250 | 50 | 30 | 370 | 420 | 150 | 700 | 30 | 260 | 420 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1596 | 3502 | 3610 | 1615 | 3502 | 3610 | 1594 | 3502 | 3610 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1596 | 3502 | 3610 | 1615 | 3502 | 3610 | 1594 | 3502 | 3610 | 1598 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 341 | 275 | 55 | 33 | 407 | 462 | 165 | 769 | 33 | 286 | 462 | 220 |
| RTOR Reduction (vph) | 0 | 0 | 29 | 0 | 0 | 37 | 0 | 0 | 22 | 0 | 0 | 85 |
| Lane Group Flow (vph) | 341 | 275 | 26 | 33 | 407 | 425 | 165 | 769 | 11 | 286 | 462 | 135 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pt+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 8 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.3 | 33.2 | 41.8 | 3.8 | 25.7 | 40.0 | 8.6 | 25.0 | 28.8 | 10.3 | 26.7 | 38.0 |
| Effective Green, g (s) | 11.3 | 33.2 | 41.8 | 3.8 | 25.7 | 40.0 | 8.6 | 25.0 | 28.8 | 10.3 | 26.7 | 38.0 |
| Actuated g/C Ratio | 0.13 | 0.38 | 0.47 | 0.04 | 0.29 | 0.45 | 0.10 | 0.28 | 0.33 | 0.12 | 0.30 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 448 | 1357 | 828 | 151 | 1051 | 732 | 341 | 1022 | 592 | 409 | 1092 | 760 |
| v/s Ratio Prot | c0.10 | 0.08 | 0.00 | 0.01 | 0.11 | c0.26 | 0.05 | c0.21 | 0.00 | 0.08 | 0.13 | 0.02 |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.01 | | | 0.06 |
| v/c Ratio | 0.76 | 0.20 | 0.03 | 0.22 | 0.39 | 0.58 | 0.48 | 0.75 | 0.02 | 0.70 | 0.42 | 0.18 |
| Uniform Delay, d1 | 37.2 | 18.6 | 12.4 | 40.8 | 25.0 | 17.9 | 37.7 | 28.8 | 20.2 | 37.5 | 24.6 | 15.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.5 | 0.1 | 0.0 | 0.7 | 0.2 | 1.2 | 1.1 | 3.2 | 0.0 | 5.2 | 0.3 | 0.1 |
| Delay (s) | 44.7 | 18.7 | 12.4 | 41.5 | 25.2 | 19.1 | 38.8 | 32.0 | 20.2 | 42.7 | 24.9 | 15.6 |
| Level of Service | D | B | B | D | C | B | D | C | C | D | C | B |
| Approach Delay (s) | | 31.4 | | | 22.7 | | | 32.8 | | | 28.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 88.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

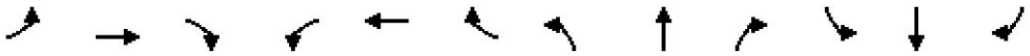
# HCM Unsignalized Intersection Capacity Analysis
## 129: 6th St & California Ave



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 210 | 120 | 40 | 220 | 10 | 300 | 30 | 50 | 30 | 50 | 10 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 12 | 244 | 140 | 47 | 256 | 12 | 349 | 35 | 58 | 35 | 58 | 12 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 12 | 384 | 47 | 267 | 349 | 93 | 105 |
| Volume Left (vph) | 12 | 0 | 47 | 0 | 349 | 0 | 35 |
| Volume Right (vph) | 0 | 140 | 0 | 12 | 0 | 58 | 12 |
| Hadj (s) | 0.50 | -0.25 | 0.50 | -0.03 | 0.50 | -0.44 | 0.00 |
| Departure Headway (s) | 7.6 | 6.8 | 7.8 | 7.2 | 7.5 | 6.6 | 7.8 |
| Degree Utilization, x | 0.02 | 0.73 | 0.10 | 0.54 | 0.73 | 0.17 | 0.23 |
| Capacity (veh/h) | 448 | 508 | 437 | 466 | 463 | 520 | 399 |
| Control Delay (s) | 9.6 | 24.7 | 10.4 | 17.0 | 26.9 | 9.7 | 13.1 |
| Approach Delay (s) | 24.2 | | 16.1 | | 23.3 | | 13.1 |
| Approach LOS | C | | C | | C | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 20.9 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 55.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 190 | 50 | 90 | 180 | 90 | 40 | 180 | 60 | 130 | 260 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1802 | 3486 | | 1802 | 1710 | 1441 | 1805 | 3462 | | 1805 | 3478 | |
| Flt Permitted | 0.64 | 1.00 | | 0.60 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1215 | 3486 | | 1134 | 1710 | 1441 | 1805 | 3462 | | 1805 | 3478 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 72 | 196 | 52 | 93 | 186 | 93 | 41 | 186 | 62 | 134 | 268 | 72 |
| RTOR Reduction (vph) | 0 | 36 | 0 | 0 | 0 | 54 | 0 | 45 | 0 | 0 | 31 | 0 |
| Lane Group Flow (vph) | 72 | 212 | 0 | 93 | 186 | 39 | 41 | 203 | 0 | 134 | 309 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 0 | 0 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 9.9 | 9.9 | | 9.9 | 9.9 | 16.1 | 1.1 | 10.6 | | 6.2 | 15.7 | |
| Effective Green, g (s) | 9.9 | 9.9 | | 9.9 | 9.9 | 16.1 | 1.1 | 10.6 | | 6.2 | 15.7 | |
| Actuated g/C Ratio | 0.26 | 0.26 | | 0.26 | 0.26 | 0.42 | 0.03 | 0.27 | | 0.16 | 0.41 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 311 | 892 | | 290 | 437 | 748 | 51 | 948 | | 289 | 1411 | |
| v/s Ratio Prot | | 0.06 | | | c0.11 | 0.01 | 0.02 | 0.06 | | c0.07 | c0.09 | |
| v/s Ratio Perm | 0.06 | | | 0.08 | | 0.02 | | | | | | |
| v/c Ratio | 0.23 | 0.24 | | 0.32 | 0.43 | 0.05 | 0.80 | 0.21 | | 0.46 | 0.22 | |
| Uniform Delay, d1 | 11.4 | 11.4 | | 11.7 | 12.0 | 6.7 | 18.7 | 10.8 | | 14.7 | 7.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | 0.1 | | 0.6 | 0.7 | 0.0 | 59.0 | 0.1 | | 1.2 | 0.1 | |
| Delay (s) | 11.8 | 11.5 | | 12.3 | 12.7 | 6.8 | 77.7 | 11.0 | | 15.9 | 7.6 | |
| Level of Service | B | B | | B | B | A | E | B | | B | A | |
| Approach Delay (s) | | 11.6 | | | 11.1 | | | 20.4 | | | 9.9 | |
| Approach LOS | | B | | | B | | | C | | | A | |

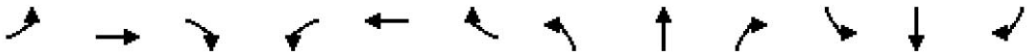
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 38.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 48.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 200 | 10 | 10 | 1070 | 10 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1700 | 1800 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1800 | 1528 | | 1751 | 1615 | 1530 |
| Flt Permitted | 1.00 | 1.00 | | 0.84 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1800 | 1528 | | 1500 | 1615 | 1530 |
| Peak-hour factor, PHF | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Adj. Flow (vph) | 12 | 247 | 12 | 12 | 1321 | 12 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 12 | 247 | 0 | 24 | 1321 | 12 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | pm+ov | Perm | | | Prot |
| Protected Phases | 4 | 2 | | 8 | 2 | 2 |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 5.7 | 89.9 | | 5.7 | 84.2 | 84.2 |
| Effective Green, g (s) | 5.7 | 89.9 | | 5.7 | 84.2 | 84.2 |
| Actuated g/C Ratio | 0.06 | 0.90 | | 0.06 | 0.84 | 0.84 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 103 | 1528 | | 86 | 1361 | 1290 |
| v/s Ratio Prot | 0.01 | c0.14 | | | c0.82 | 0.01 |
| v/s Ratio Perm | | 0.03 | | 0.02 | | |
| v/c Ratio | 0.12 | 0.16 | | 0.28 | 0.97 | 0.01 |
| Uniform Delay, d1 | 44.7 | 0.6 | | 45.1 | 6.8 | 1.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 0.0 | | 1.8 | 17.8 | 0.0 |
| Delay (s) | 45.2 | 0.6 | | 46.9 | 24.5 | 1.2 |
| Level of Service | D | A | | D | C | A |
| Approach Delay (s) | 2.7 | | | 46.9 | 24.3 | |
| Approach LOS | A | | | D | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 99.9 | Sum of lost time (s) | 5.0 |
| Intersection Capacity Utilization | 82.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

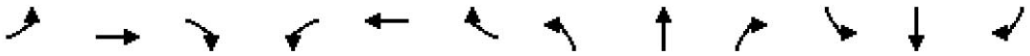
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 260 | 0 | 10 | 560 | 210 | 10 | 20 | 0 | 270 | 10 | 40 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 38 | 325 | 0 | 12 | 700 | 262 | 12 | 25 | 0 | 338 | 12 | 50 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 363 | 975 | 38 | 400 |
| Volume Left (vph) | 38 | 13 | 13 | 338 |
| Volume Right (vph) | 0 | 263 | 0 | 50 |
| Hadj (s) | 0.02 | -0.16 | 0.07 | 0.09 |
| Departure Headway (s) | 6.7 | 6.2 | 8.3 | 6.9 |
| Degree Utilization, x | 0.67 | 1.67 | 0.09 | 0.76 |
| Capacity (veh/h) | 525 | 582 | 369 | 512 |
| Control Delay (s) | 22.3 | 326.9 | 12.0 | 28.5 |
| Approach Delay (s) | 22.3 | 326.9 | 12.0 | 28.5 |
| Approach LOS | C | F | B | D |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 190.8 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 79.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 480 | 10 | 10 | 750 | 80 | 10 | 10 | 10 | 160 | 10 | 40 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 22 | 516 | 11 | 11 | 806 | 86 | 11 | 11 | 11 | 172 | 11 | 43 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 548 | 903 | 32 | 226 |
| Volume Left (vph) | 22 | 11 | 11 | 172 |
| Volume Right (vph) | 11 | 86 | 11 | 43 |
| Hadj (s) | 0.00 | -0.05 | -0.13 | 0.04 |
| Departure Headway (s) | 5.9 | 5.8 | 7.8 | 7.1 |
| Degree Utilization, x | 0.89 | 1.45 | 0.07 | 0.44 |
| Capacity (veh/h) | 606 | 626 | 425 | 488 |
| Control Delay (s) | 39.2 | 228.5 | 11.4 | 15.5 |
| Approach Delay (s) | 39.2 | 228.5 | 11.4 | 15.5 |
| Approach LOS | E | F | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 135.6 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 76.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 20 | 630 | 60 | 90 | 790 | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 685 | 65 | 98 | 859 | 22 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 707 | 163 | 880 |
| Volume Left (vph) | 0 | 65 | 859 |
| Volume Right (vph) | 685 | 0 | 22 |
| Hadj (s) | -0.58 | 0.08 | 0.18 |
| Departure Headway (s) | 5.6 | 7.1 | 6.3 |
| Degree Utilization, x | 1.10 | 0.32 | 1.55 |
| Capacity (veh/h) | 649 | 504 | 572 |
| Control Delay (s) | 86.8 | 13.4 | 274.0 |
| Approach Delay (s) | 86.8 | 13.4 | 274.0 |
| Approach LOS | F | B | F |

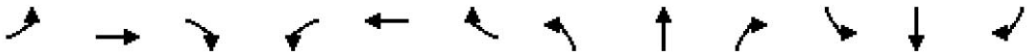
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 174.1 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 108.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 40 | 40 | 200 | 110 | 110 | 270 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 44 | 44 | 222 | 122 | 122 | 300 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 89 | | 633 | 67 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 89 | | 633 | 67 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 85 | | 68 | 70 |
| cM capacity (veh/h) | | | 1519 | | 381 | 1003 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 89 | 344 | 422 |
| Volume Left | 0 | 222 | 122 |
| Volume Right | 44 | 0 | 300 |
| cSH | 1700 | 1519 | 681 |
| Volume to Capacity | 0.05 | 0.15 | 0.62 |
| Queue Length 95th (ft) | 0 | 13 | 108 |
| Control Delay (s) | 0.0 | 5.5 | 18.5 |
| Lane LOS | | A | C |
| Approach Delay (s) | 0.0 | 5.5 | 18.5 |
| Approach LOS | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 11.3 | | |
| Intersection Capacity Utilization | 55.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 10 | 10 | 40 | 10 | 10 | 10 | 260 | 20 | 10 | 240 | 10 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 22 | 11 | 11 | 44 | 11 | 11 | 11 | 286 | 22 | 11 | 264 | 11 |

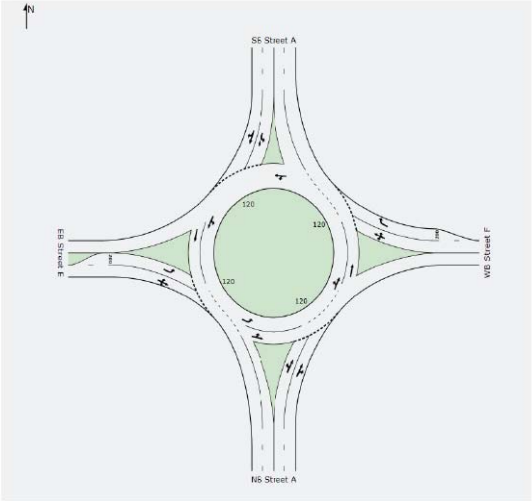
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 44 | 66 | 319 | 286 |
| Volume Left (vph) | 22 | 44 | 11 | 11 |
| Volume Right (vph) | 11 | 11 | 22 | 11 |
| Hadj (s) | -0.05 | 0.03 | -0.03 | -0.02 |
| Departure Headway (s) | 5.3 | 5.4 | 4.5 | 4.6 |
| Degree Utilization, x | 0.07 | 0.10 | 0.40 | 0.36 |
| Capacity (veh/h) | 591 | 592 | 774 | 760 |
| Control Delay (s) | 8.7 | 9.0 | 10.4 | 10.1 |
| Approach Delay (s) | 8.7 | 9.0 | 10.4 | 10.1 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 10.1 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 31.5% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

**Title:** Intersection 1 - Existing Plus Build-out - PM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street A | | | | | | | | | | |
| Lane 1 | 686 | 0.0 | 536 | 1.281 | 100 | 144.2 | LOS F | 58.1 | 1451.0 | 2.2 |
| Lane 2 | 764 | 0.0 | 596 | 1.281 | 100 | 142.9 | LOS F | 63.8 | 1598.6 | 5.0 |
| Approach | 1450 | 0.0 | | 1.281 | | 143.5 | LOS F | 63.9 | 1598.6 | |
| East: WB Street F | | | | | | | | | | |
| Lane 1 | 203 | 0.0 | 382 | 0.532 | 100 | 17.7 | LOS B | 2.7 | 68.1 | 0.0 |
| Lane 2 | 257 | 0.0 | 483 | 0.532 | 100 | 14.6 | LOS B | 3.0 | 75.0 | 0.0 |
| Approach | 460 | 0.0 | | 0.532 | | 160.0 | LOS B | 3.0 | 75.0 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 897 | 0.0 | 1313 | 0.683 | 100 | 7.8 | LOS A | 7.2 | 181.2 | 0.0 |
| Lane 2 | 1003 | 0.0 | 1467 | 0.683 | 100 | 6.4 | LOS A | 7.3 | 183.5 | 0.0 |
| Approach | 1900 | 0.0 | | 0.683 | | 7.0 | LOS A | 7.3 | 183.5 | |
| West: EB Street E | | | | | | | | | | |
| Lane 1 | 461 | 0.0 | 544 | 0.848 | 100 | 29.1 | LOS C | 8.3 | 207.8 | 6.1 |
| Lane 2 | 519 | 0.0 | 612 | 0.848 | 100 | 26.8 | LOS C | 8.9 | 222.0 | 0.0 |
| Approach | 980 | 0.0 | | 0.848 | | 27.9 | LOS C | 8.9 | 222.0 | |
| All Vehicles | 4790 | | | 1.281 | | 53.5 | LOS D | 63.9 | 1598.6 | |





| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 440 | 610 | 50 | 70 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1900 | 1591 | 3502 | 1900 | 1805 | 1591 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1900 | 1591 | 3502 | 1900 | 1805 | 1591 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 141 | 478 | 663 | 54 | 76 | 250 |
| RTOR Reduction (vph) | 0 | 365 | 0 | 0 | 0 | 205 |
| Lane Group Flow (vph) | 141 | 113 | 663 | 54 | 76 | 45 |
| Confl. Peds. (#/hr) | | 5 | | | 5 | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | 4 | | | | 2 |
| Actuated Green, G (s) | 10.7 | 10.7 | 14.4 | 29.1 | 8.1 | 8.1 |
| Effective Green, g (s) | 10.7 | 10.7 | 14.4 | 29.1 | 8.1 | 8.1 |
| Actuated g/C Ratio | 0.24 | 0.24 | 0.32 | 0.64 | 0.18 | 0.18 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 450 | 377 | 1116 | 1223 | 323 | 285 |
| v/s Ratio Prot | c0.07 | | c0.19 | 0.03 | c0.04 | |
| v/s Ratio Perm | | 0.07 | | | | 0.03 |
| v/c Ratio | 0.31 | 0.30 | 0.59 | 0.04 | 0.24 | 0.16 |
| Uniform Delay, d1 | 14.2 | 14.2 | 12.9 | 3.0 | 15.9 | 15.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.4 | 0.9 | 0.0 | 0.4 | 0.3 |
| Delay (s) | 14.6 | 14.6 | 13.8 | 3.0 | 16.3 | 15.9 |
| Level of Service | B | B | B | A | B | B |
| Approach Delay (s) | 14.6 | | | 13.0 | 16.0 | |
| Approach LOS | B | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 45.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 51.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

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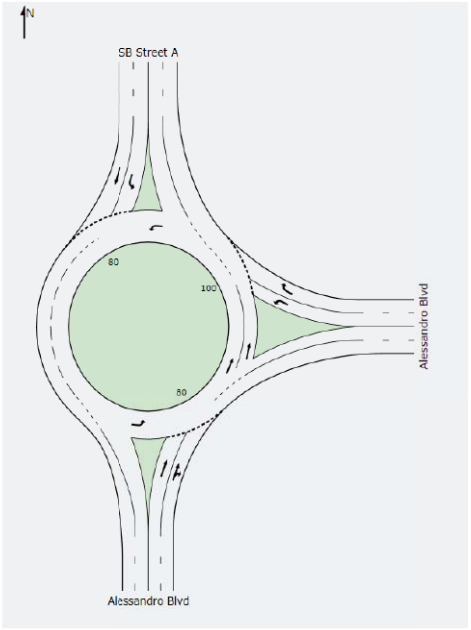
# LANE OUTPUT

*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 3 - Existing Plus Build-out - PM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 165 | 0.0 | 817 | 0.202 | 100 | 8.5 | LOS A | 1.2 | 30.1 | 0.0 |
| Lane 2 | 175 | 0.0 | 867 | 0.202 | 100 | 9.8 | LOS A | 1.2 | 30.7 | 0.0 |
| Approach | 340 | 0.0 | | 0.202 | | 9.2 | LOS A | 1.2 | 30.7 | |
| East: WB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 270 | 0.0 | 891 | 0.303 | 100 | 13.4 | LOS B | 1.6 | 41.1 | 0.0 |
| Lane 2 | 530 | 0.0 | 1062 | 0.499 | 100 | 7.6 | LOS A | 3.5 | 87.4 | 0.0 |
| Approach | 800 | 0.0 | | 0.499 | | 9.5 | LOS A | 3.5 | 87.4 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 500 | 0.0 | 1133 | 0.441 | 100 | 13.6 | LOS B | 2.9 | 72.2 | 0.0 |
| Lane 2 | 270 | 0.0 | 922 | 0.293 | 100 | 7.4 | LOS A | 1.6 | 39.7 | 0.0 |
| Approach | 770 | 0.0 | | 0.441 | | 11.4 | LOS B | 2.9 | 72.2 | |
| All Vehicles | 1910 | | | 0.499 | | 10.2 | LOS B | 3.5 | 87.4 | |



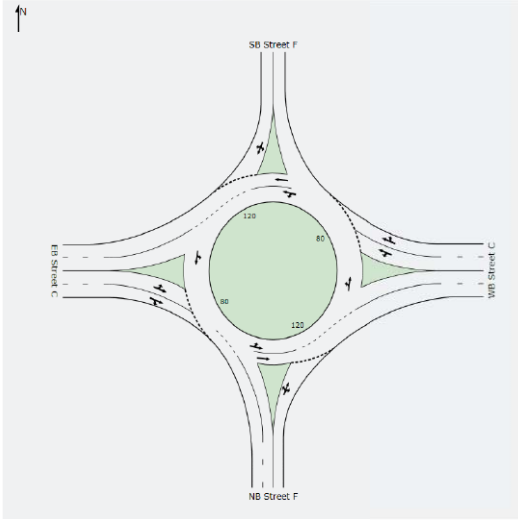
# LANE OUTPUT

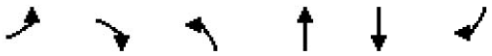
*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 4 - Existing Plus Build-out - PM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street F | | | | | | | | | | |
| Lane 1 | 640 | 0.0 | 719 | 0.891 | 100 | 27.2 | LOS D | 13.9 | 346.9 | 0.0 |
| Approach | 640 | 0.0 | | 0.891 | | 27.2 | LOS D | 13.9 | 346.9 | |
| East: WB Street C | | | | | | | | | | |
| Lane 1 | 140 | 0.0 | 731 | 0.191 | 100 | 9.7 | LOS A | 1.2 | 28.9 | 0.0 |
| Lane 2 | 150 | 0.0 | 784 | 0.191 | 100 | 8.8 | LOS A | 1.2 | 29.7 | 0.0 |
| Approach | 290 | 0.0 | | 0.191 | | 9.2 | LOS A | 1.2 | 29.7 | |
| North: SB Street F | | | | | | | | | | |
| Lane 1 | 230 | 0.0 | 578 | 0.398 | 100 | 12.7 | LOS B | 2.2 | 55.4 | 0.0 |
| Approach | 230 | 0.0 | | 0.398 | | 12.7 | LOS B | 2.2 | 55.4 | |
| West: EB Street C | | | | | | | | | | |
| Lane 1 | 386 | 0.0 | 1240 | 0.312 | 100 | 6.7 | LOS A | 1.8 | 45.2 | 0.0 |
| Lane 2 | 404 | 0.0 | 1296 | 0.312 | 100 | 7.6 | LOS A | 1.8 | 45.6 | 0.0 |
| Approach | 790 | 0.0 | | 0.312 | | 7.2 | LOS A | 1.8 | 45.6 | |
| All Vehicles | 1950 | | | 0.891 | | 14.7 | LOS B | 13.9 | 346.9 | |

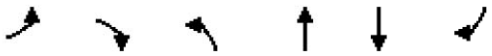




| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 520 | 340 | 170 | 300 | 630 | 270 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1567 | 1805 | 1900 | 1900 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1567 | 1805 | 1900 | 1900 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 536 | 351 | 175 | 309 | 649 | 278 |
| RTOR Reduction (vph) | 0 | 224 | 0 | 0 | 0 | 171 |
| Lane Group Flow (vph) | 536 | 127 | 175 | 309 | 649 | 107 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 24.9 | 24.9 | 9.1 | 42.0 | 28.9 | 28.9 |
| Effective Green, g (s) | 24.9 | 24.9 | 9.1 | 42.0 | 28.9 | 28.9 |
| Actuated g/C Ratio | 0.33 | 0.33 | 0.12 | 0.56 | 0.39 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 600 | 521 | 219 | 1065 | 733 | 613 |
| v/s Ratio Prot | c0.30 | | c0.10 | 0.16 | c0.34 | |
| v/s Ratio Perm | | 0.08 | | | | 0.07 |
| v/c Ratio | 0.89 | 0.24 | 0.80 | 0.29 | 0.89 | 0.17 |
| Uniform Delay, d1 | 23.7 | 18.2 | 32.0 | 8.6 | 21.5 | 15.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 15.6 | 0.2 | 18.1 | 0.2 | 12.4 | 0.1 |
| Delay (s) | 39.4 | 18.4 | 50.1 | 8.8 | 33.8 | 15.3 |
| Level of Service | D | B | D | A | C | B |
| Approach Delay (s) | 31.1 | | | 23.7 | 28.3 | |
| Approach LOS | C | | | C | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 74.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 81.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

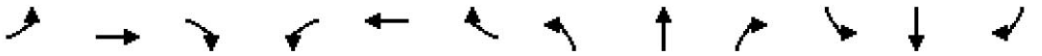
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 50 | 30 | 950 | 630 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1573 | 1805 | 1900 | 1900 | 1573 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1573 | 1805 | 1900 | 1900 | 1573 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 11 | 54 | 33 | 1033 | 685 | 11 |
| RTOR Reduction (vph) | 0 | 50 | 0 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 11 | 4 | 33 | 1033 | 685 | 8 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 3.4 | 3.4 | 2.1 | 33.9 | 27.8 | 27.8 |
| Effective Green, g (s) | 3.4 | 3.4 | 2.1 | 33.9 | 27.8 | 27.8 |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.05 | 0.75 | 0.61 | 0.61 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 135 | 118 | 84 | 1422 | 1166 | 965 |
| v/s Ratio Prot | c0.01 | | 0.02 | c0.54 | 0.36 | |
| v/s Ratio Perm | | 0.00 | | | | 0.01 |
| v/c Ratio | 0.08 | 0.03 | 0.39 | 0.73 | 0.59 | 0.01 |
| Uniform Delay, d1 | 19.5 | 19.4 | 21.0 | 3.1 | 5.3 | 3.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.3 | 0.1 | 3.0 | 1.9 | 0.8 | 0.0 |
| Delay (s) | 19.8 | 19.5 | 24.0 | 5.0 | 6.0 | 3.4 |
| Level of Service | B | B | C | A | A | A |
| Approach Delay (s) | 19.6 | | | 5.6 | 6.0 | |
| Approach LOS | B | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 45.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

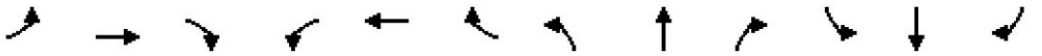
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 50 | 0 | 30 | 5 | 5 | 5 | 70 | 670 | 0 | 10 | 890 | 100 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 60 | 0 | 36 | 6 | 6 | 6 | 83 | 798 | 0 | 12 | 1060 | 119 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 2067 | 2058 | 1070 | 2093 | 2177 | 808 | 1184 | | | 803 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 2067 | 2058 | 1070 | 2093 | 2177 | 808 | 1184 | | | 803 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 100 | 87 | 80 | 85 | 98 | 86 | | | 99 | | |
| cM capacity (veh/h) | 31 | 47 | 269 | 29 | 39 | 381 | 595 | | | 827 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 95 | 18 | 83 | 798 | 0 | 12 | 1060 | 119 |
| Volume Left | 60 | 6 | 83 | 0 | 0 | 12 | 0 | 0 |
| Volume Right | 36 | 6 | 0 | 0 | 0 | 0 | 0 | 119 |
| cSH | 46 | 48 | 595 | 1700 | 1700 | 827 | 1700 | 1700 |
| Volume to Capacity | 2.07 | 0.37 | 0.14 | 0.47 | 0.00 | 0.01 | 0.62 | 0.07 |
| Queue Length 95th (ft) | 245 | 33 | 12 | 0 | 0 | 1 | 0 | 0 |
| Control Delay (s) | 683.4 | 118.1 | 12.0 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 |
| Lane LOS | F | F | B | | | A | | |
| Approach Delay (s) | 683.4 | 118.1 | 1.1 | | | 0.1 | | |
| Approach LOS | F | F | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 31.3 | | | |
| Intersection Capacity Utilization | 69.0% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 10 | 30 | 30 | 30 | 0 | 20 | 620 | 10 | 10 | 670 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1763 | | | 1854 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Flt Permitted | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1763 | | | 1854 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 11 | 32 | 32 | 32 | 0 | 21 | 660 | 11 | 11 | 713 | 160 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 0 | 120 | 0 | 0 | 64 | 0 | 21 | 670 | 0 | 11 | 713 | 131 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 39.9 | | | 8.3 | | 3.3 | 54.3 | | 1.5 | 52.5 | 52.5 |
| Effective Green, g (s) | | 39.9 | | | 8.3 | | 3.3 | 54.3 | | 1.5 | 52.5 | 52.5 |
| Actuated g/C Ratio | | 0.33 | | | 0.07 | | 0.03 | 0.45 | | 0.01 | 0.44 | 0.44 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 586 | | | 128 | | 50 | 857 | | 23 | 831 | 683 |
| v/s Ratio Prot | | c0.07 | | | c0.03 | | c0.01 | 0.35 | | 0.01 | c0.38 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.08 |
| v/c Ratio | | 0.20 | | | 0.50 | | 0.42 | 0.78 | | 0.48 | 0.86 | 0.19 |
| Uniform Delay, d1 | | 28.7 | | | 53.8 | | 57.4 | 27.8 | | 58.9 | 30.4 | 20.7 |
| Progression Factor | | 0.71 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.7 | | | 3.1 | | 5.6 | 4.7 | | 14.8 | 8.7 | 0.1 |
| Delay (s) | | 21.0 | | | 56.9 | | 63.0 | 32.5 | | 73.7 | 39.1 | 20.9 |
| Level of Service | | C | | | E | | E | C | | E | D | C |
| Approach Delay (s) | | 21.0 | | | 56.9 | | | 33.5 | | | 36.3 | |
| Approach LOS | | C | | | E | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 61.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

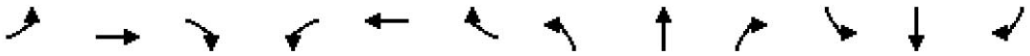
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 120 | 30 | 20 | 270 | 10 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Hourly flow rate (vph) | 13 | 156 | 39 | 26 | 351 | 13 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 724 | 5 | 869 | 711 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 724 | 5 | 869 | 711 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 95 | 86 | 79 | 91 | 78 | |
| cM capacity (veh/h) | 275 | 1080 | 187 | 280 | 1623 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 13 | 156 | 65 | 351 | 13 |
| Volume Left | 0 | 0 | 39 | 351 | 0 |
| Volume Right | 0 | 156 | 0 | 0 | 13 |
| cSH | 275 | 1080 | 216 | 1623 | 1700 |
| Volume to Capacity | 0.05 | 0.14 | 0.30 | 0.22 | 0.01 |
| Queue Length 95th (ft) | 4 | 13 | 30 | 21 | 0 |
| Control Delay (s) | 18.7 | 8.9 | 28.7 | 7.8 | 0.0 |
| Lane LOS | C | A | D | A | |
| Approach Delay (s) | 9.7 | | 28.7 | 7.5 | |
| Approach LOS | A | | D | | |

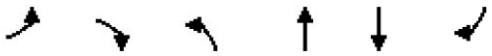
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 10.4 | | |
| Intersection Capacity Utilization | 31.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 10 | 10 | 10 | 40 | 10 | 30 | 10 | 630 | 580 | 280 | 440 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 11 | 11 | 11 | 45 | 11 | 34 | 11 | 716 | 659 | 318 | 500 | 11 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1930 | 2550 | 516 | 2232 | 2226 | 1055 | 516 | | | 1380 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1930 | 2550 | 516 | 2232 | 2226 | 1055 | 516 | | | 1380 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 0 | 98 | 0 | 27 | 88 | 99 | | | 36 | | |
| cM capacity (veh/h) | 10 | 10 | 559 | 0 | 16 | 274 | 1055 | | | 501 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 34 | 91 | 11 | 1375 | 318 | 511 |
| Volume Left | 11 | 45 | 11 | 0 | 318 | 0 |
| Volume Right | 11 | 34 | 0 | 659 | 0 | 11 |
| cSH | 14 | 0 | 1055 | 1700 | 501 | 1700 |
| Volume to Capacity | 2.37 | Err | 0.01 | 0.81 | 0.64 | 0.30 |
| Queue Length 95th (ft) | 125 | Err | 1 | 0 | 110 | 0 |
| Control Delay (s) | 1163.3 | Err | 8.4 | 0.0 | 23.9 | 0.0 |
| Lane LOS | F | F | A | | C | |
| Approach Delay (s) | 1163.3 | Err | 0.1 | | 9.2 | |
| Approach LOS | F | F | | | | |

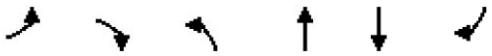
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | Err | | | |
| Intersection Capacity Utilization | 101.3% | ICU Level of Service | G | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 330 | 130 | 90 | 970 | 410 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.96 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.97 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1764 | | 1805 | 1900 | 1900 | 1615 |
| Flt Permitted | 0.97 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1764 | | 1805 | 1900 | 1900 | 1615 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 384 | 151 | 105 | 1128 | 477 | 93 |
| RTOR Reduction (vph) | 24 | 0 | 0 | 0 | 0 | 27 |
| Lane Group Flow (vph) | 511 | 0 | 105 | 1128 | 477 | 66 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 5 | 2 | 6 | 4 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 19.4 | | 5.5 | 31.9 | 22.4 | 41.8 |
| Effective Green, g (s) | 19.4 | | 5.5 | 31.9 | 22.4 | 41.8 |
| Actuated g/C Ratio | 0.33 | | 0.09 | 0.54 | 0.38 | 0.70 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 577 | | 167 | 1022 | 718 | 1247 |
| v/s Ratio Prot | c0.29 | | 0.06 | c0.59 | 0.25 | 0.02 |
| v/s Ratio Perm | | | | | | 0.02 |
| v/c Ratio | 0.89 | | 0.63 | 1.10 | 0.66 | 0.05 |
| Uniform Delay, d1 | 18.9 | | 25.9 | 13.7 | 15.3 | 2.7 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 15.1 | | 7.2 | 61.0 | 2.3 | 0.0 |
| Delay (s) | 33.9 | | 33.1 | 74.7 | 17.7 | 2.7 |
| Level of Service | C | | C | E | B | A |
| Approach Delay (s) | 33.9 | | | 71.2 | 15.2 | |
| Approach LOS | C | | | E | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 49.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 59.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 83.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

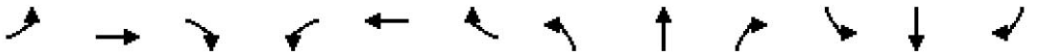
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 170 | 1410 | 260 | 150 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1590 | 3502 | 5187 | 5187 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1590 | 3502 | 5187 | 5187 | 1589 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 11 | 185 | 1533 | 283 | 163 | 22 |
| RTOR Reduction (vph) | 0 | 163 | 0 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 11 | 22 | 1533 | 283 | 163 | 3 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 7.7 | 7.7 | 38.0 | 49.6 | 7.6 | 7.6 |
| Effective Green, g (s) | 7.7 | 7.7 | 38.0 | 49.6 | 7.6 | 7.6 |
| Actuated g/C Ratio | 0.12 | 0.12 | 0.58 | 0.76 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 213 | 187 | 2038 | 3940 | 604 | 185 |
| v/s Ratio Prot | 0.01 | | c0.44 | 0.05 | c0.03 | |
| v/s Ratio Perm | | c0.01 | | | | 0.00 |
| v/c Ratio | 0.05 | 0.12 | 0.75 | 0.07 | 0.27 | 0.01 |
| Uniform Delay, d1 | 25.6 | 25.8 | 10.1 | 2.0 | 26.3 | 25.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.1 | 0.3 | 1.6 | 0.0 | 0.2 | 0.0 |
| Delay (s) | 25.7 | 26.0 | 11.8 | 2.0 | 26.6 | 25.6 |
| Level of Service | C | C | B | A | C | C |
| Approach Delay (s) | 26.0 | | | 10.2 | 26.4 | |
| Approach LOS | C | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 65.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 0 | 1640 | 0 | 0 | 0 | 0 | 1680 | 350 | 0 | 310 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 0.88 | | | | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 0.99 | | | | | 1.00 | 0.98 | | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 2804 | | | | | 5187 | 1590 | | 5187 | 1574 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 2804 | | | | | 5187 | 1590 | | 5187 | 1574 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 22 | 0 | 1783 | 0 | 0 | 0 | 0 | 1826 | 380 | 0 | 337 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 22 | 0 | 1783 | 0 | 0 | 0 | 0 | 1826 | 307 | 0 | 337 | 9 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | custom | | Free | | | | | | Perm | | | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | Free | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.2 | | 47.8 | | | | | 38.6 | 38.6 | | 38.6 | 38.6 |
| Effective Green, g (s) | 1.2 | | 47.8 | | | | | 38.6 | 38.6 | | 38.6 | 38.6 |
| Actuated g/C Ratio | 0.03 | | 1.00 | | | | | 0.81 | 0.81 | | 0.81 | 0.81 |
| Clearance Time (s) | 4.0 | | | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 45 | | 2804 | | | | | 4189 | 1284 | | 4189 | 1271 |
| v/s Ratio Prot | | | | | | | | 0.35 | | | 0.06 | |
| v/s Ratio Perm | 0.01 | | c0.64 | | | | | | 0.19 | | | 0.01 |
| v/c Ratio | 0.49 | | 0.64 | | | | | 0.44 | 0.24 | | 0.08 | 0.01 |
| Uniform Delay, d1 | 23.0 | | 0.0 | | | | | 1.4 | 1.1 | | 0.9 | 0.9 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.1 | | 1.1 | | | | | 0.1 | 0.1 | | 0.0 | 0.0 |
| Delay (s) | 31.1 | | 1.1 | | | | | 1.4 | 1.2 | | 1.0 | 0.9 |
| Level of Service | C | | A | | | | | A | A | | A | A |
| Approach Delay (s) | | 1.5 | | | 0.0 | | | 1.4 | | | 1.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 1.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 47.8 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 44.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

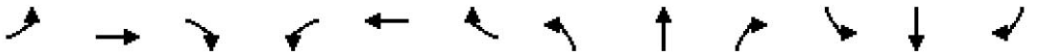
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 830 | 320 | 10 | 90 | 480 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.98 | 0.97 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.89 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.99 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1638 | 1495 | 1900 | 1590 | 1805 | 1900 |
| Flt Permitted | 0.99 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1638 | 1495 | 1900 | 1590 | 1805 | 1900 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 141 | 902 | 348 | 11 | 98 | 522 |
| RTOR Reduction (vph) | 155 | 315 | 0 | 7 | 0 | 0 |
| Lane Group Flow (vph) | 374 | 199 | 348 | 4 | 98 | 522 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | | |
| Turn Type | | Perm | | Perm | Prot | |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 16.3 | 16.3 | 15.8 | 15.8 | 3.4 | 23.2 |
| Effective Green, g (s) | 16.3 | 16.3 | 15.8 | 15.8 | 3.4 | 23.2 |
| Actuated g/C Ratio | 0.34 | 0.34 | 0.33 | 0.33 | 0.07 | 0.49 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 562 | 513 | 632 | 529 | 129 | 928 |
| v/s Ratio Prot | c0.23 | | 0.18 | | 0.05 | c0.27 |
| v/s Ratio Perm | | 0.13 | | 0.00 | | |
| v/c Ratio | 0.67 | 0.39 | 0.55 | 0.01 | 0.76 | 0.56 |
| Uniform Delay, d1 | 13.3 | 11.8 | 12.9 | 10.6 | 21.6 | 8.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.0 | 0.5 | 1.0 | 0.0 | 22.3 | 0.8 |
| Delay (s) | 16.3 | 12.3 | 14.0 | 10.6 | 44.0 | 9.4 |
| Level of Service | B | B | B | B | D | A |
| Approach Delay (s) | 14.3 | | 13.9 | | | 14.8 |
| Approach LOS | B | | B | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 47.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 58.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

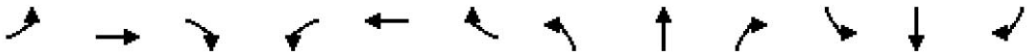
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 0 | 190 | 110 | 10 | 30 | 690 | 2050 | 90 | 20 | 1760 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 0.88 | 1.00 | 1.00 | | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1799 | | 2799 | 1799 | 1667 | | 3502 | 5187 | 1569 | 1805 | 5187 | 1589 |
| Flt Permitted | 0.73 | | 1.00 | 0.76 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1380 | | 2799 | 1434 | 1667 | | 3502 | 5187 | 1569 | 1805 | 5187 | 1589 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 54 | 0 | 207 | 120 | 11 | 33 | 750 | 2228 | 98 | 22 | 1913 | 185 |
| RTOR Reduction (vph) | 0 | 0 | 177 | 0 | 28 | 0 | 0 | 0 | 13 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 54 | 0 | 30 | 120 | 16 | 0 | 750 | 2228 | 85 | 22 | 1913 | 148 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | Perm | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.9 | | 11.9 | 11.9 | 11.9 | | 21.0 | 55.9 | 55.9 | 2.7 | 37.6 | 37.6 |
| Effective Green, g (s) | 11.9 | | 11.9 | 11.9 | 11.9 | | 21.0 | 55.9 | 55.9 | 2.7 | 37.6 | 37.6 |
| Actuated g/C Ratio | 0.14 | | 0.14 | 0.14 | 0.14 | | 0.25 | 0.68 | 0.68 | 0.03 | 0.46 | 0.46 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 199 | | 404 | 207 | 240 | | 891 | 3515 | 1063 | 59 | 2364 | 724 |
| v/s Ratio Prot | | | | | 0.01 | | c0.21 | 0.43 | | 0.01 | c0.37 | |
| v/s Ratio Perm | 0.04 | | 0.01 | c0.08 | | | | | 0.05 | | | 0.09 |
| v/c Ratio | 0.27 | | 0.07 | 0.58 | 0.07 | | 0.84 | 0.63 | 0.08 | 0.37 | 0.81 | 0.20 |
| Uniform Delay, d1 | 31.4 | | 30.5 | 33.0 | 30.5 | | 29.2 | 7.5 | 4.5 | 39.1 | 19.4 | 13.5 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | | 0.1 | 3.9 | 0.1 | | 7.3 | 0.4 | 0.0 | 3.9 | 2.1 | 0.1 |
| Delay (s) | 32.2 | | 30.6 | 36.9 | 30.6 | | 36.4 | 7.9 | 4.6 | 43.0 | 21.5 | 13.6 |
| Level of Service | C | | C | D | C | | D | A | A | D | C | B |
| Approach Delay (s) | | 30.9 | | | 35.2 | | | 14.7 | | | 21.0 | |
| Approach LOS | | C | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 82.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

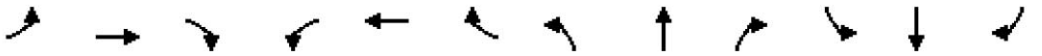
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 310 | 90 | 20 | 350 | 10 | 80 | 0 | 20 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 333 | 97 | 22 | 376 | 11 | 86 | 0 | 22 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 392 | | | 435 | | | 816 | 822 | 392 | 816 | 865 | 392 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 392 | | | 435 | | | 816 | 822 | 392 | 816 | 865 | 392 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 98 | | | 70 | 100 | 97 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1173 | | | 1131 | | | 289 | 303 | 656 | 280 | 286 | 656 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 430 | 409 | 86 | 22 | 0 |
| Volume Left | 0 | 22 | 86 | 0 | 0 |
| Volume Right | 97 | 11 | 0 | 22 | 0 |
| cSH | 1173 | 1131 | 289 | 656 | 1700 |
| Volume to Capacity | 0.00 | 0.02 | 0.30 | 0.03 | 0.00 |
| Queue Length 95th (ft) | 0 | 1 | 30 | 3 | 0 |
| Control Delay (s) | 0.0 | 0.6 | 22.6 | 10.7 | 0.0 |
| Lane LOS | | A | C | B | A |
| Approach Delay (s) | 0.0 | 0.6 | 20.2 | | 0.0 |
| Approach LOS | | | C | | A |

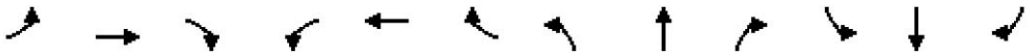
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.6 | | | |
| Intersection Capacity Utilization | 46.5% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 160 | 70 | 120 | 180 | 30 | 60 | 570 | 60 | 20 | 720 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1798 | | 1805 | 1852 | | 1805 | 1868 | | 1805 | 1862 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1798 | | 1805 | 1852 | | 1805 | 1868 | | 1805 | 1862 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 97 | 172 | 75 | 129 | 194 | 32 | 65 | 613 | 65 | 22 | 774 | 97 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 7 | 0 | 0 | 3 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 97 | 228 | 0 | 129 | 219 | 0 | 65 | 675 | 0 | 22 | 867 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 6.0 | 15.6 | | 8.1 | 17.7 | | 6.9 | 43.8 | | 2.6 | 39.5 | |
| Effective Green, g (s) | 6.0 | 15.6 | | 8.1 | 17.7 | | 6.9 | 43.8 | | 2.6 | 39.5 | |
| Actuated g/C Ratio | 0.07 | 0.18 | | 0.09 | 0.21 | | 0.08 | 0.51 | | 0.03 | 0.46 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 126 | 326 | | 170 | 381 | | 145 | 950 | | 55 | 854 | |
| v/s Ratio Prot | 0.05 | c0.13 | | c0.07 | 0.12 | | 0.04 | c0.36 | | 0.01 | c0.47 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.77 | 0.70 | | 0.76 | 0.57 | | 0.45 | 0.71 | | 0.40 | 1.01 | |
| Uniform Delay, d1 | 39.4 | 33.1 | | 38.0 | 30.8 | | 37.8 | 16.3 | | 41.0 | 23.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 24.2 | 6.4 | | 17.5 | 2.1 | | 2.2 | 2.5 | | 4.7 | 34.5 | |
| Delay (s) | 63.5 | 39.5 | | 55.5 | 32.9 | | 40.0 | 18.8 | | 45.7 | 57.8 | |
| Level of Service | E | D | | E | C | | D | B | | D | E | |
| Approach Delay (s) | | 46.3 | | | 41.1 | | | 20.6 | | | 57.5 | |
| Approach LOS | | D | | | D | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 86.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 80.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

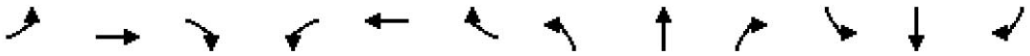
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 50 | 10 | 20 | 10 | 10 | 10 | 110 | 370 | 10 | 10 | 190 | 220 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 53 | 11 | 21 | 11 | 11 | 11 | 116 | 389 | 11 | 11 | 200 | 232 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 63 | 21 | 32 | 505 | 11 | 442 |
| Volume Left (vph) | 53 | 0 | 11 | 116 | 0 | 11 |
| Volume Right (vph) | 0 | 21 | 11 | 0 | 11 | 232 |
| Hadj (s) | 0.42 | -0.70 | -0.13 | 0.11 | -0.70 | -0.31 |
| Departure Headway (s) | 7.4 | 6.3 | 7.0 | 5.5 | 4.7 | 5.3 |
| Degree Utilization, x | 0.13 | 0.04 | 0.06 | 0.77 | 0.01 | 0.65 |
| Capacity (veh/h) | 444 | 514 | 452 | 643 | 750 | 667 |
| Control Delay (s) | 10.3 | 8.3 | 10.5 | 23.2 | 6.5 | 17.6 |
| Approach Delay (s) | 9.8 | | 10.5 | 22.9 | | 17.6 |
| Approach LOS | A | | B | C | | C |

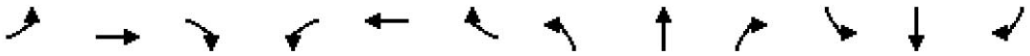
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 19.3 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 69.1% | ICU Level of Service | | C |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 240 | 160 | 50 | 310 | 70 | 100 | 70 | 30 | 20 | 40 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.99 | |
| Satd. Flow (prot) | 1805 | 3360 | | 1805 | 1900 | 1574 | | 1846 | 1591 | | 1831 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.99 | |
| Satd. Flow (perm) | 1805 | 3360 | | 1805 | 1900 | 1574 | | 1846 | 1591 | | 1831 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 11 | 267 | 178 | 56 | 344 | 78 | 111 | 78 | 33 | 22 | 44 | 11 |
| RTOR Reduction (vph) | 0 | 115 | 0 | 0 | 0 | 53 | 0 | 0 | 26 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 11 | 330 | 0 | 56 | 344 | 25 | 0 | 189 | 7 | 0 | 70 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 0.9 | 12.4 | | 6.4 | 17.9 | 17.9 | | 11.5 | 11.5 | | 8.6 | |
| Effective Green, g (s) | 0.9 | 12.4 | | 6.4 | 17.9 | 17.9 | | 11.5 | 11.5 | | 8.6 | |
| Actuated g/C Ratio | 0.02 | 0.23 | | 0.12 | 0.33 | 0.33 | | 0.21 | 0.21 | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 30 | 759 | | 210 | 619 | 513 | | 387 | 333 | | 287 | |
| v/s Ratio Prot | 0.01 | 0.10 | | c0.03 | c0.18 | | | c0.10 | | | c0.04 | |
| v/s Ratio Perm | | | | | | 0.02 | | | 0.00 | | | |
| v/c Ratio | 0.37 | 0.43 | | 0.27 | 0.56 | 0.05 | | 0.49 | 0.02 | | 0.24 | |
| Uniform Delay, d1 | 26.7 | 18.2 | | 22.1 | 15.2 | 12.7 | | 19.1 | 17.2 | | 20.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 7.4 | 0.4 | | 0.7 | 1.1 | 0.0 | | 1.0 | 0.0 | | 0.4 | |
| Delay (s) | 34.2 | 18.6 | | 22.8 | 16.3 | 12.7 | | 20.1 | 17.3 | | 20.7 | |
| Level of Service | C | B | | C | B | B | | C | B | | C | |
| Approach Delay (s) | | 19.0 | | | 16.5 | | | 19.7 | | | 20.7 | |
| Approach LOS | | B | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 54.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 49.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

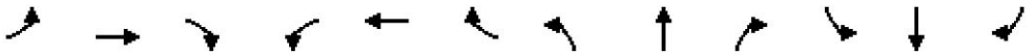
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 130 | 150 | 60 | 170 | 20 | 170 | 460 | 30 | 30 | 660 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3295 | | 1805 | 3543 | | 1805 | 3610 | 1595 | 1805 | 5056 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3295 | | 1805 | 3543 | | 1805 | 3610 | 1595 | 1805 | 5056 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 108 | 140 | 161 | 65 | 183 | 22 | 183 | 495 | 32 | 32 | 710 | 129 |
| RTOR Reduction (vph) | 0 | 128 | 0 | 0 | 14 | 0 | 0 | 0 | 17 | 0 | 27 | 0 |
| Lane Group Flow (vph) | 108 | 173 | 0 | 65 | 191 | 0 | 183 | 495 | 15 | 32 | 812 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.8 | 12.0 | | 5.5 | 8.7 | | 9.6 | 22.3 | 27.8 | 2.6 | 15.3 | |
| Effective Green, g (s) | 8.8 | 12.0 | | 5.5 | 8.7 | | 9.6 | 22.3 | 27.8 | 2.6 | 15.3 | |
| Actuated g/C Ratio | 0.15 | 0.21 | | 0.09 | 0.15 | | 0.16 | 0.38 | 0.48 | 0.04 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 272 | 677 | | 170 | 528 | | 297 | 1378 | 869 | 80 | 1325 | |
| v/s Ratio Prot | c0.06 | c0.05 | | 0.04 | c0.05 | | c0.10 | 0.14 | 0.00 | 0.02 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.40 | 0.26 | | 0.38 | 0.36 | | 0.62 | 0.36 | 0.02 | 0.40 | 0.61 | |
| Uniform Delay, d1 | 22.4 | 19.5 | | 24.9 | 22.4 | | 22.7 | 12.9 | 8.1 | 27.1 | 18.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.0 | 0.2 | | 1.4 | 0.4 | | 3.8 | 0.2 | 0.0 | 3.3 | 0.8 | |
| Delay (s) | 23.4 | 19.7 | | 26.3 | 22.8 | | 26.5 | 13.1 | 8.1 | 30.4 | 19.8 | |
| Level of Service | C | B | | C | C | | C | B | A | C | B | |
| Approach Delay (s) | | 20.6 | | | 23.6 | | | 16.3 | | | 20.2 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 58.4 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 57.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

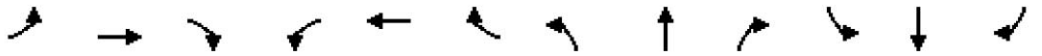
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 150 | 30 | 50 | 670 | 200 | 180 | 50 | 210 | 40 | 30 | 180 | 90 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 160 | 32 | 53 | 713 | 213 | 191 | 53 | 223 | 43 | 32 | 191 | 96 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 176 | 69 | 713 | 404 | 165 | 154 | 128 | 191 |
| Volume Left (vph) | 160 | 0 | 713 | 0 | 53 | 0 | 32 | 0 |
| Volume Right (vph) | 0 | 53 | 0 | 191 | 0 | 43 | 0 | 96 |
| Hadj (s) | 0.45 | -0.54 | 0.50 | -0.33 | 0.16 | -0.19 | 0.13 | -0.35 |
| Departure Headway (s) | 8.4 | 7.4 | 7.6 | 6.7 | 8.1 | 7.8 | 8.1 | 7.6 |
| Degree Utilization, x | 0.41 | 0.14 | 1.50 | 0.76 | 0.37 | 0.33 | 0.29 | 0.41 |
| Capacity (veh/h) | 414 | 463 | 479 | 524 | 431 | 449 | 430 | 458 |
| Control Delay (s) | 15.9 | 10.5 | 255.6 | 26.7 | 14.7 | 13.4 | 13.1 | 14.6 |
| Approach Delay (s) | 14.4 | | 172.7 | | 14.1 | | 14.0 | |
| Approach LOS | B | | F | | B | | B | |

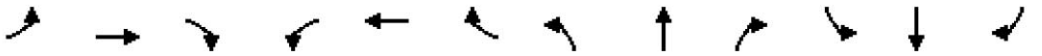
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 102.7 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 78.4% | ICU Level of Service | D | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 20 | 20 | 570 | 50 | 90 | 10 | 340 | 210 | 100 | 660 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3317 | | 1805 | 3233 | | 1805 | 5187 | 1601 | 1805 | 5095 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3317 | | 1805 | 3233 | | 1805 | 5187 | 1601 | 1805 | 5095 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 54 | 22 | 22 | 613 | 54 | 97 | 11 | 366 | 226 | 108 | 710 | 86 |
| RTOR Reduction (vph) | 0 | 21 | 0 | 0 | 78 | 0 | 0 | 0 | 119 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 54 | 23 | 0 | 613 | 73 | 0 | 11 | 366 | 107 | 108 | 784 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 2.3 | 2.3 | | 9.4 | 9.4 | | 1.0 | 13.5 | 22.9 | 7.3 | 19.8 | |
| Effective Green, g (s) | 2.3 | 2.3 | | 9.4 | 9.4 | | 1.0 | 13.5 | 22.9 | 7.3 | 19.8 | |
| Actuated g/C Ratio | 0.05 | 0.05 | | 0.19 | 0.19 | | 0.02 | 0.28 | 0.47 | 0.15 | 0.41 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 86 | 157 | | 350 | 627 | | 37 | 1444 | 888 | 272 | 2080 | |
| v/s Ratio Prot | 0.03 | 0.01 | | c0.34 | c0.02 | | 0.01 | 0.07 | 0.02 | c0.06 | c0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | |
| v/c Ratio | 0.63 | 0.15 | | 1.75 | 0.12 | | 0.30 | 0.25 | 0.12 | 0.40 | 0.38 | |
| Uniform Delay, d1 | 22.7 | 22.2 | | 19.6 | 16.1 | | 23.4 | 13.6 | 7.2 | 18.6 | 10.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 13.5 | 0.4 | | 349.7 | 0.1 | | 4.5 | 0.1 | 0.1 | 1.0 | 0.1 | |
| Delay (s) | 36.1 | 22.6 | | 369.3 | 16.2 | | 27.9 | 13.7 | 7.2 | 19.6 | 10.2 | |
| Level of Service | D | C | | F | B | | C | B | A | B | B | |
| Approach Delay (s) | | 30.1 | | | 299.5 | | | 11.5 | | | 11.3 | |
| Approach LOS | | C | | | F | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 105.1 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 48.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 73.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

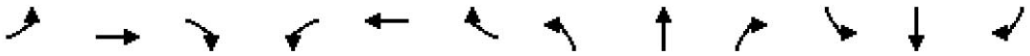
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 320 | 130 | 140 | 300 | 70 | 180 | 710 | 120 | 50 | 680 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1600 | 1805 | 3496 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1593 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1600 | 1805 | 3496 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1593 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 155 | 330 | 134 | 144 | 309 | 72 | 186 | 732 | 124 | 52 | 701 | 186 |
| RTOR Reduction (vph) | 0 | 0 | 58 | 0 | 20 | 0 | 0 | 0 | 32 | 0 | 0 | 64 |
| Lane Group Flow (vph) | 155 | 330 | 76 | 144 | 361 | 0 | 186 | 732 | 92 | 52 | 701 | 122 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 14.9 | 19.9 | 35.8 | 12.9 | 17.9 | | 15.9 | 64.9 | 77.8 | 6.3 | 55.3 | 70.2 |
| Effective Green, g (s) | 14.9 | 19.9 | 35.8 | 12.9 | 17.9 | | 15.9 | 64.9 | 77.8 | 6.3 | 55.3 | 70.2 |
| Actuated g/C Ratio | 0.12 | 0.17 | 0.30 | 0.11 | 0.15 | | 0.13 | 0.54 | 0.65 | 0.05 | 0.46 | 0.59 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 224 | 599 | 477 | 194 | 521 | | 239 | 1952 | 1032 | 95 | 1664 | 932 |
| v/s Ratio Prot | c0.09 | 0.09 | 0.02 | 0.08 | c0.10 | | c0.10 | 0.20 | 0.01 | 0.03 | c0.19 | 0.02 |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.05 | | | 0.06 |
| v/c Ratio | 0.69 | 0.55 | 0.16 | 0.74 | 0.69 | | 0.78 | 0.38 | 0.09 | 0.55 | 0.42 | 0.13 |
| Uniform Delay, d1 | 50.4 | 45.9 | 31.0 | 51.9 | 48.4 | | 50.3 | 15.9 | 7.9 | 55.5 | 21.6 | 11.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.92 | 0.82 | 0.53 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.9 | 1.1 | 0.2 | 14.2 | 4.0 | | 13.7 | 0.5 | 0.0 | 6.3 | 0.8 | 0.1 |
| Delay (s) | 59.2 | 47.0 | 31.2 | 66.1 | 52.4 | | 60.0 | 13.5 | 4.2 | 61.8 | 22.4 | 11.3 |
| Level of Service | E | D | C | E | D | | E | B | A | E | C | B |
| Approach Delay (s) | | 46.7 | | | 56.2 | | | 20.7 | | | 22.4 | |
| Approach LOS | | D | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

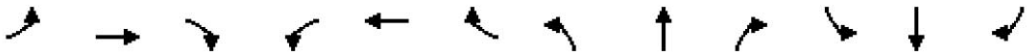
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 190 | 10 | 130 | 450 | 1140 | 0 | 0 | 630 | 360 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1814 | 1587 | 1805 | 3610 | | | 3388 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1814 | 1587 | 1805 | 3610 | | | 3388 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 0 | 0 | 202 | 11 | 138 | 479 | 1213 | 0 | 0 | 670 | 383 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 56 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 213 | 84 | 479 | 1213 | 0 | 0 | 997 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 19.6 | 19.6 | 37.2 | 92.4 | | | 51.2 | |
| Effective Green, g (s) | | | | | 19.6 | 19.6 | 37.2 | 92.4 | | | 51.2 | |
| Actuated g/C Ratio | | | | | 0.16 | 0.16 | 0.31 | 0.77 | | | 0.43 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 296 | 259 | 560 | 2780 | | | 1446 | |
| v/s Ratio Prot | | | | | c0.12 | | c0.27 | 0.34 | | | c0.29 | |
| v/s Ratio Perm | | | | | | 0.05 | | | | | | |
| v/c Ratio | | | | | 0.72 | 0.32 | 0.86 | 0.44 | | | 0.69 | |
| Uniform Delay, d1 | | | | | 47.6 | 44.3 | 38.9 | 4.8 | | | 27.9 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.57 | |
| Incremental Delay, d2 | | | | | 8.1 | 0.7 | 12.2 | 0.5 | | | 2.5 | |
| Delay (s) | | | | | 55.7 | 45.1 | 51.0 | 5.3 | | | 18.5 | |
| Level of Service | | | | | E | D | D | A | | | B | |
| Approach Delay (s) | | 0.0 | | | 51.5 | | | 18.2 | | | 18.5 | |
| Approach LOS | | A | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 94.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

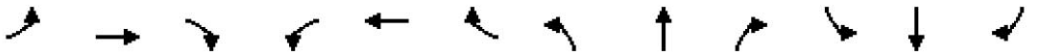
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 540 | 10 | 420 | 0 | 0 | 0 | 0 | 860 | 200 | 140 | 740 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1722 | 1591 | | | | | 5014 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1722 | 1591 | | | | | 5014 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 557 | 10 | 433 | 0 | 0 | 0 | 0 | 887 | 206 | 144 | 763 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 48 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 284 | 283 | 358 | 0 | 0 | 0 | 0 | 1045 | 0 | 144 | 763 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 21.7 | 21.7 | 21.7 | | | | | 19.6 | | 6.5 | 30.1 | |
| Effective Green, g (s) | 21.7 | 21.7 | 21.7 | | | | | 19.6 | | 6.5 | 30.1 | |
| Actuated g/C Ratio | 0.36 | 0.36 | 0.36 | | | | | 0.33 | | 0.11 | 0.50 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 622 | 625 | 577 | | | | | 1643 | | 196 | 1817 | |
| v/s Ratio Prot | 0.17 | 0.16 | | | | | | c0.21 | | c0.08 | 0.21 | |
| v/s Ratio Perm | | | c0.22 | | | | | | | | | |
| v/c Ratio | 0.46 | 0.45 | 0.62 | | | | | 0.64 | | 0.73 | 0.42 | |
| Uniform Delay, d1 | 14.5 | 14.5 | 15.7 | | | | | 17.1 | | 25.8 | 9.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.5 | 0.5 | 2.1 | | | | | 0.8 | | 13.3 | 0.2 | |
| Delay (s) | 15.1 | 15.0 | 17.7 | | | | | 17.9 | | 39.1 | 9.5 | |
| Level of Service | B | B | B | | | | | B | | D | A | |
| Approach Delay (s) | | 16.2 | | | 0.0 | | | 17.9 | | | 14.2 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 59.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 94.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

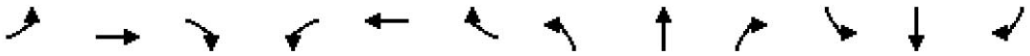


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 530 | 560 | 570 | 60 | 100 | 360 | 150 | 800 | 110 | 340 | 740 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.88 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1597 | 1805 | 3187 | | 1805 | 5082 | | 3502 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1597 | 1805 | 3187 | | 1805 | 5082 | | 3502 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 570 | 602 | 613 | 65 | 108 | 387 | 161 | 860 | 118 | 366 | 796 | 118 |
| RTOR Reduction (vph) | 0 | 0 | 42 | 0 | 247 | 0 | 0 | 14 | 0 | 0 | 0 | 47 |
| Lane Group Flow (vph) | 570 | 602 | 571 | 65 | 248 | 0 | 161 | 964 | 0 | 366 | 796 | 71 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 22.8 | 32.1 | 48.8 | 5.6 | 14.9 | | 16.7 | 49.4 | | 16.9 | 49.6 | 72.4 |
| Effective Green, g (s) | 22.8 | 32.1 | 48.8 | 5.6 | 14.9 | | 16.7 | 49.4 | | 16.9 | 49.6 | 72.4 |
| Actuated g/C Ratio | 0.19 | 0.27 | 0.41 | 0.05 | 0.12 | | 0.14 | 0.41 | | 0.14 | 0.41 | 0.60 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 665 | 966 | 703 | 84 | 396 | | 251 | 2092 | | 493 | 1492 | 1017 |
| v/s Ratio Prot | c0.16 | 0.17 | c0.11 | 0.04 | 0.08 | | 0.09 | 0.19 | | 0.10 | c0.22 | 0.01 |
| v/s Ratio Perm | | | 0.24 | | | | | | | | | 0.03 |
| v/c Ratio | 0.86 | 0.62 | 0.81 | 0.77 | 0.88dr | | 0.64 | 0.46 | | 0.74 | 0.53 | 0.07 |
| Uniform Delay, d1 | 47.0 | 38.6 | 31.5 | 56.6 | 49.9 | | 48.8 | 25.6 | | 49.5 | 26.5 | 9.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.89 | 0.58 | | 1.34 | 0.48 | 0.03 |
| Incremental Delay, d2 | 10.6 | 1.3 | 7.1 | 34.8 | 3.1 | | 5.0 | 0.7 | | 5.0 | 1.1 | 0.0 |
| Delay (s) | 57.6 | 39.9 | 38.6 | 91.4 | 53.0 | | 48.3 | 15.5 | | 71.4 | 14.0 | 0.3 |
| Level of Service | E | D | D | F | D | | D | B | | E | B | A |
| Approach Delay (s) | | 45.1 | | | 57.4 | | | 20.1 | | | 29.1 | |
| Approach LOS | | D | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 4.0 |
| Intersection Capacity Utilization | 83.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

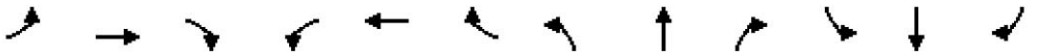
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 170 | 10 | 140 | 490 | 1180 | 0 | 0 | 1000 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | | 0.97 | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.94 | | 1.00 | 1.00 | | | 0.97 | |
| Flt Protected | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1727 | | 3502 | 3610 | | | 4994 | |
| Flt Permitted | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1727 | | 3502 | 3610 | | | 4994 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 175 | 10 | 144 | 505 | 1216 | 0 | 0 | 1031 | 289 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 38 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 304 | 0 | 505 | 1216 | 0 | 0 | 1282 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 25.6 | | 29.0 | 86.4 | | | 53.4 | |
| Effective Green, g (s) | | | | | 25.6 | | 29.0 | 86.4 | | | 53.4 | |
| Actuated g/C Ratio | | | | | 0.21 | | 0.24 | 0.72 | | | 0.44 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 368 | | 846 | 2599 | | | 2222 | |
| v/s Ratio Prot | | | | | c0.18 | | c0.14 | 0.34 | | | c0.26 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.83 | | 0.60 | 0.47 | | | 0.58 | |
| Uniform Delay, d1 | | | | | 45.1 | | 40.3 | 7.1 | | | 24.9 | |
| Progression Factor | | | | | 1.00 | | 0.83 | 0.40 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 14.0 | | 0.9 | 0.5 | | | 1.1 | |
| Delay (s) | | | | | 59.1 | | 34.3 | 3.3 | | | 26.0 | |
| Level of Service | | | | | E | | C | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 59.1 | | | 12.4 | | | 26.0 | |
| Approach LOS | | A | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 150 | 60 | 50 | 110 | 80 | 60 | 900 | 40 | 140 | 1070 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 44 | 165 | 66 | 55 | 121 | 88 | 66 | 989 | 44 | 154 | 1176 | 55 |
| RTOR Reduction (vph) | 0 | 0 | 57 | 0 | 0 | 76 | 0 | 0 | 9 | 0 | 0 | 9 |
| Lane Group Flow (vph) | 44 | 165 | 9 | 55 | 121 | 12 | 66 | 989 | 35 | 154 | 1176 | 46 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 5.6 | 15.8 | 15.8 | 6.3 | 16.5 | 16.5 | 7.2 | 66.5 | 66.5 | 15.4 | 74.7 | 74.7 |
| Effective Green, g (s) | 5.6 | 15.8 | 15.8 | 6.3 | 16.5 | 16.5 | 7.2 | 66.5 | 66.5 | 15.4 | 74.7 | 74.7 |
| Actuated g/C Ratio | 0.05 | 0.13 | 0.13 | 0.05 | 0.14 | 0.14 | 0.06 | 0.55 | 0.55 | 0.13 | 0.62 | 0.62 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 84 | 250 | 209 | 95 | 261 | 218 | 108 | 2001 | 868 | 232 | 2247 | 975 |
| v/s Ratio Prot | 0.02 | c0.09 | | c0.03 | 0.06 | | 0.04 | c0.27 | | c0.09 | c0.33 | |
| v/s Ratio Perm | | | 0.01 | | | 0.01 | | | 0.02 | | | 0.03 |
| v/c Ratio | 0.52 | 0.66 | 0.04 | 0.58 | 0.46 | 0.06 | 0.61 | 0.49 | 0.04 | 0.66 | 0.52 | 0.05 |
| Uniform Delay, d1 | 55.9 | 49.5 | 45.5 | 55.6 | 47.7 | 45.0 | 55.0 | 16.4 | 12.2 | 49.8 | 12.7 | 8.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.15 | 0.73 | 0.73 |
| Incremental Delay, d2 | 5.8 | 6.4 | 0.1 | 8.3 | 1.3 | 0.1 | 9.8 | 0.9 | 0.1 | 5.3 | 0.7 | 0.1 |
| Delay (s) | 61.7 | 55.9 | 45.6 | 63.8 | 49.0 | 45.1 | 64.9 | 17.3 | 12.3 | 62.8 | 10.0 | 6.5 |
| Level of Service | E | E | D | E | D | D | E | B | B | E | A | A |
| Approach Delay (s) | | 54.4 | | | 50.8 | | | 20.0 | | | 15.7 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

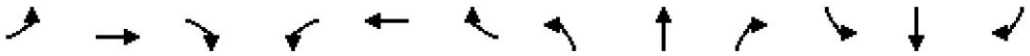
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 10 | 180 | 10 | 10 | 110 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 10 | 10 | 188 | 10 | 10 | 115 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 21 | | 406 | 21 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 21 | | 406 | 21 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 88 | | 98 | 89 |
| cM capacity (veh/h) | | | 1608 | | 532 | 1058 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 21 | 198 | 10 | 115 |
| Volume Left | 0 | 188 | 10 | 0 |
| Volume Right | 10 | 0 | 0 | 115 |
| cSH | 1700 | 1608 | 532 | 1058 |
| Volume to Capacity | 0.01 | 0.12 | 0.02 | 0.11 |
| Queue Length 95th (ft) | 0 | 10 | 1 | 9 |
| Control Delay (s) | 0.0 | 7.2 | 11.9 | 8.8 |
| Lane LOS | | A | B | A |
| Approach Delay (s) | 0.0 | 7.2 | 9.1 | |
| Approach LOS | | | A | |

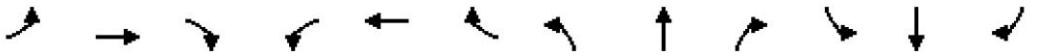
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.4 | | |
| Intersection Capacity Utilization | 27.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 90 | 110 | 110 | 130 | 10 | 120 | 110 | 90 | 0 | 160 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.99 | | | 0.96 | | | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1711 | | 1805 | 1876 | | | 1777 | | | 1813 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1711 | | 1805 | 1876 | | | 1777 | | | 1813 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 62 | 93 | 113 | 113 | 134 | 10 | 124 | 113 | 93 | 0 | 165 | 62 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 2 | 0 | 0 | 13 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 62 | 175 | 0 | 113 | 142 | 0 | 0 | 317 | 0 | 0 | 215 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.2 | 41.4 | | 16.8 | 51.0 | | | 26.6 | | | 19.2 | |
| Effective Green, g (s) | 7.2 | 41.4 | | 16.8 | 51.0 | | | 26.6 | | | 19.2 | |
| Actuated g/C Ratio | 0.06 | 0.34 | | 0.14 | 0.42 | | | 0.22 | | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 108 | 590 | | 253 | 797 | | | 394 | | | 290 | |
| v/s Ratio Prot | c0.03 | c0.10 | | c0.06 | 0.08 | | | c0.18 | | | c0.12 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.57 | 0.30 | | 0.45 | 0.18 | | | 0.80 | | | 0.74 | |
| Uniform Delay, d1 | 54.9 | 28.7 | | 47.3 | 21.5 | | | 44.2 | | | 48.0 | |
| Progression Factor | 1.00 | 1.00 | | 0.71 | 0.65 | | | 1.00 | | | 0.99 | |
| Incremental Delay, d2 | 7.2 | 1.3 | | 1.2 | 0.5 | | | 11.3 | | | 9.7 | |
| Delay (s) | 62.1 | 29.9 | | 35.1 | 14.4 | | | 55.5 | | | 57.4 | |
| Level of Service | E | C | | D | B | | | E | | | E | |
| Approach Delay (s) | | 37.4 | | | 23.5 | | | 55.5 | | | 57.4 | |
| Approach LOS | | D | | | C | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 68.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

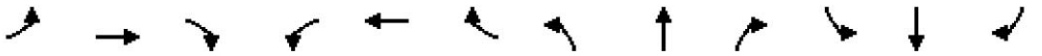
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 50 | 820 | 40 | 20 | 100 | 120 | 600 | 20 | 20 | 370 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1659 | | 1805 | 1900 | 1590 | 1805 | 3610 | 1571 | 1805 | 5138 | |
| Flt Permitted | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1659 | | 1805 | 1900 | 1590 | 1805 | 3610 | 1571 | 1805 | 5138 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 144 | 52 | 845 | 41 | 21 | 103 | 124 | 619 | 21 | 21 | 381 | 21 |
| RTOR Reduction (vph) | 0 | 106 | 0 | 0 | 0 | 95 | 0 | 0 | 15 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 935 | 0 | 41 | 21 | 8 | 124 | 619 | 6 | 21 | 397 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 35.7 | | 6.2 | 6.2 | 6.2 | 10.5 | 24.6 | 24.6 | 2.5 | 16.6 | |
| Effective Green, g (s) | | 35.7 | | 6.2 | 6.2 | 6.2 | 10.5 | 24.6 | 24.6 | 2.5 | 16.6 | |
| Actuated g/C Ratio | | 0.42 | | 0.07 | 0.07 | 0.07 | 0.12 | 0.29 | 0.29 | 0.03 | 0.20 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 697 | | 132 | 139 | 116 | 223 | 1045 | 455 | 53 | 1003 | |
| v/s Ratio Prot | | c0.56 | | c0.02 | 0.01 | | c0.07 | c0.17 | | 0.01 | 0.08 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.00 | | | |
| v/c Ratio | | 1.34 | | 0.31 | 0.15 | 0.06 | 0.56 | 0.59 | 0.01 | 0.40 | 0.40 | |
| Uniform Delay, d1 | | 24.6 | | 37.4 | 36.9 | 36.7 | 35.1 | 25.9 | 21.5 | 40.5 | 29.8 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 163.1 | | 1.3 | 0.5 | 0.2 | 3.0 | 0.9 | 0.0 | 4.8 | 0.3 | |
| Delay (s) | | 187.8 | | 38.7 | 37.4 | 36.9 | 38.0 | 26.8 | 21.6 | 45.3 | 30.1 | |
| Level of Service | | F | | D | D | D | D | C | C | D | C | |
| Approach Delay (s) | | 187.8 | | | 37.4 | | | 28.5 | | | 30.8 | |
| Approach LOS | | F | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 98.8 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 85.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 101.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

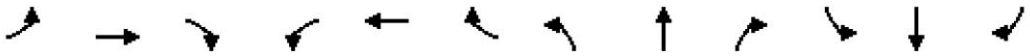
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 290 | 150 | 140 | 250 | 40 | 120 | 490 | 100 | 100 | 560 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3405 | | 1805 | 3528 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3405 | | 1805 | 3528 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 67 | 322 | 167 | 156 | 278 | 44 | 133 | 544 | 111 | 111 | 622 | 78 |
| RTOR Reduction (vph) | 0 | 66 | 0 | 0 | 13 | 0 | 0 | 0 | 60 | 0 | 0 | 43 |
| Lane Group Flow (vph) | 67 | 423 | 0 | 156 | 309 | 0 | 133 | 544 | 51 | 111 | 622 | 35 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 21.5 | | 14.2 | 28.7 | | 14.1 | 55.6 | 55.6 | 12.7 | 54.2 | 54.2 |
| Effective Green, g (s) | 7.0 | 21.5 | | 14.2 | 28.7 | | 14.1 | 55.6 | 55.6 | 12.7 | 54.2 | 54.2 |
| Actuated g/C Ratio | 0.06 | 0.18 | | 0.12 | 0.24 | | 0.12 | 0.46 | 0.46 | 0.11 | 0.45 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 610 | | 214 | 844 | | 212 | 1673 | 735 | 191 | 1631 | 716 |
| v/s Ratio Prot | 0.04 | c0.12 | | c0.09 | 0.09 | | c0.07 | 0.15 | | 0.06 | c0.17 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | 0.02 |
| v/c Ratio | 0.64 | 0.69 | | 0.73 | 0.37 | | 0.63 | 0.33 | 0.07 | 0.58 | 0.38 | 0.05 |
| Uniform Delay, d1 | 55.3 | 46.2 | | 51.0 | 38.1 | | 50.4 | 20.3 | 17.9 | 51.1 | 21.8 | 18.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.34 | 0.36 | 0.06 |
| Incremental Delay, d2 | 12.0 | 3.4 | | 11.7 | 0.3 | | 5.7 | 0.5 | 0.2 | 3.6 | 0.5 | 0.1 |
| Delay (s) | 67.3 | 49.6 | | 62.8 | 38.3 | | 56.1 | 20.9 | 18.0 | 72.3 | 8.3 | 1.1 |
| Level of Service | E | D | | E | D | | E | C | B | E | A | A |
| Approach Delay (s) | | 51.7 | | | 46.3 | | | 26.4 | | | 16.4 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 70.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

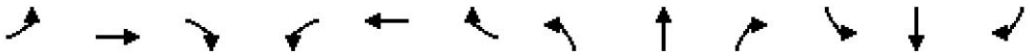
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 440 | 170 | 140 | 350 | 120 | 180 | 480 | 170 | 220 | 450 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3443 | | 1805 | 3456 | | 1805 | 5187 | 1587 | 1805 | 5149 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3443 | | 1805 | 3456 | | 1805 | 5187 | 1587 | 1805 | 5149 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 41 | 454 | 175 | 144 | 361 | 124 | 186 | 495 | 175 | 227 | 464 | 21 |
| RTOR Reduction (vph) | 0 | 38 | 0 | 0 | 32 | 0 | 0 | 0 | 111 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 41 | 591 | 0 | 144 | 453 | 0 | 186 | 495 | 64 | 227 | 481 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.6 | 27.3 | | 12.9 | 34.6 | | 17.2 | 43.9 | 43.9 | 19.9 | 46.6 | |
| Effective Green, g (s) | 5.6 | 27.3 | | 12.9 | 34.6 | | 17.2 | 43.9 | 43.9 | 19.9 | 46.6 | |
| Actuated g/C Ratio | 0.05 | 0.23 | | 0.11 | 0.29 | | 0.14 | 0.37 | 0.37 | 0.17 | 0.39 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 84 | 783 | | 194 | 996 | | 259 | 1898 | 581 | 299 | 2000 | |
| v/s Ratio Prot | 0.02 | c0.17 | | c0.08 | 0.13 | | 0.10 | c0.10 | | c0.13 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | |
| v/c Ratio | 0.49 | 0.75 | | 0.74 | 0.45 | | 0.72 | 0.26 | 0.11 | 0.76 | 0.24 | |
| Uniform Delay, d1 | 55.8 | 43.2 | | 51.9 | 35.0 | | 49.1 | 26.7 | 25.1 | 47.8 | 24.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.35 | 0.46 | 0.46 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.4 | 4.2 | | 14.2 | 0.3 | | 8.1 | 0.3 | 0.3 | 10.6 | 0.3 | |
| Delay (s) | 60.2 | 47.4 | | 66.1 | 35.3 | | 74.1 | 12.4 | 11.9 | 58.3 | 25.0 | |
| Level of Service | E | D | | E | D | | E | B | B | E | C | |
| Approach Delay (s) | | 48.2 | | | 42.4 | | | 25.7 | | | 35.7 | |
| Approach LOS | | D | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 79.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

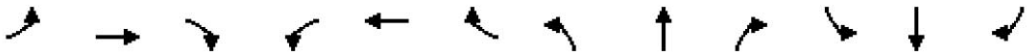
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 700 | 110 | 220 | 700 | 80 | 60 | 90 | 120 | 70 | 140 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.91 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3529 | | 1805 | 3610 | 1595 | 1805 | 3275 | | 1805 | 3395 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3529 | | 1805 | 3610 | 1595 | 1805 | 3275 | | 1805 | 3395 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 63 | 737 | 116 | 232 | 737 | 84 | 63 | 95 | 126 | 74 | 147 | 84 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 39 | 0 | 110 | 0 | 0 | 72 | 0 |
| Lane Group Flow (vph) | 63 | 845 | 0 | 232 | 737 | 45 | 63 | 111 | 0 | 74 | 159 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 5.3 | 25.6 | | 7.1 | 27.4 | 33.7 | 5.3 | 8.0 | | 6.3 | 9.0 | |
| Effective Green, g (s) | 5.3 | 25.6 | | 7.1 | 27.4 | 33.7 | 5.3 | 8.0 | | 6.3 | 9.0 | |
| Actuated g/C Ratio | 0.08 | 0.41 | | 0.11 | 0.43 | 0.53 | 0.08 | 0.13 | | 0.10 | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 152 | 1434 | | 203 | 1570 | 954 | 152 | 416 | | 181 | 485 | |
| v/s Ratio Prot | 0.03 | c0.24 | | c0.13 | 0.20 | 0.00 | 0.03 | 0.03 | | c0.04 | c0.05 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.41 | 0.59 | | 1.14 | 0.47 | 0.05 | 0.41 | 0.27 | | 0.41 | 0.33 | |
| Uniform Delay, d1 | 27.4 | 14.6 | | 27.9 | 12.6 | 7.0 | 27.4 | 24.8 | | 26.6 | 24.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.8 | 0.6 | | 106.9 | 0.2 | 0.0 | 1.8 | 0.3 | | 1.5 | 0.4 | |
| Delay (s) | 29.2 | 15.2 | | 134.9 | 12.9 | 7.0 | 29.2 | 25.2 | | 28.1 | 24.7 | |
| Level of Service | C | B | | F | B | A | C | C | | C | C | |
| Approach Delay (s) | | 16.2 | | | 39.3 | | | 26.1 | | | 25.5 | |
| Approach LOS | | B | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 63.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

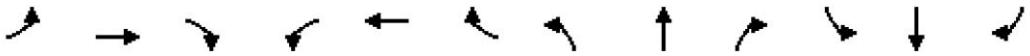
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 390 | 290 | 590 | 710 | 90 | 270 | 510 | 320 | 210 | 640 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 4823 | | 3502 | 5090 | | 3502 | 3610 | 1600 | 3502 | 3537 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 4823 | | 3502 | 5090 | | 3502 | 3610 | 1600 | 3502 | 3537 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 167 | 406 | 302 | 615 | 740 | 94 | 281 | 531 | 333 | 219 | 667 | 94 |
| RTOR Reduction (vph) | 0 | 128 | 0 | 0 | 14 | 0 | 0 | 0 | 72 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 167 | 580 | 0 | 615 | 820 | 0 | 281 | 531 | 261 | 219 | 751 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.9 | 16.3 | | 15.2 | 22.6 | | 10.1 | 25.8 | 41.0 | 8.1 | 23.8 | |
| Effective Green, g (s) | 8.9 | 16.3 | | 15.2 | 22.6 | | 10.1 | 25.8 | 41.0 | 8.1 | 23.8 | |
| Actuated g/C Ratio | 0.11 | 0.20 | | 0.19 | 0.28 | | 0.12 | 0.32 | 0.50 | 0.10 | 0.29 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 383 | 966 | | 654 | 1413 | | 435 | 1144 | 885 | 348 | 1034 | |
| v/s Ratio Prot | 0.05 | 0.12 | | c0.18 | c0.16 | | c0.08 | 0.15 | 0.06 | 0.06 | c0.21 | |
| v/s Ratio Perm | | | | | | | | | 0.11 | | | |
| v/c Ratio | 0.44 | 0.60 | | 0.94 | 0.58 | | 0.65 | 0.46 | 0.29 | 0.63 | 0.73 | |
| Uniform Delay, d1 | 33.9 | 29.6 | | 32.7 | 25.3 | | 33.9 | 22.3 | 11.8 | 35.2 | 25.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 1.1 | | 21.7 | 0.6 | | 3.3 | 0.3 | 0.2 | 3.5 | 2.6 | |
| Delay (s) | 34.7 | 30.6 | | 54.3 | 25.9 | | 37.2 | 22.6 | 12.0 | 38.8 | 28.4 | |
| Level of Service | C | C | | D | C | | D | C | B | D | C | |
| Approach Delay (s) | | 31.4 | | | 38.0 | | | 23.1 | | | 30.7 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 81.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

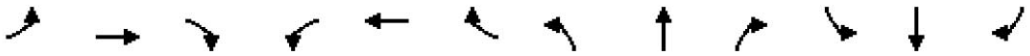
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 640 | 30 | 70 | 1030 | 10 | 40 | 20 | 30 | 10 | 60 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.95 | | | 0.92 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5146 | | 1805 | 5178 | | | 1766 | | | 1723 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5146 | | 1805 | 5178 | | | 1766 | | | 1723 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 106 | 681 | 32 | 74 | 1096 | 11 | 43 | 21 | 32 | 11 | 64 | 117 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 19 | 0 | 0 | 57 | 0 |
| Lane Group Flow (vph) | 106 | 710 | 0 | 74 | 1106 | 0 | 0 | 77 | 0 | 0 | 135 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.3 | 25.9 | | 6.4 | 25.0 | | | 6.8 | | | 10.6 | |
| Effective Green, g (s) | 7.3 | 25.9 | | 6.4 | 25.0 | | | 6.8 | | | 10.6 | |
| Actuated g/C Ratio | 0.11 | 0.39 | | 0.10 | 0.38 | | | 0.10 | | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 201 | 2029 | | 176 | 1970 | | | 183 | | | 278 | |
| v/s Ratio Prot | c0.06 | 0.14 | | 0.04 | c0.21 | | | c0.04 | | | c0.08 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.53 | 0.35 | | 0.42 | 0.56 | | | 0.42 | | | 0.49 | |
| Uniform Delay, d1 | 27.6 | 14.0 | | 27.9 | 16.0 | | | 27.6 | | | 25.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 2.5 | 0.1 | | 1.6 | 0.4 | | | 1.6 | | | 1.3 | |
| Delay (s) | 30.1 | 14.1 | | 29.5 | 16.4 | | | 29.2 | | | 26.4 | |
| Level of Service | C | B | | C | B | | | C | | | C | |
| Approach Delay (s) | | 16.2 | | | 17.2 | | | 29.2 | | | 26.4 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 65.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 57.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

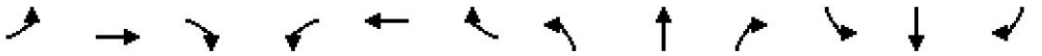
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 640 | 20 | 20 | 1080 | 0 | 20 | 10 | 20 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5161 | | 1805 | 5187 | | 1805 | 1900 | 1610 | 1805 | 1746 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5161 | | 1805 | 5187 | | 1805 | 1900 | 1610 | 1805 | 1746 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 22 | 688 | 22 | 22 | 1161 | 0 | 22 | 11 | 22 | 11 | 11 | 11 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 22 | 708 | 0 | 22 | 1161 | 0 | 22 | 11 | 2 | 11 | 11 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.8 | 25.2 | | 2.5 | 26.9 | | 0.8 | 0.8 | 3.3 | 0.8 | 0.8 | |
| Effective Green, g (s) | 0.8 | 25.2 | | 2.5 | 26.9 | | 0.8 | 0.8 | 3.3 | 0.8 | 0.8 | |
| Actuated g/C Ratio | 0.02 | 0.56 | | 0.06 | 0.59 | | 0.02 | 0.02 | 0.07 | 0.02 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 32 | 2871 | | 100 | 3080 | | 32 | 34 | 259 | 32 | 31 | |
| v/s Ratio Prot | c0.01 | 0.14 | | 0.01 | c0.22 | | c0.01 | 0.01 | 0.00 | 0.01 | c0.01 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | |
| v/c Ratio | 0.69 | 0.25 | | 0.22 | 0.38 | | 0.69 | 0.32 | 0.01 | 0.34 | 0.36 | |
| Uniform Delay, d1 | 22.1 | 5.2 | | 20.5 | 4.8 | | 22.1 | 22.0 | 19.5 | 22.0 | 22.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 47.1 | 0.0 | | 1.1 | 0.1 | | 47.1 | 5.5 | 0.0 | 6.3 | 7.0 | |
| Delay (s) | 69.2 | 5.2 | | 21.6 | 4.9 | | 69.2 | 27.5 | 19.5 | 28.3 | 29.0 | |
| Level of Service | E | A | | C | A | | E | C | B | C | C | |
| Approach Delay (s) | | 7.1 | | | 5.2 | | | 41.0 | | | 28.8 | |
| Approach LOS | | A | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 45.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 39.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

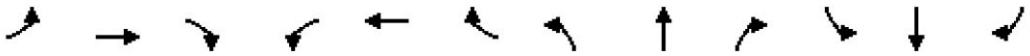
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 120 | 60 | 220 | 90 | 150 | 30 | 610 | 170 | 130 | 500 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1798 | | 1805 | 1900 | 1587 | 1805 | 3478 | | 1805 | 1900 | 1555 |
| Flt Permitted | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1798 | | 1805 | 1900 | 1587 | 1805 | 3478 | | 1805 | 1900 | 1555 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 32 | 126 | 63 | 232 | 95 | 158 | 32 | 642 | 179 | 137 | 526 | 32 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 0 | 130 | 0 | 17 | 0 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 0 | 208 | 0 | 232 | 95 | 28 | 32 | 804 | 0 | 137 | 526 | 17 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | 19.0 | | 21.3 | 21.3 | 21.3 | 5.2 | 49.2 | | 14.5 | 58.5 | 58.5 |
| Effective Green, g (s) | | 19.0 | | 21.3 | 21.3 | 21.3 | 5.2 | 49.2 | | 14.5 | 58.5 | 58.5 |
| Actuated g/C Ratio | | 0.16 | | 0.18 | 0.18 | 0.18 | 0.04 | 0.41 | | 0.12 | 0.49 | 0.49 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 285 | | 320 | 337 | 282 | 78 | 1426 | | 218 | 926 | 758 |
| v/s Ratio Prot | | c0.12 | | c0.13 | 0.05 | | 0.02 | 0.23 | | c0.08 | c0.28 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | 0.01 |
| v/c Ratio | | 0.73 | | 0.72 | 0.28 | 0.10 | 0.41 | 0.56 | | 0.63 | 0.57 | 0.02 |
| Uniform Delay, d1 | | 48.0 | | 46.6 | 42.7 | 41.3 | 55.9 | 27.2 | | 50.2 | 21.8 | 15.9 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.90 | 0.85 | 1.05 |
| Incremental Delay, d2 | | 9.0 | | 7.9 | 0.5 | 0.2 | 3.5 | 1.6 | | 5.2 | 2.4 | 0.1 |
| Delay (s) | | 57.0 | | 54.5 | 43.2 | 41.5 | 59.4 | 28.8 | | 50.3 | 20.9 | 16.7 |
| Level of Service | | E | | D | D | D | E | C | | D | C | B |
| Approach Delay (s) | | 57.0 | | | 48.0 | | | 29.9 | | | 26.5 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

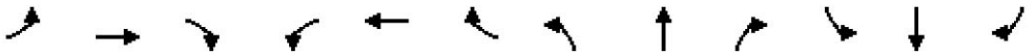
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 70 | 170 | 70 | 60 | 60 | 120 | 700 | 40 | 100 | 780 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.89 | | 1.00 | 0.93 | | 1.00 | 0.99 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3191 | | 1805 | 3313 | | 1805 | 3578 | | 1805 | 3475 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3191 | | 1805 | 3313 | | 1805 | 3578 | | 1805 | 3475 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 161 | 75 | 183 | 75 | 65 | 65 | 129 | 753 | 43 | 108 | 839 | 247 |
| RTOR Reduction (vph) | 0 | 154 | 0 | 0 | 57 | 0 | 0 | 4 | 0 | 0 | 26 | 0 |
| Lane Group Flow (vph) | 161 | 104 | 0 | 75 | 73 | 0 | 129 | 792 | 0 | 108 | 1060 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 9.0 | 11.3 | | 6.5 | 8.8 | | 8.0 | 28.5 | | 7.8 | 28.3 | |
| Effective Green, g (s) | 9.0 | 11.3 | | 6.5 | 8.8 | | 8.0 | 28.5 | | 7.8 | 28.3 | |
| Actuated g/C Ratio | 0.13 | 0.16 | | 0.09 | 0.13 | | 0.11 | 0.41 | | 0.11 | 0.40 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 232 | 514 | | 167 | 416 | | 206 | 1455 | | 201 | 1403 | |
| v/s Ratio Prot | c0.09 | c0.03 | | 0.04 | 0.02 | | c0.07 | 0.22 | | 0.06 | c0.31 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.69 | 0.20 | | 0.45 | 0.18 | | 0.63 | 0.54 | | 0.54 | 0.76 | |
| Uniform Delay, d1 | 29.2 | 25.5 | | 30.1 | 27.4 | | 29.6 | 15.9 | | 29.4 | 17.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.7 | 0.2 | | 1.9 | 0.2 | | 5.8 | 0.4 | | 2.8 | 2.4 | |
| Delay (s) | 37.9 | 25.7 | | 32.0 | 27.6 | | 35.5 | 16.3 | | 32.2 | 20.3 | |
| Level of Service | D | C | | C | C | | D | B | | C | C | |
| Approach Delay (s) | | 30.4 | | | 29.2 | | | 18.9 | | | 21.4 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 70.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

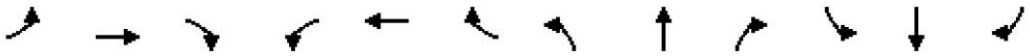
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 70 | 80 | 20 | 40 | 20 | 70 | 280 | 20 | 20 | 330 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3296 | | 1805 | 3432 | | 1805 | 3610 | 1615 | 1805 | 3495 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3296 | | 1805 | 3432 | | 1805 | 3610 | 1615 | 1805 | 3495 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 128 | 74 | 85 | 21 | 43 | 21 | 74 | 298 | 21 | 21 | 351 | 85 |
| RTOR Reduction (vph) | 0 | 71 | 0 | 0 | 19 | 0 | 0 | 0 | 11 | 0 | 21 | 0 |
| Lane Group Flow (vph) | 128 | 88 | 0 | 21 | 45 | 0 | 74 | 298 | 10 | 21 | 415 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.6 | 7.7 | | 2.2 | 4.3 | | 3.4 | 19.3 | 21.5 | 1.1 | 17.0 | |
| Effective Green, g (s) | 5.6 | 7.7 | | 2.2 | 4.3 | | 3.4 | 19.3 | 21.5 | 1.1 | 17.0 | |
| Actuated g/C Ratio | 0.12 | 0.17 | | 0.05 | 0.09 | | 0.07 | 0.42 | 0.46 | 0.02 | 0.37 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 424 | 548 | | 86 | 319 | | 133 | 1505 | 889 | 43 | 1283 | |
| v/s Ratio Prot | c0.04 | c0.03 | | 0.01 | 0.01 | | c0.04 | 0.08 | 0.00 | 0.01 | c0.12 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.30 | 0.16 | | 0.24 | 0.14 | | 0.56 | 0.20 | 0.01 | 0.49 | 0.32 | |
| Uniform Delay, d1 | 18.6 | 16.5 | | 21.2 | 19.3 | | 20.7 | 8.6 | 6.7 | 22.3 | 10.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | 0.1 | | 1.5 | 0.2 | | 5.0 | 0.1 | 0.0 | 8.5 | 0.1 | |
| Delay (s) | 19.0 | 16.7 | | 22.7 | 19.5 | | 25.7 | 8.6 | 6.7 | 30.8 | 10.7 | |
| Level of Service | B | B | | C | B | | C | A | A | C | B | |
| Approach Delay (s) | | 17.7 | | | 20.3 | | | 11.8 | | | 11.6 | |
| Approach LOS | | B | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.31 | | |
| Actuated Cycle Length (s) | 46.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 46.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

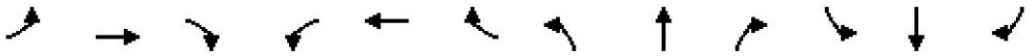
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 500 | 130 | 20 | 520 | 50 | 120 | 190 | 10 | 40 | 180 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1588 | 1805 | 3610 | 1589 | 3502 | 1885 | | 1805 | 3397 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1588 | 1805 | 3610 | 1589 | 3502 | 1885 | | 1805 | 3397 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 133 | 510 | 133 | 20 | 531 | 51 | 122 | 194 | 10 | 41 | 184 | 102 |
| RTOR Reduction (vph) | 0 | 0 | 42 | 0 | 0 | 21 | 0 | 2 | 0 | 0 | 86 | 0 |
| Lane Group Flow (vph) | 133 | 510 | 91 | 20 | 531 | 30 | 122 | 202 | 0 | 41 | 200 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | |
| Actuated Green, G (s) | 14.1 | 73.9 | 81.7 | 3.3 | 63.1 | 70.2 | 7.8 | 19.7 | | 7.1 | 19.0 | |
| Effective Green, g (s) | 14.1 | 73.9 | 81.7 | 3.3 | 63.1 | 70.2 | 7.8 | 19.7 | | 7.1 | 19.0 | |
| Actuated g/C Ratio | 0.12 | 0.62 | 0.68 | 0.03 | 0.53 | 0.59 | 0.06 | 0.16 | | 0.06 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 212 | 2223 | 1134 | 50 | 1898 | 930 | 228 | 309 | | 107 | 538 | |
| v/s Ratio Prot | c0.07 | 0.14 | 0.01 | 0.01 | c0.15 | 0.00 | 0.03 | c0.11 | | 0.02 | c0.06 | |
| v/s Ratio Perm | | | 0.05 | | | 0.02 | | | | | | |
| v/c Ratio | 0.63 | 0.23 | 0.08 | 0.40 | 0.28 | 0.03 | 0.54 | 0.65 | | 0.38 | 0.37 | |
| Uniform Delay, d1 | 50.4 | 10.3 | 6.5 | 57.4 | 15.8 | 10.5 | 54.3 | 47.0 | | 54.3 | 45.2 | |
| Progression Factor | 1.02 | 0.88 | 1.34 | 1.00 | 1.00 | 1.00 | 0.76 | 0.68 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.2 | 0.2 | 0.0 | 5.2 | 0.4 | 0.0 | 2.4 | 4.9 | | 2.3 | 0.4 | |
| Delay (s) | 56.5 | 9.3 | 8.7 | 62.6 | 16.2 | 10.5 | 43.9 | 36.9 | | 56.6 | 45.6 | |
| Level of Service | E | A | A | E | B | B | D | D | | E | D | |
| Approach Delay (s) | | 17.3 | | | 17.2 | | | 39.5 | | | 47.0 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

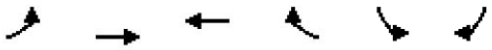
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 350 | 190 | 110 | 340 | 10 | 160 | 290 | 80 | 20 | 260 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1589 | 1805 | 1900 | 1577 | 1805 | 1900 | 1586 | 1805 | 1846 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1589 | 1805 | 1900 | 1577 | 1805 | 1900 | 1586 | 1805 | 1846 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 52 | 365 | 198 | 115 | 354 | 10 | 167 | 302 | 83 | 21 | 271 | 52 |
| RTOR Reduction (vph) | 0 | 0 | 74 | 0 | 0 | 2 | 0 | 0 | 45 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 52 | 365 | 124 | 115 | 354 | 8 | 167 | 302 | 38 | 21 | 317 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 4.1 | 23.2 | 23.2 | 12.9 | 32.0 | 39.5 | 13.4 | 26.8 | 39.7 | 7.5 | 20.9 | |
| Effective Green, g (s) | 4.1 | 23.2 | 23.2 | 12.9 | 32.0 | 39.5 | 13.4 | 26.8 | 39.7 | 7.5 | 20.9 | |
| Actuated g/C Ratio | 0.05 | 0.27 | 0.27 | 0.15 | 0.37 | 0.46 | 0.16 | 0.31 | 0.46 | 0.09 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 86 | 510 | 427 | 269 | 704 | 794 | 280 | 589 | 729 | 157 | 447 | |
| v/s Ratio Prot | 0.03 | c0.19 | | 0.06 | c0.19 | 0.00 | c0.09 | 0.16 | 0.01 | 0.01 | c0.17 | |
| v/s Ratio Perm | | | 0.08 | | | 0.00 | | | 0.02 | | | |
| v/c Ratio | 0.60 | 0.72 | 0.29 | 0.43 | 0.50 | 0.01 | 0.60 | 0.51 | 0.05 | 0.13 | 0.71 | |
| Uniform Delay, d1 | 40.4 | 28.6 | 25.1 | 33.4 | 21.0 | 12.8 | 34.0 | 24.4 | 12.9 | 36.4 | 30.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 11.4 | 4.7 | 0.4 | 1.1 | 0.6 | 0.0 | 3.4 | 0.8 | 0.0 | 0.4 | 5.1 | |
| Delay (s) | 51.8 | 33.4 | 25.5 | 34.5 | 21.6 | 12.8 | 37.4 | 25.2 | 13.0 | 36.8 | 35.1 | |
| Level of Service | D | C | C | C | C | B | D | C | B | D | D | |
| Approach Delay (s) | | 32.4 | | | 24.5 | | | 27.0 | | | 35.2 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 86.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

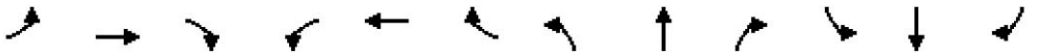
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 80 | 400 | 420 | 30 | 40 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 3610 | 1578 | 1805 | 1603 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 3610 | 1578 | 1805 | 1603 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 84 | 421 | 442 | 32 | 42 | 53 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 23 | 0 | 33 |
| Lane Group Flow (vph) | 84 | 421 | 442 | 9 | 42 | 20 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 5.8 | 19.9 | 10.1 | 10.1 | 7.4 | 13.2 |
| Effective Green, g (s) | 5.8 | 19.9 | 10.1 | 10.1 | 7.4 | 13.2 |
| Actuated g/C Ratio | 0.16 | 0.56 | 0.29 | 0.29 | 0.21 | 0.37 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 297 | 1071 | 1033 | 451 | 378 | 781 |
| v/s Ratio Prot | 0.05 | c0.22 | 0.12 | | c0.02 | 0.00 |
| v/s Ratio Perm | | | | 0.01 | | 0.01 |
| v/c Ratio | 0.28 | 0.39 | 0.43 | 0.02 | 0.11 | 0.03 |
| Uniform Delay, d1 | 12.9 | 4.3 | 10.2 | 9.0 | 11.3 | 7.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 0.2 | 0.3 | 0.0 | 0.1 | 0.0 |
| Delay (s) | 13.5 | 4.6 | 10.5 | 9.1 | 11.4 | 7.0 |
| Level of Service | B | A | B | A | B | A |
| Approach Delay (s) | | 6.0 | 10.4 | | 9.0 | |
| Approach LOS | | A | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 35.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 39.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

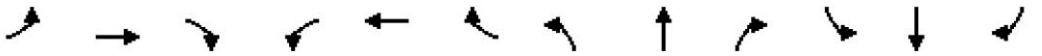
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 260 | 70 | 50 | 280 | 80 | 100 | 320 | 80 | 40 | 200 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1592 | 1805 | 1900 | 1592 | 1805 | 3485 | | 1805 | 3610 | 1576 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1592 | 1805 | 1900 | 1592 | 1805 | 3485 | | 1805 | 3610 | 1576 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 76 | 283 | 76 | 54 | 304 | 87 | 109 | 348 | 87 | 43 | 217 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 53 | 0 | 0 | 63 | 0 | 23 | 0 | 0 | 0 | 35 |
| Lane Group Flow (vph) | 76 | 283 | 23 | 54 | 304 | 24 | 109 | 412 | 0 | 43 | 217 | 8 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.9 | 16.9 | 16.9 | 4.0 | 15.0 | 15.0 | 8.6 | 16.4 | | 2.2 | 10.0 | 10.0 |
| Effective Green, g (s) | 5.9 | 16.9 | 16.9 | 4.0 | 15.0 | 15.0 | 8.6 | 16.4 | | 2.2 | 10.0 | 10.0 |
| Actuated g/C Ratio | 0.11 | 0.30 | 0.30 | 0.07 | 0.27 | 0.27 | 0.15 | 0.30 | | 0.04 | 0.18 | 0.18 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 192 | 579 | 485 | 130 | 514 | 430 | 280 | 1030 | | 72 | 650 | 284 |
| v/s Ratio Prot | c0.04 | 0.15 | | 0.03 | c0.16 | | c0.06 | c0.12 | | 0.02 | 0.06 | |
| v/s Ratio Perm | | | 0.01 | | | 0.01 | | | | | | 0.00 |
| v/c Ratio | 0.40 | 0.49 | 0.05 | 0.42 | 0.59 | 0.05 | 0.39 | 0.40 | | 0.60 | 0.33 | 0.03 |
| Uniform Delay, d1 | 23.1 | 15.8 | 13.6 | 24.6 | 17.6 | 15.0 | 21.1 | 15.6 | | 26.2 | 19.8 | 18.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.3 | 0.7 | 0.0 | 2.1 | 1.8 | 0.1 | 0.9 | 0.3 | | 12.6 | 0.3 | 0.0 |
| Delay (s) | 24.5 | 16.4 | 13.7 | 26.8 | 19.4 | 15.1 | 22.0 | 15.9 | | 38.8 | 20.1 | 18.8 |
| Level of Service | C | B | B | C | B | B | C | B | | D | C | B |
| Approach Delay (s) | | 17.3 | | | 19.5 | | | 17.1 | | | 22.6 | |
| Approach LOS | | B | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 55.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 55.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

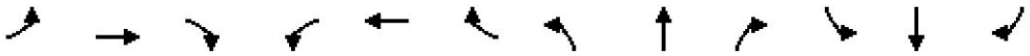
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 520 | 160 | 40 | 510 | 40 | 90 | 190 | 10 | 40 | 260 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3468 | | 1805 | 3566 | | 1805 | 3581 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3468 | | 1805 | 3566 | | 1805 | 3581 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 41 | 536 | 165 | 41 | 526 | 41 | 93 | 196 | 10 | 41 | 268 | 62 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 50 |
| Lane Group Flow (vph) | 41 | 683 | 0 | 41 | 564 | 0 | 93 | 202 | 0 | 41 | 268 | 12 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 7.1 | 62.3 | | 7.1 | 62.3 | | 11.5 | 28.0 | | 6.6 | 23.1 | 23.1 |
| Effective Green, g (s) | 7.1 | 62.3 | | 7.1 | 62.3 | | 11.5 | 28.0 | | 6.6 | 23.1 | 23.1 |
| Actuated g/C Ratio | 0.06 | 0.52 | | 0.06 | 0.52 | | 0.10 | 0.23 | | 0.05 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 107 | 1800 | | 107 | 1851 | | 173 | 836 | | 99 | 366 | 305 |
| v/s Ratio Prot | c0.02 | c0.20 | | 0.02 | 0.16 | | c0.05 | 0.06 | | 0.02 | c0.14 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.38 | 0.38 | | 0.38 | 0.30 | | 0.54 | 0.24 | | 0.41 | 0.73 | 0.04 |
| Uniform Delay, d1 | 54.3 | 17.3 | | 54.3 | 16.5 | | 51.7 | 37.4 | | 54.8 | 45.5 | 39.4 |
| Progression Factor | 1.36 | 0.27 | | 1.31 | 0.56 | | 1.00 | 1.00 | | 1.32 | 0.87 | 0.59 |
| Incremental Delay, d2 | 2.0 | 0.5 | | 2.2 | 0.4 | | 3.2 | 0.2 | | 2.8 | 7.3 | 0.1 |
| Delay (s) | 76.0 | 5.3 | | 73.3 | 9.6 | | 54.9 | 37.5 | | 75.3 | 46.8 | 23.1 |
| Level of Service | E | A | | E | A | | D | D | | E | D | C |
| Approach Delay (s) | | 9.2 | | | 13.9 | | | 42.9 | | | 46.0 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 63.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

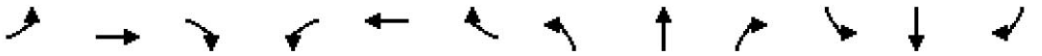
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 290 | 150 | 340 | 460 | 50 | 110 | 480 | 230 | 40 | 440 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1586 | 1805 | 3551 | | 1805 | 3610 | 1567 | 1805 | 3583 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1586 | 1805 | 3551 | | 1805 | 3610 | 1567 | 1805 | 3583 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 315 | 163 | 370 | 500 | 54 | 120 | 522 | 250 | 43 | 478 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 114 | 0 | 6 | 0 | 0 | 0 | 189 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 43 | 315 | 49 | 370 | 548 | 0 | 120 | 522 | 61 | 43 | 497 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.2 | 36.2 | 36.2 | 32.8 | 62.8 | | 13.0 | 29.4 | 29.4 | 5.6 | 22.0 | |
| Effective Green, g (s) | 6.2 | 36.2 | 36.2 | 32.8 | 62.8 | | 13.0 | 29.4 | 29.4 | 5.6 | 22.0 | |
| Actuated g/C Ratio | 0.05 | 0.30 | 0.30 | 0.27 | 0.52 | | 0.11 | 0.24 | 0.24 | 0.05 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 93 | 573 | 478 | 493 | 1858 | | 196 | 884 | 384 | 84 | 657 | |
| v/s Ratio Prot | 0.02 | c0.17 | | c0.20 | 0.15 | | 0.07 | c0.14 | | 0.02 | c0.14 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.04 | | | |
| v/c Ratio | 0.46 | 0.55 | 0.10 | 0.75 | 0.29 | | 0.61 | 0.59 | 0.16 | 0.51 | 0.76 | |
| Uniform Delay, d1 | 55.3 | 35.1 | 30.2 | 39.9 | 16.1 | | 51.1 | 40.0 | 35.6 | 55.9 | 46.5 | |
| Progression Factor | 0.54 | 0.65 | 1.88 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.4 | 3.6 | 0.4 | 6.3 | 0.4 | | 5.6 | 1.1 | 0.2 | 5.2 | 5.0 | |
| Delay (s) | 33.2 | 26.3 | 57.2 | 46.2 | 16.5 | | 56.7 | 41.0 | 35.8 | 61.0 | 51.4 | |
| Level of Service | C | C | E | D | B | | E | D | D | E | D | |
| Approach Delay (s) | | 36.5 | | | 28.4 | | | 41.7 | | | 52.2 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

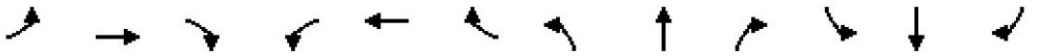
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 260 | 30 | 10 | 360 | 70 | 30 | 20 | 10 | 140 | 40 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1866 | | 1805 | 1849 | | 1805 | 1900 | 1573 | 1805 | 1900 | 1590 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1866 | | 1805 | 1849 | | 1805 | 1900 | 1573 | 1805 | 1900 | 1590 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 151 | 302 | 35 | 12 | 419 | 81 | 35 | 23 | 12 | 163 | 47 | 256 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 7 | 0 | 0 | 0 | 11 | 0 | 0 | 193 |
| Lane Group Flow (vph) | 151 | 333 | 0 | 12 | 493 | 0 | 35 | 23 | 1 | 163 | 47 | 63 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.1 | 32.0 | | 1.2 | 25.1 | | 2.5 | 7.3 | 7.3 | 12.2 | 17.0 | 17.0 |
| Effective Green, g (s) | 8.1 | 32.0 | | 1.2 | 25.1 | | 2.5 | 7.3 | 7.3 | 12.2 | 17.0 | 17.0 |
| Actuated g/C Ratio | 0.12 | 0.47 | | 0.02 | 0.37 | | 0.04 | 0.11 | 0.11 | 0.18 | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 213 | 869 | | 32 | 676 | | 66 | 202 | 167 | 321 | 470 | 393 |
| v/s Ratio Prot | c0.08 | 0.18 | | 0.01 | c0.27 | | c0.02 | c0.01 | | c0.09 | 0.02 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | 0.04 |
| v/c Ratio | 0.71 | 0.38 | | 0.38 | 0.73 | | 0.53 | 0.11 | 0.01 | 0.51 | 0.10 | 0.16 |
| Uniform Delay, d1 | 29.2 | 11.9 | | 33.4 | 18.9 | | 32.5 | 27.8 | 27.5 | 25.5 | 19.9 | 20.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 10.3 | 0.3 | | 7.2 | 3.9 | | 8.0 | 0.3 | 0.0 | 1.3 | 0.1 | 0.2 |
| Delay (s) | 39.5 | 12.2 | | 40.6 | 22.8 | | 40.5 | 28.0 | 27.5 | 26.8 | 20.0 | 20.5 |
| Level of Service | D | B | | D | C | | D | C | C | C | C | C |
| Approach Delay (s) | | 20.6 | | | 23.2 | | | 34.2 | | | 22.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 68.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 57.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

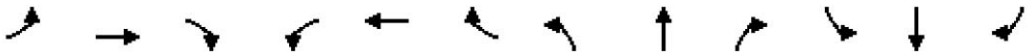
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1050 | 100 | 70 | 900 | 210 | 80 | 280 | 40 | 270 | 370 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5024 | | 3502 | 3535 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5024 | | 3502 | 3535 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 204 | 1129 | 108 | 75 | 968 | 226 | 86 | 301 | 43 | 290 | 398 | 129 |
| RTOR Reduction (vph) | 0 | 0 | 48 | 0 | 25 | 0 | 0 | 12 | 0 | 0 | 0 | 99 |
| Lane Group Flow (vph) | 204 | 1129 | 60 | 75 | 1169 | 0 | 86 | 332 | 0 | 290 | 398 | 30 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 16.1 | 59.5 | 59.5 | 10.8 | 54.2 | | 5.6 | 16.9 | | 16.8 | 28.1 | 28.1 |
| Effective Green, g (s) | 16.1 | 59.5 | 59.5 | 10.8 | 54.2 | | 5.6 | 16.9 | | 16.8 | 28.1 | 28.1 |
| Actuated g/C Ratio | 0.13 | 0.50 | 0.50 | 0.09 | 0.45 | | 0.05 | 0.14 | | 0.14 | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 242 | 1790 | 786 | 162 | 2269 | | 163 | 498 | | 490 | 845 | 372 |
| v/s Ratio Prot | c0.11 | c0.31 | | 0.04 | c0.23 | | 0.02 | c0.09 | | c0.08 | 0.11 | |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | 0.02 |
| v/c Ratio | 0.84 | 0.63 | 0.08 | 0.46 | 0.52 | | 0.53 | 0.67 | | 0.59 | 0.47 | 0.08 |
| Uniform Delay, d1 | 50.7 | 22.2 | 15.8 | 51.8 | 23.5 | | 55.9 | 48.9 | | 48.4 | 39.6 | 35.9 |
| Progression Factor | 0.68 | 0.68 | 0.96 | 0.72 | 0.46 | | 0.87 | 0.78 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 21.2 | 1.6 | 0.2 | 1.9 | 0.8 | | 3.0 | 3.3 | | 1.9 | 0.4 | 0.1 |
| Delay (s) | 55.8 | 16.8 | 15.4 | 39.1 | 11.5 | | 51.7 | 41.2 | | 50.3 | 40.0 | 36.0 |
| Level of Service | E | B | B | D | B | | D | D | | D | D | D |
| Approach Delay (s) | | 22.2 | | | 13.1 | | | 43.3 | | | 43.0 | |
| Approach LOS | | C | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

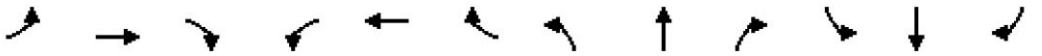
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 1140 | 150 | 120 | 1030 | 110 | 150 | 160 | 60 | 120 | 130 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5103 | | 1805 | 3447 | | 1805 | 3470 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5103 | | 1805 | 3447 | | 1805 | 3470 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 74 | 1200 | 158 | 126 | 1084 | 116 | 158 | 168 | 63 | 126 | 137 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 66 | 0 | 8 | 0 | 0 | 41 | 0 | 0 | 34 | 0 |
| Lane Group Flow (vph) | 74 | 1200 | 92 | 126 | 1192 | 0 | 158 | 190 | 0 | 126 | 145 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 8.0 | 59.3 | 59.3 | 15.3 | 66.6 | | 19.1 | 20.4 | | 9.0 | 10.3 | |
| Effective Green, g (s) | 8.0 | 59.3 | 59.3 | 15.3 | 66.6 | | 19.1 | 20.4 | | 9.0 | 10.3 | |
| Actuated g/C Ratio | 0.07 | 0.49 | 0.49 | 0.13 | 0.55 | | 0.16 | 0.17 | | 0.08 | 0.09 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 120 | 1784 | 783 | 230 | 2832 | | 287 | 586 | | 135 | 298 | |
| v/s Ratio Prot | 0.04 | c0.33 | | c0.07 | 0.23 | | c0.09 | 0.06 | | c0.07 | 0.04 | |
| v/s Ratio Perm | | | 0.06 | | | | | | | | | |
| v/c Ratio | 0.62 | 0.67 | 0.12 | 0.55 | 0.42 | | 0.55 | 0.32 | | 0.93 | 0.49 | |
| Uniform Delay, d1 | 54.5 | 23.0 | 16.3 | 49.1 | 15.5 | | 46.5 | 43.7 | | 55.2 | 52.3 | |
| Progression Factor | 0.94 | 0.93 | 1.07 | 0.91 | 0.54 | | 0.88 | 0.86 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.3 | 1.6 | 0.2 | 2.4 | 0.4 | | 2.3 | 0.3 | | 57.1 | 1.3 | |
| Delay (s) | 58.5 | 22.9 | 17.6 | 47.0 | 8.7 | | 43.2 | 38.0 | | 112.3 | 53.6 | |
| Level of Service | E | C | B | D | A | | D | D | | F | D | |
| Approach Delay (s) | | 24.2 | | | 12.4 | | | 40.1 | | | 77.8 | |
| Approach LOS | | C | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 69.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

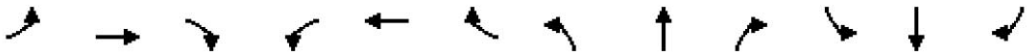
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 910 | 110 | 50 | 880 | 170 | 150 | 300 | 60 | 220 | 380 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1593 | 1805 | 5047 | | 1805 | 3510 | | 1805 | 3610 | 1599 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1593 | 1805 | 5047 | | 1805 | 3510 | | 1805 | 3610 | 1599 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 96 | 968 | 117 | 53 | 936 | 181 | 160 | 319 | 64 | 234 | 404 | 181 |
| RTOR Reduction (vph) | 0 | 0 | 40 | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 0 | 75 |
| Lane Group Flow (vph) | 96 | 968 | 77 | 53 | 1099 | 0 | 160 | 365 | 0 | 234 | 404 | 106 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 12.1 | 61.2 | 79.3 | 5.6 | 54.7 | | 18.1 | 18.6 | | 18.6 | 19.1 | 31.2 |
| Effective Green, g (s) | 12.1 | 61.2 | 79.3 | 5.6 | 54.7 | | 18.1 | 18.6 | | 18.6 | 19.1 | 31.2 |
| Actuated g/C Ratio | 0.10 | 0.51 | 0.66 | 0.05 | 0.46 | | 0.15 | 0.16 | | 0.16 | 0.16 | 0.26 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 182 | 2645 | 1106 | 84 | 2301 | | 272 | 544 | | 280 | 575 | 416 |
| v/s Ratio Prot | c0.05 | 0.19 | 0.01 | 0.03 | c0.22 | | 0.09 | c0.10 | | c0.13 | 0.11 | 0.03 |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | 0.04 |
| v/c Ratio | 0.53 | 0.37 | 0.07 | 0.63 | 0.48 | | 0.59 | 0.67 | | 0.84 | 0.70 | 0.26 |
| Uniform Delay, d1 | 51.2 | 17.7 | 7.2 | 56.2 | 22.7 | | 47.5 | 47.8 | | 49.2 | 47.8 | 35.2 |
| Progression Factor | 1.17 | 0.35 | 0.20 | 0.72 | 0.51 | | 0.58 | 0.55 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.0 | 0.3 | 0.0 | 12.5 | 0.6 | | 3.0 | 3.1 | | 18.9 | 3.9 | 0.3 |
| Delay (s) | 61.9 | 6.5 | 1.5 | 53.2 | 12.3 | | 30.6 | 29.1 | | 68.2 | 51.6 | 35.5 |
| Level of Service | E | A | A | D | B | | C | C | | E | D | D |
| Approach Delay (s) | | 10.5 | | | 14.1 | | | 29.6 | | | 52.8 | |
| Approach LOS | | B | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

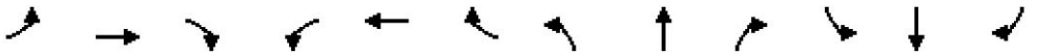
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 820 | 100 | 60 | 870 | 110 | 210 | 270 | 100 | 200 | 340 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5092 | | 1805 | 5089 | | 1805 | 3449 | | 1805 | 3508 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5092 | | 1805 | 5089 | | 1805 | 3449 | | 1805 | 3508 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 99 | 901 | 110 | 66 | 956 | 121 | 231 | 297 | 110 | 220 | 374 | 77 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 10 | 0 | 0 | 42 | 0 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 99 | 1002 | 0 | 66 | 1067 | 0 | 231 | 365 | 0 | 220 | 432 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 12.1 | 55.1 | | 7.2 | 50.2 | | 21.1 | 18.3 | | 23.4 | 20.6 | |
| Effective Green, g (s) | 12.1 | 55.1 | | 7.2 | 50.2 | | 21.1 | 18.3 | | 23.4 | 20.6 | |
| Actuated g/C Ratio | 0.10 | 0.46 | | 0.06 | 0.42 | | 0.18 | 0.15 | | 0.19 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 182 | 2338 | | 108 | 2129 | | 317 | 526 | | 352 | 602 | |
| v/s Ratio Prot | c0.05 | 0.20 | | 0.04 | c0.21 | | c0.13 | 0.11 | | 0.12 | c0.12 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.54 | 0.43 | | 0.61 | 0.50 | | 0.73 | 0.69 | | 0.62 | 0.72 | |
| Uniform Delay, d1 | 51.3 | 21.8 | | 55.0 | 25.7 | | 46.7 | 48.2 | | 44.3 | 47.0 | |
| Progression Factor | 0.79 | 1.06 | | 0.53 | 0.38 | | 0.78 | 0.66 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.0 | 0.5 | | 8.4 | 0.7 | | 8.1 | 3.9 | | 3.4 | 4.1 | |
| Delay (s) | 43.8 | 23.7 | | 37.6 | 10.4 | | 44.5 | 35.8 | | 47.7 | 51.0 | |
| Level of Service | D | C | | D | B | | D | D | | D | D | |
| Approach Delay (s) | | 25.5 | | | 12.0 | | | 39.0 | | | 49.9 | |
| Approach LOS | | C | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

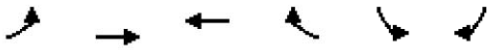
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 270 | 590 | 210 | 140 | 610 | 110 | 290 | 470 | 70 | 200 | 660 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5055 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5055 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 278 | 608 | 216 | 144 | 629 | 113 | 299 | 485 | 72 | 206 | 680 | 196 |
| RTOR Reduction (vph) | 0 | 0 | 144 | 0 | 21 | 0 | 0 | 0 | 59 | 0 | 0 | 147 |
| Lane Group Flow (vph) | 278 | 608 | 72 | 144 | 721 | 0 | 299 | 485 | 13 | 206 | 680 | 49 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 15.0 | 40.0 | 40.0 | 10.0 | 35.0 | | 24.0 | 22.3 | 22.3 | 31.7 | 30.0 | 30.0 |
| Effective Green, g (s) | 15.0 | 40.0 | 40.0 | 10.0 | 35.0 | | 24.0 | 22.3 | 22.3 | 31.7 | 30.0 | 30.0 |
| Actuated g/C Ratio | 0.12 | 0.33 | 0.33 | 0.08 | 0.29 | | 0.20 | 0.19 | 0.19 | 0.26 | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 226 | 1203 | 529 | 150 | 1474 | | 361 | 671 | 295 | 477 | 903 | 397 |
| v/s Ratio Prot | c0.15 | 0.17 | | c0.08 | c0.14 | | c0.17 | 0.13 | | 0.11 | c0.19 | |
| v/s Ratio Perm | | | 0.05 | | | | | | 0.01 | | | 0.03 |
| v/c Ratio | 1.23 | 0.51 | 0.14 | 0.96 | 0.49 | | 0.83 | 0.72 | 0.05 | 0.43 | 0.75 | 0.12 |
| Uniform Delay, d1 | 52.5 | 32.1 | 27.9 | 54.8 | 35.1 | | 46.0 | 45.9 | 40.1 | 36.7 | 41.6 | 34.8 |
| Progression Factor | 0.71 | 0.67 | 1.27 | 0.95 | 0.88 | | 0.85 | 0.38 | 0.04 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 133.6 | 1.4 | 0.5 | 59.9 | 1.1 | | 12.9 | 3.4 | 0.1 | 0.6 | 3.6 | 0.1 |
| Delay (s) | 171.0 | 22.9 | 35.9 | 111.8 | 32.0 | | 52.2 | 20.7 | 1.8 | 37.3 | 45.2 | 35.0 |
| Level of Service | F | C | D | F | C | | D | C | A | D | D | C |
| Approach Delay (s) | | 62.8 | | | 45.0 | | | 30.1 | | | 41.8 | |
| Approach LOS | | E | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 92.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

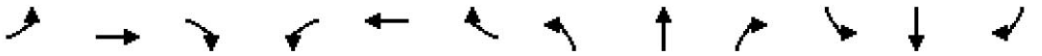
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 90 | 1460 | 1110 | 190 | 290 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1591 | 3502 | 1600 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1591 | 3502 | 1600 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 92 | 1490 | 1133 | 194 | 296 | 112 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 44 | 0 | 38 |
| Lane Group Flow (vph) | 92 | 1490 | 1133 | 150 | 296 | 74 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 15.0 | 96.5 | 77.5 | 93.0 | 15.5 | 30.5 |
| Effective Green, g (s) | 15.0 | 96.5 | 77.5 | 93.0 | 15.5 | 30.5 |
| Actuated g/C Ratio | 0.12 | 0.80 | 0.65 | 0.78 | 0.13 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 226 | 2903 | 2331 | 1286 | 452 | 460 |
| v/s Ratio Prot | 0.05 | c0.41 | 0.31 | 0.02 | c0.08 | 0.02 |
| v/s Ratio Perm | | | | 0.08 | | 0.03 |
| v/c Ratio | 0.41 | 0.51 | 0.49 | 0.12 | 0.65 | 0.16 |
| Uniform Delay, d1 | 48.4 | 3.9 | 11.0 | 3.3 | 49.7 | 34.8 |
| Progression Factor | 0.94 | 1.99 | 1.12 | 5.46 | 0.56 | 0.34 |
| Incremental Delay, d2 | 0.9 | 0.5 | 0.7 | 0.0 | 3.3 | 0.2 |
| Delay (s) | 46.4 | 8.3 | 13.0 | 18.3 | 31.2 | 12.1 |
| Level of Service | D | A | B | B | C | B |
| Approach Delay (s) | | 10.5 | 13.8 | | 26.0 | |
| Approach LOS | | B | B | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 58.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

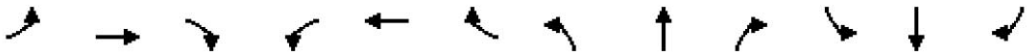
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 1300 | 340 | 20 | 930 | 60 | 250 | 70 | 20 | 120 | 80 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5135 | | 3502 | 3476 | | 1805 | 3610 | 1603 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5135 | | 3502 | 3476 | | 1805 | 3610 | 1603 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 73 | 1354 | 354 | 21 | 969 | 62 | 260 | 73 | 21 | 125 | 83 | 94 |
| RTOR Reduction (vph) | 0 | 0 | 84 | 0 | 4 | 0 | 0 | 20 | 0 | 0 | 0 | 28 |
| Lane Group Flow (vph) | 73 | 1354 | 270 | 21 | 1027 | 0 | 260 | 74 | 0 | 125 | 83 | 66 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.5 | 78.2 | 78.2 | 2.8 | 69.5 | | 14.6 | 8.2 | | 14.8 | 8.4 | 19.9 |
| Effective Green, g (s) | 11.5 | 78.2 | 78.2 | 2.8 | 69.5 | | 14.6 | 8.2 | | 14.8 | 8.4 | 19.9 |
| Actuated g/C Ratio | 0.10 | 0.65 | 0.65 | 0.02 | 0.58 | | 0.12 | 0.07 | | 0.12 | 0.07 | 0.17 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 173 | 2353 | 1034 | 42 | 2974 | | 426 | 238 | | 223 | 253 | 319 |
| v/s Ratio Prot | c0.04 | c0.38 | | 0.01 | 0.20 | | c0.07 | 0.02 | | 0.07 | c0.02 | 0.02 |
| v/s Ratio Perm | | | 0.17 | | | | | | | | | 0.02 |
| v/c Ratio | 0.42 | 0.58 | 0.26 | 0.50 | 0.35 | | 0.61 | 0.31 | | 0.56 | 0.33 | 0.21 |
| Uniform Delay, d1 | 51.1 | 11.6 | 8.8 | 57.9 | 13.3 | | 50.0 | 53.2 | | 49.5 | 53.1 | 43.2 |
| Progression Factor | 0.91 | 0.55 | 0.24 | 0.96 | 1.17 | | 1.00 | 1.00 | | 0.73 | 0.95 | 0.99 |
| Incremental Delay, d2 | 1.5 | 0.9 | 0.5 | 7.9 | 0.3 | | 2.6 | 0.8 | | 3.1 | 0.7 | 0.3 |
| Delay (s) | 48.1 | 7.3 | 2.6 | 63.3 | 15.8 | | 52.6 | 54.0 | | 39.1 | 51.3 | 43.2 |
| Level of Service | D | A | A | E | B | | D | D | | D | D | D |
| Approach Delay (s) | | 8.1 | | | 16.8 | | | 53.0 | | | 43.7 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 880 | 550 | 20 | 530 | 90 | 410 | 350 | 20 | 90 | 410 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1595 | 1805 | 3522 | | 3502 | 3577 | | 1805 | 3557 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1595 | 1805 | 3522 | | 3502 | 3577 | | 1805 | 3557 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 87 | 957 | 598 | 22 | 576 | 98 | 446 | 380 | 22 | 98 | 446 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 74 | 0 | 10 | 0 | 0 | 4 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 87 | 957 | 524 | 22 | 664 | 0 | 446 | 398 | 0 | 98 | 482 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 10.6 | 54.9 | 77.4 | 4.3 | 48.6 | | 22.5 | 33.3 | | 11.5 | 22.3 | |
| Effective Green, g (s) | 10.6 | 54.9 | 77.4 | 4.3 | 48.6 | | 22.5 | 33.3 | | 11.5 | 22.3 | |
| Actuated g/C Ratio | 0.09 | 0.46 | 0.65 | 0.04 | 0.41 | | 0.19 | 0.28 | | 0.10 | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 159 | 1652 | 1029 | 65 | 1426 | | 657 | 993 | | 173 | 661 | |
| v/s Ratio Prot | 0.05 | c0.27 | 0.10 | 0.01 | c0.19 | | c0.13 | 0.11 | | 0.05 | c0.14 | |
| v/s Ratio Perm | | | 0.23 | | | | | | | | | |
| v/c Ratio | 0.55 | 0.58 | 0.51 | 0.34 | 0.47 | | 0.68 | 0.40 | | 0.57 | 0.73 | |
| Uniform Delay, d1 | 52.4 | 24.0 | 11.3 | 56.5 | 26.2 | | 45.4 | 35.2 | | 51.9 | 46.0 | |
| Progression Factor | 0.79 | 0.58 | 0.94 | 1.01 | 0.59 | | 1.00 | 1.00 | | 0.33 | 0.34 | |
| Incremental Delay, d2 | 3.3 | 1.3 | 0.3 | 3.0 | 1.1 | | 2.8 | 0.3 | | 4.1 | 3.9 | |
| Delay (s) | 44.7 | 15.3 | 10.9 | 59.9 | 16.5 | | 48.2 | 35.5 | | 21.2 | 19.7 | |
| Level of Service | D | B | B | E | B | | D | D | | C | B | |
| Approach Delay (s) | | 15.2 | | | 17.9 | | | 42.2 | | | 20.0 | |
| Approach LOS | | B | | | B | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

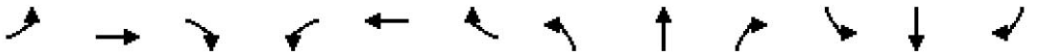
c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis
## 64: Cactus Ave & Indian St

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 690 | 110 | 30 | 540 | 50 | 60 | 230 | 30 | 60 | 350 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3527 | | 1805 | 3558 | | 1805 | 3541 | | 1805 | 3563 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3527 | | 1805 | 3558 | | 1805 | 3541 | | 1805 | 3563 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 61 | 697 | 111 | 30 | 545 | 51 | 61 | 232 | 30 | 61 | 354 | 30 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 4 | 0 | 0 | 10 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 61 | 801 | 0 | 30 | 592 | 0 | 61 | 252 | 0 | 61 | 378 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 8.2 | 72.1 | | 5.4 | 69.3 | | 8.3 | 14.6 | | 11.9 | 18.2 | |
| Effective Green, g (s) | 8.2 | 72.1 | | 5.4 | 69.3 | | 8.3 | 14.6 | | 11.9 | 18.2 | |
| Actuated g/C Ratio | 0.07 | 0.60 | | 0.05 | 0.58 | | 0.07 | 0.12 | | 0.10 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 123 | 2119 | | 81 | 2055 | | 125 | 431 | | 179 | 540 | |
| v/s Ratio Prot | c0.03 | c0.23 | | 0.02 | c0.17 | | c0.03 | 0.07 | | c0.03 | c0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.50 | 0.38 | | 0.37 | 0.29 | | 0.49 | 0.59 | | 0.34 | 0.70 | |
| Uniform Delay, d1 | 53.9 | 12.4 | | 55.6 | 12.8 | | 53.8 | 49.8 | | 50.4 | 48.3 | |
| Progression Factor | 1.06 | 0.31 | | 0.88 | 1.12 | | 1.00 | 1.00 | | 0.64 | 0.34 | |
| Incremental Delay, d2 | 2.7 | 0.4 | | 2.7 | 0.3 | | 3.0 | 2.0 | | 1.1 | 3.8 | |
| Delay (s) | 59.6 | 4.3 | | 51.4 | 14.7 | | 56.8 | 51.9 | | 33.1 | 20.3 | |
| Level of Service | E | A | | D | B | | E | D | | C | C | |
| Approach Delay (s) | | 8.2 | | | 16.5 | | | 52.8 | | | 22.1 | |
| Approach LOS | | A | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 61.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

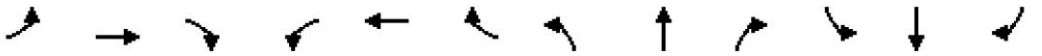
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 580 | 160 | 60 | 470 | 110 | 110 | 610 | 50 | 120 | 690 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3480 | | 1805 | 3496 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3480 | | 1805 | 3496 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 580 | 160 | 60 | 470 | 110 | 110 | 610 | 50 | 120 | 690 | 60 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 16 | 0 | 0 | 0 | 36 | 0 | 0 | 42 |
| Lane Group Flow (vph) | 50 | 721 | 0 | 60 | 564 | 0 | 110 | 610 | 14 | 120 | 690 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.0 | 48.1 | | 7.8 | 47.9 | | 12.1 | 34.0 | 34.0 | 14.1 | 36.0 | 36.0 |
| Effective Green, g (s) | 8.0 | 48.1 | | 7.8 | 47.9 | | 12.1 | 34.0 | 34.0 | 14.1 | 36.0 | 36.0 |
| Actuated g/C Ratio | 0.07 | 0.40 | | 0.06 | 0.40 | | 0.10 | 0.28 | 0.28 | 0.12 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 120 | 1395 | | 117 | 1395 | | 182 | 1023 | 449 | 212 | 1083 | 476 |
| v/s Ratio Prot | 0.03 | c0.21 | | c0.03 | 0.16 | | 0.06 | 0.17 | | c0.07 | c0.19 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | 0.01 |
| v/c Ratio | 0.42 | 0.52 | | 0.51 | 0.40 | | 0.60 | 0.60 | 0.03 | 0.57 | 0.64 | 0.04 |
| Uniform Delay, d1 | 53.8 | 27.2 | | 54.3 | 25.8 | | 51.7 | 37.1 | 31.1 | 50.1 | 36.3 | 29.7 |
| Progression Factor | 0.63 | 0.37 | | 0.82 | 0.98 | | 1.17 | 0.89 | 1.45 | 1.06 | 0.96 | 1.31 |
| Incremental Delay, d2 | 2.2 | 1.3 | | 3.6 | 0.8 | | 5.4 | 2.5 | 0.1 | 2.8 | 2.4 | 0.1 |
| Delay (s) | 36.0 | 11.5 | | 48.2 | 26.2 | | 65.8 | 35.5 | 45.1 | 56.0 | 37.3 | 39.2 |
| Level of Service | D | B | | D | C | | E | D | D | E | D | D |
| Approach Delay (s) | | 13.0 | | | 28.3 | | | 40.4 | | | 40.0 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

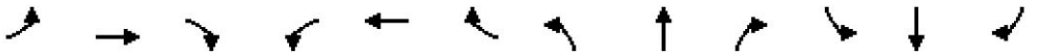
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1570 | 120 | 10 | 1340 | 70 | 140 | 30 | 20 | 120 | 100 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1591 | 3502 | 3610 | 2793 | 3502 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1591 | 3502 | 3610 | 2793 | 3502 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 82 | 1619 | 124 | 10 | 1381 | 72 | 144 | 31 | 21 | 124 | 103 | 196 |
| RTOR Reduction (vph) | 0 | 0 | 42 | 0 | 0 | 22 | 0 | 0 | 18 | 0 | 0 | 127 |
| Lane Group Flow (vph) | 82 | 1619 | 82 | 10 | 1381 | 50 | 144 | 31 | 3 | 124 | 103 | 69 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 6.8 | 36.4 | 36.4 | 2.3 | 31.9 | 31.9 | 10.3 | 9.2 | 11.5 | 10.5 | 9.4 | 9.4 |
| Effective Green, g (s) | 6.8 | 36.4 | 36.4 | 2.3 | 31.9 | 31.9 | 10.3 | 9.2 | 11.5 | 10.5 | 9.4 | 9.4 |
| Actuated g/C Ratio | 0.09 | 0.49 | 0.49 | 0.03 | 0.43 | 0.43 | 0.14 | 0.12 | 0.15 | 0.14 | 0.13 | 0.13 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 165 | 2538 | 790 | 108 | 2224 | 682 | 485 | 446 | 582 | 494 | 456 | 201 |
| v/s Ratio Prot | c0.05 | c0.31 | | 0.00 | 0.27 | | c0.04 | 0.01 | 0.00 | 0.04 | 0.03 | |
| v/s Ratio Perm | | | 0.05 | | | 0.03 | | | 0.00 | | | c0.04 |
| v/c Ratio | 0.50 | 0.64 | 0.10 | 0.09 | 0.62 | 0.07 | 0.30 | 0.07 | 0.01 | 0.25 | 0.23 | 0.34 |
| Uniform Delay, d1 | 32.2 | 14.1 | 10.2 | 35.0 | 16.5 | 12.5 | 28.8 | 28.8 | 26.6 | 28.4 | 29.2 | 29.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.3 | 0.5 | 0.1 | 0.4 | 0.5 | 0.0 | 0.3 | 0.1 | 0.0 | 0.3 | 0.3 | 1.0 |
| Delay (s) | 34.5 | 14.6 | 10.3 | 35.4 | 17.1 | 12.6 | 29.1 | 28.9 | 26.6 | 28.7 | 29.5 | 30.7 |
| Level of Service | C | B | B | D | B | B | C | C | C | C | C | C |
| Approach Delay (s) | | 15.2 | | | 17.0 | | | 28.8 | | | 29.8 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 74.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 60.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

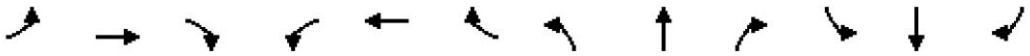
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1200 | 530 | 0 | 1020 | 0 | 0 | 0 | 0 | 230 | 0 | 430 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.95 | | | 1.00 | | | | | 1.00 | 0.87 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (prot) | | 4949 | | | 5187 | | | | | 1715 | 1488 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (perm) | | 4949 | | | 5187 | | | | | 1715 | 1488 | 1534 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1237 | 546 | 0 | 1052 | 0 | 0 | 0 | 0 | 237 | 0 | 443 |
| RTOR Reduction (vph) | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 91 | 91 |
| Lane Group Flow (vph) | 0 | 1740 | 0 | 0 | 1052 | 0 | 0 | 0 | 0 | 213 | 146 | 139 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 90.0 | | | 90.0 | | | | | 22.0 | 22.0 | 22.0 |
| Effective Green, g (s) | | 90.0 | | | 90.0 | | | | | 22.0 | 22.0 | 22.0 |
| Actuated g/C Ratio | | 0.75 | | | 0.75 | | | | | 0.18 | 0.18 | 0.18 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3712 | | | 3890 | | | | | 314 | 273 | 281 |
| v/s Ratio Prot | | c0.35 | | | 0.20 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | c0.12 | 0.10 | 0.09 |
| v/c Ratio | | 0.47 | | | 0.27 | | | | | 0.68 | 0.53 | 0.49 |
| Uniform Delay, d1 | | 5.8 | | | 4.7 | | | | | 45.7 | 44.4 | 44.0 |
| Progression Factor | | 1.00 | | | 0.17 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.4 | | | 0.1 | | | | | 5.7 | 2.0 | 1.4 |
| Delay (s) | | 6.2 | | | 0.9 | | | | | 51.4 | 46.3 | 45.4 |
| Level of Service | | A | | | A | | | | | D | D | D |
| Approach Delay (s) | | 6.2 | | | 0.9 | | | 0.0 | | | 47.6 | |
| Approach LOS | | A | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

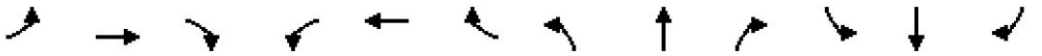
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 380 | 1060 | 0 | 0 | 820 | 290 | 330 | 10 | 170 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.96 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 4959 | | 1715 | 1634 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 4959 | | 1715 | 1634 | 1534 | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 392 | 1093 | 0 | 0 | 845 | 299 | 340 | 10 | 175 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 3 | 124 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 392 | 1093 | 0 | 0 | 1095 | 0 | 184 | 181 | 33 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 44.0 | 92.9 | | | 44.9 | | 19.1 | 19.1 | 19.1 | | | |
| Effective Green, g (s) | 44.0 | 92.9 | | | 44.9 | | 19.1 | 19.1 | 19.1 | | | |
| Actuated g/C Ratio | 0.37 | 0.77 | | | 0.37 | | 0.16 | 0.16 | 0.16 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 662 | 4016 | | | 1855 | | 273 | 260 | 244 | | | |
| v/s Ratio Prot | c0.22 | 0.21 | | | c0.22 | | 0.11 | c0.11 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | |
| v/c Ratio | 0.59 | 0.27 | | | 0.59 | | 0.67 | 0.69 | 0.14 | | | |
| Uniform Delay, d1 | 30.7 | 3.9 | | | 30.2 | | 47.5 | 47.7 | 43.4 | | | |
| Progression Factor | 1.05 | 0.75 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 1.3 | 0.2 | | | 1.4 | | 6.4 | 7.8 | 0.3 | | | |
| Delay (s) | 33.4 | 3.1 | | | 31.6 | | 53.9 | 55.5 | 43.6 | | | |
| Level of Service | C | A | | | C | | D | E | D | | | |
| Approach Delay (s) | | 11.1 | | | 31.6 | | | 51.4 | | | 0.0 | |
| Approach LOS | | B | | | C | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1020 | 20 | 10 | 980 | 100 | 20 | 40 | 10 | 90 | 40 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3599 | | 1805 | 3610 | 1615 | 3502 | 3502 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3599 | | 1805 | 3610 | 1615 | 3502 | 3502 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 192 | 1030 | 20 | 10 | 990 | 101 | 20 | 40 | 10 | 91 | 40 | 162 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 47 | 0 | 9 | 0 | 0 | 0 | 140 |
| Lane Group Flow (vph) | 192 | 1049 | 0 | 10 | 990 | 54 | 20 | 41 | 0 | 91 | 40 | 22 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 18.2 | 81.4 | | 1.5 | 64.7 | 64.7 | 4.7 | 7.4 | | 13.7 | 16.4 | 16.4 |
| Effective Green, g (s) | 18.2 | 81.4 | | 1.5 | 64.7 | 64.7 | 4.7 | 7.4 | | 13.7 | 16.4 | 16.4 |
| Actuated g/C Ratio | 0.15 | 0.68 | | 0.01 | 0.54 | 0.54 | 0.04 | 0.06 | | 0.11 | 0.14 | 0.14 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 531 | 2441 | | 23 | 1946 | 871 | 137 | 216 | | 206 | 493 | 221 |
| v/s Ratio Prot | 0.05 | c0.29 | | 0.01 | c0.27 | | 0.01 | c0.01 | | c0.05 | 0.01 | |
| v/s Ratio Perm | | | | | | 0.03 | | | | | | 0.01 |
| v/c Ratio | 0.36 | 0.43 | | 0.43 | 0.51 | 0.06 | 0.15 | 0.19 | | 0.44 | 0.08 | 0.10 |
| Uniform Delay, d1 | 45.7 | 8.8 | | 58.8 | 17.6 | 13.2 | 55.7 | 53.4 | | 49.6 | 45.2 | 45.3 |
| Progression Factor | 1.00 | 1.00 | | 0.74 | 1.02 | 1.37 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.6 | | 12.1 | 0.9 | 0.1 | 0.5 | 0.4 | | 1.5 | 0.1 | 0.2 |
| Delay (s) | 46.1 | 9.3 | | 55.5 | 18.9 | 18.2 | 56.2 | 53.9 | | 51.1 | 45.3 | 45.5 |
| Level of Service | D | A | | E | B | B | E | D | | D | D | D |
| Approach Delay (s) | | 15.0 | | | 19.2 | | | 54.5 | | | 47.2 | |
| Approach LOS | | B | | | B | | | D | | | D | |

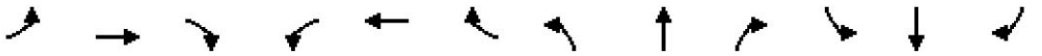
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1010 | 20 | 10 | 1000 | 60 | 20 | 20 | 20 | 10 | 10 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | 1.00 | 0.89 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5169 | | 1805 | 3610 | 1564 | 1797 | 1743 | | 1798 | 1663 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.73 | 1.00 | | 0.73 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5169 | | 1805 | 3610 | 1564 | 1381 | 1743 | | 1381 | 1663 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 52 | 1041 | 21 | 10 | 1031 | 62 | 21 | 21 | 21 | 10 | 10 | 31 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 5 | 0 | 20 | 0 | 0 | 29 | 0 |
| Lane Group Flow (vph) | 52 | 1061 | 0 | 10 | 1031 | 57 | 21 | 22 | 0 | 10 | 12 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 10.1 | 98.7 | | 1.4 | 90.0 | 90.0 | 7.9 | 7.9 | | 7.9 | 7.9 | |
| Effective Green, g (s) | 10.1 | 98.7 | | 1.4 | 90.0 | 90.0 | 7.9 | 7.9 | | 7.9 | 7.9 | |
| Actuated g/C Ratio | 0.08 | 0.82 | | 0.01 | 0.75 | 0.75 | 0.07 | 0.07 | | 0.07 | 0.07 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 152 | 4252 | | 21 | 2708 | 1173 | 91 | 115 | | 91 | 109 | |
| v/s Ratio Prot | c0.03 | 0.21 | | 0.01 | c0.29 | | | 0.01 | | | 0.01 | |
| v/s Ratio Perm | | | | | | 0.04 | c0.02 | | | 0.01 | | |
| v/c Ratio | 0.34 | 0.25 | | 0.48 | 0.38 | 0.05 | 0.23 | 0.19 | | 0.11 | 0.11 | |
| Uniform Delay, d1 | 51.8 | 2.4 | | 58.9 | 5.2 | 3.9 | 53.2 | 53.0 | | 52.7 | 52.7 | |
| Progression Factor | 0.84 | 0.99 | | 0.89 | 2.09 | 1.79 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.3 | 0.1 | | 14.9 | 0.4 | 0.1 | 1.3 | 0.8 | | 0.5 | 0.5 | |
| Delay (s) | 44.8 | 2.5 | | 67.3 | 11.4 | 7.1 | 54.5 | 53.9 | | 53.3 | 53.2 | |
| Level of Service | D | A | | E | B | A | D | D | | D | D | |
| Approach Delay (s) | | 4.5 | | | 11.6 | | | 54.1 | | | 53.2 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 1060 | 70 | 80 | 910 | 90 | 110 | 160 | 100 | 90 | 160 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5133 | | 1805 | 5103 | | 1805 | 1779 | | 1805 | 1900 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5133 | | 1805 | 5103 | | 1805 | 1779 | | 1805 | 1900 | 1589 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 116 | 1116 | 74 | 84 | 958 | 95 | 116 | 168 | 105 | 95 | 168 | 84 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 7 | 0 | 0 | 24 | 0 | 0 | 0 | 68 |
| Lane Group Flow (vph) | 116 | 1186 | 0 | 84 | 1046 | 0 | 116 | 249 | 0 | 95 | 168 | 16 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 13.2 | 61.7 | | 8.4 | 56.9 | | 11.6 | 22.3 | | 11.6 | 22.3 | 22.3 |
| Effective Green, g (s) | 13.2 | 61.7 | | 8.4 | 56.9 | | 11.6 | 22.3 | | 11.6 | 22.3 | 22.3 |
| Actuated g/C Ratio | 0.11 | 0.51 | | 0.07 | 0.47 | | 0.10 | 0.19 | | 0.10 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 199 | 2639 | | 126 | 2420 | | 174 | 331 | | 174 | 353 | 295 |
| v/s Ratio Prot | c0.06 | c0.23 | | 0.05 | 0.20 | | 0.06 | c0.14 | | 0.05 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.58 | 0.45 | | 0.67 | 0.43 | | 0.67 | 0.75 | | 0.55 | 0.48 | 0.05 |
| Uniform Delay, d1 | 50.8 | 18.4 | | 54.4 | 20.9 | | 52.3 | 46.2 | | 51.7 | 43.6 | 40.2 |
| Progression Factor | 1.07 | 1.23 | | 0.55 | 1.04 | | 0.82 | 0.62 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.3 | 0.5 | | 11.3 | 0.5 | | 8.2 | 8.2 | | 3.5 | 1.0 | 0.1 |
| Delay (s) | 58.4 | 23.2 | | 41.1 | 22.1 | | 51.1 | 36.8 | | 55.2 | 44.6 | 40.2 |
| Level of Service | E | C | | D | C | | D | D | | E | D | D |
| Approach Delay (s) | | 26.4 | | | 23.5 | | | 41.1 | | | 46.5 | |
| Approach LOS | | C | | | C | | | D | | | D | |

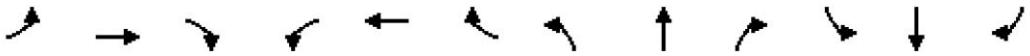
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 66.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 930 | 110 | 750 | 160 | 0 | 0 | 0 | 0 | 0 | 0 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 3610 | 1569 | 1805 | 3610 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 3610 | 1569 | 1805 | 3610 | | | | | | | 1644 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 0 | 1000 | 118 | 806 | 172 | 0 | 0 | 0 | 0 | 0 | 0 | 65 |
| RTOR Reduction (vph) | 0 | 0 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 |
| Lane Group Flow (vph) | 0 | 1000 | 44 | 806 | 172 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 34.2 | 34.2 | 77.8 | 102.2 | | | | | | | 9.8 |
| Effective Green, g (s) | | 34.2 | 34.2 | 77.8 | 102.2 | | | | | | | 9.8 |
| Actuated g/C Ratio | | 0.29 | 0.29 | 0.65 | 0.85 | | | | | | | 0.08 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1029 | 447 | 1170 | 3075 | | | | | | | 134 |
| v/s Ratio Prot | | c0.28 | | c0.45 | 0.05 | | | | | | | 0.00 |
| v/s Ratio Perm | | | 0.03 | | | | | | | | | |
| v/c Ratio | | 0.97 | 0.10 | 0.69 | 0.06 | | | | | | | 0.04 |
| Uniform Delay, d1 | | 42.4 | 31.6 | 13.4 | 1.4 | | | | | | | 50.8 |
| Progression Factor | | 1.00 | 1.00 | 1.03 | 1.34 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 22.0 | 0.4 | 1.7 | 0.0 | | | | | | | 0.1 |
| Delay (s) | | 64.5 | 32.0 | 15.5 | 1.9 | | | | | | | 50.9 |
| Level of Service | | E | C | B | A | | | | | | | D |
| Approach Delay (s) | | 61.0 | | | 13.1 | | | 0.0 | | | 50.9 | |
| Approach LOS | | E | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 73.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 840 | 150 | 0 | 850 | 90 | 30 | 20 | 10 | 50 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | | 0.99 | | 1.00 | 0.95 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3528 | | | 3549 | | 1805 | 1805 | | 1805 | 1615 | |
| Flt Permitted | 0.29 | 1.00 | | | 1.00 | | 0.74 | 1.00 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | 556 | 3528 | | | 3549 | | 1414 | 1805 | | 1401 | 1615 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 20 | 848 | 152 | 0 | 859 | 91 | 30 | 20 | 10 | 51 | 0 | 20 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 9 | 0 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 20 | 992 | 0 | 0 | 946 | 0 | 30 | 21 | 0 | 51 | 2 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 102.0 | 102.0 | | | 102.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Effective Green, g (s) | 102.0 | 102.0 | | | 102.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Actuated g/C Ratio | 0.85 | 0.85 | | | 0.85 | | 0.08 | 0.08 | | 0.08 | 0.08 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 473 | 2999 | | | 3017 | | 118 | 150 | | 117 | 135 | |
| v/s Ratio Prot | | c0.28 | | | 0.27 | | | 0.01 | | | 0.00 | |
| v/s Ratio Perm | 0.04 | | | | | | 0.02 | | | c0.04 | | |
| v/c Ratio | 0.04 | 0.33 | | | 0.31 | | 0.25 | 0.14 | | 0.44 | 0.01 | |
| Uniform Delay, d1 | 1.4 | 1.9 | | | 1.8 | | 51.5 | 51.0 | | 52.3 | 50.5 | |
| Progression Factor | 0.02 | 0.79 | | | 0.11 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 0.1 | | | 0.2 | | 1.1 | 0.4 | | 2.6 | 0.0 | |
| Delay (s) | 0.1 | 1.6 | | | 0.4 | | 52.6 | 51.4 | | 54.9 | 50.5 | |
| Level of Service | A | A | | | A | | D | D | | D | D | |
| Approach Delay (s) | | 1.5 | | | 0.4 | | | 52.0 | | | 53.7 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 47.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1180 | 30 | 40 | 1120 | 90 | 430 | 120 | 180 | 130 | 50 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5187 | 1564 | 1715 | 1641 | | 1715 | 1765 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5187 | 1564 | 1715 | 1641 | | 1715 | 1765 | 1587 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 103 | 1216 | 31 | 41 | 1155 | 93 | 443 | 124 | 186 | 134 | 52 | 144 |
| RTOR Reduction (vph) | 0 | 0 | 11 | 0 | 0 | 47 | 0 | 32 | 0 | 0 | 0 | 130 |
| Lane Group Flow (vph) | 103 | 1216 | 20 | 41 | 1155 | 46 | 385 | 336 | 0 | 91 | 95 | 14 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 7.8 | 54.2 | 54.2 | 5.6 | 52.0 | 52.0 | 32.2 | 32.2 | | 12.0 | 12.0 | 12.0 |
| Effective Green, g (s) | 7.8 | 54.2 | 54.2 | 5.6 | 52.0 | 52.0 | 32.2 | 32.2 | | 12.0 | 12.0 | 12.0 |
| Actuated g/C Ratio | 0.06 | 0.45 | 0.45 | 0.05 | 0.43 | 0.43 | 0.27 | 0.27 | | 0.10 | 0.10 | 0.10 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 117 | 1631 | 716 | 84 | 2248 | 678 | 460 | 440 | | 172 | 177 | 159 |
| v/s Ratio Prot | c0.06 | c0.34 | | 0.02 | 0.22 | | c0.22 | 0.20 | | 0.05 | c0.05 | |
| v/s Ratio Perm | | | 0.01 | | | 0.03 | | | | | | 0.01 |
| v/c Ratio | 0.88 | 0.75 | 0.03 | 0.49 | 0.51 | 0.07 | 0.84 | 0.76 | | 0.53 | 0.54 | 0.09 |
| Uniform Delay, d1 | 55.6 | 27.2 | 18.3 | 55.8 | 24.8 | 19.8 | 41.4 | 40.4 | | 51.3 | 51.4 | 49.0 |
| Progression Factor | 0.60 | 0.66 | 0.90 | 0.59 | 0.46 | 0.55 | 1.00 | 1.00 | | 0.82 | 0.82 | 1.75 |
| Incremental Delay, d2 | 47.8 | 3.1 | 0.1 | 4.0 | 0.8 | 0.2 | 12.5 | 7.7 | | 2.8 | 3.0 | 0.2 |
| Delay (s) | 81.4 | 21.0 | 16.5 | 36.9 | 12.2 | 11.1 | 53.9 | 48.1 | | 44.8 | 44.8 | 85.8 |
| Level of Service | F | C | B | D | B | B | D | D | | D | D | F |
| Approach Delay (s) | | 25.5 | | | 12.9 | | | 51.1 | | | 62.7 | |
| Approach LOS | | C | | | B | | | D | | | E | |

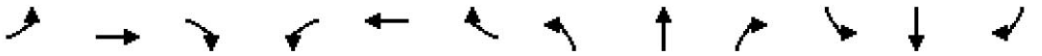
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 83.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 980 | 220 | 50 | 660 | 110 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.97 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3494 | | 1805 | 3610 | 1805 | 1600 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3494 | | 1805 | 3610 | 1805 | 1600 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1065 | 239 | 54 | 717 | 120 | 22 |
| RTOR Reduction (vph) | 16 | 0 | 0 | 0 | 0 | 13 |
| Lane Group Flow (vph) | 1288 | 0 | 54 | 717 | 120 | 9 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 29.5 | | 3.6 | 37.1 | 7.0 | 10.6 |
| Effective Green, g (s) | 29.5 | | 3.6 | 37.1 | 7.0 | 10.6 |
| Actuated g/C Ratio | 0.57 | | 0.07 | 0.71 | 0.13 | 0.20 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1978 | | 125 | 2571 | 243 | 448 |
| v/s Ratio Prot | c0.37 | | c0.03 | 0.20 | c0.07 | 0.00 |
| v/s Ratio Perm | | | | | | 0.00 |
| v/c Ratio | 0.65 | | 0.43 | 0.28 | 0.49 | 0.02 |
| Uniform Delay, d1 | 7.8 | | 23.3 | 2.7 | 20.9 | 16.6 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | | 2.4 | 0.1 | 1.6 | 0.0 |
| Delay (s) | 8.5 | | 25.7 | 2.8 | 22.5 | 16.6 |
| Level of Service | A | | C | A | C | B |
| Approach Delay (s) | 8.5 | | | 4.4 | 21.6 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 52.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 57.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

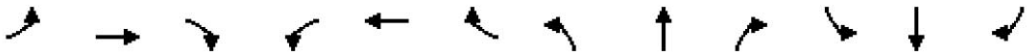
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 620 | 420 | 190 | 440 | 60 | 240 | 70 | 110 | 40 | 80 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1588 | 3502 | 3545 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1588 | 3502 | 3545 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 660 | 447 | 202 | 468 | 64 | 255 | 74 | 117 | 43 | 85 | 21 |
| RTOR Reduction (vph) | 0 | 0 | 313 | 0 | 9 | 0 | 0 | 0 | 87 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 21 | 660 | 134 | 202 | 523 | 0 | 255 | 74 | 30 | 43 | 85 | 2 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 2.2 | 18.5 | 18.5 | 8.9 | 25.2 | | 12.9 | 16.0 | 16.0 | 2.5 | 5.6 | 5.6 |
| Effective Green, g (s) | 2.2 | 18.5 | 18.5 | 8.9 | 25.2 | | 12.9 | 16.0 | 16.0 | 2.5 | 5.6 | 5.6 |
| Actuated g/C Ratio | 0.04 | 0.30 | 0.30 | 0.14 | 0.41 | | 0.21 | 0.26 | 0.26 | 0.04 | 0.09 | 0.09 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 64 | 1550 | 475 | 504 | 1443 | | 376 | 491 | 417 | 73 | 327 | 144 |
| v/s Ratio Prot | 0.01 | c0.13 | | 0.06 | c0.15 | | c0.14 | c0.04 | | c0.02 | 0.02 | |
| v/s Ratio Perm | | | 0.08 | | | | | | 0.02 | | | 0.00 |
| v/c Ratio | 0.33 | 0.43 | 0.28 | 0.40 | 0.36 | | 0.68 | 0.15 | 0.07 | 0.59 | 0.26 | 0.01 |
| Uniform Delay, d1 | 29.1 | 17.4 | 16.6 | 24.1 | 12.8 | | 22.6 | 17.7 | 17.3 | 29.2 | 26.2 | 25.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.0 | 0.2 | 0.3 | 0.5 | 0.2 | | 4.8 | 0.1 | 0.1 | 11.6 | 0.4 | 0.0 |
| Delay (s) | 32.1 | 17.6 | 16.9 | 24.6 | 12.9 | | 27.4 | 17.9 | 17.4 | 40.8 | 26.6 | 25.7 |
| Level of Service | C | B | B | C | B | | C | B | B | D | C | C |
| Approach Delay (s) | | 17.6 | | | 16.1 | | | 23.2 | | | 30.6 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 61.9 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 52.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 10 | 100 | 0 | 0 | 0 | 0 | 180 | 530 | 500 | 630 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1582 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1582 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 22 | 11 | 110 | 0 | 0 | 0 | 0 | 198 | 582 | 549 | 692 | 0 |
| RTOR Reduction (vph) | 0 | 47 | 54 | 0 | 0 | 0 | 0 | 0 | 218 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 22 | 15 | 5 | 0 | 0 | 0 | 0 | 198 | 364 | 549 | 692 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 4.2 | 4.2 | 4.2 | | | | | 21.9 | 21.9 | 11.9 | 37.8 | |
| Effective Green, g (s) | 4.2 | 4.2 | 4.2 | | | | | 21.9 | 21.9 | 11.9 | 37.8 | |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.08 | | | | | 0.44 | 0.44 | 0.24 | 0.76 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 152 | 133 | 129 | | | | | 1581 | 707 | 833 | 2729 | |
| v/s Ratio Prot | c0.01 | 0.01 | | | | | | 0.05 | | c0.16 | 0.19 | |
| v/s Ratio Perm | | | 0.00 | | | | | | c0.23 | | | |
| v/c Ratio | 0.14 | 0.11 | 0.04 | | | | | 0.13 | 0.51 | 0.66 | 0.25 | |
| Uniform Delay, d1 | 21.2 | 21.2 | 21.0 | | | | | 8.4 | 10.2 | 17.2 | 1.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.99 | 0.66 | |
| Incremental Delay, d2 | 0.4 | 0.4 | 0.1 | | | | | 0.2 | 2.7 | 1.8 | 0.2 | |
| Delay (s) | 21.7 | 21.6 | 21.2 | | | | | 8.5 | 12.9 | 18.9 | 1.4 | |
| Level of Service | C | C | C | | | | | A | B | B | A | |
| Approach Delay (s) | | 21.4 | | | 0.0 | | | 11.8 | | | 9.2 | |
| Approach LOS | | C | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 320 | 140 | 190 | 0 | 0 | 780 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 348 | 152 | 207 | 0 | 0 | 848 |
| RTOR Reduction (vph) | 0 | 120 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 348 | 32 | 207 | 0 | 0 | 848 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 10.4 | 10.4 | 31.6 | | | 31.6 |
| Effective Green, g (s) | 10.4 | 10.4 | 31.6 | | | 31.6 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.63 | | | 0.63 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 728 | 336 | 2282 | | | 2282 |
| v/s Ratio Prot | c0.10 | | 0.06 | | | c0.23 |
| v/s Ratio Perm | | 0.02 | | | | |
| v/c Ratio | 0.48 | 0.09 | 0.09 | | | 0.37 |
| Uniform Delay, d1 | 17.4 | 16.0 | 3.6 | | | 4.4 |
| Progression Factor | 1.00 | 1.00 | 0.15 | | | 1.00 |
| Incremental Delay, d2 | 0.5 | 0.1 | 0.1 | | | 0.5 |
| Delay (s) | 17.9 | 16.1 | 0.6 | | | 4.9 |
| Level of Service | B | B | A | | | A |
| Approach Delay (s) | 17.4 | | 0.6 | | | 4.9 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

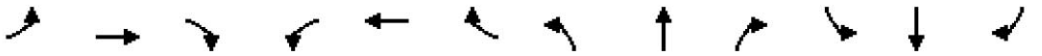
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1930 | 10 | 260 | 1180 | 640 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5183 | | 3502 | 5187 | 5095 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5183 | | 3502 | 5187 | 5095 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 1969 | 10 | 265 | 1204 | 653 | 10 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 1978 | 0 | 265 | 1204 | 661 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 33.0 | | 7.1 | 44.1 | 14.0 | |
| Effective Green, g (s) | 33.0 | | 7.1 | 44.1 | 14.0 | |
| Actuated g/C Ratio | 0.50 | | 0.11 | 0.67 | 0.21 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2588 | | 376 | 3461 | 1079 | |
| v/s Ratio Prot | c0.38 | | c0.08 | 0.23 | c0.13 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.76 | | 0.70 | 0.35 | 0.61 | |
| Uniform Delay, d1 | 13.4 | | 28.5 | 4.8 | 23.6 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.4 | | 5.9 | 0.1 | 1.0 | |
| Delay (s) | 14.8 | | 34.4 | 4.8 | 24.6 | |
| Level of Service | B | | C | A | C | |
| Approach Delay (s) | 14.8 | | | 10.2 | 24.6 | |
| Approach LOS | B | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 66.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

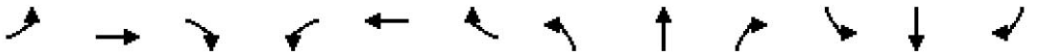
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 2050 | 110 | 410 | 1330 | 60 | 170 | 180 | 260 | 120 | 140 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1589 | 3502 | 5147 | | 3502 | 1900 | 1591 | 1805 | 3479 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1589 | 3502 | 5147 | | 3502 | 1900 | 1591 | 1805 | 3479 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 93 | 2113 | 113 | 423 | 1371 | 62 | 175 | 186 | 268 | 124 | 144 | 41 |
| RTOR Reduction (vph) | 0 | 0 | 63 | 0 | 4 | 0 | 0 | 0 | 179 | 0 | 33 | 0 |
| Lane Group Flow (vph) | 93 | 2113 | 50 | 423 | 1429 | 0 | 175 | 186 | 89 | 124 | 152 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 16.8 | 40.1 | 40.1 | 9.0 | 32.3 | | 15.5 | 14.5 | 14.5 | 10.3 | 9.3 | |
| Effective Green, g (s) | 16.8 | 40.1 | 40.1 | 9.0 | 32.3 | | 15.5 | 14.5 | 14.5 | 10.3 | 9.3 | |
| Actuated g/C Ratio | 0.19 | 0.45 | 0.45 | 0.10 | 0.36 | | 0.17 | 0.16 | 0.16 | 0.11 | 0.10 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 337 | 2314 | 709 | 351 | 1849 | | 604 | 306 | 257 | 207 | 360 | |
| v/s Ratio Prot | 0.05 | c0.41 | | c0.12 | 0.28 | | 0.05 | c0.10 | | c0.07 | 0.04 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.06 | | | |
| v/c Ratio | 0.28 | 0.91 | 0.07 | 1.21 | 0.77 | | 0.29 | 0.61 | 0.34 | 0.60 | 0.42 | |
| Uniform Delay, d1 | 31.3 | 23.3 | 14.2 | 40.5 | 25.5 | | 32.4 | 35.1 | 33.5 | 37.8 | 37.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | 6.1 | 0.0 | 116.2 | 2.1 | | 0.3 | 3.4 | 0.8 | 4.6 | 0.8 | |
| Delay (s) | 31.8 | 29.3 | 14.3 | 156.7 | 27.6 | | 32.7 | 38.5 | 34.3 | 42.4 | 38.6 | |
| Level of Service | C | C | B | F | C | | C | D | C | D | D | |
| Approach Delay (s) | | 28.7 | | | 57.0 | | | 35.1 | | | 40.1 | |
| Approach LOS | | C | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 89.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 84.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

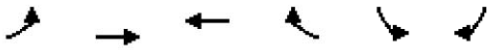
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 1170 | 430 | 180 | 560 | 140 | 170 | 370 | 50 | 270 | 920 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1593 | 3502 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1595 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1593 | 3502 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1595 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 168 | 1232 | 453 | 189 | 589 | 147 | 179 | 389 | 53 | 284 | 968 | 189 |
| RTOR Reduction (vph) | 0 | 0 | 18 | 0 | 0 | 83 | 0 | 0 | 5 | 0 | 0 | 45 |
| Lane Group Flow (vph) | 168 | 1232 | 435 | 189 | 589 | 64 | 179 | 389 | 48 | 284 | 968 | 144 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.0 | 38.1 | 45.1 | 7.0 | 35.1 | 44.1 | 7.0 | 31.9 | 38.9 | 9.0 | 33.9 | 43.9 |
| Effective Green, g (s) | 10.0 | 38.1 | 45.1 | 7.0 | 35.1 | 44.1 | 7.0 | 31.9 | 38.9 | 9.0 | 33.9 | 43.9 |
| Actuated g/C Ratio | 0.10 | 0.37 | 0.44 | 0.07 | 0.34 | 0.43 | 0.07 | 0.31 | 0.38 | 0.09 | 0.33 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 177 | 1348 | 767 | 240 | 1242 | 752 | 240 | 1129 | 670 | 309 | 1200 | 749 |
| v/s Ratio Prot | c0.09 | c0.34 | 0.04 | 0.05 | 0.16 | 0.01 | 0.05 | 0.11 | 0.00 | c0.08 | c0.27 | 0.02 |
| v/s Ratio Perm | | | 0.23 | | | 0.03 | | | 0.03 | | | 0.07 |
| v/c Ratio | 0.95 | 0.91 | 0.57 | 0.79 | 0.47 | 0.08 | 0.75 | 0.34 | 0.07 | 0.92 | 0.81 | 0.19 |
| Uniform Delay, d1 | 45.7 | 30.4 | 21.2 | 46.8 | 26.2 | 17.1 | 46.6 | 27.0 | 20.1 | 46.1 | 31.1 | 18.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 52.3 | 9.7 | 1.0 | 15.6 | 0.3 | 0.0 | 11.9 | 0.2 | 0.0 | 30.7 | 4.1 | 0.1 |
| Delay (s) | 98.0 | 40.1 | 22.2 | 62.4 | 26.5 | 17.1 | 58.5 | 27.2 | 20.1 | 76.9 | 35.1 | 18.2 |
| Level of Service | F | D | C | E | C | B | E | C | C | E | D | B |
| Approach Delay (s) | | 41.0 | | | 32.3 | | | 35.6 | | | 41.1 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 102.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

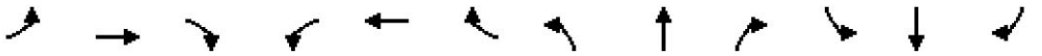
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 110 | 1350 | 650 | 280 | 560 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 0.99 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1603 | 3494 | 1454 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1603 | 3494 | 1454 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 121 | 1484 | 714 | 308 | 615 | 242 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 59 | 4 | 34 |
| Lane Group Flow (vph) | 121 | 1484 | 714 | 249 | 635 | 184 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.4 | 31.8 | 20.4 | 39.3 | 18.9 | 26.3 |
| Effective Green, g (s) | 7.4 | 31.8 | 20.4 | 39.3 | 18.9 | 26.3 |
| Actuated g/C Ratio | 0.13 | 0.54 | 0.35 | 0.67 | 0.32 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 228 | 1956 | 1255 | 1182 | 1125 | 751 |
| v/s Ratio Prot | 0.07 | c0.41 | 0.20 | 0.07 | c0.18 | 0.03 |
| v/s Ratio Perm | | | | 0.09 | | 0.10 |
| v/c Ratio | 0.53 | 0.76 | 0.57 | 0.21 | 0.56 | 0.24 |
| Uniform Delay, d1 | 24.0 | 10.5 | 15.6 | 3.7 | 16.5 | 10.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.4 | 1.7 | 0.6 | 0.1 | 0.7 | 0.2 |
| Delay (s) | 26.4 | 12.2 | 16.2 | 3.8 | 17.1 | 10.2 |
| Level of Service | C | B | B | A | B | B |
| Approach Delay (s) | | 13.3 | 12.4 | | 15.4 | |
| Approach LOS | | B | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 58.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

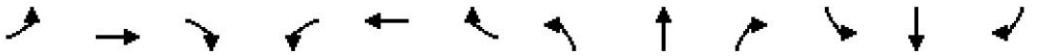
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 1320 | 680 | 250 | 370 | 50 | 300 | 140 | 250 | 200 | 360 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1596 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1602 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1596 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1602 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 124 | 1483 | 764 | 281 | 416 | 56 | 337 | 157 | 281 | 225 | 404 | 180 |
| RTOR Reduction (vph) | 0 | 0 | 154 | 0 | 0 | 34 | 0 | 0 | 226 | 0 | 0 | 124 |
| Lane Group Flow (vph) | 124 | 1483 | 610 | 281 | 416 | 22 | 337 | 157 | 55 | 225 | 404 | 56 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.1 | 33.5 | 43.0 | 13.3 | 34.7 | 34.7 | 9.5 | 17.2 | 17.2 | 7.4 | 15.1 | 27.2 |
| Effective Green, g (s) | 12.1 | 33.5 | 43.0 | 13.3 | 34.7 | 34.7 | 9.5 | 17.2 | 17.2 | 7.4 | 15.1 | 27.2 |
| Actuated g/C Ratio | 0.14 | 0.38 | 0.49 | 0.15 | 0.40 | 0.40 | 0.11 | 0.20 | 0.20 | 0.08 | 0.17 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 250 | 1988 | 858 | 533 | 1433 | 631 | 381 | 710 | 313 | 297 | 624 | 572 |
| v/s Ratio Prot | 0.07 | c0.29 | c0.08 | c0.08 | 0.12 | | 0.10 | 0.04 | | 0.06 | c0.11 | 0.01 |
| v/s Ratio Perm | | | 0.30 | | | 0.01 | | | 0.03 | | | 0.02 |
| v/c Ratio | 0.50 | 0.75 | 0.71 | 0.53 | 0.29 | 0.04 | 0.88 | 0.22 | 0.18 | 0.76 | 0.65 | 0.10 |
| Uniform Delay, d1 | 34.8 | 23.3 | 17.3 | 34.2 | 18.0 | 16.1 | 38.4 | 29.5 | 29.2 | 39.1 | 33.7 | 21.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.5 | 1.6 | 2.8 | 0.9 | 0.1 | 0.0 | 20.9 | 0.2 | 0.3 | 10.5 | 2.3 | 0.1 |
| Delay (s) | 36.4 | 24.8 | 20.1 | 35.1 | 18.1 | 16.1 | 59.3 | 29.6 | 29.5 | 49.7 | 36.0 | 21.5 |
| Level of Service | D | C | C | D | B | B | E | C | C | D | D | C |
| Approach Delay (s) | | 23.9 | | | 24.3 | | | 42.5 | | | 36.6 | |
| Approach LOS | | C | | | C | | | D | | | D | |

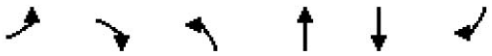
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 87.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 410 | 1340 | 10 | 400 | 0 | 0 | 0 | 0 | 10 | 0 | 270 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.91 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3136 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.18 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3136 | 1470 | 349 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 451 | 1473 | 11 | 440 | 0 | 0 | 0 | 0 | 11 | 0 | 297 |
| RTOR Reduction (vph) | 0 | 310 | 309 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 235 | 0 |
| Lane Group Flow (vph) | 0 | 878 | 427 | 11 | 440 | 0 | 0 | 0 | 0 | 11 | 62 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 21.8 | 21.8 | 21.8 | 21.8 | | | | | 7.8 | 7.8 | |
| Effective Green, g (s) | | 21.8 | 21.8 | 21.8 | 21.8 | | | | | 7.8 | 7.8 | |
| Actuated g/C Ratio | | 0.58 | 0.58 | 0.58 | 0.58 | | | | | 0.21 | 0.21 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1818 | 852 | 202 | 2093 | | | | | 374 | 335 | |
| v/s Ratio Prot | | 0.28 | | | 0.12 | | | | | | c0.04 | |
| v/s Ratio Perm | | | c0.29 | 0.03 | | | | | | 0.01 | | |
| v/c Ratio | | 0.48 | 0.50 | 0.05 | 0.21 | | | | | 0.03 | 0.18 | |
| Uniform Delay, d1 | | 4.6 | 4.7 | 3.4 | 3.8 | | | | | 11.9 | 12.3 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.2 | 0.5 | 0.1 | 0.1 | | | | | 0.0 | 0.3 | |
| Delay (s) | | 4.8 | 5.1 | 3.5 | 3.8 | | | | | 11.9 | 12.5 | |
| Level of Service | | A | A | A | A | | | | | B | B | |
| Approach Delay (s) | | 4.9 | | | 3.8 | | | 0.0 | | | 12.5 | |
| Approach LOS | | A | | | A | | | A | | | B | |

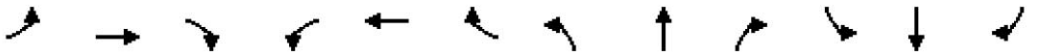
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 37.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 81.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 410 | 0 | 400 | 0 | 0 | 0 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 477 | 0 | 465 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 238 | 238 | 310 | 155 |
| Volume Left (vph) | 238 | 238 | 310 | 155 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 6.4 | 6.4 | 6.4 | 6.4 |
| Degree Utilization, x | 0.42 | 0.42 | 0.55 | 0.28 |
| Capacity (veh/h) | 544 | 546 | 540 | 543 |
| Control Delay (s) | 12.8 | 12.8 | 15.8 | 10.6 |
| Approach Delay (s) | 12.8 | | 14.1 | |
| Approach LOS | B | | B | |

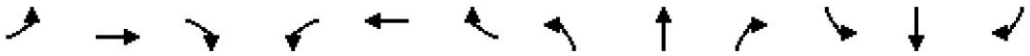
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 13.4 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 93.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 20 | 10 | 540 | 30 | 210 | 70 | 330 | 690 | 580 | 960 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1796 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1591 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1796 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1591 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 22 | 22 | 11 | 600 | 33 | 233 | 78 | 367 | 767 | 644 | 1067 | 11 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 182 | 0 | 0 | 529 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 22 | 23 | 0 | 600 | 33 | 51 | 78 | 367 | 238 | 644 | 1067 | 8 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 2.4 | 4.7 | | 12.5 | 14.8 | 14.8 | 5.4 | 21.0 | 21.0 | 13.6 | 29.2 | 29.2 |
| Effective Green, g (s) | 2.4 | 4.7 | | 12.5 | 14.8 | 14.8 | 5.4 | 21.0 | 21.0 | 13.6 | 29.2 | 29.2 |
| Actuated g/C Ratio | 0.04 | 0.07 | | 0.18 | 0.22 | 0.22 | 0.08 | 0.31 | 0.31 | 0.20 | 0.43 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 64 | 125 | | 646 | 415 | 353 | 144 | 1118 | 493 | 702 | 1555 | 696 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.17 | 0.02 | | 0.04 | 0.10 | | c0.18 | c0.30 | |
| v/s Ratio Perm | | | | | | c0.03 | | | 0.15 | | | 0.01 |
| v/c Ratio | 0.34 | 0.18 | | 0.93 | 0.08 | 0.14 | 0.54 | 0.33 | 0.48 | 0.92 | 0.69 | 0.01 |
| Uniform Delay, d1 | 31.9 | 29.7 | | 27.2 | 21.1 | 21.4 | 30.0 | 18.0 | 19.0 | 26.5 | 15.6 | 11.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.2 | 0.7 | | 19.6 | 0.1 | 0.2 | 4.1 | 0.2 | 0.7 | 16.8 | 1.3 | 0.0 |
| Delay (s) | 35.1 | 30.4 | | 46.9 | 21.2 | 21.6 | 34.1 | 18.2 | 19.7 | 43.3 | 16.9 | 11.1 |
| Level of Service | D | C | | D | C | C | C | B | B | D | B | B |
| Approach Delay (s) | | 32.3 | | | 39.1 | | | 20.2 | | | 26.7 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 67.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 79.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

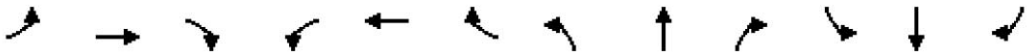
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 940 | 60 | 40 | 570 | 50 | 30 | 40 | 30 | 70 | 50 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.96 | | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3578 | | 1805 | 3562 | | | 1788 | | 1802 | 1677 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.71 | | 0.77 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3578 | | 1805 | 3562 | | | 1297 | | 1461 | 1677 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 191 | 1056 | 67 | 45 | 640 | 56 | 34 | 45 | 34 | 79 | 56 | 202 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 7 | 0 | 0 | 24 | 0 | 0 | 164 | 0 |
| Lane Group Flow (vph) | 191 | 1119 | 0 | 45 | 689 | 0 | 0 | 89 | 0 | 79 | 94 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.4 | 27.0 | | 2.2 | 20.8 | | | 9.4 | | 9.4 | 9.4 | |
| Effective Green, g (s) | 8.4 | 27.0 | | 2.2 | 20.8 | | | 9.4 | | 9.4 | 9.4 | |
| Actuated g/C Ratio | 0.17 | 0.53 | | 0.04 | 0.41 | | | 0.19 | | 0.19 | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 300 | 1909 | | 78 | 1464 | | | 241 | | 271 | 312 | |
| v/s Ratio Prot | c0.11 | c0.31 | | 0.02 | 0.19 | | | | | | 0.06 | |
| v/s Ratio Perm | | | | | | | | c0.07 | | 0.05 | | |
| v/c Ratio | 0.64 | 0.59 | | 0.58 | 0.47 | | | 0.37 | | 0.29 | 0.30 | |
| Uniform Delay, d1 | 19.7 | 8.0 | | 23.7 | 10.9 | | | 18.0 | | 17.7 | 17.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.4 | 0.5 | | 9.9 | 0.2 | | | 1.0 | | 0.6 | 0.5 | |
| Delay (s) | 24.1 | 8.5 | | 33.7 | 11.1 | | | 19.0 | | 18.3 | 18.3 | |
| Level of Service | C | A | | C | B | | | B | | B | B | |
| Approach Delay (s) | | 10.7 | | | 12.5 | | | 19.0 | | | 18.3 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 50.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 70.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 840 | 230 | 130 | 600 | 110 | 120 | 280 | 120 | 310 | 650 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3482 | | 1805 | 3610 | 1595 | 1805 | 3610 | 1595 | 3502 | 3537 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3482 | | 1805 | 3610 | 1595 | 1805 | 3610 | 1595 | 3502 | 3537 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 903 | 247 | 140 | 645 | 118 | 129 | 301 | 129 | 333 | 699 | 97 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 0 | 52 | 0 | 0 | 19 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 43 | 1127 | 0 | 140 | 645 | 66 | 129 | 301 | 110 | 333 | 785 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.9 | 36.4 | | 8.1 | 40.6 | 50.7 | 8.1 | 25.3 | 33.4 | 10.1 | 27.3 | |
| Effective Green, g (s) | 3.9 | 36.4 | | 8.1 | 40.6 | 50.7 | 8.1 | 25.3 | 33.4 | 10.1 | 27.3 | |
| Actuated g/C Ratio | 0.04 | 0.38 | | 0.08 | 0.42 | 0.53 | 0.08 | 0.26 | 0.35 | 0.11 | 0.28 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 73 | 1322 | | 152 | 1528 | 910 | 152 | 952 | 622 | 369 | 1007 | |
| v/s Ratio Prot | 0.02 | c0.32 | | c0.08 | 0.18 | 0.01 | 0.07 | 0.08 | 0.01 | c0.10 | c0.22 | |
| v/s Ratio Perm | | | | | | 0.03 | | | 0.05 | | | |
| v/c Ratio | 0.59 | 0.85 | | 0.92 | 0.42 | 0.07 | 0.85 | 0.32 | 0.18 | 0.90 | 0.78 | |
| Uniform Delay, d1 | 45.2 | 27.3 | | 43.6 | 19.4 | 11.1 | 43.3 | 28.4 | 21.7 | 42.4 | 31.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 11.6 | 5.5 | | 50.0 | 0.2 | 0.0 | 33.2 | 0.2 | 0.1 | 24.4 | 3.9 | |
| Delay (s) | 56.8 | 32.8 | | 93.6 | 19.6 | 11.1 | 76.5 | 28.5 | 21.8 | 66.8 | 35.4 | |
| Level of Service | E | C | | F | B | B | E | C | C | E | D | |
| Approach Delay (s) | | 33.7 | | | 30.0 | | | 38.1 | | | 44.7 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 95.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

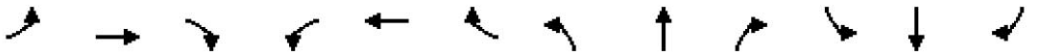
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 30 | 40 | 950 | 80 | 60 | 1380 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1802 | 1593 | 3610 | 1577 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1802 | 1593 | 3610 | 1577 | 1805 | 3610 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 32 | 43 | 1011 | 85 | 64 | 1468 |
| RTOR Reduction (vph) | 0 | 40 | 0 | 25 | 0 | 0 |
| Lane Group Flow (vph) | 32 | 3 | 1011 | 60 | 64 | 1468 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 3.3 | 3.3 | 22.6 | 22.6 | 3.1 | 29.7 |
| Effective Green, g (s) | 3.3 | 3.3 | 22.6 | 22.6 | 3.1 | 29.7 |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.55 | 0.55 | 0.08 | 0.72 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 145 | 128 | 1990 | 869 | 136 | 2615 |
| v/s Ratio Prot | | | 0.28 | | 0.04 | c0.41 |
| v/s Ratio Perm | c0.02 | 0.00 | | 0.04 | | |
| v/c Ratio | 0.22 | 0.03 | 0.51 | 0.07 | 0.47 | 0.56 |
| Uniform Delay, d1 | 17.6 | 17.4 | 5.7 | 4.3 | 18.2 | 2.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | 0.1 | 0.2 | 0.0 | 2.6 | 0.3 |
| Delay (s) | 18.4 | 17.5 | 5.9 | 4.3 | 20.7 | 2.9 |
| Level of Service | B | B | A | A | C | A |
| Approach Delay (s) | 17.9 | | 5.8 | | | 3.6 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 41.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

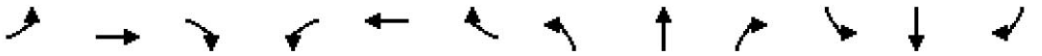
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1090 | 200 | 470 | 680 | 230 | 0 | 0 | 0 | 670 | 90 | 380 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1578 | 1805 | 3610 | 1574 | | | | 1715 | 1738 | 1594 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1578 | 1805 | 3610 | 1574 | | | | 1715 | 1738 | 1594 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 51 | 1112 | 204 | 480 | 694 | 235 | 0 | 0 | 0 | 684 | 92 | 388 |
| RTOR Reduction (vph) | 0 | 0 | 126 | 0 | 0 | 115 | 0 | 0 | 0 | 0 | 0 | 94 |
| Lane Group Flow (vph) | 51 | 1112 | 78 | 480 | 694 | 120 | 0 | 0 | 0 | 383 | 393 | 294 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 8.0 | 26.6 | 26.6 | 30.0 | 48.6 | 48.6 | | | | 26.4 | 26.4 | 34.4 |
| Effective Green, g (s) | 8.0 | 26.6 | 26.6 | 30.0 | 48.6 | 48.6 | | | | 26.4 | 26.4 | 34.4 |
| Actuated g/C Ratio | 0.08 | 0.28 | 0.28 | 0.32 | 0.51 | 0.51 | | | | 0.28 | 0.28 | 0.36 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 152 | 1452 | 442 | 570 | 1847 | 805 | | | | 477 | 483 | 644 |
| v/s Ratio Prot | 0.03 | c0.21 | | c0.27 | 0.19 | | | | | 0.22 | c0.23 | 0.04 |
| v/s Ratio Perm | | | 0.05 | | | 0.08 | | | | | | 0.15 |
| v/c Ratio | 0.34 | 0.77 | 0.18 | 0.84 | 0.38 | 0.15 | | | | 0.80 | 0.81 | 0.46 |
| Uniform Delay, d1 | 41.0 | 31.3 | 25.9 | 30.3 | 14.0 | 12.3 | | | | 31.9 | 32.0 | 23.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.3 | 3.9 | 0.9 | 10.9 | 0.6 | 0.4 | | | | 9.4 | 10.1 | 0.5 |
| Delay (s) | 42.3 | 35.3 | 26.8 | 41.2 | 14.6 | 12.7 | | | | 41.3 | 42.1 | 23.7 |
| Level of Service | D | D | C | D | B | B | | | | D | D | C |
| Approach Delay (s) | | 34.3 | | | 23.3 | | | 0.0 | | | 35.7 | |
| Approach LOS | | C | | | C | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 95.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 78.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

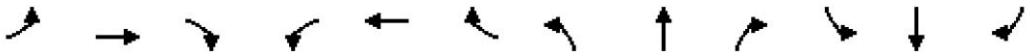
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 350 | 1040 | 230 | 160 | 1170 | 240 | 180 | 320 | 480 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1597 | 1805 | 6536 | 1589 | 1643 | 3449 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1597 | 1805 | 6536 | 1589 | 1643 | 3449 | 2842 | | | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 372 | 1106 | 245 | 170 | 1245 | 255 | 191 | 340 | 511 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 71 | 0 | 0 | 106 | 0 | 0 | 416 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 372 | 1106 | 174 | 170 | 1245 | 149 | 172 | 359 | 95 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 23.0 | 45.2 | 62.0 | 16.0 | 38.2 | 38.2 | 16.8 | 16.8 | 16.8 | | | |
| Effective Green, g (s) | 23.0 | 45.2 | 62.0 | 16.0 | 38.2 | 38.2 | 16.8 | 16.8 | 16.8 | | | |
| Actuated g/C Ratio | 0.26 | 0.50 | 0.69 | 0.18 | 0.42 | 0.42 | 0.19 | 0.19 | 0.19 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 461 | 1813 | 1171 | 321 | 2774 | 674 | 307 | 644 | 531 | | | |
| v/s Ratio Prot | c0.21 | c0.31 | 0.03 | c0.09 | 0.19 | | c0.10 | 0.10 | | | | |
| v/s Ratio Perm | | | 0.08 | | | 0.09 | | | 0.03 | | | |
| v/c Ratio | 0.81 | 0.61 | 0.15 | 0.53 | 0.45 | 0.22 | 0.56 | 0.56 | 0.18 | | | |
| Uniform Delay, d1 | 31.4 | 16.1 | 4.9 | 33.6 | 18.4 | 16.4 | 33.2 | 33.2 | 30.8 | | | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.75 | 0.67 | 0.41 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 10.0 | 1.5 | 0.1 | 1.5 | 0.5 | 0.7 | 2.3 | 1.1 | 0.2 | | | |
| Delay (s) | 41.4 | 17.6 | 4.9 | 26.9 | 12.9 | 7.4 | 35.6 | 34.3 | 31.0 | | | |
| Level of Service | D | B | A | C | B | A | D | C | C | | | |
| Approach Delay (s) | | 20.9 | | | 13.5 | | | 32.9 | | | 0.0 | |
| Approach LOS | | C | | | B | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

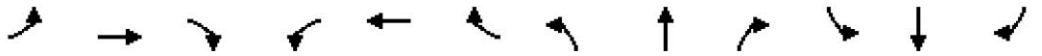
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 1500 | 160 | 90 | 1300 | 10 | 140 | 0 | 60 | 10 | 0 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5098 | | 1805 | 5180 | | 1805 | 1590 | | | 1726 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.74 | 1.00 | | | 0.89 | |
| Satd. Flow (perm) | 1805 | 5098 | | 1805 | 5180 | | 1414 | 1590 | | | 1576 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 10 | 1546 | 165 | 93 | 1340 | 10 | 144 | 0 | 62 | 10 | 0 | 10 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 52 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 10 | 1703 | 0 | 93 | 1350 | 0 | 144 | 10 | 0 | 0 | 12 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 1.4 | 55.3 | | 8.0 | 61.9 | | 14.7 | 14.7 | | | 14.7 | |
| Effective Green, g (s) | 1.4 | 55.3 | | 8.0 | 61.9 | | 14.7 | 14.7 | | | 14.7 | |
| Actuated g/C Ratio | 0.02 | 0.61 | | 0.09 | 0.69 | | 0.16 | 0.16 | | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 28 | 3132 | | 160 | 3563 | | 231 | 260 | | | 257 | |
| v/s Ratio Prot | 0.01 | c0.33 | | c0.05 | 0.26 | | | 0.01 | | | | |
| v/s Ratio Perm | | | | | | | c0.10 | | | | 0.01 | |
| v/c Ratio | 0.36 | 0.54 | | 0.58 | 0.38 | | 0.62 | 0.04 | | | 0.05 | |
| Uniform Delay, d1 | 43.9 | 10.0 | | 39.4 | 5.9 | | 35.1 | 31.7 | | | 31.7 | |
| Progression Factor | 1.15 | 0.80 | | 1.06 | 1.36 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 6.5 | 0.6 | | 5.0 | 0.3 | | 5.2 | 0.1 | | | 0.1 | |
| Delay (s) | 56.7 | 8.6 | | 46.6 | 8.4 | | 40.2 | 31.8 | | | 31.8 | |
| Level of Service | E | A | | D | A | | D | C | | | C | |
| Approach Delay (s) | | 8.9 | | | 10.8 | | | 37.7 | | | 31.8 | |
| Approach LOS | | A | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

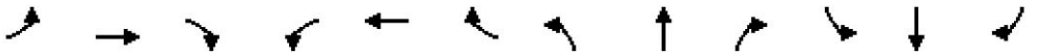
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1250 | 100 | 30 | 1050 | 10 | 130 | 20 | 50 | 10 | 20 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1802 | 3562 | | 1803 | 3604 | | | 1766 | | | 1866 | 1589 |
| Flt Permitted | 0.22 | 1.00 | | 0.14 | 1.00 | | | 0.78 | | | 0.91 | 1.00 |
| Satd. Flow (perm) | 415 | 3562 | | 272 | 3604 | | | 1430 | | | 1736 | 1589 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 53 | 1330 | 106 | 32 | 1117 | 11 | 138 | 21 | 53 | 11 | 21 | 74 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 17 | 0 | 0 | 0 | 56 |
| Lane Group Flow (vph) | 53 | 1432 | 0 | 32 | 1127 | 0 | 0 | 195 | 0 | 0 | 32 | 18 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 64.5 | 64.5 | | 64.5 | 64.5 | | | 17.5 | | | 17.5 | 17.5 |
| Effective Green, g (s) | 64.5 | 64.5 | | 64.5 | 64.5 | | | 17.5 | | | 17.5 | 17.5 |
| Actuated g/C Ratio | 0.72 | 0.72 | | 0.72 | 0.72 | | | 0.19 | | | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 297 | 2553 | | 195 | 2583 | | | 278 | | | 338 | 309 |
| v/s Ratio Prot | | c0.40 | | | 0.31 | | | | | | | |
| v/s Ratio Perm | 0.13 | | | 0.12 | | | | c0.14 | | | 0.02 | 0.01 |
| v/c Ratio | 0.18 | 0.56 | | 0.16 | 0.44 | | | 0.70 | | | 0.09 | 0.06 |
| Uniform Delay, d1 | 4.1 | 6.0 | | 4.1 | 5.3 | | | 33.8 | | | 29.7 | 29.5 |
| Progression Factor | 0.04 | 0.31 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.2 | 0.8 | | 1.8 | 0.5 | | | 7.8 | | | 0.1 | 0.1 |
| Delay (s) | 1.3 | 2.7 | | 5.9 | 5.8 | | | 41.6 | | | 29.9 | 29.6 |
| Level of Service | A | A | | A | A | | | D | | | C | C |
| Approach Delay (s) | | 2.6 | | | 5.8 | | | 41.6 | | | 29.7 | |
| Approach LOS | | A | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 67.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

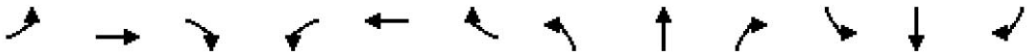
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1230 | 30 | 300 | 1010 | 40 | 30 | 130 | 430 | 50 | 240 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3595 | | 1805 | 3585 | | 1805 | 1900 | 1602 | 1805 | 1900 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3595 | | 1805 | 3585 | | 1805 | 1900 | 1602 | 1805 | 1900 | 1588 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 1309 | 32 | 319 | 1074 | 43 | 32 | 138 | 457 | 53 | 255 | 85 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 36 | 0 | 0 | 69 |
| Lane Group Flow (vph) | 85 | 1340 | 0 | 319 | 1115 | 0 | 32 | 138 | 421 | 53 | 255 | 16 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.8 | 43.4 | | 20.1 | 55.7 | | 3.9 | 18.4 | 38.5 | 5.4 | 19.9 | 19.9 |
| Effective Green, g (s) | 7.8 | 43.4 | | 20.1 | 55.7 | | 3.9 | 18.4 | 38.5 | 5.4 | 19.9 | 19.9 |
| Actuated g/C Ratio | 0.08 | 0.42 | | 0.19 | 0.54 | | 0.04 | 0.18 | 0.37 | 0.05 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 136 | 1510 | | 351 | 1933 | | 68 | 338 | 597 | 94 | 366 | 306 |
| v/s Ratio Prot | 0.05 | c0.37 | | c0.18 | 0.31 | | 0.02 | 0.07 | c0.14 | 0.03 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | 0.01 |
| v/c Ratio | 0.62 | 0.89 | | 0.91 | 0.58 | | 0.47 | 0.41 | 0.71 | 0.56 | 0.70 | 0.05 |
| Uniform Delay, d1 | 46.3 | 27.7 | | 40.7 | 15.9 | | 48.7 | 37.6 | 27.6 | 47.8 | 38.9 | 34.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.6 | 6.7 | | 26.2 | 0.4 | | 5.1 | 0.8 | 3.8 | 7.5 | 5.7 | 0.1 |
| Delay (s) | 55.0 | 34.4 | | 66.9 | 16.3 | | 53.8 | 38.4 | 31.4 | 55.3 | 44.6 | 34.1 |
| Level of Service | D | C | | E | B | | D | D | C | E | D | C |
| Approach Delay (s) | | 35.6 | | | 27.6 | | | 34.1 | | | 43.8 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 103.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 85.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

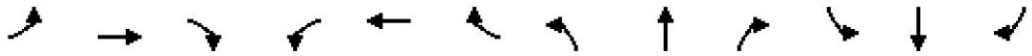
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 580 | 1030 | 470 | 690 | 330 | 650 | 830 | 170 | 400 | 1480 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2814 | 3502 | 3610 | 1597 | 3502 | 3610 | 1595 | 3502 | 5170 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2814 | 3502 | 3610 | 1597 | 3502 | 3610 | 1595 | 3502 | 5170 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 630 | 1120 | 511 | 750 | 359 | 707 | 902 | 185 | 435 | 1609 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 1 | 0 | 0 | 51 | 0 | 0 | 32 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 43 | 630 | 1119 | 511 | 750 | 308 | 707 | 902 | 153 | 435 | 1640 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 4.6 | 25.2 | 40.2 | 12.0 | 32.6 | 48.7 | 15.0 | 34.0 | 46.0 | 16.1 | 35.1 | |
| Effective Green, g (s) | 4.6 | 25.2 | 40.2 | 12.0 | 32.6 | 48.7 | 15.0 | 34.0 | 46.0 | 16.1 | 35.1 | |
| Actuated g/C Ratio | 0.04 | 0.24 | 0.39 | 0.12 | 0.32 | 0.47 | 0.15 | 0.33 | 0.45 | 0.16 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 80 | 881 | 1095 | 407 | 1139 | 753 | 509 | 1188 | 772 | 546 | 1757 | |
| v/s Ratio Prot | 0.02 | 0.17 | c0.15 | c0.15 | 0.21 | 0.06 | c0.20 | 0.25 | 0.02 | 0.12 | c0.32 | |
| v/s Ratio Perm | | | 0.25 | | | 0.13 | | | 0.07 | | | |
| v/c Ratio | 0.54 | 0.72 | 1.02 | 1.26 | 0.66 | 0.41 | 1.39 | 0.76 | 0.20 | 0.80 | 0.93 | |
| Uniform Delay, d1 | 48.3 | 35.8 | 31.5 | 45.6 | 30.5 | 17.9 | 44.1 | 31.0 | 17.4 | 42.0 | 33.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 6.8 | 2.8 | 33.0 | 133.7 | 1.4 | 0.4 | 186.9 | 2.8 | 0.1 | 7.9 | 9.6 | |
| Delay (s) | 55.1 | 38.5 | 64.5 | 179.3 | 31.9 | 18.2 | 231.0 | 33.8 | 17.6 | 49.9 | 42.6 | |
| Level of Service | E | D | E | F | C | B | F | C | B | D | D | |
| Approach Delay (s) | | 55.2 | | | 75.4 | | | 109.9 | | | 44.2 | |
| Approach LOS | | E | | | E | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 70.0 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 103.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 92.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

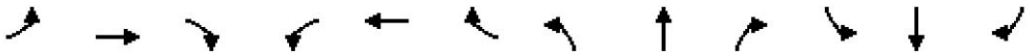
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 10 | 10 | 20 | 10 | 40 | 20 | 1450 | 10 | 50 | 2730 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.97 | | | 0.92 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1787 | | | 1711 | | 1805 | 5181 | | 1805 | 5174 | |
| Flt Permitted | | 0.77 | | | 0.92 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1417 | | | 1598 | | 1805 | 5181 | | 1805 | 5174 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 34 | 11 | 11 | 23 | 11 | 46 | 23 | 1667 | 11 | 57 | 3138 | 46 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 46 | 0 | 0 | 38 | 0 | 23 | 1678 | 0 | 57 | 3183 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 6.7 | | | 6.7 | | 2.5 | 60.5 | | 4.9 | 62.9 | |
| Effective Green, g (s) | | 6.7 | | | 6.7 | | 2.5 | 60.5 | | 4.9 | 62.9 | |
| Actuated g/C Ratio | | 0.08 | | | 0.08 | | 0.03 | 0.72 | | 0.06 | 0.75 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 113 | | | 127 | | 54 | 3727 | | 105 | 3870 | |
| v/s Ratio Prot | | | | | | | 0.01 | 0.32 | | c0.03 | c0.62 | |
| v/s Ratio Perm | | c0.03 | | | 0.02 | | | | | | | |
| v/c Ratio | | 0.41 | | | 0.30 | | 0.43 | 0.45 | | 0.54 | 0.82 | |
| Uniform Delay, d1 | | 36.8 | | | 36.5 | | 40.1 | 4.9 | | 38.5 | 6.9 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 2.4 | | | 1.3 | | 5.3 | 0.1 | | 5.6 | 1.5 | |
| Delay (s) | | 39.2 | | | 37.8 | | 45.4 | 5.0 | | 44.1 | 8.5 | |
| Level of Service | | D | | | D | | D | A | | D | A | |
| Approach Delay (s) | | 39.2 | | | 37.8 | | | 5.5 | | | 9.1 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 84.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 70.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

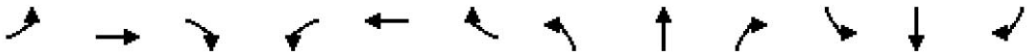
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 30 | 50 | 20 | 30 | 40 | 50 | 1510 | 20 | 100 | 2550 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 1900 | 1615 | 1805 | 1900 | 1588 | 1805 | 5175 | | 1805 | 5155 | |
| Flt Permitted | 0.54 | 1.00 | 1.00 | 0.74 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1025 | 1900 | 1615 | 1398 | 1900 | 1588 | 1805 | 5175 | | 1805 | 5155 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 65 | 33 | 54 | 22 | 33 | 43 | 54 | 1641 | 22 | 109 | 2772 | 98 |
| RTOR Reduction (vph) | 0 | 0 | 48 | 0 | 0 | 40 | 0 | 1 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 65 | 33 | 6 | 22 | 33 | 3 | 54 | 1662 | 0 | 109 | 2868 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 15.0 | 9.8 | 9.8 | 9.8 | 7.2 | 7.2 | 5.2 | 46.3 | | 16.7 | 57.8 | |
| Effective Green, g (s) | 15.0 | 9.8 | 9.8 | 9.8 | 7.2 | 7.2 | 5.2 | 46.3 | | 16.7 | 57.8 | |
| Actuated g/C Ratio | 0.16 | 0.11 | 0.11 | 0.11 | 0.08 | 0.08 | 0.06 | 0.51 | | 0.18 | 0.63 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 212 | 204 | 173 | 161 | 150 | 125 | 103 | 2621 | | 330 | 3260 | |
| v/s Ratio Prot | c0.02 | 0.02 | | 0.00 | 0.02 | | 0.03 | c0.32 | | 0.06 | c0.56 | |
| v/s Ratio Perm | c0.03 | | 0.00 | 0.01 | | 0.00 | | | | | | |
| v/c Ratio | 0.31 | 0.16 | 0.03 | 0.14 | 0.22 | 0.03 | 0.52 | 0.63 | | 0.33 | 0.88 | |
| Uniform Delay, d1 | 33.2 | 37.1 | 36.6 | 36.9 | 39.5 | 38.9 | 41.9 | 16.4 | | 32.5 | 13.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 0.4 | 0.1 | 0.4 | 0.7 | 0.1 | 4.7 | 0.5 | | 0.6 | 3.0 | |
| Delay (s) | 34.0 | 37.4 | 36.6 | 37.3 | 40.2 | 39.0 | 46.6 | 16.9 | | 33.1 | 16.9 | |
| Level of Service | C | D | D | D | D | D | D | B | | C | B | |
| Approach Delay (s) | | 35.7 | | | 39.0 | | | 17.8 | | | 17.5 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 91.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

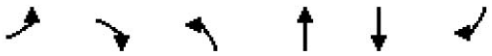
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 0 | 10 | 590 | 10 | 30 | 10 | 1470 | 280 | 80 | 2640 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3023 | | 5090 | 1666 | | 1805 | 5187 | 1595 | 1805 | 5181 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3023 | | 5090 | 1666 | | 1805 | 5187 | 1595 | 1805 | 5181 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 10 | 0 | 10 | 615 | 10 | 31 | 10 | 1531 | 292 | 83 | 2750 | 21 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 27 | 0 | 0 | 0 | 92 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 10 | 0 | 0 | 615 | 14 | 0 | 10 | 1531 | 200 | 83 | 2771 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 1.2 | 1.1 | | 9.1 | 9.0 | | 1.1 | 40.2 | 49.3 | 5.6 | 44.7 | |
| Effective Green, g (s) | 1.2 | 1.1 | | 9.1 | 9.0 | | 1.1 | 40.2 | 49.3 | 5.6 | 44.7 | |
| Actuated g/C Ratio | 0.02 | 0.02 | | 0.13 | 0.12 | | 0.02 | 0.56 | 0.68 | 0.08 | 0.62 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 30 | 46 | | 643 | 208 | | 28 | 2896 | 1181 | 140 | 3217 | |
| v/s Ratio Prot | c0.01 | 0.00 | | c0.12 | 0.01 | | 0.01 | c0.30 | 0.02 | 0.05 | c0.53 | |
| v/s Ratio Perm | | | | | | | | | 0.10 | | | |
| v/c Ratio | 0.33 | 0.00 | | 0.96 | 0.07 | | 0.36 | 0.53 | 0.17 | 0.59 | 0.86 | |
| Uniform Delay, d1 | 35.0 | 34.9 | | 31.3 | 27.8 | | 35.1 | 10.0 | 4.0 | 32.1 | 11.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 6.5 | 0.0 | | 24.9 | 0.1 | | 7.7 | 0.2 | 0.1 | 6.6 | 2.6 | |
| Delay (s) | 41.5 | 34.9 | | 56.2 | 27.9 | | 42.8 | 10.1 | 4.1 | 38.7 | 13.7 | |
| Level of Service | D | C | | E | C | | D | B | A | D | B | |
| Approach Delay (s) | | 38.2 | | | 54.4 | | | 9.4 | | | 14.4 | |
| Approach LOS | | D | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 72.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

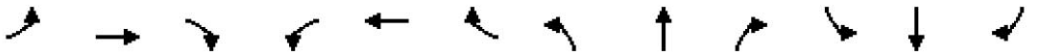
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 120 | 210 | 40 | 500 | 620 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 1567 | 1805 | 1900 | 1900 | 1577 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 1567 | 1805 | 1900 | 1900 | 1577 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 128 | 223 | 43 | 532 | 660 | 117 |
| RTOR Reduction (vph) | 0 | 195 | 0 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 128 | 28 | 43 | 532 | 660 | 106 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Turn Type | | custom | Prot | | | Perm |
| Protected Phases | | | 5 | 2 | 6 | |
| Permitted Phases | 4 | 4 | | | | 6 |
| Actuated Green, G (s) | 13.6 | 13.6 | 6.0 | 88.4 | 78.4 | 78.4 |
| Effective Green, g (s) | 13.6 | 13.6 | 6.0 | 88.4 | 78.4 | 78.4 |
| Actuated g/C Ratio | 0.12 | 0.12 | 0.05 | 0.80 | 0.71 | 0.71 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 221 | 194 | 98 | 1527 | 1354 | 1124 |
| v/s Ratio Prot | | | 0.02 | c0.28 | c0.35 | |
| v/s Ratio Perm | c0.07 | 0.02 | | | | 0.07 |
| v/c Ratio | 0.58 | 0.14 | 0.44 | 0.35 | 0.49 | 0.09 |
| Uniform Delay, d1 | 45.5 | 43.0 | 50.4 | 2.9 | 7.0 | 4.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.7 | 0.3 | 3.1 | 0.6 | 1.3 | 0.2 |
| Delay (s) | 49.2 | 43.3 | 53.5 | 3.6 | 8.2 | 5.0 |
| Level of Service | D | D | D | A | A | A |
| Approach Delay (s) | 45.5 | | | 7.3 | 7.7 | |
| Approach LOS | D | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

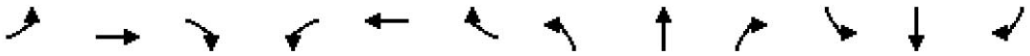
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 1310 | 100 | 50 | 1120 | 0 | 200 | 0 | 100 | 0 | 0 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | 4.9 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | | | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | 1.00 |
| Satd. Flow (prot) | 1805 | 5124 | | 1805 | 5187 | | 1805 | 3017 | | | | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | 1.00 |
| Satd. Flow (perm) | 1805 | 5124 | | 1805 | 5187 | | 1805 | 3017 | | | | 1588 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 11 | 1424 | 109 | 54 | 1217 | 0 | 217 | 0 | 109 | 0 | 0 | 11 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 89 | 0 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 11 | 1528 | 0 | 54 | 1217 | 0 | 217 | 20 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | | | | 4 |
| Actuated Green, G (s) | 1.5 | 67.4 | | 7.8 | 73.7 | | 14.8 | 20.2 | | | | 1.1 |
| Effective Green, g (s) | 1.5 | 67.4 | | 7.8 | 73.7 | | 14.8 | 20.2 | | | | 1.1 |
| Actuated g/C Ratio | 0.01 | 0.61 | | 0.07 | 0.67 | | 0.13 | 0.18 | | | | 0.01 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | | 4.0 | 4.6 | | | | 4.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | 3.0 |
| Lane Grp Cap (vph) | 25 | 3140 | | 128 | 3475 | | 243 | 554 | | | | 16 |
| v/s Ratio Prot | 0.01 | c0.30 | | c0.03 | 0.23 | | c0.12 | c0.01 | | | | |
| v/s Ratio Perm | | | | | | | | | | | | 0.00 |
| v/c Ratio | 0.44 | 0.49 | | 0.42 | 0.35 | | 0.89 | 0.04 | | | | 0.01 |
| Uniform Delay, d1 | 53.8 | 11.8 | | 48.9 | 7.8 | | 46.8 | 36.9 | | | | 53.9 |
| Progression Factor | 1.24 | 0.36 | | 0.76 | 0.78 | | 1.00 | 1.00 | | | | 1.00 |
| Incremental Delay, d2 | 11.2 | 0.5 | | 2.1 | 0.3 | | 31.0 | 0.0 | | | | 0.2 |
| Delay (s) | 77.8 | 4.8 | | 39.5 | 6.4 | | 77.8 | 36.9 | | | | 54.1 |
| Level of Service | E | A | | D | A | | E | D | | | | D |
| Approach Delay (s) | | 5.3 | | | 7.8 | | | 64.1 | | | 54.1 | |
| Approach LOS | | A | | | A | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 62.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

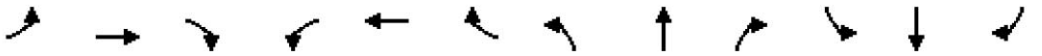
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 990 | 210 | 70 | 730 | 80 | 240 | 290 | 80 | 240 | 420 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1586 | 3502 | 5101 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1586 | 3502 | 5101 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 222 | 1100 | 233 | 78 | 811 | 89 | 267 | 322 | 89 | 267 | 467 | 156 |
| RTOR Reduction (vph) | 0 | 0 | 126 | 0 | 10 | 0 | 0 | 0 | 72 | 0 | 0 | 127 |
| Lane Group Flow (vph) | 222 | 1100 | 107 | 78 | 890 | 0 | 267 | 322 | 17 | 267 | 467 | 29 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 12.2 | 50.5 | 50.5 | 6.7 | 45.0 | | 12.7 | 20.8 | 20.8 | 12.7 | 20.8 | 20.8 |
| Effective Green, g (s) | 12.2 | 50.5 | 50.5 | 6.7 | 45.0 | | 12.7 | 20.8 | 20.8 | 12.7 | 20.8 | 20.8 |
| Actuated g/C Ratio | 0.11 | 0.46 | 0.46 | 0.06 | 0.41 | | 0.12 | 0.19 | 0.19 | 0.12 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 388 | 2381 | 728 | 213 | 2087 | | 404 | 683 | 300 | 404 | 683 | 300 |
| v/s Ratio Prot | c0.06 | c0.21 | | 0.02 | 0.17 | | c0.08 | 0.09 | | 0.08 | c0.13 | |
| v/s Ratio Perm | | | 0.07 | | | | | | 0.01 | | | 0.02 |
| v/c Ratio | 0.57 | 0.46 | 0.15 | 0.37 | 0.43 | | 0.66 | 0.47 | 0.06 | 0.66 | 0.68 | 0.10 |
| Uniform Delay, d1 | 46.4 | 20.4 | 17.3 | 49.6 | 23.3 | | 46.6 | 39.7 | 36.6 | 46.6 | 41.5 | 36.9 |
| Progression Factor | 1.49 | 0.44 | 0.26 | 0.71 | 1.71 | | 0.84 | 1.21 | 3.06 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.9 | 0.6 | 0.4 | 1.0 | 0.6 | | 4.0 | 0.5 | 0.1 | 4.0 | 2.8 | 0.1 |
| Delay (s) | 71.1 | 9.5 | 4.9 | 36.4 | 40.4 | | 43.0 | 48.7 | 112.0 | 50.6 | 44.4 | 37.0 |
| Level of Service | E | A | A | D | D | | D | D | F | D | D | D |
| Approach Delay (s) | | 17.6 | | | 40.0 | | | 54.8 | | | 45.0 | |
| Approach LOS | | B | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 13.3 |
| Intersection Capacity Utilization | 64.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

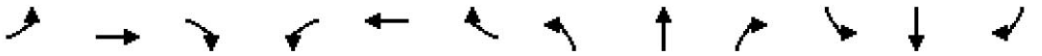
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 300 | 740 | 310 | 20 | 460 | 160 | 170 | 350 | 20 | 190 | 400 | 250 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3577 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3577 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 309 | 763 | 320 | 21 | 474 | 165 | 175 | 361 | 21 | 196 | 412 | 258 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 117 | 0 | 3 | 0 | 0 | 0 | 177 |
| Lane Group Flow (vph) | 309 | 763 | 320 | 21 | 474 | 48 | 175 | 379 | 0 | 196 | 412 | 81 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 13.8 | 43.6 | 110.0 | 2.4 | 32.2 | 32.2 | 9.5 | 33.7 | | 10.3 | 34.5 | 34.5 |
| Effective Green, g (s) | 13.8 | 43.6 | 110.0 | 2.4 | 32.2 | 32.2 | 9.5 | 33.7 | | 10.3 | 34.5 | 34.5 |
| Actuated g/C Ratio | 0.13 | 0.40 | 1.00 | 0.02 | 0.29 | 0.29 | 0.09 | 0.31 | | 0.09 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 439 | 2056 | 1593 | 39 | 1057 | 464 | 302 | 1096 | | 328 | 1132 | 498 |
| v/s Ratio Prot | c0.09 | 0.15 | | 0.01 | c0.13 | | 0.05 | 0.11 | | c0.06 | c0.11 | |
| v/s Ratio Perm | | | c0.20 | | | 0.03 | | | | | | 0.05 |
| v/c Ratio | 0.70 | 0.37 | 0.20 | 0.54 | 0.45 | 0.10 | 0.58 | 0.35 | | 0.60 | 0.36 | 0.16 |
| Uniform Delay, d1 | 46.1 | 23.5 | 0.0 | 53.3 | 31.7 | 28.4 | 48.3 | 29.6 | | 47.9 | 29.2 | 27.3 |
| Progression Factor | 0.90 | 0.75 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.6 | 0.5 | 0.3 | 13.5 | 1.4 | 0.5 | 2.7 | 0.9 | | 2.9 | 0.9 | 0.7 |
| Delay (s) | 46.0 | 18.1 | 0.3 | 66.8 | 33.0 | 28.8 | 51.0 | 30.5 | | 50.8 | 30.2 | 28.0 |
| Level of Service | D | B | A | E | C | C | D | C | | D | C | C |
| Approach Delay (s) | | 20.2 | | | 33.1 | | | 36.9 | | | 34.2 | |
| Approach LOS | | C | | | C | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

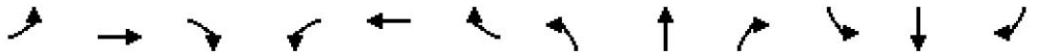
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 10 | 30 | 30 | 10 | 20 | 20 | 640 | 10 | 20 | 760 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.96 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3086 | | 1805 | 1900 | 1581 | 1805 | 3600 | | 1805 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3086 | | 1805 | 1900 | 1581 | 1805 | 3600 | | 1805 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 32 | 11 | 32 | 32 | 11 | 21 | 21 | 674 | 11 | 21 | 800 | 21 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 0 | 20 | 0 | 1 | 0 | 0 | 0 | 6 |
| Lane Group Flow (vph) | 32 | 12 | 0 | 32 | 11 | 1 | 21 | 684 | 0 | 21 | 800 | 15 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.1 | 4.2 | | 4.9 | 4.1 | 4.1 | 3.2 | 80.2 | | 3.2 | 80.2 | 80.2 |
| Effective Green, g (s) | 5.1 | 4.2 | | 4.9 | 4.1 | 4.1 | 3.2 | 80.2 | | 3.2 | 80.2 | 80.2 |
| Actuated g/C Ratio | 0.05 | 0.04 | | 0.04 | 0.04 | 0.04 | 0.03 | 0.73 | | 0.03 | 0.73 | 0.73 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 84 | 118 | | 80 | 71 | 59 | 53 | 2625 | | 53 | 2632 | 1161 |
| v/s Ratio Prot | c0.02 | 0.00 | | 0.02 | c0.01 | | c0.01 | 0.19 | | 0.01 | c0.22 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.01 |
| v/c Ratio | 0.38 | 0.10 | | 0.40 | 0.15 | 0.01 | 0.40 | 0.26 | | 0.40 | 0.30 | 0.01 |
| Uniform Delay, d1 | 50.9 | 51.1 | | 51.1 | 51.3 | 51.0 | 52.5 | 5.0 | | 52.5 | 5.2 | 4.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.41 | 0.41 | | 0.89 | 0.65 | 0.49 |
| Incremental Delay, d2 | 2.9 | 0.4 | | 3.3 | 1.0 | 0.1 | 4.7 | 0.2 | | 4.6 | 0.3 | 0.0 |
| Delay (s) | 53.8 | 51.5 | | 54.4 | 52.3 | 51.1 | 78.5 | 2.3 | | 51.2 | 3.6 | 2.0 |
| Level of Service | D | D | | D | D | D | E | A | | D | A | A |
| Approach Delay (s) | | 52.5 | | | 52.9 | | | 4.6 | | | 4.8 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.31 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 38.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

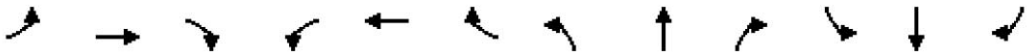
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 20 | 40 | 50 | 20 | 50 | 80 | 340 | 80 | 80 | 490 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3486 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3486 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 55 | 22 | 44 | 55 | 22 | 55 | 88 | 374 | 88 | 88 | 538 | 88 |
| RTOR Reduction (vph) | 0 | 0 | 41 | 0 | 0 | 52 | 0 | 10 | 0 | 0 | 0 | 31 |
| Lane Group Flow (vph) | 55 | 22 | 3 | 55 | 22 | 3 | 88 | 452 | 0 | 88 | 538 | 57 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 7.4 | 7.7 | 7.7 | 5.6 | 5.9 | 5.9 | 9.4 | 71.3 | | 9.4 | 71.3 | 71.3 |
| Effective Green, g (s) | 7.4 | 7.7 | 7.7 | 5.6 | 5.9 | 5.9 | 9.4 | 71.3 | | 9.4 | 71.3 | 71.3 |
| Actuated g/C Ratio | 0.07 | 0.07 | 0.07 | 0.05 | 0.05 | 0.05 | 0.09 | 0.65 | | 0.09 | 0.65 | 0.65 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 121 | 133 | 111 | 92 | 102 | 85 | 154 | 2260 | | 154 | 2340 | 1028 |
| v/s Ratio Prot | 0.03 | c0.01 | | c0.03 | 0.01 | | c0.05 | 0.13 | | 0.05 | c0.15 | |
| v/s Ratio Perm | | | 0.00 | | | 0.00 | | | | | | 0.04 |
| v/c Ratio | 0.45 | 0.17 | 0.03 | 0.60 | 0.22 | 0.03 | 0.57 | 0.20 | | 0.57 | 0.23 | 0.06 |
| Uniform Delay, d1 | 49.4 | 48.1 | 47.7 | 51.1 | 49.8 | 49.4 | 48.4 | 7.8 | | 48.4 | 8.0 | 7.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.13 | 0.65 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.7 | 0.6 | 0.1 | 10.0 | 1.1 | 0.2 | 4.7 | 0.2 | | 5.0 | 0.2 | 0.1 |
| Delay (s) | 52.1 | 48.7 | 47.8 | 61.1 | 50.9 | 49.5 | 59.4 | 5.3 | | 53.4 | 8.2 | 7.2 |
| Level of Service | D | D | D | E | D | D | E | A | | D | A | A |
| Approach Delay (s) | | 49.9 | | | 54.6 | | | 13.9 | | | 13.7 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.27 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 49.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 130 | 40 | 150 | 60 | 110 | 20 | 480 | 140 | 160 | 600 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1791 | 1825 | | 1796 | 1900 | 1583 | 1805 | 3463 | | 1805 | 3589 | |
| Flt Permitted | 0.72 | 1.00 | | 0.51 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1350 | 1825 | | 959 | 1900 | 1583 | 1805 | 3463 | | 1805 | 3589 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 53 | 137 | 42 | 158 | 63 | 116 | 21 | 505 | 147 | 168 | 632 | 21 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 94 | 0 | 18 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 53 | 168 | 0 | 158 | 63 | 22 | 21 | 634 | 0 | 168 | 652 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 21.2 | 21.2 | | 21.2 | 21.2 | 21.2 | 3.1 | 58.8 | | 15.4 | 71.1 | |
| Effective Green, g (s) | 21.2 | 21.2 | | 21.2 | 21.2 | 21.2 | 3.1 | 58.8 | | 15.4 | 71.1 | |
| Actuated g/C Ratio | 0.19 | 0.19 | | 0.19 | 0.19 | 0.19 | 0.03 | 0.53 | | 0.14 | 0.65 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 260 | 352 | | 185 | 366 | 305 | 51 | 1851 | | 253 | 2320 | |
| v/s Ratio Prot | | 0.09 | | | 0.03 | | 0.01 | c0.18 | | c0.09 | 0.18 | |
| v/s Ratio Perm | 0.04 | | | c0.16 | | 0.01 | | | | | | |
| v/c Ratio | 0.20 | 0.48 | | 0.85 | 0.17 | 0.07 | 0.41 | 0.34 | | 0.66 | 0.28 | |
| Uniform Delay, d1 | 37.3 | 39.5 | | 42.9 | 37.1 | 36.4 | 52.6 | 14.6 | | 44.8 | 8.4 | |
| Progression Factor | 1.00 | 1.00 | | 0.94 | 0.94 | 1.21 | 1.46 | 0.38 | | 1.10 | 2.17 | |
| Incremental Delay, d2 | 0.4 | 1.0 | | 29.2 | 0.2 | 0.1 | 5.2 | 0.5 | | 6.3 | 0.3 | |
| Delay (s) | 37.7 | 40.5 | | 69.6 | 35.1 | 44.0 | 81.8 | 6.0 | | 55.7 | 18.5 | |
| Level of Service | D | D | | E | D | D | F | A | | E | B | |
| Approach Delay (s) | | 39.8 | | | 54.3 | | | 8.4 | | | 26.1 | |
| Approach LOS | | D | | | D | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 64.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis
## 107: Rider St & Evans Rd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 240 | 70 | 10 | 180 | 30 | 50 | 190 | 30 | 60 | 240 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3472 | | 1805 | 3523 | | 1805 | 3528 | | 1805 | 3299 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3472 | | 1805 | 3523 | | 1805 | 3528 | | 1805 | 3299 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 274 | 253 | 74 | 11 | 189 | 32 | 53 | 200 | 32 | 63 | 253 | 274 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 15 | 0 | 0 | 9 | 0 | 0 | 138 | 0 |
| Lane Group Flow (vph) | 274 | 296 | 0 | 11 | 206 | 0 | 53 | 223 | 0 | 63 | 389 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 20.7 | 34.5 | | 1.2 | 15.0 | | 7.6 | 50.3 | | 8.0 | 50.7 | |
| Effective Green, g (s) | 20.7 | 34.5 | | 1.2 | 15.0 | | 7.6 | 50.3 | | 8.0 | 50.7 | |
| Actuated g/C Ratio | 0.19 | 0.31 | | 0.01 | 0.14 | | 0.07 | 0.46 | | 0.07 | 0.46 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 340 | 1089 | | 20 | 480 | | 125 | 1613 | | 131 | 1521 | |
| v/s Ratio Prot | c0.15 | 0.09 | | 0.01 | c0.06 | | 0.03 | 0.06 | | c0.03 | c0.12 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.81 | 0.27 | | 0.55 | 0.43 | | 0.42 | 0.14 | | 0.48 | 0.26 | |
| Uniform Delay, d1 | 42.7 | 28.3 | | 54.1 | 43.6 | | 49.1 | 17.3 | | 49.0 | 18.1 | |
| Progression Factor | 0.84 | 0.81 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.53 | 0.39 | |
| Incremental Delay, d2 | 12.7 | 0.1 | | 28.9 | 0.6 | | 2.3 | 0.2 | | 2.7 | 0.4 | |
| Delay (s) | 48.6 | 23.2 | | 83.0 | 44.2 | | 51.4 | 17.5 | | 77.8 | 7.5 | |
| Level of Service | D | C | | F | D | | D | B | | E | A | |
| Approach Delay (s) | | 34.8 | | | 46.0 | | | 23.8 | | | 15.0 | |
| Approach LOS | | C | | | D | | | C | | | B | |

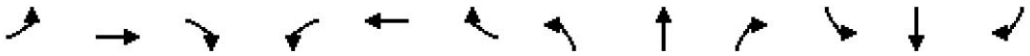
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 40 | 10 | 50 | 20 | 60 | 10 | 590 | 40 | 100 | 690 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1828 | | 1805 | 1900 | 1586 | 1805 | 3571 | | 1805 | 3591 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1828 | | 1805 | 1900 | 1586 | 1805 | 3571 | | 1805 | 3591 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 32 | 42 | 11 | 53 | 21 | 63 | 11 | 621 | 42 | 105 | 726 | 21 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 57 | 0 | 3 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 32 | 43 | 0 | 53 | 21 | 6 | 11 | 660 | 0 | 105 | 746 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 4.2 | 7.7 | | 6.8 | 10.3 | 10.3 | 1.5 | 65.6 | | 11.7 | 75.8 | |
| Effective Green, g (s) | 4.2 | 7.7 | | 6.8 | 10.3 | 10.3 | 1.5 | 65.6 | | 11.7 | 75.8 | |
| Actuated g/C Ratio | 0.04 | 0.07 | | 0.06 | 0.09 | 0.09 | 0.01 | 0.60 | | 0.11 | 0.69 | |
| Clearance Time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 69 | 128 | | 112 | 178 | 149 | 25 | 2130 | | 192 | 2475 | |
| v/s Ratio Prot | 0.02 | c0.02 | | c0.03 | c0.01 | | 0.01 | 0.18 | | c0.06 | c0.21 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | |
| v/c Ratio | 0.46 | 0.33 | | 0.47 | 0.12 | 0.04 | 0.44 | 0.31 | | 0.55 | 0.30 | |
| Uniform Delay, d1 | 51.8 | 48.7 | | 49.9 | 45.7 | 45.4 | 53.8 | 11.0 | | 46.6 | 6.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.21 | 0.31 | | 1.14 | 1.09 | |
| Incremental Delay, d2 | 4.9 | 1.5 | | 3.1 | 0.3 | 0.1 | 10.9 | 0.3 | | 3.1 | 0.3 | |
| Delay (s) | 56.7 | 50.3 | | 53.0 | 46.0 | 45.5 | 76.0 | 3.7 | | 56.4 | 7.6 | |
| Level of Service | E | D | | D | D | D | E | A | | E | A | |
| Approach Delay (s) | | 52.7 | | | 48.5 | | | 4.9 | | | 13.6 | |
| Approach LOS | | D | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 48.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

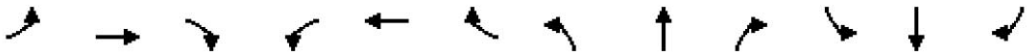
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | TWLTL | |
| Median storage veh) | | | | | | | | 2 | | | 2 | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| vC1, stage 1 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vC2, stage 2 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vCu, unblocked vol | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | 6.1 | 5.5 | | 6.1 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 100 | 100 | 100 | 100 | | | 100 | | |
| cM capacity (veh/h) | 1029 | 900 | 1091 | 1029 | 900 | 1091 | 1636 | | | 1636 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | A | | | | |

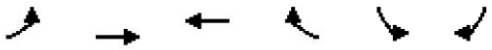
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.0 | | | |
| Intersection Capacity Utilization | 0.0% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 90 | 110 | 50 | 20 | 80 | 30 | 40 | 160 | 30 | 20 | 150 | 80 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 92 | 112 | 51 | 20 | 82 | 31 | 41 | 163 | 31 | 20 | 153 | 82 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 255 | 133 | 41 | 194 | 20 | 235 |
| Volume Left (vph) | 92 | 20 | 41 | 0 | 20 | 0 |
| Volume Right (vph) | 51 | 31 | 0 | 31 | 0 | 82 |
| Hadj (s) | -0.05 | -0.11 | 0.50 | -0.11 | 0.50 | -0.24 |
| Departure Headway (s) | 5.4 | 5.6 | 6.5 | 5.9 | 6.5 | 5.7 |
| Degree Utilization, x | 0.38 | 0.21 | 0.07 | 0.32 | 0.04 | 0.37 |
| Capacity (veh/h) | 617 | 579 | 518 | 573 | 519 | 591 |
| Control Delay (s) | 11.7 | 10.0 | 8.8 | 10.4 | 8.5 | 10.9 |
| Approach Delay (s) | 11.7 | 10.0 | 10.1 | | 10.7 | |
| Approach LOS | B | B | B | | B | |

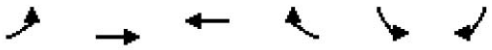
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 10.7 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 46.6% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 200 | 480 | 360 | 50 | 60 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1900 | 1569 | 1805 | 1564 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1900 | 1569 | 1805 | 1564 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 217 | 522 | 391 | 54 | 65 | 196 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 28 | 0 | 150 |
| Lane Group Flow (vph) | 217 | 522 | 391 | 26 | 65 | 46 |
| Confl. Peds. (#/hr) | 5 | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | Perm |
| Protected Phases | 7 | 4 | 8 | | 6 | |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 18.5 | 76.0 | 53.5 | 53.5 | 26.0 | 26.0 |
| Effective Green, g (s) | 18.5 | 76.0 | 53.5 | 53.5 | 26.0 | 26.0 |
| Actuated g/C Ratio | 0.17 | 0.69 | 0.49 | 0.49 | 0.24 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 304 | 1313 | 924 | 763 | 427 | 370 |
| v/s Ratio Prot | c0.12 | 0.27 | c0.21 | | c0.04 | |
| v/s Ratio Perm | | | | 0.02 | | 0.03 |
| v/c Ratio | 0.71 | 0.40 | 0.42 | 0.03 | 0.15 | 0.13 |
| Uniform Delay, d1 | 43.2 | 7.2 | 18.3 | 14.8 | 33.3 | 33.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.7 | 0.9 | 1.4 | 0.1 | 0.8 | 0.7 |
| Delay (s) | 51.0 | 8.1 | 19.7 | 14.8 | 34.0 | 33.7 |
| Level of Service | D | A | B | B | C | C |
| Approach Delay (s) | | 20.7 | 19.1 | | 33.8 | |
| Approach LOS | | C | B | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

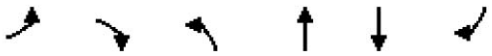
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 20 | 750 | 490 | 40 | 70 | 70 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 21 | 773 | 505 | 41 | 72 | 72 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | 2 |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 546 | | | | 1340 | 526 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 546 | | | | 1340 | 526 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 98 | | | | 57 | 87 |
| cM capacity (veh/h) | 1033 | | | | 166 | 556 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 21 | 773 | 546 | 144 |
| Volume Left | 21 | 0 | 0 | 72 |
| Volume Right | 0 | 0 | 41 | 72 |
| cSH | 1033 | 1700 | 1700 | 333 |
| Volume to Capacity | 0.02 | 0.45 | 0.32 | 0.43 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 53 |
| Control Delay (s) | 8.6 | 0.0 | 0.0 | 27.3 |
| Lane LOS | A | | | D |
| Approach Delay (s) | 0.2 | | 0.0 | 27.3 |
| Approach LOS | | | | D |

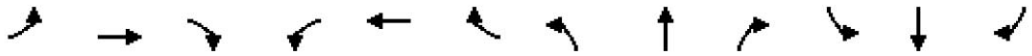
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.8 | | |
| Intersection Capacity Utilization | 50.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 40 | 30 | 10 | 390 | 700 | 110 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 42 | 31 | 10 | 406 | 729 | 115 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1219 | 791 | 844 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1219 | 791 | 844 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 79 | 92 | 99 | | | |
| cM capacity (veh/h) | 198 | 391 | 801 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 73 | 10 | 406 | 844 |
| Volume Left | 42 | 10 | 0 | 0 |
| Volume Right | 31 | 0 | 0 | 115 |
| cSH | 251 | 801 | 1700 | 1700 |
| Volume to Capacity | 0.29 | 0.01 | 0.24 | 0.50 |
| Queue Length 95th (ft) | 29 | 1 | 0 | 0 |
| Control Delay (s) | 25.1 | 9.6 | 0.0 | 0.0 |
| Lane LOS | D | A | | |
| Approach Delay (s) | 25.1 | 0.2 | | 0.0 |
| Approach LOS | D | | | |

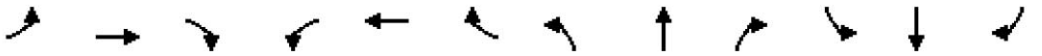
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 54.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 30 | 590 | 0 | 0 | 210 | 200 | 170 | 10 | 10 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 31 | 608 | 0 | 0 | 216 | 206 | 175 | 10 | 10 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 428 | | | 613 | | | 897 | 1103 | 618 | 907 | 897 | 226 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 428 | | | 613 | | | 897 | 1103 | 618 | 907 | 897 | 226 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 97 | | | 100 | | | 31 | 95 | 98 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1143 | | | 972 | | | 255 | 207 | 489 | 237 | 273 | 814 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 31 | 608 | 216 | 206 | 196 |
| Volume Left | 31 | 0 | 0 | 0 | 175 |
| Volume Right | 0 | 0 | 0 | 206 | 10 |
| cSH | 1143 | 1700 | 1700 | 1700 | 266 |
| Volume to Capacity | 0.03 | 0.36 | 0.13 | 0.12 | 0.74 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 131 |
| Control Delay (s) | 8.2 | 0.0 | 0.0 | 0.0 | 48.8 |
| Lane LOS | A | | | | E |
| Approach Delay (s) | 0.4 | | 0.0 | | 48.8 |
| Approach LOS | | | | | E |

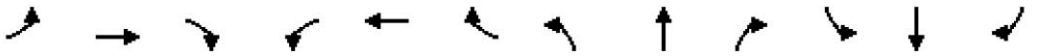
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.8 | | |
| Intersection Capacity Utilization | 47.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 410 | 350 | 10 | 390 | 0 | 0 | 0 | 0 | 220 | 10 | 10 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 427 | 365 | 10 | 406 | 0 | 0 | 0 | 0 | 229 | 10 | 10 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 411 | | | 797 | | | 875 | 864 | 437 | 864 | 1229 | 416 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 411 | | | 797 | | | 875 | 864 | 437 | 864 | 1229 | 416 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 99 | | | 100 | 100 | 100 | 15 | 94 | 98 |
| cM capacity (veh/h) | 1154 | | | 834 | | | 251 | 289 | 621 | 271 | 176 | 635 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 427 | 365 | 10 | 406 | 250 |
| Volume Left | 0 | 0 | 10 | 0 | 229 |
| Volume Right | 0 | 365 | 0 | 0 | 10 |
| cSH | 1700 | 1700 | 834 | 1700 | 278 |
| Volume to Capacity | 0.25 | 0.21 | 0.01 | 0.24 | 0.90 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 202 |
| Control Delay (s) | 0.0 | 0.0 | 9.4 | 0.0 | 70.4 |
| Lane LOS | | | A | | F |
| Approach Delay (s) | 0.0 | | 0.2 | | 70.4 |
| Approach LOS | | | | | F |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 12.1 | | | |
| Intersection Capacity Utilization | 47.7% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

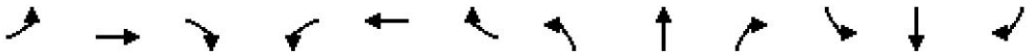


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 370 | 130 | 30 | 260 | 250 | 70 | 470 | 50 | 440 | 860 | 330 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1599 | 3502 | 3610 | 1604 | 3502 | 3610 | 1598 | 3502 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1599 | 3502 | 3610 | 1604 | 3502 | 3610 | 1598 | 3502 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 196 | 381 | 134 | 31 | 268 | 258 | 72 | 485 | 52 | 454 | 887 | 340 |
| RTOR Reduction (vph) | 0 | 0 | 81 | 0 | 0 | 108 | 0 | 0 | 35 | 0 | 0 | 164 |
| Lane Group Flow (vph) | 196 | 381 | 53 | 31 | 268 | 150 | 72 | 485 | 17 | 454 | 887 | 176 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.1 | 15.3 | 22.4 | 5.4 | 13.6 | 27.8 | 7.1 | 16.7 | 22.1 | 14.2 | 23.8 | 30.9 |
| Effective Green, g (s) | 7.1 | 15.3 | 22.4 | 5.4 | 13.6 | 27.8 | 7.1 | 16.7 | 22.1 | 14.2 | 23.8 | 30.9 |
| Actuated g/C Ratio | 0.11 | 0.23 | 0.33 | 0.08 | 0.20 | 0.41 | 0.11 | 0.25 | 0.33 | 0.21 | 0.35 | 0.46 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 368 | 817 | 624 | 280 | 726 | 755 | 368 | 892 | 617 | 736 | 1271 | 824 |
| v/s Ratio Prot | c0.06 | c0.11 | 0.01 | 0.01 | 0.07 | 0.04 | 0.02 | 0.13 | 0.00 | c0.13 | c0.25 | 0.02 |
| v/s Ratio Perm | | | 0.02 | | | 0.05 | | | 0.01 | | | 0.09 |
| v/c Ratio | 0.53 | 0.47 | 0.09 | 0.11 | 0.37 | 0.20 | 0.20 | 0.54 | 0.03 | 0.62 | 0.70 | 0.21 |
| Uniform Delay, d1 | 28.7 | 22.6 | 15.5 | 28.9 | 23.3 | 12.8 | 27.6 | 22.1 | 15.5 | 24.2 | 18.8 | 11.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.5 | 0.4 | 0.1 | 0.2 | 0.3 | 0.1 | 0.3 | 0.7 | 0.0 | 1.5 | 1.7 | 0.1 |
| Delay (s) | 30.2 | 23.0 | 15.6 | 29.0 | 23.6 | 12.9 | 27.9 | 22.8 | 15.5 | 25.8 | 20.5 | 11.2 |
| Level of Service | C | C | B | C | C | B | C | C | B | C | C | B |
| Approach Delay (s) | | 23.6 | | | 19.0 | | | 22.8 | | | 20.0 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 67.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 65.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis
## 129: 6th St & California Ave



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 290 | 160 | 30 | 230 | 20 | 210 | 70 | 50 | 20 | 30 | 10 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 22 | 312 | 172 | 32 | 247 | 22 | 226 | 75 | 54 | 22 | 32 | 11 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 22 | 484 | 32 | 269 | 226 | 129 | 65 |
| Volume Left (vph) | 22 | 0 | 32 | 0 | 226 | 0 | 22 |
| Volume Right (vph) | 0 | 172 | 0 | 22 | 0 | 54 | 11 |
| Hadj (s) | 0.50 | -0.25 | 0.50 | -0.06 | 0.50 | -0.29 | -0.03 |
| Departure Headway (s) | 7.0 | 6.2 | 7.3 | 6.7 | 7.5 | 6.7 | 7.6 |
| Degree Utilization, x | 0.04 | 0.83 | 0.07 | 0.50 | 0.47 | 0.24 | 0.14 |
| Capacity (veh/h) | 492 | 567 | 468 | 514 | 451 | 504 | 425 |
| Control Delay (s) | 9.1 | 31.8 | 9.6 | 15.0 | 15.7 | 10.6 | 11.8 |
| Approach Delay (s) | 30.8 | | 14.5 | | 13.9 | | 11.8 |
| Approach LOS | D | | B | | B | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 20.9 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 50.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# HCM Signalized Intersection Capacity Analysis
## 130: 6th St & Beaumont Ave

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 250 | 50 | 80 | 210 | 150 | 40 | 290 | 70 | 120 | 240 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1802 | 3512 | | 1802 | 1634 | 1376 | 1805 | 3496 | | 1805 | 3485 | |
| Flt Permitted | 0.61 | 1.00 | | 0.56 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1150 | 3512 | | 1059 | 1634 | 1376 | 1805 | 3496 | | 1805 | 3485 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 128 | 266 | 53 | 85 | 223 | 160 | 43 | 309 | 74 | 128 | 255 | 64 |
| RTOR Reduction (vph) | 0 | 25 | 0 | 0 | 0 | 91 | 0 | 31 | 0 | 0 | 30 | 0 |
| Lane Group Flow (vph) | 128 | 294 | 0 | 85 | 223 | 69 | 43 | 352 | 0 | 128 | 289 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 8 | 8 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 11.7 | 11.7 | | 11.7 | 11.7 | 17.9 | 2.3 | 11.8 | | 6.2 | 15.7 | |
| Effective Green, g (s) | 11.7 | 11.7 | | 11.7 | 11.7 | 17.9 | 2.3 | 11.8 | | 6.2 | 15.7 | |
| Actuated g/C Ratio | 0.28 | 0.28 | | 0.28 | 0.28 | 0.43 | 0.06 | 0.28 | | 0.15 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 323 | 985 | | 297 | 458 | 723 | 100 | 989 | | 268 | 1312 | |
| v/s Ratio Prot | | 0.08 | | | c0.14 | 0.01 | 0.02 | c0.10 | | c0.07 | c0.08 | |
| v/s Ratio Perm | 0.11 | | | 0.08 | | 0.04 | | | | | | |
| v/c Ratio | 0.40 | 0.30 | | 0.29 | 0.49 | 0.09 | 0.43 | 0.36 | | 0.48 | 0.22 | |
| Uniform Delay, d1 | 12.1 | 11.8 | | 11.7 | 12.5 | 7.1 | 19.1 | 11.9 | | 16.3 | 8.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 0.2 | | 0.5 | 0.8 | 0.1 | 3.0 | 0.2 | | 1.3 | 0.1 | |
| Delay (s) | 12.9 | 11.9 | | 12.3 | 13.3 | 7.1 | 22.0 | 12.1 | | 17.6 | 8.9 | |
| Level of Service | B | B | | B | B | A | C | B | | B | A | |
| Approach Delay (s) | | 12.2 | | | 11.0 | | | 13.1 | | | 11.4 | |
| Approach LOS | | B | | | B | | | B | | | B | |

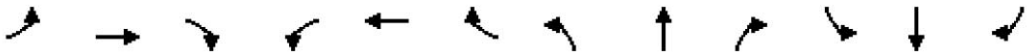
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 41.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 51.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 1210 | 10 | 10 | 450 | 10 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1700 | 1800 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1800 | 1529 | | 1753 | 1615 | 1530 |
| Flt Permitted | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1800 | 1529 | | 1797 | 1615 | 1530 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 11 | 1301 | 11 | 11 | 484 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 11 | 1301 | 0 | 22 | 484 | 10 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | pm+ov | Perm | | | Prot |
| Protected Phases | 4 | 2 | | 8 | 2 | 2 |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 2.6 | 55.8 | | 2.6 | 53.2 | 53.2 |
| Effective Green, g (s) | 2.6 | 55.8 | | 2.6 | 53.2 | 53.2 |
| Actuated g/C Ratio | 0.04 | 0.85 | | 0.04 | 0.81 | 0.81 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 71 | 1529 | | 71 | 1306 | 1237 |
| v/s Ratio Prot | 0.01 | c0.69 | | | 0.30 | 0.01 |
| v/s Ratio Perm | | 0.16 | | 0.01 | | |
| v/c Ratio | 0.15 | 0.85 | | 0.31 | 0.37 | 0.01 |
| Uniform Delay, d1 | 30.5 | 2.7 | | 30.7 | 1.7 | 1.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | 4.8 | | 2.5 | 0.2 | 0.0 |
| Delay (s) | 31.6 | 7.5 | | 33.2 | 1.9 | 1.2 |
| Level of Service | C | A | | C | A | A |
| Approach Delay (s) | 7.7 | | | 33.2 | 1.9 | |
| Approach LOS | A | | | C | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 65.8 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 93.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

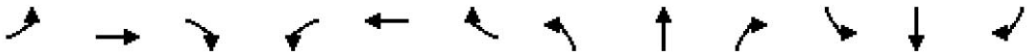
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 600 | 0 | 0 | 300 | 280 | 10 | 30 | 10 | 230 | 10 | 20 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 33 | 667 | 0 | 0 | 333 | 311 | 11 | 33 | 11 | 256 | 11 | 22 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 700 | 644 | 56 | 289 |
| Volume Left (vph) | 33 | 0 | 11 | 256 |
| Volume Right (vph) | 0 | 311 | 11 | 22 |
| Hadj (s) | 0.01 | -0.29 | -0.08 | 0.13 |
| Departure Headway (s) | 6.4 | 6.1 | 8.4 | 7.5 |
| Degree Utilization, x | 1.24 | 1.09 | 0.13 | 0.60 |
| Capacity (veh/h) | 558 | 598 | 401 | 473 |
| Control Delay (s) | 145.7 | 88.4 | 12.7 | 20.9 |
| Approach Delay (s) | 145.7 | 88.4 | 12.7 | 20.9 |
| Approach LOS | F | F | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 98.1 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 750 | 10 | 10 | 540 | 170 | 10 | 10 | 10 | 120 | 0 | 20 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 24 | 893 | 12 | 12 | 643 | 202 | 12 | 12 | 12 | 143 | 0 | 24 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 929 | 857 | 36 | 167 |
| Volume Left (vph) | 24 | 12 | 12 | 143 |
| Volume Right (vph) | 12 | 202 | 12 | 24 |
| Hadj (s) | 0.00 | -0.14 | -0.13 | 0.09 |
| Departure Headway (s) | 5.6 | 5.5 | 7.7 | 7.3 |
| Degree Utilization, x | 1.46 | 1.31 | 0.08 | 0.34 |
| Capacity (veh/h) | 631 | 665 | 446 | 482 |
| Control Delay (s) | 230.2 | 168.7 | 11.4 | 13.9 |
| Approach Delay (s) | 230.2 | 168.7 | 11.4 | 13.9 |
| Approach LOS | F | F | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 181.6 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 76.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 60 | 760 | 30 | 20 | 750 | 80 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 67 | 844 | 33 | 22 | 833 | 89 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 911 | 56 | 922 |
| Volume Left (vph) | 0 | 33 | 833 |
| Volume Right (vph) | 844 | 0 | 89 |
| Hadj (s) | -0.56 | 0.12 | 0.12 |
| Departure Headway (s) | 5.4 | 7.1 | 6.0 |
| Degree Utilization, x | 1.35 | 0.11 | 1.54 |
| Capacity (veh/h) | 677 | 500 | 602 |
| Control Delay (s) | 186.2 | 11.0 | 269.9 |
| Approach Delay (s) | 186.2 | 11.0 | 269.9 |
| Approach LOS | F | B | F |

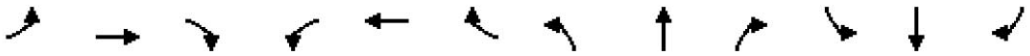
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 221.9 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 108.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 60 | 40 | 240 | 60 | 70 | 200 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 65 | 43 | 261 | 65 | 76 | 217 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 109 | | 674 | 87 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 109 | | 674 | 87 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 83 | | 78 | 78 |
| cM capacity (veh/h) | | | 1494 | | 349 | 977 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 109 | 326 | 293 |
| Volume Left | 0 | 261 | 76 |
| Volume Right | 43 | 0 | 217 |
| cSH | 1700 | 1494 | 666 |
| Volume to Capacity | 0.06 | 0.17 | 0.44 |
| Queue Length 95th (ft) | 0 | 16 | 56 |
| Control Delay (s) | 0.0 | 6.6 | 14.6 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 6.6 | 14.6 |
| Approach LOS | | | B |

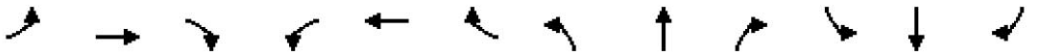
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.8 | | |
| Intersection Capacity Utilization | 47.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 260 | 30 | 20 | 300 | 20 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 265 | 31 | 20 | 306 | 20 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 31 | 31 | 306 | 347 |
| Volume Left (vph) | 10 | 10 | 10 | 20 |
| Volume Right (vph) | 10 | 10 | 31 | 20 |
| Hadj (s) | -0.13 | -0.13 | -0.05 | -0.02 |
| Departure Headway (s) | 5.3 | 5.3 | 4.4 | 4.4 |
| Degree Utilization, x | 0.04 | 0.04 | 0.37 | 0.42 |
| Capacity (veh/h) | 600 | 599 | 799 | 800 |
| Control Delay (s) | 8.5 | 8.5 | 10.0 | 10.5 |
| Approach Delay (s) | 8.5 | 8.5 | 10.0 | 10.5 |
| Approach LOS | A | A | A | B |

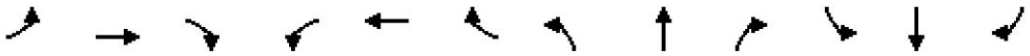
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 10.1 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 36.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 0 | 60 | 5 | 0 | 5 | 20 | 830 | 0 | 0 | 610 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1794 | 1573 | | 1794 | 1573 | | 1805 | 1900 | | | 1900 | 1573 |
| Flt Permitted | 0.75 | 1.00 | | 0.71 | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1423 | 1573 | | 1346 | 1573 | | 1805 | 1900 | | | 1900 | 1573 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 45 | 0 | 68 | 6 | 0 | 6 | 23 | 943 | 0 | 0 | 693 | 23 |
| RTOR Reduction (vph) | 0 | 61 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 45 | 7 | 0 | 6 | 1 | 0 | 23 | 943 | 0 | 0 | 693 | 16 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 6.2 | 6.2 | | 6.2 | 6.2 | | 1.1 | 42.3 | | | 37.2 | 37.2 |
| Effective Green, g (s) | 6.2 | 6.2 | | 6.2 | 6.2 | | 1.1 | 42.3 | | | 37.2 | 37.2 |
| Actuated g/C Ratio | 0.11 | 0.11 | | 0.11 | 0.11 | | 0.02 | 0.75 | | | 0.66 | 0.66 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 156 | 173 | | 148 | 173 | | 35 | 1422 | | | 1251 | 1036 |
| v/s Ratio Prot | | 0.00 | | | 0.00 | | 0.01 | c0.50 | | | 0.36 | |
| v/s Ratio Perm | c0.03 | | | 0.00 | | | | | | | | 0.01 |
| v/c Ratio | 0.29 | 0.04 | | 0.04 | 0.00 | | 0.66 | 0.66 | | | 0.55 | 0.02 |
| Uniform Delay, d1 | 23.1 | 22.5 | | 22.5 | 22.4 | | 27.5 | 3.5 | | | 5.2 | 3.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | 0.1 | | 0.1 | 0.0 | | 36.6 | 1.2 | | | 0.5 | 0.0 |
| Delay (s) | 24.1 | 22.6 | | 22.6 | 22.4 | | 64.2 | 4.7 | | | 5.7 | 3.3 |
| Level of Service | C | C | | C | C | | E | A | | | A | A |
| Approach Delay (s) | | 23.2 | | | 22.5 | | | 6.1 | | | 5.6 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 56.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 60.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

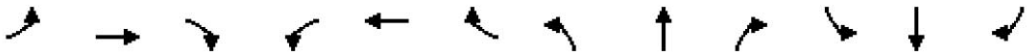
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 10 | 10 | 10 | 10 | 130 | 10 | 500 | 130 | 220 | 280 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 0.98 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.93 | | | 0.88 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1748 | | | 1634 | | 1805 | 1900 | 1573 | 1805 | 1888 | |
| Flt Permitted | | 1.00 | | | 0.98 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1748 | | | 1606 | | 1805 | 1900 | 1573 | 1805 | 1888 | |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 0 | 12 | 12 | 12 | 12 | 155 | 12 | 595 | 155 | 262 | 333 | 12 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 133 | 0 | 0 | 0 | 86 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 14 | 0 | 0 | 46 | 0 | 12 | 595 | 69 | 262 | 344 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | |
| Actuated Green, G (s) | | 8.0 | | | 8.0 | | 1.3 | 25.2 | 25.2 | 11.1 | 35.0 | |
| Effective Green, g (s) | | 8.0 | | | 8.0 | | 1.3 | 25.2 | 25.2 | 11.1 | 35.0 | |
| Actuated g/C Ratio | | 0.14 | | | 0.14 | | 0.02 | 0.45 | 0.45 | 0.20 | 0.62 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 248 | | | 228 | | 42 | 850 | 704 | 356 | 1174 | |
| v/s Ratio Prot | | 0.01 | | | | | 0.01 | c0.31 | | c0.15 | 0.18 | |
| v/s Ratio Perm | | | | | c0.03 | | | | 0.04 | | | |
| v/c Ratio | | 0.06 | | | 0.20 | | 0.29 | 0.70 | 0.10 | 0.74 | 0.29 | |
| Uniform Delay, d1 | | 20.9 | | | 21.3 | | 27.0 | 12.5 | 9.0 | 21.2 | 4.9 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.1 | | | 0.4 | | 3.7 | 2.5 | 0.1 | 7.7 | 0.1 | |
| Delay (s) | | 21.0 | | | 21.8 | | 30.8 | 15.1 | 9.0 | 28.9 | 5.1 | |
| Level of Service | | C | | | C | | C | B | A | C | A | |
| Approach Delay (s) | | 21.0 | | | 21.8 | | | 14.1 | | | 15.4 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 56.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

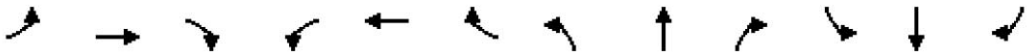


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 260 | 50 | 20 | 420 | 0 | 190 | 0 | 30 | 0 | 0 | 0 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 0 | 313 | 60 | 24 | 506 | 0 | 229 | 0 | 36 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total (vph) | 373 | 530 | 229 | 36 | 0 |
| Volume Left (vph) | 0 | 24 | 229 | 0 | 0 |
| Volume Right (vph) | 60 | 0 | 0 | 36 | 0 |
| Hadj (s) | -0.10 | 0.01 | 0.20 | -0.60 | 0.00 |
| Departure Headway (s) | 5.4 | 5.3 | 6.4 | 3.2 | 6.9 |
| Degree Utilization, x | 0.56 | 0.77 | 0.41 | 0.03 | 0.00 |
| Capacity (veh/h) | 639 | 670 | 512 | 1121 | 442 |
| Control Delay (s) | 14.9 | 23.8 | 13.6 | 6.3 | 9.9 |
| Approach Delay (s) | 14.9 | 23.8 | 12.6 | | 0.0 |
| Approach LOS | B | C | B | | A |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 18.4 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 55.6% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |

# HCM Signalized Intersection Capacity Analysis
## 27: Cactus Ave & Redlands Blvd

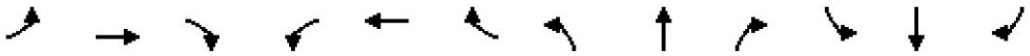


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 150 | 50 | 180 | 40 | 30 | 20 | 210 | 410 | 130 | 180 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.94 | | | 0.90 | | | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 3462 | | 1805 | 1767 | | | 3227 | | | 3413 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.93 | | | 0.58 | |
| Satd. Flow (perm) | 1805 | 3462 | | 1805 | 1767 | | | 3005 | | | 2010 | |
| Peak-hour factor, PHF | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Adj. Flow (vph) | 205 | 205 | 68 | 247 | 55 | 41 | 27 | 288 | 562 | 178 | 247 | 123 |
| RTOR Reduction (vph) | 0 | 53 | 0 | 0 | 36 | 0 | 0 | 359 | 0 | 0 | 40 | 0 |
| Lane Group Flow (vph) | 205 | 220 | 0 | 247 | 60 | 0 | 0 | 518 | 0 | 0 | 508 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 12.2 | 10.3 | | 7.1 | 5.2 | | | 16.6 | | | 16.6 | |
| Effective Green, g (s) | 12.2 | 10.3 | | 7.1 | 5.2 | | | 16.6 | | | 16.6 | |
| Actuated g/C Ratio | 0.27 | 0.22 | | 0.15 | 0.11 | | | 0.36 | | | 0.36 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 479 | 775 | | 279 | 200 | | | 1084 | | | 725 | |
| v/s Ratio Prot | c0.11 | c0.06 | | c0.14 | 0.03 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.17 | | | c0.25 | |
| v/c Ratio | 0.43 | 0.28 | | 0.89 | 0.30 | | | 0.48 | | | 0.85dl | |
| Uniform Delay, d1 | 14.0 | 14.8 | | 19.1 | 18.7 | | | 11.4 | | | 12.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.6 | 0.2 | | 26.6 | 0.8 | | | 0.3 | | | 3.1 | |
| Delay (s) | 14.6 | 15.0 | | 45.6 | 19.6 | | | 11.7 | | | 15.7 | |
| Level of Service | B | B | | D | B | | | B | | | B | |
| Approach Delay (s) | | 14.8 | | | 38.3 | | | 11.7 | | | 15.7 | |
| Approach LOS | | B | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 46.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

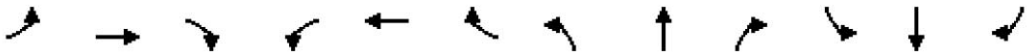
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 50 | 10 | 280 | 80 | 210 | 20 | 490 | 560 | 110 | 330 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3512 | | 3502 | 3185 | | 1805 | 5187 | 1601 | 1805 | 4960 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3512 | | 3502 | 3185 | | 1805 | 5187 | 1601 | 1805 | 4960 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 104 | 65 | 13 | 364 | 104 | 273 | 26 | 636 | 727 | 143 | 429 | 156 |
| RTOR Reduction (vph) | 0 | 12 | 0 | 0 | 208 | 0 | 0 | 0 | 373 | 0 | 53 | 0 |
| Lane Group Flow (vph) | 104 | 66 | 0 | 364 | 169 | 0 | 26 | 636 | 354 | 143 | 532 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.9 | 5.5 | | 11.3 | 9.9 | | 1.2 | 16.0 | 27.3 | 7.2 | 22.0 | |
| Effective Green, g (s) | 6.9 | 5.5 | | 11.3 | 9.9 | | 1.2 | 16.0 | 27.3 | 7.2 | 22.0 | |
| Actuated g/C Ratio | 0.12 | 0.10 | | 0.20 | 0.18 | | 0.02 | 0.29 | 0.49 | 0.13 | 0.39 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 222 | 345 | | 707 | 563 | | 39 | 1482 | 895 | 232 | 1949 | |
| v/s Ratio Prot | 0.06 | 0.02 | | c0.10 | c0.05 | | 0.01 | 0.12 | c0.08 | c0.08 | 0.11 | |
| v/s Ratio Perm | | | | | | | | | 0.14 | | | |
| v/c Ratio | 0.47 | 0.19 | | 0.51 | 0.30 | | 0.67 | 0.43 | 0.40 | 0.62 | 0.27 | |
| Uniform Delay, d1 | 22.8 | 23.2 | | 19.9 | 20.0 | | 27.2 | 16.3 | 9.1 | 23.1 | 11.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.6 | 0.3 | | 0.6 | 0.3 | | 35.5 | 0.2 | 0.3 | 4.8 | 0.1 | |
| Delay (s) | 24.4 | 23.5 | | 20.5 | 20.3 | | 62.7 | 16.5 | 9.4 | 27.9 | 11.6 | |
| Level of Service | C | C | | C | C | | E | B | A | C | B | |
| Approach Delay (s) | | 24.0 | | | 20.4 | | | 13.6 | | | 14.8 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 56.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

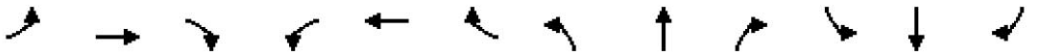
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 150 | 140 | 180 | 120 | 10 | 80 | 70 | 150 | 10 | 100 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 1.00 | 0.97 | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.99 | | | 1.00 | 0.85 | | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1733 | | 1805 | 1873 | | | 1851 | 1561 | | 1826 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1733 | | 1805 | 1873 | | | 1851 | 1561 | | 1826 | |
| Peak-hour factor, PHF | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| Adj. Flow (vph) | 42 | 211 | 197 | 254 | 169 | 14 | 113 | 99 | 211 | 14 | 141 | 42 |
| RTOR Reduction (vph) | 0 | 24 | 0 | 0 | 2 | 0 | 0 | 0 | 177 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 42 | 384 | 0 | 254 | 181 | 0 | 0 | 212 | 34 | 0 | 188 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.3 | 45.6 | | 21.8 | 61.1 | | | 19.1 | 19.1 | | 17.5 | |
| Effective Green, g (s) | 6.3 | 45.6 | | 21.8 | 61.1 | | | 19.1 | 19.1 | | 17.5 | |
| Actuated g/C Ratio | 0.05 | 0.38 | | 0.18 | 0.51 | | | 0.16 | 0.16 | | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 95 | 659 | | 328 | 954 | | | 295 | 248 | | 266 | |
| v/s Ratio Prot | 0.02 | c0.22 | | c0.14 | 0.10 | | | c0.11 | | | c0.10 | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | |
| v/c Ratio | 0.44 | 0.58 | | 0.77 | 0.19 | | | 0.72 | 0.14 | | 0.71 | |
| Uniform Delay, d1 | 55.1 | 29.6 | | 46.8 | 16.0 | | | 47.9 | 43.4 | | 48.8 | |
| Progression Factor | 1.00 | 1.00 | | 0.84 | 0.79 | | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 3.3 | 3.7 | | 10.8 | 0.4 | | | 8.1 | 0.2 | | 8.3 | |
| Delay (s) | 58.4 | 33.4 | | 50.1 | 13.0 | | | 56.0 | 43.6 | | 57.2 | |
| Level of Service | E | C | | D | B | | | E | D | | E | |
| Approach Delay (s) | | 35.7 | | | 34.6 | | | 49.8 | | | 57.2 | |
| Approach LOS | | D | | | C | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 59.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

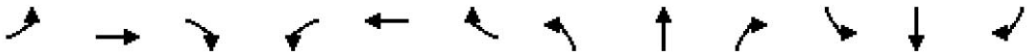
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 60 | 530 | 20 | 10 | 20 | 120 | 780 | 30 | 30 | 340 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | | 0.97 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1845 | 1591 | 1805 | 1900 | 1591 | 1805 | 3610 | 1573 | 1805 | 5069 | |
| Flt Permitted | | 0.97 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1845 | 1591 | 1805 | 1900 | 1591 | 1805 | 3610 | 1573 | 1805 | 5069 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 106 | 71 | 624 | 24 | 12 | 24 | 141 | 918 | 35 | 35 | 400 | 59 |
| RTOR Reduction (vph) | 0 | 0 | 485 | 0 | 0 | 23 | 0 | 0 | 17 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 0 | 177 | 139 | 24 | 12 | 1 | 141 | 918 | 18 | 35 | 447 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 14.7 | 14.7 | 3.8 | 3.8 | 3.8 | 8.9 | 29.5 | 29.5 | 2.2 | 22.8 | |
| Effective Green, g (s) | | 14.7 | 14.7 | 3.8 | 3.8 | 3.8 | 8.9 | 29.5 | 29.5 | 2.2 | 22.8 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | 0.06 | 0.06 | 0.06 | 0.13 | 0.45 | 0.45 | 0.03 | 0.34 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 410 | 353 | 104 | 109 | 91 | 243 | 1609 | 701 | 60 | 1746 | |
| v/s Ratio Prot | | c0.10 | | c0.01 | 0.01 | | c0.08 | c0.25 | | 0.02 | 0.09 | |
| v/s Ratio Perm | | | 0.09 | | | 0.00 | | | 0.01 | | | |
| v/c Ratio | | 0.43 | 0.39 | 0.23 | 0.11 | 0.02 | 0.58 | 0.57 | 0.03 | 0.58 | 0.26 | |
| Uniform Delay, d1 | | 22.2 | 21.9 | 29.8 | 29.6 | 29.4 | 26.9 | 13.6 | 10.3 | 31.5 | 15.6 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.7 | 0.7 | 1.1 | 0.4 | 0.1 | 3.5 | 0.5 | 0.0 | 13.6 | 0.1 | |
| Delay (s) | | 22.9 | 22.7 | 30.9 | 30.0 | 29.5 | 30.4 | 14.1 | 10.3 | 45.2 | 15.7 | |
| Level of Service | | C | C | C | C | C | C | B | B | D | B | |
| Approach Delay (s) | | 22.7 | | | 30.2 | | | 16.1 | | | 17.8 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 66.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

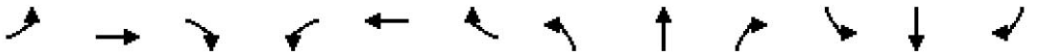
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 430 | 230 | 280 | 360 | 40 | 180 | 590 | 350 | 80 | 520 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1591 | 3502 | 3549 | | 3502 | 3610 | 1584 | 3502 | 3557 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1591 | 3502 | 3549 | | 3502 | 3610 | 1584 | 3502 | 3557 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 85 | 524 | 280 | 341 | 439 | 49 | 220 | 720 | 427 | 98 | 634 | 61 |
| RTOR Reduction (vph) | 0 | 0 | 18 | 0 | 6 | 0 | 0 | 0 | 117 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 85 | 524 | 262 | 341 | 482 | 0 | 220 | 720 | 310 | 98 | 689 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.8 | 48.2 | 59.2 | 16.8 | 56.2 | | 11.0 | 30.2 | 47.0 | 8.8 | 28.0 | |
| Effective Green, g (s) | 8.8 | 48.2 | 59.2 | 16.8 | 56.2 | | 11.0 | 30.2 | 47.0 | 8.8 | 28.0 | |
| Actuated g/C Ratio | 0.07 | 0.40 | 0.49 | 0.14 | 0.47 | | 0.09 | 0.25 | 0.39 | 0.07 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 132 | 763 | 838 | 490 | 1662 | | 321 | 909 | 620 | 257 | 830 | |
| v/s Ratio Prot | 0.05 | c0.28 | 0.03 | c0.10 | 0.14 | | 0.06 | c0.20 | 0.07 | 0.03 | c0.19 | |
| v/s Ratio Perm | | | 0.14 | | | | | | 0.13 | | | |
| v/c Ratio | 0.64 | 0.69 | 0.31 | 0.70 | 0.29 | | 0.69 | 0.79 | 0.50 | 0.38 | 0.83 | |
| Uniform Delay, d1 | 54.1 | 29.7 | 18.2 | 49.2 | 19.6 | | 52.8 | 42.0 | 27.6 | 53.0 | 43.7 | |
| Progression Factor | 0.62 | 0.92 | 0.54 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.3 | 4.5 | 0.2 | 4.3 | 0.4 | | 6.0 | 4.8 | 0.6 | 0.9 | 6.9 | |
| Delay (s) | 42.9 | 31.7 | 10.1 | 53.4 | 20.1 | | 58.8 | 46.7 | 28.2 | 54.0 | 50.6 | |
| Level of Service | D | C | B | D | C | | E | D | C | D | D | |
| Approach Delay (s) | | 26.0 | | | 33.8 | | | 42.9 | | | 51.1 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

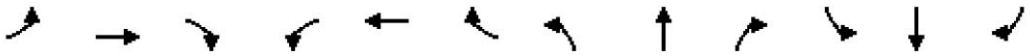
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 700 | 40 | 450 | 1220 | 270 | 40 | 360 | 440 | 150 | 290 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3575 | | 1805 | 3493 | | 1805 | 1900 | 1602 | 1805 | 1900 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3575 | | 1805 | 3493 | | 1805 | 1900 | 1602 | 1805 | 1900 | 1586 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 147 | 737 | 42 | 474 | 1284 | 284 | 42 | 379 | 463 | 158 | 305 | 116 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 15 | 0 | 0 | 0 | 27 | 0 | 0 | 72 |
| Lane Group Flow (vph) | 147 | 776 | 0 | 474 | 1553 | 0 | 42 | 379 | 436 | 158 | 305 | 44 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.0 | 32.7 | | 36.3 | 59.0 | | 5.6 | 32.1 | 68.4 | 12.9 | 39.4 | 39.4 |
| Effective Green, g (s) | 10.0 | 32.7 | | 36.3 | 59.0 | | 5.6 | 32.1 | 68.4 | 12.9 | 39.4 | 39.4 |
| Actuated g/C Ratio | 0.08 | 0.25 | | 0.28 | 0.45 | | 0.04 | 0.25 | 0.53 | 0.10 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 139 | 899 | | 504 | 1585 | | 78 | 469 | 843 | 179 | 576 | 481 |
| v/s Ratio Prot | c0.08 | 0.22 | | 0.26 | c0.44 | | 0.02 | c0.20 | 0.14 | c0.09 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | 0.03 |
| v/c Ratio | 1.06 | 0.86 | | 0.94 | 0.98 | | 0.54 | 0.81 | 0.52 | 0.88 | 0.53 | 0.09 |
| Uniform Delay, d1 | 60.0 | 46.5 | | 45.8 | 34.9 | | 60.9 | 46.1 | 20.0 | 57.8 | 37.6 | 32.5 |
| Progression Factor | 1.27 | 0.85 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 85.5 | 7.2 | | 25.9 | 17.8 | | 7.0 | 13.9 | 0.5 | 36.2 | 3.5 | 0.4 |
| Delay (s) | 161.8 | 47.0 | | 71.7 | 52.7 | | 67.9 | 60.0 | 20.6 | 94.0 | 41.1 | 32.8 |
| Level of Service | F | D | | E | D | | E | E | C | F | D | C |
| Approach Delay (s) | | 65.2 | | | 57.1 | | | 39.7 | | | 53.9 | |
| Approach LOS | | E | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 100.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

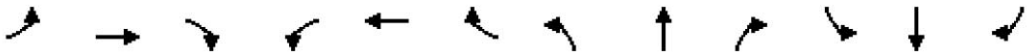
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 500 | 630 | 130 | 590 | 240 | 1170 | 1590 | 450 | 200 | 470 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.94 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2824 | 3502 | 3610 | 1594 | 5090 | 3610 | 1591 | 3502 | 5136 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2824 | 3502 | 3610 | 1594 | 5090 | 3610 | 1591 | 3502 | 5136 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 56 | 556 | 700 | 144 | 656 | 267 | 1300 | 1767 | 500 | 222 | 522 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 61 | 0 | 0 | 33 | 0 | 0 | 41 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 56 | 556 | 639 | 144 | 656 | 234 | 1300 | 1767 | 459 | 222 | 547 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.5 | 24.7 | 63.1 | 7.0 | 26.2 | 33.2 | 38.4 | 48.2 | 55.2 | 7.0 | 16.8 | |
| Effective Green, g (s) | 5.5 | 24.7 | 63.1 | 7.0 | 26.2 | 33.2 | 38.4 | 48.2 | 55.2 | 7.0 | 16.8 | |
| Actuated g/C Ratio | 0.05 | 0.24 | 0.61 | 0.07 | 0.25 | 0.32 | 0.37 | 0.47 | 0.54 | 0.07 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 96 | 867 | 1732 | 238 | 919 | 514 | 1899 | 1691 | 915 | 238 | 839 | |
| v/s Ratio Prot | 0.03 | c0.15 | 0.14 | 0.04 | c0.18 | 0.03 | 0.26 | c0.49 | 0.03 | c0.06 | 0.11 | |
| v/s Ratio Perm | | | 0.09 | | | 0.12 | | | 0.25 | | | |
| v/c Ratio | 0.58 | 0.64 | 0.37 | 0.61 | 0.71 | 0.46 | 0.68 | 1.04 | 0.50 | 0.93 | 0.65 | |
| Uniform Delay, d1 | 47.6 | 35.1 | 9.9 | 46.6 | 34.9 | 27.7 | 27.2 | 27.4 | 15.1 | 47.7 | 40.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.7 | 1.6 | 0.1 | 4.3 | 2.7 | 0.6 | 1.0 | 34.7 | 0.4 | 40.1 | 1.8 | |
| Delay (s) | 56.3 | 36.8 | 10.1 | 50.9 | 37.6 | 28.3 | 28.2 | 62.0 | 15.6 | 87.8 | 42.1 | |
| Level of Service | E | D | B | D | D | C | C | E | B | F | D | |
| Approach Delay (s) | | 23.4 | | | 37.1 | | | 43.2 | | | 55.2 | |
| Approach LOS | | C | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 102.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 86.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 290 | 30 | 20 | 450 | 140 | 110 | 230 | 20 | 160 | 130 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3553 | | 1805 | 3467 | | 1802 | 3563 | | 1802 | 3263 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.51 | 1.00 | | 0.51 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3553 | | 1805 | 3467 | | 971 | 3563 | | 966 | 3263 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 163 | 337 | 35 | 23 | 523 | 163 | 128 | 267 | 23 | 186 | 151 | 209 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 28 | 0 | 0 | 5 | 0 | 0 | 130 | 0 |
| Lane Group Flow (vph) | 163 | 365 | 0 | 23 | 658 | 0 | 128 | 285 | 0 | 186 | 230 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | pm+pt | | | pm+pt | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 14.8 | 41.8 | | 2.4 | 29.4 | | 47.6 | 39.6 | | 52.0 | 41.8 | |
| Effective Green, g (s) | 14.8 | 41.8 | | 2.4 | 29.4 | | 47.6 | 39.6 | | 52.0 | 41.8 | |
| Actuated g/C Ratio | 0.13 | 0.38 | | 0.02 | 0.27 | | 0.43 | 0.36 | | 0.47 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 243 | 1350 | | 39 | 927 | | 481 | 1283 | | 534 | 1240 | |
| v/s Ratio Prot | c0.09 | 0.10 | | 0.01 | c0.19 | | 0.02 | 0.08 | | c0.03 | 0.07 | |
| v/s Ratio Perm | | | | | | | 0.10 | | | c0.13 | | |
| v/c Ratio | 0.67 | 0.27 | | 0.59 | 0.71 | | 0.27 | 0.22 | | 0.35 | 0.19 | |
| Uniform Delay, d1 | 45.3 | 23.6 | | 53.3 | 36.4 | | 19.1 | 24.5 | | 17.2 | 22.7 | |
| Progression Factor | 0.86 | 0.96 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.87 | 0.89 | |
| Incremental Delay, d2 | 7.1 | 0.1 | | 20.8 | 2.5 | | 0.3 | 0.4 | | 0.4 | 0.3 | |
| Delay (s) | 45.9 | 22.8 | | 74.1 | 39.0 | | 19.4 | 24.9 | | 15.3 | 20.6 | |
| Level of Service | D | C | | E | D | | B | C | | B | C | |
| Approach Delay (s) | | 29.8 | | | 40.1 | | | 23.2 | | | 18.8 | |
| Approach LOS | | C | | | D | | | C | | | B | |

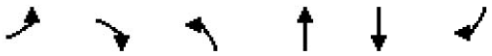
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 70 | 460 | 680 | 80 | 40 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1873 | | 1805 | 1615 |
| Flt Permitted | 0.21 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 405 | 1900 | 1873 | | 1805 | 1615 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 76 | 500 | 739 | 87 | 43 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 7 | 0 | 0 | 35 |
| Lane Group Flow (vph) | 76 | 500 | 819 | 0 | 43 | 8 |
| Turn Type | Perm | | | | | Perm |
| Protected Phases | | 4 | 8 | | 6 | |
| Permitted Phases | 4 | | | | | 6 |
| Actuated Green, G (s) | 21.4 | 21.4 | 21.4 | | 6.8 | 6.8 |
| Effective Green, g (s) | 21.4 | 21.4 | 21.4 | | 6.8 | 6.8 |
| Actuated g/C Ratio | 0.59 | 0.59 | 0.59 | | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 239 | 1123 | 1107 | | 339 | 303 |
| v/s Ratio Prot | | 0.26 | c0.44 | | c0.02 | |
| v/s Ratio Perm | 0.19 | | | | | 0.01 |
| v/c Ratio | 0.32 | 0.45 | 0.74 | | 0.13 | 0.03 |
| Uniform Delay, d1 | 3.7 | 4.1 | 5.4 | | 12.2 | 12.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | 0.3 | 2.7 | | 0.2 | 0.0 |
| Delay (s) | 4.5 | 4.4 | 8.1 | | 12.4 | 12.0 |
| Level of Service | A | A | A | | B | B |
| Approach Delay (s) | | 4.4 | 8.1 | | 12.2 | |
| Approach LOS | | A | A | | B | |

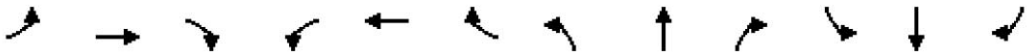
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 36.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 120 | 30 | 20 | 660 | 340 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.97 | | 1.00 | 1.00 | 0.98 | |
| Flt Protected | 0.96 | | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1769 | | 1802 | 1900 | 1861 | |
| Flt Permitted | 0.96 | | 0.49 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1769 | | 934 | 1900 | 1861 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 133 | 33 | 22 | 733 | 378 | 56 |
| RTOR Reduction (vph) | 19 | 0 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 147 | 0 | 22 | 733 | 426 | 0 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | 6.8 | | 20.0 | 20.0 | 20.0 | |
| Effective Green, g (s) | 6.8 | | 20.0 | 20.0 | 20.0 | |
| Actuated g/C Ratio | 0.20 | | 0.57 | 0.57 | 0.57 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 346 | | 537 | 1092 | 1070 | |
| v/s Ratio Prot | c0.08 | | | c0.39 | 0.23 | |
| v/s Ratio Perm | | | 0.02 | | | |
| v/c Ratio | 0.43 | | 0.04 | 0.67 | 0.40 | |
| Uniform Delay, d1 | 12.3 | | 3.2 | 5.1 | 4.1 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | | 0.0 | 1.6 | 0.2 | |
| Delay (s) | 13.1 | | 3.3 | 6.8 | 4.3 | |
| Level of Service | B | | A | A | A | |
| Approach Delay (s) | 13.1 | | | 6.7 | 4.3 | |
| Approach LOS | B | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 34.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 51.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

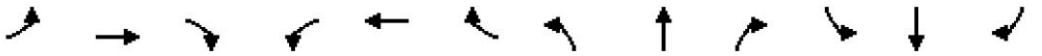
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 310 | 0 | 0 | 350 | 240 | 280 | 0 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 0.98 | | 1.00 | | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | 0.95 | | | | |
| Satd. Flow (prot) | 1802 | 1900 | | | 1900 | 1578 | | 1800 | | | | |
| Flt Permitted | 0.51 | 1.00 | | | 1.00 | 1.00 | | 0.95 | | | | |
| Satd. Flow (perm) | 958 | 1900 | | | 1900 | 1578 | | 1800 | | | | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 21 | 323 | 0 | 0 | 365 | 250 | 292 | 0 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 151 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 21 | 323 | 0 | 0 | 365 | 99 | 0 | 292 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | | | Perm | Perm | | Perm | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | 2 | | | |
| Actuated Green, G (s) | 12.5 | 12.5 | | | 12.5 | 12.5 | | 11.2 | | | | |
| Effective Green, g (s) | 12.5 | 12.5 | | | 12.5 | 12.5 | | 11.2 | | | | |
| Actuated g/C Ratio | 0.39 | 0.39 | | | 0.39 | 0.39 | | 0.35 | | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | | | | |
| Lane Grp Cap (vph) | 378 | 749 | | | 749 | 622 | | 636 | | | | |
| v/s Ratio Prot | | 0.17 | | | c0.19 | | | | | | | |
| v/s Ratio Perm | 0.02 | | | | | 0.06 | | 0.16 | | | | |
| v/c Ratio | 0.06 | 0.43 | | | 0.49 | 0.16 | | 0.46 | | | | |
| Uniform Delay, d1 | 5.9 | 7.0 | | | 7.2 | 6.2 | | 7.9 | | | | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Incremental Delay, d2 | 0.1 | 0.4 | | | 0.5 | 0.1 | | 0.5 | | | | |
| Delay (s) | 6.0 | 7.4 | | | 7.7 | 6.3 | | 8.4 | | | | |
| Level of Service | A | A | | | A | A | | A | | | | |
| Approach Delay (s) | | 7.3 | | | 7.1 | | | 8.4 | | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 31.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

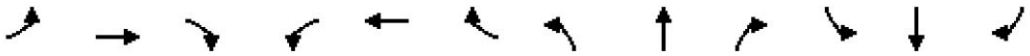
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 210 | 190 | 10 | 660 | 0 | 0 | 0 | 0 | 150 | 0 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | | | | | | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1900 | 1577 | 1801 | 1900 | | | | | | 1799 | 1578 |
| Flt Permitted | | 1.00 | 1.00 | 0.62 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1900 | 1577 | 1173 | 1900 | | | | | | 1799 | 1578 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 223 | 202 | 11 | 702 | 0 | 0 | 0 | 0 | 160 | 0 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 86 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| Lane Group Flow (vph) | 0 | 223 | 116 | 11 | 702 | 0 | 0 | 0 | 0 | 0 | 160 | 9 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 20.2 | 20.2 | 20.2 | 20.2 | | | | | | 7.0 | 7.0 |
| Effective Green, g (s) | | 20.2 | 20.2 | 20.2 | 20.2 | | | | | | 7.0 | 7.0 |
| Actuated g/C Ratio | | 0.57 | 0.57 | 0.57 | 0.57 | | | | | | 0.20 | 0.20 |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 1090 | 905 | 673 | 1090 | | | | | | 358 | 314 |
| v/s Ratio Prot | | 0.12 | | | c0.37 | | | | | | | |
| v/s Ratio Perm | | | 0.07 | 0.01 | | | | | | | 0.09 | 0.01 |
| v/c Ratio | | 0.20 | 0.13 | 0.02 | 0.64 | | | | | | 0.45 | 0.03 |
| Uniform Delay, d1 | | 3.6 | 3.4 | 3.2 | 5.1 | | | | | | 12.4 | 11.4 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.1 | 0.1 | 0.0 | 1.3 | | | | | | 0.9 | 0.0 |
| Delay (s) | | 3.7 | 3.5 | 3.2 | 6.4 | | | | | | 13.3 | 11.4 |
| Level of Service | | A | A | A | A | | | | | | B | B |
| Approach Delay (s) | | 3.6 | | | 6.3 | | | 0.0 | | | 12.9 | |
| Approach LOS | | A | | | A | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 35.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

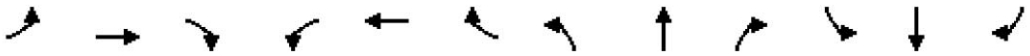
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 260 | 0 | 10 | 560 | 210 | 10 | 20 | 0 | 270 | 10 | 40 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 0.99 | |
| Frt | | 1.00 | | | 0.96 | | | 1.00 | | | 0.98 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 0.98 | | | 0.96 | |
| Satd. Flow (prot) | | 1790 | | | 1720 | | | 1769 | | | 1675 | |
| Flt Permitted | | 0.86 | | | 0.99 | | | 0.87 | | | 0.73 | |
| Satd. Flow (perm) | | 1549 | | | 1712 | | | 1561 | | | 1280 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 38 | 325 | 0 | 12 | 700 | 262 | 12 | 25 | 0 | 338 | 12 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 363 | 0 | 0 | 959 | 0 | 0 | 37 | 0 | 0 | 395 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 51.0 | | | 51.0 | | | 28.6 | | | 28.6 | |
| Effective Green, g (s) | | 51.0 | | | 51.0 | | | 28.6 | | | 28.6 | |
| Actuated g/C Ratio | | 0.57 | | | 0.57 | | | 0.32 | | | 0.32 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 882 | | | 974 | | | 498 | | | 409 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.23 | | | c0.56 | | | 0.02 | | | c0.31 | |
| v/c Ratio | | 0.41 | | | 0.98 | | | 0.07 | | | 0.96 | |
| Uniform Delay, d1 | | 10.9 | | | 18.9 | | | 21.3 | | | 30.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.3 | | | 25.0 | | | 0.1 | | | 35.1 | |
| Delay (s) | | 11.2 | | | 43.9 | | | 21.3 | | | 65.1 | |
| Level of Service | | B | | | D | | | C | | | E | |
| Approach Delay (s) | | 11.2 | | | 43.9 | | | 21.3 | | | 65.1 | |
| Approach LOS | | B | | | D | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 89.6 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 80.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 480 | 10 | 10 | 750 | 80 | 10 | 10 | 10 | 160 | 10 | 40 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.95 | | | 0.97 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.96 | |
| Satd. Flow (prot) | | 1790 | | | 1771 | | | 1674 | | | 1673 | |
| Flt Permitted | | 0.96 | | | 0.99 | | | 0.89 | | | 0.76 | |
| Satd. Flow (perm) | | 1713 | | | 1760 | | | 1507 | | | 1313 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 22 | 516 | 11 | 11 | 806 | 86 | 11 | 11 | 11 | 172 | 11 | 43 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 0 | 548 | 0 | 0 | 899 | 0 | 0 | 25 | 0 | 0 | 215 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | | 2 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 37.9 | | | 37.9 | | | 16.2 | | | 16.2 | |
| Effective Green, g (s) | | 37.9 | | | 37.9 | | | 16.2 | | | 16.2 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.25 | | | 0.25 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1013 | | | 1041 | | | 381 | | | 332 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.32 | | | c0.51 | | | 0.02 | | | c0.16 | |
| v/c Ratio | | 0.54 | | | 0.86 | | | 0.07 | | | 0.65 | |
| Uniform Delay, d1 | | 7.9 | | | 10.9 | | | 18.2 | | | 21.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.6 | | | 7.5 | | | 0.1 | | | 4.3 | |
| Delay (s) | | 8.5 | | | 18.5 | | | 18.3 | | | 25.7 | |
| Level of Service | | A | | | B | | | B | | | C | |
| Approach Delay (s) | | 8.5 | | | 18.5 | | | 18.3 | | | 25.7 | |
| Approach LOS | | A | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 64.1 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 78.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

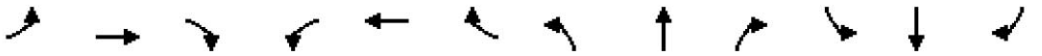
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 630 | 60 | 90 | 790 | 20 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.95 | |
| Satd. Flow (prot) | 1800 | 1522 | | 1761 | 1709 | |
| Flt Permitted | 1.00 | 1.00 | | 0.86 | 0.95 | |
| Satd. Flow (perm) | 1800 | 1522 | | 1545 | 1709 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 22 | 685 | 65 | 98 | 859 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 22 | 685 | 0 | 163 | 880 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | 5 | 5 |
| Turn Type | | pm+ov | Perm | | | |
| Protected Phases | 4 | 2 | | 8 | 2 | |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 9.5 | 48.2 | | 9.5 | 38.7 | |
| Effective Green, g (s) | 9.5 | 48.2 | | 9.5 | 38.7 | |
| Actuated g/C Ratio | 0.16 | 0.83 | | 0.16 | 0.66 | |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 294 | 1522 | | 252 | 1136 | |
| v/s Ratio Prot | 0.01 | c0.30 | | | c0.51 | |
| v/s Ratio Perm | | 0.15 | | 0.11 | | |
| v/c Ratio | 0.07 | 0.45 | | 0.65 | 0.77 | |
| Uniform Delay, d1 | 20.6 | 1.4 | | 22.8 | 6.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 0.2 | | 5.6 | 3.4 | |
| Delay (s) | 20.7 | 1.6 | | 28.4 | 10.1 | |
| Level of Service | C | A | | C | B | |
| Approach Delay (s) | 2.2 | | | 28.4 | 10.1 | |
| Approach LOS | A | | | C | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 58.2 | Sum of lost time (s) | 5.0 |
| Intersection Capacity Utilization | 71.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

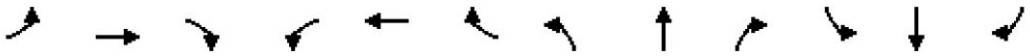
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 0 | 30 | 5 | 5 | 5 | 70 | 670 | 0 | 10 | 890 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.93 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1789 | 1568 | | 1789 | 1732 | | 1805 | 1900 | | 1805 | 1900 | 1568 |
| Flt Permitted | 0.75 | 1.00 | | 0.73 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1412 | 1568 | | 1382 | 1732 | | 1805 | 1900 | | 1805 | 1900 | 1568 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 60 | 0 | 36 | 6 | 6 | 6 | 83 | 798 | 0 | 12 | 1060 | 119 |
| RTOR Reduction (vph) | 0 | 33 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| Lane Group Flow (vph) | 60 | 3 | 0 | 6 | 7 | 0 | 83 | 798 | 0 | 12 | 1060 | 98 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.3 | 7.3 | | 7.3 | 7.3 | | 5.4 | 59.4 | | 1.3 | 55.3 | 55.3 |
| Effective Green, g (s) | 7.3 | 7.3 | | 7.3 | 7.3 | | 5.4 | 59.4 | | 1.3 | 55.3 | 55.3 |
| Actuated g/C Ratio | 0.09 | 0.09 | | 0.09 | 0.09 | | 0.07 | 0.74 | | 0.02 | 0.69 | 0.69 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 129 | 143 | | 126 | 158 | | 122 | 1411 | | 29 | 1313 | 1084 |
| v/s Ratio Prot | | 0.00 | | | 0.00 | | c0.05 | 0.42 | | 0.01 | c0.56 | |
| v/s Ratio Perm | c0.04 | | | 0.00 | | | | | | | | 0.06 |
| v/c Ratio | 0.47 | 0.02 | | 0.05 | 0.04 | | 0.68 | 0.57 | | 0.41 | 0.81 | 0.09 |
| Uniform Delay, d1 | 34.5 | 33.1 | | 33.2 | 33.2 | | 36.5 | 4.6 | | 39.0 | 8.6 | 4.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.6 | 0.1 | | 0.2 | 0.1 | | 14.5 | 0.5 | | 9.3 | 3.7 | 0.0 |
| Delay (s) | 37.1 | 33.2 | | 33.3 | 33.3 | | 50.9 | 5.1 | | 48.3 | 12.4 | 4.1 |
| Level of Service | D | C | | C | C | | D | A | | D | B | A |
| Approach Delay (s) | | 35.6 | | | 33.3 | | | 9.4 | | | 11.9 | |
| Approach LOS | | D | | | C | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

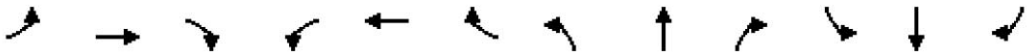
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 10 | 10 | 40 | 10 | 30 | 10 | 630 | 580 | 280 | 440 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.95 | | | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.98 | | | 0.98 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1764 | | | 1734 | | 1805 | 1900 | 1570 | 1805 | 1893 | |
| Flt Permitted | | 0.91 | | | 0.82 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1637 | | | 1466 | | 1805 | 1900 | 1570 | 1805 | 1893 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 11 | 11 | 11 | 45 | 11 | 34 | 11 | 716 | 659 | 318 | 500 | 11 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 29 | 0 | 0 | 0 | 282 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 23 | 0 | 0 | 61 | 0 | 11 | 716 | 377 | 318 | 510 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | |
| Actuated Green, G (s) | | 6.8 | | | 6.8 | | 1.2 | 37.1 | 37.1 | 17.1 | 53.0 | |
| Effective Green, g (s) | | 6.8 | | | 6.8 | | 1.2 | 37.1 | 37.1 | 17.1 | 53.0 | |
| Actuated g/C Ratio | | 0.09 | | | 0.09 | | 0.02 | 0.51 | 0.51 | 0.23 | 0.73 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 152 | | | 137 | | 30 | 966 | 798 | 423 | 1374 | |
| v/s Ratio Prot | | | | | | | 0.01 | c0.38 | | c0.18 | 0.27 | |
| v/s Ratio Perm | | 0.01 | | | c0.04 | | | | 0.24 | | | |
| v/c Ratio | | 0.15 | | | 0.45 | | 0.37 | 0.74 | 0.47 | 0.75 | 0.37 | |
| Uniform Delay, d1 | | 30.4 | | | 31.3 | | 35.5 | 14.2 | 11.6 | 26.0 | 3.8 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.5 | | | 2.3 | | 7.4 | 3.1 | 0.4 | 7.4 | 0.2 | |
| Delay (s) | | 30.9 | | | 33.6 | | 43.0 | 17.3 | 12.1 | 33.4 | 3.9 | |
| Level of Service | | C | | | C | | D | B | B | C | A | |
| Approach Delay (s) | | 30.9 | | | 33.6 | | | 15.0 | | | 15.2 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 73.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

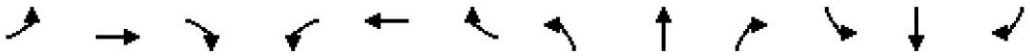
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 310 | 90 | 20 | 350 | 10 | 80 | 0 | 20 | 0 | 0 | 0 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 333 | 97 | 22 | 376 | 11 | 86 | 0 | 22 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total (vph) | 430 | 409 | 86 | 22 | 0 |
| Volume Left (vph) | 0 | 22 | 86 | 0 | 0 |
| Volume Right (vph) | 97 | 11 | 0 | 22 | 0 |
| Hadj (s) | -0.14 | -0.01 | 0.20 | -0.60 | 0.00 |
| Departure Headway (s) | 4.5 | 4.7 | 6.0 | 3.2 | 6.0 |
| Degree Utilization, x | 0.54 | 0.53 | 0.14 | 0.02 | 0.00 |
| Capacity (veh/h) | 780 | 753 | 526 | 1121 | 507 |
| Control Delay (s) | 12.7 | 12.7 | 10.0 | 6.3 | 9.0 |
| Approach Delay (s) | 12.7 | 12.7 | 9.2 | | 0.0 |
| Approach LOS | B | B | A | | A |

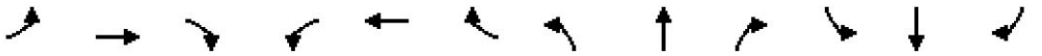
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 12.3 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 46.5% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 30 | 50 | 670 | 200 | 180 | 50 | 210 | 40 | 30 | 180 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.91 | | 1.00 | 0.93 | | | 0.98 | | | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 3240 | | 1805 | 1752 | | | 3500 | | | 3402 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.84 | | | 0.89 | |
| Satd. Flow (perm) | 1805 | 3240 | | 1805 | 1752 | | | 2957 | | | 3049 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 160 | 32 | 53 | 713 | 213 | 191 | 53 | 223 | 43 | 32 | 191 | 96 |
| RTOR Reduction (vph) | 0 | 48 | 0 | 0 | 35 | 0 | 0 | 15 | 0 | 0 | 58 | 0 |
| Lane Group Flow (vph) | 160 | 37 | 0 | 713 | 369 | 0 | 0 | 304 | 0 | 0 | 261 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.9 | 5.8 | | 32.5 | 29.4 | | | 11.5 | | | 11.5 | |
| Effective Green, g (s) | 8.9 | 5.8 | | 32.5 | 29.4 | | | 11.5 | | | 11.5 | |
| Actuated g/C Ratio | 0.14 | 0.09 | | 0.53 | 0.48 | | | 0.19 | | | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 260 | 304 | | 949 | 833 | | | 550 | | | 567 | |
| v/s Ratio Prot | 0.09 | 0.01 | | c0.40 | c0.21 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.10 | | | 0.09 | |
| v/c Ratio | 0.62 | 0.12 | | 0.75 | 0.44 | | | 0.55 | | | 0.46 | |
| Uniform Delay, d1 | 24.8 | 25.7 | | 11.5 | 10.8 | | | 22.8 | | | 22.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 4.3 | 0.2 | | 3.4 | 0.4 | | | 1.2 | | | 0.6 | |
| Delay (s) | 29.1 | 25.8 | | 14.9 | 11.1 | | | 24.0 | | | 23.0 | |
| Level of Service | C | C | | B | B | | | C | | | C | |
| Approach Delay (s) | | 28.0 | | | 13.5 | | | 24.0 | | | 23.0 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 61.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 78.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

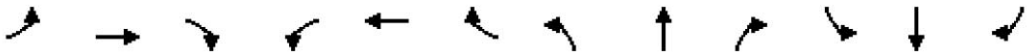
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 20 | 20 | 570 | 50 | 90 | 10 | 340 | 210 | 100 | 660 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3317 | | 3502 | 3233 | | 1805 | 5187 | 1601 | 1805 | 5095 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3317 | | 3502 | 3233 | | 1805 | 5187 | 1601 | 1805 | 5095 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 54 | 22 | 22 | 613 | 54 | 97 | 11 | 366 | 226 | 108 | 710 | 86 |
| RTOR Reduction (vph) | 0 | 21 | 0 | 0 | 78 | 0 | 0 | 0 | 119 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 54 | 23 | 0 | 613 | 73 | 0 | 11 | 366 | 107 | 108 | 784 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 2.3 | 2.3 | | 9.4 | 9.4 | | 1.0 | 13.5 | 22.9 | 7.3 | 19.8 | |
| Effective Green, g (s) | 2.3 | 2.3 | | 9.4 | 9.4 | | 1.0 | 13.5 | 22.9 | 7.3 | 19.8 | |
| Actuated g/C Ratio | 0.05 | 0.05 | | 0.19 | 0.19 | | 0.02 | 0.28 | 0.47 | 0.15 | 0.41 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 86 | 157 | | 679 | 627 | | 37 | 1444 | 888 | 272 | 2080 | |
| v/s Ratio Prot | 0.03 | 0.01 | | c0.18 | c0.02 | | 0.01 | 0.07 | 0.02 | c0.06 | c0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | |
| v/c Ratio | 0.63 | 0.15 | | 0.90 | 0.12 | | 0.30 | 0.25 | 0.12 | 0.40 | 0.38 | |
| Uniform Delay, d1 | 22.7 | 22.2 | | 19.1 | 16.1 | | 23.4 | 13.6 | 7.2 | 18.6 | 10.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 13.5 | 0.4 | | 15.3 | 0.1 | | 4.5 | 0.1 | 0.1 | 1.0 | 0.1 | |
| Delay (s) | 36.1 | 22.6 | | 34.4 | 16.2 | | 27.9 | 13.7 | 7.2 | 19.6 | 10.2 | |
| Level of Service | D | C | | C | B | | C | B | A | B | B | |
| Approach Delay (s) | | 30.1 | | | 30.8 | | | 11.5 | | | 11.3 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 48.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 61.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 90 | 110 | 110 | 130 | 10 | 120 | 110 | 90 | 0 | 160 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 1.00 | 0.97 | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.99 | | | 1.00 | 0.85 | | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1711 | | 1805 | 1876 | | | 1852 | 1561 | | 1813 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1711 | | 1805 | 1876 | | | 1852 | 1561 | | 1813 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 62 | 93 | 113 | 113 | 134 | 10 | 124 | 113 | 93 | 0 | 165 | 62 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 2 | 0 | 0 | 0 | 77 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 62 | 177 | 0 | 113 | 142 | 0 | 0 | 237 | 16 | 0 | 215 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.4 | 47.1 | | 16.8 | 55.5 | | | 20.7 | 20.7 | | 19.4 | |
| Effective Green, g (s) | 8.4 | 47.1 | | 16.8 | 55.5 | | | 20.7 | 20.7 | | 19.4 | |
| Actuated g/C Ratio | 0.07 | 0.39 | | 0.14 | 0.46 | | | 0.17 | 0.17 | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 126 | 672 | | 253 | 868 | | | 319 | 269 | | 293 | |
| v/s Ratio Prot | c0.03 | c0.10 | | c0.06 | 0.08 | | | c0.13 | | | c0.12 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.49 | 0.26 | | 0.45 | 0.16 | | | 0.74 | 0.06 | | 0.73 | |
| Uniform Delay, d1 | 53.7 | 24.7 | | 47.3 | 18.8 | | | 47.1 | 41.5 | | 47.9 | |
| Progression Factor | 1.00 | 1.00 | | 0.71 | 0.66 | | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 3.0 | 1.0 | | 1.2 | 0.4 | | | 9.0 | 0.1 | | 9.2 | |
| Delay (s) | 56.8 | 25.6 | | 35.1 | 12.8 | | | 56.1 | 41.6 | | 57.0 | |
| Level of Service | E | C | | D | B | | | E | D | | E | |
| Approach Delay (s) | | 32.8 | | | 22.6 | | | 52.0 | | | 57.0 | |
| Approach LOS | | C | | | C | | | D | | | E | |

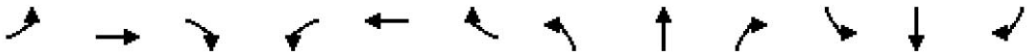
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 63.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 50 | 820 | 40 | 20 | 100 | 120 | 600 | 20 | 20 | 370 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1833 | 1590 | 1805 | 1900 | 1590 | 1805 | 3610 | 1571 | 1805 | 5138 | |
| Flt Permitted | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1833 | 1590 | 1805 | 1900 | 1590 | 1805 | 3610 | 1571 | 1805 | 5138 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 144 | 52 | 845 | 41 | 21 | 103 | 124 | 619 | 21 | 21 | 381 | 21 |
| RTOR Reduction (vph) | 0 | 0 | 381 | 0 | 0 | 95 | 0 | 0 | 14 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 196 | 464 | 41 | 21 | 8 | 124 | 619 | 7 | 21 | 397 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 30.1 | 30.1 | 5.9 | 5.9 | 5.9 | 10.6 | 25.1 | 25.1 | 2.3 | 16.8 | |
| Effective Green, g (s) | | 30.1 | 30.1 | 5.9 | 5.9 | 5.9 | 10.6 | 25.1 | 25.1 | 2.3 | 16.8 | |
| Actuated g/C Ratio | | 0.38 | 0.38 | 0.07 | 0.07 | 0.07 | 0.13 | 0.32 | 0.32 | 0.03 | 0.21 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 695 | 603 | 134 | 141 | 118 | 241 | 1141 | 497 | 52 | 1087 | |
| v/s Ratio Prot | | 0.11 | | c0.02 | 0.01 | | c0.07 | c0.17 | | 0.01 | 0.08 | |
| v/s Ratio Perm | | | c0.29 | | | 0.00 | | | 0.00 | | | |
| v/c Ratio | | 0.28 | 0.77 | 0.31 | 0.15 | 0.06 | 0.51 | 0.54 | 0.01 | 0.40 | 0.37 | |
| Uniform Delay, d1 | | 17.1 | 21.6 | 34.8 | 34.4 | 34.2 | 32.0 | 22.4 | 18.6 | 37.9 | 26.7 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.2 | 6.0 | 1.3 | 0.5 | 0.2 | 1.9 | 0.5 | 0.0 | 5.1 | 0.2 | |
| Delay (s) | | 17.4 | 27.6 | 36.1 | 34.9 | 34.4 | 33.9 | 22.9 | 18.7 | 42.9 | 27.0 | |
| Level of Service | | B | C | D | C | C | C | C | B | D | C | |
| Approach Delay (s) | | 25.7 | | | 34.9 | | | 24.6 | | | 27.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 79.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

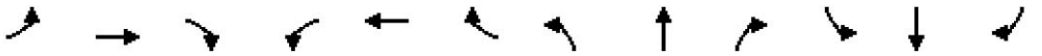
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 290 | 150 | 340 | 460 | 50 | 110 | 480 | 230 | 40 | 440 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1591 | 3502 | 3551 | | 3502 | 3610 | 1588 | 3502 | 3583 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1591 | 3502 | 3551 | | 3502 | 3610 | 1588 | 3502 | 3583 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 315 | 163 | 370 | 500 | 54 | 120 | 522 | 250 | 43 | 478 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 33 | 0 | 6 | 0 | 0 | 0 | 148 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 43 | 315 | 130 | 370 | 548 | 0 | 120 | 522 | 102 | 43 | 497 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 7.2 | 49.5 | 60.2 | 21.8 | 64.1 | | 10.7 | 27.1 | 48.9 | 5.6 | 22.0 | |
| Effective Green, g (s) | 7.2 | 49.5 | 60.2 | 21.8 | 64.1 | | 10.7 | 27.1 | 48.9 | 5.6 | 22.0 | |
| Actuated g/C Ratio | 0.06 | 0.41 | 0.50 | 0.18 | 0.53 | | 0.09 | 0.23 | 0.41 | 0.05 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 108 | 784 | 851 | 636 | 1897 | | 312 | 815 | 647 | 163 | 657 | |
| v/s Ratio Prot | 0.02 | c0.17 | 0.01 | c0.11 | 0.15 | | 0.03 | c0.14 | 0.03 | 0.01 | c0.14 | |
| v/s Ratio Perm | | | 0.07 | | | | | | 0.04 | | | |
| v/c Ratio | 0.40 | 0.40 | 0.15 | 0.58 | 0.29 | | 0.38 | 0.64 | 0.16 | 0.26 | 0.76 | |
| Uniform Delay, d1 | 54.3 | 24.8 | 16.1 | 44.9 | 15.4 | | 51.5 | 42.0 | 22.5 | 55.2 | 46.5 | |
| Progression Factor | 0.49 | 0.65 | 0.21 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.3 | 1.5 | 0.1 | 1.4 | 0.4 | | 0.8 | 1.7 | 0.1 | 0.9 | 5.0 | |
| Delay (s) | 28.6 | 17.6 | 3.5 | 46.3 | 15.8 | | 52.3 | 43.8 | 22.6 | 56.1 | 51.4 | |
| Level of Service | C | B | A | D | B | | D | D | C | E | D | |
| Approach Delay (s) | | 14.1 | | | 28.0 | | | 39.0 | | | 51.8 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

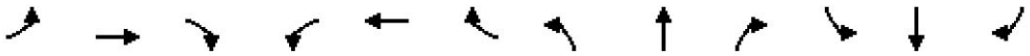
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1230 | 30 | 300 | 1010 | 40 | 30 | 130 | 430 | 50 | 240 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3595 | | 1805 | 3585 | | 1805 | 1900 | 1602 | 1805 | 1900 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3595 | | 1805 | 3585 | | 1805 | 1900 | 1602 | 1805 | 1900 | 1588 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 1309 | 32 | 319 | 1074 | 43 | 32 | 138 | 457 | 53 | 255 | 85 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 36 | 0 | 0 | 69 |
| Lane Group Flow (vph) | 85 | 1340 | 0 | 319 | 1115 | 0 | 32 | 138 | 421 | 53 | 255 | 16 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.8 | 43.4 | | 20.1 | 55.7 | | 3.9 | 18.4 | 38.5 | 5.4 | 19.9 | 19.9 |
| Effective Green, g (s) | 7.8 | 43.4 | | 20.1 | 55.7 | | 3.9 | 18.4 | 38.5 | 5.4 | 19.9 | 19.9 |
| Actuated g/C Ratio | 0.08 | 0.42 | | 0.19 | 0.54 | | 0.04 | 0.18 | 0.37 | 0.05 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 136 | 1510 | | 351 | 1933 | | 68 | 338 | 597 | 94 | 366 | 306 |
| v/s Ratio Prot | 0.05 | c0.37 | | c0.18 | 0.31 | | 0.02 | 0.07 | c0.14 | 0.03 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | 0.01 |
| v/c Ratio | 0.62 | 0.89 | | 0.91 | 0.58 | | 0.47 | 0.41 | 0.71 | 0.56 | 0.70 | 0.05 |
| Uniform Delay, d1 | 46.3 | 27.7 | | 40.7 | 15.9 | | 48.7 | 37.6 | 27.6 | 47.8 | 38.9 | 34.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.6 | 6.7 | | 26.2 | 0.4 | | 5.1 | 0.8 | 3.8 | 7.5 | 5.7 | 0.1 |
| Delay (s) | 55.0 | 34.4 | | 66.9 | 16.3 | | 53.8 | 38.4 | 31.4 | 55.3 | 44.6 | 34.1 |
| Level of Service | D | C | | E | B | | D | D | C | E | D | C |
| Approach Delay (s) | | 35.6 | | | 27.6 | | | 34.1 | | | 43.8 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 103.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 85.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 580 | 1030 | 470 | 690 | 330 | 650 | 830 | 170 | 400 | 1480 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.94 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2816 | 3502 | 3610 | 1596 | 5090 | 3610 | 1594 | 3502 | 5170 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2816 | 3502 | 3610 | 1596 | 5090 | 3610 | 1594 | 3502 | 5170 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 630 | 1120 | 511 | 750 | 359 | 707 | 902 | 185 | 435 | 1609 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 2 | 0 | 0 | 54 | 0 | 0 | 21 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 43 | 630 | 1118 | 511 | 750 | 305 | 707 | 902 | 164 | 435 | 1641 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 9.7 | 27.6 | 50.6 | 17.0 | 34.9 | 52.9 | 23.0 | 42.1 | 59.1 | 18.0 | 37.1 | |
| Effective Green, g (s) | 9.7 | 27.6 | 50.6 | 17.0 | 34.9 | 52.9 | 23.0 | 42.1 | 59.1 | 18.0 | 37.1 | |
| Actuated g/C Ratio | 0.08 | 0.23 | 0.42 | 0.14 | 0.29 | 0.44 | 0.19 | 0.35 | 0.49 | 0.15 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 145 | 825 | 1181 | 493 | 1044 | 699 | 970 | 1259 | 833 | 522 | 1589 | |
| v/s Ratio Prot | 0.02 | 0.17 | c0.18 | c0.15 | 0.21 | 0.07 | 0.14 | 0.25 | 0.03 | 0.12 | c0.32 | |
| v/s Ratio Perm | | | 0.22 | | | 0.13 | | | 0.08 | | | |
| v/c Ratio | 0.30 | 0.76 | 0.95 | 1.04 | 0.72 | 0.44 | 0.73 | 0.72 | 0.20 | 0.83 | 1.03 | |
| Uniform Delay, d1 | 52.3 | 43.5 | 33.8 | 51.9 | 38.5 | 23.5 | 45.9 | 34.1 | 17.4 | 49.9 | 41.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.1 | 4.2 | 15.1 | 50.3 | 2.4 | 0.4 | 2.8 | 2.0 | 0.1 | 11.0 | 31.4 | |
| Delay (s) | 53.4 | 47.7 | 48.8 | 102.1 | 40.9 | 24.0 | 48.7 | 36.1 | 17.5 | 60.8 | 73.2 | |
| Level of Service | D | D | D | F | D | C | D | D | B | E | E | |
| Approach Delay (s) | | 48.5 | | | 56.5 | | | 39.1 | | | 70.6 | |
| Approach LOS | | D | | | E | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.99 | | |
| Actuated Cycle Length (s) | 120.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 89.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis
## 107: Rider St & Evans Rd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 240 | 70 | 10 | 180 | 30 | 50 | 190 | 30 | 60 | 240 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3472 | | 1805 | 3523 | | 1804 | 3528 | | 1801 | 3299 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.40 | 1.00 | | 0.60 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3472 | | 1805 | 3523 | | 764 | 3528 | | 1140 | 3299 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 274 | 253 | 74 | 11 | 189 | 32 | 53 | 200 | 32 | 63 | 253 | 274 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 15 | 0 | 0 | 9 | 0 | 0 | 134 | 0 |
| Lane Group Flow (vph) | 274 | 296 | 0 | 11 | 206 | 0 | 53 | 223 | 0 | 63 | 393 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | pm+pt | | | pm+pt | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 20.7 | 34.5 | | 1.2 | 15.0 | | 58.0 | 52.2 | | 58.6 | 52.5 | |
| Effective Green, g (s) | 20.7 | 34.5 | | 1.2 | 15.0 | | 58.0 | 52.2 | | 58.6 | 52.5 | |
| Actuated g/C Ratio | 0.19 | 0.31 | | 0.01 | 0.14 | | 0.53 | 0.47 | | 0.53 | 0.48 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 340 | 1089 | | 20 | 480 | | 458 | 1674 | | 644 | 1575 | |
| v/s Ratio Prot | c0.15 | 0.09 | | 0.01 | c0.06 | | c0.01 | 0.06 | | 0.01 | c0.12 | |
| v/s Ratio Perm | | | | | | | 0.05 | | | 0.05 | | |
| v/c Ratio | 0.81 | 0.27 | | 0.55 | 0.43 | | 0.12 | 0.13 | | 0.10 | 0.25 | |
| Uniform Delay, d1 | 42.7 | 28.3 | | 54.1 | 43.6 | | 12.8 | 16.2 | | 12.4 | 17.1 | |
| Progression Factor | 0.84 | 0.81 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.69 | 0.35 | |
| Incremental Delay, d2 | 12.7 | 0.1 | | 28.9 | 0.6 | | 0.1 | 0.2 | | 0.1 | 0.4 | |
| Delay (s) | 48.5 | 23.2 | | 83.0 | 44.2 | | 13.0 | 16.4 | | 8.7 | 6.4 | |
| Level of Service | D | C | | F | D | | B | B | | A | A | |
| Approach Delay (s) | | 34.7 | | | 46.0 | | | 15.7 | | | 6.7 | |
| Approach LOS | | C | | | D | | | B | | | A | |

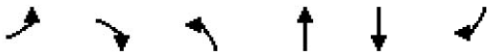
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 750 | 490 | 40 | 70 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1881 | | 1805 | 1615 |
| Flt Permitted | 0.40 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 756 | 1900 | 1881 | | 1805 | 1615 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 21 | 773 | 505 | 41 | 72 | 72 |
| RTOR Reduction (vph) | 0 | 0 | 5 | 0 | 0 | 57 |
| Lane Group Flow (vph) | 21 | 773 | 541 | 0 | 72 | 15 |
| Turn Type | Perm | | | | | Perm |
| Protected Phases | | 4 | 8 | | 6 | |
| Permitted Phases | 4 | | | | | 6 |
| Actuated Green, G (s) | 19.9 | 19.9 | 19.9 | | 7.4 | 7.4 |
| Effective Green, g (s) | 19.9 | 19.9 | 19.9 | | 7.4 | 7.4 |
| Actuated g/C Ratio | 0.56 | 0.56 | 0.56 | | 0.21 | 0.21 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 426 | 1071 | 1060 | | 378 | 339 |
| v/s Ratio Prot | | c0.41 | 0.29 | | c0.04 | |
| v/s Ratio Perm | 0.03 | | | | | 0.01 |
| v/c Ratio | 0.05 | 0.72 | 0.51 | | 0.19 | 0.04 |
| Uniform Delay, d1 | 3.5 | 5.7 | 4.7 | | 11.5 | 11.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.0 | 2.4 | 0.4 | | 0.2 | 0.1 |
| Delay (s) | 3.5 | 8.1 | 5.1 | | 11.7 | 11.2 |
| Level of Service | A | A | A | | B | B |
| Approach Delay (s) | | 8.0 | 5.1 | | 11.5 | |
| Approach LOS | | A | A | | B | |

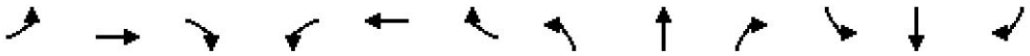
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 35.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 50.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 40 | 30 | 10 | 390 | 700 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.94 | | 1.00 | 1.00 | 0.98 | |
| Flt Protected | 0.97 | | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1723 | | 1803 | 1900 | 1859 | |
| Flt Permitted | 0.97 | | 0.25 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1723 | | 482 | 1900 | 1859 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 42 | 31 | 10 | 406 | 729 | 115 |
| RTOR Reduction (vph) | 28 | 0 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 45 | 0 | 10 | 406 | 837 | 0 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | 3.5 | | 22.6 | 22.6 | 22.6 | |
| Effective Green, g (s) | 3.5 | | 22.6 | 22.6 | 22.6 | |
| Actuated g/C Ratio | 0.10 | | 0.66 | 0.66 | 0.66 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 177 | | 319 | 1259 | 1232 | |
| v/s Ratio Prot | c0.03 | | | 0.21 | c0.45 | |
| v/s Ratio Perm | | | 0.02 | | | |
| v/c Ratio | 0.26 | | 0.03 | 0.32 | 0.68 | |
| Uniform Delay, d1 | 14.1 | | 2.0 | 2.5 | 3.5 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | | 0.0 | 0.1 | 1.5 | |
| Delay (s) | 14.9 | | 2.0 | 2.6 | 5.0 | |
| Level of Service | B | | A | A | A | |
| Approach Delay (s) | 14.9 | | | 2.6 | 5.0 | |
| Approach LOS | B | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 34.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

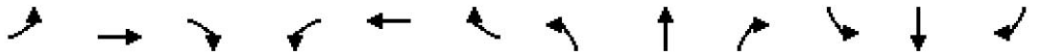
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 590 | 0 | 0 | 210 | 200 | 170 | 10 | 10 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 0.98 | | 1.00 | 0.98 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | 1801 | 1900 | | | 1900 | 1578 | | 1810 | 1579 | | | |
| Flt Permitted | 0.62 | 1.00 | | | 1.00 | 1.00 | | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | 1181 | 1900 | | | 1900 | 1578 | | 1810 | 1579 | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 31 | 608 | 0 | 0 | 216 | 206 | 175 | 10 | 10 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 112 | 0 | 0 | 7 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 31 | 608 | 0 | 0 | 216 | 94 | 0 | 185 | 3 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | | | Perm | Perm | | Perm | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | 2 | | | |
| Actuated Green, G (s) | 12.8 | 12.8 | | | 12.8 | 12.8 | | 7.2 | 7.2 | | | |
| Effective Green, g (s) | 12.8 | 12.8 | | | 12.8 | 12.8 | | 7.2 | 7.2 | | | |
| Actuated g/C Ratio | 0.46 | 0.46 | | | 0.46 | 0.46 | | 0.26 | 0.26 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 540 | 869 | | | 869 | 721 | | 465 | 406 | | | |
| v/s Ratio Prot | | c0.32 | | | 0.11 | | | | | | | |
| v/s Ratio Perm | 0.03 | | | | | 0.06 | | 0.10 | 0.00 | | | |
| v/c Ratio | 0.06 | 0.70 | | | 0.25 | 0.13 | | 0.40 | 0.01 | | | |
| Uniform Delay, d1 | 4.2 | 6.1 | | | 4.7 | 4.4 | | 8.6 | 7.7 | | | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 0.0 | 2.5 | | | 0.2 | 0.1 | | 0.6 | 0.0 | | | |
| Delay (s) | 4.3 | 8.5 | | | 4.8 | 4.5 | | 9.2 | 7.7 | | | |
| Level of Service | A | A | | | A | A | | A | A | | | |
| Approach Delay (s) | | 8.3 | | | 4.6 | | | 9.1 | | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 28.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

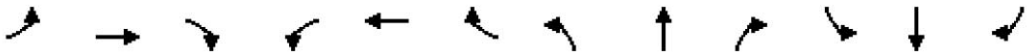
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 410 | 350 | 10 | 390 | 0 | 0 | 0 | 0 | 220 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | | | | | | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1900 | 1578 | 1802 | 1900 | | | | | | 1808 | 1578 |
| Flt Permitted | | 1.00 | 1.00 | 0.48 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1900 | 1578 | 913 | 1900 | | | | | | 1808 | 1578 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 427 | 365 | 10 | 406 | 0 | 0 | 0 | 0 | 229 | 10 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 188 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 0 | 427 | 177 | 10 | 406 | 0 | 0 | 0 | 0 | 0 | 239 | 3 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 15.0 | 15.0 | 15.0 | 15.0 | | | | | | 7.9 | 7.9 |
| Effective Green, g (s) | | 15.0 | 15.0 | 15.0 | 15.0 | | | | | | 7.9 | 7.9 |
| Actuated g/C Ratio | | 0.49 | 0.49 | 0.49 | 0.49 | | | | | | 0.26 | 0.26 |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 922 | 766 | 443 | 922 | | | | | | 462 | 403 |
| v/s Ratio Prot | | c0.22 | | | 0.21 | | | | | | | |
| v/s Ratio Perm | | | 0.11 | 0.01 | | | | | | | 0.13 | 0.00 |
| v/c Ratio | | 0.46 | 0.23 | 0.02 | 0.44 | | | | | | 0.52 | 0.01 |
| Uniform Delay, d1 | | 5.3 | 4.6 | 4.1 | 5.2 | | | | | | 9.9 | 8.6 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.4 | 0.2 | 0.0 | 0.3 | | | | | | 1.0 | 0.0 |
| Delay (s) | | 5.6 | 4.8 | 4.2 | 5.5 | | | | | | 10.8 | 8.6 |
| Level of Service | | A | A | A | A | | | | | | B | A |
| Approach Delay (s) | | 5.2 | | | 5.5 | | | 0.0 | | | 10.8 | |
| Approach LOS | | A | | | A | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 30.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

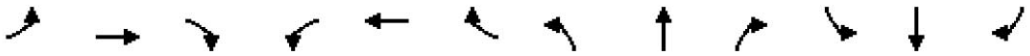
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 600 | 0 | 0 | 300 | 280 | 10 | 30 | 10 | 230 | 10 | 20 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 0.99 | |
| Frt | | 1.00 | | | 0.93 | | | 0.97 | | | 0.99 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.96 | |
| Satd. Flow (prot) | | 1796 | | | 1662 | | | 1723 | | | 1693 | |
| Flt Permitted | | 0.96 | | | 1.00 | | | 0.92 | | | 0.71 | |
| Satd. Flow (perm) | | 1720 | | | 1662 | | | 1601 | | | 1257 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 33 | 667 | 0 | 0 | 333 | 311 | 11 | 33 | 11 | 256 | 11 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 8 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 700 | 0 | 0 | 587 | 0 | 0 | 47 | 0 | 0 | 284 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 24.9 | | | 24.9 | | | 15.9 | | | 15.9 | |
| Effective Green, g (s) | | 24.9 | | | 24.9 | | | 15.9 | | | 15.9 | |
| Actuated g/C Ratio | | 0.49 | | | 0.49 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 843 | | | 815 | | | 501 | | | 393 | |
| v/s Ratio Prot | | | | | 0.35 | | | | | | | |
| v/s Ratio Perm | | c0.41 | | | | | | 0.03 | | | c0.23 | |
| v/c Ratio | | 0.83 | | | 0.72 | | | 0.09 | | | 0.72 | |
| Uniform Delay, d1 | | 11.1 | | | 10.2 | | | 12.4 | | | 15.5 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 7.0 | | | 3.1 | | | 0.1 | | | 6.5 | |
| Delay (s) | | 18.1 | | | 13.4 | | | 12.4 | | | 22.0 | |
| Level of Service | | B | | | B | | | B | | | C | |
| Approach Delay (s) | | 18.1 | | | 13.4 | | | 12.4 | | | 22.0 | |
| Approach LOS | | B | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 50.8 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 89.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 750 | 10 | 10 | 540 | 170 | 10 | 10 | 10 | 120 | 0 | 20 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 0.99 | |
| Frt | | 1.00 | | | 0.97 | | | 0.95 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.96 | |
| Satd. Flow (prot) | | 1794 | | | 1730 | | | 1673 | | | 1678 | |
| Flt Permitted | | 0.97 | | | 0.99 | | | 0.89 | | | 0.73 | |
| Satd. Flow (perm) | | 1745 | | | 1708 | | | 1507 | | | 1279 | |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 24 | 893 | 12 | 12 | 643 | 202 | 12 | 12 | 12 | 143 | 0 | 24 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 0 | 929 | 0 | 0 | 845 | 0 | 0 | 27 | 0 | 0 | 158 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | | 2 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 39.9 | | | 39.9 | | | 13.4 | | | 13.4 | |
| Effective Green, g (s) | | 39.9 | | | 39.9 | | | 13.4 | | | 13.4 | |
| Actuated g/C Ratio | | 0.63 | | | 0.63 | | | 0.21 | | | 0.21 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1100 | | | 1077 | | | 319 | | | 271 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.53 | | | 0.49 | | | 0.02 | | | c0.12 | |
| v/c Ratio | | 0.84 | | | 0.78 | | | 0.08 | | | 0.58 | |
| Uniform Delay, d1 | | 9.2 | | | 8.6 | | | 20.0 | | | 22.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 6.1 | | | 3.8 | | | 0.1 | | | 3.2 | |
| Delay (s) | | 15.3 | | | 12.4 | | | 20.1 | | | 25.6 | |
| Level of Service | | B | | | B | | | C | | | C | |
| Approach Delay (s) | | 15.3 | | | 12.4 | | | 20.1 | | | 25.6 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 63.3 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 78.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 60 | 760 | 30 | 20 | 750 | 80 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.99 | |
| Flt Protected | 1.00 | 1.00 | | 0.97 | 0.96 | |
| Satd. Flow (prot) | 1800 | 1526 | | 1743 | 1696 | |
| Flt Permitted | 1.00 | 1.00 | | 0.78 | 0.96 | |
| Satd. Flow (perm) | 1800 | 1526 | | 1395 | 1696 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 67 | 844 | 33 | 22 | 833 | 89 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 67 | 844 | 0 | 55 | 919 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | 5 | 5 |
| Turn Type | | pm+ov | Perm | | | |
| Protected Phases | 4 | 2 | | 8 | 2 | |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 4.2 | 42.5 | | 4.2 | 38.3 | |
| Effective Green, g (s) | 4.2 | 42.5 | | 4.2 | 38.3 | |
| Actuated g/C Ratio | 0.08 | 0.81 | | 0.08 | 0.73 | |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 144 | 1526 | | 112 | 1237 | |
| v/s Ratio Prot | 0.04 | c0.40 | | | c0.54 | |
| v/s Ratio Perm | | 0.15 | | 0.04 | | |
| v/c Ratio | 0.47 | 0.55 | | 0.49 | 0.74 | |
| Uniform Delay, d1 | 23.1 | 1.7 | | 23.1 | 4.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.4 | 0.4 | | 3.4 | 2.5 | |
| Delay (s) | 25.4 | 2.2 | | 26.5 | 6.6 | |
| Level of Service | C | A | | C | A | |
| Approach Delay (s) | 3.9 | | | 26.5 | 6.6 | |
| Approach LOS | A | | | C | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 52.5 | Sum of lost time (s) | 5.0 |
| Intersection Capacity Utilization | 66.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix E

## Intersection LOS Worksheets
## for 2022 No-Project Conditions

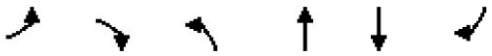
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| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 130 | 10 | 40 | 90 | 10 | 30 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 |
| Hourly flow rate (vph) | 165 | 13 | 51 | 114 | 13 | 38 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 119 | 56 | | | 165 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 119 | 56 | | | 165 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 81 | 99 | | | 99 | |
| cM capacity (veh/h) | 870 | 1012 | | | 1426 | |

| Direction, Lane # | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 165 | 13 | 51 | 114 | 51 |
| Volume Left | 165 | 0 | 0 | 0 | 13 |
| Volume Right | 0 | 13 | 0 | 114 | 0 |
| cSH | 870 | 1012 | 1700 | 1700 | 1426 |
| Volume to Capacity | 0.19 | 0.01 | 0.03 | 0.07 | 0.01 |
| Queue Length 95th (ft) | 17 | 1 | 0 | 0 | 1 |
| Control Delay (s) | 10.1 | 8.6 | 0.0 | 0.0 | 1.9 |
| Lane LOS | B | A | | | A |
| Approach Delay (s) | 10.0 | | 0.0 | | 1.9 |
| Approach LOS | A | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.8 | | |
| Intersection Capacity Utilization | 22.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

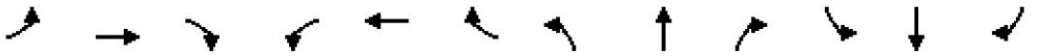


| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 90 | 130 | 690 | 270 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1593 | 1805 | 5187 | 5187 | 1576 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1593 | 1805 | 5187 | 5187 | 1576 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 11 | 101 | 146 | 775 | 303 | 11 |
| RTOR Reduction (vph) | 0 | 90 | 0 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 11 | 11 | 146 | 775 | 303 | 4 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 3.8 | 3.8 | 6.9 | 22.7 | 11.8 | 11.8 |
| Effective Green, g (s) | 3.8 | 3.8 | 6.9 | 22.7 | 11.8 | 11.8 |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.20 | 0.66 | 0.34 | 0.34 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 199 | 175 | 361 | 3413 | 1774 | 539 |
| v/s Ratio Prot | 0.01 | | c0.08 | c0.15 | 0.06 | |
| v/s Ratio Perm | | c0.01 | | | | 0.00 |
| v/c Ratio | 0.06 | 0.06 | 0.40 | 0.23 | 0.17 | 0.01 |
| Uniform Delay, d1 | 13.7 | 13.8 | 12.0 | 2.4 | 7.9 | 7.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.1 | 0.2 | 0.7 | 0.0 | 0.0 | 0.0 |
| Delay (s) | 13.9 | 13.9 | 12.8 | 2.4 | 8.0 | 7.5 |
| Level of Service | B | B | B | A | A | A |
| Approach Delay (s) | 13.9 | | | 4.0 | 8.0 | |
| Approach LOS | B | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.24 | | |
| Actuated Cycle Length (s) | 34.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 33.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis
## 10: Locust Ave & Redlands Blvd



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 120 | 0 | 50 | 5 | 0 | 5 | 30 | 870 | 0 | 0 | 640 | 90 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 136 | 0 | 57 | 6 | 0 | 6 | 34 | 989 | 0 | 0 | 727 | 102 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1800 | 1794 | 737 | 1851 | 1896 | 999 | 835 | | | 994 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1800 | 1794 | 737 | 1851 | 1896 | 999 | 835 | | | 994 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 100 | 86 | 88 | 100 | 98 | 96 | | | 100 | | |
| cM capacity (veh/h) | 59 | 77 | 418 | 47 | 67 | 296 | 804 | | | 701 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 193 | 11 | 34 | 989 | 0 | 0 | 727 | 102 |
| Volume Left | 136 | 6 | 34 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 57 | 6 | 0 | 0 | 0 | 0 | 0 | 102 |
| cSH | 78 | 82 | 804 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 2.47 | 0.14 | 0.04 | 0.58 | 0.00 | 0.00 | 0.43 | 0.06 |
| Queue Length 95th (ft) | 458 | 11 | 3 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 780.1 | 56.0 | 9.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | F | A | | | | | |
| Approach Delay (s) | 780.1 | 56.0 | 0.3 | | | 0.0 | | |
| Approach LOS | F | F | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 73.7 | | | |
| Intersection Capacity Utilization | 66.6% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 10 | 40 | 10 | 10 | 10 | 50 | 540 | 10 | 10 | 550 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.96 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1757 | | | 1766 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Flt Permitted | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1757 | | | 1766 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 119 | 12 | 48 | 12 | 12 | 12 | 60 | 643 | 12 | 12 | 655 | 95 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 0 | 170 | 0 | 0 | 25 | 0 | 60 | 654 | 0 | 12 | 655 | 76 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 41.6 | | | 5.0 | | 8.3 | 54.4 | | 3.0 | 49.1 | 49.1 |
| Effective Green, g (s) | | 41.6 | | | 5.0 | | 8.3 | 54.4 | | 3.0 | 49.1 | 49.1 |
| Actuated g/C Ratio | | 0.35 | | | 0.04 | | 0.07 | 0.45 | | 0.02 | 0.41 | 0.41 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 609 | | | 74 | | 125 | 859 | | 45 | 777 | 639 |
| v/s Ratio Prot | | c0.10 | | | c0.01 | | c0.03 | c0.35 | | 0.01 | c0.34 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.05 |
| v/c Ratio | | 0.28 | | | 0.33 | | 0.48 | 0.76 | | 0.27 | 0.84 | 0.12 |
| Uniform Delay, d1 | | 28.4 | | | 55.9 | | 53.8 | 27.4 | | 57.4 | 32.0 | 22.0 |
| Progression Factor | | 0.74 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.1 | | | 2.6 | | 2.9 | 4.0 | | 3.2 | 8.3 | 0.1 |
| Delay (s) | | 21.1 | | | 58.5 | | 56.7 | 31.4 | | 60.6 | 40.3 | 22.1 |
| Level of Service | | C | | | E | | E | C | | E | D | C |
| Approach Delay (s) | | 21.1 | | | 58.5 | | | 33.5 | | | 38.3 | |
| Approach LOS | | C | | | E | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 64.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 100 | 30 | 10 | 100 | 60 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Hourly flow rate (vph) | 12 | 123 | 37 | 12 | 123 | 74 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 331 | 5 | 382 | 257 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 331 | 5 | 382 | 257 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 98 | 89 | 92 | 98 | 92 | |
| cM capacity (veh/h) | 542 | 1080 | 471 | 596 | 1623 | |

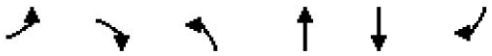
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 12 | 123 | 49 | 123 | 74 |
| Volume Left | 0 | 0 | 37 | 123 | 0 |
| Volume Right | 0 | 123 | 0 | 0 | 74 |
| cSH | 542 | 1080 | 497 | 1623 | 1700 |
| Volume to Capacity | 0.02 | 0.11 | 0.10 | 0.08 | 0.04 |
| Queue Length 95th (ft) | 2 | 10 | 8 | 6 | 0 |
| Control Delay (s) | 11.8 | 8.8 | 13.0 | 7.4 | 0.0 |
| Lane LOS | B | A | B | A | |
| Approach Delay (s) | 9.0 | | 13.0 | 4.6 | |
| Approach LOS | A | | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.3 | | |
| Intersection Capacity Utilization | 21.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 10 | 10 | 110 | 10 | 60 | 10 | 500 | 120 | 320 | 270 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 0 | 12 | 12 | 131 | 12 | 71 | 12 | 595 | 143 | 381 | 321 | 12 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1498 | 1861 | 123 | 1516 | 1724 | 308 | 338 | | | 743 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1498 | 1861 | 123 | 1516 | 1724 | 308 | 338 | | | 743 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 71 | 99 | 0 | 76 | 90 | 99 | | | 56 | | |
| cM capacity (veh/h) | 41 | 41 | 904 | 42 | 50 | 688 | 1227 | | | 870 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 24 | 214 | 12 | 298 | 298 | 143 | 381 | 129 | 129 | 76 |
| Volume Left | 0 | 131 | 12 | 0 | 0 | 0 | 381 | 0 | 0 | 0 |
| Volume Right | 12 | 71 | 0 | 0 | 0 | 143 | 0 | 0 | 0 | 12 |
| cSH | 78 | 62 | 1227 | 1700 | 1700 | 1700 | 870 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.30 | 3.46 | 0.01 | 0.18 | 0.18 | 0.08 | 0.44 | 0.08 | 0.08 | 0.04 |
| Queue Length 95th (ft) | 28 | Err | 1 | 0 | 0 | 0 | 56 | 0 | 0 | 0 |
| Control Delay (s) | 70.1 | Err | 8.0 | 0.0 | 0.0 | 0.0 | 12.3 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | F | A | | | | B | | | |
| Approach Delay (s) | 70.1 | 9999.0 | 0.1 | | | | 6.6 | | | |
| Approach LOS | F | F | | | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1262.4 | | | |
| Intersection Capacity Utilization | 58.5% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 190 | 40 | 70 | 480 | 370 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.98 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.96 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1782 | | 1805 | 5187 | 5187 | 1615 |
| Flt Permitted | 0.96 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1782 | | 1805 | 5187 | 5187 | 1615 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 224 | 47 | 82 | 565 | 435 | 35 |
| RTOR Reduction (vph) | 13 | 0 | 0 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 258 | 0 | 82 | 565 | 435 | 20 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 5 | 2 | 6 | 4 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 10.8 | | 4.0 | 19.8 | 11.8 | 22.6 |
| Effective Green, g (s) | 10.8 | | 4.0 | 19.8 | 11.8 | 22.6 |
| Actuated g/C Ratio | 0.28 | | 0.10 | 0.51 | 0.31 | 0.59 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 499 | | 187 | 2661 | 1586 | 1113 |
| v/s Ratio Prot | c0.14 | | c0.05 | 0.11 | c0.08 | 0.01 |
| v/s Ratio Perm | | | | | | 0.01 |
| v/c Ratio | 0.52 | | 0.44 | 0.21 | 0.27 | 0.02 |
| Uniform Delay, d1 | 11.7 | | 16.2 | 5.1 | 10.2 | 3.4 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | | 1.6 | 0.0 | 0.1 | 0.0 |
| Delay (s) | 12.6 | | 17.9 | 5.2 | 10.2 | 3.4 |
| Level of Service | B | | B | A | B | A |
| Approach Delay (s) | 12.6 | | | 6.8 | 9.7 | |
| Approach LOS | B | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 38.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 35.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

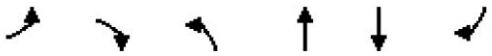
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 120 | 60 | 90 | 70 | 60 | 80 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 129 | 65 | 97 | 75 | 65 | 86 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 354 | 139 | | | 172 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 354 | 139 | | | 172 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 79 | 93 | | | 95 | |
| cM capacity (veh/h) | 615 | 910 | | | 1417 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 194 | 172 | 151 |
| Volume Left | 129 | 0 | 65 |
| Volume Right | 65 | 75 | 0 |
| cSH | 690 | 1700 | 1417 |
| Volume to Capacity | 0.28 | 0.10 | 0.05 |
| Queue Length 95th (ft) | 29 | 0 | 4 |
| Control Delay (s) | 12.2 | 0.0 | 3.5 |
| Lane LOS | B | | A |
| Approach Delay (s) | 12.2 | 0.0 | 3.5 |
| Approach LOS | B | | |

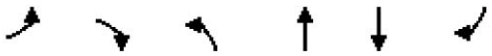
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 5.6 | |
| Intersection Capacity Utilization | | 36.9% | ICU Level of Service A |
| Analysis Period (min) | | 15 | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 90 | 200 | 50 | 80 | 130 | 60 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 |
| Hourly flow rate (vph) | 120 | 267 | 67 | 107 | 173 | 80 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 458 | 218 | 253 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 458 | 218 | 253 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 78 | 68 | 95 | | | |
| cM capacity (veh/h) | 534 | 823 | 1324 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 387 | 67 | 107 | 253 |
| Volume Left | 120 | 67 | 0 | 0 |
| Volume Right | 267 | 0 | 0 | 80 |
| cSH | 1193 | 1324 | 1700 | 1700 |
| Volume to Capacity | 0.32 | 0.05 | 0.06 | 0.15 |
| Queue Length 95th (ft) | 35 | 4 | 0 | 0 |
| Control Delay (s) | 12.2 | 7.9 | 0.0 | 0.0 |
| Lane LOS | B | A | | |
| Approach Delay (s) | 12.2 | 3.0 | | 0.0 |
| Approach LOS | B | | | |

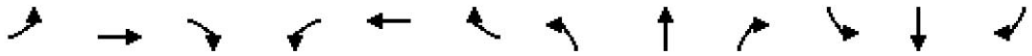
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.4 | | |
| Intersection Capacity Utilization | 29.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 110 | 10 | 20 | 40 | 20 | 320 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 126 | 11 | 23 | 46 | 23 | 368 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 120 | 28 | 391 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 120 | 28 | 391 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 85 | 99 | 98 | | | |
| cM capacity (veh/h) | 860 | 1049 | 1179 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 138 | 23 | 46 | 23 | 368 |
| Volume Left | 126 | 23 | 0 | 0 | 0 |
| Volume Right | 11 | 0 | 0 | 0 | 368 |
| cSH | 938 | 1179 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.15 | 0.02 | 0.03 | 0.01 | 0.22 |
| Queue Length 95th (ft) | 13 | 1 | 0 | 0 | 0 |
| Control Delay (s) | 9.8 | 8.1 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | A | | | |
| Approach Delay (s) | 9.8 | 2.7 | | 0.0 | |
| Approach LOS | A | | | | |

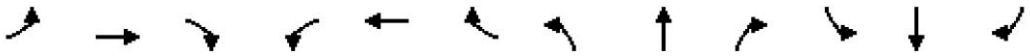
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.6 | | |
| Intersection Capacity Utilization | 29.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 210 | 140 | 20 | 530 | 0 | 260 | 0 | 30 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 0 | 253 | 169 | 24 | 639 | 0 | 313 | 0 | 36 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 644 | | | 427 | | | 715 | 1034 | 221 | 823 | 1118 | 329 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 644 | | | 427 | | | 715 | 1034 | 221 | 823 | 1118 | 329 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 98 | | | 0 | 100 | 95 | 100 | 100 | 100 |
| cM capacity (veh/h) | 947 | | | 1139 | | | 312 | 227 | 783 | 249 | 203 | 667 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 127 | 295 | 343 | 319 | 313 | 36 | 0 |
| Volume Left | 0 | 0 | 24 | 0 | 313 | 0 | 0 |
| Volume Right | 0 | 169 | 0 | 0 | 0 | 36 | 0 |
| cSH | 947 | 1700 | 1139 | 1700 | 312 | 783 | 1700 |
| Volume to Capacity | 0.00 | 0.17 | 0.02 | 0.19 | 1.00 | 0.05 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 2 | 0 | 273 | 4 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.8 | 0.0 | 89.6 | 9.8 | 0.0 |
| Lane LOS | | | A | | F | A | A |
| Approach Delay (s) | 0.0 | | 0.4 | | 81.3 | | 0.0 |
| Approach LOS | | | | | F | | A |

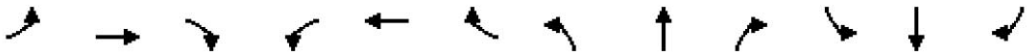
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 20.0 | | |
| Intersection Capacity Utilization | 49.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 90 | 70 | 40 | 190 | 20 | 130 | 660 | 30 | 20 | 460 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3351 | | 1805 | 3553 | | 1805 | 3584 | | 1805 | 3424 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3351 | | 1805 | 3553 | | 1805 | 3584 | | 1805 | 3424 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 69 | 103 | 80 | 46 | 218 | 23 | 149 | 759 | 34 | 23 | 529 | 241 |
| RTOR Reduction (vph) | 0 | 67 | 0 | 0 | 11 | 0 | 0 | 3 | 0 | 0 | 57 | 0 |
| Lane Group Flow (vph) | 69 | 116 | 0 | 46 | 230 | 0 | 149 | 790 | 0 | 23 | 713 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 3.4 | 9.1 | | 4.5 | 10.2 | | 7.1 | 27.0 | | 1.0 | 20.9 | |
| Effective Green, g (s) | 3.4 | 9.1 | | 4.5 | 10.2 | | 7.1 | 27.0 | | 1.0 | 20.9 | |
| Actuated g/C Ratio | 0.06 | 0.16 | | 0.08 | 0.18 | | 0.12 | 0.47 | | 0.02 | 0.36 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 107 | 529 | | 141 | 629 | | 222 | 1680 | | 31 | 1242 | |
| v/s Ratio Prot | c0.04 | 0.03 | | 0.03 | c0.06 | | c0.08 | 0.22 | | 0.01 | c0.21 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.64 | 0.22 | | 0.33 | 0.37 | | 0.67 | 0.47 | | 0.74 | 0.57 | |
| Uniform Delay, d1 | 26.5 | 21.1 | | 25.1 | 20.9 | | 24.1 | 10.4 | | 28.2 | 14.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 12.6 | 0.2 | | 1.4 | 0.4 | | 7.7 | 0.2 | | 64.1 | 0.6 | |
| Delay (s) | 39.1 | 21.4 | | 26.5 | 21.2 | | 31.9 | 10.6 | | 92.3 | 15.4 | |
| Level of Service | D | C | | C | C | | C | B | | F | B | |
| Approach Delay (s) | | 26.2 | | | 22.1 | | | 14.0 | | | 17.6 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 57.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 54.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

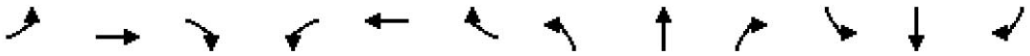
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 60 | 60 | 30 | 50 | 110 | 20 | 20 | 390 | 80 | 10 | 250 | 70 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 75 | 75 | 38 | 62 | 138 | 25 | 25 | 488 | 100 | 12 | 312 | 88 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 75 | 113 | 225 | 513 | 100 | 169 | 244 |
| Volume Left (vph) | 75 | 0 | 63 | 25 | 0 | 13 | 0 |
| Volume Right (vph) | 0 | 38 | 25 | 0 | 100 | 0 | 88 |
| Hadj (s) | 0.50 | -0.23 | -0.01 | 0.02 | -0.70 | 0.04 | -0.25 |
| Departure Headway (s) | 8.6 | 7.8 | 7.7 | 6.9 | 6.1 | 7.3 | 7.0 |
| Degree Utilization, x | 0.18 | 0.24 | 0.48 | 0.98 | 0.17 | 0.34 | 0.47 |
| Capacity (veh/h) | 404 | 442 | 451 | 513 | 569 | 484 | 506 |
| Control Delay (s) | 12.2 | 12.1 | 17.7 | 59.3 | 9.2 | 12.8 | 14.9 |
| Approach Delay (s) | 12.2 | | 17.7 | 51.1 | | 14.0 | |
| Approach LOS | B | | C | F | | B | |

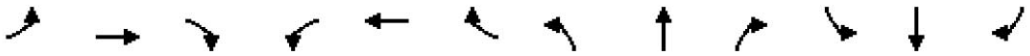
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 30.2 | | |
| HCM Level of Service | D | | |
| Intersection Capacity Utilization | 58.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 240 | 210 | 40 | 280 | 30 | 230 | 200 | 40 | 10 | 130 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 1.00 | |
| Satd. Flow (prot) | 1805 | 3315 | | 1805 | 1900 | 1569 | | 1851 | 1589 | | 1875 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 1.00 | |
| Satd. Flow (perm) | 1805 | 3315 | | 1805 | 1900 | 1569 | | 1851 | 1589 | | 1875 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 13 | 312 | 273 | 52 | 364 | 39 | 299 | 260 | 52 | 13 | 169 | 13 |
| RTOR Reduction (vph) | 0 | 163 | 0 | 0 | 0 | 28 | 0 | 0 | 31 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 13 | 422 | 0 | 52 | 364 | 11 | 0 | 559 | 21 | 0 | 193 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.1 | 17.2 | | 6.0 | 22.1 | 22.1 | | 28.9 | 28.9 | | 13.7 | |
| Effective Green, g (s) | 1.1 | 17.2 | | 6.0 | 22.1 | 22.1 | | 28.9 | 28.9 | | 13.7 | |
| Actuated g/C Ratio | 0.01 | 0.21 | | 0.07 | 0.27 | 0.27 | | 0.35 | 0.35 | | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 24 | 697 | | 132 | 513 | 424 | | 654 | 561 | | 314 | |
| v/s Ratio Prot | 0.01 | 0.13 | | c0.03 | c0.19 | | | c0.30 | | | c0.10 | |
| v/s Ratio Perm | | | | | | 0.01 | | | 0.01 | | | |
| v/c Ratio | 0.54 | 0.61 | | 0.39 | 0.71 | 0.02 | | 0.85 | 0.04 | | 0.61 | |
| Uniform Delay, d1 | 40.1 | 29.2 | | 36.2 | 27.0 | 21.9 | | 24.5 | 17.3 | | 31.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 22.7 | 1.5 | | 1.9 | 4.5 | 0.0 | | 10.6 | 0.0 | | 3.5 | |
| Delay (s) | 62.8 | 30.7 | | 38.1 | 31.4 | 22.0 | | 35.1 | 17.4 | | 35.1 | |
| Level of Service | E | C | | D | C | C | | D | B | | D | |
| Approach Delay (s) | | 31.4 | | | 31.4 | | | 33.6 | | | 35.1 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 81.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

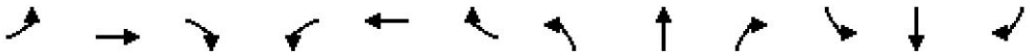


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 150 | 60 | 30 | 140 | 50 | 100 | 660 | 70 | 20 | 370 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3440 | | 1805 | 3455 | | 1805 | 3610 | 1596 | 1805 | 4978 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3440 | | 1805 | 3455 | | 1805 | 3610 | 1596 | 1805 | 4978 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 141 | 176 | 71 | 35 | 165 | 59 | 118 | 776 | 82 | 24 | 435 | 141 |
| RTOR Reduction (vph) | 0 | 56 | 0 | 0 | 50 | 0 | 0 | 0 | 42 | 0 | 65 | 0 |
| Lane Group Flow (vph) | 141 | 191 | 0 | 35 | 174 | 0 | 118 | 776 | 40 | 24 | 511 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 9.0 | 12.0 | | 5.5 | 8.5 | | 11.9 | 22.1 | 27.6 | 1.1 | 11.3 | |
| Effective Green, g (s) | 9.0 | 12.0 | | 5.5 | 8.5 | | 11.9 | 22.1 | 27.6 | 1.1 | 11.3 | |
| Actuated g/C Ratio | 0.16 | 0.21 | | 0.10 | 0.15 | | 0.21 | 0.39 | 0.49 | 0.02 | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 287 | 728 | | 175 | 518 | | 379 | 1407 | 889 | 35 | 992 | |
| v/s Ratio Prot | c0.08 | c0.06 | | 0.02 | c0.05 | | 0.07 | c0.21 | 0.00 | 0.01 | c0.10 | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | |
| v/c Ratio | 0.49 | 0.26 | | 0.20 | 0.34 | | 0.31 | 0.55 | 0.04 | 0.69 | 0.52 | |
| Uniform Delay, d1 | 21.8 | 18.7 | | 23.6 | 21.6 | | 18.9 | 13.4 | 7.6 | 27.6 | 20.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.3 | 0.2 | | 0.6 | 0.4 | | 0.5 | 0.5 | 0.0 | 43.6 | 0.5 | |
| Delay (s) | 23.1 | 18.8 | | 24.1 | 22.0 | | 19.4 | 13.9 | 7.7 | 71.2 | 20.7 | |
| Level of Service | C | B | | C | C | | B | B | A | E | C | |
| Approach Delay (s) | | 20.4 | | | 22.3 | | | 14.1 | | | 22.7 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 56.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 55.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

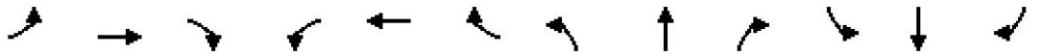
# HCM Unsignalized Intersection Capacity Analysis
## 27: Cactus Ave & Redlands Blvd



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 170 | 10 | 50 | 0 | 10 | 20 | 20 | 290 | 0 | 10 | 280 | 90 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Hourly flow rate (vph) | 233 | 14 | 68 | 0 | 14 | 27 | 27 | 397 | 0 | 14 | 384 | 123 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 240 | 75 | 41 | 226 | 199 | 205 | 315 |
| Volume Left (vph) | 233 | 0 | 0 | 27 | 0 | 14 | 0 |
| Volume Right (vph) | 0 | 68 | 27 | 0 | 0 | 0 | 123 |
| Hadj (s) | 0.49 | -0.64 | -0.40 | 0.06 | 0.00 | 0.03 | -0.27 |
| Departure Headway (s) | 7.4 | 6.3 | 7.1 | 6.6 | 6.5 | 6.4 | 6.1 |
| Degree Utilization, x | 0.49 | 0.13 | 0.08 | 0.41 | 0.36 | 0.37 | 0.54 |
| Capacity (veh/h) | 462 | 534 | 450 | 527 | 530 | 537 | 569 |
| Control Delay (s) | 16.3 | 9.0 | 10.7 | 12.9 | 11.9 | 11.9 | 14.8 |
| Approach Delay (s) | 14.5 | | 10.7 | 12.4 | | 13.7 | |
| Approach LOS | B | | B | B | | B | |

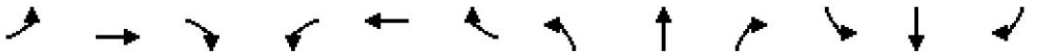
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 13.4 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 45.9% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 70 | 10 | 200 | 100 | 230 | 20 | 420 | 190 | 110 | 410 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3536 | | 1805 | 3201 | | 1805 | 5187 | 1601 | 1805 | 4958 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3536 | | 1805 | 3201 | | 1805 | 5187 | 1601 | 1805 | 4958 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 156 | 91 | 13 | 260 | 130 | 299 | 26 | 545 | 247 | 143 | 532 | 195 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 201 | 0 | 0 | 0 | 135 | 0 | 58 | 0 |
| Lane Group Flow (vph) | 156 | 93 | 0 | 260 | 228 | 0 | 26 | 545 | 112 | 143 | 669 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.3 | 9.3 | | 11.6 | 10.6 | | 2.5 | 15.2 | 26.8 | 7.1 | 19.8 | |
| Effective Green, g (s) | 10.3 | 9.3 | | 11.6 | 10.6 | | 2.5 | 15.2 | 26.8 | 7.1 | 19.8 | |
| Actuated g/C Ratio | 0.17 | 0.16 | | 0.20 | 0.18 | | 0.04 | 0.26 | 0.45 | 0.12 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 314 | 555 | | 354 | 573 | | 76 | 1332 | 833 | 216 | 1658 | |
| v/s Ratio Prot | 0.09 | 0.03 | | c0.14 | c0.07 | | 0.01 | 0.11 | 0.03 | c0.08 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | |
| v/c Ratio | 0.50 | 0.17 | | 0.73 | 0.40 | | 0.34 | 0.41 | 0.13 | 0.66 | 0.40 | |
| Uniform Delay, d1 | 22.1 | 21.6 | | 22.4 | 21.5 | | 27.6 | 18.3 | 9.4 | 24.9 | 15.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.2 | 0.1 | | 7.7 | 0.5 | | 2.7 | 0.2 | 0.1 | 7.4 | 0.2 | |
| Delay (s) | 23.3 | 21.7 | | 30.0 | 21.9 | | 30.2 | 18.5 | 9.5 | 32.3 | 15.3 | |
| Level of Service | C | C | | C | C | | C | B | A | C | B | |
| Approach Delay (s) | | 22.7 | | | 25.0 | | | 16.1 | | | 18.1 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 59.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

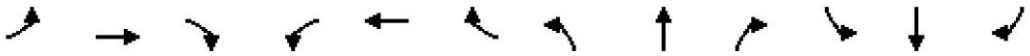
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 220 | 130 | 140 | 460 | 40 | 80 | 430 | 90 | 40 | 690 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1598 | 1805 | 3561 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1598 | 1805 | 3561 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 104 | 229 | 135 | 146 | 479 | 42 | 83 | 448 | 94 | 42 | 719 | 292 |
| RTOR Reduction (vph) | 0 | 0 | 72 | 0 | 7 | 0 | 0 | 0 | 34 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 104 | 229 | 63 | 146 | 514 | 0 | 83 | 448 | 60 | 42 | 719 | 202 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.2 | 20.6 | 31.5 | 14.2 | 23.6 | | 10.9 | 62.1 | 76.3 | 7.1 | 58.3 | 69.5 |
| Effective Green, g (s) | 11.2 | 20.6 | 31.5 | 14.2 | 23.6 | | 10.9 | 62.1 | 76.3 | 7.1 | 58.3 | 69.5 |
| Actuated g/C Ratio | 0.09 | 0.17 | 0.26 | 0.12 | 0.20 | | 0.09 | 0.52 | 0.64 | 0.06 | 0.49 | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 168 | 620 | 473 | 214 | 700 | | 164 | 1868 | 1065 | 107 | 1754 | 975 |
| v/s Ratio Prot | 0.06 | 0.06 | 0.01 | c0.08 | c0.14 | | c0.05 | c0.12 | 0.01 | 0.02 | c0.20 | 0.02 |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.03 | | | 0.11 |
| v/c Ratio | 0.62 | 0.37 | 0.13 | 0.68 | 0.73 | | 0.51 | 0.24 | 0.06 | 0.39 | 0.41 | 0.21 |
| Uniform Delay, d1 | 52.3 | 44.0 | 33.8 | 50.7 | 45.3 | | 52.0 | 15.9 | 8.3 | 54.4 | 19.8 | 12.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 0.82 | 0.49 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.6 | 0.4 | 0.1 | 8.7 | 4.0 | | 2.4 | 0.3 | 0.0 | 2.4 | 0.7 | 0.1 |
| Delay (s) | 59.0 | 44.3 | 33.9 | 59.4 | 49.2 | | 54.4 | 13.4 | 4.1 | 56.7 | 20.5 | 12.2 |
| Level of Service | E | D | C | E | D | | D | B | A | E | C | B |
| Approach Delay (s) | | 44.6 | | | 51.5 | | | 17.5 | | | 19.7 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 69.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

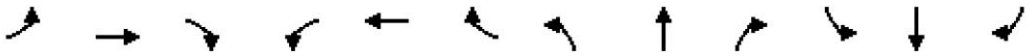
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 450 | 10 | 150 | 300 | 620 | 0 | 0 | 830 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.96 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1811 | 1587 | 1805 | 3610 | | | 3448 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1811 | 1587 | 1805 | 3610 | | | 3448 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 0 | 0 | 469 | 10 | 156 | 312 | 646 | 0 | 0 | 865 | 312 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 29 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 479 | 132 | 312 | 646 | 0 | 0 | 1148 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 34.8 | 34.8 | 23.5 | 77.2 | | | 49.7 | |
| Effective Green, g (s) | | | | | 34.8 | 34.8 | 23.5 | 77.2 | | | 49.7 | |
| Actuated g/C Ratio | | | | | 0.29 | 0.29 | 0.20 | 0.64 | | | 0.41 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 525 | 460 | 353 | 2322 | | | 1428 | |
| v/s Ratio Prot | | | | | c0.26 | | c0.17 | 0.18 | | | c0.33 | |
| v/s Ratio Perm | | | | | | 0.08 | | | | | | |
| v/c Ratio | | | | | 0.91 | 0.29 | 0.88 | 0.28 | | | 0.80 | |
| Uniform Delay, d1 | | | | | 41.1 | 33.0 | 46.9 | 9.3 | | | 30.9 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.70 | |
| Incremental Delay, d2 | | | | | 20.2 | 0.3 | 22.1 | 0.3 | | | 4.7 | |
| Delay (s) | | | | | 61.3 | 33.3 | 69.0 | 9.6 | | | 26.4 | |
| Level of Service | | | | | E | C | E | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 54.5 | | | 28.9 | | | 26.4 | |
| Approach LOS | | A | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 110.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

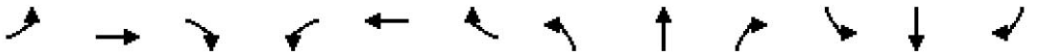
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 270 | 0 | 510 | 0 | 0 | 0 | 0 | 630 | 150 | 190 | 1160 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1715 | 1591 | | | | | 5010 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1715 | 1591 | | | | | 5010 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 297 | 0 | 560 | 0 | 0 | 0 | 0 | 692 | 165 | 209 | 1275 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 53 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 148 | 149 | 546 | 0 | 0 | 0 | 0 | 804 | 0 | 209 | 1275 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 27.5 | 27.5 | 27.5 | | | | | 17.4 | | 10.1 | 31.5 | |
| Effective Green, g (s) | 27.5 | 27.5 | 27.5 | | | | | 17.4 | | 10.1 | 31.5 | |
| Actuated g/C Ratio | 0.41 | 0.41 | 0.41 | | | | | 0.26 | | 0.15 | 0.47 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 704 | 704 | 653 | | | | | 1301 | | 272 | 1697 | |
| v/s Ratio Prot | 0.09 | 0.09 | | | | | | 0.16 | | 0.12 | c0.35 | |
| v/s Ratio Perm | | | c0.34 | | | | | | | | | |
| v/c Ratio | 0.21 | 0.21 | 0.84 | | | | | 0.62 | | 0.77 | 0.75 | |
| Uniform Delay, d1 | 12.7 | 12.8 | 17.7 | | | | | 21.9 | | 27.3 | 14.5 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 0.2 | 9.1 | | | | | 0.9 | | 12.3 | 1.9 | |
| Delay (s) | 12.9 | 12.9 | 26.8 | | | | | 22.7 | | 39.6 | 16.5 | |
| Level of Service | B | B | C | | | | | C | | D | B | |
| Approach Delay (s) | | 22.0 | | | 0.0 | | | 22.7 | | | 19.7 | |
| Approach LOS | | C | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 67.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 110.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

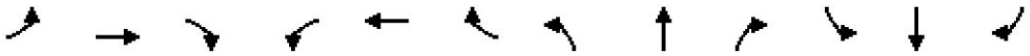


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 210 | 390 | 20 | 70 | 480 | 110 | 820 | 90 | 380 | 920 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.87 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1596 | 1805 | 3137 | | 1805 | 5101 | | 3502 | 3610 | 1594 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1596 | 1805 | 3137 | | 1805 | 5101 | | 3502 | 3610 | 1594 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 348 | 228 | 424 | 22 | 76 | 522 | 120 | 891 | 98 | 413 | 1000 | 152 |
| RTOR Reduction (vph) | 0 | 0 | 74 | 0 | 258 | 0 | 0 | 10 | 0 | 0 | 0 | 62 |
| Lane Group Flow (vph) | 348 | 228 | 350 | 22 | 340 | 0 | 120 | 979 | 0 | 413 | 1000 | 90 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 16.2 | 31.9 | 45.3 | 4.2 | 19.9 | | 13.4 | 49.2 | | 18.7 | 54.5 | 70.7 |
| Effective Green, g (s) | 16.2 | 31.9 | 45.3 | 4.2 | 19.9 | | 13.4 | 49.2 | | 18.7 | 54.5 | 70.7 |
| Actuated g/C Ratio | 0.13 | 0.27 | 0.38 | 0.04 | 0.17 | | 0.11 | 0.41 | | 0.16 | 0.45 | 0.59 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 473 | 960 | 656 | 63 | 520 | | 202 | 2091 | | 546 | 1640 | 992 |
| v/s Ratio Prot | c0.10 | 0.06 | 0.06 | 0.01 | c0.11 | | 0.07 | 0.19 | | c0.12 | c0.28 | 0.01 |
| v/s Ratio Perm | | | 0.16 | | | | | | | | | 0.04 |
| v/c Ratio | 0.74 | 0.24 | 0.53 | 0.35 | 1.03dr | | 0.59 | 0.47 | | 0.76 | 0.61 | 0.09 |
| Uniform Delay, d1 | 49.8 | 34.5 | 29.1 | 56.6 | 46.8 | | 50.7 | 25.8 | | 48.5 | 24.7 | 10.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.52 | 0.41 | | 1.47 | 0.20 | 0.04 |
| Incremental Delay, d2 | 5.9 | 0.1 | 0.8 | 3.3 | 3.0 | | 4.2 | 0.7 | | 3.2 | 0.9 | 0.0 |
| Delay (s) | 55.7 | 34.6 | 30.0 | 59.9 | 49.8 | | 81.1 | 11.2 | | 74.3 | 6.0 | 0.5 |
| Level of Service | E | C | C | E | D | | F | B | | E | A | A |
| Approach Delay (s) | | 40.0 | | | 50.1 | | | 18.7 | | | 23.5 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 78.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

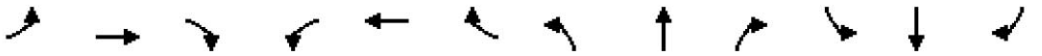
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 180 | 10 | 240 | 600 | 1130 | 0 | 0 | 1330 | 410 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | | 0.97 | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.92 | | 1.00 | 1.00 | | | 0.96 | |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1704 | | 3502 | 3610 | | | 4980 | |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1704 | | 3502 | 3610 | | | 4980 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 0 | 0 | 188 | 10 | 250 | 625 | 1177 | 0 | 0 | 1385 | 427 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 45 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 409 | 0 | 625 | 1177 | 0 | 0 | 1767 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 31.5 | | 25.0 | 80.5 | | | 51.5 | |
| Effective Green, g (s) | | | | | 31.5 | | 25.0 | 80.5 | | | 51.5 | |
| Actuated g/C Ratio | | | | | 0.26 | | 0.21 | 0.67 | | | 0.43 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 447 | | 730 | 2422 | | | 2137 | |
| v/s Ratio Prot | | | | | c0.24 | | c0.18 | 0.33 | | | c0.35 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.91 | | 0.86 | 0.49 | | | 0.83 | |
| Uniform Delay, d1 | | | | | 42.9 | | 45.8 | 9.6 | | | 30.3 | |
| Progression Factor | | | | | 1.00 | | 0.85 | 0.65 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 23.1 | | 8.4 | 0.6 | | | 3.8 | |
| Delay (s) | | | | | 66.0 | | 47.2 | 6.9 | | | 34.1 | |
| Level of Service | | | | | E | | D | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 66.0 | | | 20.9 | | | 34.1 | |
| Approach LOS | | A | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 87.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 90 | 60 | 110 | 200 | 160 | 70 | 870 | 60 | 140 | 1240 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 22 | 100 | 67 | 122 | 222 | 178 | 78 | 967 | 67 | 156 | 1378 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 58 | 0 | 0 | 143 | 0 | 0 | 15 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 22 | 100 | 9 | 122 | 222 | 35 | 78 | 967 | 52 | 156 | 1378 | 19 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 4.2 | 16.3 | 16.3 | 10.6 | 22.7 | 22.7 | 9.4 | 61.5 | 61.5 | 15.6 | 67.7 | 67.7 |
| Effective Green, g (s) | 4.2 | 16.3 | 16.3 | 10.6 | 22.7 | 22.7 | 9.4 | 61.5 | 61.5 | 15.6 | 67.7 | 67.7 |
| Actuated g/C Ratio | 0.04 | 0.14 | 0.14 | 0.09 | 0.19 | 0.19 | 0.08 | 0.51 | 0.51 | 0.13 | 0.56 | 0.56 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 63 | 258 | 216 | 159 | 359 | 300 | 141 | 1850 | 803 | 235 | 2037 | 883 |
| v/s Ratio Prot | 0.01 | 0.05 | | c0.07 | c0.12 | | 0.04 | 0.27 | | c0.09 | c0.38 | |
| v/s Ratio Perm | | | 0.01 | | | 0.02 | | | 0.03 | | | 0.01 |
| v/c Ratio | 0.35 | 0.39 | 0.04 | 0.77 | 0.62 | 0.12 | 0.55 | 0.52 | 0.07 | 0.66 | 0.68 | 0.02 |
| Uniform Delay, d1 | 56.6 | 47.3 | 45.1 | 53.5 | 44.7 | 40.3 | 53.3 | 19.5 | 14.8 | 49.7 | 18.4 | 11.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.06 | 0.83 | 0.53 |
| Incremental Delay, d2 | 3.3 | 1.0 | 0.1 | 19.6 | 3.2 | 0.2 | 4.6 | 1.1 | 0.2 | 5.9 | 1.6 | 0.0 |
| Delay (s) | 59.9 | 48.3 | 45.1 | 73.1 | 47.8 | 40.5 | 57.9 | 20.5 | 14.9 | 58.6 | 16.8 | 6.1 |
| Level of Service | E | D | D | E | D | D | E | C | B | E | B | A |
| Approach Delay (s) | | 48.5 | | | 51.2 | | | 22.8 | | | 20.8 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

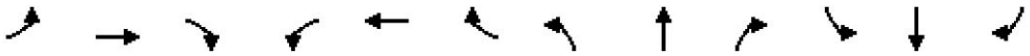
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 10 | 180 | 10 | 10 | 120 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 12 | 12 | 217 | 12 | 12 | 145 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 24 | | 469 | 23 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 24 | | 469 | 23 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 86 | | 97 | 86 |
| cM capacity (veh/h) | | | 1604 | | 479 | 1055 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 24 | 229 | 12 | 145 |
| Volume Left | 0 | 217 | 12 | 0 |
| Volume Right | 12 | 0 | 0 | 145 |
| cSH | 1700 | 1604 | 479 | 1055 |
| Volume to Capacity | 0.01 | 0.14 | 0.03 | 0.14 |
| Queue Length 95th (ft) | 0 | 12 | 2 | 12 |
| Control Delay (s) | 0.0 | 7.2 | 12.7 | 9.0 |
| Lane LOS | | A | B | A |
| Approach Delay (s) | 0.0 | 7.2 | 9.2 | |
| Approach LOS | | | A | |

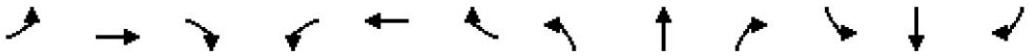
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.6 | | |
| Intersection Capacity Utilization | 27.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 150 | 150 | 230 | 120 | 10 | 100 | 120 | 160 | 10 | 200 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.99 | | | 0.94 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1728 | | 1805 | 1873 | | | 1744 | | | 1846 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1728 | | 1805 | 1873 | | | 1744 | | | 1846 | |
| Peak-hour factor, PHF | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| Adj. Flow (vph) | 28 | 211 | 211 | 324 | 169 | 14 | 141 | 169 | 225 | 14 | 282 | 56 |
| RTOR Reduction (vph) | 0 | 30 | 0 | 0 | 3 | 0 | 0 | 22 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 28 | 392 | 0 | 324 | 180 | 0 | 0 | 513 | 0 | 0 | 346 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 4.2 | 26.4 | | 22.6 | 44.8 | | | 33.0 | | | 22.0 | |
| Effective Green, g (s) | 4.2 | 26.4 | | 22.6 | 44.8 | | | 33.0 | | | 22.0 | |
| Actuated g/C Ratio | 0.04 | 0.22 | | 0.19 | 0.37 | | | 0.28 | | | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 63 | 380 | | 340 | 699 | | | 480 | | | 338 | |
| v/s Ratio Prot | 0.02 | c0.23 | | c0.18 | 0.10 | | | c0.29 | | | c0.19 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.44 | 1.03 | | 0.95 | 0.26 | | | 1.07 | | | 1.02 | |
| Uniform Delay, d1 | 56.8 | 46.8 | | 48.2 | 26.1 | | | 43.5 | | | 49.0 | |
| Progression Factor | 1.00 | 1.00 | | 0.86 | 0.81 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 4.9 | 54.2 | | 36.3 | 0.9 | | | 60.8 | | | 55.4 | |
| Delay (s) | 61.7 | 101.0 | | 77.9 | 22.1 | | | 104.3 | | | 104.6 | |
| Level of Service | E | F | | E | C | | | F | | | F | |
| Approach Delay (s) | | 98.6 | | | 57.7 | | | 104.3 | | | 104.6 | |
| Approach LOS | | F | | | E | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 90.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 79.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

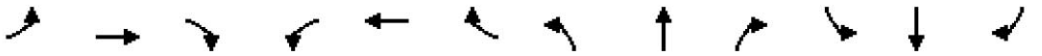
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 60 | 520 | 20 | 10 | 130 | 110 | 850 | 30 | 340 | 480 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | | 0.97 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1839 | 2798 | 1805 | 1900 | 1590 | 1805 | 3610 | 1572 | 1805 | 4970 | |
| Flt Permitted | | 0.97 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1839 | 2798 | 1805 | 1900 | 1590 | 1805 | 3610 | 1572 | 1805 | 4970 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 141 | 71 | 612 | 24 | 12 | 153 | 129 | 1000 | 35 | 400 | 565 | 176 |
| RTOR Reduction (vph) | 0 | 0 | 480 | 0 | 0 | 138 | 0 | 0 | 18 | 0 | 39 | 0 |
| Lane Group Flow (vph) | 0 | 212 | 132 | 24 | 12 | 15 | 129 | 1000 | 17 | 400 | 702 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 16.8 | 16.8 | 7.8 | 7.8 | 7.8 | 10.5 | 29.2 | 29.2 | 8.1 | 26.8 | |
| Effective Green, g (s) | | 16.8 | 16.8 | 7.8 | 7.8 | 7.8 | 10.5 | 29.2 | 29.2 | 8.1 | 26.8 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | 0.10 | 0.10 | 0.10 | 0.13 | 0.37 | 0.37 | 0.10 | 0.34 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 397 | 603 | 181 | 190 | 159 | 243 | 1353 | 589 | 188 | 1710 | |
| v/s Ratio Prot | | c0.12 | | c0.01 | 0.01 | | 0.07 | c0.28 | | c0.22 | 0.14 | |
| v/s Ratio Perm | | | 0.05 | | | 0.01 | | | 0.01 | | | |
| v/c Ratio | | 0.53 | 0.22 | 0.13 | 0.06 | 0.10 | 0.53 | 0.74 | 0.03 | 2.13 | 0.41 | |
| Uniform Delay, d1 | | 27.1 | 25.1 | 32.0 | 31.7 | 31.8 | 31.4 | 21.1 | 15.4 | 34.9 | 19.5 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.4 | 0.2 | 0.3 | 0.1 | 0.3 | 2.2 | 2.2 | 0.0 | 524.9 | 0.2 | |
| Delay (s) | | 28.5 | 25.3 | 32.3 | 31.9 | 32.1 | 33.6 | 23.2 | 15.4 | 559.8 | 19.7 | |
| Level of Service | | C | C | C | C | C | C | C | B | F | B | |
| Approach Delay (s) | | 26.1 | | | 32.1 | | | 24.1 | | | 209.0 | |
| Approach LOS | | C | | | C | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 88.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 77.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 70.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

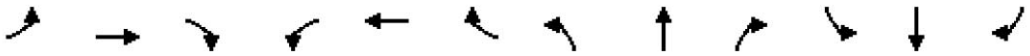
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 330 | 110 | 200 | 530 | 80 | 300 | 880 | 190 | 260 | 850 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3460 | | 1805 | 3531 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3460 | | 1805 | 3531 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 103 | 379 | 126 | 230 | 609 | 92 | 345 | 1011 | 218 | 299 | 977 | 103 |
| RTOR Reduction (vph) | 0 | 30 | 0 | 0 | 11 | 0 | 0 | 0 | 131 | 0 | 0 | 62 |
| Lane Group Flow (vph) | 103 | 475 | 0 | 230 | 690 | 0 | 345 | 1011 | 87 | 299 | 977 | 41 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.2 | 26.5 | | 15.0 | 30.3 | | 28.6 | 37.0 | 37.0 | 25.5 | 33.9 | 33.9 |
| Effective Green, g (s) | 11.2 | 26.5 | | 15.0 | 30.3 | | 28.6 | 37.0 | 37.0 | 25.5 | 33.9 | 33.9 |
| Actuated g/C Ratio | 0.09 | 0.22 | | 0.12 | 0.25 | | 0.24 | 0.31 | 0.31 | 0.21 | 0.28 | 0.28 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 168 | 764 | | 226 | 892 | | 430 | 1113 | 489 | 384 | 1020 | 448 |
| v/s Ratio Prot | 0.06 | 0.14 | | c0.13 | c0.20 | | c0.19 | c0.28 | | 0.17 | 0.27 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | 0.03 |
| v/c Ratio | 0.61 | 0.62 | | 1.02 | 0.77 | | 0.80 | 0.91 | 0.18 | 0.78 | 0.96 | 0.09 |
| Uniform Delay, d1 | 52.3 | 42.2 | | 52.5 | 41.7 | | 43.0 | 39.9 | 30.4 | 44.6 | 42.3 | 31.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.91 | 0.89 | 0.83 |
| Incremental Delay, d2 | 6.5 | 1.6 | | 64.5 | 4.2 | | 10.3 | 12.3 | 0.8 | 4.1 | 10.4 | 0.2 |
| Delay (s) | 58.8 | 43.8 | | 117.0 | 45.9 | | 53.4 | 52.2 | 31.2 | 44.6 | 48.1 | 26.5 |
| Level of Service | E | D | | F | D | | D | D | C | D | D | C |
| Approach Delay (s) | | 46.3 | | | 63.4 | | | 49.6 | | | 45.7 | |
| Approach LOS | | D | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 50.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 81.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

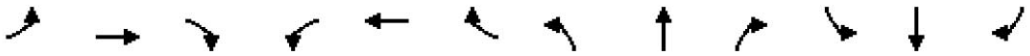
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 340 | 110 | 300 | 530 | 180 | 300 | 780 | 190 | 250 | 750 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3463 | | 1805 | 3458 | | 1805 | 5187 | 1587 | 1805 | 5094 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3463 | | 1805 | 3458 | | 1805 | 5187 | 1587 | 1805 | 5094 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 81 | 395 | 128 | 349 | 616 | 209 | 349 | 907 | 221 | 291 | 872 | 105 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 0 | 129 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 81 | 494 | 0 | 349 | 795 | 0 | 349 | 907 | 92 | 291 | 965 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.3 | 27.8 | | 17.0 | 36.5 | | 27.0 | 35.2 | 35.2 | 24.0 | 32.2 | |
| Effective Green, g (s) | 8.3 | 27.8 | | 17.0 | 36.5 | | 27.0 | 35.2 | 35.2 | 24.0 | 32.2 | |
| Actuated g/C Ratio | 0.07 | 0.23 | | 0.14 | 0.30 | | 0.22 | 0.29 | 0.29 | 0.20 | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 802 | | 256 | 1052 | | 406 | 1522 | 466 | 361 | 1367 | |
| v/s Ratio Prot | 0.04 | 0.14 | | c0.19 | c0.23 | | c0.19 | c0.17 | | 0.16 | c0.19 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | |
| v/c Ratio | 0.65 | 0.62 | | 1.36 | 0.76 | | 0.86 | 0.60 | 0.20 | 0.81 | 0.71 | |
| Uniform Delay, d1 | 54.4 | 41.3 | | 51.5 | 37.7 | | 44.7 | 36.3 | 31.8 | 45.8 | 39.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.88 | 0.64 | 0.84 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 11.0 | 1.4 | | 186.6 | 3.1 | | 1.8 | 0.2 | 0.1 | 12.3 | 3.1 | |
| Delay (s) | 65.4 | 42.7 | | 238.1 | 40.9 | | 40.9 | 23.3 | 26.9 | 58.1 | 42.7 | |
| Level of Service | E | D | | F | D | | D | C | C | E | D | |
| Approach Delay (s) | | 45.8 | | | 99.5 | | | 28.0 | | | 46.2 | |
| Approach LOS | | D | | | F | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 88.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

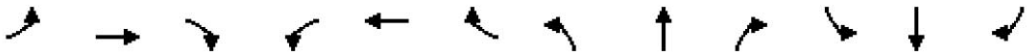
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 590 | 100 | 240 | 640 | 70 | 140 | 180 | 120 | 50 | 180 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3523 | | 1805 | 3610 | 1591 | 1805 | 3372 | | 1805 | 3384 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3523 | | 1805 | 3610 | 1591 | 1805 | 3372 | | 1805 | 3384 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 93 | 686 | 116 | 279 | 744 | 81 | 163 | 209 | 140 | 58 | 209 | 128 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 41 | 0 | 107 | 0 | 0 | 92 | 0 |
| Lane Group Flow (vph) | 93 | 792 | 0 | 279 | 744 | 40 | 163 | 242 | 0 | 58 | 245 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 8.0 | 27.3 | | 19.1 | 38.4 | 43.7 | 13.4 | 21.0 | | 5.3 | 12.9 | |
| Effective Green, g (s) | 8.0 | 27.3 | | 19.1 | 38.4 | 43.7 | 13.4 | 21.0 | | 5.3 | 12.9 | |
| Actuated g/C Ratio | 0.09 | 0.31 | | 0.22 | 0.43 | 0.49 | 0.15 | 0.24 | | 0.06 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 163 | 1084 | | 389 | 1563 | 856 | 273 | 798 | | 108 | 492 | |
| v/s Ratio Prot | 0.05 | c0.22 | | c0.15 | 0.21 | 0.00 | c0.09 | 0.07 | | 0.03 | c0.07 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.57 | 0.73 | | 0.72 | 0.48 | 0.05 | 0.60 | 0.30 | | 0.54 | 0.50 | |
| Uniform Delay, d1 | 38.7 | 27.4 | | 32.3 | 18.0 | 11.7 | 35.1 | 27.8 | | 40.5 | 34.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.8 | 2.6 | | 6.2 | 0.2 | 0.0 | 3.5 | 0.2 | | 5.1 | 0.8 | |
| Delay (s) | 43.5 | 30.0 | | 38.5 | 18.2 | 11.7 | 38.6 | 28.1 | | 45.6 | 35.7 | |
| Level of Service | D | C | | D | B | B | D | C | | D | D | |
| Approach Delay (s) | | 31.4 | | | 22.8 | | | 31.4 | | | 37.2 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 88.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 66.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

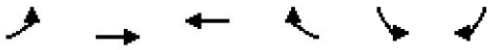
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 380 | 310 | 610 | 600 | 160 | 390 | 530 | 520 | 160 | 490 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 4805 | | 3502 | 5007 | | 3502 | 3610 | 1601 | 3502 | 3527 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 4805 | | 3502 | 5007 | | 3502 | 3610 | 1601 | 3502 | 3527 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 152 | 413 | 337 | 663 | 652 | 174 | 424 | 576 | 565 | 174 | 533 | 87 |
| RTOR Reduction (vph) | 0 | 139 | 0 | 0 | 43 | 0 | 0 | 0 | 76 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 152 | 611 | 0 | 663 | 783 | 0 | 424 | 576 | 489 | 174 | 607 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.4 | 15.9 | | 14.2 | 21.7 | | 10.1 | 22.1 | 36.3 | 7.1 | 19.1 | |
| Effective Green, g (s) | 8.4 | 15.9 | | 14.2 | 21.7 | | 10.1 | 22.1 | 36.3 | 7.1 | 19.1 | |
| Actuated g/C Ratio | 0.11 | 0.21 | | 0.19 | 0.29 | | 0.13 | 0.29 | 0.48 | 0.09 | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 391 | 1015 | | 660 | 1443 | | 470 | 1060 | 857 | 330 | 895 | |
| v/s Ratio Prot | 0.04 | 0.13 | | c0.19 | c0.16 | | c0.12 | 0.16 | c0.11 | 0.05 | 0.17 | |
| v/s Ratio Perm | | | | | | | | | 0.20 | | | |
| v/c Ratio | 0.39 | 0.60 | | 1.00 | 0.54 | | 0.90 | 0.54 | 0.57 | 0.53 | 0.68 | |
| Uniform Delay, d1 | 31.1 | 26.8 | | 30.5 | 22.6 | | 32.1 | 22.4 | 13.9 | 32.5 | 25.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.6 | 1.0 | | 36.1 | 0.4 | | 20.3 | 0.6 | 0.9 | 1.5 | 2.1 | |
| Delay (s) | 31.7 | 27.9 | | 66.7 | 23.0 | | 52.4 | 22.9 | 14.9 | 34.0 | 27.4 | |
| Level of Service | C | C | | E | C | | D | C | B | C | C | |
| Approach Delay (s) | | 28.5 | | | 42.5 | | | 28.0 | | | 28.8 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 75.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

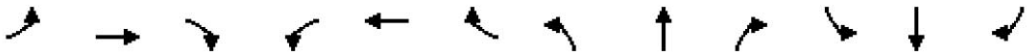
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 260 | 570 | 510 | 50 | 40 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.91 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 0.91 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 5107 | | 1674 | 1527 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 5107 | | 1674 | 1527 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 283 | 620 | 554 | 54 | 43 | 185 |
| RTOR Reduction (vph) | 0 | 0 | 17 | 0 | 66 | 46 |
| Lane Group Flow (vph) | 283 | 620 | 591 | 0 | 51 | 65 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 8.5 | 23.0 | 10.5 | | 4.0 | 12.5 |
| Effective Green, g (s) | 8.5 | 23.0 | 10.5 | | 4.0 | 12.5 |
| Actuated g/C Ratio | 0.24 | 0.66 | 0.30 | | 0.11 | 0.36 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 438 | 3409 | 1532 | | 191 | 720 |
| v/s Ratio Prot | c0.16 | 0.12 | c0.12 | | c0.03 | 0.02 |
| v/s Ratio Perm | | | | | | 0.02 |
| v/c Ratio | 0.65 | 0.18 | 0.39 | | 0.27 | 0.09 |
| Uniform Delay, d1 | 11.9 | 2.3 | 9.7 | | 14.2 | 7.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.3 | 0.0 | 0.2 | | 0.8 | 0.1 |
| Delay (s) | 15.2 | 2.4 | 9.9 | | 14.9 | 7.5 |
| Level of Service | B | A | A | | B | A |
| Approach Delay (s) | | 6.4 | 9.9 | | 11.3 | |
| Approach LOS | | A | A | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 35.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 44.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

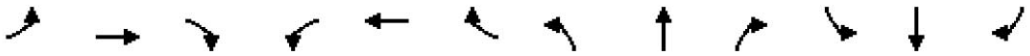
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 540 | 20 | 30 | 710 | 10 | 50 | 100 | 50 | 10 | 40 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.97 | | | 0.89 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5154 | | 1805 | 5175 | | | 1806 | | | 1667 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5154 | | 1805 | 5175 | | | 1806 | | | 1667 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 193 | 614 | 23 | 34 | 807 | 11 | 57 | 114 | 57 | 11 | 45 | 250 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 11 | 0 | 0 | 162 | 0 |
| Lane Group Flow (vph) | 193 | 634 | 0 | 34 | 817 | 0 | 0 | 217 | 0 | 0 | 144 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.3 | 25.8 | | 2.3 | 20.8 | | | 14.2 | | | 11.7 | |
| Effective Green, g (s) | 7.3 | 25.8 | | 2.3 | 20.8 | | | 14.2 | | | 11.7 | |
| Actuated g/C Ratio | 0.10 | 0.37 | | 0.03 | 0.30 | | | 0.20 | | | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 188 | 1900 | | 59 | 1538 | | | 366 | | | 279 | |
| v/s Ratio Prot | c0.11 | 0.12 | | 0.02 | c0.16 | | | c0.12 | | | c0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 1.03 | 0.33 | | 0.58 | 0.53 | | | 0.59 | | | 0.52 | |
| Uniform Delay, d1 | 31.4 | 15.9 | | 33.4 | 20.5 | | | 25.3 | | | 26.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 72.8 | 0.1 | | 12.9 | 0.4 | | | 2.6 | | | 1.6 | |
| Delay (s) | 104.1 | 16.0 | | 46.3 | 20.9 | | | 27.8 | | | 28.2 | |
| Level of Service | F | B | | D | C | | | C | | | C | |
| Approach Delay (s) | | 36.5 | | | 21.9 | | | 27.8 | | | 28.2 | |
| Approach LOS | | D | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 70.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 67.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

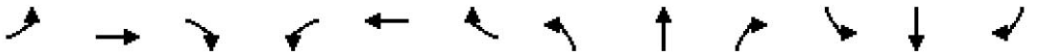
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 510 | 20 | 50 | 650 | 10 | 30 | 0 | 40 | 20 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | | 0.85 | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5155 | | 1805 | 5174 | | 1805 | | 1610 | 1805 | 1593 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5155 | | 1805 | 5174 | | 1805 | | 1610 | 1805 | 1593 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 24 | 622 | 24 | 61 | 793 | 12 | 37 | 0 | 49 | 24 | 0 | 24 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 43 | 0 | 23 | 0 |
| Lane Group Flow (vph) | 24 | 643 | 0 | 61 | 804 | 0 | 37 | 0 | 6 | 24 | 1 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.9 | 21.0 | | 4.5 | 24.6 | | 2.1 | | 5.7 | 2.3 | 1.4 | |
| Effective Green, g (s) | 0.9 | 21.0 | | 4.5 | 24.6 | | 2.1 | | 5.7 | 2.3 | 1.4 | |
| Actuated g/C Ratio | 0.02 | 0.47 | | 0.10 | 0.55 | | 0.05 | | 0.13 | 0.05 | 0.03 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 36 | 2406 | | 181 | 2828 | | 84 | | 347 | 92 | 50 | |
| v/s Ratio Prot | 0.01 | 0.12 | | c0.03 | c0.16 | | c0.02 | | c0.00 | 0.01 | 0.00 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | |
| v/c Ratio | 0.67 | 0.27 | | 0.34 | 0.28 | | 0.44 | | 0.02 | 0.26 | 0.01 | |
| Uniform Delay, d1 | 21.9 | 7.3 | | 18.9 | 5.5 | | 20.9 | | 17.2 | 20.5 | 21.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 38.0 | 0.1 | | 1.1 | 0.1 | | 3.7 | | 0.0 | 1.5 | 0.1 | |
| Delay (s) | 59.9 | 7.4 | | 20.0 | 5.5 | | 24.5 | | 17.2 | 22.0 | 21.3 | |
| Level of Service | E | A | | B | A | | C | | B | C | C | |
| Approach Delay (s) | | 9.3 | | | 6.5 | | | 20.4 | | | 21.6 | |
| Approach LOS | | A | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.30 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 42.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

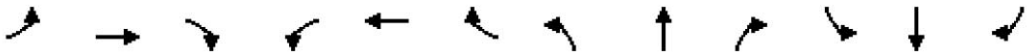
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 210 | 100 | 160 | 550 | 140 | 250 | 1010 | 200 | 100 | 810 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1802 | | 1805 | 1900 | 1587 | 1805 | 3510 | | 1805 | 1900 | 1555 |
| Flt Permitted | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1802 | | 1805 | 1900 | 1587 | 1805 | 3510 | | 1805 | 1900 | 1555 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 223 | 106 | 170 | 585 | 149 | 266 | 1074 | 213 | 106 | 862 | 191 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 39 | 0 | 14 | 0 | 0 | 0 | 73 |
| Lane Group Flow (vph) | 0 | 403 | 0 | 170 | 585 | 110 | 266 | 1273 | 0 | 106 | 862 | 118 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | 29.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 33.0 | | 8.0 | 32.0 | 32.0 |
| Effective Green, g (s) | | 29.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 33.0 | | 8.0 | 32.0 | 32.0 |
| Actuated g/C Ratio | | 0.24 | | 0.28 | 0.28 | 0.28 | 0.08 | 0.28 | | 0.07 | 0.27 | 0.27 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 435 | | 511 | 538 | 450 | 135 | 965 | | 120 | 507 | 415 |
| v/s Ratio Prot | | c0.22 | | 0.09 | c0.31 | | c0.15 | 0.36 | | 0.06 | c0.45 | |
| v/s Ratio Perm | | | | | | 0.07 | | | | | | 0.08 |
| v/c Ratio | | 0.93 | | 0.33 | 1.09 | 0.24 | 1.97 | 1.32 | | 0.88 | 1.70 | 0.28 |
| Uniform Delay, d1 | | 44.5 | | 34.0 | 43.0 | 33.1 | 55.5 | 43.5 | | 55.5 | 44.0 | 34.9 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.91 | 0.54 | 0.46 |
| Incremental Delay, d2 | | 25.8 | | 0.4 | 64.6 | 0.3 | 462.2 | 151.1 | | 29.6 | 319.4 | 0.9 |
| Delay (s) | | 70.2 | | 34.4 | 107.6 | 33.4 | 517.7 | 194.6 | | 80.3 | 343.0 | 16.9 |
| Level of Service | | E | | C | F | C | F | F | | F | F | B |
| Approach Delay (s) | | 70.2 | | | 81.6 | | | 249.9 | | | 265.2 | |
| Approach LOS | | E | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 198.1 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.31 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 120.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

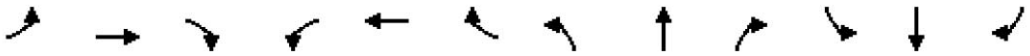
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 350 | 110 | 80 | 480 | 120 | 130 | 150 | 50 | 220 | 170 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.97 | | 1.00 | 0.96 | | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3468 | | 1805 | 3491 | | 1805 | 3462 | | 1805 | 3276 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3468 | | 1805 | 3491 | | 1805 | 3462 | | 1805 | 3276 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 171 | 427 | 134 | 98 | 585 | 146 | 159 | 183 | 61 | 268 | 207 | 268 |
| RTOR Reduction (vph) | 0 | 30 | 0 | 0 | 23 | 0 | 0 | 43 | 0 | 0 | 211 | 0 |
| Lane Group Flow (vph) | 171 | 531 | 0 | 98 | 708 | 0 | 159 | 201 | 0 | 268 | 264 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 22.6 | | 5.4 | 20.9 | | 10.3 | 11.3 | | 10.2 | 11.2 | |
| Effective Green, g (s) | 7.1 | 22.6 | | 5.4 | 20.9 | | 10.3 | 11.3 | | 10.2 | 11.2 | |
| Actuated g/C Ratio | 0.11 | 0.35 | | 0.08 | 0.32 | | 0.16 | 0.17 | | 0.16 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 196 | 1197 | | 149 | 1114 | | 284 | 597 | | 281 | 560 | |
| v/s Ratio Prot | c0.09 | 0.15 | | 0.05 | c0.20 | | 0.09 | 0.06 | | c0.15 | c0.08 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.87 | 0.44 | | 0.66 | 0.64 | | 0.56 | 0.34 | | 0.95 | 0.47 | |
| Uniform Delay, d1 | 28.8 | 16.6 | | 29.2 | 19.0 | | 25.5 | 23.8 | | 27.4 | 24.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 32.0 | 0.3 | | 10.0 | 1.2 | | 2.4 | 0.3 | | 40.9 | 0.6 | |
| Delay (s) | 60.7 | 16.9 | | 39.2 | 20.2 | | 27.9 | 24.1 | | 68.4 | 25.1 | |
| Level of Service | E | B | | D | C | | C | C | | E | C | |
| Approach Delay (s) | | 27.1 | | | 22.5 | | | 25.6 | | | 40.7 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 65.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 60.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

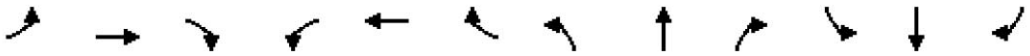
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 330 | 260 | 240 | 150 | 150 | 120 | 230 | 1030 | 210 | 120 | 760 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3324 | | 1805 | 3369 | | 1805 | 3610 | 1615 | 1805 | 3523 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3324 | | 1805 | 3369 | | 1805 | 3610 | 1615 | 1805 | 3523 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 375 | 295 | 273 | 170 | 170 | 136 | 261 | 1170 | 239 | 136 | 864 | 148 |
| RTOR Reduction (vph) | 0 | 181 | 0 | 0 | 116 | 0 | 0 | 0 | 96 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 375 | 387 | 0 | 170 | 190 | 0 | 261 | 1170 | 143 | 136 | 1000 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 13.4 | 16.2 | | 10.1 | 12.9 | | 15.1 | 37.1 | 47.2 | 9.1 | 31.1 | |
| Effective Green, g (s) | 13.4 | 16.2 | | 10.1 | 12.9 | | 15.1 | 37.1 | 47.2 | 9.1 | 31.1 | |
| Actuated g/C Ratio | 0.15 | 0.18 | | 0.11 | 0.15 | | 0.17 | 0.42 | 0.53 | 0.10 | 0.35 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 530 | 608 | | 206 | 491 | | 308 | 1513 | 934 | 186 | 1238 | |
| v/s Ratio Prot | 0.11 | c0.12 | | c0.09 | 0.06 | | c0.14 | c0.32 | 0.02 | 0.08 | 0.28 | |
| v/s Ratio Perm | | | | | | | | | 0.07 | | | |
| v/c Ratio | 0.71 | 0.64 | | 0.83 | 0.39 | | 0.85 | 0.77 | 0.15 | 0.73 | 0.81 | |
| Uniform Delay, d1 | 35.7 | 33.4 | | 38.3 | 34.2 | | 35.6 | 22.1 | 10.5 | 38.5 | 26.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.3 | 2.2 | | 22.8 | 0.5 | | 18.9 | 2.5 | 0.1 | 13.8 | 4.0 | |
| Delay (s) | 40.0 | 35.6 | | 61.1 | 34.7 | | 54.5 | 24.6 | 10.6 | 52.3 | 30.0 | |
| Level of Service | D | D | | E | C | | D | C | B | D | C | |
| Approach Delay (s) | | 37.3 | | | 44.2 | | | 27.3 | | | 32.6 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 88.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 480 | 120 | 30 | 630 | 40 | 260 | 200 | 40 | 90 | 170 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1591 | 1805 | 3610 | 1591 | 3502 | 1847 | | 1805 | 3312 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1591 | 1805 | 3610 | 1591 | 3502 | 1847 | | 1805 | 3312 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 70 | 558 | 140 | 35 | 733 | 47 | 302 | 233 | 47 | 105 | 198 | 198 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 0 | 19 | 0 | 7 | 0 | 0 | 137 | 0 |
| Lane Group Flow (vph) | 70 | 558 | 91 | 35 | 733 | 28 | 302 | 273 | 0 | 105 | 259 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | |
| Actuated Green, G (s) | 8.7 | 63.1 | 77.7 | 5.4 | 59.8 | 72.1 | 14.6 | 23.2 | | 12.3 | 20.9 | |
| Effective Green, g (s) | 8.7 | 63.1 | 77.7 | 5.4 | 59.8 | 72.1 | 14.6 | 23.2 | | 12.3 | 20.9 | |
| Actuated g/C Ratio | 0.07 | 0.53 | 0.65 | 0.05 | 0.50 | 0.60 | 0.12 | 0.19 | | 0.10 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 131 | 1898 | 1083 | 81 | 1799 | 956 | 426 | 357 | | 185 | 577 | |
| v/s Ratio Prot | c0.04 | c0.15 | 0.01 | 0.02 | c0.20 | 0.00 | 0.09 | c0.15 | | c0.06 | 0.08 | |
| v/s Ratio Perm | | | 0.05 | | | 0.01 | | | | | | |
| v/c Ratio | 0.53 | 0.29 | 0.08 | 0.43 | 0.41 | 0.03 | 0.71 | 0.76 | | 0.57 | 0.45 | |
| Uniform Delay, d1 | 53.7 | 16.0 | 7.9 | 55.8 | 18.9 | 9.7 | 50.7 | 45.8 | | 51.3 | 44.4 | |
| Progression Factor | 1.20 | 0.45 | 0.78 | 1.00 | 1.00 | 1.00 | 0.75 | 0.78 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.9 | 0.4 | 0.0 | 3.7 | 0.7 | 0.0 | 5.1 | 8.9 | | 4.0 | 0.6 | |
| Delay (s) | 68.3 | 7.5 | 6.2 | 59.5 | 19.6 | 9.7 | 43.3 | 44.6 | | 55.3 | 44.9 | |
| Level of Service | E | A | A | E | B | A | D | D | | E | D | |
| Approach Delay (s) | | 12.8 | | | 20.8 | | | 43.9 | | | 47.1 | |
| Approach LOS | | B | | | C | | | D | | | D | |

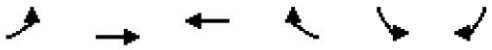
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 65.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 260 | 240 | 110 | 430 | 20 | 230 | 300 | 140 | 30 | 350 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1589 | 1805 | 1900 | 1577 | 1805 | 1900 | 1581 | 1805 | 1858 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1589 | 1805 | 1900 | 1577 | 1805 | 1900 | 1581 | 1805 | 1858 | |
| Peak-hour factor, PHF | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Adj. Flow (vph) | 38 | 333 | 308 | 141 | 551 | 26 | 295 | 385 | 179 | 38 | 449 | 64 |
| RTOR Reduction (vph) | 0 | 0 | 146 | 0 | 0 | 5 | 0 | 0 | 101 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 38 | 333 | 162 | 141 | 551 | 21 | 295 | 385 | 78 | 38 | 508 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.7 | 26.5 | 26.5 | 7.3 | 30.1 | 37.4 | 10.4 | 30.9 | 38.2 | 7.3 | 27.8 | |
| Effective Green, g (s) | 3.7 | 26.5 | 26.5 | 7.3 | 30.1 | 37.4 | 10.4 | 30.9 | 38.2 | 7.3 | 27.8 | |
| Actuated g/C Ratio | 0.04 | 0.30 | 0.30 | 0.08 | 0.34 | 0.42 | 0.12 | 0.35 | 0.43 | 0.08 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 76 | 572 | 479 | 150 | 650 | 742 | 213 | 667 | 758 | 150 | 587 | |
| v/s Ratio Prot | 0.02 | 0.18 | | c0.08 | c0.29 | 0.00 | c0.16 | c0.20 | 0.01 | 0.02 | c0.27 | |
| v/s Ratio Perm | | | 0.10 | | | 0.01 | | | 0.04 | | | |
| v/c Ratio | 0.50 | 0.58 | 0.34 | 0.94 | 0.85 | 0.03 | 1.38 | 0.58 | 0.10 | 0.25 | 0.86 | |
| Uniform Delay, d1 | 41.2 | 26.1 | 23.9 | 40.1 | 26.8 | 14.7 | 38.8 | 23.2 | 14.7 | 37.8 | 28.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.1 | 1.5 | 0.4 | 55.0 | 10.0 | 0.0 | 199.6 | 1.2 | 0.1 | 0.9 | 12.6 | |
| Delay (s) | 46.3 | 27.6 | 24.3 | 95.1 | 36.8 | 14.7 | 238.4 | 24.4 | 14.8 | 38.7 | 40.9 | |
| Level of Service | D | C | C | F | D | B | F | C | B | D | D | |
| Approach Delay (s) | | 27.2 | | | 47.5 | | | 95.9 | | | 40.8 | |
| Approach LOS | | C | | | D | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 56.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 88.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 77.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

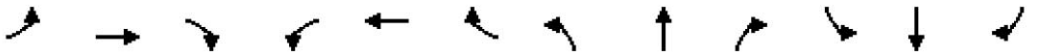
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 350 | 410 | 90 | 60 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 3610 | 1577 | 1805 | 1605 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 3610 | 1577 | 1805 | 1605 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 149 | 402 | 471 | 103 | 69 | 149 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 74 | 0 | 83 |
| Lane Group Flow (vph) | 149 | 402 | 471 | 29 | 69 | 66 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 8.8 | 23.7 | 10.9 | 10.9 | 7.6 | 16.4 |
| Effective Green, g (s) | 8.8 | 23.7 | 10.9 | 10.9 | 7.6 | 16.4 |
| Actuated g/C Ratio | 0.22 | 0.60 | 0.28 | 0.28 | 0.19 | 0.42 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 404 | 1146 | 1001 | 437 | 349 | 833 |
| v/s Ratio Prot | 0.08 | c0.21 | c0.13 | | c0.04 | 0.02 |
| v/s Ratio Perm | | | | 0.02 | | 0.02 |
| v/c Ratio | 0.37 | 0.35 | 0.47 | 0.07 | 0.20 | 0.08 |
| Uniform Delay, d1 | 12.9 | 3.9 | 11.8 | 10.5 | 13.3 | 6.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.6 | 0.2 | 0.4 | 0.1 | 0.3 | 0.0 |
| Delay (s) | 13.5 | 4.1 | 12.2 | 10.5 | 13.6 | 6.9 |
| Level of Service | B | A | B | B | B | A |
| Approach Delay (s) | | 6.6 | 11.9 | | 9.0 | |
| Approach LOS | | A | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 39.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 40.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

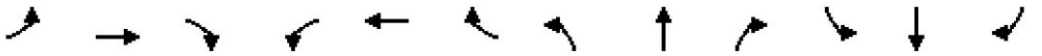
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 170 | 150 | 250 | 330 | 200 | 80 | 400 | 100 | 140 | 480 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1590 | 1805 | 1900 | 1591 | 1805 | 3491 | | 1805 | 3610 | 1574 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1590 | 1805 | 1900 | 1591 | 1805 | 3491 | | 1805 | 3610 | 1574 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 82 | 200 | 176 | 294 | 388 | 235 | 94 | 471 | 118 | 165 | 565 | 118 |
| RTOR Reduction (vph) | 0 | 0 | 133 | 0 | 0 | 158 | 0 | 24 | 0 | 0 | 0 | 80 |
| Lane Group Flow (vph) | 82 | 200 | 43 | 294 | 388 | 77 | 94 | 565 | 0 | 165 | 565 | 38 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.4 | 16.9 | 16.9 | 11.3 | 22.8 | 22.8 | 5.4 | 18.3 | | 7.2 | 20.1 | 20.1 |
| Effective Green, g (s) | 5.4 | 16.9 | 16.9 | 11.3 | 22.8 | 22.8 | 5.4 | 18.3 | | 7.2 | 20.1 | 20.1 |
| Actuated g/C Ratio | 0.08 | 0.24 | 0.24 | 0.16 | 0.33 | 0.33 | 0.08 | 0.26 | | 0.10 | 0.29 | 0.29 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 140 | 461 | 386 | 293 | 622 | 520 | 140 | 917 | | 186 | 1041 | 454 |
| v/s Ratio Prot | 0.05 | 0.11 | | c0.16 | c0.20 | | 0.05 | c0.16 | | c0.09 | 0.16 | |
| v/s Ratio Perm | | | 0.03 | | | 0.05 | | | | | | 0.02 |
| v/c Ratio | 0.59 | 0.43 | 0.11 | 1.00 | 0.62 | 0.15 | 0.67 | 0.62 | | 0.89 | 0.54 | 0.08 |
| Uniform Delay, d1 | 31.1 | 22.3 | 20.5 | 29.2 | 19.8 | 16.6 | 31.3 | 22.6 | | 30.8 | 20.9 | 18.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.1 | 0.7 | 0.1 | 53.4 | 2.0 | 0.1 | 12.0 | 1.2 | | 36.0 | 0.6 | 0.1 |
| Delay (s) | 37.2 | 23.0 | 20.7 | 82.6 | 21.8 | 16.7 | 43.2 | 23.9 | | 66.8 | 21.5 | 18.2 |
| Level of Service | D | C | C | F | C | B | D | C | | E | C | B |
| Approach Delay (s) | | 24.7 | | | 40.0 | | | 26.5 | | | 29.9 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 69.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

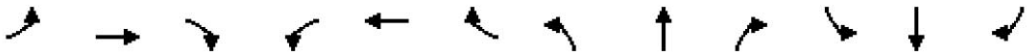
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 530 | 150 | 30 | 580 | 30 | 190 | 300 | 40 | 50 | 240 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3476 | | 1805 | 3580 | | 1805 | 3539 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3476 | | 1805 | 3580 | | 1805 | 3539 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 138 | 662 | 188 | 38 | 725 | 38 | 238 | 375 | 50 | 62 | 300 | 138 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 2 | 0 | 0 | 10 | 0 | 0 | 0 | 110 |
| Lane Group Flow (vph) | 138 | 831 | 0 | 38 | 761 | 0 | 238 | 415 | 0 | 62 | 300 | 28 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 13.9 | 54.5 | | 4.8 | 45.4 | | 20.4 | 37.7 | | 7.0 | 24.3 | 24.3 |
| Effective Green, g (s) | 13.9 | 54.5 | | 4.8 | 45.4 | | 20.4 | 37.7 | | 7.0 | 24.3 | 24.3 |
| Actuated g/C Ratio | 0.12 | 0.45 | | 0.04 | 0.38 | | 0.17 | 0.31 | | 0.06 | 0.20 | 0.20 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 209 | 1579 | | 72 | 1354 | | 307 | 1112 | | 105 | 385 | 321 |
| v/s Ratio Prot | c0.08 | 0.24 | | 0.02 | c0.21 | | c0.13 | 0.12 | | 0.03 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.02 |
| v/c Ratio | 0.66 | 0.53 | | 0.53 | 0.56 | | 0.78 | 0.37 | | 0.59 | 0.78 | 0.09 |
| Uniform Delay, d1 | 50.8 | 23.5 | | 56.5 | 29.4 | | 47.6 | 32.0 | | 55.1 | 45.3 | 38.8 |
| Progression Factor | 1.01 | 0.74 | | 1.25 | 0.76 | | 1.00 | 1.00 | | 1.02 | 0.87 | 0.75 |
| Incremental Delay, d2 | 7.1 | 1.2 | | 5.4 | 1.3 | | 11.6 | 0.2 | | 8.5 | 9.5 | 0.1 |
| Delay (s) | 58.6 | 18.5 | | 76.2 | 23.6 | | 59.2 | 32.2 | | 64.6 | 48.8 | 29.2 |
| Level of Service | E | B | | E | C | | E | C | | E | D | C |
| Approach Delay (s) | | 24.1 | | | 26.1 | | | 41.9 | | | 45.4 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

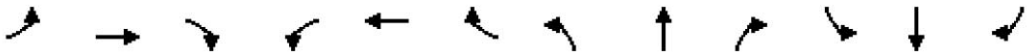
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 390 | 230 | 440 | 420 | 130 | 180 | 620 | 440 | 190 | 620 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3387 | | 1805 | 3467 | | 1805 | 3610 | 1586 | 1805 | 3565 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3387 | | 1805 | 3467 | | 1805 | 3610 | 1586 | 1805 | 3565 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 85 | 476 | 280 | 537 | 512 | 159 | 220 | 756 | 537 | 232 | 756 | 61 |
| RTOR Reduction (vph) | 0 | 72 | 0 | 0 | 24 | 0 | 0 | 0 | 393 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 85 | 684 | 0 | 537 | 647 | 0 | 220 | 756 | 144 | 232 | 812 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.8 | 29.2 | | 31.8 | 52.2 | | 15.0 | 30.0 | 30.0 | 13.0 | 28.0 | |
| Effective Green, g (s) | 8.8 | 29.2 | | 31.8 | 52.2 | | 15.0 | 30.0 | 30.0 | 13.0 | 28.0 | |
| Actuated g/C Ratio | 0.07 | 0.24 | | 0.27 | 0.44 | | 0.12 | 0.25 | 0.25 | 0.11 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 132 | 824 | | 478 | 1508 | | 226 | 903 | 397 | 196 | 832 | |
| v/s Ratio Prot | 0.05 | c0.20 | | c0.30 | 0.19 | | 0.12 | c0.21 | | c0.13 | c0.23 | |
| v/s Ratio Perm | | | | | | | | | 0.09 | | | |
| v/c Ratio | 0.64 | 0.83 | | 1.12 | 0.43 | | 0.97 | 0.84 | 0.36 | 1.18 | 0.98 | |
| Uniform Delay, d1 | 54.1 | 43.0 | | 44.1 | 23.6 | | 52.3 | 42.7 | 37.1 | 53.5 | 45.7 | |
| Progression Factor | 0.66 | 0.69 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.4 | 8.7 | | 79.5 | 0.9 | | 52.0 | 6.8 | 0.6 | 122.6 | 25.2 | |
| Delay (s) | 44.9 | 38.5 | | 123.6 | 24.4 | | 104.3 | 49.5 | 37.7 | 176.1 | 70.9 | |
| Level of Service | D | D | | F | C | | F | D | D | F | E | |
| Approach Delay (s) | | 39.1 | | | 68.5 | | | 53.3 | | | 94.2 | |
| Approach LOS | | D | | | E | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 64.0 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 91.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

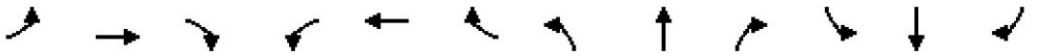
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 300 | 110 | 50 | 360 | 130 | 180 | 70 | 60 | 130 | 50 | 390 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 0.93 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3450 | | 1805 | 3452 | | 1805 | 3335 | | 1805 | 3084 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3450 | | 1805 | 3452 | | 1805 | 3335 | | 1805 | 3084 | |
| Peak-hour factor, PHF | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Adj. Flow (vph) | 386 | 361 | 133 | 60 | 434 | 157 | 217 | 84 | 72 | 157 | 60 | 470 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 34 | 0 | 0 | 62 | 0 | 0 | 364 | 0 |
| Lane Group Flow (vph) | 386 | 463 | 0 | 60 | 557 | 0 | 217 | 94 | 0 | 157 | 166 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 24.2 | 37.5 | | 6.5 | 19.8 | | 13.1 | 11.3 | | 11.9 | 10.1 | |
| Effective Green, g (s) | 24.2 | 37.5 | | 6.5 | 19.8 | | 13.1 | 11.3 | | 11.9 | 10.1 | |
| Actuated g/C Ratio | 0.29 | 0.45 | | 0.08 | 0.24 | | 0.16 | 0.14 | | 0.14 | 0.12 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 525 | 1555 | | 141 | 822 | | 284 | 453 | | 258 | 374 | |
| v/s Ratio Prot | c0.21 | 0.13 | | 0.03 | c0.16 | | c0.12 | 0.03 | | 0.09 | c0.05 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.74 | 0.30 | | 0.43 | 0.68 | | 0.76 | 0.21 | | 0.61 | 0.44 | |
| Uniform Delay, d1 | 26.6 | 14.5 | | 36.6 | 28.8 | | 33.6 | 32.0 | | 33.5 | 33.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.3 | 0.1 | | 2.1 | 2.2 | | 11.6 | 0.2 | | 4.0 | 0.8 | |
| Delay (s) | 31.9 | 14.6 | | 38.6 | 31.0 | | 45.1 | 32.2 | | 37.5 | 34.8 | |
| Level of Service | C | B | | D | C | | D | C | | D | C | |
| Approach Delay (s) | | 22.2 | | | 31.7 | | | 39.7 | | | 35.4 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 83.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

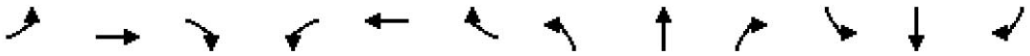
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 940 | 130 | 110 | 1150 | 100 | 120 | 320 | 60 | 150 | 550 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5118 | | 3502 | 3516 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5118 | | 3502 | 3516 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 135 | 979 | 135 | 115 | 1198 | 104 | 125 | 333 | 62 | 156 | 573 | 198 |
| RTOR Reduction (vph) | 0 | 0 | 70 | 0 | 6 | 0 | 0 | 15 | 0 | 0 | 0 | 154 |
| Lane Group Flow (vph) | 135 | 979 | 65 | 115 | 1296 | 0 | 125 | 380 | 0 | 156 | 573 | 44 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 14.2 | 56.6 | 56.6 | 12.9 | 55.3 | | 7.8 | 26.5 | | 8.0 | 26.7 | 26.7 |
| Effective Green, g (s) | 14.2 | 56.6 | 56.6 | 12.9 | 55.3 | | 7.8 | 26.5 | | 8.0 | 26.7 | 26.7 |
| Actuated g/C Ratio | 0.12 | 0.47 | 0.47 | 0.11 | 0.46 | | 0.06 | 0.22 | | 0.07 | 0.22 | 0.22 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 214 | 1703 | 748 | 194 | 2359 | | 228 | 776 | | 233 | 803 | 354 |
| v/s Ratio Prot | c0.07 | c0.27 | | 0.06 | 0.25 | | 0.04 | 0.11 | | c0.04 | c0.16 | |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | 0.03 |
| v/c Ratio | 0.63 | 0.57 | 0.09 | 0.59 | 0.55 | | 0.55 | 0.49 | | 0.67 | 0.71 | 0.12 |
| Uniform Delay, d1 | 50.4 | 23.0 | 17.5 | 51.0 | 23.4 | | 54.4 | 40.8 | | 54.7 | 43.1 | 37.3 |
| Progression Factor | 0.82 | 0.60 | 1.13 | 1.10 | 0.78 | | 1.07 | 1.12 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.5 | 1.3 | 0.2 | 4.4 | 0.8 | | 2.5 | 0.4 | | 7.1 | 3.0 | 0.2 |
| Delay (s) | 47.0 | 15.1 | 19.9 | 60.3 | 19.0 | | 60.8 | 46.3 | | 61.8 | 46.1 | 37.5 |
| Level of Service | D | B | B | E | B | | E | D | | E | D | D |
| Approach Delay (s) | | 19.1 | | | 22.3 | | | 49.8 | | | 46.9 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

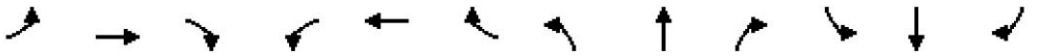
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 900 | 200 | 310 | 1230 | 100 | 70 | 170 | 100 | 100 | 280 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.94 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5122 | | 1805 | 3389 | | 1805 | 3505 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5122 | | 1805 | 3389 | | 1805 | 3505 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 42 | 938 | 208 | 323 | 1281 | 104 | 73 | 177 | 104 | 104 | 292 | 62 |
| RTOR Reduction (vph) | 0 | 0 | 113 | 0 | 5 | 0 | 0 | 88 | 0 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 42 | 938 | 95 | 323 | 1380 | 0 | 73 | 193 | 0 | 104 | 335 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 49.3 | 49.3 | 29.3 | 71.5 | | 7.1 | 18.4 | | 7.0 | 18.3 | |
| Effective Green, g (s) | 7.1 | 49.3 | 49.3 | 29.3 | 71.5 | | 7.1 | 18.4 | | 7.0 | 18.3 | |
| Actuated g/C Ratio | 0.06 | 0.41 | 0.41 | 0.24 | 0.60 | | 0.06 | 0.15 | | 0.06 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 107 | 1483 | 651 | 441 | 3052 | | 107 | 520 | | 105 | 535 | |
| v/s Ratio Prot | 0.02 | c0.26 | | c0.18 | 0.27 | | 0.04 | 0.06 | | c0.06 | c0.10 | |
| v/s Ratio Perm | | | 0.06 | | | | | | | | | |
| v/c Ratio | 0.39 | 0.63 | 0.15 | 0.73 | 0.45 | | 0.68 | 0.37 | | 0.99 | 0.63 | |
| Uniform Delay, d1 | 54.4 | 28.1 | 22.2 | 41.7 | 13.4 | | 55.3 | 45.6 | | 56.5 | 47.7 | |
| Progression Factor | 0.69 | 1.16 | 2.99 | 0.60 | 0.57 | | 1.10 | 1.10 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.0 | 1.7 | 0.4 | 3.6 | 0.3 | | 16.0 | 0.4 | | 84.6 | 2.3 | |
| Delay (s) | 39.6 | 34.2 | 66.7 | 28.5 | 7.9 | | 77.1 | 50.7 | | 141.1 | 49.9 | |
| Level of Service | D | C | E | C | A | | E | D | | F | D | |
| Approach Delay (s) | | 40.1 | | | 11.8 | | | 56.1 | | | 70.6 | |
| Approach LOS | | D | | | B | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 74.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

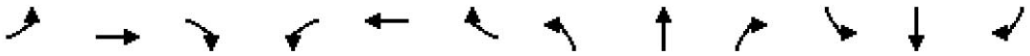
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 670 | 100 | 80 | 1330 | 170 | 160 | 290 | 40 | 170 | 550 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1592 | 1805 | 5089 | | 1805 | 3538 | | 1805 | 3610 | 1600 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1592 | 1805 | 5089 | | 1805 | 3538 | | 1805 | 3610 | 1600 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 196 | 728 | 109 | 87 | 1446 | 185 | 174 | 315 | 43 | 185 | 598 | 239 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 196 | 728 | 60 | 87 | 1619 | 0 | 174 | 347 | 0 | 185 | 598 | 224 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 20.8 | 54.5 | 66.5 | 11.1 | 44.8 | | 12.0 | 26.4 | | 12.0 | 26.4 | 47.2 |
| Effective Green, g (s) | 20.8 | 54.5 | 66.5 | 11.1 | 44.8 | | 12.0 | 26.4 | | 12.0 | 26.4 | 47.2 |
| Actuated g/C Ratio | 0.17 | 0.45 | 0.55 | 0.09 | 0.37 | | 0.10 | 0.22 | | 0.10 | 0.22 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 313 | 2356 | 935 | 167 | 1900 | | 181 | 778 | | 181 | 794 | 683 |
| v/s Ratio Prot | c0.11 | 0.14 | 0.01 | 0.05 | c0.32 | | 0.10 | 0.10 | | c0.10 | c0.17 | 0.06 |
| v/s Ratio Perm | | | 0.03 | | | | | | | | | 0.08 |
| v/c Ratio | 0.63 | 0.31 | 0.06 | 0.52 | 0.85 | | 0.96 | 0.45 | | 1.02 | 0.75 | 0.33 |
| Uniform Delay, d1 | 46.0 | 20.8 | 12.4 | 51.9 | 34.6 | | 53.8 | 40.5 | | 54.0 | 43.8 | 25.4 |
| Progression Factor | 1.59 | 0.41 | 0.01 | 0.95 | 0.91 | | 0.93 | 1.34 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.1 | 0.3 | 0.0 | 2.5 | 4.4 | | 52.9 | 0.4 | | 72.8 | 4.1 | 0.3 |
| Delay (s) | 76.3 | 8.8 | 0.1 | 51.7 | 35.9 | | 102.9 | 54.5 | | 126.8 | 47.8 | 25.6 |
| Level of Service | E | A | A | D | D | | F | D | | F | D | C |
| Approach Delay (s) | | 20.7 | | | 36.7 | | | 70.3 | | | 56.9 | |
| Approach LOS | | C | | | D | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 80.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

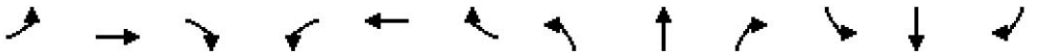
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 620 | 110 | 90 | 1190 | 90 | 170 | 240 | 70 | 80 | 270 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5056 | | 1805 | 5126 | | 1805 | 3475 | | 1805 | 3427 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5056 | | 1805 | 5126 | | 1805 | 3475 | | 1805 | 3427 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 56 | 689 | 122 | 100 | 1322 | 100 | 189 | 267 | 78 | 89 | 300 | 133 |
| RTOR Reduction (vph) | 0 | 15 | 0 | 0 | 5 | 0 | 0 | 30 | 0 | 0 | 56 | 0 |
| Lane Group Flow (vph) | 56 | 796 | 0 | 100 | 1417 | 0 | 189 | 315 | 0 | 89 | 377 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 8.0 | 57.9 | | 11.9 | 61.8 | | 15.2 | 23.9 | | 10.3 | 19.0 | |
| Effective Green, g (s) | 8.0 | 57.9 | | 11.9 | 61.8 | | 15.2 | 23.9 | | 10.3 | 19.0 | |
| Actuated g/C Ratio | 0.07 | 0.48 | | 0.10 | 0.51 | | 0.13 | 0.20 | | 0.09 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 120 | 2440 | | 179 | 2640 | | 229 | 692 | | 155 | 543 | |
| v/s Ratio Prot | 0.03 | 0.16 | | c0.06 | c0.28 | | c0.10 | 0.09 | | 0.05 | c0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.47 | 0.33 | | 0.56 | 0.54 | | 0.83 | 0.45 | | 0.57 | 0.70 | |
| Uniform Delay, d1 | 53.9 | 19.1 | | 51.5 | 19.5 | | 51.1 | 42.3 | | 52.7 | 47.8 | |
| Progression Factor | 1.15 | 0.41 | | 0.90 | 0.64 | | 0.65 | 0.96 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.6 | 0.3 | | 2.1 | 0.4 | | 19.8 | 0.4 | | 5.1 | 3.9 | |
| Delay (s) | 64.5 | 8.2 | | 48.6 | 12.9 | | 52.8 | 41.0 | | 57.8 | 51.6 | |
| Level of Service | E | A | | D | B | | D | D | | E | D | |
| Approach Delay (s) | | 11.8 | | | 15.2 | | | 45.2 | | | 52.7 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 69.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

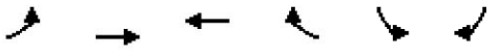
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 360 | 180 | 140 | 830 | 80 | 350 | 570 | 80 | 160 | 760 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5111 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5111 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 172 | 414 | 207 | 161 | 954 | 92 | 402 | 655 | 92 | 184 | 874 | 276 |
| RTOR Reduction (vph) | 0 | 0 | 145 | 0 | 9 | 0 | 0 | 0 | 60 | 0 | 0 | 117 |
| Lane Group Flow (vph) | 172 | 414 | 62 | 161 | 1037 | 0 | 402 | 655 | 32 | 184 | 874 | 159 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 13.3 | 35.9 | 35.9 | 11.3 | 33.9 | | 21.0 | 41.7 | 41.7 | 15.1 | 35.8 | 35.8 |
| Effective Green, g (s) | 13.3 | 35.9 | 35.9 | 11.3 | 33.9 | | 21.0 | 41.7 | 41.7 | 15.1 | 35.8 | 35.8 |
| Actuated g/C Ratio | 0.11 | 0.30 | 0.30 | 0.09 | 0.28 | | 0.18 | 0.35 | 0.35 | 0.13 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 200 | 1080 | 475 | 170 | 1444 | | 316 | 1254 | 552 | 227 | 1077 | 474 |
| v/s Ratio Prot | c0.10 | 0.11 | | 0.09 | c0.20 | | c0.22 | 0.18 | | 0.10 | c0.24 | |
| v/s Ratio Perm | | | 0.04 | | | | | | 0.02 | | | 0.10 |
| v/c Ratio | 0.86 | 0.38 | 0.13 | 0.95 | 0.72 | | 1.27 | 0.52 | 0.06 | 0.81 | 0.81 | 0.34 |
| Uniform Delay, d1 | 52.4 | 33.3 | 30.7 | 54.1 | 38.7 | | 49.5 | 31.2 | 26.1 | 51.1 | 39.0 | 32.8 |
| Progression Factor | 1.09 | 0.60 | 0.76 | 0.96 | 0.76 | | 0.51 | 0.83 | 1.55 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 27.9 | 1.0 | 0.5 | 50.2 | 2.8 | | 140.9 | 0.3 | 0.0 | 19.3 | 4.7 | 0.4 |
| Delay (s) | 85.1 | 21.0 | 23.8 | 101.9 | 32.2 | | 166.1 | 26.2 | 40.5 | 70.3 | 43.7 | 33.2 |
| Level of Service | F | C | C | F | C | | F | C | D | E | D | C |
| Approach Delay (s) | | 35.6 | | | 41.5 | | | 76.3 | | | 45.2 | |
| Approach LOS | | D | | | D | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 50.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 92.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

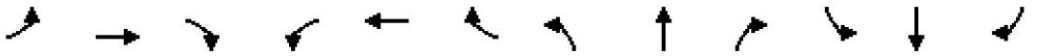
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 170 | 1770 | 1820 | 330 | 560 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 3610 | 1595 | 3502 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 3610 | 1595 | 3502 | 1597 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 181 | 1883 | 1936 | 351 | 596 | 138 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 20 | 0 | 5 |
| Lane Group Flow (vph) | 181 | 1883 | 1936 | 331 | 596 | 133 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 15.7 | 85.8 | 66.1 | 92.3 | 26.2 | 41.9 |
| Effective Green, g (s) | 15.7 | 85.8 | 66.1 | 92.3 | 26.2 | 41.9 |
| Actuated g/C Ratio | 0.13 | 0.71 | 0.55 | 0.77 | 0.22 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 236 | 3709 | 1989 | 1280 | 765 | 611 |
| v/s Ratio Prot | c0.10 | 0.36 | c0.54 | 0.06 | c0.17 | 0.03 |
| v/s Ratio Perm | | | | 0.15 | | 0.05 |
| v/c Ratio | 0.77 | 0.51 | 0.97 | 0.26 | 0.78 | 0.22 |
| Uniform Delay, d1 | 50.4 | 7.7 | 26.1 | 4.0 | 44.2 | 27.5 |
| Progression Factor | 1.15 | 0.27 | 0.90 | 1.22 | 0.51 | 0.44 |
| Incremental Delay, d2 | 9.1 | 0.3 | 8.0 | 0.0 | 4.7 | 0.2 |
| Delay (s) | 67.3 | 2.3 | 31.5 | 4.9 | 27.4 | 12.2 |
| Level of Service | E | A | C | A | C | B |
| Approach Delay (s) | | 8.0 | 27.4 | | 24.5 | |
| Approach LOS | | A | C | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 87.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

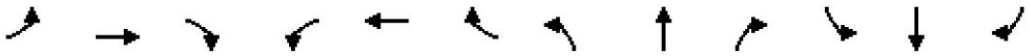
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 770 | 1440 | 70 | 1590 | 70 | 510 | 80 | 30 | 70 | 480 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 1805 | 5151 | | 3502 | 3446 | | 1805 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 1805 | 5151 | | 3502 | 3446 | | 1805 | 3610 | 1596 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 819 | 1532 | 74 | 1691 | 74 | 543 | 85 | 32 | 74 | 511 | 106 |
| RTOR Reduction (vph) | 0 | 0 | 145 | 0 | 3 | 0 | 0 | 25 | 0 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 85 | 819 | 1387 | 74 | 1762 | 0 | 543 | 92 | 0 | 74 | 511 | 105 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.1 | 60.1 | 60.1 | 9.1 | 58.1 | | 11.0 | 27.7 | | 7.1 | 23.8 | 34.9 |
| Effective Green, g (s) | 11.1 | 60.1 | 60.1 | 9.1 | 58.1 | | 11.0 | 27.7 | | 7.1 | 23.8 | 34.9 |
| Actuated g/C Ratio | 0.09 | 0.50 | 0.50 | 0.08 | 0.48 | | 0.09 | 0.23 | | 0.06 | 0.20 | 0.29 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 167 | 2598 | 795 | 137 | 2494 | | 321 | 795 | | 107 | 716 | 517 |
| v/s Ratio Prot | c0.05 | 0.16 | | 0.04 | 0.34 | | c0.16 | c0.03 | | 0.04 | c0.14 | 0.02 |
| v/s Ratio Perm | | | c0.87 | | | | | | | | | 0.05 |
| v/c Ratio | 0.51 | 0.32 | 1.74 | 0.54 | 0.71 | | 1.69 | 0.12 | | 0.69 | 0.71 | 0.20 |
| Uniform Delay, d1 | 51.9 | 17.8 | 29.9 | 53.4 | 24.3 | | 54.5 | 36.5 | | 55.4 | 44.9 | 32.1 |
| Progression Factor | 1.24 | 0.64 | 0.81 | 0.94 | 0.53 | | 1.00 | 1.00 | | 1.21 | 0.68 | 0.42 |
| Incremental Delay, d2 | 2.1 | 0.3 | 339.4 | 1.6 | 0.6 | | 324.4 | 0.1 | | 16.0 | 3.1 | 0.2 |
| Delay (s) | 66.1 | 11.7 | 363.7 | 52.1 | 13.4 | | 378.9 | 36.5 | | 82.8 | 33.6 | 13.5 |
| Level of Service | E | B | F | D | B | | F | D | | F | C | B |
| Approach Delay (s) | | 234.9 | | | 15.0 | | | 318.2 | | | 35.8 | |
| Approach LOS | | F | | | B | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 148.3 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.36 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 121.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

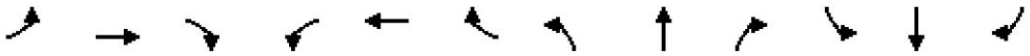
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 560 | 290 | 80 | 1040 | 80 | 740 | 380 | 20 | 80 | 580 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1600 | 1805 | 3567 | | 3502 | 3580 | | 1805 | 3580 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1600 | 1805 | 3567 | | 3502 | 3580 | | 1805 | 3580 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 63 | 589 | 305 | 84 | 1095 | 84 | 779 | 400 | 21 | 84 | 611 | 32 |
| RTOR Reduction (vph) | 0 | 0 | 44 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 63 | 589 | 261 | 84 | 1174 | 0 | 779 | 418 | 0 | 84 | 640 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 5.6 | 35.7 | 67.8 | 8.4 | 38.5 | | 32.1 | 51.1 | | 8.8 | 27.8 | |
| Effective Green, g (s) | 5.6 | 35.7 | 67.8 | 8.4 | 38.5 | | 32.1 | 51.1 | | 8.8 | 27.8 | |
| Actuated g/C Ratio | 0.05 | 0.30 | 0.56 | 0.07 | 0.32 | | 0.27 | 0.43 | | 0.07 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 84 | 1543 | 904 | 126 | 1144 | | 937 | 1524 | | 132 | 829 | |
| v/s Ratio Prot | 0.03 | 0.11 | 0.08 | c0.05 | c0.33 | | c0.22 | 0.12 | | 0.05 | c0.18 | |
| v/s Ratio Perm | | | 0.09 | | | | | | | | | |
| v/c Ratio | 0.75 | 0.38 | 0.29 | 0.67 | 1.03 | | 0.83 | 0.27 | | 0.64 | 0.77 | |
| Uniform Delay, d1 | 56.5 | 33.4 | 13.6 | 54.4 | 40.8 | | 41.4 | 22.4 | | 54.0 | 43.1 | |
| Progression Factor | 0.69 | 1.22 | 1.25 | 1.31 | 0.52 | | 1.00 | 1.00 | | 0.56 | 0.77 | |
| Incremental Delay, d2 | 29.9 | 0.7 | 0.2 | 10.4 | 31.1 | | 6.4 | 0.1 | | 8.9 | 4.2 | |
| Delay (s) | 69.1 | 41.5 | 17.1 | 81.7 | 52.2 | | 47.8 | 22.5 | | 39.4 | 37.4 | |
| Level of Service | E | D | B | F | D | | D | C | | D | D | |
| Approach Delay (s) | | 35.5 | | | 54.2 | | | 38.9 | | | 37.6 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 90.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

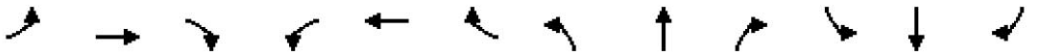
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 550 | 110 | 60 | 950 | 50 | 140 | 340 | 70 | 50 | 300 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3509 | | 1805 | 3580 | | 1805 | 3506 | | 1805 | 3554 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3509 | | 1805 | 3580 | | 1805 | 3506 | | 1805 | 3554 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 56 | 618 | 124 | 67 | 1067 | 56 | 157 | 382 | 79 | 56 | 337 | 34 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 2 | 0 | 0 | 16 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 56 | 731 | 0 | 67 | 1121 | 0 | 157 | 445 | 0 | 56 | 364 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 8.0 | 61.9 | | 8.6 | 62.5 | | 15.0 | 26.6 | | 6.9 | 18.5 | |
| Effective Green, g (s) | 8.0 | 61.9 | | 8.6 | 62.5 | | 15.0 | 26.6 | | 6.9 | 18.5 | |
| Actuated g/C Ratio | 0.07 | 0.52 | | 0.07 | 0.52 | | 0.12 | 0.22 | | 0.06 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 120 | 1810 | | 129 | 1865 | | 226 | 777 | | 104 | 548 | |
| v/s Ratio Prot | 0.03 | 0.21 | | c0.04 | c0.31 | | c0.09 | 0.13 | | 0.03 | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.47 | 0.40 | | 0.52 | 0.60 | | 0.69 | 0.57 | | 0.54 | 0.66 | |
| Uniform Delay, d1 | 53.9 | 17.8 | | 53.7 | 20.1 | | 50.3 | 41.6 | | 55.0 | 47.8 | |
| Progression Factor | 0.56 | 1.53 | | 1.19 | 0.24 | | 1.00 | 1.00 | | 0.81 | 1.20 | |
| Incremental Delay, d2 | 2.7 | 0.6 | | 2.4 | 1.0 | | 8.9 | 1.0 | | 5.0 | 2.9 | |
| Delay (s) | 32.8 | 27.9 | | 66.2 | 5.7 | | 59.2 | 42.7 | | 49.5 | 60.2 | |
| Level of Service | C | C | | E | A | | E | D | | D | E | |
| Approach Delay (s) | | 28.2 | | | 9.1 | | | 46.9 | | | 58.8 | |
| Approach LOS | | C | | | A | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

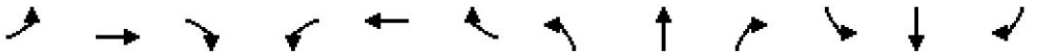
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 460 | 180 | 140 | 730 | 70 | 270 | 830 | 110 | 80 | 960 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3441 | | 1805 | 3557 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3441 | | 1805 | 3557 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 66 | 505 | 198 | 154 | 802 | 77 | 297 | 912 | 121 | 88 | 1055 | 44 |
| RTOR Reduction (vph) | 0 | 35 | 0 | 0 | 6 | 0 | 0 | 0 | 68 | 0 | 0 | 26 |
| Lane Group Flow (vph) | 66 | 668 | 0 | 154 | 873 | 0 | 297 | 912 | 53 | 88 | 1055 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 5.6 | 35.0 | | 11.1 | 40.5 | | 20.9 | 46.0 | 46.0 | 11.9 | 37.0 | 37.0 |
| Effective Green, g (s) | 5.6 | 35.0 | | 11.1 | 40.5 | | 20.9 | 46.0 | 46.0 | 11.9 | 37.0 | 37.0 |
| Actuated g/C Ratio | 0.05 | 0.29 | | 0.09 | 0.34 | | 0.17 | 0.38 | 0.38 | 0.10 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 84 | 1004 | | 167 | 1200 | | 314 | 1384 | 608 | 179 | 1113 | 489 |
| v/s Ratio Prot | 0.04 | 0.19 | | c0.09 | c0.25 | | c0.16 | 0.25 | | 0.05 | c0.29 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | 0.01 |
| v/c Ratio | 0.79 | 0.67 | | 0.92 | 0.73 | | 0.95 | 0.66 | 0.09 | 0.49 | 0.95 | 0.04 |
| Uniform Delay, d1 | 56.6 | 37.4 | | 54.0 | 34.9 | | 49.0 | 30.5 | 23.6 | 51.2 | 40.6 | 29.0 |
| Progression Factor | 0.94 | 1.37 | | 0.86 | 0.66 | | 0.80 | 0.35 | 0.05 | 0.67 | 0.58 | 0.55 |
| Incremental Delay, d2 | 35.2 | 3.3 | | 42.8 | 3.3 | | 26.4 | 1.5 | 0.2 | 1.5 | 13.1 | 0.1 |
| Delay (s) | 88.3 | 54.6 | | 89.3 | 26.2 | | 65.6 | 12.3 | 1.3 | 36.0 | 36.6 | 16.0 |
| Level of Service | F | D | | F | C | | E | B | A | D | D | B |
| Approach Delay (s) | | 57.5 | | | 35.6 | | | 23.2 | | | 35.8 | |
| Approach LOS | | E | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 90.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

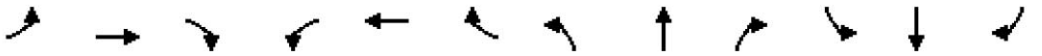
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 360 | 1780 | 120 | 30 | 1650 | 520 | 330 | 300 | 10 | 70 | 30 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2800 | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2800 | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 391 | 1935 | 130 | 33 | 1793 | 565 | 359 | 326 | 11 | 76 | 33 | 98 |
| RTOR Reduction (vph) | 0 | 0 | 33 | 0 | 0 | 156 | 0 | 0 | 8 | 0 | 0 | 92 |
| Lane Group Flow (vph) | 391 | 1935 | 97 | 33 | 1793 | 409 | 359 | 326 | 3 | 76 | 33 | 6 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 28.8 | 64.6 | 64.6 | 4.4 | 40.2 | 40.2 | 27.1 | 29.4 | 33.8 | 5.6 | 7.9 | 7.9 |
| Effective Green, g (s) | 28.8 | 64.6 | 64.6 | 4.4 | 40.2 | 40.2 | 27.1 | 29.4 | 33.8 | 5.6 | 7.9 | 7.9 |
| Actuated g/C Ratio | 0.24 | 0.54 | 0.54 | 0.04 | 0.34 | 0.34 | 0.23 | 0.24 | 0.28 | 0.05 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 433 | 2792 | 869 | 128 | 1738 | 532 | 791 | 884 | 882 | 163 | 238 | 105 |
| v/s Ratio Prot | c0.22 | 0.37 | | 0.01 | c0.35 | | c0.10 | 0.09 | 0.00 | c0.02 | 0.01 | |
| v/s Ratio Perm | | | 0.06 | | | 0.26 | | | 0.00 | | | 0.00 |
| v/c Ratio | 0.90 | 0.69 | 0.11 | 0.26 | 1.03 | 0.77 | 0.45 | 0.37 | 0.00 | 0.47 | 0.14 | 0.06 |
| Uniform Delay, d1 | 44.2 | 20.4 | 13.6 | 56.2 | 39.9 | 35.7 | 40.1 | 37.6 | 31.0 | 55.7 | 52.8 | 52.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.14 | 0.62 | 0.42 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 21.7 | 1.4 | 0.3 | 0.9 | 28.7 | 8.9 | 0.4 | 0.3 | 0.0 | 2.1 | 0.3 | 0.2 |
| Delay (s) | 66.0 | 21.8 | 13.9 | 65.2 | 53.3 | 24.0 | 40.5 | 37.9 | 31.0 | 57.8 | 53.1 | 52.8 |
| Level of Service | E | C | B | E | D | C | D | D | C | E | D | D |
| Approach Delay (s) | | 28.4 | | | 46.5 | | | 39.1 | | | 54.7 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 86.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

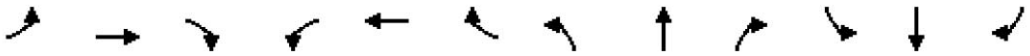
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1480 | 430 | 0 | 1850 | 0 | 0 | 0 | 0 | 310 | 0 | 310 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 1.00 | | | | | 1.00 | 0.92 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (prot) | | 5012 | | | 5187 | | | | | 1715 | 1551 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (perm) | | 5012 | | | 5187 | | | | | 1715 | 1551 | 1534 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 1626 | 473 | 0 | 2033 | 0 | 0 | 0 | 0 | 341 | 0 | 341 |
| RTOR Reduction (vph) | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 |
| Lane Group Flow (vph) | 0 | 2067 | 0 | 0 | 2033 | 0 | 0 | 0 | 0 | 239 | 218 | 205 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 88.0 | | | 88.0 | | | | | 24.0 | 24.0 | 24.0 |
| Effective Green, g (s) | | 88.0 | | | 88.0 | | | | | 24.0 | 24.0 | 24.0 |
| Actuated g/C Ratio | | 0.73 | | | 0.73 | | | | | 0.20 | 0.20 | 0.20 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3675 | | | 3804 | | | | | 343 | 310 | 307 |
| v/s Ratio Prot | | c0.41 | | | 0.39 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | 0.14 | 0.14 | 0.13 |
| v/c Ratio | | 0.56 | | | 0.53 | | | | | 0.70 | 0.70 | 0.67 |
| Uniform Delay, d1 | | 7.3 | | | 7.0 | | | | | 44.6 | 44.7 | 44.3 |
| Progression Factor | | 0.08 | | | 1.03 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.5 | | | 0.4 | | | | | 6.1 | 7.0 | 5.4 |
| Delay (s) | | 1.1 | | | 7.6 | | | | | 50.7 | 51.7 | 49.7 |
| Level of Service | | A | | | A | | | | | D | D | D |
| Approach Delay (s) | | 1.1 | | | 7.6 | | | 0.0 | | | 50.7 | |
| Approach LOS | | A | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

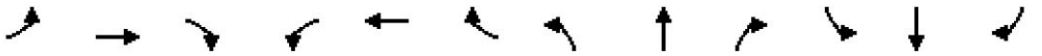
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 1680 | 0 | 0 | 1180 | 170 | 770 | 10 | 390 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 5077 | | 1715 | 1633 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 5077 | | 1715 | 1633 | 1534 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 130 | 1826 | 0 | 0 | 1283 | 185 | 837 | 11 | 424 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 3 | 5 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 130 | 1826 | 0 | 0 | 1454 | 0 | 444 | 443 | 377 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 17.0 | 69.6 | | | 48.6 | | 42.4 | 42.4 | 42.4 | | | |
| Effective Green, g (s) | 17.0 | 69.6 | | | 48.6 | | 42.4 | 42.4 | 42.4 | | | |
| Actuated g/C Ratio | 0.14 | 0.58 | | | 0.41 | | 0.35 | 0.35 | 0.35 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 256 | 3008 | | | 2056 | | 606 | 577 | 542 | | | |
| v/s Ratio Prot | 0.07 | c0.35 | | | c0.29 | | 0.26 | c0.27 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.25 | | | |
| v/c Ratio | 0.51 | 0.61 | | | 0.71 | | 0.73 | 0.77 | 0.70 | | | |
| Uniform Delay, d1 | 47.6 | 16.3 | | | 29.8 | | 33.9 | 34.4 | 33.3 | | | |
| Progression Factor | 0.78 | 0.58 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 1.3 | 0.8 | | | 2.1 | | 4.6 | 6.1 | 3.9 | | | |
| Delay (s) | 38.4 | 10.3 | | | 31.8 | | 38.4 | 40.5 | 37.1 | | | |
| Level of Service | D | B | | | C | | D | D | D | | | |
| Approach Delay (s) | | 12.1 | | | 31.8 | | | 38.8 | | | 0.0 | |
| Approach LOS | | B | | | C | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

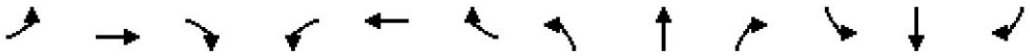
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 1420 | 360 | 0 | 1180 | 290 | 50 | 170 | 40 | 30 | 50 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3489 | | | 3610 | 1615 | 3502 | 3506 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3489 | | | 3610 | 1615 | 3502 | 3506 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 340 | 1511 | 383 | 0 | 1255 | 309 | 53 | 181 | 43 | 32 | 53 | 170 |
| RTOR Reduction (vph) | 0 | 12 | 0 | 0 | 0 | 130 | 0 | 18 | 0 | 0 | 0 | 152 |
| Lane Group Flow (vph) | 340 | 1882 | 0 | 0 | 1255 | 179 | 53 | 206 | 0 | 32 | 53 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 16.6 | 90.0 | | | 69.4 | 69.4 | 5.6 | 13.8 | | 4.2 | 12.4 | 12.4 |
| Effective Green, g (s) | 16.6 | 90.0 | | | 69.4 | 69.4 | 5.6 | 13.8 | | 4.2 | 12.4 | 12.4 |
| Actuated g/C Ratio | 0.14 | 0.75 | | | 0.58 | 0.58 | 0.05 | 0.12 | | 0.04 | 0.10 | 0.10 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 484 | 2617 | | | 2088 | 934 | 163 | 403 | | 63 | 373 | 167 |
| v/s Ratio Prot | 0.10 | c0.54 | | | 0.35 | | 0.02 | c0.06 | | c0.02 | 0.01 | |
| v/s Ratio Perm | | | | | | 0.11 | | | | | | 0.01 |
| v/c Ratio | 0.70 | 0.72 | | | 0.60 | 0.19 | 0.33 | 0.51 | | 0.51 | 0.14 | 0.11 |
| Uniform Delay, d1 | 49.3 | 8.1 | | | 16.4 | 12.0 | 55.4 | 49.9 | | 56.9 | 49.0 | 48.8 |
| Progression Factor | 1.00 | 1.00 | | | 0.36 | 0.39 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.6 | 1.7 | | | 1.1 | 0.4 | 1.2 | 1.1 | | 6.3 | 0.2 | 0.3 |
| Delay (s) | 53.9 | 9.9 | | | 7.0 | 5.1 | 56.5 | 51.0 | | 63.2 | 49.1 | 49.0 |
| Level of Service | D | A | | | A | A | E | D | | E | D | D |
| Approach Delay (s) | | 16.6 | | | 6.6 | | | 52.1 | | | 50.8 | |
| Approach LOS | | B | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 81.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

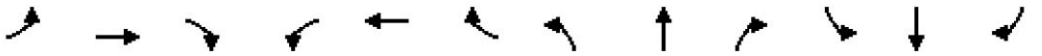
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 1180 | 140 | 20 | 1320 | 50 | 20 | 10 | 20 | 30 | 20 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.90 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5089 | | 1805 | 3610 | 1564 | 1799 | 1688 | | 1798 | 1627 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.43 | 1.00 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5089 | | 1805 | 3610 | 1564 | 814 | 1688 | | 1395 | 1627 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 165 | 1216 | 144 | 21 | 1361 | 52 | 21 | 10 | 21 | 31 | 21 | 144 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 0 | 4 | 0 | 19 | 0 | 0 | 133 | 0 |
| Lane Group Flow (vph) | 165 | 1355 | 0 | 21 | 1361 | 48 | 21 | 12 | 0 | 31 | 32 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 16.7 | 95.4 | | 3.3 | 82.0 | 82.0 | 9.3 | 9.3 | | 9.3 | 9.3 | |
| Effective Green, g (s) | 16.7 | 95.4 | | 3.3 | 82.0 | 82.0 | 9.3 | 9.3 | | 9.3 | 9.3 | |
| Actuated g/C Ratio | 0.14 | 0.80 | | 0.03 | 0.68 | 0.68 | 0.08 | 0.08 | | 0.08 | 0.08 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 251 | 4046 | | 50 | 2467 | 1069 | 63 | 131 | | 108 | 126 | |
| v/s Ratio Prot | c0.09 | 0.27 | | 0.01 | c0.38 | | | 0.01 | | | 0.02 | |
| v/s Ratio Perm | | | | | | 0.03 | c0.03 | | | 0.02 | | |
| v/c Ratio | 0.66 | 0.33 | | 0.42 | 0.55 | 0.04 | 0.33 | 0.09 | | 0.29 | 0.26 | |
| Uniform Delay, d1 | 48.9 | 3.4 | | 57.4 | 9.7 | 6.2 | 52.4 | 51.4 | | 52.2 | 52.1 | |
| Progression Factor | 0.84 | 1.36 | | 0.90 | 0.36 | 0.28 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.4 | 0.2 | | 5.3 | 0.8 | 0.1 | 3.1 | 0.3 | | 1.5 | 1.1 | |
| Delay (s) | 45.6 | 4.8 | | 56.8 | 4.3 | 1.8 | 55.5 | 51.7 | | 53.7 | 53.2 | |
| Level of Service | D | A | | E | A | A | E | D | | D | D | |
| Approach Delay (s) | | 9.2 | | | 5.0 | | | 53.2 | | | 53.2 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

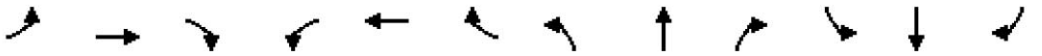
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1110 | 100 | 140 | 1190 | 90 | 80 | 100 | 50 | 70 | 170 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5115 | | 1805 | 5121 | | 1805 | 1795 | | 1805 | 1900 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5115 | | 1805 | 5121 | | 1805 | 1795 | | 1805 | 1900 | 1589 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 51 | 1133 | 102 | 143 | 1214 | 92 | 82 | 102 | 51 | 71 | 173 | 92 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 20 | 0 | 0 | 0 | 79 |
| Lane Group Flow (vph) | 51 | 1229 | 0 | 143 | 1302 | 0 | 82 | 133 | 0 | 71 | 173 | 13 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 7.7 | 65.1 | | 14.7 | 72.1 | | 7.8 | 16.5 | | 7.7 | 16.4 | 16.4 |
| Effective Green, g (s) | 7.7 | 65.1 | | 14.7 | 72.1 | | 7.8 | 16.5 | | 7.7 | 16.4 | 16.4 |
| Actuated g/C Ratio | 0.06 | 0.54 | | 0.12 | 0.60 | | 0.06 | 0.14 | | 0.06 | 0.14 | 0.14 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 116 | 2775 | | 221 | 3077 | | 117 | 247 | | 116 | 260 | 217 |
| v/s Ratio Prot | 0.03 | c0.24 | | c0.08 | 0.25 | | c0.05 | 0.07 | | 0.04 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.44 | 0.44 | | 0.65 | 0.42 | | 0.70 | 0.54 | | 0.61 | 0.67 | 0.06 |
| Uniform Delay, d1 | 54.1 | 16.5 | | 50.2 | 12.8 | | 55.0 | 48.2 | | 54.7 | 49.2 | 45.1 |
| Progression Factor | 1.00 | 0.68 | | 1.17 | 0.28 | | 1.09 | 1.59 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.6 | 0.5 | | 5.6 | 0.4 | | 16.5 | 2.2 | | 9.2 | 6.3 | 0.1 |
| Delay (s) | 56.8 | 11.8 | | 64.3 | 3.9 | | 76.5 | 78.8 | | 63.9 | 55.5 | 45.2 |
| Level of Service | E | B | | E | A | | E | E | | E | E | D |
| Approach Delay (s) | | 13.6 | | | 9.9 | | | 78.0 | | | 54.4 | |
| Approach LOS | | B | | | A | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 63.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

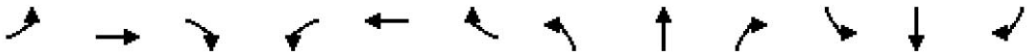
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑ | ↱ | ↰ | ↑↑↑ | | | | | | | ↱ |
| Volume (vph) | 0 | 1560 | 50 | 740 | 680 | 0 | 0 | 0 | 0 | 0 | 0 | 420 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.91 | 1.00 | 1.00 | 0.91 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 5187 | 1573 | 1805 | 5187 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 5187 | 1573 | 1805 | 5187 | | | | | | | 1644 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 1696 | 54 | 804 | 739 | 0 | 0 | 0 | 0 | 0 | 0 | 457 |
| RTOR Reduction (vph) | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 236 |
| Lane Group Flow (vph) | 0 | 1696 | 25 | 804 | 739 | 0 | 0 | 0 | 0 | 0 | 0 | 221 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 51.2 | 51.2 | 60.8 | 91.2 | | | | | | | 20.8 |
| Effective Green, g (s) | | 51.2 | 51.2 | 60.8 | 91.2 | | | | | | | 20.8 |
| Actuated g/C Ratio | | 0.43 | 0.43 | 0.51 | 0.76 | | | | | | | 0.17 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 2213 | 671 | 915 | 3942 | | | | | | | 285 |
| v/s Ratio Prot | | c0.33 | | c0.45 | 0.14 | | | | | | | 0.13 |
| v/s Ratio Perm | | | 0.02 | | | | | | | | | |
| v/c Ratio | | 0.77 | 0.04 | 0.88 | 0.19 | | | | | | | 0.77 |
| Uniform Delay, d1 | | 29.3 | 20.0 | 26.3 | 4.0 | | | | | | | 47.4 |
| Progression Factor | | 1.00 | 1.00 | 1.15 | 0.40 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 2.6 | 0.1 | 7.8 | 0.1 | | | | | | | 12.3 |
| Delay (s) | | 31.9 | 20.1 | 38.0 | 1.7 | | | | | | | 59.7 |
| Level of Service | | C | C | D | A | | | | | | | E |
| Approach Delay (s) | | 31.5 | | | 20.6 | | | 0.0 | | | 59.7 | |
| Approach LOS | | C | | | C | | | A | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

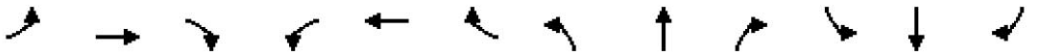
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 1540 | 50 | 0 | 1800 | 200 | 290 | 140 | 10 | 240 | 0 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5163 | | | 5095 | | 1805 | 1880 | | 1805 | 1615 | |
| Flt Permitted | 0.05 | 1.00 | | | 1.00 | | 0.73 | 1.00 | | 0.56 | 1.00 | |
| Satd. Flow (perm) | 104 | 5163 | | | 5095 | | 1385 | 1880 | | 1071 | 1615 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 1638 | 53 | 0 | 1915 | 213 | 309 | 149 | 11 | 255 | 0 | 43 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 9 | 0 | 0 | 2 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 21 | 1689 | 0 | 0 | 2119 | 0 | 309 | 158 | 0 | 255 | 34 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 79.6 | 79.6 | | | 79.6 | | 32.4 | 32.4 | | 32.4 | 32.4 | |
| Effective Green, g (s) | 79.6 | 79.6 | | | 79.6 | | 32.4 | 32.4 | | 32.4 | 32.4 | |
| Actuated g/C Ratio | 0.66 | 0.66 | | | 0.66 | | 0.27 | 0.27 | | 0.27 | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 69 | 3425 | | | 3380 | | 374 | 508 | | 289 | 436 | |
| v/s Ratio Prot | | 0.33 | | | c0.42 | | | 0.08 | | | 0.02 | |
| v/s Ratio Perm | 0.20 | | | | | | 0.22 | | | c0.24 | | |
| v/c Ratio | 0.30 | 0.49 | | | 0.63 | | 0.83 | 0.31 | | 0.88 | 0.08 | |
| Uniform Delay, d1 | 8.5 | 10.1 | | | 11.6 | | 41.2 | 34.9 | | 42.0 | 32.7 | |
| Progression Factor | 0.35 | 0.00 | | | 0.26 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.0 | 0.3 | | | 0.6 | | 13.8 | 0.4 | | 25.5 | 0.1 | |
| Delay (s) | 10.0 | 0.4 | | | 3.6 | | 55.0 | 35.3 | | 67.5 | 32.7 | |
| Level of Service | B | A | | | A | | D | D | | E | C | |
| Approach Delay (s) | | 0.5 | | | 3.6 | | | 48.3 | | | 62.4 | |
| Approach LOS | | A | | | A | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 71.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 1760 | 660 | 150 | 1610 | 60 | 70 | 30 | 30 | 60 | 170 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1585 | 1805 | 5187 | 1564 | 1715 | 1662 | | 1715 | 1802 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1585 | 1805 | 5187 | 1564 | 1715 | 1662 | | 1715 | 1802 | 1587 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 213 | 1872 | 702 | 160 | 1713 | 64 | 74 | 32 | 32 | 64 | 181 | 138 |
| RTOR Reduction (vph) | 0 | 0 | 243 | 0 | 0 | 24 | 0 | 29 | 0 | 0 | 0 | 117 |
| Lane Group Flow (vph) | 213 | 1872 | 459 | 160 | 1713 | 40 | 67 | 42 | 0 | 58 | 187 | 21 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 31.3 | 52.4 | 52.4 | 23.2 | 44.3 | 44.3 | 10.3 | 10.3 | | 18.1 | 18.1 | 18.1 |
| Effective Green, g (s) | 31.3 | 52.4 | 52.4 | 23.2 | 44.3 | 44.3 | 10.3 | 10.3 | | 18.1 | 18.1 | 18.1 |
| Actuated g/C Ratio | 0.26 | 0.44 | 0.44 | 0.19 | 0.37 | 0.37 | 0.09 | 0.09 | | 0.15 | 0.15 | 0.15 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 471 | 2265 | 692 | 349 | 1915 | 577 | 147 | 143 | | 259 | 272 | 239 |
| v/s Ratio Prot | c0.12 | c0.36 | | 0.09 | c0.33 | | c0.04 | 0.03 | | 0.03 | c0.10 | |
| v/s Ratio Perm | | | 0.29 | | | 0.03 | | | | | | 0.01 |
| v/c Ratio | 0.45 | 0.83 | 0.66 | 0.46 | 0.89 | 0.07 | 0.46 | 0.29 | | 0.22 | 0.69 | 0.09 |
| Uniform Delay, d1 | 37.2 | 29.8 | 26.8 | 42.8 | 35.6 | 24.5 | 52.2 | 51.4 | | 44.8 | 48.3 | 43.8 |
| Progression Factor | 0.71 | 1.03 | 1.38 | 1.22 | 0.55 | 0.43 | 1.00 | 1.00 | | 0.55 | 0.55 | 0.46 |
| Incremental Delay, d2 | 0.7 | 3.5 | 4.7 | 0.4 | 2.8 | 0.1 | 2.2 | 1.1 | | 0.4 | 6.5 | 0.1 |
| Delay (s) | 27.0 | 34.0 | 41.8 | 52.6 | 22.6 | 10.7 | 54.4 | 52.6 | | 25.2 | 33.0 | 20.3 |
| Level of Service | C | C | D | D | C | B | D | D | | C | C | C |
| Approach Delay (s) | | 35.4 | | | 24.7 | | | 53.5 | | | 27.3 | |
| Approach LOS | | D | | | C | | | D | | | C | |

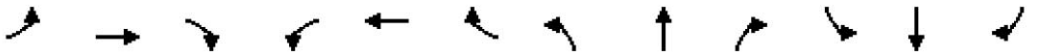
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 77.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 630 | 560 | 140 | 600 | 280 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.93 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3311 | | 1805 | 3610 | 1805 | 1598 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3311 | | 1805 | 3610 | 1805 | 1598 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 750 | 667 | 167 | 714 | 333 | 214 |
| RTOR Reduction (vph) | 161 | 0 | 0 | 0 | 0 | 54 |
| Lane Group Flow (vph) | 1256 | 0 | 167 | 714 | 333 | 160 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 33.6 | | 9.1 | 46.7 | 18.9 | 28.0 |
| Effective Green, g (s) | 33.6 | | 9.1 | 46.7 | 18.9 | 28.0 |
| Actuated g/C Ratio | 0.46 | | 0.12 | 0.63 | 0.26 | 0.38 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1512 | | 223 | 2291 | 464 | 695 |
| v/s Ratio Prot | c0.38 | | c0.09 | 0.20 | c0.18 | 0.03 |
| v/s Ratio Perm | | | | | | 0.07 |
| v/c Ratio | 0.83 | | 0.75 | 0.31 | 0.72 | 0.23 |
| Uniform Delay, d1 | 17.5 | | 31.1 | 6.1 | 24.9 | 15.5 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.0 | | 12.9 | 0.1 | 5.2 | 0.2 |
| Delay (s) | 21.6 | | 44.0 | 6.2 | 30.2 | 15.7 |
| Level of Service | C | | D | A | C | B |
| Approach Delay (s) | 21.6 | | | 13.4 | 24.5 | |
| Approach LOS | C | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 73.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 70.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

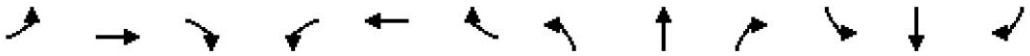
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 600 | 240 | 90 | 430 | 70 | 440 | 360 | 770 | 130 | 80 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1585 | 3502 | 3534 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1585 | 3502 | 3534 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 11 | 659 | 264 | 99 | 473 | 77 | 484 | 396 | 846 | 143 | 88 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 203 | 0 | 14 | 0 | 0 | 0 | 371 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 11 | 659 | 61 | 99 | 536 | 0 | 484 | 396 | 475 | 143 | 88 | 1 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.3 | 19.7 | 19.7 | 6.2 | 24.6 | | 38.0 | 32.2 | 32.2 | 11.8 | 6.0 | 6.0 |
| Effective Green, g (s) | 1.3 | 19.7 | 19.7 | 6.2 | 24.6 | | 38.0 | 32.2 | 32.2 | 11.8 | 6.0 | 6.0 |
| Actuated g/C Ratio | 0.02 | 0.23 | 0.23 | 0.07 | 0.29 | | 0.44 | 0.37 | 0.37 | 0.14 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 27 | 1190 | 363 | 253 | 1012 | | 798 | 712 | 605 | 248 | 252 | 111 |
| v/s Ratio Prot | 0.01 | c0.13 | | 0.03 | c0.15 | | 0.27 | 0.21 | | c0.08 | 0.02 | |
| v/s Ratio Perm | | | 0.04 | | | | | | c0.29 | | | 0.00 |
| v/c Ratio | 0.41 | 0.55 | 0.17 | 0.39 | 0.53 | | 0.61 | 0.56 | 0.78 | 0.58 | 0.35 | 0.01 |
| Uniform Delay, d1 | 41.9 | 29.2 | 26.5 | 38.0 | 25.8 | | 18.3 | 21.2 | 23.8 | 34.7 | 38.1 | 37.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.7 | 0.6 | 0.2 | 1.0 | 0.5 | | 1.3 | 0.9 | 6.6 | 3.2 | 0.8 | 0.0 |
| Delay (s) | 51.6 | 29.8 | 26.7 | 39.1 | 26.3 | | 19.6 | 22.2 | 30.4 | 37.9 | 38.9 | 37.2 |
| Level of Service | D | C | C | D | C | | B | C | C | D | D | D |
| Approach Delay (s) | | 29.2 | | | 28.3 | | | 25.5 | | | 38.3 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 85.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 10 | 230 | 0 | 0 | 0 | 0 | 1030 | 500 | 200 | 350 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.86 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1557 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1557 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 44 | 11 | 253 | 0 | 0 | 0 | 0 | 1132 | 549 | 220 | 385 | 0 |
| RTOR Reduction (vph) | 0 | 107 | 117 | 0 | 0 | 0 | 0 | 0 | 270 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 44 | 25 | 15 | 0 | 0 | 0 | 0 | 1132 | 279 | 220 | 385 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 5.6 | 5.6 | 5.6 | | | | | 25.4 | 25.4 | 7.0 | 36.4 | |
| Effective Green, g (s) | 5.6 | 5.6 | 5.6 | | | | | 25.4 | 25.4 | 7.0 | 36.4 | |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.11 | | | | | 0.51 | 0.51 | 0.14 | 0.73 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 202 | 174 | 172 | | | | | 1834 | 820 | 490 | 2628 | |
| v/s Ratio Prot | c0.02 | 0.02 | | | | | | c0.31 | | c0.06 | 0.11 | |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.17 | | | |
| v/c Ratio | 0.22 | 0.14 | 0.09 | | | | | 0.62 | 0.34 | 0.45 | 0.15 | |
| Uniform Delay, d1 | 20.2 | 20.0 | 19.9 | | | | | 8.8 | 7.3 | 19.7 | 2.1 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.10 | 0.75 | |
| Incremental Delay, d2 | 0.5 | 0.4 | 0.2 | | | | | 1.6 | 1.1 | 0.6 | 0.1 | |
| Delay (s) | 20.8 | 20.4 | 20.1 | | | | | 10.4 | 8.4 | 22.4 | 1.7 | |
| Level of Service | C | C | C | | | | | B | A | C | A | |
| Approach Delay (s) | | 20.3 | | | 0.0 | | | 9.8 | | | 9.2 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 53.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 280 | 1050 | 0 | 0 | 420 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 153 | 329 | 1235 | 0 | 0 | 494 |
| RTOR Reduction (vph) | 0 | 37 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 153 | 292 | 1235 | 0 | 0 | 494 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 12.7 | 12.7 | 29.3 | | | 29.3 |
| Effective Green, g (s) | 12.7 | 12.7 | 29.3 | | | 29.3 |
| Actuated g/C Ratio | 0.25 | 0.25 | 0.59 | | | 0.59 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 890 | 410 | 2115 | | | 2115 |
| v/s Ratio Prot | 0.04 | | c0.34 | | | 0.14 |
| v/s Ratio Perm | | c0.18 | | | | |
| v/c Ratio | 0.17 | 0.71 | 0.58 | | | 0.23 |
| Uniform Delay, d1 | 14.5 | 17.0 | 6.5 | | | 5.0 |
| Progression Factor | 1.00 | 1.00 | 0.14 | | | 1.00 |
| Incremental Delay, d2 | 0.1 | 5.8 | 1.0 | | | 0.3 |
| Delay (s) | 14.6 | 22.8 | 1.9 | | | 5.2 |
| Level of Service | B | C | A | | | A |
| Approach Delay (s) | 20.2 | | 1.9 | | | 5.2 |
| Approach LOS | C | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

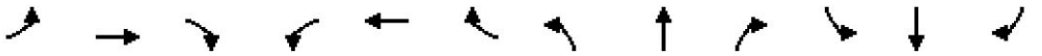
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1330 | 10 | 110 | 1870 | 1940 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5181 | | 3502 | 5187 | 5100 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5181 | | 3502 | 5187 | 5100 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1446 | 11 | 120 | 2033 | 2109 | 11 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 1456 | 0 | 120 | 2033 | 2119 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 33.7 | | 5.8 | 43.5 | 38.0 | |
| Effective Green, g (s) | 33.7 | | 5.8 | 43.5 | 38.0 | |
| Actuated g/C Ratio | 0.38 | | 0.06 | 0.49 | 0.42 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 1951 | | 227 | 2521 | 2165 | |
| v/s Ratio Prot | 0.28 | | 0.03 | c0.39 | c0.42 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.75 | | 0.53 | 0.81 | 0.98 | |
| Uniform Delay, d1 | 24.2 | | 40.5 | 19.4 | 25.4 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.6 | | 2.2 | 2.0 | 14.5 | |
| Delay (s) | 25.8 | | 42.7 | 21.4 | 39.9 | |
| Level of Service | C | | D | C | D | |
| Approach Delay (s) | 25.8 | | | 22.6 | 39.9 | |
| Approach LOS | C | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 89.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 79.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

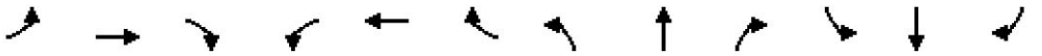
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1490 | 40 | 220 | 1710 | 20 | 130 | 140 | 420 | 180 | 110 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1588 | 3502 | 5176 | | 3502 | 1900 | 1590 | 1805 | 3450 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1588 | 3502 | 5176 | | 3502 | 1900 | 1590 | 1805 | 3450 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 53 | 1585 | 43 | 234 | 1819 | 21 | 138 | 149 | 447 | 191 | 117 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 26 | 0 | 1 | 0 | 0 | 0 | 166 | 0 | 39 | 0 |
| Lane Group Flow (vph) | 53 | 1585 | 17 | 234 | 1839 | 0 | 138 | 149 | 281 | 191 | 121 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.3 | 38.9 | 38.9 | 9.9 | 43.5 | | 26.1 | 23.0 | 23.0 | 12.3 | 9.2 | |
| Effective Green, g (s) | 5.3 | 38.9 | 38.9 | 9.9 | 43.5 | | 26.1 | 23.0 | 23.0 | 12.3 | 9.2 | |
| Actuated g/C Ratio | 0.05 | 0.39 | 0.39 | 0.10 | 0.43 | | 0.26 | 0.23 | 0.23 | 0.12 | 0.09 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 96 | 2016 | 617 | 346 | 2249 | | 913 | 437 | 365 | 222 | 317 | |
| v/s Ratio Prot | 0.03 | c0.31 | | 0.07 | c0.36 | | 0.04 | 0.08 | | c0.11 | 0.04 | |
| v/s Ratio Perm | | | 0.01 | | | | | | c0.18 | | | |
| v/c Ratio | 0.55 | 0.79 | 0.03 | 0.68 | 0.82 | | 0.15 | 0.34 | 0.77 | 0.86 | 0.38 | |
| Uniform Delay, d1 | 46.2 | 26.9 | 18.9 | 43.6 | 24.8 | | 28.5 | 32.2 | 36.1 | 43.1 | 42.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 6.7 | 2.1 | 0.0 | 5.2 | 2.4 | | 0.1 | 0.5 | 9.4 | 27.1 | 0.8 | |
| Delay (s) | 53.0 | 29.0 | 18.9 | 48.7 | 27.2 | | 28.6 | 32.7 | 45.5 | 70.1 | 43.5 | |
| Level of Service | D | C | B | D | C | | C | C | D | E | D | |
| Approach Delay (s) | | 29.5 | | | 29.7 | | | 39.7 | | | 58.0 | |
| Approach LOS | | C | | | C | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 100.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

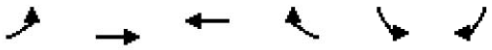
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 820 | 170 | 60 | 540 | 150 | 420 | 940 | 260 | 120 | 350 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1599 | 3502 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1599 | 3502 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 182 | 932 | 193 | 68 | 614 | 170 | 477 | 1068 | 295 | 136 | 398 | 159 |
| RTOR Reduction (vph) | 0 | 0 | 98 | 0 | 0 | 26 | 0 | 0 | 13 | 0 | 0 | 30 |
| Lane Group Flow (vph) | 182 | 932 | 95 | 68 | 614 | 144 | 477 | 1068 | 282 | 136 | 398 | 129 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.2 | 31.5 | 48.9 | 7.2 | 28.5 | 35.7 | 17.4 | 37.6 | 44.8 | 7.2 | 27.4 | 37.6 |
| Effective Green, g (s) | 10.2 | 31.5 | 48.9 | 7.2 | 28.5 | 35.7 | 17.4 | 37.6 | 44.8 | 7.2 | 27.4 | 37.6 |
| Actuated g/C Ratio | 0.10 | 0.32 | 0.49 | 0.07 | 0.29 | 0.36 | 0.17 | 0.38 | 0.45 | 0.07 | 0.28 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 185 | 1143 | 850 | 253 | 1034 | 636 | 612 | 1364 | 782 | 253 | 994 | 668 |
| v/s Ratio Prot | c0.10 | c0.26 | 0.02 | 0.02 | 0.17 | 0.02 | c0.14 | c0.30 | 0.03 | 0.04 | 0.11 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | 0.07 | | | 0.15 | | | 0.06 |
| v/c Ratio | 0.98 | 0.82 | 0.11 | 0.27 | 0.59 | 0.23 | 0.78 | 0.78 | 0.36 | 0.54 | 0.40 | 0.19 |
| Uniform Delay, d1 | 44.6 | 31.3 | 13.6 | 43.7 | 30.5 | 22.3 | 39.2 | 27.3 | 17.9 | 44.5 | 29.4 | 20.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 61.0 | 4.6 | 0.1 | 0.6 | 0.9 | 0.2 | 6.2 | 3.0 | 0.3 | 2.2 | 0.3 | 0.1 |
| Delay (s) | 105.6 | 35.9 | 13.7 | 44.2 | 31.4 | 22.4 | 45.5 | 30.4 | 18.2 | 46.7 | 29.6 | 20.9 |
| Level of Service | F | D | B | D | C | C | D | C | B | D | C | C |
| Approach Delay (s) | | 42.3 | | | 30.7 | | | 32.3 | | | 31.0 | |
| Approach LOS | | D | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 99.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

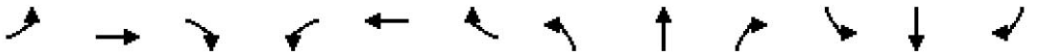
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 180 | 1030 | 630 | 460 | 190 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 0.99 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1601 | 3489 | 1458 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1601 | 3489 | 1458 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 202 | 1157 | 708 | 517 | 213 | 112 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 22 | 6 | 40 |
| Lane Group Flow (vph) | 202 | 1157 | 708 | 495 | 218 | 61 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.1 | 25.5 | 14.4 | 23.6 | 9.2 | 16.3 |
| Effective Green, g (s) | 7.1 | 25.5 | 14.4 | 23.6 | 9.2 | 16.3 |
| Actuated g/C Ratio | 0.17 | 0.60 | 0.34 | 0.55 | 0.22 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 300 | 2156 | 1217 | 1035 | 752 | 693 |
| v/s Ratio Prot | c0.11 | c0.32 | 0.20 | c0.10 | 0.06 | 0.01 |
| v/s Ratio Perm | | | | 0.21 | | 0.03 |
| v/c Ratio | 0.67 | 0.54 | 0.58 | 0.48 | 0.29 | 0.09 |
| Uniform Delay, d1 | 16.7 | 5.1 | 11.7 | 5.8 | 14.0 | 8.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.9 | 0.3 | 0.7 | 0.4 | 0.2 | 0.1 |
| Delay (s) | 22.6 | 5.4 | 12.4 | 6.2 | 14.2 | 8.5 |
| Level of Service | C | A | B | A | B | A |
| Approach Delay (s) | | 7.9 | 9.8 | | 12.4 | |
| Approach LOS | | A | A | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 42.7 | Sum of lost time (s) | 4.0 |
| Intersection Capacity Utilization | 48.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

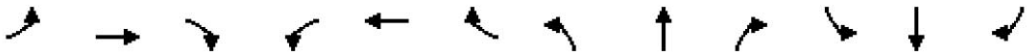
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 240 | 690 | 160 | 160 | 760 | 140 | 790 | 350 | 830 | 90 | 80 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1600 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1605 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1600 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1605 |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 293 | 841 | 195 | 195 | 927 | 171 | 963 | 427 | 1012 | 110 | 98 | 98 |
| RTOR Reduction (vph) | 0 | 0 | 75 | 0 | 0 | 110 | 0 | 0 | 407 | 0 | 0 | 67 |
| Lane Group Flow (vph) | 293 | 841 | 120 | 195 | 927 | 61 | 963 | 427 | 605 | 110 | 98 | 31 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.1 | 33.1 | 55.3 | 10.4 | 32.4 | 32.4 | 22.2 | 22.2 | 22.2 | 8.4 | 8.4 | 19.5 |
| Effective Green, g (s) | 11.1 | 33.1 | 55.3 | 10.4 | 32.4 | 32.4 | 22.2 | 22.2 | 22.2 | 8.4 | 8.4 | 19.5 |
| Actuated g/C Ratio | 0.12 | 0.37 | 0.61 | 0.12 | 0.36 | 0.36 | 0.25 | 0.25 | 0.25 | 0.09 | 0.09 | 0.22 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 222 | 1906 | 1053 | 404 | 1298 | 572 | 863 | 889 | 392 | 326 | 337 | 419 |
| v/s Ratio Prot | c0.16 | 0.16 | 0.03 | 0.06 | c0.26 | | c0.28 | 0.12 | | 0.03 | 0.03 | 0.01 |
| v/s Ratio Perm | | | 0.05 | | | 0.04 | | | c0.38 | | | 0.01 |
| v/c Ratio | 1.32 | 0.44 | 0.11 | 0.48 | 0.71 | 0.11 | 1.12 | 0.48 | 1.54 | 0.34 | 0.29 | 0.07 |
| Uniform Delay, d1 | 39.5 | 21.5 | 7.2 | 37.3 | 24.9 | 19.2 | 33.9 | 29.0 | 33.9 | 38.2 | 38.1 | 28.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 171.9 | 0.2 | 0.0 | 0.9 | 1.9 | 0.1 | 67.6 | 0.4 | 257.0 | 0.6 | 0.5 | 0.1 |
| Delay (s) | 211.4 | 21.7 | 7.3 | 38.2 | 26.8 | 19.3 | 101.6 | 29.4 | 290.9 | 38.9 | 38.6 | 28.2 |
| Level of Service | F | C | A | D | C | B | F | C | F | D | D | C |
| Approach Delay (s) | | 61.4 | | | 27.5 | | | 168.5 | | | 35.3 | |
| Approach LOS | | E | | | C | | | F | | | D | |

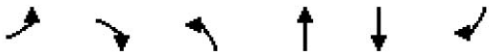
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 100.0 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.12 | | |
| Actuated Cycle Length (s) | 90.1 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 84.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 800 | 740 | 10 | 510 | 0 | 0 | 0 | 0 | 10 | 0 | 420 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.96 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3328 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.19 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3328 | 1470 | 358 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 0 | 909 | 841 | 11 | 580 | 0 | 0 | 0 | 0 | 11 | 0 | 477 |
| RTOR Reduction (vph) | 0 | 54 | 272 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 132 | 0 |
| Lane Group Flow (vph) | 0 | 1158 | 266 | 11 | 580 | 0 | 0 | 0 | 0 | 11 | 345 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 21.2 | 21.2 | 21.2 | 21.2 | | | | | 13.6 | 13.6 | |
| Effective Green, g (s) | | 21.2 | 21.2 | 21.2 | 21.2 | | | | | 13.6 | 13.6 | |
| Actuated g/C Ratio | | 0.50 | 0.50 | 0.50 | 0.50 | | | | | 0.32 | 0.32 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1648 | 728 | 177 | 1788 | | | | | 574 | 513 | |
| v/s Ratio Prot | | c0.35 | | | 0.16 | | | | | | c0.21 | |
| v/s Ratio Perm | | | 0.18 | 0.03 | | | | | | 0.01 | | |
| v/c Ratio | | 0.70 | 0.37 | 0.06 | 0.32 | | | | | 0.02 | 0.67 | |
| Uniform Delay, d1 | | 8.4 | 6.7 | 5.6 | 6.5 | | | | | 10.0 | 12.7 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.4 | 0.3 | 0.1 | 0.1 | | | | | 0.0 | 3.5 | |
| Delay (s) | | 9.7 | 7.0 | 5.8 | 6.6 | | | | | 10.0 | 16.1 | |
| Level of Service | | A | A | A | A | | | | | B | B | |
| Approach Delay (s) | | 8.9 | | | 6.6 | | | 0.0 | | | 16.0 | |
| Approach LOS | | A | | | A | | | A | | | B | |

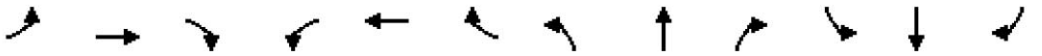
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 42.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 800 | 0 | 510 | 0 | 0 | 0 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 851 | 0 | 543 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 426 | 426 | 362 | 181 |
| Volume Left (vph) | 426 | 426 | 362 | 181 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 6.8 | 6.8 | 7.3 | 7.3 |
| Degree Utilization, x | 0.80 | 0.80 | 0.74 | 0.37 |
| Capacity (veh/h) | 524 | 522 | 480 | 478 |
| Control Delay (s) | 30.6 | 30.6 | 26.9 | 13.3 |
| Approach Delay (s) | 30.6 | | 22.4 | |
| Approach LOS | D | | C | |

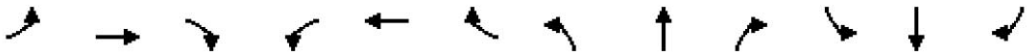
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 27.4 | | |
| HCM Level of Service | D | | |
| Intersection Capacity Utilization | 80.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 10 | 0 | 630 | 10 | 440 | 10 | 1130 | 860 | 130 | 380 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1590 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1590 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 11 | 11 | 0 | 700 | 11 | 489 | 11 | 1256 | 956 | 144 | 422 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 203 | 0 | 0 | 213 | 0 | 0 | 5 |
| Lane Group Flow (vph) | 11 | 11 | 0 | 700 | 11 | 286 | 11 | 1256 | 743 | 144 | 422 | 6 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.1 | 3.5 | | 19.9 | 22.3 | 22.3 | 1.1 | 40.9 | 40.9 | 7.1 | 46.9 | 46.9 |
| Effective Green, g (s) | 1.1 | 3.5 | | 19.9 | 22.3 | 22.3 | 1.1 | 40.9 | 40.9 | 7.1 | 46.9 | 46.9 |
| Actuated g/C Ratio | 0.01 | 0.04 | | 0.23 | 0.26 | 0.26 | 0.01 | 0.47 | 0.47 | 0.08 | 0.54 | 0.54 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 23 | 76 | | 797 | 485 | 412 | 23 | 1689 | 744 | 284 | 1937 | 867 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.20 | 0.01 | | 0.01 | 0.35 | | c0.04 | 0.12 | |
| v/s Ratio Perm | | | | | | c0.18 | | | c0.47 | | | 0.00 |
| v/c Ratio | 0.48 | 0.14 | | 0.88 | 0.02 | 0.70 | 0.48 | 0.74 | 1.00 | 0.51 | 0.22 | 0.01 |
| Uniform Delay, d1 | 42.9 | 40.5 | | 32.6 | 24.4 | 29.5 | 42.9 | 19.0 | 23.2 | 38.5 | 10.6 | 9.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 14.8 | 0.9 | | 10.8 | 0.0 | 5.0 | 14.8 | 1.8 | 32.3 | 1.4 | 0.1 | 0.0 |
| Delay (s) | 57.7 | 41.4 | | 43.4 | 24.4 | 34.5 | 57.7 | 20.8 | 55.5 | 39.9 | 10.7 | 9.4 |
| Level of Service | E | D | | D | C | C | E | C | E | D | B | A |
| Approach Delay (s) | | 49.5 | | | 39.6 | | | 35.9 | | | 17.9 | |
| Approach LOS | | D | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 87.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

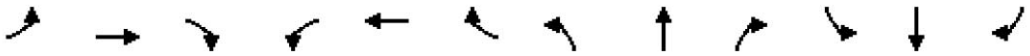
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 780 | 50 | 20 | 760 | 40 | 80 | 70 | 40 | 40 | 20 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.97 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3577 | | 1805 | 3580 | | | 1802 | | 1802 | 1650 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.79 | | 0.61 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3577 | | 1805 | 3580 | | | 1462 | | 1150 | 1650 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 138 | 830 | 53 | 21 | 809 | 43 | 85 | 74 | 43 | 43 | 21 | 149 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 15 | 0 | 0 | 116 | 0 |
| Lane Group Flow (vph) | 138 | 879 | 0 | 21 | 848 | 0 | 0 | 187 | 0 | 43 | 54 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.2 | 29.7 | | 1.1 | 22.6 | | | 12.4 | | 12.4 | 12.4 | |
| Effective Green, g (s) | 8.2 | 29.7 | | 1.1 | 22.6 | | | 12.4 | | 12.4 | 12.4 | |
| Actuated g/C Ratio | 0.15 | 0.54 | | 0.02 | 0.41 | | | 0.22 | | 0.22 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 268 | 1925 | | 36 | 1466 | | | 328 | | 258 | 371 | |
| v/s Ratio Prot | c0.08 | 0.25 | | 0.01 | c0.24 | | | | | | 0.03 | |
| v/s Ratio Perm | | | | | | | | c0.13 | | 0.04 | | |
| v/c Ratio | 0.51 | 0.46 | | 0.58 | 0.58 | | | 0.57 | | 0.17 | 0.15 | |
| Uniform Delay, d1 | 21.7 | 7.8 | | 26.8 | 12.6 | | | 19.0 | | 17.2 | 17.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.7 | 0.2 | | 21.8 | 0.6 | | | 2.4 | | 0.3 | 0.2 | |
| Delay (s) | 23.3 | 8.0 | | 48.6 | 13.2 | | | 21.4 | | 17.5 | 17.3 | |
| Level of Service | C | A | | D | B | | | C | | B | B | |
| Approach Delay (s) | | 10.1 | | | 14.0 | | | 21.4 | | | 17.4 | |
| Approach LOS | | B | | | B | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 55.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 760 | 110 | 100 | 710 | 260 | 160 | 1000 | 270 | 130 | 210 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3535 | | 1805 | 3610 | 1594 | 1805 | 3610 | 1593 | 3502 | 3515 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3535 | | 1805 | 3610 | 1594 | 1805 | 3610 | 1593 | 3502 | 3515 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 56 | 844 | 122 | 111 | 789 | 289 | 178 | 1111 | 300 | 144 | 233 | 44 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 42 | 0 | 0 | 26 | 0 | 15 | 0 |
| Lane Group Flow (vph) | 56 | 955 | 0 | 111 | 789 | 247 | 178 | 1111 | 274 | 144 | 262 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.4 | 32.8 | | 7.1 | 34.5 | 41.6 | 9.1 | 34.5 | 41.6 | 7.1 | 32.5 | |
| Effective Green, g (s) | 5.4 | 32.8 | | 7.1 | 34.5 | 41.6 | 9.1 | 34.5 | 41.6 | 7.1 | 32.5 | |
| Actuated g/C Ratio | 0.06 | 0.34 | | 0.07 | 0.35 | 0.43 | 0.09 | 0.35 | 0.43 | 0.07 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 100 | 1189 | | 131 | 1277 | 746 | 168 | 1277 | 745 | 255 | 1172 | |
| v/s Ratio Prot | 0.03 | c0.27 | | c0.06 | 0.22 | 0.02 | c0.10 | c0.31 | 0.03 | 0.04 | 0.07 | |
| v/s Ratio Perm | | | | | | 0.13 | | | 0.15 | | | |
| v/c Ratio | 0.56 | 0.80 | | 0.85 | 0.62 | 0.33 | 1.06 | 0.87 | 0.37 | 0.56 | 0.22 | |
| Uniform Delay, d1 | 44.9 | 29.4 | | 44.7 | 26.0 | 18.7 | 44.2 | 29.4 | 19.0 | 43.7 | 23.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.0 | 4.0 | | 36.9 | 0.9 | 0.3 | 86.1 | 6.7 | 0.3 | 2.9 | 0.1 | |
| Delay (s) | 51.9 | 33.4 | | 81.6 | 26.9 | 18.9 | 130.3 | 36.1 | 19.3 | 46.6 | 23.5 | |
| Level of Service | D | C | | F | C | B | F | D | B | D | C | |
| Approach Delay (s) | | 34.4 | | | 30.1 | | | 43.5 | | | 31.4 | |
| Approach LOS | | C | | | C | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 97.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 78.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

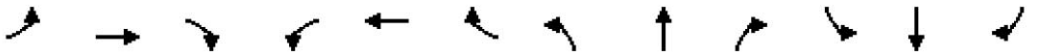
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 70 | 100 | 1930 | 60 | 20 | 990 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1798 | 1589 | 3610 | 1571 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1798 | 1589 | 3610 | 1571 | 1805 | 3610 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 79 | 112 | 2169 | 67 | 22 | 1112 |
| RTOR Reduction (vph) | 0 | 100 | 0 | 5 | 0 | 0 |
| Lane Group Flow (vph) | 79 | 12 | 2169 | 62 | 22 | 1112 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 9.3 | 9.3 | 63.5 | 63.5 | 2.5 | 70.0 |
| Effective Green, g (s) | 9.3 | 9.3 | 63.5 | 63.5 | 2.5 | 70.0 |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.73 | 0.73 | 0.03 | 0.80 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 192 | 169 | 2626 | 1143 | 52 | 2895 |
| v/s Ratio Prot | | | c0.60 | | 0.01 | c0.31 |
| v/s Ratio Perm | c0.04 | 0.01 | | 0.04 | | |
| v/c Ratio | 0.41 | 0.07 | 0.83 | 0.05 | 0.42 | 0.38 |
| Uniform Delay, d1 | 36.4 | 35.1 | 8.1 | 3.4 | 41.7 | 2.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.2 | 2.3 | 0.0 | 5.5 | 0.1 |
| Delay (s) | 37.9 | 35.3 | 10.4 | 3.4 | 47.2 | 2.6 |
| Level of Service | D | D | B | A | D | A |
| Approach Delay (s) | 36.4 | | 10.2 | | | 3.4 |
| Approach LOS | D | | B | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 87.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

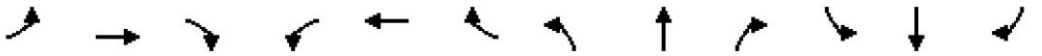
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1080 | 140 | 500 | 1060 | 310 | 0 | 0 | 0 | 600 | 50 | 570 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1732 | 1599 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1732 | 1599 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 109 | 1174 | 152 | 543 | 1152 | 337 | 0 | 0 | 0 | 652 | 54 | 620 |
| RTOR Reduction (vph) | 0 | 0 | 66 | 0 | 0 | 149 | 0 | 0 | 0 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 109 | 1174 | 86 | 543 | 1152 | 188 | 0 | 0 | 0 | 352 | 354 | 609 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 26.2 | 32.8 | 32.8 | 54.1 | 60.7 | 60.7 | | | | 31.1 | 31.1 | 57.3 |
| Effective Green, g (s) | 26.2 | 32.8 | 32.8 | 54.1 | 60.7 | 60.7 | | | | 31.1 | 31.1 | 57.3 |
| Actuated g/C Ratio | 0.20 | 0.25 | 0.25 | 0.42 | 0.47 | 0.47 | | | | 0.24 | 0.24 | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 364 | 1309 | 397 | 751 | 1686 | 734 | | | | 410 | 414 | 754 |
| v/s Ratio Prot | 0.06 | c0.23 | | c0.30 | 0.32 | | | | | c0.21 | 0.20 | 0.16 |
| v/s Ratio Perm | | | 0.05 | | | 0.12 | | | | | | 0.22 |
| v/c Ratio | 0.30 | 0.90 | 0.22 | 0.72 | 0.68 | 0.26 | | | | 0.86 | 0.86 | 0.81 |
| Uniform Delay, d1 | 44.1 | 47.0 | 38.4 | 31.7 | 27.1 | 21.0 | | | | 47.3 | 47.3 | 31.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.56 | 0.53 | 0.12 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 9.9 | 1.3 | 3.0 | 2.0 | 0.7 | | | | 16.2 | 15.7 | 6.4 |
| Delay (s) | 44.6 | 56.8 | 39.7 | 20.6 | 16.2 | 3.2 | | | | 63.5 | 63.0 | 37.9 |
| Level of Service | D | E | D | C | B | A | | | | E | E | D |
| Approach Delay (s) | | 54.1 | | | 15.2 | | | 0.0 | | | 51.4 | |
| Approach LOS | | D | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 310 | 1100 | 250 | 130 | 1540 | 400 | 280 | 430 | 560 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3440 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3440 | 2842 | | | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 330 | 1170 | 266 | 138 | 1638 | 426 | 298 | 457 | 596 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 50 | 0 | 0 | 90 | 0 | 0 | 369 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 330 | 1170 | 216 | 138 | 1638 | 336 | 244 | 511 | 227 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 28.9 | 70.4 | 99.0 | 19.0 | 60.5 | 60.5 | 28.6 | 28.6 | 28.6 | | | |
| Effective Green, g (s) | 28.9 | 70.4 | 99.0 | 19.0 | 60.5 | 60.5 | 28.6 | 28.6 | 28.6 | | | |
| Actuated g/C Ratio | 0.22 | 0.54 | 0.76 | 0.15 | 0.47 | 0.47 | 0.22 | 0.22 | 0.22 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 401 | 1955 | 1265 | 264 | 3042 | 738 | 361 | 757 | 625 | | | |
| v/s Ratio Prot | c0.18 | c0.32 | 0.04 | 0.08 | c0.25 | | 0.15 | c0.15 | | | | |
| v/s Ratio Perm | | | 0.10 | | | 0.21 | | | 0.08 | | | |
| v/c Ratio | 0.82 | 0.60 | 0.17 | 0.52 | 0.54 | 0.46 | 0.68 | 0.68 | 0.36 | | | |
| Uniform Delay, d1 | 48.1 | 20.2 | 4.2 | 51.3 | 24.8 | 23.6 | 46.5 | 46.4 | 43.0 | | | |
| Progression Factor | 0.71 | 0.32 | 0.08 | 0.70 | 0.53 | 0.37 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 6.9 | 0.7 | 0.0 | 1.6 | 0.6 | 1.7 | 4.9 | 2.4 | 0.4 | | | |
| Delay (s) | 40.8 | 7.1 | 0.4 | 37.5 | 13.8 | 10.4 | 51.4 | 48.8 | 43.3 | | | |
| Level of Service | D | A | A | D | B | B | D | D | D | | | |
| Approach Delay (s) | | 12.4 | | | 14.6 | | | 46.9 | | | 0.0 | |
| Approach LOS | | B | | | B | | | D | | | A | |

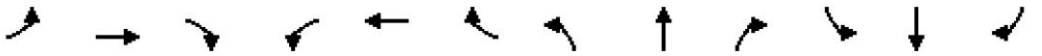
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 66.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 1380 | 260 | 50 | 1640 | 10 | 290 | 10 | 160 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 0.86 | | | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5037 | | 1805 | 5181 | | 1805 | 1606 | | | 1783 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.78 | 1.00 | | | 0.91 | |
| Satd. Flow (perm) | 1805 | 5037 | | 1805 | 5181 | | 1485 | 1606 | | | 1648 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 1484 | 280 | 54 | 1763 | 11 | 312 | 11 | 172 | 11 | 11 | 11 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 91 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 43 | 1747 | 0 | 54 | 1774 | 0 | 312 | 92 | 0 | 0 | 25 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 5.6 | 74.2 | | 8.8 | 77.4 | | 35.0 | 35.0 | | | 35.0 | |
| Effective Green, g (s) | 5.6 | 74.2 | | 8.8 | 77.4 | | 35.0 | 35.0 | | | 35.0 | |
| Actuated g/C Ratio | 0.04 | 0.57 | | 0.07 | 0.60 | | 0.27 | 0.27 | | | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 78 | 2875 | | 122 | 3085 | | 400 | 432 | | | 444 | |
| v/s Ratio Prot | 0.02 | c0.35 | | c0.03 | 0.34 | | | 0.06 | | | | |
| v/s Ratio Perm | | | | | | | c0.21 | | | | 0.02 | |
| v/c Ratio | 0.55 | 0.61 | | 0.44 | 0.57 | | 0.78 | 0.21 | | | 0.06 | |
| Uniform Delay, d1 | 61.0 | 18.3 | | 58.2 | 16.2 | | 43.9 | 36.8 | | | 35.2 | |
| Progression Factor | 0.90 | 0.32 | | 0.65 | 0.61 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 6.7 | 0.8 | | 2.0 | 0.6 | | 9.5 | 0.2 | | | 0.1 | |
| Delay (s) | 61.9 | 6.7 | | 39.9 | 10.4 | | 53.4 | 37.1 | | | 35.3 | |
| Level of Service | E | A | | D | B | | D | D | | | D | |
| Approach Delay (s) | | 8.0 | | | 11.3 | | | 47.4 | | | 35.3 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

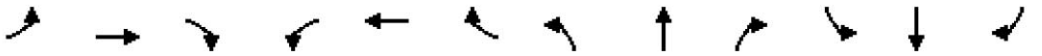
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 1290 | 250 | 90 | 1330 | 10 | 240 | 90 | 40 | 10 | 40 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.99 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1805 | 3503 | | 1805 | 3605 | | | 1804 | | | 1880 | 1586 |
| Flt Permitted | 0.11 | 1.00 | | 0.07 | 1.00 | | | 0.77 | | | 0.92 | 1.00 |
| Satd. Flow (perm) | 210 | 3503 | | 133 | 3605 | | | 1436 | | | 1744 | 1586 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 1402 | 272 | 98 | 1446 | 11 | 261 | 98 | 43 | 11 | 43 | 109 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 26 |
| Lane Group Flow (vph) | 43 | 1663 | 0 | 98 | 1457 | 0 | 0 | 399 | 0 | 0 | 54 | 83 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 81.7 | 81.7 | | 81.7 | 81.7 | | | 40.3 | | | 40.3 | 40.3 |
| Effective Green, g (s) | 81.7 | 81.7 | | 81.7 | 81.7 | | | 40.3 | | | 40.3 | 40.3 |
| Actuated g/C Ratio | 0.63 | 0.63 | | 0.63 | 0.63 | | | 0.31 | | | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 132 | 2202 | | 84 | 2266 | | | 445 | | | 541 | 492 |
| v/s Ratio Prot | | 0.47 | | | 0.40 | | | | | | | |
| v/s Ratio Perm | 0.20 | | | c0.74 | | | | c0.28 | | | 0.03 | 0.05 |
| v/c Ratio | 0.33 | 0.76 | | 1.17 | 0.64 | | | 0.90 | | | 0.10 | 0.17 |
| Uniform Delay, d1 | 11.3 | 17.1 | | 24.1 | 15.1 | | | 42.8 | | | 31.9 | 32.6 |
| Progression Factor | 0.84 | 0.86 | | 0.39 | 0.15 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.5 | 2.1 | | 113.8 | 0.6 | | | 20.0 | | | 0.1 | 0.2 |
| Delay (s) | 15.0 | 16.8 | | 123.2 | 2.8 | | | 62.9 | | | 32.0 | 32.8 |
| Level of Service | B | B | | F | A | | | E | | | C | C |
| Approach Delay (s) | | 16.8 | | | 10.4 | | | 62.9 | | | 32.5 | |
| Approach LOS | | B | | | B | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 86.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

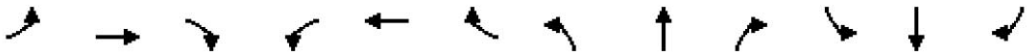
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 980 | 50 | 520 | 1270 | 270 | 40 | 400 | 600 | 180 | 320 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3578 | | 1805 | 3497 | | 1805 | 1900 | 1601 | 1805 | 1900 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3578 | | 1805 | 3497 | | 1805 | 1900 | 1601 | 1805 | 1900 | 1586 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 168 | 1032 | 53 | 547 | 1337 | 284 | 42 | 421 | 632 | 189 | 337 | 116 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 14 | 0 | 0 | 0 | 8 | 0 | 0 | 66 |
| Lane Group Flow (vph) | 168 | 1082 | 0 | 547 | 1607 | 0 | 42 | 421 | 624 | 189 | 337 | 50 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.0 | 34.0 | | 35.0 | 58.0 | | 5.6 | 34.0 | 69.0 | 11.0 | 39.4 | 39.4 |
| Effective Green, g (s) | 11.0 | 34.0 | | 35.0 | 58.0 | | 5.6 | 34.0 | 69.0 | 11.0 | 39.4 | 39.4 |
| Actuated g/C Ratio | 0.08 | 0.26 | | 0.27 | 0.45 | | 0.04 | 0.26 | 0.53 | 0.08 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 153 | 936 | | 486 | 1560 | | 78 | 497 | 850 | 153 | 576 | 481 |
| v/s Ratio Prot | 0.09 | c0.30 | | c0.30 | 0.46 | | 0.02 | c0.22 | 0.20 | c0.10 | 0.18 | |
| v/s Ratio Perm | | | | | | | | | 0.19 | | | 0.03 |
| v/c Ratio | 1.10 | 1.16 | | 1.13 | 1.03 | | 0.54 | 0.85 | 0.73 | 1.24 | 0.59 | 0.10 |
| Uniform Delay, d1 | 59.5 | 48.0 | | 47.5 | 36.0 | | 60.9 | 45.5 | 23.4 | 59.5 | 38.4 | 32.6 |
| Progression Factor | 1.15 | 0.80 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 86.9 | 78.4 | | 79.9 | 30.9 | | 7.0 | 16.2 | 3.3 | 149.6 | 4.3 | 0.4 |
| Delay (s) | 155.3 | 116.6 | | 127.4 | 66.9 | | 67.9 | 61.8 | 26.7 | 209.1 | 42.7 | 33.0 |
| Level of Service | F | F | | F | E | | E | E | C | F | D | C |
| Approach Delay (s) | | 121.8 | | | 82.2 | | | 41.8 | | | 89.9 | |
| Approach LOS | | F | | | F | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 84.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.06 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 109.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

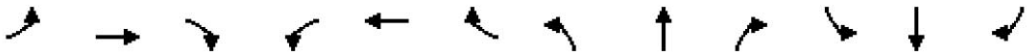
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 720 | 890 | 180 | 690 | 280 | 1180 | 1610 | 560 | 310 | 730 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2821 | 3502 | 3610 | 1593 | 3502 | 3610 | 1589 | 3502 | 5153 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2821 | 3502 | 3610 | 1593 | 3502 | 3610 | 1589 | 3502 | 5153 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 56 | 800 | 989 | 200 | 767 | 311 | 1311 | 1789 | 622 | 344 | 811 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 9 | 0 | 0 | 23 | 0 | 0 | 9 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 56 | 800 | 980 | 200 | 767 | 288 | 1311 | 1789 | 613 | 344 | 841 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 6.1 | 33.9 | 76.4 | 7.0 | 34.8 | 45.8 | 42.5 | 59.1 | 66.1 | 11.0 | 27.6 | |
| Effective Green, g (s) | 6.1 | 33.9 | 76.4 | 7.0 | 34.8 | 45.8 | 42.5 | 59.1 | 66.1 | 11.0 | 27.6 | |
| Actuated g/C Ratio | 0.05 | 0.27 | 0.60 | 0.06 | 0.27 | 0.36 | 0.33 | 0.47 | 0.52 | 0.09 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 87 | 964 | 1697 | 193 | 989 | 574 | 1172 | 1680 | 877 | 303 | 1120 | |
| v/s Ratio Prot | 0.03 | c0.22 | 0.19 | c0.06 | 0.21 | 0.04 | 0.37 | c0.50 | 0.04 | c0.10 | 0.16 | |
| v/s Ratio Perm | | | 0.15 | | | 0.14 | | | 0.35 | | | |
| v/c Ratio | 0.64 | 0.83 | 0.58 | 1.04 | 0.78 | 0.50 | 1.12 | 1.06 | 0.70 | 1.14 | 0.75 | |
| Uniform Delay, d1 | 59.4 | 43.8 | 15.4 | 60.0 | 42.5 | 31.7 | 42.2 | 34.0 | 23.0 | 58.0 | 46.5 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 15.2 | 6.0 | 0.5 | 74.6 | 3.9 | 0.7 | 65.2 | 41.6 | 2.5 | 93.4 | 2.9 | |
| Delay (s) | 74.5 | 49.8 | 15.9 | 134.6 | 46.4 | 32.4 | 107.5 | 75.5 | 25.4 | 151.4 | 49.4 | |
| Level of Service | E | D | B | F | D | C | F | E | C | F | D | |
| Approach Delay (s) | | 32.4 | | | 56.8 | | | 78.4 | | | 78.9 | |
| Approach LOS | | C | | | E | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 64.5 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 127.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 94.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

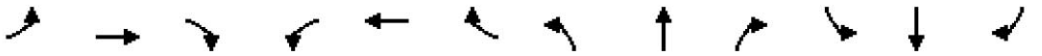
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 30 | 10 | 40 | 20 | 140 | 10 | 3130 | 20 | 70 | 1660 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.99 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1814 | | | 1683 | | 1805 | 5181 | | 1805 | 5176 | |
| Flt Permitted | | 0.40 | | | 0.91 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 743 | | | 1554 | | 1805 | 5181 | | 1805 | 5176 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 79 | 34 | 11 | 45 | 22 | 157 | 11 | 3517 | 22 | 79 | 1865 | 22 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 89 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 121 | 0 | 0 | 135 | 0 | 11 | 3539 | 0 | 79 | 1886 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 14.3 | | | 14.3 | | 1.3 | 65.4 | | 7.0 | 71.1 | |
| Effective Green, g (s) | | 14.3 | | | 14.3 | | 1.3 | 65.4 | | 7.0 | 71.1 | |
| Actuated g/C Ratio | | 0.14 | | | 0.14 | | 0.01 | 0.66 | | 0.07 | 0.72 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 108 | | | 225 | | 24 | 3433 | | 128 | 3729 | |
| v/s Ratio Prot | | | | | | | 0.01 | c0.68 | | c0.04 | 0.36 | |
| v/s Ratio Perm | | c0.16 | | | 0.09 | | | | | | | |
| v/c Ratio | | 1.12 | | | 0.60 | | 0.46 | 1.03 | | 0.62 | 0.51 | |
| Uniform Delay, d1 | | 42.2 | | | 39.5 | | 48.4 | 16.6 | | 44.5 | 6.1 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 121.4 | | | 4.5 | | 13.2 | 24.0 | | 8.6 | 0.1 | |
| Delay (s) | | 163.6 | | | 44.0 | | 61.6 | 40.6 | | 53.1 | 6.2 | |
| Level of Service | | F | | | D | | E | D | | D | A | |
| Approach Delay (s) | | 163.6 | | | 44.0 | | | 40.7 | | | 8.1 | |
| Approach LOS | | F | | | D | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 1.01 | | |
| Actuated Cycle Length (s) | 98.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 85.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

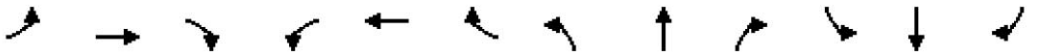
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 40 | 50 | 20 | 30 | 100 | 60 | 2910 | 20 | 20 | 1510 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 1900 | 1615 | 1805 | 1900 | 1588 | 1805 | 5181 | | 1805 | 5163 | |
| Flt Permitted | 0.53 | 1.00 | 1.00 | 0.73 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1012 | 1900 | 1615 | 1383 | 1900 | 1588 | 1805 | 5181 | | 1805 | 5163 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 180 | 45 | 56 | 22 | 34 | 112 | 67 | 3270 | 22 | 22 | 1697 | 45 |
| RTOR Reduction (vph) | 0 | 0 | 47 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 180 | 45 | 9 | 22 | 34 | 12 | 67 | 3292 | 0 | 22 | 1740 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 21.6 | 15.0 | 15.0 | 13.2 | 10.6 | 10.6 | 6.8 | 61.3 | | 2.6 | 57.1 | |
| Effective Green, g (s) | 21.6 | 15.0 | 15.0 | 13.2 | 10.6 | 10.6 | 6.8 | 61.3 | | 2.6 | 57.1 | |
| Actuated g/C Ratio | 0.22 | 0.15 | 0.15 | 0.14 | 0.11 | 0.11 | 0.07 | 0.63 | | 0.03 | 0.59 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 281 | 292 | 248 | 198 | 207 | 173 | 126 | 3257 | | 48 | 3024 | |
| v/s Ratio Prot | c0.05 | 0.02 | | 0.00 | 0.02 | | 0.04 | c0.64 | | 0.01 | c0.34 | |
| v/s Ratio Perm | c0.10 | | 0.01 | 0.01 | | 0.01 | | | | | | |
| v/c Ratio | 0.64 | 0.15 | 0.03 | 0.11 | 0.16 | 0.07 | 0.53 | 1.01 | | 0.46 | 0.58 | |
| Uniform Delay, d1 | 33.6 | 35.8 | 35.1 | 36.9 | 39.4 | 39.0 | 43.8 | 18.1 | | 46.8 | 12.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.9 | 0.2 | 0.1 | 0.2 | 0.4 | 0.2 | 4.3 | 18.4 | | 6.8 | 0.3 | |
| Delay (s) | 38.5 | 36.0 | 35.1 | 37.1 | 39.8 | 39.2 | 48.1 | 36.5 | | 53.5 | 12.9 | |
| Level of Service | D | D | D | D | D | D | D | D | | D | B | |
| Approach Delay (s) | | 37.4 | | | 39.1 | | | 36.8 | | | 13.4 | |
| Approach LOS | | D | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 97.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 84.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

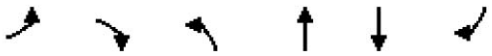
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 20 | 20 | 360 | 10 | 90 | 20 | 2970 | 840 | 30 | 1600 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.87 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3314 | | 5090 | 1623 | | 1805 | 5187 | 1594 | 1805 | 5181 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3314 | | 5090 | 1623 | | 1805 | 5187 | 1594 | 1805 | 5181 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 21 | 21 | 383 | 11 | 96 | 21 | 3160 | 894 | 32 | 1702 | 11 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 82 | 0 | 0 | 0 | 170 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 21 | 22 | 0 | 383 | 25 | 0 | 21 | 3160 | 724 | 32 | 1713 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 2.7 | 4.8 | | 9.2 | 11.3 | | 3.1 | 44.9 | 54.1 | 2.4 | 44.2 | |
| Effective Green, g (s) | 2.7 | 4.8 | | 9.2 | 11.3 | | 3.1 | 44.9 | 54.1 | 2.4 | 44.2 | |
| Actuated g/C Ratio | 0.03 | 0.06 | | 0.12 | 0.15 | | 0.04 | 0.58 | 0.70 | 0.03 | 0.57 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 63 | 206 | | 606 | 237 | | 72 | 3013 | 1198 | 56 | 2962 | |
| v/s Ratio Prot | c0.01 | 0.01 | | 0.08 | 0.02 | | 0.01 | c0.61 | c0.07 | 0.02 | c0.33 | |
| v/s Ratio Perm | | | | | | | | | 0.38 | | | |
| v/c Ratio | 0.33 | 0.11 | | 0.63 | 0.11 | | 0.29 | 1.05 | 0.60 | 0.57 | 0.58 | |
| Uniform Delay, d1 | 36.4 | 34.2 | | 32.4 | 28.6 | | 36.0 | 16.2 | 6.0 | 36.9 | 10.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.1 | 0.2 | | 2.2 | 0.2 | | 2.2 | 31.0 | 0.9 | 13.3 | 0.3 | |
| Delay (s) | 39.5 | 34.5 | | 34.6 | 28.8 | | 38.3 | 47.2 | 6.9 | 50.3 | 10.9 | |
| Level of Service | D | C | | C | C | | D | D | A | D | B | |
| Approach Delay (s) | | 36.2 | | | 33.3 | | | 38.3 | | | 11.6 | |
| Approach LOS | | D | | | C | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 77.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

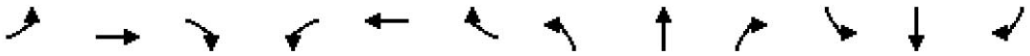
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 190 | 80 | 100 | 1250 | 600 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 221 | 93 | 116 | 1453 | 698 | 151 |
| RTOR Reduction (vph) | 0 | 77 | 0 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 221 | 16 | 116 | 1453 | 698 | 132 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Turn Type | | custom | Prot | | | Perm |
| Protected Phases | | | 5 | 2 | 6 | |
| Permitted Phases | 4 | 4 | | | | 6 |
| Actuated Green, G (s) | 18.8 | 18.8 | 11.0 | 83.2 | 68.2 | 68.2 |
| Effective Green, g (s) | 18.8 | 18.8 | 11.0 | 83.2 | 68.2 | 68.2 |
| Actuated g/C Ratio | 0.17 | 0.17 | 0.10 | 0.76 | 0.62 | 0.62 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 305 | 268 | 181 | 1437 | 1178 | 977 |
| v/s Ratio Prot | | | 0.06 | c0.76 | 0.37 | |
| v/s Ratio Perm | c0.12 | 0.01 | | | | 0.08 |
| v/c Ratio | 0.72 | 0.06 | 0.64 | 1.01 | 0.59 | 0.14 |
| Uniform Delay, d1 | 43.2 | 38.2 | 47.6 | 13.4 | 12.6 | 8.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.3 | 0.1 | 7.5 | 26.5 | 2.2 | 0.3 |
| Delay (s) | 51.4 | 38.3 | 55.1 | 39.9 | 14.7 | 9.0 |
| Level of Service | D | D | E | D | B | A |
| Approach Delay (s) | 47.5 | | | 41.0 | 13.7 | |
| Approach LOS | D | | | D | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 84.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

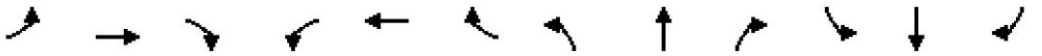
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | | | | | | | | |
| Lane Util. Factor | | | | | | | | | | | | |
| Frt | | | | | | | | | | | | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | | | | | | | | | | | | |
| Flt Permitted | | | | | | | | | | | | |
| Satd. Flow (perm) | | | | | | | | | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | | | | | | | | | | | |
| Effective Green, g (s) | | | | | | | | | | | | |
| Actuated g/C Ratio | | | | | | | | | | | | |
| Clearance Time (s) | | | | | | | | | | | | |
| Lane Grp Cap (vph) | | | | | | | | | | | | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | | | | | | | | |
| Uniform Delay, d1 | | | | | | | | | | | | |
| Progression Factor | | | | | | | | | | | | |
| Incremental Delay, d2 | | | | | | | | | | | | |
| Delay (s) | | | | | | | | | | | | |
| Level of Service | | | | | | | | | | | | |
| Approach Delay (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | | | |
|---|---|---|---|---|---|
| HCM Average Control Delay | 0.0 | HCM Level of Service | | A | |
| HCM Volume to Capacity ratio | 0.00 | | | | |
| Actuated Cycle Length (s) | 20.0 | Sum of lost time (s) | | 0.0 | |
| Intersection Capacity Utilization | 0.0% | ICU Level of Service | | A | |
| Analysis Period (min) | 15 | | | | |

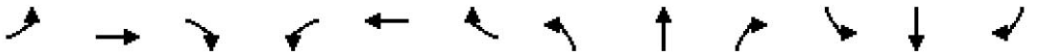
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 950 | 70 | 80 | 1710 | 290 | 90 | 20 | 60 | 90 | 10 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5126 | | 1805 | 5187 | 1582 | 1805 | 3165 | | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5126 | | 1805 | 5187 | 1582 | 1805 | 3165 | | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 216 | 979 | 72 | 82 | 1763 | 299 | 93 | 21 | 62 | 93 | 10 | 134 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 0 | 134 | 0 | 57 | 0 | 0 | 0 | 124 |
| Lane Group Flow (vph) | 216 | 1046 | 0 | 82 | 1763 | 165 | 93 | 26 | 0 | 93 | 10 | 10 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 22.7 | 66.1 | | 9.0 | 52.4 | 52.4 | 7.9 | 8.0 | | 8.3 | 8.1 | 8.1 |
| Effective Green, g (s) | 22.7 | 66.1 | | 9.0 | 52.4 | 52.4 | 7.9 | 8.0 | | 8.3 | 8.1 | 8.1 |
| Actuated g/C Ratio | 0.21 | 0.60 | | 0.08 | 0.48 | 0.48 | 0.07 | 0.07 | | 0.08 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 372 | 3080 | | 148 | 2471 | 754 | 130 | 230 | | 136 | 266 | 117 |
| v/s Ratio Prot | c0.12 | 0.20 | | 0.05 | c0.34 | | c0.05 | c0.01 | | 0.05 | 0.00 | |
| v/s Ratio Perm | | | | | | 0.10 | | | | | | 0.01 |
| v/c Ratio | 0.58 | 0.34 | | 0.55 | 0.71 | 0.22 | 0.72 | 0.11 | | 0.68 | 0.04 | 0.08 |
| Uniform Delay, d1 | 39.4 | 11.0 | | 48.6 | 22.8 | 16.8 | 49.9 | 47.7 | | 49.6 | 47.3 | 47.5 |
| Progression Factor | 1.13 | 0.28 | | 1.04 | 0.61 | 0.63 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.2 | 0.3 | | 3.1 | 1.3 | 0.5 | 17.0 | 0.2 | | 13.3 | 0.1 | 0.3 |
| Delay (s) | 46.7 | 3.4 | | 53.4 | 15.2 | 11.1 | 67.0 | 47.9 | | 62.9 | 47.4 | 47.8 |
| Level of Service | D | A | | D | B | B | E | D | | E | D | D |
| Approach Delay (s) | | 10.8 | | | 16.1 | | | 58.0 | | | 53.7 | |
| Approach LOS | | B | | | B | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 18.6 |
| Intersection Capacity Utilization | 71.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

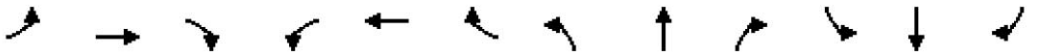
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 570 | 120 | 240 | 1330 | 240 | 390 | 510 | 150 | 100 | 300 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1586 | 3502 | 5054 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1586 | 3502 | 5054 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 289 | 588 | 124 | 247 | 1371 | 247 | 402 | 526 | 155 | 103 | 309 | 216 |
| RTOR Reduction (vph) | 0 | 0 | 70 | 0 | 20 | 0 | 0 | 0 | 123 | 0 | 0 | 181 |
| Lane Group Flow (vph) | 289 | 588 | 54 | 247 | 1598 | 0 | 402 | 526 | 32 | 103 | 309 | 35 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 15.2 | 47.9 | 47.9 | 13.0 | 45.7 | | 13.0 | 22.9 | 22.9 | 6.9 | 16.8 | 16.8 |
| Effective Green, g (s) | 15.2 | 47.9 | 47.9 | 13.0 | 45.7 | | 13.0 | 22.9 | 22.9 | 6.9 | 16.8 | 16.8 |
| Actuated g/C Ratio | 0.14 | 0.44 | 0.44 | 0.12 | 0.42 | | 0.12 | 0.21 | 0.21 | 0.06 | 0.15 | 0.15 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 484 | 2259 | 691 | 414 | 2100 | | 414 | 752 | 330 | 220 | 551 | 243 |
| v/s Ratio Prot | c0.08 | 0.11 | | 0.07 | c0.32 | | c0.11 | c0.15 | | 0.03 | 0.09 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.02 | | | 0.02 |
| v/c Ratio | 0.60 | 0.26 | 0.08 | 0.60 | 0.76 | | 0.97 | 0.70 | 0.10 | 0.47 | 0.56 | 0.14 |
| Uniform Delay, d1 | 44.5 | 19.8 | 18.1 | 46.0 | 27.5 | | 48.3 | 40.4 | 35.2 | 49.8 | 43.2 | 40.4 |
| Progression Factor | 1.16 | 0.93 | 0.97 | 1.24 | 0.76 | | 0.80 | 0.73 | 1.04 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.9 | 0.3 | 0.2 | 0.2 | 0.2 | | 35.2 | 2.7 | 0.1 | 1.6 | 1.3 | 0.3 |
| Delay (s) | 53.6 | 18.6 | 17.7 | 57.2 | 21.2 | | 73.7 | 31.9 | 36.6 | 51.4 | 44.5 | 40.6 |
| Level of Service | D | B | B | E | C | | E | C | D | D | D | D |
| Approach Delay (s) | | 28.6 | | | 25.9 | | | 48.1 | | | 44.3 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 440 | 390 | 150 | 10 | 1040 | 570 | 370 | 800 | 30 | 280 | 640 | 800 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3588 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3588 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 512 | 453 | 174 | 12 | 1209 | 663 | 430 | 930 | 35 | 326 | 744 | 930 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 147 | 0 | 3 | 0 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 512 | 453 | 174 | 12 | 1209 | 516 | 430 | 962 | 0 | 326 | 744 | 840 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 9.0 | 40.8 | 110.0 | 1.2 | 33.0 | 33.0 | 8.0 | 35.3 | | 12.7 | 40.0 | 40.0 |
| Effective Green, g (s) | 9.0 | 40.8 | 110.0 | 1.2 | 33.0 | 33.0 | 8.0 | 35.3 | | 12.7 | 40.0 | 40.0 |
| Actuated g/C Ratio | 0.08 | 0.37 | 1.00 | 0.01 | 0.30 | 0.30 | 0.07 | 0.32 | | 0.12 | 0.36 | 0.36 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 287 | 1924 | 1593 | 20 | 1083 | 476 | 255 | 1151 | | 404 | 1313 | 577 |
| v/s Ratio Prot | c0.15 | 0.09 | | 0.01 | c0.33 | | c0.12 | 0.27 | | 0.09 | 0.21 | |
| v/s Ratio Perm | | | 0.11 | | | 0.33 | | | | | | c0.53 |
| v/c Ratio | 1.78 | 0.24 | 0.11 | 0.60 | 1.12 | 1.08 | 1.69 | 0.84 | | 0.81 | 0.57 | 1.46 |
| Uniform Delay, d1 | 50.5 | 23.8 | 0.0 | 54.2 | 38.5 | 38.5 | 51.0 | 34.7 | | 47.5 | 28.1 | 35.0 |
| Progression Factor | 0.89 | 1.38 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 366.4 | 0.3 | 0.1 | 40.2 | 65.2 | 65.8 | 325.3 | 7.3 | | 11.2 | 1.8 | 214.4 |
| Delay (s) | 411.2 | 33.2 | 0.1 | 94.3 | 103.7 | 104.3 | 376.3 | 41.9 | | 58.7 | 29.8 | 249.4 |
| Level of Service | F | C | A | F | F | F | F | D | | E | C | F |
| Approach Delay (s) | | 198.1 | | | 103.8 | | | 145.0 | | | 136.6 | |
| Approach LOS | | F | | | F | | | F | | | F | |

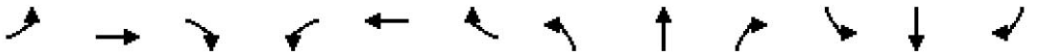
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 139.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.38 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 102.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 20 | 70 | 30 | 10 | 20 | 220 | 950 | 10 | 30 | 520 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.88 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3103 | | 1805 | 1900 | 1581 | 1805 | 3603 | | 1805 | 3610 | 1591 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3103 | | 1805 | 1900 | 1581 | 1805 | 3603 | | 1805 | 3610 | 1591 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 22 | 75 | 32 | 11 | 22 | 237 | 1022 | 11 | 32 | 559 | 75 |
| RTOR Reduction (vph) | 0 | 70 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 33 |
| Lane Group Flow (vph) | 43 | 27 | 0 | 32 | 11 | 1 | 237 | 1033 | 0 | 32 | 559 | 42 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.2 | 6.8 | | 4.7 | 6.4 | 6.4 | 19.7 | 75.9 | | 5.1 | 61.3 | 61.3 |
| Effective Green, g (s) | 5.2 | 6.8 | | 4.7 | 6.4 | 6.4 | 19.7 | 75.9 | | 5.1 | 61.3 | 61.3 |
| Actuated g/C Ratio | 0.05 | 0.06 | | 0.04 | 0.06 | 0.06 | 0.18 | 0.69 | | 0.05 | 0.56 | 0.56 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 85 | 192 | | 77 | 111 | 92 | 323 | 2486 | | 84 | 2012 | 887 |
| v/s Ratio Prot | c0.02 | c0.01 | | 0.02 | 0.01 | | c0.13 | c0.29 | | 0.02 | 0.15 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.03 |
| v/c Ratio | 0.51 | 0.14 | | 0.42 | 0.10 | 0.01 | 0.73 | 0.42 | | 0.38 | 0.28 | 0.05 |
| Uniform Delay, d1 | 51.1 | 48.8 | | 51.3 | 49.1 | 48.8 | 42.7 | 7.4 | | 50.9 | 12.8 | 11.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.89 | 0.72 | | 1.20 | 0.26 | 0.01 |
| Incremental Delay, d2 | 4.7 | 0.3 | | 3.6 | 0.4 | 0.1 | 7.5 | 0.5 | | 2.7 | 0.3 | 0.1 |
| Delay (s) | 55.8 | 49.2 | | 54.9 | 49.5 | 48.9 | 45.4 | 5.8 | | 63.9 | 3.6 | 0.3 |
| Level of Service | E | D | | D | D | D | D | A | | E | A | A |
| Approach Delay (s) | | 51.2 | | | 52.0 | | | 13.2 | | | 6.1 | |
| Approach LOS | | D | | | D | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 50.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

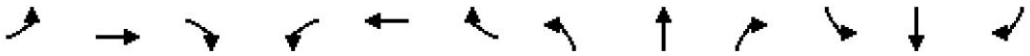
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 90 | 110 | 70 | 150 | 280 | 100 | 330 | 30 | 30 | 210 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3556 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3556 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 176 | 106 | 129 | 82 | 176 | 329 | 118 | 388 | 35 | 35 | 247 | 106 |
| RTOR Reduction (vph) | 0 | 0 | 101 | 0 | 0 | 279 | 0 | 4 | 0 | 0 | 0 | 58 |
| Lane Group Flow (vph) | 176 | 106 | 28 | 82 | 176 | 50 | 118 | 419 | 0 | 35 | 247 | 48 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 15.1 | 23.7 | 23.7 | 8.2 | 16.8 | 16.8 | 12.4 | 56.9 | | 5.2 | 49.7 | 49.7 |
| Effective Green, g (s) | 15.1 | 23.7 | 23.7 | 8.2 | 16.8 | 16.8 | 12.4 | 56.9 | | 5.2 | 49.7 | 49.7 |
| Actuated g/C Ratio | 0.14 | 0.22 | 0.22 | 0.07 | 0.15 | 0.15 | 0.11 | 0.52 | | 0.05 | 0.45 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 248 | 409 | 342 | 135 | 290 | 242 | 203 | 1839 | | 85 | 1631 | 717 |
| v/s Ratio Prot | c0.10 | 0.06 | | 0.05 | c0.09 | | c0.07 | c0.12 | | 0.02 | 0.07 | |
| v/s Ratio Perm | | | 0.02 | | | 0.03 | | | | | | 0.03 |
| v/c Ratio | 0.71 | 0.26 | 0.08 | 0.61 | 0.61 | 0.21 | 0.58 | 0.23 | | 0.41 | 0.15 | 0.07 |
| Uniform Delay, d1 | 45.4 | 35.9 | 34.5 | 49.3 | 43.5 | 40.8 | 46.3 | 14.5 | | 50.9 | 17.7 | 17.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.84 | 0.89 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.0 | 0.3 | 0.1 | 7.5 | 3.6 | 0.4 | 3.8 | 0.3 | | 3.2 | 0.2 | 0.2 |
| Delay (s) | 54.3 | 36.2 | 34.6 | 56.9 | 47.1 | 41.2 | 42.6 | 13.2 | | 54.1 | 17.9 | 17.2 |
| Level of Service | D | D | C | E | D | D | D | B | | D | B | B |
| Approach Delay (s) | | 43.4 | | | 45.2 | | | 19.6 | | | 21.0 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 60.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

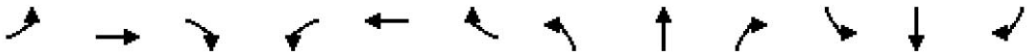
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 110 | 20 | 130 | 160 | 260 | 110 | 870 | 80 | 40 | 430 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1795 | 1852 | | 1795 | 1900 | 1583 | 1805 | 3555 | | 1805 | 3517 | |
| Flt Permitted | 0.49 | 1.00 | | 0.57 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 926 | 1852 | | 1086 | 1900 | 1583 | 1805 | 3555 | | 1805 | 3517 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 22 | 124 | 22 | 146 | 180 | 292 | 124 | 978 | 90 | 45 | 483 | 79 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 189 | 0 | 5 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 22 | 139 | 0 | 146 | 180 | 103 | 124 | 1063 | 0 | 45 | 553 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 19.8 | 19.8 | | 19.8 | 19.8 | 19.8 | 12.8 | 68.6 | | 7.0 | 62.8 | |
| Effective Green, g (s) | 19.8 | 19.8 | | 19.8 | 19.8 | 19.8 | 12.8 | 68.6 | | 7.0 | 62.8 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.18 | 0.18 | 0.18 | 0.12 | 0.62 | | 0.06 | 0.57 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 167 | 333 | | 195 | 342 | 285 | 210 | 2217 | | 115 | 2008 | |
| v/s Ratio Prot | | 0.08 | | | 0.09 | | c0.07 | c0.30 | | 0.02 | 0.16 | |
| v/s Ratio Perm | 0.02 | | | c0.13 | | 0.06 | | | | | | |
| v/c Ratio | 0.13 | 0.42 | | 0.75 | 0.53 | 0.36 | 0.59 | 0.48 | | 0.39 | 0.28 | |
| Uniform Delay, d1 | 37.9 | 40.0 | | 42.7 | 40.9 | 39.5 | 46.1 | 11.1 | | 49.5 | 12.0 | |
| Progression Factor | 1.00 | 1.00 | | 0.75 | 0.73 | 0.59 | 1.27 | 0.71 | | 1.22 | 0.26 | |
| Incremental Delay, d2 | 0.4 | 0.9 | | 13.0 | 1.3 | 0.7 | 3.1 | 0.5 | | 2.2 | 0.3 | |
| Delay (s) | 38.2 | 40.9 | | 45.1 | 31.2 | 23.9 | 61.5 | 8.4 | | 62.3 | 3.5 | |
| Level of Service | D | D | | D | C | C | E | A | | E | A | |
| Approach Delay (s) | | 40.5 | | | 31.0 | | | 13.9 | | | 7.9 | |
| Approach LOS | | D | | | C | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 62.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

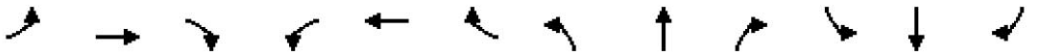
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 290 | 30 | 20 | 450 | 140 | 110 | 210 | 20 | 160 | 130 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3553 | | 1805 | 3467 | | 1805 | 3558 | | 1805 | 3263 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3553 | | 1805 | 3467 | | 1805 | 3558 | | 1805 | 3263 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 163 | 337 | 35 | 23 | 523 | 163 | 128 | 244 | 23 | 186 | 151 | 209 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 30 | 0 | 0 | 6 | 0 | 0 | 143 | 0 |
| Lane Group Flow (vph) | 163 | 364 | 0 | 23 | 656 | 0 | 128 | 261 | 0 | 186 | 217 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 13.9 | 41.5 | | 2.4 | 30.0 | | 15.6 | 31.3 | | 18.8 | 34.5 | |
| Effective Green, g (s) | 13.9 | 41.5 | | 2.4 | 30.0 | | 15.6 | 31.3 | | 18.8 | 34.5 | |
| Actuated g/C Ratio | 0.13 | 0.38 | | 0.02 | 0.27 | | 0.14 | 0.28 | | 0.17 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 228 | 1340 | | 39 | 946 | | 256 | 1012 | | 308 | 1023 | |
| v/s Ratio Prot | c0.09 | 0.10 | | 0.01 | c0.19 | | 0.07 | c0.07 | | c0.10 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.71 | 0.27 | | 0.59 | 0.69 | | 0.50 | 0.26 | | 0.60 | 0.21 | |
| Uniform Delay, d1 | 46.1 | 23.8 | | 53.3 | 35.9 | | 43.6 | 30.4 | | 42.2 | 27.8 | |
| Progression Factor | 0.91 | 0.94 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.92 | 0.83 | |
| Incremental Delay, d2 | 10.1 | 0.1 | | 20.8 | 2.2 | | 1.5 | 0.6 | | 3.3 | 0.5 | |
| Delay (s) | 52.2 | 22.4 | | 74.1 | 38.1 | | 45.1 | 31.0 | | 42.3 | 23.6 | |
| Level of Service | D | C | | E | D | | D | C | | D | C | |
| Approach Delay (s) | | 31.4 | | | 39.3 | | | 35.6 | | | 30.0 | |
| Approach LOS | | C | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

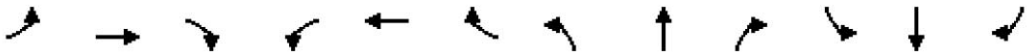
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 150 | 70 | 500 | 170 | 1230 | 0 | 0 | 640 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.97 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1830 | 1586 | 1805 | 3610 | | | 3610 | 1564 |
| Flt Permitted | | | | | 0.97 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1830 | 1586 | 1805 | 3610 | | | 3610 | 1564 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 163 | 76 | 543 | 185 | 1337 | 0 | 0 | 696 | 304 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 194 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 239 | 528 | 185 | 1337 | 0 | 0 | 696 | 110 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | | 42.6 | 42.6 | 15.5 | 59.4 | | | 39.9 | 39.9 |
| Effective Green, g (s) | | | | | 42.6 | 42.6 | 15.5 | 59.4 | | | 39.9 | 39.9 |
| Actuated g/C Ratio | | | | | 0.39 | 0.39 | 0.14 | 0.54 | | | 0.36 | 0.36 |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 709 | 614 | 254 | 1949 | | | 1309 | 567 |
| v/s Ratio Prot | | | | | | | 0.10 | c0.37 | | | 0.19 | |
| v/s Ratio Perm | | | | | 0.13 | c0.33 | | | | | | 0.07 |
| v/c Ratio | | | | | 0.34 | 0.86 | 0.73 | 0.69 | | | 0.53 | 0.19 |
| Uniform Delay, d1 | | | | | 23.7 | 30.9 | 45.2 | 18.5 | | | 27.7 | 24.0 |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 0.92 | | | 0.94 | 1.90 |
| Incremental Delay, d2 | | | | | 0.3 | 11.5 | 7.4 | 1.5 | | | 1.5 | 0.8 |
| Delay (s) | | | | | 24.0 | 42.5 | 52.5 | 18.5 | | | 27.5 | 46.5 |
| Level of Service | | | | | C | D | D | B | | | C | D |
| Approach Delay (s) | | 0.0 | | | 36.8 | | | 22.6 | | | 33.3 | |
| Approach LOS | | A | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 111.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

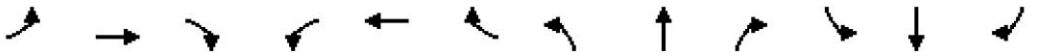
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 630 | 50 | 180 | 0 | 0 | 0 | 0 | 770 | 60 | 160 | 630 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | | | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | | | | | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1794 | 1653 | | | | | | 3563 | | 1801 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | 0.23 | 1.00 | |
| Satd. Flow (perm) | 1794 | 1653 | | | | | | 3563 | | 443 | 3610 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 685 | 54 | 196 | 0 | 0 | 0 | 0 | 837 | 65 | 174 | 685 | 0 |
| RTOR Reduction (vph) | 0 | 111 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 685 | 139 | 0 | 0 | 0 | 0 | 0 | 897 | 0 | 174 | 685 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | | | | | | | | Perm | | |
| Protected Phases | | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | | | | 6 | | |
| Actuated Green, G (s) | 44.7 | 44.7 | | | | | | 57.3 | | 57.3 | 57.3 | |
| Effective Green, g (s) | 44.7 | 44.7 | | | | | | 57.3 | | 57.3 | 57.3 | |
| Actuated g/C Ratio | 0.41 | 0.41 | | | | | | 0.52 | | 0.52 | 0.52 | |
| Clearance Time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 729 | 672 | | | | | | 1856 | | 231 | 1880 | |
| v/s Ratio Prot | | 0.08 | | | | | | 0.25 | | | 0.19 | |
| v/s Ratio Perm | c0.38 | | | | | | | | | c0.39 | | |
| v/c Ratio | 0.94 | 0.21 | | | | | | 0.48 | | 0.75 | 0.36 | |
| Uniform Delay, d1 | 31.4 | 21.2 | | | | | | 16.9 | | 20.8 | 15.6 | |
| Progression Factor | 1.00 | 1.00 | | | | | | 0.22 | | 0.48 | 0.22 | |
| Incremental Delay, d2 | 19.8 | 0.2 | | | | | | 0.7 | | 18.1 | 0.5 | |
| Delay (s) | 51.1 | 21.3 | | | | | | 4.3 | | 28.1 | 3.9 | |
| Level of Service | D | C | | | | | | A | | C | A | |
| Approach Delay (s) | | 43.1 | | | 0.0 | | | 4.3 | | | 8.8 | |
| Approach LOS | | D | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 111.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

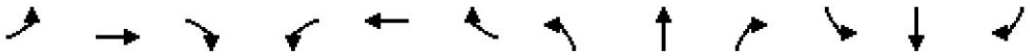
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 50 | 60 | 10 | 430 | 110 | 0 | 0 | 90 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1828 | | 1805 | 1900 | | | 1900 | 1564 |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1828 | | 1805 | 1900 | | | 1900 | 1564 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 54 | 65 | 11 | 467 | 120 | 0 | 0 | 98 | 109 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 126 | 0 | 467 | 120 | 0 | 0 | 98 | 50 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | | | | 12.9 | | 34.2 | 89.1 | | | 50.9 | 50.9 |
| Effective Green, g (s) | | | | | 12.9 | | 34.2 | 89.1 | | | 50.9 | 50.9 |
| Actuated g/C Ratio | | | | | 0.12 | | 0.31 | 0.81 | | | 0.46 | 0.46 |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 214 | | 561 | 1539 | | | 879 | 724 |
| v/s Ratio Prot | | | | | | | c0.26 | 0.06 | | | c0.05 | |
| v/s Ratio Perm | | | | | 0.07 | | | | | | | 0.03 |
| v/c Ratio | | | | | 0.59 | | 0.83 | 0.08 | | | 0.11 | 0.07 |
| Uniform Delay, d1 | | | | | 46.0 | | 35.2 | 2.1 | | | 16.7 | 16.4 |
| Progression Factor | | | | | 1.00 | | 1.23 | 0.94 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 4.3 | | 9.8 | 0.1 | | | 0.3 | 0.2 |
| Delay (s) | | | | | 50.4 | | 53.3 | 2.1 | | | 17.0 | 16.6 |
| Level of Service | | | | | D | | D | A | | | B | B |
| Approach Delay (s) | | 0.0 | | | 50.4 | | | 42.8 | | | 16.8 | |
| Approach LOS | | A | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

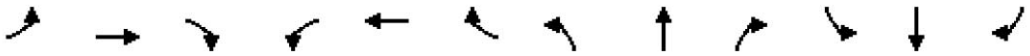
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 10 | 230 | 0 | 0 | 0 | 0 | 510 | 190 | 10 | 140 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.97 | | | | | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 0.99 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1818 | 1567 | | | | | 1900 | 1564 | 1805 | 1900 | |
| Flt Permitted | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1818 | 1567 | | | | | 1900 | 1564 | 1805 | 1900 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 11 | 250 | 0 | 0 | 0 | 0 | 554 | 207 | 11 | 152 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 230 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 44 | 20 | 0 | 0 | 0 | 0 | 554 | 168 | 11 | 152 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | | 9.0 | 9.0 | | | | | 87.5 | 87.5 | 1.5 | 93.0 | |
| Effective Green, g (s) | | 9.0 | 9.0 | | | | | 87.5 | 87.5 | 1.5 | 93.0 | |
| Actuated g/C Ratio | | 0.08 | 0.08 | | | | | 0.80 | 0.80 | 0.01 | 0.85 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 149 | 128 | | | | | 1511 | 1244 | 25 | 1606 | |
| v/s Ratio Prot | | | | | | | | c0.29 | | c0.01 | 0.08 | |
| v/s Ratio Perm | | 0.02 | 0.01 | | | | | | 0.11 | | | |
| v/c Ratio | | 0.30 | 0.16 | | | | | 0.37 | 0.13 | 0.44 | 0.09 | |
| Uniform Delay, d1 | | 47.5 | 47.0 | | | | | 3.2 | 2.6 | 53.8 | 1.4 | |
| Progression Factor | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.33 | 0.07 | |
| Incremental Delay, d2 | | 1.1 | 0.6 | | | | | 0.7 | 0.2 | 11.8 | 0.1 | |
| Delay (s) | | 48.6 | 47.6 | | | | | 3.9 | 2.8 | 83.6 | 0.2 | |
| Level of Service | | D | D | | | | | A | A | F | A | |
| Approach Delay (s) | | 47.7 | | | 0.0 | | | 3.6 | | | 5.8 | |
| Approach LOS | | D | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

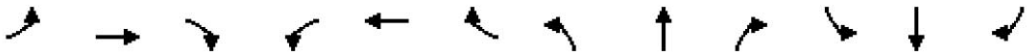
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 80 | 300 | 90 | 120 | 140 | 320 | 990 | 40 | 40 | 610 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1651 | | 1805 | 1900 | 1586 | 1805 | 3586 | | 1805 | 3589 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1651 | | 1805 | 1900 | 1586 | 1805 | 3586 | | 1805 | 3589 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 38 | 100 | 375 | 112 | 150 | 175 | 400 | 1238 | 50 | 50 | 762 | 25 |
| RTOR Reduction (vph) | 0 | 123 | 0 | 0 | 0 | 120 | 0 | 3 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 38 | 352 | 0 | 112 | 150 | 55 | 400 | 1285 | 0 | 50 | 785 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 3.0 | 26.9 | | 7.0 | 30.9 | 30.9 | 26.4 | 52.9 | | 5.0 | 31.5 | |
| Effective Green, g (s) | 3.0 | 26.9 | | 7.0 | 30.9 | 30.9 | 26.4 | 52.9 | | 5.0 | 31.5 | |
| Actuated g/C Ratio | 0.03 | 0.24 | | 0.06 | 0.28 | 0.28 | 0.24 | 0.48 | | 0.05 | 0.29 | |
| Clearance Time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 49 | 404 | | 115 | 534 | 446 | 433 | 1725 | | 82 | 1028 | |
| v/s Ratio Prot | 0.02 | c0.21 | | c0.06 | c0.08 | | c0.22 | c0.36 | | 0.03 | 0.22 | |
| v/s Ratio Perm | | | | | | 0.03 | | | | | | |
| v/c Ratio | 0.78 | 0.87 | | 0.97 | 0.28 | 0.12 | 0.92 | 0.75 | | 0.61 | 0.76 | |
| Uniform Delay, d1 | 53.2 | 39.9 | | 51.4 | 30.9 | 29.5 | 40.8 | 23.1 | | 51.5 | 35.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.95 | 1.11 | | 1.20 | 0.57 | |
| Incremental Delay, d2 | 53.1 | 18.1 | | 75.2 | 0.3 | 0.1 | 25.2 | 3.0 | | 11.6 | 5.1 | |
| Delay (s) | 106.2 | 58.0 | | 126.6 | 31.2 | 29.6 | 63.9 | 28.5 | | 73.3 | 25.5 | |
| Level of Service | F | E | | F | C | C | E | C | | E | C | |
| Approach Delay (s) | | 61.6 | | | 55.0 | | | 36.9 | | | 28.4 | |
| Approach LOS | | E | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 78.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

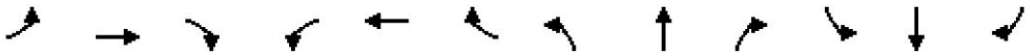
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | None | |
| Median storage veh) | | | | | | | | 2 | | | | |
| Upstream signal (ft) | | | | | | | | | | | 361 | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| vC1, stage 1 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vC2, stage 2 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vCu, unblocked vol | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | 6.1 | 5.5 | | 6.1 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 100 | 100 | 100 | 100 | | | 100 | | |
| cM capacity (veh/h) | 1029 | 900 | 1091 | 1029 | 900 | 1091 | 1636 | | | 1636 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | A | | | | |

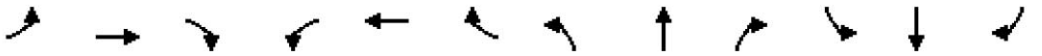
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.0 | | | |
| Intersection Capacity Utilization | 0.0% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 110 | 190 | 40 | 60 | 180 | 40 | 60 | 260 | 40 | 20 | 130 | 80 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 121 | 209 | 44 | 66 | 198 | 44 | 66 | 286 | 44 | 22 | 143 | 88 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 374 | 308 | 66 | 330 | 22 | 231 |
| Volume Left (vph) | 121 | 66 | 66 | 0 | 22 | 0 |
| Volume Right (vph) | 44 | 44 | 0 | 44 | 0 | 88 |
| Hadj (s) | -0.01 | -0.04 | 0.50 | -0.09 | 0.50 | -0.27 |
| Departure Headway (s) | 7.0 | 7.2 | 8.2 | 7.6 | 8.6 | 7.8 |
| Degree Utilization, x | 0.73 | 0.61 | 0.15 | 0.69 | 0.05 | 0.50 |
| Capacity (veh/h) | 482 | 461 | 415 | 451 | 378 | 416 |
| Control Delay (s) | 26.6 | 20.9 | 11.4 | 24.8 | 10.8 | 17.0 |
| Approach Delay (s) | 26.6 | 20.9 | 22.5 | | 16.4 | |
| Approach LOS | D | C | C | | C | |

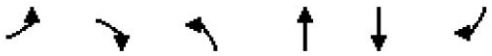
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 22.1 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 58.8% | ICU Level of Service | | B |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 290 | 0 | 0 | 400 | 80 | 0 | 0 | 0 | 30 | 0 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 1.00 | | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 0.97 | | | | 1.00 | | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 0.99 | | 1.00 |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | | | 1.00 | | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | | | 0.95 | | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | | 1900 | 1567 | | | | 1787 | | 1567 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | | | | 0.76 | | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | | 1900 | 1567 | | | | 1425 | | 1567 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.92 | 0.92 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.90 | 0.92 | 0.90 |
| Adj. Flow (vph) | 189 | 322 | 0 | 0 | 444 | 89 | 0 | 0 | 0 | 33 | 0 | 311 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 171 |
| Lane Group Flow (vph) | 189 | 322 | 0 | 0 | 444 | 32 | 0 | 0 | 0 | 33 | 0 | 140 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | | | | Perm | Perm | | | custom | | custom |
| Protected Phases | 7 | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 16.6 | 52.5 | | | 31.9 | 31.9 | | | | 49.5 | | 49.5 |
| Effective Green, g (s) | 16.6 | 52.5 | | | 31.9 | 31.9 | | | | 49.5 | | 49.5 |
| Actuated g/C Ratio | 0.15 | 0.48 | | | 0.29 | 0.29 | | | | 0.45 | | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | | | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | 272 | 907 | | | 551 | 454 | | | | 641 | | 705 |
| v/s Ratio Prot | c0.10 | 0.17 | | | c0.23 | | | | | | | |
| v/s Ratio Perm | | | | | | 0.02 | | | | 0.02 | | c0.09 |
| v/c Ratio | 0.69 | 0.36 | | | 0.81 | 0.07 | | | | 0.05 | | 0.20 |
| Uniform Delay, d1 | 44.3 | 18.1 | | | 36.2 | 28.3 | | | | 17.0 | | 18.3 |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 1.00 | | 1.00 |
| Incremental Delay, d2 | 7.5 | 0.2 | | | 8.4 | 0.1 | | | | 0.2 | | 0.6 |
| Delay (s) | 51.8 | 18.3 | | | 44.6 | 28.4 | | | | 17.2 | | 18.9 |
| Level of Service | D | B | | | D | C | | | | B | | B |
| Approach Delay (s) | | 30.7 | | | 41.9 | | | 0.0 | | | 18.7 | |
| Approach LOS | | C | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 54.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

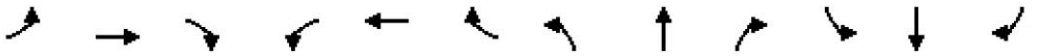
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 110 | 20 | 20 | 700 | 330 | 50 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 122 | 22 | 22 | 778 | 367 | 56 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 805 | 188 | 422 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 805 | 188 | 422 | | | |
| tC, single (s) | 6.8 | 6.9 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 61 | 97 | 98 | | | |
| cM capacity (veh/h) | 317 | 824 | 1148 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 144 | 22 | 389 | 389 | 183 | 183 | 56 |
| Volume Left | 122 | 22 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 22 | 0 | 0 | 0 | 0 | 0 | 56 |
| cSH | 350 | 1148 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.41 | 0.02 | 0.23 | 0.23 | 0.11 | 0.11 | 0.03 |
| Queue Length 95th (ft) | 49 | 1 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 22.3 | 8.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | C | A | | | | | |
| Approach Delay (s) | 22.3 | 0.2 | | | 0.0 | | |
| Approach LOS | C | | | | | | |

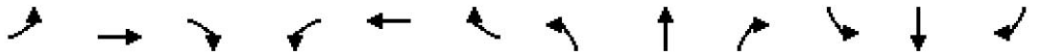
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.5 | | |
| Intersection Capacity Utilization | 33.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 20 | 540 | 0 | 0 | 440 | 250 | 260 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 21 | 562 | 0 | 0 | 458 | 260 | 271 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 724 | | | 568 | | | 1072 | 1333 | 572 | 1072 | 1072 | 468 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 724 | | | 568 | | | 1072 | 1333 | 572 | 1072 | 1072 | 468 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 100 | | | 0 | 100 | 100 | 100 | 100 | 100 |
| cM capacity (veh/h) | 888 | | | 1010 | | | 194 | 151 | 519 | 195 | 216 | 596 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 21 | 562 | 458 | 260 | 271 |
| Volume Left | 21 | 0 | 0 | 0 | 271 |
| Volume Right | 0 | 0 | 0 | 260 | 0 |
| cSH | 888 | 1700 | 1700 | 1700 | 191 |
| Volume to Capacity | 0.02 | 0.33 | 0.27 | 0.15 | 1.42 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 405 |
| Control Delay (s) | 9.2 | 0.0 | 0.0 | 0.0 | 261.1 |
| Lane LOS | A | | | | F |
| Approach Delay (s) | 0.3 | | 0.0 | | 261.1 |
| Approach LOS | | | | | F |

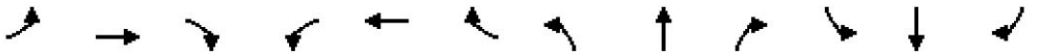
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 45.1 | | |
| Intersection Capacity Utilization | 61.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 210 | 180 | 40 | 670 | 0 | 0 | 0 | 0 | 360 | 0 | 60 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 223 | 191 | 43 | 713 | 0 | 0 | 0 | 0 | 383 | 0 | 64 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 718 | | | 420 | | | 1063 | 1031 | 233 | 1031 | 1223 | 723 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 718 | | | 420 | | | 1063 | 1031 | 233 | 1031 | 1223 | 723 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 96 | | | 100 | 100 | 100 | 0 | 100 | 85 |
| cM capacity (veh/h) | 889 | | | 1150 | | | 166 | 225 | 807 | 205 | 174 | 426 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 223 | 191 | 43 | 713 | 447 |
| Volume Left | 0 | 0 | 43 | 0 | 383 |
| Volume Right | 0 | 191 | 0 | 0 | 64 |
| cSH | 1700 | 1700 | 1150 | 1700 | 224 |
| Volume to Capacity | 0.13 | 0.11 | 0.04 | 0.42 | 2.00 |
| Queue Length 95th (ft) | 0 | 0 | 3 | 0 | 824 |
| Control Delay (s) | 0.0 | 0.0 | 8.3 | 0.0 | 500.3 |
| Lane LOS | | | A | | F |
| Approach Delay (s) | 0.0 | | 0.5 | | 500.3 |
| Approach LOS | | | | | F |

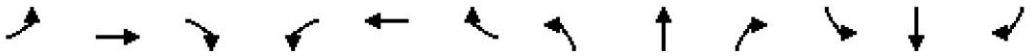
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 138.5 | | | |
| Intersection Capacity Utilization | 61.9% | ICU Level of Service | | B |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 330 | 250 | 50 | 30 | 350 | 520 | 130 | 760 | 30 | 310 | 640 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1595 | 3502 | 3610 | 1615 | 3502 | 3610 | 1594 | 3502 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1595 | 3502 | 3610 | 1615 | 3502 | 3610 | 1594 | 3502 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 363 | 275 | 55 | 33 | 385 | 571 | 143 | 835 | 33 | 341 | 703 | 286 |
| RTOR Reduction (vph) | 0 | 0 | 29 | 0 | 0 | 28 | 0 | 0 | 21 | 0 | 0 | 97 |
| Lane Group Flow (vph) | 363 | 275 | 26 | 33 | 385 | 543 | 143 | 835 | 12 | 341 | 703 | 189 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pt+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 8 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.2 | 37.6 | 46.1 | 5.3 | 31.7 | 45.9 | 8.5 | 29.0 | 34.3 | 10.2 | 30.7 | 41.9 |
| Effective Green, g (s) | 11.2 | 37.6 | 46.1 | 5.3 | 31.7 | 45.9 | 8.5 | 29.0 | 34.3 | 10.2 | 30.7 | 41.9 |
| Actuated g/C Ratio | 0.11 | 0.38 | 0.47 | 0.05 | 0.32 | 0.47 | 0.09 | 0.30 | 0.35 | 0.10 | 0.31 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 400 | 1384 | 815 | 189 | 1167 | 756 | 303 | 1067 | 622 | 364 | 1130 | 747 |
| v/s Ratio Prot | c0.10 | 0.08 | 0.00 | 0.01 | 0.11 | c0.34 | 0.04 | c0.23 | 0.00 | c0.10 | 0.19 | 0.03 |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.01 | | | 0.09 |
| v/c Ratio | 0.91 | 0.20 | 0.03 | 0.17 | 0.33 | 0.72 | 0.47 | 0.78 | 0.02 | 0.94 | 0.62 | 0.25 |
| Uniform Delay, d1 | 42.9 | 20.2 | 14.0 | 44.3 | 25.2 | 20.9 | 42.7 | 31.7 | 20.9 | 43.6 | 28.8 | 18.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 23.6 | 0.1 | 0.0 | 0.4 | 0.2 | 3.3 | 1.2 | 3.8 | 0.0 | 31.1 | 1.1 | 0.2 |
| Delay (s) | 66.6 | 20.3 | 14.0 | 44.8 | 25.3 | 24.2 | 43.8 | 35.5 | 20.9 | 74.7 | 29.8 | 18.2 |
| Level of Service | E | C | B | D | C | C | D | D | C | E | C | B |
| Approach Delay (s) | | 44.0 | | | 25.3 | | | 36.2 | | | 38.8 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 98.1 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 76.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 260 | 320 | 50 | 310 | 10 | 340 | 50 | 50 | 50 | 180 | 10 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 21 | 268 | 330 | 52 | 320 | 10 | 351 | 52 | 52 | 52 | 186 | 10 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 289 | 330 | 52 | 330 | 351 | 103 | 247 |
| Volume Left (vph) | 21 | 0 | 52 | 0 | 351 | 0 | 52 |
| Volume Right (vph) | 0 | 330 | 0 | 10 | 0 | 52 | 10 |
| Hadj (s) | 0.04 | -0.70 | 0.50 | -0.02 | 0.50 | -0.35 | 0.02 |
| Departure Headway (s) | 8.5 | 7.8 | 9.2 | 8.7 | 9.0 | 8.2 | 8.9 |
| Degree Utilization, x | 0.68 | 0.71 | 0.13 | 0.80 | 0.88 | 0.23 | 0.61 |
| Capacity (veh/h) | 412 | 449 | 373 | 401 | 387 | 427 | 380 |
| Control Delay (s) | 26.9 | 26.5 | 12.5 | 37.1 | 49.3 | 12.4 | 25.1 |
| Approach Delay (s) | 26.7 | | 33.7 | | 40.9 | | 25.1 |
| Approach LOS | D | | D | | E | | D |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 31.8 | | | |
| HCM Level of Service | D | | | |
| Intersection Capacity Utilization | 76.8% | ICU Level of Service | | D |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 240 | 90 | 310 | 290 | 120 | 40 | 180 | 80 | 130 | 440 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 3448 | | 1801 | 1710 | 1437 | 1805 | 3428 | | 1805 | 3524 | |
| Flt Permitted | 0.51 | 1.00 | | 0.55 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 970 | 3448 | | 1038 | 1710 | 1437 | 1805 | 3428 | | 1805 | 3524 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 72 | 247 | 93 | 320 | 299 | 124 | 41 | 186 | 82 | 134 | 454 | 72 |
| RTOR Reduction (vph) | 0 | 50 | 0 | 0 | 0 | 57 | 0 | 62 | 0 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 72 | 290 | 0 | 320 | 299 | 67 | 41 | 207 | 0 | 134 | 509 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 0 | 0 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 23.3 | 23.3 | | 23.3 | 23.3 | 30.6 | 2.3 | 14.2 | | 7.3 | 19.2 | |
| Effective Green, g (s) | 23.3 | 23.3 | | 23.3 | 23.3 | 30.6 | 2.3 | 14.2 | | 7.3 | 19.2 | |
| Actuated g/C Ratio | 0.41 | 0.41 | | 0.41 | 0.41 | 0.54 | 0.04 | 0.25 | | 0.13 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 398 | 1414 | | 426 | 701 | 875 | 73 | 857 | | 232 | 1191 | |
| v/s Ratio Prot | | 0.08 | | | 0.17 | 0.01 | 0.02 | 0.06 | | c0.07 | c0.14 | |
| v/s Ratio Perm | 0.07 | | | c0.31 | | 0.04 | | | | | | |
| v/c Ratio | 0.18 | 0.20 | | 0.75 | 0.43 | 0.08 | 0.56 | 0.24 | | 0.58 | 0.43 | |
| Uniform Delay, d1 | 10.7 | 10.8 | | 14.3 | 12.0 | 6.3 | 26.8 | 17.0 | | 23.3 | 14.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.1 | | 7.3 | 0.4 | 0.0 | 9.5 | 0.1 | | 3.5 | 0.2 | |
| Delay (s) | 10.9 | 10.9 | | 21.6 | 12.4 | 6.3 | 36.3 | 17.1 | | 26.8 | 14.8 | |
| Level of Service | B | B | | C | B | A | D | B | | C | B | |
| Approach Delay (s) | | 10.9 | | | 15.3 | | | 19.7 | | | 17.2 | |
| Approach LOS | | B | | | B | | | B | | | B | |

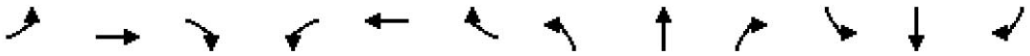
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 56.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 390 | 10 | 10 | 1090 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1800 | 1900 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1900 | 1613 | | 1848 | 1710 | 1615 |
| Flt Permitted | 1.00 | 1.00 | | 0.84 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1900 | 1613 | | 1583 | 1710 | 1615 |
| Peak-hour factor, PHF | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Adj. Flow (vph) | 12 | 481 | 12 | 12 | 1346 | 12 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 12 | 481 | 0 | 24 | 1346 | 12 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | pm+ov | Perm | | | Prot |
| Protected Phases | 4 | 2 | | 8 | 2 | 2 |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 7.4 | 102.4 | | 7.4 | 95.0 | 95.0 |
| Effective Green, g (s) | 7.4 | 102.4 | | 7.4 | 95.0 | 95.0 |
| Actuated g/C Ratio | 0.07 | 0.91 | | 0.07 | 0.85 | 0.85 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 125 | 1613 | | 104 | 1445 | 1365 |
| v/s Ratio Prot | 0.01 | c0.25 | | | c0.79 | 0.01 |
| v/s Ratio Perm | | 0.05 | | 0.02 | | |
| v/c Ratio | 0.10 | 0.30 | | 0.23 | 0.93 | 0.01 |
| Uniform Delay, d1 | 49.4 | 0.6 | | 49.8 | 6.3 | 1.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.3 | 0.1 | | 1.1 | 11.1 | 0.0 |
| Delay (s) | 49.7 | 0.7 | | 50.9 | 17.4 | 1.4 |
| Level of Service | D | A | | D | B | A |
| Approach Delay (s) | 1.9 | | | 50.9 | 17.3 | |
| Approach LOS | A | | | D | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 112.4 | Sum of lost time (s) | 5.0 |
| Intersection Capacity Utilization | 80.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

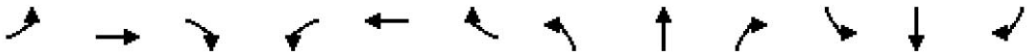
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 200 | 0 | 10 | 570 | 230 | 10 | 20 | 0 | 340 | 10 | 40 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 38 | 250 | 0 | 12 | 712 | 288 | 12 | 25 | 0 | 425 | 12 | 50 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 288 | 1013 | 38 | 488 |
| Volume Left (vph) | 38 | 13 | 13 | 425 |
| Volume Right (vph) | 0 | 288 | 0 | 50 |
| Hadj (s) | 0.03 | -0.17 | 0.07 | 0.11 |
| Departure Headway (s) | 7.0 | 6.4 | 8.3 | 6.7 |
| Degree Utilization, x | 0.56 | 1.79 | 0.09 | 0.91 |
| Capacity (veh/h) | 486 | 566 | 396 | 528 |
| Control Delay (s) | 18.7 | 377.9 | 12.1 | 45.9 |
| Approach Delay (s) | 18.7 | 377.9 | 12.1 | 45.9 |
| Approach LOS | C | F | B | E |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 225.1 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 80.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 480 | 20 | 10 | 770 | 80 | 20 | 10 | 10 | 210 | 10 | 40 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 22 | 516 | 22 | 11 | 828 | 86 | 22 | 11 | 11 | 226 | 11 | 43 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 559 | 925 | 43 | 280 |
| Volume Left (vph) | 22 | 11 | 22 | 226 |
| Volume Right (vph) | 22 | 86 | 11 | 43 |
| Hadj (s) | -0.02 | -0.05 | -0.05 | 0.07 |
| Departure Headway (s) | 6.2 | 6.2 | 8.3 | 7.2 |
| Degree Utilization, x | 0.96 | 1.60 | 0.10 | 0.56 |
| Capacity (veh/h) | 576 | 583 | 403 | 482 |
| Control Delay (s) | 53.7 | 292.8 | 12.2 | 19.2 |
| Approach Delay (s) | 53.7 | 292.8 | 12.2 | 19.2 |
| Approach LOS | F | F | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 169.8 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 77.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 30 | 680 | 120 | 110 | 780 | 40 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 33 | 739 | 130 | 120 | 848 | 43 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 772 | 250 | 891 |
| Volume Left (vph) | 0 | 130 | 848 |
| Volume Right (vph) | 739 | 0 | 43 |
| Hadj (s) | -0.57 | 0.10 | 0.16 |
| Departure Headway (s) | 5.8 | 7.1 | 6.5 |
| Degree Utilization, x | 1.24 | 0.49 | 1.62 |
| Capacity (veh/h) | 631 | 504 | 556 |
| Control Delay (s) | 142.6 | 16.8 | 303.6 |
| Approach Delay (s) | 142.6 | 16.8 | 303.6 |
| Approach LOS | F | C | F |

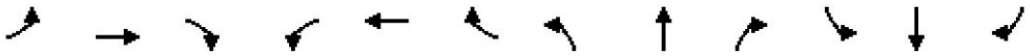
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 201.2 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 111.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 40 | 30 | 270 | 110 | 120 | 270 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 44 | 33 | 300 | 122 | 133 | 300 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 78 | | 783 | 61 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 78 | | 783 | 61 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 80 | | 55 | 70 |
| cM capacity (veh/h) | | | 1534 | | 294 | 1010 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 78 | 422 | 433 |
| Volume Left | 0 | 300 | 133 |
| Volume Right | 33 | 0 | 300 |
| cSH | 1700 | 1534 | 577 |
| Volume to Capacity | 0.05 | 0.20 | 0.75 |
| Queue Length 95th (ft) | 0 | 18 | 165 |
| Control Delay (s) | 0.0 | 6.1 | 27.7 |
| Lane LOS | | A | D |
| Approach Delay (s) | 0.0 | 6.1 | 27.7 |
| Approach LOS | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 15.6 | | |
| Intersection Capacity Utilization | 57.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 10 | 10 | 50 | 10 | 10 | 10 | 270 | 20 | 10 | 300 | 10 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 22 | 11 | 11 | 55 | 11 | 11 | 11 | 297 | 22 | 11 | 330 | 11 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 44 | 77 | 330 | 352 |
| Volume Left (vph) | 22 | 55 | 11 | 11 |
| Volume Right (vph) | 11 | 11 | 22 | 11 |
| Hadj (s) | -0.05 | 0.06 | -0.03 | -0.01 |
| Departure Headway (s) | 5.6 | 5.6 | 4.6 | 4.6 |
| Degree Utilization, x | 0.07 | 0.12 | 0.42 | 0.45 |
| Capacity (veh/h) | 557 | 563 | 751 | 750 |
| Control Delay (s) | 9.0 | 9.4 | 11.0 | 11.4 |
| Approach Delay (s) | 9.0 | 9.4 | 11.0 | 11.4 |
| Approach LOS | A | A | B | B |

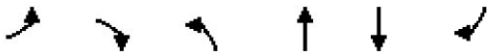
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 10.9 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 32.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 100 | 10 | 60 | 160 | 20 | 50 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Hourly flow rate (vph) | 123 | 12 | 74 | 198 | 25 | 62 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 190 | 79 | | | 272 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 190 | 79 | | | 272 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 84 | 99 | | | 98 | |
| cM capacity (veh/h) | 785 | 983 | | | 1303 | |

| Direction, Lane # | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 123 | 12 | 74 | 198 | 86 |
| Volume Left | 123 | 0 | 0 | 0 | 25 |
| Volume Right | 0 | 12 | 0 | 198 | 0 |
| cSH | 785 | 983 | 1700 | 1700 | 1303 |
| Volume to Capacity | 0.16 | 0.01 | 0.04 | 0.12 | 0.02 |
| Queue Length 95th (ft) | 14 | 1 | 0 | 0 | 1 |
| Control Delay (s) | 10.4 | 8.7 | 0.0 | 0.0 | 2.3 |
| Lane LOS | B | A | | | A |
| Approach Delay (s) | 10.3 | | 0.0 | | 2.3 |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.2 | | |
| Intersection Capacity Utilization | 22.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 140 | 90 | 300 | 950 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1615 | 1805 | 5187 | 5187 | 1615 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1615 | 1805 | 5187 | 5187 | 1615 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 10 | 144 | 93 | 309 | 979 | 10 |
| RTOR Reduction (vph) | 0 | 125 | 0 | 0 | 0 | 5 |
| Lane Group Flow (vph) | 10 | 19 | 93 | 309 | 979 | 5 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 5.6 | 5.6 | 4.6 | 28.8 | 20.2 | 20.2 |
| Effective Green, g (s) | 5.6 | 5.6 | 4.6 | 28.8 | 20.2 | 20.2 |
| Actuated g/C Ratio | 0.13 | 0.13 | 0.11 | 0.68 | 0.48 | 0.48 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 238 | 213 | 196 | 3523 | 2471 | 769 |
| v/s Ratio Prot | 0.01 | | c0.05 | 0.06 | c0.19 | |
| v/s Ratio Perm | | c0.01 | | | | 0.00 |
| v/c Ratio | 0.04 | 0.09 | 0.47 | 0.09 | 0.40 | 0.01 |
| Uniform Delay, d1 | 16.1 | 16.2 | 17.8 | 2.3 | 7.2 | 5.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.1 | 0.2 | 1.8 | 0.0 | 0.1 | 0.0 |
| Delay (s) | 16.1 | 16.3 | 19.6 | 2.3 | 7.3 | 5.8 |
| Level of Service | B | B | B | A | A | A |
| Approach Delay (s) | 16.3 | | | 6.3 | 7.3 | |
| Approach LOS | B | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 42.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 40.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 160 | 0 | 50 | 5 | 5 | 5 | 40 | 830 | 0 | 10 | 1110 | 140 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 190 | 0 | 60 | 6 | 6 | 6 | 48 | 988 | 0 | 12 | 1321 | 167 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 2448 | 2439 | 1331 | 2498 | 2605 | 998 | 1493 | | | 993 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 2448 | 2439 | 1331 | 2498 | 2605 | 998 | 1493 | | | 993 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 100 | 69 | 51 | 73 | 98 | 90 | | | 98 | | |
| cM capacity (veh/h) | 15 | 28 | 189 | 12 | 22 | 296 | 454 | | | 701 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 250 | 18 | 48 | 988 | 0 | 12 | 1321 | 167 |
| Volume Left | 190 | 6 | 48 | 0 | 0 | 12 | 0 | 0 |
| Volume Right | 60 | 6 | 0 | 0 | 0 | 0 | 0 | 167 |
| cSH | 19 | 23 | 454 | 1700 | 1700 | 701 | 1700 | 1700 |
| Volume to Capacity | 12.99 | 0.78 | 0.10 | 0.58 | 0.00 | 0.02 | 0.78 | 0.10 |
| Queue Length 95th (ft) | Err | 57 | 9 | 0 | 0 | 1 | 0 | 0 |
| Control Delay (s) | Err | 354.2 | 13.9 | 0.0 | 0.0 | 10.2 | 0.0 | 0.0 |
| Lane LOS | F | F | B | | | B | | |
| Approach Delay (s) | Err | 354.2 | 0.6 | | | 0.1 | | |
| Approach LOS | F | F | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 894.2 | | | |
| Intersection Capacity Utilization | 83.7% | ICU Level of Service | E | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 10 | 30 | 10 | 10 | 0 | 20 | 710 | 10 | 10 | 600 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1763 | | | 1854 | | 1805 | 1895 | | 1805 | 1900 | 1561 |
| Flt Permitted | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1763 | | | 1854 | | 1805 | 1895 | | 1805 | 1900 | 1561 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 11 | 32 | 11 | 11 | 0 | 21 | 755 | 11 | 11 | 638 | 149 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 0 | 120 | 0 | 0 | 22 | 0 | 21 | 765 | 0 | 11 | 638 | 120 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 40.6 | | | 4.7 | | 3.3 | 57.2 | | 1.5 | 55.4 | 55.4 |
| Effective Green, g (s) | | 40.6 | | | 4.7 | | 3.3 | 57.2 | | 1.5 | 55.4 | 55.4 |
| Actuated g/C Ratio | | 0.34 | | | 0.04 | | 0.03 | 0.48 | | 0.01 | 0.46 | 0.46 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 596 | | | 73 | | 50 | 903 | | 23 | 877 | 721 |
| v/s Ratio Prot | | c0.07 | | | c0.01 | | c0.01 | c0.40 | | 0.01 | 0.34 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.08 |
| v/c Ratio | | 0.20 | | | 0.30 | | 0.42 | 0.85 | | 0.48 | 0.73 | 0.17 |
| Uniform Delay, d1 | | 28.2 | | | 56.1 | | 57.4 | 27.6 | | 58.9 | 26.2 | 18.8 |
| Progression Factor | | 0.90 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.5 | | | 2.3 | | 5.6 | 7.4 | | 14.8 | 3.0 | 0.1 |
| Delay (s) | | 25.9 | | | 58.4 | | 63.0 | 35.0 | | 73.7 | 29.2 | 19.0 |
| Level of Service | | C | | | E | | E | D | | E | C | B |
| Approach Delay (s) | | 25.9 | | | 58.4 | | | 35.8 | | | 27.9 | |
| Approach LOS | | C | | | E | | | D | | | C | |

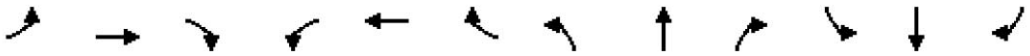
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 150 | 40 | 20 | 140 | 30 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Hourly flow rate (vph) | 13 | 195 | 52 | 26 | 182 | 39 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 413 | 5 | 570 | 374 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 413 | 5 | 570 | 374 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 97 | 82 | 84 | 95 | 89 | |
| cM capacity (veh/h) | 469 | 1080 | 316 | 493 | 1623 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 13 | 195 | 78 | 182 | 39 |
| Volume Left | 0 | 0 | 52 | 182 | 0 |
| Volume Right | 0 | 195 | 0 | 0 | 39 |
| cSH | 469 | 1080 | 359 | 1623 | 1700 |
| Volume to Capacity | 0.03 | 0.18 | 0.22 | 0.11 | 0.02 |
| Queue Length 95th (ft) | 2 | 16 | 20 | 9 | 0 |
| Control Delay (s) | 12.9 | 9.1 | 17.8 | 7.5 | 0.0 |
| Lane LOS | B | A | C | A | |
| Approach Delay (s) | 9.3 | | 17.8 | 6.2 | |
| Approach LOS | A | | C | | |

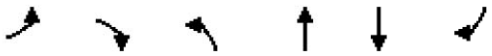
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 9.2 | | |
| Intersection Capacity Utilization | 24.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 10 | 10 | 10 | 70 | 10 | 30 | 10 | 710 | 110 | 270 | 430 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 11 | 11 | 11 | 80 | 11 | 34 | 11 | 807 | 125 | 307 | 489 | 11 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1584 | 2072 | 179 | 1633 | 1953 | 413 | 505 | | | 937 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1584 | 2072 | 179 | 1633 | 1953 | 413 | 505 | | | 937 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 69 | 64 | 99 | 0 | 69 | 94 | 99 | | | 58 | | |
| cM capacity (veh/h) | 36 | 31 | 833 | 33 | 37 | 588 | 1066 | | | 736 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 34 | 125 | 11 | 403 | 403 | 125 | 307 | 195 | 195 | 109 |
| Volume Left | 11 | 80 | 11 | 0 | 0 | 0 | 307 | 0 | 0 | 0 |
| Volume Right | 11 | 34 | 0 | 0 | 0 | 125 | 0 | 0 | 0 | 11 |
| cSH | 49 | 45 | 1066 | 1700 | 1700 | 1700 | 736 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.69 | 2.79 | 0.01 | 0.24 | 0.24 | 0.07 | 0.42 | 0.11 | 0.11 | 0.06 |
| Queue Length 95th (ft) | 69 | 337 | 1 | 0 | 0 | 0 | 52 | 0 | 0 | 0 |
| Control Delay (s) | 174.9 | 1000.9 | 8.4 | 0.0 | 0.0 | 0.0 | 13.3 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | F | A | | | | B | | | |
| Approach Delay (s) | 174.9 | 1000.9 | 0.1 | | | | 5.1 | | | |
| Approach LOS | F | F | | | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 70.9 | | | |
| Intersection Capacity Utilization | 55.9% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 330 | 200 | 130 | 470 | 430 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.95 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.97 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1749 | | 1805 | 5187 | 5187 | 1615 |
| Flt Permitted | 0.97 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1749 | | 1805 | 5187 | 5187 | 1615 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 384 | 233 | 151 | 547 | 500 | 105 |
| RTOR Reduction (vph) | 34 | 0 | 0 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 583 | 0 | 151 | 547 | 500 | 68 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 5 | 2 | 6 | 4 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 20.8 | | 5.1 | 19.6 | 10.5 | 31.3 |
| Effective Green, g (s) | 20.8 | | 5.1 | 19.6 | 10.5 | 31.3 |
| Actuated g/C Ratio | 0.43 | | 0.11 | 0.40 | 0.22 | 0.65 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 752 | | 190 | 2101 | 1125 | 1178 |
| v/s Ratio Prot | c0.33 | | c0.08 | 0.11 | c0.10 | 0.02 |
| v/s Ratio Perm | | | | | | 0.02 |
| v/c Ratio | 0.78 | | 0.79 | 0.26 | 0.44 | 0.06 |
| Uniform Delay, d1 | 11.8 | | 21.1 | 9.6 | 16.4 | 3.1 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.0 | | 20.1 | 0.1 | 0.3 | 0.0 |
| Delay (s) | 16.8 | | 41.2 | 9.6 | 16.7 | 3.2 |
| Level of Service | B | | D | A | B | A |
| Approach Delay (s) | 16.8 | | | 16.5 | 14.4 | |
| Approach LOS | B | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 48.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 56.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

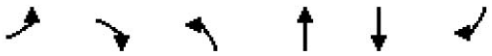
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 80 | 50 | 130 | 230 | 80 | 120 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 |
| Hourly flow rate (vph) | 111 | 69 | 181 | 319 | 111 | 167 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 734 | 345 | | | 500 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 734 | 345 | | | 500 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 68 | 90 | | | 90 | |
| cM capacity (veh/h) | 348 | 699 | | | 1075 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 181 | 500 | 278 |
| Volume Left | 111 | 0 | 111 |
| Volume Right | 69 | 319 | 0 |
| cSH | 432 | 1700 | 1075 |
| Volume to Capacity | 0.42 | 0.29 | 0.10 |
| Queue Length 95th (ft) | 51 | 0 | 9 |
| Control Delay (s) | 19.2 | 0.0 | 4.1 |
| Lane LOS | C | | A |
| Approach Delay (s) | 19.2 | 0.0 | 4.1 |
| Approach LOS | C | | |

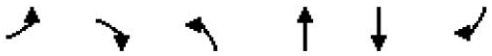
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.8 | | |
| Intersection Capacity Utilization | 49.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 70 | 100 | 170 | 270 | 80 | 110 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 |
| Hourly flow rate (vph) | 101 | 145 | 246 | 391 | 116 | 159 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1085 | 201 | 275 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1085 | 201 | 275 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 48 | 83 | 81 | | | |
| cM capacity (veh/h) | 195 | 842 | 1299 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 246 | 246 | 391 | 275 |
| Volume Left | 101 | 246 | 0 | 0 |
| Volume Right | 145 | 0 | 0 | 159 |
| cSH | 474 | 1299 | 1700 | 1700 |
| Volume to Capacity | 0.52 | 0.19 | 0.23 | 0.16 |
| Queue Length 95th (ft) | 73 | 17 | 0 | 0 |
| Control Delay (s) | 23.2 | 8.4 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 23.2 | 3.3 | | 0.0 |
| Approach LOS | C | | | |

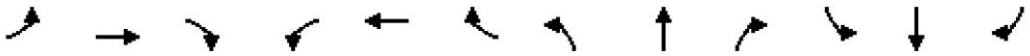
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.7 | | |
| Intersection Capacity Utilization | 34.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 430 | 20 | 50 | 20 | 20 | 170 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| Hourly flow rate (vph) | 662 | 31 | 77 | 31 | 31 | 262 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 220 | 36 | 292 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 220 | 36 | 292 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 8 | 97 | 94 | | | |
| cM capacity (veh/h) | 723 | 1038 | 1281 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 692 | 77 | 31 | 31 | 262 |
| Volume Left | 662 | 77 | 0 | 0 | 0 |
| Volume Right | 31 | 0 | 0 | 0 | 262 |
| cSH | 745 | 1281 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.93 | 0.06 | 0.02 | 0.02 | 0.15 |
| Queue Length 95th (ft) | 329 | 5 | 0 | 0 | 0 |
| Control Delay (s) | 41.7 | 8.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | E | A | | | |
| Approach Delay (s) | 41.7 | 5.7 | | 0.0 | |
| Approach LOS | E | | | | |

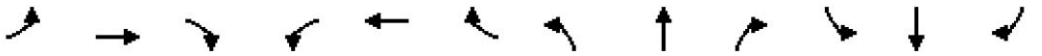
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 27.0 | | | |
| Intersection Capacity Utilization | 39.9% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 410 | 210 | 10 | 320 | 10 | 250 | 0 | 20 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 441 | 226 | 11 | 344 | 11 | 269 | 0 | 22 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 360 | | | 672 | | | 757 | 940 | 343 | 601 | 1048 | 187 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 360 | | | 672 | | | 757 | 940 | 343 | 601 | 1048 | 187 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 99 | | | 8 | 100 | 97 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1205 | | | 925 | | | 293 | 260 | 653 | 367 | 225 | 822 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 220 | 446 | 183 | 183 | 269 | 22 | 0 |
| Volume Left | 0 | 0 | 11 | 0 | 269 | 0 | 0 |
| Volume Right | 0 | 226 | 0 | 11 | 0 | 22 | 0 |
| cSH | 1205 | 1700 | 925 | 1700 | 293 | 653 | 1700 |
| Volume to Capacity | 0.00 | 0.26 | 0.01 | 0.11 | 0.92 | 0.03 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 216 | 3 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.6 | 0.0 | 72.3 | 10.7 | 0.0 |
| Lane LOS | | | A | | F | B | A |
| Approach Delay (s) | 0.0 | | 0.3 | | 67.7 | | 0.0 |
| Approach LOS | | | | | F | | A |

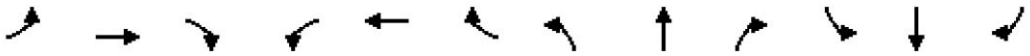
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 15.0 | | |
| Intersection Capacity Utilization | 38.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 200 | 120 | 60 | 100 | 20 | 70 | 630 | 60 | 20 | 800 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3387 | | 1805 | 3509 | | 1805 | 3558 | | 1805 | 3550 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3387 | | 1805 | 3509 | | 1805 | 3558 | | 1805 | 3550 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 118 | 215 | 129 | 65 | 108 | 22 | 75 | 677 | 65 | 22 | 860 | 97 |
| RTOR Reduction (vph) | 0 | 103 | 0 | 0 | 18 | 0 | 0 | 7 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 118 | 241 | 0 | 65 | 112 | 0 | 75 | 735 | 0 | 22 | 948 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 5.7 | 12.4 | | 3.6 | 10.3 | | 5.0 | 28.0 | | 1.2 | 24.2 | |
| Effective Green, g (s) | 5.7 | 12.4 | | 3.6 | 10.3 | | 5.0 | 28.0 | | 1.2 | 24.2 | |
| Actuated g/C Ratio | 0.09 | 0.20 | | 0.06 | 0.17 | | 0.08 | 0.46 | | 0.02 | 0.40 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 168 | 686 | | 106 | 591 | | 147 | 1628 | | 35 | 1404 | |
| v/s Ratio Prot | c0.07 | c0.07 | | 0.04 | 0.03 | | c0.04 | c0.21 | | 0.01 | c0.27 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.70 | 0.35 | | 0.61 | 0.19 | | 0.51 | 0.45 | | 0.63 | 0.68 | |
| Uniform Delay, d1 | 26.9 | 20.9 | | 28.1 | 21.9 | | 26.9 | 11.4 | | 29.8 | 15.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 12.5 | 0.3 | | 10.1 | 0.2 | | 3.0 | 0.2 | | 30.3 | 1.3 | |
| Delay (s) | 39.4 | 21.3 | | 38.2 | 22.0 | | 29.9 | 11.6 | | 60.1 | 16.6 | |
| Level of Service | D | C | | D | C | | C | B | | E | B | |
| Approach Delay (s) | | 25.9 | | | 27.4 | | | 13.2 | | | 17.5 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 61.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 61.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

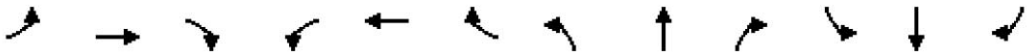
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 100 | 130 | 20 | 60 | 70 | 20 | 10 | 280 | 80 | 20 | 360 | 90 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 105 | 137 | 21 | 63 | 74 | 21 | 11 | 295 | 84 | 21 | 379 | 95 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 105 | 158 | 158 | 305 | 84 | 211 | 284 |
| Volume Left (vph) | 105 | 0 | 63 | 11 | 0 | 21 | 0 |
| Volume Right (vph) | 0 | 21 | 21 | 0 | 84 | 0 | 95 |
| Hadj (s) | 0.50 | -0.09 | 0.00 | 0.02 | -0.70 | 0.05 | -0.23 |
| Departure Headway (s) | 7.8 | 7.2 | 7.4 | 6.8 | 6.1 | 6.7 | 6.4 |
| Degree Utilization, x | 0.23 | 0.32 | 0.32 | 0.58 | 0.14 | 0.39 | 0.51 |
| Capacity (veh/h) | 431 | 455 | 449 | 503 | 558 | 513 | 539 |
| Control Delay (s) | 11.9 | 12.3 | 13.9 | 17.6 | 8.9 | 12.8 | 14.7 |
| Approach Delay (s) | 12.1 | | 13.9 | 15.8 | | 13.9 | |
| Approach LOS | B | | B | C | | B | |

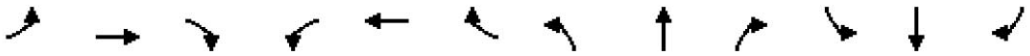
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 14.1 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 56.0% | ICU Level of Service | | B |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 280 | 160 | 70 | 260 | 20 | 100 | 200 | 40 | 20 | 140 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 1.00 | |
| Satd. Flow (prot) | 1805 | 3380 | | 1805 | 1900 | 1571 | | 1869 | 1590 | | 1834 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 1.00 | |
| Satd. Flow (perm) | 1805 | 3380 | | 1805 | 1900 | 1571 | | 1869 | 1590 | | 1834 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 11 | 311 | 178 | 78 | 289 | 22 | 111 | 222 | 44 | 22 | 156 | 44 |
| RTOR Reduction (vph) | 0 | 79 | 0 | 0 | 0 | 15 | 0 | 0 | 33 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 11 | 410 | 0 | 78 | 289 | 7 | 0 | 333 | 11 | 0 | 213 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.0 | 18.0 | | 5.2 | 22.2 | 22.2 | | 18.2 | 18.2 | | 14.4 | |
| Effective Green, g (s) | 1.0 | 18.0 | | 5.2 | 22.2 | 22.2 | | 18.2 | 18.2 | | 14.4 | |
| Actuated g/C Ratio | 0.01 | 0.25 | | 0.07 | 0.31 | 0.31 | | 0.25 | 0.25 | | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 25 | 847 | | 131 | 587 | 486 | | 474 | 403 | | 368 | |
| v/s Ratio Prot | 0.01 | 0.12 | | c0.04 | c0.15 | | | c0.18 | | | c0.12 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.01 | | | |
| v/c Ratio | 0.44 | 0.48 | | 0.60 | 0.49 | 0.01 | | 0.70 | 0.03 | | 0.58 | |
| Uniform Delay, d1 | 35.1 | 22.9 | | 32.3 | 20.2 | 17.2 | | 24.3 | 20.1 | | 26.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 11.9 | 0.4 | | 7.1 | 0.7 | 0.0 | | 4.7 | 0.0 | | 2.2 | |
| Delay (s) | 47.0 | 23.4 | | 39.4 | 20.9 | 17.2 | | 29.0 | 20.2 | | 28.2 | |
| Level of Service | D | C | | D | C | B | | C | C | | C | |
| Approach Delay (s) | | 23.9 | | | 24.4 | | | 28.0 | | | 28.2 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 71.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

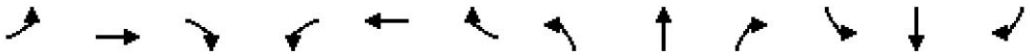
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 160 | 120 | 30 | 110 | 30 | 90 | 490 | 30 | 70 | 610 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3358 | | 1805 | 3484 | | 1805 | 3610 | 1595 | 1805 | 4985 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3358 | | 1805 | 3484 | | 1805 | 3610 | 1595 | 1805 | 4985 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 151 | 172 | 129 | 32 | 118 | 32 | 97 | 527 | 32 | 75 | 656 | 204 |
| RTOR Reduction (vph) | 0 | 98 | 0 | 0 | 26 | 0 | 0 | 0 | 20 | 0 | 56 | 0 |
| Lane Group Flow (vph) | 151 | 203 | 0 | 32 | 124 | 0 | 97 | 527 | 12 | 75 | 804 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.0 | 13.9 | | 4.0 | 9.9 | | 7.0 | 17.6 | 21.6 | 5.5 | 16.1 | |
| Effective Green, g (s) | 8.0 | 13.9 | | 4.0 | 9.9 | | 7.0 | 17.6 | 21.6 | 5.5 | 16.1 | |
| Actuated g/C Ratio | 0.14 | 0.24 | | 0.07 | 0.17 | | 0.12 | 0.31 | 0.38 | 0.10 | 0.28 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 253 | 819 | | 127 | 605 | | 222 | 1115 | 716 | 174 | 1408 | |
| v/s Ratio Prot | c0.08 | c0.06 | | 0.02 | 0.04 | | c0.05 | 0.15 | 0.00 | 0.04 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.60 | 0.25 | | 0.25 | 0.20 | | 0.44 | 0.47 | 0.02 | 0.43 | 0.57 | |
| Uniform Delay, d1 | 23.0 | 17.3 | | 25.1 | 20.2 | | 23.2 | 15.9 | 11.1 | 24.3 | 17.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.8 | 0.2 | | 1.0 | 0.2 | | 1.4 | 0.3 | 0.0 | 1.7 | 0.6 | |
| Delay (s) | 26.7 | 17.5 | | 26.1 | 20.3 | | 24.6 | 16.3 | 11.1 | 26.0 | 18.1 | |
| Level of Service | C | B | | C | C | | C | B | B | C | B | |
| Approach Delay (s) | | 20.6 | | | 21.4 | | | 17.2 | | | 18.7 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 57.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 54.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

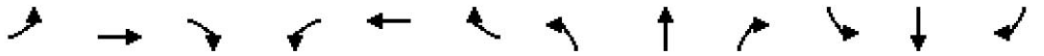
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 80 | 10 | 20 | 10 | 10 | 10 | 10 | 280 | 10 | 10 | 340 | 90 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 85 | 11 | 21 | 11 | 11 | 11 | 11 | 298 | 11 | 11 | 362 | 96 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 90 | 27 | 32 | 160 | 160 | 191 | 277 |
| Volume Left (vph) | 85 | 0 | 11 | 11 | 0 | 11 | 0 |
| Volume Right (vph) | 0 | 21 | 11 | 0 | 11 | 0 | 96 |
| Hadj (s) | 0.47 | -0.56 | -0.13 | 0.03 | -0.05 | 0.03 | -0.24 |
| Departure Headway (s) | 6.8 | 5.8 | 6.3 | 5.5 | 5.4 | 5.4 | 5.1 |
| Degree Utilization, x | 0.17 | 0.04 | 0.06 | 0.24 | 0.24 | 0.29 | 0.39 |
| Capacity (veh/h) | 489 | 568 | 518 | 630 | 638 | 648 | 687 |
| Control Delay (s) | 10.0 | 7.8 | 9.7 | 9.1 | 9.0 | 9.3 | 10.1 |
| Approach Delay (s) | 9.5 | | 9.7 | 9.0 | | 9.8 | |
| Approach LOS | A | | A | A | | A | |

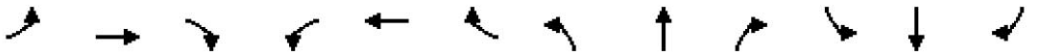
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 9.5 | | | |
| HCM Level of Service | A | | | |
| Intersection Capacity Utilization | 37.9% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 50 | 30 | 260 | 70 | 90 | 20 | 420 | 190 | 120 | 500 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.92 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3391 | | 1805 | 3279 | | 1805 | 5187 | 1601 | 1805 | 5011 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3391 | | 1805 | 3279 | | 1805 | 5187 | 1601 | 1805 | 5011 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 97 | 54 | 32 | 280 | 75 | 97 | 22 | 452 | 204 | 129 | 538 | 140 |
| RTOR Reduction (vph) | 0 | 28 | 0 | 0 | 81 | 0 | 0 | 0 | 114 | 0 | 38 | 0 |
| Lane Group Flow (vph) | 97 | 58 | 0 | 280 | 91 | 0 | 22 | 452 | 90 | 129 | 640 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.7 | 6.2 | | 9.3 | 8.8 | | 1.1 | 13.8 | 23.1 | 7.2 | 19.9 | |
| Effective Green, g (s) | 6.7 | 6.2 | | 9.3 | 8.8 | | 1.1 | 13.8 | 23.1 | 7.2 | 19.9 | |
| Actuated g/C Ratio | 0.13 | 0.12 | | 0.18 | 0.17 | | 0.02 | 0.26 | 0.44 | 0.14 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 230 | 400 | | 320 | 550 | | 38 | 1363 | 826 | 248 | 1899 | |
| v/s Ratio Prot | 0.05 | 0.02 | | c0.16 | c0.03 | | 0.01 | 0.09 | 0.02 | c0.07 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | |
| v/c Ratio | 0.42 | 0.14 | | 0.88 | 0.17 | | 0.58 | 0.33 | 0.11 | 0.52 | 0.34 | |
| Uniform Delay, d1 | 21.1 | 20.8 | | 21.0 | 18.7 | | 25.5 | 15.6 | 8.6 | 21.0 | 11.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.2 | 0.2 | | 22.3 | 0.1 | | 19.6 | 0.1 | 0.1 | 2.0 | 0.1 | |
| Delay (s) | 22.4 | 20.9 | | 43.4 | 18.9 | | 45.1 | 15.8 | 8.7 | 23.0 | 11.7 | |
| Level of Service | C | C | | D | B | | D | B | A | C | B | |
| Approach Delay (s) | | 21.7 | | | 34.0 | | | 14.6 | | | 13.5 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 52.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 58.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 450 | 160 | 150 | 340 | 80 | 210 | 900 | 150 | 60 | 720 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1601 | 1805 | 3496 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1594 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1601 | 1805 | 3496 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1594 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 206 | 464 | 165 | 155 | 351 | 82 | 216 | 928 | 155 | 62 | 742 | 206 |
| RTOR Reduction (vph) | 0 | 0 | 40 | 0 | 20 | 0 | 0 | 0 | 35 | 0 | 0 | 75 |
| Lane Group Flow (vph) | 206 | 464 | 125 | 155 | 413 | 0 | 216 | 928 | 120 | 62 | 742 | 131 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 16.2 | 23.5 | 43.9 | 12.6 | 19.9 | | 20.4 | 59.6 | 72.2 | 8.3 | 47.5 | 63.7 |
| Effective Green, g (s) | 16.2 | 23.5 | 43.9 | 12.6 | 19.9 | | 20.4 | 59.6 | 72.2 | 8.3 | 47.5 | 63.7 |
| Actuated g/C Ratio | 0.13 | 0.20 | 0.37 | 0.10 | 0.17 | | 0.17 | 0.50 | 0.60 | 0.07 | 0.40 | 0.53 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 244 | 707 | 639 | 190 | 580 | | 307 | 1793 | 1011 | 125 | 1429 | 899 |
| v/s Ratio Prot | c0.11 | c0.13 | 0.03 | 0.09 | 0.12 | | c0.12 | c0.26 | 0.01 | 0.03 | 0.21 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | | | | 0.06 | | | 0.06 |
| v/c Ratio | 0.84 | 0.66 | 0.20 | 0.82 | 0.71 | | 0.70 | 0.52 | 0.12 | 0.50 | 0.52 | 0.15 |
| Uniform Delay, d1 | 50.7 | 44.5 | 26.0 | 52.6 | 47.3 | | 46.9 | 20.5 | 10.3 | 53.8 | 27.6 | 14.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.10 | 1.01 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 22.5 | 2.2 | 0.2 | 22.9 | 4.1 | | 6.0 | 0.9 | 0.0 | 3.1 | 1.4 | 0.1 |
| Delay (s) | 73.2 | 46.7 | 26.1 | 75.4 | 51.5 | | 52.9 | 23.3 | 10.4 | 56.9 | 28.9 | 14.4 |
| Level of Service | E | D | C | E | D | | D | C | B | E | C | B |
| Approach Delay (s) | | 49.2 | | | 57.8 | | | 26.7 | | | 27.7 | |
| Approach LOS | | D | | | E | | | C | | | C | |

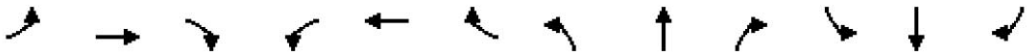
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 220 | 10 | 160 | 580 | 1480 | 0 | 0 | 740 | 410 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3392 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3392 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 0 | 0 | 234 | 11 | 170 | 617 | 1574 | 0 | 0 | 787 | 436 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 63 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 245 | 136 | 617 | 1574 | 0 | 0 | 1160 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 21.9 | 21.9 | 49.9 | 90.1 | | | 36.2 | |
| Effective Green, g (s) | | | | | 21.9 | 21.9 | 49.9 | 90.1 | | | 36.2 | |
| Actuated g/C Ratio | | | | | 0.18 | 0.18 | 0.42 | 0.75 | | | 0.30 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 331 | 290 | 751 | 2711 | | | 1023 | |
| v/s Ratio Prot | | | | | c0.14 | | c0.34 | 0.44 | | | c0.34 | |
| v/s Ratio Perm | | | | | | 0.09 | | | | | | |
| v/c Ratio | | | | | 0.74 | 0.47 | 0.82 | 0.58 | | | 1.13 | |
| Uniform Delay, d1 | | | | | 46.4 | 43.8 | 31.1 | 6.6 | | | 41.9 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.73 | |
| Incremental Delay, d2 | | | | | 8.6 | 1.2 | 7.2 | 0.9 | | | 71.7 | |
| Delay (s) | | | | | 55.0 | 45.0 | 38.3 | 7.5 | | | 102.5 | |
| Level of Service | | | | | D | D | D | A | | | F | |
| Approach Delay (s) | | 0.0 | | | 50.9 | | | 16.2 | | | 102.5 | |
| Approach LOS | | A | | | D | | | B | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 118.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

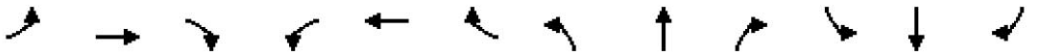
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 540 | 10 | 470 | 0 | 0 | 0 | 0 | 1340 | 450 | 180 | 840 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.96 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1722 | 1590 | | | | | 4953 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1722 | 1590 | | | | | 4953 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 557 | 10 | 485 | 0 | 0 | 0 | 0 | 1381 | 464 | 186 | 866 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 92 | 0 | 0 | 0 | 0 | 63 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 284 | 283 | 393 | 0 | 0 | 0 | 0 | 1782 | 0 | 186 | 866 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 26.0 | 26.0 | 26.0 | | | | | 34.3 | | 10.8 | 49.1 | |
| Effective Green, g (s) | 26.0 | 26.0 | 26.0 | | | | | 34.3 | | 10.8 | 49.1 | |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.31 | | | | | 0.41 | | 0.13 | 0.59 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 537 | 539 | 497 | | | | | 2044 | | 235 | 2133 | |
| v/s Ratio Prot | 0.17 | 0.16 | | | | | | c0.36 | | c0.10 | 0.24 | |
| v/s Ratio Perm | | | c0.25 | | | | | | | | | |
| v/c Ratio | 0.53 | 0.53 | 0.79 | | | | | 0.87 | | 0.79 | 0.41 | |
| Uniform Delay, d1 | 23.5 | 23.5 | 26.1 | | | | | 22.4 | | 35.1 | 9.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 0.9 | 8.4 | | | | | 4.4 | | 16.5 | 0.1 | |
| Delay (s) | 24.5 | 24.4 | 34.4 | | | | | 26.8 | | 51.5 | 9.3 | |
| Level of Service | C | C | C | | | | | C | | D | A | |
| Approach Delay (s) | | 29.0 | | | 0.0 | | | 26.8 | | | 16.7 | |
| Approach LOS | | C | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 83.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 118.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

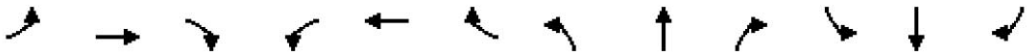


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 660 | 610 | 600 | 70 | 110 | 480 | 170 | 1150 | 120 | 390 | 800 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.88 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1596 | 1805 | 3169 | | 1805 | 5105 | | 3502 | 3610 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1596 | 1805 | 3169 | | 1805 | 5105 | | 3502 | 3610 | 1598 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 710 | 656 | 645 | 75 | 118 | 516 | 183 | 1237 | 129 | 419 | 860 | 140 |
| RTOR Reduction (vph) | 0 | 0 | 32 | 0 | 207 | 0 | 0 | 10 | 0 | 0 | 0 | 59 |
| Lane Group Flow (vph) | 710 | 656 | 613 | 75 | 427 | 0 | 183 | 1356 | 0 | 419 | 860 | 81 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 25.8 | 36.4 | 53.4 | 7.0 | 17.6 | | 17.0 | 44.0 | | 16.6 | 43.6 | 69.4 |
| Effective Green, g (s) | 25.8 | 36.4 | 53.4 | 7.0 | 17.6 | | 17.0 | 44.0 | | 16.6 | 43.6 | 69.4 |
| Actuated g/C Ratio | 0.22 | 0.30 | 0.44 | 0.06 | 0.15 | | 0.14 | 0.37 | | 0.14 | 0.36 | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 753 | 1095 | 763 | 105 | 465 | | 256 | 1872 | | 484 | 1312 | 977 |
| v/s Ratio Prot | c0.20 | 0.18 | c0.11 | 0.04 | 0.13 | | 0.10 | c0.27 | | 0.12 | 0.24 | 0.02 |
| v/s Ratio Perm | | | 0.27 | | | | | | | | | 0.03 |
| v/c Ratio | 0.94 | 0.60 | 0.80 | 0.71 | 1.16dr | | 0.71 | 0.72 | | 0.87 | 0.66 | 0.08 |
| Uniform Delay, d1 | 46.4 | 35.6 | 28.8 | 55.5 | 50.5 | | 49.2 | 32.8 | | 50.6 | 31.9 | 11.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.43 | 0.29 | | 1.47 | 0.39 | 0.03 |
| Incremental Delay, d2 | 20.0 | 0.9 | 6.1 | 20.5 | 22.8 | | 5.8 | 1.5 | | 11.7 | 1.9 | 0.0 |
| Delay (s) | 66.4 | 36.5 | 34.9 | 76.0 | 73.3 | | 76.0 | 10.9 | | 86.0 | 14.3 | 0.4 |
| Level of Service | E | D | C | E | E | | E | B | | F | B | A |
| Approach Delay (s) | | 46.6 | | | 73.6 | | | 18.6 | | | 34.1 | |
| Approach LOS | | D | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 4.0 |
| Intersection Capacity Utilization | 91.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

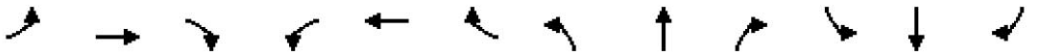
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 140 | 10 | 150 | 610 | 1650 | 0 | 0 | 1160 | 380 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | | 0.97 | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.93 | | 1.00 | 1.00 | | | 0.96 | |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1714 | | 3502 | 3610 | | | 4970 | |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1714 | | 3502 | 3610 | | | 4970 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 144 | 10 | 155 | 629 | 1701 | 0 | 0 | 1196 | 392 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 45 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 280 | 0 | 629 | 1701 | 0 | 0 | 1543 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 24.2 | | 30.0 | 87.8 | | | 53.8 | |
| Effective Green, g (s) | | | | | 24.2 | | 30.0 | 87.8 | | | 53.8 | |
| Actuated g/C Ratio | | | | | 0.20 | | 0.25 | 0.73 | | | 0.45 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 346 | | 876 | 2641 | | | 2228 | |
| v/s Ratio Prot | | | | | c0.16 | | c0.18 | 0.47 | | | c0.31 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.81 | | 0.72 | 0.64 | | | 0.69 | |
| Uniform Delay, d1 | | | | | 45.7 | | 41.1 | 8.2 | | | 26.5 | |
| Progression Factor | | | | | 1.00 | | 0.78 | 0.45 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 13.1 | | 1.5 | 0.7 | | | 1.8 | |
| Delay (s) | | | | | 58.8 | | 33.4 | 4.4 | | | 28.3 | |
| Level of Service | | | | | E | | C | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 58.8 | | | 12.2 | | | 28.3 | |
| Approach LOS | | A | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 240 | 70 | 80 | 150 | 110 | 70 | 1270 | 70 | 170 | 1130 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 44 | 264 | 77 | 88 | 165 | 121 | 77 | 1396 | 77 | 187 | 1242 | 55 |
| RTOR Reduction (vph) | 0 | 0 | 41 | 0 | 0 | 97 | 0 | 0 | 15 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 44 | 264 | 36 | 88 | 165 | 24 | 77 | 1396 | 62 | 187 | 1242 | 44 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 5.6 | 22.8 | 22.8 | 7.0 | 24.2 | 24.2 | 9.1 | 55.5 | 55.5 | 18.7 | 65.1 | 65.1 |
| Effective Green, g (s) | 5.6 | 22.8 | 22.8 | 7.0 | 24.2 | 24.2 | 9.1 | 55.5 | 55.5 | 18.7 | 65.1 | 65.1 |
| Actuated g/C Ratio | 0.05 | 0.19 | 0.19 | 0.06 | 0.20 | 0.20 | 0.08 | 0.46 | 0.46 | 0.16 | 0.54 | 0.54 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 84 | 361 | 302 | 105 | 383 | 320 | 137 | 1670 | 725 | 281 | 1958 | 850 |
| v/s Ratio Prot | 0.02 | c0.14 | | c0.05 | 0.09 | | 0.04 | c0.39 | | c0.10 | 0.34 | |
| v/s Ratio Perm | | | 0.02 | | | 0.02 | | | 0.04 | | | 0.03 |
| v/c Ratio | 0.52 | 0.73 | 0.12 | 0.84 | 0.43 | 0.08 | 0.56 | 0.84 | 0.09 | 0.67 | 0.63 | 0.05 |
| Uniform Delay, d1 | 55.9 | 45.7 | 40.3 | 55.9 | 41.9 | 38.8 | 53.5 | 28.3 | 18.1 | 47.7 | 19.1 | 12.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.94 | 0.97 | 0.73 |
| Incremental Delay, d2 | 5.8 | 7.4 | 0.2 | 41.2 | 0.8 | 0.1 | 5.2 | 5.1 | 0.2 | 4.0 | 1.1 | 0.1 |
| Delay (s) | 61.7 | 53.2 | 40.4 | 97.2 | 42.7 | 38.9 | 58.7 | 33.4 | 18.3 | 48.9 | 19.7 | 9.5 |
| Level of Service | E | D | D | F | D | D | E | C | B | D | B | A |
| Approach Delay (s) | | 51.6 | | | 54.3 | | | 33.9 | | | 23.0 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 78.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

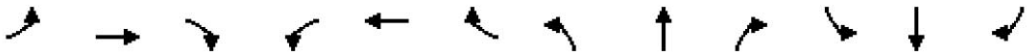
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 10 | 140 | 10 | 10 | 260 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 10 | 10 | 146 | 10 | 10 | 271 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 21 | | 323 | 21 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 21 | | 323 | 21 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 91 | | 98 | 74 |
| cM capacity (veh/h) | | | 1608 | | 611 | 1058 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 21 | 156 | 10 | 271 |
| Volume Left | 0 | 146 | 10 | 0 |
| Volume Right | 10 | 0 | 0 | 271 |
| cSH | 1700 | 1608 | 611 | 1058 |
| Volume to Capacity | 0.01 | 0.09 | 0.02 | 0.26 |
| Queue Length 95th (ft) | 0 | 7 | 1 | 26 |
| Control Delay (s) | 0.0 | 7.0 | 11.0 | 9.6 |
| Lane LOS | | A | B | A |
| Approach Delay (s) | 0.0 | 7.0 | 9.6 | |
| Approach LOS | | | A | |

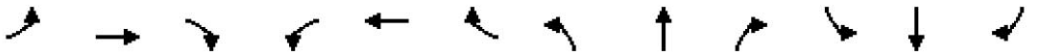
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.3 | | |
| Intersection Capacity Utilization | 26.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 100 | 180 | 130 | 100 | 10 | 130 | 270 | 130 | 0 | 170 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.90 | | 1.00 | 0.99 | | | 0.97 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1679 | | 1805 | 1869 | | | 1800 | | | 1866 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1679 | | 1805 | 1869 | | | 1800 | | | 1866 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 52 | 103 | 186 | 134 | 103 | 10 | 134 | 278 | 134 | 0 | 175 | 21 |
| RTOR Reduction (vph) | 0 | 50 | 0 | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 52 | 239 | 0 | 134 | 110 | 0 | 0 | 536 | 0 | 0 | 193 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 35.0 | | 12.5 | 40.4 | | | 39.3 | | | 17.2 | |
| Effective Green, g (s) | 7.1 | 35.0 | | 12.5 | 40.4 | | | 39.3 | | | 17.2 | |
| Actuated g/C Ratio | 0.06 | 0.29 | | 0.10 | 0.34 | | | 0.33 | | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 107 | 490 | | 188 | 629 | | | 590 | | | 267 | |
| v/s Ratio Prot | 0.03 | c0.14 | | c0.07 | 0.06 | | | c0.30 | | | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.49 | 0.49 | | 0.71 | 0.18 | | | 0.91 | | | 0.72 | |
| Uniform Delay, d1 | 54.7 | 35.1 | | 52.0 | 28.1 | | | 38.6 | | | 49.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.04 | 0.68 | | | 1.00 | | | 1.05 | |
| Incremental Delay, d2 | 3.4 | 3.5 | | 12.0 | 0.6 | | | 17.8 | | | 9.2 | |
| Delay (s) | 58.1 | 38.6 | | 65.9 | 19.6 | | | 56.4 | | | 60.7 | |
| Level of Service | E | D | | E | B | | | E | | | E | |
| Approach Delay (s) | | 41.5 | | | 44.7 | | | 56.4 | | | 60.7 | |
| Approach LOS | | D | | | D | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 78.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

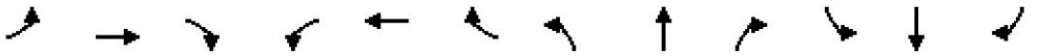
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 50 | 820 | 40 | 20 | 480 | 100 | 650 | 20 | 230 | 510 | 350 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | |
| Flt Protected | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1829 | 2798 | 1805 | 1900 | 1590 | 1805 | 3610 | 1571 | 1805 | 4812 | |
| Flt Permitted | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1829 | 2798 | 1805 | 1900 | 1590 | 1805 | 3610 | 1571 | 1805 | 4812 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 175 | 52 | 845 | 41 | 21 | 495 | 103 | 670 | 21 | 237 | 526 | 361 |
| RTOR Reduction (vph) | 0 | 0 | 636 | 0 | 0 | 299 | 0 | 0 | 16 | 0 | 99 | 0 |
| Lane Group Flow (vph) | 0 | 227 | 209 | 41 | 21 | 196 | 103 | 670 | 5 | 237 | 788 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 21.0 | 21.0 | 16.4 | 16.4 | 16.4 | 9.6 | 21.9 | 21.9 | 9.7 | 22.0 | |
| Effective Green, g (s) | | 21.0 | 21.0 | 16.4 | 16.4 | 16.4 | 9.6 | 21.9 | 21.9 | 9.7 | 22.0 | |
| Actuated g/C Ratio | | 0.25 | 0.25 | 0.19 | 0.19 | 0.19 | 0.11 | 0.26 | 0.26 | 0.11 | 0.26 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 452 | 691 | 348 | 367 | 307 | 204 | 930 | 405 | 206 | 1245 | |
| v/s Ratio Prot | | c0.12 | | 0.02 | 0.01 | | 0.06 | c0.19 | | c0.13 | 0.16 | |
| v/s Ratio Perm | | | 0.07 | | | c0.12 | | | 0.00 | | | |
| v/c Ratio | | 0.50 | 0.30 | 0.12 | 0.06 | 0.64 | 0.50 | 0.72 | 0.01 | 1.15 | 0.63 | |
| Uniform Delay, d1 | | 27.5 | 26.0 | 28.3 | 28.0 | 31.6 | 35.5 | 28.8 | 23.5 | 37.6 | 27.9 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.9 | 0.2 | 0.2 | 0.1 | 4.3 | 2.0 | 2.8 | 0.0 | 109.2 | 1.1 | |
| Delay (s) | | 28.4 | 26.3 | 28.5 | 28.1 | 35.9 | 37.4 | 31.5 | 23.5 | 146.8 | 29.0 | |
| Level of Service | | C | C | C | C | D | D | C | C | F | C | |
| Approach Delay (s) | | 26.7 | | | 35.1 | | | 32.1 | | | 53.8 | |
| Approach LOS | | C | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 85.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

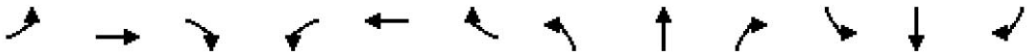
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 580 | 270 | 210 | 210 | 80 | 130 | 1090 | 180 | 180 | 980 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3419 | | 1805 | 3444 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3419 | | 1805 | 3444 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 144 | 644 | 300 | 233 | 233 | 89 | 144 | 1211 | 200 | 200 | 1089 | 67 |
| RTOR Reduction (vph) | 0 | 46 | 0 | 0 | 34 | 0 | 0 | 0 | 103 | 0 | 0 | 36 |
| Lane Group Flow (vph) | 144 | 898 | 0 | 233 | 288 | 0 | 144 | 1211 | 97 | 200 | 1089 | 31 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.4 | 35.1 | | 15.0 | 37.7 | | 11.7 | 40.0 | 40.0 | 13.9 | 42.2 | 42.2 |
| Effective Green, g (s) | 12.4 | 35.1 | | 15.0 | 37.7 | | 11.7 | 40.0 | 40.0 | 13.9 | 42.2 | 42.2 |
| Actuated g/C Ratio | 0.10 | 0.29 | | 0.12 | 0.31 | | 0.10 | 0.33 | 0.33 | 0.12 | 0.35 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 187 | 1000 | | 226 | 1082 | | 176 | 1203 | 529 | 209 | 1270 | 558 |
| v/s Ratio Prot | 0.08 | c0.26 | | c0.13 | c0.08 | | 0.08 | c0.34 | | c0.11 | 0.30 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | 0.02 |
| v/c Ratio | 0.77 | 0.90 | | 1.03 | 0.27 | | 0.82 | 1.01 | 0.18 | 0.96 | 0.86 | 0.06 |
| Uniform Delay, d1 | 52.4 | 40.7 | | 52.5 | 30.8 | | 53.1 | 40.0 | 28.4 | 52.8 | 36.1 | 25.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.34 | 0.60 | 0.15 |
| Incremental Delay, d2 | 17.6 | 10.6 | | 68.2 | 0.1 | | 24.6 | 27.6 | 0.8 | 31.5 | 3.8 | 0.1 |
| Delay (s) | 70.0 | 51.3 | | 120.7 | 30.9 | | 77.7 | 67.6 | 29.2 | 101.9 | 25.3 | 4.0 |
| Level of Service | E | D | | F | C | | E | E | C | F | C | A |
| Approach Delay (s) | | 53.8 | | | 68.6 | | | 63.6 | | | 35.5 | |
| Approach LOS | | D | | | E | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 53.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.99 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 90.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

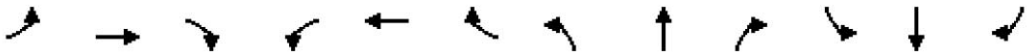
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 440 | 170 | 130 | 310 | 180 | 160 | 900 | 160 | 370 | 800 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3443 | | 1805 | 3389 | | 1805 | 5187 | 1587 | 1805 | 5146 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3443 | | 1805 | 3389 | | 1805 | 5187 | 1587 | 1805 | 5146 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 175 | 454 | 175 | 134 | 320 | 186 | 165 | 928 | 165 | 381 | 825 | 41 |
| RTOR Reduction (vph) | 0 | 38 | 0 | 0 | 78 | 0 | 0 | 0 | 88 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 175 | 591 | 0 | 134 | 428 | 0 | 165 | 928 | 77 | 381 | 862 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 12.0 | 26.5 | | 9.0 | 23.5 | | 16.2 | 37.3 | 37.3 | 31.2 | 52.3 | |
| Effective Green, g (s) | 12.0 | 26.5 | | 9.0 | 23.5 | | 16.2 | 37.3 | 37.3 | 31.2 | 52.3 | |
| Actuated g/C Ratio | 0.10 | 0.22 | | 0.08 | 0.20 | | 0.13 | 0.31 | 0.31 | 0.26 | 0.44 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 181 | 760 | | 135 | 664 | | 244 | 1612 | 493 | 469 | 2243 | |
| v/s Ratio Prot | c0.10 | c0.17 | | 0.07 | 0.13 | | 0.09 | c0.18 | | c0.21 | 0.17 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.97 | 0.78 | | 0.99 | 0.64 | | 0.68 | 0.58 | 0.16 | 0.81 | 0.38 | |
| Uniform Delay, d1 | 53.8 | 44.0 | | 55.5 | 44.4 | | 49.4 | 34.7 | 30.0 | 41.7 | 22.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.34 | 0.31 | 0.01 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 56.6 | 5.0 | | 74.9 | 2.2 | | 0.7 | 0.1 | 0.1 | 10.3 | 0.5 | |
| Delay (s) | 110.4 | 49.0 | | 130.4 | 46.6 | | 66.7 | 10.7 | 0.3 | 52.0 | 23.4 | |
| Level of Service | F | D | | F | D | | E | B | A | D | C | |
| Approach Delay (s) | | 62.4 | | | 64.1 | | | 16.7 | | | 32.2 | |
| Approach LOS | | E | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 87.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

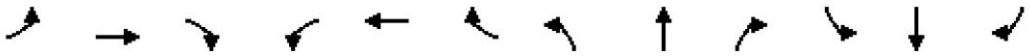
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 720 | 170 | 210 | 590 | 70 | 90 | 130 | 390 | 60 | 170 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.89 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3496 | | 1805 | 3610 | 1593 | 1805 | 3169 | | 1805 | 3420 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3496 | | 1805 | 3610 | 1593 | 1805 | 3169 | | 1805 | 3420 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 63 | 758 | 179 | 221 | 621 | 74 | 95 | 137 | 411 | 63 | 179 | 84 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 0 | 36 | 0 | 227 | 0 | 0 | 72 | 0 |
| Lane Group Flow (vph) | 63 | 920 | 0 | 221 | 621 | 38 | 95 | 321 | 0 | 63 | 191 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 6.1 | 26.9 | | 10.4 | 31.2 | 36.4 | 7.1 | 12.4 | | 5.2 | 10.5 | |
| Effective Green, g (s) | 6.1 | 26.9 | | 10.4 | 31.2 | 36.4 | 7.1 | 12.4 | | 5.2 | 10.5 | |
| Actuated g/C Ratio | 0.09 | 0.38 | | 0.15 | 0.44 | 0.51 | 0.10 | 0.17 | | 0.07 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 155 | 1326 | | 265 | 1589 | 908 | 181 | 554 | | 132 | 506 | |
| v/s Ratio Prot | 0.03 | c0.26 | | c0.12 | 0.17 | 0.00 | c0.05 | c0.10 | | 0.03 | 0.06 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.41 | 0.69 | | 0.83 | 0.39 | 0.04 | 0.52 | 0.58 | | 0.48 | 0.38 | |
| Uniform Delay, d1 | 30.7 | 18.5 | | 29.4 | 13.4 | 8.6 | 30.3 | 26.9 | | 31.5 | 27.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.7 | 1.6 | | 19.7 | 0.2 | 0.0 | 2.7 | 1.5 | | 2.7 | 0.5 | |
| Delay (s) | 32.4 | 20.1 | | 49.1 | 13.6 | 8.6 | 33.0 | 28.3 | | 34.3 | 27.7 | |
| Level of Service | C | C | | D | B | A | C | C | | C | C | |
| Approach Delay (s) | | 20.9 | | | 21.7 | | | 29.0 | | | 29.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 70.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

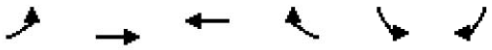
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 560 | 390 | 770 | 510 | 100 | 270 | 580 | 510 | 300 | 730 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 4836 | | 3502 | 5046 | | 3502 | 3610 | 1598 | 3502 | 3544 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 4836 | | 3502 | 5046 | | 3502 | 3610 | 1598 | 3502 | 3544 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 177 | 583 | 406 | 802 | 531 | 104 | 281 | 604 | 531 | 312 | 760 | 94 |
| RTOR Reduction (vph) | 0 | 111 | 0 | 0 | 25 | 0 | 0 | 0 | 33 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 177 | 878 | 0 | 802 | 610 | 0 | 281 | 604 | 498 | 312 | 846 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 9.8 | 24.7 | | 15.3 | 30.2 | | 10.2 | 31.6 | 46.9 | 8.2 | 29.6 | |
| Effective Green, g (s) | 9.8 | 24.7 | | 15.3 | 30.2 | | 10.2 | 31.6 | 46.9 | 8.2 | 29.6 | |
| Actuated g/C Ratio | 0.10 | 0.26 | | 0.16 | 0.32 | | 0.11 | 0.33 | 0.49 | 0.09 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 358 | 1247 | | 559 | 1591 | | 373 | 1191 | 849 | 300 | 1095 | |
| v/s Ratio Prot | 0.05 | c0.18 | | c0.23 | 0.12 | | 0.08 | 0.17 | 0.09 | c0.09 | c0.24 | |
| v/s Ratio Perm | | | | | | | | | 0.22 | | | |
| v/c Ratio | 0.49 | 0.70 | | 1.43 | 0.38 | | 0.75 | 0.51 | 0.59 | 1.04 | 0.77 | |
| Uniform Delay, d1 | 40.7 | 32.2 | | 40.2 | 25.5 | | 41.6 | 25.8 | 17.5 | 43.8 | 30.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.1 | 1.8 | | 205.7 | 0.2 | | 8.4 | 0.3 | 1.0 | 62.7 | 3.4 | |
| Delay (s) | 41.7 | 34.1 | | 246.0 | 25.7 | | 49.9 | 26.2 | 18.6 | 106.5 | 33.5 | |
| Level of Service | D | C | | F | C | | D | C | B | F | C | |
| Approach Delay (s) | | 35.2 | | | 148.6 | | | 28.0 | | | 53.0 | |
| Approach LOS | | D | | | F | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 68.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 95.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 89.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

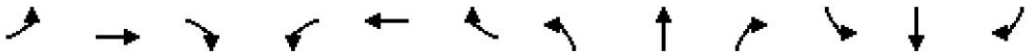
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 270 | 720 | 900 | 50 | 60 | 410 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.91 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 0.99 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 0.89 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 5139 | | 1647 | 1525 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 5139 | | 1647 | 1525 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 293 | 783 | 978 | 54 | 65 | 446 |
| RTOR Reduction (vph) | 0 | 0 | 8 | 0 | 161 | 3 |
| Lane Group Flow (vph) | 293 | 783 | 1024 | 0 | 100 | 247 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 12.5 | 32.5 | 16.0 | | 8.8 | 21.3 |
| Effective Green, g (s) | 12.5 | 32.5 | 16.0 | | 8.8 | 21.3 |
| Actuated g/C Ratio | 0.25 | 0.66 | 0.32 | | 0.18 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 458 | 3419 | 1668 | | 294 | 783 |
| v/s Ratio Prot | c0.16 | 0.15 | c0.20 | | 0.06 | c0.08 |
| v/s Ratio Perm | | | | | | 0.08 |
| v/c Ratio | 0.64 | 0.23 | 0.61 | | 0.34 | 0.32 |
| Uniform Delay, d1 | 16.4 | 3.4 | 14.0 | | 17.7 | 9.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.9 | 0.0 | 0.7 | | 0.7 | 0.2 |
| Delay (s) | 19.3 | 3.4 | 14.7 | | 18.4 | 9.4 |
| Level of Service | B | A | B | | B | A |
| Approach Delay (s) | | 7.7 | 14.7 | | 14.0 | |
| Approach LOS | | A | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 49.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 57.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

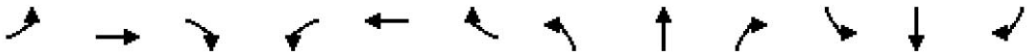
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 710 | 40 | 70 | 630 | 10 | 40 | 20 | 30 | 10 | 60 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.95 | | | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5138 | | 1805 | 5173 | | | 1766 | | | 1698 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5138 | | 1805 | 5173 | | | 1766 | | | 1698 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 202 | 755 | 43 | 74 | 670 | 11 | 43 | 21 | 32 | 11 | 64 | 181 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 19 | 0 | 0 | 84 | 0 |
| Lane Group Flow (vph) | 202 | 793 | 0 | 74 | 680 | 0 | 0 | 77 | 0 | 0 | 172 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.5 | 19.5 | | 5.2 | 17.2 | | | 6.7 | | | 12.0 | |
| Effective Green, g (s) | 7.5 | 19.5 | | 5.2 | 17.2 | | | 6.7 | | | 12.0 | |
| Actuated g/C Ratio | 0.13 | 0.33 | | 0.09 | 0.29 | | | 0.11 | | | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 228 | 1687 | | 158 | 1498 | | | 199 | | | 343 | |
| v/s Ratio Prot | c0.11 | c0.15 | | 0.04 | 0.13 | | | c0.04 | | | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.89 | 0.47 | | 0.47 | 0.45 | | | 0.39 | | | 0.50 | |
| Uniform Delay, d1 | 25.5 | 15.8 | | 25.8 | 17.3 | | | 24.5 | | | 21.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 30.9 | 0.2 | | 2.2 | 0.2 | | | 1.3 | | | 1.2 | |
| Delay (s) | 56.5 | 16.1 | | 28.0 | 17.5 | | | 25.7 | | | 22.2 | |
| Level of Service | E | B | | C | B | | | C | | | C | |
| Approach Delay (s) | | 24.2 | | | 18.5 | | | 25.7 | | | 22.2 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 59.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 58.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 680 | 40 | 30 | 610 | 0 | 40 | 10 | 40 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5140 | | 1805 | 5187 | | 1805 | 1900 | 1607 | 1805 | 1746 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5140 | | 1805 | 5187 | | 1805 | 1900 | 1607 | 1805 | 1746 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 22 | 731 | 43 | 32 | 656 | 0 | 43 | 11 | 43 | 11 | 11 | 11 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 22 | 769 | 0 | 32 | 656 | 0 | 43 | 11 | 6 | 11 | 11 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.9 | 21.5 | | 4.0 | 24.6 | | 2.2 | 2.2 | 6.2 | 0.9 | 0.9 | |
| Effective Green, g (s) | 0.9 | 21.5 | | 4.0 | 24.6 | | 2.2 | 2.2 | 6.2 | 0.9 | 0.9 | |
| Actuated g/C Ratio | 0.02 | 0.48 | | 0.09 | 0.55 | | 0.05 | 0.05 | 0.14 | 0.02 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 36 | 2478 | | 162 | 2861 | | 89 | 94 | 368 | 36 | 35 | |
| v/s Ratio Prot | c0.01 | c0.15 | | 0.02 | c0.13 | | c0.02 | 0.01 | 0.00 | 0.01 | c0.01 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | |
| v/c Ratio | 0.61 | 0.31 | | 0.20 | 0.23 | | 0.48 | 0.12 | 0.02 | 0.31 | 0.32 | |
| Uniform Delay, d1 | 21.7 | 7.0 | | 18.8 | 5.1 | | 20.6 | 20.3 | 16.6 | 21.5 | 21.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 27.0 | 0.1 | | 0.6 | 0.0 | | 4.1 | 0.6 | 0.0 | 4.8 | 5.2 | |
| Delay (s) | 48.6 | 7.1 | | 19.4 | 5.2 | | 24.7 | 20.8 | 16.6 | 26.3 | 26.8 | |
| Level of Service | D | A | | B | A | | C | C | B | C | C | |
| Approach Delay (s) | | 8.3 | | | 5.8 | | | 20.7 | | | 26.6 | |
| Approach LOS | | A | | | A | | | C | | | C | |

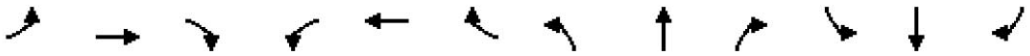
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 44.6 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 44.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 500 | 240 | 160 | 210 | 110 | 110 | 910 | 250 | 180 | 730 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1800 | | 1805 | 1900 | 1587 | 1805 | 3480 | | 1805 | 1900 | 1555 |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1800 | | 1805 | 1900 | 1587 | 1805 | 3480 | | 1805 | 1900 | 1555 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 74 | 526 | 253 | 168 | 221 | 116 | 116 | 958 | 263 | 189 | 768 | 74 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 0 | 93 | 0 | 21 | 0 | 0 | 0 | 30 |
| Lane Group Flow (vph) | 0 | 840 | 0 | 168 | 221 | 23 | 116 | 1200 | 0 | 189 | 768 | 44 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | 31.0 | | 20.1 | 20.1 | 20.1 | 14.9 | 34.0 | | 18.9 | 38.0 | 38.0 |
| Effective Green, g (s) | | 31.0 | | 20.1 | 20.1 | 20.1 | 14.9 | 34.0 | | 18.9 | 38.0 | 38.0 |
| Actuated g/C Ratio | | 0.26 | | 0.17 | 0.17 | 0.17 | 0.12 | 0.28 | | 0.16 | 0.32 | 0.32 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 465 | | 302 | 318 | 266 | 224 | 986 | | 284 | 602 | 492 |
| v/s Ratio Prot | | c0.47 | | 0.09 | c0.12 | | 0.06 | 0.34 | | c0.10 | c0.40 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | 0.03 |
| v/c Ratio | | 1.81 | | 0.56 | 0.69 | 0.09 | 0.52 | 1.22 | | 0.67 | 1.28 | 0.09 |
| Uniform Delay, d1 | | 44.5 | | 45.9 | 47.1 | 42.2 | 49.2 | 43.0 | | 47.6 | 41.0 | 28.8 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.86 | 1.20 | 1.62 |
| Incremental Delay, d2 | | 371.8 | | 2.2 | 6.5 | 0.1 | 2.0 | 107.1 | | 5.2 | 135.3 | 0.3 |
| Delay (s) | | 416.3 | | 48.1 | 53.5 | 42.3 | 51.2 | 150.1 | | 46.2 | 184.7 | 46.9 |
| Level of Service | | F | | D | D | D | D | F | | D | F | D |
| Approach Delay (s) | | 416.3 | | | 49.1 | | | 141.5 | | | 149.4 | |
| Approach LOS | | F | | | D | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 194.1 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.24 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 116.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

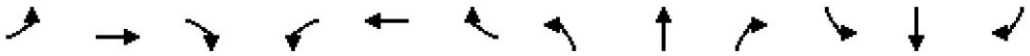
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 480 | 210 | 160 | 70 | 100 | 80 | 100 | 700 | 40 | 160 | 780 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.93 | | 1.00 | 0.99 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3351 | | 1805 | 3345 | | 1805 | 3578 | | 1805 | 3478 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3351 | | 1805 | 3345 | | 1805 | 3578 | | 1805 | 3478 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 516 | 226 | 172 | 75 | 108 | 86 | 108 | 753 | 43 | 172 | 839 | 237 |
| RTOR Reduction (vph) | 0 | 114 | 0 | 0 | 78 | 0 | 0 | 3 | 0 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 516 | 284 | 0 | 75 | 116 | 0 | 108 | 793 | 0 | 172 | 1056 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 32.0 | 33.9 | | 7.8 | 9.7 | | 7.0 | 31.0 | | 11.0 | 35.0 | |
| Effective Green, g (s) | 32.0 | 33.9 | | 7.8 | 9.7 | | 7.0 | 31.0 | | 11.0 | 35.0 | |
| Actuated g/C Ratio | 0.32 | 0.34 | | 0.08 | 0.10 | | 0.07 | 0.31 | | 0.11 | 0.35 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 579 | 1139 | | 141 | 325 | | 127 | 1113 | | 199 | 1221 | |
| v/s Ratio Prot | c0.29 | 0.08 | | 0.04 | c0.03 | | 0.06 | 0.22 | | c0.10 | c0.30 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.89 | 0.25 | | 0.53 | 0.36 | | 0.85 | 0.71 | | 0.86 | 0.86 | |
| Uniform Delay, d1 | 32.2 | 23.7 | | 44.2 | 42.1 | | 45.8 | 30.4 | | 43.6 | 30.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 15.9 | 0.1 | | 3.8 | 0.7 | | 38.8 | 2.2 | | 30.0 | 6.6 | |
| Delay (s) | 48.0 | 23.8 | | 48.0 | 42.8 | | 84.7 | 32.6 | | 73.6 | 36.7 | |
| Level of Service | D | C | | D | D | | F | C | | E | D | |
| Approach Delay (s) | | 37.5 | | | 44.2 | | | 38.8 | | | 41.8 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 99.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 83.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

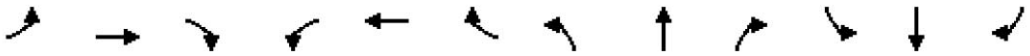
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 70 | 110 | 30 | 40 | 10 | 90 | 530 | 20 | 20 | 650 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.91 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3249 | | 1805 | 3500 | | 1805 | 3610 | 1615 | 1805 | 3499 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3249 | | 1805 | 3500 | | 1805 | 3610 | 1615 | 1805 | 3499 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 160 | 74 | 117 | 32 | 43 | 11 | 96 | 564 | 21 | 21 | 691 | 160 |
| RTOR Reduction (vph) | 0 | 100 | 0 | 0 | 10 | 0 | 0 | 0 | 9 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 160 | 91 | 0 | 32 | 44 | 0 | 96 | 564 | 12 | 21 | 833 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.2 | 8.4 | | 3.5 | 3.7 | | 5.9 | 27.6 | 31.1 | 1.1 | 22.8 | |
| Effective Green, g (s) | 8.2 | 8.4 | | 3.5 | 3.7 | | 5.9 | 27.6 | 31.1 | 1.1 | 22.8 | |
| Actuated g/C Ratio | 0.14 | 0.15 | | 0.06 | 0.07 | | 0.10 | 0.49 | 0.55 | 0.02 | 0.40 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 507 | 482 | | 112 | 229 | | 188 | 1760 | 1002 | 35 | 1409 | |
| v/s Ratio Prot | c0.05 | c0.03 | | 0.02 | 0.01 | | c0.05 | 0.16 | 0.00 | 0.01 | c0.24 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.32 | 0.19 | | 0.29 | 0.19 | | 0.51 | 0.32 | 0.01 | 0.60 | 0.59 | |
| Uniform Delay, d1 | 21.7 | 21.1 | | 25.4 | 25.0 | | 24.0 | 8.8 | 5.8 | 27.5 | 13.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | 0.2 | | 1.4 | 0.4 | | 2.3 | 0.1 | 0.0 | 24.7 | 0.7 | |
| Delay (s) | 22.0 | 21.3 | | 26.8 | 25.4 | | 26.3 | 8.9 | 5.8 | 52.2 | 13.9 | |
| Level of Service | C | C | | C | C | | C | A | A | D | B | |
| Approach Delay (s) | | 21.6 | | | 25.9 | | | 11.3 | | | 14.8 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 56.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 58.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

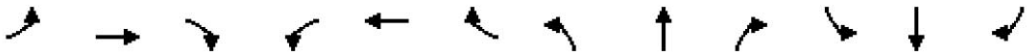
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 630 | 150 | 20 | 570 | 50 | 120 | 220 | 10 | 50 | 210 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1588 | 1805 | 3610 | 1589 | 3502 | 1887 | | 1805 | 3381 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1588 | 1805 | 3610 | 1589 | 3502 | 1887 | | 1805 | 3381 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 214 | 643 | 153 | 20 | 582 | 51 | 122 | 224 | 10 | 51 | 214 | 133 |
| RTOR Reduction (vph) | 0 | 0 | 52 | 0 | 0 | 25 | 0 | 2 | 0 | 0 | 109 | 0 |
| Lane Group Flow (vph) | 214 | 643 | 101 | 20 | 582 | 26 | 122 | 232 | 0 | 51 | 238 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | |
| Actuated Green, G (s) | 20.7 | 71.5 | 79.3 | 3.3 | 54.1 | 61.8 | 7.8 | 21.5 | | 7.7 | 21.4 | |
| Effective Green, g (s) | 20.7 | 71.5 | 79.3 | 3.3 | 54.1 | 61.8 | 7.8 | 21.5 | | 7.7 | 21.4 | |
| Actuated g/C Ratio | 0.17 | 0.60 | 0.66 | 0.03 | 0.45 | 0.51 | 0.06 | 0.18 | | 0.06 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 311 | 2151 | 1102 | 50 | 1628 | 818 | 228 | 338 | | 116 | 603 | |
| v/s Ratio Prot | c0.12 | 0.18 | 0.01 | 0.01 | c0.16 | 0.00 | 0.03 | c0.12 | | 0.03 | c0.07 | |
| v/s Ratio Perm | | | 0.06 | | | 0.01 | | | | | | |
| v/c Ratio | 0.69 | 0.30 | 0.09 | 0.40 | 0.36 | 0.03 | 0.54 | 0.69 | | 0.44 | 0.39 | |
| Uniform Delay, d1 | 46.6 | 11.9 | 7.3 | 57.4 | 21.6 | 14.4 | 54.3 | 46.1 | | 54.1 | 43.6 | |
| Progression Factor | 1.11 | 0.25 | 0.51 | 1.00 | 1.00 | 1.00 | 0.73 | 0.74 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.3 | 0.2 | 0.0 | 5.2 | 0.6 | 0.0 | 2.3 | 5.6 | | 2.7 | 0.4 | |
| Delay (s) | 56.0 | 3.3 | 3.8 | 62.6 | 22.2 | 14.4 | 41.9 | 39.9 | | 56.7 | 44.0 | |
| Level of Service | E | A | A | E | C | B | D | D | | E | D | |
| Approach Delay (s) | | 14.5 | | | 22.8 | | | 40.6 | | | 45.6 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 70.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

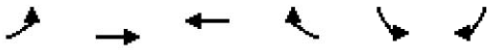
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 420 | 260 | 110 | 310 | 10 | 260 | 400 | 90 | 20 | 330 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1590 | 1805 | 1900 | 1579 | 1805 | 1900 | 1583 | 1805 | 1864 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1590 | 1805 | 1900 | 1579 | 1805 | 1900 | 1583 | 1805 | 1864 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 62 | 438 | 271 | 115 | 323 | 10 | 271 | 417 | 94 | 21 | 344 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 97 | 0 | 0 | 3 | 0 | 0 | 56 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 62 | 438 | 174 | 115 | 323 | 7 | 271 | 417 | 38 | 21 | 381 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.9 | 24.8 | 24.8 | 7.2 | 26.1 | 33.3 | 10.3 | 24.8 | 32.0 | 7.2 | 21.7 | |
| Effective Green, g (s) | 5.9 | 24.8 | 24.8 | 7.2 | 26.1 | 33.3 | 10.3 | 24.8 | 32.0 | 7.2 | 21.7 | |
| Actuated g/C Ratio | 0.07 | 0.31 | 0.31 | 0.09 | 0.33 | 0.42 | 0.13 | 0.31 | 0.40 | 0.09 | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 133 | 589 | 493 | 162 | 620 | 736 | 232 | 589 | 712 | 162 | 506 | |
| v/s Ratio Prot | 0.03 | c0.23 | | c0.06 | 0.17 | 0.00 | c0.15 | c0.22 | 0.00 | 0.01 | 0.20 | |
| v/s Ratio Perm | | | 0.11 | | | 0.00 | | | 0.02 | | | |
| v/c Ratio | 0.47 | 0.74 | 0.35 | 0.71 | 0.52 | 0.01 | 1.17 | 0.71 | 0.05 | 0.13 | 0.75 | |
| Uniform Delay, d1 | 35.5 | 24.7 | 21.4 | 35.4 | 21.9 | 13.7 | 34.9 | 24.4 | 14.7 | 33.5 | 26.7 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.6 | 5.1 | 0.4 | 13.3 | 0.8 | 0.0 | 112.0 | 3.9 | 0.0 | 0.4 | 6.3 | |
| Delay (s) | 38.1 | 29.8 | 21.8 | 48.7 | 22.7 | 13.7 | 146.9 | 28.3 | 14.7 | 33.9 | 32.9 | |
| Level of Service | D | C | C | D | C | B | F | C | B | C | C | |
| Approach Delay (s) | | 27.7 | | | 29.2 | | | 67.8 | | | 33.0 | |
| Approach LOS | | C | | | C | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 80.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

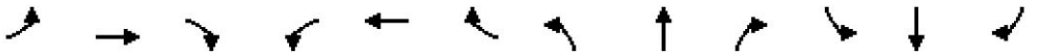
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 150 | 420 | 370 | 40 | 90 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 3610 | 1577 | 1805 | 1605 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 3610 | 1577 | 1805 | 1605 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 158 | 442 | 389 | 42 | 95 | 95 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 32 | 0 | 53 |
| Lane Group Flow (vph) | 158 | 442 | 389 | 11 | 95 | 42 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 8.9 | 22.5 | 9.6 | 9.6 | 7.9 | 16.8 |
| Effective Green, g (s) | 8.9 | 22.5 | 9.6 | 9.6 | 7.9 | 16.8 |
| Actuated g/C Ratio | 0.23 | 0.59 | 0.25 | 0.25 | 0.21 | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 418 | 1113 | 903 | 394 | 371 | 869 |
| v/s Ratio Prot | 0.09 | c0.23 | 0.11 | | c0.05 | 0.01 |
| v/s Ratio Perm | | | | 0.01 | | 0.01 |
| v/c Ratio | 0.38 | 0.40 | 0.43 | 0.03 | 0.26 | 0.05 |
| Uniform Delay, d1 | 12.4 | 4.3 | 12.1 | 10.9 | 12.8 | 6.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.6 | 0.2 | 0.3 | 0.0 | 0.4 | 0.0 |
| Delay (s) | 13.0 | 4.5 | 12.4 | 10.9 | 13.2 | 6.2 |
| Level of Service | B | A | B | B | B | A |
| Approach Delay (s) | | 6.8 | 12.3 | | 9.7 | |
| Approach LOS | | A | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 38.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 40.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

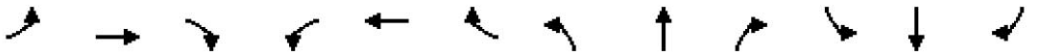
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 320 | 70 | 100 | 210 | 260 | 100 | 620 | 200 | 170 | 530 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1589 | 1805 | 1900 | 1590 | 1805 | 3465 | | 1805 | 3610 | 1572 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1589 | 1805 | 1900 | 1590 | 1805 | 3465 | | 1805 | 3610 | 1572 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 76 | 348 | 76 | 109 | 228 | 283 | 109 | 674 | 217 | 185 | 576 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 57 | 0 | 0 | 200 | 0 | 30 | 0 | 0 | 0 | 25 |
| Lane Group Flow (vph) | 76 | 348 | 19 | 109 | 228 | 83 | 109 | 861 | 0 | 185 | 576 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.2 | 21.0 | 21.0 | 7.6 | 23.4 | 23.4 | 6.7 | 27.5 | | 10.5 | 31.3 | 31.3 |
| Effective Green, g (s) | 5.2 | 21.0 | 21.0 | 7.6 | 23.4 | 23.4 | 6.7 | 27.5 | | 10.5 | 31.3 | 31.3 |
| Actuated g/C Ratio | 0.06 | 0.25 | 0.25 | 0.09 | 0.28 | 0.28 | 0.08 | 0.33 | | 0.13 | 0.38 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 114 | 483 | 404 | 166 | 538 | 450 | 146 | 1154 | | 229 | 1368 | 596 |
| v/s Ratio Prot | 0.04 | c0.18 | | c0.06 | 0.12 | | 0.06 | c0.25 | | c0.10 | c0.16 | |
| v/s Ratio Perm | | | 0.01 | | | 0.05 | | | | | | 0.01 |
| v/c Ratio | 0.67 | 0.72 | 0.05 | 0.66 | 0.42 | 0.18 | 0.75 | 0.75 | | 0.81 | 0.42 | 0.03 |
| Uniform Delay, d1 | 37.9 | 28.1 | 23.3 | 36.2 | 24.1 | 22.4 | 37.1 | 24.5 | | 35.1 | 19.0 | 16.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 13.8 | 5.2 | 0.0 | 9.0 | 0.5 | 0.2 | 18.6 | 2.7 | | 18.5 | 0.2 | 0.0 |
| Delay (s) | 51.6 | 33.4 | 23.3 | 45.3 | 24.6 | 22.6 | 55.7 | 27.1 | | 53.6 | 19.2 | 16.1 |
| Level of Service | D | C | C | D | C | C | E | C | | D | B | B |
| Approach Delay (s) | | 34.6 | | | 27.3 | | | 30.2 | | | 26.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 82.6 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 70.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

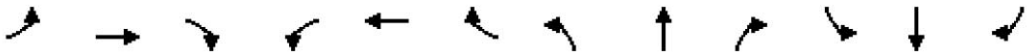
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 600 | 170 | 40 | 460 | 50 | 90 | 240 | 10 | 50 | 290 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3477 | | 1805 | 3550 | | 1805 | 3586 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3477 | | 1805 | 3550 | | 1805 | 3586 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 93 | 619 | 175 | 41 | 474 | 52 | 93 | 247 | 10 | 52 | 299 | 72 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 6 | 0 | 0 | 3 | 0 | 0 | 0 | 57 |
| Lane Group Flow (vph) | 93 | 777 | 0 | 41 | 520 | 0 | 93 | 254 | 0 | 52 | 299 | 15 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.5 | 60.6 | | 7.1 | 56.2 | | 11.1 | 28.8 | | 7.5 | 25.2 | 25.2 |
| Effective Green, g (s) | 11.5 | 60.6 | | 7.1 | 56.2 | | 11.1 | 28.8 | | 7.5 | 25.2 | 25.2 |
| Actuated g/C Ratio | 0.10 | 0.51 | | 0.06 | 0.47 | | 0.09 | 0.24 | | 0.06 | 0.21 | 0.21 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 173 | 1756 | | 107 | 1663 | | 167 | 861 | | 113 | 399 | 333 |
| v/s Ratio Prot | c0.05 | c0.22 | | 0.02 | 0.15 | | c0.05 | c0.07 | | 0.03 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.54 | 0.44 | | 0.38 | 0.31 | | 0.56 | 0.29 | | 0.46 | 0.75 | 0.05 |
| Uniform Delay, d1 | 51.7 | 18.9 | | 54.3 | 19.9 | | 52.1 | 37.3 | | 54.3 | 44.4 | 37.8 |
| Progression Factor | 1.33 | 0.33 | | 0.85 | 0.91 | | 1.00 | 1.00 | | 0.86 | 0.95 | 0.88 |
| Incremental Delay, d2 | 1.9 | 0.5 | | 2.1 | 0.5 | | 4.0 | 0.2 | | 2.9 | 7.5 | 0.1 |
| Delay (s) | 70.9 | 6.7 | | 48.3 | 18.6 | | 56.1 | 37.5 | | 49.7 | 49.7 | 33.2 |
| Level of Service | E | A | | D | B | | E | D | | D | D | C |
| Approach Delay (s) | | 13.4 | | | 20.7 | | | 42.4 | | | 46.9 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 64.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

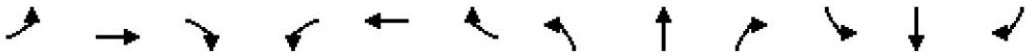
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 380 | 150 | 530 | 420 | 160 | 110 | 610 | 510 | 160 | 470 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3439 | | 1805 | 3444 | | 1805 | 3610 | 1586 | 1805 | 3585 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3439 | | 1805 | 3444 | | 1805 | 3610 | 1586 | 1805 | 3585 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 413 | 163 | 576 | 457 | 174 | 120 | 663 | 554 | 174 | 511 | 22 |
| RTOR Reduction (vph) | 0 | 35 | 0 | 0 | 31 | 0 | 0 | 0 | 403 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 43 | 541 | 0 | 576 | 600 | 0 | 120 | 663 | 151 | 174 | 531 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.6 | 29.9 | | 36.0 | 60.3 | | 10.6 | 28.1 | 28.1 | 10.0 | 27.5 | |
| Effective Green, g (s) | 5.6 | 29.9 | | 36.0 | 60.3 | | 10.6 | 28.1 | 28.1 | 10.0 | 27.5 | |
| Actuated g/C Ratio | 0.05 | 0.25 | | 0.30 | 0.50 | | 0.09 | 0.23 | 0.23 | 0.08 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 84 | 857 | | 542 | 1731 | | 159 | 845 | 371 | 150 | 822 | |
| v/s Ratio Prot | 0.02 | c0.16 | | c0.32 | 0.17 | | 0.07 | c0.18 | | c0.10 | 0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.10 | | | |
| v/c Ratio | 0.51 | 0.63 | | 1.06 | 0.35 | | 0.75 | 0.78 | 0.41 | 1.16 | 0.65 | |
| Uniform Delay, d1 | 55.9 | 40.1 | | 42.0 | 18.0 | | 53.4 | 43.1 | 38.9 | 55.0 | 41.8 | |
| Progression Factor | 1.01 | 0.65 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.8 | 3.2 | | 56.4 | 0.6 | | 18.2 | 4.8 | 0.7 | 122.9 | 1.8 | |
| Delay (s) | 61.3 | 29.4 | | 98.4 | 18.5 | | 71.7 | 47.9 | 39.6 | 177.9 | 43.6 | |
| Level of Service | E | C | | F | B | | E | D | D | F | D | |
| Approach Delay (s) | | 31.6 | | | 56.6 | | | 46.6 | | | 76.7 | |
| Approach LOS | | C | | | E | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

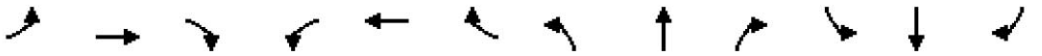
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 420 | 260 | 240 | 70 | 260 | 120 | 170 | 100 | 60 | 160 | 160 | 460 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.95 | | 1.00 | 0.94 | | 1.00 | 0.89 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3326 | | 1805 | 3422 | | 1805 | 3385 | | 1805 | 3170 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3326 | | 1805 | 3422 | | 1805 | 3385 | | 1805 | 3170 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 488 | 302 | 279 | 81 | 302 | 140 | 198 | 116 | 70 | 186 | 186 | 535 |
| RTOR Reduction (vph) | 0 | 148 | 0 | 0 | 55 | 0 | 0 | 59 | 0 | 0 | 436 | 0 |
| Lane Group Flow (vph) | 488 | 433 | 0 | 81 | 387 | 0 | 198 | 127 | 0 | 186 | 285 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 26.3 | 34.3 | | 7.3 | 15.3 | | 10.1 | 12.8 | | 10.1 | 12.8 | |
| Effective Green, g (s) | 26.3 | 34.3 | | 7.3 | 15.3 | | 10.1 | 12.8 | | 10.1 | 12.8 | |
| Actuated g/C Ratio | 0.33 | 0.43 | | 0.09 | 0.19 | | 0.13 | 0.16 | | 0.13 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 590 | 1417 | | 164 | 650 | | 226 | 538 | | 226 | 504 | |
| v/s Ratio Prot | c0.27 | 0.13 | | 0.04 | c0.11 | | c0.11 | 0.04 | | 0.10 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.83 | 0.31 | | 0.49 | 0.60 | | 0.88 | 0.24 | | 0.82 | 0.56 | |
| Uniform Delay, d1 | 25.0 | 15.2 | | 34.8 | 29.8 | | 34.6 | 29.6 | | 34.3 | 31.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.3 | 0.1 | | 2.3 | 1.5 | | 29.3 | 0.2 | | 20.9 | 1.5 | |
| Delay (s) | 34.3 | 15.4 | | 37.2 | 31.2 | | 63.8 | 29.8 | | 55.2 | 32.7 | |
| Level of Service | C | B | | D | C | | E | C | | E | C | |
| Approach Delay (s) | | 24.0 | | | 32.2 | | | 47.4 | | | 37.3 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 80.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 80.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 300 | 1250 | 150 | 100 | 1400 | 300 | 250 | 740 | 70 | 280 | 480 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5034 | | 3502 | 3558 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5034 | | 3502 | 3558 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 323 | 1344 | 161 | 108 | 1505 | 323 | 269 | 796 | 75 | 301 | 516 | 194 |
| RTOR Reduction (vph) | 0 | 0 | 74 | 0 | 28 | 0 | 0 | 6 | 0 | 0 | 0 | 136 |
| Lane Group Flow (vph) | 323 | 1344 | 87 | 108 | 1800 | 0 | 269 | 865 | 0 | 301 | 516 | 58 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 19.9 | 49.1 | 49.1 | 10.8 | 40.0 | | 8.0 | 36.1 | | 8.0 | 36.1 | 36.1 |
| Effective Green, g (s) | 19.9 | 49.1 | 49.1 | 10.8 | 40.0 | | 8.0 | 36.1 | | 8.0 | 36.1 | 36.1 |
| Actuated g/C Ratio | 0.17 | 0.41 | 0.41 | 0.09 | 0.33 | | 0.07 | 0.30 | | 0.07 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 299 | 1477 | 649 | 162 | 1678 | | 233 | 1070 | | 233 | 1086 | 478 |
| v/s Ratio Prot | c0.18 | 0.37 | | 0.06 | c0.36 | | 0.08 | c0.24 | | c0.09 | 0.14 | |
| v/s Ratio Perm | | | 0.05 | | | | | | | | | 0.04 |
| v/c Ratio | 1.08 | 0.91 | 0.13 | 0.67 | 1.07 | | 1.15 | 0.81 | | 1.29 | 0.48 | 0.12 |
| Uniform Delay, d1 | 50.0 | 33.4 | 22.2 | 52.9 | 40.0 | | 56.0 | 38.8 | | 56.0 | 34.2 | 30.4 |
| Progression Factor | 1.23 | 0.46 | 0.07 | 1.10 | 0.64 | | 0.96 | 0.98 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 69.5 | 8.1 | 0.3 | 4.2 | 38.2 | | 103.0 | 4.0 | | 159.5 | 0.3 | 0.1 |
| Delay (s) | 130.8 | 23.6 | 2.0 | 62.1 | 64.0 | | 156.7 | 41.7 | | 215.5 | 34.6 | 30.6 |
| Level of Service | F | C | A | E | E | | F | D | | F | C | C |
| Approach Delay (s) | | 40.6 | | | 63.9 | | | 68.9 | | | 87.7 | |
| Approach LOS | | D | | | E | | | E | | | F | |

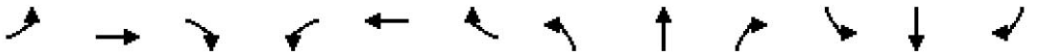
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 61.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 96.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1350 | 210 | 240 | 1420 | 180 | 330 | 530 | 170 | 150 | 200 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5089 | | 1805 | 3465 | | 1805 | 3511 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5089 | | 1805 | 3465 | | 1805 | 3511 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 84 | 1421 | 221 | 253 | 1495 | 189 | 347 | 558 | 179 | 158 | 211 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 97 | 0 | 12 | 0 | 0 | 29 | 0 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 84 | 1421 | 124 | 253 | 1672 | 0 | 347 | 708 | 0 | 158 | 237 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 10.8 | 39.0 | 39.0 | 22.2 | 50.4 | | 14.0 | 31.8 | | 11.0 | 28.8 | |
| Effective Green, g (s) | 10.8 | 39.0 | 39.0 | 22.2 | 50.4 | | 14.0 | 31.8 | | 11.0 | 28.8 | |
| Actuated g/C Ratio | 0.09 | 0.32 | 0.32 | 0.18 | 0.42 | | 0.12 | 0.27 | | 0.09 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 162 | 1173 | 515 | 334 | 2137 | | 211 | 918 | | 165 | 843 | |
| v/s Ratio Prot | 0.05 | c0.39 | | c0.14 | 0.33 | | c0.19 | c0.20 | | 0.09 | 0.07 | |
| v/s Ratio Perm | | | 0.08 | | | | | | | | | |
| v/c Ratio | 0.52 | 1.21 | 0.24 | 0.76 | 0.78 | | 1.64 | 0.77 | | 0.96 | 0.28 | |
| Uniform Delay, d1 | 52.1 | 40.5 | 29.7 | 46.3 | 30.1 | | 53.0 | 40.7 | | 54.3 | 37.2 | |
| Progression Factor | 1.29 | 0.50 | 0.48 | 0.73 | 0.69 | | 0.71 | 0.83 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 97.7 | 0.3 | 4.7 | 1.4 | | 303.8 | 2.7 | | 56.9 | 0.2 | |
| Delay (s) | 67.9 | 118.1 | 14.5 | 38.6 | 22.1 | | 341.4 | 36.5 | | 111.2 | 37.3 | |
| Level of Service | E | F | B | D | C | | F | D | | F | D | |
| Approach Delay (s) | | 102.4 | | | 24.2 | | | 134.1 | | | 65.7 | |
| Approach LOS | | F | | | C | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 76.8 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.05 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 94.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

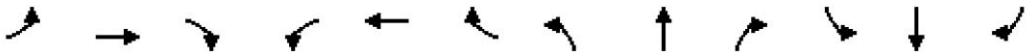
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 1340 | 110 | 50 | 1130 | 240 | 310 | 700 | 130 | 330 | 380 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1597 | 1805 | 5035 | | 1805 | 3516 | | 1805 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1597 | 1805 | 5035 | | 1805 | 3516 | | 1805 | 3610 | 1596 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 138 | 1426 | 117 | 53 | 1202 | 255 | 330 | 745 | 138 | 351 | 404 | 245 |
| RTOR Reduction (vph) | 0 | 0 | 43 | 0 | 27 | 0 | 0 | 13 | 0 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 138 | 1426 | 74 | 53 | 1430 | 0 | 330 | 870 | 0 | 351 | 404 | 226 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 13.0 | 39.8 | 60.8 | 6.4 | 33.2 | | 21.0 | 36.8 | | 21.0 | 36.8 | 49.8 |
| Effective Green, g (s) | 13.0 | 39.8 | 60.8 | 6.4 | 33.2 | | 21.0 | 36.8 | | 21.0 | 36.8 | 49.8 |
| Actuated g/C Ratio | 0.11 | 0.33 | 0.51 | 0.05 | 0.28 | | 0.18 | 0.31 | | 0.18 | 0.31 | 0.41 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 196 | 1720 | 862 | 96 | 1393 | | 316 | 1078 | | 316 | 1107 | 716 |
| v/s Ratio Prot | c0.08 | 0.27 | 0.02 | 0.03 | c0.28 | | 0.18 | c0.25 | | c0.19 | 0.11 | 0.03 |
| v/s Ratio Perm | | | 0.03 | | | | | | | | | 0.11 |
| v/c Ratio | 0.70 | 0.83 | 0.09 | 0.55 | 1.03 | | 1.04 | 0.81 | | 1.11 | 0.36 | 0.32 |
| Uniform Delay, d1 | 51.6 | 37.0 | 15.3 | 55.4 | 43.4 | | 49.5 | 38.3 | | 49.5 | 32.5 | 23.6 |
| Progression Factor | 1.54 | 0.42 | 0.05 | 0.57 | 0.98 | | 1.01 | 0.70 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 0.5 | 0.0 | 4.6 | 27.0 | | 55.5 | 3.4 | | 83.8 | 0.2 | 0.3 |
| Delay (s) | 80.6 | 15.8 | 0.8 | 36.5 | 69.6 | | 105.5 | 30.1 | | 133.3 | 32.7 | 23.9 |
| Level of Service | F | B | A | D | E | | F | C | | F | C | C |
| Approach Delay (s) | | 20.1 | | | 68.4 | | | 50.6 | | | 65.8 | |
| Approach LOS | | C | | | E | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 91.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

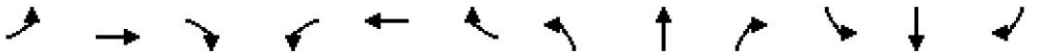
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1350 | 140 | 100 | 1040 | 140 | 260 | 380 | 200 | 250 | 350 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.95 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5105 | | 1805 | 5084 | | 1805 | 3404 | | 1805 | 3510 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5105 | | 1805 | 5084 | | 1805 | 3404 | | 1805 | 3510 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 110 | 1484 | 154 | 110 | 1143 | 154 | 286 | 418 | 220 | 275 | 385 | 77 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 13 | 0 | 0 | 69 | 0 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 110 | 1628 | 0 | 110 | 1284 | 0 | 286 | 569 | 0 | 275 | 444 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 11.6 | 38.7 | | 12.4 | 39.5 | | 31.9 | 26.8 | | 26.1 | 21.0 | |
| Effective Green, g (s) | 11.6 | 38.7 | | 12.4 | 39.5 | | 31.9 | 26.8 | | 26.1 | 21.0 | |
| Actuated g/C Ratio | 0.10 | 0.32 | | 0.10 | 0.33 | | 0.27 | 0.22 | | 0.22 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 174 | 1646 | | 187 | 1673 | | 480 | 760 | | 393 | 614 | |
| v/s Ratio Prot | c0.06 | c0.32 | | 0.06 | 0.25 | | 0.16 | c0.17 | | c0.15 | 0.13 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.63 | 0.99 | | 0.59 | 0.77 | | 0.60 | 0.75 | | 0.70 | 0.72 | |
| Uniform Delay, d1 | 52.1 | 40.4 | | 51.4 | 36.1 | | 38.4 | 43.5 | | 43.3 | 46.8 | |
| Progression Factor | 1.50 | 0.51 | | 1.05 | 0.57 | | 0.66 | 0.62 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.6 | 13.0 | | 0.4 | 0.3 | | 1.9 | 3.9 | | 5.4 | 4.2 | |
| Delay (s) | 81.8 | 33.6 | | 54.3 | 20.8 | | 27.3 | 31.0 | | 48.7 | 51.0 | |
| Level of Service | F | C | | D | C | | C | C | | D | D | |
| Approach Delay (s) | | 36.6 | | | 23.4 | | | 29.9 | | | 50.1 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

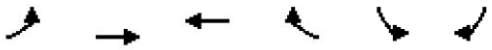
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 440 | 850 | 440 | 190 | 650 | 110 | 500 | 780 | 90 | 200 | 740 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5062 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5062 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 454 | 876 | 454 | 196 | 670 | 113 | 515 | 804 | 93 | 206 | 763 | 186 |
| RTOR Reduction (vph) | 0 | 0 | 174 | 0 | 20 | 0 | 0 | 0 | 66 | 0 | 0 | 135 |
| Lane Group Flow (vph) | 454 | 876 | 280 | 196 | 763 | 0 | 515 | 804 | 27 | 206 | 763 | 51 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 20.4 | 42.0 | 42.0 | 14.4 | 36.0 | | 15.0 | 34.6 | 34.6 | 13.0 | 32.6 | 32.6 |
| Effective Green, g (s) | 20.4 | 42.0 | 42.0 | 14.4 | 36.0 | | 15.0 | 34.6 | 34.6 | 13.0 | 32.6 | 32.6 |
| Actuated g/C Ratio | 0.17 | 0.35 | 0.35 | 0.12 | 0.30 | | 0.12 | 0.29 | 0.29 | 0.11 | 0.27 | 0.27 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 307 | 1264 | 555 | 217 | 1519 | | 226 | 1041 | 458 | 196 | 981 | 431 |
| v/s Ratio Prot | c0.25 | c0.24 | | 0.11 | 0.15 | | c0.29 | c0.22 | | 0.11 | 0.21 | |
| v/s Ratio Perm | | | 0.18 | | | | | | 0.02 | | | 0.03 |
| v/c Ratio | 1.48 | 0.69 | 0.51 | 0.90 | 0.50 | | 2.28 | 0.77 | 0.06 | 1.05 | 0.78 | 0.12 |
| Uniform Delay, d1 | 49.8 | 33.5 | 30.8 | 52.1 | 34.6 | | 52.5 | 39.1 | 30.9 | 53.5 | 40.4 | 32.9 |
| Progression Factor | 1.38 | 0.46 | 0.09 | 0.96 | 0.72 | | 1.26 | 0.44 | 0.20 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 222.9 | 1.3 | 1.4 | 34.9 | 1.2 | | 585.1 | 2.5 | 0.0 | 78.4 | 3.9 | 0.1 |
| Delay (s) | 291.7 | 16.6 | 4.1 | 85.0 | 26.0 | | 651.0 | 19.7 | 6.3 | 131.9 | 44.3 | 33.0 |
| Level of Service | F | B | A | F | C | | F | B | A | F | D | C |
| Approach Delay (s) | | 83.4 | | | 37.8 | | | 249.1 | | | 58.1 | |
| Approach LOS | | F | | | D | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 113.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.04 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 115.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

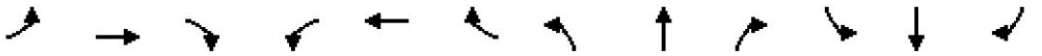
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 180 | 2100 | 1790 | 770 | 470 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 3610 | 1594 | 3502 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 3610 | 1594 | 3502 | 1598 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 184 | 2143 | 1827 | 786 | 480 | 112 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 24 | 0 | 7 |
| Lane Group Flow (vph) | 184 | 2143 | 1827 | 762 | 480 | 105 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 16.5 | 87.8 | 67.3 | 91.5 | 24.2 | 40.7 |
| Effective Green, g (s) | 16.5 | 87.8 | 67.3 | 91.5 | 24.2 | 40.7 |
| Actuated g/C Ratio | 0.14 | 0.73 | 0.56 | 0.76 | 0.20 | 0.34 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 248 | 3795 | 2025 | 1269 | 706 | 595 |
| v/s Ratio Prot | c0.10 | 0.41 | c0.51 | 0.12 | c0.14 | 0.02 |
| v/s Ratio Perm | | | | 0.36 | | 0.04 |
| v/c Ratio | 0.74 | 0.56 | 0.90 | 0.60 | 0.68 | 0.18 |
| Uniform Delay, d1 | 49.7 | 7.4 | 23.4 | 6.2 | 44.3 | 27.9 |
| Progression Factor | 0.95 | 0.98 | 0.72 | 0.41 | 0.91 | 1.30 |
| Incremental Delay, d2 | 3.2 | 0.2 | 2.2 | 0.2 | 2.4 | 0.1 |
| Delay (s) | 50.3 | 7.4 | 19.0 | 2.8 | 42.6 | 36.3 |
| Level of Service | D | A | B | A | D | D |
| Approach Delay (s) | | 10.8 | 14.1 | | 41.4 | |
| Approach LOS | | B | B | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 1790 | 650 | 30 | 900 | 110 | 1520 | 730 | 120 | 220 | 210 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 1805 | 5093 | | 3502 | 3525 | | 1805 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 1805 | 5093 | | 3502 | 3525 | | 1805 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 115 | 1865 | 677 | 31 | 938 | 115 | 1583 | 760 | 125 | 229 | 219 | 115 |
| RTOR Reduction (vph) | 0 | 0 | 270 | 0 | 13 | 0 | 0 | 11 | 0 | 0 | 0 | 13 |
| Lane Group Flow (vph) | 115 | 1865 | 407 | 31 | 1040 | 0 | 1583 | 874 | 0 | 229 | 219 | 102 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 7.0 | 42.8 | 42.8 | 4.2 | 40.0 | | 44.4 | 35.3 | | 21.7 | 12.6 | 19.6 |
| Effective Green, g (s) | 7.0 | 42.8 | 42.8 | 4.2 | 40.0 | | 44.4 | 35.3 | | 21.7 | 12.6 | 19.6 |
| Actuated g/C Ratio | 0.06 | 0.36 | 0.36 | 0.04 | 0.33 | | 0.37 | 0.29 | | 0.18 | 0.10 | 0.16 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 1850 | 566 | 63 | 1698 | | 1296 | 1037 | | 326 | 379 | 261 |
| v/s Ratio Prot | c0.06 | c0.36 | | 0.02 | 0.20 | | c0.45 | c0.25 | | 0.13 | 0.06 | 0.02 |
| v/s Ratio Perm | | | 0.26 | | | | | | | | | 0.04 |
| v/c Ratio | 1.10 | 1.01 | 0.72 | 0.49 | 0.61 | | 1.22 | 0.84 | | 0.70 | 0.58 | 0.39 |
| Uniform Delay, d1 | 56.5 | 38.6 | 33.4 | 56.9 | 33.5 | | 37.8 | 39.7 | | 46.1 | 51.2 | 44.9 |
| Progression Factor | 1.25 | 0.57 | 0.35 | 0.90 | 0.86 | | 1.00 | 1.00 | | 1.21 | 1.17 | 1.18 |
| Incremental Delay, d2 | 108.5 | 21.2 | 6.5 | 4.8 | 1.3 | | 106.8 | 6.3 | | 6.1 | 1.9 | 0.9 |
| Delay (s) | 179.2 | 43.2 | 18.2 | 56.1 | 30.2 | | 144.6 | 46.1 | | 62.0 | 61.9 | 53.8 |
| Level of Service | F | D | B | E | C | | F | D | | E | E | D |
| Approach Delay (s) | | 42.7 | | | 31.0 | | | 109.3 | | | 60.3 | |
| Approach LOS | | D | | | C | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 66.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.11 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 106.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1380 | 730 | 40 | 540 | 190 | 490 | 810 | 80 | 100 | 400 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1598 | 1805 | 3453 | | 3502 | 3556 | | 1805 | 3556 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1598 | 1805 | 3453 | | 3502 | 3556 | | 1805 | 3556 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 87 | 1500 | 793 | 43 | 587 | 207 | 533 | 880 | 87 | 109 | 435 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 63 | 0 | 27 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 87 | 1500 | 730 | 43 | 767 | 0 | 533 | 960 | 0 | 109 | 471 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 9.0 | 45.4 | 76.5 | 5.8 | 42.2 | | 31.1 | 41.0 | | 11.8 | 21.7 | |
| Effective Green, g (s) | 9.0 | 45.4 | 76.5 | 5.8 | 42.2 | | 31.1 | 41.0 | | 11.8 | 21.7 | |
| Actuated g/C Ratio | 0.08 | 0.38 | 0.64 | 0.05 | 0.35 | | 0.26 | 0.34 | | 0.10 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 135 | 1962 | 1019 | 87 | 1214 | | 908 | 1215 | | 177 | 643 | |
| v/s Ratio Prot | c0.05 | c0.29 | 0.19 | 0.02 | 0.22 | | 0.15 | c0.27 | | 0.06 | c0.13 | |
| v/s Ratio Perm | | | 0.27 | | | | | | | | | |
| v/c Ratio | 0.64 | 0.76 | 0.72 | 0.49 | 0.63 | | 0.59 | 0.79 | | 0.62 | 0.73 | |
| Uniform Delay, d1 | 53.9 | 32.6 | 14.5 | 55.7 | 32.4 | | 38.8 | 35.6 | | 51.9 | 46.4 | |
| Progression Factor | 1.50 | 0.29 | 1.42 | 0.78 | 1.11 | | 1.00 | 1.00 | | 1.24 | 1.45 | |
| Incremental Delay, d2 | 4.8 | 1.4 | 1.1 | 4.1 | 2.4 | | 1.0 | 3.6 | | 6.1 | 4.2 | |
| Delay (s) | 85.8 | 10.8 | 21.7 | 47.5 | 38.5 | | 39.8 | 39.2 | | 70.2 | 71.5 | |
| Level of Service | F | B | C | D | D | | D | D | | E | E | |
| Approach Delay (s) | | 17.2 | | | 38.9 | | | 39.4 | | | 71.3 | |
| Approach LOS | | B | | | D | | | D | | | E | |

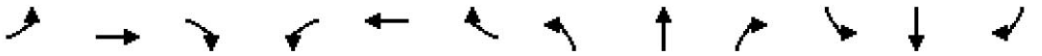
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1000 | 230 | 30 | 620 | 50 | 130 | 450 | 50 | 60 | 370 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3497 | | 1805 | 3564 | | 1805 | 3549 | | 1805 | 3565 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3497 | | 1805 | 3564 | | 1805 | 3549 | | 1805 | 3565 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 101 | 1010 | 232 | 30 | 626 | 51 | 131 | 455 | 51 | 61 | 374 | 30 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 101 | 1229 | 0 | 30 | 673 | 0 | 131 | 498 | 0 | 61 | 399 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 12.0 | 65.9 | | 5.1 | 59.0 | | 13.3 | 26.0 | | 7.0 | 19.7 | |
| Effective Green, g (s) | 12.0 | 65.9 | | 5.1 | 59.0 | | 13.3 | 26.0 | | 7.0 | 19.7 | |
| Actuated g/C Ratio | 0.10 | 0.55 | | 0.04 | 0.49 | | 0.11 | 0.22 | | 0.06 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 181 | 1920 | | 77 | 1752 | | 200 | 769 | | 105 | 585 | |
| v/s Ratio Prot | c0.06 | c0.35 | | 0.02 | 0.19 | | c0.07 | c0.14 | | 0.03 | 0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.56 | 0.64 | | 0.39 | 0.38 | | 0.66 | 0.65 | | 0.58 | 0.68 | |
| Uniform Delay, d1 | 51.5 | 18.8 | | 55.9 | 19.1 | | 51.2 | 42.8 | | 55.1 | 47.2 | |
| Progression Factor | 1.56 | 0.17 | | 1.23 | 0.40 | | 1.00 | 1.00 | | 1.15 | 0.64 | |
| Incremental Delay, d2 | 2.5 | 1.1 | | 2.8 | 0.6 | | 7.5 | 1.9 | | 6.8 | 2.8 | |
| Delay (s) | 82.7 | 4.3 | | 71.7 | 8.2 | | 58.6 | 44.7 | | 70.3 | 33.1 | |
| Level of Service | F | A | | E | A | | E | D | | E | C | |
| Approach Delay (s) | | 10.2 | | | 10.9 | | | 47.6 | | | 38.0 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 75.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

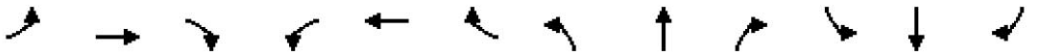
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 720 | 300 | 110 | 420 | 110 | 220 | 1130 | 120 | 120 | 1020 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3433 | | 1805 | 3485 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3433 | | 1805 | 3485 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 720 | 300 | 110 | 420 | 110 | 220 | 1130 | 120 | 120 | 1020 | 60 |
| RTOR Reduction (vph) | 0 | 38 | 0 | 0 | 19 | 0 | 0 | 0 | 54 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 50 | 982 | 0 | 110 | 511 | 0 | 220 | 1130 | 66 | 120 | 1020 | 23 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 6.3 | 38.3 | | 9.7 | 41.7 | | 17.2 | 45.4 | 45.4 | 10.6 | 38.8 | 38.8 |
| Effective Green, g (s) | 6.3 | 38.3 | | 9.7 | 41.7 | | 17.2 | 45.4 | 45.4 | 10.6 | 38.8 | 38.8 |
| Actuated g/C Ratio | 0.05 | 0.32 | | 0.08 | 0.35 | | 0.14 | 0.38 | 0.38 | 0.09 | 0.32 | 0.32 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 95 | 1096 | | 146 | 1211 | | 259 | 1366 | 600 | 159 | 1167 | 512 |
| v/s Ratio Prot | 0.03 | c0.29 | | c0.06 | c0.15 | | c0.12 | c0.31 | | 0.07 | 0.28 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | 0.01 |
| v/c Ratio | 0.53 | 0.90 | | 0.75 | 0.42 | | 0.85 | 0.83 | 0.11 | 0.75 | 0.87 | 0.05 |
| Uniform Delay, d1 | 55.4 | 38.9 | | 54.0 | 29.9 | | 50.1 | 33.8 | 24.2 | 53.4 | 38.3 | 27.9 |
| Progression Factor | 0.94 | 0.77 | | 1.08 | 0.60 | | 1.23 | 0.38 | 0.15 | 1.23 | 0.80 | 0.48 |
| Incremental Delay, d2 | 4.2 | 9.4 | | 19.0 | 1.0 | | 9.7 | 2.3 | 0.1 | 13.7 | 6.9 | 0.1 |
| Delay (s) | 56.0 | 39.2 | | 77.2 | 19.2 | | 71.6 | 15.1 | 3.8 | 79.6 | 37.6 | 13.5 |
| Level of Service | E | D | | E | B | | E | B | A | E | D | B |
| Approach Delay (s) | | 40.0 | | | 29.1 | | | 22.6 | | | 40.6 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 89.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

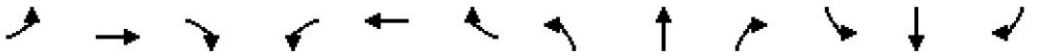
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 1810 | 200 | 20 | 2180 | 140 | 200 | 50 | 20 | 170 | 230 | 390 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2799 | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2799 | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 144 | 1866 | 206 | 21 | 2247 | 144 | 206 | 52 | 21 | 175 | 237 | 402 |
| RTOR Reduction (vph) | 0 | 0 | 62 | 0 | 0 | 31 | 0 | 0 | 12 | 0 | 0 | 102 |
| Lane Group Flow (vph) | 144 | 1866 | 144 | 21 | 2247 | 113 | 206 | 52 | 9 | 175 | 237 | 300 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 15.4 | 57.4 | 57.4 | 4.2 | 46.2 | 46.2 | 14.0 | 28.7 | 32.9 | 13.7 | 28.4 | 28.4 |
| Effective Green, g (s) | 15.4 | 57.4 | 57.4 | 4.2 | 46.2 | 46.2 | 14.0 | 28.7 | 32.9 | 13.7 | 28.4 | 28.4 |
| Actuated g/C Ratio | 0.13 | 0.48 | 0.48 | 0.04 | 0.39 | 0.39 | 0.12 | 0.24 | 0.27 | 0.11 | 0.24 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 232 | 2481 | 773 | 123 | 1997 | 611 | 409 | 863 | 861 | 400 | 854 | 376 |
| v/s Ratio Prot | c0.08 | c0.36 | | 0.01 | c0.43 | | c0.06 | 0.01 | 0.00 | 0.05 | 0.07 | |
| v/s Ratio Perm | | | 0.09 | | | 0.07 | | | 0.00 | | | c0.19 |
| v/c Ratio | 0.62 | 0.75 | 0.19 | 0.17 | 1.13 | 0.19 | 0.50 | 0.06 | 0.01 | 0.44 | 0.28 | 0.80 |
| Uniform Delay, d1 | 49.5 | 25.5 | 17.9 | 56.2 | 36.9 | 24.4 | 49.7 | 35.2 | 31.7 | 49.6 | 37.4 | 43.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.86 | 1.10 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.1 | 2.2 | 0.5 | 0.6 | 62.6 | 0.6 | 1.0 | 0.0 | 0.0 | 0.8 | 0.2 | 11.3 |
| Delay (s) | 54.6 | 27.7 | 18.5 | 56.8 | 94.5 | 27.5 | 50.7 | 35.3 | 31.7 | 50.3 | 37.6 | 54.4 |
| Level of Service | D | C | B | E | F | C | D | D | C | D | D | D |
| Approach Delay (s) | | 28.6 | | | 90.2 | | | 46.4 | | | 48.6 | |
| Approach LOS | | C | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 58.3 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 84.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

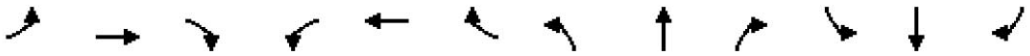
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1440 | 610 | 0 | 1890 | 0 | 0 | 0 | 0 | 260 | 0 | 470 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.96 | | | 1.00 | | | | | 1.00 | 0.87 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (prot) | | 4955 | | | 5187 | | | | | 1715 | 1489 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (perm) | | 4955 | | | 5187 | | | | | 1715 | 1489 | 1534 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1485 | 629 | 0 | 1948 | 0 | 0 | 0 | 0 | 268 | 0 | 485 |
| RTOR Reduction (vph) | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 |
| Lane Group Flow (vph) | 0 | 2067 | 0 | 0 | 1948 | 0 | 0 | 0 | 0 | 241 | 250 | 242 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 84.9 | | | 84.9 | | | | | 27.1 | 27.1 | 27.1 |
| Effective Green, g (s) | | 84.9 | | | 84.9 | | | | | 27.1 | 27.1 | 27.1 |
| Actuated g/C Ratio | | 0.71 | | | 0.71 | | | | | 0.23 | 0.23 | 0.23 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3506 | | | 3670 | | | | | 387 | 336 | 346 |
| v/s Ratio Prot | | c0.42 | | | 0.38 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | 0.14 | 0.17 | 0.16 |
| v/c Ratio | | 0.59 | | | 0.53 | | | | | 0.62 | 0.74 | 0.70 |
| Uniform Delay, d1 | | 8.8 | | | 8.2 | | | | | 41.8 | 43.2 | 42.7 |
| Progression Factor | | 0.16 | | | 0.08 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.5 | | | 0.4 | | | | | 3.1 | 8.6 | 6.1 |
| Delay (s) | | 1.9 | | | 1.0 | | | | | 45.0 | 51.8 | 48.8 |
| Level of Service | | A | | | A | | | | | D | D | D |
| Approach Delay (s) | | 1.9 | | | 1.0 | | | 0.0 | | | 48.6 | |
| Approach LOS | | A | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 74.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

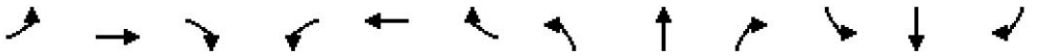
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 370 | 1350 | 0 | 0 | 1610 | 260 | 140 | 10 | 240 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.88 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 5065 | | 1715 | 1507 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 5065 | | 1715 | 1507 | 1534 | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 381 | 1392 | 0 | 0 | 1660 | 268 | 144 | 10 | 247 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 79 | 79 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 381 | 1392 | 0 | 0 | 1911 | 0 | 130 | 59 | 54 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 37.0 | 97.1 | | | 56.1 | | 14.9 | 14.9 | 14.9 | | | |
| Effective Green, g (s) | 37.0 | 97.1 | | | 56.1 | | 14.9 | 14.9 | 14.9 | | | |
| Actuated g/C Ratio | 0.31 | 0.81 | | | 0.47 | | 0.12 | 0.12 | 0.12 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 557 | 4197 | | | 2368 | | 213 | 187 | 190 | | | |
| v/s Ratio Prot | c0.21 | 0.27 | | | c0.38 | | c0.08 | 0.04 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | |
| v/c Ratio | 0.68 | 0.33 | | | 0.81 | | 0.61 | 0.32 | 0.29 | | | |
| Uniform Delay, d1 | 36.4 | 3.0 | | | 27.3 | | 49.8 | 47.9 | 47.7 | | | |
| Progression Factor | 0.87 | 0.74 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 2.9 | 0.2 | | | 3.1 | | 5.1 | 1.0 | 0.8 | | | |
| Delay (s) | 34.7 | 2.4 | | | 30.4 | | 54.9 | 48.9 | 48.5 | | | |
| Level of Service | C | A | | | C | | D | D | D | | | |
| Approach Delay (s) | | 9.3 | | | 30.4 | | | 50.7 | | | 0.0 | |
| Approach LOS | | A | | | C | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 74.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

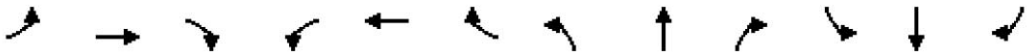
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1360 | 40 | 220 | 1690 | 190 | 30 | 70 | 140 | 260 | 190 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3593 | | 1805 | 3610 | 1615 | 3502 | 3250 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3593 | | 1805 | 3610 | 1615 | 3502 | 3250 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 192 | 1374 | 40 | 222 | 1707 | 192 | 30 | 71 | 141 | 263 | 192 | 162 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 70 | 0 | 131 | 0 | 0 | 0 | 122 |
| Lane Group Flow (vph) | 192 | 1412 | 0 | 222 | 1707 | 122 | 30 | 81 | 0 | 263 | 192 | 40 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 9.6 | 52.3 | | 17.8 | 60.5 | 60.5 | 4.2 | 8.8 | | 25.1 | 29.7 | 29.7 |
| Effective Green, g (s) | 9.6 | 52.3 | | 17.8 | 60.5 | 60.5 | 4.2 | 8.8 | | 25.1 | 29.7 | 29.7 |
| Actuated g/C Ratio | 0.08 | 0.44 | | 0.15 | 0.50 | 0.50 | 0.04 | 0.07 | | 0.21 | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 280 | 1566 | | 268 | 1820 | 814 | 123 | 238 | | 378 | 893 | 400 |
| v/s Ratio Prot | 0.05 | 0.39 | | c0.12 | c0.47 | | 0.01 | c0.03 | | c0.15 | 0.05 | |
| v/s Ratio Perm | | | | | | 0.08 | | | | | | 0.02 |
| v/c Ratio | 0.69 | 0.90 | | 0.83 | 0.94 | 0.15 | 0.24 | 0.34 | | 0.70 | 0.22 | 0.10 |
| Uniform Delay, d1 | 53.7 | 31.5 | | 49.6 | 28.0 | 16.0 | 56.4 | 52.8 | | 43.9 | 35.9 | 34.8 |
| Progression Factor | 1.00 | 1.00 | | 1.27 | 0.63 | 1.01 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.8 | 8.8 | | 6.2 | 3.8 | 0.1 | 1.0 | 0.9 | | 5.5 | 0.1 | 0.1 |
| Delay (s) | 60.5 | 40.3 | | 69.3 | 21.4 | 16.2 | 57.4 | 53.7 | | 49.4 | 36.0 | 34.9 |
| Level of Service | E | D | | E | C | B | E | D | | D | D | C |
| Approach Delay (s) | | 42.7 | | | 26.0 | | | 54.2 | | | 41.4 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 86.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

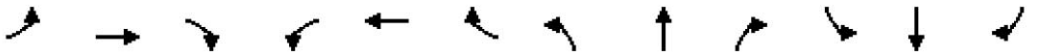
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 1400 | 50 | 10 | 1740 | 60 | 100 | 50 | 20 | 10 | 10 | 250 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5155 | | 1805 | 3610 | 1564 | 1800 | 1810 | | 1798 | 1600 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.21 | 1.00 | | 0.70 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5155 | | 1805 | 3610 | 1564 | 389 | 1810 | | 1326 | 1600 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 289 | 1443 | 52 | 10 | 1794 | 62 | 103 | 52 | 21 | 10 | 10 | 258 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 6 | 0 | 16 | 0 | 0 | 169 | 0 |
| Lane Group Flow (vph) | 289 | 1493 | 0 | 10 | 1794 | 56 | 103 | 57 | 0 | 10 | 99 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 32.6 | 87.0 | | 1.5 | 55.9 | 55.9 | 19.5 | 19.5 | | 19.5 | 19.5 | |
| Effective Green, g (s) | 32.6 | 87.0 | | 1.5 | 55.9 | 55.9 | 19.5 | 19.5 | | 19.5 | 19.5 | |
| Actuated g/C Ratio | 0.27 | 0.72 | | 0.01 | 0.47 | 0.47 | 0.16 | 0.16 | | 0.16 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 490 | 3737 | | 23 | 1682 | 729 | 63 | 294 | | 215 | 260 | |
| v/s Ratio Prot | c0.16 | 0.29 | | 0.01 | c0.50 | | | 0.03 | | | 0.06 | |
| v/s Ratio Perm | | | | | | 0.04 | c0.26 | | | 0.01 | | |
| v/c Ratio | 0.59 | 0.40 | | 0.43 | 1.07 | 0.08 | 1.63 | 0.19 | | 0.05 | 0.38 | |
| Uniform Delay, d1 | 37.9 | 6.4 | | 58.8 | 32.0 | 17.8 | 50.2 | 43.5 | | 42.4 | 44.9 | |
| Progression Factor | 0.90 | 1.57 | | 1.00 | 0.44 | 0.27 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.0 | 0.2 | | 7.3 | 37.7 | 0.1 | 346.4 | 0.3 | | 0.1 | 0.9 | |
| Delay (s) | 35.2 | 10.2 | | 66.3 | 51.9 | 4.8 | 396.6 | 43.8 | | 42.5 | 45.8 | |
| Level of Service | D | B | | E | D | A | F | D | | D | D | |
| Approach Delay (s) | | 14.3 | | | 50.4 | | | 250.3 | | | 45.7 | |
| Approach LOS | | B | | | D | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 101.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

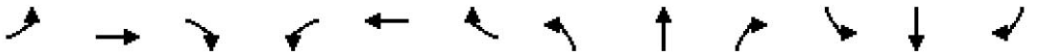
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 1390 | 90 | 120 | 1560 | 130 | 170 | 200 | 120 | 90 | 170 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5134 | | 1805 | 5115 | | 1805 | 1782 | | 1805 | 1900 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5134 | | 1805 | 5115 | | 1805 | 1782 | | 1805 | 1900 | 1589 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 147 | 1463 | 95 | 126 | 1642 | 137 | 179 | 211 | 126 | 95 | 179 | 116 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 7 | 0 | 0 | 21 | 0 | 0 | 0 | 88 |
| Lane Group Flow (vph) | 147 | 1553 | 0 | 126 | 1772 | 0 | 179 | 316 | 0 | 95 | 179 | 28 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 16.4 | 53.1 | | 13.7 | 50.4 | | 12.0 | 26.7 | | 10.5 | 25.2 | 25.2 |
| Effective Green, g (s) | 16.4 | 53.1 | | 13.7 | 50.4 | | 12.0 | 26.7 | | 10.5 | 25.2 | 25.2 |
| Actuated g/C Ratio | 0.14 | 0.44 | | 0.11 | 0.42 | | 0.10 | 0.22 | | 0.09 | 0.21 | 0.21 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 247 | 2272 | | 206 | 2148 | | 181 | 396 | | 158 | 399 | 334 |
| v/s Ratio Prot | c0.08 | c0.30 | | 0.07 | c0.35 | | c0.10 | c0.18 | | 0.05 | 0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.02 |
| v/c Ratio | 0.60 | 0.68 | | 0.61 | 0.82 | | 0.99 | 0.80 | | 0.60 | 0.45 | 0.08 |
| Uniform Delay, d1 | 48.7 | 26.7 | | 50.6 | 30.9 | | 53.9 | 44.1 | | 52.7 | 41.3 | 38.1 |
| Progression Factor | 0.99 | 1.09 | | 0.99 | 0.75 | | 1.10 | 0.92 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.7 | 1.6 | | 0.5 | 0.4 | | 48.0 | 6.6 | | 6.3 | 0.8 | 0.1 |
| Delay (s) | 51.9 | 30.8 | | 50.6 | 23.6 | | 107.2 | 47.4 | | 59.0 | 42.1 | 38.2 |
| Level of Service | D | C | | D | C | | F | D | | E | D | D |
| Approach Delay (s) | | 32.6 | | | 25.4 | | | 68.1 | | | 45.1 | |
| Approach LOS | | C | | | C | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 80.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

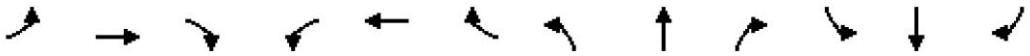
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑ | ↱ | ↰ | ↑↑↑ | | | | | | | ↱ |
| Volume (vph) | 0 | 1500 | 110 | 1360 | 680 | 0 | 0 | 0 | 0 | 0 | 0 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.91 | 1.00 | 1.00 | 0.91 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 5187 | 1569 | 1805 | 5187 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 5187 | 1569 | 1805 | 5187 | | | | | | | 1644 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 0 | 1613 | 118 | 1462 | 731 | 0 | 0 | 0 | 0 | 0 | 0 | 97 |
| RTOR Reduction (vph) | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82 |
| Lane Group Flow (vph) | 0 | 1613 | 81 | 1462 | 731 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 34.0 | 34.0 | 78.0 | 94.0 | | | | | | | 18.0 |
| Effective Green, g (s) | | 34.0 | 34.0 | 78.0 | 94.0 | | | | | | | 18.0 |
| Actuated g/C Ratio | | 0.28 | 0.28 | 0.65 | 0.78 | | | | | | | 0.15 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1470 | 445 | 1173 | 4063 | | | | | | | 247 |
| v/s Ratio Prot | | c0.31 | | c0.81 | 0.14 | | | | | | | 0.01 |
| v/s Ratio Perm | | | 0.05 | | | | | | | | | |
| v/c Ratio | | 1.10 | 0.18 | 1.25 | 0.18 | | | | | | | 0.06 |
| Uniform Delay, d1 | | 43.0 | 32.5 | 21.0 | 3.3 | | | | | | | 43.7 |
| Progression Factor | | 1.00 | 1.00 | 0.81 | 0.19 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 54.8 | 0.9 | 115.3 | 0.1 | | | | | | | 0.1 |
| Delay (s) | | 97.8 | 33.4 | 132.3 | 0.7 | | | | | | | 43.8 |
| Level of Service | | F | C | F | A | | | | | | | D |
| Approach Delay (s) | | 93.4 | | | 88.4 | | | 0.0 | | | 43.8 | |
| Approach LOS | | F | | | F | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 89.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.20 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 111.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

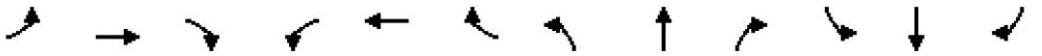
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 1040 | 450 | 0 | 2140 | 150 | 40 | 20 | 10 | 470 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | | 0.99 | | 1.00 | 0.95 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4952 | | | 5127 | | 1805 | 1805 | | 1805 | 1615 | |
| Flt Permitted | 0.06 | 1.00 | | | 1.00 | | 0.74 | 1.00 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | 114 | 4952 | | | 5127 | | 1414 | 1805 | | 1401 | 1615 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 20 | 1051 | 455 | 0 | 2162 | 152 | 40 | 20 | 10 | 475 | 0 | 20 |
| RTOR Reduction (vph) | 0 | 59 | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 20 | 1447 | 0 | 0 | 2308 | 0 | 40 | 24 | 0 | 475 | 18 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 66.7 | 66.7 | | | 66.7 | | 45.3 | 45.3 | | 45.3 | 45.3 | |
| Effective Green, g (s) | 66.7 | 66.7 | | | 66.7 | | 45.3 | 45.3 | | 45.3 | 45.3 | |
| Actuated g/C Ratio | 0.56 | 0.56 | | | 0.56 | | 0.38 | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 63 | 2752 | | | 2850 | | 534 | 681 | | 529 | 610 | |
| v/s Ratio Prot | | 0.29 | | | c0.45 | | | 0.01 | | | 0.01 | |
| v/s Ratio Perm | 0.18 | | | | | | 0.03 | | | c0.34 | | |
| v/c Ratio | 0.32 | 0.53 | | | 0.81 | | 0.07 | 0.03 | | 0.90 | 0.03 | |
| Uniform Delay, d1 | 14.4 | 16.7 | | | 21.5 | | 23.9 | 23.6 | | 35.2 | 23.5 | |
| Progression Factor | 0.21 | 0.12 | | | 0.50 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.2 | 0.1 | | | 0.2 | | 0.1 | 0.0 | | 17.8 | 0.0 | |
| Delay (s) | 4.2 | 2.0 | | | 10.9 | | 24.0 | 23.6 | | 53.0 | 23.5 | |
| Level of Service | A | A | | | B | | C | C | | D | C | |
| Approach Delay (s) | | 2.0 | | | 10.9 | | | 23.8 | | | 51.8 | |
| Approach LOS | | A | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 84.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1830 | 40 | 40 | 1770 | 110 | 970 | 190 | 230 | 140 | 50 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1585 | 1805 | 5187 | 1564 | 1715 | 1672 | | 1715 | 1763 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1585 | 1805 | 5187 | 1564 | 1715 | 1672 | | 1715 | 1763 | 1587 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 196 | 1887 | 41 | 41 | 1825 | 113 | 1000 | 196 | 237 | 144 | 52 | 268 |
| RTOR Reduction (vph) | 0 | 0 | 16 | 0 | 0 | 49 | 0 | 15 | 0 | 0 | 0 | 98 |
| Lane Group Flow (vph) | 196 | 1887 | 25 | 41 | 1825 | 64 | 730 | 688 | 0 | 96 | 100 | 170 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 22.8 | 41.7 | 41.7 | 7.1 | 26.0 | 26.0 | 37.0 | 37.0 | | 18.2 | 18.2 | 18.2 |
| Effective Green, g (s) | 22.8 | 41.7 | 41.7 | 7.1 | 26.0 | 26.0 | 37.0 | 37.0 | | 18.2 | 18.2 | 18.2 |
| Actuated g/C Ratio | 0.19 | 0.35 | 0.35 | 0.06 | 0.22 | 0.22 | 0.31 | 0.31 | | 0.15 | 0.15 | 0.15 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 343 | 1802 | 551 | 107 | 1124 | 339 | 529 | 516 | | 260 | 267 | 241 |
| v/s Ratio Prot | c0.11 | c0.36 | | 0.02 | c0.35 | | c0.43 | 0.41 | | 0.06 | 0.06 | |
| v/s Ratio Perm | | | 0.02 | | | 0.04 | | | | | | c0.11 |
| v/c Ratio | 0.57 | 1.05 | 0.04 | 0.38 | 1.62 | 0.19 | 1.38 | 1.33 | | 0.37 | 0.37 | 0.70 |
| Uniform Delay, d1 | 44.2 | 39.1 | 25.9 | 54.3 | 47.0 | 38.4 | 41.5 | 41.5 | | 45.7 | 45.8 | 48.3 |
| Progression Factor | 0.66 | 1.05 | 0.96 | 1.20 | 0.68 | 0.43 | 1.00 | 1.00 | | 0.78 | 0.78 | 0.74 |
| Incremental Delay, d2 | 2.1 | 33.9 | 0.1 | 1.2 | 282.7 | 0.6 | 182.6 | 162.7 | | 0.8 | 0.8 | 8.4 |
| Delay (s) | 31.4 | 75.2 | 25.0 | 66.2 | 314.9 | 17.0 | 224.1 | 204.2 | | 36.4 | 36.5 | 44.1 |
| Level of Service | C | E | C | E | F | B | F | F | | D | D | D |
| Approach Delay (s) | | 70.2 | | | 292.8 | | | 214.3 | | | 40.9 | |
| Approach LOS | | E | | | F | | | F | | | D | |

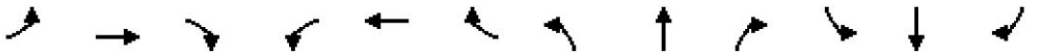
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 175.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.25 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 106.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1050 | 280 | 100 | 920 | 540 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.97 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3474 | | 1805 | 3610 | 1805 | 1594 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3474 | | 1805 | 3610 | 1805 | 1594 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1141 | 304 | 109 | 1000 | 587 | 348 |
| RTOR Reduction (vph) | 26 | 0 | 0 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 1419 | 0 | 109 | 1000 | 587 | 333 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 37.6 | | 7.0 | 48.6 | 30.9 | 37.9 |
| Effective Green, g (s) | 37.6 | | 7.0 | 48.6 | 30.9 | 37.9 |
| Actuated g/C Ratio | 0.43 | | 0.08 | 0.56 | 0.35 | 0.43 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1493 | | 144 | 2005 | 637 | 763 |
| v/s Ratio Prot | c0.41 | | c0.06 | 0.28 | c0.33 | 0.03 |
| v/s Ratio Perm | | | | | | 0.17 |
| v/c Ratio | 0.95 | | 0.76 | 0.50 | 0.92 | 0.44 |
| Uniform Delay, d1 | 24.0 | | 39.4 | 12.0 | 27.1 | 17.3 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 13.3 | | 20.1 | 0.2 | 18.9 | 0.4 |
| Delay (s) | 37.3 | | 59.5 | 12.2 | 46.0 | 17.7 |
| Level of Service | D | | E | B | D | B |
| Approach Delay (s) | 37.3 | | | 16.8 | 35.5 | |
| Approach LOS | D | | | B | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 87.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 83.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

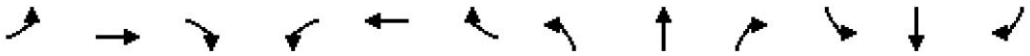
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 910 | 420 | 210 | 450 | 200 | 390 | 300 | 220 | 200 | 220 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1588 | 3502 | 3443 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1588 | 3502 | 3443 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 43 | 968 | 447 | 223 | 479 | 213 | 415 | 319 | 234 | 213 | 234 | 32 |
| RTOR Reduction (vph) | 0 | 0 | 314 | 0 | 47 | 0 | 0 | 0 | 179 | 0 | 0 | 28 |
| Lane Group Flow (vph) | 43 | 968 | 133 | 223 | 645 | 0 | 415 | 319 | 55 | 213 | 234 | 4 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 5.4 | 25.2 | 25.2 | 8.9 | 28.7 | | 23.7 | 19.9 | 19.9 | 14.9 | 11.1 | 11.1 |
| Effective Green, g (s) | 5.4 | 25.2 | 25.2 | 8.9 | 28.7 | | 23.7 | 19.9 | 19.9 | 14.9 | 11.1 | 11.1 |
| Actuated g/C Ratio | 0.06 | 0.30 | 0.30 | 0.10 | 0.34 | | 0.28 | 0.23 | 0.23 | 0.18 | 0.13 | 0.13 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 115 | 1540 | 471 | 367 | 1164 | | 504 | 445 | 379 | 317 | 472 | 208 |
| v/s Ratio Prot | 0.02 | c0.19 | | 0.06 | c0.19 | | c0.23 | 0.17 | | c0.12 | 0.06 | |
| v/s Ratio Perm | | | 0.08 | | | | | | 0.03 | | | 0.00 |
| v/c Ratio | 0.37 | 0.63 | 0.28 | 0.61 | 0.55 | | 0.82 | 0.72 | 0.14 | 0.67 | 0.50 | 0.02 |
| Uniform Delay, d1 | 38.1 | 25.8 | 22.9 | 36.3 | 22.9 | | 28.6 | 29.9 | 25.8 | 32.7 | 34.3 | 32.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.0 | 0.8 | 0.3 | 2.8 | 0.6 | | 10.5 | 5.4 | 0.2 | 5.5 | 0.8 | 0.0 |
| Delay (s) | 40.2 | 26.6 | 23.2 | 39.2 | 23.5 | | 39.1 | 35.3 | 25.9 | 38.2 | 35.1 | 32.2 |
| Level of Service | D | C | C | D | C | | D | D | C | D | D | C |
| Approach Delay (s) | | 26.0 | | | 27.3 | | | 34.7 | | | 36.3 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 84.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 69.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 10 | 100 | 0 | 0 | 0 | 0 | 660 | 630 | 500 | 760 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1582 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1582 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 22 | 11 | 110 | 0 | 0 | 0 | 0 | 725 | 692 | 549 | 835 | 0 |
| RTOR Reduction (vph) | 0 | 47 | 54 | 0 | 0 | 0 | 0 | 0 | 218 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 22 | 15 | 5 | 0 | 0 | 0 | 0 | 725 | 474 | 549 | 835 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 4.2 | 4.2 | 4.2 | | | | | 21.9 | 21.9 | 11.9 | 37.8 | |
| Effective Green, g (s) | 4.2 | 4.2 | 4.2 | | | | | 21.9 | 21.9 | 11.9 | 37.8 | |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.08 | | | | | 0.44 | 0.44 | 0.24 | 0.76 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 152 | 133 | 129 | | | | | 1581 | 707 | 833 | 2729 | |
| v/s Ratio Prot | c0.01 | 0.01 | | | | | | 0.20 | | c0.16 | 0.23 | |
| v/s Ratio Perm | | | 0.00 | | | | | | c0.29 | | | |
| v/c Ratio | 0.14 | 0.11 | 0.04 | | | | | 0.46 | 0.67 | 0.66 | 0.31 | |
| Uniform Delay, d1 | 21.2 | 21.2 | 21.0 | | | | | 9.9 | 11.2 | 17.2 | 1.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.02 | 0.94 | |
| Incremental Delay, d2 | 0.4 | 0.4 | 0.1 | | | | | 1.0 | 5.0 | 1.8 | 0.3 | |
| Delay (s) | 21.7 | 21.6 | 21.2 | | | | | 10.8 | 16.2 | 19.3 | 2.1 | |
| Level of Service | C | C | C | | | | | B | B | B | A | |
| Approach Delay (s) | | 21.4 | | | 0.0 | | | 13.5 | | | 8.9 | |
| Approach LOS | | C | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 330 | 210 | 650 | 0 | 0 | 910 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 359 | 228 | 707 | 0 | 0 | 989 |
| RTOR Reduction (vph) | 0 | 161 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 359 | 67 | 707 | 0 | 0 | 989 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 10.6 | 10.6 | 31.4 | | | 31.4 |
| Effective Green, g (s) | 10.6 | 10.6 | 31.4 | | | 31.4 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.63 | | | 0.63 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 742 | 342 | 2267 | | | 2267 |
| v/s Ratio Prot | c0.10 | | 0.20 | | | c0.27 |
| v/s Ratio Perm | | 0.04 | | | | |
| v/c Ratio | 0.48 | 0.20 | 0.31 | | | 0.44 |
| Uniform Delay, d1 | 17.3 | 16.2 | 4.3 | | | 4.8 |
| Progression Factor | 1.00 | 1.00 | 0.39 | | | 1.00 |
| Incremental Delay, d2 | 0.5 | 0.3 | 0.3 | | | 0.6 |
| Delay (s) | 17.8 | 16.5 | 2.0 | | | 5.4 |
| Level of Service | B | B | A | | | A |
| Approach Delay (s) | 17.3 | | 2.0 | | | 5.4 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

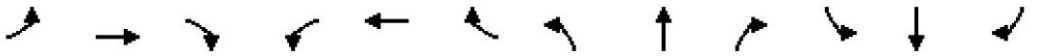
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 2100 | 60 | 290 | 1850 | 640 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5163 | | 3502 | 5187 | 5095 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5163 | | 3502 | 5187 | 5095 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 2143 | 61 | 296 | 1888 | 653 | 10 |
| RTOR Reduction (vph) | 4 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 2200 | 0 | 296 | 1888 | 661 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 33.0 | | 8.1 | 45.1 | 13.9 | |
| Effective Green, g (s) | 33.0 | | 8.1 | 45.1 | 13.9 | |
| Actuated g/C Ratio | 0.49 | | 0.12 | 0.67 | 0.21 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2543 | | 423 | 3492 | 1057 | |
| v/s Ratio Prot | c0.43 | | 0.08 | c0.36 | c0.13 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.87 | | 0.70 | 0.54 | 0.62 | |
| Uniform Delay, d1 | 15.0 | | 28.3 | 5.6 | 24.2 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.3 | | 5.0 | 0.2 | 1.2 | |
| Delay (s) | 18.4 | | 33.3 | 5.8 | 25.3 | |
| Level of Service | B | | C | A | C | |
| Approach Delay (s) | 18.4 | | | 9.5 | 25.3 | |
| Approach LOS | B | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 67.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 72.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

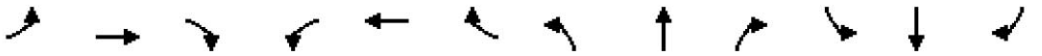
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 2240 | 110 | 640 | 2030 | 120 | 170 | 220 | 350 | 160 | 140 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 3502 | 5135 | | 3502 | 1900 | 1589 | 1805 | 3478 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 3502 | 5135 | | 3502 | 1900 | 1589 | 1805 | 3478 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 93 | 2309 | 113 | 660 | 2093 | 124 | 175 | 227 | 361 | 165 | 144 | 41 |
| RTOR Reduction (vph) | 0 | 0 | 63 | 0 | 5 | 0 | 0 | 0 | 268 | 0 | 25 | 0 |
| Lane Group Flow (vph) | 93 | 2309 | 50 | 660 | 2212 | 0 | 175 | 227 | 93 | 165 | 160 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.5 | 52.1 | 52.1 | 22.0 | 63.6 | | 16.6 | 18.3 | 18.3 | 9.0 | 10.7 | |
| Effective Green, g (s) | 10.5 | 52.1 | 52.1 | 22.0 | 63.6 | | 16.6 | 18.3 | 18.3 | 9.0 | 10.7 | |
| Actuated g/C Ratio | 0.09 | 0.44 | 0.44 | 0.19 | 0.54 | | 0.14 | 0.16 | 0.16 | 0.08 | 0.09 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 161 | 2302 | 704 | 656 | 2782 | | 495 | 296 | 248 | 138 | 317 | |
| v/s Ratio Prot | 0.05 | c0.45 | | c0.19 | 0.43 | | 0.05 | c0.12 | | c0.09 | 0.05 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.06 | | | |
| v/c Ratio | 0.58 | 1.00 | 0.07 | 1.01 | 0.79 | | 0.35 | 0.77 | 0.38 | 1.20 | 0.51 | |
| Uniform Delay, d1 | 51.3 | 32.7 | 18.8 | 47.7 | 21.7 | | 45.6 | 47.5 | 44.4 | 54.2 | 50.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.9 | 19.5 | 0.0 | 36.6 | 1.6 | | 0.4 | 11.3 | 1.0 | 138.7 | 1.3 | |
| Delay (s) | 56.3 | 52.1 | 18.8 | 84.3 | 23.3 | | 46.0 | 58.8 | 45.4 | 192.9 | 52.1 | |
| Level of Service | E | D | B | F | C | | D | E | D | F | D | |
| Approach Delay (s) | | 50.8 | | | 37.3 | | | 49.5 | | | 118.5 | |
| Approach LOS | | D | | | D | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 117.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 98.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

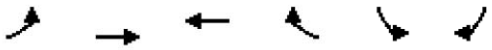
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1240 | 470 | 230 | 710 | 190 | 230 | 560 | 70 | 310 | 1050 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1593 | 3502 | 3610 | 1594 | 3502 | 3610 | 1593 | 3502 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1593 | 3502 | 3610 | 1594 | 3502 | 3610 | 1593 | 3502 | 3610 | 1596 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 200 | 1305 | 495 | 242 | 747 | 200 | 242 | 589 | 74 | 326 | 1105 | 221 |
| RTOR Reduction (vph) | 0 | 0 | 7 | 0 | 0 | 66 | 0 | 0 | 5 | 0 | 0 | 18 |
| Lane Group Flow (vph) | 200 | 1305 | 488 | 242 | 747 | 134 | 242 | 589 | 69 | 326 | 1105 | 203 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 15.3 | 44.0 | 54.0 | 8.0 | 36.7 | 48.7 | 10.0 | 38.0 | 46.0 | 12.0 | 40.0 | 55.3 |
| Effective Green, g (s) | 15.3 | 44.0 | 54.0 | 8.0 | 36.7 | 48.7 | 10.0 | 38.0 | 46.0 | 12.0 | 40.0 | 55.3 |
| Actuated g/C Ratio | 0.13 | 0.37 | 0.46 | 0.07 | 0.31 | 0.41 | 0.08 | 0.32 | 0.39 | 0.10 | 0.34 | 0.47 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 234 | 1346 | 783 | 237 | 1123 | 712 | 297 | 1163 | 675 | 356 | 1224 | 802 |
| v/s Ratio Prot | c0.11 | c0.36 | 0.05 | c0.07 | 0.21 | 0.02 | 0.07 | 0.16 | 0.01 | c0.09 | c0.31 | 0.03 |
| v/s Ratio Perm | | | 0.25 | | | 0.06 | | | 0.04 | | | 0.09 |
| v/c Ratio | 0.85 | 0.97 | 0.62 | 1.02 | 0.67 | 0.19 | 0.81 | 0.51 | 0.10 | 0.92 | 0.90 | 0.25 |
| Uniform Delay, d1 | 50.3 | 36.3 | 24.3 | 55.0 | 35.3 | 22.1 | 53.1 | 32.4 | 22.9 | 52.5 | 37.1 | 18.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 24.9 | 17.5 | 1.6 | 64.0 | 1.5 | 0.1 | 15.6 | 0.3 | 0.1 | 27.3 | 9.4 | 0.2 |
| Delay (s) | 75.2 | 53.8 | 25.8 | 119.0 | 36.8 | 22.2 | 68.7 | 32.8 | 22.9 | 79.8 | 46.6 | 19.1 |
| Level of Service | E | D | C | F | D | C | E | C | C | E | D | B |
| Approach Delay (s) | | 49.0 | | | 51.1 | | | 41.6 | | | 49.5 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 118.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 90.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

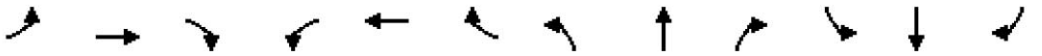
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 110 | 1500 | 900 | 410 | 680 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1602 | 3497 | 1453 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1602 | 3497 | 1453 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 121 | 1648 | 989 | 451 | 747 | 242 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 51 | 3 | 11 |
| Lane Group Flow (vph) | 121 | 1648 | 989 | 400 | 768 | 207 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.1 | 36.6 | 25.5 | 48.0 | 22.5 | 29.6 |
| Effective Green, g (s) | 7.1 | 36.6 | 25.5 | 48.0 | 22.5 | 29.6 |
| Actuated g/C Ratio | 0.11 | 0.55 | 0.38 | 0.72 | 0.34 | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 191 | 1969 | 1372 | 1241 | 1173 | 728 |
| v/s Ratio Prot | 0.07 | c0.46 | 0.27 | 0.11 | c0.22 | 0.03 |
| v/s Ratio Perm | | | | 0.14 | | 0.11 |
| v/c Ratio | 0.63 | 0.84 | 0.72 | 0.32 | 0.65 | 0.28 |
| Uniform Delay, d1 | 28.8 | 12.8 | 17.8 | 3.5 | 19.0 | 12.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.7 | 3.3 | 1.9 | 0.2 | 1.3 | 0.2 |
| Delay (s) | 35.5 | 16.0 | 19.7 | 3.7 | 20.3 | 12.2 |
| Level of Service | D | B | B | A | C | B |
| Approach Delay (s) | | 17.4 | 14.7 | | 18.5 | |
| Approach LOS | | B | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 67.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 70.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

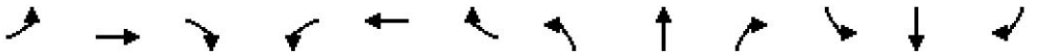
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1430 | 790 | 320 | 590 | 80 | 380 | 190 | 250 | 200 | 380 | 250 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1595 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1595 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 213 | 1607 | 888 | 360 | 663 | 90 | 427 | 213 | 281 | 225 | 427 | 281 |
| RTOR Reduction (vph) | 0 | 0 | 111 | 0 | 0 | 55 | 0 | 0 | 230 | 0 | 0 | 51 |
| Lane Group Flow (vph) | 213 | 1607 | 777 | 360 | 663 | 35 | 427 | 213 | 51 | 225 | 427 | 230 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 17.3 | 37.7 | 47.1 | 15.7 | 36.1 | 36.1 | 9.4 | 17.2 | 17.2 | 7.3 | 15.1 | 32.4 |
| Effective Green, g (s) | 17.3 | 37.7 | 47.1 | 15.7 | 36.1 | 36.1 | 9.4 | 17.2 | 17.2 | 7.3 | 15.1 | 32.4 |
| Actuated g/C Ratio | 0.18 | 0.40 | 0.50 | 0.17 | 0.38 | 0.38 | 0.10 | 0.18 | 0.18 | 0.08 | 0.16 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 333 | 2083 | 868 | 586 | 1388 | 611 | 351 | 661 | 291 | 272 | 581 | 622 |
| v/s Ratio Prot | c0.12 | 0.31 | c0.09 | 0.10 | 0.18 | | c0.12 | 0.06 | | 0.06 | c0.12 | 0.07 |
| v/s Ratio Perm | | | 0.40 | | | 0.02 | | | 0.03 | | | 0.08 |
| v/c Ratio | 0.64 | 0.77 | 0.89 | 0.61 | 0.48 | 0.06 | 1.22 | 0.32 | 0.18 | 0.83 | 0.73 | 0.37 |
| Uniform Delay, d1 | 35.4 | 24.4 | 21.2 | 36.3 | 21.8 | 18.2 | 42.2 | 33.3 | 32.4 | 42.7 | 37.5 | 23.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.0 | 1.8 | 11.7 | 1.9 | 0.3 | 0.0 | 120.7 | 0.3 | 0.3 | 18.3 | 4.8 | 0.4 |
| Delay (s) | 39.4 | 26.2 | 32.8 | 38.2 | 22.1 | 18.2 | 162.9 | 33.6 | 32.7 | 60.9 | 42.3 | 23.5 |
| Level of Service | D | C | C | D | C | B | F | C | C | E | D | C |
| Approach Delay (s) | | 29.4 | | | 27.0 | | | 93.3 | | | 41.1 | |
| Approach LOS | | C | | | C | | | F | | | D | |

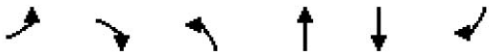
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 93.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 83.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 410 | 1310 | 10 | 380 | 0 | 0 | 0 | 0 | 10 | 0 | 270 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.91 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3139 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.19 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3139 | 1470 | 355 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 451 | 1440 | 11 | 418 | 0 | 0 | 0 | 0 | 11 | 0 | 297 |
| RTOR Reduction (vph) | 0 | 305 | 305 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 235 | 0 |
| Lane Group Flow (vph) | 0 | 866 | 415 | 11 | 418 | 0 | 0 | 0 | 0 | 11 | 62 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 21.4 | 21.4 | 21.4 | 21.4 | | | | | 7.7 | 7.7 | |
| Effective Green, g (s) | | 21.4 | 21.4 | 21.4 | 21.4 | | | | | 7.7 | 7.7 | |
| Actuated g/C Ratio | | 0.58 | 0.58 | 0.58 | 0.58 | | | | | 0.21 | 0.21 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1811 | 848 | 205 | 2082 | | | | | 375 | 335 | |
| v/s Ratio Prot | | 0.28 | | | 0.12 | | | | | | c0.04 | |
| v/s Ratio Perm | | | c0.28 | 0.03 | | | | | | 0.01 | | |
| v/c Ratio | | 0.48 | 0.49 | 0.05 | 0.20 | | | | | 0.03 | 0.18 | |
| Uniform Delay, d1 | | 4.6 | 4.6 | 3.4 | 3.8 | | | | | 11.7 | 12.1 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.2 | 0.4 | 0.1 | 0.0 | | | | | 0.0 | 0.3 | |
| Delay (s) | | 4.8 | 5.1 | 3.5 | 3.8 | | | | | 11.8 | 12.4 | |
| Level of Service | | A | A | A | A | | | | | B | B | |
| Approach Delay (s) | | 4.9 | | | 3.8 | | | 0.0 | | | 12.4 | |
| Approach LOS | | A | | | A | | | A | | | B | |

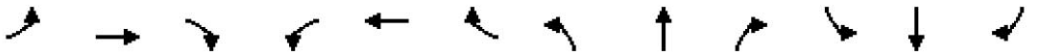
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 37.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 81.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 460 | 0 | 430 | 0 | 0 | 0 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 535 | 0 | 500 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 267 | 267 | 333 | 167 |
| Volume Left (vph) | 267 | 267 | 333 | 167 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 6.5 | 6.5 | 6.6 | 6.6 |
| Degree Utilization, x | 0.48 | 0.48 | 0.61 | 0.30 |
| Capacity (veh/h) | 536 | 538 | 529 | 530 |
| Control Delay (s) | 14.3 | 14.3 | 18.1 | 11.2 |
| Approach Delay (s) | 14.3 | | 15.8 | |
| Approach LOS | B | | C | |

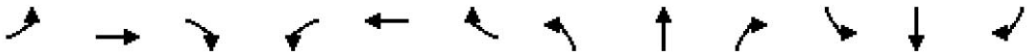
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 15.0 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 92.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 20 | 10 | 830 | 30 | 260 | 70 | 470 | 840 | 570 | 1130 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1795 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1795 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 22 | 22 | 11 | 922 | 33 | 289 | 78 | 522 | 933 | 633 | 1256 | 11 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 196 | 0 | 0 | 524 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 22 | 23 | 0 | 922 | 33 | 93 | 78 | 522 | 409 | 633 | 1256 | 9 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 3.0 | 5.4 | | 32.1 | 34.5 | 34.5 | 7.0 | 31.1 | 31.1 | 22.1 | 46.2 | 46.2 |
| Effective Green, g (s) | 3.0 | 5.4 | | 32.1 | 34.5 | 34.5 | 7.0 | 31.1 | 31.1 | 22.1 | 46.2 | 46.2 |
| Actuated g/C Ratio | 0.03 | 0.05 | | 0.30 | 0.32 | 0.32 | 0.07 | 0.29 | 0.29 | 0.21 | 0.43 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 51 | 91 | | 1054 | 614 | 522 | 118 | 1052 | 463 | 725 | 1563 | 699 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.26 | 0.02 | | 0.04 | 0.14 | | c0.18 | 0.35 | |
| v/s Ratio Perm | | | | | | c0.06 | | | c0.26 | | | 0.01 |
| v/c Ratio | 0.43 | 0.25 | | 0.87 | 0.05 | 0.18 | 0.66 | 0.50 | 0.88 | 0.87 | 0.80 | 0.01 |
| Uniform Delay, d1 | 51.0 | 48.7 | | 35.4 | 24.9 | 25.9 | 48.7 | 31.3 | 36.1 | 40.9 | 26.3 | 17.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.8 | 1.4 | | 8.2 | 0.0 | 0.2 | 13.0 | 0.4 | 17.7 | 11.3 | 3.1 | 0.0 |
| Delay (s) | 56.8 | 50.1 | | 43.6 | 24.9 | 26.1 | 61.7 | 31.7 | 53.8 | 52.2 | 29.4 | 17.3 |
| Level of Service | E | D | | D | C | C | E | C | D | D | C | B |
| Approach Delay (s) | | 52.8 | | | 39.1 | | | 46.6 | | | 36.9 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 106.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 88.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

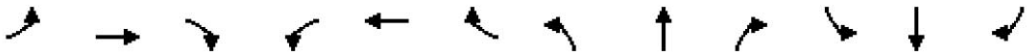
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 1070 | 80 | 70 | 870 | 60 | 60 | 60 | 50 | 70 | 50 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.96 | | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3572 | | 1805 | 3572 | | | 1785 | | 1802 | 1677 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.58 | | 0.58 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3572 | | 1805 | 3572 | | | 1049 | | 1099 | 1677 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 191 | 1202 | 90 | 79 | 978 | 67 | 67 | 67 | 56 | 79 | 56 | 202 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 23 | 0 | 0 | 162 | 0 |
| Lane Group Flow (vph) | 191 | 1287 | 0 | 79 | 1040 | 0 | 0 | 167 | 0 | 79 | 96 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.2 | 31.1 | | 5.2 | 28.1 | | | 12.0 | | 12.0 | 12.0 | |
| Effective Green, g (s) | 8.2 | 31.1 | | 5.2 | 28.1 | | | 12.0 | | 12.0 | 12.0 | |
| Actuated g/C Ratio | 0.14 | 0.52 | | 0.09 | 0.47 | | | 0.20 | | 0.20 | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 245 | 1842 | | 156 | 1665 | | | 209 | | 219 | 334 | |
| v/s Ratio Prot | c0.11 | c0.36 | | 0.04 | 0.29 | | | | | | 0.06 | |
| v/s Ratio Perm | | | | | | | | c0.16 | | 0.07 | | |
| v/c Ratio | 0.78 | 0.70 | | 0.51 | 0.62 | | | 0.80 | | 0.36 | 0.29 | |
| Uniform Delay, d1 | 25.2 | 11.1 | | 26.3 | 12.1 | | | 23.0 | | 20.8 | 20.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 14.5 | 1.2 | | 2.6 | 0.7 | | | 18.8 | | 1.0 | 0.5 | |
| Delay (s) | 39.6 | 12.2 | | 28.9 | 12.9 | | | 41.8 | | 21.9 | 21.0 | |
| Level of Service | D | B | | C | B | | | D | | C | C | |
| Approach Delay (s) | | 15.8 | | | 14.0 | | | 41.8 | | | 21.2 | |
| Approach LOS | | B | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 60.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 940 | 260 | 210 | 890 | 170 | 150 | 350 | 140 | 330 | 710 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3480 | | 1805 | 3610 | 1594 | 1805 | 3610 | 1596 | 3502 | 3535 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3480 | | 1805 | 3610 | 1594 | 1805 | 3610 | 1596 | 3502 | 3535 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 1011 | 280 | 226 | 957 | 183 | 161 | 376 | 151 | 355 | 763 | 108 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 0 | 51 | 0 | 0 | 12 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 43 | 1271 | 0 | 226 | 957 | 132 | 161 | 376 | 139 | 355 | 862 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.5 | 42.9 | | 14.0 | 51.4 | 65.2 | 11.0 | 30.4 | 44.4 | 13.8 | 33.2 | |
| Effective Green, g (s) | 5.5 | 42.9 | | 14.0 | 51.4 | 65.2 | 11.0 | 30.4 | 44.4 | 13.8 | 33.2 | |
| Actuated g/C Ratio | 0.05 | 0.37 | | 0.12 | 0.44 | 0.56 | 0.09 | 0.26 | 0.38 | 0.12 | 0.28 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 85 | 1275 | | 216 | 1585 | 942 | 170 | 937 | 660 | 413 | 1002 | |
| v/s Ratio Prot | 0.02 | c0.37 | | c0.13 | 0.27 | 0.02 | 0.09 | 0.10 | 0.03 | c0.10 | c0.24 | |
| v/s Ratio Perm | | | | | | 0.07 | | | 0.06 | | | |
| v/c Ratio | 0.51 | 1.00 | | 1.05 | 0.60 | 0.14 | 0.95 | 0.40 | 0.21 | 0.86 | 0.86 | |
| Uniform Delay, d1 | 54.5 | 37.0 | | 51.5 | 25.1 | 12.5 | 52.8 | 35.8 | 24.5 | 50.7 | 39.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.7 | 24.2 | | 73.9 | 0.7 | 0.1 | 53.1 | 0.3 | 0.2 | 16.1 | 7.5 | |
| Delay (s) | 59.1 | 61.2 | | 125.5 | 25.7 | 12.5 | 105.8 | 36.1 | 24.7 | 66.8 | 47.2 | |
| Level of Service | E | E | | F | C | B | F | D | C | E | D | |
| Approach Delay (s) | | 61.2 | | | 40.5 | | | 49.9 | | | 52.9 | |
| Approach LOS | | E | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 117.1 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 91.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

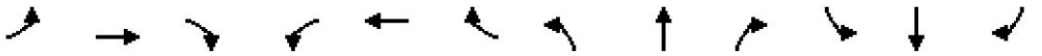
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 40 | 50 | 1230 | 100 | 90 | 1840 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1800 | 1591 | 3610 | 1575 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1800 | 1591 | 3610 | 1575 | 1805 | 3610 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 43 | 53 | 1309 | 106 | 96 | 1957 |
| RTOR Reduction (vph) | 0 | 48 | 0 | 22 | 0 | 0 |
| Lane Group Flow (vph) | 43 | 5 | 1309 | 84 | 96 | 1957 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 5.8 | 5.8 | 34.5 | 34.5 | 6.8 | 45.3 |
| Effective Green, g (s) | 5.8 | 5.8 | 34.5 | 34.5 | 6.8 | 45.3 |
| Actuated g/C Ratio | 0.10 | 0.10 | 0.58 | 0.58 | 0.12 | 0.77 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 177 | 156 | 2107 | 919 | 208 | 2767 |
| v/s Ratio Prot | | | 0.36 | | 0.05 | c0.54 |
| v/s Ratio Perm | c0.02 | 0.00 | | 0.05 | | |
| v/c Ratio | 0.24 | 0.03 | 0.62 | 0.09 | 0.46 | 0.71 |
| Uniform Delay, d1 | 24.6 | 24.1 | 8.0 | 5.4 | 24.4 | 3.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | 0.1 | 0.6 | 0.0 | 1.6 | 0.8 |
| Delay (s) | 25.3 | 24.2 | 8.6 | 5.5 | 26.1 | 4.4 |
| Level of Service | C | C | A | A | C | A |
| Approach Delay (s) | 24.7 | | 8.4 | | | 5.4 |
| Approach LOS | C | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 59.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 66.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

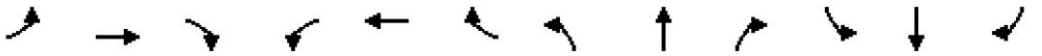
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 1230 | 200 | 510 | 870 | 290 | 0 | 0 | 0 | 780 | 90 | 460 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1574 | 1805 | 3610 | 1572 | | | | 1715 | 1736 | 1593 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1574 | 1805 | 3610 | 1572 | | | | 1715 | 1736 | 1593 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 61 | 1255 | 204 | 520 | 888 | 296 | 0 | 0 | 0 | 796 | 92 | 469 |
| RTOR Reduction (vph) | 0 | 0 | 91 | 0 | 0 | 138 | 0 | 0 | 0 | 0 | 0 | 39 |
| Lane Group Flow (vph) | 61 | 1255 | 113 | 520 | 888 | 158 | 0 | 0 | 0 | 446 | 442 | 430 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 9.8 | 34.7 | 34.7 | 39.0 | 63.9 | 63.9 | | | | 34.3 | 34.3 | 44.1 |
| Effective Green, g (s) | 9.8 | 34.7 | 34.7 | 39.0 | 63.9 | 63.9 | | | | 34.3 | 34.3 | 44.1 |
| Actuated g/C Ratio | 0.08 | 0.29 | 0.29 | 0.32 | 0.53 | 0.53 | | | | 0.29 | 0.29 | 0.37 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 147 | 1500 | 455 | 587 | 1922 | 837 | | | | 490 | 496 | 639 |
| v/s Ratio Prot | 0.03 | c0.24 | | c0.29 | 0.25 | | | | | c0.26 | 0.25 | 0.06 |
| v/s Ratio Perm | | | 0.07 | | | 0.10 | | | | | | 0.22 |
| v/c Ratio | 0.41 | 0.84 | 0.25 | 0.89 | 0.46 | 0.19 | | | | 0.91 | 0.89 | 0.67 |
| Uniform Delay, d1 | 52.4 | 40.0 | 32.7 | 38.4 | 17.4 | 14.6 | | | | 41.4 | 41.1 | 31.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.58 | 0.34 | 0.03 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.9 | 5.7 | 1.3 | 12.9 | 0.7 | 0.4 | | | | 21.0 | 17.9 | 2.8 |
| Delay (s) | 54.3 | 45.7 | 34.0 | 35.3 | 6.6 | 0.9 | | | | 62.3 | 59.0 | 34.7 |
| Level of Service | D | D | C | D | A | A | | | | E | E | C |
| Approach Delay (s) | | 44.5 | | | 14.4 | | | 0.0 | | | 51.7 | |
| Approach LOS | | D | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 86.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

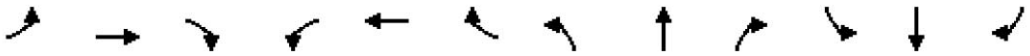
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 400 | 1160 | 310 | 210 | 1440 | 270 | 210 | 350 | 510 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3445 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3445 | 2842 | | | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 426 | 1234 | 330 | 223 | 1532 | 287 | 223 | 372 | 543 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 64 | 0 | 0 | 110 | 0 | 0 | 437 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 426 | 1234 | 266 | 223 | 1532 | 177 | 192 | 403 | 106 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 33.9 | 58.5 | 82.0 | 26.0 | 50.6 | 50.6 | 23.5 | 23.5 | 23.5 | | | |
| Effective Green, g (s) | 33.9 | 58.5 | 82.0 | 26.0 | 50.6 | 50.6 | 23.5 | 23.5 | 23.5 | | | |
| Actuated g/C Ratio | 0.28 | 0.49 | 0.68 | 0.22 | 0.42 | 0.42 | 0.20 | 0.20 | 0.20 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 510 | 1760 | 1144 | 391 | 2756 | 669 | 322 | 675 | 557 | | | |
| v/s Ratio Prot | c0.24 | c0.34 | 0.05 | 0.12 | c0.23 | | 0.12 | c0.12 | | | | |
| v/s Ratio Perm | | | 0.12 | | | 0.11 | | | 0.04 | | | |
| v/c Ratio | 0.84 | 0.70 | 0.23 | 0.57 | 0.56 | 0.26 | 0.60 | 0.60 | 0.19 | | | |
| Uniform Delay, d1 | 40.4 | 23.9 | 7.2 | 42.0 | 26.2 | 22.6 | 43.9 | 43.9 | 40.3 | | | |
| Progression Factor | 1.15 | 0.27 | 0.40 | 1.23 | 1.35 | 1.87 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 6.1 | 1.2 | 0.1 | 1.9 | 0.8 | 0.9 | 3.0 | 1.4 | 0.2 | | | |
| Delay (s) | 52.4 | 7.7 | 2.9 | 53.6 | 36.2 | 43.1 | 46.9 | 45.4 | 40.5 | | | |
| Level of Service | D | A | A | D | D | D | D | D | D | | | |
| Approach Delay (s) | | 16.5 | | | 39.1 | | | 43.3 | | | 0.0 | |
| Approach LOS | | B | | | D | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

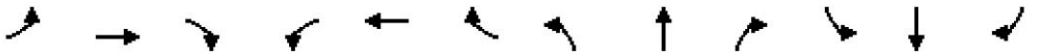
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 1600 | 210 | 100 | 1590 | 10 | 180 | 0 | 60 | 10 | 0 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5078 | | 1805 | 5181 | | 1805 | 1588 | | | 1725 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.74 | 1.00 | | | 0.90 | |
| Satd. Flow (perm) | 1805 | 5078 | | 1805 | 5181 | | 1414 | 1588 | | | 1587 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 10 | 1649 | 216 | 103 | 1639 | 10 | 186 | 0 | 62 | 10 | 0 | 10 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 51 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 10 | 1855 | 0 | 103 | 1649 | 0 | 186 | 11 | 0 | 0 | 12 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 1.4 | 72.4 | | 14.4 | 85.4 | | 21.2 | 21.2 | | | 21.2 | |
| Effective Green, g (s) | 1.4 | 72.4 | | 14.4 | 85.4 | | 21.2 | 21.2 | | | 21.2 | |
| Actuated g/C Ratio | 0.01 | 0.60 | | 0.12 | 0.71 | | 0.18 | 0.18 | | | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 21 | 3064 | | 217 | 3687 | | 250 | 281 | | | 280 | |
| v/s Ratio Prot | 0.01 | c0.37 | | c0.06 | c0.32 | | | 0.01 | | | | |
| v/s Ratio Perm | | | | | | | c0.13 | | | | 0.01 | |
| v/c Ratio | 0.48 | 0.61 | | 0.47 | 0.45 | | 0.74 | 0.04 | | | 0.04 | |
| Uniform Delay, d1 | 58.9 | 14.9 | | 49.3 | 7.3 | | 46.8 | 41.0 | | | 41.0 | |
| Progression Factor | 1.18 | 0.91 | | 0.64 | 0.58 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 12.8 | 0.7 | | 1.5 | 0.3 | | 11.4 | 0.1 | | | 0.1 | |
| Delay (s) | 82.1 | 14.2 | | 33.1 | 4.6 | | 58.2 | 41.0 | | | 41.0 | |
| Level of Service | F | B | | C | A | | E | D | | | D | |
| Approach Delay (s) | | 14.6 | | | 6.3 | | | 53.9 | | | 41.0 | |
| Approach LOS | | B | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 70.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

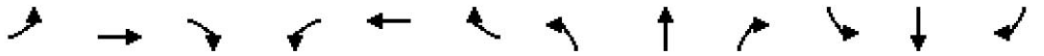
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 1270 | 150 | 40 | 1260 | 10 | 180 | 30 | 50 | 10 | 20 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1803 | 3541 | | 1805 | 3605 | | | 1776 | | | 1866 | 1587 |
| Flt Permitted | 0.16 | 1.00 | | 0.12 | 1.00 | | | 0.77 | | | 0.90 | 1.00 |
| Satd. Flow (perm) | 295 | 3541 | | 232 | 3605 | | | 1421 | | | 1714 | 1587 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 74 | 1351 | 160 | 43 | 1340 | 11 | 191 | 32 | 53 | 11 | 21 | 106 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 47 |
| Lane Group Flow (vph) | 74 | 1505 | 0 | 43 | 1351 | 0 | 0 | 268 | 0 | 0 | 32 | 59 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 84.2 | 84.2 | | 84.2 | 84.2 | | | 27.8 | | | 27.8 | 27.8 |
| Effective Green, g (s) | 84.2 | 84.2 | | 84.2 | 84.2 | | | 27.8 | | | 27.8 | 27.8 |
| Actuated g/C Ratio | 0.70 | 0.70 | | 0.70 | 0.70 | | | 0.23 | | | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 207 | 2485 | | 163 | 2530 | | | 329 | | | 397 | 368 |
| v/s Ratio Prot | | c0.43 | | | 0.37 | | | | | | | |
| v/s Ratio Perm | 0.25 | | | 0.19 | | | | c0.19 | | | 0.02 | 0.04 |
| v/c Ratio | 0.36 | 0.61 | | 0.26 | 0.53 | | | 0.82 | | | 0.08 | 0.16 |
| Uniform Delay, d1 | 7.1 | 9.3 | | 6.6 | 8.5 | | | 43.7 | | | 36.1 | 36.8 |
| Progression Factor | 0.15 | 0.33 | | 0.45 | 0.52 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.0 | 0.9 | | 2.1 | 0.4 | | | 14.4 | | | 0.1 | 0.2 |
| Delay (s) | 5.1 | 4.0 | | 5.0 | 4.9 | | | 58.0 | | | 36.2 | 37.0 |
| Level of Service | A | A | | A | A | | | E | | | D | D |
| Approach Delay (s) | | 4.0 | | | 4.9 | | | 58.0 | | | 36.8 | |
| Approach LOS | | A | | | A | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

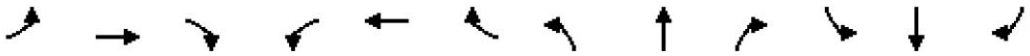
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1270 | 30 | 460 | 1260 | 60 | 30 | 180 | 500 | 50 | 320 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3595 | | 1805 | 3581 | | 1805 | 1900 | 1597 | 1805 | 1900 | 1587 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3595 | | 1805 | 3581 | | 1805 | 1900 | 1597 | 1805 | 1900 | 1587 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 106 | 1351 | 32 | 489 | 1340 | 64 | 32 | 191 | 532 | 53 | 340 | 85 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 30 | 0 | 0 | 51 |
| Lane Group Flow (vph) | 106 | 1382 | 0 | 489 | 1401 | 0 | 32 | 191 | 502 | 53 | 340 | 34 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.9 | 42.0 | | 20.0 | 53.1 | | 4.2 | 36.4 | 56.4 | 5.6 | 37.8 | 37.8 |
| Effective Green, g (s) | 8.9 | 42.0 | | 20.0 | 53.1 | | 4.2 | 36.4 | 56.4 | 5.6 | 37.8 | 37.8 |
| Actuated g/C Ratio | 0.07 | 0.35 | | 0.17 | 0.44 | | 0.04 | 0.30 | 0.47 | 0.05 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 134 | 1258 | | 301 | 1585 | | 63 | 576 | 751 | 84 | 599 | 500 |
| v/s Ratio Prot | 0.06 | c0.38 | | c0.27 | 0.39 | | 0.02 | 0.10 | c0.11 | 0.03 | c0.18 | |
| v/s Ratio Perm | | | | | | | | | 0.20 | | | 0.02 |
| v/c Ratio | 0.79 | 1.10 | | 1.62 | 0.88 | | 0.51 | 0.33 | 0.67 | 0.63 | 0.57 | 0.07 |
| Uniform Delay, d1 | 54.6 | 39.0 | | 50.0 | 30.6 | | 56.9 | 32.4 | 24.6 | 56.2 | 34.3 | 28.8 |
| Progression Factor | 1.36 | 0.69 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 22.5 | 54.9 | | 295.8 | 6.2 | | 6.3 | 1.5 | 2.3 | 14.4 | 3.9 | 0.3 |
| Delay (s) | 97.1 | 81.6 | | 345.8 | 36.9 | | 63.2 | 33.9 | 26.9 | 70.6 | 38.2 | 29.0 |
| Level of Service | F | F | | F | D | | E | C | C | E | D | C |
| Approach Delay (s) | | 82.7 | | | 116.7 | | | 30.2 | | | 40.1 | |
| Approach LOS | | F | | | F | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 83.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.03 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 109.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

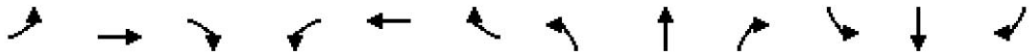
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 670 | 1040 | 580 | 870 | 440 | 900 | 1210 | 260 | 500 | 1630 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2814 | 3502 | 3610 | 1593 | 3502 | 3610 | 1593 | 3502 | 5171 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2814 | 3502 | 3610 | 1593 | 3502 | 3610 | 1593 | 3502 | 5171 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 728 | 1130 | 630 | 946 | 478 | 978 | 1315 | 283 | 543 | 1772 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 1 | 0 | 0 | 42 | 0 | 0 | 12 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 43 | 728 | 1129 | 630 | 946 | 436 | 978 | 1315 | 271 | 543 | 1804 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 6.4 | 31.7 | 54.7 | 16.0 | 41.3 | 54.3 | 23.0 | 48.1 | 64.1 | 13.0 | 38.1 | |
| Effective Green, g (s) | 6.4 | 31.7 | 54.7 | 16.0 | 41.3 | 54.3 | 23.0 | 48.1 | 64.1 | 13.0 | 38.1 | |
| Actuated g/C Ratio | 0.05 | 0.25 | 0.44 | 0.13 | 0.33 | 0.44 | 0.18 | 0.39 | 0.51 | 0.10 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 93 | 917 | 1233 | 449 | 1195 | 693 | 645 | 1391 | 869 | 365 | 1579 | |
| v/s Ratio Prot | 0.02 | 0.20 | c0.17 | c0.18 | 0.26 | 0.07 | c0.28 | 0.36 | 0.04 | c0.16 | c0.35 | |
| v/s Ratio Perm | | | 0.23 | | | 0.21 | | | 0.13 | | | |
| v/c Ratio | 0.46 | 0.79 | 0.92 | 1.40 | 0.79 | 0.63 | 1.52 | 0.95 | 0.31 | 1.49 | 1.14 | |
| Uniform Delay, d1 | 57.5 | 43.5 | 32.9 | 54.4 | 37.8 | 27.4 | 50.9 | 37.1 | 17.6 | 55.9 | 43.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.6 | 4.8 | 10.6 | 194.4 | 3.7 | 1.8 | 240.3 | 13.2 | 0.2 | 233.6 | 72.1 | |
| Delay (s) | 61.1 | 48.3 | 43.5 | 248.8 | 41.5 | 29.2 | 291.2 | 50.3 | 17.8 | 289.5 | 115.5 | |
| Level of Service | E | D | D | F | D | C | F | D | B | F | F | |
| Approach Delay (s) | | 45.7 | | | 102.2 | | | 138.1 | | | 155.7 | |
| Approach LOS | | D | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 114.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.22 | | |
| Actuated Cycle Length (s) | 124.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 108.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

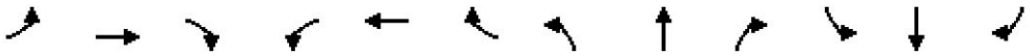
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 10 | 10 | 30 | 10 | 60 | 30 | 2130 | 30 | 90 | 2930 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.98 | | | 0.92 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1790 | | | 1702 | | 1805 | 5174 | | 1805 | 5165 | |
| Flt Permitted | | 0.63 | | | 0.90 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1160 | | | 1562 | | 1805 | 5174 | | 1805 | 5165 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 46 | 11 | 11 | 34 | 11 | 69 | 34 | 2448 | 34 | 103 | 3368 | 80 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 61 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 60 | 0 | 0 | 53 | 0 | 34 | 2481 | 0 | 103 | 3447 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 9.3 | | | 9.3 | | 4.0 | 59.6 | | 8.7 | 64.3 | |
| Effective Green, g (s) | | 9.3 | | | 9.3 | | 4.0 | 59.6 | | 8.7 | 64.3 | |
| Actuated g/C Ratio | | 0.10 | | | 0.10 | | 0.04 | 0.67 | | 0.10 | 0.72 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 120 | | | 162 | | 81 | 3442 | | 175 | 3707 | |
| v/s Ratio Prot | | | | | | | 0.02 | 0.48 | | c0.06 | c0.67 | |
| v/s Ratio Perm | | c0.05 | | | 0.03 | | | | | | | |
| v/c Ratio | | 0.50 | | | 0.33 | | 0.42 | 0.72 | | 0.59 | 0.93 | |
| Uniform Delay, d1 | | 37.9 | | | 37.2 | | 41.7 | 9.6 | | 38.7 | 10.7 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 3.2 | | | 1.2 | | 3.5 | 0.8 | | 5.0 | 4.9 | |
| Delay (s) | | 41.2 | | | 38.4 | | 45.2 | 10.4 | | 43.7 | 15.6 | |
| Level of Service | | D | | | D | | D | B | | D | B | |
| Approach Delay (s) | | 41.2 | | | 38.4 | | | 10.9 | | | 16.4 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 89.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 30 | 50 | 30 | 30 | 50 | 50 | 2220 | 20 | 100 | 2780 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1800 | 1900 | 1615 | 1805 | 1900 | 1588 | 1805 | 5179 | | 1805 | 5158 | |
| Flt Permitted | 0.61 | 1.00 | 1.00 | 0.74 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1162 | 1900 | 1615 | 1398 | 1900 | 1588 | 1805 | 5179 | | 1805 | 5158 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 65 | 33 | 54 | 33 | 33 | 54 | 54 | 2413 | 22 | 109 | 3022 | 98 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 65 | 33 | 5 | 33 | 33 | 4 | 54 | 2435 | 0 | 109 | 3118 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 13.0 | 7.8 | 7.8 | 10.4 | 6.5 | 6.5 | 5.2 | 54.8 | | 8.2 | 57.8 | |
| Effective Green, g (s) | 13.0 | 7.8 | 7.8 | 10.4 | 6.5 | 6.5 | 5.2 | 54.8 | | 8.2 | 57.8 | |
| Actuated g/C Ratio | 0.14 | 0.09 | 0.09 | 0.11 | 0.07 | 0.07 | 0.06 | 0.60 | | 0.09 | 0.64 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 203 | 163 | 139 | 178 | 136 | 114 | 103 | 3129 | | 163 | 3287 | |
| v/s Ratio Prot | c0.02 | 0.02 | | 0.01 | 0.02 | | 0.03 | c0.47 | | 0.06 | c0.60 | |
| v/s Ratio Perm | c0.03 | | 0.00 | 0.01 | | 0.00 | | | | | | |
| v/c Ratio | 0.32 | 0.20 | 0.03 | 0.19 | 0.24 | 0.03 | 0.52 | 0.78 | | 0.67 | 0.95 | |
| Uniform Delay, d1 | 34.5 | 38.6 | 38.0 | 36.2 | 39.8 | 39.2 | 41.5 | 13.4 | | 39.9 | 15.1 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 0.6 | 0.1 | 0.5 | 0.9 | 0.1 | 4.7 | 1.3 | | 9.9 | 7.0 | |
| Delay (s) | 35.5 | 39.2 | 38.1 | 36.7 | 40.7 | 39.3 | 46.3 | 14.7 | | 49.9 | 22.1 | |
| Level of Service | D | D | D | D | D | D | D | B | | D | C | |
| Approach Delay (s) | | 37.2 | | | 39.0 | | | 15.4 | | | 23.0 | |
| Approach LOS | | D | | | D | | | B | | | C | |

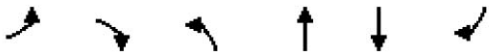
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 90.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 0 | 20 | 640 | 10 | 30 | 30 | 2190 | 400 | 80 | 2890 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3022 | | 5090 | 1665 | | 1805 | 5187 | 1594 | 1805 | 5181 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3022 | | 5090 | 1665 | | 1805 | 5187 | 1594 | 1805 | 5181 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 10 | 0 | 21 | 667 | 10 | 31 | 31 | 2281 | 417 | 83 | 3010 | 21 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 27 | 0 | 0 | 0 | 117 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 10 | 1 | 0 | 667 | 14 | 0 | 31 | 2281 | 300 | 83 | 3031 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 1.4 | 3.3 | | 9.0 | 10.9 | | 2.6 | 46.8 | 55.8 | 7.0 | 51.2 | |
| Effective Green, g (s) | 1.4 | 3.3 | | 9.0 | 10.9 | | 2.6 | 46.8 | 55.8 | 7.0 | 51.2 | |
| Actuated g/C Ratio | 0.02 | 0.04 | | 0.11 | 0.13 | | 0.03 | 0.57 | 0.68 | 0.09 | 0.62 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 31 | 121 | | 558 | 221 | | 57 | 2957 | 1161 | 154 | 3231 | |
| v/s Ratio Prot | c0.01 | 0.00 | | c0.13 | 0.01 | | 0.02 | c0.44 | 0.03 | 0.05 | c0.58 | |
| v/s Ratio Perm | | | | | | | | | 0.16 | | | |
| v/c Ratio | 0.32 | 0.01 | | 1.20 | 0.06 | | 0.54 | 0.77 | 0.26 | 0.54 | 0.94 | |
| Uniform Delay, d1 | 39.9 | 37.8 | | 36.5 | 31.1 | | 39.2 | 13.5 | 5.1 | 36.0 | 14.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 6.0 | 0.0 | | 104.5 | 0.1 | | 10.2 | 1.3 | 0.1 | 3.6 | 6.1 | |
| Delay (s) | 45.8 | 37.8 | | 141.1 | 31.3 | | 49.4 | 14.8 | 5.2 | 39.6 | 20.1 | |
| Level of Service | D | D | | F | C | | D | B | A | D | C | |
| Approach Delay (s) | | 40.4 | | | 134.7 | | | 13.8 | | | 20.7 | |
| Approach LOS | | D | | | F | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 82.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

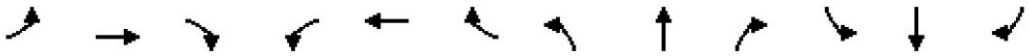
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 260 | 210 | 40 | 610 | 930 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 302 | 244 | 47 | 709 | 1081 | 140 |
| RTOR Reduction (vph) | 0 | 139 | 0 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 302 | 105 | 47 | 709 | 1081 | 128 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Turn Type | | custom | Prot | | | Perm |
| Protected Phases | | | 5 | 2 | 6 | |
| Permitted Phases | 4 | 4 | | | | 6 |
| Actuated Green, G (s) | 23.0 | 23.0 | 4.8 | 79.0 | 70.2 | 70.2 |
| Effective Green, g (s) | 23.0 | 23.0 | 4.8 | 79.0 | 70.2 | 70.2 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.04 | 0.72 | 0.64 | 0.64 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 374 | 328 | 79 | 1365 | 1213 | 1006 |
| v/s Ratio Prot | | | 0.03 | c0.37 | c0.57 | |
| v/s Ratio Perm | c0.17 | 0.07 | | | | 0.08 |
| v/c Ratio | 0.81 | 0.32 | 0.59 | 0.52 | 0.89 | 0.13 |
| Uniform Delay, d1 | 41.4 | 36.9 | 51.6 | 7.0 | 16.7 | 7.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 12.1 | 0.6 | 11.5 | 1.4 | 10.1 | 0.3 |
| Delay (s) | 53.4 | 37.4 | 63.1 | 8.4 | 26.8 | 8.1 |
| Level of Service | D | D | E | A | C | A |
| Approach Delay (s) | 46.3 | | | 11.8 | 24.6 | |
| Approach LOS | D | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 71.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

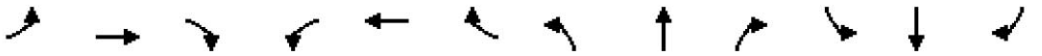
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | | | | | | | | |
| Lane Util. Factor | | | | | | | | | | | | |
| Frt | | | | | | | | | | | | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | | | | | | | | | | | | |
| Flt Permitted | | | | | | | | | | | | |
| Satd. Flow (perm) | | | | | | | | | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | | | | | | | | | | | |
| Effective Green, g (s) | | | | | | | | | | | | |
| Actuated g/C Ratio | | | | | | | | | | | | |
| Clearance Time (s) | | | | | | | | | | | | |
| Lane Grp Cap (vph) | | | | | | | | | | | | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | | | | | | | | |
| Uniform Delay, d1 | | | | | | | | | | | | |
| Progression Factor | | | | | | | | | | | | |
| Incremental Delay, d2 | | | | | | | | | | | | |
| Delay (s) | | | | | | | | | | | | |
| Level of Service | | | | | | | | | | | | |
| Approach Delay (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | | | |
|---|---|---|---|---|---|
| HCM Average Control Delay | 0.0 | HCM Level of Service | | A | |
| HCM Volume to Capacity ratio | 0.00 | | | | |
| Actuated Cycle Length (s) | 20.0 | Sum of lost time (s) | | 0.0 | |
| Intersection Capacity Utilization | 0.0% | ICU Level of Service | | A | |
| Analysis Period (min) | 15 | | | | |

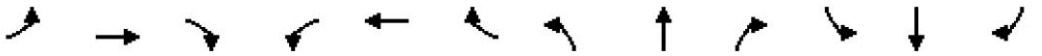
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 1290 | 110 | 90 | 1050 | 110 | 160 | 20 | 130 | 370 | 30 | 350 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.87 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5117 | | 1805 | 5187 | 1582 | 1805 | 3096 | | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5117 | | 1805 | 5187 | 1582 | 1805 | 3096 | | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 155 | 1330 | 113 | 93 | 1082 | 113 | 165 | 21 | 134 | 381 | 31 | 361 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 70 | 0 | 119 | 0 | 0 | 0 | 213 |
| Lane Group Flow (vph) | 155 | 1436 | 0 | 93 | 1082 | 43 | 165 | 36 | 0 | 381 | 31 | 148 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 16.2 | 44.6 | | 13.5 | 41.9 | 41.9 | 15.1 | 12.3 | | 21.0 | 17.9 | 17.9 |
| Effective Green, g (s) | 16.2 | 44.6 | | 13.5 | 41.9 | 41.9 | 15.1 | 12.3 | | 21.0 | 17.9 | 17.9 |
| Actuated g/C Ratio | 0.15 | 0.41 | | 0.12 | 0.38 | 0.38 | 0.14 | 0.11 | | 0.19 | 0.16 | 0.16 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 266 | 2075 | | 222 | 1976 | 603 | 248 | 346 | | 345 | 587 | 258 |
| v/s Ratio Prot | c0.09 | c0.28 | | 0.05 | 0.21 | | 0.09 | 0.01 | | c0.21 | 0.01 | |
| v/s Ratio Perm | | | | | | 0.03 | | | | | | c0.09 |
| v/c Ratio | 0.58 | 0.69 | | 0.42 | 0.55 | 0.07 | 0.67 | 0.10 | | 1.10 | 0.05 | 0.57 |
| Uniform Delay, d1 | 43.7 | 27.0 | | 44.6 | 26.6 | 21.7 | 45.1 | 43.9 | | 44.5 | 38.9 | 42.5 |
| Progression Factor | 1.06 | 0.70 | | 0.99 | 1.01 | 2.24 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.2 | 1.9 | | 1.2 | 1.0 | 0.2 | 6.6 | 0.1 | | 79.6 | 0.0 | 3.1 |
| Delay (s) | 49.6 | 20.7 | | 45.5 | 28.0 | 48.8 | 51.6 | 44.0 | | 124.1 | 38.9 | 45.6 |
| Level of Service | D | C | | D | C | D | D | D | | F | D | D |
| Approach Delay (s) | | 23.5 | | | 31.1 | | | 47.9 | | | 84.0 | |
| Approach LOS | | C | | | C | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 77.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

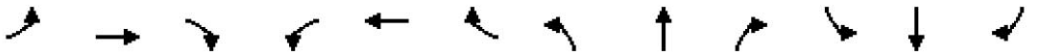
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 1110 | 270 | 190 | 730 | 80 | 240 | 330 | 220 | 260 | 500 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1586 | 3502 | 5101 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1586 | 3502 | 5101 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 206 | 1144 | 278 | 196 | 753 | 82 | 247 | 340 | 227 | 268 | 515 | 144 |
| RTOR Reduction (vph) | 0 | 0 | 164 | 0 | 10 | 0 | 0 | 0 | 173 | 0 | 0 | 115 |
| Lane Group Flow (vph) | 206 | 1144 | 114 | 196 | 825 | 0 | 247 | 340 | 54 | 268 | 515 | 29 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 11.7 | 45.1 | 45.1 | 11.4 | 44.8 | | 12.0 | 21.4 | 21.4 | 12.8 | 22.2 | 22.2 |
| Effective Green, g (s) | 11.7 | 45.1 | 45.1 | 11.4 | 44.8 | | 12.0 | 21.4 | 21.4 | 12.8 | 22.2 | 22.2 |
| Actuated g/C Ratio | 0.11 | 0.41 | 0.41 | 0.10 | 0.41 | | 0.11 | 0.19 | 0.19 | 0.12 | 0.20 | 0.20 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 372 | 2127 | 650 | 363 | 2077 | | 382 | 702 | 309 | 408 | 729 | 320 |
| v/s Ratio Prot | c0.06 | c0.22 | | 0.06 | 0.16 | | 0.07 | 0.09 | | c0.08 | c0.14 | |
| v/s Ratio Perm | | | 0.07 | | | | | | 0.03 | | | 0.02 |
| v/c Ratio | 0.55 | 0.54 | 0.18 | 0.54 | 0.40 | | 0.65 | 0.48 | 0.17 | 0.66 | 0.71 | 0.09 |
| Uniform Delay, d1 | 46.7 | 24.6 | 20.6 | 46.8 | 23.1 | | 47.0 | 39.4 | 36.9 | 46.5 | 40.9 | 35.7 |
| Progression Factor | 1.34 | 0.70 | 0.64 | 0.86 | 0.86 | | 0.82 | 0.73 | 1.57 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.2 | 0.6 | 0.4 | 1.2 | 0.4 | | 3.6 | 0.5 | 0.3 | 3.8 | 3.1 | 0.1 |
| Delay (s) | 63.6 | 17.9 | 13.7 | 41.4 | 20.4 | | 42.2 | 29.2 | 58.3 | 50.3 | 44.0 | 35.8 |
| Level of Service | E | B | B | D | C | | D | C | E | D | D | D |
| Approach Delay (s) | | 23.0 | | | 24.4 | | | 41.3 | | | 44.5 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

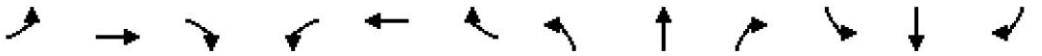
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 650 | 990 | 300 | 20 | 450 | 150 | 170 | 350 | 20 | 330 | 400 | 420 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3578 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3578 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 756 | 1151 | 349 | 23 | 523 | 174 | 198 | 407 | 23 | 384 | 465 | 488 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 133 | 0 | 4 | 0 | 0 | 0 | 295 |
| Lane Group Flow (vph) | 756 | 1151 | 349 | 23 | 523 | 41 | 198 | 426 | 0 | 384 | 465 | 193 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 23.0 | 46.6 | 110.0 | 2.4 | 26.0 | 26.0 | 8.0 | 29.0 | | 12.0 | 33.0 | 33.0 |
| Effective Green, g (s) | 23.0 | 46.6 | 110.0 | 2.4 | 26.0 | 26.0 | 8.0 | 29.0 | | 12.0 | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.21 | 0.42 | 1.00 | 0.02 | 0.24 | 0.24 | 0.07 | 0.26 | | 0.11 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 732 | 2197 | 1593 | 39 | 853 | 375 | 255 | 943 | | 382 | 1083 | 476 |
| v/s Ratio Prot | c0.22 | 0.22 | | 0.01 | c0.14 | | 0.06 | 0.12 | | c0.11 | c0.13 | |
| v/s Ratio Perm | | | c0.22 | | | 0.03 | | | | | | 0.12 |
| v/c Ratio | 1.03 | 0.52 | 0.22 | 0.59 | 0.61 | 0.11 | 0.78 | 0.45 | | 1.01 | 0.43 | 0.41 |
| Uniform Delay, d1 | 43.5 | 23.5 | 0.0 | 53.3 | 37.5 | 32.9 | 50.1 | 33.9 | | 49.0 | 30.9 | 30.7 |
| Progression Factor | 0.83 | 0.78 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 41.0 | 0.8 | 0.3 | 20.8 | 3.3 | 0.6 | 13.8 | 1.6 | | 47.4 | 1.2 | 2.6 |
| Delay (s) | 77.0 | 19.3 | 0.3 | 74.1 | 40.8 | 33.5 | 63.9 | 35.4 | | 96.4 | 32.2 | 33.2 |
| Level of Service | E | B | A | E | D | C | E | D | | F | C | C |
| Approach Delay (s) | | 35.7 | | | 40.1 | | | 44.4 | | | 51.0 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 90.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

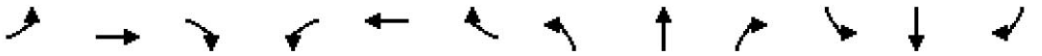
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 20 | 110 | 30 | 20 | 20 | 90 | 820 | 30 | 20 | 1000 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.87 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3064 | | 1805 | 1900 | 1581 | 1805 | 3589 | | 1805 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3064 | | 1805 | 1900 | 1581 | 1805 | 3589 | | 1805 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 22 | 118 | 32 | 22 | 22 | 97 | 882 | 32 | 22 | 1075 | 32 |
| RTOR Reduction (vph) | 0 | 110 | 0 | 0 | 0 | 21 | 0 | 1 | 0 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 43 | 30 | 0 | 32 | 22 | 1 | 97 | 913 | 0 | 22 | 1075 | 20 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 4.2 | 7.4 | | 3.6 | 6.9 | 6.9 | 11.2 | 78.2 | | 3.3 | 70.3 | 70.3 |
| Effective Green, g (s) | 4.2 | 7.4 | | 3.6 | 6.9 | 6.9 | 11.2 | 78.2 | | 3.3 | 70.3 | 70.3 |
| Actuated g/C Ratio | 0.04 | 0.07 | | 0.03 | 0.06 | 0.06 | 0.10 | 0.71 | | 0.03 | 0.64 | 0.64 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 69 | 206 | | 59 | 119 | 99 | 184 | 2551 | | 54 | 2307 | 1017 |
| v/s Ratio Prot | c0.02 | 0.01 | | 0.02 | c0.01 | | c0.05 | 0.25 | | 0.01 | c0.30 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.01 |
| v/c Ratio | 0.62 | 0.15 | | 0.54 | 0.18 | 0.01 | 0.53 | 0.36 | | 0.41 | 0.47 | 0.02 |
| Uniform Delay, d1 | 52.1 | 48.3 | | 52.4 | 48.9 | 48.4 | 46.9 | 6.2 | | 52.4 | 10.2 | 7.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.42 | 0.14 | | 0.99 | 0.60 | 0.67 |
| Incremental Delay, d2 | 16.2 | 0.3 | | 9.8 | 0.8 | 0.1 | 2.4 | 0.3 | | 4.6 | 0.6 | 0.0 |
| Delay (s) | 68.3 | 48.6 | | 62.2 | 49.6 | 48.4 | 69.2 | 1.2 | | 56.5 | 6.8 | 4.9 |
| Level of Service | E | D | | E | D | D | E | A | | E | A | A |
| Approach Delay (s) | | 53.3 | | | 54.6 | | | 7.8 | | | 7.7 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 56.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

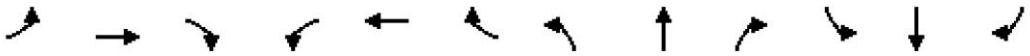
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 40 | 40 | 60 | 30 | 110 | 80 | 340 | 80 | 330 | 430 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3486 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3486 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 71 | 47 | 47 | 71 | 35 | 129 | 94 | 400 | 94 | 388 | 506 | 94 |
| RTOR Reduction (vph) | 0 | 0 | 43 | 0 | 0 | 119 | 0 | 13 | 0 | 0 | 0 | 34 |
| Lane Group Flow (vph) | 71 | 47 | 4 | 71 | 35 | 10 | 94 | 481 | 0 | 388 | 506 | 60 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.6 | 8.3 | 8.3 | 5.6 | 8.3 | 8.3 | 9.6 | 51.4 | | 28.7 | 70.5 | 70.5 |
| Effective Green, g (s) | 5.6 | 8.3 | 8.3 | 5.6 | 8.3 | 8.3 | 9.6 | 51.4 | | 28.7 | 70.5 | 70.5 |
| Actuated g/C Ratio | 0.05 | 0.08 | 0.08 | 0.05 | 0.08 | 0.08 | 0.09 | 0.47 | | 0.26 | 0.64 | 0.64 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 92 | 143 | 120 | 92 | 143 | 120 | 158 | 1629 | | 471 | 2314 | 1016 |
| v/s Ratio Prot | c0.04 | c0.02 | | 0.04 | 0.02 | | 0.05 | c0.14 | | c0.21 | 0.14 | |
| v/s Ratio Perm | | | 0.00 | | | 0.01 | | | | | | 0.04 |
| v/c Ratio | 0.77 | 0.33 | 0.03 | 0.77 | 0.24 | 0.08 | 0.59 | 0.30 | | 0.82 | 0.22 | 0.06 |
| Uniform Delay, d1 | 51.6 | 48.2 | 47.1 | 51.6 | 47.9 | 47.3 | 48.3 | 18.1 | | 38.3 | 8.2 | 7.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 0.56 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 32.1 | 1.3 | 0.1 | 32.1 | 0.9 | 0.3 | 5.3 | 0.4 | | 11.2 | 0.2 | 0.1 |
| Delay (s) | 83.7 | 49.6 | 47.2 | 83.7 | 48.8 | 47.6 | 52.2 | 10.6 | | 49.4 | 8.5 | 7.5 |
| Level of Service | F | D | D | F | D | D | D | B | | D | A | A |
| Approach Delay (s) | | 63.6 | | | 58.7 | | | 17.3 | | | 24.5 | |
| Approach LOS | | E | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 60.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

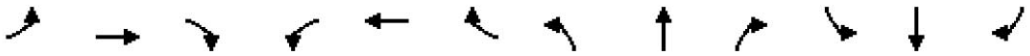
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 130 | 90 | 150 | 60 | 110 | 20 | 730 | 140 | 160 | 940 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1791 | 1770 | | 1798 | 1900 | 1583 | 1805 | 3505 | | 1805 | 3596 | |
| Flt Permitted | 0.71 | 1.00 | | 0.41 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1345 | 1770 | | 769 | 1900 | 1583 | 1805 | 3505 | | 1805 | 3596 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 67 | 146 | 101 | 169 | 67 | 124 | 22 | 820 | 157 | 180 | 1056 | 22 |
| RTOR Reduction (vph) | 0 | 26 | 0 | 0 | 0 | 96 | 0 | 12 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 67 | 222 | 0 | 169 | 67 | 28 | 22 | 965 | 0 | 180 | 1077 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 25.0 | 25.0 | | 25.0 | 25.0 | 25.0 | 2.5 | 55.0 | | 15.4 | 67.9 | |
| Effective Green, g (s) | 25.0 | 25.0 | | 25.0 | 25.0 | 25.0 | 2.5 | 55.0 | | 15.4 | 67.9 | |
| Actuated g/C Ratio | 0.23 | 0.23 | | 0.23 | 0.23 | 0.23 | 0.02 | 0.50 | | 0.14 | 0.62 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 306 | 402 | | 175 | 432 | 360 | 41 | 1753 | | 253 | 2220 | |
| v/s Ratio Prot | | 0.13 | | | 0.04 | | 0.01 | c0.28 | | c0.10 | 0.30 | |
| v/s Ratio Perm | 0.05 | | | c0.22 | | 0.02 | | | | | | |
| v/c Ratio | 0.22 | 0.55 | | 0.97 | 0.16 | 0.08 | 0.54 | 0.55 | | 0.71 | 0.49 | |
| Uniform Delay, d1 | 34.6 | 37.5 | | 42.1 | 34.0 | 33.4 | 53.2 | 19.0 | | 45.2 | 11.5 | |
| Progression Factor | 1.00 | 1.00 | | 0.82 | 0.80 | 0.78 | 0.80 | 0.77 | | 1.17 | 0.46 | |
| Incremental Delay, d2 | 0.4 | 1.6 | | 56.6 | 0.2 | 0.1 | 11.5 | 1.1 | | 8.4 | 0.7 | |
| Delay (s) | 34.9 | 39.2 | | 91.1 | 27.3 | 26.1 | 53.8 | 15.7 | | 61.4 | 6.0 | |
| Level of Service | C | D | | F | C | C | D | B | | E | A | |
| Approach Delay (s) | | 38.3 | | | 56.8 | | | 16.6 | | | 14.0 | |
| Approach LOS | | D | | | E | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 72.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

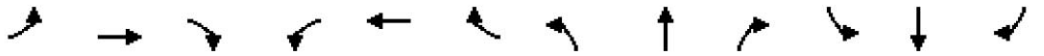
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 240 | 70 | 10 | 180 | 30 | 50 | 190 | 30 | 60 | 210 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3473 | | 1805 | 3524 | | 1805 | 3529 | | 1805 | 3298 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3473 | | 1805 | 3524 | | 1805 | 3529 | | 1805 | 3298 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 302 | 279 | 81 | 12 | 209 | 35 | 58 | 221 | 35 | 70 | 244 | 267 |
| RTOR Reduction (vph) | 0 | 30 | 0 | 0 | 15 | 0 | 0 | 9 | 0 | 0 | 146 | 0 |
| Lane Group Flow (vph) | 302 | 330 | 0 | 12 | 229 | 0 | 58 | 247 | 0 | 70 | 365 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 21.4 | 35.8 | | 1.2 | 15.6 | | 7.9 | 48.6 | | 8.4 | 49.1 | |
| Effective Green, g (s) | 21.4 | 35.8 | | 1.2 | 15.6 | | 7.9 | 48.6 | | 8.4 | 49.1 | |
| Actuated g/C Ratio | 0.19 | 0.33 | | 0.01 | 0.14 | | 0.07 | 0.44 | | 0.08 | 0.45 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 351 | 1130 | | 20 | 500 | | 130 | 1559 | | 138 | 1472 | |
| v/s Ratio Prot | c0.17 | 0.10 | | 0.01 | c0.07 | | 0.03 | 0.07 | | c0.04 | c0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.86 | 0.29 | | 0.60 | 0.46 | | 0.45 | 0.16 | | 0.51 | 0.25 | |
| Uniform Delay, d1 | 42.9 | 27.7 | | 54.2 | 43.3 | | 49.0 | 18.4 | | 48.8 | 19.0 | |
| Progression Factor | 0.94 | 0.78 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.42 | 0.48 | |
| Incremental Delay, d2 | 17.9 | 0.1 | | 40.2 | 0.7 | | 2.4 | 0.2 | | 2.9 | 0.4 | |
| Delay (s) | 58.2 | 21.6 | | 94.3 | 44.0 | | 51.4 | 18.6 | | 72.2 | 9.6 | |
| Level of Service | E | C | | F | D | | D | B | | E | A | |
| Approach Delay (s) | | 38.3 | | | 46.4 | | | 24.7 | | | 17.1 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

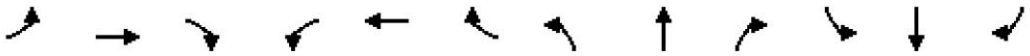
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 180 | 40 | 310 | 130 | 1030 | 0 | 0 | 1600 | 360 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.96 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1816 | 1586 | 1805 | 3610 | | | 3610 | 1564 |
| Flt Permitted | | | | | 0.96 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1816 | 1586 | 1805 | 3610 | | | 3610 | 1564 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 196 | 43 | 337 | 141 | 1120 | 0 | 0 | 1739 | 391 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 97 | 0 | 0 | 0 | 0 | 0 | 111 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 239 | 240 | 141 | 1120 | 0 | 0 | 1739 | 280 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | | 21.7 | 21.7 | 12.0 | 80.3 | | | 64.3 | 64.3 |
| Effective Green, g (s) | | | | | 21.7 | 21.7 | 12.0 | 80.3 | | | 64.3 | 64.3 |
| Actuated g/C Ratio | | | | | 0.20 | 0.20 | 0.11 | 0.73 | | | 0.58 | 0.58 |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 358 | 313 | 197 | 2635 | | | 2110 | 914 |
| v/s Ratio Prot | | | | | | | c0.08 | 0.31 | | | c0.48 | |
| v/s Ratio Perm | | | | | 0.13 | c0.15 | | | | | | 0.18 |
| v/c Ratio | | | | | 0.67 | 0.77 | 0.72 | 0.43 | | | 0.82 | 0.31 |
| Uniform Delay, d1 | | | | | 40.8 | 41.8 | 47.4 | 5.8 | | | 18.3 | 11.6 |
| Progression Factor | | | | | 1.00 | 1.00 | 0.77 | 1.03 | | | 0.96 | 0.87 |
| Incremental Delay, d2 | | | | | 4.7 | 10.7 | 4.2 | 0.2 | | | 3.7 | 0.8 |
| Delay (s) | | | | | 45.5 | 52.4 | 40.5 | 6.2 | | | 21.3 | 10.9 |
| Level of Service | | | | | D | D | D | A | | | C | B |
| Approach Delay (s) | | 0.0 | | | 49.5 | | | 10.0 | | | 19.4 | |
| Approach LOS | | A | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 92.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

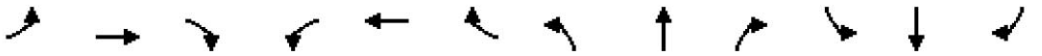
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 370 | 120 | 280 | 0 | 0 | 0 | 0 | 780 | 250 | 520 | 1260 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | | | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.89 | | | | | | 0.96 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1794 | 1679 | | | | | | 3452 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1794 | 1679 | | | | | | 3452 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 402 | 130 | 304 | 0 | 0 | 0 | 0 | 848 | 272 | 565 | 1370 | 0 |
| RTOR Reduction (vph) | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 402 | 380 | 0 | 0 | 0 | 0 | 0 | 1092 | 0 | 565 | 1370 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | | | | | | | | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | 27.1 | 27.1 | | | | | | 35.5 | | 35.4 | 74.9 | |
| Effective Green, g (s) | 27.1 | 27.1 | | | | | | 35.5 | | 35.4 | 74.9 | |
| Actuated g/C Ratio | 0.25 | 0.25 | | | | | | 0.32 | | 0.32 | 0.68 | |
| Clearance Time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 442 | 414 | | | | | | 1114 | | 581 | 2458 | |
| v/s Ratio Prot | | c0.23 | | | | | | c0.32 | | c0.31 | 0.38 | |
| v/s Ratio Perm | 0.22 | | | | | | | | | | | |
| v/c Ratio | 0.91 | 0.92 | | | | | | 0.98 | | 0.97 | 0.56 | |
| Uniform Delay, d1 | 40.3 | 40.4 | | | | | | 36.9 | | 36.8 | 9.0 | |
| Progression Factor | 1.00 | 1.00 | | | | | | 0.42 | | 0.96 | 0.13 | |
| Incremental Delay, d2 | 22.2 | 24.8 | | | | | | 18.5 | | 21.9 | 0.5 | |
| Delay (s) | 62.5 | 65.1 | | | | | | 34.0 | | 57.1 | 1.7 | |
| Level of Service | E | E | | | | | | C | | E | A | |
| Approach Delay (s) | | 63.9 | | | 0.0 | | | 34.0 | | | 17.9 | |
| Approach LOS | | E | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 92.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 140 | 40 | 30 | 200 | 130 | 0 | 0 | 220 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 0.98 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1783 | | 1805 | 1900 | | | 1900 | 1564 |
| Flt Permitted | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1783 | | 1805 | 1900 | | | 1900 | 1564 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 152 | 43 | 33 | 217 | 141 | 0 | 0 | 239 | 65 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 221 | 0 | 217 | 141 | 0 | 0 | 239 | 36 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | | | | 19.0 | | 18.5 | 83.0 | | | 60.5 | 60.5 |
| Effective Green, g (s) | | | | | 19.0 | | 18.5 | 83.0 | | | 60.5 | 60.5 |
| Actuated g/C Ratio | | | | | 0.17 | | 0.17 | 0.75 | | | 0.55 | 0.55 |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 308 | | 304 | 1434 | | | 1045 | 860 |
| v/s Ratio Prot | | | | | | | c0.12 | 0.07 | | | c0.13 | |
| v/s Ratio Perm | | | | | 0.12 | | | | | | | 0.02 |
| v/c Ratio | | | | | 0.72 | | 0.71 | 0.10 | | | 0.23 | 0.04 |
| Uniform Delay, d1 | | | | | 43.0 | | 43.2 | 3.6 | | | 12.7 | 11.4 |
| Progression Factor | | | | | 1.00 | | 1.17 | 0.96 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 7.8 | | 7.6 | 0.1 | | | 0.5 | 0.1 |
| Delay (s) | | | | | 50.8 | | 58.3 | 3.6 | | | 13.3 | 11.5 |
| Level of Service | | | | | D | | E | A | | | B | B |
| Approach Delay (s) | | 0.0 | | | 50.8 | | | 36.7 | | | 12.9 | |
| Approach LOS | | A | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 40 | 500 | 0 | 0 | 0 | 0 | 260 | 140 | 20 | 330 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.97 | | | | | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 0.99 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1830 | 1567 | | | | | 1900 | 1564 | 1805 | 1900 | |
| Flt Permitted | | 0.97 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1830 | 1567 | | | | | 1900 | 1564 | 1805 | 1900 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 76 | 43 | 543 | 0 | 0 | 0 | 0 | 283 | 152 | 22 | 359 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 288 | 0 | 0 | 0 | 0 | 0 | 54 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 119 | 255 | 0 | 0 | 0 | 0 | 283 | 98 | 22 | 359 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | | 24.0 | 24.0 | | | | | 70.7 | 70.7 | 3.3 | 78.0 | |
| Effective Green, g (s) | | 24.0 | 24.0 | | | | | 70.7 | 70.7 | 3.3 | 78.0 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | | | | 0.64 | 0.64 | 0.03 | 0.71 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 399 | 342 | | | | | 1221 | 1005 | 54 | 1347 | |
| v/s Ratio Prot | | | | | | | | 0.15 | | c0.01 | c0.19 | |
| v/s Ratio Perm | | 0.07 | c0.16 | | | | | | 0.06 | | | |
| v/c Ratio | | 0.30 | 0.75 | | | | | 0.23 | 0.10 | 0.41 | 0.27 | |
| Uniform Delay, d1 | | 36.0 | 40.2 | | | | | 8.2 | 7.5 | 52.4 | 5.7 | |
| Progression Factor | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.07 | 1.15 | |
| Incremental Delay, d2 | | 0.4 | 8.6 | | | | | 0.4 | 0.2 | 4.8 | 0.5 | |
| Delay (s) | | 36.4 | 48.7 | | | | | 8.7 | 7.7 | 61.1 | 7.1 | |
| Level of Service | | D | D | | | | | A | A | E | A | |
| Approach Delay (s) | | 46.5 | | | 0.0 | | | 8.3 | | | 10.2 | |
| Approach LOS | | D | | | A | | | A | | | B | |

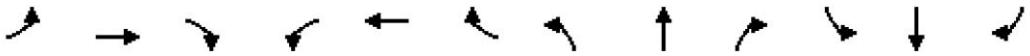
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 55.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 60 | 330 | 70 | 30 | 60 | 290 | 900 | 100 | 100 | 1130 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.87 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1632 | | 1805 | 1900 | 1586 | 1805 | 3549 | | 1805 | 3598 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1632 | | 1805 | 1900 | 1586 | 1805 | 3549 | | 1805 | 3598 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 38 | 75 | 412 | 88 | 38 | 75 | 362 | 1125 | 125 | 125 | 1412 | 25 |
| RTOR Reduction (vph) | 0 | 185 | 0 | 0 | 0 | 57 | 0 | 7 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 38 | 302 | 0 | 88 | 38 | 18 | 362 | 1243 | 0 | 125 | 1436 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 3.2 | 23.6 | | 6.0 | 26.4 | 26.4 | 22.2 | 51.7 | | 10.5 | 40.0 | |
| Effective Green, g (s) | 3.2 | 23.6 | | 6.0 | 26.4 | 26.4 | 22.2 | 51.7 | | 10.5 | 40.0 | |
| Actuated g/C Ratio | 0.03 | 0.21 | | 0.05 | 0.24 | 0.24 | 0.20 | 0.47 | | 0.10 | 0.36 | |
| Clearance Time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 53 | 350 | | 98 | 456 | 381 | 364 | 1668 | | 172 | 1308 | |
| v/s Ratio Prot | 0.02 | c0.19 | | c0.05 | c0.02 | | c0.20 | 0.35 | | 0.07 | c0.40 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | |
| v/c Ratio | 0.72 | 0.86 | | 0.90 | 0.08 | 0.05 | 0.99 | 0.74 | | 0.73 | 1.10 | |
| Uniform Delay, d1 | 53.0 | 41.7 | | 51.7 | 32.4 | 32.1 | 43.8 | 23.8 | | 48.4 | 35.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.85 | 0.94 | | 1.21 | 0.79 | |
| Incremental Delay, d2 | 36.9 | 19.3 | | 58.5 | 0.1 | 0.1 | 45.4 | 3.1 | | 11.3 | 53.8 | |
| Delay (s) | 89.9 | 60.9 | | 110.2 | 32.5 | 32.2 | 82.6 | 25.3 | | 69.8 | 81.5 | |
| Level of Service | F | E | | F | C | C | F | C | | E | F | |
| Approach Delay (s) | | 63.0 | | | 66.4 | | | 38.2 | | | 80.6 | |
| Approach LOS | | E | | | E | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 60.0 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.04 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 23.1 |
| Intersection Capacity Utilization | 91.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

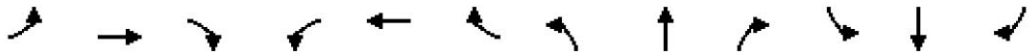
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | None | |
| Median storage veh) | | | | | | | | 2 | | | | |
| Upstream signal (ft) | | | | | | | | | | | 361 | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| vC1, stage 1 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vC2, stage 2 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vCu, unblocked vol | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | 6.1 | 5.5 | | 6.1 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 100 | 100 | 100 | 100 | | | 100 | | |
| cM capacity (veh/h) | 1029 | 900 | 1091 | 1029 | 900 | 1091 | 1636 | | | 1636 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | A | | | | |

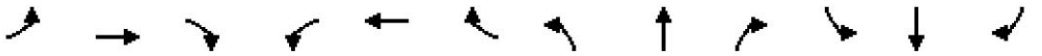
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.0 | | | |
| Intersection Capacity Utilization | 0.0% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 90 | 110 | 50 | 20 | 80 | 50 | 40 | 230 | 30 | 20 | 210 | 150 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 99 | 121 | 55 | 22 | 88 | 55 | 44 | 253 | 33 | 22 | 231 | 165 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 275 | 165 | 44 | 286 | 22 | 396 |
| Volume Left (vph) | 99 | 22 | 44 | 0 | 22 | 0 |
| Volume Right (vph) | 55 | 55 | 0 | 33 | 0 | 165 |
| Hadj (s) | -0.05 | -0.17 | 0.50 | -0.08 | 0.50 | -0.29 |
| Departure Headway (s) | 6.5 | 6.7 | 7.3 | 6.7 | 7.1 | 6.3 |
| Degree Utilization, x | 0.49 | 0.31 | 0.09 | 0.53 | 0.04 | 0.70 |
| Capacity (veh/h) | 502 | 460 | 460 | 498 | 477 | 543 |
| Control Delay (s) | 15.6 | 12.6 | 9.8 | 15.8 | 9.3 | 21.4 |
| Approach Delay (s) | 15.6 | 12.6 | 15.0 | | 20.8 | |
| Approach LOS | C | B | C | | C | |

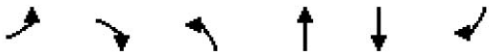
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 16.9 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 59.1% | ICU Level of Service | | B |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 220 | 480 | 0 | 0 | 360 | 80 | 0 | 0 | 0 | 80 | 0 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 1.00 | | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 0.97 | | | | 1.00 | | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 0.99 | | 1.00 |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | | | 1.00 | | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | | | 0.95 | | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | | 1900 | 1567 | | | | 1787 | | 1567 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | | | | 0.76 | | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | | 1900 | 1567 | | | | 1425 | | 1567 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.92 | 0.92 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.90 | 0.92 | 0.90 |
| Adj. Flow (vph) | 244 | 533 | 0 | 0 | 400 | 89 | 0 | 0 | 0 | 89 | 0 | 211 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 63 | 0 | 0 | 0 | 0 | 0 | 117 |
| Lane Group Flow (vph) | 244 | 533 | 0 | 0 | 400 | 26 | 0 | 0 | 0 | 89 | 0 | 94 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | | | | Perm | Perm | | | custom | | custom |
| Protected Phases | 7 | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 20.1 | 53.2 | | | 29.1 | 29.1 | | | | 48.8 | | 48.8 |
| Effective Green, g (s) | 20.1 | 53.2 | | | 29.1 | 29.1 | | | | 48.8 | | 48.8 |
| Actuated g/C Ratio | 0.18 | 0.48 | | | 0.26 | 0.26 | | | | 0.44 | | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | | | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | 330 | 919 | | | 503 | 415 | | | | 632 | | 695 |
| v/s Ratio Prot | c0.14 | 0.28 | | | c0.21 | | | | | | | |
| v/s Ratio Perm | | | | | | 0.02 | | | | c0.06 | | 0.06 |
| v/c Ratio | 0.74 | 0.58 | | | 0.80 | 0.06 | | | | 0.14 | | 0.13 |
| Uniform Delay, d1 | 42.5 | 20.4 | | | 37.7 | 30.3 | | | | 18.2 | | 18.1 |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 1.00 | | 1.00 |
| Incremental Delay, d2 | 8.4 | 0.9 | | | 8.5 | 0.1 | | | | 0.5 | | 0.4 |
| Delay (s) | 50.9 | 21.3 | | | 46.2 | 30.3 | | | | 18.6 | | 18.5 |
| Level of Service | D | C | | | D | C | | | | B | | B |
| Approach Delay (s) | | 30.6 | | | 43.3 | | | 0.0 | | | 18.5 | |
| Approach LOS | | C | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

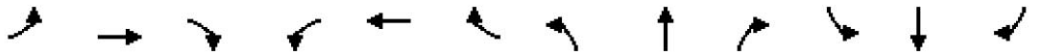
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 40 | 30 | 10 | 360 | 950 | 90 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 42 | 31 | 10 | 375 | 990 | 94 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1203 | 500 | 1083 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1203 | 500 | 1083 | | | |
| tC, single (s) | 6.8 | 6.9 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 76 | 94 | 98 | | | |
| cM capacity (veh/h) | 176 | 520 | 651 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 73 | 10 | 188 | 188 | 495 | 495 | 94 |
| Volume Left | 42 | 10 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 31 | 0 | 0 | 0 | 0 | 0 | 94 |
| cSH | 246 | 651 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.30 | 0.02 | 0.11 | 0.11 | 0.29 | 0.29 | 0.06 |
| Queue Length 95th (ft) | 30 | 1 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 25.7 | 10.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | D | B | | | | | |
| Approach Delay (s) | 25.7 | 0.3 | | | 0.0 | | |
| Approach LOS | D | | | | | | |

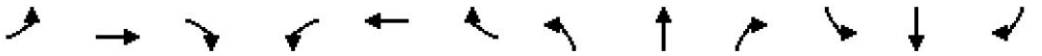
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.3 | | |
| Intersection Capacity Utilization | 37.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 50 | 700 | 0 | 0 | 210 | 430 | 150 | 30 | 30 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 52 | 722 | 0 | 0 | 216 | 443 | 155 | 31 | 31 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 665 | | | 727 | | | 1051 | 1495 | 732 | 1082 | 1051 | 226 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 665 | | | 727 | | | 1051 | 1495 | 732 | 1082 | 1051 | 226 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 94 | | | 100 | | | 21 | 74 | 93 | 100 | 100 | 100 |
| cM capacity (veh/h) | 934 | | | 882 | | | 196 | 117 | 421 | 138 | 215 | 814 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 52 | 722 | 216 | 443 | 216 |
| Volume Left | 52 | 0 | 0 | 0 | 155 |
| Volume Right | 0 | 0 | 0 | 443 | 31 |
| cSH | 934 | 1700 | 1700 | 1700 | 213 |
| Volume to Capacity | 0.06 | 0.42 | 0.13 | 0.26 | 1.02 |
| Queue Length 95th (ft) | 4 | 0 | 0 | 0 | 231 |
| Control Delay (s) | 9.1 | 0.0 | 0.0 | 0.0 | 108.0 |
| Lane LOS | A | | | | F |
| Approach Delay (s) | 0.6 | | 0.0 | | 108.0 |
| Approach LOS | | | | | F |

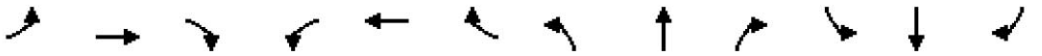
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 14.5 | | |
| Intersection Capacity Utilization | 53.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 530 | 450 | 10 | 370 | 0 | 0 | 0 | 0 | 220 | 10 | 10 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 552 | 469 | 10 | 385 | 0 | 0 | 0 | 0 | 229 | 10 | 10 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 390 | | | 1026 | | | 979 | 968 | 562 | 968 | 1437 | 395 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 390 | | | 1026 | | | 979 | 968 | 562 | 968 | 1437 | 395 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 98 | | | 100 | 100 | 100 | 0 | 92 | 98 |
| cM capacity (veh/h) | 1174 | | | 685 | | | 210 | 251 | 528 | 230 | 132 | 653 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 552 | 469 | 10 | 385 | 250 |
| Volume Left | 0 | 0 | 10 | 0 | 229 |
| Volume Right | 0 | 469 | 0 | 0 | 10 |
| cSH | 1700 | 1700 | 685 | 1700 | 234 |
| Volume to Capacity | 0.32 | 0.28 | 0.02 | 0.23 | 1.07 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 269 |
| Control Delay (s) | 0.0 | 0.0 | 10.3 | 0.0 | 123.3 |
| Lane LOS | | | B | | F |
| Approach Delay (s) | 0.0 | | 0.3 | | 123.3 |
| Approach LOS | | | | | F |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 18.6 | | |
| Intersection Capacity Utilization | 53.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

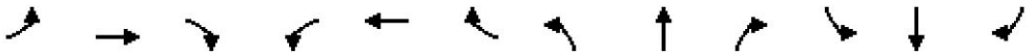


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 350 | 120 | 30 | 260 | 420 | 70 | 630 | 50 | 500 | 880 | 360 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1599 | 3502 | 3610 | 1603 | 3502 | 3610 | 1597 | 3502 | 3610 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1599 | 3502 | 3610 | 1603 | 3502 | 3610 | 1597 | 3502 | 3610 | 1598 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 330 | 361 | 124 | 31 | 268 | 433 | 72 | 649 | 52 | 515 | 907 | 371 |
| RTOR Reduction (vph) | 0 | 0 | 75 | 0 | 0 | 71 | 0 | 0 | 33 | 0 | 0 | 156 |
| Lane Group Flow (vph) | 330 | 361 | 49 | 31 | 268 | 362 | 72 | 649 | 19 | 515 | 907 | 215 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.1 | 15.6 | 22.7 | 5.4 | 11.9 | 23.0 | 7.1 | 19.8 | 25.2 | 11.1 | 23.8 | 32.9 |
| Effective Green, g (s) | 9.1 | 15.6 | 22.7 | 5.4 | 11.9 | 23.0 | 7.1 | 19.8 | 25.2 | 11.1 | 23.8 | 32.9 |
| Actuated g/C Ratio | 0.13 | 0.23 | 0.33 | 0.08 | 0.18 | 0.34 | 0.10 | 0.29 | 0.37 | 0.16 | 0.35 | 0.48 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 469 | 829 | 629 | 279 | 633 | 637 | 366 | 1053 | 687 | 572 | 1265 | 868 |
| v/s Ratio Prot | c0.09 | c0.10 | 0.01 | 0.01 | 0.07 | c0.09 | 0.02 | 0.18 | 0.00 | c0.15 | c0.25 | 0.03 |
| v/s Ratio Perm | | | 0.02 | | | 0.13 | | | 0.01 | | | 0.10 |
| v/c Ratio | 0.70 | 0.44 | 0.08 | 0.11 | 0.42 | 0.57 | 0.20 | 0.62 | 0.03 | 0.90 | 0.72 | 0.25 |
| Uniform Delay, d1 | 28.1 | 22.4 | 15.5 | 29.0 | 24.9 | 18.4 | 27.8 | 20.8 | 13.6 | 27.9 | 19.1 | 10.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.8 | 0.4 | 0.1 | 0.2 | 0.5 | 1.2 | 0.3 | 1.1 | 0.0 | 17.2 | 2.0 | 0.1 |
| Delay (s) | 32.9 | 22.7 | 15.5 | 29.2 | 25.4 | 19.5 | 28.1 | 21.9 | 13.6 | 45.1 | 21.1 | 10.4 |
| Level of Service | C | C | B | C | C | B | C | C | B | D | C | B |
| Approach Delay (s) | | 25.7 | | | 22.1 | | | 21.9 | | | 25.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 67.9 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 68.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis
## 129: 6th St & California Ave



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 290 | 150 | 30 | 360 | 40 | 400 | 190 | 50 | 110 | 50 | 30 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 32 | 312 | 161 | 32 | 387 | 43 | 430 | 204 | 54 | 118 | 54 | 32 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 344 | 161 | 32 | 430 | 430 | 258 | 204 |
| Volume Left (vph) | 32 | 0 | 32 | 0 | 430 | 0 | 118 |
| Volume Right (vph) | 0 | 161 | 0 | 43 | 0 | 54 | 32 |
| Hadj (s) | 0.05 | -0.70 | 0.50 | -0.07 | 0.50 | -0.15 | 0.02 |
| Departure Headway (s) | 8.8 | 8.0 | 9.1 | 8.6 | 9.0 | 8.3 | 9.5 |
| Degree Utilization, x | 0.84 | 0.36 | 0.08 | 1.02 | 1.07 | 0.60 | 0.54 |
| Capacity (veh/h) | 399 | 442 | 385 | 420 | 408 | 421 | 364 |
| Control Delay (s) | 42.2 | 14.3 | 11.8 | 79.0 | 94.8 | 21.8 | 23.3 |
| Approach Delay (s) | 33.3 | | 74.3 | | 67.4 | | 23.3 |
| Approach LOS | D | | F | | F | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 55.0 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 83.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

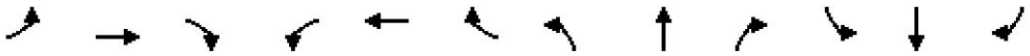
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 300 | 80 | 390 | 330 | 190 | 70 | 430 | 310 | 120 | 340 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 3484 | | 1800 | 1634 | 1369 | 1805 | 3360 | | 1805 | 3514 | |
| Flt Permitted | 0.47 | 1.00 | | 0.49 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 885 | 3484 | | 936 | 1634 | 1369 | 1805 | 3360 | | 1805 | 3514 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 128 | 319 | 85 | 415 | 351 | 202 | 74 | 457 | 330 | 128 | 362 | 64 |
| RTOR Reduction (vph) | 0 | 26 | 0 | 0 | 0 | 64 | 0 | 153 | 0 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 128 | 378 | 0 | 415 | 351 | 138 | 74 | 634 | 0 | 128 | 410 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 8 | 8 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 40.2 | 40.2 | | 40.2 | 40.2 | 47.3 | 5.3 | 22.6 | | 7.1 | 24.4 | |
| Effective Green, g (s) | 40.2 | 40.2 | | 40.2 | 40.2 | 47.3 | 5.3 | 22.6 | | 7.1 | 24.4 | |
| Actuated g/C Ratio | 0.49 | 0.49 | | 0.49 | 0.49 | 0.58 | 0.06 | 0.28 | | 0.09 | 0.30 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 434 | 1710 | | 459 | 802 | 858 | 117 | 927 | | 156 | 1047 | |
| v/s Ratio Prot | | 0.11 | | | 0.21 | 0.01 | 0.04 | c0.19 | | c0.07 | 0.12 | |
| v/s Ratio Perm | 0.14 | | | c0.44 | | 0.09 | | | | | | |
| v/c Ratio | 0.29 | 0.22 | | 0.90 | 0.44 | 0.16 | 0.63 | 0.68 | | 0.82 | 0.39 | |
| Uniform Delay, d1 | 12.4 | 11.9 | | 19.1 | 13.5 | 8.1 | 37.4 | 26.5 | | 36.8 | 22.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | 0.1 | | 20.9 | 0.4 | 0.1 | 10.6 | 2.1 | | 27.9 | 0.2 | |
| Delay (s) | 12.8 | 12.0 | | 40.0 | 13.9 | 8.1 | 48.0 | 28.6 | | 64.7 | 23.1 | |
| Level of Service | B | B | | D | B | A | D | C | | E | C | |
| Approach Delay (s) | | 12.2 | | | 23.9 | | | 30.2 | | | 32.7 | |
| Approach LOS | | B | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 81.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 1290 | 10 | 10 | 710 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1800 | 1900 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1900 | 1613 | | 1850 | 1710 | 1615 |
| Flt Permitted | 1.00 | 1.00 | | 0.86 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1900 | 1613 | | 1625 | 1710 | 1615 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 11 | 1387 | 11 | 11 | 763 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 11 | 1387 | 0 | 22 | 763 | 10 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | pm+ov | Perm | | | Prot |
| Protected Phases | 4 | 2 | | 8 | 2 | 2 |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 3.5 | 58.1 | | 3.5 | 54.6 | 54.6 |
| Effective Green, g (s) | 3.5 | 58.1 | | 3.5 | 54.6 | 54.6 |
| Actuated g/C Ratio | 0.05 | 0.85 | | 0.05 | 0.80 | 0.80 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 98 | 1613 | | 84 | 1371 | 1295 |
| v/s Ratio Prot | 0.01 | c0.69 | | | 0.45 | 0.01 |
| v/s Ratio Perm | | 0.17 | | 0.01 | | |
| v/c Ratio | 0.11 | 0.86 | | 0.26 | 0.56 | 0.01 |
| Uniform Delay, d1 | 30.8 | 2.8 | | 31.1 | 2.4 | 1.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 4.8 | | 1.7 | 0.5 | 0.0 |
| Delay (s) | 31.3 | 7.6 | | 32.7 | 2.9 | 1.3 |
| Level of Service | C | A | | C | A | A |
| Approach Delay (s) | 7.8 | | | 32.7 | 2.9 | |
| Approach LOS | A | | | C | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 68.1 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 97.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

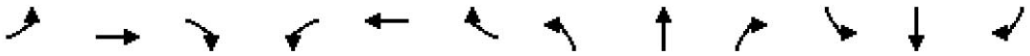
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 620 | 0 | 0 | 260 | 390 | 10 | 30 | 10 | 240 | 10 | 20 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 33 | 689 | 0 | 0 | 289 | 433 | 11 | 33 | 11 | 267 | 11 | 22 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 722 | 722 | 56 | 300 |
| Volume Left (vph) | 33 | 0 | 11 | 267 |
| Volume Right (vph) | 0 | 433 | 11 | 22 |
| Hadj (s) | 0.01 | -0.36 | -0.08 | 0.13 |
| Departure Headway (s) | 6.5 | 6.1 | 8.5 | 7.5 |
| Degree Utilization, x | 1.30 | 1.22 | 0.13 | 0.62 |
| Capacity (veh/h) | 548 | 599 | 398 | 473 |
| Control Delay (s) | 166.4 | 135.2 | 12.8 | 21.9 |
| Approach Delay (s) | 166.4 | 135.2 | 12.8 | 21.9 |
| Approach LOS | F | F | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 125.1 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 85.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 770 | 20 | 10 | 620 | 260 | 10 | 10 | 10 | 110 | 0 | 20 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 24 | 917 | 24 | 12 | 738 | 310 | 12 | 12 | 12 | 131 | 0 | 24 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 964 | 1060 | 36 | 155 |
| Volume Left (vph) | 24 | 12 | 12 | 131 |
| Volume Right (vph) | 24 | 310 | 12 | 24 |
| Hadj (s) | -0.01 | -0.17 | -0.13 | 0.08 |
| Departure Headway (s) | 5.6 | 5.4 | 7.7 | 7.3 |
| Degree Utilization, x | 1.49 | 1.59 | 0.08 | 0.31 |
| Capacity (veh/h) | 639 | 671 | 450 | 483 |
| Control Delay (s) | 246.7 | 289.4 | 11.3 | 13.5 |
| Approach Delay (s) | 246.7 | 289.4 | 11.3 | 13.5 |
| Approach LOS | F | F | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 247.0 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 90 | 750 | 60 | 40 | 900 | 180 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 100 | 833 | 67 | 44 | 1000 | 200 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 933 | 111 | 1200 |
| Volume Left (vph) | 0 | 67 | 1000 |
| Volume Right (vph) | 833 | 0 | 200 |
| Hadj (s) | -0.54 | 0.12 | 0.07 |
| Departure Headway (s) | 5.5 | 7.1 | 6.1 |
| Degree Utilization, x | 1.43 | 0.22 | 2.04 |
| Capacity (veh/h) | 658 | 501 | 599 |
| Control Delay (s) | 217.7 | 12.1 | 486.7 |
| Approach Delay (s) | 217.7 | 12.1 | 486.7 |
| Approach LOS | F | B | F |

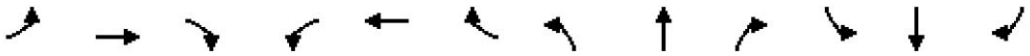
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 351.3 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 122.9% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 80 | 50 | 230 | 60 | 70 | 290 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 87 | 54 | 250 | 65 | 76 | 315 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 141 | | 679 | 114 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 141 | | 679 | 114 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 83 | | 78 | 67 |
| cM capacity (veh/h) | | | 1454 | | 348 | 944 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 141 | 315 | 391 |
| Volume Left | 0 | 250 | 76 |
| Volume Right | 54 | 0 | 315 |
| cSH | 1700 | 1454 | 708 |
| Volume to Capacity | 0.08 | 0.17 | 0.55 |
| Queue Length 95th (ft) | 0 | 16 | 85 |
| Control Delay (s) | 0.0 | 6.6 | 16.2 |
| Lane LOS | | A | C |
| Approach Delay (s) | 0.0 | 6.6 | 16.2 |
| Approach LOS | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 9.9 | | |
| Intersection Capacity Utilization | 54.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 350 | 40 | 20 | 300 | 20 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 357 | 41 | 20 | 306 | 20 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 31 | 31 | 408 | 347 |
| Volume Left (vph) | 10 | 10 | 10 | 20 |
| Volume Right (vph) | 10 | 10 | 41 | 20 |
| Hadj (s) | -0.13 | -0.13 | -0.05 | -0.02 |
| Departure Headway (s) | 5.5 | 5.5 | 4.4 | 4.5 |
| Degree Utilization, x | 0.05 | 0.05 | 0.50 | 0.43 |
| Capacity (veh/h) | 566 | 565 | 801 | 779 |
| Control Delay (s) | 8.8 | 8.8 | 11.7 | 10.8 |
| Approach Delay (s) | 8.8 | 8.8 | 11.7 | 10.8 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.1 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 36.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix F

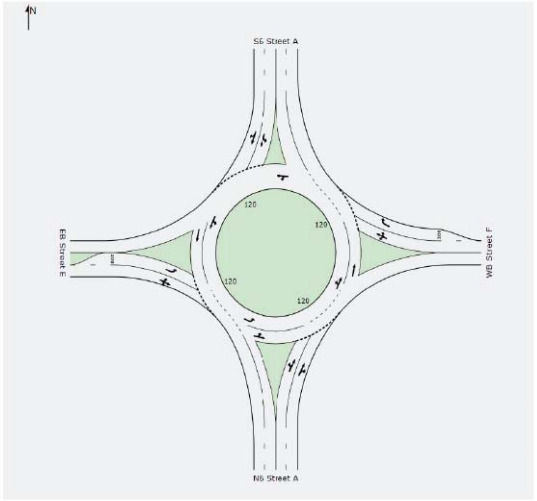
## Intersection LOS Worksheets
## for 2022 Plus Phase 1 Conditions

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**Title:** Intersection 1 - 2022 Plus Phase 1 - AM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street A | | | | | | | | | | |
| Lane 1 | 353 | 0.0 | 797 | 0.444 | 100 | 8.1 | LOS A | 2.3 | 57.7 | 0.0 |
| Lane 2 | 367 | 0.0 | 826 | 0.444 | 100 | 7.1 | LOS A | 2.3 | 58.3 | 0.0 |
| Approach | 720 | 0.0 | | 0.444 | | 7.6 | LOS A | 2.3 | 58.3 | |
| East: WB Street F | | | | | | | | | | |
| Lane 1 | 80 | 0.0 | 711 | 0.113 | 100 | 11.2 | LOS B | 0.4 | 10.7 | 0.0 |
| Lane 2 | 20 | 0.0 | 392 | 0.051 | 45 | 11.3 | LOS B | 0.2 | 4.1 | 0.0 |
| Approach | 100 | 0.0 | | 0.113 | | 11.2 | LOS B | 0.4 | 10.7 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 1009 | 0.0 | 1317 | 0.766 | 100 | 6.3 | LOS A | 9.1 | 228.7 | 0.0 |
| Lane 2 | 1131 | 0.0 | 1476 | 0.766 | 100 | 7.0 | LOS A | 9.2 | 230.0 | 0.0 |
| Approach | 2140 | 0.0 | | 0.766 | | 6.7 | LOS A | 9.2 | 230.0 | |
| West: EB Street E | | | | | | | | | | |
| Lane 1 | 328 | 0.0 | 528 | 0.622 | 100 | 22.7 | LOS C | 4.6 | 113.8 | 0.0 |
| Lane 2 | 362 | 0.0 | 582 | 0.622 | 100 | 20.7 | LOS C | 4.8 | 119.6 | 0.0 |
| Approach | 690 | 0.0 | | 0.622 | | 21.7 | LOS C | 4.8 | 119.6 | |
| All Vehicles | 3650 | | | 0.766 | | 9.8 | LOS A | 9.2 | 230.0 | |





| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 50 | 90 | 200 | 130 | 300 | 230 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 54 | 98 | 217 | 141 | 326 | 250 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 54 | 98 | 217 | 141 | 326 | 250 |
| Volume Left (vph) | 0 | 0 | 217 | 0 | 326 | 0 |
| Volume Right (vph) | 0 | 98 | 0 | 0 | 0 | 250 |
| Hadj (s) | 0.00 | -0.70 | 0.50 | 0.00 | 0.50 | -0.70 |
| Departure Headway (s) | 6.7 | 6.0 | 6.8 | 6.3 | 6.4 | 5.3 |
| Degree Utilization, x | 0.10 | 0.16 | 0.41 | 0.25 | 0.58 | 0.36 |
| Capacity (veh/h) | 503 | 563 | 505 | 543 | 537 | 661 |
| Control Delay (s) | 9.2 | 8.9 | 13.4 | 10.2 | 16.9 | 10.0 |
| Approach Delay (s) | 9.0 | | 12.1 | | 13.9 | |
| Approach LOS | A | | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 12.7 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 41.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

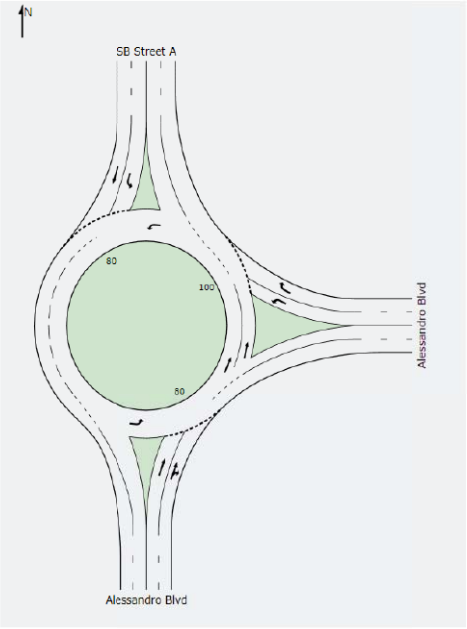
# LANE OUTPUT

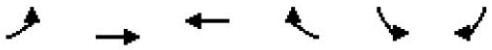
*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 3 - 2022 Plus Phase 1 - AM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 155 | 0.0 | 1285 | 0.120 | 100 | 5.7 | LOS A | 0.6 | 16.1 | 0.0 |
| Lane 2 | 155 | 0.0 | 1289 | 0.120 | 100 | 6.5 | LOS A | 0.6 | 16.1 | 0.0 |
| Approach | 310 | 0.0 | | 0.120 | | 6.1 | LOS A | 0.6 | 16.1 | |
| East: WB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 150 | 0.0 | 1055 | 0.142 | 100 | 13.1 | LOS B | 0.6 | 14.8 | 0.0 |
| Lane 2 | 160 | 0.0 | 1055 | 0.152 | 100 | 7.3 | LOS A | 0.6 | 15.9 | 0.0 |
| Approach | 310 | 0.0 | | 0.152 | | 10.1 | LOS B | 0.6 | 15.9 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 60 | 0.0 | 759 | 0.079 | 100 | 13.3 | LOS B | 0.3 | 8.5 | 0.0 |
| Lane 2 | 230 | 0.0 | 1230 | 0.187 | 100 | 6.3 | LOS A | 0.9 | 23.4 | 0.0 |
| Approach | 290 | 0.0 | | 0.187 | | 7.8 | LOS A | 0.9 | 23.4 | |
| All Vehicles | 910 | | | 0.187 | | 8.0 | LOS A | 0.9 | 23.4 | |

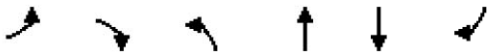




| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 90 | 270 | 30 | 30 | 10 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 98 | 293 | 33 | 33 | 11 |
| Pedestrians | | 5 | 5 | | 5 | |
| Lane Width (ft) | | 12.0 | 12.0 | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | 4.0 | | 4.0 | |
| Percent Blockage | | 0 | 0 | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 331 | | | | 439 | 320 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 331 | | | | 439 | 320 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 94 | 98 |
| cM capacity (veh/h) | 1235 | | | | 569 | 720 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 109 | 326 | 43 |
| Volume Left | 11 | 0 | 33 |
| Volume Right | 0 | 33 | 11 |
| cSH | 1235 | 1700 | 600 |
| Volume to Capacity | 0.01 | 0.19 | 0.07 |
| Queue Length 95th (ft) | 1 | 0 | 6 |
| Control Delay (s) | 0.9 | 0.0 | 11.5 |
| Lane LOS | A | | B |
| Approach Delay (s) | 0.9 | 0.0 | 11.5 |
| Approach LOS | | | B |

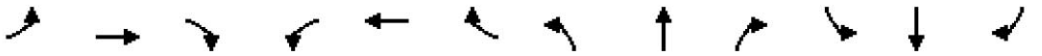
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.2 | | |
| Intersection Capacity Utilization | 27.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 100 | 290 | 670 | 280 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1592 | 1805 | 5187 | 5187 | 1576 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1592 | 1805 | 5187 | 5187 | 1576 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 22 | 112 | 326 | 753 | 315 | 34 |
| RTOR Reduction (vph) | 0 | 97 | 0 | 0 | 0 | 26 |
| Lane Group Flow (vph) | 22 | 15 | 326 | 753 | 315 | 8 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 5.4 | 5.4 | 13.2 | 26.1 | 8.9 | 8.9 |
| Effective Green, g (s) | 5.4 | 5.4 | 13.2 | 26.1 | 8.9 | 8.9 |
| Actuated g/C Ratio | 0.14 | 0.14 | 0.33 | 0.66 | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 247 | 218 | 603 | 3427 | 1169 | 355 |
| v/s Ratio Prot | c0.01 | | c0.18 | c0.15 | 0.06 | |
| v/s Ratio Perm | | 0.01 | | | | 0.00 |
| v/c Ratio | 0.09 | 0.07 | 0.54 | 0.22 | 0.27 | 0.02 |
| Uniform Delay, d1 | 14.9 | 14.9 | 10.7 | 2.7 | 12.6 | 11.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.1 | 1.0 | 0.0 | 0.1 | 0.0 |
| Delay (s) | 15.1 | 15.0 | 11.7 | 2.7 | 12.7 | 11.9 |
| Level of Service | B | B | B | A | B | B |
| Approach Delay (s) | 15.0 | | | 5.4 | 12.7 | |
| Approach LOS | B | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 39.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 42.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

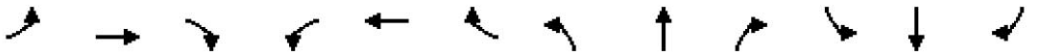
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 130 | 0 | 70 | 5 | 0 | 5 | 40 | 1000 | 0 | 0 | 760 | 90 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 148 | 0 | 80 | 6 | 0 | 6 | 45 | 1136 | 0 | 0 | 864 | 102 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 2107 | 2101 | 874 | 2180 | 2203 | 1146 | 971 | | | 1141 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 2107 | 2101 | 874 | 2180 | 2203 | 1146 | 971 | | | 1141 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 100 | 77 | 77 | 100 | 98 | 94 | | | 100 | | |
| cM capacity (veh/h) | 35 | 49 | 349 | 24 | 42 | 243 | 715 | | | 617 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 227 | 11 | 45 | 1136 | 0 | 0 | 864 | 102 |
| Volume Left | 148 | 6 | 45 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 80 | 6 | 0 | 0 | 0 | 0 | 0 | 102 |
| cSH | 51 | 44 | 715 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 4.48 | 0.26 | 0.06 | 0.67 | 0.00 | 0.00 | 0.51 | 0.06 |
| Queue Length 95th (ft) | Err | 21 | 5 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | Err | 112.5 | 10.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | F | B | | | | | |
| Approach Delay (s) | Err | 112.5 | 0.4 | | | 0.0 | | |
| Approach LOS | F | F | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 953.0 | | | |
| Intersection Capacity Utilization | 75.3% | ICU Level of Service | D | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 30 | 40 | 10 | 10 | 10 | 50 | 580 | 10 | 10 | 610 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1773 | | | 1766 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Flt Permitted | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1773 | | | 1766 | | 1805 | 1894 | | 1805 | 1900 | 1561 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 119 | 36 | 48 | 12 | 12 | 12 | 60 | 690 | 12 | 12 | 726 | 95 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 16 |
| Lane Group Flow (vph) | 0 | 195 | 0 | 0 | 25 | 0 | 60 | 701 | 0 | 12 | 726 | 79 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 36.2 | | | 5.0 | | 8.3 | 59.8 | | 3.0 | 54.5 | 54.5 |
| Effective Green, g (s) | | 36.2 | | | 5.0 | | 8.3 | 59.8 | | 3.0 | 54.5 | 54.5 |
| Actuated g/C Ratio | | 0.30 | | | 0.04 | | 0.07 | 0.50 | | 0.02 | 0.45 | 0.45 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 535 | | | 74 | | 125 | 944 | | 45 | 863 | 709 |
| v/s Ratio Prot | | c0.11 | | | c0.01 | | c0.03 | c0.37 | | 0.01 | c0.38 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.05 |
| v/c Ratio | | 0.36 | | | 0.33 | | 0.48 | 0.74 | | 0.27 | 0.84 | 0.11 |
| Uniform Delay, d1 | | 32.9 | | | 55.9 | | 53.8 | 24.0 | | 57.4 | 28.9 | 18.8 |
| Progression Factor | | 0.73 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.2 | | | 2.6 | | 2.9 | 3.2 | | 3.2 | 7.4 | 0.1 |
| Delay (s) | | 24.3 | | | 58.5 | | 56.7 | 27.2 | | 60.6 | 36.4 | 18.9 |
| Level of Service | | C | | | E | | E | C | | E | D | B |
| Approach Delay (s) | | 24.3 | | | 58.5 | | | 29.5 | | | 34.7 | |
| Approach LOS | | C | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 67.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 220 | 30 | 10 | 120 | 60 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Hourly flow rate (vph) | 12 | 272 | 37 | 12 | 148 | 74 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 380 | 5 | 579 | 306 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 380 | 5 | 579 | 306 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 98 | 75 | 87 | 98 | 91 | |
| cM capacity (veh/h) | 500 | 1080 | 290 | 550 | 1623 | |

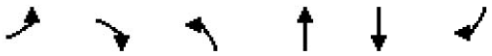
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 12 | 272 | 49 | 148 | 74 |
| Volume Left | 0 | 0 | 37 | 148 | 0 |
| Volume Right | 0 | 272 | 0 | 0 | 74 |
| cSH | 500 | 1080 | 329 | 1623 | 1700 |
| Volume to Capacity | 0.02 | 0.25 | 0.15 | 0.09 | 0.04 |
| Queue Length 95th (ft) | 2 | 25 | 13 | 8 | 0 |
| Control Delay (s) | 12.4 | 9.5 | 17.9 | 7.4 | 0.0 |
| Lane LOS | B | A | C | A | |
| Approach Delay (s) | 9.6 | | 17.9 | 5.0 | |
| Approach LOS | A | | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.5 | | |
| Intersection Capacity Utilization | 23.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 10 | 10 | 160 | 10 | 120 | 10 | 500 | 150 | 340 | 320 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 0 | 12 | 12 | 190 | 12 | 143 | 12 | 595 | 179 | 405 | 381 | 12 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1677 | 2004 | 143 | 1583 | 1831 | 308 | 398 | | | 779 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1677 | 2004 | 143 | 1583 | 1831 | 308 | 398 | | | 779 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 61 | 99 | 0 | 70 | 79 | 99 | | | 52 | | |
| cM capacity (veh/h) | 24 | 31 | 878 | 32 | 39 | 688 | 1167 | | | 844 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 24 | 345 | 12 | 298 | 298 | 179 | 405 | 152 | 152 | 88 |
| Volume Left | 0 | 190 | 12 | 0 | 0 | 0 | 405 | 0 | 0 | 0 |
| Volume Right | 12 | 143 | 0 | 0 | 0 | 179 | 0 | 0 | 0 | 12 |
| cSH | 59 | 54 | 1167 | 1700 | 1700 | 1700 | 844 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.40 | 6.39 | 0.01 | 0.18 | 0.18 | 0.11 | 0.48 | 0.09 | 0.09 | 0.05 |
| Queue Length 95th (ft) | 37 | Err | 1 | 0 | 0 | 0 | 66 | 0 | 0 | 0 |
| Control Delay (s) | 101.3 | Err | 8.1 | 0.0 | 0.0 | 0.0 | 13.1 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | F | A | | | | B | | | |
| Approach Delay (s) | 101.3 | Err | 0.1 | | | | 6.7 | | | |
| Approach LOS | F | F | | | | | | | | |

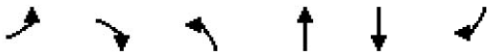
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1772.1 | | | |
| Intersection Capacity Utilization | 66.1% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 190 | 280 | 70 | 490 | 500 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.92 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.98 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1713 | | 1805 | 5187 | 5187 | 1615 |
| Flt Permitted | 0.98 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1713 | | 1805 | 5187 | 5187 | 1615 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 224 | 329 | 82 | 576 | 588 | 35 |
| RTOR Reduction (vph) | 80 | 0 | 0 | 0 | 0 | 13 |
| Lane Group Flow (vph) | 473 | 0 | 82 | 576 | 588 | 22 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 5 | 2 | 6 | 4 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 16.6 | | 3.8 | 18.9 | 11.1 | 27.7 |
| Effective Green, g (s) | 16.6 | | 3.8 | 18.9 | 11.1 | 27.7 |
| Actuated g/C Ratio | 0.38 | | 0.09 | 0.43 | 0.26 | 0.64 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 654 | | 158 | 2254 | 1324 | 1177 |
| v/s Ratio Prot | c0.28 | | c0.05 | 0.11 | c0.11 | 0.01 |
| v/s Ratio Perm | | | | | | 0.01 |
| v/c Ratio | 0.72 | | 0.52 | 0.26 | 0.44 | 0.02 |
| Uniform Delay, d1 | 11.5 | | 19.0 | 7.8 | 13.6 | 2.9 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.0 | | 2.9 | 0.1 | 0.2 | 0.0 |
| Delay (s) | 15.5 | | 21.8 | 7.9 | 13.8 | 2.9 |
| Level of Service | B | | C | A | B | A |
| Approach Delay (s) | 15.5 | | | 9.6 | 13.2 | |
| Approach LOS | B | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 43.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 53.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

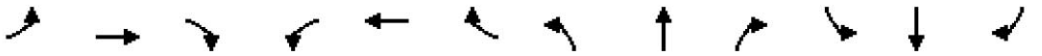
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 400 | 930 | 160 | 210 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1592 | 3502 | 5187 | 5187 | 1591 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1592 | 3502 | 5187 | 5187 | 1591 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 22 | 430 | 1000 | 172 | 226 | 65 |
| RTOR Reduction (vph) | 0 | 352 | 0 | 0 | 0 | 54 |
| Lane Group Flow (vph) | 22 | 78 | 1000 | 172 | 226 | 11 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 8.3 | 8.3 | 18.1 | 29.7 | 7.6 | 7.6 |
| Effective Green, g (s) | 8.3 | 8.3 | 18.1 | 29.7 | 7.6 | 7.6 |
| Actuated g/C Ratio | 0.18 | 0.18 | 0.39 | 0.65 | 0.17 | 0.17 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 326 | 287 | 1378 | 3349 | 857 | 263 |
| v/s Ratio Prot | 0.01 | | c0.29 | 0.03 | c0.04 | |
| v/s Ratio Perm | | c0.05 | | | | 0.01 |
| v/c Ratio | 0.07 | 0.27 | 0.73 | 0.05 | 0.26 | 0.04 |
| Uniform Delay, d1 | 15.6 | 16.2 | 11.8 | 3.0 | 16.8 | 16.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.1 | 0.5 | 1.9 | 0.0 | 0.2 | 0.1 |
| Delay (s) | 15.7 | 16.8 | 13.8 | 3.0 | 16.9 | 16.2 |
| Level of Service | B | B | B | A | B | B |
| Approach Delay (s) | 16.7 | | | 12.2 | 16.8 | |
| Approach LOS | B | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 46.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 52.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 0 | 1530 | 0 | 0 | 0 | 0 | 1010 | 270 | 0 | 560 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 0.88 | | | | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 0.99 | | | | | 1.00 | 0.99 | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 2804 | | | | | 5187 | 1591 | | 5187 | 1575 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 2804 | | | | | 5187 | 1591 | | 5187 | 1575 |
| Peak-hour factor, PHF | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 |
| Adj. Flow (vph) | 107 | 0 | 2040 | 0 | 0 | 0 | 0 | 1347 | 360 | 0 | 747 | 53 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 109 | 0 | 0 | 16 |
| Lane Group Flow (vph) | 107 | 0 | 2040 | 0 | 0 | 0 | 0 | 1347 | 251 | 0 | 747 | 37 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | custom | | Free | | | | | | Perm | | | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | Free | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 4.8 | | 42.3 | | | | | 29.5 | 29.5 | | 29.5 | 29.5 |
| Effective Green, g (s) | 4.8 | | 42.3 | | | | | 29.5 | 29.5 | | 29.5 | 29.5 |
| Actuated g/C Ratio | 0.11 | | 1.00 | | | | | 0.70 | 0.70 | | 0.70 | 0.70 |
| Clearance Time (s) | 4.0 | | | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 205 | | 2804 | | | | | 3617 | 1110 | | 3617 | 1098 |
| v/s Ratio Prot | | | | | | | | 0.26 | | | 0.14 | |
| v/s Ratio Perm | 0.06 | | c0.73 | | | | | | 0.16 | | | 0.02 |
| v/c Ratio | 0.52 | | 0.73 | | | | | 0.37 | 0.23 | | 0.21 | 0.03 |
| Uniform Delay, d1 | 17.7 | | 0.0 | | | | | 2.6 | 2.3 | | 2.3 | 2.0 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.4 | | 1.7 | | | | | 0.1 | 0.1 | | 0.0 | 0.0 |
| Delay (s) | 20.1 | | 1.7 | | | | | 2.7 | 2.4 | | 2.3 | 2.0 |
| Level of Service | C | | A | | | | | A | A | | A | A |
| Approach Delay (s) | | 2.6 | | | 0.0 | | | 2.6 | | | 2.3 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 2.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 42.3 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 32.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

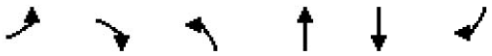
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 40 | 110 | 310 | 150 | 380 | 310 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 0.99 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1593 | 5187 | 1591 | 1805 | 5187 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1593 | 5187 | 1591 | 1805 | 5187 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 120 | 337 | 163 | 413 | 337 |
| RTOR Reduction (vph) | 0 | 104 | 0 | 128 | 0 | 0 |
| Lane Group Flow (vph) | 43 | 16 | 337 | 35 | 413 | 337 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | | |
| Turn Type | | Perm | | Perm | Prot | |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 5.5 | 5.5 | 8.6 | 8.6 | 14.3 | 26.9 |
| Effective Green, g (s) | 5.5 | 5.5 | 8.6 | 8.6 | 14.3 | 26.9 |
| Actuated g/C Ratio | 0.14 | 0.14 | 0.21 | 0.21 | 0.35 | 0.67 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 246 | 217 | 1104 | 339 | 639 | 3454 |
| v/s Ratio Prot | c0.02 | | c0.06 | | c0.23 | 0.06 |
| v/s Ratio Perm | | 0.01 | | 0.02 | | |
| v/c Ratio | 0.17 | 0.08 | 0.31 | 0.10 | 0.65 | 0.10 |
| Uniform Delay, d1 | 15.4 | 15.2 | 13.4 | 12.8 | 10.9 | 2.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.3 | 0.1 | 0.2 | 0.1 | 2.3 | 0.0 |
| Delay (s) | 15.8 | 15.4 | 13.5 | 12.9 | 13.2 | 2.4 |
| Level of Service | B | B | B | B | B | A |
| Approach Delay (s) | 15.5 | | 13.3 | | | 8.4 |
| Approach LOS | B | | B | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 40.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 48.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

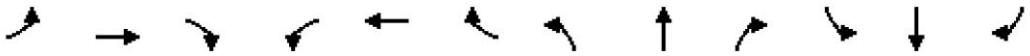
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 400 | 290 | 2060 | 1970 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1601 | 3502 | 5187 | 5187 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1601 | 3502 | 5187 | 5187 | 1589 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 149 | 460 | 333 | 2368 | 2264 | 115 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 21 |
| Lane Group Flow (vph) | 149 | 460 | 333 | 2368 | 2264 | 94 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | pm+ov | Prot | | | Perm |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 10.6 | 18.6 | 8.0 | 47.1 | 35.1 | 35.1 |
| Effective Green, g (s) | 10.6 | 18.6 | 8.0 | 47.1 | 35.1 | 35.1 |
| Actuated g/C Ratio | 0.16 | 0.28 | 0.12 | 0.72 | 0.53 | 0.53 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 291 | 551 | 426 | 3719 | 2771 | 849 |
| v/s Ratio Prot | 0.08 | c0.10 | 0.10 | 0.46 | c0.44 | |
| v/s Ratio Perm | | 0.19 | | | | 0.06 |
| v/c Ratio | 0.51 | 0.83 | 0.78 | 0.64 | 0.82 | 0.11 |
| Uniform Delay, d1 | 25.2 | 22.1 | 28.0 | 4.8 | 12.6 | 7.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.5 | 10.5 | 9.0 | 0.4 | 2.0 | 0.1 |
| Delay (s) | 26.7 | 32.6 | 37.0 | 5.2 | 14.6 | 7.6 |
| Level of Service | C | C | D | A | B | A |
| Approach Delay (s) | 31.2 | | | 9.1 | 14.3 | |
| Approach LOS | C | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 65.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 70.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

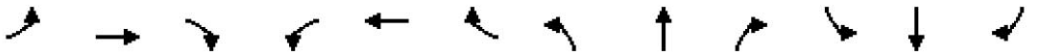
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 270 | 150 | 20 | 540 | 0 | 260 | 0 | 30 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 0 | 325 | 181 | 24 | 651 | 0 | 313 | 0 | 36 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 656 | | | 511 | | | 799 | 1124 | 263 | 871 | 1215 | 335 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 656 | | | 511 | | | 799 | 1124 | 263 | 871 | 1215 | 335 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 98 | | | 0 | 100 | 95 | 100 | 100 | 100 |
| cM capacity (veh/h) | 937 | | | 1060 | | | 271 | 201 | 735 | 229 | 177 | 661 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 163 | 343 | 349 | 325 | 313 | 36 | 0 |
| Volume Left | 0 | 0 | 24 | 0 | 313 | 0 | 0 |
| Volume Right | 0 | 181 | 0 | 0 | 0 | 36 | 0 |
| cSH | 937 | 1700 | 1060 | 1700 | 271 | 735 | 1700 |
| Volume to Capacity | 0.00 | 0.20 | 0.02 | 0.19 | 1.16 | 0.05 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 2 | 0 | 345 | 4 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.8 | 0.0 | 143.5 | 10.1 | 0.0 |
| Lane LOS | | | A | | F | B | A |
| Approach Delay (s) | 0.0 | | 0.4 | | 129.7 | | 0.0 |
| Approach LOS | | | | | F | | A |

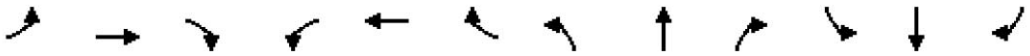
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 29.8 | | |
| Intersection Capacity Utilization | 50.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 150 | 70 | 40 | 190 | 20 | 130 | 670 | 40 | 30 | 460 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3421 | | 1805 | 3553 | | 1805 | 3576 | | 1805 | 3418 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3421 | | 1805 | 3553 | | 1805 | 3576 | | 1805 | 3418 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 69 | 172 | 80 | 46 | 218 | 23 | 149 | 770 | 46 | 34 | 529 | 253 |
| RTOR Reduction (vph) | 0 | 66 | 0 | 0 | 11 | 0 | 0 | 4 | 0 | 0 | 62 | 0 |
| Lane Group Flow (vph) | 69 | 186 | 0 | 46 | 230 | 0 | 149 | 812 | 0 | 34 | 720 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 3.5 | 9.9 | | 3.8 | 10.2 | | 7.1 | 25.3 | | 2.2 | 20.4 | |
| Effective Green, g (s) | 3.5 | 9.9 | | 3.8 | 10.2 | | 7.1 | 25.3 | | 2.2 | 20.4 | |
| Actuated g/C Ratio | 0.06 | 0.17 | | 0.07 | 0.18 | | 0.12 | 0.44 | | 0.04 | 0.36 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 110 | 592 | | 120 | 634 | | 224 | 1582 | | 69 | 1219 | |
| v/s Ratio Prot | c0.04 | 0.05 | | 0.03 | c0.06 | | c0.08 | 0.23 | | 0.02 | c0.21 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.63 | 0.31 | | 0.38 | 0.36 | | 0.67 | 0.51 | | 0.49 | 0.59 | |
| Uniform Delay, d1 | 26.2 | 20.7 | | 25.6 | 20.6 | | 23.9 | 11.5 | | 27.0 | 15.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.7 | 0.3 | | 2.0 | 0.4 | | 7.3 | 0.3 | | 5.4 | 0.8 | |
| Delay (s) | 36.9 | 21.0 | | 27.6 | 21.0 | | 31.2 | 11.8 | | 32.4 | 15.8 | |
| Level of Service | D | C | | C | C | | C | B | | C | B | |
| Approach Delay (s) | | 24.4 | | | 22.1 | | | 14.8 | | | 16.5 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 57.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 55.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

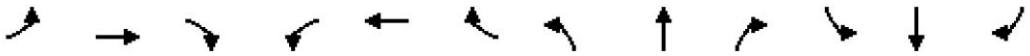
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 150 | 10 | 50 | 10 | 10 | 10 | 20 | 370 | 10 | 10 | 190 | 60 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 188 | 12 | 62 | 12 | 12 | 12 | 25 | 462 | 12 | 12 | 238 | 75 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 188 | 75 | 38 | 488 | 13 | 131 | 194 |
| Volume Left (vph) | 188 | 0 | 13 | 25 | 0 | 13 | 0 |
| Volume Right (vph) | 0 | 63 | 13 | 0 | 13 | 0 | 75 |
| Hadj (s) | 0.50 | -0.58 | -0.13 | 0.03 | -0.70 | 0.05 | -0.27 |
| Departure Headway (s) | 7.3 | 6.2 | 7.1 | 6.0 | 5.3 | 6.3 | 6.0 |
| Degree Utilization, x | 0.38 | 0.13 | 0.07 | 0.81 | 0.02 | 0.23 | 0.32 |
| Capacity (veh/h) | 464 | 539 | 451 | 588 | 652 | 543 | 575 |
| Control Delay (s) | 13.4 | 8.9 | 10.7 | 28.7 | 7.2 | 9.9 | 10.5 |
| Approach Delay (s) | 12.1 | | 10.7 | 28.2 | | 10.3 | |
| Approach LOS | B | | B | D | | B | |

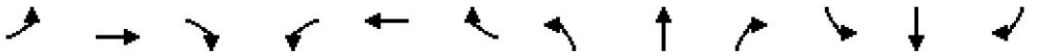
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 18.7 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 54.0% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 280 | 210 | 40 | 350 | 40 | 230 | 200 | 50 | 20 | 140 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.99 | |
| Satd. Flow (prot) | 1805 | 3338 | | 1805 | 1900 | 1568 | | 1851 | 1588 | | 1872 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.99 | |
| Satd. Flow (perm) | 1805 | 3338 | | 1805 | 1900 | 1568 | | 1851 | 1588 | | 1872 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 13 | 364 | 273 | 52 | 455 | 52 | 299 | 260 | 65 | 26 | 182 | 13 |
| RTOR Reduction (vph) | 0 | 133 | 0 | 0 | 0 | 37 | 0 | 0 | 40 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 13 | 504 | 0 | 52 | 455 | 15 | 0 | 559 | 25 | 0 | 219 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.2 | 21.6 | | 5.5 | 25.9 | 25.9 | | 28.6 | 28.6 | | 15.3 | |
| Effective Green, g (s) | 1.2 | 21.6 | | 5.5 | 25.9 | 25.9 | | 28.6 | 28.6 | | 15.3 | |
| Actuated g/C Ratio | 0.01 | 0.25 | | 0.06 | 0.30 | 0.30 | | 0.33 | 0.33 | | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 25 | 829 | | 114 | 566 | 467 | | 608 | 522 | | 329 | |
| v/s Ratio Prot | 0.01 | 0.15 | | c0.03 | c0.24 | | | c0.30 | | | c0.12 | |
| v/s Ratio Perm | | | | | | 0.01 | | | 0.02 | | | |
| v/c Ratio | 0.52 | 0.61 | | 0.46 | 0.80 | 0.03 | | 0.92 | 0.05 | | 0.66 | |
| Uniform Delay, d1 | 42.6 | 29.0 | | 39.3 | 28.2 | 21.7 | | 28.1 | 19.9 | | 33.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 18.1 | 1.3 | | 2.9 | 8.1 | 0.0 | | 19.0 | 0.0 | | 5.0 | |
| Delay (s) | 60.7 | 30.2 | | 42.2 | 36.3 | 21.7 | | 47.1 | 19.9 | | 38.4 | |
| Level of Service | E | C | | D | D | C | | D | B | | D | |
| Approach Delay (s) | | 30.8 | | | 35.5 | | | 44.2 | | | 38.4 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 87.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

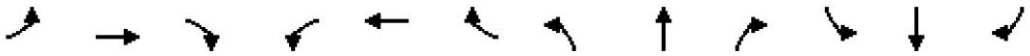
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 180 | 60 | 40 | 160 | 50 | 130 | 670 | 90 | 20 | 370 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3462 | | 1805 | 3469 | | 1805 | 3610 | 1596 | 1805 | 4965 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3462 | | 1805 | 3469 | | 1805 | 3610 | 1596 | 1805 | 4965 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 141 | 212 | 71 | 47 | 188 | 59 | 153 | 788 | 106 | 24 | 435 | 153 |
| RTOR Reduction (vph) | 0 | 44 | 0 | 0 | 43 | 0 | 0 | 0 | 54 | 0 | 71 | 0 |
| Lane Group Flow (vph) | 141 | 239 | 0 | 47 | 204 | 0 | 153 | 788 | 52 | 24 | 517 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 9.1 | 12.5 | | 5.5 | 8.9 | | 12.2 | 22.5 | 28.0 | 1.1 | 11.4 | |
| Effective Green, g (s) | 9.1 | 12.5 | | 5.5 | 8.9 | | 12.2 | 22.5 | 28.0 | 1.1 | 11.4 | |
| Actuated g/C Ratio | 0.16 | 0.22 | | 0.10 | 0.15 | | 0.21 | 0.39 | 0.49 | 0.02 | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 285 | 751 | | 172 | 536 | | 382 | 1410 | 887 | 34 | 983 | |
| v/s Ratio Prot | c0.08 | c0.07 | | 0.03 | c0.06 | | 0.08 | c0.22 | 0.01 | 0.01 | c0.10 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | |
| v/c Ratio | 0.49 | 0.32 | | 0.27 | 0.38 | | 0.40 | 0.56 | 0.06 | 0.71 | 0.53 | |
| Uniform Delay, d1 | 22.2 | 19.0 | | 24.2 | 21.9 | | 19.6 | 13.7 | 7.8 | 28.1 | 20.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.4 | 0.2 | | 0.9 | 0.5 | | 0.7 | 0.5 | 0.0 | 49.8 | 0.5 | |
| Delay (s) | 23.5 | 19.2 | | 25.1 | 22.3 | | 20.2 | 14.2 | 7.9 | 77.9 | 21.2 | |
| Level of Service | C | B | | C | C | | C | B | A | E | C | |
| Approach Delay (s) | | 20.6 | | | 22.8 | | | 14.4 | | | 23.4 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 57.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 55.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

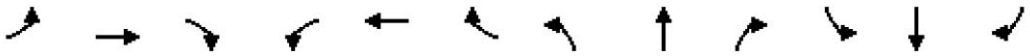
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 150 | 60 | 50 | 180 | 40 | 60 | 60 | 210 | 250 | 90 | 180 | 90 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Hourly flow rate (vph) | 205 | 82 | 68 | 247 | 55 | 82 | 82 | 288 | 342 | 123 | 247 | 123 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 247 | 110 | 384 | 226 | 486 | 247 | 247 |
| Volume Left (vph) | 205 | 0 | 247 | 82 | 0 | 123 | 0 |
| Volume Right (vph) | 0 | 68 | 82 | 0 | 342 | 0 | 123 |
| Hadj (s) | 0.42 | -0.44 | 0.00 | 0.18 | -0.49 | 0.25 | -0.35 |
| Departure Headway (s) | 9.6 | 8.8 | 8.8 | 9.1 | 8.4 | 9.3 | 8.7 |
| Degree Utilization, x | 0.66 | 0.27 | 0.93 | 0.57 | 1.13 | 0.64 | 0.59 |
| Capacity (veh/h) | 360 | 398 | 384 | 385 | 431 | 377 | 401 |
| Control Delay (s) | 28.2 | 13.8 | 59.3 | 22.3 | 112.2 | 25.9 | 22.4 |
| Approach Delay (s) | 23.8 | | 59.3 | 83.7 | | 24.1 | |
| Approach LOS | C | | F | F | | C | |

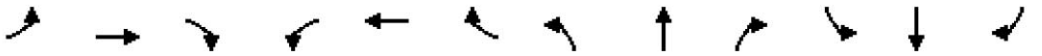
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 52.8 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 59.4% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 70 | 20 | 290 | 130 | 230 | 30 | 500 | 390 | 110 | 410 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3479 | | 1805 | 3234 | | 1805 | 5187 | 1601 | 1805 | 4958 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3479 | | 1805 | 3234 | | 1805 | 5187 | 1601 | 1805 | 4958 | |
| Peak-hour factor, PHF | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 156 | 91 | 26 | 377 | 169 | 299 | 39 | 649 | 506 | 143 | 532 | 195 |
| RTOR Reduction (vph) | 0 | 22 | 0 | 0 | 183 | 0 | 0 | 0 | 275 | 0 | 57 | 0 |
| Lane Group Flow (vph) | 156 | 95 | 0 | 377 | 285 | 0 | 39 | 649 | 231 | 143 | 670 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.4 | 10.3 | | 11.6 | 11.5 | | 2.5 | 16.4 | 28.0 | 7.1 | 21.0 | |
| Effective Green, g (s) | 10.4 | 10.3 | | 11.6 | 11.5 | | 2.5 | 16.4 | 28.0 | 7.1 | 21.0 | |
| Actuated g/C Ratio | 0.17 | 0.17 | | 0.19 | 0.19 | | 0.04 | 0.27 | 0.46 | 0.12 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 306 | 584 | | 341 | 606 | | 73 | 1385 | 834 | 209 | 1696 | |
| v/s Ratio Prot | 0.09 | 0.03 | | c0.21 | c0.09 | | 0.02 | c0.13 | 0.05 | c0.08 | 0.14 | |
| v/s Ratio Perm | | | | | | | | | 0.09 | | | |
| v/c Ratio | 0.51 | 0.16 | | 1.11 | 0.47 | | 0.53 | 0.47 | 0.28 | 0.68 | 0.39 | |
| Uniform Delay, d1 | 23.2 | 21.9 | | 24.9 | 22.2 | | 28.9 | 18.8 | 10.4 | 26.1 | 15.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.3 | 0.1 | | 80.2 | 0.6 | | 7.3 | 0.3 | 0.2 | 8.9 | 0.2 | |
| Delay (s) | 24.5 | 22.0 | | 105.1 | 22.8 | | 36.2 | 19.1 | 10.6 | 35.0 | 15.5 | |
| Level of Service | C | C | | F | C | | D | B | B | C | B | |
| Approach Delay (s) | | 23.4 | | | 59.5 | | | 16.0 | | | 18.7 | |
| Approach LOS | | C | | | E | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 61.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 59.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

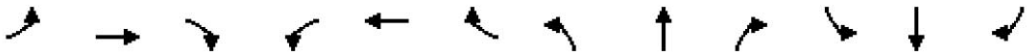
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 220 | 140 | 150 | 460 | 40 | 80 | 430 | 90 | 40 | 690 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1598 | 1805 | 3561 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1598 | 1805 | 3561 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 104 | 229 | 146 | 156 | 479 | 42 | 83 | 448 | 94 | 42 | 719 | 292 |
| RTOR Reduction (vph) | 0 | 0 | 68 | 0 | 7 | 0 | 0 | 0 | 34 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 104 | 229 | 78 | 156 | 514 | 0 | 83 | 448 | 60 | 42 | 719 | 202 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.2 | 20.3 | 31.2 | 14.5 | 23.6 | | 10.9 | 62.1 | 76.6 | 7.1 | 58.3 | 69.5 |
| Effective Green, g (s) | 11.2 | 20.3 | 31.2 | 14.5 | 23.6 | | 10.9 | 62.1 | 76.6 | 7.1 | 58.3 | 69.5 |
| Actuated g/C Ratio | 0.09 | 0.17 | 0.26 | 0.12 | 0.20 | | 0.09 | 0.52 | 0.64 | 0.06 | 0.49 | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 168 | 611 | 469 | 218 | 700 | | 164 | 1868 | 1069 | 107 | 1754 | 975 |
| v/s Ratio Prot | 0.06 | 0.06 | 0.02 | c0.09 | c0.14 | | c0.05 | c0.12 | 0.01 | 0.02 | c0.20 | 0.02 |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.03 | | | 0.11 |
| v/c Ratio | 0.62 | 0.37 | 0.17 | 0.72 | 0.73 | | 0.51 | 0.24 | 0.06 | 0.39 | 0.41 | 0.21 |
| Uniform Delay, d1 | 52.3 | 44.2 | 34.3 | 50.8 | 45.3 | | 52.0 | 15.9 | 8.1 | 54.4 | 19.8 | 12.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.01 | 0.82 | 0.48 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.6 | 0.4 | 0.2 | 10.6 | 4.0 | | 2.4 | 0.3 | 0.0 | 2.4 | 0.7 | 0.1 |
| Delay (s) | 59.0 | 44.6 | 34.5 | 61.4 | 49.2 | | 54.9 | 13.3 | 3.9 | 56.7 | 20.5 | 12.2 |
| Level of Service | E | D | C | E | D | | D | B | A | E | C | B |
| Approach Delay (s) | | 44.7 | | | 52.0 | | | 17.4 | | | 19.7 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 69.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

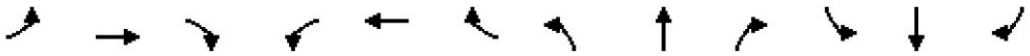
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 460 | 10 | 160 | 300 | 620 | 0 | 0 | 850 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.96 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1811 | 1587 | 1805 | 3610 | | | 3450 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1811 | 1587 | 1805 | 3610 | | | 3450 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 0 | 0 | 479 | 10 | 167 | 312 | 646 | 0 | 0 | 885 | 312 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 28 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 489 | 142 | 312 | 646 | 0 | 0 | 1169 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 35.2 | 35.2 | 23.5 | 76.8 | | | 49.3 | |
| Effective Green, g (s) | | | | | 35.2 | 35.2 | 23.5 | 76.8 | | | 49.3 | |
| Actuated g/C Ratio | | | | | 0.29 | 0.29 | 0.20 | 0.64 | | | 0.41 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 531 | 466 | 353 | 2310 | | | 1417 | |
| v/s Ratio Prot | | | | | c0.27 | | c0.17 | 0.18 | | | c0.34 | |
| v/s Ratio Perm | | | | | | 0.09 | | | | | | |
| v/c Ratio | | | | | 0.92 | 0.30 | 0.88 | 0.28 | | | 0.82 | |
| Uniform Delay, d1 | | | | | 41.1 | 32.9 | 46.9 | 9.5 | | | 31.5 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.72 | |
| Incremental Delay, d2 | | | | | 21.5 | 0.4 | 22.1 | 0.3 | | | 5.3 | |
| Delay (s) | | | | | 62.5 | 33.3 | 69.0 | 9.8 | | | 28.0 | |
| Level of Service | | | | | E | C | E | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 55.1 | | | 29.1 | | | 28.0 | |
| Approach LOS | | A | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 112.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

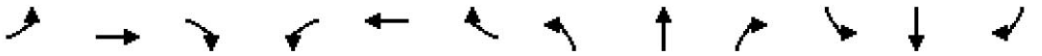
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 270 | 0 | 510 | 0 | 0 | 0 | 0 | 640 | 170 | 200 | 1170 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1715 | 1591 | | | | | 4994 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1715 | 1591 | | | | | 4994 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 297 | 0 | 560 | 0 | 0 | 0 | 0 | 703 | 187 | 220 | 1286 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 148 | 149 | 546 | 0 | 0 | 0 | 0 | 825 | 0 | 220 | 1286 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 27.6 | 27.6 | 27.6 | | | | | 17.4 | | 10.3 | 31.7 | |
| Effective Green, g (s) | 27.6 | 27.6 | 27.6 | | | | | 17.4 | | 10.3 | 31.7 | |
| Actuated g/C Ratio | 0.41 | 0.41 | 0.41 | | | | | 0.26 | | 0.15 | 0.47 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 703 | 703 | 652 | | | | | 1291 | | 276 | 1700 | |
| v/s Ratio Prot | 0.09 | 0.09 | | | | | | 0.17 | | 0.12 | c0.36 | |
| v/s Ratio Perm | | | c0.34 | | | | | | | | | |
| v/c Ratio | 0.21 | 0.21 | 0.84 | | | | | 0.64 | | 0.80 | 0.76 | |
| Uniform Delay, d1 | 12.8 | 12.8 | 17.8 | | | | | 22.2 | | 27.5 | 14.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.2 | 9.2 | | | | | 1.1 | | 14.7 | 2.0 | |
| Delay (s) | 13.0 | 13.0 | 27.1 | | | | | 23.2 | | 42.2 | 16.6 | |
| Level of Service | B | B | C | | | | | C | | D | B | |
| Approach Delay (s) | | 22.2 | | | 0.0 | | | 23.2 | | | 20.3 | |
| Approach LOS | | C | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 67.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 112.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

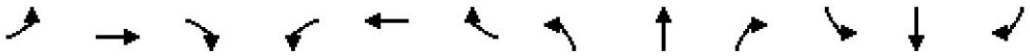


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 210 | 390 | 20 | 70 | 480 | 120 | 840 | 90 | 420 | 950 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.87 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1596 | 1805 | 3137 | | 1805 | 5103 | | 3502 | 3610 | 1594 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1596 | 1805 | 3137 | | 1805 | 5103 | | 3502 | 3610 | 1594 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 348 | 228 | 424 | 22 | 76 | 522 | 130 | 913 | 98 | 457 | 1033 | 152 |
| RTOR Reduction (vph) | 0 | 0 | 72 | 0 | 256 | 0 | 0 | 10 | 0 | 0 | 0 | 63 |
| Lane Group Flow (vph) | 348 | 228 | 352 | 22 | 342 | 0 | 130 | 1001 | 0 | 457 | 1033 | 89 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 16.2 | 32.0 | 45.9 | 4.2 | 20.0 | | 13.9 | 48.0 | | 19.8 | 53.9 | 70.1 |
| Effective Green, g (s) | 16.2 | 32.0 | 45.9 | 4.2 | 20.0 | | 13.9 | 48.0 | | 19.8 | 53.9 | 70.1 |
| Actuated g/C Ratio | 0.13 | 0.27 | 0.38 | 0.04 | 0.17 | | 0.12 | 0.40 | | 0.17 | 0.45 | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 473 | 963 | 664 | 63 | 523 | | 209 | 2041 | | 578 | 1621 | 984 |
| v/s Ratio Prot | c0.10 | 0.06 | 0.06 | 0.01 | c0.11 | | 0.07 | 0.20 | | c0.13 | c0.29 | 0.01 |
| v/s Ratio Perm | | | 0.16 | | | | | | | | | 0.04 |
| v/c Ratio | 0.74 | 0.24 | 0.53 | 0.35 | 1.03dr | | 0.62 | 0.49 | | 0.79 | 0.64 | 0.09 |
| Uniform Delay, d1 | 49.8 | 34.4 | 28.7 | 56.6 | 46.8 | | 50.5 | 26.9 | | 48.1 | 25.5 | 11.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.57 | 0.38 | | 1.43 | 0.23 | 0.04 |
| Incremental Delay, d2 | 5.9 | 0.1 | 0.8 | 3.3 | 2.9 | | 5.0 | 0.7 | | 3.6 | 0.9 | 0.0 |
| Delay (s) | 55.7 | 34.6 | 29.5 | 59.9 | 49.7 | | 84.6 | 10.8 | | 72.4 | 6.8 | 0.5 |
| Level of Service | E | C | C | E | D | | F | B | | E | A | A |
| Approach Delay (s) | | 39.8 | | | 50.1 | | | 19.2 | | | 24.4 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

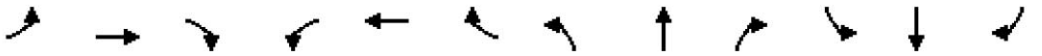
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 210 | 10 | 240 | 600 | 1140 | 0 | 0 | 1350 | 410 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | | 0.97 | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.93 | | 1.00 | 1.00 | | | 0.97 | |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1711 | | 3502 | 3610 | | | 4982 | |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1711 | | 3502 | 3610 | | | 4982 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 0 | 0 | 219 | 10 | 250 | 625 | 1188 | 0 | 0 | 1406 | 427 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 45 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 446 | 0 | 625 | 1188 | 0 | 0 | 1788 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 33.0 | | 25.0 | 79.0 | | | 50.0 | |
| Effective Green, g (s) | | | | | 33.0 | | 25.0 | 79.0 | | | 50.0 | |
| Actuated g/C Ratio | | | | | 0.28 | | 0.21 | 0.66 | | | 0.42 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 471 | | 730 | 2377 | | | 2076 | |
| v/s Ratio Prot | | | | | c0.26 | | c0.18 | 0.33 | | | c0.36 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.95 | | 0.86 | 0.50 | | | 0.86 | |
| Uniform Delay, d1 | | | | | 42.6 | | 45.8 | 10.4 | | | 31.8 | |
| Progression Factor | | | | | 1.00 | | 0.84 | 0.64 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 28.1 | | 8.3 | 0.6 | | | 5.0 | |
| Delay (s) | | | | | 70.7 | | 46.6 | 7.3 | | | 36.8 | |
| Level of Service | | | | | E | | D | A | | | D | |
| Approach Delay (s) | | 0.0 | | | 70.7 | | | 20.8 | | | 36.8 | |
| Approach LOS | | A | | | E | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 89.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 100 | 60 | 120 | 200 | 160 | 70 | 900 | 70 | 160 | 1260 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 22 | 111 | 67 | 133 | 222 | 178 | 78 | 1000 | 78 | 178 | 1400 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 58 | 0 | 0 | 142 | 0 | 0 | 17 | 0 | 0 | 4 |
| Lane Group Flow (vph) | 22 | 111 | 9 | 133 | 222 | 36 | 78 | 1000 | 61 | 178 | 1400 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 4.2 | 16.5 | 16.5 | 10.8 | 23.1 | 23.1 | 9.4 | 59.5 | 59.5 | 17.2 | 67.3 | 67.3 |
| Effective Green, g (s) | 4.2 | 16.5 | 16.5 | 10.8 | 23.1 | 23.1 | 9.4 | 59.5 | 59.5 | 17.2 | 67.3 | 67.3 |
| Actuated g/C Ratio | 0.04 | 0.14 | 0.14 | 0.09 | 0.19 | 0.19 | 0.08 | 0.50 | 0.50 | 0.14 | 0.56 | 0.56 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 63 | 261 | 218 | 162 | 366 | 305 | 141 | 1790 | 777 | 259 | 2025 | 878 |
| v/s Ratio Prot | 0.01 | 0.06 | | c0.07 | c0.12 | | 0.04 | 0.28 | | c0.10 | c0.39 | |
| v/s Ratio Perm | | | 0.01 | | | 0.02 | | | 0.04 | | | 0.01 |
| v/c Ratio | 0.35 | 0.43 | 0.04 | 0.82 | 0.61 | 0.12 | 0.55 | 0.56 | 0.08 | 0.69 | 0.69 | 0.02 |
| Uniform Delay, d1 | 56.6 | 47.4 | 44.9 | 53.7 | 44.3 | 40.0 | 53.3 | 21.1 | 15.9 | 48.8 | 18.9 | 11.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.05 | 0.81 | 0.51 |
| Incremental Delay, d2 | 3.3 | 1.1 | 0.1 | 27.1 | 2.8 | 0.2 | 4.6 | 1.3 | 0.2 | 6.3 | 1.7 | 0.0 |
| Delay (s) | 59.9 | 48.5 | 45.0 | 80.8 | 47.1 | 40.2 | 57.9 | 22.4 | 16.1 | 57.3 | 17.0 | 6.1 |
| Level of Service | E | D | D | F | D | D | E | C | B | E | B | A |
| Approach Delay (s) | | 48.6 | | | 53.2 | | | 24.3 | | | 21.3 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

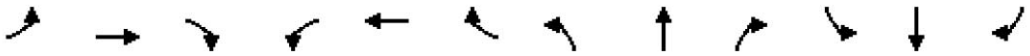
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 10 | 180 | 10 | 10 | 150 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 12 | 12 | 217 | 12 | 12 | 181 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 24 | | 469 | 23 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 24 | | 469 | 23 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 86 | | 97 | 83 |
| cM capacity (veh/h) | | | 1604 | | 479 | 1055 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 24 | 229 | 12 | 181 |
| Volume Left | 0 | 217 | 12 | 0 |
| Volume Right | 12 | 0 | 0 | 181 |
| cSH | 1700 | 1604 | 479 | 1055 |
| Volume to Capacity | 0.01 | 0.14 | 0.03 | 0.17 |
| Queue Length 95th (ft) | 0 | 12 | 2 | 15 |
| Control Delay (s) | 0.0 | 7.2 | 12.7 | 9.1 |
| Lane LOS | | A | B | A |
| Approach Delay (s) | 0.0 | 7.2 | 9.3 | |
| Approach LOS | | | A | |

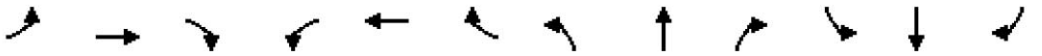
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.8 | | |
| Intersection Capacity Utilization | 27.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 150 | 160 | 230 | 120 | 20 | 100 | 130 | 170 | 10 | 200 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.98 | | | 0.94 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1722 | | 1805 | 1851 | | | 1744 | | | 1846 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1722 | | 1805 | 1851 | | | 1744 | | | 1846 | |
| Peak-hour factor, PHF | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| Adj. Flow (vph) | 42 | 211 | 225 | 324 | 169 | 28 | 141 | 183 | 239 | 14 | 282 | 56 |
| RTOR Reduction (vph) | 0 | 32 | 0 | 0 | 5 | 0 | 0 | 22 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 42 | 404 | 0 | 324 | 192 | 0 | 0 | 541 | 0 | 0 | 346 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 5.6 | 27.2 | | 21.8 | 43.4 | | | 33.0 | | | 22.0 | |
| Effective Green, g (s) | 5.6 | 27.2 | | 21.8 | 43.4 | | | 33.0 | | | 22.0 | |
| Actuated g/C Ratio | 0.05 | 0.23 | | 0.18 | 0.36 | | | 0.28 | | | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 84 | 390 | | 328 | 669 | | | 480 | | | 338 | |
| v/s Ratio Prot | 0.02 | c0.23 | | c0.18 | 0.10 | | | c0.31 | | | c0.19 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.50 | 1.03 | | 0.99 | 0.29 | | | 1.13 | | | 1.02 | |
| Uniform Delay, d1 | 55.8 | 46.4 | | 49.0 | 27.3 | | | 43.5 | | | 49.0 | |
| Progression Factor | 1.00 | 1.00 | | 0.87 | 0.82 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 4.6 | 54.8 | | 45.9 | 1.1 | | | 80.4 | | | 55.4 | |
| Delay (s) | 60.5 | 101.2 | | 88.6 | 23.4 | | | 123.9 | | | 104.5 | |
| Level of Service | E | F | | F | C | | | F | | | F | |
| Approach Delay (s) | | 97.6 | | | 64.0 | | | 123.9 | | | 104.5 | |
| Approach LOS | | F | | | E | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 97.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.05 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 81.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

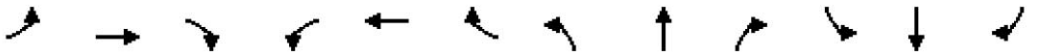
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 60 | 520 | 20 | 10 | 150 | 110 | 850 | 30 | 360 | 510 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1833 | 2798 | 1805 | 1900 | 1590 | 1805 | 3610 | 1571 | 1805 | 4979 | |
| Flt Permitted | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1833 | 2798 | 1805 | 1900 | 1590 | 1805 | 3610 | 1571 | 1805 | 4979 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 188 | 71 | 612 | 24 | 12 | 176 | 129 | 1000 | 35 | 424 | 600 | 176 |
| RTOR Reduction (vph) | 0 | 0 | 467 | 0 | 0 | 158 | 0 | 0 | 18 | 0 | 37 | 0 |
| Lane Group Flow (vph) | 0 | 259 | 145 | 24 | 12 | 18 | 129 | 1000 | 17 | 424 | 739 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 19.0 | 19.0 | 8.0 | 8.0 | 8.0 | 10.6 | 29.2 | 29.2 | 8.1 | 26.7 | |
| Effective Green, g (s) | | 19.0 | 19.0 | 8.0 | 8.0 | 8.0 | 10.6 | 29.2 | 29.2 | 8.1 | 26.7 | |
| Actuated g/C Ratio | | 0.24 | 0.24 | 0.10 | 0.10 | 0.10 | 0.13 | 0.36 | 0.36 | 0.10 | 0.33 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 434 | 662 | 180 | 189 | 158 | 238 | 1313 | 571 | 182 | 1656 | |
| v/s Ratio Prot | | c0.14 | | c0.01 | 0.01 | | 0.07 | c0.28 | | c0.23 | 0.15 | |
| v/s Ratio Perm | | | 0.05 | | | 0.01 | | | 0.01 | | | |
| v/c Ratio | | 0.60 | 0.22 | 0.13 | 0.06 | 0.11 | 0.54 | 0.76 | 0.03 | 2.33 | 0.45 | |
| Uniform Delay, d1 | | 27.2 | 24.7 | 33.0 | 32.8 | 32.9 | 32.6 | 22.5 | 16.4 | 36.1 | 21.0 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 2.2 | 0.2 | 0.3 | 0.1 | 0.3 | 2.5 | 2.7 | 0.0 | 615.2 | 0.2 | |
| Delay (s) | | 29.5 | 24.8 | 33.3 | 32.9 | 33.2 | 35.1 | 25.2 | 16.5 | 651.3 | 21.2 | |
| Level of Service | | C | C | C | C | C | D | C | B | F | C | |
| Approach Delay (s) | | 26.2 | | | 33.2 | | | 26.0 | | | 243.8 | |
| Approach LOS | | C | | | C | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 102.3 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 80.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

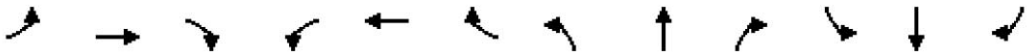
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 350 | 120 | 200 | 530 | 90 | 300 | 900 | 200 | 290 | 850 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3457 | | 1805 | 3523 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3457 | | 1805 | 3523 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 103 | 402 | 138 | 230 | 609 | 103 | 345 | 1034 | 230 | 333 | 977 | 103 |
| RTOR Reduction (vph) | 0 | 32 | 0 | 0 | 13 | 0 | 0 | 0 | 140 | 0 | 0 | 62 |
| Lane Group Flow (vph) | 103 | 508 | 0 | 230 | 699 | 0 | 345 | 1034 | 90 | 333 | 977 | 41 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.2 | 27.3 | | 15.0 | 31.1 | | 28.3 | 34.0 | 34.0 | 27.7 | 33.4 | 33.4 |
| Effective Green, g (s) | 11.2 | 27.3 | | 15.0 | 31.1 | | 28.3 | 34.0 | 34.0 | 27.7 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.09 | 0.23 | | 0.12 | 0.26 | | 0.24 | 0.28 | 0.28 | 0.23 | 0.28 | 0.28 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 168 | 786 | | 226 | 913 | | 426 | 1023 | 450 | 417 | 1005 | 441 |
| v/s Ratio Prot | 0.06 | 0.15 | | c0.13 | c0.20 | | c0.19 | c0.29 | | 0.18 | 0.27 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | 0.03 |
| v/c Ratio | 0.61 | 0.65 | | 1.02 | 0.77 | | 0.81 | 1.01 | 0.20 | 0.80 | 0.97 | 0.09 |
| Uniform Delay, d1 | 52.3 | 42.0 | | 52.5 | 41.1 | | 43.3 | 43.0 | 32.7 | 43.5 | 42.8 | 32.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.82 | 0.89 | 0.83 |
| Incremental Delay, d2 | 6.5 | 1.8 | | 64.5 | 3.9 | | 10.9 | 30.8 | 1.0 | 4.2 | 12.3 | 0.2 |
| Delay (s) | 58.8 | 43.8 | | 117.0 | 45.0 | | 54.2 | 73.8 | 33.7 | 40.1 | 50.5 | 26.8 |
| Level of Service | E | D | | F | D | | D | E | C | D | D | C |
| Approach Delay (s) | | 46.2 | | | 62.6 | | | 63.9 | | | 46.3 | |
| Approach LOS | | D | | | E | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 55.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 340 | 110 | 310 | 530 | 180 | 300 | 840 | 210 | 260 | 750 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3463 | | 1805 | 3458 | | 1805 | 5187 | 1587 | 1805 | 5094 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3463 | | 1805 | 3458 | | 1805 | 5187 | 1587 | 1805 | 5094 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 81 | 395 | 128 | 360 | 616 | 209 | 349 | 977 | 244 | 302 | 872 | 105 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 0 | 132 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 81 | 494 | 0 | 360 | 795 | 0 | 349 | 977 | 112 | 302 | 965 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.3 | 27.8 | | 17.0 | 36.5 | | 27.0 | 35.2 | 35.2 | 24.0 | 32.2 | |
| Effective Green, g (s) | 8.3 | 27.8 | | 17.0 | 36.5 | | 27.0 | 35.2 | 35.2 | 24.0 | 32.2 | |
| Actuated g/C Ratio | 0.07 | 0.23 | | 0.14 | 0.30 | | 0.22 | 0.29 | 0.29 | 0.20 | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 802 | | 256 | 1052 | | 406 | 1522 | 466 | 361 | 1367 | |
| v/s Ratio Prot | 0.04 | 0.14 | | c0.20 | c0.23 | | c0.19 | c0.19 | | 0.17 | c0.19 | |
| v/s Ratio Perm | | | | | | | | | 0.07 | | | |
| v/c Ratio | 0.65 | 0.62 | | 1.41 | 0.76 | | 0.86 | 0.64 | 0.24 | 0.84 | 0.71 | |
| Uniform Delay, d1 | 54.4 | 41.3 | | 51.5 | 37.7 | | 44.7 | 36.9 | 32.2 | 46.1 | 39.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.87 | 0.64 | 0.80 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 11.0 | 1.4 | | 204.6 | 3.1 | | 1.8 | 0.2 | 0.1 | 15.4 | 3.1 | |
| Delay (s) | 65.4 | 42.7 | | 256.1 | 40.9 | | 40.7 | 23.6 | 26.0 | 61.5 | 42.7 | |
| Level of Service | E | D | | F | D | | D | C | C | E | D | |
| Approach Delay (s) | | 45.8 | | | 106.2 | | | 27.8 | | | 47.1 | |
| Approach LOS | | D | | | F | | | C | | | D | |

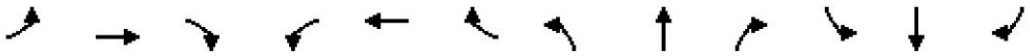
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 55.5 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 88.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 630 | 100 | 270 | 650 | 70 | 140 | 180 | 190 | 50 | 180 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3528 | | 1805 | 3610 | 1591 | 1805 | 3306 | | 1805 | 3383 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3528 | | 1805 | 3610 | 1591 | 1805 | 3306 | | 1805 | 3383 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 93 | 733 | 116 | 314 | 756 | 81 | 163 | 209 | 221 | 58 | 209 | 128 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 39 | 0 | 171 | 0 | 0 | 93 | 0 |
| Lane Group Flow (vph) | 93 | 839 | 0 | 314 | 756 | 42 | 163 | 259 | 0 | 58 | 244 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 8.1 | 29.1 | | 21.2 | 42.2 | 47.5 | 13.4 | 21.1 | | 5.3 | 13.0 | |
| Effective Green, g (s) | 8.1 | 29.1 | | 21.2 | 42.2 | 47.5 | 13.4 | 21.1 | | 5.3 | 13.0 | |
| Actuated g/C Ratio | 0.09 | 0.31 | | 0.23 | 0.46 | 0.51 | 0.14 | 0.23 | | 0.06 | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 158 | 1107 | | 413 | 1643 | 884 | 261 | 752 | | 103 | 474 | |
| v/s Ratio Prot | 0.05 | c0.24 | | c0.17 | 0.21 | 0.00 | c0.09 | 0.08 | | 0.03 | c0.07 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.59 | 0.76 | | 0.76 | 0.46 | 0.05 | 0.62 | 0.34 | | 0.56 | 0.52 | |
| Uniform Delay, d1 | 40.7 | 28.6 | | 33.4 | 17.4 | 11.3 | 37.3 | 30.0 | | 42.6 | 36.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.5 | 3.0 | | 8.0 | 0.2 | 0.0 | 4.6 | 0.3 | | 6.9 | 0.9 | |
| Delay (s) | 46.2 | 31.7 | | 41.4 | 17.6 | 11.3 | 41.9 | 30.3 | | 49.4 | 37.9 | |
| Level of Service | D | C | | D | B | B | D | C | | D | D | |
| Approach Delay (s) | | 33.1 | | | 23.7 | | | 33.5 | | | 39.6 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 92.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 70.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

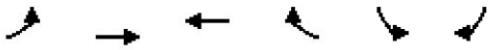
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 510 | 320 | 640 | 630 | 170 | 390 | 530 | 610 | 170 | 490 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 4858 | | 3502 | 5005 | | 3502 | 3610 | 1600 | 3502 | 3527 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 4858 | | 3502 | 5005 | | 3502 | 3610 | 1600 | 3502 | 3527 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 152 | 554 | 348 | 696 | 685 | 185 | 424 | 576 | 663 | 185 | 533 | 87 |
| RTOR Reduction (vph) | 0 | 102 | 0 | 0 | 42 | 0 | 0 | 0 | 41 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 152 | 800 | 0 | 696 | 828 | 0 | 424 | 576 | 622 | 185 | 607 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.4 | 20.5 | | 14.2 | 26.3 | | 10.1 | 23.3 | 37.5 | 7.1 | 20.3 | |
| Effective Green, g (s) | 8.4 | 20.5 | | 14.2 | 26.3 | | 10.1 | 23.3 | 37.5 | 7.1 | 20.3 | |
| Actuated g/C Ratio | 0.10 | 0.25 | | 0.18 | 0.32 | | 0.12 | 0.29 | 0.46 | 0.09 | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 363 | 1228 | | 613 | 1623 | | 436 | 1037 | 819 | 307 | 883 | |
| v/s Ratio Prot | 0.04 | c0.16 | | c0.20 | 0.17 | | c0.12 | 0.16 | c0.13 | 0.05 | 0.17 | |
| v/s Ratio Perm | | | | | | | | | 0.26 | | | |
| v/c Ratio | 0.42 | 0.65 | | 1.14 | 0.51 | | 0.97 | 0.56 | 0.76 | 0.60 | 0.69 | |
| Uniform Delay, d1 | 34.1 | 27.1 | | 33.4 | 22.2 | | 35.4 | 24.5 | 18.1 | 35.6 | 27.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 1.3 | | 79.7 | 0.3 | | 35.7 | 0.6 | 4.1 | 3.3 | 2.2 | |
| Delay (s) | 34.8 | 28.4 | | 113.2 | 22.5 | | 71.1 | 25.2 | 22.1 | 39.0 | 29.8 | |
| Level of Service | C | C | | F | C | | E | C | C | D | C | |
| Approach Delay (s) | | 29.3 | | | 62.8 | | | 35.7 | | | 31.9 | |
| Approach LOS | | C | | | E | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 81.1 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 80.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

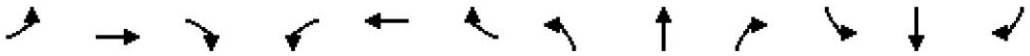
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 260 | 840 | 570 | 60 | 40 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.91 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 0.91 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 5101 | | 1674 | 1527 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 5101 | | 1674 | 1527 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 283 | 913 | 620 | 65 | 43 | 185 |
| RTOR Reduction (vph) | 0 | 0 | 18 | 0 | 66 | 34 |
| Lane Group Flow (vph) | 283 | 913 | 667 | 0 | 51 | 77 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 8.5 | 23.9 | 11.4 | | 4.0 | 12.5 |
| Effective Green, g (s) | 8.5 | 23.9 | 11.4 | | 4.0 | 12.5 |
| Actuated g/C Ratio | 0.24 | 0.67 | 0.32 | | 0.11 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 427 | 3453 | 1620 | | 187 | 702 |
| v/s Ratio Prot | c0.16 | 0.18 | c0.13 | | c0.03 | 0.03 |
| v/s Ratio Perm | | | | | | 0.02 |
| v/c Ratio | 0.66 | 0.26 | 0.41 | | 0.27 | 0.11 |
| Uniform Delay, d1 | 12.4 | 2.4 | 9.6 | | 14.6 | 7.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.8 | 0.0 | 0.2 | | 0.8 | 0.1 |
| Delay (s) | 16.2 | 2.5 | 9.8 | | 15.4 | 8.0 |
| Level of Service | B | A | A | | B | A |
| Approach Delay (s) | | 5.7 | 9.8 | | 11.8 | |
| Approach LOS | | A | A | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 35.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 45.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

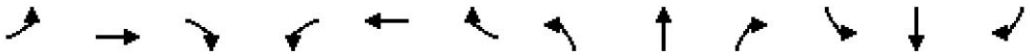
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 820 | 20 | 30 | 780 | 10 | 50 | 100 | 50 | 10 | 40 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.97 | | | 0.89 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5165 | | 1805 | 5176 | | | 1806 | | | 1667 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5165 | | 1805 | 5176 | | | 1806 | | | 1667 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 193 | 932 | 23 | 34 | 886 | 11 | 57 | 114 | 57 | 11 | 45 | 250 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 11 | 0 | 0 | 162 | 0 |
| Lane Group Flow (vph) | 193 | 953 | 0 | 34 | 896 | 0 | 0 | 217 | 0 | 0 | 144 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.3 | 27.4 | | 2.3 | 22.4 | | | 14.3 | | | 11.7 | |
| Effective Green, g (s) | 7.3 | 27.4 | | 2.3 | 22.4 | | | 14.3 | | | 11.7 | |
| Actuated g/C Ratio | 0.10 | 0.38 | | 0.03 | 0.31 | | | 0.20 | | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 184 | 1974 | | 58 | 1617 | | | 360 | | | 272 | |
| v/s Ratio Prot | c0.11 | 0.18 | | 0.02 | c0.17 | | | c0.12 | | | c0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 1.05 | 0.48 | | 0.59 | 0.55 | | | 0.60 | | | 0.53 | |
| Uniform Delay, d1 | 32.2 | 16.8 | | 34.2 | 20.5 | | | 26.1 | | | 27.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 79.8 | 0.2 | | 14.2 | 0.4 | | | 2.8 | | | 1.9 | |
| Delay (s) | 112.0 | 17.0 | | 48.4 | 20.9 | | | 28.9 | | | 29.3 | |
| Level of Service | F | B | | D | C | | | C | | | C | |
| Approach Delay (s) | | 33.0 | | | 21.9 | | | 28.9 | | | 29.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 71.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

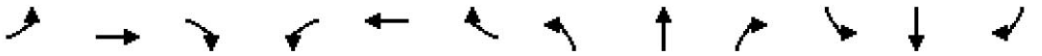
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 790 | 30 | 50 | 730 | 10 | 30 | 0 | 40 | 20 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | | 0.85 | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5155 | | 1805 | 5175 | | 1805 | | 1608 | 1805 | 1593 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5155 | | 1805 | 5175 | | 1805 | | 1608 | 1805 | 1593 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 24 | 963 | 37 | 61 | 890 | 12 | 37 | 0 | 49 | 24 | 0 | 24 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 41 | 0 | 23 | 0 |
| Lane Group Flow (vph) | 24 | 997 | 0 | 61 | 901 | 0 | 37 | 0 | 8 | 24 | 1 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 1.0 | 25.3 | | 6.2 | 30.5 | | 2.0 | | 8.8 | 2.5 | 3.1 | |
| Effective Green, g (s) | 1.0 | 25.3 | | 6.2 | 30.5 | | 2.0 | | 8.8 | 2.5 | 3.1 | |
| Actuated g/C Ratio | 0.02 | 0.48 | | 0.12 | 0.58 | | 0.04 | | 0.17 | 0.05 | 0.06 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 34 | 2479 | | 213 | 3001 | | 69 | | 391 | 86 | 94 | |
| v/s Ratio Prot | 0.01 | c0.19 | | c0.03 | 0.17 | | c0.02 | | c0.00 | 0.01 | 0.00 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | |
| v/c Ratio | 0.71 | 0.40 | | 0.29 | 0.30 | | 0.54 | | 0.02 | 0.28 | 0.02 | |
| Uniform Delay, d1 | 25.7 | 8.8 | | 21.2 | 5.6 | | 24.8 | | 18.3 | 24.2 | 23.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 49.8 | 0.1 | | 0.7 | 0.1 | | 7.8 | | 0.0 | 1.8 | 0.1 | |
| Delay (s) | 75.5 | 8.9 | | 21.9 | 5.7 | | 32.6 | | 18.3 | 26.0 | 23.4 | |
| Level of Service | E | A | | C | A | | C | | B | C | C | |
| Approach Delay (s) | | 10.5 | | | 6.7 | | | 24.5 | | | 24.7 | |
| Approach LOS | | B | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 52.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 45.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

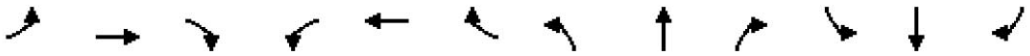
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 210 | 100 | 160 | 560 | 140 | 280 | 1100 | 200 | 120 | 820 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1802 | | 1805 | 1900 | 1587 | 1805 | 3517 | | 1805 | 1900 | 1555 |
| Flt Permitted | | 0.99 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1802 | | 1805 | 1900 | 1587 | 1805 | 3517 | | 1805 | 1900 | 1555 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 223 | 106 | 170 | 596 | 149 | 298 | 1170 | 213 | 128 | 872 | 191 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 39 | 0 | 12 | 0 | 0 | 0 | 73 |
| Lane Group Flow (vph) | 0 | 403 | 0 | 170 | 596 | 110 | 298 | 1371 | 0 | 128 | 872 | 118 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | 29.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 33.0 | | 8.0 | 32.0 | 32.0 |
| Effective Green, g (s) | | 29.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 33.0 | | 8.0 | 32.0 | 32.0 |
| Actuated g/C Ratio | | 0.24 | | 0.28 | 0.28 | 0.28 | 0.08 | 0.28 | | 0.07 | 0.27 | 0.27 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 435 | | 511 | 538 | 450 | 135 | 967 | | 120 | 507 | 415 |
| v/s Ratio Prot | | c0.22 | | 0.09 | c0.31 | | c0.17 | 0.39 | | 0.07 | c0.46 | |
| v/s Ratio Perm | | | | | | 0.07 | | | | | | 0.08 |
| v/c Ratio | | 0.93 | | 0.33 | 1.11 | 0.25 | 2.21 | 1.42 | | 1.07 | 1.72 | 0.29 |
| Uniform Delay, d1 | | 44.5 | | 34.0 | 43.0 | 33.1 | 55.5 | 43.5 | | 56.0 | 44.0 | 34.9 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.91 | 0.53 | 0.45 |
| Incremental Delay, d2 | | 25.8 | | 0.4 | 71.8 | 0.3 | 566.7 | 194.0 | | 75.7 | 328.0 | 0.8 |
| Delay (s) | | 70.2 | | 34.4 | 114.8 | 33.4 | 622.2 | 237.5 | | 126.4 | 351.3 | 16.5 |
| Level of Service | | E | | C | F | C | F | F | | F | F | B |
| Approach Delay (s) | | 70.2 | | | 86.6 | | | 305.7 | | | 273.5 | |
| Approach LOS | | E | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 225.6 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.34 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 123.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

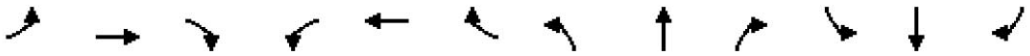
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 360 | 110 | 80 | 480 | 120 | 130 | 150 | 50 | 220 | 170 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.97 | | 1.00 | 0.96 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3471 | | 1805 | 3491 | | 1805 | 3461 | | 1805 | 3263 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3471 | | 1805 | 3491 | | 1805 | 3461 | | 1805 | 3263 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 244 | 439 | 134 | 98 | 585 | 146 | 159 | 183 | 61 | 268 | 207 | 293 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 23 | 0 | 0 | 43 | 0 | 0 | 209 | 0 |
| Lane Group Flow (vph) | 244 | 544 | 0 | 98 | 708 | 0 | 159 | 201 | 0 | 268 | 291 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 22.9 | | 5.4 | 21.2 | | 10.3 | 12.0 | | 10.2 | 11.9 | |
| Effective Green, g (s) | 7.1 | 22.9 | | 5.4 | 21.2 | | 10.3 | 12.0 | | 10.2 | 11.9 | |
| Actuated g/C Ratio | 0.11 | 0.34 | | 0.08 | 0.32 | | 0.15 | 0.18 | | 0.15 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 193 | 1195 | | 147 | 1113 | | 280 | 625 | | 277 | 584 | |
| v/s Ratio Prot | c0.14 | 0.16 | | 0.05 | c0.20 | | 0.09 | 0.06 | | c0.15 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 1.26 | 0.46 | | 0.67 | 0.64 | | 0.57 | 0.32 | | 0.97 | 0.50 | |
| Uniform Delay, d1 | 29.7 | 17.0 | | 29.7 | 19.4 | | 26.0 | 23.7 | | 28.0 | 24.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 153.5 | 0.3 | | 10.9 | 1.2 | | 2.6 | 0.3 | | 44.7 | 0.7 | |
| Delay (s) | 183.2 | 17.2 | | 40.5 | 20.6 | | 28.7 | 24.0 | | 72.7 | 25.3 | |
| Level of Service | F | B | | D | C | | C | C | | E | C | |
| Approach Delay (s) | | 66.8 | | | 22.9 | | | 25.9 | | | 41.8 | |
| Approach LOS | | E | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 66.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

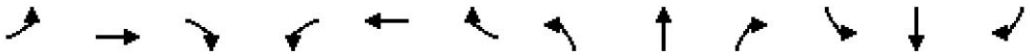
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 330 | 260 | 240 | 150 | 150 | 120 | 230 | 1110 | 210 | 120 | 780 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3324 | | 1805 | 3369 | | 1805 | 3610 | 1615 | 1805 | 3524 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3324 | | 1805 | 3369 | | 1805 | 3610 | 1615 | 1805 | 3524 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 375 | 295 | 273 | 170 | 170 | 136 | 261 | 1261 | 239 | 136 | 886 | 148 |
| RTOR Reduction (vph) | 0 | 182 | 0 | 0 | 116 | 0 | 0 | 0 | 88 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 375 | 386 | 0 | 170 | 190 | 0 | 261 | 1261 | 151 | 136 | 1022 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 13.5 | 16.3 | | 10.1 | 12.9 | | 15.1 | 38.0 | 48.1 | 9.1 | 32.0 | |
| Effective Green, g (s) | 13.5 | 16.3 | | 10.1 | 12.9 | | 15.1 | 38.0 | 48.1 | 9.1 | 32.0 | |
| Actuated g/C Ratio | 0.15 | 0.18 | | 0.11 | 0.14 | | 0.17 | 0.42 | 0.54 | 0.10 | 0.36 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 528 | 605 | | 204 | 486 | | 305 | 1533 | 940 | 184 | 1260 | |
| v/s Ratio Prot | 0.11 | c0.12 | | c0.09 | 0.06 | | c0.14 | c0.35 | 0.02 | 0.08 | 0.29 | |
| v/s Ratio Perm | | | | | | | | | 0.08 | | | |
| v/c Ratio | 0.71 | 0.64 | | 0.83 | 0.39 | | 0.86 | 0.82 | 0.16 | 0.74 | 0.81 | |
| Uniform Delay, d1 | 36.1 | 33.9 | | 38.9 | 34.7 | | 36.1 | 22.8 | 10.5 | 39.0 | 26.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.5 | 2.2 | | 24.3 | 0.5 | | 20.3 | 3.7 | 0.1 | 14.4 | 4.1 | |
| Delay (s) | 40.6 | 36.1 | | 63.1 | 35.3 | | 56.4 | 26.5 | 10.6 | 53.4 | 30.1 | |
| Level of Service | D | D | | E | D | | E | C | B | D | C | |
| Approach Delay (s) | | 37.9 | | | 45.2 | | | 28.8 | | | 32.8 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 89.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

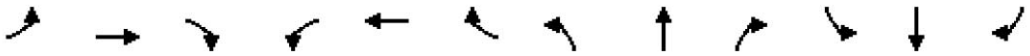
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 530 | 120 | 30 | 640 | 40 | 260 | 200 | 40 | 90 | 170 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1591 | 1805 | 3610 | 1591 | 3502 | 1847 | | 1805 | 3304 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1591 | 1805 | 3610 | 1591 | 3502 | 1847 | | 1805 | 3304 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 81 | 616 | 140 | 35 | 744 | 47 | 302 | 233 | 47 | 105 | 198 | 209 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 0 | 19 | 0 | 7 | 0 | 0 | 136 | 0 |
| Lane Group Flow (vph) | 81 | 616 | 91 | 35 | 744 | 28 | 302 | 273 | 0 | 105 | 271 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | |
| Actuated Green, G (s) | 9.4 | 63.1 | 77.7 | 5.4 | 59.1 | 71.4 | 14.6 | 23.2 | | 12.3 | 20.9 | |
| Effective Green, g (s) | 9.4 | 63.1 | 77.7 | 5.4 | 59.1 | 71.4 | 14.6 | 23.2 | | 12.3 | 20.9 | |
| Actuated g/C Ratio | 0.08 | 0.53 | 0.65 | 0.05 | 0.49 | 0.60 | 0.12 | 0.19 | | 0.10 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 141 | 1898 | 1083 | 81 | 1778 | 947 | 426 | 357 | | 185 | 575 | |
| v/s Ratio Prot | c0.04 | c0.17 | 0.01 | 0.02 | c0.21 | 0.00 | 0.09 | c0.15 | | c0.06 | 0.08 | |
| v/s Ratio Perm | | | 0.05 | | | 0.01 | | | | | | |
| v/c Ratio | 0.57 | 0.32 | 0.08 | 0.43 | 0.42 | 0.03 | 0.71 | 0.76 | | 0.57 | 0.47 | |
| Uniform Delay, d1 | 53.4 | 16.3 | 7.9 | 55.8 | 19.5 | 10.0 | 50.7 | 45.8 | | 51.3 | 44.6 | |
| Progression Factor | 1.21 | 0.45 | 0.72 | 1.00 | 1.00 | 1.00 | 0.75 | 0.78 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.1 | 0.4 | 0.0 | 3.7 | 0.7 | 0.0 | 5.1 | 8.9 | | 4.0 | 0.6 | |
| Delay (s) | 69.5 | 7.8 | 5.7 | 59.5 | 20.2 | 10.0 | 43.2 | 44.6 | | 55.3 | 45.2 | |
| Level of Service | E | A | A | E | C | B | D | D | | E | D | |
| Approach Delay (s) | | 13.4 | | | 21.3 | | | 43.8 | | | 47.3 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 65.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

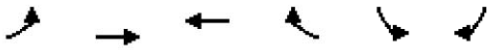
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 300 | 250 | 110 | 440 | 20 | 230 | 300 | 140 | 30 | 350 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1589 | 1805 | 1900 | 1576 | 1805 | 1900 | 1580 | 1805 | 1858 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1589 | 1805 | 1900 | 1576 | 1805 | 1900 | 1580 | 1805 | 1858 | |
| Peak-hour factor, PHF | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Adj. Flow (vph) | 38 | 385 | 321 | 141 | 564 | 26 | 295 | 385 | 179 | 38 | 449 | 64 |
| RTOR Reduction (vph) | 0 | 0 | 130 | 0 | 0 | 5 | 0 | 0 | 102 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 38 | 385 | 191 | 141 | 564 | 21 | 295 | 385 | 77 | 38 | 508 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.7 | 27.6 | 27.6 | 7.2 | 31.1 | 38.3 | 10.3 | 31.0 | 38.2 | 7.2 | 27.9 | |
| Effective Green, g (s) | 3.7 | 27.6 | 27.6 | 7.2 | 31.1 | 38.3 | 10.3 | 31.0 | 38.2 | 7.2 | 27.9 | |
| Actuated g/C Ratio | 0.04 | 0.31 | 0.31 | 0.08 | 0.35 | 0.43 | 0.12 | 0.35 | 0.43 | 0.08 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 75 | 589 | 493 | 146 | 664 | 749 | 209 | 662 | 749 | 146 | 582 | |
| v/s Ratio Prot | 0.02 | 0.20 | | c0.08 | c0.30 | 0.00 | c0.16 | c0.20 | 0.01 | 0.02 | c0.27 | |
| v/s Ratio Perm | | | 0.12 | | | 0.01 | | | 0.04 | | | |
| v/c Ratio | 0.51 | 0.65 | 0.39 | 0.97 | 0.85 | 0.03 | 1.41 | 0.58 | 0.10 | 0.26 | 0.87 | |
| Uniform Delay, d1 | 41.8 | 26.6 | 24.1 | 40.8 | 26.8 | 14.6 | 39.4 | 23.7 | 15.2 | 38.4 | 28.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.3 | 2.6 | 0.5 | 63.5 | 9.9 | 0.0 | 211.1 | 1.3 | 0.1 | 1.0 | 13.5 | |
| Delay (s) | 47.1 | 29.2 | 24.6 | 104.3 | 36.7 | 14.6 | 250.4 | 25.0 | 15.2 | 39.4 | 42.4 | |
| Level of Service | D | C | C | F | D | B | F | C | B | D | D | |
| Approach Delay (s) | | 28.1 | | | 49.0 | | | 100.4 | | | 42.2 | |
| Approach LOS | | C | | | D | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 57.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.99 | | |
| Actuated Cycle Length (s) | 89.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

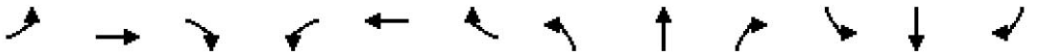
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 140 | 380 | 420 | 90 | 60 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 3610 | 1577 | 1805 | 1605 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 3610 | 1577 | 1805 | 1605 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 161 | 437 | 483 | 103 | 69 | 149 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 74 | 0 | 79 |
| Lane Group Flow (vph) | 161 | 437 | 483 | 29 | 69 | 70 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 9.0 | 24.1 | 11.1 | 11.1 | 7.6 | 16.6 |
| Effective Green, g (s) | 9.0 | 24.1 | 11.1 | 11.1 | 7.6 | 16.6 |
| Actuated g/C Ratio | 0.23 | 0.61 | 0.28 | 0.28 | 0.19 | 0.42 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 409 | 1153 | 1009 | 441 | 346 | 833 |
| v/s Ratio Prot | 0.09 | c0.23 | c0.13 | | c0.04 | 0.02 |
| v/s Ratio Perm | | | | 0.02 | | 0.02 |
| v/c Ratio | 0.39 | 0.38 | 0.48 | 0.07 | 0.20 | 0.08 |
| Uniform Delay, d1 | 13.0 | 4.0 | 11.9 | 10.5 | 13.5 | 7.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.6 | 0.2 | 0.4 | 0.1 | 0.3 | 0.0 |
| Delay (s) | 13.7 | 4.2 | 12.3 | 10.6 | 13.8 | 7.0 |
| Level of Service | B | A | B | B | B | A |
| Approach Delay (s) | | 6.7 | 12.0 | | 9.2 | |
| Approach LOS | | A | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 39.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 41.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

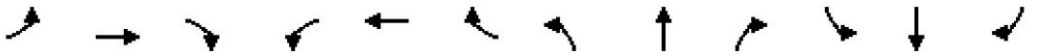
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 220 | 150 | 250 | 340 | 200 | 80 | 400 | 110 | 140 | 480 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1590 | 1805 | 1900 | 1591 | 1805 | 3482 | | 1805 | 3610 | 1574 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1590 | 1805 | 1900 | 1591 | 1805 | 3482 | | 1805 | 3610 | 1574 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 82 | 259 | 176 | 294 | 400 | 235 | 94 | 471 | 129 | 165 | 565 | 118 |
| RTOR Reduction (vph) | 0 | 0 | 132 | 0 | 0 | 157 | 0 | 27 | 0 | 0 | 0 | 80 |
| Lane Group Flow (vph) | 82 | 259 | 44 | 294 | 400 | 78 | 94 | 573 | 0 | 165 | 565 | 38 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.4 | 17.7 | 17.7 | 11.3 | 23.6 | 23.6 | 5.4 | 18.5 | | 7.2 | 20.3 | 20.3 |
| Effective Green, g (s) | 5.4 | 17.7 | 17.7 | 11.3 | 23.6 | 23.6 | 5.4 | 18.5 | | 7.2 | 20.3 | 20.3 |
| Actuated g/C Ratio | 0.08 | 0.25 | 0.25 | 0.16 | 0.33 | 0.33 | 0.08 | 0.26 | | 0.10 | 0.29 | 0.29 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 138 | 476 | 398 | 288 | 634 | 531 | 138 | 911 | | 184 | 1037 | 452 |
| v/s Ratio Prot | 0.05 | 0.14 | | c0.16 | c0.21 | | 0.05 | c0.16 | | c0.09 | 0.16 | |
| v/s Ratio Perm | | | 0.03 | | | 0.05 | | | | | | 0.02 |
| v/c Ratio | 0.59 | 0.54 | 0.11 | 1.02 | 0.63 | 0.15 | 0.68 | 0.63 | | 0.90 | 0.54 | 0.08 |
| Uniform Delay, d1 | 31.6 | 23.0 | 20.4 | 29.7 | 19.9 | 16.5 | 31.8 | 23.1 | | 31.4 | 21.3 | 18.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.7 | 1.3 | 0.1 | 58.5 | 2.1 | 0.1 | 13.0 | 1.4 | | 38.4 | 0.6 | 0.1 |
| Delay (s) | 38.3 | 24.3 | 20.6 | 88.2 | 21.9 | 16.6 | 44.8 | 24.4 | | 69.7 | 21.9 | 18.5 |
| Level of Service | D | C | C | F | C | B | D | C | | E | C | B |
| Approach Delay (s) | | 25.2 | | | 41.6 | | | 27.2 | | | 30.7 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 70.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

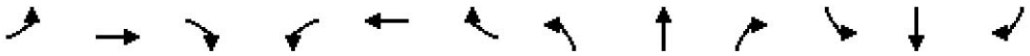
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 560 | 150 | 30 | 590 | 30 | 190 | 300 | 40 | 60 | 240 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3482 | | 1805 | 3580 | | 1805 | 3539 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3482 | | 1805 | 3580 | | 1805 | 3539 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 138 | 700 | 188 | 38 | 738 | 38 | 238 | 375 | 50 | 75 | 300 | 138 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 2 | 0 | 0 | 10 | 0 | 0 | 0 | 110 |
| Lane Group Flow (vph) | 138 | 871 | 0 | 38 | 774 | 0 | 238 | 415 | 0 | 75 | 300 | 28 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 13.9 | 54.5 | | 4.8 | 45.4 | | 20.4 | 37.6 | | 7.1 | 24.3 | 24.3 |
| Effective Green, g (s) | 13.9 | 54.5 | | 4.8 | 45.4 | | 20.4 | 37.6 | | 7.1 | 24.3 | 24.3 |
| Actuated g/C Ratio | 0.12 | 0.45 | | 0.04 | 0.38 | | 0.17 | 0.31 | | 0.06 | 0.20 | 0.20 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 209 | 1581 | | 72 | 1354 | | 307 | 1109 | | 107 | 385 | 321 |
| v/s Ratio Prot | c0.08 | c0.25 | | 0.02 | 0.22 | | c0.13 | 0.12 | | 0.04 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.02 |
| v/c Ratio | 0.66 | 0.55 | | 0.53 | 0.57 | | 0.78 | 0.37 | | 0.70 | 0.78 | 0.09 |
| Uniform Delay, d1 | 50.8 | 23.8 | | 56.5 | 29.6 | | 47.6 | 32.1 | | 55.4 | 45.3 | 38.8 |
| Progression Factor | 1.01 | 0.77 | | 1.25 | 0.76 | | 1.00 | 1.00 | | 1.02 | 0.87 | 0.74 |
| Incremental Delay, d2 | 7.1 | 1.3 | | 5.5 | 1.4 | | 11.6 | 0.2 | | 18.6 | 9.5 | 0.1 |
| Delay (s) | 58.4 | 19.6 | | 75.8 | 24.0 | | 59.2 | 32.3 | | 75.1 | 49.0 | 29.0 |
| Level of Service | E | B | | E | C | | E | C | | E | D | C |
| Approach Delay (s) | | 24.8 | | | 26.4 | | | 41.9 | | | 47.4 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

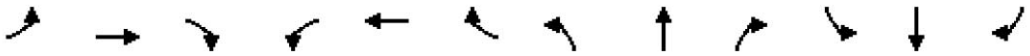
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 420 | 230 | 480 | 420 | 130 | 180 | 620 | 470 | 190 | 620 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3397 | | 1805 | 3467 | | 1805 | 3610 | 1586 | 1805 | 3565 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3397 | | 1805 | 3467 | | 1805 | 3610 | 1586 | 1805 | 3565 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 85 | 512 | 280 | 585 | 512 | 159 | 220 | 756 | 573 | 232 | 756 | 61 |
| RTOR Reduction (vph) | 0 | 62 | 0 | 0 | 24 | 0 | 0 | 0 | 389 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 85 | 730 | 0 | 585 | 647 | 0 | 220 | 756 | 185 | 232 | 812 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.8 | 29.2 | | 31.8 | 52.2 | | 15.0 | 30.0 | 30.0 | 13.0 | 28.0 | |
| Effective Green, g (s) | 8.8 | 29.2 | | 31.8 | 52.2 | | 15.0 | 30.0 | 30.0 | 13.0 | 28.0 | |
| Actuated g/C Ratio | 0.07 | 0.24 | | 0.27 | 0.44 | | 0.12 | 0.25 | 0.25 | 0.11 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 132 | 827 | | 478 | 1508 | | 226 | 903 | 397 | 196 | 832 | |
| v/s Ratio Prot | 0.05 | c0.21 | | c0.32 | 0.19 | | 0.12 | c0.21 | | c0.13 | c0.23 | |
| v/s Ratio Perm | | | | | | | | | 0.12 | | | |
| v/c Ratio | 0.64 | 0.88 | | 1.22 | 0.43 | | 0.97 | 0.84 | 0.46 | 1.18 | 0.98 | |
| Uniform Delay, d1 | 54.1 | 43.7 | | 44.1 | 23.6 | | 52.3 | 42.7 | 38.2 | 53.5 | 45.7 | |
| Progression Factor | 0.65 | 0.68 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.2 | 11.8 | | 118.3 | 0.9 | | 52.0 | 6.8 | 0.9 | 122.6 | 25.2 | |
| Delay (s) | 44.3 | 41.5 | | 162.4 | 24.4 | | 104.3 | 49.5 | 39.0 | 176.1 | 70.9 | |
| Level of Service | D | D | | F | C | | F | D | D | F | E | |
| Approach Delay (s) | | 41.8 | | | 88.7 | | | 53.4 | | | 94.2 | |
| Approach LOS | | D | | | F | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 69.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

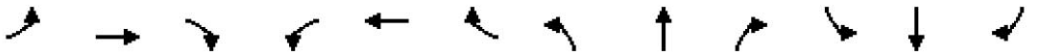
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 300 | 110 | 50 | 370 | 140 | 180 | 70 | 60 | 130 | 50 | 390 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 0.93 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3450 | | 1805 | 3447 | | 1805 | 3335 | | 1805 | 3084 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3450 | | 1805 | 3447 | | 1805 | 3335 | | 1805 | 3084 | |
| Peak-hour factor, PHF | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Adj. Flow (vph) | 386 | 361 | 133 | 60 | 446 | 169 | 217 | 84 | 72 | 157 | 60 | 470 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 36 | 0 | 0 | 62 | 0 | 0 | 359 | 0 |
| Lane Group Flow (vph) | 386 | 463 | 0 | 60 | 579 | 0 | 217 | 94 | 0 | 157 | 171 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 24.2 | 38.3 | | 6.5 | 20.6 | | 13.1 | 11.4 | | 11.9 | 10.2 | |
| Effective Green, g (s) | 24.2 | 38.3 | | 6.5 | 20.6 | | 13.1 | 11.4 | | 11.9 | 10.2 | |
| Actuated g/C Ratio | 0.29 | 0.46 | | 0.08 | 0.24 | | 0.16 | 0.14 | | 0.14 | 0.12 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 519 | 1571 | | 140 | 844 | | 281 | 452 | | 255 | 374 | |
| v/s Ratio Prot | c0.21 | 0.13 | | 0.03 | c0.17 | | c0.12 | 0.03 | | 0.09 | c0.06 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.74 | 0.29 | | 0.43 | 0.69 | | 0.77 | 0.21 | | 0.62 | 0.46 | |
| Uniform Delay, d1 | 27.1 | 14.4 | | 37.0 | 28.8 | | 34.1 | 32.3 | | 33.9 | 34.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.7 | 0.1 | | 2.1 | 2.3 | | 12.4 | 0.2 | | 4.4 | 0.9 | |
| Delay (s) | 32.9 | 14.5 | | 39.1 | 31.1 | | 46.4 | 32.6 | | 38.3 | 35.3 | |
| Level of Service | C | B | | D | C | | D | C | | D | D | |
| Approach Delay (s) | | 22.6 | | | 31.8 | | | 40.6 | | | 36.0 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 84.1 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

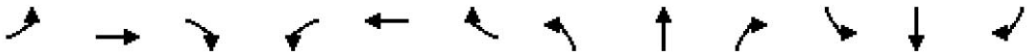
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 1000 | 140 | 110 | 1150 | 100 | 120 | 330 | 60 | 160 | 550 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5118 | | 3502 | 3519 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5118 | | 3502 | 3519 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 146 | 1042 | 146 | 115 | 1198 | 104 | 125 | 344 | 62 | 167 | 573 | 198 |
| RTOR Reduction (vph) | 0 | 0 | 71 | 0 | 7 | 0 | 0 | 15 | 0 | 0 | 0 | 154 |
| Lane Group Flow (vph) | 146 | 1042 | 75 | 115 | 1295 | 0 | 125 | 391 | 0 | 167 | 573 | 44 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 14.9 | 56.6 | 56.6 | 12.9 | 54.6 | | 7.8 | 26.5 | | 8.0 | 26.7 | 26.7 |
| Effective Green, g (s) | 14.9 | 56.6 | 56.6 | 12.9 | 54.6 | | 7.8 | 26.5 | | 8.0 | 26.7 | 26.7 |
| Actuated g/C Ratio | 0.12 | 0.47 | 0.47 | 0.11 | 0.46 | | 0.06 | 0.22 | | 0.07 | 0.22 | 0.22 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 224 | 1703 | 748 | 194 | 2329 | | 228 | 777 | | 233 | 803 | 354 |
| v/s Ratio Prot | c0.08 | c0.29 | | 0.06 | 0.25 | | 0.04 | 0.11 | | c0.05 | c0.16 | |
| v/s Ratio Perm | | | 0.05 | | | | | | | | | 0.03 |
| v/c Ratio | 0.65 | 0.61 | 0.10 | 0.59 | 0.56 | | 0.55 | 0.50 | | 0.72 | 0.71 | 0.12 |
| Uniform Delay, d1 | 50.1 | 23.5 | 17.6 | 51.0 | 23.9 | | 54.4 | 41.0 | | 54.9 | 43.1 | 37.3 |
| Progression Factor | 0.85 | 0.61 | 0.96 | 1.09 | 0.77 | | 1.07 | 1.13 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.0 | 1.5 | 0.2 | 4.4 | 0.9 | | 2.4 | 0.5 | | 10.0 | 3.0 | 0.2 |
| Delay (s) | 48.5 | 15.9 | 17.0 | 60.3 | 19.4 | | 60.6 | 46.8 | | 64.9 | 46.1 | 37.5 |
| Level of Service | D | B | B | E | B | | E | D | | E | D | D |
| Approach Delay (s) | | 19.6 | | | 22.7 | | | 50.0 | | | 47.7 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 75.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

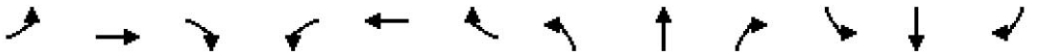
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 960 | 220 | 310 | 1230 | 100 | 70 | 170 | 100 | 100 | 280 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.94 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5122 | | 1805 | 3389 | | 1805 | 3505 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5122 | | 1805 | 3389 | | 1805 | 3505 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 42 | 1000 | 229 | 323 | 1281 | 104 | 73 | 177 | 104 | 104 | 292 | 62 |
| RTOR Reduction (vph) | 0 | 0 | 117 | 0 | 5 | 0 | 0 | 88 | 0 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 42 | 1000 | 112 | 323 | 1380 | 0 | 73 | 193 | 0 | 104 | 335 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 49.3 | 49.3 | 29.3 | 71.5 | | 7.1 | 18.4 | | 7.0 | 18.3 | |
| Effective Green, g (s) | 7.1 | 49.3 | 49.3 | 29.3 | 71.5 | | 7.1 | 18.4 | | 7.0 | 18.3 | |
| Actuated g/C Ratio | 0.06 | 0.41 | 0.41 | 0.24 | 0.60 | | 0.06 | 0.15 | | 0.06 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 107 | 1483 | 651 | 441 | 3052 | | 107 | 520 | | 105 | 535 | |
| v/s Ratio Prot | 0.02 | c0.28 | | c0.18 | 0.27 | | 0.04 | 0.06 | | c0.06 | c0.10 | |
| v/s Ratio Perm | | | 0.07 | | | | | | | | | |
| v/c Ratio | 0.39 | 0.67 | 0.17 | 0.73 | 0.45 | | 0.68 | 0.37 | | 0.99 | 0.63 | |
| Uniform Delay, d1 | 54.4 | 28.8 | 22.4 | 41.7 | 13.4 | | 55.3 | 45.6 | | 56.5 | 47.7 | |
| Progression Factor | 0.68 | 1.17 | 2.81 | 0.61 | 0.56 | | 1.10 | 1.10 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.9 | 2.0 | 0.5 | 3.5 | 0.3 | | 16.0 | 0.4 | | 84.6 | 2.3 | |
| Delay (s) | 38.8 | 35.6 | 63.4 | 28.9 | 7.7 | | 77.1 | 50.6 | | 141.1 | 49.9 | |
| Level of Service | D | D | E | C | A | | E | D | | F | D | |
| Approach Delay (s) | | 40.8 | | | 11.7 | | | 56.0 | | | 70.6 | |
| Approach LOS | | D | | | B | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 76.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 720 | 100 | 80 | 1330 | 180 | 170 | 290 | 40 | 180 | 550 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1592 | 1805 | 5083 | | 1805 | 3538 | | 1805 | 3610 | 1600 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1592 | 1805 | 5083 | | 1805 | 3538 | | 1805 | 3610 | 1600 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 196 | 783 | 109 | 87 | 1446 | 196 | 185 | 315 | 43 | 196 | 598 | 239 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 13 | 0 | 0 | 11 | 0 | 0 | 0 | 13 |
| Lane Group Flow (vph) | 196 | 783 | 60 | 87 | 1629 | 0 | 185 | 347 | 0 | 196 | 598 | 226 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 20.8 | 54.5 | 66.5 | 11.1 | 44.8 | | 12.0 | 26.4 | | 12.0 | 26.4 | 47.2 |
| Effective Green, g (s) | 20.8 | 54.5 | 66.5 | 11.1 | 44.8 | | 12.0 | 26.4 | | 12.0 | 26.4 | 47.2 |
| Actuated g/C Ratio | 0.17 | 0.45 | 0.55 | 0.09 | 0.37 | | 0.10 | 0.22 | | 0.10 | 0.22 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 313 | 2356 | 935 | 167 | 1898 | | 181 | 778 | | 181 | 794 | 683 |
| v/s Ratio Prot | c0.11 | 0.15 | 0.01 | 0.05 | c0.32 | | 0.10 | 0.10 | | c0.11 | c0.17 | 0.06 |
| v/s Ratio Perm | | | 0.03 | | | | | | | | | 0.08 |
| v/c Ratio | 0.63 | 0.33 | 0.06 | 0.52 | 0.86 | | 1.02 | 0.45 | | 1.08 | 0.75 | 0.33 |
| Uniform Delay, d1 | 46.0 | 21.1 | 12.4 | 51.9 | 34.7 | | 54.0 | 40.5 | | 54.0 | 43.8 | 25.4 |
| Progression Factor | 1.60 | 0.38 | 0.01 | 0.95 | 0.91 | | 0.92 | 1.32 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.9 | 0.3 | 0.0 | 2.5 | 4.6 | | 69.9 | 0.4 | | 90.7 | 4.1 | 0.3 |
| Delay (s) | 76.5 | 8.4 | 0.1 | 51.9 | 36.2 | | 119.5 | 54.0 | | 144.7 | 47.8 | 25.7 |
| Level of Service | E | A | A | D | D | | F | D | | F | D | C |
| Approach Delay (s) | | 19.8 | | | 37.0 | | | 76.3 | | | 61.1 | |
| Approach LOS | | B | | | D | | | E | | | E | |

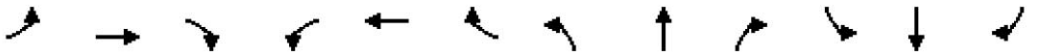
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 80.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 670 | 110 | 90 | 1200 | 90 | 170 | 240 | 70 | 80 | 270 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5064 | | 1805 | 5126 | | 1805 | 3475 | | 1805 | 3427 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5064 | | 1805 | 5126 | | 1805 | 3475 | | 1805 | 3427 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 56 | 744 | 122 | 100 | 1333 | 100 | 189 | 267 | 78 | 89 | 300 | 133 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 5 | 0 | 0 | 30 | 0 | 0 | 56 | 0 |
| Lane Group Flow (vph) | 56 | 853 | 0 | 100 | 1428 | 0 | 189 | 315 | 0 | 89 | 377 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 8.0 | 57.9 | | 11.9 | 61.8 | | 15.2 | 23.9 | | 10.3 | 19.0 | |
| Effective Green, g (s) | 8.0 | 57.9 | | 11.9 | 61.8 | | 15.2 | 23.9 | | 10.3 | 19.0 | |
| Actuated g/C Ratio | 0.07 | 0.48 | | 0.10 | 0.51 | | 0.13 | 0.20 | | 0.09 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 120 | 2443 | | 179 | 2640 | | 229 | 692 | | 155 | 543 | |
| v/s Ratio Prot | 0.03 | 0.17 | | c0.06 | c0.28 | | c0.10 | 0.09 | | 0.05 | c0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.47 | 0.35 | | 0.56 | 0.54 | | 0.83 | 0.45 | | 0.57 | 0.70 | |
| Uniform Delay, d1 | 53.9 | 19.3 | | 51.5 | 19.6 | | 51.1 | 42.3 | | 52.7 | 47.8 | |
| Progression Factor | 1.17 | 0.40 | | 0.90 | 0.64 | | 0.65 | 0.96 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.6 | 0.4 | | 2.1 | 0.4 | | 19.8 | 0.4 | | 5.1 | 3.9 | |
| Delay (s) | 65.6 | 8.1 | | 48.4 | 13.0 | | 52.8 | 41.1 | | 57.8 | 51.6 | |
| Level of Service | E | A | | D | B | | D | D | | E | D | |
| Approach Delay (s) | | 11.6 | | | 15.3 | | | 45.2 | | | 52.7 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 69.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

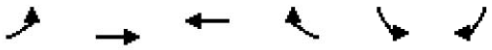
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 390 | 190 | 140 | 840 | 80 | 350 | 590 | 80 | 170 | 770 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5112 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5112 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 184 | 448 | 218 | 161 | 966 | 92 | 402 | 678 | 92 | 195 | 885 | 276 |
| RTOR Reduction (vph) | 0 | 0 | 153 | 0 | 9 | 0 | 0 | 0 | 60 | 0 | 0 | 117 |
| Lane Group Flow (vph) | 184 | 448 | 65 | 161 | 1049 | 0 | 402 | 678 | 32 | 195 | 885 | 159 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.9 | 36.0 | 36.0 | 10.9 | 34.0 | | 21.0 | 41.7 | 41.7 | 15.4 | 36.1 | 36.1 |
| Effective Green, g (s) | 12.9 | 36.0 | 36.0 | 10.9 | 34.0 | | 21.0 | 41.7 | 41.7 | 15.4 | 36.1 | 36.1 |
| Actuated g/C Ratio | 0.11 | 0.30 | 0.30 | 0.09 | 0.28 | | 0.18 | 0.35 | 0.35 | 0.13 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 194 | 1083 | 476 | 164 | 1448 | | 316 | 1254 | 552 | 232 | 1086 | 478 |
| v/s Ratio Prot | c0.10 | 0.12 | | 0.09 | c0.21 | | c0.22 | 0.19 | | 0.11 | c0.25 | |
| v/s Ratio Perm | | | 0.04 | | | | | | 0.02 | | | 0.10 |
| v/c Ratio | 0.95 | 0.41 | 0.14 | 0.98 | 0.72 | | 1.27 | 0.54 | 0.06 | 0.84 | 0.81 | 0.33 |
| Uniform Delay, d1 | 53.2 | 33.6 | 30.7 | 54.5 | 38.8 | | 49.5 | 31.5 | 26.1 | 51.1 | 38.9 | 32.6 |
| Progression Factor | 1.10 | 0.58 | 0.76 | 0.96 | 0.76 | | 0.52 | 0.82 | 1.52 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 47.9 | 1.1 | 0.6 | 61.3 | 2.9 | | 140.6 | 0.4 | 0.0 | 23.0 | 4.8 | 0.4 |
| Delay (s) | 106.2 | 20.4 | 23.9 | 113.5 | 32.4 | | 166.3 | 26.1 | 39.6 | 74.1 | 43.7 | 33.0 |
| Level of Service | F | C | C | F | C | | F | C | D | E | D | C |
| Approach Delay (s) | | 39.9 | | | 43.1 | | | 75.3 | | | 45.9 | |
| Approach LOS | | D | | | D | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 92.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

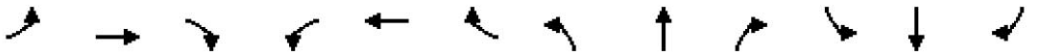
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 180 | 1780 | 1820 | 330 | 560 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 3610 | 1595 | 3502 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 3610 | 1595 | 3502 | 1597 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 191 | 1894 | 1936 | 351 | 596 | 149 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 18 | 0 | 5 |
| Lane Group Flow (vph) | 191 | 1894 | 1936 | 333 | 596 | 144 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 16.3 | 85.8 | 65.5 | 91.7 | 26.2 | 42.5 |
| Effective Green, g (s) | 16.3 | 85.8 | 65.5 | 91.7 | 26.2 | 42.5 |
| Actuated g/C Ratio | 0.14 | 0.71 | 0.55 | 0.76 | 0.22 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 245 | 3709 | 1970 | 1272 | 765 | 619 |
| v/s Ratio Prot | c0.11 | 0.37 | c0.54 | 0.06 | c0.17 | 0.03 |
| v/s Ratio Perm | | | | 0.15 | | 0.06 |
| v/c Ratio | 0.78 | 0.51 | 0.98 | 0.26 | 0.78 | 0.23 |
| Uniform Delay, d1 | 50.1 | 7.7 | 26.7 | 4.2 | 44.2 | 27.3 |
| Progression Factor | 1.14 | 0.26 | 0.89 | 1.20 | 0.53 | 0.46 |
| Incremental Delay, d2 | 9.4 | 0.3 | 9.4 | 0.0 | 4.7 | 0.2 |
| Delay (s) | 66.6 | 2.3 | 33.3 | 5.1 | 28.0 | 12.7 |
| Level of Service | E | A | C | A | C | B |
| Approach Delay (s) | | 8.2 | 28.9 | | 25.0 | |
| Approach LOS | | A | C | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 87.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

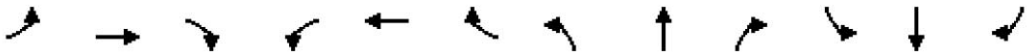
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 800 | 1440 | 80 | 1590 | 70 | 510 | 80 | 30 | 70 | 480 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 1805 | 5151 | | 3502 | 3446 | | 1805 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 1805 | 5151 | | 3502 | 3446 | | 1805 | 3610 | 1596 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 851 | 1532 | 85 | 1691 | 74 | 543 | 85 | 32 | 74 | 511 | 106 |
| RTOR Reduction (vph) | 0 | 0 | 147 | 0 | 3 | 0 | 0 | 25 | 0 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 85 | 851 | 1385 | 85 | 1762 | 0 | 543 | 92 | 0 | 74 | 511 | 105 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.1 | 57.9 | 57.9 | 11.3 | 58.1 | | 11.0 | 27.7 | | 7.1 | 23.8 | 34.9 |
| Effective Green, g (s) | 11.1 | 57.9 | 57.9 | 11.3 | 58.1 | | 11.0 | 27.7 | | 7.1 | 23.8 | 34.9 |
| Actuated g/C Ratio | 0.09 | 0.48 | 0.48 | 0.09 | 0.48 | | 0.09 | 0.23 | | 0.06 | 0.20 | 0.29 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 167 | 2503 | 766 | 170 | 2494 | | 321 | 795 | | 107 | 716 | 517 |
| v/s Ratio Prot | c0.05 | 0.16 | | 0.05 | 0.34 | | c0.16 | c0.03 | | 0.04 | c0.14 | 0.02 |
| v/s Ratio Perm | | | c0.87 | | | | | | | | | 0.05 |
| v/c Ratio | 0.51 | 0.34 | 1.81 | 0.50 | 0.71 | | 1.69 | 0.12 | | 0.69 | 0.71 | 0.20 |
| Uniform Delay, d1 | 51.9 | 19.2 | 31.1 | 51.7 | 24.3 | | 54.5 | 36.5 | | 55.4 | 44.9 | 32.1 |
| Progression Factor | 1.23 | 0.63 | 0.72 | 0.95 | 0.53 | | 1.00 | 1.00 | | 1.20 | 0.70 | 0.44 |
| Incremental Delay, d2 | 2.1 | 0.3 | 367.8 | 0.9 | 0.6 | | 324.4 | 0.1 | | 16.0 | 3.1 | 0.2 |
| Delay (s) | 66.1 | 12.4 | 390.1 | 49.9 | 13.4 | | 378.9 | 36.5 | | 82.6 | 34.4 | 14.4 |
| Level of Service | E | B | F | D | B | | F | D | | F | C | B |
| Approach Delay (s) | | 248.7 | | | 15.1 | | | 318.2 | | | 36.5 | |
| Approach LOS | | F | | | B | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 154.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.42 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 121.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

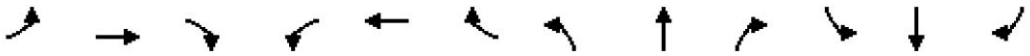
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 570 | 320 | 80 | 1040 | 80 | 740 | 390 | 20 | 90 | 580 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1600 | 1805 | 3567 | | 3502 | 3581 | | 1805 | 3580 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1600 | 1805 | 3567 | | 3502 | 3581 | | 1805 | 3580 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 63 | 600 | 337 | 84 | 1095 | 84 | 779 | 411 | 21 | 95 | 611 | 32 |
| RTOR Reduction (vph) | 0 | 0 | 44 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 63 | 600 | 293 | 84 | 1174 | 0 | 779 | 429 | 0 | 95 | 640 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 5.6 | 36.4 | 67.8 | 8.4 | 39.2 | | 31.4 | 48.7 | | 10.5 | 27.8 | |
| Effective Green, g (s) | 5.6 | 36.4 | 67.8 | 8.4 | 39.2 | | 31.4 | 48.7 | | 10.5 | 27.8 | |
| Actuated g/C Ratio | 0.05 | 0.30 | 0.56 | 0.07 | 0.33 | | 0.26 | 0.41 | | 0.09 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 84 | 1573 | 904 | 126 | 1165 | | 916 | 1453 | | 158 | 829 | |
| v/s Ratio Prot | 0.03 | 0.12 | 0.08 | c0.05 | c0.33 | | c0.22 | 0.12 | | 0.05 | c0.18 | |
| v/s Ratio Perm | | | 0.10 | | | | | | | | | |
| v/c Ratio | 0.75 | 0.38 | 0.32 | 0.67 | 1.01 | | 0.85 | 0.30 | | 0.60 | 0.77 | |
| Uniform Delay, d1 | 56.5 | 32.9 | 13.9 | 54.4 | 40.4 | | 42.1 | 24.1 | | 52.7 | 43.1 | |
| Progression Factor | 0.68 | 1.24 | 1.22 | 1.31 | 0.52 | | 1.00 | 1.00 | | 0.57 | 0.77 | |
| Incremental Delay, d2 | 29.8 | 0.7 | 0.2 | 10.4 | 25.8 | | 7.6 | 0.1 | | 5.8 | 4.2 | |
| Delay (s) | 68.4 | 41.5 | 17.2 | 81.7 | 46.8 | | 49.7 | 24.2 | | 35.8 | 37.5 | |
| Level of Service | E | D | B | F | D | | D | C | | D | D | |
| Approach Delay (s) | | 35.0 | | | 49.1 | | | 40.6 | | | 37.3 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 90.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

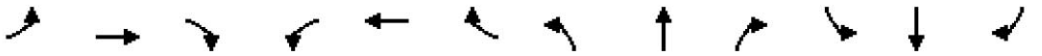
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 560 | 110 | 60 | 950 | 50 | 140 | 340 | 70 | 50 | 300 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3510 | | 1805 | 3580 | | 1805 | 3506 | | 1805 | 3554 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3510 | | 1805 | 3580 | | 1805 | 3506 | | 1805 | 3554 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 56 | 629 | 124 | 67 | 1067 | 56 | 157 | 382 | 79 | 56 | 337 | 34 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 2 | 0 | 0 | 16 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 56 | 742 | 0 | 67 | 1121 | 0 | 157 | 445 | 0 | 56 | 364 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 8.0 | 61.9 | | 8.6 | 62.5 | | 15.0 | 26.6 | | 6.9 | 18.5 | |
| Effective Green, g (s) | 8.0 | 61.9 | | 8.6 | 62.5 | | 15.0 | 26.6 | | 6.9 | 18.5 | |
| Actuated g/C Ratio | 0.07 | 0.52 | | 0.07 | 0.52 | | 0.12 | 0.22 | | 0.06 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 120 | 1811 | | 129 | 1865 | | 226 | 777 | | 104 | 548 | |
| v/s Ratio Prot | 0.03 | 0.21 | | c0.04 | c0.31 | | c0.09 | 0.13 | | 0.03 | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.47 | 0.41 | | 0.52 | 0.60 | | 0.69 | 0.57 | | 0.54 | 0.66 | |
| Uniform Delay, d1 | 53.9 | 17.8 | | 53.7 | 20.1 | | 50.3 | 41.6 | | 55.0 | 47.8 | |
| Progression Factor | 0.56 | 1.54 | | 1.19 | 0.24 | | 1.00 | 1.00 | | 0.81 | 1.20 | |
| Incremental Delay, d2 | 2.7 | 0.7 | | 2.4 | 1.0 | | 8.9 | 1.0 | | 5.0 | 2.9 | |
| Delay (s) | 33.2 | 28.1 | | 66.3 | 5.8 | | 59.2 | 42.7 | | 49.7 | 60.1 | |
| Level of Service | C | C | | E | A | | E | D | | D | E | |
| Approach Delay (s) | | 28.5 | | | 9.2 | | | 46.9 | | | 58.8 | |
| Approach LOS | | C | | | A | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

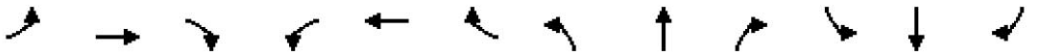
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 460 | 190 | 140 | 730 | 70 | 270 | 850 | 110 | 90 | 970 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3434 | | 1805 | 3557 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3434 | | 1805 | 3557 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 66 | 505 | 209 | 154 | 802 | 77 | 297 | 934 | 121 | 99 | 1066 | 44 |
| RTOR Reduction (vph) | 0 | 38 | 0 | 0 | 6 | 0 | 0 | 0 | 67 | 0 | 0 | 26 |
| Lane Group Flow (vph) | 66 | 676 | 0 | 154 | 873 | 0 | 297 | 934 | 54 | 99 | 1066 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 5.6 | 35.0 | | 11.1 | 40.5 | | 20.9 | 46.0 | 46.0 | 11.9 | 37.0 | 37.0 |
| Effective Green, g (s) | 5.6 | 35.0 | | 11.1 | 40.5 | | 20.9 | 46.0 | 46.0 | 11.9 | 37.0 | 37.0 |
| Actuated g/C Ratio | 0.05 | 0.29 | | 0.09 | 0.34 | | 0.17 | 0.38 | 0.38 | 0.10 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 84 | 1002 | | 167 | 1200 | | 314 | 1384 | 608 | 179 | 1113 | 489 |
| v/s Ratio Prot | 0.04 | 0.20 | | c0.09 | c0.25 | | c0.16 | 0.26 | | 0.05 | c0.30 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | 0.01 |
| v/c Ratio | 0.79 | 0.68 | | 0.92 | 0.73 | | 0.95 | 0.67 | 0.09 | 0.55 | 0.96 | 0.04 |
| Uniform Delay, d1 | 56.6 | 37.5 | | 54.0 | 34.9 | | 49.0 | 30.8 | 23.6 | 51.5 | 40.7 | 29.0 |
| Progression Factor | 0.93 | 1.39 | | 0.87 | 0.65 | | 0.77 | 0.31 | 0.02 | 0.68 | 0.59 | 0.58 |
| Incremental Delay, d2 | 35.1 | 3.4 | | 42.6 | 3.3 | | 22.6 | 1.3 | 0.1 | 2.5 | 14.4 | 0.1 |
| Delay (s) | 88.0 | 55.5 | | 89.4 | 26.1 | | 60.2 | 10.9 | 0.7 | 37.8 | 38.3 | 16.8 |
| Level of Service | F | E | | F | C | | E | B | A | D | D | B |
| Approach Delay (s) | | 58.2 | | | 35.5 | | | 20.8 | | | 37.5 | |
| Approach LOS | | E | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 91.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

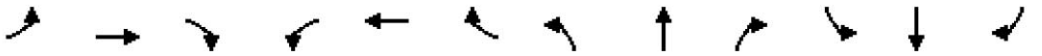
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 360 | 1880 | 130 | 30 | 1660 | 530 | 330 | 300 | 10 | 80 | 30 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2799 | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2799 | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 391 | 2043 | 141 | 33 | 1804 | 576 | 359 | 326 | 11 | 87 | 33 | 98 |
| RTOR Reduction (vph) | 0 | 0 | 34 | 0 | 0 | 157 | 0 | 0 | 8 | 0 | 0 | 92 |
| Lane Group Flow (vph) | 391 | 2043 | 107 | 33 | 1804 | 419 | 359 | 326 | 3 | 87 | 33 | 6 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 28.8 | 65.4 | 65.4 | 4.4 | 41.0 | 41.0 | 26.3 | 27.2 | 31.6 | 7.0 | 7.9 | 7.9 |
| Effective Green, g (s) | 28.8 | 65.4 | 65.4 | 4.4 | 41.0 | 41.0 | 26.3 | 27.2 | 31.6 | 7.0 | 7.9 | 7.9 |
| Actuated g/C Ratio | 0.24 | 0.55 | 0.55 | 0.04 | 0.34 | 0.34 | 0.22 | 0.23 | 0.26 | 0.06 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 433 | 2827 | 880 | 128 | 1772 | 543 | 768 | 818 | 830 | 204 | 238 | 105 |
| v/s Ratio Prot | c0.22 | 0.39 | | 0.01 | c0.35 | | c0.10 | 0.09 | 0.00 | c0.02 | 0.01 | |
| v/s Ratio Perm | | | 0.07 | | | 0.26 | | | 0.00 | | | 0.00 |
| v/c Ratio | 0.90 | 0.72 | 0.12 | 0.26 | 1.02 | 0.77 | 0.47 | 0.40 | 0.00 | 0.43 | 0.14 | 0.06 |
| Uniform Delay, d1 | 44.2 | 20.5 | 13.3 | 56.2 | 39.5 | 35.3 | 40.8 | 39.4 | 32.6 | 54.6 | 52.8 | 52.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.14 | 0.62 | 0.43 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 21.7 | 1.6 | 0.3 | 0.9 | 24.5 | 8.9 | 0.5 | 0.3 | 0.0 | 1.4 | 0.3 | 0.2 |
| Delay (s) | 66.0 | 22.1 | 13.6 | 65.1 | 48.9 | 24.0 | 41.2 | 39.8 | 32.6 | 56.0 | 53.1 | 52.8 |
| Level of Service | E | C | B | E | D | C | D | D | C | E | D | D |
| Approach Delay (s) | | 28.3 | | | 43.2 | | | 40.4 | | | 54.1 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 86.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

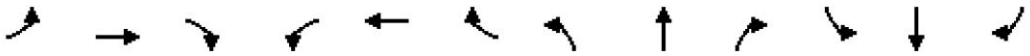
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1570 | 450 | 0 | 1860 | 0 | 0 | 0 | 0 | 330 | 0 | 310 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 1.00 | | | | | 1.00 | 0.93 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (prot) | | 5014 | | | 5187 | | | | | 1715 | 1562 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (perm) | | 5014 | | | 5187 | | | | | 1715 | 1562 | 1534 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 1725 | 495 | 0 | 2044 | 0 | 0 | 0 | 0 | 363 | 0 | 341 |
| RTOR Reduction (vph) | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 |
| Lane Group Flow (vph) | 0 | 2188 | 0 | 0 | 2044 | 0 | 0 | 0 | 0 | 243 | 226 | 215 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 87.6 | | | 87.6 | | | | | 24.4 | 24.4 | 24.4 |
| Effective Green, g (s) | | 87.6 | | | 87.6 | | | | | 24.4 | 24.4 | 24.4 |
| Actuated g/C Ratio | | 0.73 | | | 0.73 | | | | | 0.20 | 0.20 | 0.20 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3660 | | | 3787 | | | | | 349 | 318 | 312 |
| v/s Ratio Prot | | c0.44 | | | 0.39 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | 0.14 | 0.14 | 0.14 |
| v/c Ratio | | 0.60 | | | 0.54 | | | | | 0.70 | 0.71 | 0.69 |
| Uniform Delay, d1 | | 7.8 | | | 7.2 | | | | | 44.4 | 44.5 | 44.3 |
| Progression Factor | | 0.08 | | | 1.03 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.5 | | | 0.4 | | | | | 5.9 | 7.1 | 6.2 |
| Delay (s) | | 1.2 | | | 7.8 | | | | | 50.3 | 51.6 | 50.5 |
| Level of Service | | A | | | A | | | | | D | D | D |
| Approach Delay (s) | | 1.2 | | | 7.8 | | | 0.0 | | | 50.8 | |
| Approach LOS | | A | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

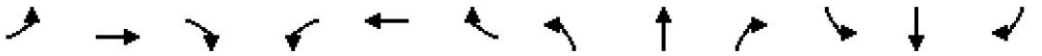
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 1760 | 0 | 0 | 1180 | 190 | 770 | 10 | 390 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 5065 | | 1715 | 1633 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 5065 | | 1715 | 1633 | 1534 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 130 | 1913 | 0 | 0 | 1283 | 207 | 837 | 11 | 424 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 3 | 5 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 130 | 1913 | 0 | 0 | 1473 | 0 | 444 | 443 | 377 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 17.0 | 69.6 | | | 48.6 | | 42.4 | 42.4 | 42.4 | | | |
| Effective Green, g (s) | 17.0 | 69.6 | | | 48.6 | | 42.4 | 42.4 | 42.4 | | | |
| Actuated g/C Ratio | 0.14 | 0.58 | | | 0.41 | | 0.35 | 0.35 | 0.35 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 256 | 3008 | | | 2051 | | 606 | 577 | 542 | | | |
| v/s Ratio Prot | 0.07 | c0.37 | | | c0.29 | | 0.26 | c0.27 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.25 | | | |
| v/c Ratio | 0.51 | 0.64 | | | 0.72 | | 0.73 | 0.77 | 0.70 | | | |
| Uniform Delay, d1 | 47.6 | 16.8 | | | 30.0 | | 33.9 | 34.4 | 33.3 | | | |
| Progression Factor | 0.79 | 0.60 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 1.3 | 0.9 | | | 2.2 | | 4.6 | 6.1 | 3.9 | | | |
| Delay (s) | 38.8 | 11.0 | | | 32.2 | | 38.4 | 40.5 | 37.2 | | | |
| Level of Service | D | B | | | C | | D | D | D | | | |
| Approach Delay (s) | | 12.7 | | | 32.2 | | | 38.8 | | | 0.0 | |
| Approach LOS | | B | | | C | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

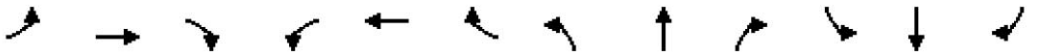
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 1480 | 360 | 0 | 1190 | 290 | 50 | 170 | 40 | 30 | 60 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3493 | | | 3610 | 1615 | 3502 | 3506 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3493 | | | 3610 | 1615 | 3502 | 3506 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 340 | 1574 | 383 | 0 | 1266 | 309 | 53 | 181 | 43 | 32 | 64 | 170 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 130 | 0 | 18 | 0 | 0 | 0 | 152 |
| Lane Group Flow (vph) | 340 | 1946 | 0 | 0 | 1266 | 179 | 53 | 206 | 0 | 32 | 64 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 16.6 | 90.0 | | | 69.4 | 69.4 | 5.6 | 13.8 | | 4.2 | 12.4 | 12.4 |
| Effective Green, g (s) | 16.6 | 90.0 | | | 69.4 | 69.4 | 5.6 | 13.8 | | 4.2 | 12.4 | 12.4 |
| Actuated g/C Ratio | 0.14 | 0.75 | | | 0.58 | 0.58 | 0.05 | 0.12 | | 0.04 | 0.10 | 0.10 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 484 | 2620 | | | 2088 | 934 | 163 | 403 | | 63 | 373 | 167 |
| v/s Ratio Prot | 0.10 | c0.56 | | | 0.35 | | 0.02 | c0.06 | | c0.02 | 0.02 | |
| v/s Ratio Perm | | | | | | 0.11 | | | | | | 0.01 |
| v/c Ratio | 0.70 | 0.74 | | | 0.61 | 0.19 | 0.33 | 0.51 | | 0.51 | 0.17 | 0.11 |
| Uniform Delay, d1 | 49.3 | 8.5 | | | 16.4 | 12.0 | 55.4 | 49.9 | | 56.9 | 49.1 | 48.8 |
| Progression Factor | 1.00 | 1.00 | | | 0.36 | 0.38 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.6 | 2.0 | | | 1.2 | 0.4 | 1.2 | 1.1 | | 6.3 | 0.2 | 0.3 |
| Delay (s) | 53.9 | 10.4 | | | 7.0 | 5.0 | 56.5 | 51.0 | | 63.2 | 49.3 | 49.0 |
| Level of Service | D | B | | | A | A | E | D | | E | D | D |
| Approach Delay (s) | | 16.9 | | | 6.6 | | | 52.1 | | | 50.8 | |
| Approach LOS | | B | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 83.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

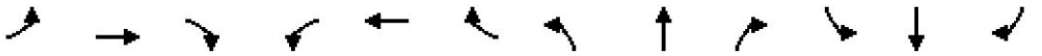
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 1260 | 140 | 20 | 1330 | 50 | 20 | 10 | 20 | 30 | 20 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.90 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5094 | | 1805 | 3610 | 1564 | 1799 | 1688 | | 1798 | 1627 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.43 | 1.00 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5094 | | 1805 | 3610 | 1564 | 814 | 1688 | | 1395 | 1627 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 165 | 1299 | 144 | 21 | 1371 | 52 | 21 | 10 | 21 | 31 | 21 | 144 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 4 | 0 | 19 | 0 | 0 | 133 | 0 |
| Lane Group Flow (vph) | 165 | 1439 | 0 | 21 | 1371 | 48 | 21 | 12 | 0 | 31 | 32 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 16.7 | 95.4 | | 3.3 | 82.0 | 82.0 | 9.3 | 9.3 | | 9.3 | 9.3 | |
| Effective Green, g (s) | 16.7 | 95.4 | | 3.3 | 82.0 | 82.0 | 9.3 | 9.3 | | 9.3 | 9.3 | |
| Actuated g/C Ratio | 0.14 | 0.80 | | 0.03 | 0.68 | 0.68 | 0.08 | 0.08 | | 0.08 | 0.08 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 251 | 4050 | | 50 | 2467 | 1069 | 63 | 131 | | 108 | 126 | |
| v/s Ratio Prot | c0.09 | 0.28 | | 0.01 | c0.38 | | | 0.01 | | | 0.02 | |
| v/s Ratio Perm | | | | | | 0.03 | c0.03 | | | 0.02 | | |
| v/c Ratio | 0.66 | 0.36 | | 0.42 | 0.56 | 0.04 | 0.33 | 0.09 | | 0.29 | 0.26 | |
| Uniform Delay, d1 | 48.9 | 3.5 | | 57.4 | 9.7 | 6.2 | 52.4 | 51.4 | | 52.2 | 52.1 | |
| Progression Factor | 0.83 | 1.42 | | 0.90 | 0.36 | 0.28 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.2 | 0.2 | | 5.3 | 0.9 | 0.1 | 3.1 | 0.3 | | 1.5 | 1.1 | |
| Delay (s) | 45.0 | 5.2 | | 56.7 | 4.3 | 1.8 | 55.5 | 51.7 | | 53.7 | 53.2 | |
| Level of Service | D | A | | E | A | A | E | D | | D | D | |
| Approach Delay (s) | | 9.2 | | | 5.0 | | | 53.2 | | | 53.2 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

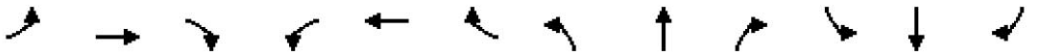
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1190 | 110 | 140 | 1200 | 90 | 80 | 100 | 60 | 70 | 170 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5113 | | 1805 | 5122 | | 1805 | 1782 | | 1805 | 1900 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5113 | | 1805 | 5122 | | 1805 | 1782 | | 1805 | 1900 | 1589 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 51 | 1214 | 112 | 143 | 1224 | 92 | 82 | 102 | 61 | 71 | 173 | 92 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 23 | 0 | 0 | 0 | 79 |
| Lane Group Flow (vph) | 51 | 1320 | 0 | 143 | 1312 | 0 | 82 | 140 | 0 | 71 | 173 | 13 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 7.7 | 65.1 | | 14.7 | 72.1 | | 7.8 | 16.5 | | 7.7 | 16.4 | 16.4 |
| Effective Green, g (s) | 7.7 | 65.1 | | 14.7 | 72.1 | | 7.8 | 16.5 | | 7.7 | 16.4 | 16.4 |
| Actuated g/C Ratio | 0.06 | 0.54 | | 0.12 | 0.60 | | 0.06 | 0.14 | | 0.06 | 0.14 | 0.14 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 116 | 2774 | | 221 | 3077 | | 117 | 245 | | 116 | 260 | 217 |
| v/s Ratio Prot | 0.03 | c0.26 | | c0.08 | 0.26 | | c0.05 | 0.08 | | 0.04 | c0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.44 | 0.48 | | 0.65 | 0.43 | | 0.70 | 0.57 | | 0.61 | 0.67 | 0.06 |
| Uniform Delay, d1 | 54.1 | 16.9 | | 50.2 | 12.9 | | 55.0 | 48.4 | | 54.7 | 49.2 | 45.1 |
| Progression Factor | 1.01 | 0.70 | | 1.19 | 0.26 | | 1.09 | 1.60 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.5 | 0.6 | | 5.5 | 0.4 | | 16.5 | 3.0 | | 9.2 | 6.3 | 0.1 |
| Delay (s) | 56.9 | 12.5 | | 65.4 | 3.8 | | 76.4 | 80.5 | | 63.9 | 55.5 | 45.2 |
| Level of Service | E | B | | E | A | | E | F | | E | E | D |
| Approach Delay (s) | | 14.1 | | | 9.8 | | | 79.1 | | | 54.4 | |
| Approach LOS | | B | | | A | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 65.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

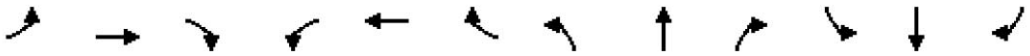
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑ | ↱ | ↰ | ↑↑↑ | | | | | | | ↱ |
| Volume (vph) | 0 | 1620 | 50 | 740 | 680 | 0 | 0 | 0 | 0 | 0 | 0 | 450 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.91 | 1.00 | 1.00 | 0.91 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 5187 | 1573 | 1805 | 5187 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 5187 | 1573 | 1805 | 5187 | | | | | | | 1644 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 1761 | 54 | 804 | 739 | 0 | 0 | 0 | 0 | 0 | 0 | 489 |
| RTOR Reduction (vph) | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 233 |
| Lane Group Flow (vph) | 0 | 1761 | 25 | 804 | 739 | 0 | 0 | 0 | 0 | 0 | 0 | 256 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 49.9 | 49.9 | 62.1 | 89.9 | | | | | | | 22.1 |
| Effective Green, g (s) | | 49.9 | 49.9 | 62.1 | 89.9 | | | | | | | 22.1 |
| Actuated g/C Ratio | | 0.42 | 0.42 | 0.52 | 0.75 | | | | | | | 0.18 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 2157 | 654 | 934 | 3886 | | | | | | | 303 |
| v/s Ratio Prot | | c0.34 | | c0.45 | 0.14 | | | | | | | 0.16 |
| v/s Ratio Perm | | | 0.02 | | | | | | | | | |
| v/c Ratio | | 0.82 | 0.04 | 0.86 | 0.19 | | | | | | | 0.84 |
| Uniform Delay, d1 | | 31.0 | 20.8 | 25.2 | 4.4 | | | | | | | 47.3 |
| Progression Factor | | 1.00 | 1.00 | 1.07 | 0.41 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 3.6 | 0.1 | 6.2 | 0.1 | | | | | | | 18.8 |
| Delay (s) | | 34.6 | 20.9 | 33.2 | 1.9 | | | | | | | 66.1 |
| Level of Service | | C | C | C | A | | | | | | | E |
| Approach Delay (s) | | 34.2 | | | 18.2 | | | 0.0 | | | 66.1 | |
| Approach LOS | | C | | | B | | | A | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 79.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

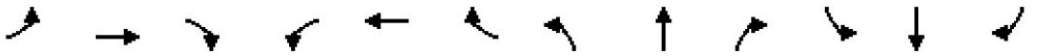
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 1600 | 50 | 0 | 1800 | 200 | 290 | 140 | 130 | 240 | 0 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.93 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5164 | | | 5095 | | 1805 | 1763 | | 1805 | 1615 | |
| Flt Permitted | 0.06 | 1.00 | | | 1.00 | | 0.73 | 1.00 | | 0.42 | 1.00 | |
| Satd. Flow (perm) | 105 | 5164 | | | 5095 | | 1385 | 1763 | | 790 | 1615 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 1702 | 53 | 0 | 1915 | 213 | 309 | 149 | 138 | 255 | 0 | 43 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 11 | 0 | 0 | 14 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 21 | 1753 | 0 | 0 | 2117 | 0 | 309 | 273 | 0 | 255 | 35 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 72.7 | 72.7 | | | 72.7 | | 39.3 | 39.3 | | 39.3 | 39.3 | |
| Effective Green, g (s) | 72.7 | 72.7 | | | 72.7 | | 39.3 | 39.3 | | 39.3 | 39.3 | |
| Actuated g/C Ratio | 0.61 | 0.61 | | | 0.61 | | 0.33 | 0.33 | | 0.33 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 64 | 3129 | | | 3087 | | 454 | 577 | | 259 | 529 | |
| v/s Ratio Prot | | 0.34 | | | c0.42 | | | 0.15 | | | 0.02 | |
| v/s Ratio Perm | 0.20 | | | | | | 0.22 | | | c0.32 | | |
| v/c Ratio | 0.33 | 0.56 | | | 0.69 | | 0.68 | 0.47 | | 0.98 | 0.07 | |
| Uniform Delay, d1 | 11.6 | 14.1 | | | 15.9 | | 34.9 | 32.1 | | 40.0 | 27.7 | |
| Progression Factor | 0.31 | 0.01 | | | 0.35 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.5 | 0.4 | | | 0.8 | | 4.2 | 0.6 | | 51.2 | 0.1 | |
| Delay (s) | 11.1 | 0.6 | | | 6.4 | | 39.1 | 32.7 | | 91.3 | 27.8 | |
| Level of Service | B | A | | | A | | D | C | | F | C | |
| Approach Delay (s) | | 0.7 | | | 6.4 | | | 36.0 | | | 82.1 | |
| Approach LOS | | A | | | A | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 1780 | 700 | 150 | 1610 | 60 | 70 | 30 | 30 | 60 | 170 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1585 | 1805 | 5187 | 1564 | 1715 | 1662 | | 1715 | 1802 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1585 | 1805 | 5187 | 1564 | 1715 | 1662 | | 1715 | 1802 | 1587 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 213 | 1894 | 745 | 160 | 1713 | 64 | 74 | 32 | 32 | 64 | 181 | 138 |
| RTOR Reduction (vph) | 0 | 0 | 255 | 0 | 0 | 24 | 0 | 29 | 0 | 0 | 0 | 117 |
| Lane Group Flow (vph) | 213 | 1894 | 490 | 160 | 1713 | 40 | 67 | 42 | 0 | 58 | 187 | 21 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 31.3 | 52.4 | 52.4 | 23.2 | 44.3 | 44.3 | 10.3 | 10.3 | | 18.1 | 18.1 | 18.1 |
| Effective Green, g (s) | 31.3 | 52.4 | 52.4 | 23.2 | 44.3 | 44.3 | 10.3 | 10.3 | | 18.1 | 18.1 | 18.1 |
| Actuated g/C Ratio | 0.26 | 0.44 | 0.44 | 0.19 | 0.37 | 0.37 | 0.09 | 0.09 | | 0.15 | 0.15 | 0.15 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 471 | 2265 | 692 | 349 | 1915 | 577 | 147 | 143 | | 259 | 272 | 239 |
| v/s Ratio Prot | c0.12 | c0.37 | | 0.09 | c0.33 | | c0.04 | 0.03 | | 0.03 | c0.10 | |
| v/s Ratio Perm | | | 0.31 | | | 0.03 | | | | | | 0.01 |
| v/c Ratio | 0.45 | 0.84 | 0.71 | 0.46 | 0.89 | 0.07 | 0.46 | 0.29 | | 0.22 | 0.69 | 0.09 |
| Uniform Delay, d1 | 37.2 | 30.0 | 27.6 | 42.8 | 35.6 | 24.5 | 52.2 | 51.4 | | 44.8 | 48.3 | 43.8 |
| Progression Factor | 0.76 | 0.99 | 1.31 | 1.22 | 0.56 | 0.43 | 1.00 | 1.00 | | 0.58 | 0.57 | 0.45 |
| Incremental Delay, d2 | 0.6 | 3.5 | 5.5 | 0.3 | 2.7 | 0.1 | 2.2 | 1.1 | | 0.4 | 6.5 | 0.1 |
| Delay (s) | 28.7 | 33.2 | 41.6 | 52.5 | 22.6 | 10.7 | 54.4 | 52.6 | | 26.3 | 34.1 | 19.9 |
| Level of Service | C | C | D | D | C | B | D | D | | C | C | B |
| Approach Delay (s) | | 35.0 | | | 24.6 | | | 53.5 | | | 27.8 | |
| Approach LOS | | D | | | C | | | D | | | C | |

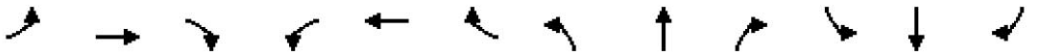
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 690 | 570 | 140 | 630 | 280 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.93 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3321 | | 1805 | 3610 | 1805 | 1598 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3321 | | 1805 | 3610 | 1805 | 1598 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 821 | 679 | 167 | 750 | 333 | 214 |
| RTOR Reduction (vph) | 145 | 0 | 0 | 0 | 0 | 43 |
| Lane Group Flow (vph) | 1355 | 0 | 167 | 750 | 333 | 171 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 36.2 | | 9.0 | 49.2 | 19.0 | 28.0 |
| Effective Green, g (s) | 36.2 | | 9.0 | 49.2 | 19.0 | 28.0 |
| Actuated g/C Ratio | 0.48 | | 0.12 | 0.65 | 0.25 | 0.37 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1578 | | 213 | 2331 | 450 | 671 |
| v/s Ratio Prot | c0.41 | | c0.09 | 0.21 | c0.18 | 0.03 |
| v/s Ratio Perm | | | | | | 0.08 |
| v/c Ratio | 0.86 | | 0.78 | 0.32 | 0.74 | 0.25 |
| Uniform Delay, d1 | 17.7 | | 32.7 | 6.0 | 26.3 | 16.8 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.9 | | 17.0 | 0.1 | 6.3 | 0.2 |
| Delay (s) | 22.6 | | 49.7 | 6.1 | 32.6 | 17.0 |
| Level of Service | C | | D | A | C | B |
| Approach Delay (s) | 22.6 | | | 14.1 | 26.5 | |
| Approach LOS | C | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 76.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

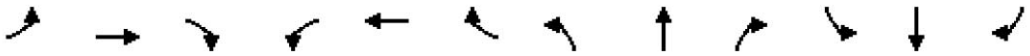
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 660 | 240 | 140 | 450 | 120 | 440 | 360 | 780 | 180 | 100 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1586 | 3502 | 3496 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1586 | 3502 | 3496 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 11 | 725 | 264 | 154 | 495 | 132 | 484 | 396 | 857 | 198 | 110 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 201 | 0 | 24 | 0 | 0 | 0 | 399 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 11 | 725 | 63 | 154 | 603 | 0 | 484 | 396 | 458 | 198 | 110 | 1 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.3 | 22.3 | 22.3 | 9.4 | 30.4 | | 37.0 | 31.4 | 31.4 | 13.9 | 8.3 | 8.3 |
| Effective Green, g (s) | 1.3 | 22.3 | 22.3 | 9.4 | 30.4 | | 37.0 | 31.4 | 31.4 | 13.9 | 8.3 | 8.3 |
| Actuated g/C Ratio | 0.01 | 0.24 | 0.24 | 0.10 | 0.33 | | 0.40 | 0.34 | 0.34 | 0.15 | 0.09 | 0.09 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 25 | 1244 | 380 | 354 | 1143 | | 718 | 642 | 545 | 270 | 322 | 142 |
| v/s Ratio Prot | 0.01 | c0.14 | | 0.04 | c0.17 | | 0.27 | 0.21 | | c0.11 | 0.03 | |
| v/s Ratio Perm | | | 0.04 | | | | | | c0.28 | | | 0.00 |
| v/c Ratio | 0.44 | 0.58 | 0.17 | 0.44 | 0.53 | | 0.67 | 0.62 | 0.84 | 0.73 | 0.34 | 0.01 |
| Uniform Delay, d1 | 45.5 | 31.2 | 28.0 | 39.3 | 25.5 | | 23.0 | 25.8 | 28.5 | 37.8 | 39.8 | 38.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 11.9 | 0.7 | 0.2 | 0.9 | 0.4 | | 2.5 | 1.8 | 11.2 | 9.9 | 0.6 | 0.0 |
| Delay (s) | 57.4 | 31.9 | 28.2 | 40.2 | 25.9 | | 25.5 | 27.5 | 39.7 | 47.6 | 40.4 | 38.6 |
| Level of Service | E | C | C | D | C | | C | C | D | D | D | D |
| Approach Delay (s) | | 31.2 | | | 28.7 | | | 33.0 | | | 44.8 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 93.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 81.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 10 | 230 | 0 | 0 | 0 | 0 | 1050 | 600 | 230 | 480 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.86 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1557 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1557 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 55 | 11 | 253 | 0 | 0 | 0 | 0 | 1154 | 659 | 253 | 527 | 0 |
| RTOR Reduction (vph) | 0 | 107 | 117 | 0 | 0 | 0 | 0 | 0 | 267 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 55 | 25 | 15 | 0 | 0 | 0 | 0 | 1154 | 392 | 253 | 527 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 5.6 | 5.6 | 5.6 | | | | | 25.4 | 25.4 | 7.0 | 36.4 | |
| Effective Green, g (s) | 5.6 | 5.6 | 5.6 | | | | | 25.4 | 25.4 | 7.0 | 36.4 | |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.11 | | | | | 0.51 | 0.51 | 0.14 | 0.73 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 202 | 174 | 172 | | | | | 1834 | 820 | 490 | 2628 | |
| v/s Ratio Prot | c0.03 | 0.02 | | | | | | c0.32 | | c0.07 | 0.15 | |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.24 | | | |
| v/c Ratio | 0.27 | 0.14 | 0.09 | | | | | 0.63 | 0.48 | 0.52 | 0.20 | |
| Uniform Delay, d1 | 20.3 | 20.0 | 19.9 | | | | | 8.9 | 8.0 | 19.9 | 2.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.03 | 0.71 | |
| Incremental Delay, d2 | 0.7 | 0.4 | 0.2 | | | | | 1.6 | 2.0 | 0.9 | 0.2 | |
| Delay (s) | 21.1 | 20.4 | 20.1 | | | | | 10.5 | 10.0 | 21.4 | 1.7 | |
| Level of Service | C | C | C | | | | | B | A | C | A | |
| Approach Delay (s) | | 20.4 | | | 0.0 | | | 10.3 | | | 8.1 | |
| Approach LOS | | C | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 59.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 220 | 280 | 1090 | 0 | 0 | 490 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 259 | 329 | 1282 | 0 | 0 | 576 |
| RTOR Reduction (vph) | 0 | 33 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 259 | 296 | 1282 | 0 | 0 | 576 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 12.8 | 12.8 | 29.2 | | | 29.2 |
| Effective Green, g (s) | 12.8 | 12.8 | 29.2 | | | 29.2 |
| Actuated g/C Ratio | 0.26 | 0.26 | 0.58 | | | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 897 | 413 | 2108 | | | 2108 |
| v/s Ratio Prot | 0.07 | | c0.36 | | | 0.16 |
| v/s Ratio Perm | | c0.18 | | | | |
| v/c Ratio | 0.29 | 0.72 | 0.61 | | | 0.27 |
| Uniform Delay, d1 | 14.9 | 17.0 | 6.7 | | | 5.1 |
| Progression Factor | 1.00 | 1.00 | 0.16 | | | 1.00 |
| Incremental Delay, d2 | 0.2 | 5.9 | 1.1 | | | 0.3 |
| Delay (s) | 15.1 | 22.8 | 2.2 | | | 5.5 |
| Level of Service | B | C | A | | | A |
| Approach Delay (s) | 19.4 | | 2.2 | | | 5.5 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 59.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

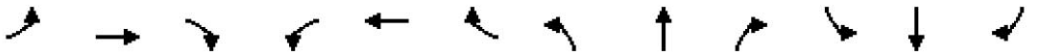
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1410 | 10 | 110 | 1880 | 1940 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5181 | | 3502 | 5187 | 5100 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5181 | | 3502 | 5187 | 5100 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1533 | 11 | 120 | 2043 | 2109 | 11 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 1543 | 0 | 120 | 2043 | 2119 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 34.2 | | 5.5 | 43.7 | 38.0 | |
| Effective Green, g (s) | 34.2 | | 5.5 | 43.7 | 38.0 | |
| Actuated g/C Ratio | 0.38 | | 0.06 | 0.49 | 0.42 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 1975 | | 215 | 2527 | 2161 | |
| v/s Ratio Prot | 0.30 | | 0.03 | c0.39 | c0.42 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.78 | | 0.56 | 0.81 | 0.98 | |
| Uniform Delay, d1 | 24.5 | | 40.9 | 19.5 | 25.5 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.1 | | 3.1 | 2.0 | 15.0 | |
| Delay (s) | 26.5 | | 44.0 | 21.5 | 40.5 | |
| Level of Service | C | | D | C | D | |
| Approach Delay (s) | 26.5 | | | 22.7 | 40.5 | |
| Approach LOS | C | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 89.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 80.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

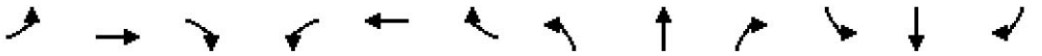
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1570 | 40 | 230 | 1720 | 20 | 130 | 140 | 440 | 190 | 110 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1588 | 3502 | 5177 | | 3502 | 1900 | 1590 | 1805 | 3450 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1588 | 3502 | 5177 | | 3502 | 1900 | 1590 | 1805 | 3450 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 53 | 1670 | 43 | 245 | 1830 | 21 | 138 | 149 | 468 | 202 | 117 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 26 | 0 | 1 | 0 | 0 | 0 | 162 | 0 | 39 | 0 |
| Lane Group Flow (vph) | 53 | 1670 | 17 | 245 | 1850 | 0 | 138 | 149 | 306 | 202 | 121 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.4 | 40.2 | 40.2 | 10.0 | 44.8 | | 28.1 | 25.1 | 25.1 | 12.2 | 9.2 | |
| Effective Green, g (s) | 5.4 | 40.2 | 40.2 | 10.0 | 44.8 | | 28.1 | 25.1 | 25.1 | 12.2 | 9.2 | |
| Actuated g/C Ratio | 0.05 | 0.39 | 0.39 | 0.10 | 0.43 | | 0.27 | 0.24 | 0.24 | 0.12 | 0.09 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 94 | 2015 | 617 | 338 | 2241 | | 951 | 461 | 386 | 213 | 307 | |
| v/s Ratio Prot | 0.03 | c0.32 | | 0.07 | c0.36 | | 0.04 | 0.08 | | c0.11 | 0.04 | |
| v/s Ratio Perm | | | 0.01 | | | | | | c0.19 | | | |
| v/c Ratio | 0.56 | 0.83 | 0.03 | 0.72 | 0.83 | | 0.15 | 0.32 | 0.79 | 0.95 | 0.39 | |
| Uniform Delay, d1 | 47.9 | 28.5 | 19.6 | 45.4 | 25.9 | | 28.6 | 32.2 | 36.8 | 45.3 | 44.5 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.5 | 3.0 | 0.0 | 7.5 | 2.6 | | 0.1 | 0.4 | 10.6 | 46.6 | 0.8 | |
| Delay (s) | 55.4 | 31.5 | 19.6 | 52.9 | 28.5 | | 28.7 | 32.6 | 47.4 | 92.0 | 45.4 | |
| Level of Service | E | C | B | D | C | | C | C | D | F | D | |
| Approach Delay (s) | | 31.9 | | | 31.4 | | | 41.1 | | | 71.4 | |
| Approach LOS | | C | | | C | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 103.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

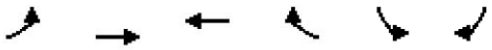
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 870 | 170 | 60 | 550 | 150 | 420 | 940 | 260 | 130 | 380 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1598 | 3502 | 3610 | 1594 | 3502 | 3610 | 1593 | 3502 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1598 | 3502 | 3610 | 1594 | 3502 | 3610 | 1593 | 3502 | 3610 | 1596 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 193 | 989 | 193 | 68 | 625 | 170 | 477 | 1068 | 295 | 148 | 432 | 170 |
| RTOR Reduction (vph) | 0 | 0 | 97 | 0 | 0 | 25 | 0 | 0 | 10 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 193 | 989 | 97 | 68 | 625 | 145 | 477 | 1068 | 285 | 148 | 432 | 141 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.2 | 33.4 | 50.9 | 7.1 | 30.3 | 37.4 | 17.5 | 38.2 | 45.3 | 7.1 | 27.8 | 38.0 |
| Effective Green, g (s) | 10.2 | 33.4 | 50.9 | 7.1 | 30.3 | 37.4 | 17.5 | 38.2 | 45.3 | 7.1 | 27.8 | 38.0 |
| Actuated g/C Ratio | 0.10 | 0.33 | 0.50 | 0.07 | 0.30 | 0.37 | 0.17 | 0.38 | 0.44 | 0.07 | 0.27 | 0.37 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 181 | 1184 | 862 | 244 | 1074 | 648 | 602 | 1355 | 771 | 244 | 986 | 658 |
| v/s Ratio Prot | c0.11 | c0.27 | 0.02 | 0.02 | 0.17 | 0.02 | c0.14 | c0.30 | 0.03 | 0.04 | 0.12 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | 0.08 | | | 0.15 | | | 0.07 |
| v/c Ratio | 1.07 | 0.84 | 0.11 | 0.28 | 0.58 | 0.22 | 0.79 | 0.79 | 0.37 | 0.61 | 0.44 | 0.21 |
| Uniform Delay, d1 | 45.8 | 31.7 | 13.5 | 44.9 | 30.4 | 22.2 | 40.4 | 28.2 | 18.8 | 46.0 | 30.6 | 21.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 85.6 | 5.2 | 0.1 | 0.6 | 0.8 | 0.2 | 7.1 | 3.1 | 0.3 | 4.2 | 0.3 | 0.2 |
| Delay (s) | 131.4 | 36.9 | 13.5 | 45.5 | 31.2 | 22.4 | 47.5 | 31.3 | 19.1 | 50.2 | 30.9 | 21.9 |
| Level of Service | F | D | B | D | C | C | D | C | B | D | C | C |
| Approach Delay (s) | | 46.9 | | | 30.6 | | | 33.5 | | | 32.7 | |
| Approach LOS | | D | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 101.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

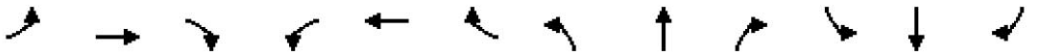
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 180 | 1110 | 640 | 460 | 190 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 0.99 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1601 | 3489 | 1458 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1601 | 3489 | 1458 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 202 | 1247 | 719 | 517 | 213 | 112 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 22 | 6 | 38 |
| Lane Group Flow (vph) | 202 | 1247 | 719 | 495 | 218 | 63 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.1 | 25.8 | 14.7 | 24.0 | 9.3 | 16.4 |
| Effective Green, g (s) | 7.1 | 25.8 | 14.7 | 24.0 | 9.3 | 16.4 |
| Actuated g/C Ratio | 0.16 | 0.60 | 0.34 | 0.56 | 0.22 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 297 | 2161 | 1231 | 1040 | 753 | 690 |
| v/s Ratio Prot | 0.11 | c0.35 | 0.20 | c0.10 | 0.06 | 0.02 |
| v/s Ratio Perm | | | | 0.21 | | 0.03 |
| v/c Ratio | 0.68 | 0.58 | 0.58 | 0.48 | 0.29 | 0.09 |
| Uniform Delay, d1 | 16.9 | 5.3 | 11.7 | 5.8 | 14.1 | 8.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.3 | 0.4 | 0.7 | 0.3 | 0.2 | 0.1 |
| Delay (s) | 23.2 | 5.7 | 12.4 | 6.1 | 14.3 | 8.6 |
| Level of Service | C | A | B | A | B | A |
| Approach Delay (s) | | 8.1 | 9.8 | | 12.6 | |
| Approach LOS | | A | A | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 43.1 | Sum of lost time (s) | 4.0 |
| Intersection Capacity Utilization | 48.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

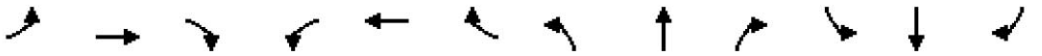
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 240 | 780 | 160 | 160 | 770 | 140 | 790 | 350 | 830 | 110 | 80 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1600 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1600 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 293 | 951 | 195 | 195 | 939 | 171 | 963 | 427 | 1012 | 134 | 98 | 110 |
| RTOR Reduction (vph) | 0 | 0 | 76 | 0 | 0 | 109 | 0 | 0 | 400 | 0 | 0 | 65 |
| Lane Group Flow (vph) | 293 | 951 | 119 | 195 | 939 | 62 | 963 | 427 | 612 | 134 | 98 | 45 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.1 | 33.5 | 55.7 | 10.5 | 32.9 | 32.9 | 22.2 | 22.2 | 22.2 | 8.9 | 8.9 | 20.0 |
| Effective Green, g (s) | 11.1 | 33.5 | 55.7 | 10.5 | 32.9 | 32.9 | 22.2 | 22.2 | 22.2 | 8.9 | 8.9 | 20.0 |
| Actuated g/C Ratio | 0.12 | 0.37 | 0.61 | 0.12 | 0.36 | 0.36 | 0.24 | 0.24 | 0.24 | 0.10 | 0.10 | 0.22 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 220 | 1907 | 1049 | 404 | 1304 | 574 | 853 | 880 | 388 | 342 | 353 | 423 |
| v/s Ratio Prot | c0.16 | 0.18 | 0.03 | 0.06 | c0.26 | | c0.28 | 0.12 | | 0.04 | 0.03 | 0.01 |
| v/s Ratio Perm | | | 0.05 | | | 0.04 | | | c0.38 | | | 0.02 |
| v/c Ratio | 1.33 | 0.50 | 0.11 | 0.48 | 0.72 | 0.11 | 1.13 | 0.49 | 1.58 | 0.39 | 0.28 | 0.11 |
| Uniform Delay, d1 | 40.0 | 22.3 | 7.4 | 37.8 | 25.1 | 19.3 | 34.4 | 29.5 | 34.4 | 38.6 | 38.1 | 28.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 177.0 | 0.2 | 0.0 | 0.9 | 2.0 | 0.1 | 72.8 | 0.4 | 271.8 | 0.7 | 0.4 | 0.1 |
| Delay (s) | 217.0 | 22.5 | 7.4 | 38.7 | 27.1 | 19.4 | 107.2 | 30.0 | 306.3 | 39.3 | 38.5 | 28.5 |
| Level of Service | F | C | A | D | C | B | F | C | F | D | D | C |
| Approach Delay (s) | | 60.1 | | | 27.8 | | | 177.3 | | | 35.6 | |
| Approach LOS | | E | | | C | | | F | | | D | |

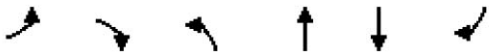
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 102.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.14 | | |
| Actuated Cycle Length (s) | 91.1 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 85.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 800 | 790 | 20 | 510 | 0 | 0 | 0 | 0 | 10 | 0 | 420 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.96 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3316 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.19 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3316 | 1470 | 357 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 0 | 909 | 898 | 23 | 580 | 0 | 0 | 0 | 0 | 11 | 0 | 477 |
| RTOR Reduction (vph) | 0 | 64 | 280 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 132 | 0 |
| Lane Group Flow (vph) | 0 | 1186 | 277 | 23 | 580 | 0 | 0 | 0 | 0 | 11 | 345 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 21.3 | 21.3 | 21.3 | 21.3 | | | | | 13.6 | 13.6 | |
| Effective Green, g (s) | | 21.3 | 21.3 | 21.3 | 21.3 | | | | | 13.6 | 13.6 | |
| Actuated g/C Ratio | | 0.50 | 0.50 | 0.50 | 0.50 | | | | | 0.32 | 0.32 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1646 | 730 | 177 | 1792 | | | | | 572 | 512 | |
| v/s Ratio Prot | | c0.36 | | | 0.16 | | | | | | c0.21 | |
| v/s Ratio Perm | | | 0.19 | 0.06 | | | | | | 0.01 | | |
| v/c Ratio | | 0.72 | 0.38 | 0.13 | 0.32 | | | | | 0.02 | 0.67 | |
| Uniform Delay, d1 | | 8.5 | 6.7 | 5.8 | 6.5 | | | | | 10.1 | 12.7 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.6 | 0.3 | 0.3 | 0.1 | | | | | 0.0 | 3.5 | |
| Delay (s) | | 10.0 | 7.0 | 6.1 | 6.6 | | | | | 10.1 | 16.2 | |
| Level of Service | | B | A | A | A | | | | | B | B | |
| Approach Delay (s) | | 9.1 | | | 6.6 | | | 0.0 | | | 16.1 | |
| Approach LOS | | A | | | A | | | A | | | B | |

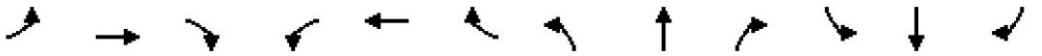
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 42.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 71.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 800 | 0 | 520 | 0 | 0 | 0 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 851 | 0 | 553 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 426 | 426 | 369 | 184 |
| Volume Left (vph) | 426 | 426 | 369 | 184 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 6.8 | 6.8 | 7.3 | 7.3 |
| Degree Utilization, x | 0.81 | 0.81 | 0.75 | 0.38 |
| Capacity (veh/h) | 522 | 519 | 480 | 477 |
| Control Delay (s) | 31.1 | 31.1 | 28.0 | 13.5 |
| Approach Delay (s) | 31.1 | | 23.2 | |
| Approach LOS | D | | C | |

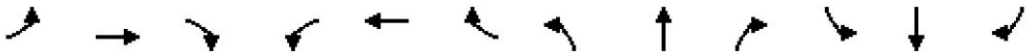
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 28.0 | | |
| HCM Level of Service | D | | |
| Intersection Capacity Utilization | 83.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 10 | 0 | 640 | 10 | 440 | 10 | 1130 | 910 | 140 | 400 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1590 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1590 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 11 | 11 | 0 | 711 | 11 | 489 | 11 | 1256 | 1011 | 156 | 444 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 203 | 0 | 0 | 226 | 0 | 0 | 5 |
| Lane Group Flow (vph) | 11 | 11 | 0 | 711 | 11 | 286 | 11 | 1256 | 785 | 156 | 444 | 6 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.1 | 3.5 | | 19.9 | 22.3 | 22.3 | 1.1 | 40.9 | 40.9 | 7.1 | 46.9 | 46.9 |
| Effective Green, g (s) | 1.1 | 3.5 | | 19.9 | 22.3 | 22.3 | 1.1 | 40.9 | 40.9 | 7.1 | 46.9 | 46.9 |
| Actuated g/C Ratio | 0.01 | 0.04 | | 0.23 | 0.26 | 0.26 | 0.01 | 0.47 | 0.47 | 0.08 | 0.54 | 0.54 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 23 | 76 | | 797 | 485 | 412 | 23 | 1689 | 744 | 284 | 1937 | 867 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.20 | 0.01 | | 0.01 | 0.35 | | c0.04 | 0.12 | |
| v/s Ratio Perm | | | | | | c0.18 | | | c0.49 | | | 0.00 |
| v/c Ratio | 0.48 | 0.14 | | 0.89 | 0.02 | 0.70 | 0.48 | 0.74 | 1.06 | 0.55 | 0.23 | 0.01 |
| Uniform Delay, d1 | 42.9 | 40.5 | | 32.7 | 24.4 | 29.5 | 42.9 | 19.0 | 23.3 | 38.6 | 10.7 | 9.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 14.8 | 0.9 | | 12.3 | 0.0 | 5.0 | 14.8 | 1.8 | 48.7 | 2.2 | 0.1 | 0.0 |
| Delay (s) | 57.7 | 41.4 | | 45.0 | 24.4 | 34.5 | 57.7 | 20.8 | 71.9 | 40.8 | 10.8 | 9.4 |
| Level of Service | E | D | | D | C | C | E | C | E | D | B | A |
| Approach Delay (s) | | 49.5 | | | 40.6 | | | 43.7 | | | 18.4 | |
| Approach LOS | | D | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 87.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 850 | 50 | 20 | 770 | 40 | 80 | 70 | 40 | 40 | 20 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.97 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3580 | | 1805 | 3580 | | | 1802 | | 1802 | 1650 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.79 | | 0.60 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3580 | | 1805 | 3580 | | | 1453 | | 1145 | 1650 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 138 | 904 | 53 | 21 | 819 | 43 | 85 | 74 | 43 | 43 | 21 | 149 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 15 | 0 | 0 | 116 | 0 |
| Lane Group Flow (vph) | 138 | 953 | 0 | 21 | 858 | 0 | 0 | 187 | 0 | 43 | 54 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.2 | 30.3 | | 1.1 | 23.2 | | | 12.4 | | 12.4 | 12.4 | |
| Effective Green, g (s) | 8.2 | 30.3 | | 1.1 | 23.2 | | | 12.4 | | 12.4 | 12.4 | |
| Actuated g/C Ratio | 0.15 | 0.54 | | 0.02 | 0.42 | | | 0.22 | | 0.22 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 265 | 1944 | | 36 | 1488 | | | 323 | | 254 | 367 | |
| v/s Ratio Prot | c0.08 | 0.27 | | 0.01 | c0.24 | | | | | | 0.03 | |
| v/s Ratio Perm | | | | | | | | c0.13 | | 0.04 | | |
| v/c Ratio | 0.52 | 0.49 | | 0.58 | 0.58 | | | 0.58 | | 0.17 | 0.15 | |
| Uniform Delay, d1 | 22.0 | 7.9 | | 27.1 | 12.5 | | | 19.4 | | 17.5 | 17.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.8 | 0.2 | | 21.8 | 0.5 | | | 2.5 | | 0.3 | 0.2 | |
| Delay (s) | 23.8 | 8.1 | | 48.9 | 13.1 | | | 21.9 | | 17.9 | 17.6 | |
| Level of Service | C | A | | D | B | | | C | | B | B | |
| Approach Delay (s) | | 10.1 | | | 13.9 | | | 21.9 | | | 17.7 | |
| Approach LOS | | B | | | B | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 55.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 820 | 110 | 100 | 720 | 270 | 160 | 1000 | 270 | 130 | 210 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3539 | | 1805 | 3610 | 1593 | 1805 | 3610 | 1593 | 3502 | 3515 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3539 | | 1805 | 3610 | 1593 | 1805 | 3610 | 1593 | 3502 | 3515 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 56 | 911 | 122 | 111 | 800 | 300 | 178 | 1111 | 300 | 144 | 233 | 44 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 41 | 0 | 0 | 21 | 0 | 15 | 0 |
| Lane Group Flow (vph) | 56 | 1023 | 0 | 111 | 800 | 259 | 178 | 1111 | 279 | 144 | 262 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.4 | 34.6 | | 7.1 | 36.3 | 43.4 | 9.1 | 35.0 | 42.1 | 7.1 | 33.0 | |
| Effective Green, g (s) | 5.4 | 34.6 | | 7.1 | 36.3 | 43.4 | 9.1 | 35.0 | 42.1 | 7.1 | 33.0 | |
| Actuated g/C Ratio | 0.05 | 0.35 | | 0.07 | 0.36 | 0.43 | 0.09 | 0.35 | 0.42 | 0.07 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 98 | 1227 | | 128 | 1313 | 757 | 165 | 1266 | 736 | 249 | 1162 | |
| v/s Ratio Prot | 0.03 | c0.29 | | c0.06 | 0.22 | 0.02 | c0.10 | c0.31 | 0.03 | 0.04 | 0.07 | |
| v/s Ratio Perm | | | | | | 0.14 | | | 0.15 | | | |
| v/c Ratio | 0.57 | 0.83 | | 0.87 | 0.61 | 0.34 | 1.08 | 0.88 | 0.38 | 0.58 | 0.23 | |
| Uniform Delay, d1 | 46.1 | 30.0 | | 45.9 | 26.0 | 18.7 | 45.4 | 30.4 | 19.9 | 44.9 | 24.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.8 | 5.0 | | 41.9 | 0.8 | 0.3 | 92.6 | 7.1 | 0.3 | 3.2 | 0.1 | |
| Delay (s) | 53.9 | 35.0 | | 87.8 | 26.8 | 19.0 | 138.0 | 37.5 | 20.2 | 48.1 | 24.3 | |
| Level of Service | D | C | | F | C | B | F | D | C | D | C | |
| Approach Delay (s) | | 36.0 | | | 30.4 | | | 45.5 | | | 32.4 | |
| Approach LOS | | D | | | C | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 99.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

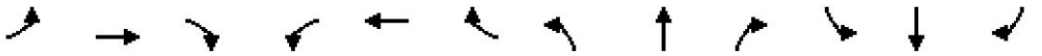
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 70 | 100 | 1970 | 60 | 20 | 1020 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1798 | 1589 | 3610 | 1571 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1798 | 1589 | 3610 | 1571 | 1805 | 3610 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 79 | 112 | 2213 | 67 | 22 | 1146 |
| RTOR Reduction (vph) | 0 | 100 | 0 | 5 | 0 | 0 |
| Lane Group Flow (vph) | 79 | 12 | 2213 | 62 | 22 | 1146 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 9.3 | 9.3 | 63.5 | 63.5 | 2.5 | 70.0 |
| Effective Green, g (s) | 9.3 | 9.3 | 63.5 | 63.5 | 2.5 | 70.0 |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.73 | 0.73 | 0.03 | 0.80 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 192 | 169 | 2626 | 1143 | 52 | 2895 |
| v/s Ratio Prot | | | c0.61 | | 0.01 | c0.32 |
| v/s Ratio Perm | c0.04 | 0.01 | | 0.04 | | |
| v/c Ratio | 0.41 | 0.07 | 0.84 | 0.05 | 0.42 | 0.40 |
| Uniform Delay, d1 | 36.4 | 35.1 | 8.4 | 3.4 | 41.7 | 2.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.2 | 2.6 | 0.0 | 5.5 | 0.1 |
| Delay (s) | 37.9 | 35.3 | 11.0 | 3.4 | 47.2 | 2.6 |
| Level of Service | D | D | B | A | D | A |
| Approach Delay (s) | 36.4 | | 10.8 | | | 3.4 |
| Approach LOS | D | | B | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 87.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 71.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

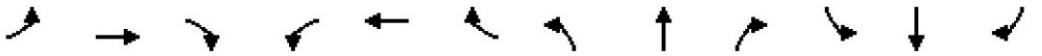
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1100 | 140 | 500 | 1070 | 320 | 0 | 0 | 0 | 600 | 50 | 570 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1732 | 1599 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1732 | 1599 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 109 | 1196 | 152 | 543 | 1163 | 348 | 0 | 0 | 0 | 652 | 54 | 620 |
| RTOR Reduction (vph) | 0 | 0 | 65 | 0 | 0 | 152 | 0 | 0 | 0 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 109 | 1196 | 87 | 543 | 1163 | 196 | 0 | 0 | 0 | 352 | 354 | 609 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 26.2 | 32.8 | 32.8 | 54.1 | 60.7 | 60.7 | | | | 31.1 | 31.1 | 57.3 |
| Effective Green, g (s) | 26.2 | 32.8 | 32.8 | 54.1 | 60.7 | 60.7 | | | | 31.1 | 31.1 | 57.3 |
| Actuated g/C Ratio | 0.20 | 0.25 | 0.25 | 0.42 | 0.47 | 0.47 | | | | 0.24 | 0.24 | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 364 | 1309 | 397 | 751 | 1686 | 734 | | | | 410 | 414 | 754 |
| v/s Ratio Prot | 0.06 | c0.23 | | c0.30 | 0.32 | | | | | c0.21 | 0.20 | 0.16 |
| v/s Ratio Perm | | | 0.06 | | | 0.12 | | | | | | 0.22 |
| v/c Ratio | 0.30 | 0.91 | 0.22 | 0.72 | 0.69 | 0.27 | | | | 0.86 | 0.86 | 0.81 |
| Uniform Delay, d1 | 44.1 | 47.2 | 38.5 | 31.7 | 27.2 | 21.1 | | | | 47.3 | 47.3 | 31.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.55 | 0.53 | 0.12 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 11.3 | 1.3 | 3.0 | 2.0 | 0.8 | | | | 16.2 | 15.7 | 6.4 |
| Delay (s) | 44.6 | 58.5 | 39.7 | 20.5 | 16.3 | 3.3 | | | | 63.5 | 63.0 | 37.9 |
| Level of Service | D | E | D | C | B | A | | | | E | E | D |
| Approach Delay (s) | | 55.5 | | | 15.2 | | | 0.0 | | | 51.4 | |
| Approach LOS | | E | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 310 | 1130 | 250 | 130 | 1550 | 400 | 280 | 430 | 570 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3440 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3440 | 2842 | | | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 330 | 1202 | 266 | 138 | 1649 | 426 | 298 | 457 | 606 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 0 | 90 | 0 | 0 | 374 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 330 | 1202 | 217 | 138 | 1649 | 336 | 244 | 511 | 232 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 28.9 | 70.2 | 99.0 | 19.0 | 60.3 | 60.3 | 28.8 | 28.8 | 28.8 | | | |
| Effective Green, g (s) | 28.9 | 70.2 | 99.0 | 19.0 | 60.3 | 60.3 | 28.8 | 28.8 | 28.8 | | | |
| Actuated g/C Ratio | 0.22 | 0.54 | 0.76 | 0.15 | 0.46 | 0.46 | 0.22 | 0.22 | 0.22 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 401 | 1949 | 1265 | 264 | 3032 | 736 | 364 | 762 | 630 | | | |
| v/s Ratio Prot | c0.18 | c0.33 | 0.04 | 0.08 | c0.25 | | 0.15 | c0.15 | | | | |
| v/s Ratio Perm | | | 0.10 | | | 0.21 | | | 0.08 | | | |
| v/c Ratio | 0.82 | 0.62 | 0.17 | 0.52 | 0.54 | 0.46 | 0.67 | 0.67 | 0.37 | | | |
| Uniform Delay, d1 | 48.1 | 20.6 | 4.3 | 51.3 | 25.0 | 23.7 | 46.3 | 46.3 | 42.9 | | | |
| Progression Factor | 0.71 | 0.33 | 0.08 | 0.70 | 0.53 | 0.36 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 6.7 | 0.7 | 0.0 | 1.6 | 0.6 | 1.7 | 4.8 | 2.3 | 0.4 | | | |
| Delay (s) | 40.7 | 7.5 | 0.4 | 37.5 | 13.9 | 10.3 | 51.1 | 48.6 | 43.2 | | | |
| Level of Service | D | A | A | D | B | B | D | D | D | | | |
| Approach Delay (s) | | 12.6 | | | 14.7 | | | 46.7 | | | 0.0 | |
| Approach LOS | | B | | | B | | | D | | | A | |

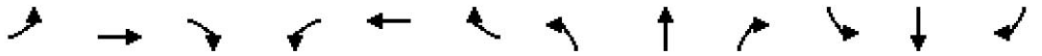
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 66.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 1420 | 260 | 50 | 1650 | 10 | 290 | 10 | 160 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 0.86 | | | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5040 | | 1805 | 5181 | | 1805 | 1606 | | | 1783 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.78 | 1.00 | | | 0.91 | |
| Satd. Flow (perm) | 1805 | 5040 | | 1805 | 5181 | | 1485 | 1606 | | | 1648 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 1527 | 280 | 54 | 1774 | 11 | 312 | 11 | 172 | 11 | 11 | 11 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 90 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 43 | 1791 | 0 | 54 | 1785 | 0 | 312 | 93 | 0 | 0 | 25 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 5.6 | 74.2 | | 8.8 | 77.4 | | 35.0 | 35.0 | | | 35.0 | |
| Effective Green, g (s) | 5.6 | 74.2 | | 8.8 | 77.4 | | 35.0 | 35.0 | | | 35.0 | |
| Actuated g/C Ratio | 0.04 | 0.57 | | 0.07 | 0.60 | | 0.27 | 0.27 | | | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 78 | 2877 | | 122 | 3085 | | 400 | 432 | | | 444 | |
| v/s Ratio Prot | 0.02 | c0.36 | | c0.03 | 0.34 | | | 0.06 | | | | |
| v/s Ratio Perm | | | | | | | c0.21 | | | | 0.02 | |
| v/c Ratio | 0.55 | 0.62 | | 0.44 | 0.58 | | 0.78 | 0.22 | | | 0.06 | |
| Uniform Delay, d1 | 61.0 | 18.6 | | 58.2 | 16.2 | | 43.9 | 36.8 | | | 35.2 | |
| Progression Factor | 0.90 | 0.32 | | 0.66 | 0.61 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 6.6 | 0.8 | | 2.0 | 0.6 | | 9.5 | 0.3 | | | 0.1 | |
| Delay (s) | 61.4 | 6.7 | | 40.2 | 10.5 | | 53.4 | 37.1 | | | 35.3 | |
| Level of Service | E | A | | D | B | | D | D | | | D | |
| Approach Delay (s) | | 8.0 | | | 11.3 | | | 47.4 | | | 35.3 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

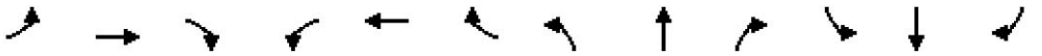
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 1330 | 250 | 90 | 1340 | 10 | 240 | 90 | 40 | 10 | 40 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.99 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1805 | 3506 | | 1805 | 3605 | | | 1804 | | | 1880 | 1586 |
| Flt Permitted | 0.11 | 1.00 | | 0.06 | 1.00 | | | 0.77 | | | 0.92 | 1.00 |
| Satd. Flow (perm) | 206 | 3506 | | 119 | 3605 | | | 1436 | | | 1744 | 1586 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 1446 | 272 | 98 | 1457 | 11 | 261 | 98 | 43 | 11 | 43 | 109 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 26 |
| Lane Group Flow (vph) | 43 | 1707 | 0 | 98 | 1468 | 0 | 0 | 399 | 0 | 0 | 54 | 83 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 81.7 | 81.7 | | 81.7 | 81.7 | | | 40.3 | | | 40.3 | 40.3 |
| Effective Green, g (s) | 81.7 | 81.7 | | 81.7 | 81.7 | | | 40.3 | | | 40.3 | 40.3 |
| Actuated g/C Ratio | 0.63 | 0.63 | | 0.63 | 0.63 | | | 0.31 | | | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 129 | 2203 | | 75 | 2266 | | | 445 | | | 541 | 492 |
| v/s Ratio Prot | | 0.49 | | | 0.41 | | | | | | | |
| v/s Ratio Perm | 0.21 | | | c0.82 | | | | c0.28 | | | 0.03 | 0.05 |
| v/c Ratio | 0.33 | 0.77 | | 1.31 | 0.65 | | | 0.90 | | | 0.10 | 0.17 |
| Uniform Delay, d1 | 11.4 | 17.5 | | 24.1 | 15.1 | | | 42.8 | | | 31.9 | 32.7 |
| Progression Factor | 0.87 | 0.88 | | 0.41 | 0.16 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.7 | 2.3 | | 171.2 | 0.6 | | | 20.0 | | | 0.1 | 0.2 |
| Delay (s) | 15.6 | 17.8 | | 181.1 | 3.0 | | | 62.9 | | | 32.0 | 32.8 |
| Level of Service | B | B | | F | A | | | E | | | C | C |
| Approach Delay (s) | | 17.7 | | | 14.1 | | | 62.9 | | | 32.6 | |
| Approach LOS | | B | | | B | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 1.17 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 87.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

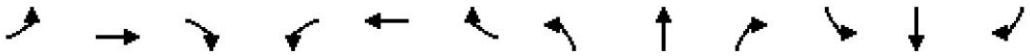
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 1020 | 50 | 520 | 1270 | 270 | 40 | 400 | 630 | 180 | 320 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3580 | | 1805 | 3497 | | 1805 | 1900 | 1601 | 1805 | 1900 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3580 | | 1805 | 3497 | | 1805 | 1900 | 1601 | 1805 | 1900 | 1586 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 168 | 1074 | 53 | 547 | 1337 | 284 | 42 | 421 | 663 | 189 | 337 | 116 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 14 | 0 | 0 | 0 | 8 | 0 | 0 | 66 |
| Lane Group Flow (vph) | 168 | 1124 | 0 | 547 | 1607 | 0 | 42 | 421 | 655 | 189 | 337 | 50 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.0 | 34.0 | | 35.0 | 58.0 | | 5.6 | 34.0 | 69.0 | 11.0 | 39.4 | 39.4 |
| Effective Green, g (s) | 11.0 | 34.0 | | 35.0 | 58.0 | | 5.6 | 34.0 | 69.0 | 11.0 | 39.4 | 39.4 |
| Actuated g/C Ratio | 0.08 | 0.26 | | 0.27 | 0.45 | | 0.04 | 0.26 | 0.53 | 0.08 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 153 | 936 | | 486 | 1560 | | 78 | 497 | 850 | 153 | 576 | 481 |
| v/s Ratio Prot | 0.09 | c0.31 | | c0.30 | 0.46 | | 0.02 | c0.22 | 0.21 | c0.10 | 0.18 | |
| v/s Ratio Perm | | | | | | | | | 0.20 | | | 0.03 |
| v/c Ratio | 1.10 | 1.20 | | 1.13 | 1.03 | | 0.54 | 0.85 | 0.77 | 1.24 | 0.59 | 0.10 |
| Uniform Delay, d1 | 59.5 | 48.0 | | 47.5 | 36.0 | | 60.9 | 45.5 | 24.2 | 59.5 | 38.4 | 32.6 |
| Progression Factor | 1.14 | 0.80 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 85.7 | 97.0 | | 79.9 | 30.9 | | 7.0 | 16.2 | 4.4 | 149.6 | 4.3 | 0.4 |
| Delay (s) | 153.8 | 135.4 | | 127.4 | 66.9 | | 67.9 | 61.8 | 28.6 | 209.1 | 42.7 | 33.0 |
| Level of Service | F | F | | F | E | | E | E | C | F | D | C |
| Approach Delay (s) | | 137.8 | | | 82.2 | | | 42.5 | | | 89.9 | |
| Approach LOS | | F | | | F | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 88.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 110.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

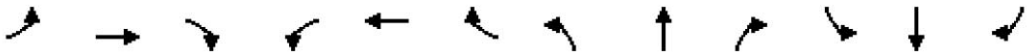
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 740 | 940 | 190 | 700 | 280 | 1180 | 1610 | 570 | 330 | 790 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2820 | 3502 | 3610 | 1593 | 3502 | 3610 | 1589 | 3502 | 5156 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2820 | 3502 | 3610 | 1593 | 3502 | 3610 | 1589 | 3502 | 5156 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 56 | 822 | 1044 | 211 | 778 | 311 | 1311 | 1789 | 633 | 367 | 878 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 7 | 0 | 0 | 23 | 0 | 0 | 8 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 56 | 822 | 1037 | 211 | 778 | 288 | 1311 | 1789 | 625 | 367 | 908 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 6.2 | 34.4 | 75.5 | 7.0 | 35.2 | 46.2 | 41.1 | 59.1 | 66.1 | 11.0 | 29.0 | |
| Effective Green, g (s) | 6.2 | 34.4 | 75.5 | 7.0 | 35.2 | 46.2 | 41.1 | 59.1 | 66.1 | 11.0 | 29.0 | |
| Actuated g/C Ratio | 0.05 | 0.27 | 0.59 | 0.05 | 0.28 | 0.36 | 0.32 | 0.46 | 0.52 | 0.09 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 88 | 974 | 1670 | 192 | 997 | 577 | 1129 | 1673 | 874 | 302 | 1173 | |
| v/s Ratio Prot | 0.03 | c0.23 | 0.20 | c0.06 | 0.22 | 0.04 | c0.37 | c0.50 | 0.04 | c0.10 | 0.18 | |
| v/s Ratio Perm | | | 0.17 | | | 0.14 | | | 0.35 | | | |
| v/c Ratio | 0.64 | 0.84 | 0.62 | 1.10 | 0.78 | 0.50 | 1.16 | 1.07 | 0.72 | 1.22 | 0.77 | |
| Uniform Delay, d1 | 59.5 | 44.0 | 16.8 | 60.2 | 42.6 | 31.6 | 43.2 | 34.2 | 23.5 | 58.2 | 46.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 14.1 | 6.8 | 0.7 | 93.9 | 4.0 | 0.7 | 82.6 | 43.2 | 2.8 | 123.3 | 3.2 | |
| Delay (s) | 73.6 | 50.8 | 17.5 | 154.2 | 46.6 | 32.3 | 125.8 | 77.4 | 26.3 | 181.5 | 49.4 | |
| Level of Service | E | D | B | F | D | C | F | E | C | F | D | |
| Approach Delay (s) | | 33.4 | | | 60.6 | | | 85.7 | | | 87.4 | |
| Approach LOS | | C | | | E | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 69.8 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.06 | | |
| Actuated Cycle Length (s) | 127.5 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 95.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

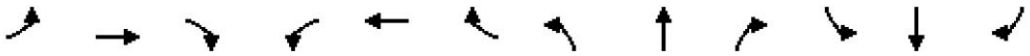
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 30 | 10 | 40 | 20 | 140 | 10 | 3140 | 20 | 80 | 1760 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.99 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1814 | | | 1683 | | 1805 | 5181 | | 1805 | 5177 | |
| Flt Permitted | | 0.40 | | | 0.91 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 743 | | | 1554 | | 1805 | 5181 | | 1805 | 5177 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 79 | 34 | 11 | 45 | 22 | 157 | 11 | 3528 | 22 | 90 | 1978 | 22 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 89 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 121 | 0 | 0 | 135 | 0 | 11 | 3550 | 0 | 90 | 1999 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 14.3 | | | 14.3 | | 1.3 | 65.4 | | 7.0 | 71.1 | |
| Effective Green, g (s) | | 14.3 | | | 14.3 | | 1.3 | 65.4 | | 7.0 | 71.1 | |
| Actuated g/C Ratio | | 0.14 | | | 0.14 | | 0.01 | 0.66 | | 0.07 | 0.72 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 108 | | | 225 | | 24 | 3433 | | 128 | 3729 | |
| v/s Ratio Prot | | | | | | | 0.01 | c0.69 | | c0.05 | 0.39 | |
| v/s Ratio Perm | | c0.16 | | | 0.09 | | | | | | | |
| v/c Ratio | | 1.12 | | | 0.60 | | 0.46 | 1.03 | | 0.70 | 0.54 | |
| Uniform Delay, d1 | | 42.2 | | | 39.5 | | 48.4 | 16.6 | | 44.8 | 6.3 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 121.4 | | | 4.5 | | 13.2 | 25.0 | | 16.1 | 0.1 | |
| Delay (s) | | 163.6 | | | 44.0 | | 61.6 | 41.7 | | 60.9 | 6.4 | |
| Level of Service | | F | | | D | | E | D | | E | A | |
| Approach Delay (s) | | 163.6 | | | 44.0 | | | 41.7 | | | 8.8 | |
| Approach LOS | | F | | | D | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 98.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 91.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

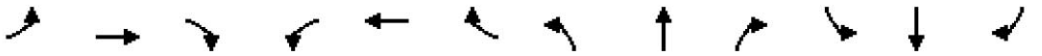


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 40 | 50 | 20 | 30 | 100 | 60 | 2920 | 20 | 20 | 1610 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 1900 | 1615 | 1805 | 1900 | 1588 | 1805 | 5181 | | 1805 | 5164 | |
| Flt Permitted | 0.53 | 1.00 | 1.00 | 0.73 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1012 | 1900 | 1615 | 1383 | 1900 | 1588 | 1805 | 5181 | | 1805 | 5164 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 180 | 45 | 56 | 22 | 34 | 112 | 67 | 3281 | 22 | 22 | 1809 | 45 |
| RTOR Reduction (vph) | 0 | 0 | 47 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 180 | 45 | 9 | 22 | 34 | 12 | 67 | 3303 | 0 | 22 | 1852 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 21.6 | 15.0 | 15.0 | 13.2 | 10.6 | 10.6 | 6.8 | 61.3 | | 2.6 | 57.1 | |
| Effective Green, g (s) | 21.6 | 15.0 | 15.0 | 13.2 | 10.6 | 10.6 | 6.8 | 61.3 | | 2.6 | 57.1 | |
| Actuated g/C Ratio | 0.22 | 0.15 | 0.15 | 0.14 | 0.11 | 0.11 | 0.07 | 0.63 | | 0.03 | 0.59 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 281 | 292 | 248 | 198 | 207 | 173 | 126 | 3257 | | 48 | 3024 | |
| v/s Ratio Prot | c0.05 | 0.02 | | 0.00 | 0.02 | | 0.04 | c0.64 | | 0.01 | c0.36 | |
| v/s Ratio Perm | c0.10 | | 0.01 | 0.01 | | 0.01 | | | | | | |
| v/c Ratio | 0.64 | 0.15 | 0.03 | 0.11 | 0.16 | 0.07 | 0.53 | 1.01 | | 0.46 | 0.61 | |
| Uniform Delay, d1 | 33.6 | 35.8 | 35.1 | 36.9 | 39.4 | 39.0 | 43.8 | 18.1 | | 46.8 | 13.1 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.9 | 0.2 | 0.1 | 0.2 | 0.4 | 0.2 | 4.3 | 19.3 | | 6.8 | 0.4 | |
| Delay (s) | 38.5 | 36.0 | 35.1 | 37.1 | 39.8 | 39.2 | 48.1 | 37.4 | | 53.5 | 13.4 | |
| Level of Service | D | D | D | D | D | D | D | D | | D | B | |
| Approach Delay (s) | | 37.4 | | | 39.1 | | | 37.7 | | | 13.9 | |
| Approach LOS | | D | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 97.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 85.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

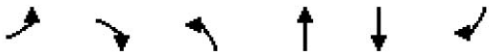
# HCM Signalized Intersection Capacity Analysis
## 98: Canyon Crest Dr & Alessandro Blvd



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 20 | 20 | 360 | 10 | 90 | 20 | 2980 | 840 | 30 | 1700 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.87 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3314 | | 5090 | 1623 | | 1805 | 5187 | 1594 | 1805 | 5182 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3314 | | 5090 | 1623 | | 1805 | 5187 | 1594 | 1805 | 5182 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 21 | 21 | 21 | 383 | 11 | 96 | 21 | 3170 | 894 | 32 | 1809 | 11 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 82 | 0 | 0 | 0 | 169 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 21 | 22 | 0 | 383 | 25 | 0 | 21 | 3170 | 725 | 32 | 1820 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 2.7 | 4.8 | | 9.2 | 11.3 | | 2.4 | 44.9 | 54.1 | 2.4 | 44.9 | |
| Effective Green, g (s) | 2.7 | 4.8 | | 9.2 | 11.3 | | 2.4 | 44.9 | 54.1 | 2.4 | 44.9 | |
| Actuated g/C Ratio | 0.03 | 0.06 | | 0.12 | 0.15 | | 0.03 | 0.58 | 0.70 | 0.03 | 0.58 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 63 | 206 | | 606 | 237 | | 56 | 3013 | 1198 | 56 | 3010 | |
| v/s Ratio Prot | c0.01 | 0.01 | | 0.08 | 0.02 | | 0.01 | c0.61 | c0.07 | 0.02 | c0.35 | |
| v/s Ratio Perm | | | | | | | | | 0.38 | | | |
| v/c Ratio | 0.33 | 0.11 | | 0.63 | 0.11 | | 0.38 | 1.05 | 0.61 | 0.57 | 0.60 | |
| Uniform Delay, d1 | 36.4 | 34.2 | | 32.4 | 28.6 | | 36.7 | 16.2 | 6.0 | 36.9 | 10.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.1 | 0.2 | | 2.2 | 0.2 | | 4.2 | 32.2 | 0.9 | 13.3 | 0.3 | |
| Delay (s) | 39.5 | 34.5 | | 34.6 | 28.8 | | 40.9 | 48.4 | 6.9 | 50.3 | 10.8 | |
| Level of Service | D | C | | C | C | | D | D | A | D | B | |
| Approach Delay (s) | | 36.2 | | | 33.3 | | | 39.3 | | | 11.5 | |
| Approach LOS | | D | | | C | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 77.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

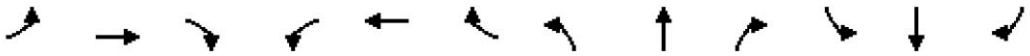
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 200 | 80 | 100 | 1310 | 620 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 233 | 93 | 116 | 1523 | 721 | 151 |
| RTOR Reduction (vph) | 0 | 76 | 0 | 0 | 0 | 18 |
| Lane Group Flow (vph) | 233 | 17 | 116 | 1523 | 721 | 133 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Turn Type | | custom | Prot | | | Perm |
| Protected Phases | | | 5 | 2 | 6 | |
| Permitted Phases | 4 | 4 | | | | 6 |
| Actuated Green, G (s) | 19.6 | 19.6 | 11.0 | 82.4 | 67.4 | 67.4 |
| Effective Green, g (s) | 19.6 | 19.6 | 11.0 | 82.4 | 67.4 | 67.4 |
| Actuated g/C Ratio | 0.18 | 0.18 | 0.10 | 0.75 | 0.61 | 0.61 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 318 | 279 | 181 | 1423 | 1164 | 966 |
| v/s Ratio Prot | | | 0.06 | c0.80 | 0.38 | |
| v/s Ratio Perm | c0.13 | 0.01 | | | | 0.08 |
| v/c Ratio | 0.73 | 0.06 | 0.64 | 1.07 | 0.62 | 0.14 |
| Uniform Delay, d1 | 42.7 | 37.5 | 47.6 | 13.8 | 13.3 | 9.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.4 | 0.1 | 7.5 | 45.1 | 2.5 | 0.3 |
| Delay (s) | 51.2 | 37.6 | 55.1 | 58.9 | 15.8 | 9.3 |
| Level of Service | D | D | E | E | B | A |
| Approach Delay (s) | 47.3 | | | 58.7 | 14.7 | |
| Approach LOS | D | | | E | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.01 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 88.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

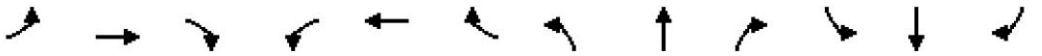
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | | | | | | | | |
| Lane Util. Factor | | | | | | | | | | | | |
| Frt | | | | | | | | | | | | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | | | | | | | | | | | | |
| Flt Permitted | | | | | | | | | | | | |
| Satd. Flow (perm) | | | | | | | | | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | | | | | | | | | | | |
| Effective Green, g (s) | | | | | | | | | | | | |
| Actuated g/C Ratio | | | | | | | | | | | | |
| Clearance Time (s) | | | | | | | | | | | | |
| Lane Grp Cap (vph) | | | | | | | | | | | | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | | | | | | | | |
| Uniform Delay, d1 | | | | | | | | | | | | |
| Progression Factor | | | | | | | | | | | | |
| Incremental Delay, d2 | | | | | | | | | | | | |
| Delay (s) | | | | | | | | | | | | |
| Level of Service | | | | | | | | | | | | |
| Approach Delay (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 0.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.00 | | |
| Actuated Cycle Length (s) | 20.0 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 0.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

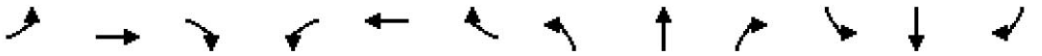
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 250 | 950 | 70 | 80 | 1710 | 300 | 100 | 20 | 70 | 90 | 10 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.88 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5126 | | 1805 | 5187 | 1582 | 1805 | 3149 | | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5126 | | 1805 | 5187 | 1582 | 1805 | 3149 | | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 258 | 979 | 72 | 82 | 1763 | 309 | 103 | 21 | 72 | 93 | 10 | 144 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 0 | 152 | 0 | 67 | 0 | 0 | 0 | 133 |
| Lane Group Flow (vph) | 258 | 1046 | 0 | 82 | 1763 | 157 | 103 | 26 | 0 | 93 | 10 | 11 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 28.5 | 65.8 | | 9.0 | 46.3 | 46.3 | 8.0 | 8.1 | | 8.5 | 8.3 | 8.3 |
| Effective Green, g (s) | 28.5 | 65.8 | | 9.0 | 46.3 | 46.3 | 8.0 | 8.1 | | 8.5 | 8.3 | 8.3 |
| Actuated g/C Ratio | 0.26 | 0.60 | | 0.08 | 0.42 | 0.42 | 0.07 | 0.07 | | 0.08 | 0.08 | 0.08 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 468 | 3066 | | 148 | 2183 | 666 | 131 | 232 | | 139 | 272 | 120 |
| v/s Ratio Prot | c0.14 | 0.20 | | 0.05 | c0.34 | | c0.06 | c0.01 | | 0.05 | 0.00 | |
| v/s Ratio Perm | | | | | | 0.10 | | | | | | 0.01 |
| v/c Ratio | 0.55 | 0.34 | | 0.55 | 0.81 | 0.24 | 0.79 | 0.11 | | 0.67 | 0.04 | 0.09 |
| Uniform Delay, d1 | 35.2 | 11.2 | | 48.6 | 27.9 | 20.5 | 50.2 | 47.6 | | 49.4 | 47.1 | 47.3 |
| Progression Factor | 1.03 | 0.31 | | 1.02 | 0.66 | 0.64 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.3 | | 2.9 | 2.2 | 0.5 | 26.0 | 0.2 | | 11.6 | 0.1 | 0.3 |
| Delay (s) | 37.5 | 3.7 | | 52.6 | 20.6 | 13.7 | 76.1 | 47.8 | | 60.9 | 47.2 | 47.7 |
| Level of Service | D | A | | D | C | B | E | D | | E | D | D |
| Approach Delay (s) | | 10.4 | | | 20.8 | | | 62.7 | | | 52.6 | |
| Approach LOS | | B | | | C | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 18.6 |
| Intersection Capacity Utilization | 73.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

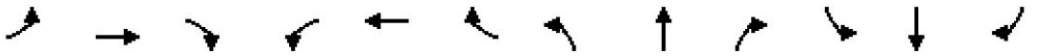
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 570 | 140 | 240 | 1330 | 250 | 410 | 540 | 170 | 100 | 320 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1586 | 3502 | 5049 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1586 | 3502 | 5049 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 289 | 588 | 144 | 247 | 1371 | 258 | 423 | 557 | 175 | 103 | 330 | 216 |
| RTOR Reduction (vph) | 0 | 0 | 83 | 0 | 22 | 0 | 0 | 0 | 136 | 0 | 0 | 179 |
| Lane Group Flow (vph) | 289 | 588 | 61 | 247 | 1607 | 0 | 423 | 557 | 39 | 103 | 330 | 37 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 15.2 | 46.5 | 46.5 | 13.0 | 44.3 | | 13.0 | 24.3 | 24.3 | 6.9 | 18.2 | 18.2 |
| Effective Green, g (s) | 15.2 | 46.5 | 46.5 | 13.0 | 44.3 | | 13.0 | 24.3 | 24.3 | 6.9 | 18.2 | 18.2 |
| Actuated g/C Ratio | 0.14 | 0.42 | 0.42 | 0.12 | 0.40 | | 0.12 | 0.22 | 0.22 | 0.06 | 0.17 | 0.17 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 484 | 2193 | 670 | 414 | 2033 | | 414 | 797 | 351 | 220 | 597 | 263 |
| v/s Ratio Prot | c0.08 | 0.11 | | 0.07 | c0.32 | | c0.12 | c0.15 | | 0.03 | 0.09 | |
| v/s Ratio Perm | | | 0.04 | | | | | | 0.02 | | | 0.02 |
| v/c Ratio | 0.60 | 0.27 | 0.09 | 0.60 | 0.79 | | 1.02 | 0.70 | 0.11 | 0.47 | 0.55 | 0.14 |
| Uniform Delay, d1 | 44.5 | 20.7 | 19.1 | 46.0 | 28.8 | | 48.5 | 39.5 | 34.2 | 49.8 | 42.2 | 39.2 |
| Progression Factor | 1.19 | 0.91 | 0.91 | 1.22 | 0.77 | | 0.84 | 0.70 | 1.04 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.9 | 0.3 | 0.3 | 0.2 | 0.3 | | 48.3 | 2.5 | 0.1 | 1.6 | 1.1 | 0.2 |
| Delay (s) | 54.9 | 19.1 | 17.6 | 56.4 | 22.5 | | 89.0 | 30.2 | 35.8 | 51.4 | 43.3 | 39.5 |
| Level of Service | D | B | B | E | C | | F | C | D | D | D | D |
| Approach Delay (s) | | 29.0 | | | 27.0 | | | 52.6 | | | 43.3 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 78.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

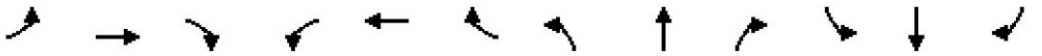
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 470 | 390 | 150 | 10 | 1040 | 580 | 370 | 810 | 30 | 290 | 640 | 820 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3588 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3588 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 547 | 453 | 174 | 12 | 1209 | 674 | 430 | 942 | 35 | 337 | 744 | 953 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 162 | 0 | 2 | 0 | 0 | 0 | 92 |
| Lane Group Flow (vph) | 547 | 453 | 174 | 12 | 1209 | 512 | 430 | 975 | 0 | 337 | 744 | 861 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 10.0 | 40.8 | 110.0 | 1.2 | 32.0 | 32.0 | 8.0 | 34.4 | | 13.6 | 40.0 | 40.0 |
| Effective Green, g (s) | 10.0 | 40.8 | 110.0 | 1.2 | 32.0 | 32.0 | 8.0 | 34.4 | | 13.6 | 40.0 | 40.0 |
| Actuated g/C Ratio | 0.09 | 0.37 | 1.00 | 0.01 | 0.29 | 0.29 | 0.07 | 0.31 | | 0.12 | 0.36 | 0.36 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 318 | 1924 | 1593 | 20 | 1050 | 461 | 255 | 1122 | | 433 | 1313 | 577 |
| v/s Ratio Prot | c0.16 | 0.09 | | 0.01 | c0.33 | | c0.12 | 0.27 | | 0.10 | 0.21 | |
| v/s Ratio Perm | | | 0.11 | | | 0.32 | | | | | | c0.54 |
| v/c Ratio | 1.72 | 0.24 | 0.11 | 0.60 | 1.15 | 1.11 | 1.69 | 0.87 | | 0.78 | 0.57 | 1.49 |
| Uniform Delay, d1 | 50.0 | 23.8 | 0.0 | 54.2 | 39.0 | 39.0 | 51.0 | 35.7 | | 46.7 | 28.1 | 35.0 |
| Progression Factor | 0.89 | 1.34 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 336.9 | 0.3 | 0.1 | 40.2 | 79.3 | 75.3 | 325.3 | 9.2 | | 8.6 | 1.8 | 230.4 |
| Delay (s) | 381.3 | 32.2 | 0.1 | 94.3 | 118.3 | 114.3 | 376.3 | 44.9 | | 55.3 | 29.8 | 265.4 |
| Level of Service | F | C | A | F | F | F | F | D | | E | C | F |
| Approach Delay (s) | | 190.1 | | | 116.8 | | | 146.2 | | | 144.4 | |
| Approach LOS | | F | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 145.0 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.41 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 103.9% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

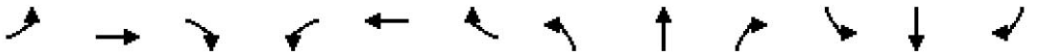
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 20 | 70 | 30 | 10 | 20 | 220 | 1000 | 10 | 30 | 540 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.88 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3103 | | 1805 | 1900 | 1581 | 1805 | 3604 | | 1805 | 3610 | 1591 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3103 | | 1805 | 1900 | 1581 | 1805 | 3604 | | 1805 | 3610 | 1591 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 22 | 75 | 32 | 11 | 22 | 237 | 1075 | 11 | 32 | 581 | 86 |
| RTOR Reduction (vph) | 0 | 70 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 38 |
| Lane Group Flow (vph) | 43 | 27 | 0 | 32 | 11 | 1 | 237 | 1086 | 0 | 32 | 581 | 48 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.2 | 6.8 | | 4.7 | 6.4 | 6.4 | 19.7 | 75.9 | | 5.1 | 61.3 | 61.3 |
| Effective Green, g (s) | 5.2 | 6.8 | | 4.7 | 6.4 | 6.4 | 19.7 | 75.9 | | 5.1 | 61.3 | 61.3 |
| Actuated g/C Ratio | 0.05 | 0.06 | | 0.04 | 0.06 | 0.06 | 0.18 | 0.69 | | 0.05 | 0.56 | 0.56 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 85 | 192 | | 77 | 111 | 92 | 323 | 2487 | | 84 | 2012 | 887 |
| v/s Ratio Prot | c0.02 | c0.01 | | 0.02 | 0.01 | | c0.13 | c0.30 | | 0.02 | 0.16 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.03 |
| v/c Ratio | 0.51 | 0.14 | | 0.42 | 0.10 | 0.01 | 0.73 | 0.44 | | 0.38 | 0.29 | 0.05 |
| Uniform Delay, d1 | 51.1 | 48.8 | | 51.3 | 49.1 | 48.8 | 42.7 | 7.6 | | 50.9 | 12.8 | 11.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.91 | 0.70 | | 1.18 | 0.28 | 0.02 |
| Incremental Delay, d2 | 4.7 | 0.3 | | 3.6 | 0.4 | 0.1 | 7.5 | 0.5 | | 2.7 | 0.3 | 0.1 |
| Delay (s) | 55.8 | 49.2 | | 54.9 | 49.5 | 48.9 | 46.2 | 5.8 | | 62.9 | 4.0 | 0.4 |
| Level of Service | E | D | | D | D | D | D | A | | E | A | A |
| Approach Delay (s) | | 51.2 | | | 52.0 | | | 13.0 | | | 6.2 | |
| Approach LOS | | D | | | D | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 90 | 110 | 70 | 150 | 280 | 100 | 370 | 30 | 30 | 210 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3561 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3561 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 176 | 106 | 129 | 82 | 176 | 329 | 118 | 435 | 35 | 35 | 247 | 106 |
| RTOR Reduction (vph) | 0 | 0 | 101 | 0 | 0 | 269 | 0 | 4 | 0 | 0 | 0 | 58 |
| Lane Group Flow (vph) | 176 | 106 | 28 | 82 | 176 | 60 | 118 | 466 | 0 | 35 | 247 | 48 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 15.1 | 23.7 | 23.7 | 8.2 | 16.8 | 16.8 | 12.4 | 56.9 | | 5.2 | 49.7 | 49.7 |
| Effective Green, g (s) | 15.1 | 23.7 | 23.7 | 8.2 | 16.8 | 16.8 | 12.4 | 56.9 | | 5.2 | 49.7 | 49.7 |
| Actuated g/C Ratio | 0.14 | 0.22 | 0.22 | 0.07 | 0.15 | 0.15 | 0.11 | 0.52 | | 0.05 | 0.45 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 248 | 409 | 342 | 135 | 290 | 242 | 203 | 1842 | | 85 | 1631 | 717 |
| v/s Ratio Prot | c0.10 | 0.06 | | 0.05 | c0.09 | | c0.07 | c0.13 | | 0.02 | 0.07 | |
| v/s Ratio Perm | | | 0.02 | | | 0.04 | | | | | | 0.03 |
| v/c Ratio | 0.71 | 0.26 | 0.08 | 0.61 | 0.61 | 0.25 | 0.58 | 0.25 | | 0.41 | 0.15 | 0.07 |
| Uniform Delay, d1 | 45.4 | 35.9 | 34.5 | 49.3 | 43.5 | 41.0 | 46.3 | 14.7 | | 50.9 | 17.7 | 17.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.86 | 0.87 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.0 | 0.3 | 0.1 | 7.5 | 3.6 | 0.5 | 3.8 | 0.3 | | 3.2 | 0.2 | 0.2 |
| Delay (s) | 54.3 | 36.2 | 34.6 | 56.9 | 47.1 | 41.6 | 43.5 | 13.1 | | 54.1 | 17.9 | 17.2 |
| Level of Service | D | D | C | E | D | D | D | B | | D | B | B |
| Approach Delay (s) | | 43.4 | | | 45.4 | | | 19.2 | | | 21.0 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 60.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

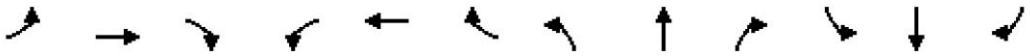
# HCM Signalized Intersection Capacity Analysis
## 106: Rider St & Perris Blvd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 110 | 20 | 130 | 160 | 260 | 140 | 910 | 80 | 40 | 450 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1795 | 1852 | | 1795 | 1900 | 1583 | 1805 | 3557 | | 1805 | 3510 | |
| Flt Permitted | 0.49 | 1.00 | | 0.57 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 926 | 1852 | | 1086 | 1900 | 1583 | 1805 | 3557 | | 1805 | 3510 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 22 | 124 | 22 | 146 | 180 | 292 | 157 | 1022 | 90 | 45 | 506 | 90 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 183 | 0 | 5 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 22 | 139 | 0 | 146 | 180 | 109 | 157 | 1107 | 0 | 45 | 586 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 19.8 | 19.8 | | 19.8 | 19.8 | 19.8 | 14.4 | 68.6 | | 7.0 | 61.2 | |
| Effective Green, g (s) | 19.8 | 19.8 | | 19.8 | 19.8 | 19.8 | 14.4 | 68.6 | | 7.0 | 61.2 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.18 | 0.18 | 0.18 | 0.13 | 0.62 | | 0.06 | 0.56 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 167 | 333 | | 195 | 342 | 285 | 236 | 2218 | | 115 | 1953 | |
| v/s Ratio Prot | | 0.08 | | | 0.09 | | c0.09 | c0.31 | | 0.02 | 0.17 | |
| v/s Ratio Perm | 0.02 | | | c0.13 | | 0.07 | | | | | | |
| v/c Ratio | 0.13 | 0.42 | | 0.75 | 0.53 | 0.38 | 0.67 | 0.50 | | 0.39 | 0.30 | |
| Uniform Delay, d1 | 37.9 | 40.0 | | 42.7 | 40.9 | 39.7 | 45.5 | 11.3 | | 49.5 | 13.0 | |
| Progression Factor | 1.00 | 1.00 | | 0.75 | 0.73 | 0.57 | 1.25 | 0.67 | | 1.22 | 0.26 | |
| Incremental Delay, d2 | 0.4 | 0.9 | | 13.0 | 1.3 | 0.8 | 4.6 | 0.5 | | 2.1 | 0.4 | |
| Delay (s) | 38.2 | 40.9 | | 45.0 | 31.2 | 23.3 | 61.4 | 8.2 | | 62.4 | 3.8 | |
| Level of Service | D | D | | D | C | C | E | A | | E | A | |
| Approach Delay (s) | | 40.5 | | | 30.8 | | | 14.8 | | | 7.9 | |
| Approach LOS | | D | | | C | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 63.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

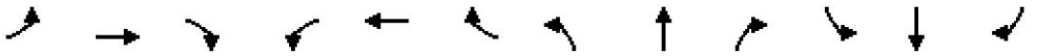
# HCM Signalized Intersection Capacity Analysis
## 107: Rider St & Evans Rd



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 290 | 40 | 20 | 450 | 150 | 110 | 230 | 20 | 160 | 130 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3535 | | 1805 | 3460 | | 1805 | 3562 | | 1805 | 3263 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3535 | | 1805 | 3460 | | 1805 | 3562 | | 1805 | 3263 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 174 | 337 | 47 | 23 | 523 | 174 | 128 | 267 | 23 | 186 | 151 | 209 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 33 | 0 | 0 | 6 | 0 | 0 | 144 | 0 |
| Lane Group Flow (vph) | 174 | 373 | 0 | 23 | 664 | 0 | 128 | 284 | 0 | 186 | 216 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 14.3 | 42.3 | | 2.4 | 30.4 | | 15.2 | 30.8 | | 18.5 | 34.1 | |
| Effective Green, g (s) | 14.3 | 42.3 | | 2.4 | 30.4 | | 15.2 | 30.8 | | 18.5 | 34.1 | |
| Actuated g/C Ratio | 0.13 | 0.38 | | 0.02 | 0.28 | | 0.14 | 0.28 | | 0.17 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 235 | 1359 | | 39 | 956 | | 249 | 997 | | 304 | 1012 | |
| v/s Ratio Prot | c0.10 | 0.11 | | 0.01 | c0.19 | | 0.07 | c0.08 | | c0.10 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.74 | 0.27 | | 0.59 | 0.70 | | 0.51 | 0.29 | | 0.61 | 0.21 | |
| Uniform Delay, d1 | 46.1 | 23.3 | | 53.3 | 35.6 | | 44.0 | 31.0 | | 42.4 | 28.0 | |
| Progression Factor | 0.91 | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.93 | 0.84 | |
| Incremental Delay, d2 | 11.8 | 0.1 | | 20.8 | 2.2 | | 1.8 | 0.7 | | 3.6 | 0.5 | |
| Delay (s) | 53.7 | 22.9 | | 74.1 | 37.9 | | 45.8 | 31.7 | | 42.9 | 23.9 | |
| Level of Service | D | C | | E | D | | D | C | | D | C | |
| Approach Delay (s) | | 32.5 | | | 39.0 | | | 36.0 | | | 30.4 | |
| Approach LOS | | C | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 73.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

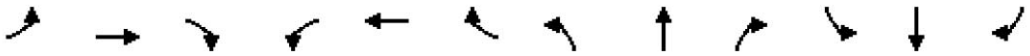
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 150 | 70 | 500 | 170 | 1300 | 0 | 0 | 650 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.97 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1830 | 1586 | 1805 | 3610 | | | 3610 | 1564 |
| Flt Permitted | | | | | 0.97 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1830 | 1586 | 1805 | 3610 | | | 3610 | 1564 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 163 | 76 | 543 | 185 | 1413 | 0 | 0 | 707 | 304 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 193 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 239 | 529 | 185 | 1413 | 0 | 0 | 707 | 111 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | | 42.4 | 42.4 | 15.4 | 59.6 | | | 40.2 | 40.2 |
| Effective Green, g (s) | | | | | 42.4 | 42.4 | 15.4 | 59.6 | | | 40.2 | 40.2 |
| Actuated g/C Ratio | | | | | 0.39 | 0.39 | 0.14 | 0.54 | | | 0.37 | 0.37 |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 705 | 611 | 253 | 1956 | | | 1319 | 572 |
| v/s Ratio Prot | | | | | | | 0.10 | c0.39 | | | 0.20 | |
| v/s Ratio Perm | | | | | 0.13 | c0.33 | | | | | | 0.07 |
| v/c Ratio | | | | | 0.34 | 0.87 | 0.73 | 0.72 | | | 0.54 | 0.19 |
| Uniform Delay, d1 | | | | | 23.9 | 31.2 | 45.3 | 19.0 | | | 27.5 | 23.8 |
| Progression Factor | | | | | 1.00 | 1.00 | 1.08 | 0.95 | | | 0.96 | 2.07 |
| Incremental Delay, d2 | | | | | 0.3 | 12.3 | 6.2 | 1.4 | | | 1.5 | 0.7 |
| Delay (s) | | | | | 24.2 | 43.5 | 55.0 | 19.3 | | | 28.1 | 50.1 |
| Level of Service | | | | | C | D | E | B | | | C | D |
| Approach Delay (s) | | 0.0 | | | 37.6 | | | 23.4 | | | 34.7 | |
| Approach LOS | | A | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 113.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

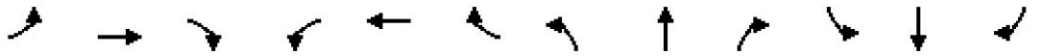
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 660 | 50 | 180 | 0 | 0 | 0 | 0 | 780 | 60 | 160 | 650 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | | | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | | | | | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1794 | 1653 | | | | | | 3563 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1794 | 1653 | | | | | | 3563 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 717 | 54 | 196 | 0 | 0 | 0 | 0 | 848 | 65 | 174 | 707 | 0 |
| RTOR Reduction (vph) | 0 | 87 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 717 | 163 | 0 | 0 | 0 | 0 | 0 | 908 | 0 | 174 | 707 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | | | | | | | | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | 47.8 | 47.8 | | | | | | 36.9 | | 13.3 | 54.2 | |
| Effective Green, g (s) | 47.8 | 47.8 | | | | | | 36.9 | | 13.3 | 54.2 | |
| Actuated g/C Ratio | 0.43 | 0.43 | | | | | | 0.34 | | 0.12 | 0.49 | |
| Clearance Time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 780 | 718 | | | | | | 1195 | | 218 | 1779 | |
| v/s Ratio Prot | | 0.10 | | | | | | c0.25 | | c0.10 | 0.20 | |
| v/s Ratio Perm | c0.40 | | | | | | | | | | | |
| v/c Ratio | 0.92 | 0.23 | | | | | | 0.76 | | 0.80 | 0.40 | |
| Uniform Delay, d1 | 29.3 | 19.5 | | | | | | 32.6 | | 47.0 | 17.6 | |
| Progression Factor | 1.00 | 1.00 | | | | | | 0.78 | | 1.58 | 0.44 | |
| Incremental Delay, d2 | 15.7 | 0.2 | | | | | | 3.2 | | 16.4 | 0.6 | |
| Delay (s) | 45.0 | 19.7 | | | | | | 28.8 | | 90.7 | 8.3 | |
| Level of Service | D | B | | | | | | C | | F | A | |
| Approach Delay (s) | | 38.4 | | | 0.0 | | | 28.8 | | | 24.6 | |
| Approach LOS | | D | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 113.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

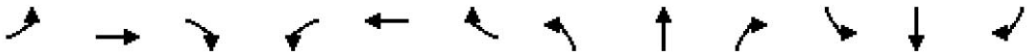
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 50 | 60 | 20 | 430 | 120 | 0 | 0 | 90 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 0.98 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1810 | | 1805 | 1900 | | | 1900 | 1564 |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1810 | | 1805 | 1900 | | | 1900 | 1564 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 54 | 65 | 22 | 467 | 130 | 0 | 0 | 98 | 109 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 134 | 0 | 467 | 130 | 0 | 0 | 98 | 50 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | | | | 13.4 | | 34.2 | 88.6 | | | 50.4 | 50.4 |
| Effective Green, g (s) | | | | | 13.4 | | 34.2 | 88.6 | | | 50.4 | 50.4 |
| Actuated g/C Ratio | | | | | 0.12 | | 0.31 | 0.81 | | | 0.46 | 0.46 |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 220 | | 561 | 1530 | | | 871 | 717 |
| v/s Ratio Prot | | | | | | | c0.26 | 0.07 | | | c0.05 | |
| v/s Ratio Perm | | | | | 0.07 | | | | | | | 0.03 |
| v/c Ratio | | | | | 0.61 | | 0.83 | 0.08 | | | 0.11 | 0.07 |
| Uniform Delay, d1 | | | | | 45.8 | | 35.2 | 2.2 | | | 17.0 | 16.7 |
| Progression Factor | | | | | 1.00 | | 1.23 | 0.94 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 4.7 | | 9.8 | 0.1 | | | 0.3 | 0.2 |
| Delay (s) | | | | | 50.5 | | 53.3 | 2.2 | | | 17.3 | 16.9 |
| Level of Service | | | | | D | | D | A | | | B | B |
| Approach Delay (s) | | 0.0 | | | 50.5 | | | 42.2 | | | 17.1 | |
| Approach LOS | | A | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

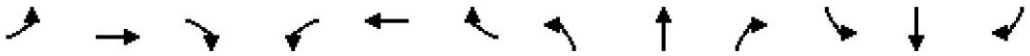
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 10 | 240 | 0 | 0 | 0 | 0 | 510 | 190 | 10 | 140 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.97 | | | | | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 0.99 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1818 | 1567 | | | | | 1900 | 1564 | 1805 | 1900 | |
| Flt Permitted | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1818 | 1567 | | | | | 1900 | 1564 | 1805 | 1900 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 11 | 261 | 0 | 0 | 0 | 0 | 554 | 207 | 11 | 152 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 239 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 44 | 22 | 0 | 0 | 0 | 0 | 554 | 167 | 11 | 152 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | | 9.2 | 9.2 | | | | | 87.3 | 87.3 | 1.5 | 92.8 | |
| Effective Green, g (s) | | 9.2 | 9.2 | | | | | 87.3 | 87.3 | 1.5 | 92.8 | |
| Actuated g/C Ratio | | 0.08 | 0.08 | | | | | 0.79 | 0.79 | 0.01 | 0.84 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 152 | 131 | | | | | 1508 | 1241 | 25 | 1603 | |
| v/s Ratio Prot | | | | | | | | c0.29 | | c0.01 | 0.08 | |
| v/s Ratio Perm | | 0.02 | 0.01 | | | | | | 0.11 | | | |
| v/c Ratio | | 0.29 | 0.17 | | | | | 0.37 | 0.13 | 0.44 | 0.09 | |
| Uniform Delay, d1 | | 47.3 | 46.8 | | | | | 3.3 | 2.6 | 53.8 | 1.5 | |
| Progression Factor | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.35 | 0.08 | |
| Incremental Delay, d2 | | 1.1 | 0.6 | | | | | 0.7 | 0.2 | 11.8 | 0.1 | |
| Delay (s) | | 48.4 | 47.4 | | | | | 4.0 | 2.8 | 84.6 | 0.2 | |
| Level of Service | | D | D | | | | | A | A | F | A | |
| Approach Delay (s) | | 47.6 | | | 0.0 | | | 3.7 | | | 5.9 | |
| Approach LOS | | D | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

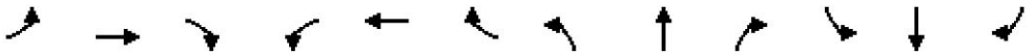
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 80 | 300 | 90 | 120 | 140 | 330 | 1060 | 40 | 40 | 630 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1651 | | 1805 | 1900 | 1586 | 1805 | 3588 | | 1805 | 3590 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1651 | | 1805 | 1900 | 1586 | 1805 | 3588 | | 1805 | 3590 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 38 | 100 | 375 | 112 | 150 | 175 | 412 | 1325 | 50 | 50 | 788 | 25 |
| RTOR Reduction (vph) | 0 | 123 | 0 | 0 | 0 | 116 | 0 | 3 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 38 | 352 | 0 | 112 | 150 | 59 | 412 | 1372 | 0 | 50 | 811 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 3.0 | 26.9 | | 7.0 | 30.9 | 30.9 | 26.7 | 52.9 | | 5.0 | 31.2 | |
| Effective Green, g (s) | 3.0 | 26.9 | | 7.0 | 30.9 | 30.9 | 26.7 | 52.9 | | 5.0 | 31.2 | |
| Actuated g/C Ratio | 0.03 | 0.24 | | 0.06 | 0.28 | 0.28 | 0.24 | 0.48 | | 0.05 | 0.28 | |
| Clearance Time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 49 | 404 | | 115 | 534 | 446 | 438 | 1726 | | 82 | 1018 | |
| v/s Ratio Prot | 0.02 | c0.21 | | c0.06 | c0.08 | | c0.23 | c0.38 | | 0.03 | 0.23 | |
| v/s Ratio Perm | | | | | | 0.04 | | | | | | |
| v/c Ratio | 0.78 | 0.87 | | 0.97 | 0.28 | 0.13 | 0.94 | 0.80 | | 0.61 | 0.80 | |
| Uniform Delay, d1 | 53.2 | 39.9 | | 51.4 | 30.9 | 29.5 | 40.9 | 24.0 | | 51.5 | 36.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.95 | 1.10 | | 1.36 | 0.53 | |
| Incremental Delay, d2 | 53.1 | 18.1 | | 75.2 | 0.3 | 0.1 | 28.4 | 3.9 | | 11.5 | 6.1 | |
| Delay (s) | 106.2 | 58.0 | | 126.6 | 31.2 | 29.7 | 67.4 | 30.3 | | 81.4 | 25.6 | |
| Level of Service | F | E | | F | C | C | E | C | | F | C | |
| Approach Delay (s) | | 61.6 | | | 55.0 | | | 38.9 | | | 28.8 | |
| Approach LOS | | E | | | E | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 79.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

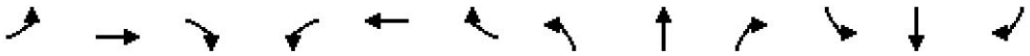
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | None | |
| Median storage veh) | | | | | | | | 2 | | | | |
| Upstream signal (ft) | | | | | | | | | | | 361 | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| vC1, stage 1 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vC2, stage 2 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vCu, unblocked vol | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | 6.1 | 5.5 | | 6.1 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 100 | 100 | 100 | 100 | | | 100 | | |
| cM capacity (veh/h) | 1029 | 900 | 1091 | 1029 | 900 | 1091 | 1636 | | | 1636 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | A | | | | |

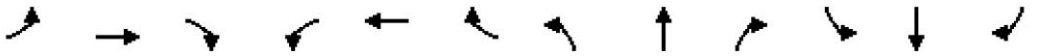
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.0 | | | |
| Intersection Capacity Utilization | 0.0% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 110 | 190 | 40 | 60 | 180 | 40 | 60 | 260 | 40 | 20 | 130 | 80 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 121 | 209 | 44 | 66 | 198 | 44 | 66 | 286 | 44 | 22 | 143 | 88 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 374 | 308 | 66 | 330 | 22 | 231 |
| Volume Left (vph) | 121 | 66 | 66 | 0 | 22 | 0 |
| Volume Right (vph) | 44 | 44 | 0 | 44 | 0 | 88 |
| Hadj (s) | -0.01 | -0.04 | 0.50 | -0.09 | 0.50 | -0.27 |
| Departure Headway (s) | 7.0 | 7.2 | 8.2 | 7.6 | 8.6 | 7.8 |
| Degree Utilization, x | 0.73 | 0.61 | 0.15 | 0.69 | 0.05 | 0.50 |
| Capacity (veh/h) | 482 | 461 | 415 | 451 | 378 | 416 |
| Control Delay (s) | 26.6 | 20.9 | 11.4 | 24.8 | 10.8 | 17.0 |
| Approach Delay (s) | 26.6 | 20.9 | 22.5 | | 16.4 | |
| Approach LOS | D | C | C | | C | |

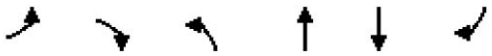
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 22.1 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 58.8% | ICU Level of Service | | B |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 290 | 0 | 0 | 400 | 80 | 0 | 0 | 0 | 30 | 0 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 1.00 | | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 0.97 | | | | 1.00 | | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 0.99 | | 1.00 |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | | | 1.00 | | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | | | 0.95 | | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | | 1900 | 1567 | | | | 1787 | | 1567 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | | | | 0.76 | | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | | 1900 | 1567 | | | | 1425 | | 1567 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.92 | 0.92 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.90 | 0.92 | 0.90 |
| Adj. Flow (vph) | 189 | 322 | 0 | 0 | 444 | 89 | 0 | 0 | 0 | 33 | 0 | 311 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 171 |
| Lane Group Flow (vph) | 189 | 322 | 0 | 0 | 444 | 32 | 0 | 0 | 0 | 33 | 0 | 140 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | | | | Perm | Perm | | | custom | | custom |
| Protected Phases | 7 | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 16.6 | 52.5 | | | 31.9 | 31.9 | | | | 49.5 | | 49.5 |
| Effective Green, g (s) | 16.6 | 52.5 | | | 31.9 | 31.9 | | | | 49.5 | | 49.5 |
| Actuated g/C Ratio | 0.15 | 0.48 | | | 0.29 | 0.29 | | | | 0.45 | | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | | | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | 272 | 907 | | | 551 | 454 | | | | 641 | | 705 |
| v/s Ratio Prot | c0.10 | 0.17 | | | c0.23 | | | | | | | |
| v/s Ratio Perm | | | | | | 0.02 | | | | 0.02 | | c0.09 |
| v/c Ratio | 0.69 | 0.36 | | | 0.81 | 0.07 | | | | 0.05 | | 0.20 |
| Uniform Delay, d1 | 44.3 | 18.1 | | | 36.2 | 28.3 | | | | 17.0 | | 18.3 |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 1.00 | | 1.00 |
| Incremental Delay, d2 | 7.5 | 0.2 | | | 8.4 | 0.1 | | | | 0.2 | | 0.6 |
| Delay (s) | 51.8 | 18.3 | | | 44.6 | 28.4 | | | | 17.2 | | 18.9 |
| Level of Service | D | B | | | D | C | | | | B | | B |
| Approach Delay (s) | | 30.7 | | | 41.9 | | | 0.0 | | | 18.7 | |
| Approach LOS | | C | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 54.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

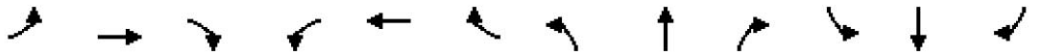
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 120 | 30 | 20 | 740 | 350 | 50 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 133 | 33 | 22 | 822 | 389 | 56 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 849 | 199 | 444 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 849 | 199 | 444 | | | |
| tC, single (s) | 6.8 | 6.9 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 55 | 96 | 98 | | | |
| cM capacity (veh/h) | 296 | 811 | 1126 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 167 | 22 | 411 | 411 | 194 | 194 | 56 |
| Volume Left | 133 | 22 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 33 | 0 | 0 | 0 | 0 | 0 | 56 |
| cSH | 340 | 1126 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.49 | 0.02 | 0.24 | 0.24 | 0.11 | 0.11 | 0.03 |
| Queue Length 95th (ft) | 65 | 2 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 25.4 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | D | A | | | | | |
| Approach Delay (s) | 25.4 | 0.2 | | | 0.0 | | |
| Approach LOS | D | | | | | | |

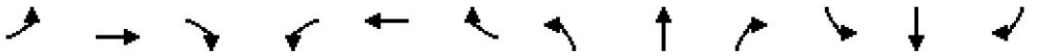
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.0 | | |
| Intersection Capacity Utilization | 35.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 20 | 560 | 0 | 0 | 440 | 250 | 290 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 21 | 583 | 0 | 0 | 458 | 260 | 302 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 724 | | | 588 | | | 1093 | 1354 | 593 | 1093 | 1093 | 468 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 724 | | | 588 | | | 1093 | 1354 | 593 | 1093 | 1093 | 468 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 100 | | | 0 | 100 | 100 | 100 | 100 | 100 |
| cM capacity (veh/h) | 888 | | | 993 | | | 188 | 147 | 505 | 188 | 210 | 596 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 21 | 583 | 458 | 260 | 302 |
| Volume Left | 21 | 0 | 0 | 0 | 302 |
| Volume Right | 0 | 0 | 0 | 260 | 0 |
| cSH | 888 | 1700 | 1700 | 1700 | 185 |
| Volume to Capacity | 0.02 | 0.34 | 0.27 | 0.15 | 1.63 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 505 |
| Control Delay (s) | 9.2 | 0.0 | 0.0 | 0.0 | 350.9 |
| Lane LOS | A | | | | F |
| Approach Delay (s) | 0.3 | | 0.0 | | 350.9 |
| Approach LOS | | | | | F |

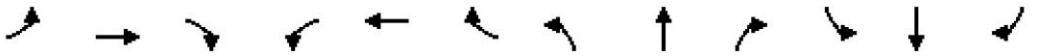
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 65.4 | | | |
| Intersection Capacity Utilization | 64.5% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 210 | 200 | 40 | 710 | 0 | 0 | 0 | 0 | 370 | 0 | 60 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 223 | 213 | 43 | 755 | 0 | 0 | 0 | 0 | 394 | 0 | 64 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 760 | | | 441 | | | 1106 | 1074 | 233 | 1074 | 1287 | 765 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 760 | | | 441 | | | 1106 | 1074 | 233 | 1074 | 1287 | 765 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 96 | | | 100 | 100 | 100 | 0 | 100 | 84 |
| cM capacity (veh/h) | 857 | | | 1130 | | | 154 | 212 | 807 | 191 | 159 | 403 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 223 | 213 | 43 | 755 | 457 |
| Volume Left | 0 | 0 | 43 | 0 | 394 |
| Volume Right | 0 | 213 | 0 | 0 | 64 |
| cSH | 1700 | 1700 | 1130 | 1700 | 208 |
| Volume to Capacity | 0.13 | 0.13 | 0.04 | 0.44 | 2.19 |
| Queue Length 95th (ft) | 0 | 0 | 3 | 0 | 898 |
| Control Delay (s) | 0.0 | 0.0 | 8.3 | 0.0 | 590.0 |
| Lane LOS | | | A | | F |
| Approach Delay (s) | 0.0 | | 0.4 | | 590.0 |
| Approach LOS | | | | | F |

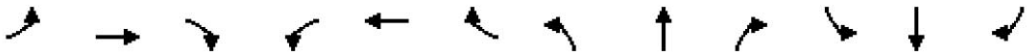
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 159.8 | | |
| Intersection Capacity Utilization | 64.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 330 | 250 | 50 | 30 | 350 | 520 | 130 | 840 | 30 | 330 | 660 | 270 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1595 | 3502 | 3610 | 1615 | 3502 | 3610 | 1594 | 3502 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1595 | 3502 | 3610 | 1615 | 3502 | 3610 | 1594 | 3502 | 3610 | 1596 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 363 | 275 | 55 | 33 | 385 | 571 | 143 | 923 | 33 | 363 | 725 | 297 |
| RTOR Reduction (vph) | 0 | 0 | 30 | 0 | 0 | 21 | 0 | 0 | 21 | 0 | 0 | 94 |
| Lane Group Flow (vph) | 363 | 275 | 25 | 33 | 385 | 550 | 143 | 923 | 12 | 363 | 725 | 203 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pt+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 8 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.2 | 38.5 | 47.0 | 5.3 | 32.6 | 46.8 | 8.5 | 32.8 | 38.1 | 10.2 | 34.5 | 45.7 |
| Effective Green, g (s) | 11.2 | 38.5 | 47.0 | 5.3 | 32.6 | 46.8 | 8.5 | 32.8 | 38.1 | 10.2 | 34.5 | 45.7 |
| Actuated g/C Ratio | 0.11 | 0.37 | 0.46 | 0.05 | 0.32 | 0.46 | 0.08 | 0.32 | 0.37 | 0.10 | 0.34 | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 382 | 1352 | 791 | 181 | 1145 | 735 | 290 | 1152 | 653 | 347 | 1212 | 772 |
| v/s Ratio Prot | c0.10 | 0.08 | 0.00 | 0.01 | 0.11 | c0.34 | 0.04 | c0.26 | 0.00 | c0.10 | 0.20 | 0.03 |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.01 | | | 0.10 |
| v/c Ratio | 0.95 | 0.20 | 0.03 | 0.18 | 0.34 | 0.75 | 0.49 | 0.80 | 0.02 | 1.05 | 0.60 | 0.26 |
| Uniform Delay, d1 | 45.5 | 21.8 | 15.4 | 46.7 | 26.8 | 23.1 | 45.1 | 32.0 | 20.5 | 46.3 | 28.4 | 18.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 33.3 | 0.1 | 0.0 | 0.5 | 0.2 | 4.2 | 1.3 | 4.1 | 0.0 | 60.9 | 0.8 | 0.2 |
| Delay (s) | 78.8 | 21.8 | 15.4 | 47.2 | 27.0 | 27.3 | 46.4 | 36.1 | 20.5 | 107.2 | 29.2 | 18.1 |
| Level of Service | E | C | B | D | C | C | D | D | C | F | C | B |
| Approach Delay (s) | | 51.2 | | | 27.9 | | | 37.0 | | | 47.3 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 102.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 78.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

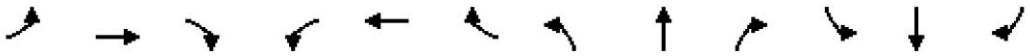
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 270 | 350 | 50 | 310 | 10 | 370 | 50 | 50 | 50 | 190 | 10 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 21 | 278 | 361 | 52 | 320 | 10 | 381 | 52 | 52 | 52 | 196 | 10 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 299 | 361 | 52 | 330 | 381 | 103 | 258 |
| Volume Left (vph) | 21 | 0 | 52 | 0 | 381 | 0 | 52 |
| Volume Right (vph) | 0 | 361 | 0 | 10 | 0 | 52 | 10 |
| Hadj (s) | 0.03 | -0.70 | 0.50 | -0.02 | 0.50 | -0.35 | 0.02 |
| Departure Headway (s) | 8.8 | 8.1 | 9.6 | 9.1 | 9.3 | 8.4 | 9.2 |
| Degree Utilization, x | 0.73 | 0.81 | 0.14 | 0.83 | 0.98 | 0.24 | 0.66 |
| Capacity (veh/h) | 394 | 437 | 375 | 398 | 381 | 420 | 378 |
| Control Delay (s) | 31.5 | 36.3 | 12.9 | 42.3 | 71.1 | 12.8 | 28.5 |
| Approach Delay (s) | 34.1 | | 38.3 | | 58.7 | | 28.5 |
| Approach LOS | D | | E | | F | | D |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 40.9 | | | |
| HCM Level of Service | E | | | |
| Intersection Capacity Utilization | 79.5% | ICU Level of Service | D | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 240 | 90 | 310 | 290 | 120 | 50 | 180 | 90 | 130 | 440 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 3448 | | 1801 | 1710 | 1437 | 1805 | 3412 | | 1805 | 3524 | |
| Flt Permitted | 0.51 | 1.00 | | 0.55 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 965 | 3448 | | 1038 | 1710 | 1437 | 1805 | 3412 | | 1805 | 3524 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 72 | 247 | 93 | 320 | 299 | 124 | 52 | 186 | 93 | 134 | 454 | 72 |
| RTOR Reduction (vph) | 0 | 50 | 0 | 0 | 0 | 58 | 0 | 69 | 0 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 72 | 290 | 0 | 320 | 299 | 66 | 52 | 210 | 0 | 134 | 508 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 0 | 0 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 23.3 | 23.3 | | 23.3 | 23.3 | 30.6 | 3.6 | 14.7 | | 7.3 | 18.4 | |
| Effective Green, g (s) | 23.3 | 23.3 | | 23.3 | 23.3 | 30.6 | 3.6 | 14.7 | | 7.3 | 18.4 | |
| Actuated g/C Ratio | 0.41 | 0.41 | | 0.41 | 0.41 | 0.53 | 0.06 | 0.26 | | 0.13 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 392 | 1402 | | 422 | 695 | 868 | 113 | 875 | | 230 | 1132 | |
| v/s Ratio Prot | | 0.08 | | | 0.17 | 0.01 | 0.03 | 0.06 | | c0.07 | c0.14 | |
| v/s Ratio Perm | 0.07 | | | c0.31 | | 0.04 | | | | | | |
| v/c Ratio | 0.18 | 0.21 | | 0.76 | 0.43 | 0.08 | 0.46 | 0.24 | | 0.58 | 0.45 | |
| Uniform Delay, d1 | 10.9 | 11.0 | | 14.6 | 12.2 | 6.5 | 25.9 | 16.9 | | 23.6 | 15.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.1 | | 7.6 | 0.4 | 0.0 | 3.0 | 0.1 | | 3.7 | 0.3 | |
| Delay (s) | 11.1 | 11.1 | | 22.2 | 12.7 | 6.5 | 28.9 | 17.0 | | 27.3 | 15.7 | |
| Level of Service | B | B | | C | B | A | C | B | | C | B | |
| Approach Delay (s) | | 11.1 | | | 15.7 | | | 18.9 | | | 18.1 | |
| Approach LOS | | B | | | B | | | B | | | B | |

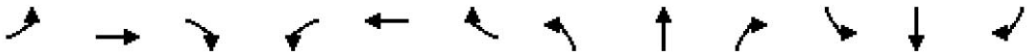
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 57.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 450 | 10 | 10 | 1090 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1800 | 1900 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1900 | 1613 | | 1848 | 1710 | 1615 |
| Flt Permitted | 1.00 | 1.00 | | 0.84 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1900 | 1613 | | 1583 | 1710 | 1615 |
| Peak-hour factor, PHF | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Adj. Flow (vph) | 12 | 556 | 12 | 12 | 1346 | 12 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 12 | 556 | 0 | 24 | 1346 | 12 |
| Confl. Peds. (#/hr) | | 5 | 5 | | 5 | 5 |
| Turn Type | | pm+ov | Perm | | | Prot |
| Protected Phases | 4 | 2 | | 8 | 2 | 2 |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 7.4 | 102.4 | | 7.4 | 95.0 | 95.0 |
| Effective Green, g (s) | 7.4 | 102.4 | | 7.4 | 95.0 | 95.0 |
| Actuated g/C Ratio | 0.07 | 0.91 | | 0.07 | 0.85 | 0.85 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 125 | 1613 | | 104 | 1445 | 1365 |
| v/s Ratio Prot | 0.01 | c0.29 | | | c0.79 | 0.01 |
| v/s Ratio Perm | | 0.05 | | 0.02 | | |
| v/c Ratio | 0.10 | 0.34 | | 0.23 | 0.93 | 0.01 |
| Uniform Delay, d1 | 49.4 | 0.6 | | 49.8 | 6.3 | 1.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.3 | 0.1 | | 1.1 | 11.1 | 0.0 |
| Delay (s) | 49.7 | 0.8 | | 50.9 | 17.4 | 1.4 |
| Level of Service | D | A | | D | B | A |
| Approach Delay (s) | 1.8 | | | 50.9 | 17.3 | |
| Approach LOS | A | | | D | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 112.4 | Sum of lost time (s) | 5.0 |
| Intersection Capacity Utilization | 80.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

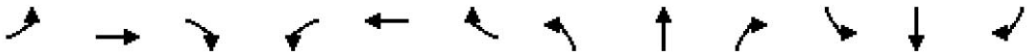
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 290 | 0 | 10 | 620 | 240 | 10 | 20 | 0 | 390 | 10 | 40 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 38 | 362 | 0 | 12 | 775 | 300 | 12 | 25 | 0 | 488 | 12 | 50 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 400 | 1088 | 38 | 550 |
| Volume Left (vph) | 38 | 13 | 13 | 488 |
| Volume Right (vph) | 0 | 300 | 0 | 50 |
| Hadj (s) | 0.02 | -0.16 | 0.07 | 0.12 |
| Departure Headway (s) | 7.2 | 6.8 | 9.1 | 7.1 |
| Degree Utilization, x | 0.81 | 2.05 | 0.10 | 1.08 |
| Capacity (veh/h) | 490 | 537 | 370 | 504 |
| Control Delay (s) | 33.9 | 497.2 | 13.1 | 90.3 |
| Approach Delay (s) | 33.9 | 497.2 | 13.1 | 90.3 |
| Approach LOS | D | F | B | F |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 291.3 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 87.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 610 | 20 | 10 | 840 | 80 | 20 | 10 | 10 | 220 | 10 | 40 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 22 | 656 | 22 | 11 | 903 | 86 | 22 | 11 | 11 | 237 | 11 | 43 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 699 | 1000 | 43 | 290 |
| Volume Left (vph) | 22 | 11 | 22 | 237 |
| Volume Right (vph) | 22 | 86 | 11 | 43 |
| Hadj (s) | -0.01 | -0.05 | -0.05 | 0.07 |
| Departure Headway (s) | 6.3 | 6.3 | 8.5 | 7.3 |
| Degree Utilization, x | 1.22 | 1.74 | 0.10 | 0.59 |
| Capacity (veh/h) | 568 | 582 | 400 | 482 |
| Control Delay (s) | 136.1 | 355.0 | 12.4 | 20.3 |
| Approach Delay (s) | 136.1 | 355.0 | 12.4 | 20.3 |
| Approach LOS | F | F | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 224.6 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 81.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 30 | 820 | 120 | 110 | 840 | 40 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 33 | 891 | 130 | 120 | 913 | 43 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 924 | 250 | 957 |
| Volume Left (vph) | 0 | 130 | 913 |
| Volume Right (vph) | 891 | 0 | 43 |
| Hadj (s) | -0.58 | 0.10 | 0.16 |
| Departure Headway (s) | 5.8 | 7.1 | 6.5 |
| Degree Utilization, x | 1.49 | 0.49 | 1.74 |
| Capacity (veh/h) | 626 | 504 | 558 |
| Control Delay (s) | 244.6 | 16.8 | 355.8 |
| Approach Delay (s) | 244.6 | 16.8 | 355.8 |
| Approach LOS | F | C | F |

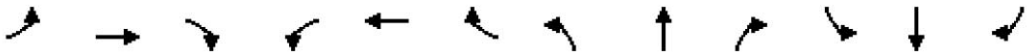
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 267.8 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 123.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 50 | 50 | 290 | 110 | 130 | 270 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 56 | 56 | 322 | 122 | 144 | 300 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 111 | | 850 | 83 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 111 | | 850 | 83 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 78 | | 45 | 69 |
| cM capacity (veh/h) | | | 1491 | | 261 | 982 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 111 | 444 | 444 |
| Volume Left | 0 | 322 | 144 |
| Volume Right | 56 | 0 | 300 |
| cSH | 1700 | 1491 | 518 |
| Volume to Capacity | 0.07 | 0.22 | 0.86 |
| Queue Length 95th (ft) | 0 | 21 | 228 |
| Control Delay (s) | 0.0 | 6.4 | 40.9 |
| Lane LOS | | A | E |
| Approach Delay (s) | 0.0 | 6.4 | 40.9 |
| Approach LOS | | | E |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 21.0 | | |
| Intersection Capacity Utilization | 59.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 10 | 10 | 60 | 10 | 10 | 10 | 280 | 20 | 10 | 350 | 10 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 22 | 11 | 11 | 66 | 11 | 11 | 11 | 308 | 22 | 11 | 385 | 11 |

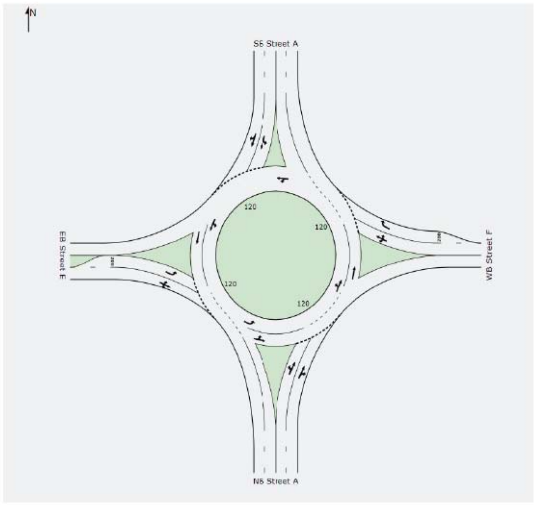
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 44 | 88 | 341 | 407 |
| Volume Left (vph) | 22 | 66 | 11 | 11 |
| Volume Right (vph) | 11 | 11 | 22 | 11 |
| Hadj (s) | -0.05 | 0.07 | -0.03 | -0.01 |
| Departure Headway (s) | 5.8 | 5.8 | 4.8 | 4.7 |
| Degree Utilization, x | 0.07 | 0.14 | 0.45 | 0.53 |
| Capacity (veh/h) | 529 | 541 | 730 | 740 |
| Control Delay (s) | 9.2 | 9.8 | 11.6 | 12.9 |
| Approach Delay (s) | 9.2 | 9.8 | 11.6 | 12.9 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.9 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 36.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

**Title:** Intersection 1 - 2022 Plus Phase 1 - PM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street A | | | | | | | | | | |
| Lane 1 | 571 | 0.0 | 645 | 0.885 | 100 | 16.8 | LOS B | 8.8 | 219.3 | 0.0 |
| Lane 2 | 619 | 0.0 | 700 | 0.885 | 100 | 15.3 | LOS B | 9.1 | 227.2 | 0.0 |
| Approach | 1190 | 0.0 | | 0.885 | | 16.0 | LOS B | 9.1 | 227.2 | |
| East: WB Street F | | | | | | | | | | |
| Lane 1 | 60 | 0.0 | 461 | 0.130 | 100 | 14.4 | LOS B | 0.6 | 14.7 | 0.0 |
| Lane 2 | 30 | 0.0 | 333 | 0.090 | 69 | 13.9 | LOS B | 0.4 | 9.0 | 0.0 |
| Approach | 90 | 0.0 | | 0.130 | | 14.2 | LOS B | 0.6 | 14.7 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 724 | 0.0 | 1322 | 0.548 | 100 | 5.7 | LOS A | 4.4 | 108.8 | 0.0 |
| Lane 2 | 806 | 0.0 | 1470 | 0.548 | 100 | 6.6 | LOS A | 4.4 | 109.9 | 0.0 |
| Approach | 1530 | 0.0 | | 0.548 | | 6.2 | LOS A | 4.4 | 109.9 | |
| West: EB Street E | | | | | | | | | | |
| Lane 1 | 507 | 0.0 | 764 | 0.665 | 100 | 19.3 | LOS B | 5.3 | 132.9 | 0.0 |
| Lane 2 | 533 | 0.0 | 801 | 0.665 | 100 | 18.0 | LOS B | 5.4 | 135.5 | 0.0 |
| Approach | 1040 | 0.0 | | 0.665 | | 18.7 | LOS B | 5.4 | 135.5 | |
| All Vehicles | 3850 | | | 0.885 | | 12.8 | LOS B | 9.1 | 227.2 | |





| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 160 | 380 | 280 | 50 | 90 | 210 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 174 | 413 | 304 | 54 | 98 | 228 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 174 | 413 | 304 | 54 | 98 | 228 |
| Volume Left (vph) | 0 | 0 | 304 | 0 | 98 | 0 |
| Volume Right (vph) | 0 | 413 | 0 | 0 | 0 | 228 |
| Hadj (s) | 0.00 | -0.70 | 0.50 | 0.00 | 0.50 | -0.70 |
| Departure Headway (s) | 6.1 | 5.4 | 6.8 | 6.3 | 7.3 | 6.1 |
| Degree Utilization, x | 0.29 | 0.62 | 0.57 | 0.09 | 0.20 | 0.39 |
| Capacity (veh/h) | 566 | 652 | 515 | 544 | 462 | 552 |
| Control Delay (s) | 10.4 | 15.5 | 17.4 | 8.7 | 10.9 | 11.7 |
| Approach Delay (s) | 14.0 | | 16.1 | | 11.5 | |
| Approach LOS | B | | C | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 13.9 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 46.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

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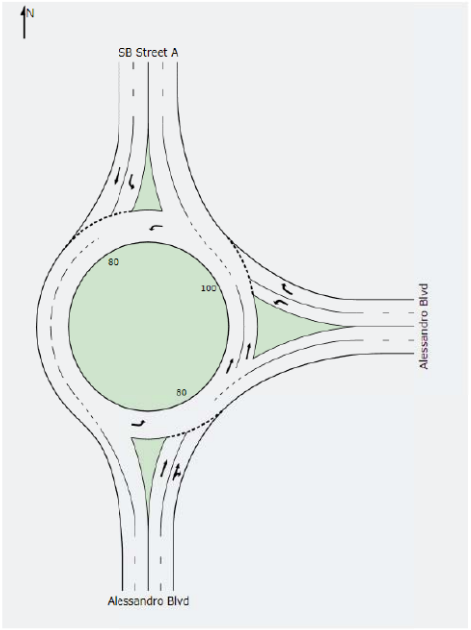
# LANE OUTPUT

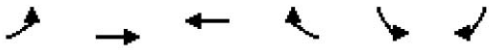
*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 3 - 2022 Plus Phase 1 - PM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 228 | 0.0 | 1147 | 0.199 | 100 | 6.4 | LOS A | 1.1 | 27.3 | 0.0 |
| Lane 2 | 232 | 0.0 | 1166 | 0.199 | 100 | 7.9 | LOS A | 1.1 | 27.3 | 0.0 |
| Approach | 460 | 0.0 | | 0.199 | | 7.1 | LOS A | 1.1 | 27.3 | |
| East: WB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 60 | 0.0 | 1017 | 0.059 | 100 | 13.1 | LOS B | 0.2 | 6.2 | 0.0 |
| Lane 2 | 70 | 0.0 | 1026 | 0.068 | 100 | 7.3 | LOS A | 0.3 | 7.2 | 0.0 |
| Approach | 130 | 0.0 | | 0.068 | | 10.0 | LOS B | 0.3 | 7.2 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 180 | 0.0 | 1332 | 0.135 | 100 | 12.3 | LOS B | 0.6 | 16.2 | 0.0 |
| Lane 2 | 180 | 0.0 | 1371 | 0.131 | 100 | 5.9 | LOS A | 0.6 | 15.8 | 0.0 |
| Approach | 360 | 0.0 | | 0.135 | | 9.1 | LOS A | 0.6 | 16.2 | |
| All Vehicles | 950 | 0.0 | | 0.199 | | 8.3 | LOS A | 1.1 | 27.3 | |

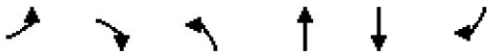




| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 350 | 140 | 20 | 20 | 10 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 380 | 152 | 22 | 22 | 11 |
| Pedestrians | | 5 | 5 | | 5 | |
| Lane Width (ft) | | 12.0 | 12.0 | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | 4.0 | | 4.0 | |
| Percent Blockage | | 0 | 0 | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 179 | | | | 575 | 173 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 179 | | | | 575 | 173 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 95 | 99 |
| cM capacity (veh/h) | 1403 | | | | 475 | 868 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 391 | 174 | 33 |
| Volume Left | 11 | 0 | 22 |
| Volume Right | 0 | 22 | 11 |
| cSH | 1403 | 1700 | 560 |
| Volume to Capacity | 0.01 | 0.10 | 0.06 |
| Queue Length 95th (ft) | 1 | 0 | 5 |
| Control Delay (s) | 0.3 | 0.0 | 11.8 |
| Lane LOS | A | | B |
| Approach Delay (s) | 0.3 | 0.0 | 11.8 |
| Approach LOS | | | B |

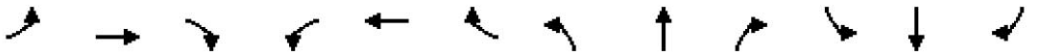
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.8 | | |
| Intersection Capacity Utilization | 38.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 350 | 120 | 310 | 920 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1615 | 1805 | 5187 | 5187 | 1615 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1615 | 1805 | 5187 | 5187 | 1615 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 21 | 361 | 124 | 320 | 948 | 41 |
| RTOR Reduction (vph) | 0 | 288 | 0 | 0 | 0 | 26 |
| Lane Group Flow (vph) | 21 | 73 | 124 | 320 | 948 | 15 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 8.7 | 8.7 | 6.9 | 26.2 | 15.3 | 15.3 |
| Effective Green, g (s) | 8.7 | 8.7 | 6.9 | 26.2 | 15.3 | 15.3 |
| Actuated g/C Ratio | 0.20 | 0.20 | 0.16 | 0.61 | 0.36 | 0.36 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 366 | 328 | 290 | 3168 | 1850 | 576 |
| v/s Ratio Prot | 0.01 | | c0.07 | 0.06 | c0.18 | |
| v/s Ratio Perm | | c0.05 | | | | 0.01 |
| v/c Ratio | 0.06 | 0.22 | 0.43 | 0.10 | 0.51 | 0.03 |
| Uniform Delay, d1 | 13.8 | 14.3 | 16.2 | 3.5 | 10.9 | 9.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.1 | 0.3 | 1.0 | 0.0 | 0.2 | 0.0 |
| Delay (s) | 13.9 | 14.6 | 17.2 | 3.5 | 11.1 | 9.0 |
| Level of Service | B | B | B | A | B | A |
| Approach Delay (s) | 14.6 | | | 7.3 | 11.0 | |
| Approach LOS | B | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 42.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 46.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

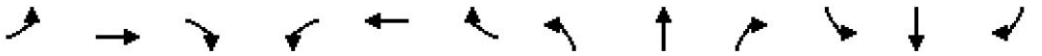
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 170 | 0 | 60 | 5 | 5 | 5 | 70 | 910 | 0 | 10 | 1180 | 170 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 202 | 0 | 71 | 6 | 6 | 6 | 83 | 1083 | 0 | 12 | 1405 | 202 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 2698 | 2689 | 1415 | 2760 | 2891 | 1093 | 1612 | | | 1088 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 2698 | 2689 | 1415 | 2760 | 2891 | 1093 | 1612 | | | 1088 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 100 | 58 | 2 | 53 | 98 | 80 | | | 98 | | |
| cM capacity (veh/h) | 7 | 17 | 169 | 6 | 13 | 261 | 408 | | | 646 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 274 | 18 | 83 | 1083 | 0 | 12 | 1405 | 202 |
| Volume Left | 202 | 6 | 83 | 0 | 0 | 12 | 0 | 0 |
| Volume Right | 71 | 6 | 0 | 0 | 0 | 0 | 0 | 202 |
| cSH | 10 | 12 | 408 | 1700 | 1700 | 646 | 1700 | 1700 |
| Volume to Capacity | 28.11 | 1.48 | 0.20 | 0.64 | 0.00 | 0.02 | 0.83 | 0.12 |
| Queue Length 95th (ft) | Err | 74 | 19 | 0 | 0 | 1 | 0 | 0 |
| Control Delay (s) | Err | 867.4 | 16.1 | 0.0 | 0.0 | 10.7 | 0.0 | 0.0 |
| Lane LOS | F | F | C | | | B | | |
| Approach Delay (s) | Err | 867.4 | 1.1 | | | 0.1 | | |
| Approach LOS | F | F | | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 895.2 | | | |
| Intersection Capacity Utilization | 88.5% | ICU Level of Service | E | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 10 | 30 | 20 | 20 | 0 | 30 | 780 | 10 | 10 | 650 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1766 | | | 1854 | | 1805 | 1895 | | 1805 | 1900 | 1561 |
| Flt Permitted | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1766 | | | 1854 | | 1805 | 1895 | | 1805 | 1900 | 1561 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 96 | 11 | 32 | 21 | 21 | 0 | 32 | 830 | 11 | 11 | 691 | 160 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| Lane Group Flow (vph) | 0 | 131 | 0 | 0 | 42 | 0 | 32 | 841 | 0 | 11 | 691 | 135 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 28.7 | | | 7.1 | | 5.2 | 66.7 | | 1.5 | 63.0 | 63.0 |
| Effective Green, g (s) | | 28.7 | | | 7.1 | | 5.2 | 66.7 | | 1.5 | 63.0 | 63.0 |
| Actuated g/C Ratio | | 0.24 | | | 0.06 | | 0.04 | 0.56 | | 0.01 | 0.52 | 0.52 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 422 | | | 110 | | 78 | 1053 | | 23 | 998 | 820 |
| v/s Ratio Prot | | c0.07 | | | c0.02 | | c0.02 | c0.44 | | 0.01 | 0.36 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.09 |
| v/c Ratio | | 0.31 | | | 0.38 | | 0.41 | 0.80 | | 0.48 | 0.69 | 0.16 |
| Uniform Delay, d1 | | 37.5 | | | 54.3 | | 55.9 | 21.3 | | 58.9 | 21.3 | 14.8 |
| Progression Factor | | 0.89 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.3 | | | 2.2 | | 3.5 | 4.3 | | 14.8 | 2.1 | 0.1 |
| Delay (s) | | 34.6 | | | 56.5 | | 59.4 | 25.6 | | 73.7 | 23.4 | 14.9 |
| Level of Service | | C | | | E | | E | C | | E | C | B |
| Approach Delay (s) | | 34.6 | | | 56.5 | | | 26.8 | | | 22.4 | |
| Approach LOS | | C | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 20 | 200 | 40 | 20 | 180 | 30 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Hourly flow rate (vph) | 26 | 260 | 52 | 26 | 234 | 39 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 516 | 5 | 745 | 478 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 516 | 5 | 745 | 478 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 93 | 76 | 75 | 94 | 86 | |
| cM capacity (veh/h) | 395 | 1080 | 211 | 416 | 1623 | |

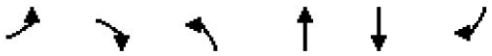
| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 26 | 260 | 78 | 234 | 39 |
| Volume Left | 0 | 0 | 52 | 234 | 0 |
| Volume Right | 0 | 260 | 0 | 0 | 39 |
| cSH | 395 | 1080 | 253 | 1623 | 1700 |
| Volume to Capacity | 0.07 | 0.24 | 0.31 | 0.14 | 0.02 |
| Queue Length 95th (ft) | 5 | 24 | 32 | 13 | 0 |
| Control Delay (s) | 14.8 | 9.4 | 25.5 | 7.6 | 0.0 |
| Lane LOS | B | A | D | A | |
| Approach Delay (s) | 9.9 | | 25.5 | 6.5 | |
| Approach LOS | A | | D | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 10.3 | | | |
| Intersection Capacity Utilization | 26.6% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 10 | 10 | 10 | 120 | 10 | 40 | 10 | 770 | 560 | 270 | 450 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 11 | 11 | 11 | 136 | 11 | 45 | 11 | 875 | 636 | 307 | 511 | 11 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1652 | 2675 | 186 | 1709 | 2044 | 448 | 528 | | | 1516 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1652 | 2675 | 186 | 1709 | 2044 | 448 | 528 | | | 1516 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 17 | 0 | 99 | 0 | 34 | 92 | 99 | | | 31 | | |
| cM capacity (veh/h) | 14 | 7 | 824 | 0 | 17 | 559 | 1045 | | | 444 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 34 | 193 | 11 | 438 | 438 | 636 | 307 | 205 | 205 | 114 |
| Volume Left | 11 | 136 | 11 | 0 | 0 | 0 | 307 | 0 | 0 | 0 |
| Volume Right | 11 | 45 | 0 | 0 | 0 | 636 | 0 | 0 | 0 | 11 |
| cSH | 14 | 0 | 1045 | 1700 | 1700 | 1700 | 444 | 1700 | 1700 | 1700 |
| Volume to Capacity | 2.50 | Err | 0.01 | 0.26 | 0.26 | 0.37 | 0.69 | 0.12 | 0.12 | 0.07 |
| Queue Length 95th (ft) | 127 | Err | 1 | 0 | 0 | 0 | 129 | 0 | 0 | 0 |
| Control Delay (s) | 1249.2 | Err | 8.5 | 0.0 | 0.0 | 0.0 | 29.3 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | F | A | | | | D | | | |
| Approach Delay (s) | 1249.2 | Err | 0.1 | | | | 10.8 | | | |
| Approach LOS | F | F | | | | | | | | |

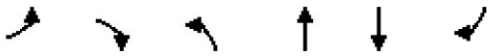
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | Err | | | |
| Intersection Capacity Utilization | 63.0% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 330 | 260 | 170 | 1010 | 500 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.94 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.97 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1738 | | 1805 | 5187 | 5187 | 1615 |
| Flt Permitted | 0.97 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1738 | | 1805 | 5187 | 5187 | 1615 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 384 | 302 | 198 | 1174 | 581 | 105 |
| RTOR Reduction (vph) | 44 | 0 | 0 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 642 | 0 | 198 | 1174 | 581 | 68 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 5 | 2 | 6 | 4 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 22.5 | | 7.0 | 22.7 | 11.7 | 34.2 |
| Effective Green, g (s) | 22.5 | | 7.0 | 22.7 | 11.7 | 34.2 |
| Actuated g/C Ratio | 0.42 | | 0.13 | 0.43 | 0.22 | 0.64 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 735 | | 238 | 2213 | 1141 | 1160 |
| v/s Ratio Prot | c0.37 | | c0.11 | c0.23 | 0.11 | 0.02 |
| v/s Ratio Perm | | | | | | 0.02 |
| v/c Ratio | 0.87 | | 0.83 | 0.53 | 0.51 | 0.06 |
| Uniform Delay, d1 | 14.0 | | 22.5 | 11.3 | 18.2 | 3.5 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 11.1 | | 21.3 | 0.2 | 0.4 | 0.0 |
| Delay (s) | 25.2 | | 43.8 | 11.5 | 18.6 | 3.5 |
| Level of Service | C | | D | B | B | A |
| Approach Delay (s) | 25.2 | | | 16.2 | 16.3 | |
| Approach LOS | C | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 53.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

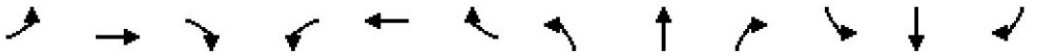
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 240 | 1260 | 210 | 190 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1588 | 3502 | 5187 | 5187 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1588 | 3502 | 5187 | 5187 | 1586 |
| Peak-hour factor, PHF | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 |
| Adj. Flow (vph) | 28 | 333 | 1750 | 292 | 264 | 69 |
| RTOR Reduction (vph) | 0 | 299 | 0 | 0 | 0 | 61 |
| Lane Group Flow (vph) | 28 | 34 | 1750 | 292 | 264 | 8 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 8.9 | 8.9 | 57.0 | 70.9 | 9.9 | 9.9 |
| Effective Green, g (s) | 8.9 | 8.9 | 57.0 | 70.9 | 9.9 | 9.9 |
| Actuated g/C Ratio | 0.10 | 0.10 | 0.65 | 0.81 | 0.11 | 0.11 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 183 | 161 | 2274 | 4189 | 585 | 179 |
| v/s Ratio Prot | 0.02 | | c0.50 | 0.06 | c0.05 | |
| v/s Ratio Perm | | c0.02 | | | | 0.00 |
| v/c Ratio | 0.15 | 0.21 | 0.77 | 0.07 | 0.45 | 0.04 |
| Uniform Delay, d1 | 36.0 | 36.2 | 10.8 | 1.7 | 36.4 | 34.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.7 | 1.6 | 0.0 | 0.6 | 0.1 |
| Delay (s) | 36.4 | 36.9 | 12.4 | 1.7 | 37.0 | 34.8 |
| Level of Service | D | D | B | A | D | C |
| Approach Delay (s) | 36.8 | | | 10.9 | 36.5 | |
| Approach LOS | D | | | B | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 87.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 0 | 1010 | 0 | 0 | 0 | 0 | 1380 | 500 | 0 | 340 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 0.88 | | | | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 0.99 | | | | | 1.00 | 0.98 | | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 2804 | | | | | 5187 | 1590 | | 5187 | 1574 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 2804 | | | | | 5187 | 1590 | | 5187 | 1574 |
| Peak-hour factor, PHF | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 |
| Adj. Flow (vph) | 101 | 0 | 1464 | 0 | 0 | 0 | 0 | 2000 | 725 | 0 | 493 | 101 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 198 | 0 | 0 | 28 |
| Lane Group Flow (vph) | 101 | 0 | 1464 | 0 | 0 | 0 | 0 | 2000 | 527 | 0 | 493 | 73 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | custom | | Free | | | | | | Perm | | | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | Free | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 5.3 | | 48.6 | | | | | 35.3 | 35.3 | | 35.3 | 35.3 |
| Effective Green, g (s) | 5.3 | | 48.6 | | | | | 35.3 | 35.3 | | 35.3 | 35.3 |
| Actuated g/C Ratio | 0.11 | | 1.00 | | | | | 0.73 | 0.73 | | 0.73 | 0.73 |
| Clearance Time (s) | 4.0 | | | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 197 | | 2804 | | | | | 3768 | 1155 | | 3768 | 1143 |
| v/s Ratio Prot | | | | | | | | 0.39 | | | 0.10 | |
| v/s Ratio Perm | 0.06 | | c0.52 | | | | | | 0.33 | | | 0.05 |
| v/c Ratio | 0.51 | | 0.52 | | | | | 0.53 | 0.46 | | 0.13 | 0.06 |
| Uniform Delay, d1 | 20.4 | | 0.0 | | | | | 3.0 | 2.7 | | 2.0 | 1.9 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.2 | | 0.7 | | | | | 0.1 | 0.3 | | 0.0 | 0.0 |
| Delay (s) | 22.7 | | 0.7 | | | | | 3.1 | 3.0 | | 2.0 | 1.9 |
| Level of Service | C | | A | | | | | A | A | | A | A |
| Approach Delay (s) | | 2.1 | | | 0.0 | | | 3.1 | | | 2.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 2.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 48.6 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 38.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

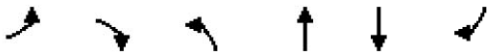
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 220 | 640 | 480 | 90 | 250 | 470 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1592 | 5187 | 1590 | 1805 | 5187 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1592 | 5187 | 1590 | 1805 | 5187 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 239 | 696 | 522 | 98 | 272 | 511 |
| RTOR Reduction (vph) | 0 | 324 | 0 | 76 | 0 | 0 |
| Lane Group Flow (vph) | 239 | 372 | 522 | 22 | 272 | 511 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | | |
| Turn Type | | Perm | | Perm | Prot | |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 17.4 | 17.4 | 12.1 | 12.1 | 13.3 | 29.4 |
| Effective Green, g (s) | 17.4 | 17.4 | 12.1 | 12.1 | 13.3 | 29.4 |
| Actuated g/C Ratio | 0.32 | 0.32 | 0.22 | 0.22 | 0.24 | 0.54 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 573 | 505 | 1145 | 351 | 438 | 2783 |
| v/s Ratio Prot | 0.13 | | c0.10 | | c0.15 | 0.10 |
| v/s Ratio Perm | | c0.23 | | 0.01 | | |
| v/c Ratio | 0.42 | 0.74 | 0.46 | 0.06 | 0.62 | 0.18 |
| Uniform Delay, d1 | 14.7 | 16.7 | 18.5 | 16.9 | 18.5 | 6.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 5.5 | 0.3 | 0.1 | 2.7 | 0.0 |
| Delay (s) | 15.2 | 22.2 | 18.8 | 16.9 | 21.2 | 6.6 |
| Level of Service | B | C | B | B | C | A |
| Approach Delay (s) | 20.4 | | 18.5 | | | 11.7 |
| Approach LOS | C | | B | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 54.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 57.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

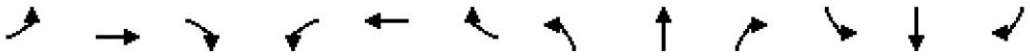
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 160 | 420 | 560 | 1770 | 1620 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1603 | 3502 | 5187 | 5187 | 1585 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1603 | 3502 | 5187 | 5187 | 1585 |
| Peak-hour factor, PHF | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| Adj. Flow (vph) | 246 | 646 | 862 | 2723 | 2492 | 308 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 45 |
| Lane Group Flow (vph) | 246 | 646 | 862 | 2723 | 2492 | 263 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | pm+ov | Prot | | | Perm |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 19.3 | 42.4 | 23.1 | 77.2 | 50.1 | 50.1 |
| Effective Green, g (s) | 19.3 | 42.4 | 23.1 | 77.2 | 50.1 | 50.1 |
| Actuated g/C Ratio | 0.18 | 0.41 | 0.22 | 0.74 | 0.48 | 0.48 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 333 | 712 | 774 | 3832 | 2487 | 760 |
| v/s Ratio Prot | 0.14 | c0.20 | c0.25 | 0.52 | c0.48 | |
| v/s Ratio Perm | | 0.20 | | | | 0.17 |
| v/c Ratio | 0.74 | 0.91 | 1.11 | 0.71 | 1.00 | 0.35 |
| Uniform Delay, d1 | 40.2 | 29.2 | 40.7 | 7.5 | 27.2 | 17.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.3 | 15.2 | 68.2 | 0.6 | 18.5 | 0.3 |
| Delay (s) | 48.5 | 44.4 | 108.9 | 8.1 | 45.7 | 17.2 |
| Level of Service | D | D | F | A | D | B |
| Approach Delay (s) | 45.6 | | | 32.4 | 42.6 | |
| Approach LOS | D | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 104.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

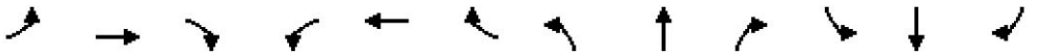
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 420 | 220 | 10 | 420 | 10 | 250 | 0 | 20 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 452 | 237 | 11 | 452 | 11 | 269 | 0 | 22 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 467 | | | 693 | | | 827 | 1064 | 354 | 714 | 1177 | 241 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 467 | | | 693 | | | 827 | 1064 | 354 | 714 | 1177 | 241 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 99 | | | 0 | 100 | 97 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1100 | | | 908 | | | 261 | 220 | 643 | 304 | 189 | 759 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 226 | 462 | 237 | 237 | 269 | 22 | 0 |
| Volume Left | 0 | 0 | 11 | 0 | 269 | 0 | 0 |
| Volume Right | 0 | 237 | 0 | 11 | 0 | 22 | 0 |
| cSH | 1100 | 1700 | 908 | 1700 | 261 | 643 | 1700 |
| Volume to Capacity | 0.00 | 0.27 | 0.01 | 0.14 | 1.03 | 0.03 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 264 | 3 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.5 | 0.0 | 105.9 | 10.8 | 0.0 |
| Lane LOS | | | A | | F | B | A |
| Approach Delay (s) | 0.0 | | 0.3 | | 98.9 | | 0.0 |
| Approach LOS | | | | | F | | A |

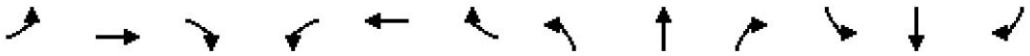
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 19.9 | | |
| Intersection Capacity Utilization | 39.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 210 | 120 | 120 | 210 | 30 | 70 | 630 | 60 | 20 | 810 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3394 | | 1805 | 3536 | | 1805 | 3558 | | 1805 | 3550 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3394 | | 1805 | 3536 | | 1805 | 3558 | | 1805 | 3550 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 118 | 226 | 129 | 129 | 226 | 32 | 75 | 677 | 65 | 22 | 871 | 97 |
| RTOR Reduction (vph) | 0 | 106 | 0 | 0 | 15 | 0 | 0 | 7 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 118 | 249 | 0 | 129 | 243 | 0 | 75 | 735 | 0 | 22 | 959 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 5.9 | 11.7 | | 7.3 | 13.1 | | 5.2 | 28.8 | | 1.2 | 24.8 | |
| Effective Green, g (s) | 5.9 | 11.7 | | 7.3 | 13.1 | | 5.2 | 28.8 | | 1.2 | 24.8 | |
| Actuated g/C Ratio | 0.09 | 0.18 | | 0.11 | 0.20 | | 0.08 | 0.44 | | 0.02 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 164 | 611 | | 203 | 713 | | 144 | 1576 | | 33 | 1354 | |
| v/s Ratio Prot | 0.07 | c0.07 | | c0.07 | 0.07 | | c0.04 | c0.21 | | 0.01 | c0.27 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.72 | 0.41 | | 0.64 | 0.34 | | 0.52 | 0.47 | | 0.67 | 0.71 | |
| Uniform Delay, d1 | 28.7 | 23.6 | | 27.6 | 22.2 | | 28.7 | 12.7 | | 31.7 | 17.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 14.0 | 0.4 | | 6.4 | 0.3 | | 3.4 | 0.2 | | 40.8 | 1.7 | |
| Delay (s) | 42.8 | 24.0 | | 33.9 | 22.5 | | 32.1 | 12.9 | | 72.5 | 18.8 | |
| Level of Service | D | C | | C | C | | C | B | | E | B | |
| Approach Delay (s) | | 28.7 | | | 26.3 | | | 14.7 | | | 20.0 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 65.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 62.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

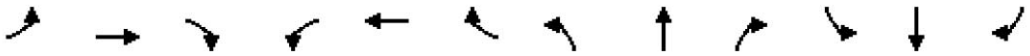
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 70 | 10 | 20 | 10 | 10 | 10 | 90 | 370 | 10 | 10 | 190 | 260 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 74 | 11 | 21 | 11 | 11 | 11 | 95 | 389 | 11 | 11 | 200 | 274 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 74 | 32 | 32 | 484 | 11 | 111 | 374 |
| Volume Left (vph) | 74 | 0 | 11 | 95 | 0 | 11 | 0 |
| Volume Right (vph) | 0 | 21 | 11 | 0 | 11 | 0 | 274 |
| Hadj (s) | 0.50 | -0.47 | -0.13 | 0.10 | -0.70 | 0.05 | -0.51 |
| Departure Headway (s) | 7.3 | 6.4 | 6.8 | 5.6 | 4.8 | 5.6 | 5.0 |
| Degree Utilization, x | 0.15 | 0.06 | 0.06 | 0.75 | 0.01 | 0.17 | 0.52 |
| Capacity (veh/h) | 448 | 509 | 466 | 632 | 722 | 623 | 704 |
| Control Delay (s) | 10.4 | 8.5 | 10.3 | 22.1 | 6.6 | 8.5 | 12.0 |
| Approach Delay (s) | 9.9 | | 10.3 | 21.8 | | 11.2 | |
| Approach LOS | A | | B | C | | B | |

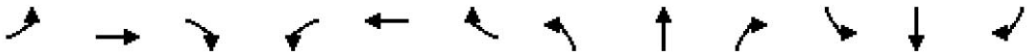
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 15.8 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 58.9% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 310 | 160 | 80 | 300 | 30 | 100 | 200 | 40 | 30 | 140 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.99 | |
| Satd. Flow (prot) | 1805 | 3394 | | 1805 | 1900 | 1570 | | 1869 | 1589 | | 1833 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.98 | 1.00 | | 0.99 | |
| Satd. Flow (perm) | 1805 | 3394 | | 1805 | 1900 | 1570 | | 1869 | 1589 | | 1833 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 11 | 344 | 178 | 89 | 333 | 33 | 111 | 222 | 44 | 33 | 156 | 44 |
| RTOR Reduction (vph) | 0 | 64 | 0 | 0 | 0 | 23 | 0 | 0 | 33 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 11 | 458 | 0 | 89 | 333 | 10 | 0 | 333 | 11 | 0 | 224 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.0 | 19.3 | | 5.2 | 23.5 | 23.5 | | 18.9 | 18.9 | | 15.2 | |
| Effective Green, g (s) | 1.0 | 19.3 | | 5.2 | 23.5 | 23.5 | | 18.9 | 18.9 | | 15.2 | |
| Actuated g/C Ratio | 0.01 | 0.26 | | 0.07 | 0.32 | 0.32 | | 0.25 | 0.25 | | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 24 | 878 | | 126 | 599 | 495 | | 474 | 403 | | 373 | |
| v/s Ratio Prot | 0.01 | 0.14 | | c0.05 | c0.18 | | | c0.18 | | | c0.12 | |
| v/s Ratio Perm | | | | | | 0.01 | | | 0.01 | | | |
| v/c Ratio | 0.46 | 0.52 | | 0.71 | 0.56 | 0.02 | | 0.70 | 0.03 | | 0.60 | |
| Uniform Delay, d1 | 36.5 | 23.7 | | 34.0 | 21.2 | 17.6 | | 25.3 | 20.9 | | 26.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 13.2 | 0.6 | | 16.5 | 1.1 | 0.0 | | 4.7 | 0.0 | | 2.7 | |
| Delay (s) | 49.8 | 24.3 | | 50.4 | 22.3 | 17.6 | | 30.0 | 21.0 | | 29.7 | |
| Level of Service | D | C | | D | C | B | | C | C | | C | |
| Approach Delay (s) | | 24.8 | | | 27.5 | | | 28.9 | | | 29.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 74.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

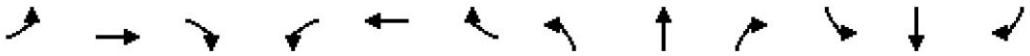
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 190 | 140 | 30 | 140 | 30 | 130 | 520 | 40 | 70 | 660 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3359 | | 1805 | 3507 | | 1805 | 3610 | 1595 | 1805 | 4996 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3359 | | 1805 | 3507 | | 1805 | 3610 | 1595 | 1805 | 4996 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 151 | 204 | 151 | 32 | 151 | 32 | 140 | 559 | 43 | 75 | 710 | 204 |
| RTOR Reduction (vph) | 0 | 114 | 0 | 0 | 26 | 0 | 0 | 0 | 26 | 0 | 51 | 0 |
| Lane Group Flow (vph) | 151 | 241 | 0 | 32 | 157 | 0 | 140 | 559 | 17 | 75 | 863 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.1 | 14.5 | | 4.0 | 10.4 | | 7.1 | 18.9 | 22.9 | 5.5 | 17.3 | |
| Effective Green, g (s) | 8.1 | 14.5 | | 4.0 | 10.4 | | 7.1 | 18.9 | 22.9 | 5.5 | 17.3 | |
| Actuated g/C Ratio | 0.14 | 0.25 | | 0.07 | 0.18 | | 0.12 | 0.32 | 0.39 | 0.09 | 0.29 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 248 | 827 | | 123 | 619 | | 218 | 1158 | 728 | 169 | 1467 | |
| v/s Ratio Prot | c0.08 | c0.07 | | 0.02 | 0.04 | | c0.08 | 0.15 | 0.00 | 0.04 | c0.17 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.61 | 0.29 | | 0.26 | 0.25 | | 0.64 | 0.48 | 0.02 | 0.44 | 0.59 | |
| Uniform Delay, d1 | 23.9 | 18.0 | | 26.0 | 20.9 | | 24.7 | 16.1 | 11.1 | 25.3 | 17.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.2 | 0.2 | | 1.1 | 0.2 | | 6.3 | 0.3 | 0.0 | 1.9 | 0.6 | |
| Delay (s) | 28.1 | 18.2 | | 27.2 | 21.1 | | 31.0 | 16.4 | 11.1 | 27.1 | 18.4 | |
| Level of Service | C | B | | C | C | | C | B | B | C | B | |
| Approach Delay (s) | | 21.2 | | | 22.0 | | | 18.8 | | | 19.0 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 58.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 58.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

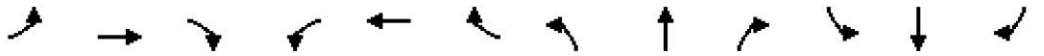
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 150 | 30 | 60 | 420 | 80 | 160 | 70 | 210 | 130 | 70 | 180 | 90 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 160 | 32 | 64 | 447 | 85 | 170 | 74 | 223 | 138 | 74 | 191 | 96 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 176 | 80 | 702 | 186 | 250 | 170 | 191 |
| Volume Left (vph) | 160 | 0 | 447 | 74 | 0 | 74 | 0 |
| Volume Right (vph) | 0 | 64 | 170 | 0 | 138 | 0 | 96 |
| Hadj (s) | 0.45 | -0.56 | -0.02 | 0.20 | -0.39 | 0.22 | -0.35 |
| Departure Headway (s) | 8.6 | 7.6 | 7.5 | 8.2 | 7.6 | 8.3 | 7.7 |
| Degree Utilization, x | 0.42 | 0.17 | 1.46 | 0.42 | 0.53 | 0.39 | 0.41 |
| Capacity (veh/h) | 402 | 451 | 482 | 432 | 455 | 421 | 452 |
| Control Delay (s) | 16.6 | 11.0 | 238.9 | 15.8 | 17.5 | 15.4 | 14.9 |
| Approach Delay (s) | 14.8 | | 238.9 | 16.8 | | 15.1 | |
| Approach LOS | B | | F | C | | C | |

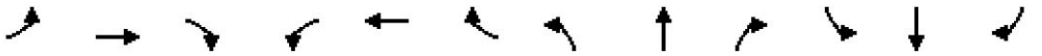
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 105.0 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 76.9% | ICU Level of Service | | D |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 60 | 40 | 390 | 90 | 90 | 20 | 420 | 240 | 140 | 640 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3376 | | 1805 | 3316 | | 1805 | 5187 | 1601 | 1805 | 5043 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3376 | | 1805 | 3316 | | 1805 | 5187 | 1601 | 1805 | 5043 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 97 | 65 | 43 | 419 | 97 | 97 | 22 | 452 | 258 | 151 | 688 | 140 |
| RTOR Reduction (vph) | 0 | 38 | 0 | 0 | 81 | 0 | 0 | 0 | 143 | 0 | 25 | 0 |
| Lane Group Flow (vph) | 97 | 70 | 0 | 419 | 113 | 0 | 22 | 452 | 115 | 151 | 803 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.9 | 6.6 | | 9.4 | 9.1 | | 1.1 | 14.5 | 23.9 | 7.3 | 20.7 | |
| Effective Green, g (s) | 6.9 | 6.6 | | 9.4 | 9.1 | | 1.1 | 14.5 | 23.9 | 7.3 | 20.7 | |
| Actuated g/C Ratio | 0.13 | 0.12 | | 0.17 | 0.17 | | 0.02 | 0.27 | 0.44 | 0.14 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 231 | 414 | | 315 | 561 | | 37 | 1398 | 830 | 245 | 1940 | |
| v/s Ratio Prot | 0.05 | 0.02 | | c0.23 | c0.03 | | 0.01 | 0.09 | 0.02 | c0.08 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.42 | 0.17 | | 1.33 | 0.20 | | 0.59 | 0.32 | 0.14 | 0.62 | 0.41 | |
| Uniform Delay, d1 | 21.6 | 21.1 | | 22.2 | 19.2 | | 26.1 | 15.7 | 8.9 | 21.9 | 12.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.2 | 0.2 | | 168.8 | 0.2 | | 23.1 | 0.1 | 0.1 | 4.6 | 0.1 | |
| Delay (s) | 22.8 | 21.3 | | 191.0 | 19.4 | | 49.2 | 15.9 | 8.9 | 26.5 | 12.3 | |
| Level of Service | C | C | | F | B | | D | B | A | C | B | |
| Approach Delay (s) | | 22.1 | | | 136.7 | | | 14.4 | | | 14.4 | |
| Approach LOS | | C | | | F | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 44.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 53.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 67.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

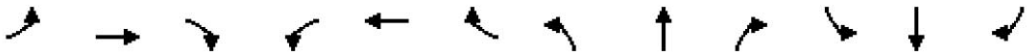
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 450 | 160 | 150 | 360 | 80 | 220 | 900 | 150 | 60 | 720 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1601 | 1805 | 3501 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1595 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1601 | 1805 | 3501 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1595 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 216 | 464 | 165 | 155 | 371 | 82 | 227 | 928 | 155 | 62 | 742 | 216 |
| RTOR Reduction (vph) | 0 | 0 | 39 | 0 | 19 | 0 | 0 | 0 | 36 | 0 | 0 | 81 |
| Lane Group Flow (vph) | 216 | 464 | 126 | 155 | 434 | 0 | 227 | 928 | 119 | 62 | 742 | 135 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 16.4 | 24.4 | 45.9 | 12.6 | 20.6 | | 21.5 | 58.7 | 71.3 | 8.3 | 45.5 | 61.9 |
| Effective Green, g (s) | 16.4 | 24.4 | 45.9 | 12.6 | 20.6 | | 21.5 | 58.7 | 71.3 | 8.3 | 45.5 | 61.9 |
| Actuated g/C Ratio | 0.14 | 0.20 | 0.38 | 0.10 | 0.17 | | 0.18 | 0.49 | 0.59 | 0.07 | 0.38 | 0.52 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 247 | 734 | 666 | 190 | 601 | | 323 | 1766 | 999 | 125 | 1369 | 876 |
| v/s Ratio Prot | c0.12 | c0.13 | 0.03 | 0.09 | c0.12 | | c0.13 | c0.26 | 0.01 | 0.03 | 0.21 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | | | | 0.06 | | | 0.06 |
| v/c Ratio | 0.87 | 0.63 | 0.19 | 0.82 | 0.72 | | 0.70 | 0.53 | 0.12 | 0.50 | 0.54 | 0.15 |
| Uniform Delay, d1 | 50.8 | 43.7 | 24.7 | 52.6 | 47.0 | | 46.2 | 21.1 | 10.6 | 53.8 | 29.1 | 15.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.99 | 1.17 | 1.13 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 27.2 | 1.8 | 0.1 | 22.9 | 4.3 | | 5.6 | 0.9 | 0.0 | 3.1 | 1.5 | 0.1 |
| Delay (s) | 77.9 | 45.5 | 24.8 | 75.4 | 51.3 | | 51.6 | 25.6 | 12.0 | 56.9 | 30.7 | 15.4 |
| Level of Service | E | D | C | E | D | | D | C | B | E | C | B |
| Approach Delay (s) | | 49.7 | | | 57.4 | | | 28.5 | | | 29.0 | |
| Approach LOS | | D | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 80.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

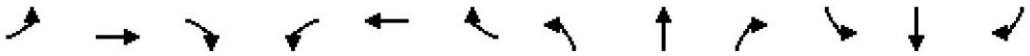
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 250 | 10 | 170 | 590 | 1480 | 0 | 0 | 740 | 410 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3392 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3392 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 0 | 0 | 266 | 11 | 181 | 628 | 1574 | 0 | 0 | 787 | 436 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 63 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 277 | 147 | 628 | 1574 | 0 | 0 | 1160 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 24.1 | 24.1 | 47.9 | 87.9 | | | 36.0 | |
| Effective Green, g (s) | | | | | 24.1 | 24.1 | 47.9 | 87.9 | | | 36.0 | |
| Actuated g/C Ratio | | | | | 0.20 | 0.20 | 0.40 | 0.73 | | | 0.30 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 364 | 319 | 720 | 2644 | | | 1018 | |
| v/s Ratio Prot | | | | | c0.15 | | c0.35 | 0.44 | | | c0.34 | |
| v/s Ratio Perm | | | | | | 0.09 | | | | | | |
| v/c Ratio | | | | | 0.76 | 0.46 | 0.87 | 0.60 | | | 1.14 | |
| Uniform Delay, d1 | | | | | 45.2 | 42.2 | 33.2 | 7.6 | | | 42.0 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.73 | |
| Incremental Delay, d2 | | | | | 9.1 | 1.1 | 11.3 | 1.0 | | | 73.8 | |
| Delay (s) | | | | | 54.3 | 43.3 | 44.5 | 8.6 | | | 104.5 | |
| Level of Service | | | | | D | D | D | A | | | F | |
| Approach Delay (s) | | 0.0 | | | 50.0 | | | 18.9 | | | 104.5 | |
| Approach LOS | | A | | | D | | | B | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 49.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.94 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 120.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

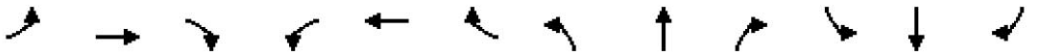
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 540 | 10 | 470 | 0 | 0 | 0 | 0 | 1340 | 460 | 190 | 870 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.96 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1722 | 1590 | | | | | 4950 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1722 | 1590 | | | | | 4950 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 557 | 10 | 485 | 0 | 0 | 0 | 0 | 1381 | 474 | 196 | 897 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 85 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 284 | 283 | 400 | 0 | 0 | 0 | 0 | 1790 | 0 | 196 | 897 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 26.4 | 26.4 | 26.4 | | | | | 34.3 | | 11.0 | 49.3 | |
| Effective Green, g (s) | 26.4 | 26.4 | 26.4 | | | | | 34.3 | | 11.0 | 49.3 | |
| Actuated g/C Ratio | 0.32 | 0.32 | 0.32 | | | | | 0.41 | | 0.13 | 0.59 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 541 | 543 | 502 | | | | | 2028 | | 237 | 2126 | |
| v/s Ratio Prot | 0.17 | 0.16 | | | | | | c0.36 | | c0.11 | 0.25 | |
| v/s Ratio Perm | | | c0.25 | | | | | | | | | |
| v/c Ratio | 0.52 | 0.52 | 0.80 | | | | | 0.88 | | 0.83 | 0.42 | |
| Uniform Delay, d1 | 23.5 | 23.5 | 26.2 | | | | | 22.8 | | 35.4 | 9.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 0.9 | 8.6 | | | | | 4.9 | | 20.5 | 0.1 | |
| Delay (s) | 24.4 | 24.4 | 34.8 | | | | | 27.8 | | 55.9 | 9.5 | |
| Level of Service | C | C | C | | | | | C | | E | A | |
| Approach Delay (s) | | 29.2 | | | 0.0 | | | 27.8 | | | 17.9 | |
| Approach LOS | | C | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 83.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 120.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

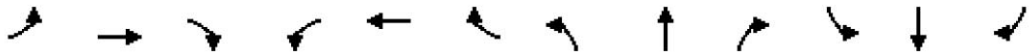


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 660 | 610 | 600 | 70 | 110 | 480 | 180 | 1170 | 130 | 410 | 830 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.88 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1597 | 1805 | 3169 | | 1805 | 5100 | | 3502 | 3610 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1597 | 1805 | 3169 | | 1805 | 5100 | | 3502 | 3610 | 1598 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 710 | 656 | 645 | 75 | 118 | 516 | 194 | 1258 | 140 | 441 | 892 | 140 |
| RTOR Reduction (vph) | 0 | 0 | 30 | 0 | 206 | 0 | 0 | 11 | 0 | 0 | 0 | 60 |
| Lane Group Flow (vph) | 710 | 656 | 615 | 75 | 428 | 0 | 194 | 1387 | 0 | 441 | 892 | 80 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 25.8 | 36.5 | 53.9 | 7.0 | 17.7 | | 17.4 | 43.6 | | 16.9 | 43.1 | 68.9 |
| Effective Green, g (s) | 25.8 | 36.5 | 53.9 | 7.0 | 17.7 | | 17.4 | 43.6 | | 16.9 | 43.1 | 68.9 |
| Actuated g/C Ratio | 0.22 | 0.30 | 0.45 | 0.06 | 0.15 | | 0.14 | 0.36 | | 0.14 | 0.36 | 0.57 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 753 | 1098 | 771 | 105 | 467 | | 262 | 1853 | | 493 | 1297 | 971 |
| v/s Ratio Prot | c0.20 | 0.18 | c0.12 | 0.04 | 0.13 | | 0.11 | c0.27 | | 0.13 | 0.25 | 0.02 |
| v/s Ratio Perm | | | 0.27 | | | | | | | | | 0.03 |
| v/c Ratio | 0.94 | 0.60 | 0.80 | 0.71 | 1.16dr | | 0.74 | 0.75 | | 0.89 | 0.69 | 0.08 |
| Uniform Delay, d1 | 46.4 | 35.5 | 28.4 | 55.5 | 50.4 | | 49.1 | 33.4 | | 50.7 | 32.7 | 11.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.41 | 0.30 | | 1.42 | 0.38 | 0.03 |
| Incremental Delay, d2 | 20.0 | 0.9 | 5.8 | 20.5 | 22.5 | | 6.9 | 1.8 | | 13.9 | 2.1 | 0.0 |
| Delay (s) | 66.4 | 36.4 | 34.2 | 76.0 | 72.9 | | 76.2 | 11.8 | | 86.0 | 14.4 | 0.3 |
| Level of Service | E | D | C | E | E | | E | B | | F | B | A |
| Approach Delay (s) | | 46.3 | | | 73.3 | | | 19.6 | | | 34.5 | |
| Approach LOS | | D | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 4.0 |
| Intersection Capacity Utilization | 92.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

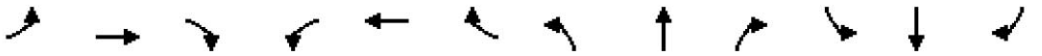
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 170 | 10 | 170 | 620 | 1650 | 0 | 0 | 1170 | 380 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | | 0.97 | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.93 | | 1.00 | 1.00 | | | 0.96 | |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1718 | | 3502 | 3610 | | | 4971 | |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1718 | | 3502 | 3610 | | | 4971 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 175 | 10 | 175 | 639 | 1701 | 0 | 0 | 1206 | 392 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 46 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 332 | 0 | 639 | 1701 | 0 | 0 | 1552 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 27.0 | | 30.0 | 85.0 | | | 51.0 | |
| Effective Green, g (s) | | | | | 27.0 | | 30.0 | 85.0 | | | 51.0 | |
| Actuated g/C Ratio | | | | | 0.22 | | 0.25 | 0.71 | | | 0.42 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 387 | | 876 | 2557 | | | 2113 | |
| v/s Ratio Prot | | | | | c0.19 | | c0.18 | 0.47 | | | c0.31 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.86 | | 0.73 | 0.67 | | | 0.73 | |
| Uniform Delay, d1 | | | | | 44.7 | | 41.3 | 9.7 | | | 28.8 | |
| Progression Factor | | | | | 1.00 | | 0.77 | 0.44 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 16.9 | | 1.6 | 0.7 | | | 2.3 | |
| Delay (s) | | | | | 61.6 | | 33.5 | 4.9 | | | 31.2 | |
| Level of Service | | | | | E | | C | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 61.6 | | | 12.7 | | | 31.2 | |
| Approach LOS | | A | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 240 | 70 | 80 | 160 | 110 | 80 | 1280 | 70 | 170 | 1170 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3610 | 1567 | 1805 | 3610 | 1566 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 44 | 264 | 77 | 88 | 176 | 121 | 88 | 1407 | 77 | 187 | 1286 | 55 |
| RTOR Reduction (vph) | 0 | 0 | 41 | 0 | 0 | 97 | 0 | 0 | 15 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 44 | 264 | 36 | 88 | 176 | 24 | 88 | 1407 | 62 | 187 | 1286 | 45 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 5.6 | 22.8 | 22.8 | 7.0 | 24.2 | 24.2 | 11.1 | 55.5 | 55.5 | 18.7 | 63.1 | 63.1 |
| Effective Green, g (s) | 5.6 | 22.8 | 22.8 | 7.0 | 24.2 | 24.2 | 11.1 | 55.5 | 55.5 | 18.7 | 63.1 | 63.1 |
| Actuated g/C Ratio | 0.05 | 0.19 | 0.19 | 0.06 | 0.20 | 0.20 | 0.09 | 0.46 | 0.46 | 0.16 | 0.53 | 0.53 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 84 | 361 | 302 | 105 | 383 | 320 | 167 | 1670 | 725 | 281 | 1898 | 823 |
| v/s Ratio Prot | 0.02 | c0.14 | | c0.05 | 0.09 | | 0.05 | c0.39 | | c0.10 | 0.36 | |
| v/s Ratio Perm | | | 0.02 | | | 0.02 | | | 0.04 | | | 0.03 |
| v/c Ratio | 0.52 | 0.73 | 0.12 | 0.84 | 0.46 | 0.08 | 0.53 | 0.84 | 0.09 | 0.67 | 0.68 | 0.05 |
| Uniform Delay, d1 | 55.9 | 45.7 | 40.3 | 55.9 | 42.1 | 38.8 | 51.9 | 28.4 | 18.1 | 47.7 | 21.0 | 13.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 0.97 | 0.71 |
| Incremental Delay, d2 | 5.8 | 7.4 | 0.2 | 41.2 | 0.9 | 0.1 | 3.0 | 5.4 | 0.2 | 3.8 | 1.3 | 0.1 |
| Delay (s) | 61.7 | 53.2 | 40.4 | 97.2 | 43.0 | 38.9 | 54.9 | 33.8 | 18.3 | 50.3 | 21.5 | 10.0 |
| Level of Service | E | D | D | F | D | D | D | C | B | D | C | A |
| Approach Delay (s) | | 51.6 | | | 54.1 | | | 34.2 | | | 24.6 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 79.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

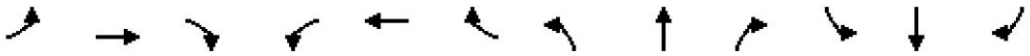
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 10 | 180 | 10 | 10 | 280 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 10 | 10 | 188 | 10 | 10 | 292 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 21 | | 406 | 21 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 21 | | 406 | 21 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 88 | | 98 | 72 |
| cM capacity (veh/h) | | | 1608 | | 532 | 1058 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 21 | 198 | 10 | 292 |
| Volume Left | 0 | 188 | 10 | 0 |
| Volume Right | 10 | 0 | 0 | 292 |
| cSH | 1700 | 1608 | 532 | 1058 |
| Volume to Capacity | 0.01 | 0.12 | 0.02 | 0.28 |
| Queue Length 95th (ft) | 0 | 10 | 1 | 28 |
| Control Delay (s) | 0.0 | 7.2 | 11.9 | 9.7 |
| Lane LOS | | A | B | A |
| Approach Delay (s) | 0.0 | 7.2 | 9.8 | |
| Approach LOS | | | A | |

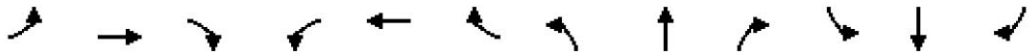
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.4 | | |
| Intersection Capacity Utilization | 27.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 100 | 180 | 150 | 100 | 10 | 130 | 280 | 130 | 0 | 200 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.90 | | 1.00 | 0.99 | | | 0.97 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1679 | | 1805 | 1869 | | | 1802 | | | 1858 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1679 | | 1805 | 1869 | | | 1802 | | | 1858 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 52 | 103 | 186 | 155 | 103 | 10 | 134 | 289 | 134 | 0 | 206 | 31 |
| RTOR Reduction (vph) | 0 | 51 | 0 | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 52 | 238 | 0 | 155 | 110 | 0 | 0 | 547 | 0 | 0 | 232 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 6.9 | 32.5 | | 12.9 | 38.5 | | | 39.7 | | | 18.9 | |
| Effective Green, g (s) | 6.9 | 32.5 | | 12.9 | 38.5 | | | 39.7 | | | 18.9 | |
| Actuated g/C Ratio | 0.06 | 0.27 | | 0.11 | 0.32 | | | 0.33 | | | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 104 | 455 | | 194 | 600 | | | 596 | | | 293 | |
| v/s Ratio Prot | 0.03 | c0.14 | | c0.09 | 0.06 | | | c0.30 | | | c0.12 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.50 | 0.52 | | 0.80 | 0.18 | | | 0.92 | | | 0.79 | |
| Uniform Delay, d1 | 54.9 | 37.2 | | 52.3 | 29.4 | | | 38.6 | | | 48.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.14 | 0.66 | | | 1.00 | | | 1.05 | |
| Incremental Delay, d2 | 3.7 | 4.3 | | 20.0 | 0.7 | | | 19.0 | | | 13.5 | |
| Delay (s) | 58.6 | 41.4 | | 79.5 | 20.1 | | | 57.6 | | | 64.7 | |
| Level of Service | E | D | | E | C | | | E | | | E | |
| Approach Delay (s) | | 44.0 | | | 54.5 | | | 57.6 | | | 64.7 | |
| Approach LOS | | D | | | D | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

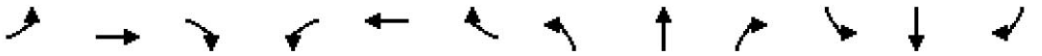
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 50 | 820 | 40 | 20 | 490 | 100 | 670 | 20 | 250 | 510 | 400 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | |
| Flt Protected | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1828 | 2797 | 1805 | 1900 | 1589 | 1805 | 3610 | 1570 | 1805 | 4783 | |
| Flt Permitted | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1828 | 2797 | 1805 | 1900 | 1589 | 1805 | 3610 | 1570 | 1805 | 4783 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 196 | 52 | 845 | 41 | 21 | 505 | 103 | 691 | 21 | 258 | 526 | 412 |
| RTOR Reduction (vph) | 0 | 0 | 632 | 0 | 0 | 277 | 0 | 0 | 16 | 0 | 113 | 0 |
| Lane Group Flow (vph) | 0 | 248 | 213 | 41 | 21 | 228 | 103 | 691 | 5 | 258 | 825 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 22.6 | 22.6 | 18.3 | 18.3 | 18.3 | 9.5 | 23.1 | 23.1 | 9.6 | 23.2 | |
| Effective Green, g (s) | | 22.6 | 22.6 | 18.3 | 18.3 | 18.3 | 9.5 | 23.1 | 23.1 | 9.6 | 23.2 | |
| Actuated g/C Ratio | | 0.25 | 0.25 | 0.20 | 0.20 | 0.20 | 0.11 | 0.26 | 0.26 | 0.11 | 0.26 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 461 | 705 | 369 | 388 | 325 | 191 | 931 | 405 | 193 | 1238 | |
| v/s Ratio Prot | | c0.14 | | 0.02 | 0.01 | | 0.06 | c0.19 | | c0.14 | 0.17 | |
| v/s Ratio Perm | | | 0.08 | | | c0.14 | | | 0.00 | | | |
| v/c Ratio | | 0.54 | 0.30 | 0.11 | 0.05 | 0.70 | 0.54 | 0.74 | 0.01 | 1.34 | 0.67 | |
| Uniform Delay, d1 | | 29.0 | 27.1 | 29.0 | 28.7 | 33.1 | 38.0 | 30.5 | 24.8 | 40.0 | 29.7 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.2 | 0.2 | 0.1 | 0.1 | 6.7 | 2.9 | 3.2 | 0.0 | 182.3 | 1.4 | |
| Delay (s) | | 30.2 | 27.4 | 29.2 | 28.7 | 39.8 | 40.9 | 33.7 | 24.8 | 222.3 | 31.1 | |
| Level of Service | | C | C | C | C | D | D | C | C | F | C | |
| Approach Delay (s) | | 28.0 | | | 38.6 | | | 34.4 | | | 72.4 | |
| Approach LOS | | C | | | D | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 89.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 75.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

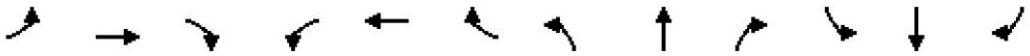
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 580 | 270 | 230 | 260 | 90 | 130 | 1100 | 180 | 180 | 1000 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3419 | | 1805 | 3456 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3419 | | 1805 | 3456 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 156 | 644 | 300 | 256 | 289 | 100 | 144 | 1222 | 200 | 200 | 1111 | 78 |
| RTOR Reduction (vph) | 0 | 46 | 0 | 0 | 29 | 0 | 0 | 0 | 103 | 0 | 0 | 41 |
| Lane Group Flow (vph) | 156 | 898 | 0 | 256 | 360 | 0 | 144 | 1222 | 97 | 200 | 1111 | 37 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.6 | 35.1 | | 15.0 | 37.5 | | 11.7 | 40.0 | 40.0 | 13.9 | 42.2 | 42.2 |
| Effective Green, g (s) | 12.6 | 35.1 | | 15.0 | 37.5 | | 11.7 | 40.0 | 40.0 | 13.9 | 42.2 | 42.2 |
| Actuated g/C Ratio | 0.10 | 0.29 | | 0.12 | 0.31 | | 0.10 | 0.33 | 0.33 | 0.12 | 0.35 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 190 | 1000 | | 226 | 1080 | | 176 | 1203 | 529 | 209 | 1270 | 558 |
| v/s Ratio Prot | 0.09 | c0.26 | | c0.14 | 0.10 | | 0.08 | c0.34 | | c0.11 | 0.31 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | 0.02 |
| v/c Ratio | 0.82 | 0.90 | | 1.13 | 0.33 | | 0.82 | 1.02 | 0.18 | 0.96 | 0.87 | 0.07 |
| Uniform Delay, d1 | 52.6 | 40.7 | | 52.5 | 31.7 | | 53.1 | 40.0 | 28.4 | 52.8 | 36.4 | 25.8 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.34 | 0.58 | 0.14 |
| Incremental Delay, d2 | 23.9 | 10.6 | | 100.2 | 0.2 | | 24.6 | 29.9 | 0.8 | 29.6 | 3.9 | 0.1 |
| Delay (s) | 76.5 | 51.3 | | 152.7 | 31.8 | | 77.7 | 69.9 | 29.2 | 100.3 | 25.2 | 3.6 |
| Level of Service | E | D | | F | C | | E | E | C | F | C | A |
| Approach Delay (s) | | 54.9 | | | 79.8 | | | 65.5 | | | 34.8 | |
| Approach LOS | | D | | | E | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 55.9 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 92.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

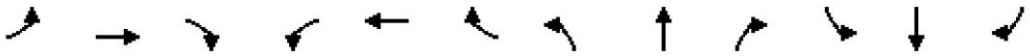
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 440 | 170 | 130 | 310 | 180 | 160 | 920 | 160 | 370 | 830 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3443 | | 1805 | 3389 | | 1805 | 5187 | 1587 | 1805 | 5147 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3443 | | 1805 | 3389 | | 1805 | 5187 | 1587 | 1805 | 5147 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 175 | 454 | 175 | 134 | 320 | 186 | 165 | 948 | 165 | 381 | 856 | 41 |
| RTOR Reduction (vph) | 0 | 38 | 0 | 0 | 78 | 0 | 0 | 0 | 85 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 175 | 591 | 0 | 134 | 428 | 0 | 165 | 948 | 80 | 381 | 894 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 12.0 | 26.5 | | 9.0 | 23.5 | | 16.2 | 37.3 | 37.3 | 31.2 | 52.3 | |
| Effective Green, g (s) | 12.0 | 26.5 | | 9.0 | 23.5 | | 16.2 | 37.3 | 37.3 | 31.2 | 52.3 | |
| Actuated g/C Ratio | 0.10 | 0.22 | | 0.08 | 0.20 | | 0.13 | 0.31 | 0.31 | 0.26 | 0.44 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 181 | 760 | | 135 | 664 | | 244 | 1612 | 493 | 469 | 2243 | |
| v/s Ratio Prot | c0.10 | c0.17 | | 0.07 | 0.13 | | 0.09 | c0.18 | | c0.21 | 0.17 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.97 | 0.78 | | 0.99 | 0.64 | | 0.68 | 0.59 | 0.16 | 0.81 | 0.40 | |
| Uniform Delay, d1 | 53.8 | 44.0 | | 55.5 | 44.4 | | 49.4 | 34.9 | 30.0 | 41.7 | 23.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.33 | 0.31 | 0.01 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 56.6 | 5.0 | | 74.9 | 2.2 | | 0.7 | 0.1 | 0.1 | 10.3 | 0.5 | |
| Delay (s) | 110.4 | 49.0 | | 130.4 | 46.6 | | 66.2 | 11.1 | 0.4 | 52.0 | 23.6 | |
| Level of Service | F | D | | F | D | | E | B | A | D | C | |
| Approach Delay (s) | | 62.4 | | | 64.1 | | | 16.8 | | | 32.1 | |
| Approach LOS | | E | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 87.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

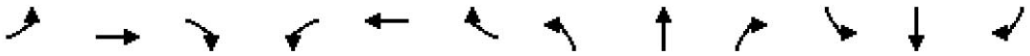
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 730 | 170 | 350 | 590 | 70 | 100 | 130 | 410 | 60 | 170 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.89 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3497 | | 1805 | 3610 | 1593 | 1805 | 3164 | | 1805 | 3420 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3497 | | 1805 | 3610 | 1593 | 1805 | 3164 | | 1805 | 3420 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 63 | 768 | 179 | 368 | 621 | 74 | 105 | 137 | 432 | 63 | 179 | 84 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 0 | 36 | 0 | 224 | 0 | 0 | 71 | 0 |
| Lane Group Flow (vph) | 63 | 930 | 0 | 368 | 621 | 38 | 105 | 345 | 0 | 63 | 192 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 6.1 | 28.1 | | 10.3 | 32.3 | 37.5 | 7.4 | 13.2 | | 5.2 | 11.0 | |
| Effective Green, g (s) | 6.1 | 28.1 | | 10.3 | 32.3 | 37.5 | 7.4 | 13.2 | | 5.2 | 11.0 | |
| Actuated g/C Ratio | 0.08 | 0.39 | | 0.14 | 0.44 | 0.52 | 0.10 | 0.18 | | 0.07 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 151 | 1350 | | 255 | 1602 | 908 | 183 | 574 | | 129 | 517 | |
| v/s Ratio Prot | 0.03 | c0.27 | | c0.20 | 0.17 | 0.00 | c0.06 | c0.11 | | 0.03 | 0.06 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.42 | 0.69 | | 1.44 | 0.39 | 0.04 | 0.57 | 0.60 | | 0.49 | 0.37 | |
| Uniform Delay, d1 | 31.7 | 18.7 | | 31.2 | 13.6 | 8.7 | 31.2 | 27.4 | | 32.5 | 27.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.9 | 1.5 | | 220.2 | 0.2 | 0.0 | 4.3 | 1.8 | | 2.9 | 0.5 | |
| Delay (s) | 33.5 | 20.2 | | 251.5 | 13.8 | 8.8 | 35.5 | 29.2 | | 35.4 | 28.2 | |
| Level of Service | C | C | | F | B | A | D | C | | D | C | |
| Approach Delay (s) | | 21.0 | | | 95.7 | | | 30.1 | | | 29.6 | |
| Approach LOS | | C | | | F | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 49.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 72.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

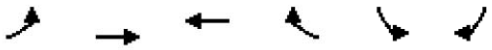
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 590 | 390 | 880 | 660 | 110 | 270 | 580 | 520 | 300 | 730 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 4847 | | 3502 | 5064 | | 3502 | 3610 | 1598 | 3502 | 3544 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 4847 | | 3502 | 5064 | | 3502 | 3610 | 1598 | 3502 | 3544 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 177 | 615 | 406 | 917 | 688 | 115 | 281 | 604 | 542 | 312 | 760 | 94 |
| RTOR Reduction (vph) | 0 | 103 | 0 | 0 | 20 | 0 | 0 | 0 | 28 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 177 | 918 | 0 | 917 | 783 | 0 | 281 | 604 | 514 | 312 | 846 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 9.8 | 26.1 | | 15.3 | 31.6 | | 10.2 | 32.1 | 47.4 | 8.2 | 30.1 | |
| Effective Green, g (s) | 9.8 | 26.1 | | 15.3 | 31.6 | | 10.2 | 32.1 | 47.4 | 8.2 | 30.1 | |
| Actuated g/C Ratio | 0.10 | 0.27 | | 0.16 | 0.32 | | 0.10 | 0.33 | 0.49 | 0.08 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 351 | 1295 | | 548 | 1638 | | 366 | 1186 | 841 | 294 | 1092 | |
| v/s Ratio Prot | 0.05 | c0.19 | | c0.26 | 0.15 | | 0.08 | 0.17 | 0.10 | c0.09 | c0.24 | |
| v/s Ratio Perm | | | | | | | | | 0.23 | | | |
| v/c Ratio | 0.50 | 0.71 | | 1.67 | 0.48 | | 0.77 | 0.51 | 0.61 | 1.06 | 0.77 | |
| Uniform Delay, d1 | 41.6 | 32.4 | | 41.2 | 26.5 | | 42.6 | 26.4 | 18.4 | 44.8 | 30.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.1 | 1.8 | | 311.0 | 0.2 | | 9.3 | 0.3 | 1.3 | 69.6 | 3.5 | |
| Delay (s) | 42.8 | 34.2 | | 352.2 | 26.7 | | 51.9 | 26.8 | 19.7 | 114.3 | 34.2 | |
| Level of Service | D | C | | F | C | | D | C | B | F | C | |
| Approach Delay (s) | | 35.4 | | | 200.2 | | | 29.1 | | | 55.6 | |
| Approach LOS | | D | | | F | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 89.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 97.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 92.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

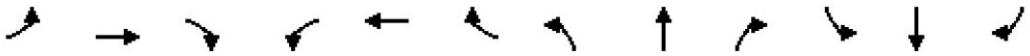
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 270 | 770 | 1160 | 60 | 60 | 420 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.91 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 0.99 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 0.89 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 5142 | | 1646 | 1525 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 5142 | | 1646 | 1525 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 293 | 837 | 1261 | 65 | 65 | 457 |
| RTOR Reduction (vph) | 0 | 0 | 7 | 0 | 166 | 1 |
| Lane Group Flow (vph) | 293 | 837 | 1319 | 0 | 100 | 255 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 12.5 | 34.6 | 18.1 | | 8.9 | 21.4 |
| Effective Green, g (s) | 12.5 | 34.6 | 18.1 | | 8.9 | 21.4 |
| Actuated g/C Ratio | 0.24 | 0.67 | 0.35 | | 0.17 | 0.42 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 438 | 3485 | 1807 | | 284 | 752 |
| v/s Ratio Prot | c0.16 | 0.16 | c0.26 | | 0.06 | c0.08 |
| v/s Ratio Perm | | | | | | 0.09 |
| v/c Ratio | 0.67 | 0.24 | 0.73 | | 0.35 | 0.34 |
| Uniform Delay, d1 | 17.6 | 3.3 | 14.6 | | 18.8 | 10.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.9 | 0.0 | 1.5 | | 0.8 | 0.3 |
| Delay (s) | 21.5 | 3.3 | 16.1 | | 19.5 | 10.5 |
| Level of Service | C | A | B | | B | B |
| Approach Delay (s) | | 8.0 | 16.1 | | 15.1 | |
| Approach LOS | | A | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 51.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

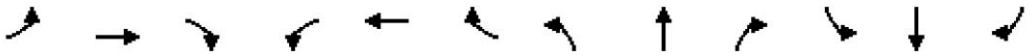
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 760 | 40 | 70 | 910 | 10 | 40 | 20 | 30 | 10 | 60 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.95 | | | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5141 | | 1805 | 5177 | | | 1766 | | | 1697 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5141 | | 1805 | 5177 | | | 1766 | | | 1697 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 202 | 809 | 43 | 74 | 968 | 11 | 43 | 21 | 32 | 11 | 64 | 181 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 19 | 0 | 0 | 85 | 0 |
| Lane Group Flow (vph) | 202 | 848 | 0 | 74 | 978 | 0 | 0 | 77 | 0 | 0 | 171 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.5 | 23.3 | | 5.2 | 21.0 | | | 6.8 | | | 12.0 | |
| Effective Green, g (s) | 7.5 | 23.3 | | 5.2 | 21.0 | | | 6.8 | | | 12.0 | |
| Actuated g/C Ratio | 0.12 | 0.37 | | 0.08 | 0.33 | | | 0.11 | | | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 214 | 1892 | | 148 | 1717 | | | 190 | | | 322 | |
| v/s Ratio Prot | c0.11 | 0.16 | | 0.04 | c0.19 | | | c0.04 | | | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.94 | 0.45 | | 0.50 | 0.57 | | | 0.41 | | | 0.53 | |
| Uniform Delay, d1 | 27.7 | 15.1 | | 27.8 | 17.4 | | | 26.4 | | | 23.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 45.6 | 0.2 | | 2.6 | 0.4 | | | 1.4 | | | 1.7 | |
| Delay (s) | 73.3 | 15.3 | | 30.5 | 17.9 | | | 27.8 | | | 24.8 | |
| Level of Service | E | B | | C | B | | | C | | | C | |
| Approach Delay (s) | | 26.4 | | | 18.7 | | | 27.8 | | | 24.8 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 63.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 62.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

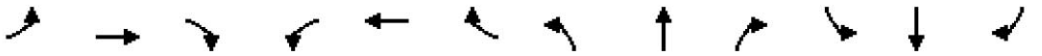
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 730 | 40 | 40 | 880 | 0 | 40 | 10 | 40 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5143 | | 1805 | 5187 | | 1805 | 1900 | 1607 | 1805 | 1746 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5143 | | 1805 | 5187 | | 1805 | 1900 | 1607 | 1805 | 1746 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 22 | 785 | 43 | 43 | 946 | 0 | 43 | 11 | 43 | 11 | 11 | 11 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 22 | 824 | 0 | 43 | 946 | 0 | 43 | 11 | 6 | 11 | 11 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.9 | 22.6 | | 4.0 | 25.7 | | 2.1 | 2.2 | 6.2 | 0.9 | 1.0 | |
| Effective Green, g (s) | 0.9 | 22.6 | | 4.0 | 25.7 | | 2.1 | 2.2 | 6.2 | 0.9 | 1.0 | |
| Actuated g/C Ratio | 0.02 | 0.49 | | 0.09 | 0.56 | | 0.05 | 0.05 | 0.14 | 0.02 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 36 | 2543 | | 158 | 2917 | | 83 | 91 | 359 | 36 | 38 | |
| v/s Ratio Prot | 0.01 | 0.16 | | c0.02 | c0.18 | | c0.02 | 0.01 | 0.00 | 0.01 | c0.01 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | |
| v/c Ratio | 0.61 | 0.32 | | 0.27 | 0.32 | | 0.52 | 0.12 | 0.02 | 0.31 | 0.30 | |
| Uniform Delay, d1 | 22.2 | 7.0 | | 19.5 | 5.4 | | 21.3 | 20.8 | 17.1 | 22.1 | 22.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 27.0 | 0.1 | | 0.9 | 0.1 | | 5.4 | 0.6 | 0.0 | 4.8 | 4.3 | |
| Delay (s) | 49.2 | 7.0 | | 20.4 | 5.4 | | 26.7 | 21.4 | 17.1 | 26.9 | 26.3 | |
| Level of Service | D | A | | C | A | | C | C | B | C | C | |
| Approach Delay (s) | | 8.1 | | | 6.1 | | | 21.8 | | | 26.5 | |
| Approach LOS | | A | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 45.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 46.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

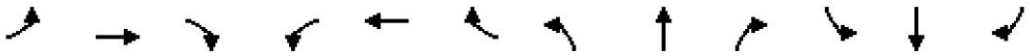
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 500 | 240 | 250 | 240 | 130 | 110 | 920 | 270 | 180 | 760 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1800 | | 1805 | 1900 | 1587 | 1805 | 3473 | | 1805 | 1900 | 1555 |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1800 | | 1805 | 1900 | 1587 | 1805 | 3473 | | 1805 | 1900 | 1555 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 74 | 526 | 253 | 263 | 253 | 137 | 116 | 968 | 284 | 189 | 800 | 74 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 0 | 92 | 0 | 23 | 0 | 0 | 0 | 30 |
| Lane Group Flow (vph) | 0 | 840 | 0 | 263 | 253 | 45 | 116 | 1229 | 0 | 189 | 800 | 44 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | 31.0 | | 24.1 | 24.1 | 24.1 | 12.8 | 34.0 | | 14.9 | 36.1 | 36.1 |
| Effective Green, g (s) | | 31.0 | | 24.1 | 24.1 | 24.1 | 12.8 | 34.0 | | 14.9 | 36.1 | 36.1 |
| Actuated g/C Ratio | | 0.26 | | 0.20 | 0.20 | 0.20 | 0.11 | 0.28 | | 0.12 | 0.30 | 0.30 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 465 | | 363 | 382 | 319 | 193 | 984 | | 224 | 572 | 468 |
| v/s Ratio Prot | | c0.47 | | c0.15 | 0.13 | | 0.06 | 0.35 | | c0.10 | c0.42 | |
| v/s Ratio Perm | | | | | | 0.03 | | | | | | 0.03 |
| v/c Ratio | | 1.81 | | 0.72 | 0.66 | 0.14 | 0.60 | 1.25 | | 0.84 | 1.40 | 0.09 |
| Uniform Delay, d1 | | 44.5 | | 44.8 | 44.2 | 39.4 | 51.2 | 43.0 | | 51.4 | 42.0 | 30.2 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.87 | 1.21 | 1.61 |
| Incremental Delay, d2 | | 371.8 | | 7.0 | 4.3 | 0.2 | 5.2 | 120.6 | | 21.8 | 188.6 | 0.4 |
| Delay (s) | | 416.3 | | 51.9 | 48.5 | 39.6 | 56.4 | 163.6 | | 66.5 | 239.2 | 49.0 |
| Level of Service | | F | | D | D | D | E | F | | E | F | D |
| Approach Delay (s) | | 416.3 | | | 48.0 | | | 154.5 | | | 195.3 | |
| Approach LOS | | F | | | D | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 204.6 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.26 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 120.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

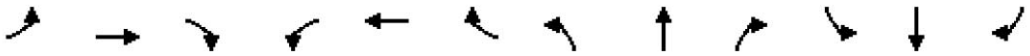
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 510 | 210 | 160 | 70 | 100 | 80 | 100 | 700 | 40 | 170 | 780 | 350 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.93 | | 1.00 | 0.99 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3351 | | 1805 | 3345 | | 1805 | 3578 | | 1805 | 3424 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3351 | | 1805 | 3345 | | 1805 | 3578 | | 1805 | 3424 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 548 | 226 | 172 | 75 | 108 | 86 | 108 | 753 | 43 | 183 | 839 | 376 |
| RTOR Reduction (vph) | 0 | 114 | 0 | 0 | 78 | 0 | 0 | 3 | 0 | 0 | 40 | 0 |
| Lane Group Flow (vph) | 548 | 284 | 0 | 75 | 116 | 0 | 108 | 793 | 0 | 183 | 1175 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 32.0 | 33.9 | | 7.8 | 9.7 | | 7.0 | 31.0 | | 11.0 | 35.0 | |
| Effective Green, g (s) | 32.0 | 33.9 | | 7.8 | 9.7 | | 7.0 | 31.0 | | 11.0 | 35.0 | |
| Actuated g/C Ratio | 0.32 | 0.34 | | 0.08 | 0.10 | | 0.07 | 0.31 | | 0.11 | 0.35 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 579 | 1139 | | 141 | 325 | | 127 | 1113 | | 199 | 1202 | |
| v/s Ratio Prot | c0.30 | 0.08 | | 0.04 | c0.03 | | 0.06 | 0.22 | | c0.10 | c0.34 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.95 | 0.25 | | 0.53 | 0.36 | | 0.85 | 0.71 | | 0.92 | 0.98 | |
| Uniform Delay, d1 | 33.0 | 23.7 | | 44.2 | 42.1 | | 45.8 | 30.4 | | 43.9 | 32.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 24.6 | 0.1 | | 3.8 | 0.7 | | 38.8 | 2.2 | | 41.3 | 20.6 | |
| Delay (s) | 57.6 | 23.8 | | 48.0 | 42.8 | | 84.7 | 32.6 | | 85.2 | 52.5 | |
| Level of Service | E | C | | D | D | | F | C | | F | D | |
| Approach Delay (s) | | 43.4 | | | 44.2 | | | 38.8 | | | 56.8 | |
| Approach LOS | | D | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 99.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 89.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

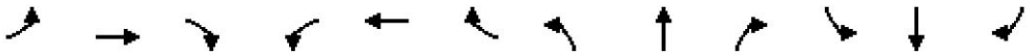
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 70 | 140 | 30 | 40 | 10 | 90 | 530 | 20 | 20 | 650 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.90 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3217 | | 1805 | 3500 | | 1805 | 3610 | 1615 | 1805 | 3499 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3217 | | 1805 | 3500 | | 1805 | 3610 | 1615 | 1805 | 3499 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 202 | 74 | 149 | 32 | 43 | 11 | 96 | 564 | 21 | 21 | 691 | 160 |
| RTOR Reduction (vph) | 0 | 126 | 0 | 0 | 10 | 0 | 0 | 0 | 10 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 202 | 97 | 0 | 32 | 44 | 0 | 96 | 564 | 11 | 21 | 833 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.5 | 8.8 | | 3.5 | 3.8 | | 5.8 | 26.9 | 30.4 | 1.1 | 22.2 | |
| Effective Green, g (s) | 8.5 | 8.8 | | 3.5 | 3.8 | | 5.8 | 26.9 | 30.4 | 1.1 | 22.2 | |
| Actuated g/C Ratio | 0.15 | 0.16 | | 0.06 | 0.07 | | 0.10 | 0.48 | 0.54 | 0.02 | 0.39 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 529 | 503 | | 112 | 236 | | 186 | 1725 | 987 | 35 | 1380 | |
| v/s Ratio Prot | c0.06 | c0.03 | | 0.02 | 0.01 | | c0.05 | 0.16 | 0.00 | 0.01 | c0.24 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.38 | 0.19 | | 0.29 | 0.19 | | 0.52 | 0.33 | 0.01 | 0.60 | 0.60 | |
| Uniform Delay, d1 | 21.5 | 20.7 | | 25.2 | 24.8 | | 23.9 | 9.1 | 6.0 | 27.4 | 13.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.5 | 0.2 | | 1.4 | 0.4 | | 2.4 | 0.1 | 0.0 | 24.7 | 0.8 | |
| Delay (s) | 22.0 | 20.9 | | 26.6 | 25.2 | | 26.3 | 9.2 | 6.0 | 52.1 | 14.3 | |
| Level of Service | C | C | | C | C | | C | A | A | D | B | |
| Approach Delay (s) | | 21.4 | | | 25.7 | | | 11.5 | | | 15.2 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 56.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 58.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

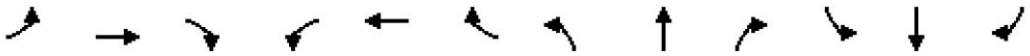
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 640 | 150 | 20 | 600 | 50 | 130 | 220 | 10 | 50 | 210 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1588 | 1805 | 3610 | 1589 | 3502 | 1887 | | 1805 | 3371 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1588 | 1805 | 3610 | 1589 | 3502 | 1887 | | 1805 | 3371 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 214 | 653 | 153 | 20 | 612 | 51 | 133 | 224 | 10 | 51 | 214 | 143 |
| RTOR Reduction (vph) | 0 | 0 | 52 | 0 | 0 | 25 | 0 | 2 | 0 | 0 | 117 | 0 |
| Lane Group Flow (vph) | 214 | 653 | 101 | 20 | 612 | 26 | 133 | 232 | 0 | 51 | 240 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | |
| Actuated Green, G (s) | 20.7 | 71.5 | 79.3 | 3.3 | 54.1 | 61.8 | 7.8 | 21.5 | | 7.7 | 21.4 | |
| Effective Green, g (s) | 20.7 | 71.5 | 79.3 | 3.3 | 54.1 | 61.8 | 7.8 | 21.5 | | 7.7 | 21.4 | |
| Actuated g/C Ratio | 0.17 | 0.60 | 0.66 | 0.03 | 0.45 | 0.51 | 0.06 | 0.18 | | 0.06 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 311 | 2151 | 1102 | 50 | 1628 | 818 | 228 | 338 | | 116 | 601 | |
| v/s Ratio Prot | c0.12 | 0.18 | 0.01 | 0.01 | c0.17 | 0.00 | 0.04 | c0.12 | | 0.03 | c0.07 | |
| v/s Ratio Perm | | | 0.06 | | | 0.01 | | | | | | |
| v/c Ratio | 0.69 | 0.30 | 0.09 | 0.40 | 0.38 | 0.03 | 0.58 | 0.69 | | 0.44 | 0.40 | |
| Uniform Delay, d1 | 46.6 | 12.0 | 7.3 | 57.4 | 21.8 | 14.4 | 54.5 | 46.1 | | 54.1 | 43.6 | |
| Progression Factor | 1.12 | 0.25 | 0.50 | 1.00 | 1.00 | 1.00 | 0.74 | 0.76 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.3 | 0.2 | 0.0 | 5.2 | 0.7 | 0.0 | 3.7 | 5.6 | | 2.7 | 0.4 | |
| Delay (s) | 56.3 | 3.3 | 3.7 | 62.6 | 22.5 | 14.4 | 43.7 | 40.5 | | 56.7 | 44.0 | |
| Level of Service | E | A | A | E | C | B | D | D | | E | D | |
| Approach Delay (s) | | 14.5 | | | 23.0 | | | 41.6 | | | 45.6 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 70.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

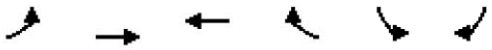
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 440 | 260 | 120 | 350 | 10 | 260 | 400 | 90 | 20 | 330 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1590 | 1805 | 1900 | 1579 | 1805 | 1900 | 1583 | 1805 | 1864 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1590 | 1805 | 1900 | 1579 | 1805 | 1900 | 1583 | 1805 | 1864 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 62 | 458 | 271 | 125 | 365 | 10 | 271 | 417 | 94 | 21 | 344 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 92 | 0 | 0 | 3 | 0 | 0 | 57 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 62 | 458 | 179 | 125 | 365 | 7 | 271 | 417 | 37 | 21 | 381 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.9 | 25.5 | 25.5 | 7.2 | 26.8 | 34.0 | 10.3 | 25.0 | 32.2 | 7.2 | 21.9 | |
| Effective Green, g (s) | 5.9 | 25.5 | 25.5 | 7.2 | 26.8 | 34.0 | 10.3 | 25.0 | 32.2 | 7.2 | 21.9 | |
| Actuated g/C Ratio | 0.07 | 0.32 | 0.32 | 0.09 | 0.33 | 0.42 | 0.13 | 0.31 | 0.40 | 0.09 | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 132 | 599 | 501 | 161 | 629 | 742 | 230 | 587 | 708 | 161 | 505 | |
| v/s Ratio Prot | 0.03 | c0.24 | | c0.07 | 0.19 | 0.00 | c0.15 | c0.22 | 0.00 | 0.01 | 0.20 | |
| v/s Ratio Perm | | | 0.11 | | | 0.00 | | | 0.02 | | | |
| v/c Ratio | 0.47 | 0.76 | 0.36 | 0.78 | 0.58 | 0.01 | 1.18 | 0.71 | 0.05 | 0.13 | 0.75 | |
| Uniform Delay, d1 | 36.0 | 25.0 | 21.4 | 36.1 | 22.4 | 13.6 | 35.3 | 24.7 | 15.0 | 34.0 | 27.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.6 | 5.8 | 0.4 | 20.6 | 1.4 | 0.0 | 116.0 | 4.0 | 0.0 | 0.4 | 6.3 | |
| Delay (s) | 38.6 | 30.8 | 21.8 | 56.6 | 23.8 | 13.7 | 151.3 | 28.8 | 15.0 | 34.3 | 33.3 | |
| Level of Service | D | C | C | E | C | B | F | C | B | C | C | |
| Approach Delay (s) | | 28.3 | | | 31.8 | | | 69.6 | | | 33.4 | |
| Approach LOS | | C | | | C | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 80.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 79.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

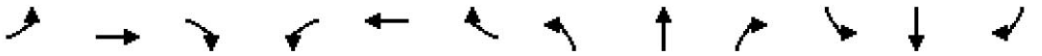
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 150 | 430 | 410 | 50 | 90 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 3610 | 1577 | 1805 | 1605 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 3610 | 1577 | 1805 | 1605 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 158 | 453 | 432 | 53 | 95 | 95 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 39 | 0 | 54 |
| Lane Group Flow (vph) | 158 | 453 | 432 | 14 | 95 | 41 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | Perm | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 8.9 | 23.2 | 10.3 | 10.3 | 8.0 | 16.9 |
| Effective Green, g (s) | 8.9 | 23.2 | 10.3 | 10.3 | 8.0 | 16.9 |
| Actuated g/C Ratio | 0.23 | 0.59 | 0.26 | 0.26 | 0.20 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 410 | 1124 | 949 | 414 | 368 | 856 |
| v/s Ratio Prot | 0.09 | c0.24 | 0.12 | | c0.05 | 0.01 |
| v/s Ratio Perm | | | | 0.01 | | 0.01 |
| v/c Ratio | 0.39 | 0.40 | 0.46 | 0.03 | 0.26 | 0.05 |
| Uniform Delay, d1 | 12.8 | 4.3 | 12.1 | 10.7 | 13.1 | 6.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.6 | 0.2 | 0.3 | 0.0 | 0.4 | 0.0 |
| Delay (s) | 13.4 | 4.5 | 12.4 | 10.8 | 13.5 | 6.5 |
| Level of Service | B | A | B | B | B | A |
| Approach Delay (s) | | 6.8 | 12.3 | | 10.0 | |
| Approach LOS | | A | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 39.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 41.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

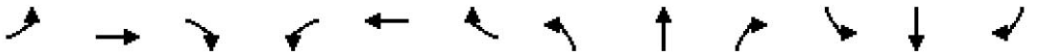
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 330 | 70 | 130 | 260 | 270 | 100 | 620 | 200 | 170 | 530 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1589 | 1805 | 1900 | 1590 | 1805 | 3465 | | 1805 | 3610 | 1572 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1589 | 1805 | 1900 | 1590 | 1805 | 3465 | | 1805 | 3610 | 1572 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 76 | 359 | 76 | 141 | 283 | 293 | 109 | 674 | 217 | 185 | 576 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 56 | 0 | 0 | 189 | 0 | 31 | 0 | 0 | 0 | 28 |
| Lane Group Flow (vph) | 76 | 359 | 20 | 141 | 283 | 104 | 109 | 860 | 0 | 185 | 576 | 15 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.3 | 22.6 | 22.6 | 10.3 | 27.6 | 27.6 | 8.7 | 26.2 | | 10.2 | 27.7 | 27.7 |
| Effective Green, g (s) | 5.3 | 22.6 | 22.6 | 10.3 | 27.6 | 27.6 | 8.7 | 26.2 | | 10.2 | 27.7 | 27.7 |
| Actuated g/C Ratio | 0.06 | 0.26 | 0.26 | 0.12 | 0.32 | 0.32 | 0.10 | 0.31 | | 0.12 | 0.32 | 0.32 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 112 | 503 | 421 | 218 | 615 | 514 | 184 | 1064 | | 216 | 1172 | 510 |
| v/s Ratio Prot | 0.04 | c0.19 | | c0.08 | 0.15 | | 0.06 | c0.25 | | c0.10 | 0.16 | |
| v/s Ratio Perm | | | 0.01 | | | 0.07 | | | | | | 0.01 |
| v/c Ratio | 0.68 | 0.71 | 0.05 | 0.65 | 0.46 | 0.20 | 0.59 | 0.81 | | 0.86 | 0.49 | 0.03 |
| Uniform Delay, d1 | 39.2 | 28.4 | 23.3 | 35.8 | 22.9 | 20.9 | 36.6 | 27.2 | | 36.8 | 23.1 | 19.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 15.1 | 4.8 | 0.0 | 6.5 | 0.5 | 0.2 | 5.0 | 4.6 | | 26.7 | 0.3 | 0.0 |
| Delay (s) | 54.3 | 33.2 | 23.4 | 42.2 | 23.5 | 21.1 | 41.6 | 31.8 | | 63.6 | 23.5 | 19.7 |
| Level of Service | D | C | C | D | C | C | D | C | | E | C | B |
| Approach Delay (s) | | 34.9 | | | 26.2 | | | 32.9 | | | 32.5 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 85.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 72.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

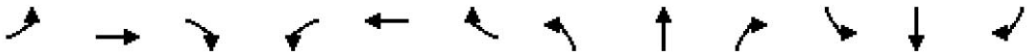
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 600 | 170 | 40 | 520 | 60 | 90 | 240 | 10 | 50 | 290 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3477 | | 1805 | 3547 | | 1805 | 3586 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3477 | | 1805 | 3547 | | 1805 | 3586 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 93 | 619 | 175 | 41 | 536 | 62 | 93 | 247 | 10 | 52 | 299 | 72 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 6 | 0 | 0 | 3 | 0 | 0 | 0 | 57 |
| Lane Group Flow (vph) | 93 | 777 | 0 | 41 | 592 | 0 | 93 | 254 | 0 | 52 | 299 | 15 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.5 | 60.6 | | 7.1 | 56.2 | | 11.1 | 28.8 | | 7.5 | 25.2 | 25.2 |
| Effective Green, g (s) | 11.5 | 60.6 | | 7.1 | 56.2 | | 11.1 | 28.8 | | 7.5 | 25.2 | 25.2 |
| Actuated g/C Ratio | 0.10 | 0.51 | | 0.06 | 0.47 | | 0.09 | 0.24 | | 0.06 | 0.21 | 0.21 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 173 | 1756 | | 107 | 1661 | | 167 | 861 | | 113 | 399 | 333 |
| v/s Ratio Prot | c0.05 | c0.22 | | 0.02 | 0.17 | | c0.05 | c0.07 | | 0.03 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.54 | 0.44 | | 0.38 | 0.36 | | 0.56 | 0.29 | | 0.46 | 0.75 | 0.05 |
| Uniform Delay, d1 | 51.7 | 18.9 | | 54.3 | 20.4 | | 52.1 | 37.3 | | 54.3 | 44.4 | 37.8 |
| Progression Factor | 1.33 | 0.32 | | 0.85 | 0.98 | | 1.00 | 1.00 | | 0.86 | 0.96 | 0.89 |
| Incremental Delay, d2 | 1.8 | 0.5 | | 2.1 | 0.5 | | 4.0 | 0.2 | | 2.9 | 7.5 | 0.1 |
| Delay (s) | 70.8 | 6.6 | | 48.3 | 20.5 | | 56.1 | 37.5 | | 49.8 | 49.9 | 33.5 |
| Level of Service | E | A | | D | C | | E | D | | D | D | C |
| Approach Delay (s) | | 13.3 | | | 22.3 | | | 42.4 | | | 47.1 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 64.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

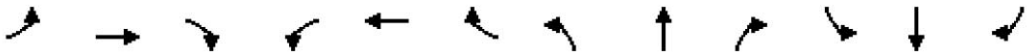
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 380 | 150 | 560 | 470 | 160 | 110 | 620 | 530 | 160 | 470 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3439 | | 1805 | 3457 | | 1805 | 3610 | 1586 | 1805 | 3585 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3439 | | 1805 | 3457 | | 1805 | 3610 | 1586 | 1805 | 3585 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 413 | 163 | 609 | 511 | 174 | 120 | 674 | 576 | 174 | 511 | 22 |
| RTOR Reduction (vph) | 0 | 35 | 0 | 0 | 27 | 0 | 0 | 0 | 402 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 43 | 541 | 0 | 609 | 659 | 0 | 120 | 674 | 174 | 174 | 531 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.6 | 29.9 | | 35.7 | 60.0 | | 10.6 | 28.4 | 28.4 | 10.0 | 27.8 | |
| Effective Green, g (s) | 5.6 | 29.9 | | 35.7 | 60.0 | | 10.6 | 28.4 | 28.4 | 10.0 | 27.8 | |
| Actuated g/C Ratio | 0.05 | 0.25 | | 0.30 | 0.50 | | 0.09 | 0.24 | 0.24 | 0.08 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 84 | 857 | | 537 | 1729 | | 159 | 854 | 375 | 150 | 831 | |
| v/s Ratio Prot | 0.02 | c0.16 | | c0.34 | 0.19 | | 0.07 | c0.19 | | c0.10 | 0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.11 | | | |
| v/c Ratio | 0.51 | 0.63 | | 1.13 | 0.38 | | 0.75 | 0.79 | 0.47 | 1.16 | 0.64 | |
| Uniform Delay, d1 | 55.9 | 40.1 | | 42.1 | 18.5 | | 53.4 | 43.0 | 39.3 | 55.0 | 41.6 | |
| Progression Factor | 1.01 | 0.65 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.8 | 3.2 | | 81.4 | 0.6 | | 18.2 | 4.9 | 0.9 | 122.9 | 1.6 | |
| Delay (s) | 61.5 | 29.3 | | 123.5 | 19.2 | | 71.7 | 47.9 | 40.2 | 177.9 | 43.2 | |
| Level of Service | E | C | | F | B | | E | D | D | F | D | |
| Approach Delay (s) | | 31.6 | | | 68.3 | | | 46.7 | | | 76.4 | |
| Approach LOS | | C | | | E | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 56.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 95.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

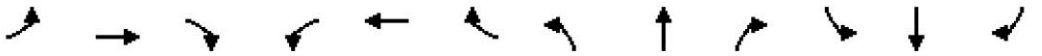
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 420 | 260 | 240 | 70 | 260 | 130 | 180 | 100 | 60 | 160 | 160 | 490 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.95 | | 1.00 | 0.94 | | 1.00 | 0.89 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3326 | | 1805 | 3412 | | 1805 | 3385 | | 1805 | 3162 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3326 | | 1805 | 3412 | | 1805 | 3385 | | 1805 | 3162 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 488 | 302 | 279 | 81 | 302 | 151 | 209 | 116 | 70 | 186 | 186 | 570 |
| RTOR Reduction (vph) | 0 | 149 | 0 | 0 | 63 | 0 | 0 | 58 | 0 | 0 | 428 | 0 |
| Lane Group Flow (vph) | 488 | 432 | 0 | 81 | 390 | 0 | 209 | 128 | 0 | 186 | 328 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 26.3 | 34.7 | | 7.4 | 15.8 | | 10.1 | 14.3 | | 10.1 | 14.3 | |
| Effective Green, g (s) | 26.3 | 34.7 | | 7.4 | 15.8 | | 10.1 | 14.3 | | 10.1 | 14.3 | |
| Actuated g/C Ratio | 0.32 | 0.42 | | 0.09 | 0.19 | | 0.12 | 0.17 | | 0.12 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 575 | 1399 | | 162 | 653 | | 221 | 587 | | 221 | 548 | |
| v/s Ratio Prot | c0.27 | 0.13 | | 0.04 | c0.11 | | c0.12 | 0.04 | | 0.10 | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.85 | 0.31 | | 0.50 | 0.60 | | 0.95 | 0.22 | | 0.84 | 0.60 | |
| Uniform Delay, d1 | 26.2 | 15.9 | | 35.8 | 30.4 | | 35.9 | 29.3 | | 35.4 | 31.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 11.2 | 0.1 | | 2.4 | 1.5 | | 45.1 | 0.2 | | 24.1 | 1.8 | |
| Delay (s) | 37.5 | 16.0 | | 38.2 | 31.9 | | 81.0 | 29.5 | | 59.5 | 33.2 | |
| Level of Service | D | B | | D | C | | F | C | | E | C | |
| Approach Delay (s) | | 25.8 | | | 32.9 | | | 56.7 | | | 38.4 | |
| Approach LOS | | C | | | C | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 82.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

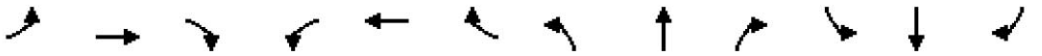
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 300 | 1260 | 150 | 100 | 1540 | 310 | 250 | 740 | 70 | 280 | 480 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5042 | | 3502 | 3558 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5042 | | 3502 | 3558 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 323 | 1355 | 161 | 108 | 1656 | 333 | 269 | 796 | 75 | 301 | 516 | 204 |
| RTOR Reduction (vph) | 0 | 0 | 73 | 0 | 25 | 0 | 0 | 6 | 0 | 0 | 0 | 143 |
| Lane Group Flow (vph) | 323 | 1355 | 88 | 108 | 1964 | 0 | 269 | 865 | 0 | 301 | 516 | 61 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 19.9 | 49.1 | 49.1 | 10.8 | 40.0 | | 8.0 | 36.1 | | 8.0 | 36.1 | 36.1 |
| Effective Green, g (s) | 19.9 | 49.1 | 49.1 | 10.8 | 40.0 | | 8.0 | 36.1 | | 8.0 | 36.1 | 36.1 |
| Actuated g/C Ratio | 0.17 | 0.41 | 0.41 | 0.09 | 0.33 | | 0.07 | 0.30 | | 0.07 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 299 | 1477 | 649 | 162 | 1681 | | 233 | 1070 | | 233 | 1086 | 478 |
| v/s Ratio Prot | c0.18 | 0.38 | | 0.06 | c0.39 | | 0.08 | c0.24 | | c0.09 | 0.14 | |
| v/s Ratio Perm | | | 0.06 | | | | | | | | | 0.04 |
| v/c Ratio | 1.08 | 0.92 | 0.14 | 0.67 | 1.17 | | 1.15 | 0.81 | | 1.29 | 0.48 | 0.13 |
| Uniform Delay, d1 | 50.0 | 33.5 | 22.2 | 52.9 | 40.0 | | 56.0 | 38.8 | | 56.0 | 34.2 | 30.5 |
| Progression Factor | 1.25 | 0.44 | 0.07 | 1.12 | 0.65 | | 0.96 | 0.99 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 69.1 | 8.6 | 0.3 | 3.7 | 78.2 | | 102.6 | 3.9 | | 159.5 | 0.3 | 0.1 |
| Delay (s) | 131.8 | 23.3 | 1.8 | 63.0 | 104.2 | | 156.3 | 42.3 | | 215.5 | 34.6 | 30.6 |
| Level of Service | F | C | A | E | F | | F | D | | F | C | C |
| Approach Delay (s) | | 40.5 | | | 102.1 | | | 69.2 | | | 87.1 | |
| Approach LOS | | D | | | F | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 74.8 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.04 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 99.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

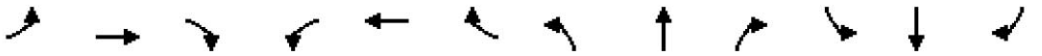
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1360 | 210 | 240 | 1540 | 190 | 330 | 530 | 170 | 160 | 200 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5091 | | 1805 | 3465 | | 1805 | 3511 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5091 | | 1805 | 3465 | | 1805 | 3511 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 84 | 1432 | 221 | 253 | 1621 | 200 | 347 | 558 | 179 | 168 | 211 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 97 | 0 | 12 | 0 | 0 | 29 | 0 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 84 | 1432 | 124 | 253 | 1809 | 0 | 347 | 708 | 0 | 168 | 237 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 10.8 | 39.0 | 39.0 | 22.2 | 50.4 | | 14.0 | 31.8 | | 11.0 | 28.8 | |
| Effective Green, g (s) | 10.8 | 39.0 | 39.0 | 22.2 | 50.4 | | 14.0 | 31.8 | | 11.0 | 28.8 | |
| Actuated g/C Ratio | 0.09 | 0.32 | 0.32 | 0.18 | 0.42 | | 0.12 | 0.27 | | 0.09 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 162 | 1173 | 515 | 334 | 2138 | | 211 | 918 | | 165 | 843 | |
| v/s Ratio Prot | 0.05 | c0.40 | | c0.14 | c0.36 | | c0.19 | c0.20 | | 0.09 | 0.07 | |
| v/s Ratio Perm | | | 0.08 | | | | | | | | | |
| v/c Ratio | 0.52 | 1.22 | 0.24 | 0.76 | 0.85 | | 1.64 | 0.77 | | 1.02 | 0.28 | |
| Uniform Delay, d1 | 52.1 | 40.5 | 29.7 | 46.3 | 31.3 | | 53.0 | 40.7 | | 54.5 | 37.2 | |
| Progression Factor | 1.29 | 0.50 | 0.47 | 0.73 | 0.70 | | 0.71 | 0.83 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 101.7 | 0.3 | 3.9 | 1.8 | | 303.6 | 2.7 | | 74.9 | 0.2 | |
| Delay (s) | 67.8 | 121.9 | 14.3 | 37.7 | 23.8 | | 341.0 | 36.6 | | 129.4 | 37.3 | |
| Level of Service | E | F | B | D | C | | F | D | | F | D | |
| Approach Delay (s) | | 105.6 | | | 25.5 | | | 134.0 | | | 74.1 | |
| Approach LOS | | F | | | C | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 77.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.10 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 95.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 1340 | 110 | 50 | 1220 | 260 | 310 | 700 | 130 | 340 | 400 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1597 | 1805 | 5035 | | 1805 | 3516 | | 1805 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1597 | 1805 | 5035 | | 1805 | 3516 | | 1805 | 3610 | 1596 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 149 | 1426 | 117 | 53 | 1298 | 277 | 330 | 745 | 138 | 362 | 426 | 255 |
| RTOR Reduction (vph) | 0 | 0 | 43 | 0 | 28 | 0 | 0 | 13 | 0 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 149 | 1426 | 74 | 53 | 1547 | 0 | 330 | 870 | 0 | 362 | 426 | 236 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 13.2 | 39.8 | 60.8 | 6.4 | 33.0 | | 21.0 | 36.8 | | 21.0 | 36.8 | 50.0 |
| Effective Green, g (s) | 13.2 | 39.8 | 60.8 | 6.4 | 33.0 | | 21.0 | 36.8 | | 21.0 | 36.8 | 50.0 |
| Actuated g/C Ratio | 0.11 | 0.33 | 0.51 | 0.05 | 0.28 | | 0.18 | 0.31 | | 0.18 | 0.31 | 0.42 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 199 | 1720 | 862 | 96 | 1385 | | 316 | 1078 | | 316 | 1107 | 718 |
| v/s Ratio Prot | c0.08 | 0.27 | 0.02 | 0.03 | c0.31 | | 0.18 | c0.25 | | c0.20 | 0.12 | 0.04 |
| v/s Ratio Perm | | | 0.03 | | | | | | | | | 0.11 |
| v/c Ratio | 0.75 | 0.83 | 0.09 | 0.55 | 1.12 | | 1.04 | 0.81 | | 1.15 | 0.38 | 0.33 |
| Uniform Delay, d1 | 51.8 | 37.0 | 15.3 | 55.4 | 43.5 | | 49.5 | 38.3 | | 49.5 | 32.7 | 23.7 |
| Progression Factor | 1.53 | 0.42 | 0.05 | 0.57 | 0.99 | | 1.02 | 0.69 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.5 | 0.0 | 4.4 | 59.8 | | 55.3 | 3.3 | | 96.1 | 0.2 | 0.3 |
| Delay (s) | 80.9 | 16.1 | 0.8 | 35.9 | 102.8 | | 105.9 | 29.9 | | 145.6 | 32.9 | 23.9 |
| Level of Service | F | B | A | D | F | | F | C | | F | C | C |
| Approach Delay (s) | | 20.8 | | | 100.6 | | | 50.5 | | | 69.8 | |
| Approach LOS | | C | | | F | | | D | | | E | |

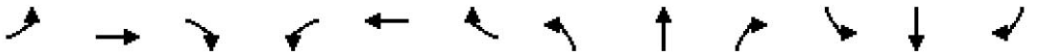
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 59.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 94.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1350 | 140 | 110 | 1100 | 150 | 270 | 380 | 210 | 250 | 360 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.95 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5105 | | 1805 | 5083 | | 1805 | 3398 | | 1805 | 3513 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5105 | | 1805 | 5083 | | 1805 | 3398 | | 1805 | 3513 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 110 | 1484 | 154 | 121 | 1209 | 165 | 297 | 418 | 231 | 275 | 396 | 77 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 14 | 0 | 0 | 75 | 0 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 110 | 1628 | 0 | 121 | 1360 | 0 | 297 | 574 | 0 | 275 | 456 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 11.6 | 36.6 | | 13.6 | 38.6 | | 32.2 | 27.1 | | 26.7 | 21.6 | |
| Effective Green, g (s) | 11.6 | 36.6 | | 13.6 | 38.6 | | 32.2 | 27.1 | | 26.7 | 21.6 | |
| Actuated g/C Ratio | 0.10 | 0.31 | | 0.11 | 0.32 | | 0.27 | 0.23 | | 0.22 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 174 | 1557 | | 205 | 1635 | | 484 | 767 | | 402 | 632 | |
| v/s Ratio Prot | 0.06 | c0.32 | | c0.07 | 0.27 | | 0.16 | c0.17 | | c0.15 | 0.13 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.63 | 1.05 | | 0.59 | 0.83 | | 0.61 | 0.75 | | 0.68 | 0.72 | |
| Uniform Delay, d1 | 52.1 | 41.7 | | 50.6 | 37.7 | | 38.5 | 43.3 | | 42.8 | 46.4 | |
| Progression Factor | 1.49 | 0.53 | | 1.05 | 0.58 | | 0.68 | 0.63 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.5 | 29.2 | | 0.4 | 0.5 | | 2.2 | 3.9 | | 4.8 | 4.1 | |
| Delay (s) | 81.2 | 51.2 | | 53.3 | 22.3 | | 28.4 | 31.1 | | 47.5 | 50.4 | |
| Level of Service | F | D | | D | C | | C | C | | D | D | |
| Approach Delay (s) | | 53.1 | | | 24.8 | | | 30.2 | | | 49.4 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

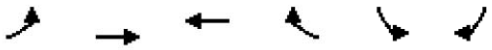
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 440 | 860 | 440 | 190 | 690 | 120 | 520 | 790 | 90 | 200 | 770 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 1805 | 5058 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 1805 | 5058 | | 1805 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 454 | 887 | 454 | 196 | 711 | 124 | 536 | 814 | 93 | 206 | 794 | 196 |
| RTOR Reduction (vph) | 0 | 0 | 172 | 0 | 20 | 0 | 0 | 0 | 66 | 0 | 0 | 141 |
| Lane Group Flow (vph) | 454 | 887 | 282 | 196 | 815 | 0 | 536 | 814 | 27 | 206 | 794 | 55 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 19.6 | 42.0 | 42.0 | 13.6 | 36.0 | | 15.0 | 35.4 | 35.4 | 13.0 | 33.4 | 33.4 |
| Effective Green, g (s) | 19.6 | 42.0 | 42.0 | 13.6 | 36.0 | | 15.0 | 35.4 | 35.4 | 13.0 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.16 | 0.35 | 0.35 | 0.11 | 0.30 | | 0.12 | 0.29 | 0.29 | 0.11 | 0.28 | 0.28 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 295 | 1264 | 555 | 205 | 1517 | | 226 | 1065 | 469 | 196 | 1005 | 442 |
| v/s Ratio Prot | c0.25 | c0.25 | | 0.11 | 0.16 | | c0.30 | c0.23 | | 0.11 | 0.22 | |
| v/s Ratio Perm | | | 0.18 | | | | | | 0.02 | | | 0.03 |
| v/c Ratio | 1.54 | 0.70 | 0.51 | 0.96 | 0.54 | | 2.37 | 0.76 | 0.06 | 1.05 | 0.79 | 0.12 |
| Uniform Delay, d1 | 50.2 | 33.6 | 30.8 | 52.9 | 35.0 | | 52.5 | 38.5 | 30.3 | 53.5 | 40.1 | 32.4 |
| Progression Factor | 1.47 | 0.44 | 0.07 | 0.97 | 0.72 | | 1.27 | 0.42 | 0.20 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 248.6 | 1.2 | 1.2 | 48.8 | 1.3 | | 626.1 | 2.2 | 0.0 | 78.4 | 4.3 | 0.1 |
| Delay (s) | 322.6 | 16.0 | 3.2 | 100.1 | 26.4 | | 692.6 | 18.5 | 6.1 | 131.9 | 44.4 | 32.5 |
| Level of Service | F | B | A | F | C | | F | B | A | F | D | C |
| Approach Delay (s) | | 90.3 | | | 40.4 | | | 268.1 | | | 57.5 | |
| Approach LOS | | F | | | D | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 120.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.06 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 117.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

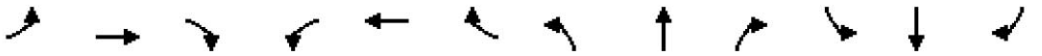
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 180 | 2100 | 1840 | 790 | 470 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 3610 | 1594 | 3502 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 3610 | 1594 | 3502 | 1598 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 184 | 2143 | 1878 | 806 | 480 | 112 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 24 | 0 | 5 |
| Lane Group Flow (vph) | 184 | 2143 | 1878 | 782 | 480 | 107 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 16.5 | 87.8 | 67.3 | 91.5 | 24.2 | 40.7 |
| Effective Green, g (s) | 16.5 | 87.8 | 67.3 | 91.5 | 24.2 | 40.7 |
| Actuated g/C Ratio | 0.14 | 0.73 | 0.56 | 0.76 | 0.20 | 0.34 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 248 | 3795 | 2025 | 1269 | 706 | 595 |
| v/s Ratio Prot | c0.10 | 0.41 | c0.52 | c0.12 | 0.14 | 0.02 |
| v/s Ratio Perm | | | | 0.37 | | 0.04 |
| v/c Ratio | 0.74 | 0.56 | 0.93 | 0.62 | 0.68 | 0.18 |
| Uniform Delay, d1 | 49.7 | 7.4 | 24.1 | 6.4 | 44.3 | 27.9 |
| Progression Factor | 0.95 | 0.96 | 0.76 | 0.40 | 0.91 | 1.29 |
| Incremental Delay, d2 | 3.0 | 0.2 | 2.8 | 0.2 | 2.4 | 0.1 |
| Delay (s) | 50.1 | 7.2 | 21.1 | 2.8 | 42.8 | 36.1 |
| Level of Service | D | A | C | A | D | D |
| Approach Delay (s) | | 10.6 | 15.6 | | 41.5 | |
| Approach LOS | | B | B | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 86.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

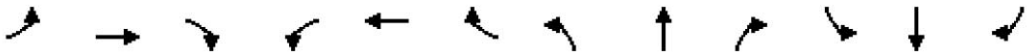
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 1790 | 650 | 40 | 960 | 120 | 1520 | 730 | 120 | 220 | 210 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 1805 | 5091 | | 3502 | 3525 | | 1805 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 1805 | 5091 | | 3502 | 3525 | | 1805 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 115 | 1865 | 677 | 42 | 1000 | 125 | 1583 | 760 | 125 | 229 | 219 | 115 |
| RTOR Reduction (vph) | 0 | 0 | 274 | 0 | 13 | 0 | 0 | 11 | 0 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 115 | 1865 | 403 | 42 | 1112 | 0 | 1583 | 874 | 0 | 229 | 219 | 105 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 7.0 | 41.4 | 41.4 | 5.6 | 40.0 | | 44.4 | 35.3 | | 21.7 | 12.6 | 19.6 |
| Effective Green, g (s) | 7.0 | 41.4 | 41.4 | 5.6 | 40.0 | | 44.4 | 35.3 | | 21.7 | 12.6 | 19.6 |
| Actuated g/C Ratio | 0.06 | 0.34 | 0.34 | 0.05 | 0.33 | | 0.37 | 0.29 | | 0.18 | 0.10 | 0.16 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 1790 | 548 | 84 | 1697 | | 1296 | 1037 | | 326 | 379 | 261 |
| v/s Ratio Prot | c0.06 | c0.36 | | 0.02 | 0.22 | | c0.45 | c0.25 | | 0.13 | 0.06 | 0.02 |
| v/s Ratio Perm | | | 0.25 | | | | | | | | | 0.04 |
| v/c Ratio | 1.10 | 1.04 | 0.73 | 0.50 | 0.66 | | 1.22 | 0.84 | | 0.70 | 0.58 | 0.40 |
| Uniform Delay, d1 | 56.5 | 39.3 | 34.5 | 55.8 | 34.1 | | 37.8 | 39.7 | | 46.1 | 51.2 | 45.0 |
| Progression Factor | 1.25 | 0.60 | 0.37 | 0.89 | 0.91 | | 1.00 | 1.00 | | 1.22 | 1.17 | 1.17 |
| Incremental Delay, d2 | 108.5 | 31.5 | 7.2 | 3.6 | 1.5 | | 106.8 | 6.3 | | 6.1 | 1.9 | 0.9 |
| Delay (s) | 179.0 | 55.0 | 19.8 | 53.1 | 32.6 | | 144.6 | 46.1 | | 62.2 | 61.8 | 53.3 |
| Level of Service | F | E | B | D | C | | F | D | | E | E | D |
| Approach Delay (s) | | 51.4 | | | 33.3 | | | 109.3 | | | 60.2 | |
| Approach LOS | | D | | | C | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 69.9 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 106.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

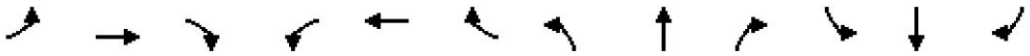
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1380 | 730 | 40 | 560 | 190 | 510 | 810 | 80 | 110 | 430 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1598 | 1805 | 3457 | | 3502 | 3556 | | 1805 | 3559 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1598 | 1805 | 3457 | | 3502 | 3556 | | 1805 | 3559 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 87 | 1500 | 793 | 43 | 609 | 207 | 554 | 880 | 87 | 120 | 467 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 59 | 0 | 26 | 0 | 0 | 7 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 87 | 1500 | 734 | 43 | 790 | 0 | 554 | 960 | 0 | 120 | 504 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 8.6 | 44.7 | 75.3 | 5.8 | 41.9 | | 30.6 | 41.4 | | 12.1 | 22.9 | |
| Effective Green, g (s) | 8.6 | 44.7 | 75.3 | 5.8 | 41.9 | | 30.6 | 41.4 | | 12.1 | 22.9 | |
| Actuated g/C Ratio | 0.07 | 0.37 | 0.63 | 0.05 | 0.35 | | 0.26 | 0.34 | | 0.10 | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 129 | 1932 | 1003 | 87 | 1207 | | 893 | 1227 | | 182 | 679 | |
| v/s Ratio Prot | c0.05 | c0.29 | 0.19 | 0.02 | 0.23 | | 0.16 | c0.27 | | 0.07 | c0.14 | |
| v/s Ratio Perm | | | 0.27 | | | | | | | | | |
| v/c Ratio | 0.67 | 0.78 | 0.73 | 0.49 | 0.65 | | 0.62 | 0.78 | | 0.66 | 0.74 | |
| Uniform Delay, d1 | 54.3 | 33.2 | 15.4 | 55.7 | 32.9 | | 39.6 | 35.3 | | 52.0 | 45.8 | |
| Progression Factor | 1.49 | 0.29 | 1.39 | 0.78 | 1.11 | | 1.00 | 1.00 | | 1.24 | 1.48 | |
| Incremental Delay, d2 | 5.4 | 1.3 | 1.1 | 4.1 | 2.6 | | 1.3 | 3.3 | | 8.1 | 4.2 | |
| Delay (s) | 86.1 | 10.8 | 22.5 | 47.6 | 39.3 | | 40.9 | 38.6 | | 72.4 | 71.8 | |
| Level of Service | F | B | C | D | D | | D | D | | E | E | |
| Approach Delay (s) | | 17.4 | | | 39.7 | | | 39.4 | | | 71.9 | |
| Approach LOS | | B | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

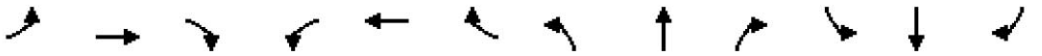
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1010 | 230 | 30 | 640 | 50 | 140 | 450 | 50 | 60 | 370 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3498 | | 1805 | 3566 | | 1805 | 3549 | | 1805 | 3565 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3498 | | 1805 | 3566 | | 1805 | 3549 | | 1805 | 3565 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 101 | 1020 | 232 | 30 | 646 | 51 | 141 | 455 | 51 | 61 | 374 | 30 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 101 | 1239 | 0 | 30 | 693 | 0 | 141 | 498 | 0 | 61 | 399 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 12.0 | 65.6 | | 5.1 | 58.7 | | 13.6 | 26.3 | | 7.0 | 19.7 | |
| Effective Green, g (s) | 12.0 | 65.6 | | 5.1 | 58.7 | | 13.6 | 26.3 | | 7.0 | 19.7 | |
| Actuated g/C Ratio | 0.10 | 0.55 | | 0.04 | 0.49 | | 0.11 | 0.22 | | 0.06 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 181 | 1912 | | 77 | 1744 | | 205 | 778 | | 105 | 585 | |
| v/s Ratio Prot | c0.06 | c0.35 | | 0.02 | 0.19 | | c0.08 | c0.14 | | 0.03 | 0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.56 | 0.65 | | 0.39 | 0.40 | | 0.69 | 0.64 | | 0.58 | 0.68 | |
| Uniform Delay, d1 | 51.5 | 19.1 | | 55.9 | 19.4 | | 51.2 | 42.6 | | 55.1 | 47.2 | |
| Progression Factor | 1.54 | 0.18 | | 1.27 | 0.41 | | 1.00 | 1.00 | | 1.16 | 0.64 | |
| Incremental Delay, d2 | 2.4 | 1.1 | | 2.8 | 0.6 | | 9.2 | 1.8 | | 6.7 | 2.7 | |
| Delay (s) | 81.4 | 4.5 | | 73.6 | 8.5 | | 60.4 | 44.4 | | 70.3 | 33.2 | |
| Level of Service | F | A | | E | A | | E | D | | E | C | |
| Approach Delay (s) | | 10.3 | | | 11.2 | | | 47.9 | | | 38.0 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 75.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

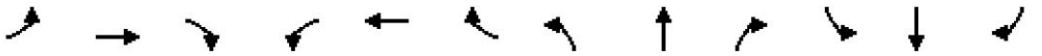
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 730 | 300 | 120 | 460 | 110 | 220 | 1170 | 120 | 120 | 1050 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3435 | | 1805 | 3494 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3435 | | 1805 | 3494 | | 1805 | 3610 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 730 | 300 | 120 | 460 | 110 | 220 | 1170 | 120 | 120 | 1050 | 60 |
| RTOR Reduction (vph) | 0 | 37 | 0 | 0 | 17 | 0 | 0 | 0 | 52 | 0 | 0 | 35 |
| Lane Group Flow (vph) | 50 | 993 | 0 | 120 | 553 | 0 | 220 | 1170 | 68 | 120 | 1050 | 25 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 6.3 | 38.1 | | 9.9 | 41.7 | | 17.2 | 45.4 | 45.4 | 10.6 | 38.8 | 38.8 |
| Effective Green, g (s) | 6.3 | 38.1 | | 9.9 | 41.7 | | 17.2 | 45.4 | 45.4 | 10.6 | 38.8 | 38.8 |
| Actuated g/C Ratio | 0.05 | 0.32 | | 0.08 | 0.35 | | 0.14 | 0.38 | 0.38 | 0.09 | 0.32 | 0.32 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 95 | 1091 | | 149 | 1214 | | 259 | 1366 | 600 | 159 | 1167 | 512 |
| v/s Ratio Prot | 0.03 | c0.29 | | c0.07 | c0.16 | | c0.12 | c0.32 | | 0.07 | 0.29 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | 0.02 |
| v/c Ratio | 0.53 | 0.91 | | 0.81 | 0.46 | | 0.85 | 0.86 | 0.11 | 0.75 | 0.90 | 0.05 |
| Uniform Delay, d1 | 55.4 | 39.3 | | 54.1 | 30.3 | | 50.1 | 34.3 | 24.2 | 53.4 | 38.7 | 27.9 |
| Progression Factor | 0.99 | 0.73 | | 1.05 | 0.61 | | 1.23 | 0.40 | 0.14 | 1.24 | 0.80 | 0.45 |
| Incremental Delay, d2 | 4.1 | 10.5 | | 25.2 | 1.2 | | 9.4 | 2.8 | 0.1 | 13.3 | 8.2 | 0.1 |
| Delay (s) | 58.7 | 39.4 | | 82.1 | 19.6 | | 71.1 | 16.3 | 3.5 | 79.5 | 39.1 | 12.6 |
| Level of Service | E | D | | F | B | | E | B | A | E | D | B |
| Approach Delay (s) | | 40.2 | | | 30.5 | | | 23.3 | | | 41.7 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 91.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

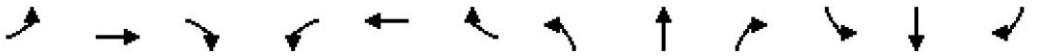
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 1820 | 200 | 20 | 2290 | 140 | 220 | 50 | 20 | 170 | 230 | 390 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2800 | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2800 | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 144 | 1876 | 206 | 21 | 2361 | 144 | 227 | 52 | 21 | 175 | 237 | 402 |
| RTOR Reduction (vph) | 0 | 0 | 63 | 0 | 0 | 29 | 0 | 0 | 12 | 0 | 0 | 101 |
| Lane Group Flow (vph) | 144 | 1876 | 143 | 21 | 2361 | 115 | 227 | 52 | 9 | 175 | 237 | 301 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 15.0 | 55.8 | 55.8 | 4.2 | 45.0 | 45.0 | 15.5 | 29.5 | 33.7 | 14.5 | 28.5 | 28.5 |
| Effective Green, g (s) | 15.0 | 55.8 | 55.8 | 4.2 | 45.0 | 45.0 | 15.5 | 29.5 | 33.7 | 14.5 | 28.5 | 28.5 |
| Actuated g/C Ratio | 0.12 | 0.46 | 0.46 | 0.04 | 0.38 | 0.38 | 0.13 | 0.25 | 0.28 | 0.12 | 0.24 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 226 | 2412 | 751 | 123 | 1945 | 596 | 452 | 887 | 880 | 423 | 857 | 377 |
| v/s Ratio Prot | c0.08 | c0.36 | | 0.01 | c0.46 | | c0.06 | 0.01 | 0.00 | 0.05 | 0.07 | |
| v/s Ratio Perm | | | 0.09 | | | 0.07 | | | 0.00 | | | c0.19 |
| v/c Ratio | 0.64 | 0.78 | 0.19 | 0.17 | 1.21 | 0.19 | 0.50 | 0.06 | 0.01 | 0.41 | 0.28 | 0.80 |
| Uniform Delay, d1 | 49.9 | 26.9 | 18.8 | 56.2 | 37.5 | 25.3 | 48.7 | 34.6 | 31.1 | 48.8 | 37.3 | 43.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.01 | 0.98 | 1.18 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.8 | 2.5 | 0.6 | 0.6 | 100.5 | 0.6 | 0.9 | 0.0 | 0.0 | 0.7 | 0.2 | 11.3 |
| Delay (s) | 55.7 | 29.5 | 19.4 | 57.1 | 137.2 | 30.4 | 49.5 | 34.7 | 31.1 | 49.5 | 37.5 | 54.3 |
| Level of Service | E | C | B | E | F | C | D | C | C | D | D | D |
| Approach Delay (s) | | 30.2 | | | 130.4 | | | 45.7 | | | 48.4 | |
| Approach LOS | | C | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 76.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 87.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

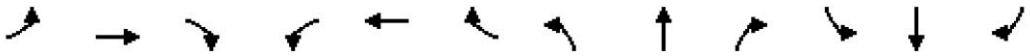
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1460 | 610 | 0 | 1970 | 0 | 0 | 0 | 0 | 260 | 0 | 490 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.96 | | | 1.00 | | | | | 1.00 | 0.87 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4958 | | | 5187 | | | | | 1715 | 1488 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4958 | | | 5187 | | | | | 1715 | 1488 | 1534 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1505 | 629 | 0 | 2031 | 0 | 0 | 0 | 0 | 268 | 0 | 505 |
| RTOR Reduction (vph) | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Lane Group Flow (vph) | 0 | 2086 | 0 | 0 | 2031 | 0 | 0 | 0 | 0 | 241 | 261 | 255 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 83.7 | | | 83.7 | | | | | 28.3 | 28.3 | 28.3 |
| Effective Green, g (s) | | 83.7 | | | 83.7 | | | | | 28.3 | 28.3 | 28.3 |
| Actuated g/C Ratio | | 0.70 | | | 0.70 | | | | | 0.24 | 0.24 | 0.24 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3458 | | | 3618 | | | | | 404 | 351 | 362 |
| v/s Ratio Prot | | c0.42 | | | 0.39 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | 0.14 | 0.18 | 0.17 |
| v/c Ratio | | 0.60 | | | 0.56 | | | | | 0.60 | 0.74 | 0.70 |
| Uniform Delay, d1 | | 9.5 | | | 9.0 | | | | | 40.8 | 42.5 | 42.0 |
| Progression Factor | | 0.16 | | | 0.06 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.6 | | | 0.2 | | | | | 2.4 | 8.2 | 6.1 |
| Delay (s) | | 2.0 | | | 0.8 | | | | | 43.1 | 50.7 | 48.1 |
| Level of Service | | A | | | A | | | | | D | D | D |
| Approach Delay (s) | | 2.0 | | | 0.8 | | | 0.0 | | | 47.5 | |
| Approach LOS | | A | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 84.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

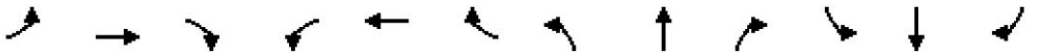
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 370 | 1360 | 0 | 0 | 1670 | 320 | 410 | 10 | 240 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.98 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 5046 | | 1715 | 1623 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 5046 | | 1715 | 1623 | 1534 | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 381 | 1402 | 0 | 0 | 1722 | 330 | 423 | 10 | 247 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 6 | 74 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 381 | 1402 | 0 | 0 | 2029 | 0 | 237 | 227 | 136 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 37.0 | 91.3 | | | 50.3 | | 20.7 | 20.7 | 20.7 | | | |
| Effective Green, g (s) | 37.0 | 91.3 | | | 50.3 | | 20.7 | 20.7 | 20.7 | | | |
| Actuated g/C Ratio | 0.31 | 0.76 | | | 0.42 | | 0.17 | 0.17 | 0.17 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 557 | 3946 | | | 2115 | | 296 | 280 | 265 | | | |
| v/s Ratio Prot | c0.21 | 0.27 | | | c0.40 | | 0.14 | c0.14 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.09 | | | |
| v/c Ratio | 0.68 | 0.36 | | | 0.96 | | 0.80 | 0.81 | 0.51 | | | |
| Uniform Delay, d1 | 36.4 | 4.7 | | | 33.9 | | 47.7 | 47.8 | 45.1 | | | |
| Progression Factor | 0.85 | 0.67 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 2.9 | 0.2 | | | 12.1 | | 14.3 | 16.2 | 1.7 | | | |
| Delay (s) | 33.8 | 3.4 | | | 46.0 | | 62.0 | 63.9 | 46.8 | | | |
| Level of Service | C | A | | | D | | E | E | D | | | |
| Approach Delay (s) | | 9.9 | | | 46.0 | | | 58.0 | | | 0.0 | |
| Approach LOS | | A | | | D | | | E | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

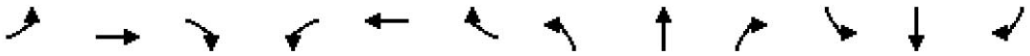
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1360 | 40 | 270 | 1830 | 240 | 30 | 70 | 140 | 260 | 190 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3593 | | 1805 | 3610 | 1615 | 3502 | 3250 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3593 | | 1805 | 3610 | 1615 | 3502 | 3250 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 192 | 1374 | 40 | 273 | 1848 | 242 | 30 | 71 | 141 | 263 | 192 | 162 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 81 | 0 | 131 | 0 | 0 | 0 | 120 |
| Lane Group Flow (vph) | 192 | 1412 | 0 | 273 | 1848 | 161 | 30 | 81 | 0 | 263 | 192 | 42 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 9.6 | 48.6 | | 21.5 | 60.5 | 60.5 | 4.2 | 8.8 | | 25.1 | 29.7 | 29.7 |
| Effective Green, g (s) | 9.6 | 48.6 | | 21.5 | 60.5 | 60.5 | 4.2 | 8.8 | | 25.1 | 29.7 | 29.7 |
| Actuated g/C Ratio | 0.08 | 0.41 | | 0.18 | 0.50 | 0.50 | 0.04 | 0.07 | | 0.21 | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 280 | 1455 | | 323 | 1820 | 814 | 123 | 238 | | 378 | 893 | 400 |
| v/s Ratio Prot | 0.05 | 0.39 | | c0.15 | c0.51 | | 0.01 | c0.03 | | c0.15 | 0.05 | |
| v/s Ratio Perm | | | | | | 0.10 | | | | | | 0.03 |
| v/c Ratio | 0.69 | 0.97 | | 0.85 | 1.02 | 0.20 | 0.24 | 0.34 | | 0.70 | 0.22 | 0.11 |
| Uniform Delay, d1 | 53.7 | 35.0 | | 47.6 | 29.8 | 16.4 | 56.4 | 52.8 | | 43.9 | 35.9 | 34.9 |
| Progression Factor | 1.00 | 1.00 | | 1.30 | 0.68 | 1.04 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.8 | 17.6 | | 2.0 | 10.7 | 0.0 | 1.0 | 0.9 | | 5.5 | 0.1 | 0.1 |
| Delay (s) | 60.5 | 52.6 | | 63.8 | 30.9 | 17.0 | 57.4 | 53.7 | | 49.4 | 36.0 | 35.0 |
| Level of Service | E | D | | E | C | B | E | D | | D | D | D |
| Approach Delay (s) | | 53.5 | | | 33.3 | | | 54.2 | | | 41.5 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 90.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

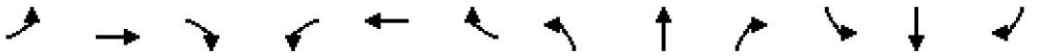
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 1410 | 50 | 10 | 1950 | 60 | 110 | 50 | 20 | 10 | 10 | 270 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5155 | | 1805 | 3610 | 1564 | 1800 | 1810 | | 1798 | 1599 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.19 | 1.00 | | 0.70 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5155 | | 1805 | 3610 | 1564 | 355 | 1810 | | 1333 | 1599 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 289 | 1454 | 52 | 10 | 2010 | 62 | 113 | 52 | 21 | 10 | 10 | 278 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 16 | 0 | 0 | 165 | 0 |
| Lane Group Flow (vph) | 289 | 1504 | 0 | 10 | 2010 | 57 | 113 | 57 | 0 | 10 | 123 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 31.9 | 84.8 | | 1.5 | 54.4 | 54.4 | 21.7 | 21.7 | | 21.7 | 21.7 | |
| Effective Green, g (s) | 31.9 | 84.8 | | 1.5 | 54.4 | 54.4 | 21.7 | 21.7 | | 21.7 | 21.7 | |
| Actuated g/C Ratio | 0.27 | 0.71 | | 0.01 | 0.45 | 0.45 | 0.18 | 0.18 | | 0.18 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 480 | 3643 | | 23 | 1637 | 709 | 64 | 327 | | 241 | 289 | |
| v/s Ratio Prot | c0.16 | 0.29 | | 0.01 | c0.56 | | | 0.03 | | | 0.08 | |
| v/s Ratio Perm | | | | | | 0.04 | c0.32 | | | 0.01 | | |
| v/c Ratio | 0.60 | 0.41 | | 0.43 | 1.23 | 0.08 | 1.77 | 0.18 | | 0.04 | 0.43 | |
| Uniform Delay, d1 | 38.5 | 7.3 | | 58.8 | 32.8 | 18.6 | 49.1 | 41.6 | | 40.6 | 43.6 | |
| Progression Factor | 0.89 | 1.60 | | 1.05 | 0.40 | 0.25 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.1 | 0.2 | | 5.6 | 105.0 | 0.1 | 400.3 | 0.3 | | 0.1 | 1.0 | |
| Delay (s) | 35.2 | 11.9 | | 67.4 | 118.2 | 4.7 | 449.5 | 41.8 | | 40.6 | 44.6 | |
| Level of Service | D | B | | E | F | A | F | D | | D | D | |
| Approach Delay (s) | | 15.6 | | | 114.6 | | | 289.5 | | | 44.5 | |
| Approach LOS | | B | | | F | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 76.5 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.15 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 108.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

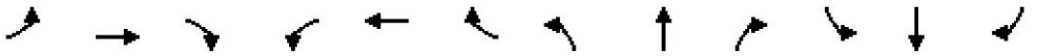
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 1410 | 90 | 120 | 1750 | 130 | 180 | 200 | 120 | 90 | 170 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5134 | | 1805 | 5122 | | 1805 | 1782 | | 1805 | 1900 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5134 | | 1805 | 5122 | | 1805 | 1782 | | 1805 | 1900 | 1589 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 147 | 1484 | 95 | 126 | 1842 | 137 | 189 | 211 | 126 | 95 | 179 | 116 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 6 | 0 | 0 | 21 | 0 | 0 | 0 | 88 |
| Lane Group Flow (vph) | 147 | 1574 | 0 | 126 | 1973 | 0 | 189 | 316 | 0 | 95 | 179 | 28 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 16.4 | 53.1 | | 13.7 | 50.4 | | 12.0 | 26.7 | | 10.5 | 25.2 | 25.2 |
| Effective Green, g (s) | 16.4 | 53.1 | | 13.7 | 50.4 | | 12.0 | 26.7 | | 10.5 | 25.2 | 25.2 |
| Actuated g/C Ratio | 0.14 | 0.44 | | 0.11 | 0.42 | | 0.10 | 0.22 | | 0.09 | 0.21 | 0.21 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 247 | 2272 | | 206 | 2151 | | 181 | 396 | | 158 | 399 | 334 |
| v/s Ratio Prot | c0.08 | c0.31 | | 0.07 | c0.39 | | c0.10 | c0.18 | | 0.05 | 0.09 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.02 |
| v/c Ratio | 0.60 | 0.69 | | 0.61 | 0.92 | | 1.04 | 0.80 | | 0.60 | 0.45 | 0.08 |
| Uniform Delay, d1 | 48.7 | 26.9 | | 50.6 | 32.8 | | 54.0 | 44.1 | | 52.7 | 41.3 | 38.1 |
| Progression Factor | 1.00 | 1.12 | | 0.98 | 0.77 | | 1.09 | 0.93 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.7 | 1.7 | | 0.5 | 0.8 | | 63.9 | 6.7 | | 6.3 | 0.8 | 0.1 |
| Delay (s) | 52.2 | 31.8 | | 50.0 | 26.0 | | 122.9 | 47.5 | | 59.0 | 42.1 | 38.2 |
| Level of Service | D | C | | D | C | | F | D | | E | D | D |
| Approach Delay (s) | | 33.6 | | | 27.4 | | | 74.6 | | | 45.1 | |
| Approach LOS | | C | | | C | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 84.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

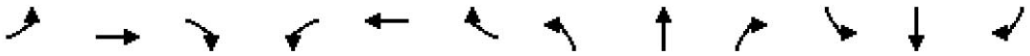
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑ | ↱ | ↰ | ↑↑↑ | | | | | | | ↱ |
| Volume (vph) | 0 | 1500 | 110 | 1380 | 750 | 0 | 0 | 0 | 0 | 0 | 0 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.91 | 1.00 | 1.00 | 0.91 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 5187 | 1569 | 1805 | 5187 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 5187 | 1569 | 1805 | 5187 | | | | | | | 1644 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 0 | 1613 | 118 | 1484 | 806 | 0 | 0 | 0 | 0 | 0 | 0 | 108 |
| RTOR Reduction (vph) | 0 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 92 |
| Lane Group Flow (vph) | 0 | 1613 | 82 | 1484 | 806 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 34.0 | 34.0 | 78.0 | 94.0 | | | | | | | 18.0 |
| Effective Green, g (s) | | 34.0 | 34.0 | 78.0 | 94.0 | | | | | | | 18.0 |
| Actuated g/C Ratio | | 0.28 | 0.28 | 0.65 | 0.78 | | | | | | | 0.15 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1470 | 445 | 1173 | 4063 | | | | | | | 247 |
| v/s Ratio Prot | | c0.31 | | c0.82 | 0.16 | | | | | | | 0.01 |
| v/s Ratio Perm | | | 0.05 | | | | | | | | | |
| v/c Ratio | | 1.10 | 0.18 | 1.27 | 0.20 | | | | | | | 0.07 |
| Uniform Delay, d1 | | 43.0 | 32.5 | 21.0 | 3.3 | | | | | | | 43.8 |
| Progression Factor | | 1.00 | 1.00 | 0.65 | 0.20 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 54.8 | 0.9 | 122.8 | 0.1 | | | | | | | 0.1 |
| Delay (s) | | 97.8 | 33.4 | 136.4 | 0.7 | | | | | | | 43.9 |
| Level of Service | | F | C | F | A | | | | | | | D |
| Approach Delay (s) | | 93.4 | | | 88.7 | | | 0.0 | | | 43.9 | |
| Approach LOS | | F | | | F | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 89.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.21 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 112.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

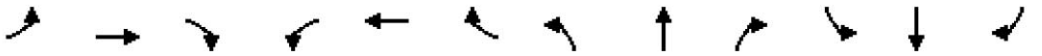
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 1040 | 450 | 0 | 2160 | 150 | 40 | 20 | 310 | 520 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | | 0.99 | | 1.00 | 0.86 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4952 | | | 5127 | | 1805 | 1632 | | 1805 | 1615 | |
| Flt Permitted | 0.07 | 1.00 | | | 1.00 | | 0.74 | 1.00 | | 0.43 | 1.00 | |
| Satd. Flow (perm) | 125 | 4952 | | | 5127 | | 1414 | 1632 | | 820 | 1615 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 20 | 1051 | 455 | 0 | 2182 | 152 | 40 | 20 | 313 | 525 | 0 | 20 |
| RTOR Reduction (vph) | 0 | 65 | 0 | 0 | 6 | 0 | 0 | 40 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 20 | 1441 | 0 | 0 | 2328 | 0 | 40 | 293 | 0 | 525 | 18 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 61.0 | 61.0 | | | 61.0 | | 51.0 | 51.0 | | 51.0 | 51.0 | |
| Effective Green, g (s) | 61.0 | 61.0 | | | 61.0 | | 51.0 | 51.0 | | 51.0 | 51.0 | |
| Actuated g/C Ratio | 0.51 | 0.51 | | | 0.51 | | 0.42 | 0.42 | | 0.42 | 0.42 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 64 | 2517 | | | 2606 | | 601 | 694 | | 349 | 686 | |
| v/s Ratio Prot | | 0.29 | | | c0.45 | | | 0.18 | | | 0.01 | |
| v/s Ratio Perm | 0.16 | | | | | | 0.03 | | | c0.64 | | |
| v/c Ratio | 0.31 | 0.57 | | | 0.89 | | 0.07 | 0.42 | | 1.50 | 0.03 | |
| Uniform Delay, d1 | 17.2 | 20.5 | | | 26.6 | | 20.4 | 24.2 | | 34.5 | 20.1 | |
| Progression Factor | 0.16 | 0.10 | | | 0.55 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.1 | 0.1 | | | 0.5 | | 0.0 | 0.4 | | 241.4 | 0.0 | |
| Delay (s) | 3.9 | 2.1 | | | 15.2 | | 20.5 | 24.6 | | 275.9 | 20.1 | |
| Level of Service | A | A | | | B | | C | C | | F | C | |
| Approach Delay (s) | | 2.2 | | | 15.2 | | | 24.2 | | | 266.5 | |
| Approach LOS | | A | | | B | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.17 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 104.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1830 | 40 | 40 | 1810 | 110 | 980 | 190 | 240 | 140 | 50 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1585 | 1805 | 5187 | 1564 | 1715 | 1670 | | 1715 | 1763 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1585 | 1805 | 5187 | 1564 | 1715 | 1670 | | 1715 | 1763 | 1587 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 196 | 1887 | 41 | 41 | 1866 | 113 | 1010 | 196 | 247 | 144 | 52 | 268 |
| RTOR Reduction (vph) | 0 | 0 | 16 | 0 | 0 | 49 | 0 | 16 | 0 | 0 | 0 | 97 |
| Lane Group Flow (vph) | 196 | 1887 | 25 | 41 | 1866 | 64 | 737 | 700 | 0 | 96 | 100 | 171 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 22.7 | 41.6 | 41.6 | 7.1 | 26.0 | 26.0 | 37.0 | 37.0 | | 18.3 | 18.3 | 18.3 |
| Effective Green, g (s) | 22.7 | 41.6 | 41.6 | 7.1 | 26.0 | 26.0 | 37.0 | 37.0 | | 18.3 | 18.3 | 18.3 |
| Actuated g/C Ratio | 0.19 | 0.35 | 0.35 | 0.06 | 0.22 | 0.22 | 0.31 | 0.31 | | 0.15 | 0.15 | 0.15 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 341 | 1798 | 549 | 107 | 1124 | 339 | 529 | 515 | | 262 | 269 | 242 |
| v/s Ratio Prot | c0.11 | c0.36 | | 0.02 | c0.36 | | c0.43 | 0.42 | | 0.06 | 0.06 | |
| v/s Ratio Perm | | | 0.02 | | | 0.04 | | | | | | c0.11 |
| v/c Ratio | 0.57 | 1.05 | 0.04 | 0.38 | 1.66 | 0.19 | 1.39 | 1.36 | | 0.37 | 0.37 | 0.70 |
| Uniform Delay, d1 | 44.3 | 39.2 | 26.0 | 54.3 | 47.0 | 38.4 | 41.5 | 41.5 | | 45.6 | 45.7 | 48.3 |
| Progression Factor | 0.69 | 1.14 | 1.17 | 1.20 | 0.68 | 0.42 | 1.00 | 1.00 | | 0.78 | 0.78 | 0.74 |
| Incremental Delay, d2 | 1.6 | 32.1 | 0.1 | 1.1 | 298.9 | 0.6 | 188.3 | 174.0 | | 0.8 | 0.8 | 8.4 |
| Delay (s) | 32.2 | 76.6 | 30.4 | 66.2 | 330.8 | 16.7 | 229.8 | 215.5 | | 36.4 | 36.5 | 44.2 |
| Level of Service | C | E | C | E | F | B | F | F | | D | D | D |
| Approach Delay (s) | | 71.6 | | | 307.8 | | | 222.7 | | | 40.9 | |
| Approach LOS | | E | | | F | | | F | | | D | |

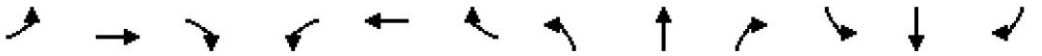
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 184.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.26 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 107.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1090 | 280 | 200 | 700 | 570 | 350 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.97 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3478 | | 1805 | 3610 | 1805 | 1594 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3478 | | 1805 | 3610 | 1805 | 1594 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1185 | 304 | 217 | 761 | 620 | 380 |
| RTOR Reduction (vph) | 25 | 0 | 0 | 0 | 0 | 13 |
| Lane Group Flow (vph) | 1464 | 0 | 217 | 761 | 620 | 367 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 38.0 | | 7.0 | 49.0 | 32.1 | 39.1 |
| Effective Green, g (s) | 38.0 | | 7.0 | 49.0 | 32.1 | 39.1 |
| Actuated g/C Ratio | 0.43 | | 0.08 | 0.55 | 0.36 | 0.44 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1483 | | 142 | 1985 | 650 | 771 |
| v/s Ratio Prot | c0.42 | | c0.12 | 0.21 | c0.34 | 0.04 |
| v/s Ratio Perm | | | | | | 0.19 |
| v/c Ratio | 0.99 | | 1.53 | 0.38 | 0.95 | 0.48 |
| Uniform Delay, d1 | 25.3 | | 41.0 | 11.4 | 27.8 | 17.7 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 20.1 | | 270.0 | 0.1 | 24.3 | 0.5 |
| Delay (s) | 45.4 | | 311.0 | 11.6 | 52.1 | 18.2 |
| Level of Service | D | | F | B | D | B |
| Approach Delay (s) | 45.4 | | | 78.0 | 39.2 | |
| Approach LOS | D | | | E | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 89.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 91.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

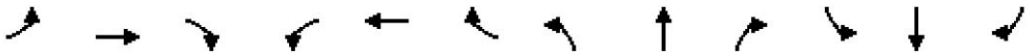
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 950 | 440 | 210 | 460 | 240 | 390 | 350 | 400 | 200 | 230 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 3502 | 3424 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 3502 | 3424 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 53 | 1011 | 468 | 223 | 489 | 255 | 415 | 372 | 426 | 213 | 245 | 32 |
| RTOR Reduction (vph) | 0 | 0 | 332 | 0 | 61 | 0 | 0 | 0 | 219 | 0 | 0 | 28 |
| Lane Group Flow (vph) | 53 | 1011 | 137 | 223 | 683 | 0 | 415 | 372 | 207 | 213 | 245 | 4 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 4.6 | 25.9 | 25.9 | 8.9 | 30.2 | | 26.4 | 23.0 | 23.0 | 15.0 | 11.6 | 11.6 |
| Effective Green, g (s) | 4.6 | 25.9 | 25.9 | 8.9 | 30.2 | | 26.4 | 23.0 | 23.0 | 15.0 | 11.6 | 11.6 |
| Actuated g/C Ratio | 0.05 | 0.29 | 0.29 | 0.10 | 0.34 | | 0.30 | 0.26 | 0.26 | 0.17 | 0.13 | 0.13 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 94 | 1513 | 463 | 351 | 1164 | | 537 | 492 | 418 | 305 | 472 | 208 |
| v/s Ratio Prot | 0.03 | c0.19 | | 0.06 | c0.20 | | c0.23 | 0.20 | | c0.12 | 0.07 | |
| v/s Ratio Perm | | | 0.09 | | | | | | 0.13 | | | 0.00 |
| v/c Ratio | 0.56 | 0.67 | 0.29 | 0.64 | 0.59 | | 0.77 | 0.76 | 0.50 | 0.70 | 0.52 | 0.02 |
| Uniform Delay, d1 | 41.1 | 27.7 | 24.4 | 38.4 | 24.2 | | 28.5 | 30.3 | 28.0 | 34.8 | 36.0 | 33.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.5 | 1.1 | 0.4 | 3.7 | 0.8 | | 6.8 | 6.5 | 0.9 | 6.8 | 1.0 | 0.0 |
| Delay (s) | 48.7 | 28.8 | 24.7 | 42.1 | 24.9 | | 35.3 | 36.8 | 28.9 | 41.6 | 37.0 | 33.7 |
| Level of Service | D | C | C | D | C | | D | D | C | D | D | C |
| Approach Delay (s) | | 28.2 | | | 28.9 | | | 33.5 | | | 38.8 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 88.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 10 | 100 | 0 | 0 | 0 | 0 | 680 | 650 | 500 | 810 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1582 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1582 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 22 | 11 | 110 | 0 | 0 | 0 | 0 | 747 | 714 | 549 | 890 | 0 |
| RTOR Reduction (vph) | 0 | 47 | 54 | 0 | 0 | 0 | 0 | 0 | 218 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 22 | 15 | 5 | 0 | 0 | 0 | 0 | 747 | 496 | 549 | 890 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 4.2 | 4.2 | 4.2 | | | | | 21.9 | 21.9 | 11.9 | 37.8 | |
| Effective Green, g (s) | 4.2 | 4.2 | 4.2 | | | | | 21.9 | 21.9 | 11.9 | 37.8 | |
| Actuated g/C Ratio | 0.08 | 0.08 | 0.08 | | | | | 0.44 | 0.44 | 0.24 | 0.76 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 152 | 133 | 129 | | | | | 1581 | 707 | 833 | 2729 | |
| v/s Ratio Prot | c0.01 | 0.01 | | | | | | 0.21 | | c0.16 | 0.25 | |
| v/s Ratio Perm | | | 0.00 | | | | | | c0.31 | | | |
| v/c Ratio | 0.14 | 0.11 | 0.04 | | | | | 0.47 | 0.70 | 0.66 | 0.33 | |
| Uniform Delay, d1 | 21.2 | 21.2 | 21.0 | | | | | 10.0 | 11.4 | 17.2 | 2.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.05 | 0.94 | |
| Incremental Delay, d2 | 0.4 | 0.4 | 0.1 | | | | | 1.0 | 5.7 | 1.7 | 0.3 | |
| Delay (s) | 21.7 | 21.6 | 21.2 | | | | | 11.0 | 17.1 | 19.8 | 2.2 | |
| Level of Service | C | C | C | | | | | B | B | B | A | |
| Approach Delay (s) | | 21.4 | | | 0.0 | | | 14.0 | | | 8.9 | |
| Approach LOS | | C | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 70.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 380 | 210 | 670 | 0 | 0 | 910 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 413 | 228 | 728 | 0 | 0 | 989 |
| RTOR Reduction (vph) | 0 | 151 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 413 | 77 | 728 | 0 | 0 | 989 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 11.2 | 11.2 | 30.8 | | | 30.8 |
| Effective Green, g (s) | 11.2 | 11.2 | 30.8 | | | 30.8 |
| Actuated g/C Ratio | 0.22 | 0.22 | 0.62 | | | 0.62 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 784 | 362 | 2224 | | | 2224 |
| v/s Ratio Prot | c0.12 | | 0.20 | | | c0.27 |
| v/s Ratio Perm | | 0.05 | | | | |
| v/c Ratio | 0.53 | 0.21 | 0.33 | | | 0.44 |
| Uniform Delay, d1 | 17.1 | 15.8 | 4.6 | | | 5.1 |
| Progression Factor | 1.00 | 1.00 | 0.42 | | | 1.00 |
| Incremental Delay, d2 | 0.6 | 0.3 | 0.4 | | | 0.6 |
| Delay (s) | 17.7 | 16.1 | 2.3 | | | 5.7 |
| Level of Service | B | B | A | | | A |
| Approach Delay (s) | 17.1 | | 2.3 | | | 5.7 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 70.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

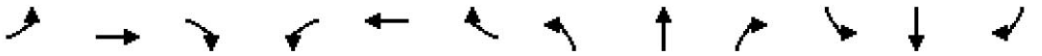
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 2100 | 70 | 300 | 1960 | 640 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5160 | | 3502 | 5187 | 5095 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5160 | | 3502 | 5187 | 5095 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 2143 | 71 | 306 | 2000 | 653 | 10 |
| RTOR Reduction (vph) | 5 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 2209 | 0 | 306 | 2000 | 661 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 33.0 | | 8.1 | 45.1 | 13.9 | |
| Effective Green, g (s) | 33.0 | | 8.1 | 45.1 | 13.9 | |
| Actuated g/C Ratio | 0.49 | | 0.12 | 0.67 | 0.21 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2541 | | 423 | 3492 | 1057 | |
| v/s Ratio Prot | c0.43 | | 0.09 | c0.39 | c0.13 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.87 | | 0.72 | 0.57 | 0.62 | |
| Uniform Delay, d1 | 15.1 | | 28.4 | 5.8 | 24.2 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.5 | | 6.0 | 0.2 | 1.2 | |
| Delay (s) | 18.5 | | 34.4 | 6.1 | 25.3 | |
| Level of Service | B | | C | A | C | |
| Approach Delay (s) | 18.5 | | | 9.8 | 25.3 | |
| Approach LOS | B | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 67.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

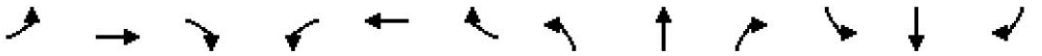
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 2240 | 110 | 660 | 2150 | 120 | 170 | 220 | 360 | 170 | 140 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 3502 | 5138 | | 3502 | 1900 | 1589 | 1805 | 3478 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 3502 | 5138 | | 3502 | 1900 | 1589 | 1805 | 3478 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 93 | 2309 | 113 | 680 | 2216 | 124 | 175 | 227 | 371 | 175 | 144 | 41 |
| RTOR Reduction (vph) | 0 | 0 | 63 | 0 | 5 | 0 | 0 | 0 | 267 | 0 | 25 | 0 |
| Lane Group Flow (vph) | 93 | 2309 | 50 | 680 | 2335 | 0 | 175 | 227 | 104 | 175 | 160 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 9.6 | 52.1 | 52.1 | 22.0 | 64.5 | | 16.6 | 18.3 | 18.3 | 9.0 | 10.7 | |
| Effective Green, g (s) | 9.6 | 52.1 | 52.1 | 22.0 | 64.5 | | 16.6 | 18.3 | 18.3 | 9.0 | 10.7 | |
| Actuated g/C Ratio | 0.08 | 0.44 | 0.44 | 0.19 | 0.55 | | 0.14 | 0.16 | 0.16 | 0.08 | 0.09 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 148 | 2302 | 704 | 656 | 2823 | | 495 | 296 | 248 | 138 | 317 | |
| v/s Ratio Prot | 0.05 | c0.45 | | c0.19 | 0.45 | | 0.05 | c0.12 | | c0.10 | 0.05 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.07 | | | |
| v/c Ratio | 0.63 | 1.00 | 0.07 | 1.04 | 0.83 | | 0.35 | 0.77 | 0.42 | 1.27 | 0.51 | |
| Uniform Delay, d1 | 52.2 | 32.7 | 18.8 | 47.7 | 21.8 | | 45.6 | 47.5 | 44.8 | 54.2 | 50.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.1 | 19.5 | 0.0 | 44.9 | 2.1 | | 0.4 | 11.3 | 1.2 | 165.6 | 1.3 | |
| Delay (s) | 60.3 | 52.1 | 18.8 | 92.6 | 24.0 | | 46.0 | 58.8 | 45.9 | 219.8 | 52.1 | |
| Level of Service | E | D | B | F | C | | D | E | D | F | D | |
| Approach Delay (s) | | 50.9 | | | 39.4 | | | 49.7 | | | 133.6 | |
| Approach LOS | | D | | | D | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 50.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.99 | | |
| Actuated Cycle Length (s) | 117.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 100.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

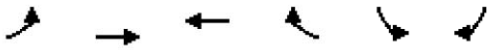
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 1280 | 470 | 240 | 780 | 200 | 250 | 560 | 70 | 310 | 1050 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1593 | 3502 | 3610 | 1594 | 3502 | 3610 | 1593 | 3502 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1593 | 3502 | 3610 | 1594 | 3502 | 3610 | 1593 | 3502 | 3610 | 1596 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 211 | 1347 | 495 | 253 | 821 | 211 | 263 | 589 | 74 | 326 | 1105 | 221 |
| RTOR Reduction (vph) | 0 | 0 | 7 | 0 | 0 | 64 | 0 | 0 | 5 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 211 | 1347 | 488 | 253 | 821 | 147 | 263 | 589 | 69 | 326 | 1105 | 209 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 15.6 | 44.1 | 54.1 | 8.0 | 36.5 | 48.5 | 10.0 | 38.0 | 46.0 | 12.0 | 40.0 | 55.6 |
| Effective Green, g (s) | 15.6 | 44.1 | 54.1 | 8.0 | 36.5 | 48.5 | 10.0 | 38.0 | 46.0 | 12.0 | 40.0 | 55.6 |
| Actuated g/C Ratio | 0.13 | 0.37 | 0.46 | 0.07 | 0.31 | 0.41 | 0.08 | 0.32 | 0.39 | 0.10 | 0.34 | 0.47 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 238 | 1348 | 784 | 237 | 1116 | 709 | 297 | 1162 | 674 | 356 | 1223 | 805 |
| v/s Ratio Prot | c0.12 | c0.37 | 0.05 | c0.07 | 0.23 | 0.02 | 0.08 | 0.16 | 0.01 | c0.09 | c0.31 | 0.03 |
| v/s Ratio Perm | | | 0.25 | | | 0.07 | | | 0.04 | | | 0.10 |
| v/c Ratio | 0.89 | 1.00 | 0.62 | 1.07 | 0.74 | 0.21 | 0.89 | 0.51 | 0.10 | 0.92 | 0.90 | 0.26 |
| Uniform Delay, d1 | 50.4 | 37.0 | 24.3 | 55.0 | 36.5 | 22.4 | 53.5 | 32.5 | 22.9 | 52.5 | 37.2 | 18.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 30.1 | 24.1 | 1.5 | 77.5 | 2.6 | 0.1 | 25.4 | 0.3 | 0.1 | 27.3 | 9.5 | 0.2 |
| Delay (s) | 80.4 | 61.1 | 25.8 | 132.5 | 39.0 | 22.6 | 78.9 | 32.8 | 23.0 | 79.9 | 46.7 | 19.0 |
| Level of Service | F | E | C | F | D | C | E | C | C | E | D | B |
| Approach Delay (s) | | 54.6 | | | 54.7 | | | 45.1 | | | 49.6 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 118.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 92.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

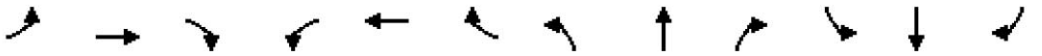
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 110 | 1550 | 990 | 430 | 680 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1602 | 3497 | 1453 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1602 | 3497 | 1453 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 121 | 1703 | 1088 | 473 | 747 | 242 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 49 | 3 | 7 |
| Lane Group Flow (vph) | 121 | 1703 | 1088 | 424 | 768 | 211 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.1 | 38.2 | 27.1 | 49.8 | 22.7 | 29.8 |
| Effective Green, g (s) | 7.1 | 38.2 | 27.1 | 49.8 | 22.7 | 29.8 |
| Actuated g/C Ratio | 0.10 | 0.55 | 0.39 | 0.72 | 0.33 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 186 | 2001 | 1420 | 1251 | 1152 | 713 |
| v/s Ratio Prot | 0.07 | c0.47 | 0.30 | 0.11 | c0.22 | 0.03 |
| v/s Ratio Perm | | | | 0.15 | | 0.11 |
| v/c Ratio | 0.65 | 0.85 | 0.77 | 0.34 | 0.67 | 0.30 |
| Uniform Delay, d1 | 29.7 | 13.0 | 18.1 | 3.5 | 19.8 | 12.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.9 | 3.7 | 2.5 | 0.2 | 1.5 | 0.2 |
| Delay (s) | 37.6 | 16.7 | 20.7 | 3.7 | 21.3 | 13.0 |
| Level of Service | D | B | C | A | C | B |
| Approach Delay (s) | | 18.0 | 15.5 | | 19.5 | |
| Approach LOS | | B | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 68.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 72.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

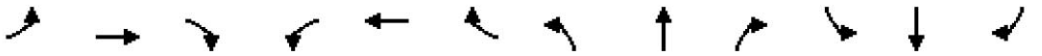
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 1470 | 790 | 340 | 690 | 100 | 380 | 200 | 250 | 200 | 380 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1595 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1595 | 3502 | 3610 | 1590 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 236 | 1652 | 888 | 382 | 775 | 112 | 427 | 225 | 281 | 225 | 427 | 292 |
| RTOR Reduction (vph) | 0 | 0 | 100 | 0 | 0 | 68 | 0 | 0 | 231 | 0 | 0 | 33 |
| Lane Group Flow (vph) | 236 | 1652 | 788 | 382 | 775 | 44 | 427 | 225 | 50 | 225 | 427 | 259 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 18.8 | 40.3 | 49.8 | 16.5 | 38.0 | 38.0 | 9.5 | 17.2 | 17.2 | 7.4 | 15.1 | 33.9 |
| Effective Green, g (s) | 18.8 | 40.3 | 49.8 | 16.5 | 38.0 | 38.0 | 9.5 | 17.2 | 17.2 | 7.4 | 15.1 | 33.9 |
| Actuated g/C Ratio | 0.19 | 0.41 | 0.51 | 0.17 | 0.39 | 0.39 | 0.10 | 0.18 | 0.18 | 0.08 | 0.16 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 348 | 2146 | 881 | 593 | 1408 | 620 | 342 | 637 | 281 | 266 | 560 | 624 |
| v/s Ratio Prot | c0.13 | 0.32 | c0.09 | 0.11 | 0.21 | | c0.12 | 0.06 | | 0.06 | c0.12 | 0.08 |
| v/s Ratio Perm | | | 0.41 | | | 0.03 | | | 0.03 | | | 0.08 |
| v/c Ratio | 0.68 | 0.77 | 0.89 | 0.64 | 0.55 | 0.07 | 1.25 | 0.35 | 0.18 | 0.85 | 0.76 | 0.42 |
| Uniform Delay, d1 | 36.5 | 24.6 | 21.4 | 37.7 | 23.1 | 18.6 | 44.0 | 35.2 | 34.1 | 44.4 | 39.4 | 24.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.2 | 1.7 | 11.5 | 2.4 | 0.5 | 0.0 | 133.9 | 0.3 | 0.3 | 21.2 | 6.1 | 0.5 |
| Delay (s) | 41.7 | 26.3 | 32.9 | 40.1 | 23.5 | 18.7 | 177.9 | 35.6 | 34.4 | 65.6 | 45.5 | 24.7 |
| Level of Service | D | C | C | D | C | B | F | D | C | E | D | C |
| Approach Delay (s) | | 29.7 | | | 28.1 | | | 100.3 | | | 43.9 | |
| Approach LOS | | C | | | C | | | F | | | D | |

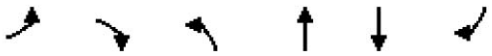
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 97.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 83.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 410 | 1360 | 20 | 390 | 0 | 0 | 0 | 0 | 10 | 0 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.91 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3134 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.18 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3134 | 1470 | 349 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 0 | 451 | 1495 | 22 | 429 | 0 | 0 | 0 | 0 | 11 | 0 | 308 |
| RTOR Reduction (vph) | 0 | 315 | 315 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 243 | 0 |
| Lane Group Flow (vph) | 0 | 884 | 432 | 22 | 429 | 0 | 0 | 0 | 0 | 11 | 65 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 21.8 | 21.8 | 21.8 | 21.8 | | | | | 7.9 | 7.9 | |
| Effective Green, g (s) | | 21.8 | 21.8 | 21.8 | 21.8 | | | | | 7.9 | 7.9 | |
| Actuated g/C Ratio | | 0.58 | 0.58 | 0.58 | 0.58 | | | | | 0.21 | 0.21 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1812 | 850 | 202 | 2087 | | | | | 378 | 338 | |
| v/s Ratio Prot | | 0.28 | | | 0.12 | | | | | | c0.04 | |
| v/s Ratio Perm | | | c0.29 | 0.06 | | | | | | 0.01 | | |
| v/c Ratio | | 0.49 | 0.51 | 0.11 | 0.21 | | | | | 0.03 | 0.19 | |
| Uniform Delay, d1 | | 4.7 | 4.7 | 3.6 | 3.8 | | | | | 11.8 | 12.3 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.2 | 0.5 | 0.2 | 0.0 | | | | | 0.0 | 0.3 | |
| Delay (s) | | 4.9 | 5.2 | 3.8 | 3.9 | | | | | 11.9 | 12.5 | |
| Level of Service | | A | A | A | A | | | | | B | B | |
| Approach Delay (s) | | 5.0 | | | 3.9 | | | 0.0 | | | 12.5 | |
| Approach LOS | | A | | | A | | | A | | | B | |

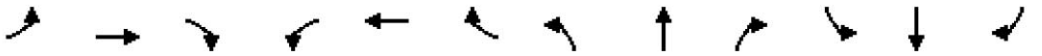
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 37.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 84.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 460 | 0 | 450 | 0 | 0 | 0 |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 535 | 0 | 523 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 267 | 267 | 349 | 174 |
| Volume Left (vph) | 267 | 267 | 349 | 174 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 6.6 | 6.6 | 6.6 | 6.6 |
| Degree Utilization, x | 0.49 | 0.49 | 0.64 | 0.32 |
| Capacity (veh/h) | 531 | 532 | 529 | 530 |
| Control Delay (s) | 14.5 | 14.5 | 19.3 | 11.4 |
| Approach Delay (s) | 14.5 | | 16.7 | |
| Approach LOS | B | | C | |

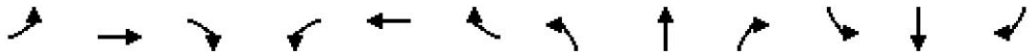
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 15.6 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 95.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 20 | 10 | 840 | 30 | 260 | 70 | 480 | 870 | 580 | 1130 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1795 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1795 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 22 | 22 | 11 | 933 | 33 | 289 | 78 | 533 | 967 | 644 | 1256 | 11 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 196 | 0 | 0 | 532 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 22 | 23 | 0 | 933 | 33 | 93 | 78 | 533 | 435 | 644 | 1256 | 9 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 3.0 | 5.4 | | 32.1 | 34.5 | 34.5 | 7.0 | 31.1 | 31.1 | 22.1 | 46.2 | 46.2 |
| Effective Green, g (s) | 3.0 | 5.4 | | 32.1 | 34.5 | 34.5 | 7.0 | 31.1 | 31.1 | 22.1 | 46.2 | 46.2 |
| Actuated g/C Ratio | 0.03 | 0.05 | | 0.30 | 0.32 | 0.32 | 0.07 | 0.29 | 0.29 | 0.21 | 0.43 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 51 | 91 | | 1054 | 614 | 522 | 118 | 1052 | 463 | 725 | 1563 | 699 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.27 | 0.02 | | 0.04 | 0.15 | | c0.18 | 0.35 | |
| v/s Ratio Perm | | | | | | c0.06 | | | c0.27 | | | 0.01 |
| v/c Ratio | 0.43 | 0.25 | | 0.89 | 0.05 | 0.18 | 0.66 | 0.51 | 0.94 | 0.89 | 0.80 | 0.01 |
| Uniform Delay, d1 | 51.0 | 48.7 | | 35.5 | 24.9 | 25.9 | 48.7 | 31.4 | 36.9 | 41.1 | 26.3 | 17.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.8 | 1.4 | | 9.1 | 0.0 | 0.2 | 13.0 | 0.4 | 26.9 | 12.7 | 3.1 | 0.0 |
| Delay (s) | 56.8 | 50.1 | | 44.6 | 24.9 | 26.1 | 61.7 | 31.8 | 63.8 | 53.8 | 29.4 | 17.3 |
| Level of Service | E | D | | D | C | C | E | C | E | D | C | B |
| Approach Delay (s) | | 52.8 | | | 39.8 | | | 52.9 | | | 37.6 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 106.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 90.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

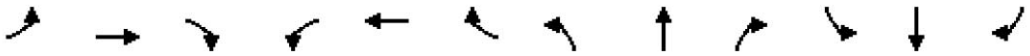
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 1100 | 80 | 70 | 890 | 60 | 60 | 60 | 50 | 70 | 50 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.96 | | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3573 | | 1805 | 3573 | | | 1785 | | 1802 | 1677 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.57 | | 0.58 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3573 | | 1805 | 3573 | | | 1031 | | 1092 | 1677 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 191 | 1236 | 90 | 79 | 1000 | 67 | 67 | 67 | 56 | 79 | 56 | 202 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 23 | 0 | 0 | 162 | 0 |
| Lane Group Flow (vph) | 191 | 1321 | 0 | 79 | 1062 | 0 | 0 | 167 | 0 | 79 | 96 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.2 | 31.8 | | 5.2 | 28.8 | | | 12.0 | | 12.0 | 12.0 | |
| Effective Green, g (s) | 8.2 | 31.8 | | 5.2 | 28.8 | | | 12.0 | | 12.0 | 12.0 | |
| Actuated g/C Ratio | 0.13 | 0.52 | | 0.09 | 0.47 | | | 0.20 | | 0.20 | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 243 | 1863 | | 154 | 1687 | | | 203 | | 215 | 330 | |
| v/s Ratio Prot | c0.11 | c0.37 | | 0.04 | 0.30 | | | | | | 0.06 | |
| v/s Ratio Perm | | | | | | | | c0.16 | | 0.07 | | |
| v/c Ratio | 0.79 | 0.71 | | 0.51 | 0.63 | | | 0.82 | | 0.37 | 0.29 | |
| Uniform Delay, d1 | 25.6 | 11.1 | | 26.7 | 12.1 | | | 23.5 | | 21.2 | 20.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 15.3 | 1.3 | | 2.9 | 0.7 | | | 22.6 | | 1.1 | 0.5 | |
| Delay (s) | 40.9 | 12.3 | | 29.6 | 12.8 | | | 46.1 | | 22.3 | 21.4 | |
| Level of Service | D | B | | C | B | | | D | | C | C | |
| Approach Delay (s) | | 15.9 | | | 14.0 | | | 46.1 | | | 21.6 | |
| Approach LOS | | B | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 61.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 78.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 970 | 260 | 210 | 920 | 170 | 150 | 350 | 150 | 330 | 710 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3483 | | 1805 | 3610 | 1594 | 1805 | 3610 | 1596 | 3502 | 3535 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3483 | | 1805 | 3610 | 1594 | 1805 | 3610 | 1596 | 3502 | 3535 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 1043 | 280 | 226 | 989 | 183 | 161 | 376 | 161 | 355 | 763 | 108 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 0 | 49 | 0 | 0 | 11 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 43 | 1303 | 0 | 226 | 989 | 134 | 161 | 376 | 150 | 355 | 862 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.5 | 42.9 | | 14.0 | 51.4 | 65.2 | 11.0 | 30.4 | 44.4 | 13.8 | 33.2 | |
| Effective Green, g (s) | 5.5 | 42.9 | | 14.0 | 51.4 | 65.2 | 11.0 | 30.4 | 44.4 | 13.8 | 33.2 | |
| Actuated g/C Ratio | 0.05 | 0.37 | | 0.12 | 0.44 | 0.56 | 0.09 | 0.26 | 0.38 | 0.12 | 0.28 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 85 | 1276 | | 216 | 1585 | 942 | 170 | 937 | 660 | 413 | 1002 | |
| v/s Ratio Prot | 0.02 | c0.37 | | c0.13 | 0.27 | 0.02 | 0.09 | 0.10 | 0.03 | c0.10 | c0.24 | |
| v/s Ratio Perm | | | | | | 0.07 | | | 0.07 | | | |
| v/c Ratio | 0.51 | 1.02 | | 1.05 | 0.62 | 0.14 | 0.95 | 0.40 | 0.23 | 0.86 | 0.86 | |
| Uniform Delay, d1 | 54.5 | 37.1 | | 51.5 | 25.4 | 12.5 | 52.8 | 35.8 | 24.7 | 50.7 | 39.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.7 | 30.7 | | 73.9 | 0.8 | 0.1 | 53.1 | 0.3 | 0.2 | 16.1 | 7.5 | |
| Delay (s) | 59.1 | 67.8 | | 125.5 | 26.2 | 12.6 | 105.8 | 36.1 | 24.9 | 66.8 | 47.2 | |
| Level of Service | E | E | | F | C | B | F | D | C | E | D | |
| Approach Delay (s) | | 67.6 | | | 40.4 | | | 49.6 | | | 52.9 | |
| Approach LOS | | E | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 53.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 117.1 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 92.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

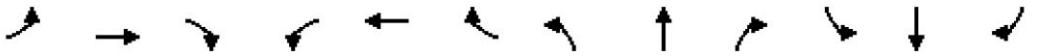
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 40 | 50 | 1270 | 100 | 90 | 1840 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1800 | 1591 | 3610 | 1575 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1800 | 1591 | 3610 | 1575 | 1805 | 3610 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 43 | 53 | 1351 | 106 | 96 | 1957 |
| RTOR Reduction (vph) | 0 | 48 | 0 | 21 | 0 | 0 |
| Lane Group Flow (vph) | 43 | 5 | 1351 | 85 | 96 | 1957 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 5.8 | 5.8 | 35.3 | 35.3 | 5.9 | 45.2 |
| Effective Green, g (s) | 5.8 | 5.8 | 35.3 | 35.3 | 5.9 | 45.2 |
| Actuated g/C Ratio | 0.10 | 0.10 | 0.60 | 0.60 | 0.10 | 0.77 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 177 | 156 | 2160 | 942 | 181 | 2766 |
| v/s Ratio Prot | | | 0.37 | | 0.05 | c0.54 |
| v/s Ratio Perm | c0.02 | 0.00 | | 0.05 | | |
| v/c Ratio | 0.24 | 0.03 | 0.63 | 0.09 | 0.53 | 0.71 |
| Uniform Delay, d1 | 24.6 | 24.1 | 7.6 | 5.0 | 25.2 | 3.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | 0.1 | 0.6 | 0.0 | 3.0 | 0.8 |
| Delay (s) | 25.3 | 24.2 | 8.2 | 5.1 | 28.2 | 4.4 |
| Level of Service | C | C | A | A | C | A |
| Approach Delay (s) | 24.7 | | 8.0 | | | 5.5 |
| Approach LOS | C | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 59.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 66.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

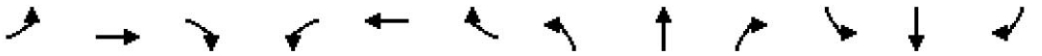
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 1230 | 200 | 530 | 870 | 290 | 0 | 0 | 0 | 790 | 100 | 470 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1574 | 1805 | 3610 | 1572 | | | | 1715 | 1738 | 1593 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1574 | 1805 | 3610 | 1572 | | | | 1715 | 1738 | 1593 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 61 | 1255 | 204 | 541 | 888 | 296 | 0 | 0 | 0 | 806 | 102 | 480 |
| RTOR Reduction (vph) | 0 | 0 | 91 | 0 | 0 | 139 | 0 | 0 | 0 | 0 | 0 | 38 |
| Lane Group Flow (vph) | 61 | 1255 | 113 | 541 | 888 | 157 | 0 | 0 | 0 | 451 | 457 | 442 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 9.9 | 34.4 | 34.4 | 39.0 | 63.5 | 63.5 | | | | 34.6 | 34.6 | 44.5 |
| Effective Green, g (s) | 9.9 | 34.4 | 34.4 | 39.0 | 63.5 | 63.5 | | | | 34.6 | 34.6 | 44.5 |
| Actuated g/C Ratio | 0.08 | 0.29 | 0.29 | 0.32 | 0.53 | 0.53 | | | | 0.29 | 0.29 | 0.37 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 149 | 1487 | 451 | 587 | 1910 | 832 | | | | 494 | 501 | 644 |
| v/s Ratio Prot | 0.03 | c0.24 | | c0.30 | 0.25 | | | | | c0.26 | 0.26 | 0.06 |
| v/s Ratio Perm | | | 0.07 | | | 0.10 | | | | | | 0.22 |
| v/c Ratio | 0.41 | 0.84 | 0.25 | 0.92 | 0.46 | 0.19 | | | | 0.91 | 0.91 | 0.69 |
| Uniform Delay, d1 | 52.3 | 40.3 | 32.9 | 39.0 | 17.6 | 14.8 | | | | 41.2 | 41.2 | 31.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.59 | 0.34 | 0.03 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.8 | 6.0 | 1.3 | 17.6 | 0.7 | 0.4 | | | | 21.2 | 20.9 | 3.0 |
| Delay (s) | 54.1 | 46.3 | 34.2 | 40.5 | 6.6 | 0.8 | | | | 62.5 | 62.1 | 34.9 |
| Level of Service | D | D | C | D | A | A | | | | E | E | C |
| Approach Delay (s) | | 45.0 | | | 16.2 | | | 0.0 | | | 52.8 | |
| Approach LOS | | D | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

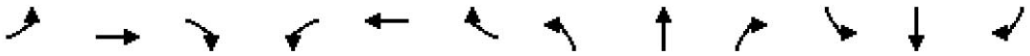
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 400 | 1160 | 310 | 220 | 1450 | 280 | 210 | 350 | 530 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3445 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3445 | 2842 | | | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 426 | 1234 | 330 | 234 | 1543 | 298 | 223 | 372 | 564 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 64 | 0 | 0 | 110 | 0 | 0 | 454 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 426 | 1234 | 266 | 234 | 1543 | 188 | 192 | 403 | 110 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 33.9 | 58.5 | 82.0 | 26.0 | 50.6 | 50.6 | 23.5 | 23.5 | 23.5 | | | |
| Effective Green, g (s) | 33.9 | 58.5 | 82.0 | 26.0 | 50.6 | 50.6 | 23.5 | 23.5 | 23.5 | | | |
| Actuated g/C Ratio | 0.28 | 0.49 | 0.68 | 0.22 | 0.42 | 0.42 | 0.20 | 0.20 | 0.20 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 510 | 1760 | 1144 | 391 | 2756 | 669 | 322 | 675 | 557 | | | |
| v/s Ratio Prot | c0.24 | c0.34 | 0.05 | 0.13 | c0.24 | | 0.12 | c0.12 | | | | |
| v/s Ratio Perm | | | 0.12 | | | 0.12 | | | 0.04 | | | |
| v/c Ratio | 0.84 | 0.70 | 0.23 | 0.60 | 0.56 | 0.28 | 0.60 | 0.60 | 0.20 | | | |
| Uniform Delay, d1 | 40.4 | 23.9 | 7.2 | 42.3 | 26.3 | 22.8 | 43.9 | 43.9 | 40.4 | | | |
| Progression Factor | 1.14 | 0.27 | 0.39 | 1.23 | 1.35 | 1.82 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 5.9 | 1.2 | 0.1 | 2.3 | 0.8 | 1.0 | 3.0 | 1.4 | 0.2 | | | |
| Delay (s) | 51.8 | 7.6 | 2.9 | 54.1 | 36.2 | 42.5 | 46.9 | 45.4 | 40.5 | | | |
| Level of Service | D | A | A | D | D | D | D | D | D | | | |
| Approach Delay (s) | | 16.3 | | | 39.1 | | | 43.3 | | | 0.0 | |
| Approach LOS | | B | | | D | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

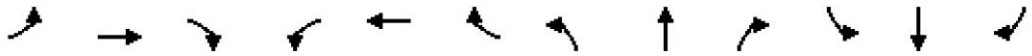
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 1630 | 210 | 100 | 1630 | 10 | 180 | 0 | 60 | 10 | 0 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5080 | | 1805 | 5181 | | 1805 | 1588 | | | 1725 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.74 | 1.00 | | | 0.90 | |
| Satd. Flow (perm) | 1805 | 5080 | | 1805 | 5181 | | 1414 | 1588 | | | 1587 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 10 | 1680 | 216 | 103 | 1680 | 10 | 186 | 0 | 62 | 10 | 0 | 10 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 51 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 10 | 1886 | 0 | 103 | 1690 | 0 | 186 | 11 | 0 | 0 | 12 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 1.4 | 72.4 | | 14.4 | 85.4 | | 21.2 | 21.2 | | | 21.2 | |
| Effective Green, g (s) | 1.4 | 72.4 | | 14.4 | 85.4 | | 21.2 | 21.2 | | | 21.2 | |
| Actuated g/C Ratio | 0.01 | 0.60 | | 0.12 | 0.71 | | 0.18 | 0.18 | | | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 21 | 3065 | | 217 | 3687 | | 250 | 281 | | | 280 | |
| v/s Ratio Prot | 0.01 | c0.37 | | c0.06 | c0.33 | | | 0.01 | | | | |
| v/s Ratio Perm | | | | | | | c0.13 | | | | 0.01 | |
| v/c Ratio | 0.48 | 0.62 | | 0.47 | 0.46 | | 0.74 | 0.04 | | | 0.04 | |
| Uniform Delay, d1 | 58.9 | 15.0 | | 49.3 | 7.4 | | 46.8 | 41.0 | | | 41.0 | |
| Progression Factor | 1.18 | 0.92 | | 0.64 | 0.60 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 12.8 | 0.7 | | 1.4 | 0.4 | | 11.4 | 0.1 | | | 0.1 | |
| Delay (s) | 82.3 | 14.5 | | 33.0 | 4.8 | | 58.2 | 41.0 | | | 41.0 | |
| Level of Service | F | B | | C | A | | E | D | | | D | |
| Approach Delay (s) | | 14.9 | | | 6.4 | | | 53.9 | | | 41.0 | |
| Approach LOS | | B | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 71.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

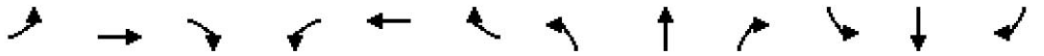
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 1300 | 150 | 40 | 1300 | 10 | 180 | 30 | 50 | 10 | 20 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1803 | 3542 | | 1805 | 3605 | | | 1776 | | | 1866 | 1587 |
| Flt Permitted | 0.15 | 1.00 | | 0.12 | 1.00 | | | 0.77 | | | 0.90 | 1.00 |
| Satd. Flow (perm) | 277 | 3542 | | 220 | 3605 | | | 1421 | | | 1714 | 1587 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 74 | 1383 | 160 | 43 | 1383 | 11 | 191 | 32 | 53 | 11 | 21 | 106 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 42 |
| Lane Group Flow (vph) | 74 | 1537 | 0 | 43 | 1394 | 0 | 0 | 268 | 0 | 0 | 32 | 64 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 84.2 | 84.2 | | 84.2 | 84.2 | | | 27.8 | | | 27.8 | 27.8 |
| Effective Green, g (s) | 84.2 | 84.2 | | 84.2 | 84.2 | | | 27.8 | | | 27.8 | 27.8 |
| Actuated g/C Ratio | 0.70 | 0.70 | | 0.70 | 0.70 | | | 0.23 | | | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 194 | 2485 | | 154 | 2530 | | | 329 | | | 397 | 368 |
| v/s Ratio Prot | | c0.43 | | | 0.39 | | | | | | | |
| v/s Ratio Perm | 0.27 | | | 0.20 | | | | c0.19 | | | 0.02 | 0.04 |
| v/c Ratio | 0.38 | 0.62 | | 0.28 | 0.55 | | | 0.82 | | | 0.08 | 0.17 |
| Uniform Delay, d1 | 7.3 | 9.4 | | 6.6 | 8.7 | | | 43.7 | | | 36.1 | 36.9 |
| Progression Factor | 0.19 | 0.36 | | 0.48 | 0.53 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.7 | 1.0 | | 2.2 | 0.4 | | | 14.4 | | | 0.1 | 0.2 |
| Delay (s) | 6.0 | 4.3 | | 5.4 | 5.1 | | | 58.0 | | | 36.2 | 37.1 |
| Level of Service | A | A | | A | A | | | E | | | D | D |
| Approach Delay (s) | | 4.4 | | | 5.1 | | | 58.0 | | | 36.9 | |
| Approach LOS | | A | | | A | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 78.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

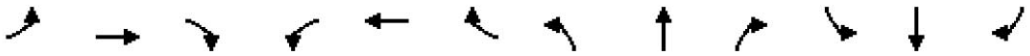
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1300 | 40 | 480 | 1290 | 60 | 30 | 180 | 500 | 50 | 320 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3591 | | 1805 | 3581 | | 1805 | 1900 | 1597 | 1805 | 1900 | 1587 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3591 | | 1805 | 3581 | | 1805 | 1900 | 1597 | 1805 | 1900 | 1587 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 106 | 1383 | 43 | 511 | 1372 | 64 | 32 | 191 | 532 | 53 | 340 | 85 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 30 | 0 | 0 | 51 |
| Lane Group Flow (vph) | 106 | 1424 | 0 | 511 | 1433 | 0 | 32 | 191 | 502 | 53 | 340 | 34 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.9 | 42.0 | | 20.0 | 53.1 | | 4.2 | 36.4 | 56.4 | 5.6 | 37.8 | 37.8 |
| Effective Green, g (s) | 8.9 | 42.0 | | 20.0 | 53.1 | | 4.2 | 36.4 | 56.4 | 5.6 | 37.8 | 37.8 |
| Actuated g/C Ratio | 0.07 | 0.35 | | 0.17 | 0.44 | | 0.04 | 0.30 | 0.47 | 0.05 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 134 | 1257 | | 301 | 1585 | | 63 | 576 | 751 | 84 | 599 | 500 |
| v/s Ratio Prot | 0.06 | c0.40 | | c0.28 | 0.40 | | 0.02 | 0.10 | c0.11 | 0.03 | c0.18 | |
| v/s Ratio Perm | | | | | | | | | 0.20 | | | 0.02 |
| v/c Ratio | 0.79 | 1.13 | | 1.70 | 0.90 | | 0.51 | 0.33 | 0.67 | 0.63 | 0.57 | 0.07 |
| Uniform Delay, d1 | 54.6 | 39.0 | | 50.0 | 31.1 | | 56.9 | 32.4 | 24.6 | 56.2 | 34.3 | 28.8 |
| Progression Factor | 1.36 | 0.70 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 22.4 | 68.5 | | 327.9 | 7.6 | | 6.3 | 1.5 | 2.3 | 14.4 | 3.9 | 0.3 |
| Delay (s) | 96.6 | 95.9 | | 377.9 | 38.7 | | 63.2 | 33.9 | 26.9 | 70.6 | 38.2 | 29.0 |
| Level of Service | F | F | | F | D | | E | C | C | E | D | C |
| Approach Delay (s) | | 95.9 | | | 127.7 | | | 30.2 | | | 40.1 | |
| Approach LOS | | F | | | F | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 92.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.06 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 111.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

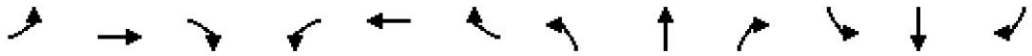
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 690 | 1060 | 580 | 880 | 450 | 940 | 1270 | 280 | 500 | 1630 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2814 | 3502 | 3610 | 1593 | 3502 | 3610 | 1593 | 3502 | 5171 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2814 | 3502 | 3610 | 1593 | 3502 | 3610 | 1593 | 3502 | 5171 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 750 | 1152 | 630 | 957 | 489 | 1022 | 1380 | 304 | 543 | 1772 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 1 | 0 | 0 | 41 | 0 | 0 | 10 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 43 | 750 | 1151 | 630 | 957 | 448 | 1022 | 1380 | 294 | 543 | 1804 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 6.5 | 32.3 | 55.3 | 16.0 | 41.8 | 54.8 | 23.0 | 48.1 | 64.1 | 13.0 | 38.1 | |
| Effective Green, g (s) | 6.5 | 32.3 | 55.3 | 16.0 | 41.8 | 54.8 | 23.0 | 48.1 | 64.1 | 13.0 | 38.1 | |
| Actuated g/C Ratio | 0.05 | 0.26 | 0.44 | 0.13 | 0.33 | 0.44 | 0.18 | 0.38 | 0.51 | 0.10 | 0.30 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 94 | 930 | 1241 | 447 | 1203 | 696 | 642 | 1385 | 865 | 363 | 1571 | |
| v/s Ratio Prot | 0.02 | 0.21 | c0.17 | c0.18 | 0.27 | 0.07 | c0.29 | 0.38 | 0.04 | c0.16 | c0.35 | |
| v/s Ratio Perm | | | 0.24 | | | 0.21 | | | 0.14 | | | |
| v/c Ratio | 0.46 | 0.81 | 0.93 | 1.41 | 0.80 | 0.64 | 1.59 | 1.00 | 0.34 | 1.50 | 1.15 | |
| Uniform Delay, d1 | 57.7 | 43.6 | 33.2 | 54.7 | 37.9 | 27.6 | 51.2 | 38.6 | 18.1 | 56.2 | 43.7 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.5 | 5.2 | 11.9 | 197.2 | 3.7 | 2.0 | 273.7 | 23.1 | 0.2 | 237.2 | 74.6 | |
| Delay (s) | 61.2 | 48.8 | 45.1 | 251.9 | 41.6 | 29.7 | 324.9 | 61.7 | 18.4 | 293.4 | 118.2 | |
| Level of Service | E | D | D | F | D | C | F | E | B | F | F | |
| Approach Delay (s) | | 46.9 | | | 102.6 | | | 156.2 | | | 158.7 | |
| Approach LOS | | D | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 121.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.24 | | |
| Actuated Cycle Length (s) | 125.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 109.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

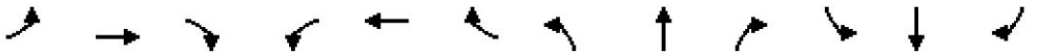
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 10 | 10 | 30 | 10 | 60 | 40 | 2250 | 30 | 90 | 2940 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.98 | | | 0.92 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1790 | | | 1701 | | 1805 | 5175 | | 1805 | 5165 | |
| Flt Permitted | | 0.62 | | | 0.90 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1143 | | | 1559 | | 1805 | 5175 | | 1805 | 5165 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 46 | 11 | 11 | 34 | 11 | 69 | 46 | 2586 | 34 | 103 | 3379 | 80 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 61 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 60 | 0 | 0 | 53 | 0 | 46 | 2619 | 0 | 103 | 3458 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 9.3 | | | 9.3 | | 4.1 | 61.7 | | 8.7 | 66.3 | |
| Effective Green, g (s) | | 9.3 | | | 9.3 | | 4.1 | 61.7 | | 8.7 | 66.3 | |
| Actuated g/C Ratio | | 0.10 | | | 0.10 | | 0.04 | 0.67 | | 0.09 | 0.72 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 116 | | | 158 | | 81 | 3482 | | 171 | 3734 | |
| v/s Ratio Prot | | | | | | | 0.03 | 0.51 | | c0.06 | c0.67 | |
| v/s Ratio Perm | | c0.05 | | | 0.03 | | | | | | | |
| v/c Ratio | | 0.52 | | | 0.33 | | 0.57 | 0.75 | | 0.60 | 0.93 | |
| Uniform Delay, d1 | | 39.1 | | | 38.3 | | 42.9 | 9.9 | | 39.8 | 10.6 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 3.8 | | | 1.3 | | 8.8 | 0.9 | | 5.9 | 4.6 | |
| Delay (s) | | 42.9 | | | 39.6 | | 51.8 | 10.9 | | 45.7 | 15.3 | |
| Level of Service | | D | | | D | | D | B | | D | B | |
| Approach Delay (s) | | 42.9 | | | 39.6 | | | 11.6 | | | 16.1 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 91.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 85.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

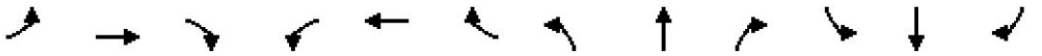
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 30 | 50 | 30 | 30 | 50 | 50 | 2340 | 20 | 100 | 2780 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1800 | 1900 | 1615 | 1805 | 1900 | 1588 | 1805 | 5179 | | 1805 | 5158 | |
| Flt Permitted | 0.61 | 1.00 | 1.00 | 0.74 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1162 | 1900 | 1615 | 1398 | 1900 | 1588 | 1805 | 5179 | | 1805 | 5158 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 65 | 33 | 54 | 33 | 33 | 54 | 54 | 2543 | 22 | 109 | 3022 | 98 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 65 | 33 | 5 | 33 | 33 | 4 | 54 | 2565 | 0 | 109 | 3118 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 13.0 | 7.8 | 7.8 | 10.4 | 6.5 | 6.5 | 5.2 | 54.8 | | 8.2 | 57.8 | |
| Effective Green, g (s) | 13.0 | 7.8 | 7.8 | 10.4 | 6.5 | 6.5 | 5.2 | 54.8 | | 8.2 | 57.8 | |
| Actuated g/C Ratio | 0.14 | 0.09 | 0.09 | 0.11 | 0.07 | 0.07 | 0.06 | 0.60 | | 0.09 | 0.64 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 203 | 163 | 139 | 178 | 136 | 114 | 103 | 3129 | | 163 | 3287 | |
| v/s Ratio Prot | c0.02 | 0.02 | | 0.01 | 0.02 | | 0.03 | c0.50 | | 0.06 | c0.60 | |
| v/s Ratio Perm | c0.03 | | 0.00 | 0.01 | | 0.00 | | | | | | |
| v/c Ratio | 0.32 | 0.20 | 0.03 | 0.19 | 0.24 | 0.03 | 0.52 | 0.82 | | 0.67 | 0.95 | |
| Uniform Delay, d1 | 34.5 | 38.6 | 38.0 | 36.2 | 39.8 | 39.2 | 41.5 | 14.1 | | 39.9 | 15.1 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 0.6 | 0.1 | 0.5 | 0.9 | 0.1 | 4.7 | 1.8 | | 9.9 | 7.0 | |
| Delay (s) | 35.5 | 39.2 | 38.1 | 36.7 | 40.7 | 39.3 | 46.3 | 15.9 | | 49.9 | 22.1 | |
| Level of Service | D | D | D | D | D | D | D | B | | D | C | |
| Approach Delay (s) | | 37.2 | | | 39.0 | | | 16.5 | | | 23.0 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 90.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

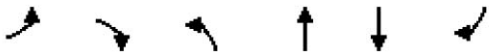
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 0 | 20 | 640 | 10 | 30 | 30 | 2300 | 410 | 80 | 2890 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3022 | | 5090 | 1665 | | 1805 | 5187 | 1594 | 1805 | 5181 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3022 | | 5090 | 1665 | | 1805 | 5187 | 1594 | 1805 | 5181 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 10 | 0 | 21 | 667 | 10 | 31 | 31 | 2396 | 427 | 83 | 3010 | 21 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 27 | 0 | 0 | 0 | 114 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 10 | 1 | 0 | 667 | 14 | 0 | 31 | 2396 | 313 | 83 | 3031 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 1.4 | 3.3 | | 9.0 | 10.9 | | 2.6 | 46.8 | 55.8 | 7.0 | 51.2 | |
| Effective Green, g (s) | 1.4 | 3.3 | | 9.0 | 10.9 | | 2.6 | 46.8 | 55.8 | 7.0 | 51.2 | |
| Actuated g/C Ratio | 0.02 | 0.04 | | 0.11 | 0.13 | | 0.03 | 0.57 | 0.68 | 0.09 | 0.62 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 31 | 121 | | 558 | 221 | | 57 | 2957 | 1161 | 154 | 3231 | |
| v/s Ratio Prot | c0.01 | 0.00 | | c0.13 | 0.01 | | 0.02 | c0.46 | 0.03 | 0.05 | c0.58 | |
| v/s Ratio Perm | | | | | | | | | 0.17 | | | |
| v/c Ratio | 0.32 | 0.01 | | 1.20 | 0.06 | | 0.54 | 0.81 | 0.27 | 0.54 | 0.94 | |
| Uniform Delay, d1 | 39.9 | 37.8 | | 36.5 | 31.1 | | 39.2 | 14.1 | 5.2 | 36.0 | 14.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 6.0 | 0.0 | | 104.5 | 0.1 | | 10.2 | 1.8 | 0.1 | 3.6 | 6.1 | |
| Delay (s) | 45.8 | 37.8 | | 141.1 | 31.3 | | 49.4 | 15.9 | 5.3 | 39.6 | 20.1 | |
| Level of Service | D | D | | F | C | | D | B | A | D | C | |
| Approach Delay (s) | | 40.4 | | | 134.7 | | | 14.7 | | | 20.7 | |
| Approach LOS | | D | | | F | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 82.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

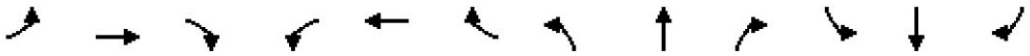
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 270 | 210 | 40 | 630 | 970 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1787 | 1567 | 1805 | 1900 | 1900 | 1576 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 314 | 244 | 47 | 733 | 1128 | 140 |
| RTOR Reduction (vph) | 0 | 131 | 0 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 314 | 113 | 47 | 733 | 1128 | 129 |
| Confl. Peds. (#/hr) | 5 | 5 | 5 | | | 5 |
| Turn Type | | custom | Prot | | | Perm |
| Protected Phases | | | 5 | 2 | 6 | |
| Permitted Phases | 4 | 4 | | | | 6 |
| Actuated Green, G (s) | 23.6 | 23.6 | 4.8 | 78.4 | 69.6 | 69.6 |
| Effective Green, g (s) | 23.6 | 23.6 | 4.8 | 78.4 | 69.6 | 69.6 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.04 | 0.71 | 0.63 | 0.63 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 383 | 336 | 79 | 1354 | 1202 | 997 |
| v/s Ratio Prot | | | 0.03 | c0.39 | c0.59 | |
| v/s Ratio Perm | c0.18 | 0.07 | | | | 0.08 |
| v/c Ratio | 0.82 | 0.34 | 0.59 | 0.54 | 0.94 | 0.13 |
| Uniform Delay, d1 | 41.2 | 36.6 | 51.6 | 7.4 | 18.3 | 8.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 12.8 | 0.6 | 11.5 | 1.6 | 14.9 | 0.3 |
| Delay (s) | 54.0 | 37.2 | 63.1 | 8.9 | 33.1 | 8.3 |
| Level of Service | D | D | E | A | C | A |
| Approach Delay (s) | 46.6 | | | 12.2 | 30.4 | |
| Approach LOS | D | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 74.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

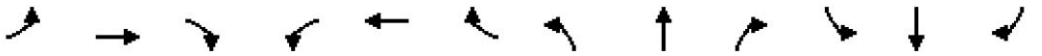
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | | | | | | | | |
| Lane Util. Factor | | | | | | | | | | | | |
| Frt | | | | | | | | | | | | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | | | | | | | | | | | | |
| Flt Permitted | | | | | | | | | | | | |
| Satd. Flow (perm) | | | | | | | | | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | | | | | | | | | | | |
| Effective Green, g (s) | | | | | | | | | | | | |
| Actuated g/C Ratio | | | | | | | | | | | | |
| Clearance Time (s) | | | | | | | | | | | | |
| Lane Grp Cap (vph) | | | | | | | | | | | | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | | | | | | | | |
| Uniform Delay, d1 | | | | | | | | | | | | |
| Progression Factor | | | | | | | | | | | | |
| Incremental Delay, d2 | | | | | | | | | | | | |
| Delay (s) | | | | | | | | | | | | |
| Level of Service | | | | | | | | | | | | |
| Approach Delay (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | | | |
|---|---|---|---|---|---|
| HCM Average Control Delay | 0.0 | HCM Level of Service | | A | |
| HCM Volume to Capacity ratio | 0.00 | | | | |
| Actuated Cycle Length (s) | 20.0 | Sum of lost time (s) | | 0.0 | |
| Intersection Capacity Utilization | 0.0% | ICU Level of Service | | A | |
| Analysis Period (min) | 15 | | | | |

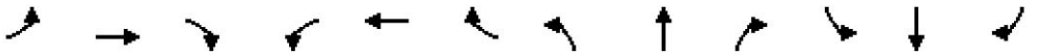
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 1290 | 120 | 90 | 1050 | 110 | 160 | 20 | 130 | 380 | 40 | 370 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.87 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5111 | | 1805 | 5187 | 1582 | 1805 | 3096 | | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5111 | | 1805 | 5187 | 1582 | 1805 | 3096 | | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 155 | 1330 | 124 | 93 | 1082 | 113 | 165 | 21 | 134 | 392 | 41 | 381 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 71 | 0 | 116 | 0 | 0 | 0 | 210 |
| Lane Group Flow (vph) | 155 | 1446 | 0 | 93 | 1082 | 42 | 165 | 39 | 0 | 392 | 41 | 171 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 15.9 | 43.9 | | 13.2 | 41.2 | 41.2 | 15.1 | 13.3 | | 21.0 | 18.9 | 18.9 |
| Effective Green, g (s) | 15.9 | 43.9 | | 13.2 | 41.2 | 41.2 | 15.1 | 13.3 | | 21.0 | 18.9 | 18.9 |
| Actuated g/C Ratio | 0.14 | 0.40 | | 0.12 | 0.37 | 0.37 | 0.14 | 0.12 | | 0.19 | 0.17 | 0.17 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 261 | 2040 | | 217 | 1943 | 593 | 248 | 374 | | 345 | 620 | 273 |
| v/s Ratio Prot | c0.09 | c0.28 | | 0.05 | 0.21 | | 0.09 | 0.01 | | c0.22 | 0.01 | |
| v/s Ratio Perm | | | | | | 0.03 | | | | | | c0.11 |
| v/c Ratio | 0.59 | 0.71 | | 0.43 | 0.56 | 0.07 | 0.67 | 0.10 | | 1.14 | 0.07 | 0.63 |
| Uniform Delay, d1 | 44.0 | 27.7 | | 44.9 | 27.2 | 22.1 | 45.1 | 43.0 | | 44.5 | 38.2 | 42.3 |
| Progression Factor | 1.02 | 0.70 | | 0.99 | 1.05 | 2.38 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.5 | 2.1 | | 1.3 | 1.1 | 0.2 | 6.6 | 0.1 | | 90.7 | 0.0 | 4.4 |
| Delay (s) | 48.6 | 21.5 | | 45.7 | 29.6 | 52.8 | 51.6 | 43.2 | | 135.2 | 38.2 | 46.7 |
| Level of Service | D | C | | D | C | D | D | D | | F | D | D |
| Approach Delay (s) | | 24.2 | | | 32.8 | | | 47.5 | | | 88.9 | |
| Approach LOS | | C | | | C | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 78.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

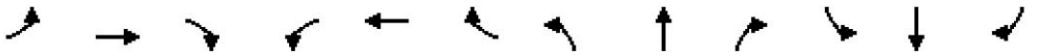
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 1110 | 270 | 200 | 730 | 90 | 250 | 350 | 220 | 260 | 520 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1586 | 3502 | 5091 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1586 | 3502 | 5091 | | 3502 | 3610 | 1587 | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 206 | 1144 | 278 | 206 | 753 | 93 | 258 | 361 | 227 | 268 | 536 | 144 |
| RTOR Reduction (vph) | 0 | 0 | 166 | 0 | 12 | 0 | 0 | 0 | 172 | 0 | 0 | 114 |
| Lane Group Flow (vph) | 206 | 1144 | 112 | 206 | 834 | 0 | 258 | 361 | 55 | 268 | 536 | 30 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 11.7 | 44.3 | 44.3 | 11.5 | 44.1 | | 12.1 | 22.1 | 22.1 | 12.8 | 22.8 | 22.8 |
| Effective Green, g (s) | 11.7 | 44.3 | 44.3 | 11.5 | 44.1 | | 12.1 | 22.1 | 22.1 | 12.8 | 22.8 | 22.8 |
| Actuated g/C Ratio | 0.11 | 0.40 | 0.40 | 0.10 | 0.40 | | 0.11 | 0.20 | 0.20 | 0.12 | 0.21 | 0.21 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 372 | 2089 | 639 | 366 | 2041 | | 385 | 725 | 319 | 408 | 748 | 329 |
| v/s Ratio Prot | c0.06 | c0.22 | | 0.06 | 0.16 | | 0.07 | 0.10 | | c0.08 | c0.15 | |
| v/s Ratio Perm | | | 0.07 | | | | | | 0.03 | | | 0.02 |
| v/c Ratio | 0.55 | 0.55 | 0.18 | 0.56 | 0.41 | | 0.67 | 0.50 | 0.17 | 0.66 | 0.72 | 0.09 |
| Uniform Delay, d1 | 46.7 | 25.2 | 21.1 | 46.9 | 23.6 | | 47.0 | 39.0 | 36.4 | 46.5 | 40.6 | 35.2 |
| Progression Factor | 1.34 | 0.70 | 0.66 | 0.88 | 0.86 | | 0.84 | 0.72 | 1.54 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 0.7 | 0.4 | 1.5 | 0.5 | | 4.3 | 0.5 | 0.2 | 3.8 | 3.3 | 0.1 |
| Delay (s) | 63.5 | 18.4 | 14.3 | 42.8 | 20.7 | | 43.6 | 28.6 | 56.4 | 50.3 | 43.9 | 35.3 |
| Level of Service | E | B | B | D | C | | D | C | E | D | D | D |
| Approach Delay (s) | | 23.4 | | | 25.0 | | | 40.6 | | | 44.4 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

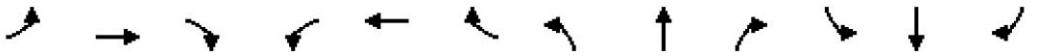
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 660 | 990 | 300 | 20 | 450 | 150 | 170 | 350 | 20 | 330 | 400 | 430 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3578 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 3610 | 1586 | 3502 | 3578 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 767 | 1151 | 349 | 23 | 523 | 174 | 198 | 407 | 23 | 384 | 465 | 500 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 131 | 0 | 4 | 0 | 0 | 0 | 297 |
| Lane Group Flow (vph) | 767 | 1151 | 349 | 23 | 523 | 43 | 198 | 426 | 0 | 384 | 465 | 203 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 23.0 | 47.6 | 110.0 | 2.4 | 27.0 | 27.0 | 7.0 | 29.0 | | 11.0 | 33.0 | 33.0 |
| Effective Green, g (s) | 23.0 | 47.6 | 110.0 | 2.4 | 27.0 | 27.0 | 7.0 | 29.0 | | 11.0 | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.21 | 0.43 | 1.00 | 0.02 | 0.25 | 0.25 | 0.06 | 0.26 | | 0.10 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 732 | 2245 | 1593 | 39 | 886 | 389 | 223 | 943 | | 350 | 1083 | 476 |
| v/s Ratio Prot | c0.22 | 0.22 | | 0.01 | c0.14 | | 0.06 | 0.12 | | c0.11 | c0.13 | |
| v/s Ratio Perm | | | c0.22 | | | 0.03 | | | | | | 0.13 |
| v/c Ratio | 1.05 | 0.51 | 0.22 | 0.59 | 0.59 | 0.11 | 0.89 | 0.45 | | 1.10 | 0.43 | 0.43 |
| Uniform Delay, d1 | 43.5 | 22.7 | 0.0 | 53.3 | 36.6 | 32.2 | 51.1 | 33.9 | | 49.5 | 30.9 | 30.9 |
| Progression Factor | 0.82 | 0.78 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 45.5 | 0.8 | 0.3 | 20.8 | 2.9 | 0.6 | 31.7 | 1.6 | | 76.8 | 1.2 | 2.8 |
| Delay (s) | 81.2 | 18.5 | 0.3 | 74.1 | 39.5 | 32.8 | 82.8 | 35.4 | | 126.3 | 32.2 | 33.7 |
| Level of Service | F | B | A | E | D | C | F | D | | F | C | C |
| Approach Delay (s) | | 36.9 | | | 39.0 | | | 50.4 | | | 59.5 | |
| Approach LOS | | D | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 90.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

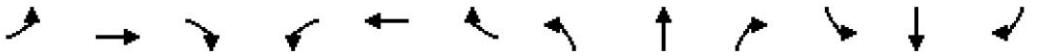
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 20 | 110 | 30 | 20 | 20 | 90 | 850 | 30 | 20 | 1030 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.87 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3064 | | 1805 | 1900 | 1581 | 1805 | 3589 | | 1805 | 3610 | 1592 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3064 | | 1805 | 1900 | 1581 | 1805 | 3589 | | 1805 | 3610 | 1592 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 43 | 22 | 118 | 32 | 22 | 22 | 97 | 914 | 32 | 22 | 1108 | 43 |
| RTOR Reduction (vph) | 0 | 110 | 0 | 0 | 0 | 21 | 0 | 1 | 0 | 0 | 0 | 16 |
| Lane Group Flow (vph) | 43 | 30 | 0 | 32 | 22 | 1 | 97 | 945 | 0 | 22 | 1108 | 27 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 4.2 | 7.4 | | 3.6 | 6.9 | 6.9 | 11.2 | 78.2 | | 3.3 | 70.3 | 70.3 |
| Effective Green, g (s) | 4.2 | 7.4 | | 3.6 | 6.9 | 6.9 | 11.2 | 78.2 | | 3.3 | 70.3 | 70.3 |
| Actuated g/C Ratio | 0.04 | 0.07 | | 0.03 | 0.06 | 0.06 | 0.10 | 0.71 | | 0.03 | 0.64 | 0.64 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 69 | 206 | | 59 | 119 | 99 | 184 | 2551 | | 54 | 2307 | 1017 |
| v/s Ratio Prot | c0.02 | 0.01 | | 0.02 | c0.01 | | c0.05 | 0.26 | | 0.01 | c0.31 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.02 |
| v/c Ratio | 0.62 | 0.15 | | 0.54 | 0.18 | 0.01 | 0.53 | 0.37 | | 0.41 | 0.48 | 0.03 |
| Uniform Delay, d1 | 52.1 | 48.3 | | 52.4 | 48.9 | 48.4 | 46.9 | 6.2 | | 52.4 | 10.3 | 7.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.41 | 0.15 | | 0.98 | 0.62 | 0.75 |
| Incremental Delay, d2 | 16.2 | 0.3 | | 9.8 | 0.8 | 0.1 | 2.4 | 0.4 | | 4.6 | 0.7 | 0.0 |
| Delay (s) | 68.3 | 48.6 | | 62.2 | 49.6 | 48.4 | 68.7 | 1.3 | | 56.1 | 7.1 | 5.5 |
| Level of Service | E | D | | E | D | D | E | A | | E | A | A |
| Approach Delay (s) | | 53.3 | | | 54.6 | | | 7.5 | | | 8.0 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 57.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

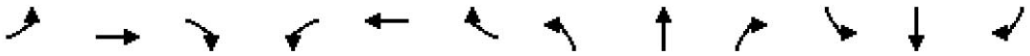
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 40 | 40 | 60 | 30 | 110 | 80 | 340 | 80 | 330 | 490 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3486 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 3486 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 71 | 47 | 47 | 71 | 35 | 129 | 94 | 400 | 94 | 388 | 576 | 94 |
| RTOR Reduction (vph) | 0 | 0 | 43 | 0 | 0 | 119 | 0 | 13 | 0 | 0 | 0 | 34 |
| Lane Group Flow (vph) | 71 | 47 | 4 | 71 | 35 | 10 | 94 | 481 | 0 | 388 | 576 | 60 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 5.6 | 8.3 | 8.3 | 5.6 | 8.3 | 8.3 | 9.6 | 51.4 | | 28.7 | 70.5 | 70.5 |
| Effective Green, g (s) | 5.6 | 8.3 | 8.3 | 5.6 | 8.3 | 8.3 | 9.6 | 51.4 | | 28.7 | 70.5 | 70.5 |
| Actuated g/C Ratio | 0.05 | 0.08 | 0.08 | 0.05 | 0.08 | 0.08 | 0.09 | 0.47 | | 0.26 | 0.64 | 0.64 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 92 | 143 | 120 | 92 | 143 | 120 | 158 | 1629 | | 471 | 2314 | 1016 |
| v/s Ratio Prot | c0.04 | c0.02 | | 0.04 | 0.02 | | 0.05 | c0.14 | | c0.21 | 0.16 | |
| v/s Ratio Perm | | | 0.00 | | | 0.01 | | | | | | 0.04 |
| v/c Ratio | 0.77 | 0.33 | 0.03 | 0.77 | 0.24 | 0.08 | 0.59 | 0.30 | | 0.82 | 0.25 | 0.06 |
| Uniform Delay, d1 | 51.6 | 48.2 | 47.1 | 51.6 | 47.9 | 47.3 | 48.3 | 18.1 | | 38.3 | 8.4 | 7.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 0.57 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 32.1 | 1.3 | 0.1 | 32.1 | 0.9 | 0.3 | 5.3 | 0.4 | | 11.2 | 0.3 | 0.1 |
| Delay (s) | 83.7 | 49.6 | 47.2 | 83.7 | 48.8 | 47.6 | 52.2 | 10.7 | | 49.4 | 8.7 | 7.5 |
| Level of Service | F | D | D | F | D | D | D | B | | D | A | A |
| Approach Delay (s) | | 63.6 | | | 58.7 | | | 17.3 | | | 23.5 | |
| Approach LOS | | E | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 60.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

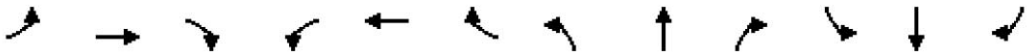
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 130 | 100 | 150 | 60 | 110 | 20 | 750 | 140 | 160 | 960 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1791 | 1762 | | 1798 | 1900 | 1583 | 1805 | 3508 | | 1805 | 3597 | |
| Flt Permitted | 0.71 | 1.00 | | 0.39 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1345 | 1762 | | 739 | 1900 | 1583 | 1805 | 3508 | | 1805 | 3597 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 79 | 146 | 112 | 169 | 67 | 124 | 22 | 843 | 157 | 180 | 1079 | 22 |
| RTOR Reduction (vph) | 0 | 28 | 0 | 0 | 0 | 95 | 0 | 12 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 79 | 230 | 0 | 169 | 67 | 29 | 22 | 988 | 0 | 180 | 1100 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 25.4 | 25.4 | | 25.4 | 25.4 | 25.4 | 2.5 | 54.6 | | 15.4 | 67.5 | |
| Effective Green, g (s) | 25.4 | 25.4 | | 25.4 | 25.4 | 25.4 | 2.5 | 54.6 | | 15.4 | 67.5 | |
| Actuated g/C Ratio | 0.23 | 0.23 | | 0.23 | 0.23 | 0.23 | 0.02 | 0.50 | | 0.14 | 0.61 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 311 | 407 | | 171 | 439 | 366 | 41 | 1741 | | 253 | 2207 | |
| v/s Ratio Prot | | 0.13 | | | 0.04 | | 0.01 | c0.28 | | c0.10 | 0.31 | |
| v/s Ratio Perm | 0.06 | | | c0.23 | | 0.02 | | | | | | |
| v/c Ratio | 0.25 | 0.57 | | 0.99 | 0.15 | 0.08 | 0.54 | 0.57 | | 0.71 | 0.50 | |
| Uniform Delay, d1 | 34.6 | 37.4 | | 42.2 | 33.7 | 33.1 | 53.2 | 19.4 | | 45.2 | 11.8 | |
| Progression Factor | 1.00 | 1.00 | | 0.84 | 0.83 | 0.92 | 0.81 | 0.77 | | 1.17 | 0.45 | |
| Incremental Delay, d2 | 0.4 | 1.8 | | 63.6 | 0.2 | 0.1 | 11.4 | 1.2 | | 8.4 | 0.7 | |
| Delay (s) | 35.0 | 39.2 | | 98.9 | 28.3 | 30.6 | 54.2 | 16.1 | | 61.2 | 6.1 | |
| Level of Service | C | D | | F | C | C | D | B | | E | A | |
| Approach Delay (s) | | 38.2 | | | 62.2 | | | 16.9 | | | 13.8 | |
| Approach LOS | | D | | | E | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 73.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

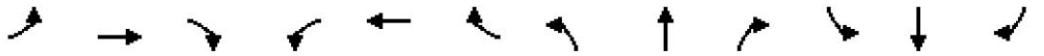
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 240 | 70 | 10 | 180 | 30 | 50 | 190 | 30 | 60 | 260 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3473 | | 1805 | 3524 | | 1805 | 3529 | | 1805 | 3323 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3473 | | 1805 | 3524 | | 1805 | 3529 | | 1805 | 3323 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 302 | 279 | 81 | 12 | 209 | 35 | 58 | 221 | 35 | 70 | 302 | 279 |
| RTOR Reduction (vph) | 0 | 30 | 0 | 0 | 15 | 0 | 0 | 9 | 0 | 0 | 122 | 0 |
| Lane Group Flow (vph) | 302 | 330 | 0 | 12 | 229 | 0 | 58 | 247 | 0 | 70 | 459 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 21.4 | 35.8 | | 1.2 | 15.6 | | 7.9 | 48.6 | | 8.4 | 49.1 | |
| Effective Green, g (s) | 21.4 | 35.8 | | 1.2 | 15.6 | | 7.9 | 48.6 | | 8.4 | 49.1 | |
| Actuated g/C Ratio | 0.19 | 0.33 | | 0.01 | 0.14 | | 0.07 | 0.44 | | 0.08 | 0.45 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 351 | 1130 | | 20 | 500 | | 130 | 1559 | | 138 | 1483 | |
| v/s Ratio Prot | c0.17 | 0.10 | | 0.01 | c0.07 | | 0.03 | 0.07 | | c0.04 | c0.14 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.86 | 0.29 | | 0.60 | 0.46 | | 0.45 | 0.16 | | 0.51 | 0.31 | |
| Uniform Delay, d1 | 42.9 | 27.7 | | 54.2 | 43.3 | | 49.0 | 18.4 | | 48.8 | 19.6 | |
| Progression Factor | 0.95 | 0.78 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.43 | 0.53 | |
| Incremental Delay, d2 | 17.8 | 0.1 | | 40.2 | 0.7 | | 2.4 | 0.2 | | 2.8 | 0.5 | |
| Delay (s) | 58.5 | 21.7 | | 94.3 | 44.0 | | 51.4 | 18.6 | | 72.7 | 11.0 | |
| Level of Service | E | C | | F | D | | D | B | | E | B | |
| Approach Delay (s) | | 38.5 | | | 46.4 | | | 24.7 | | | 17.6 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

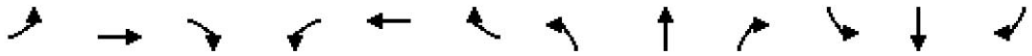
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 180 | 40 | 320 | 130 | 1040 | 0 | 0 | 1620 | 360 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.96 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1816 | 1586 | 1805 | 3610 | | | 3610 | 1564 |
| Flt Permitted | | | | | 0.96 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1816 | 1586 | 1805 | 3610 | | | 3610 | 1564 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 196 | 43 | 348 | 141 | 1130 | 0 | 0 | 1761 | 391 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 95 | 0 | 0 | 0 | 0 | 0 | 110 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 239 | 253 | 141 | 1130 | 0 | 0 | 1761 | 281 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | | 22.2 | 22.2 | 11.0 | 79.8 | | | 64.8 | 64.8 |
| Effective Green, g (s) | | | | | 22.2 | 22.2 | 11.0 | 79.8 | | | 64.8 | 64.8 |
| Actuated g/C Ratio | | | | | 0.20 | 0.20 | 0.10 | 0.73 | | | 0.59 | 0.59 |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 367 | 320 | 181 | 2619 | | | 2127 | 921 |
| v/s Ratio Prot | | | | | | | c0.08 | 0.31 | | | c0.49 | |
| v/s Ratio Perm | | | | | 0.13 | c0.16 | | | | | | 0.18 |
| v/c Ratio | | | | | 0.65 | 0.79 | 0.78 | 0.43 | | | 0.83 | 0.30 |
| Uniform Delay, d1 | | | | | 40.3 | 41.7 | 48.3 | 6.0 | | | 18.1 | 11.3 |
| Progression Factor | | | | | 1.00 | 1.00 | 0.76 | 1.00 | | | 0.98 | 0.92 |
| Incremental Delay, d2 | | | | | 4.1 | 12.5 | 6.1 | 0.2 | | | 3.7 | 0.8 |
| Delay (s) | | | | | 44.4 | 54.2 | 42.6 | 6.2 | | | 21.6 | 11.2 |
| Level of Service | | | | | D | D | D | A | | | C | B |
| Approach Delay (s) | | 0.0 | | | 50.2 | | | 10.2 | | | 19.7 | |
| Approach LOS | | A | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

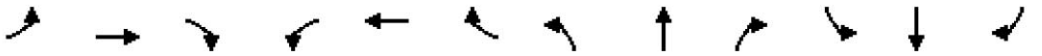
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 370 | 120 | 290 | 0 | 0 | 0 | 0 | 800 | 250 | 520 | 1280 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | | | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.89 | | | | | | 0.96 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1794 | 1677 | | | | | | 3455 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1794 | 1677 | | | | | | 3455 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 402 | 130 | 315 | 0 | 0 | 0 | 0 | 870 | 272 | 565 | 1391 | 0 |
| RTOR Reduction (vph) | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 402 | 393 | 0 | 0 | 0 | 0 | 0 | 1115 | 0 | 565 | 1391 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | | | | | | | | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | 27.4 | 27.4 | | | | | | 35.2 | | 35.4 | 74.6 | |
| Effective Green, g (s) | 27.4 | 27.4 | | | | | | 35.2 | | 35.4 | 74.6 | |
| Actuated g/C Ratio | 0.25 | 0.25 | | | | | | 0.32 | | 0.32 | 0.68 | |
| Clearance Time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 447 | 418 | | | | | | 1106 | | 581 | 2448 | |
| v/s Ratio Prot | | c0.23 | | | | | | c0.32 | | c0.31 | 0.39 | |
| v/s Ratio Perm | 0.22 | | | | | | | | | | | |
| v/c Ratio | 0.90 | 0.94 | | | | | | 1.01 | | 0.97 | 0.57 | |
| Uniform Delay, d1 | 40.0 | 40.5 | | | | | | 37.4 | | 36.8 | 9.3 | |
| Progression Factor | 1.00 | 1.00 | | | | | | 0.42 | | 0.98 | 0.13 | |
| Incremental Delay, d2 | 20.4 | 29.4 | | | | | | 24.4 | | 21.8 | 0.6 | |
| Delay (s) | 60.4 | 69.9 | | | | | | 40.1 | | 57.9 | 1.8 | |
| Level of Service | E | E | | | | | | D | | E | A | |
| Approach Delay (s) | | 65.4 | | | 0.0 | | | 40.1 | | | 18.0 | |
| Approach LOS | | E | | | A | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 140 | 40 | 30 | 200 | 130 | 0 | 0 | 240 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 0.98 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1783 | | 1805 | 1900 | | | 1900 | 1564 |
| Flt Permitted | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1783 | | 1805 | 1900 | | | 1900 | 1564 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 152 | 43 | 33 | 217 | 141 | 0 | 0 | 261 | 98 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 44 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 221 | 0 | 217 | 141 | 0 | 0 | 261 | 54 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | | | | 19.0 | | 18.5 | 83.0 | | | 60.5 | 60.5 |
| Effective Green, g (s) | | | | | 19.0 | | 18.5 | 83.0 | | | 60.5 | 60.5 |
| Actuated g/C Ratio | | | | | 0.17 | | 0.17 | 0.75 | | | 0.55 | 0.55 |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 308 | | 304 | 1434 | | | 1045 | 860 |
| v/s Ratio Prot | | | | | | | c0.12 | 0.07 | | | c0.14 | |
| v/s Ratio Perm | | | | | 0.12 | | | | | | | 0.03 |
| v/c Ratio | | | | | 0.72 | | 0.71 | 0.10 | | | 0.25 | 0.06 |
| Uniform Delay, d1 | | | | | 43.0 | | 43.2 | 3.6 | | | 12.9 | 11.5 |
| Progression Factor | | | | | 1.00 | | 1.27 | 0.95 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 7.8 | | 7.6 | 0.1 | | | 0.6 | 0.1 |
| Delay (s) | | | | | 50.8 | | 62.7 | 3.5 | | | 13.5 | 11.7 |
| Level of Service | | | | | D | | E | A | | | B | B |
| Approach Delay (s) | | 0.0 | | | 50.8 | | | 39.4 | | | 13.0 | |
| Approach LOS | | A | | | D | | | D | | | B | |

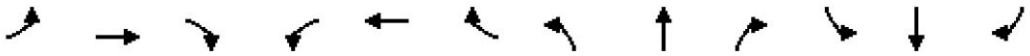
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 56.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 40 | 500 | 0 | 0 | 0 | 0 | 260 | 140 | 30 | 340 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.97 | | | | | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 0.99 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1830 | 1567 | | | | | 1900 | 1564 | 1805 | 1900 | |
| Flt Permitted | | 0.97 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1830 | 1567 | | | | | 1900 | 1564 | 1805 | 1900 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 76 | 43 | 543 | 0 | 0 | 0 | 0 | 283 | 152 | 33 | 370 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 284 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 119 | 259 | 0 | 0 | 0 | 0 | 283 | 95 | 33 | 370 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | | 24.2 | 24.2 | | | | | 68.7 | 68.7 | 5.1 | 77.8 | |
| Effective Green, g (s) | | 24.2 | 24.2 | | | | | 68.7 | 68.7 | 5.1 | 77.8 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | | | | 0.62 | 0.62 | 0.05 | 0.71 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 403 | 345 | | | | | 1187 | 977 | 84 | 1344 | |
| v/s Ratio Prot | | | | | | | | 0.15 | | c0.02 | c0.19 | |
| v/s Ratio Perm | | 0.07 | c0.17 | | | | | | 0.06 | | | |
| v/c Ratio | | 0.30 | 0.75 | | | | | 0.24 | 0.10 | 0.39 | 0.28 | |
| Uniform Delay, d1 | | 35.8 | 40.1 | | | | | 9.1 | 8.3 | 50.9 | 5.9 | |
| Progression Factor | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.13 | 1.11 | |
| Incremental Delay, d2 | | 0.4 | 8.9 | | | | | 0.5 | 0.2 | 2.9 | 0.5 | |
| Delay (s) | | 36.2 | 49.0 | | | | | 9.6 | 8.5 | 60.3 | 7.0 | |
| Level of Service | | D | D | | | | | A | A | E | A | |
| Approach Delay (s) | | 46.7 | | | 0.0 | | | 9.2 | | | 11.4 | |
| Approach LOS | | D | | | A | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 56.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

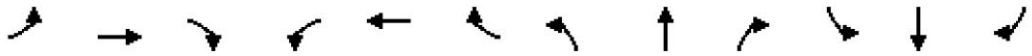
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 60 | 330 | 70 | 30 | 60 | 290 | 920 | 100 | 100 | 1140 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.87 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1632 | | 1805 | 1900 | 1586 | 1805 | 3550 | | 1805 | 3599 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1632 | | 1805 | 1900 | 1586 | 1805 | 3550 | | 1805 | 3599 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 38 | 75 | 412 | 88 | 38 | 75 | 362 | 1150 | 125 | 125 | 1425 | 25 |
| RTOR Reduction (vph) | 0 | 185 | 0 | 0 | 0 | 57 | 0 | 7 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 38 | 302 | 0 | 88 | 38 | 18 | 362 | 1268 | 0 | 125 | 1449 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 3.2 | 23.6 | | 6.0 | 26.4 | 26.4 | 22.2 | 51.7 | | 10.5 | 40.0 | |
| Effective Green, g (s) | 3.2 | 23.6 | | 6.0 | 26.4 | 26.4 | 22.2 | 51.7 | | 10.5 | 40.0 | |
| Actuated g/C Ratio | 0.03 | 0.21 | | 0.05 | 0.24 | 0.24 | 0.20 | 0.47 | | 0.10 | 0.36 | |
| Clearance Time (s) | 4.0 | 4.9 | | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 53 | 350 | | 98 | 456 | 381 | 364 | 1669 | | 172 | 1309 | |
| v/s Ratio Prot | 0.02 | c0.19 | | c0.05 | c0.02 | | c0.20 | 0.36 | | 0.07 | c0.40 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | |
| v/c Ratio | 0.72 | 0.86 | | 0.90 | 0.08 | 0.05 | 0.99 | 0.76 | | 0.73 | 1.11 | |
| Uniform Delay, d1 | 53.0 | 41.7 | | 51.7 | 32.4 | 32.1 | 43.8 | 24.0 | | 48.4 | 35.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.85 | 0.94 | | 1.19 | 0.81 | |
| Incremental Delay, d2 | 36.9 | 19.3 | | 58.5 | 0.1 | 0.1 | 45.4 | 3.3 | | 11.2 | 57.2 | |
| Delay (s) | 89.9 | 60.9 | | 110.2 | 32.5 | 32.2 | 82.7 | 25.9 | | 68.6 | 85.5 | |
| Level of Service | F | E | | F | C | C | F | C | | E | F | |
| Approach Delay (s) | | 63.0 | | | 66.4 | | | 38.4 | | | 84.2 | |
| Approach LOS | | E | | | E | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 61.4 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.05 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 23.1 |
| Intersection Capacity Utilization | 91.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

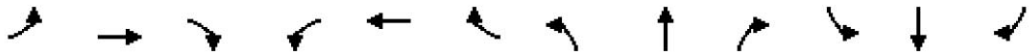
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | None | |
| Median storage veh) | | | | | | | | 2 | | | | |
| Upstream signal (ft) | | | | | | | | | | | 361 | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| vC1, stage 1 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vC2, stage 2 conf vol | 0 | 0 | | 0 | 0 | | | | | | | |
| vCu, unblocked vol | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | 6.1 | 5.5 | | 6.1 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 100 | 100 | 100 | 100 | | | 100 | | |
| cM capacity (veh/h) | 1029 | 900 | 1091 | 1029 | 900 | 1091 | 1636 | | | 1636 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | A | | | | |

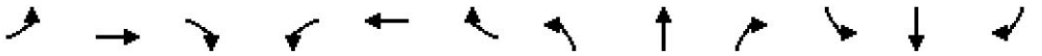
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.0 | | | |
| Intersection Capacity Utilization | 0.0% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 90 | 110 | 50 | 20 | 80 | 60 | 40 | 230 | 30 | 20 | 220 | 150 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 99 | 121 | 55 | 22 | 88 | 66 | 44 | 253 | 33 | 22 | 242 | 165 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 275 | 176 | 44 | 286 | 22 | 407 |
| Volume Left (vph) | 99 | 22 | 44 | 0 | 22 | 0 |
| Volume Right (vph) | 55 | 66 | 0 | 33 | 0 | 165 |
| Hadj (s) | -0.05 | -0.20 | 0.50 | -0.08 | 0.50 | -0.28 |
| Departure Headway (s) | 6.6 | 6.7 | 7.4 | 6.8 | 7.2 | 6.4 |
| Degree Utilization, x | 0.50 | 0.33 | 0.09 | 0.54 | 0.04 | 0.72 |
| Capacity (veh/h) | 495 | 455 | 453 | 490 | 473 | 538 |
| Control Delay (s) | 16.0 | 13.0 | 9.9 | 16.3 | 9.4 | 23.3 |
| Approach Delay (s) | 16.0 | 13.0 | 15.4 | | 22.6 | |
| Approach LOS | C | B | C | | C | |

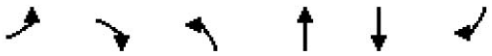
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 17.7 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 60.2% | ICU Level of Service | | B |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 220 | 480 | 0 | 0 | 360 | 80 | 0 | 0 | 0 | 90 | 0 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 1.00 | | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 0.97 | | | | 1.00 | | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 0.99 | | 1.00 |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | | | 1.00 | | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | | | 0.95 | | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | | 1900 | 1567 | | | | 1787 | | 1567 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | | | | 0.76 | | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | | 1900 | 1567 | | | | 1425 | | 1567 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.92 | 0.92 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.90 | 0.92 | 0.90 |
| Adj. Flow (vph) | 244 | 533 | 0 | 0 | 400 | 89 | 0 | 0 | 0 | 100 | 0 | 211 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 63 | 0 | 0 | 0 | 0 | 0 | 117 |
| Lane Group Flow (vph) | 244 | 533 | 0 | 0 | 400 | 26 | 0 | 0 | 0 | 100 | 0 | 94 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | | | | Perm | Perm | | | custom | | custom |
| Protected Phases | 7 | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 20.1 | 53.2 | | | 29.1 | 29.1 | | | | 48.8 | | 48.8 |
| Effective Green, g (s) | 20.1 | 53.2 | | | 29.1 | 29.1 | | | | 48.8 | | 48.8 |
| Actuated g/C Ratio | 0.18 | 0.48 | | | 0.26 | 0.26 | | | | 0.44 | | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | | | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | 330 | 919 | | | 503 | 415 | | | | 632 | | 695 |
| v/s Ratio Prot | c0.14 | 0.28 | | | c0.21 | | | | | | | |
| v/s Ratio Perm | | | | | | 0.02 | | | | c0.07 | | 0.06 |
| v/c Ratio | 0.74 | 0.58 | | | 0.80 | 0.06 | | | | 0.16 | | 0.13 |
| Uniform Delay, d1 | 42.5 | 20.4 | | | 37.7 | 30.3 | | | | 18.3 | | 18.1 |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | | | 1.00 | | 1.00 |
| Incremental Delay, d2 | 8.4 | 0.9 | | | 8.5 | 0.1 | | | | 0.5 | | 0.4 |
| Delay (s) | 50.9 | 21.3 | | | 46.2 | 30.3 | | | | 18.8 | | 18.5 |
| Level of Service | D | C | | | D | C | | | | B | | B |
| Approach Delay (s) | | 30.6 | | | 43.3 | | | 0.0 | | | 18.6 | |
| Approach LOS | | C | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

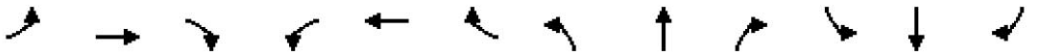
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 40 | 30 | 10 | 390 | 960 | 170 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 42 | 31 | 10 | 406 | 1000 | 177 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1229 | 505 | 1177 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1229 | 505 | 1177 | | | |
| tC, single (s) | 6.8 | 6.9 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 75 | 94 | 98 | | | |
| cM capacity (veh/h) | 169 | 516 | 601 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 73 | 10 | 203 | 203 | 500 | 500 | 177 |
| Volume Left | 42 | 10 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 31 | 0 | 0 | 0 | 0 | 0 | 177 |
| cSH | 238 | 601 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.31 | 0.02 | 0.12 | 0.12 | 0.29 | 0.29 | 0.10 |
| Queue Length 95th (ft) | 31 | 1 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 26.7 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | D | B | | | | | |
| Approach Delay (s) | 26.7 | 0.3 | | | 0.0 | | |
| Approach LOS | D | | | | | | |

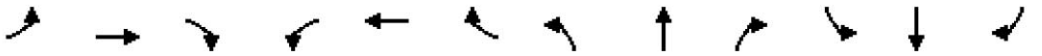
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.2 | | |
| Intersection Capacity Utilization | 37.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 50 | 730 | 0 | 0 | 210 | 450 | 180 | 30 | 30 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 52 | 753 | 0 | 0 | 216 | 464 | 186 | 31 | 31 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 685 | | | 758 | | | 1082 | 1546 | 763 | 1113 | 1082 | 226 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 685 | | | 758 | | | 1082 | 1546 | 763 | 1113 | 1082 | 226 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 94 | | | 100 | | | 0 | 72 | 92 | 100 | 100 | 100 |
| cM capacity (veh/h) | 918 | | | 859 | | | 186 | 109 | 404 | 129 | 206 | 814 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 52 | 753 | 216 | 464 | 247 |
| Volume Left | 52 | 0 | 0 | 0 | 186 |
| Volume Right | 0 | 0 | 0 | 464 | 31 |
| cSH | 918 | 1700 | 1700 | 1700 | 196 |
| Volume to Capacity | 0.06 | 0.44 | 0.13 | 0.27 | 1.26 |
| Queue Length 95th (ft) | 4 | 0 | 0 | 0 | 334 |
| Control Delay (s) | 9.2 | 0.0 | 0.0 | 0.0 | 200.5 |
| Lane LOS | A | | | | F |
| Approach Delay (s) | 0.6 | | 0.0 | | 200.5 |
| Approach LOS | | | | | F |

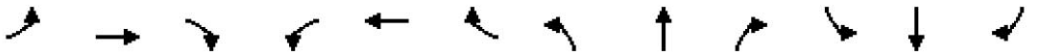
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 28.9 | | |
| Intersection Capacity Utilization | 56.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 540 | 470 | 10 | 390 | 0 | 0 | 0 | 0 | 220 | 10 | 10 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 562 | 490 | 10 | 406 | 0 | 0 | 0 | 0 | 229 | 10 | 10 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 411 | | | 1057 | | | 1010 | 1000 | 572 | 1000 | 1489 | 416 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 411 | | | 1057 | | | 1010 | 1000 | 572 | 1000 | 1489 | 416 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 98 | | | 100 | 100 | 100 | 0 | 92 | 98 |
| cM capacity (veh/h) | 1154 | | | 666 | | | 199 | 240 | 521 | 219 | 123 | 635 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 562 | 490 | 10 | 406 | 250 |
| Volume Left | 0 | 0 | 10 | 0 | 229 |
| Volume Right | 0 | 490 | 0 | 0 | 10 |
| cSH | 1700 | 1700 | 666 | 1700 | 222 |
| Volume to Capacity | 0.33 | 0.29 | 0.02 | 0.24 | 1.13 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 290 |
| Control Delay (s) | 0.0 | 0.0 | 10.5 | 0.0 | 145.4 |
| Lane LOS | | | B | | F |
| Approach Delay (s) | 0.0 | | 0.3 | | 145.4 |
| Approach LOS | | | | | F |

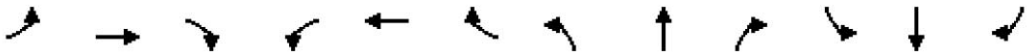
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 21.2 | | |
| Intersection Capacity Utilization | 56.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 330 | 350 | 120 | 30 | 260 | 420 | 70 | 640 | 50 | 500 | 900 | 370 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1599 | 3502 | 3610 | 1603 | 3502 | 3610 | 1597 | 3502 | 3610 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1599 | 3502 | 3610 | 1603 | 3502 | 3610 | 1597 | 3502 | 3610 | 1598 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 340 | 361 | 124 | 31 | 268 | 433 | 72 | 660 | 52 | 515 | 928 | 381 |
| RTOR Reduction (vph) | 0 | 0 | 73 | 0 | 0 | 69 | 0 | 0 | 32 | 0 | 0 | 155 |
| Lane Group Flow (vph) | 340 | 361 | 51 | 31 | 268 | 364 | 72 | 660 | 20 | 515 | 928 | 226 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.1 | 15.7 | 22.8 | 5.4 | 12.0 | 23.1 | 7.1 | 20.5 | 25.9 | 11.1 | 24.5 | 33.6 |
| Effective Green, g (s) | 9.1 | 15.7 | 22.8 | 5.4 | 12.0 | 23.1 | 7.1 | 20.5 | 25.9 | 11.1 | 24.5 | 33.6 |
| Actuated g/C Ratio | 0.13 | 0.23 | 0.33 | 0.08 | 0.17 | 0.34 | 0.10 | 0.30 | 0.38 | 0.16 | 0.36 | 0.49 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 464 | 825 | 624 | 275 | 631 | 632 | 362 | 1077 | 695 | 566 | 1287 | 875 |
| v/s Ratio Prot | c0.10 | c0.10 | 0.01 | 0.01 | 0.07 | c0.09 | 0.02 | 0.18 | 0.00 | c0.15 | c0.26 | 0.03 |
| v/s Ratio Perm | | | 0.02 | | | 0.13 | | | 0.01 | | | 0.11 |
| v/c Ratio | 0.73 | 0.44 | 0.08 | 0.11 | 0.42 | 0.58 | 0.20 | 0.61 | 0.03 | 0.91 | 0.72 | 0.26 |
| Uniform Delay, d1 | 28.6 | 22.7 | 15.8 | 29.4 | 25.3 | 18.8 | 28.2 | 20.7 | 13.5 | 28.3 | 19.1 | 10.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.9 | 0.4 | 0.1 | 0.2 | 0.5 | 1.3 | 0.3 | 1.0 | 0.0 | 18.5 | 2.0 | 0.2 |
| Delay (s) | 34.5 | 23.1 | 15.8 | 29.6 | 25.7 | 20.0 | 28.5 | 21.7 | 13.5 | 46.8 | 21.2 | 10.4 |
| Level of Service | C | C | B | C | C | C | C | C | B | D | C | B |
| Approach Delay (s) | | 26.7 | | | 22.5 | | | 21.8 | | | 26.2 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 68.7 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 69.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 290 | 150 | 30 | 380 | 40 | 410 | 200 | 60 | 120 | 60 | 30 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 32 | 312 | 161 | 32 | 409 | 43 | 441 | 215 | 65 | 129 | 65 | 32 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 344 | 161 | 32 | 452 | 441 | 280 | 226 |
| Volume Left (vph) | 32 | 0 | 32 | 0 | 441 | 0 | 129 |
| Volume Right (vph) | 0 | 161 | 0 | 43 | 0 | 65 | 32 |
| Hadj (s) | 0.05 | -0.70 | 0.50 | -0.07 | 0.50 | -0.16 | 0.03 |
| Departure Headway (s) | 8.9 | 8.1 | 9.3 | 8.7 | 9.1 | 8.4 | 9.6 |
| Degree Utilization, x | 0.85 | 0.37 | 0.08 | 1.09 | 1.11 | 0.66 | 0.60 |
| Capacity (veh/h) | 395 | 436 | 380 | 420 | 407 | 417 | 364 |
| Control Delay (s) | 44.2 | 14.6 | 11.9 | 99.9 | 108.9 | 24.9 | 25.9 |
| Approach Delay (s) | 34.7 | | 94.1 | | 76.3 | | 25.9 |
| Approach LOS | D | | F | | F | | D |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 64.0 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 84.9% | ICU Level of Service | | E |
| Analysis Period (min) | 15 | | | |

# HCM Signalized Intersection Capacity Analysis
## 130: 6th St & Beaumont Ave

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 320 | 90 | 390 | 340 | 190 | 80 | 460 | 310 | 120 | 340 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1800 | 3478 | | 1801 | 1634 | 1369 | 1805 | 3369 | | 1805 | 3514 | |
| Flt Permitted | 0.46 | 1.00 | | 0.47 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 867 | 3478 | | 894 | 1634 | 1369 | 1805 | 3369 | | 1805 | 3514 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 128 | 340 | 96 | 415 | 362 | 202 | 85 | 489 | 330 | 128 | 362 | 64 |
| RTOR Reduction (vph) | 0 | 28 | 0 | 0 | 0 | 55 | 0 | 137 | 0 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 128 | 408 | 0 | 415 | 362 | 147 | 85 | 682 | 0 | 128 | 410 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 8 | 8 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 42.6 | 42.6 | | 42.6 | 42.6 | 49.6 | 5.5 | 24.1 | | 7.0 | 25.6 | |
| Effective Green, g (s) | 42.6 | 42.6 | | 42.6 | 42.6 | 49.6 | 5.5 | 24.1 | | 7.0 | 25.6 | |
| Actuated g/C Ratio | 0.50 | 0.50 | | 0.50 | 0.50 | 0.58 | 0.06 | 0.28 | | 0.08 | 0.30 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 431 | 1729 | | 444 | 812 | 856 | 116 | 947 | | 147 | 1050 | |
| v/s Ratio Prot | | 0.12 | | | 0.22 | 0.01 | 0.05 | c0.20 | | c0.07 | 0.12 | |
| v/s Ratio Perm | 0.15 | | | c0.46 | | 0.09 | | | | | | |
| v/c Ratio | 0.30 | 0.24 | | 0.93 | 0.45 | 0.17 | 0.73 | 0.72 | | 0.87 | 0.39 | |
| Uniform Delay, d1 | 12.7 | 12.3 | | 20.2 | 13.9 | 8.4 | 39.4 | 27.8 | | 38.9 | 23.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | 0.1 | | 26.9 | 0.4 | 0.1 | 21.1 | 2.7 | | 39.1 | 0.2 | |
| Delay (s) | 13.1 | 12.4 | | 47.1 | 14.3 | 8.5 | 60.4 | 30.5 | | 78.0 | 24.1 | |
| Level of Service | B | B | | D | B | A | E | C | | E | C | |
| Approach Delay (s) | | 12.5 | | | 27.0 | | | 33.3 | | | 36.5 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 85.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

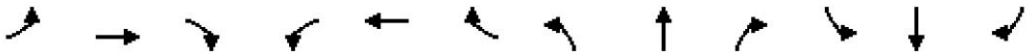


| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 1290 | 10 | 10 | 760 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1800 | 1900 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1900 | 1614 | | 1850 | 1710 | 1615 |
| Flt Permitted | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1900 | 1614 | | 1896 | 1710 | 1615 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 11 | 1387 | 11 | 11 | 817 | 11 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 11 | 1387 | 0 | 22 | 817 | 10 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | pm+ov | Perm | | | Prot |
| Protected Phases | 4 | 2 | | 8 | 2 | 2 |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 2.6 | 57.0 | | 2.6 | 54.4 | 54.4 |
| Effective Green, g (s) | 2.6 | 57.0 | | 2.6 | 54.4 | 54.4 |
| Actuated g/C Ratio | 0.04 | 0.85 | | 0.04 | 0.81 | 0.81 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 74 | 1614 | | 74 | 1388 | 1311 |
| v/s Ratio Prot | 0.01 | c0.70 | | | 0.48 | 0.01 |
| v/s Ratio Perm | | 0.16 | | 0.01 | | |
| v/c Ratio | 0.15 | 0.86 | | 0.30 | 0.59 | 0.01 |
| Uniform Delay, d1 | 31.1 | 2.8 | | 31.3 | 2.3 | 1.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 4.8 | | 2.2 | 0.6 | 0.0 |
| Delay (s) | 32.1 | 7.6 | | 33.6 | 2.9 | 1.2 |
| Level of Service | C | A | | C | A | A |
| Approach Delay (s) | 7.8 | | | 33.6 | 2.9 | |
| Approach LOS | A | | | C | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 67.0 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 94.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

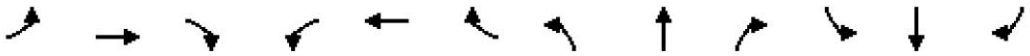
# HCM Unsignalized Intersection Capacity Analysis
## 132: San Timoteo Canyon Rd & Alessandro Rd



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 700 | 0 | 0 | 330 | 410 | 10 | 30 | 10 | 260 | 10 | 20 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 33 | 778 | 0 | 0 | 367 | 456 | 11 | 33 | 11 | 289 | 11 | 22 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 811 | 822 | 56 | 322 |
| Volume Left (vph) | 33 | 0 | 11 | 289 |
| Volume Right (vph) | 0 | 456 | 11 | 22 |
| Hadj (s) | 0.01 | -0.33 | -0.08 | 0.14 |
| Departure Headway (s) | 6.6 | 6.2 | 8.6 | 7.5 |
| Degree Utilization, x | 1.48 | 1.42 | 0.13 | 0.67 |
| Capacity (veh/h) | 554 | 582 | 391 | 473 |
| Control Delay (s) | 244.6 | 218.8 | 12.9 | 24.2 |
| Approach Delay (s) | 244.6 | 218.8 | 12.9 | 24.2 |
| Approach LOS | F | F | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 192.4 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 90.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 860 | 20 | 10 | 700 | 270 | 10 | 10 | 10 | 120 | 0 | 20 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 24 | 1024 | 24 | 12 | 833 | 321 | 12 | 12 | 12 | 143 | 0 | 24 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 1071 | 1167 | 36 | 167 |
| Volume Left (vph) | 24 | 12 | 12 | 143 |
| Volume Right (vph) | 24 | 321 | 12 | 24 |
| Hadj (s) | -0.01 | -0.16 | -0.13 | 0.09 |
| Departure Headway (s) | 5.6 | 5.5 | 7.7 | 7.3 |
| Degree Utilization, x | 1.68 | 1.78 | 0.08 | 0.34 |
| Capacity (veh/h) | 644 | 664 | 446 | 482 |
| Control Delay (s) | 327.1 | 370.3 | 11.4 | 13.9 |
| Approach Delay (s) | 327.1 | 370.3 | 11.4 | 13.9 |
| Approach LOS | F | F | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 321.7 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 80.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 90 | 840 | 60 | 40 | 1000 | 180 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 100 | 933 | 67 | 44 | 1111 | 200 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 1033 | 111 | 1311 |
| Volume Left (vph) | 0 | 67 | 1111 |
| Volume Right (vph) | 933 | 0 | 200 |
| Hadj (s) | -0.54 | 0.12 | 0.08 |
| Departure Headway (s) | 5.5 | 7.1 | 6.1 |
| Degree Utilization, x | 1.58 | 0.22 | 2.23 |
| Capacity (veh/h) | 661 | 501 | 600 |
| Control Delay (s) | 283.1 | 12.1 | 572.5 |
| Approach Delay (s) | 283.1 | 12.1 | 572.5 |
| Approach LOS | F | B | F |

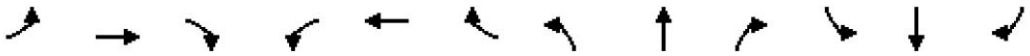
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 425.3 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 129.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 80 | 60 | 240 | 70 | 80 | 300 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 87 | 65 | 261 | 76 | 87 | 326 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 152 | | 717 | 120 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 152 | | 717 | 120 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 82 | | 73 | 65 |
| cM capacity (veh/h) | | | 1441 | | 327 | 937 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 152 | 337 | 413 |
| Volume Left | 0 | 261 | 87 |
| Volume Right | 65 | 0 | 326 |
| cSH | 1700 | 1441 | 673 |
| Volume to Capacity | 0.09 | 0.18 | 0.61 |
| Queue Length 95th (ft) | 0 | 17 | 106 |
| Control Delay (s) | 0.0 | 6.6 | 18.5 |
| Lane LOS | | A | C |
| Approach Delay (s) | 0.0 | 6.6 | 18.5 |
| Approach LOS | | | C |

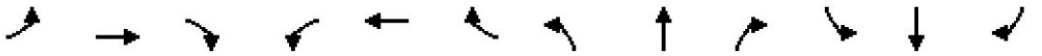
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 10.9 | | |
| Intersection Capacity Utilization | 57.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 370 | 40 | 20 | 310 | 20 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 378 | 41 | 20 | 316 | 20 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 31 | 31 | 429 | 357 |
| Volume Left (vph) | 10 | 10 | 10 | 20 |
| Volume Right (vph) | 10 | 10 | 41 | 20 |
| Hadj (s) | -0.13 | -0.13 | -0.05 | -0.02 |
| Departure Headway (s) | 5.6 | 5.6 | 4.4 | 4.5 |
| Degree Utilization, x | 0.05 | 0.05 | 0.53 | 0.45 |
| Capacity (veh/h) | 557 | 555 | 798 | 775 |
| Control Delay (s) | 8.8 | 8.8 | 12.2 | 11.1 |
| Approach Delay (s) | 8.8 | 8.8 | 12.2 | 11.1 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.5 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 37.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 0 | 70 | 5 | 0 | 5 | 40 | 1000 | 0 | 0 | 760 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1790 | 1569 | | 1791 | 1569 | | 1805 | 1900 | | | 3610 | 1569 |
| Flt Permitted | 0.75 | 1.00 | | 0.70 | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1420 | 1569 | | 1329 | 1569 | | 1805 | 1900 | | | 3610 | 1569 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 148 | 0 | 80 | 6 | 0 | 6 | 45 | 1136 | 0 | 0 | 864 | 102 |
| RTOR Reduction (vph) | 0 | 66 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| Lane Group Flow (vph) | 148 | 14 | 0 | 6 | 1 | 0 | 45 | 1136 | 0 | 0 | 864 | 62 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.8 | 12.8 | | 12.8 | 12.8 | | 4.3 | 54.0 | | | 45.7 | 45.7 |
| Effective Green, g (s) | 12.8 | 12.8 | | 12.8 | 12.8 | | 4.3 | 54.0 | | | 45.7 | 45.7 |
| Actuated g/C Ratio | 0.17 | 0.17 | | 0.17 | 0.17 | | 0.06 | 0.72 | | | 0.61 | 0.61 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 243 | 268 | | 227 | 268 | | 104 | 1372 | | | 2206 | 959 |
| v/s Ratio Prot | | 0.01 | | | 0.00 | | 0.02 | c0.60 | | | 0.24 | |
| v/s Ratio Perm | c0.10 | | | 0.00 | | | | | | | | 0.04 |
| v/c Ratio | 0.61 | 0.05 | | 0.03 | 0.00 | | 0.43 | 0.83 | | | 0.39 | 0.06 |
| Uniform Delay, d1 | 28.7 | 25.9 | | 25.8 | 25.7 | | 34.1 | 7.2 | | | 7.4 | 5.9 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.3 | 0.1 | | 0.0 | 0.0 | | 2.9 | 4.3 | | | 0.1 | 0.0 |
| Delay (s) | 33.0 | 26.0 | | 25.9 | 25.7 | | 36.9 | 11.5 | | | 7.6 | 5.9 |
| Level of Service | C | C | | C | C | | D | B | | | A | A |
| Approach Delay (s) | | 30.5 | | | 25.8 | | | 12.4 | | | 7.4 | |
| Approach LOS | | C | | | C | | | B | | | A | |

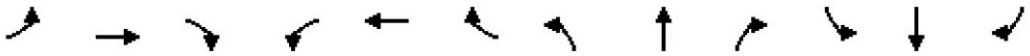
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 74.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 73.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 10 | 10 | 160 | 10 | 120 | 10 | 500 | 150 | 340 | 320 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.93 | | 1.00 | 0.86 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1759 | | 1800 | 1615 | | 1805 | 3610 | 1571 | 1805 | 5159 | |
| Flt Permitted | | 1.00 | | 0.74 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1759 | | 1405 | 1615 | | 1805 | 3610 | 1571 | 1805 | 5159 | |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 0 | 12 | 12 | 190 | 12 | 143 | 12 | 595 | 179 | 405 | 381 | 12 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 112 | 0 | 0 | 0 | 125 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 15 | 0 | 190 | 43 | 0 | 12 | 595 | 54 | 405 | 391 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | |
| Actuated Green, G (s) | | 14.4 | | 14.4 | 14.4 | | 1.1 | 20.0 | 20.0 | 20.2 | 39.1 | |
| Effective Green, g (s) | | 14.4 | | 14.4 | 14.4 | | 1.1 | 20.0 | 20.0 | 20.2 | 39.1 | |
| Actuated g/C Ratio | | 0.22 | | 0.22 | 0.22 | | 0.02 | 0.30 | 0.30 | 0.30 | 0.59 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 380 | | 304 | 349 | | 30 | 1084 | 472 | 547 | 3029 | |
| v/s Ratio Prot | | 0.01 | | | 0.03 | | 0.01 | c0.16 | | c0.22 | 0.08 | |
| v/s Ratio Perm | | | | c0.14 | | | | | 0.03 | | | |
| v/c Ratio | | 0.04 | | 0.62 | 0.12 | | 0.40 | 0.55 | 0.11 | 0.74 | 0.13 | |
| Uniform Delay, d1 | | 20.6 | | 23.7 | 21.0 | | 32.4 | 19.5 | 16.9 | 20.8 | 6.1 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.0 | | 4.0 | 0.2 | | 8.5 | 0.6 | 0.1 | 5.3 | 0.0 | |
| Delay (s) | | 20.7 | | 27.6 | 21.2 | | 41.0 | 20.1 | 17.0 | 26.2 | 6.2 | |
| Level of Service | | C | | C | C | | D | C | B | C | A | |
| Approach Delay (s) | | 20.7 | | | 24.7 | | | 19.7 | | | 16.3 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 66.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 60.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

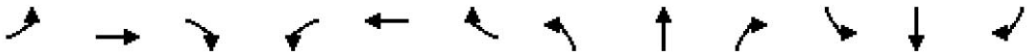
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 270 | 150 | 20 | 540 | 0 | 260 | 0 | 30 | 0 | 0 | 0 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 0 | 325 | 181 | 24 | 651 | 0 | 313 | 0 | 36 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 163 | 343 | 349 | 325 | 313 | 36 | 0 |
| Volume Left (vph) | 0 | 0 | 24 | 0 | 313 | 0 | 0 |
| Volume Right (vph) | 0 | 181 | 0 | 0 | 0 | 36 | 0 |
| Hadj (s) | 0.00 | -0.37 | 0.03 | 0.00 | 0.20 | -0.60 | 0.00 |
| Departure Headway (s) | 6.7 | 6.3 | 6.5 | 6.5 | 6.6 | 3.2 | 7.6 |
| Degree Utilization, x | 0.30 | 0.60 | 0.63 | 0.58 | 0.58 | 0.03 | 0.00 |
| Capacity (veh/h) | 515 | 546 | 543 | 537 | 517 | 1121 | 415 |
| Control Delay (s) | 11.4 | 17.2 | 18.7 | 16.9 | 18.3 | 6.3 | 10.6 |
| Approach Delay (s) | 15.3 | | 17.8 | | 17.1 | | 0.0 |
| Approach LOS | C | | C | | C | | A |

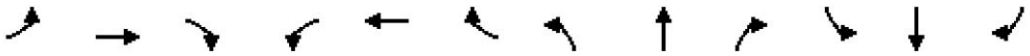
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 16.8 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 50.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 60 | 50 | 180 | 40 | 60 | 60 | 210 | 250 | 90 | 180 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.91 | | | 0.93 | | | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | 1805 | 3343 | | 1805 | 1715 | | | 3291 | | | 3410 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.85 | | | 0.66 | |
| Satd. Flow (perm) | 1805 | 3343 | | 1805 | 1715 | | | 2803 | | | 2271 | |
| Peak-hour factor, PHF | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Adj. Flow (vph) | 205 | 82 | 68 | 247 | 55 | 82 | 82 | 288 | 342 | 123 | 247 | 123 |
| RTOR Reduction (vph) | 0 | 58 | 0 | 0 | 70 | 0 | 0 | 222 | 0 | 0 | 49 | 0 |
| Lane Group Flow (vph) | 205 | 92 | 0 | 247 | 67 | 0 | 0 | 490 | 0 | 0 | 444 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 7.5 | 5.9 | | 7.5 | 5.9 | | | 13.8 | | | 13.8 | |
| Effective Green, g (s) | 7.5 | 5.9 | | 7.5 | 5.9 | | | 13.8 | | | 13.8 | |
| Actuated g/C Ratio | 0.19 | 0.15 | | 0.19 | 0.15 | | | 0.35 | | | 0.35 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 345 | 503 | | 345 | 258 | | | 987 | | | 799 | |
| v/s Ratio Prot | 0.11 | 0.03 | | c0.14 | c0.04 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.17 | | | c0.20 | |
| v/c Ratio | 0.59 | 0.18 | | 0.72 | 0.26 | | | 0.50 | | | 0.56 | |
| Uniform Delay, d1 | 14.5 | 14.5 | | 14.9 | 14.7 | | | 10.0 | | | 10.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 2.7 | 0.2 | | 6.9 | 0.5 | | | 0.4 | | | 0.8 | |
| Delay (s) | 17.2 | 14.7 | | 21.8 | 15.3 | | | 10.4 | | | 11.1 | |
| Level of Service | B | B | | C | B | | | B | | | B | |
| Approach Delay (s) | | 16.2 | | | 19.4 | | | 10.4 | | | 11.1 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 39.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

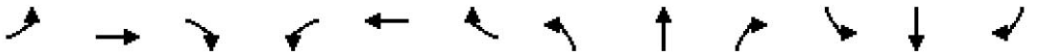
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 150 | 160 | 230 | 120 | 20 | 100 | 130 | 170 | 10 | 200 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.98 | | 1.00 | 0.92 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1722 | | 1805 | 1851 | | 1805 | 1706 | | 1805 | 1843 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1722 | | 1805 | 1851 | | 1805 | 1706 | | 1805 | 1843 | |
| Peak-hour factor, PHF | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| Adj. Flow (vph) | 42 | 211 | 225 | 324 | 169 | 28 | 141 | 183 | 239 | 14 | 282 | 56 |
| RTOR Reduction (vph) | 0 | 32 | 0 | 0 | 5 | 0 | 0 | 38 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 42 | 404 | 0 | 324 | 192 | 0 | 141 | 384 | 0 | 14 | 332 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 5.8 | 36.3 | | 27.8 | 58.3 | | 12.3 | 37.1 | | 2.8 | 27.6 | |
| Effective Green, g (s) | 5.8 | 36.3 | | 27.8 | 58.3 | | 12.3 | 37.1 | | 2.8 | 27.6 | |
| Actuated g/C Ratio | 0.05 | 0.30 | | 0.23 | 0.49 | | 0.10 | 0.31 | | 0.02 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 87 | 521 | | 418 | 899 | | 185 | 527 | | 42 | 424 | |
| v/s Ratio Prot | 0.02 | c0.23 | | c0.18 | 0.10 | | c0.08 | c0.23 | | 0.01 | 0.18 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.48 | 0.78 | | 0.78 | 0.21 | | 0.76 | 0.73 | | 0.33 | 0.78 | |
| Uniform Delay, d1 | 55.6 | 38.1 | | 43.2 | 17.7 | | 52.4 | 37.0 | | 57.7 | 43.4 | |
| Progression Factor | 1.00 | 1.00 | | 0.90 | 0.80 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.2 | 10.8 | | 8.7 | 0.5 | | 16.8 | 5.0 | | 4.6 | 9.1 | |
| Delay (s) | 59.8 | 48.9 | | 47.4 | 14.7 | | 69.2 | 42.0 | | 62.3 | 52.5 | |
| Level of Service | E | D | | D | B | | E | D | | E | D | |
| Approach Delay (s) | | 49.9 | | | 35.0 | | | 48.8 | | | 52.9 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 46.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

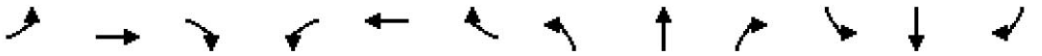
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 60 | 520 | 20 | 10 | 150 | 110 | 850 | 30 | 360 | 510 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1833 | 2798 | 1805 | 1900 | 1590 | 1805 | 3610 | 1589 | 3502 | 4979 | |
| Flt Permitted | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1833 | 2798 | 1805 | 1900 | 1590 | 1805 | 3610 | 1589 | 3502 | 4979 | |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph) | 188 | 71 | 612 | 24 | 12 | 176 | 129 | 1000 | 35 | 424 | 600 | 176 |
| RTOR Reduction (vph) | 0 | 0 | 467 | 0 | 0 | 158 | 0 | 0 | 18 | 0 | 37 | 0 |
| Lane Group Flow (vph) | 0 | 259 | 145 | 24 | 12 | 18 | 129 | 1000 | 17 | 424 | 739 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 19.0 | 19.0 | 8.0 | 8.0 | 8.0 | 10.6 | 29.2 | 29.2 | 8.1 | 26.7 | |
| Effective Green, g (s) | | 19.0 | 19.0 | 8.0 | 8.0 | 8.0 | 10.6 | 29.2 | 29.2 | 8.1 | 26.7 | |
| Actuated g/C Ratio | | 0.24 | 0.24 | 0.10 | 0.10 | 0.10 | 0.13 | 0.36 | 0.36 | 0.10 | 0.33 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 434 | 662 | 180 | 189 | 158 | 238 | 1313 | 578 | 353 | 1656 | |
| v/s Ratio Prot | | c0.14 | | c0.01 | 0.01 | | 0.07 | c0.28 | | c0.12 | 0.15 | |
| v/s Ratio Perm | | | 0.05 | | | 0.01 | | | 0.01 | | | |
| v/c Ratio | | 0.60 | 0.22 | 0.13 | 0.06 | 0.11 | 0.54 | 0.76 | 0.03 | 1.20 | 0.45 | |
| Uniform Delay, d1 | | 27.2 | 24.7 | 33.0 | 32.8 | 32.9 | 32.6 | 22.5 | 16.4 | 36.1 | 21.0 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 2.2 | 0.2 | 0.3 | 0.1 | 0.3 | 2.5 | 2.7 | 0.0 | 114.6 | 0.2 | |
| Delay (s) | | 29.5 | 24.8 | 33.3 | 32.9 | 33.2 | 35.1 | 25.2 | 16.5 | 150.7 | 21.2 | |
| Level of Service | | C | C | C | C | C | D | C | B | F | C | |
| Approach Delay (s) | | 26.2 | | | 33.2 | | | 26.0 | | | 66.9 | |
| Approach LOS | | C | | | C | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 80.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 63.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

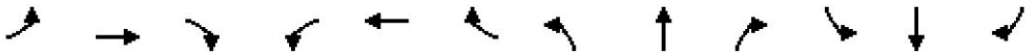
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 350 | 120 | 200 | 530 | 90 | 300 | 900 | 200 | 290 | 850 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3457 | | 3502 | 3523 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3457 | | 3502 | 3523 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 103 | 402 | 138 | 230 | 609 | 103 | 345 | 1034 | 230 | 333 | 977 | 103 |
| RTOR Reduction (vph) | 0 | 31 | 0 | 0 | 13 | 0 | 0 | 0 | 140 | 0 | 0 | 62 |
| Lane Group Flow (vph) | 103 | 509 | 0 | 230 | 699 | 0 | 345 | 1034 | 90 | 333 | 977 | 41 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.2 | 29.3 | | 12.8 | 30.9 | | 28.3 | 34.0 | 34.0 | 27.9 | 33.6 | 33.6 |
| Effective Green, g (s) | 11.2 | 29.3 | | 12.8 | 30.9 | | 28.3 | 34.0 | 34.0 | 27.9 | 33.6 | 33.6 |
| Actuated g/C Ratio | 0.09 | 0.24 | | 0.11 | 0.26 | | 0.24 | 0.28 | 0.28 | 0.23 | 0.28 | 0.28 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 168 | 844 | | 374 | 907 | | 426 | 1023 | 450 | 420 | 1011 | 444 |
| v/s Ratio Prot | 0.06 | 0.15 | | c0.07 | c0.20 | | c0.19 | c0.29 | | 0.18 | 0.27 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | 0.03 |
| v/c Ratio | 0.61 | 0.60 | | 0.61 | 0.77 | | 0.81 | 1.01 | 0.20 | 0.79 | 0.97 | 0.09 |
| Uniform Delay, d1 | 52.3 | 40.2 | | 51.2 | 41.3 | | 43.3 | 43.0 | 32.7 | 43.3 | 42.6 | 31.9 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.82 | 0.89 | 0.83 |
| Incremental Delay, d2 | 6.5 | 1.2 | | 3.0 | 4.1 | | 10.9 | 30.8 | 1.0 | 4.1 | 11.3 | 0.2 |
| Delay (s) | 58.8 | 41.4 | | 54.2 | 45.4 | | 54.2 | 73.8 | 33.7 | 39.6 | 49.3 | 26.7 |
| Level of Service | E | D | | D | D | | D | E | C | D | D | C |
| Approach Delay (s) | | 44.2 | | | 47.5 | | | 63.9 | | | 45.4 | |
| Approach LOS | | D | | | D | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 82.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 340 | 110 | 310 | 530 | 180 | 300 | 840 | 210 | 260 | 750 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3463 | | 3502 | 3458 | | 1805 | 5187 | 1587 | 1805 | 5094 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3463 | | 3502 | 3458 | | 1805 | 5187 | 1587 | 1805 | 5094 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 81 | 395 | 128 | 360 | 616 | 209 | 349 | 977 | 244 | 302 | 872 | 105 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 0 | 132 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 81 | 494 | 0 | 360 | 795 | 0 | 349 | 977 | 112 | 302 | 965 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.3 | 28.0 | | 16.0 | 35.7 | | 27.8 | 35.2 | 35.2 | 24.8 | 32.2 | |
| Effective Green, g (s) | 8.3 | 28.0 | | 16.0 | 35.7 | | 27.8 | 35.2 | 35.2 | 24.8 | 32.2 | |
| Actuated g/C Ratio | 0.07 | 0.23 | | 0.13 | 0.30 | | 0.23 | 0.29 | 0.29 | 0.21 | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 808 | | 467 | 1029 | | 418 | 1522 | 466 | 373 | 1367 | |
| v/s Ratio Prot | 0.04 | 0.14 | | c0.10 | c0.23 | | c0.19 | c0.19 | | 0.17 | c0.19 | |
| v/s Ratio Perm | | | | | | | | | 0.07 | | | |
| v/c Ratio | 0.65 | 0.61 | | 0.77 | 0.77 | | 0.83 | 0.64 | 0.24 | 0.81 | 0.71 | |
| Uniform Delay, d1 | 54.4 | 41.1 | | 50.2 | 38.4 | | 43.9 | 36.9 | 32.2 | 45.4 | 39.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.90 | 0.58 | 0.75 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 11.0 | 1.4 | | 7.7 | 3.7 | | 9.8 | 1.5 | 0.9 | 12.2 | 3.1 | |
| Delay (s) | 65.4 | 42.5 | | 57.9 | 42.1 | | 49.1 | 23.1 | 25.0 | 57.6 | 42.7 | |
| Level of Service | E | D | | E | D | | D | C | C | E | D | |
| Approach Delay (s) | | 45.6 | | | 46.9 | | | 29.2 | | | 46.2 | |
| Approach LOS | | D | | | D | | | C | | | D | |

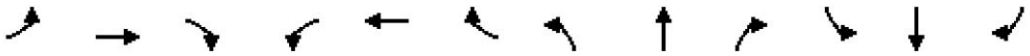
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 83.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 630 | 100 | 270 | 650 | 70 | 140 | 180 | 190 | 50 | 180 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3528 | | 3502 | 3610 | 1592 | 1805 | 3306 | | 1805 | 3384 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3528 | | 3502 | 3610 | 1592 | 1805 | 3306 | | 1805 | 3384 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 93 | 733 | 116 | 314 | 756 | 81 | 163 | 209 | 221 | 58 | 209 | 128 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 43 | 0 | 167 | 0 | 0 | 92 | 0 |
| Lane Group Flow (vph) | 93 | 840 | 0 | 314 | 756 | 38 | 163 | 263 | 0 | 58 | 245 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 7.8 | 28.1 | | 13.0 | 33.3 | 38.6 | 12.9 | 20.0 | | 5.3 | 12.4 | |
| Effective Green, g (s) | 7.8 | 28.1 | | 13.0 | 33.3 | 38.6 | 12.9 | 20.0 | | 5.3 | 12.4 | |
| Actuated g/C Ratio | 0.09 | 0.34 | | 0.16 | 0.40 | 0.47 | 0.16 | 0.24 | | 0.06 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 171 | 1203 | | 553 | 1459 | 823 | 283 | 802 | | 116 | 509 | |
| v/s Ratio Prot | 0.05 | c0.24 | | c0.09 | 0.21 | 0.00 | c0.09 | 0.08 | | 0.03 | c0.07 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.54 | 0.70 | | 0.57 | 0.52 | 0.05 | 0.58 | 0.33 | | 0.50 | 0.48 | |
| Uniform Delay, d1 | 35.6 | 23.5 | | 32.1 | 18.5 | 11.9 | 32.2 | 25.7 | | 37.3 | 32.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.5 | 1.8 | | 1.3 | 0.3 | 0.0 | 2.8 | 0.2 | | 3.4 | 0.7 | |
| Delay (s) | 39.1 | 25.3 | | 33.4 | 18.8 | 11.9 | 35.0 | 25.9 | | 40.6 | 32.8 | |
| Level of Service | D | C | | C | B | B | D | C | | D | C | |
| Approach Delay (s) | | 26.6 | | | 22.3 | | | 28.4 | | | 33.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 82.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 63.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

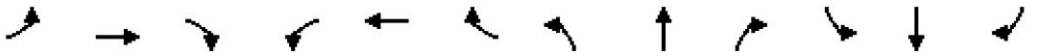
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 510 | 320 | 640 | 630 | 170 | 390 | 530 | 610 | 170 | 490 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.94 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 5187 | 1590 | 5090 | 5005 | | 3502 | 3610 | 1600 | 3502 | 3527 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 5187 | 1590 | 5090 | 5005 | | 3502 | 3610 | 1600 | 3502 | 3527 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 152 | 554 | 348 | 696 | 685 | 185 | 424 | 576 | 663 | 185 | 533 | 87 |
| RTOR Reduction (vph) | 0 | 0 | 214 | 0 | 45 | 0 | 0 | 0 | 42 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 152 | 554 | 134 | 696 | 825 | 0 | 424 | 576 | 621 | 185 | 607 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.4 | 16.4 | 16.4 | 14.2 | 22.2 | | 13.2 | 23.8 | 38.0 | 9.1 | 19.7 | |
| Effective Green, g (s) | 8.4 | 16.4 | 16.4 | 14.2 | 22.2 | | 13.2 | 23.8 | 38.0 | 9.1 | 19.7 | |
| Actuated g/C Ratio | 0.11 | 0.21 | 0.21 | 0.18 | 0.28 | | 0.17 | 0.30 | 0.48 | 0.11 | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 370 | 1070 | 328 | 909 | 1398 | | 581 | 1081 | 845 | 401 | 874 | |
| v/s Ratio Prot | 0.04 | 0.11 | | c0.14 | c0.16 | | c0.12 | 0.16 | c0.13 | 0.05 | 0.17 | |
| v/s Ratio Perm | | | 0.08 | | | | | | 0.26 | | | |
| v/c Ratio | 0.41 | 0.52 | 0.41 | 0.77 | 0.59 | | 0.73 | 0.53 | 0.74 | 0.46 | 0.69 | |
| Uniform Delay, d1 | 33.2 | 28.0 | 27.4 | 31.1 | 24.7 | | 31.5 | 23.2 | 16.7 | 32.9 | 27.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | 0.4 | 0.8 | 3.9 | 0.7 | | 4.6 | 0.5 | 3.3 | 0.8 | 2.4 | |
| Delay (s) | 34.0 | 28.5 | 28.2 | 35.0 | 25.4 | | 36.0 | 23.7 | 20.0 | 33.8 | 29.6 | |
| Level of Service | C | C | C | C | C | | D | C | C | C | C | |
| Approach Delay (s) | | 29.2 | | | 29.6 | | | 25.4 | | | 30.5 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 79.5 | Sum of lost time (s) | 4.0 |
| Intersection Capacity Utilization | 68.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

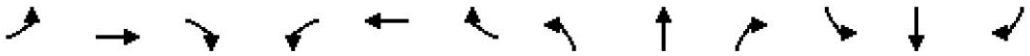
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 210 | 100 | 160 | 560 | 140 | 280 | 1100 | 200 | 120 | 820 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1586 | 3502 | 1900 | 1587 | 3502 | 3610 | 1586 | 1805 | 3610 | 1584 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1586 | 3502 | 1900 | 1587 | 3502 | 3610 | 1586 | 1805 | 3610 | 1584 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 223 | 106 | 170 | 596 | 149 | 298 | 1170 | 213 | 128 | 872 | 191 |
| RTOR Reduction (vph) | 0 | 0 | 73 | 0 | 0 | 40 | 0 | 0 | 91 | 0 | 0 | 109 |
| Lane Group Flow (vph) | 85 | 223 | 33 | 170 | 596 | 109 | 298 | 1170 | 122 | 128 | 872 | 82 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 37.9 | 37.9 | 9.6 | 40.5 | 40.5 | 14.0 | 45.7 | 45.7 | 10.8 | 42.5 | 42.5 |
| Effective Green, g (s) | 7.0 | 37.9 | 37.9 | 9.6 | 40.5 | 40.5 | 14.0 | 45.7 | 45.7 | 10.8 | 42.5 | 42.5 |
| Actuated g/C Ratio | 0.06 | 0.32 | 0.32 | 0.08 | 0.34 | 0.34 | 0.12 | 0.38 | 0.38 | 0.09 | 0.35 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 600 | 501 | 280 | 641 | 536 | 409 | 1375 | 604 | 162 | 1279 | 561 |
| v/s Ratio Prot | c0.05 | 0.12 | | 0.05 | c0.31 | | c0.09 | c0.32 | | 0.07 | 0.24 | |
| v/s Ratio Perm | | | 0.02 | | | 0.07 | | | 0.08 | | | 0.05 |
| v/c Ratio | 0.81 | 0.37 | 0.07 | 0.61 | 0.93 | 0.20 | 0.73 | 0.85 | 0.20 | 0.79 | 0.68 | 0.15 |
| Uniform Delay, d1 | 55.8 | 31.8 | 28.7 | 53.4 | 38.4 | 28.3 | 51.2 | 34.0 | 24.9 | 53.5 | 33.0 | 26.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.08 | 0.53 | 0.98 |
| Incremental Delay, d2 | 35.1 | 0.4 | 0.1 | 3.7 | 19.9 | 0.2 | 6.4 | 6.8 | 0.8 | 17.1 | 2.1 | 0.4 |
| Delay (s) | 91.0 | 32.2 | 28.7 | 57.1 | 58.3 | 28.5 | 57.5 | 40.8 | 25.7 | 74.9 | 19.8 | 26.4 |
| Level of Service | F | C | C | E | E | C | E | D | C | E | B | C |
| Approach Delay (s) | | 43.4 | | | 53.2 | | | 41.9 | | | 26.8 | |
| Approach LOS | | D | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 85.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

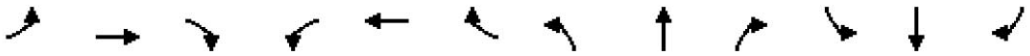
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 300 | 250 | 110 | 440 | 20 | 230 | 300 | 140 | 30 | 350 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1589 | 1805 | 1900 | 1576 | 3502 | 1900 | 1580 | 1805 | 1858 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1589 | 1805 | 1900 | 1576 | 3502 | 1900 | 1580 | 1805 | 1858 | |
| Peak-hour factor, PHF | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Adj. Flow (vph) | 38 | 385 | 321 | 141 | 564 | 26 | 295 | 385 | 179 | 38 | 449 | 64 |
| RTOR Reduction (vph) | 0 | 0 | 129 | 0 | 0 | 5 | 0 | 0 | 102 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 38 | 385 | 192 | 141 | 564 | 21 | 295 | 385 | 77 | 38 | 508 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.7 | 27.7 | 27.7 | 7.2 | 31.2 | 38.4 | 10.1 | 30.8 | 38.0 | 7.2 | 27.9 | |
| Effective Green, g (s) | 3.7 | 27.7 | 27.7 | 7.2 | 31.2 | 38.4 | 10.1 | 30.8 | 38.0 | 7.2 | 27.9 | |
| Actuated g/C Ratio | 0.04 | 0.31 | 0.31 | 0.08 | 0.35 | 0.43 | 0.11 | 0.35 | 0.43 | 0.08 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 75 | 592 | 495 | 146 | 667 | 752 | 398 | 658 | 746 | 146 | 583 | |
| v/s Ratio Prot | 0.02 | 0.20 | | c0.08 | c0.30 | 0.00 | c0.08 | c0.20 | 0.01 | 0.02 | c0.27 | |
| v/s Ratio Perm | | | 0.12 | | | 0.01 | | | 0.04 | | | |
| v/c Ratio | 0.51 | 0.65 | 0.39 | 0.97 | 0.85 | 0.03 | 0.74 | 0.59 | 0.10 | 0.26 | 0.87 | |
| Uniform Delay, d1 | 41.7 | 26.4 | 24.0 | 40.7 | 26.6 | 14.5 | 38.1 | 23.8 | 15.2 | 38.3 | 28.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.3 | 2.6 | 0.5 | 63.5 | 9.7 | 0.0 | 7.3 | 1.3 | 0.1 | 1.0 | 13.4 | |
| Delay (s) | 47.0 | 29.0 | 24.5 | 104.3 | 36.3 | 14.5 | 45.4 | 25.1 | 15.3 | 39.3 | 42.2 | |
| Level of Service | D | C | C | F | D | B | D | C | B | D | D | |
| Approach Delay (s) | | 27.9 | | | 48.6 | | | 30.1 | | | 42.0 | |
| Approach LOS | | C | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 88.9 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 71.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

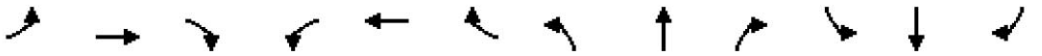
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 420 | 230 | 480 | 420 | 130 | 180 | 620 | 470 | 190 | 620 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1595 | 3502 | 3610 | 1587 | 3502 | 3610 | 2801 | 3502 | 3565 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1595 | 3502 | 3610 | 1587 | 3502 | 3610 | 2801 | 3502 | 3565 | |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 85 | 512 | 280 | 585 | 512 | 159 | 220 | 756 | 573 | 232 | 756 | 61 |
| RTOR Reduction (vph) | 0 | 0 | 21 | 0 | 0 | 89 | 0 | 0 | 54 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 85 | 512 | 259 | 585 | 512 | 70 | 220 | 756 | 519 | 232 | 812 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 8.8 | 29.8 | 44.2 | 31.8 | 52.8 | 52.8 | 14.4 | 30.3 | 62.1 | 12.1 | 28.0 | |
| Effective Green, g (s) | 8.8 | 29.8 | 44.2 | 31.8 | 52.8 | 52.8 | 14.4 | 30.3 | 62.1 | 12.1 | 28.0 | |
| Actuated g/C Ratio | 0.07 | 0.25 | 0.37 | 0.27 | 0.44 | 0.44 | 0.12 | 0.25 | 0.52 | 0.10 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 132 | 896 | 641 | 928 | 1588 | 698 | 420 | 912 | 1450 | 353 | 832 | |
| v/s Ratio Prot | 0.05 | c0.14 | 0.05 | c0.17 | 0.14 | | 0.06 | c0.21 | 0.09 | 0.07 | c0.23 | |
| v/s Ratio Perm | | | 0.11 | | | 0.04 | | | 0.09 | | | |
| v/c Ratio | 0.64 | 0.57 | 0.40 | 0.63 | 0.32 | 0.10 | 0.52 | 0.83 | 0.36 | 0.66 | 0.98 | |
| Uniform Delay, d1 | 54.1 | 39.5 | 28.1 | 38.9 | 21.9 | 19.7 | 49.6 | 42.4 | 17.1 | 52.0 | 45.7 | |
| Progression Factor | 0.65 | 0.68 | 0.40 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.2 | 2.3 | 0.4 | 1.4 | 0.5 | 0.3 | 1.2 | 6.3 | 0.2 | 4.4 | 25.2 | |
| Delay (s) | 44.2 | 29.0 | 11.7 | 40.3 | 22.5 | 20.0 | 50.8 | 48.7 | 17.3 | 56.3 | 70.9 | |
| Level of Service | D | C | B | D | C | B | D | D | B | E | E | |
| Approach Delay (s) | | 25.0 | | | 30.5 | | | 37.4 | | | 67.7 | |
| Approach LOS | | C | | | C | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 1000 | 140 | 110 | 1150 | 100 | 120 | 330 | 60 | 160 | 550 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1586 | 1805 | 5118 | | 3502 | 3519 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1586 | 1805 | 5118 | | 3502 | 3519 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 146 | 1042 | 146 | 115 | 1198 | 104 | 125 | 344 | 62 | 167 | 573 | 198 |
| RTOR Reduction (vph) | 0 | 0 | 59 | 0 | 6 | 0 | 0 | 15 | 0 | 0 | 0 | 154 |
| Lane Group Flow (vph) | 146 | 1042 | 87 | 115 | 1296 | 0 | 125 | 391 | 0 | 167 | 573 | 44 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 10.3 | 56.6 | 56.6 | 12.9 | 59.2 | | 7.8 | 26.5 | | 8.0 | 26.7 | 26.7 |
| Effective Green, g (s) | 10.3 | 56.6 | 56.6 | 12.9 | 59.2 | | 7.8 | 26.5 | | 8.0 | 26.7 | 26.7 |
| Actuated g/C Ratio | 0.09 | 0.47 | 0.47 | 0.11 | 0.49 | | 0.06 | 0.22 | | 0.07 | 0.22 | 0.22 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 301 | 1703 | 748 | 194 | 2525 | | 228 | 777 | | 233 | 803 | 354 |
| v/s Ratio Prot | 0.04 | c0.29 | | c0.06 | c0.25 | | 0.04 | 0.11 | | c0.05 | c0.16 | |
| v/s Ratio Perm | | | 0.06 | | | | | | | | | 0.03 |
| v/c Ratio | 0.49 | 0.61 | 0.12 | 0.59 | 0.51 | | 0.55 | 0.50 | | 0.72 | 0.71 | 0.12 |
| Uniform Delay, d1 | 52.3 | 23.5 | 17.7 | 51.0 | 20.6 | | 54.4 | 41.0 | | 54.9 | 43.1 | 37.3 |
| Progression Factor | 1.05 | 0.61 | 0.72 | 1.12 | 0.75 | | 1.07 | 1.13 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 1.5 | 0.3 | 4.5 | 0.7 | | 2.4 | 0.5 | | 10.0 | 3.0 | 0.2 |
| Delay (s) | 56.2 | 15.9 | 13.1 | 61.4 | 16.1 | | 60.5 | 46.6 | | 64.9 | 46.1 | 37.5 |
| Level of Service | E | B | B | E | B | | E | D | | E | D | D |
| Approach Delay (s) | | 20.0 | | | 19.8 | | | 49.9 | | | 47.7 | |
| Approach LOS | | C | | | B | | | D | | | D | |

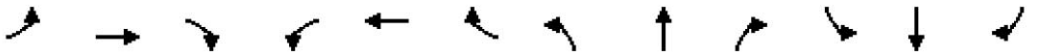
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 960 | 220 | 310 | 1230 | 100 | 70 | 170 | 100 | 100 | 280 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5187 | 1586 | 3502 | 3610 | 1589 | 1805 | 3505 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5187 | 1586 | 3502 | 3610 | 1589 | 1805 | 3505 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 42 | 1000 | 229 | 323 | 1281 | 104 | 73 | 177 | 104 | 104 | 292 | 62 |
| RTOR Reduction (vph) | 0 | 0 | 116 | 0 | 0 | 40 | 0 | 0 | 88 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 42 | 1000 | 113 | 323 | 1281 | 64 | 73 | 177 | 16 | 104 | 335 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 7.1 | 49.8 | 49.8 | 29.3 | 72.0 | 72.0 | 6.5 | 17.9 | 17.9 | 7.0 | 18.4 | |
| Effective Green, g (s) | 7.1 | 49.8 | 49.8 | 29.3 | 72.0 | 72.0 | 6.5 | 17.9 | 17.9 | 7.0 | 18.4 | |
| Actuated g/C Ratio | 0.06 | 0.41 | 0.41 | 0.24 | 0.60 | 0.60 | 0.05 | 0.15 | 0.15 | 0.06 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 107 | 1498 | 658 | 441 | 3112 | 952 | 190 | 538 | 237 | 105 | 537 | |
| v/s Ratio Prot | 0.02 | c0.28 | | c0.18 | 0.25 | | 0.02 | 0.05 | | c0.06 | c0.10 | |
| v/s Ratio Perm | | | 0.07 | | | 0.04 | | | 0.01 | | | |
| v/c Ratio | 0.39 | 0.67 | 0.17 | 0.73 | 0.41 | 0.07 | 0.38 | 0.33 | 0.07 | 0.99 | 0.62 | |
| Uniform Delay, d1 | 54.4 | 28.4 | 22.1 | 41.7 | 12.7 | 10.0 | 54.8 | 45.7 | 43.9 | 56.5 | 47.6 | |
| Progression Factor | 0.69 | 1.18 | 2.82 | 0.62 | 0.51 | 0.54 | 1.10 | 1.05 | 1.64 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.9 | 1.9 | 0.4 | 3.5 | 0.2 | 0.1 | 1.3 | 0.4 | 0.1 | 84.6 | 2.3 | |
| Delay (s) | 39.6 | 35.3 | 62.8 | 29.4 | 6.7 | 5.5 | 61.5 | 48.4 | 72.0 | 141.1 | 49.8 | |
| Level of Service | D | D | E | C | A | A | E | D | E | F | D | |
| Approach Delay (s) | | 40.4 | | | 10.9 | | | 58.0 | | | 70.5 | |
| Approach LOS | | D | | | B | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

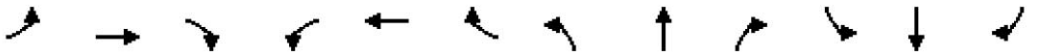
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 720 | 100 | 80 | 1330 | 180 | 170 | 290 | 40 | 180 | 550 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1592 | 1805 | 5083 | | 1805 | 3538 | | 3502 | 3610 | 1600 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1592 | 1805 | 5083 | | 1805 | 3538 | | 3502 | 3610 | 1600 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 196 | 783 | 109 | 87 | 1446 | 196 | 185 | 315 | 43 | 196 | 598 | 239 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 13 | 0 | 0 | 11 | 0 | 0 | 0 | 13 |
| Lane Group Flow (vph) | 196 | 783 | 60 | 87 | 1629 | 0 | 185 | 347 | 0 | 196 | 598 | 226 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 20.8 | 54.5 | 66.5 | 11.1 | 44.8 | | 12.0 | 27.3 | | 11.1 | 26.4 | 47.2 |
| Effective Green, g (s) | 20.8 | 54.5 | 66.5 | 11.1 | 44.8 | | 12.0 | 27.3 | | 11.1 | 26.4 | 47.2 |
| Actuated g/C Ratio | 0.17 | 0.45 | 0.55 | 0.09 | 0.37 | | 0.10 | 0.23 | | 0.09 | 0.22 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 313 | 2356 | 935 | 167 | 1898 | | 181 | 805 | | 324 | 794 | 683 |
| v/s Ratio Prot | c0.11 | 0.15 | 0.01 | 0.05 | c0.32 | | c0.10 | 0.10 | | 0.06 | c0.17 | 0.06 |
| v/s Ratio Perm | | | 0.03 | | | | | | | | | 0.08 |
| v/c Ratio | 0.63 | 0.33 | 0.06 | 0.52 | 0.86 | | 1.02 | 0.43 | | 0.60 | 0.75 | 0.33 |
| Uniform Delay, d1 | 46.0 | 21.1 | 12.4 | 51.9 | 34.7 | | 54.0 | 39.7 | | 52.3 | 43.8 | 25.4 |
| Progression Factor | 1.58 | 0.33 | 0.00 | 0.96 | 0.93 | | 0.92 | 1.33 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.0 | 0.3 | 0.0 | 2.5 | 4.6 | | 69.9 | 0.3 | | 3.2 | 4.1 | 0.3 |
| Delay (s) | 75.7 | 7.2 | 0.0 | 52.2 | 36.8 | | 119.5 | 53.0 | | 55.5 | 47.8 | 25.7 |
| Level of Service | E | A | A | D | D | | F | D | | E | D | C |
| Approach Delay (s) | | 18.9 | | | 37.5 | | | 75.7 | | | 44.2 | |
| Approach LOS | | B | | | D | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 80.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

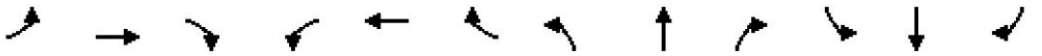
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 390 | 190 | 140 | 840 | 80 | 350 | 590 | 80 | 170 | 770 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1587 | 1805 | 5112 | | 3502 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1587 | 1805 | 5112 | | 3502 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 184 | 448 | 218 | 161 | 966 | 92 | 402 | 678 | 92 | 195 | 885 | 276 |
| RTOR Reduction (vph) | 0 | 0 | 153 | 0 | 9 | 0 | 0 | 0 | 62 | 0 | 0 | 117 |
| Lane Group Flow (vph) | 184 | 448 | 65 | 161 | 1049 | 0 | 402 | 678 | 30 | 195 | 885 | 159 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.1 | 36.0 | 36.0 | 13.5 | 39.4 | | 18.4 | 39.1 | 39.1 | 15.4 | 36.1 | 36.1 |
| Effective Green, g (s) | 10.1 | 36.0 | 36.0 | 13.5 | 39.4 | | 18.4 | 39.1 | 39.1 | 15.4 | 36.1 | 36.1 |
| Actuated g/C Ratio | 0.08 | 0.30 | 0.30 | 0.11 | 0.33 | | 0.15 | 0.33 | 0.33 | 0.13 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 295 | 1083 | 476 | 203 | 1678 | | 537 | 1176 | 518 | 232 | 1086 | 478 |
| v/s Ratio Prot | 0.05 | 0.12 | | c0.09 | c0.21 | | 0.11 | c0.19 | | c0.11 | c0.25 | |
| v/s Ratio Perm | | | 0.04 | | | | | | 0.02 | | | 0.10 |
| v/c Ratio | 0.62 | 0.41 | 0.14 | 0.79 | 0.63 | | 0.75 | 0.58 | 0.06 | 0.84 | 0.81 | 0.33 |
| Uniform Delay, d1 | 53.1 | 33.6 | 30.7 | 51.9 | 34.1 | | 48.6 | 33.6 | 27.8 | 51.1 | 38.9 | 32.6 |
| Progression Factor | 1.16 | 0.58 | 0.75 | 0.95 | 0.75 | | 0.54 | 0.81 | 1.52 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.9 | 1.1 | 0.6 | 17.3 | 1.6 | | 4.5 | 0.5 | 0.0 | 23.0 | 4.8 | 0.4 |
| Delay (s) | 65.5 | 20.5 | 23.5 | 66.8 | 27.2 | | 30.6 | 27.8 | 42.2 | 74.1 | 43.7 | 33.0 |
| Level of Service | E | C | C | E | C | | C | C | D | E | D | C |
| Approach Delay (s) | | 31.0 | | | 32.4 | | | 29.9 | | | 45.9 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 83.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

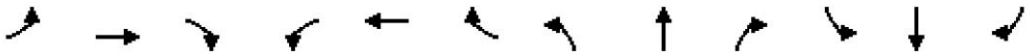
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 800 | 1440 | 80 | 1590 | 70 | 510 | 80 | 30 | 70 | 480 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.88 | 1.00 | 0.91 | | 0.94 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 2793 | 1805 | 5151 | | 5090 | 3446 | | 1805 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 2793 | 1805 | 5151 | | 5090 | 3446 | | 1805 | 3610 | 1596 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 85 | 851 | 1532 | 85 | 1691 | 74 | 543 | 85 | 32 | 74 | 511 | 106 |
| RTOR Reduction (vph) | 0 | 0 | 259 | 0 | 3 | 0 | 0 | 25 | 0 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 85 | 851 | 1273 | 85 | 1762 | 0 | 543 | 92 | 0 | 74 | 511 | 105 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.1 | 57.9 | 57.9 | 11.3 | 58.1 | | 11.0 | 27.7 | | 7.1 | 23.8 | 34.9 |
| Effective Green, g (s) | 11.1 | 57.9 | 57.9 | 11.3 | 58.1 | | 11.0 | 27.7 | | 7.1 | 23.8 | 34.9 |
| Actuated g/C Ratio | 0.09 | 0.48 | 0.48 | 0.09 | 0.48 | | 0.09 | 0.23 | | 0.06 | 0.20 | 0.29 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 167 | 2503 | 1348 | 170 | 2494 | | 467 | 795 | | 107 | 716 | 517 |
| v/s Ratio Prot | c0.05 | 0.16 | | 0.05 | 0.34 | | c0.11 | c0.03 | | 0.04 | c0.14 | 0.02 |
| v/s Ratio Perm | | | c0.46 | | | | | | | | | 0.05 |
| v/c Ratio | 0.51 | 0.34 | 0.94 | 0.50 | 0.71 | | 1.16 | 0.12 | | 0.69 | 0.71 | 0.20 |
| Uniform Delay, d1 | 51.9 | 19.2 | 29.5 | 51.7 | 24.3 | | 54.5 | 36.5 | | 55.4 | 44.9 | 32.1 |
| Progression Factor | 1.24 | 0.61 | 0.52 | 0.95 | 0.53 | | 1.00 | 1.00 | | 1.17 | 0.69 | 0.45 |
| Incremental Delay, d2 | 2.1 | 0.3 | 12.7 | 0.9 | 0.6 | | 94.6 | 0.1 | | 16.0 | 3.1 | 0.2 |
| Delay (s) | 66.5 | 12.1 | 28.0 | 49.9 | 13.4 | | 149.1 | 36.5 | | 81.0 | 34.0 | 14.5 |
| Level of Service | E | B | C | D | B | | F | D | | F | C | B |
| Approach Delay (s) | | 23.8 | | | 15.1 | | | 129.1 | | | 36.1 | |
| Approach LOS | | C | | | B | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 82.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

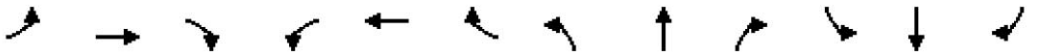
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 1260 | 140 | 20 | 1330 | 50 | 20 | 10 | 20 | 30 | 20 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.90 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 5094 | | 1805 | 3610 | 1585 | 1799 | 1688 | | 1798 | 1627 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.43 | 1.00 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | 3502 | 5094 | | 1805 | 3610 | 1585 | 814 | 1688 | | 1395 | 1627 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 165 | 1299 | 144 | 21 | 1371 | 52 | 21 | 10 | 21 | 31 | 21 | 144 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 3 | 0 | 19 | 0 | 0 | 133 | 0 |
| Lane Group Flow (vph) | 165 | 1439 | 0 | 21 | 1371 | 49 | 21 | 12 | 0 | 31 | 32 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 11.0 | 95.4 | | 3.3 | 87.7 | 87.7 | 9.3 | 9.3 | | 9.3 | 9.3 | |
| Effective Green, g (s) | 11.0 | 95.4 | | 3.3 | 87.7 | 87.7 | 9.3 | 9.3 | | 9.3 | 9.3 | |
| Actuated g/C Ratio | 0.09 | 0.80 | | 0.03 | 0.73 | 0.73 | 0.08 | 0.08 | | 0.08 | 0.08 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 321 | 4050 | | 50 | 2638 | 1158 | 63 | 131 | | 108 | 126 | |
| v/s Ratio Prot | c0.05 | 0.28 | | 0.01 | c0.38 | | | 0.01 | | | 0.02 | |
| v/s Ratio Perm | | | | | | 0.03 | c0.03 | | | 0.02 | | |
| v/c Ratio | 0.51 | 0.36 | | 0.42 | 0.52 | 0.04 | 0.33 | 0.09 | | 0.29 | 0.26 | |
| Uniform Delay, d1 | 52.0 | 3.5 | | 57.4 | 7.0 | 4.5 | 52.4 | 51.4 | | 52.2 | 52.1 | |
| Progression Factor | 0.84 | 1.42 | | 0.90 | 0.40 | 0.28 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.0 | 0.2 | | 5.3 | 0.7 | 0.1 | 3.1 | 0.3 | | 1.5 | 1.1 | |
| Delay (s) | 44.6 | 5.2 | | 56.9 | 3.5 | 1.3 | 55.5 | 51.7 | | 53.7 | 53.2 | |
| Level of Service | D | A | | E | A | A | E | D | | D | D | |
| Approach Delay (s) | | 9.2 | | | 4.2 | | | 53.2 | | | 53.2 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

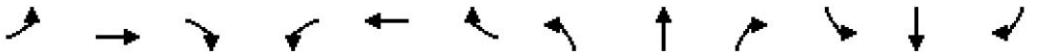
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 1780 | 700 | 150 | 1610 | 60 | 70 | 30 | 30 | 60 | 170 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.86 | 1.00 | 1.00 | 0.86 | 1.00 | 0.94 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 6536 | 1585 | 1805 | 6536 | 1564 | 5090 | 1900 | 1588 | 1715 | 1802 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 6536 | 1585 | 1805 | 6536 | 1564 | 5090 | 1900 | 1588 | 1715 | 1802 | 1587 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 213 | 1894 | 745 | 160 | 1713 | 64 | 74 | 32 | 32 | 64 | 181 | 138 |
| RTOR Reduction (vph) | 0 | 0 | 310 | 0 | 0 | 29 | 0 | 0 | 30 | 0 | 0 | 117 |
| Lane Group Flow (vph) | 213 | 1894 | 435 | 160 | 1713 | 35 | 74 | 32 | 2 | 58 | 187 | 21 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | Perm | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 31.3 | 54.8 | 54.8 | 23.2 | 46.7 | 46.7 | 7.9 | 7.9 | 7.9 | 18.1 | 18.1 | 18.1 |
| Effective Green, g (s) | 31.3 | 54.8 | 54.8 | 23.2 | 46.7 | 46.7 | 7.9 | 7.9 | 7.9 | 18.1 | 18.1 | 18.1 |
| Actuated g/C Ratio | 0.26 | 0.46 | 0.46 | 0.19 | 0.39 | 0.39 | 0.07 | 0.07 | 0.07 | 0.15 | 0.15 | 0.15 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 471 | 2985 | 724 | 349 | 2544 | 609 | 335 | 125 | 105 | 259 | 272 | 239 |
| v/s Ratio Prot | c0.12 | c0.29 | | 0.09 | c0.26 | | 0.01 | c0.02 | | 0.03 | c0.10 | |
| v/s Ratio Perm | | | 0.27 | | | 0.02 | | | 0.00 | | | 0.01 |
| v/c Ratio | 0.45 | 0.63 | 0.60 | 0.46 | 0.67 | 0.06 | 0.22 | 0.26 | 0.02 | 0.22 | 0.69 | 0.09 |
| Uniform Delay, d1 | 37.2 | 24.9 | 24.4 | 42.8 | 30.3 | 22.9 | 53.1 | 53.3 | 52.4 | 44.8 | 48.3 | 43.8 |
| Progression Factor | 0.81 | 0.96 | 1.81 | 1.26 | 0.49 | 0.42 | 1.00 | 1.00 | 1.00 | 0.69 | 0.67 | 0.52 |
| Incremental Delay, d2 | 0.6 | 1.0 | 3.4 | 0.3 | 0.5 | 0.1 | 0.3 | 1.1 | 0.1 | 0.4 | 6.5 | 0.1 |
| Delay (s) | 30.8 | 25.0 | 47.7 | 54.5 | 15.3 | 9.8 | 53.5 | 54.3 | 52.5 | 31.2 | 38.8 | 23.0 |
| Level of Service | C | C | D | D | B | A | D | D | D | C | D | C |
| Approach Delay (s) | | 31.3 | | | 18.3 | | | 53.4 | | | 31.9 | |
| Approach LOS | | C | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 74.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

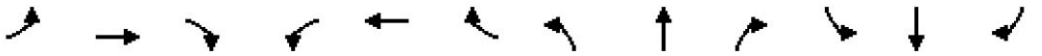
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 360 | 1880 | 130 | 30 | 1660 | 530 | 330 | 300 | 10 | 80 | 30 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2799 | 3502 | 3610 | 1612 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2799 | 3502 | 3610 | 1612 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 391 | 2043 | 141 | 33 | 1804 | 576 | 359 | 326 | 11 | 87 | 33 | 98 |
| RTOR Reduction (vph) | 0 | 0 | 31 | 0 | 0 | 160 | 0 | 0 | 8 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 391 | 2043 | 110 | 33 | 1804 | 416 | 359 | 326 | 3 | 87 | 33 | 97 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 34.0 | 69.0 | 69.0 | 4.4 | 39.4 | 39.4 | 26.2 | 23.6 | 28.0 | 7.0 | 4.4 | 38.4 |
| Effective Green, g (s) | 34.0 | 69.0 | 69.0 | 4.4 | 39.4 | 39.4 | 26.2 | 23.6 | 28.0 | 7.0 | 4.4 | 38.4 |
| Actuated g/C Ratio | 0.28 | 0.58 | 0.58 | 0.04 | 0.33 | 0.33 | 0.22 | 0.20 | 0.23 | 0.06 | 0.04 | 0.32 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 511 | 2983 | 929 | 128 | 1703 | 521 | 765 | 710 | 746 | 204 | 132 | 516 |
| v/s Ratio Prot | c0.22 | 0.39 | | 0.01 | c0.35 | | c0.10 | 0.09 | 0.00 | c0.02 | 0.01 | 0.05 |
| v/s Ratio Perm | | | 0.07 | | | 0.26 | | | 0.00 | | | 0.01 |
| v/c Ratio | 0.77 | 0.68 | 0.12 | 0.26 | 1.06 | 0.80 | 0.47 | 0.46 | 0.00 | 0.43 | 0.25 | 0.19 |
| Uniform Delay, d1 | 39.3 | 17.9 | 11.6 | 56.2 | 40.3 | 36.7 | 40.8 | 42.6 | 35.3 | 54.6 | 56.2 | 29.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.14 | 0.62 | 0.43 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.7 | 1.3 | 0.3 | 0.9 | 38.1 | 10.6 | 0.5 | 0.5 | 0.0 | 1.4 | 1.0 | 0.2 |
| Delay (s) | 46.1 | 19.2 | 11.9 | 64.8 | 63.0 | 26.3 | 41.3 | 43.0 | 35.3 | 56.0 | 57.2 | 29.7 |
| Level of Service | D | B | B | E | E | C | D | D | D | E | E | C |
| Approach Delay (s) | | 22.9 | | | 54.3 | | | 42.0 | | | 44.4 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 86.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

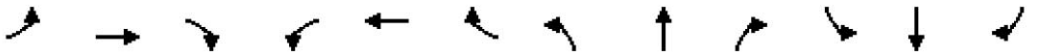
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 240 | 780 | 160 | 160 | 770 | 140 | 790 | 350 | 830 | 110 | 80 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1600 | 3502 | 3610 | 1590 | 3502 | 3610 | 2800 | 3502 | 3610 | 1604 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1600 | 3502 | 3610 | 1590 | 3502 | 3610 | 2800 | 3502 | 3610 | 1604 |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Adj. Flow (vph) | 293 | 951 | 195 | 195 | 939 | 171 | 963 | 427 | 1012 | 134 | 98 | 110 |
| RTOR Reduction (vph) | 0 | 0 | 76 | 0 | 0 | 109 | 0 | 0 | 476 | 0 | 0 | 65 |
| Lane Group Flow (vph) | 293 | 951 | 119 | 195 | 939 | 62 | 963 | 427 | 536 | 134 | 98 | 45 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.1 | 33.5 | 55.7 | 10.5 | 32.9 | 32.9 | 22.2 | 22.2 | 22.2 | 8.9 | 8.9 | 20.0 |
| Effective Green, g (s) | 11.1 | 33.5 | 55.7 | 10.5 | 32.9 | 32.9 | 22.2 | 22.2 | 22.2 | 8.9 | 8.9 | 20.0 |
| Actuated g/C Ratio | 0.12 | 0.37 | 0.61 | 0.12 | 0.36 | 0.36 | 0.24 | 0.24 | 0.24 | 0.10 | 0.10 | 0.22 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 220 | 1907 | 1049 | 404 | 1304 | 574 | 853 | 880 | 682 | 342 | 353 | 423 |
| v/s Ratio Prot | c0.16 | 0.18 | 0.03 | 0.06 | c0.26 | | c0.28 | 0.12 | | 0.04 | 0.03 | 0.01 |
| v/s Ratio Perm | | | 0.05 | | | 0.04 | | | c0.19 | | | 0.02 |
| v/c Ratio | 1.33 | 0.50 | 0.11 | 0.48 | 0.72 | 0.11 | 1.13 | 0.49 | 0.79 | 0.39 | 0.28 | 0.11 |
| Uniform Delay, d1 | 40.0 | 22.3 | 7.4 | 37.8 | 25.1 | 19.3 | 34.4 | 29.5 | 32.2 | 38.6 | 38.1 | 28.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 177.0 | 0.2 | 0.0 | 0.9 | 2.0 | 0.1 | 72.8 | 0.4 | 5.9 | 0.7 | 0.4 | 0.1 |
| Delay (s) | 217.0 | 22.5 | 7.4 | 38.7 | 27.1 | 19.4 | 107.2 | 30.0 | 38.1 | 39.3 | 38.5 | 28.5 |
| Level of Service | F | C | A | D | C | B | F | C | D | D | D | C |
| Approach Delay (s) | | 60.1 | | | 27.8 | | | 64.4 | | | 35.6 | |
| Approach LOS | | E | | | C | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 91.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

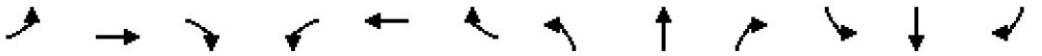
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 1020 | 50 | 520 | 1270 | 270 | 40 | 400 | 630 | 180 | 320 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3582 | | 3502 | 3610 | 1568 | 1805 | 1900 | 1598 | 1805 | 1900 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3582 | | 3502 | 3610 | 1568 | 1805 | 1900 | 1598 | 1805 | 1900 | 1586 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 168 | 1074 | 53 | 547 | 1337 | 284 | 42 | 421 | 663 | 189 | 337 | 116 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 56 | 0 | 0 | 18 | 0 | 0 | 65 |
| Lane Group Flow (vph) | 168 | 1124 | 0 | 547 | 1337 | 228 | 42 | 421 | 645 | 189 | 337 | 51 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.0 | 43.5 | | 23.5 | 55.0 | 55.0 | 6.4 | 34.0 | 57.5 | 13.0 | 40.6 | 40.6 |
| Effective Green, g (s) | 12.0 | 43.5 | | 23.5 | 55.0 | 55.0 | 6.4 | 34.0 | 57.5 | 13.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.09 | 0.33 | | 0.18 | 0.42 | 0.42 | 0.05 | 0.26 | 0.44 | 0.10 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 167 | 1199 | | 633 | 1527 | 663 | 89 | 497 | 707 | 181 | 593 | 495 |
| v/s Ratio Prot | 0.09 | c0.31 | | 0.16 | c0.37 | | 0.02 | 0.22 | c0.16 | c0.10 | 0.18 | |
| v/s Ratio Perm | | | | | | 0.15 | | | 0.24 | | | 0.03 |
| v/c Ratio | 1.01 | 0.94 | | 0.86 | 0.88 | 0.34 | 0.47 | 0.85 | 0.91 | 1.04 | 0.57 | 0.10 |
| Uniform Delay, d1 | 59.0 | 41.9 | | 51.7 | 34.4 | 25.3 | 60.2 | 45.5 | 33.9 | 58.5 | 37.4 | 31.8 |
| Progression Factor | 1.14 | 0.55 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 56.1 | 9.3 | | 11.8 | 5.9 | 0.3 | 3.9 | 16.2 | 16.1 | 79.0 | 3.9 | 0.4 |
| Delay (s) | 123.2 | 32.5 | | 63.5 | 40.3 | 25.6 | 64.1 | 61.8 | 50.0 | 137.5 | 41.3 | 32.2 |
| Level of Service | F | C | | E | D | C | E | E | D | F | D | C |
| Approach Delay (s) | | 44.3 | | | 44.2 | | | 54.9 | | | 68.0 | |
| Approach LOS | | D | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 49.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 96.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

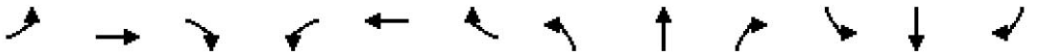
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 740 | 940 | 190 | 700 | 280 | 1180 | 1610 | 570 | 330 | 790 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.88 | 0.94 | 0.91 | 1.00 | 0.94 | 0.91 | 1.00 | 0.94 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 2823 | 5090 | 5187 | 1595 | 5090 | 5187 | 1590 | 5090 | 5187 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 2823 | 5090 | 5187 | 1595 | 5090 | 5187 | 1590 | 5090 | 5187 | 1588 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 56 | 822 | 1044 | 211 | 778 | 311 | 1311 | 1789 | 633 | 367 | 878 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 7 | 0 | 0 | 24 | 0 | 0 | 8 | 0 | 0 | 25 |
| Lane Group Flow (vph) | 56 | 822 | 1037 | 211 | 778 | 287 | 1311 | 1789 | 625 | 367 | 878 | 8 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 6.4 | 25.8 | 61.8 | 7.1 | 26.5 | 37.5 | 36.0 | 51.2 | 58.3 | 11.0 | 26.2 | 26.2 |
| Effective Green, g (s) | 6.4 | 25.8 | 61.8 | 7.1 | 26.5 | 37.5 | 36.0 | 51.2 | 58.3 | 11.0 | 26.2 | 26.2 |
| Actuated g/C Ratio | 0.06 | 0.23 | 0.56 | 0.06 | 0.24 | 0.34 | 0.32 | 0.46 | 0.52 | 0.10 | 0.24 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 104 | 1205 | 1570 | 325 | 1237 | 538 | 1649 | 2390 | 892 | 504 | 1223 | 374 |
| v/s Ratio Prot | 0.03 | c0.16 | 0.21 | 0.04 | 0.15 | 0.05 | 0.26 | c0.34 | c0.04 | 0.07 | c0.17 | |
| v/s Ratio Perm | | | 0.15 | | | 0.13 | | | 0.35 | | | 0.00 |
| v/c Ratio | 0.54 | 0.68 | 0.66 | 0.65 | 0.63 | 0.53 | 0.80 | 0.75 | 0.70 | 0.73 | 0.72 | 0.02 |
| Uniform Delay, d1 | 50.9 | 38.9 | 17.3 | 50.8 | 37.9 | 29.7 | 34.2 | 24.7 | 19.8 | 48.6 | 39.1 | 32.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.3 | 1.6 | 1.1 | 4.4 | 1.0 | 1.0 | 2.7 | 1.3 | 2.5 | 5.2 | 2.0 | 0.0 |
| Delay (s) | 56.2 | 40.5 | 18.3 | 55.2 | 38.9 | 30.8 | 36.9 | 26.0 | 22.4 | 53.8 | 41.1 | 32.6 |
| Level of Service | E | D | B | E | D | C | D | C | C | D | D | C |
| Approach Delay (s) | | 28.9 | | | 39.6 | | | 29.2 | | | 44.5 | |
| Approach LOS | | C | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 111.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 75.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 470 | 390 | 150 | 10 | 1040 | 580 | 370 | 810 | 30 | 290 | 640 | 820 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 0.88 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 5187 | 1586 | 3502 | 3588 | | 3502 | 3610 | 2794 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 5187 | 1586 | 3502 | 3588 | | 3502 | 3610 | 2794 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 547 | 453 | 174 | 12 | 1209 | 674 | 430 | 942 | 35 | 337 | 744 | 953 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 189 | 0 | 2 | 0 | 0 | 0 | 307 |
| Lane Group Flow (vph) | 547 | 453 | 174 | 12 | 1209 | 485 | 430 | 975 | 0 | 337 | 744 | 646 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 16.0 | 42.8 | 110.0 | 1.2 | 28.0 | 28.0 | 13.0 | 33.2 | | 12.8 | 33.0 | 33.0 |
| Effective Green, g (s) | 16.0 | 42.8 | 110.0 | 1.2 | 28.0 | 28.0 | 13.0 | 33.2 | | 12.8 | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.15 | 0.39 | 1.00 | 0.01 | 0.25 | 0.25 | 0.12 | 0.30 | | 0.12 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 509 | 2018 | 1593 | 20 | 1320 | 404 | 414 | 1083 | | 408 | 1083 | 838 |
| v/s Ratio Prot | c0.16 | 0.09 | | 0.01 | 0.23 | | c0.12 | c0.27 | | 0.10 | 0.21 | |
| v/s Ratio Perm | | | c0.11 | | | c0.31 | | | | | | 0.23 |
| v/c Ratio | 1.07 | 0.22 | 0.11 | 0.60 | 0.92 | 1.20 | 1.04 | 0.90 | | 0.83 | 0.69 | 0.77 |
| Uniform Delay, d1 | 47.0 | 22.5 | 0.0 | 54.2 | 39.9 | 41.0 | 48.5 | 36.8 | | 47.5 | 33.9 | 35.1 |
| Progression Factor | 0.88 | 0.87 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 61.2 | 0.3 | 0.1 | 40.2 | 11.4 | 111.4 | 54.6 | 11.9 | | 12.8 | 3.6 | 6.8 |
| Delay (s) | 102.4 | 19.7 | 0.1 | 94.3 | 51.3 | 152.4 | 103.1 | 48.7 | | 60.3 | 37.5 | 41.8 |
| Level of Service | F | B | A | F | D | F | F | D | | E | D | D |
| Approach Delay (s) | | 55.4 | | | 87.5 | | | 65.3 | | | 43.3 | |
| Approach LOS | | E | | | F | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 63.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 89.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

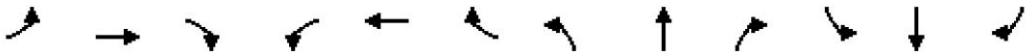
c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis
## 107: Rider St & Evans Rd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 290 | 40 | 20 | 450 | 150 | 110 | 230 | 20 | 160 | 130 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3535 | | 1805 | 3460 | | 1802 | 3562 | | 1802 | 3263 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.51 | 1.00 | | 0.51 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3535 | | 1805 | 3460 | | 965 | 3562 | | 964 | 3263 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 174 | 337 | 47 | 23 | 523 | 174 | 128 | 267 | 23 | 186 | 151 | 209 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 31 | 0 | 0 | 5 | 0 | 0 | 131 | 0 |
| Lane Group Flow (vph) | 174 | 374 | 0 | 23 | 666 | 0 | 128 | 285 | 0 | 186 | 229 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | pm+pt | | | pm+pt | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.3 | 42.8 | | 2.4 | 29.9 | | 46.7 | 38.8 | | 50.9 | 40.9 | |
| Effective Green, g (s) | 15.3 | 42.8 | | 2.4 | 29.9 | | 46.7 | 38.8 | | 50.9 | 40.9 | |
| Actuated g/C Ratio | 0.14 | 0.39 | | 0.02 | 0.27 | | 0.42 | 0.35 | | 0.46 | 0.37 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 251 | 1375 | | 39 | 940 | | 470 | 1256 | | 522 | 1213 | |
| v/s Ratio Prot | c0.10 | 0.11 | | 0.01 | c0.19 | | 0.02 | 0.08 | | c0.03 | 0.07 | |
| v/s Ratio Perm | | | | | | | 0.10 | | | c0.13 | | |
| v/c Ratio | 0.69 | 0.27 | | 0.59 | 0.71 | | 0.27 | 0.23 | | 0.36 | 0.19 | |
| Uniform Delay, d1 | 45.1 | 23.0 | | 53.3 | 36.1 | | 19.6 | 25.0 | | 17.8 | 23.3 | |
| Progression Factor | 0.91 | 0.92 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.76 | 0.89 | |
| Incremental Delay, d2 | 8.0 | 0.1 | | 20.8 | 2.5 | | 0.3 | 0.4 | | 0.4 | 0.3 | |
| Delay (s) | 48.9 | 21.3 | | 74.1 | 38.6 | | 19.9 | 25.5 | | 13.9 | 21.2 | |
| Level of Service | D | C | | E | D | | B | C | | B | C | |
| Approach Delay (s) | | 29.9 | | | 39.7 | | | 23.8 | | | 18.7 | |
| Approach LOS | | C | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

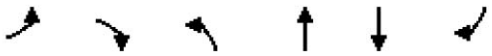
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 80 | 300 | 90 | 120 | 140 | 330 | 1060 | 40 | 40 | 630 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | 4.9 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1800 | 1900 | 1578 | 1800 | 1900 | 1586 | 1805 | 3610 | 1584 | 1805 | 3590 | |
| Flt Permitted | 0.62 | 1.00 | 1.00 | 0.56 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1172 | 1900 | 1578 | 1057 | 1900 | 1586 | 1805 | 3610 | 1584 | 1805 | 3590 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 38 | 100 | 375 | 112 | 150 | 175 | 412 | 1325 | 50 | 50 | 788 | 25 |
| RTOR Reduction (vph) | 0 | 0 | 326 | 0 | 0 | 148 | 0 | 0 | 20 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 38 | 100 | 49 | 112 | 150 | 27 | 412 | 1325 | 30 | 50 | 811 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 16.9 | 14.5 | 14.5 | 22.1 | 17.1 | 17.1 | 30.4 | 64.9 | 64.9 | 7.4 | 41.9 | |
| Effective Green, g (s) | 16.9 | 14.5 | 14.5 | 22.1 | 17.1 | 17.1 | 30.4 | 64.9 | 64.9 | 7.4 | 41.9 | |
| Actuated g/C Ratio | 0.15 | 0.13 | 0.13 | 0.20 | 0.16 | 0.16 | 0.28 | 0.59 | 0.59 | 0.07 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.9 | 4.9 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 194 | 250 | 208 | 246 | 295 | 247 | 499 | 2130 | 935 | 121 | 1367 | |
| v/s Ratio Prot | 0.00 | 0.05 | | c0.02 | c0.08 | | c0.23 | c0.37 | | 0.03 | 0.23 | |
| v/s Ratio Perm | 0.03 | | 0.03 | 0.07 | | 0.02 | | | 0.02 | | | |
| v/c Ratio | 0.20 | 0.40 | 0.24 | 0.46 | 0.51 | 0.11 | 0.83 | 0.62 | 0.03 | 0.41 | 0.59 | |
| Uniform Delay, d1 | 40.3 | 43.8 | 42.8 | 37.9 | 42.6 | 39.9 | 37.3 | 14.6 | 9.4 | 49.2 | 27.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.15 | 0.79 | 0.73 | 1.02 | 0.25 | |
| Incremental Delay, d2 | 0.5 | 1.1 | 0.6 | 1.3 | 1.4 | 0.2 | 10.7 | 1.4 | 0.1 | 2.2 | 1.8 | |
| Delay (s) | 40.7 | 44.8 | 43.4 | 39.3 | 44.0 | 40.1 | 53.5 | 13.0 | 7.0 | 52.5 | 8.5 | |
| Level of Service | D | D | D | D | D | D | D | B | A | D | A | |
| Approach Delay (s) | | 43.5 | | | 41.2 | | | 22.1 | | | 11.1 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

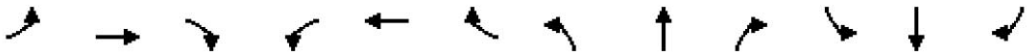
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 120 | 30 | 20 | 740 | 350 | 50 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 133 | 33 | 22 | 822 | 389 | 56 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | TWLTL | |
| Median storage veh) | | | | | 2 | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 849 | 199 | 444 | | | |
| vC1, stage 1 conf vol | 389 | | | | | |
| vC2, stage 2 conf vol | 461 | | | | | |
| vCu, unblocked vol | 849 | 199 | 444 | | | |
| tC, single (s) | 6.8 | 6.9 | 4.1 | | | |
| tC, 2 stage (s) | 5.8 | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 73 | 96 | 98 | | | |
| cM capacity (veh/h) | 501 | 811 | 1126 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 167 | 22 | 411 | 411 | 194 | 194 | 56 |
| Volume Left | 133 | 22 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 33 | 0 | 0 | 0 | 0 | 0 | 56 |
| cSH | 543 | 1126 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.31 | 0.02 | 0.24 | 0.24 | 0.11 | 0.11 | 0.03 |
| Queue Length 95th (ft) | 32 | 2 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 14.5 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | B | A | | | | | |
| Approach Delay (s) | 14.5 | 0.2 | | | 0.0 | | |
| Approach LOS | B | | | | | | |

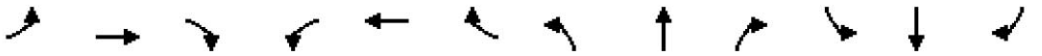
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.8 | | |
| Intersection Capacity Utilization | 35.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 560 | 0 | 0 | 440 | 250 | 290 | 0 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | 0.95 | | | | |
| Satd. Flow (prot) | 1805 | 1900 | | | 1900 | 1615 | | 1805 | | | | |
| Flt Permitted | 0.41 | 1.00 | | | 1.00 | 1.00 | | 0.95 | | | | |
| Satd. Flow (perm) | 782 | 1900 | | | 1900 | 1615 | | 1805 | | | | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 21 | 583 | 0 | 0 | 458 | 260 | 302 | 0 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 141 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 21 | 583 | 0 | 0 | 458 | 119 | 0 | 302 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | Perm | | | | | Perm | Perm | | Prot | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | 2 | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | | | | |
| Actuated Green, G (s) | 17.5 | 17.5 | | | 17.5 | 17.5 | | 12.7 | | | | |
| Effective Green, g (s) | 17.5 | 17.5 | | | 17.5 | 17.5 | | 12.7 | | | | |
| Actuated g/C Ratio | 0.46 | 0.46 | | | 0.46 | 0.46 | | 0.33 | | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | | | | |
| Lane Grp Cap (vph) | 358 | 870 | | | 870 | 740 | | 600 | | | | |
| v/s Ratio Prot | | c0.31 | | | 0.24 | | | | | | | |
| v/s Ratio Perm | 0.03 | | | | | 0.07 | | 0.17 | | | | |
| v/c Ratio | 0.06 | 0.67 | | | 0.53 | 0.16 | | 0.50 | | | | |
| Uniform Delay, d1 | 5.8 | 8.1 | | | 7.4 | 6.1 | | 10.2 | | | | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Incremental Delay, d2 | 0.1 | 2.0 | | | 0.6 | 0.1 | | 0.7 | | | | |
| Delay (s) | 5.8 | 10.1 | | | 8.0 | 6.2 | | 10.9 | | | | |
| Level of Service | A | B | | | A | A | | B | | | | |
| Approach Delay (s) | | 10.0 | | | 7.3 | | | 10.9 | | | 0.0 | |
| Approach LOS | | A | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 38.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

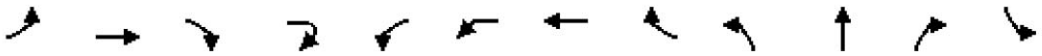
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 210 | 200 | 40 | 710 | 0 | 0 | 0 | 0 | 370 | 0 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1900 | 1615 | 1805 | 1900 | | | | | | 1805 | 1615 |
| Flt Permitted | | 1.00 | 1.00 | 0.62 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1900 | 1615 | 1176 | 1900 | | | | | | 1805 | 1615 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 223 | 213 | 43 | 755 | 0 | 0 | 0 | 0 | 394 | 0 | 64 |
| RTOR Reduction (vph) | 0 | 0 | 107 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| Lane Group Flow (vph) | 0 | 223 | 107 | 43 | 755 | 0 | 0 | 0 | 0 | 0 | 394 | 22 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | | | Perm | Perm | | | | | | Perm | | Prot |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | 6 |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 24.9 | 24.9 | 24.9 | 24.9 | | | | | | 16.9 | 16.9 |
| Effective Green, g (s) | | 24.9 | 24.9 | 24.9 | 24.9 | | | | | | 16.9 | 16.9 |
| Actuated g/C Ratio | | 0.50 | 0.50 | 0.50 | 0.50 | | | | | | 0.34 | 0.34 |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 950 | 808 | 588 | 950 | | | | | | 613 | 548 |
| v/s Ratio Prot | | 0.12 | | | c0.40 | | | | | | | 0.01 |
| v/s Ratio Perm | | | 0.07 | 0.04 | | | | | | | 0.22 | |
| v/c Ratio | | 0.23 | 0.13 | 0.07 | 0.79 | | | | | | 0.64 | 0.04 |
| Uniform Delay, d1 | | 7.1 | 6.7 | 6.5 | 10.3 | | | | | | 13.9 | 11.0 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.1 | 0.1 | 0.1 | 4.7 | | | | | | 2.3 | 0.0 |
| Delay (s) | | 7.2 | 6.7 | 6.5 | 15.0 | | | | | | 16.2 | 11.0 |
| Level of Service | | A | A | A | B | | | | | | B | B |
| Approach Delay (s) | | 7.0 | | | 14.5 | | | 0.0 | | | 15.5 | |
| Approach LOS | | A | | | B | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 49.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



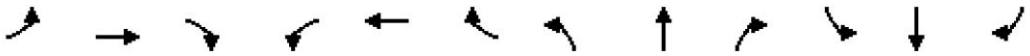
| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL | NBT | NBR | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 270 | 350 | 5 | 50 | 5 | 310 | 10 | 370 | 50 | 50 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Frt | 1.00 | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1798 | 1900 | 1572 | | | 1798 | 1634 | 1352 | 1801 | 1735 | | |
| Flt Permitted | 0.40 | 1.00 | 1.00 | | | 0.46 | 1.00 | 1.00 | 0.59 | 1.00 | | |
| Satd. Flow (perm) | 752 | 1900 | 1572 | | | 864 | 1634 | 1352 | 1115 | 1735 | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 1.00 | 0.97 | 1.00 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 21 | 278 | 361 | 5 | 52 | 5 | 320 | 10 | 381 | 52 | 52 | 52 |
| RTOR Reduction (vph) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 26 | 0 | 0 |
| Lane Group Flow (vph) | 21 | 278 | 365 | 0 | 0 | 57 | 320 | 5 | 381 | 78 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | 5 | | | 5 | 5 | | 5 | 5 |
| Parking (#/hr) | | | | | | | 8 | 8 | | | | |
| Turn Type | Perm | | Perm | | Perm | Perm | | Perm | Perm | | | Perm |
| Protected Phases | | 4 | | | | | 8 | | | 2 | | |
| Permitted Phases | 4 | | 4 | | 8 | 8 | | 8 | 2 | | | 6 |
| Actuated Green, G (s) | 22.5 | 22.5 | 22.5 | | | 22.5 | 22.5 | 22.5 | 36.4 | 36.4 | | |
| Effective Green, g (s) | 22.5 | 22.5 | 22.5 | | | 22.5 | 22.5 | 22.5 | 36.4 | 36.4 | | |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.31 | | | 0.31 | 0.31 | 0.31 | 0.50 | 0.50 | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | |
| Lane Grp Cap (vph) | 235 | 593 | 491 | | | 270 | 510 | 422 | 563 | 876 | | |
| v/s Ratio Prot | | 0.15 | | | | | 0.20 | | | 0.05 | | |
| v/s Ratio Perm | 0.03 | | c0.23 | | | 0.07 | | 0.00 | c0.34 | | | |
| v/c Ratio | 0.09 | 0.47 | 0.74 | | | 0.21 | 0.63 | 0.01 | 0.68 | 0.09 | | |
| Uniform Delay, d1 | 17.6 | 20.0 | 22.2 | | | 18.3 | 21.2 | 17.1 | 13.4 | 9.3 | | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 0.2 | 0.6 | 6.0 | | | 0.4 | 2.4 | 0.0 | 3.2 | 0.0 | | |
| Delay (s) | 17.7 | 20.6 | 28.3 | | | 18.7 | 23.6 | 17.1 | 16.6 | 9.3 | | |
| Level of Service | B | C | C | | | B | C | B | B | A | | |
| Approach Delay (s) | | 24.7 | | | | | 22.7 | | | 15.1 | | |
| Approach LOS | | C | | | | | C | | | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 72.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



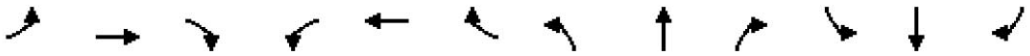
| Movement | SBT | SBR | SBR2 | NEL2 | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 190 | 10 | 5 | 5 | 0 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | | | 1.00 | 1.00 |
| Frt | 0.99 | | | | 1.00 | 0.85 |
| Flt Protected | 0.99 | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | | | | 1805 | 1615 |
| Flt Permitted | 0.93 | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | 1756 | | | | 1805 | 1615 |
| Peak-hour factor, PHF | 0.97 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 196 | 10 | 5 | 5 | 0 | 5 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 263 | 0 | 0 | 0 | 5 | 5 |
| Confl. Peds. (#/hr) | | | 5 | | | |
| Parking (#/hr) | | | | | | |
| Turn Type | | | | Perm | | Perm |
| Protected Phases | 6 | | | | 9 | |
| Permitted Phases | | | | 9 | | 9 |
| Actuated Green, G (s) | 36.4 | | | | 1.2 | 1.2 |
| Effective Green, g (s) | 36.4 | | | | 1.2 | 1.2 |
| Actuated g/C Ratio | 0.50 | | | | 0.02 | 0.02 |
| Clearance Time (s) | 4.0 | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 887 | | | | 30 | 27 |
| v/s Ratio Prot | | | | | | |
| v/s Ratio Perm | 0.15 | | | | 0.00 | c0.00 |
| v/c Ratio | 0.30 | | | | 0.17 | 0.19 |
| Uniform Delay, d1 | 10.4 | | | | 35.0 | 35.0 |
| Progression Factor | 1.00 | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | | | | 2.6 | 3.3 |
| Delay (s) | 10.6 | | | | 37.6 | 38.3 |
| Level of Service | B | | | | D | D |
| Approach Delay (s) | 10.6 | | | | 37.9 | |
| Approach LOS | B | | | | D | |

| Intersection Summary |
|---|



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 290 | 0 | 10 | 620 | 240 | 10 | 20 | 0 | 390 | 10 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | 5.0 | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | 0.85 | | 1.00 | | | 0.99 | |
| Flt Protected | | 1.00 | | | 1.00 | 1.00 | | 0.98 | | | 0.96 | |
| Satd. Flow (prot) | | 1891 | | | 1899 | 1615 | | 1870 | | | 1797 | |
| Flt Permitted | | 0.50 | | | 0.99 | 1.00 | | 0.85 | | | 0.72 | |
| Satd. Flow (perm) | | 943 | | | 1886 | 1615 | | 1624 | | | 1358 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 38 | 362 | 0 | 12 | 775 | 300 | 12 | 25 | 0 | 488 | 12 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 85 | 0 | 0 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 400 | 0 | 0 | 787 | 215 | 0 | 37 | 0 | 0 | 545 | 0 |
| Turn Type | Perm | | | Perm | | Perm | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | | 35.7 | | | 35.7 | 35.7 | | 33.0 | | | 33.0 | |
| Effective Green, g (s) | | 35.7 | | | 35.7 | 35.7 | | 33.0 | | | 33.0 | |
| Actuated g/C Ratio | | 0.45 | | | 0.45 | 0.45 | | 0.42 | | | 0.42 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | 5.0 | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | 3.0 | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 428 | | | 856 | 733 | | 681 | | | 569 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.42 | | | 0.42 | 0.13 | | 0.02 | | | c0.40 | |
| v/c Ratio | | 0.93 | | | 0.92 | 0.29 | | 0.05 | | | 0.96 | |
| Uniform Delay, d1 | | 20.4 | | | 20.2 | 13.5 | | 13.6 | | | 22.2 | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 27.6 | | | 14.6 | 0.2 | | 0.0 | | | 27.3 | |
| Delay (s) | | 47.9 | | | 34.8 | 13.8 | | 13.6 | | | 49.5 | |
| Level of Service | | D | | | C | B | | B | | | D | |
| Approach Delay (s) | | 47.9 | | | 29.0 | | | 13.6 | | | 49.5 | |
| Approach LOS | | D | | | C | | | B | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 78.7 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 79.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 610 | 20 | 10 | 840 | 80 | 20 | 10 | 10 | 220 | 10 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.97 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.96 | |
| Satd. Flow (prot) | | 1889 | | | 1877 | | | 1791 | | | 1789 | |
| Flt Permitted | | 0.96 | | | 0.99 | | | 0.83 | | | 0.74 | |
| Satd. Flow (perm) | | 1814 | | | 1863 | | | 1526 | | | 1370 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 22 | 656 | 22 | 11 | 903 | 86 | 22 | 11 | 11 | 237 | 11 | 43 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 0 | 699 | 0 | 0 | 996 | 0 | 0 | 36 | 0 | 0 | 283 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | | 2 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 41.9 | | | 41.9 | | | 19.4 | | | 19.4 | |
| Effective Green, g (s) | | 41.9 | | | 41.9 | | | 19.4 | | | 19.4 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.27 | | | 0.27 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1066 | | | 1095 | | | 415 | | | 373 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.39 | | | c0.53 | | | 0.02 | | | c0.21 | |
| v/c Ratio | | 0.66 | | | 0.91 | | | 0.09 | | | 0.76 | |
| Uniform Delay, d1 | | 9.9 | | | 13.0 | | | 19.3 | | | 23.8 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.5 | | | 10.9 | | | 0.1 | | | 8.6 | |
| Delay (s) | | 11.3 | | | 24.0 | | | 19.4 | | | 32.4 | |
| Level of Service | | B | | | C | | | B | | | C | |
| Approach Delay (s) | | 11.3 | | | 24.0 | | | 19.4 | | | 32.4 | |
| Approach LOS | | B | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 71.3 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 83.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



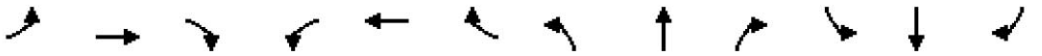
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 30 | 820 | 120 | 110 | 840 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.99 | |
| Flt Protected | 1.00 | 1.00 | | 0.97 | 0.95 | |
| Satd. Flow (prot) | 1900 | 1615 | | 1852 | 1802 | |
| Flt Permitted | 1.00 | 1.00 | | 0.82 | 0.95 | |
| Satd. Flow (perm) | 1900 | 1615 | | 1556 | 1802 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 891 | 130 | 120 | 913 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 33 | 891 | 0 | 250 | 954 | 0 |
| Turn Type | | pm+ov | Perm | | | |
| Protected Phases | 4 | 2 | | 8 | 2 | |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 16.3 | 57.3 | | 16.3 | 41.0 | |
| Effective Green, g (s) | 16.3 | 57.3 | | 16.3 | 41.0 | |
| Actuated g/C Ratio | 0.24 | 0.85 | | 0.24 | 0.61 | |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 460 | 1615 | | 377 | 1098 | |
| v/s Ratio Prot | 0.02 | c0.34 | | | c0.53 | |
| v/s Ratio Perm | | 0.22 | | 0.16 | | |
| v/c Ratio | 0.07 | 0.55 | | 0.66 | 0.87 | |
| Uniform Delay, d1 | 19.7 | 1.4 | | 23.0 | 10.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 0.4 | | 4.3 | 7.5 | |
| Delay (s) | 19.7 | 1.8 | | 27.4 | 18.4 | |
| Level of Service | B | A | | C | B | |
| Approach Delay (s) | 2.5 | | | 27.4 | 18.4 | |
| Approach LOS | A | | | C | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 67.3 | Sum of lost time (s) | 5.0 |
| Intersection Capacity Utilization | 76.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 50 | 50 | 290 | 110 | 130 | 270 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.93 | | | 1.00 | 0.91 | |
| Flt Protected | 1.00 | | | 0.97 | 0.98 | |
| Satd. Flow (prot) | 1772 | | | 1834 | 1699 | |
| Flt Permitted | 1.00 | | | 0.72 | 0.98 | |
| Satd. Flow (perm) | 1772 | | | 1359 | 1699 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 56 | 56 | 322 | 122 | 144 | 300 |
| RTOR Reduction (vph) | 31 | 0 | 0 | 0 | 136 | 0 |
| Lane Group Flow (vph) | 81 | 0 | 0 | 444 | 308 | 0 |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 8 | 2 | |
| Permitted Phases | | | 8 | | | |
| Actuated Green, G (s) | 18.7 | | | 18.7 | 13.0 | |
| Effective Green, g (s) | 18.7 | | | 18.7 | 13.0 | |
| Actuated g/C Ratio | 0.45 | | | 0.45 | 0.31 | |
| Clearance Time (s) | 5.0 | | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 795 | | | 609 | 530 | |
| v/s Ratio Prot | 0.05 | | | | c0.18 | |
| v/s Ratio Perm | | | | c0.33 | | |
| v/c Ratio | 0.10 | | | 0.73 | 0.58 | |
| Uniform Delay, d1 | 6.6 | | | 9.4 | 12.1 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | | | 4.4 | 1.6 | |
| Delay (s) | 6.7 | | | 13.8 | 13.7 | |
| Level of Service | A | | | B | B | |
| Approach Delay (s) | 6.7 | | | 13.8 | 13.7 | |
| Approach LOS | A | | | B | B | |

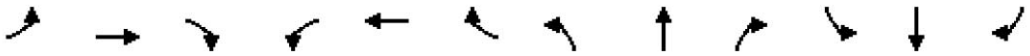
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 41.7 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 60.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 0 | 60 | 5 | 5 | 5 | 70 | 910 | 0 | 10 | 1180 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 0.99 | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.93 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1788 | 1567 | | 1789 | 1732 | | 1805 | 1900 | | 1805 | 3610 | 1567 |
| Flt Permitted | 0.75 | 1.00 | | 0.71 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1411 | 1567 | | 1339 | 1732 | | 1805 | 1900 | | 1805 | 3610 | 1567 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 202 | 0 | 71 | 6 | 6 | 6 | 83 | 1083 | 0 | 12 | 1405 | 202 |
| RTOR Reduction (vph) | 0 | 57 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 67 |
| Lane Group Flow (vph) | 202 | 14 | 0 | 6 | 7 | 0 | 83 | 1083 | 0 | 12 | 1405 | 135 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 16.3 | 16.3 | | 16.3 | 16.3 | | 6.9 | 55.0 | | 1.3 | 49.4 | 49.4 |
| Effective Green, g (s) | 16.3 | 16.3 | | 16.3 | 16.3 | | 6.9 | 55.0 | | 1.3 | 49.4 | 49.4 |
| Actuated g/C Ratio | 0.19 | 0.19 | | 0.19 | 0.19 | | 0.08 | 0.65 | | 0.02 | 0.58 | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 272 | 302 | | 258 | 334 | | 147 | 1235 | | 28 | 2108 | 915 |
| v/s Ratio Prot | | 0.01 | | | 0.00 | | c0.05 | c0.57 | | 0.01 | 0.39 | |
| v/s Ratio Perm | c0.14 | | | 0.00 | | | | | | | | 0.09 |
| v/c Ratio | 0.74 | 0.05 | | 0.02 | 0.02 | | 0.56 | 0.88 | | 0.43 | 0.67 | 0.15 |
| Uniform Delay, d1 | 32.2 | 27.8 | | 27.7 | 27.7 | | 37.4 | 12.0 | | 41.3 | 12.0 | 8.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 10.4 | 0.1 | | 0.0 | 0.0 | | 4.9 | 7.3 | | 10.2 | 0.8 | 0.1 |
| Delay (s) | 42.6 | 27.9 | | 27.7 | 27.7 | | 42.3 | 19.3 | | 51.5 | 12.8 | 8.1 |
| Level of Service | D | C | | C | C | | D | B | | D | B | A |
| Approach Delay (s) | | 38.8 | | | 27.7 | | | 21.0 | | | 12.5 | |
| Approach LOS | | D | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 84.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

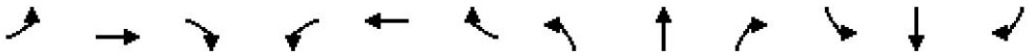
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 10 | 10 | 120 | 10 | 40 | 10 | 770 | 560 | 270 | 450 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.95 | | 1.00 | 0.88 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1775 | | 1801 | 1652 | | 1805 | 3610 | 1572 | 1805 | 5168 | |
| Flt Permitted | | 0.91 | | 0.74 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1634 | | 1394 | 1652 | | 1805 | 3610 | 1572 | 1805 | 5168 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 11 | 11 | 11 | 136 | 11 | 45 | 11 | 875 | 636 | 307 | 511 | 11 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 38 | 0 | 0 | 0 | 370 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 24 | 0 | 136 | 18 | 0 | 11 | 875 | 266 | 307 | 520 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | |
| Actuated Green, G (s) | | 8.7 | | 8.7 | 8.7 | | 1.2 | 23.9 | 23.9 | 12.6 | 35.3 | |
| Effective Green, g (s) | | 8.7 | | 8.7 | 8.7 | | 1.2 | 23.9 | 23.9 | 12.6 | 35.3 | |
| Actuated g/C Ratio | | 0.15 | | 0.15 | 0.15 | | 0.02 | 0.42 | 0.42 | 0.22 | 0.62 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 249 | | 212 | 251 | | 38 | 1508 | 657 | 398 | 3189 | |
| v/s Ratio Prot | | | | | 0.01 | | 0.01 | c0.24 | | c0.17 | 0.10 | |
| v/s Ratio Perm | | 0.01 | | c0.10 | | | | | 0.17 | | | |
| v/c Ratio | | 0.10 | | 0.64 | 0.07 | | 0.29 | 0.58 | 0.40 | 0.77 | 0.16 | |
| Uniform Delay, d1 | | 20.9 | | 22.8 | 20.8 | | 27.6 | 12.8 | 11.7 | 20.9 | 4.7 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.2 | | 6.5 | 0.1 | | 4.2 | 0.6 | 0.4 | 9.0 | 0.0 | |
| Delay (s) | | 21.0 | | 29.3 | 20.9 | | 31.8 | 13.4 | 12.1 | 29.9 | 4.7 | |
| Level of Service | | C | | C | C | | C | B | B | C | A | |
| Approach Delay (s) | | 21.0 | | | 26.8 | | | 13.0 | | | 14.0 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 57.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

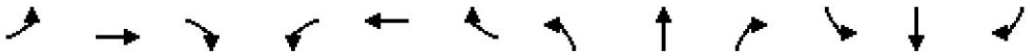
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 420 | 220 | 10 | 420 | 10 | 250 | 0 | 20 | 0 | 0 | 0 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 452 | 237 | 11 | 452 | 11 | 269 | 0 | 22 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 226 | 462 | 237 | 237 | 269 | 22 | 0 |
| Volume Left (vph) | 0 | 0 | 11 | 0 | 269 | 0 | 0 |
| Volume Right (vph) | 0 | 237 | 0 | 11 | 0 | 22 | 0 |
| Hadj (s) | 0.00 | -0.36 | 0.02 | -0.03 | 0.20 | -0.60 | 0.00 |
| Departure Headway (s) | 6.2 | 5.8 | 6.4 | 6.4 | 6.5 | 3.2 | 7.3 |
| Degree Utilization, x | 0.39 | 0.75 | 0.42 | 0.42 | 0.49 | 0.02 | 0.00 |
| Capacity (veh/h) | 562 | 602 | 539 | 544 | 517 | 1121 | 442 |
| Control Delay (s) | 11.8 | 22.8 | 12.9 | 12.7 | 15.6 | 6.3 | 10.3 |
| Approach Delay (s) | 19.2 | | 12.8 | | 14.9 | | 0.0 |
| Approach LOS | C | | B | | B | | A |

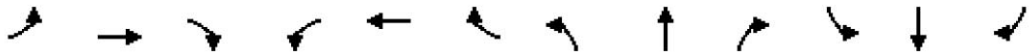
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 16.3 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 39.6% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 30 | 60 | 420 | 80 | 160 | 70 | 210 | 130 | 70 | 180 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.90 | | 1.00 | 0.90 | | | 0.95 | | | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | 1805 | 3217 | | 1805 | 1693 | | | 3380 | | | 3406 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.83 | | | 0.79 | |
| Satd. Flow (perm) | 1805 | 3217 | | 1805 | 1693 | | | 2828 | | | 2709 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 160 | 32 | 64 | 447 | 85 | 170 | 74 | 223 | 138 | 74 | 191 | 96 |
| RTOR Reduction (vph) | 0 | 57 | 0 | 0 | 99 | 0 | 0 | 71 | 0 | 0 | 47 | 0 |
| Lane Group Flow (vph) | 160 | 39 | 0 | 447 | 156 | 0 | 0 | 364 | 0 | 0 | 314 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 7.9 | 5.3 | | 18.8 | 16.2 | | | 12.0 | | | 12.0 | |
| Effective Green, g (s) | 7.9 | 5.3 | | 18.8 | 16.2 | | | 12.0 | | | 12.0 | |
| Actuated g/C Ratio | 0.16 | 0.11 | | 0.39 | 0.34 | | | 0.25 | | | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 296 | 354 | | 705 | 570 | | | 706 | | | 676 | |
| v/s Ratio Prot | 0.09 | 0.01 | | c0.25 | c0.09 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.13 | | | 0.12 | |
| v/c Ratio | 0.54 | 0.11 | | 0.63 | 0.27 | | | 0.52 | | | 0.46 | |
| Uniform Delay, d1 | 18.4 | 19.3 | | 11.9 | 11.6 | | | 15.5 | | | 15.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 2.0 | 0.1 | | 1.9 | 0.3 | | | 0.6 | | | 0.5 | |
| Delay (s) | 20.4 | 19.4 | | 13.7 | 11.9 | | | 16.2 | | | 15.8 | |
| Level of Service | C | B | | B | B | | | B | | | B | |
| Approach Delay (s) | | 20.1 | | | 13.1 | | | 16.2 | | | 15.8 | |
| Approach LOS | | C | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 48.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

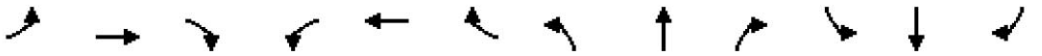
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 100 | 180 | 150 | 100 | 10 | 130 | 280 | 130 | 0 | 200 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.90 | | 1.00 | 0.99 | | 1.00 | 0.95 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1679 | | 1805 | 1869 | | 1805 | 1791 | | | 1855 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1679 | | 1805 | 1869 | | 1805 | 1791 | | | 1855 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 52 | 103 | 186 | 155 | 103 | 10 | 134 | 289 | 134 | 0 | 206 | 31 |
| RTOR Reduction (vph) | 0 | 42 | 0 | 0 | 2 | 0 | 0 | 15 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 52 | 247 | 0 | 155 | 111 | 0 | 134 | 408 | 0 | 0 | 232 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.7 | 54.3 | | 15.5 | 62.1 | | 13.9 | 38.2 | | | 20.3 | |
| Effective Green, g (s) | 7.7 | 54.3 | | 15.5 | 62.1 | | 13.9 | 38.2 | | | 20.3 | |
| Actuated g/C Ratio | 0.06 | 0.45 | | 0.13 | 0.52 | | 0.12 | 0.32 | | | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 116 | 760 | | 233 | 967 | | 209 | 570 | | | 314 | |
| v/s Ratio Prot | 0.03 | c0.15 | | c0.09 | 0.06 | | 0.07 | c0.23 | | | 0.13 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.45 | 0.33 | | 0.67 | 0.11 | | 0.64 | 0.72 | | | 0.74 | |
| Uniform Delay, d1 | 54.1 | 21.1 | | 49.8 | 14.8 | | 50.7 | 36.1 | | | 47.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.30 | 0.61 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 2.7 | 1.1 | | 6.9 | 0.2 | | 6.6 | 4.3 | | | 8.8 | |
| Delay (s) | 56.8 | 22.2 | | 71.9 | 9.4 | | 57.2 | 40.4 | | | 56.1 | |
| Level of Service | E | C | | E | A | | E | D | | | E | |
| Approach Delay (s) | | 27.5 | | | 45.5 | | | 44.4 | | | 56.1 | |
| Approach LOS | | C | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

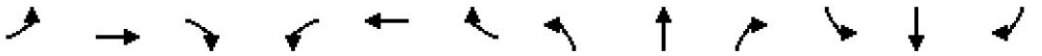
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 50 | 820 | 40 | 20 | 490 | 100 | 670 | 20 | 250 | 510 | 400 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | |
| Flt Protected | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1828 | 2797 | 1805 | 1900 | 1589 | 1805 | 3610 | 1588 | 3502 | 4783 | |
| Flt Permitted | | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1828 | 2797 | 1805 | 1900 | 1589 | 1805 | 3610 | 1588 | 3502 | 4783 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 196 | 52 | 845 | 41 | 21 | 505 | 103 | 691 | 21 | 258 | 526 | 412 |
| RTOR Reduction (vph) | 0 | 0 | 632 | 0 | 0 | 277 | 0 | 0 | 16 | 0 | 113 | 0 |
| Lane Group Flow (vph) | 0 | 248 | 213 | 41 | 21 | 228 | 103 | 691 | 5 | 258 | 825 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 22.6 | 22.6 | 18.3 | 18.3 | 18.3 | 9.5 | 23.1 | 23.1 | 9.6 | 23.2 | |
| Effective Green, g (s) | | 22.6 | 22.6 | 18.3 | 18.3 | 18.3 | 9.5 | 23.1 | 23.1 | 9.6 | 23.2 | |
| Actuated g/C Ratio | | 0.25 | 0.25 | 0.20 | 0.20 | 0.20 | 0.11 | 0.26 | 0.26 | 0.11 | 0.26 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 461 | 705 | 369 | 388 | 325 | 191 | 931 | 409 | 375 | 1238 | |
| v/s Ratio Prot | | c0.14 | | 0.02 | 0.01 | | 0.06 | c0.19 | | c0.07 | 0.17 | |
| v/s Ratio Perm | | | 0.08 | | | c0.14 | | | 0.00 | | | |
| v/c Ratio | | 0.54 | 0.30 | 0.11 | 0.05 | 0.70 | 0.54 | 0.74 | 0.01 | 0.69 | 0.67 | |
| Uniform Delay, d1 | | 29.0 | 27.1 | 29.0 | 28.7 | 33.1 | 38.0 | 30.5 | 24.8 | 38.6 | 29.7 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.2 | 0.2 | 0.1 | 0.1 | 6.7 | 2.9 | 3.2 | 0.0 | 5.2 | 1.4 | |
| Delay (s) | | 30.2 | 27.4 | 29.2 | 28.7 | 39.8 | 40.9 | 33.7 | 24.8 | 43.7 | 31.1 | |
| Level of Service | | C | C | C | C | D | D | C | C | D | C | |
| Approach Delay (s) | | 28.0 | | | 38.6 | | | 34.4 | | | 33.8 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 89.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 75.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

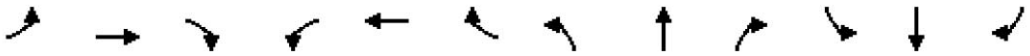
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 580 | 270 | 230 | 260 | 90 | 130 | 1100 | 180 | 180 | 1000 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3419 | | 3502 | 3456 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3419 | | 3502 | 3456 | | 1805 | 3610 | 1587 | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 156 | 644 | 300 | 256 | 289 | 100 | 144 | 1222 | 200 | 200 | 1111 | 78 |
| RTOR Reduction (vph) | 0 | 46 | 0 | 0 | 29 | 0 | 0 | 0 | 102 | 0 | 0 | 41 |
| Lane Group Flow (vph) | 156 | 898 | 0 | 256 | 360 | 0 | 144 | 1222 | 98 | 200 | 1111 | 37 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.6 | 35.3 | | 13.4 | 36.1 | | 12.0 | 40.5 | 40.5 | 14.8 | 43.3 | 43.3 |
| Effective Green, g (s) | 12.6 | 35.3 | | 13.4 | 36.1 | | 12.0 | 40.5 | 40.5 | 14.8 | 43.3 | 43.3 |
| Actuated g/C Ratio | 0.10 | 0.29 | | 0.11 | 0.30 | | 0.10 | 0.34 | 0.34 | 0.12 | 0.36 | 0.36 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 190 | 1006 | | 391 | 1040 | | 181 | 1218 | 536 | 223 | 1303 | 572 |
| v/s Ratio Prot | c0.09 | c0.26 | | 0.07 | 0.10 | | 0.08 | c0.34 | | c0.11 | c0.31 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | 0.02 |
| v/c Ratio | 0.82 | 0.89 | | 0.65 | 0.35 | | 0.80 | 1.00 | 0.18 | 0.90 | 0.85 | 0.06 |
| Uniform Delay, d1 | 52.6 | 40.5 | | 51.1 | 32.7 | | 52.8 | 39.8 | 28.1 | 51.8 | 35.4 | 25.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.36 | 0.57 | 0.13 |
| Incremental Delay, d2 | 23.9 | 10.1 | | 3.9 | 0.2 | | 21.0 | 26.6 | 0.7 | 17.8 | 3.2 | 0.1 |
| Delay (s) | 76.5 | 50.7 | | 55.0 | 32.9 | | 73.8 | 66.3 | 28.8 | 88.2 | 23.5 | 3.4 |
| Level of Service | E | D | | D | C | | E | E | C | F | C | A |
| Approach Delay (s) | | 54.3 | | | 41.7 | | | 62.2 | | | 31.7 | |
| Approach LOS | | D | | | D | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 85.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

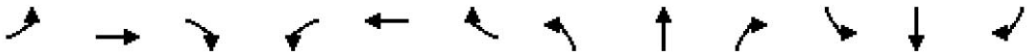
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 440 | 170 | 130 | 310 | 180 | 160 | 920 | 160 | 370 | 830 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3443 | | 3502 | 3389 | | 1805 | 5187 | 1587 | 1805 | 5147 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3443 | | 3502 | 3389 | | 1805 | 5187 | 1587 | 1805 | 5147 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 175 | 454 | 175 | 134 | 320 | 186 | 165 | 948 | 165 | 381 | 856 | 41 |
| RTOR Reduction (vph) | 0 | 38 | 0 | 0 | 78 | 0 | 0 | 0 | 85 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 175 | 591 | 0 | 134 | 428 | 0 | 165 | 948 | 80 | 381 | 894 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 12.0 | 26.5 | | 8.6 | 23.1 | | 16.2 | 37.7 | 37.7 | 31.2 | 52.7 | |
| Effective Green, g (s) | 12.0 | 26.5 | | 8.6 | 23.1 | | 16.2 | 37.7 | 37.7 | 31.2 | 52.7 | |
| Actuated g/C Ratio | 0.10 | 0.22 | | 0.07 | 0.19 | | 0.13 | 0.31 | 0.31 | 0.26 | 0.44 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 181 | 760 | | 251 | 652 | | 244 | 1630 | 499 | 469 | 2260 | |
| v/s Ratio Prot | c0.10 | c0.17 | | 0.04 | 0.13 | | 0.09 | c0.18 | | c0.21 | 0.17 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.97 | 0.78 | | 0.53 | 0.66 | | 0.68 | 0.58 | 0.16 | 0.81 | 0.40 | |
| Uniform Delay, d1 | 53.8 | 44.0 | | 53.8 | 44.8 | | 49.4 | 34.5 | 29.7 | 41.7 | 22.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.38 | 0.41 | 0.12 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 56.6 | 5.0 | | 2.2 | 2.4 | | 5.5 | 1.2 | 0.5 | 10.3 | 0.5 | |
| Delay (s) | 110.4 | 49.0 | | 55.9 | 47.2 | | 73.5 | 15.3 | 4.0 | 52.0 | 23.4 | |
| Level of Service | F | D | | E | D | | E | B | A | D | C | |
| Approach Delay (s) | | 62.4 | | | 49.0 | | | 21.3 | | | 31.9 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 86.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

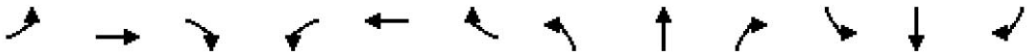
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 730 | 170 | 350 | 590 | 70 | 100 | 130 | 410 | 60 | 170 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.89 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3497 | | 3502 | 3610 | 1593 | 1805 | 3164 | | 1805 | 3420 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3497 | | 3502 | 3610 | 1593 | 1805 | 3164 | | 1805 | 3420 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 63 | 768 | 179 | 368 | 621 | 74 | 105 | 137 | 432 | 63 | 179 | 84 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 0 | 36 | 0 | 224 | 0 | 0 | 71 | 0 |
| Lane Group Flow (vph) | 63 | 930 | 0 | 368 | 621 | 38 | 105 | 345 | 0 | 63 | 192 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 6.1 | 28.1 | | 10.3 | 32.3 | 37.5 | 7.4 | 13.2 | | 5.2 | 11.0 | |
| Effective Green, g (s) | 6.1 | 28.1 | | 10.3 | 32.3 | 37.5 | 7.4 | 13.2 | | 5.2 | 11.0 | |
| Actuated g/C Ratio | 0.08 | 0.39 | | 0.14 | 0.44 | 0.52 | 0.10 | 0.18 | | 0.07 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 151 | 1350 | | 495 | 1602 | 908 | 183 | 574 | | 129 | 517 | |
| v/s Ratio Prot | 0.03 | c0.27 | | c0.11 | 0.17 | 0.00 | c0.06 | c0.11 | | 0.03 | 0.06 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.42 | 0.69 | | 0.74 | 0.39 | 0.04 | 0.57 | 0.60 | | 0.49 | 0.37 | |
| Uniform Delay, d1 | 31.7 | 18.7 | | 30.0 | 13.6 | 8.7 | 31.2 | 27.4 | | 32.5 | 27.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.9 | 1.5 | | 6.0 | 0.2 | 0.0 | 4.3 | 1.8 | | 2.9 | 0.5 | |
| Delay (s) | 33.5 | 20.2 | | 36.0 | 13.8 | 8.8 | 35.5 | 29.2 | | 35.4 | 28.2 | |
| Level of Service | C | C | | D | B | A | D | C | | D | C | |
| Approach Delay (s) | | 21.0 | | | 21.1 | | | 30.1 | | | 29.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 72.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

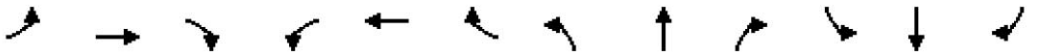
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 590 | 390 | 880 | 660 | 110 | 270 | 580 | 520 | 300 | 730 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.94 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 5187 | 1589 | 5090 | 5064 | | 3502 | 3610 | 1599 | 3502 | 3544 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 5187 | 1589 | 5090 | 5064 | | 3502 | 3610 | 1599 | 3502 | 3544 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 177 | 615 | 406 | 917 | 688 | 115 | 281 | 604 | 542 | 312 | 760 | 94 |
| RTOR Reduction (vph) | 0 | 0 | 139 | 0 | 20 | 0 | 0 | 0 | 28 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 177 | 615 | 267 | 917 | 783 | 0 | 281 | 604 | 514 | 312 | 846 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 9.7 | 22.7 | 22.7 | 15.5 | 28.5 | | 10.3 | 31.1 | 46.6 | 8.2 | 29.0 | |
| Effective Green, g (s) | 9.7 | 22.7 | 22.7 | 15.5 | 28.5 | | 10.3 | 31.1 | 46.6 | 8.2 | 29.0 | |
| Actuated g/C Ratio | 0.10 | 0.24 | 0.24 | 0.17 | 0.30 | | 0.11 | 0.33 | 0.50 | 0.09 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 363 | 1259 | 386 | 844 | 1544 | | 386 | 1201 | 865 | 307 | 1099 | |
| v/s Ratio Prot | 0.05 | 0.12 | | c0.18 | 0.15 | | 0.08 | 0.17 | 0.10 | c0.09 | c0.24 | |
| v/s Ratio Perm | | | c0.17 | | | | | | 0.22 | | | |
| v/c Ratio | 0.49 | 0.49 | 0.69 | 1.09 | 0.51 | | 0.73 | 0.50 | 0.59 | 1.02 | 0.77 | |
| Uniform Delay, d1 | 39.6 | 30.4 | 32.2 | 39.0 | 26.7 | | 40.2 | 25.0 | 16.7 | 42.6 | 29.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.0 | 0.3 | 5.3 | 57.2 | 0.3 | | 6.7 | 0.3 | 1.1 | 55.6 | 3.3 | |
| Delay (s) | 40.6 | 30.7 | 37.5 | 96.2 | 27.0 | | 47.0 | 25.3 | 17.8 | 98.2 | 32.5 | |
| Level of Service | D | C | D | F | C | | D | C | B | F | C | |
| Approach Delay (s) | | 34.5 | | | 63.9 | | | 26.7 | | | 50.1 | |
| Approach LOS | | C | | | E | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 93.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

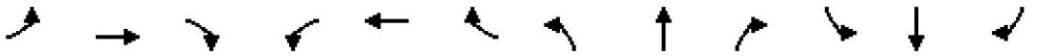
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 500 | 240 | 250 | 240 | 130 | 110 | 920 | 270 | 180 | 760 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1586 | 3502 | 1900 | 1587 | 3502 | 3610 | 1586 | 1805 | 3610 | 1584 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1586 | 3502 | 1900 | 1587 | 3502 | 3610 | 1586 | 1805 | 3610 | 1584 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 74 | 526 | 253 | 263 | 253 | 137 | 116 | 968 | 284 | 189 | 800 | 74 |
| RTOR Reduction (vph) | 0 | 0 | 134 | 0 | 0 | 84 | 0 | 0 | 146 | 0 | 0 | 45 |
| Lane Group Flow (vph) | 74 | 526 | 119 | 263 | 253 | 53 | 116 | 968 | 138 | 189 | 800 | 29 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.7 | 37.5 | 37.5 | 11.0 | 40.8 | 40.8 | 7.9 | 40.3 | 40.3 | 15.2 | 47.6 | 47.6 |
| Effective Green, g (s) | 7.7 | 37.5 | 37.5 | 11.0 | 40.8 | 40.8 | 7.9 | 40.3 | 40.3 | 15.2 | 47.6 | 47.6 |
| Actuated g/C Ratio | 0.06 | 0.31 | 0.31 | 0.09 | 0.34 | 0.34 | 0.07 | 0.34 | 0.34 | 0.13 | 0.40 | 0.40 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 116 | 594 | 496 | 321 | 646 | 540 | 231 | 1212 | 533 | 229 | 1432 | 628 |
| v/s Ratio Prot | 0.04 | c0.28 | | c0.08 | c0.13 | | 0.03 | c0.27 | | c0.10 | 0.22 | |
| v/s Ratio Perm | | | 0.08 | | | 0.03 | | | 0.09 | | | 0.02 |
| v/c Ratio | 0.64 | 0.89 | 0.24 | 0.82 | 0.39 | 0.10 | 0.50 | 0.80 | 0.26 | 0.83 | 0.56 | 0.05 |
| Uniform Delay, d1 | 54.8 | 39.2 | 30.7 | 53.5 | 30.2 | 27.0 | 54.2 | 36.2 | 29.0 | 51.1 | 28.1 | 22.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.81 | 1.33 | 3.11 |
| Incremental Delay, d2 | 11.0 | 14.7 | 0.3 | 14.9 | 0.4 | 0.1 | 1.7 | 5.6 | 1.2 | 19.4 | 1.4 | 0.1 |
| Delay (s) | 65.8 | 53.9 | 30.9 | 68.5 | 30.5 | 27.1 | 55.9 | 41.7 | 30.2 | 60.9 | 38.9 | 69.4 |
| Level of Service | E | D | C | E | C | C | E | D | C | E | D | E |
| Approach Delay (s) | | 48.1 | | | 45.1 | | | 40.5 | | | 44.9 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 44.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 82.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

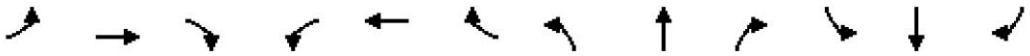
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 440 | 260 | 120 | 350 | 10 | 260 | 400 | 90 | 20 | 330 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 1590 | 1805 | 1900 | 1579 | 3502 | 1900 | 1583 | 1805 | 1864 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 1590 | 1805 | 1900 | 1579 | 3502 | 1900 | 1583 | 1805 | 1864 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 62 | 458 | 271 | 125 | 365 | 10 | 271 | 417 | 94 | 21 | 344 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 91 | 0 | 0 | 3 | 0 | 0 | 57 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 62 | 458 | 180 | 125 | 365 | 7 | 271 | 417 | 37 | 21 | 381 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.9 | 25.6 | 25.6 | 7.2 | 26.9 | 34.1 | 9.9 | 24.6 | 31.8 | 7.2 | 21.9 | |
| Effective Green, g (s) | 5.9 | 25.6 | 25.6 | 7.2 | 26.9 | 34.1 | 9.9 | 24.6 | 31.8 | 7.2 | 21.9 | |
| Actuated g/C Ratio | 0.07 | 0.32 | 0.32 | 0.09 | 0.33 | 0.42 | 0.12 | 0.31 | 0.39 | 0.09 | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 132 | 603 | 505 | 161 | 634 | 746 | 430 | 580 | 703 | 161 | 506 | |
| v/s Ratio Prot | 0.03 | c0.24 | | c0.07 | 0.19 | 0.00 | c0.08 | c0.22 | 0.00 | 0.01 | 0.20 | |
| v/s Ratio Perm | | | 0.11 | | | 0.00 | | | 0.02 | | | |
| v/c Ratio | 0.47 | 0.76 | 0.36 | 0.78 | 0.58 | 0.01 | 0.63 | 0.72 | 0.05 | 0.13 | 0.75 | |
| Uniform Delay, d1 | 35.8 | 24.7 | 21.2 | 35.9 | 22.1 | 13.5 | 33.6 | 24.9 | 15.1 | 33.8 | 26.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.6 | 5.5 | 0.4 | 20.6 | 1.3 | 0.0 | 3.0 | 4.3 | 0.0 | 0.4 | 6.3 | |
| Delay (s) | 38.5 | 30.2 | 21.6 | 56.5 | 23.4 | 13.5 | 36.6 | 29.2 | 15.1 | 34.2 | 33.1 | |
| Level of Service | D | C | C | E | C | B | D | C | B | C | C | |
| Approach Delay (s) | | 27.9 | | | 31.5 | | | 30.1 | | | 33.2 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 80.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 72.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

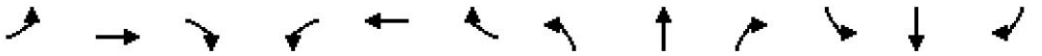
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 380 | 150 | 560 | 470 | 160 | 110 | 620 | 530 | 160 | 470 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1591 | 3502 | 3610 | 1587 | 3502 | 3610 | 2800 | 3502 | 3585 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1591 | 3502 | 3610 | 1587 | 3502 | 3610 | 2800 | 3502 | 3585 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 413 | 163 | 609 | 511 | 174 | 120 | 674 | 576 | 174 | 511 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 42 | 0 | 0 | 86 | 0 | 0 | 107 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 43 | 413 | 121 | 609 | 511 | 88 | 120 | 674 | 469 | 174 | 530 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.9 | 39.7 | 47.5 | 27.2 | 61.0 | 61.0 | 7.8 | 27.5 | 54.7 | 9.6 | 29.3 | |
| Effective Green, g (s) | 5.9 | 39.7 | 47.5 | 27.2 | 61.0 | 61.0 | 7.8 | 27.5 | 54.7 | 9.6 | 29.3 | |
| Actuated g/C Ratio | 0.05 | 0.33 | 0.40 | 0.23 | 0.51 | 0.51 | 0.06 | 0.23 | 0.46 | 0.08 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 89 | 1194 | 683 | 794 | 1835 | 807 | 228 | 827 | 1370 | 280 | 875 | |
| v/s Ratio Prot | 0.02 | c0.11 | 0.01 | c0.17 | 0.14 | | 0.03 | c0.19 | 0.08 | c0.05 | 0.15 | |
| v/s Ratio Perm | | | 0.06 | | | 0.06 | | | 0.09 | | | |
| v/c Ratio | 0.48 | 0.35 | 0.18 | 0.77 | 0.28 | 0.11 | 0.53 | 0.81 | 0.34 | 0.62 | 0.61 | |
| Uniform Delay, d1 | 55.6 | 30.3 | 23.6 | 43.4 | 16.9 | 15.4 | 54.3 | 43.8 | 21.1 | 53.4 | 40.2 | |
| Progression Factor | 1.04 | 0.71 | 0.22 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.8 | 0.7 | 0.1 | 4.5 | 0.4 | 0.3 | 2.2 | 6.2 | 0.2 | 4.2 | 1.2 | |
| Delay (s) | 61.4 | 22.3 | 5.3 | 47.9 | 17.3 | 15.6 | 56.5 | 50.0 | 21.2 | 57.7 | 41.4 | |
| Level of Service | E | C | A | D | B | B | E | D | C | E | D | |
| Approach Delay (s) | | 20.6 | | | 31.5 | | | 38.5 | | | 45.4 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

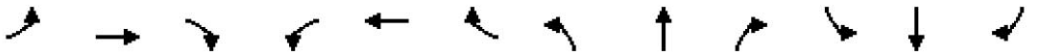
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 300 | 1260 | 150 | 100 | 1540 | 310 | 250 | 740 | 70 | 280 | 480 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1586 | 1805 | 5042 | | 3502 | 3558 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1586 | 1805 | 5042 | | 3502 | 3558 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 323 | 1355 | 161 | 108 | 1656 | 333 | 269 | 796 | 75 | 301 | 516 | 204 |
| RTOR Reduction (vph) | 0 | 0 | 60 | 0 | 24 | 0 | 0 | 6 | 0 | 0 | 0 | 143 |
| Lane Group Flow (vph) | 323 | 1355 | 101 | 108 | 1965 | 0 | 269 | 865 | 0 | 301 | 516 | 61 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 14.8 | 49.1 | 49.1 | 10.8 | 45.1 | | 8.0 | 36.1 | | 8.0 | 36.1 | 36.1 |
| Effective Green, g (s) | 14.8 | 49.1 | 49.1 | 10.8 | 45.1 | | 8.0 | 36.1 | | 8.0 | 36.1 | 36.1 |
| Actuated g/C Ratio | 0.12 | 0.41 | 0.41 | 0.09 | 0.38 | | 0.07 | 0.30 | | 0.07 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 432 | 1477 | 649 | 162 | 1895 | | 233 | 1070 | | 233 | 1086 | 478 |
| v/s Ratio Prot | c0.09 | c0.38 | | 0.06 | c0.39 | | 0.08 | c0.24 | | c0.09 | 0.14 | |
| v/s Ratio Perm | | | 0.06 | | | | | | | | | 0.04 |
| v/c Ratio | 0.75 | 0.92 | 0.16 | 0.67 | 1.04 | | 1.15 | 0.81 | | 1.29 | 0.48 | 0.13 |
| Uniform Delay, d1 | 50.8 | 33.5 | 22.4 | 52.9 | 37.5 | | 56.0 | 38.8 | | 56.0 | 34.2 | 30.5 |
| Progression Factor | 1.41 | 0.44 | 0.06 | 0.93 | 0.74 | | 0.92 | 1.01 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.5 | 8.6 | 0.4 | 7.2 | 28.0 | | 102.6 | 3.9 | | 159.5 | 0.3 | 0.1 |
| Delay (s) | 77.2 | 23.3 | 1.8 | 56.3 | 55.6 | | 154.0 | 42.9 | | 215.5 | 34.6 | 30.6 |
| Level of Service | E | C | A | E | E | | F | D | | F | C | C |
| Approach Delay (s) | | 30.9 | | | 55.7 | | | 69.1 | | | 87.1 | |
| Approach LOS | | C | | | E | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 56.0 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 91.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

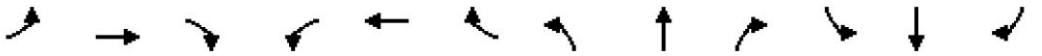
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1360 | 210 | 240 | 1540 | 190 | 330 | 530 | 170 | 160 | 200 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5187 | 1586 | 3502 | 3610 | 1589 | 1805 | 3511 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5187 | 1586 | 3502 | 3610 | 1589 | 1805 | 3511 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 84 | 1432 | 221 | 253 | 1621 | 200 | 347 | 558 | 179 | 168 | 211 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 96 | 0 | 0 | 77 | 0 | 0 | 140 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 84 | 1432 | 125 | 253 | 1621 | 123 | 347 | 558 | 39 | 168 | 236 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 11.7 | 40.9 | 40.9 | 28.2 | 57.4 | 57.4 | 11.0 | 25.9 | 25.9 | 9.0 | 23.9 | |
| Effective Green, g (s) | 11.7 | 40.9 | 40.9 | 28.2 | 57.4 | 57.4 | 11.0 | 25.9 | 25.9 | 9.0 | 23.9 | |
| Actuated g/C Ratio | 0.10 | 0.34 | 0.34 | 0.23 | 0.48 | 0.48 | 0.09 | 0.22 | 0.22 | 0.08 | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 176 | 1230 | 540 | 424 | 2481 | 759 | 321 | 779 | 343 | 135 | 699 | |
| v/s Ratio Prot | 0.05 | c0.40 | | c0.14 | c0.31 | | c0.10 | c0.15 | | 0.09 | 0.07 | |
| v/s Ratio Perm | | | 0.08 | | | 0.08 | | | 0.02 | | | |
| v/c Ratio | 0.48 | 1.16 | 0.23 | 0.60 | 0.65 | 0.16 | 1.08 | 0.72 | 0.11 | 1.24 | 0.34 | |
| Uniform Delay, d1 | 51.3 | 39.5 | 28.3 | 40.8 | 23.8 | 17.7 | 54.5 | 43.6 | 37.8 | 55.5 | 41.3 | |
| Progression Factor | 1.40 | 0.50 | 0.47 | 0.74 | 0.65 | 0.62 | 0.79 | 0.71 | 1.07 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.6 | 76.7 | 0.3 | 1.0 | 0.6 | 0.2 | 64.1 | 2.1 | 0.1 | 157.4 | 0.3 | |
| Delay (s) | 72.5 | 96.6 | 13.6 | 31.3 | 16.0 | 11.1 | 107.4 | 32.9 | 40.8 | 212.9 | 41.5 | |
| Level of Service | E | F | B | C | B | B | F | C | D | F | D | |
| Approach Delay (s) | | 84.9 | | | 17.4 | | | 58.1 | | | 109.9 | |
| Approach LOS | | F | | | B | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 55.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 90.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

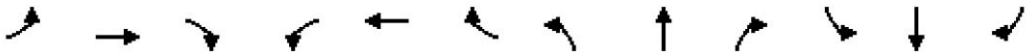
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 1340 | 110 | 50 | 1220 | 260 | 310 | 700 | 130 | 340 | 400 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1596 | 1805 | 5035 | | 1805 | 3516 | | 3502 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1596 | 1805 | 5035 | | 1805 | 3516 | | 3502 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 149 | 1426 | 117 | 53 | 1298 | 277 | 330 | 745 | 138 | 362 | 426 | 255 |
| RTOR Reduction (vph) | 0 | 0 | 41 | 0 | 27 | 0 | 0 | 13 | 0 | 0 | 0 | 20 |
| Lane Group Flow (vph) | 149 | 1426 | 76 | 53 | 1548 | 0 | 330 | 870 | 0 | 362 | 426 | 235 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 15.6 | 43.1 | 64.1 | 6.7 | 34.2 | | 21.0 | 36.8 | | 17.4 | 33.2 | 48.8 |
| Effective Green, g (s) | 15.6 | 43.1 | 64.1 | 6.7 | 34.2 | | 21.0 | 36.8 | | 17.4 | 33.2 | 48.8 |
| Actuated g/C Ratio | 0.13 | 0.36 | 0.53 | 0.06 | 0.29 | | 0.18 | 0.31 | | 0.14 | 0.28 | 0.41 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 235 | 1863 | 906 | 101 | 1435 | | 316 | 1078 | | 508 | 999 | 703 |
| v/s Ratio Prot | c0.08 | c0.27 | 0.01 | 0.03 | c0.31 | | c0.18 | c0.25 | | 0.10 | 0.12 | 0.04 |
| v/s Ratio Perm | | | 0.03 | | | | | | | | | 0.10 |
| v/c Ratio | 0.63 | 0.77 | 0.08 | 0.52 | 1.08 | | 1.04 | 0.81 | | 0.71 | 0.43 | 0.33 |
| Uniform Delay, d1 | 49.5 | 34.0 | 13.6 | 55.1 | 42.9 | | 49.5 | 38.3 | | 48.9 | 35.6 | 24.5 |
| Progression Factor | 1.54 | 0.40 | 0.05 | 0.55 | 0.99 | | 1.02 | 0.65 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 0.3 | 0.0 | 3.1 | 44.2 | | 55.3 | 3.3 | | 4.7 | 0.3 | 0.3 |
| Delay (s) | 76.8 | 13.9 | 0.7 | 33.2 | 86.6 | | 105.8 | 28.4 | | 53.6 | 35.9 | 24.7 |
| Level of Service | E | B | A | C | F | | F | C | | D | D | C |
| Approach Delay (s) | | 18.5 | | | 84.8 | | | 49.4 | | | 39.3 | |
| Approach LOS | | B | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 85.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

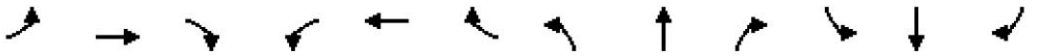
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 440 | 860 | 440 | 190 | 690 | 120 | 520 | 790 | 90 | 200 | 770 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1587 | 1805 | 5058 | | 3502 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1587 | 1805 | 5058 | | 3502 | 3610 | 1589 | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 454 | 887 | 454 | 196 | 711 | 124 | 536 | 814 | 93 | 206 | 794 | 196 |
| RTOR Reduction (vph) | 0 | 0 | 172 | 0 | 20 | 0 | 0 | 0 | 66 | 0 | 0 | 141 |
| Lane Group Flow (vph) | 454 | 887 | 282 | 196 | 815 | 0 | 536 | 814 | 27 | 206 | 794 | 55 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 19.6 | 42.0 | 42.0 | 13.6 | 36.0 | | 15.0 | 35.4 | 35.4 | 13.0 | 33.4 | 33.4 |
| Effective Green, g (s) | 19.6 | 42.0 | 42.0 | 13.6 | 36.0 | | 15.0 | 35.4 | 35.4 | 13.0 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.16 | 0.35 | 0.35 | 0.11 | 0.30 | | 0.12 | 0.29 | 0.29 | 0.11 | 0.28 | 0.28 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 572 | 1264 | 555 | 205 | 1517 | | 438 | 1065 | 469 | 196 | 1005 | 442 |
| v/s Ratio Prot | c0.13 | c0.25 | | c0.11 | 0.16 | | c0.15 | c0.23 | | 0.11 | 0.22 | |
| v/s Ratio Perm | | | 0.18 | | | | | | 0.02 | | | 0.03 |
| v/c Ratio | 0.79 | 0.70 | 0.51 | 0.96 | 0.54 | | 1.22 | 0.76 | 0.06 | 1.05 | 0.79 | 0.12 |
| Uniform Delay, d1 | 48.3 | 33.6 | 30.8 | 52.9 | 35.0 | | 52.5 | 38.5 | 30.3 | 53.5 | 40.1 | 32.4 |
| Progression Factor | 1.50 | 0.44 | 0.07 | 0.97 | 0.72 | | 1.27 | 0.42 | 0.20 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.8 | 1.2 | 1.2 | 48.8 | 1.3 | | 113.6 | 2.2 | 0.0 | 78.4 | 4.3 | 0.1 |
| Delay (s) | 75.2 | 16.0 | 3.2 | 100.1 | 26.4 | | 180.4 | 18.5 | 6.1 | 131.9 | 44.4 | 32.5 |
| Level of Service | E | B | A | F | C | | F | B | A | F | D | C |
| Approach Delay (s) | | 27.7 | | | 40.4 | | | 77.8 | | | 57.5 | |
| Approach LOS | | C | | | D | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 49.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 91.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

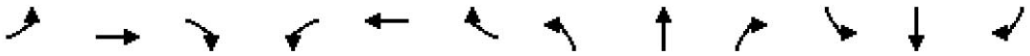
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 1790 | 650 | 40 | 960 | 120 | 1520 | 730 | 120 | 220 | 210 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.88 | 1.00 | 0.91 | | 0.94 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 2793 | 1805 | 5091 | | 5090 | 3525 | | 1805 | 3610 | 1597 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 2793 | 1805 | 5091 | | 5090 | 3525 | | 1805 | 3610 | 1597 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 115 | 1865 | 677 | 42 | 1000 | 125 | 1583 | 760 | 125 | 229 | 219 | 115 |
| RTOR Reduction (vph) | 0 | 0 | 274 | 0 | 13 | 0 | 0 | 11 | 0 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 115 | 1865 | 403 | 42 | 1112 | 0 | 1583 | 874 | 0 | 229 | 219 | 105 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 7.0 | 41.4 | 41.4 | 5.6 | 40.0 | | 44.4 | 35.3 | | 21.7 | 12.6 | 19.6 |
| Effective Green, g (s) | 7.0 | 41.4 | 41.4 | 5.6 | 40.0 | | 44.4 | 35.3 | | 21.7 | 12.6 | 19.6 |
| Actuated g/C Ratio | 0.06 | 0.34 | 0.34 | 0.05 | 0.33 | | 0.37 | 0.29 | | 0.18 | 0.10 | 0.16 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 1790 | 964 | 84 | 1697 | | 1883 | 1037 | | 326 | 379 | 261 |
| v/s Ratio Prot | c0.06 | c0.36 | | 0.02 | 0.22 | | c0.31 | c0.25 | | 0.13 | 0.06 | 0.02 |
| v/s Ratio Perm | | | 0.14 | | | | | | | | | 0.04 |
| v/c Ratio | 1.10 | 1.04 | 0.42 | 0.50 | 0.66 | | 0.84 | 0.84 | | 0.70 | 0.58 | 0.40 |
| Uniform Delay, d1 | 56.5 | 39.3 | 30.1 | 55.8 | 34.1 | | 34.6 | 39.7 | | 46.1 | 51.2 | 45.0 |
| Progression Factor | 1.26 | 0.56 | 0.39 | 0.89 | 0.91 | | 1.00 | 1.00 | | 1.02 | 1.23 | 1.22 |
| Incremental Delay, d2 | 108.5 | 31.5 | 1.1 | 3.6 | 1.5 | | 3.6 | 6.3 | | 6.3 | 2.0 | 0.9 |
| Delay (s) | 179.6 | 53.5 | 12.8 | 53.1 | 32.6 | | 38.1 | 46.1 | | 53.4 | 64.7 | 55.6 |
| Level of Service | F | D | B | D | C | | D | D | | D | E | E |
| Approach Delay (s) | | 48.5 | | | 33.3 | | | 41.0 | | | 58.3 | |
| Approach LOS | | D | | | C | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 44.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 92.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

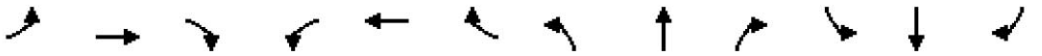
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 1410 | 50 | 10 | 1950 | 60 | 110 | 50 | 20 | 10 | 10 | 270 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 5155 | | 1805 | 3610 | 1585 | 1800 | 1810 | | 1798 | 1599 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.19 | 1.00 | | 0.70 | 1.00 | |
| Satd. Flow (perm) | 3502 | 5155 | | 1805 | 3610 | 1585 | 355 | 1810 | | 1333 | 1599 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 289 | 1454 | 52 | 10 | 2010 | 62 | 113 | 52 | 21 | 10 | 10 | 278 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 16 | 0 | 0 | 165 | 0 |
| Lane Group Flow (vph) | 289 | 1504 | 0 | 10 | 2010 | 58 | 113 | 57 | 0 | 10 | 123 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.1 | 84.8 | | 1.5 | 71.2 | 71.2 | 21.7 | 21.7 | | 21.7 | 21.7 | |
| Effective Green, g (s) | 15.1 | 84.8 | | 1.5 | 71.2 | 71.2 | 21.7 | 21.7 | | 21.7 | 21.7 | |
| Actuated g/C Ratio | 0.13 | 0.71 | | 0.01 | 0.59 | 0.59 | 0.18 | 0.18 | | 0.18 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 441 | 3643 | | 23 | 2142 | 940 | 64 | 327 | | 241 | 289 | |
| v/s Ratio Prot | c0.08 | 0.29 | | 0.01 | c0.56 | | | 0.03 | | | 0.08 | |
| v/s Ratio Perm | | | | | | 0.04 | c0.32 | | | 0.01 | | |
| v/c Ratio | 0.66 | 0.41 | | 0.43 | 0.94 | 0.06 | 1.77 | 0.18 | | 0.04 | 0.43 | |
| Uniform Delay, d1 | 50.0 | 7.3 | | 58.8 | 22.4 | 10.3 | 49.1 | 41.6 | | 40.6 | 43.6 | |
| Progression Factor | 0.86 | 1.60 | | 1.05 | 0.73 | 0.30 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.7 | 0.2 | | 5.6 | 4.7 | 0.1 | 400.3 | 0.3 | | 0.1 | 1.0 | |
| Delay (s) | 44.9 | 11.9 | | 67.4 | 21.0 | 3.2 | 449.5 | 41.8 | | 40.6 | 44.6 | |
| Level of Service | D | B | | E | C | A | F | D | | D | D | |
| Approach Delay (s) | | 17.2 | | | 20.7 | | | 289.5 | | | 44.5 | |
| Approach LOS | | B | | | C | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 1.06 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 101.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

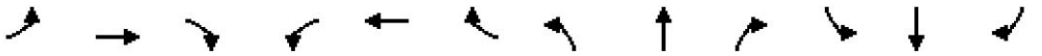
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1830 | 40 | 40 | 1810 | 110 | 980 | 190 | 240 | 140 | 50 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.86 | 1.00 | 1.00 | 0.86 | 1.00 | 0.94 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 6536 | 1585 | 1805 | 6536 | 1564 | 5090 | 1900 | 1588 | 1715 | 1763 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | 1.00 |
| Satd. Flow (perm) | 1805 | 6536 | 1585 | 1805 | 6536 | 1564 | 5090 | 1900 | 1588 | 1715 | 1763 | 1587 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 196 | 1887 | 41 | 41 | 1866 | 113 | 1010 | 196 | 247 | 144 | 52 | 268 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 0 | 61 | 0 | 0 | 176 | 0 | 0 | 97 |
| Lane Group Flow (vph) | 196 | 1887 | 21 | 41 | 1866 | 52 | 1010 | 196 | 71 | 96 | 100 | 171 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | Perm | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 24.9 | 44.1 | 44.1 | 7.1 | 26.3 | 26.3 | 34.5 | 34.5 | 34.5 | 18.3 | 18.3 | 18.3 |
| Effective Green, g (s) | 24.9 | 44.1 | 44.1 | 7.1 | 26.3 | 26.3 | 34.5 | 34.5 | 34.5 | 18.3 | 18.3 | 18.3 |
| Actuated g/C Ratio | 0.21 | 0.37 | 0.37 | 0.06 | 0.22 | 0.22 | 0.29 | 0.29 | 0.29 | 0.15 | 0.15 | 0.15 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 375 | 2402 | 582 | 107 | 1432 | 343 | 1463 | 546 | 457 | 262 | 269 | 242 |
| v/s Ratio Prot | c0.11 | c0.29 | | 0.02 | c0.29 | | c0.20 | 0.10 | | 0.06 | 0.06 | |
| v/s Ratio Perm | | | 0.01 | | | 0.03 | | | 0.04 | | | c0.11 |
| v/c Ratio | 0.52 | 0.79 | 0.04 | 0.38 | 1.30 | 0.15 | 0.69 | 0.36 | 0.16 | 0.37 | 0.37 | 0.70 |
| Uniform Delay, d1 | 42.3 | 33.7 | 24.3 | 54.3 | 46.9 | 37.8 | 38.0 | 34.0 | 31.9 | 45.6 | 45.7 | 48.3 |
| Progression Factor | 0.69 | 1.12 | 1.19 | 1.20 | 0.68 | 0.45 | 1.00 | 1.00 | 1.00 | 0.77 | 0.78 | 0.71 |
| Incremental Delay, d2 | 0.9 | 1.8 | 0.1 | 1.1 | 138.8 | 0.4 | 1.4 | 0.4 | 0.2 | 0.8 | 0.8 | 8.4 |
| Delay (s) | 29.9 | 39.7 | 28.9 | 66.5 | 170.6 | 17.3 | 39.4 | 34.4 | 32.0 | 36.1 | 36.3 | 42.7 |
| Level of Service | C | D | C | E | F | B | D | C | C | D | D | D |
| Approach Delay (s) | | 38.6 | | | 160.0 | | | 37.5 | | | 40.0 | |
| Approach LOS | | D | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 78.9 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 79.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

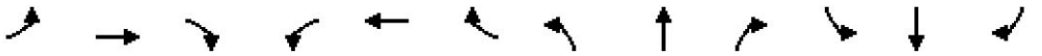
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 1820 | 200 | 20 | 2290 | 140 | 220 | 50 | 20 | 170 | 230 | 390 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2796 | 3502 | 3610 | 1606 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2796 | 3502 | 3610 | 1606 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 144 | 1876 | 206 | 21 | 2361 | 144 | 227 | 52 | 21 | 175 | 237 | 402 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 0 | 27 | 0 | 0 | 13 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 144 | 1876 | 157 | 21 | 2361 | 117 | 227 | 52 | 8 | 175 | 237 | 401 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 22.9 | 69.9 | 69.9 | 4.2 | 51.2 | 51.2 | 16.6 | 16.7 | 20.9 | 13.2 | 13.3 | 36.2 |
| Effective Green, g (s) | 22.9 | 69.9 | 69.9 | 4.2 | 51.2 | 51.2 | 16.6 | 16.7 | 20.9 | 13.2 | 13.3 | 36.2 |
| Actuated g/C Ratio | 0.19 | 0.58 | 0.58 | 0.04 | 0.43 | 0.43 | 0.14 | 0.14 | 0.17 | 0.11 | 0.11 | 0.30 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 344 | 3021 | 941 | 123 | 2213 | 678 | 484 | 502 | 580 | 385 | 400 | 484 |
| v/s Ratio Prot | 0.08 | 0.36 | | 0.01 | c0.46 | | c0.06 | 0.01 | 0.00 | 0.05 | 0.07 | c0.16 |
| v/s Ratio Perm | | | 0.10 | | | 0.07 | | | 0.00 | | | 0.09 |
| v/c Ratio | 0.42 | 0.62 | 0.17 | 0.17 | 1.07 | 0.17 | 0.47 | 0.10 | 0.01 | 0.45 | 0.59 | 0.83 |
| Uniform Delay, d1 | 42.7 | 16.4 | 11.6 | 56.2 | 34.4 | 21.3 | 47.6 | 45.1 | 41.0 | 50.0 | 50.8 | 39.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.21 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | 1.0 | 0.4 | 0.6 | 38.6 | 0.5 | 0.7 | 0.1 | 0.0 | 0.9 | 2.4 | 11.2 |
| Delay (s) | 43.5 | 17.4 | 12.0 | 55.7 | 72.9 | 26.3 | 48.4 | 45.2 | 41.0 | 50.9 | 53.1 | 50.2 |
| Level of Service | D | B | B | E | E | C | D | D | D | D | D | D |
| Approach Delay (s) | | 18.5 | | | 70.1 | | | 47.3 | | | 51.2 | |
| Approach LOS | | B | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 46.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 85.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

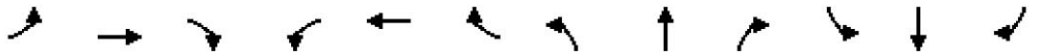
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 1470 | 790 | 340 | 690 | 100 | 380 | 200 | 250 | 200 | 380 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1595 | 3502 | 3610 | 1590 | 3502 | 3610 | 2799 | 3502 | 3610 | 1604 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1595 | 3502 | 3610 | 1590 | 3502 | 3610 | 2799 | 3502 | 3610 | 1604 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 236 | 1652 | 888 | 382 | 775 | 112 | 427 | 225 | 281 | 225 | 427 | 292 |
| RTOR Reduction (vph) | 0 | 0 | 100 | 0 | 0 | 68 | 0 | 0 | 231 | 0 | 0 | 33 |
| Lane Group Flow (vph) | 236 | 1652 | 788 | 382 | 775 | 44 | 427 | 225 | 50 | 225 | 427 | 259 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 18.8 | 40.3 | 49.8 | 16.5 | 38.0 | 38.0 | 9.5 | 17.2 | 17.2 | 7.4 | 15.1 | 33.9 |
| Effective Green, g (s) | 18.8 | 40.3 | 49.8 | 16.5 | 38.0 | 38.0 | 9.5 | 17.2 | 17.2 | 7.4 | 15.1 | 33.9 |
| Actuated g/C Ratio | 0.19 | 0.41 | 0.51 | 0.17 | 0.39 | 0.39 | 0.10 | 0.18 | 0.18 | 0.08 | 0.16 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 348 | 2146 | 881 | 593 | 1408 | 620 | 342 | 637 | 494 | 266 | 560 | 624 |
| v/s Ratio Prot | c0.13 | 0.32 | c0.09 | 0.11 | 0.21 | | c0.12 | 0.06 | | 0.06 | c0.12 | 0.08 |
| v/s Ratio Perm | | | 0.41 | | | 0.03 | | | 0.02 | | | 0.08 |
| v/c Ratio | 0.68 | 0.77 | 0.89 | 0.64 | 0.55 | 0.07 | 1.25 | 0.35 | 0.10 | 0.85 | 0.76 | 0.42 |
| Uniform Delay, d1 | 36.5 | 24.6 | 21.4 | 37.7 | 23.1 | 18.6 | 44.0 | 35.2 | 33.6 | 44.4 | 39.4 | 24.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.2 | 1.7 | 11.5 | 2.4 | 0.5 | 0.0 | 133.9 | 0.3 | 0.1 | 21.2 | 6.1 | 0.5 |
| Delay (s) | 41.7 | 26.3 | 32.9 | 40.1 | 23.5 | 18.7 | 177.9 | 35.6 | 33.7 | 65.6 | 45.5 | 24.7 |
| Level of Service | D | C | C | D | C | B | F | D | C | E | D | C |
| Approach Delay (s) | | 29.7 | | | 28.1 | | | 100.1 | | | 43.9 | |
| Approach LOS | | C | | | C | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 97.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 83.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

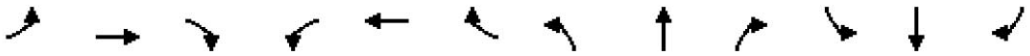
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 1300 | 40 | 480 | 1290 | 60 | 30 | 180 | 500 | 50 | 320 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3592 | | 3502 | 3610 | 1569 | 1805 | 1900 | 1596 | 1805 | 1900 | 1587 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3592 | | 3502 | 3610 | 1569 | 1805 | 1900 | 1596 | 1805 | 1900 | 1587 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 106 | 1383 | 43 | 511 | 1372 | 64 | 32 | 191 | 532 | 53 | 340 | 85 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 13 | 0 | 0 | 30 | 0 | 0 | 51 |
| Lane Group Flow (vph) | 106 | 1424 | 0 | 511 | 1372 | 51 | 32 | 191 | 502 | 53 | 340 | 34 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.9 | 45.0 | | 17.0 | 53.1 | 53.1 | 4.2 | 36.4 | 53.4 | 5.6 | 37.8 | 37.8 |
| Effective Green, g (s) | 8.9 | 45.0 | | 17.0 | 53.1 | 53.1 | 4.2 | 36.4 | 53.4 | 5.6 | 37.8 | 37.8 |
| Actuated g/C Ratio | 0.07 | 0.38 | | 0.14 | 0.44 | 0.44 | 0.04 | 0.30 | 0.44 | 0.05 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 134 | 1347 | | 496 | 1597 | 694 | 63 | 576 | 710 | 84 | 599 | 500 |
| v/s Ratio Prot | 0.06 | c0.40 | | c0.15 | 0.38 | | 0.02 | 0.10 | c0.10 | 0.03 | c0.18 | |
| v/s Ratio Perm | | | | | | 0.03 | | | 0.21 | | | 0.02 |
| v/c Ratio | 0.79 | 1.06 | | 1.03 | 0.86 | 0.07 | 0.51 | 0.33 | 0.71 | 0.63 | 0.57 | 0.07 |
| Uniform Delay, d1 | 54.6 | 37.5 | | 51.5 | 30.1 | 19.3 | 56.9 | 32.4 | 27.0 | 56.2 | 34.3 | 28.8 |
| Progression Factor | 1.36 | 0.63 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 22.4 | 39.1 | | 48.4 | 4.9 | 0.0 | 6.3 | 1.5 | 3.2 | 14.4 | 3.9 | 0.3 |
| Delay (s) | 96.6 | 62.7 | | 99.9 | 34.9 | 19.3 | 63.2 | 33.9 | 30.2 | 70.6 | 38.2 | 29.0 |
| Level of Service | F | E | | F | C | B | E | C | C | E | D | C |
| Approach Delay (s) | | 65.0 | | | 51.5 | | | 32.5 | | | 40.1 | |
| Approach LOS | | E | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 98.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

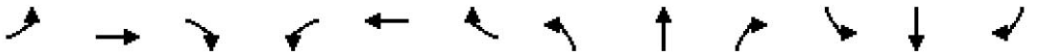
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 690 | 1060 | 580 | 880 | 450 | 940 | 1270 | 280 | 500 | 1630 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.88 | 0.94 | 0.91 | 1.00 | 0.94 | 0.91 | 1.00 | 0.94 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 2819 | 5090 | 5187 | 1596 | 5090 | 5187 | 1592 | 5090 | 5187 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 2819 | 5090 | 5187 | 1596 | 5090 | 5187 | 1592 | 5090 | 5187 | 1587 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 43 | 750 | 1152 | 630 | 957 | 489 | 1022 | 1380 | 304 | 543 | 1772 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 10 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 43 | 750 | 1152 | 630 | 957 | 454 | 1022 | 1380 | 294 | 543 | 1772 | 18 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 6.0 | 24.3 | 48.4 | 13.0 | 31.3 | 46.9 | 24.1 | 48.5 | 61.5 | 15.6 | 40.0 | 40.0 |
| Effective Green, g (s) | 6.0 | 24.3 | 48.4 | 13.0 | 31.3 | 46.9 | 24.1 | 48.5 | 61.5 | 15.6 | 40.0 | 40.0 |
| Actuated g/C Ratio | 0.05 | 0.21 | 0.41 | 0.11 | 0.27 | 0.40 | 0.21 | 0.41 | 0.52 | 0.13 | 0.34 | 0.34 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 92 | 1074 | 1162 | 564 | 1383 | 638 | 1045 | 2143 | 888 | 676 | 1767 | 541 |
| v/s Ratio Prot | 0.02 | 0.14 | c0.20 | c0.12 | 0.18 | 0.09 | 0.20 | 0.27 | 0.04 | 0.11 | c0.34 | |
| v/s Ratio Perm | | | 0.21 | | | 0.19 | | | 0.15 | | | 0.01 |
| v/c Ratio | 0.47 | 0.70 | 0.99 | 1.12 | 0.69 | 0.71 | 0.98 | 0.64 | 0.33 | 0.80 | 1.00 | 0.03 |
| Uniform Delay, d1 | 54.1 | 43.2 | 34.3 | 52.2 | 38.7 | 29.6 | 46.4 | 27.5 | 16.1 | 49.4 | 38.7 | 25.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.7 | 2.0 | 24.2 | 74.3 | 1.5 | 3.8 | 22.4 | 0.7 | 0.2 | 6.9 | 22.1 | 0.0 |
| Delay (s) | 57.9 | 45.2 | 58.5 | 126.5 | 40.2 | 33.3 | 68.8 | 28.2 | 16.3 | 56.3 | 60.8 | 25.8 |
| Level of Service | E | D | E | F | D | C | E | C | B | E | E | C |
| Approach Delay (s) | | 53.3 | | | 64.8 | | | 42.2 | | | 59.3 | |
| Approach LOS | | D | | | E | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.01 | | |
| Actuated Cycle Length (s) | 117.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 90.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

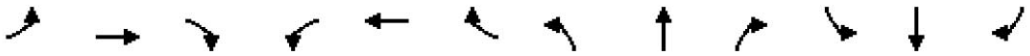
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 660 | 990 | 300 | 20 | 450 | 150 | 170 | 350 | 20 | 330 | 400 | 430 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 0.88 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 5187 | 1586 | 3502 | 3578 | | 3502 | 3610 | 2794 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 5187 | 1586 | 3502 | 3578 | | 3502 | 3610 | 2794 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 767 | 1151 | 349 | 23 | 523 | 174 | 198 | 407 | 23 | 384 | 465 | 500 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 133 | 0 | 4 | 0 | 0 | 0 | 350 |
| Lane Group Flow (vph) | 767 | 1151 | 349 | 23 | 523 | 41 | 198 | 426 | 0 | 384 | 465 | 150 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 23.0 | 46.6 | 110.0 | 2.4 | 26.0 | 26.0 | 8.0 | 29.0 | | 12.0 | 33.0 | 33.0 |
| Effective Green, g (s) | 23.0 | 46.6 | 110.0 | 2.4 | 26.0 | 26.0 | 8.0 | 29.0 | | 12.0 | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.21 | 0.42 | 1.00 | 0.02 | 0.24 | 0.24 | 0.07 | 0.26 | | 0.11 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 732 | 2197 | 1593 | 39 | 1226 | 375 | 255 | 943 | | 382 | 1083 | 838 |
| v/s Ratio Prot | c0.22 | c0.22 | | 0.01 | 0.10 | | 0.06 | 0.12 | | c0.11 | c0.13 | |
| v/s Ratio Perm | | | c0.22 | | | 0.03 | | | | | | 0.05 |
| v/c Ratio | 1.05 | 0.52 | 0.22 | 0.59 | 0.43 | 0.11 | 0.78 | 0.45 | | 1.01 | 0.43 | 0.18 |
| Uniform Delay, d1 | 43.5 | 23.5 | 0.0 | 53.3 | 35.7 | 32.9 | 50.1 | 33.9 | | 49.0 | 30.9 | 28.5 |
| Progression Factor | 0.81 | 0.75 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 45.5 | 0.8 | 0.3 | 20.8 | 1.1 | 0.6 | 13.8 | 1.6 | | 47.4 | 1.2 | 0.5 |
| Delay (s) | 80.5 | 18.4 | 0.3 | 74.1 | 36.8 | 33.5 | 63.9 | 35.4 | | 96.4 | 32.2 | 28.9 |
| Level of Service | F | B | A | E | D | C | E | D | | F | C | C |
| Approach Delay (s) | | 36.6 | | | 37.2 | | | 44.4 | | | 49.3 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 90.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

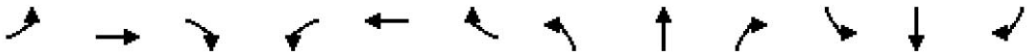
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 240 | 70 | 10 | 180 | 30 | 50 | 190 | 30 | 60 | 260 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3473 | | 1805 | 3524 | | 1804 | 3529 | | 1802 | 3323 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.37 | 1.00 | | 0.58 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3473 | | 1805 | 3524 | | 693 | 3529 | | 1100 | 3323 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 302 | 279 | 81 | 12 | 209 | 35 | 58 | 221 | 35 | 70 | 302 | 279 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 15 | 0 | 0 | 9 | 0 | 0 | 117 | 0 |
| Lane Group Flow (vph) | 302 | 331 | 0 | 12 | 229 | 0 | 58 | 247 | 0 | 70 | 464 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | pm+pt | | | pm+pt | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 21.9 | 36.3 | | 1.2 | 15.6 | | 56.2 | 50.2 | | 56.8 | 50.5 | |
| Effective Green, g (s) | 21.9 | 36.3 | | 1.2 | 15.6 | | 56.2 | 50.2 | | 56.8 | 50.5 | |
| Actuated g/C Ratio | 0.20 | 0.33 | | 0.01 | 0.14 | | 0.51 | 0.46 | | 0.52 | 0.46 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 359 | 1146 | | 20 | 500 | | 415 | 1611 | | 608 | 1526 | |
| v/s Ratio Prot | c0.17 | 0.10 | | 0.01 | c0.07 | | c0.01 | 0.07 | | 0.01 | c0.14 | |
| v/s Ratio Perm | | | | | | | 0.06 | | | 0.05 | | |
| v/c Ratio | 0.84 | 0.29 | | 0.60 | 0.46 | | 0.14 | 0.15 | | 0.12 | 0.30 | |
| Uniform Delay, d1 | 42.4 | 27.3 | | 54.2 | 43.3 | | 13.9 | 17.5 | | 13.4 | 18.7 | |
| Progression Factor | 0.83 | 0.78 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.78 | 0.53 | |
| Incremental Delay, d2 | 15.2 | 0.1 | | 40.2 | 0.7 | | 0.2 | 0.2 | | 0.1 | 0.5 | |
| Delay (s) | 50.5 | 21.3 | | 94.3 | 44.0 | | 14.1 | 17.7 | | 10.5 | 10.4 | |
| Level of Service | D | C | | F | D | | B | B | | B | B | |
| Approach Delay (s) | | 34.6 | | | 46.4 | | | 17.0 | | | 10.4 | |
| Approach LOS | | C | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 60 | 330 | 70 | 30 | 60 | 290 | 920 | 100 | 100 | 1140 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | 4.9 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1798 | 1900 | 1579 | 1799 | 1900 | 1586 | 1805 | 3610 | 1584 | 1805 | 3599 | |
| Flt Permitted | 0.73 | 1.00 | 1.00 | 0.67 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1386 | 1900 | 1579 | 1276 | 1900 | 1586 | 1805 | 3610 | 1584 | 1805 | 3599 | |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 38 | 75 | 412 | 88 | 38 | 75 | 362 | 1150 | 125 | 125 | 1425 | 25 |
| RTOR Reduction (vph) | 0 | 0 | 275 | 0 | 0 | 64 | 0 | 0 | 56 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 38 | 75 | 137 | 88 | 38 | 11 | 362 | 1150 | 69 | 125 | 1449 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 18.1 | 15.7 | 15.7 | 19.7 | 16.5 | 16.5 | 30.4 | 61.0 | 61.0 | 11.9 | 42.5 | |
| Effective Green, g (s) | 18.1 | 15.7 | 15.7 | 19.7 | 16.5 | 16.5 | 30.4 | 61.0 | 61.0 | 11.9 | 42.5 | |
| Actuated g/C Ratio | 0.16 | 0.14 | 0.14 | 0.18 | 0.15 | 0.15 | 0.28 | 0.55 | 0.55 | 0.11 | 0.39 | |
| Clearance Time (s) | 4.0 | 4.9 | 4.9 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 237 | 271 | 225 | 244 | 285 | 238 | 499 | 2002 | 878 | 195 | 1391 | |
| v/s Ratio Prot | 0.00 | 0.04 | | c0.01 | 0.02 | | c0.20 | 0.32 | | 0.07 | c0.40 | |
| v/s Ratio Perm | 0.02 | | c0.09 | 0.05 | | 0.01 | | | 0.04 | | | |
| v/c Ratio | 0.16 | 0.28 | 0.61 | 0.36 | 0.13 | 0.05 | 0.73 | 0.57 | 0.08 | 0.64 | 1.04 | |
| Uniform Delay, d1 | 39.2 | 42.1 | 44.3 | 39.3 | 40.5 | 40.0 | 36.0 | 16.0 | 11.4 | 47.0 | 33.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.09 | 0.81 | 0.65 | 1.16 | 0.73 | |
| Incremental Delay, d2 | 0.3 | 0.6 | 4.6 | 0.9 | 0.2 | 0.1 | 5.2 | 1.2 | 0.2 | 5.4 | 32.9 | |
| Delay (s) | 39.5 | 42.6 | 48.9 | 40.2 | 40.8 | 40.1 | 44.5 | 14.2 | 7.6 | 59.8 | 57.5 | |
| Level of Service | D | D | D | D | D | D | D | B | A | E | E | |
| Approach Delay (s) | | 47.3 | | | 40.3 | | | 20.4 | | | 57.7 | |
| Approach LOS | | D | | | D | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 18.2 |
| Intersection Capacity Utilization | 72.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

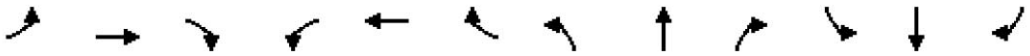
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 40 | 30 | 10 | 390 | 960 | 170 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 42 | 31 | 10 | 406 | 1000 | 177 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | TWLTL | |
| Median storage veh) | | | | | 2 | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1229 | 505 | 1177 | | | |
| vC1, stage 1 conf vol | 1000 | | | | | |
| vC2, stage 2 conf vol | 229 | | | | | |
| vCu, unblocked vol | 1229 | 505 | 1177 | | | |
| tC, single (s) | 6.8 | 6.9 | 4.1 | | | |
| tC, 2 stage (s) | 5.8 | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 86 | 94 | 98 | | | |
| cM capacity (veh/h) | 306 | 516 | 601 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 73 | 10 | 203 | 203 | 500 | 500 | 177 |
| Volume Left | 42 | 10 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 31 | 0 | 0 | 0 | 0 | 0 | 177 |
| cSH | 371 | 601 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.20 | 0.02 | 0.12 | 0.12 | 0.29 | 0.29 | 0.10 |
| Queue Length 95th (ft) | 18 | 1 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 17.1 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | C | B | | | | | |
| Approach Delay (s) | 17.1 | 0.3 | | | 0.0 | | |
| Approach LOS | C | | | | | | |

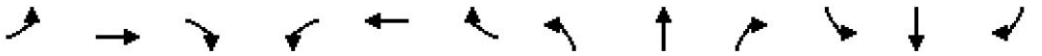
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.8 | | |
| Intersection Capacity Utilization | 37.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 730 | 0 | 0 | 210 | 450 | 180 | 30 | 30 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 1900 | | | 1900 | 1615 | | 1822 | 1615 | | | |
| Flt Permitted | 0.62 | 1.00 | | | 1.00 | 1.00 | | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1184 | 1900 | | | 1900 | 1615 | | 1822 | 1615 | | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 52 | 753 | 0 | 0 | 216 | 464 | 186 | 31 | 31 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 186 | 0 | 0 | 25 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 52 | 753 | 0 | 0 | 216 | 278 | 0 | 217 | 6 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | Perm | | | | | Perm | Perm | | Prot | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | 2 | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | | | | |
| Actuated Green, G (s) | 24.3 | 24.3 | | | 24.3 | 24.3 | | 8.3 | 8.3 | | | |
| Effective Green, g (s) | 24.3 | 24.3 | | | 24.3 | 24.3 | | 8.3 | 8.3 | | | |
| Actuated g/C Ratio | 0.60 | 0.60 | | | 0.60 | 0.60 | | 0.20 | 0.20 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 709 | 1137 | | | 1137 | 967 | | 372 | 330 | | | |
| v/s Ratio Prot | | c0.40 | | | 0.11 | | | | 0.00 | | | |
| v/s Ratio Perm | 0.04 | | | | | 0.17 | | 0.12 | | | | |
| v/c Ratio | 0.07 | 0.66 | | | 0.19 | 0.29 | | 0.58 | 0.02 | | | |
| Uniform Delay, d1 | 3.4 | 5.4 | | | 3.7 | 4.0 | | 14.6 | 12.9 | | | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 0.0 | 1.5 | | | 0.1 | 0.2 | | 2.3 | 0.0 | | | |
| Delay (s) | 3.5 | 6.9 | | | 3.8 | 4.1 | | 16.9 | 12.9 | | | |
| Level of Service | A | A | | | A | A | | B | B | | | |
| Approach Delay (s) | | 6.7 | | | 4.0 | | | 16.4 | | | 0.0 | |
| Approach LOS | | A | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 40.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

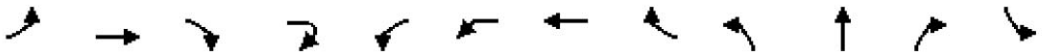
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 540 | 470 | 10 | 390 | 0 | 0 | 0 | 0 | 220 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1900 | 1615 | 1805 | 1900 | | | | | | 1813 | 1615 |
| Flt Permitted | | 1.00 | 1.00 | 0.37 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1900 | 1615 | 707 | 1900 | | | | | | 1813 | 1615 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 562 | 490 | 10 | 406 | 0 | 0 | 0 | 0 | 229 | 10 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 225 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Lane Group Flow (vph) | 0 | 562 | 265 | 10 | 406 | 0 | 0 | 0 | 0 | 0 | 239 | 2 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | | | Perm | Perm | | | | | | Perm | | Prot |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | 6 |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 19.5 | 19.5 | 19.5 | 19.5 | | | | | | 8.5 | 8.5 |
| Effective Green, g (s) | | 19.5 | 19.5 | 19.5 | 19.5 | | | | | | 8.5 | 8.5 |
| Actuated g/C Ratio | | 0.54 | 0.54 | 0.54 | 0.54 | | | | | | 0.24 | 0.24 |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 1029 | 875 | 383 | 1029 | | | | | | 428 | 381 |
| v/s Ratio Prot | | c0.30 | | | 0.21 | | | | | | | 0.00 |
| v/s Ratio Perm | | | 0.16 | 0.01 | | | | | | | 0.13 | |
| v/c Ratio | | 0.55 | 0.30 | 0.03 | 0.39 | | | | | | 0.56 | 0.01 |
| Uniform Delay, d1 | | 5.4 | 4.5 | 3.8 | 4.8 | | | | | | 12.1 | 10.5 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.6 | 0.2 | 0.0 | 0.3 | | | | | | 1.6 | 0.0 |
| Delay (s) | | 6.0 | 4.7 | 3.9 | 5.1 | | | | | | 13.7 | 10.5 |
| Level of Service | | A | A | A | A | | | | | | B | B |
| Approach Delay (s) | | 5.4 | | | 5.0 | | | 0.0 | | | 13.6 | |
| Approach LOS | | A | | | A | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 36.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



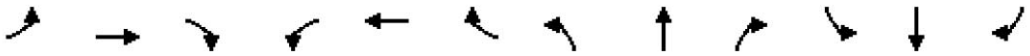
| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL | NBT | NBR | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 290 | 150 | 10 | 30 | 10 | 380 | 40 | 410 | 200 | 60 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Frt | 1.00 | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1799 | 1900 | 1571 | | | 1798 | 1634 | 1351 | 1800 | 1823 | | |
| Flt Permitted | 0.27 | 1.00 | 1.00 | | | 0.40 | 1.00 | 1.00 | 0.62 | 1.00 | | |
| Satd. Flow (perm) | 521 | 1900 | 1571 | | | 766 | 1634 | 1351 | 1167 | 1823 | | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 32 | 312 | 161 | 11 | 32 | 11 | 409 | 43 | 441 | 215 | 65 | 129 |
| RTOR Reduction (vph) | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 16 | 0 | 9 | 0 | 0 |
| Lane Group Flow (vph) | 32 | 312 | 170 | 0 | 0 | 43 | 409 | 27 | 441 | 271 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | 5 | | | 5 | 5 | | 5 | 5 |
| Parking (#/hr) | | | | | | | 8 | 8 | | | | |
| Turn Type | Perm | | Perm | | Perm | Perm | | Perm | Perm | | | Perm |
| Protected Phases | | 4 | | | | | 8 | | | 2 | | |
| Permitted Phases | 4 | | 4 | | 8 | 8 | | 8 | 2 | | | 6 |
| Actuated Green, G (s) | 24.4 | 24.4 | 24.4 | | | 24.4 | 24.4 | 24.4 | 36.6 | 36.6 | | |
| Effective Green, g (s) | 24.4 | 24.4 | 24.4 | | | 24.4 | 24.4 | 24.4 | 36.6 | 36.6 | | |
| Actuated g/C Ratio | 0.32 | 0.32 | 0.32 | | | 0.32 | 0.32 | 0.32 | 0.47 | 0.47 | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | |
| Lane Grp Cap (vph) | 164 | 600 | 496 | | | 242 | 516 | 426 | 553 | 863 | | |
| v/s Ratio Prot | | 0.16 | | | | | c0.25 | | | 0.15 | | |
| v/s Ratio Perm | 0.06 | | 0.11 | | | 0.06 | | 0.02 | c0.38 | | | |
| v/c Ratio | 0.20 | 0.52 | 0.34 | | | 0.18 | 0.79 | 0.06 | 0.80 | 0.31 | | |
| Uniform Delay, d1 | 19.3 | 21.7 | 20.3 | | | 19.2 | 24.1 | 18.5 | 17.2 | 12.6 | | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 0.6 | 0.8 | 0.4 | | | 0.4 | 8.2 | 0.1 | 7.9 | 0.2 | | |
| Delay (s) | 19.9 | 22.5 | 20.7 | | | 19.5 | 32.3 | 18.5 | 25.1 | 12.8 | | |
| Level of Service | B | C | C | | | B | C | B | C | B | | |
| Approach Delay (s) | | 21.7 | | | | | 30.0 | | | 20.3 | | |
| Approach LOS | | C | | | | | C | | | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 77.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 86.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



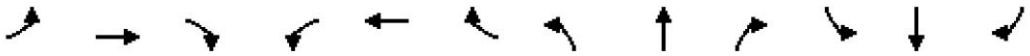
| Movement | SBT | SBR | SBR2 | NEL2 | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 60 | 30 | 10 | 20 | 10 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | | | 1.00 | 1.00 |
| Frt | 0.98 | | | | 1.00 | 0.85 |
| Flt Protected | 0.97 | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1795 | | | | 1805 | 1615 |
| Flt Permitted | 0.71 | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | 1302 | | | | 1805 | 1615 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 65 | 32 | 11 | 22 | 11 | 22 |
| RTOR Reduction (vph) | 2 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 235 | 0 | 0 | 0 | 33 | 22 |
| Confl. Peds. (#/hr) | | | 5 | | | |
| Parking (#/hr) | | | | | | |
| Turn Type | | | | Perm | | Perm |
| Protected Phases | 6 | | | | 9 | |
| Permitted Phases | | | | 9 | | 9 |
| Actuated Green, G (s) | 36.6 | | | | 4.3 | 4.3 |
| Effective Green, g (s) | 36.6 | | | | 4.3 | 4.3 |
| Actuated g/C Ratio | 0.47 | | | | 0.06 | 0.06 |
| Clearance Time (s) | 4.0 | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 616 | | | | 100 | 90 |
| v/s Ratio Prot | | | | | | |
| v/s Ratio Perm | 0.18 | | | | 0.02 | 0.01 |
| v/c Ratio | 0.38 | | | | 0.33 | 0.24 |
| Uniform Delay, d1 | 13.1 | | | | 35.1 | 34.9 |
| Progression Factor | 1.00 | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.4 | | | | 1.9 | 1.4 |
| Delay (s) | 13.5 | | | | 37.1 | 36.4 |
| Level of Service | B | | | | D | D |
| Approach Delay (s) | 13.5 | | | | 36.8 | |
| Approach LOS | B | | | | D | |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 700 | 0 | 0 | 330 | 410 | 10 | 30 | 10 | 260 | 10 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | 5.0 | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | 0.85 | | 0.97 | | | 0.99 | |
| Flt Protected | | 1.00 | | | 1.00 | 1.00 | | 0.99 | | | 0.96 | |
| Satd. Flow (prot) | | 1896 | | | 1900 | 1615 | | 1830 | | | 1802 | |
| Flt Permitted | | 0.98 | | | 1.00 | 1.00 | | 0.92 | | | 0.71 | |
| Satd. Flow (perm) | | 1854 | | | 1900 | 1615 | | 1692 | | | 1334 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 33 | 778 | 0 | 0 | 367 | 456 | 11 | 33 | 11 | 289 | 11 | 22 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 226 | 0 | 8 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 811 | 0 | 0 | 367 | 230 | 0 | 47 | 0 | 0 | 318 | 0 |
| Turn Type | Perm | | | Perm | | Perm | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | | 26.8 | | | 26.8 | 26.8 | | 16.4 | | | 16.4 | |
| Effective Green, g (s) | | 26.8 | | | 26.8 | 26.8 | | 16.4 | | | 16.4 | |
| Actuated g/C Ratio | | 0.50 | | | 0.50 | 0.50 | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | 5.0 | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | 3.0 | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 934 | | | 957 | 814 | | 522 | | | 411 | |
| v/s Ratio Prot | | | | | 0.19 | | | | | | | |
| v/s Ratio Perm | | c0.44 | | | | 0.14 | | 0.03 | | | c0.24 | |
| v/c Ratio | | 0.87 | | | 0.38 | 0.28 | | 0.09 | | | 0.77 | |
| Uniform Delay, d1 | | 11.6 | | | 8.1 | 7.6 | | 13.1 | | | 16.7 | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 8.6 | | | 0.3 | 0.2 | | 0.1 | | | 8.8 | |
| Delay (s) | | 20.3 | | | 8.4 | 7.8 | | 13.2 | | | 25.5 | |
| Level of Service | | C | | | A | A | | B | | | C | |
| Approach Delay (s) | | 20.3 | | | 8.1 | | | 13.2 | | | 25.5 | |
| Approach LOS | | C | | | A | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 53.2 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 91.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 860 | 20 | 10 | 700 | 270 | 10 | 10 | 10 | 120 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.96 | | | 0.95 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.96 | |
| Satd. Flow (prot) | | 1892 | | | 1828 | | | 1785 | | | 1787 | |
| Flt Permitted | | 0.96 | | | 0.99 | | | 0.90 | | | 0.73 | |
| Satd. Flow (perm) | | 1824 | | | 1807 | | | 1638 | | | 1362 | |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 24 | 1024 | 24 | 12 | 833 | 321 | 12 | 12 | 12 | 143 | 0 | 24 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 12 | 0 | 0 | 10 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 1071 | 0 | 0 | 1154 | 0 | 0 | 26 | 0 | 0 | 160 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | | 2 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 55.2 | | | 55.2 | | | 14.4 | | | 14.4 | |
| Effective Green, g (s) | | 55.2 | | | 55.2 | | | 14.4 | | | 14.4 | |
| Actuated g/C Ratio | | 0.69 | | | 0.69 | | | 0.18 | | | 0.18 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1265 | | | 1253 | | | 296 | | | 246 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.59 | | | c0.64 | | | 0.02 | | | c0.12 | |
| v/c Ratio | | 0.85 | | | 0.92 | | | 0.09 | | | 0.65 | |
| Uniform Delay, d1 | | 9.1 | | | 10.4 | | | 27.1 | | | 30.3 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 5.4 | | | 11.1 | | | 0.1 | | | 5.8 | |
| Delay (s) | | 14.5 | | | 21.5 | | | 27.3 | | | 36.0 | |
| Level of Service | | B | | | C | | | C | | | D | |
| Approach Delay (s) | | 14.5 | | | 21.5 | | | 27.3 | | | 36.0 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 79.6 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 81.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 90 | 840 | 60 | 40 | 1000 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.98 | |
| Flt Protected | 1.00 | 1.00 | | 0.97 | 0.96 | |
| Satd. Flow (prot) | 1900 | 1615 | | 1844 | 1785 | |
| Flt Permitted | 1.00 | 1.00 | | 0.72 | 0.96 | |
| Satd. Flow (perm) | 1900 | 1615 | | 1376 | 1785 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 100 | 933 | 67 | 44 | 1111 | 200 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 100 | 933 | 0 | 111 | 1307 | 0 |
| Turn Type | | pm+ov | Perm | | | |
| Protected Phases | 4 | 2 | | 8 | 2 | |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 13.5 | 98.6 | | 13.5 | 85.1 | |
| Effective Green, g (s) | 13.5 | 98.6 | | 13.5 | 85.1 | |
| Actuated g/C Ratio | 0.12 | 0.91 | | 0.12 | 0.78 | |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 236 | 1615 | | 171 | 1399 | |
| v/s Ratio Prot | 0.05 | c0.45 | | | c0.73 | |
| v/s Ratio Perm | | 0.13 | | 0.08 | | |
| v/c Ratio | 0.42 | 0.58 | | 0.65 | 0.93 | |
| Uniform Delay, d1 | 44.0 | 1.0 | | 45.3 | 9.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.2 | 0.5 | | 8.2 | 11.6 | |
| Delay (s) | 45.2 | 1.5 | | 53.5 | 21.1 | |
| Level of Service | D | A | | D | C | |
| Approach Delay (s) | 5.7 | | | 53.5 | 21.1 | |
| Approach LOS | A | | | D | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 108.6 | Sum of lost time (s) | 5.0 |
| Intersection Capacity Utilization | 86.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 80 | 60 | 240 | 70 | 80 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.94 | | | 1.00 | 0.89 | |
| Flt Protected | 1.00 | | | 0.96 | 0.99 | |
| Satd. Flow (prot) | 1790 | | | 1829 | 1680 | |
| Flt Permitted | 1.00 | | | 0.68 | 0.99 | |
| Satd. Flow (perm) | 1790 | | | 1287 | 1680 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 87 | 65 | 261 | 76 | 87 | 326 |
| RTOR Reduction (vph) | 38 | 0 | 0 | 0 | 235 | 0 |
| Lane Group Flow (vph) | 114 | 0 | 0 | 337 | 178 | 0 |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 8 | 2 | |
| Permitted Phases | | | 8 | | | |
| Actuated Green, G (s) | 14.2 | | | 14.2 | 9.4 | |
| Effective Green, g (s) | 14.2 | | | 14.2 | 9.4 | |
| Actuated g/C Ratio | 0.42 | | | 0.42 | 0.28 | |
| Clearance Time (s) | 5.0 | | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 756 | | | 544 | 470 | |
| v/s Ratio Prot | 0.06 | | | | c0.11 | |
| v/s Ratio Perm | | | | c0.26 | | |
| v/c Ratio | 0.15 | | | 0.62 | 0.38 | |
| Uniform Delay, d1 | 6.0 | | | 7.6 | 9.7 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | | | 2.1 | 0.5 | |
| Delay (s) | 6.1 | | | 9.7 | 10.3 | |
| Level of Service | A | | | A | B | |
| Approach Delay (s) | 6.1 | | | 9.7 | 10.3 | |
| Approach LOS | A | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 33.6 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 60.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix G

## Intersection LOS Worksheets
## for 2035 No-Project Conditions

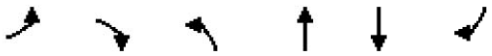
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| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 490 | 10 | 100 | 210 | 10 | 160 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 490 | 10 | 100 | 210 | 10 | 160 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 285 | 105 | | | 310 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 285 | 105 | | | 310 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 30 | 99 | | | 99 | |
| cM capacity (veh/h) | 701 | 951 | | | 1262 | |

| Direction, Lane # | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 490 | 10 | 100 | 210 | 170 |
| Volume Left | 490 | 0 | 0 | 0 | 10 |
| Volume Right | 0 | 10 | 0 | 210 | 0 |
| cSH | 701 | 951 | 1700 | 1700 | 1262 |
| Volume to Capacity | 0.70 | 0.01 | 0.06 | 0.12 | 0.01 |
| Queue Length 95th (ft) | 143 | 1 | 0 | 0 | 1 |
| Control Delay (s) | 21.2 | 8.8 | 0.0 | 0.0 | 0.5 |
| Lane LOS | C | A | | | A |
| Approach Delay (s) | 20.9 | | 0.0 | | 0.5 |
| Approach LOS | C | | | | |

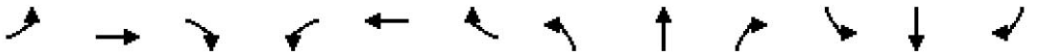
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 10.8 | | |
| Intersection Capacity Utilization | 49.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 210 | 490 | 1840 | 1020 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1591 | 1805 | 5187 | 5187 | 1573 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1591 | 1805 | 5187 | 5187 | 1573 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 210 | 490 | 1840 | 1020 | 10 |
| RTOR Reduction (vph) | 0 | 181 | 0 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 10 | 29 | 490 | 1840 | 1020 | 3 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 7.8 | 7.8 | 18.1 | 39.9 | 17.8 | 17.8 |
| Effective Green, g (s) | 7.8 | 7.8 | 18.1 | 39.9 | 17.8 | 17.8 |
| Actuated g/C Ratio | 0.14 | 0.14 | 0.32 | 0.72 | 0.32 | 0.32 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 253 | 223 | 587 | 3716 | 1658 | 503 |
| v/s Ratio Prot | 0.01 | | c0.27 | 0.35 | c0.20 | |
| v/s Ratio Perm | | c0.02 | | | | 0.00 |
| v/c Ratio | 0.04 | 0.13 | 0.83 | 0.50 | 0.62 | 0.01 |
| Uniform Delay, d1 | 20.7 | 21.0 | 17.4 | 3.5 | 16.0 | 12.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.1 | 0.3 | 9.9 | 0.1 | 0.7 | 0.0 |
| Delay (s) | 20.8 | 21.3 | 27.4 | 3.6 | 16.7 | 12.9 |
| Level of Service | C | C | C | A | B | B |
| Approach Delay (s) | 21.2 | | | 8.6 | 16.7 | |
| Approach LOS | C | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 55.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 0 | 20 | 5 | 0 | 5 | 40 | 830 | 0 | 0 | 490 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | 0.98 | | | 0.93 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | 0.96 | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1776 | | | 1707 | | 1805 | 1900 | | | 1900 | 1572 |
| Flt Permitted | | 0.76 | | | 0.85 | | 0.46 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1401 | | | 1478 | | 875 | 1900 | | | 1900 | 1572 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 0 | 20 | 5 | 0 | 5 | 40 | 830 | 0 | 0 | 490 | 170 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 54 |
| Lane Group Flow (vph) | 0 | 93 | 0 | 0 | 6 | 0 | 40 | 830 | 0 | 0 | 490 | 116 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 6.9 | | | 6.9 | | 31.7 | 31.7 | | | 31.7 | 31.7 |
| Effective Green, g (s) | | 6.9 | | | 6.9 | | 31.7 | 31.7 | | | 31.7 | 31.7 |
| Actuated g/C Ratio | | 0.15 | | | 0.15 | | 0.68 | 0.68 | | | 0.68 | 0.68 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 207 | | | 219 | | 595 | 1292 | | | 1292 | 1069 |
| v/s Ratio Prot | | | | | | | | c0.44 | | | 0.26 | |
| v/s Ratio Perm | | c0.07 | | | 0.00 | | 0.05 | | | | | 0.07 |
| v/c Ratio | | 0.45 | | | 0.03 | | 0.07 | 0.64 | | | 0.38 | 0.11 |
| Uniform Delay, d1 | | 18.1 | | | 17.0 | | 2.5 | 4.2 | | | 3.2 | 2.6 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.5 | | | 0.0 | | 0.0 | 1.1 | | | 0.2 | 0.0 |
| Delay (s) | | 19.7 | | | 17.0 | | 2.5 | 5.3 | | | 3.4 | 2.6 |
| Level of Service | | B | | | B | | A | A | | | A | A |
| Approach Delay (s) | | 19.7 | | | 17.0 | | | 5.2 | | | 3.2 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 46.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 61.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 90 | 30 | 380 | 170 | 100 | 50 | 540 | 10 | 30 | 440 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.98 | | | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.98 | | | 0.97 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3449 | | | 3417 | | 1805 | 3599 | | 1805 | 3610 | 1583 |
| Flt Permitted | | 0.98 | | | 0.97 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3449 | | | 3417 | | 1805 | 3599 | | 1805 | 3610 | 1583 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 100 | 90 | 30 | 380 | 170 | 100 | 50 | 540 | 10 | 30 | 440 | 80 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 0 | 51 |
| Lane Group Flow (vph) | 0 | 211 | 0 | 0 | 636 | 0 | 50 | 549 | 0 | 30 | 440 | 29 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 45.4 | | | 28.2 | | 7.4 | 25.4 | | 5.0 | 23.0 | 23.0 |
| Effective Green, g (s) | | 45.4 | | | 28.2 | | 7.4 | 25.4 | | 5.0 | 23.0 | 23.0 |
| Actuated g/C Ratio | | 0.38 | | | 0.23 | | 0.06 | 0.21 | | 0.04 | 0.19 | 0.19 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 1305 | | | 803 | | 111 | 762 | | 75 | 692 | 303 |
| v/s Ratio Prot | | c0.06 | | | c0.19 | | c0.03 | c0.15 | | 0.02 | 0.12 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.02 |
| v/c Ratio | | 0.16 | | | 0.87dl | | 0.45 | 0.72 | | 0.40 | 0.64 | 0.10 |
| Uniform Delay, d1 | | 24.7 | | | 43.1 | | 54.3 | 44.0 | | 56.0 | 44.6 | 39.9 |
| Progression Factor | | 0.91 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.2 | | | 5.4 | | 2.9 | 3.4 | | 3.5 | 1.9 | 0.1 |
| Delay (s) | | 22.6 | | | 48.5 | | 57.2 | 47.4 | | 59.5 | 46.6 | 40.1 |
| Level of Service | | C | | | D | | E | D | | E | D | D |
| Approach Delay (s) | | 22.6 | | | 48.5 | | | 48.2 | | | 46.3 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

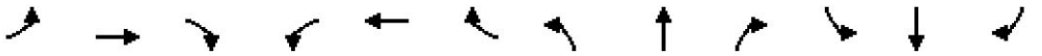
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 20 | 150 | 10 | 270 | 290 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 20 | 150 | 10 | 270 | 290 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 840 | 5 | 570 | 550 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 840 | 5 | 570 | 550 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 96 | 98 | 58 | 97 | 83 | |
| cM capacity (veh/h) | 251 | 1080 | 358 | 368 | 1623 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 10 | 20 | 160 | 270 | 290 |
| Volume Left | 0 | 0 | 150 | 270 | 0 |
| Volume Right | 0 | 20 | 0 | 0 | 290 |
| cSH | 251 | 1080 | 359 | 1623 | 1700 |
| Volume to Capacity | 0.04 | 0.02 | 0.45 | 0.17 | 0.17 |
| Queue Length 95th (ft) | 3 | 1 | 55 | 15 | 0 |
| Control Delay (s) | 19.9 | 8.4 | 22.9 | 7.7 | 0.0 |
| Lane LOS | C | A | C | A | |
| Approach Delay (s) | 12.2 | | 22.9 | 3.7 | |
| Approach LOS | B | | C | | |

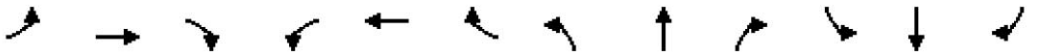
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.1 | | |
| Intersection Capacity Utilization | 37.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 230 | 10 | 80 | 0 | 510 | 200 | 0 | 440 | 340 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | | | | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.99 |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1802 | 1900 | 1593 | | 3610 | 1579 | | 3610 | 1592 |
| Flt Permitted | | | | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1802 | 1900 | 1593 | | 3610 | 1579 | | 3610 | 1592 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 230 | 10 | 80 | 0 | 510 | 200 | 0 | 440 | 340 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 55 | 0 | 0 | 0 | 0 | 0 | 196 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 230 | 10 | 25 | 0 | 510 | 200 | 0 | 440 | 144 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | | | | Perm | | Perm | | | Free | | | Perm |
| Protected Phases | | | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | Free | | | 6 |
| Actuated Green, G (s) | | | | 9.6 | 9.6 | 9.6 | | 13.0 | 30.6 | | 13.0 | 13.0 |
| Effective Green, g (s) | | | | 9.6 | 9.6 | 9.6 | | 13.0 | 30.6 | | 13.0 | 13.0 |
| Actuated g/C Ratio | | | | 0.31 | 0.31 | 0.31 | | 0.42 | 1.00 | | 0.42 | 0.42 |
| Clearance Time (s) | | | | 4.0 | 4.0 | 4.0 | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | 3.0 | 3.0 | 3.0 | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | 565 | 596 | 500 | | 1534 | 1579 | | 1534 | 676 |
| v/s Ratio Prot | | | | | 0.01 | | | c0.14 | | | 0.12 | |
| v/s Ratio Perm | | | | c0.13 | | 0.02 | | | 0.13 | | | 0.09 |
| v/c Ratio | | | | 0.41 | 0.02 | 0.05 | | 0.33 | 0.13 | | 0.29 | 0.21 |
| Uniform Delay, d1 | | | | 8.3 | 7.2 | 7.3 | | 5.9 | 0.0 | | 5.8 | 5.6 |
| Progression Factor | | | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 0.5 | 0.0 | 0.0 | | 0.1 | 0.2 | | 0.1 | 0.2 |
| Delay (s) | | | | 8.7 | 7.3 | 7.4 | | 6.0 | 0.2 | | 5.9 | 5.7 |
| Level of Service | | | | A | A | A | | A | A | | A | A |
| Approach Delay (s) | | 0.0 | | | 8.4 | | | 4.4 | | | 5.8 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 30.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 36.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 0 | 40 | 0 | 0 | 0 | 0 | 480 | 120 | 0 | 530 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | | | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 1615 | | | | | 3610 | 1615 | | 3610 | 1615 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 1615 | | | | | 3610 | 1615 | | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 0 | 40 | 0 | 0 | 0 | 0 | 480 | 120 | 0 | 530 | 100 |
| RTOR Reduction (vph) | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 62 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 190 | 0 | 10 | 0 | 0 | 0 | 0 | 480 | 58 | 0 | 530 | 100 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | Split | | Perm | | | | | | Perm | | | Free |
| Protected Phases | 4 | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | Free |
| Actuated Green, G (s) | 7.1 | | 7.1 | | | | | 14.0 | 14.0 | | 14.0 | 29.1 |
| Effective Green, g (s) | 7.1 | | 7.1 | | | | | 14.0 | 14.0 | | 14.0 | 29.1 |
| Actuated g/C Ratio | 0.24 | | 0.24 | | | | | 0.48 | 0.48 | | 0.48 | 1.00 |
| Clearance Time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | | | | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 440 | | 394 | | | | | 1737 | 777 | | 1737 | 1615 |
| v/s Ratio Prot | c0.11 | | | | | | | 0.13 | | | c0.15 | |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.04 | | | 0.06 |
| v/c Ratio | 0.43 | | 0.02 | | | | | 0.28 | 0.07 | | 0.31 | 0.06 |
| Uniform Delay, d1 | 9.3 | | 8.4 | | | | | 4.5 | 4.1 | | 4.6 | 0.0 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | | 0.0 | | | | | 0.1 | 0.0 | | 0.1 | 0.1 |
| Delay (s) | 10.0 | | 8.4 | | | | | 4.6 | 4.1 | | 4.7 | 0.1 |
| Level of Service | A | | A | | | | | A | A | | A | A |
| Approach Delay (s) | | 9.7 | | | 0.0 | | | 4.5 | | | 4.0 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 29.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 31.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

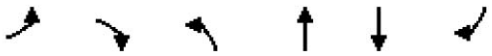
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 290 | 360 | 210 | 50 | 60 | 120 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 290 | 360 | 210 | 50 | 60 | 120 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 480 | 240 | | | 260 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 480 | 240 | | | 260 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 44 | 55 | | | 95 | |
| cM capacity (veh/h) | 521 | 801 | | | 1316 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 650 | 260 | 180 |
| Volume Left | 290 | 0 | 60 |
| Volume Right | 360 | 50 | 0 |
| cSH | 646 | 1700 | 1316 |
| Volume to Capacity | 1.01 | 0.15 | 0.05 |
| Queue Length 95th (ft) | 397 | 0 | 4 |
| Control Delay (s) | 62.2 | 0.0 | 2.9 |
| Lane LOS | F | | A |
| Approach Delay (s) | 62.2 | 0.0 | 2.9 |
| Approach LOS | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 37.6 | | |
| Intersection Capacity Utilization | 71.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 140 | 160 | 40 | 130 | 280 | 120 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 140 | 160 | 40 | 130 | 280 | 120 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 555 | 345 | 400 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 555 | 345 | 400 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 71 | 77 | 97 | | | |
| cM capacity (veh/h) | 477 | 700 | 1170 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 300 | 40 | 130 | 400 |
| Volume Left | 140 | 40 | 0 | 0 |
| Volume Right | 160 | 0 | 0 | 120 |
| cSH | 1023 | 1170 | 1700 | 1700 |
| Volume to Capacity | 0.29 | 0.03 | 0.08 | 0.24 |
| Queue Length 95th (ft) | 31 | 3 | 0 | 0 |
| Control Delay (s) | 13.5 | 8.2 | 0.0 | 0.0 |
| Lane LOS | B | A | | |
| Approach Delay (s) | 13.5 | 1.9 | | 0.0 |
| Approach LOS | B | | | |

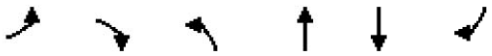
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.0 | | |
| Intersection Capacity Utilization | 43.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 110 | 10 | 20 | 220 | 30 | 40 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 110 | 10 | 20 | 220 | 30 | 40 |
| Pedestrians | 5 | | | 5 | 5 | |
| Lane Width (ft) | 12.0 | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | 4.0 | |
| Percent Blockage | 0 | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 125 | | 275 | 70 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 125 | | 275 | 70 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 96 | 96 |
| cM capacity (veh/h) | | | 1468 | | 682 | 977 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 | NB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 73 | 47 | 20 | 110 | 110 | 30 | 40 |
| Volume Left | 0 | 0 | 20 | 0 | 0 | 30 | 0 |
| Volume Right | 0 | 10 | 0 | 0 | 0 | 0 | 40 |
| cSH | 1700 | 1700 | 1468 | 1700 | 1700 | 682 | 977 |
| Volume to Capacity | 0.04 | 0.03 | 0.01 | 0.06 | 0.06 | 0.04 | 0.04 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 0 | 3 | 3 |
| Control Delay (s) | 0.0 | 0.0 | 7.5 | 0.0 | 0.0 | 10.5 | 8.8 |
| Lane LOS | | | A | | | B | A |
| Approach Delay (s) | 0.0 | | 0.6 | | | 9.6 | |
| Approach LOS | | | | | | A | |

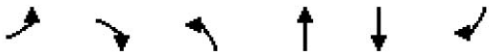
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 19.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 150 | 10 | 10 | 170 | 250 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1593 | 1805 | 3610 | 3321 | |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1593 | 1805 | 3610 | 3321 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 10 | 10 | 170 | 250 | 240 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 137 | 0 |
| Lane Group Flow (vph) | 150 | 2 | 10 | 170 | 353 | 0 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Actuated Green, G (s) | 6.8 | 6.8 | 1.0 | 19.9 | 14.9 | |
| Effective Green, g (s) | 6.8 | 6.8 | 1.0 | 19.9 | 14.9 | |
| Actuated g/C Ratio | 0.20 | 0.20 | 0.03 | 0.57 | 0.43 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 354 | 312 | 52 | 2070 | 1426 | |
| v/s Ratio Prot | c0.08 | | 0.01 | c0.05 | c0.11 | |
| v/s Ratio Perm | | 0.00 | | | | |
| v/c Ratio | 0.42 | 0.01 | 0.19 | 0.08 | 0.25 | |
| Uniform Delay, d1 | 12.2 | 11.2 | 16.5 | 3.3 | 6.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 0.0 | 1.8 | 0.0 | 0.1 | |
| Delay (s) | 13.1 | 11.2 | 18.3 | 3.3 | 6.4 | |
| Level of Service | B | B | B | A | A | |
| Approach Delay (s) | 12.9 | | | 4.2 | 6.4 | |
| Approach LOS | B | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.30 | | |
| Actuated Cycle Length (s) | 34.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 32.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

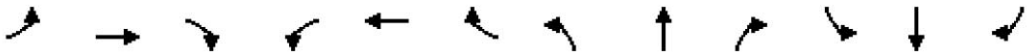
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 100 | 30 | 30 | 70 | 130 | 320 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 100 | 30 | 30 | 70 | 130 | 320 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 265 | 135 | 450 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 265 | 135 | 450 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 86 | 97 | 97 | | | |
| cM capacity (veh/h) | 706 | 915 | 1121 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 130 | 30 | 70 | 130 | 320 |
| Volume Left | 100 | 30 | 0 | 0 | 0 |
| Volume Right | 30 | 0 | 0 | 0 | 320 |
| cSH | 918 | 1121 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.14 | 0.03 | 0.04 | 0.08 | 0.19 |
| Queue Length 95th (ft) | 12 | 2 | 0 | 0 | 0 |
| Control Delay (s) | 10.5 | 8.3 | 0.0 | 0.0 | 0.0 |
| Lane LOS | B | A | | | |
| Approach Delay (s) | 10.5 | 2.5 | | 0.0 | |
| Approach LOS | B | | | | |

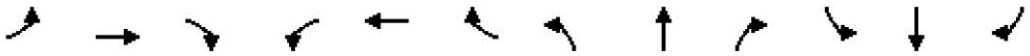
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.4 | | |
| Intersection Capacity Utilization | 29.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 250 | 50 | 20 | 660 | 0 | 140 | 0 | 30 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 250 | 50 | 20 | 660 | 0 | 140 | 0 | 30 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 665 | | | 305 | | | 655 | 985 | 160 | 835 | 1010 | 340 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 665 | | | 305 | | | 655 | 985 | 160 | 835 | 1010 | 340 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 98 | | | 60 | 100 | 96 | 100 | 100 | 100 |
| cM capacity (veh/h) | 930 | | | 1262 | | | 346 | 244 | 856 | 248 | 236 | 656 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 125 | 175 | 350 | 330 | 140 | 30 | 0 |
| Volume Left | 0 | 0 | 20 | 0 | 140 | 0 | 0 |
| Volume Right | 0 | 50 | 0 | 0 | 0 | 30 | 0 |
| cSH | 930 | 1700 | 1262 | 1700 | 346 | 856 | 1700 |
| Volume to Capacity | 0.00 | 0.10 | 0.02 | 0.19 | 0.40 | 0.04 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 47 | 3 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.6 | 0.0 | 22.3 | 9.4 | 0.0 |
| Lane LOS | | | A | | C | A | A |
| Approach Delay (s) | 0.0 | | 0.3 | | 20.0 | | 0.0 |
| Approach LOS | | | | | C | | A |

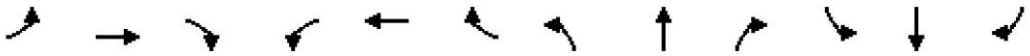
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.1 | | |
| Intersection Capacity Utilization | 45.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 110 | 90 | 80 | 310 | 20 | 210 | 560 | 70 | 20 | 420 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3343 | | 1805 | 3574 | | 1805 | 5092 | | 1805 | 4921 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3343 | | 1805 | 3574 | | 1805 | 5092 | | 1805 | 4921 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 110 | 90 | 80 | 310 | 20 | 210 | 560 | 70 | 20 | 420 | 190 |
| RTOR Reduction (vph) | 0 | 76 | 0 | 0 | 7 | 0 | 0 | 16 | 0 | 0 | 101 | 0 |
| Lane Group Flow (vph) | 60 | 124 | 0 | 80 | 323 | 0 | 210 | 614 | 0 | 20 | 509 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 3.7 | 8.6 | | 5.4 | 10.3 | | 10.4 | 24.2 | | 1.1 | 14.9 | |
| Effective Green, g (s) | 3.7 | 8.6 | | 5.4 | 10.3 | | 10.4 | 24.2 | | 1.1 | 14.9 | |
| Actuated g/C Ratio | 0.07 | 0.16 | | 0.10 | 0.19 | | 0.19 | 0.44 | | 0.02 | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 121 | 520 | | 176 | 666 | | 339 | 2228 | | 36 | 1326 | |
| v/s Ratio Prot | 0.03 | 0.04 | | c0.04 | c0.09 | | c0.12 | 0.12 | | 0.01 | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.50 | 0.24 | | 0.45 | 0.49 | | 0.62 | 0.28 | | 0.56 | 0.38 | |
| Uniform Delay, d1 | 24.9 | 20.5 | | 23.6 | 20.1 | | 20.6 | 9.9 | | 26.9 | 16.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.2 | 0.2 | | 1.9 | 0.6 | | 3.4 | 0.1 | | 17.3 | 0.2 | |
| Delay (s) | 28.1 | 20.7 | | 25.4 | 20.7 | | 24.0 | 10.0 | | 44.1 | 16.6 | |
| Level of Service | C | C | | C | C | | C | B | | D | B | |
| Approach Delay (s) | | 22.4 | | | 21.6 | | | 13.5 | | | 17.5 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 55.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

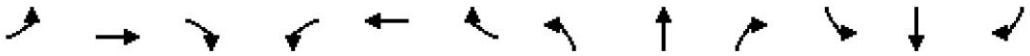
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 110 | 10 | 10 | 300 | 10 | 10 | 10 | 10 | 10 | 10 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.93 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1804 | 3561 | | 1804 | 3591 | | 1804 | 3318 | | 1803 | 3101 | |
| Flt Permitted | 0.89 | 1.00 | | 0.89 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1688 | 3561 | | 1688 | 3591 | | 1899 | 3318 | | 1898 | 3101 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 110 | 10 | 10 | 300 | 10 | 10 | 10 | 10 | 10 | 10 | 70 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 5 | 0 | 0 | 9 | 0 | 0 | 60 | 0 |
| Lane Group Flow (vph) | 40 | 113 | 0 | 10 | 305 | 0 | 10 | 11 | 0 | 10 | 20 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | 2.1 | 2.1 | | 2.1 | 2.1 | |
| Effective Green, g (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | 2.1 | 2.1 | | 2.1 | 2.1 | |
| Actuated g/C Ratio | 0.31 | 0.31 | | 0.31 | 0.31 | | 0.14 | 0.14 | | 0.14 | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 520 | 1098 | | 520 | 1107 | | 273 | 477 | | 273 | 446 | |
| v/s Ratio Prot | | 0.03 | | | c0.08 | | | 0.00 | | | c0.01 | |
| v/s Ratio Perm | 0.02 | | | 0.01 | | | 0.01 | | | 0.01 | | |
| v/c Ratio | 0.08 | 0.10 | | 0.02 | 0.28 | | 0.04 | 0.02 | | 0.04 | 0.04 | |
| Uniform Delay, d1 | 3.6 | 3.6 | | 3.5 | 3.8 | | 5.4 | 5.4 | | 5.4 | 5.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 0.0 | | 0.0 | 0.1 | | 0.1 | 0.0 | | 0.1 | 0.0 | |
| Delay (s) | 3.6 | 3.6 | | 3.5 | 4.0 | | 5.4 | 5.4 | | 5.4 | 5.4 | |
| Level of Service | A | A | | A | A | | A | A | | A | A | |
| Approach Delay (s) | | 3.6 | | | 3.9 | | | 5.4 | | | 5.4 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.20 | | |
| Actuated Cycle Length (s) | 14.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 35.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

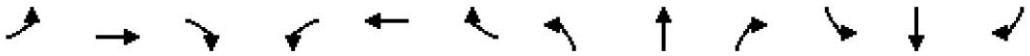
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 60 | 80 | 30 | 360 | 340 | 50 | 20 | 370 | 130 | 120 | 230 | 60 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 60 | 80 | 30 | 360 | 340 | 50 | 20 | 370 | 130 | 120 | 230 | 60 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 60 | 110 | 750 | 390 | 130 | 235 | 175 |
| Volume Left (vph) | 60 | 0 | 360 | 20 | 0 | 120 | 0 |
| Volume Right (vph) | 0 | 30 | 50 | 0 | 130 | 0 | 60 |
| Hadj (s) | 0.50 | -0.19 | 0.06 | 0.03 | -0.70 | 0.26 | -0.24 |
| Departure Headway (s) | 9.2 | 8.5 | 7.7 | 7.9 | 7.1 | 8.3 | 7.8 |
| Degree Utilization, x | 0.15 | 0.26 | 1.61 | 0.85 | 0.26 | 0.54 | 0.38 |
| Capacity (veh/h) | 373 | 403 | 469 | 453 | 495 | 414 | 448 |
| Control Delay (s) | 12.6 | 13.3 | 303.4 | 40.5 | 11.4 | 19.6 | 14.4 |
| Approach Delay (s) | 13.0 | | 303.4 | 33.3 | | 17.4 | |
| Approach LOS | B | | F | D | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 137.4 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 90.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

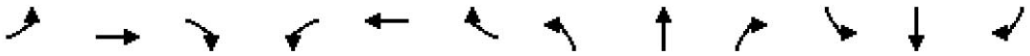


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 290 | 210 | 80 | 290 | 40 | 220 | 130 | 140 | 20 | 50 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.99 | |
| Satd. Flow (prot) | 1805 | 3346 | | 1805 | 1900 | 1572 | | 1842 | 1590 | | 1841 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.99 | |
| Satd. Flow (perm) | 1805 | 3346 | | 1805 | 1900 | 1572 | | 1842 | 1590 | | 1841 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 290 | 210 | 80 | 290 | 40 | 220 | 130 | 140 | 20 | 50 | 10 |
| RTOR Reduction (vph) | 0 | 134 | 0 | 0 | 0 | 27 | 0 | 0 | 102 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 10 | 366 | 0 | 80 | 290 | 13 | 0 | 350 | 38 | 0 | 74 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.0 | 13.4 | | 8.3 | 20.7 | 20.7 | | 17.7 | 17.7 | | 9.0 | |
| Effective Green, g (s) | 1.0 | 13.4 | | 8.3 | 20.7 | 20.7 | | 17.7 | 17.7 | | 9.0 | |
| Actuated g/C Ratio | 0.02 | 0.21 | | 0.13 | 0.32 | 0.32 | | 0.27 | 0.27 | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 28 | 696 | | 233 | 611 | 505 | | 506 | 437 | | 257 | |
| v/s Ratio Prot | 0.01 | 0.11 | | c0.04 | c0.15 | | | c0.19 | | | c0.04 | |
| v/s Ratio Perm | | | | | | 0.01 | | | 0.02 | | | |
| v/c Ratio | 0.36 | 0.53 | | 0.34 | 0.47 | 0.03 | | 0.69 | 0.09 | | 0.29 | |
| Uniform Delay, d1 | 31.4 | 22.7 | | 25.6 | 17.5 | 14.9 | | 20.9 | 17.4 | | 24.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 7.7 | 0.7 | | 0.9 | 0.6 | 0.0 | | 4.1 | 0.1 | | 0.6 | |
| Delay (s) | 39.0 | 23.4 | | 26.5 | 18.1 | 15.0 | | 25.0 | 17.4 | | 25.4 | |
| Level of Service | D | C | | C | B | B | | C | B | | C | |
| Approach Delay (s) | | 23.7 | | | 19.4 | | | 22.8 | | | 25.4 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 64.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 57.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

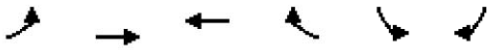
# HCM Signalized Intersection Capacity Analysis
## 25: Cactus Ave & Moreno Beach Dr



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 230 | 190 | 60 | 30 | 180 | 80 | 100 | 560 | 70 | 20 | 320 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3468 | | 1805 | 3429 | | 1805 | 3610 | 1595 | 1805 | 4860 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3468 | | 1805 | 3429 | | 1805 | 3610 | 1595 | 1805 | 4860 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 230 | 190 | 60 | 30 | 180 | 80 | 100 | 560 | 70 | 20 | 320 | 200 |
| RTOR Reduction (vph) | 0 | 38 | 0 | 0 | 65 | 0 | 0 | 0 | 40 | 0 | 117 | 0 |
| Lane Group Flow (vph) | 230 | 212 | 0 | 30 | 195 | 0 | 100 | 560 | 30 | 20 | 403 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.1 | 14.4 | | 4.0 | 10.3 | | 7.1 | 19.7 | 23.7 | 1.2 | 13.8 | |
| Effective Green, g (s) | 8.1 | 14.4 | | 4.0 | 10.3 | | 7.1 | 19.7 | 23.7 | 1.2 | 13.8 | |
| Actuated g/C Ratio | 0.15 | 0.26 | | 0.07 | 0.19 | | 0.13 | 0.36 | 0.43 | 0.02 | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 264 | 903 | | 131 | 639 | | 232 | 1286 | 799 | 39 | 1213 | |
| v/s Ratio Prot | c0.13 | 0.06 | | 0.02 | c0.06 | | c0.06 | c0.16 | 0.00 | 0.01 | 0.08 | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | |
| v/c Ratio | 0.87 | 0.23 | | 0.23 | 0.31 | | 0.43 | 0.44 | 0.04 | 0.51 | 0.33 | |
| Uniform Delay, d1 | 23.1 | 16.1 | | 24.2 | 19.4 | | 22.2 | 13.6 | 9.2 | 26.8 | 17.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 25.4 | 0.1 | | 0.9 | 0.3 | | 1.3 | 0.2 | 0.0 | 10.9 | 0.2 | |
| Delay (s) | 48.5 | 16.2 | | 25.1 | 19.7 | | 23.5 | 13.8 | 9.2 | 37.7 | 17.1 | |
| Level of Service | D | B | | C | B | | C | B | A | D | B | |
| Approach Delay (s) | | 31.7 | | | 20.2 | | | 14.7 | | | 17.9 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 55.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 60.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

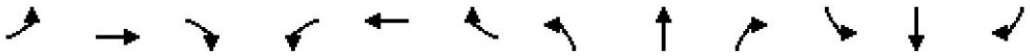
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 70 | 230 | 10 | 10 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1804 | 3610 | 3586 | | 1804 | 1594 |
| Flt Permitted | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 1899 | 3610 | 3586 | | 1804 | 1594 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 70 | 230 | 10 | 10 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 7 | 0 | 0 | 46 |
| Lane Group Flow (vph) | 20 | 70 | 233 | 0 | 10 | 4 |
| Confl. Peds. (#/hr) | 5 | | | 5 | 5 | 5 |
| Turn Type | Perm | | | | | Perm |
| Protected Phases | | 4 | 8 | | 6 | |
| Permitted Phases | 4 | | | | | 6 |
| Actuated Green, G (s) | 2.9 | 2.9 | 2.9 | | 0.9 | 0.9 |
| Effective Green, g (s) | 2.9 | 2.9 | 2.9 | | 0.9 | 0.9 |
| Actuated g/C Ratio | 0.25 | 0.25 | 0.25 | | 0.08 | 0.08 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 467 | 887 | 881 | | 138 | 122 |
| v/s Ratio Prot | | 0.02 | c0.07 | | c0.01 | |
| v/s Ratio Perm | 0.01 | | | | | 0.00 |
| v/c Ratio | 0.04 | 0.08 | 0.26 | | 0.07 | 0.03 |
| Uniform Delay, d1 | 3.4 | 3.4 | 3.6 | | 5.1 | 5.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.0 | 0.0 | 0.2 | | 0.2 | 0.1 |
| Delay (s) | 3.4 | 3.5 | 3.8 | | 5.3 | 5.2 |
| Level of Service | A | A | A | | A | A |
| Approach Delay (s) | | 3.5 | 3.8 | | 5.2 | |
| Approach LOS | | A | A | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.22 | | |
| Actuated Cycle Length (s) | 11.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 31.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

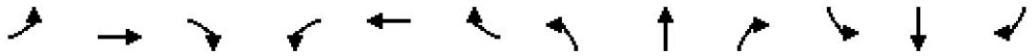
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 200 | 20 | 90 | 20 | 20 | 20 | 20 | 260 | 10 | 10 | 530 | 130 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 200 | 20 | 90 | 20 | 20 | 20 | 20 | 260 | 10 | 10 | 530 | 130 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 210 | 100 | 60 | 150 | 140 | 275 | 395 |
| Volume Left (vph) | 200 | 0 | 20 | 20 | 0 | 10 | 0 |
| Volume Right (vph) | 0 | 90 | 20 | 0 | 10 | 0 | 130 |
| Hadj (s) | 0.48 | -0.63 | -0.13 | 0.07 | -0.05 | 0.02 | -0.23 |
| Departure Headway (s) | 7.5 | 6.3 | 7.3 | 6.8 | 6.7 | 6.3 | 6.0 |
| Degree Utilization, x | 0.44 | 0.18 | 0.12 | 0.28 | 0.26 | 0.48 | 0.66 |
| Capacity (veh/h) | 459 | 530 | 449 | 504 | 511 | 559 | 579 |
| Control Delay (s) | 14.9 | 9.5 | 11.3 | 11.3 | 10.8 | 13.6 | 18.6 |
| Approach Delay (s) | 13.1 | | 11.3 | 11.0 | | 16.6 | |
| Approach LOS | B | | B | B | | C | |

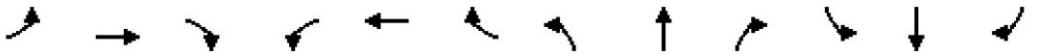
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 14.3 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 50.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 50 | 10 | 610 | 80 | 240 | 20 | 390 | 190 | 120 | 330 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3511 | | 1805 | 3169 | | 1805 | 5187 | 1606 | 1805 | 4959 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3511 | | 1805 | 3169 | | 1805 | 5187 | 1606 | 1805 | 4959 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 50 | 10 | 610 | 80 | 240 | 20 | 390 | 190 | 120 | 330 | 120 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 161 | 0 | 0 | 0 | 79 | 0 | 50 | 0 |
| Lane Group Flow (vph) | 80 | 51 | 0 | 610 | 159 | 0 | 20 | 390 | 111 | 120 | 400 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.9 | 3.9 | | 24.3 | 21.3 | | 1.2 | 13.5 | 37.8 | 7.1 | 19.4 | |
| Effective Green, g (s) | 6.9 | 3.9 | | 24.3 | 21.3 | | 1.2 | 13.5 | 37.8 | 7.1 | 19.4 | |
| Actuated g/C Ratio | 0.11 | 0.06 | | 0.38 | 0.33 | | 0.02 | 0.21 | 0.58 | 0.11 | 0.30 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 192 | 211 | | 677 | 1042 | | 33 | 1081 | 1036 | 198 | 1485 | |
| v/s Ratio Prot | 0.04 | 0.01 | | c0.34 | c0.05 | | 0.01 | c0.08 | 0.04 | c0.07 | 0.08 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | |
| v/c Ratio | 0.42 | 0.24 | | 0.90 | 0.15 | | 0.61 | 0.36 | 0.11 | 0.61 | 0.27 | |
| Uniform Delay, d1 | 27.1 | 29.0 | | 19.1 | 15.4 | | 31.6 | 22.0 | 6.0 | 27.5 | 17.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.5 | 0.6 | | 15.2 | 0.1 | | 27.6 | 0.2 | 0.0 | 5.2 | 0.1 | |
| Delay (s) | 28.5 | 29.6 | | 34.3 | 15.4 | | 59.2 | 22.2 | 6.0 | 32.7 | 17.4 | |
| Level of Service | C | C | | C | B | | E | C | A | C | B | |
| Approach Delay (s) | | 29.0 | | | 27.8 | | | 18.3 | | | 20.6 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 64.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 74.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

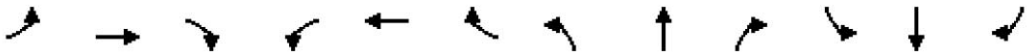
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 190 | 100 | 140 | 560 | 40 | 70 | 390 | 90 | 50 | 560 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1597 | 1805 | 3570 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1597 | 1805 | 3570 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 190 | 100 | 140 | 560 | 40 | 70 | 390 | 90 | 50 | 560 | 230 |
| RTOR Reduction (vph) | 0 | 0 | 73 | 0 | 5 | 0 | 0 | 0 | 35 | 0 | 0 | 79 |
| Lane Group Flow (vph) | 80 | 190 | 27 | 140 | 595 | 0 | 70 | 390 | 55 | 50 | 560 | 151 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.7 | 22.5 | 32.6 | 13.9 | 26.7 | | 10.1 | 60.0 | 73.9 | 7.6 | 57.5 | 67.2 |
| Effective Green, g (s) | 9.7 | 22.5 | 32.6 | 13.9 | 26.7 | | 10.1 | 60.0 | 73.9 | 7.6 | 57.5 | 67.2 |
| Actuated g/C Ratio | 0.08 | 0.19 | 0.27 | 0.12 | 0.22 | | 0.08 | 0.50 | 0.62 | 0.06 | 0.48 | 0.56 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 146 | 677 | 487 | 209 | 794 | | 152 | 1805 | 1033 | 114 | 1730 | 944 |
| v/s Ratio Prot | 0.04 | 0.05 | 0.00 | c0.08 | c0.17 | | c0.04 | 0.11 | 0.01 | 0.03 | c0.16 | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.03 | | | 0.08 |
| v/c Ratio | 0.55 | 0.28 | 0.06 | 0.67 | 0.75 | | 0.46 | 0.22 | 0.05 | 0.44 | 0.32 | 0.16 |
| Uniform Delay, d1 | 53.0 | 41.8 | 32.3 | 50.9 | 43.5 | | 52.4 | 16.8 | 9.2 | 54.1 | 19.3 | 12.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.96 | 0.83 | 0.57 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.2 | 0.2 | 0.0 | 7.9 | 3.9 | | 2.2 | 0.3 | 0.0 | 2.7 | 0.5 | 0.1 |
| Delay (s) | 57.2 | 42.0 | 32.4 | 58.7 | 47.4 | | 52.6 | 14.2 | 5.2 | 56.8 | 19.8 | 12.8 |
| Level of Service | E | D | C | E | D | | D | B | A | E | B | B |
| Approach Delay (s) | | 42.7 | | | 49.6 | | | 17.6 | | | 20.1 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

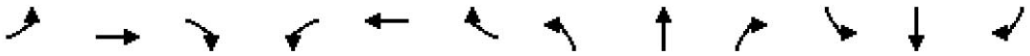
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 480 | 10 | 130 | 270 | 540 | 0 | 0 | 580 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1811 | 1587 | 1805 | 3610 | | | 3402 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1811 | 1587 | 1805 | 3610 | | | 3402 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 480 | 10 | 130 | 270 | 540 | 0 | 0 | 580 | 300 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 48 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 490 | 109 | 270 | 540 | 0 | 0 | 832 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 37.7 | 37.7 | 22.1 | 74.3 | | | 48.2 | |
| Effective Green, g (s) | | | | | 37.7 | 37.7 | 22.1 | 74.3 | | | 48.2 | |
| Actuated g/C Ratio | | | | | 0.31 | 0.31 | 0.18 | 0.62 | | | 0.40 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 569 | 499 | 332 | 2235 | | | 1366 | |
| v/s Ratio Prot | | | | | c0.27 | | c0.15 | 0.15 | | | c0.24 | |
| v/s Ratio Perm | | | | | | 0.07 | | | | | | |
| v/c Ratio | | | | | 0.86 | 0.22 | 0.81 | 0.24 | | | 0.61 | |
| Uniform Delay, d1 | | | | | 38.7 | 30.3 | 47.0 | 10.2 | | | 28.4 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.70 | |
| Incremental Delay, d2 | | | | | 12.7 | 0.2 | 14.1 | 0.3 | | | 2.0 | |
| Delay (s) | | | | | 51.3 | 30.5 | 61.0 | 10.5 | | | 21.8 | |
| Level of Service | | | | | D | C | E | B | | | C | |
| Approach Delay (s) | | 0.0 | | | 47.0 | | | 27.3 | | | 21.8 | |
| Approach LOS | | A | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

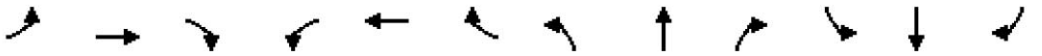
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 0 | 340 | 0 | 0 | 0 | 0 | 540 | 110 | 150 | 970 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1715 | 1592 | | | | | 5033 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1715 | 1592 | | | | | 5033 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 260 | 0 | 340 | 0 | 0 | 0 | 0 | 540 | 110 | 150 | 970 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 130 | 130 | 297 | 0 | 0 | 0 | 0 | 610 | 0 | 150 | 970 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 15.7 | 15.7 | 15.7 | | | | | 14.2 | | 7.0 | 25.2 | |
| Effective Green, g (s) | 15.7 | 15.7 | 15.7 | | | | | 14.2 | | 7.0 | 25.2 | |
| Actuated g/C Ratio | 0.32 | 0.32 | 0.32 | | | | | 0.29 | | 0.14 | 0.52 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 551 | 551 | 511 | | | | | 1462 | | 258 | 1860 | |
| v/s Ratio Prot | 0.08 | 0.08 | | | | | | 0.12 | | 0.08 | c0.27 | |
| v/s Ratio Perm | | | c0.19 | | | | | | | | | |
| v/c Ratio | 0.24 | 0.24 | 0.58 | | | | | 0.42 | | 0.58 | 0.52 | |
| Uniform Delay, d1 | 12.2 | 12.2 | 13.9 | | | | | 14.0 | | 19.6 | 7.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.2 | 1.7 | | | | | 0.2 | | 3.3 | 0.3 | |
| Delay (s) | 12.4 | 12.4 | 15.5 | | | | | 14.2 | | 22.9 | 8.1 | |
| Level of Service | B | B | B | | | | | B | | C | A | |
| Approach Delay (s) | | 14.2 | | | 0.0 | | | 14.2 | | | 10.1 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 48.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 93.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

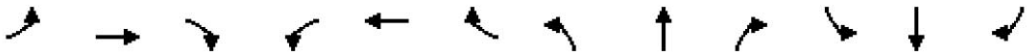


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 210 | 340 | 50 | 180 | 560 | 100 | 820 | 110 | 490 | 1040 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.89 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1595 | 1805 | 3200 | | 1805 | 5085 | | 3502 | 3610 | 1593 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1595 | 1805 | 3200 | | 1805 | 5085 | | 3502 | 3610 | 1593 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 280 | 210 | 340 | 50 | 180 | 560 | 100 | 820 | 110 | 490 | 1040 | 110 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 277 | 0 | 0 | 13 | 0 | 0 | 0 | 47 |
| Lane Group Flow (vph) | 280 | 210 | 291 | 50 | 463 | 0 | 100 | 917 | 0 | 490 | 1040 | 63 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 13.8 | 31.8 | 43.0 | 5.6 | 23.6 | | 11.2 | 45.3 | | 21.3 | 55.4 | 69.2 |
| Effective Green, g (s) | 13.8 | 31.8 | 43.0 | 5.6 | 23.6 | | 11.2 | 45.3 | | 21.3 | 55.4 | 69.2 |
| Actuated g/C Ratio | 0.12 | 0.27 | 0.36 | 0.05 | 0.20 | | 0.09 | 0.38 | | 0.18 | 0.46 | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 403 | 957 | 625 | 84 | 629 | | 168 | 1920 | | 622 | 1667 | 972 |
| v/s Ratio Prot | c0.08 | 0.06 | 0.04 | 0.03 | c0.14 | | 0.06 | 0.18 | | c0.14 | c0.29 | 0.01 |
| v/s Ratio Perm | | | 0.14 | | | | | | | | | 0.03 |
| v/c Ratio | 0.69 | 0.22 | 0.47 | 0.60 | 0.95dr | | 0.60 | 0.48 | | 0.79 | 0.62 | 0.07 |
| Uniform Delay, d1 | 51.1 | 34.4 | 29.7 | 56.1 | 45.3 | | 52.2 | 28.4 | | 47.2 | 24.4 | 11.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.08 | 0.66 | | 1.22 | 0.26 | 0.34 |
| Incremental Delay, d2 | 5.1 | 0.1 | 0.6 | 10.8 | 4.5 | | 5.4 | 0.8 | | 4.4 | 1.2 | 0.0 |
| Delay (s) | 56.2 | 34.5 | 30.2 | 66.9 | 49.7 | | 61.9 | 19.7 | | 61.8 | 7.5 | 3.9 |
| Level of Service | E | C | C | E | D | | E | B | | E | A | A |
| Approach Delay (s) | | 40.1 | | | 50.8 | | | 23.8 | | | 23.5 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 85.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

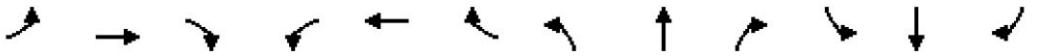
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 120 | 10 | 260 | 600 | 1300 | 0 | 0 | 1600 | 410 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 0.95 | | 0.97 | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.98 | | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.90 | | 1.00 | 1.00 | | | 0.97 | |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 3150 | | 3502 | 5187 | | | 5007 | |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 3150 | | 3502 | 5187 | | | 5007 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 120 | 10 | 260 | 600 | 1300 | 0 | 0 | 1600 | 410 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 104 | 0 | 0 | 0 | 0 | 0 | 35 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 286 | 0 | 600 | 1300 | 0 | 0 | 1975 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 15.5 | | 29.0 | 96.5 | | | 63.5 | |
| Effective Green, g (s) | | | | | 15.5 | | 29.0 | 96.5 | | | 63.5 | |
| Actuated g/C Ratio | | | | | 0.13 | | 0.24 | 0.80 | | | 0.53 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 407 | | 846 | 4171 | | | 2650 | |
| v/s Ratio Prot | | | | | c0.09 | | c0.17 | 0.25 | | | c0.39 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.70 | | 0.71 | 0.31 | | | 0.75 | |
| Uniform Delay, d1 | | | | | 50.0 | | 41.6 | 3.1 | | | 22.0 | |
| Progression Factor | | | | | 1.00 | | 0.87 | 0.93 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 5.4 | | 2.4 | 0.2 | | | 2.0 | |
| Delay (s) | | | | | 55.5 | | 38.7 | 3.0 | | | 23.9 | |
| Level of Service | | | | | E | | D | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 55.5 | | | 14.3 | | | 23.9 | |
| Approach LOS | | A | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 80 | 50 | 60 | 190 | 160 | 90 | 880 | 40 | 120 | 1390 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 5187 | 1567 | 1805 | 5187 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 5187 | 1567 | 1805 | 5187 | 1566 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 80 | 50 | 60 | 190 | 160 | 90 | 880 | 40 | 120 | 1390 | 30 |
| RTOR Reduction (vph) | 0 | 0 | 43 | 0 | 0 | 133 | 0 | 0 | 13 | 0 | 0 | 6 |
| Lane Group Flow (vph) | 20 | 80 | 7 | 60 | 190 | 27 | 90 | 880 | 27 | 120 | 1390 | 24 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 2.8 | 15.7 | 15.7 | 7.0 | 19.9 | 19.9 | 11.3 | 68.1 | 68.1 | 13.2 | 70.0 | 70.0 |
| Effective Green, g (s) | 2.8 | 15.7 | 15.7 | 7.0 | 19.9 | 19.9 | 11.3 | 68.1 | 68.1 | 13.2 | 70.0 | 70.0 |
| Actuated g/C Ratio | 0.02 | 0.13 | 0.13 | 0.06 | 0.17 | 0.17 | 0.09 | 0.57 | 0.57 | 0.11 | 0.58 | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 42 | 249 | 208 | 105 | 315 | 263 | 170 | 2944 | 889 | 199 | 3026 | 914 |
| v/s Ratio Prot | 0.01 | 0.04 | | c0.03 | c0.10 | | 0.05 | 0.17 | | c0.07 | c0.27 | |
| v/s Ratio Perm | | | 0.00 | | | 0.02 | | | 0.02 | | | 0.02 |
| v/c Ratio | 0.48 | 0.32 | 0.03 | 0.57 | 0.60 | 0.10 | 0.53 | 0.30 | 0.03 | 0.60 | 0.46 | 0.03 |
| Uniform Delay, d1 | 57.9 | 47.3 | 45.5 | 55.0 | 46.4 | 42.5 | 51.8 | 13.5 | 11.4 | 50.9 | 14.2 | 10.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.12 | 0.74 | 0.42 |
| Incremental Delay, d2 | 8.3 | 0.8 | 0.1 | 7.3 | 3.2 | 0.2 | 3.0 | 0.3 | 0.1 | 4.3 | 0.4 | 0.0 |
| Delay (s) | 66.2 | 48.1 | 45.6 | 62.4 | 49.6 | 42.6 | 54.8 | 13.8 | 11.5 | 61.2 | 11.0 | 4.5 |
| Level of Service | E | D | D | E | D | D | D | B | B | E | B | A |
| Approach Delay (s) | | 49.6 | | | 48.8 | | | 17.3 | | | 14.8 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 61.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

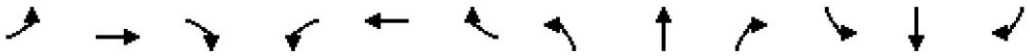
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 260 | 170 | 40 | 330 | 50 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 260 | 170 | 40 | 330 | 50 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 270 | | 525 | 145 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 270 | | 525 | 145 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 87 | | 26 | 94 |
| cM capacity (veh/h) | | | 1305 | | 447 | 904 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 270 | 210 | 330 | 50 |
| Volume Left | 0 | 170 | 330 | 0 |
| Volume Right | 260 | 0 | 0 | 50 |
| cSH | 1700 | 1305 | 447 | 904 |
| Volume to Capacity | 0.16 | 0.13 | 0.74 | 0.06 |
| Queue Length 95th (ft) | 0 | 11 | 150 | 4 |
| Control Delay (s) | 0.0 | 6.8 | 32.5 | 9.2 |
| Lane LOS | | A | D | A |
| Approach Delay (s) | 0.0 | 6.8 | 29.4 | |
| Approach LOS | | | D | |

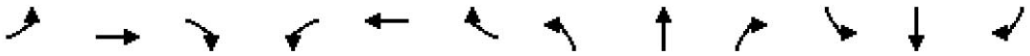
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 14.7 | | |
| Intersection Capacity Utilization | 56.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 150 | 230 | 260 | 120 | 10 | 200 | 390 | 160 | 10 | 510 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.91 | | 1.00 | 0.99 | | | 0.97 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 3242 | | 1805 | 3563 | | | 3434 | | | 3573 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 3242 | | 1805 | 3563 | | | 3434 | | | 3573 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 150 | 230 | 260 | 120 | 10 | 200 | 390 | 160 | 10 | 510 | 30 |
| RTOR Reduction (vph) | 0 | 183 | 0 | 0 | 5 | 0 | 0 | 21 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 20 | 197 | 0 | 260 | 125 | 0 | 0 | 729 | 0 | 0 | 547 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 2.8 | 24.3 | | 28.4 | 49.9 | | | 29.2 | | | 22.1 | |
| Effective Green, g (s) | 2.8 | 24.3 | | 28.4 | 49.9 | | | 29.2 | | | 22.1 | |
| Actuated g/C Ratio | 0.02 | 0.20 | | 0.24 | 0.42 | | | 0.24 | | | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 42 | 657 | | 427 | 1482 | | | 836 | | | 658 | |
| v/s Ratio Prot | c0.01 | c0.06 | | c0.14 | 0.04 | | | c0.21 | | | c0.15 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.48 | 0.30 | | 0.61 | 0.08 | | | 0.87 | | | 0.83 | |
| Uniform Delay, d1 | 57.9 | 40.6 | | 40.8 | 21.2 | | | 43.6 | | | 47.2 | |
| Progression Factor | 1.00 | 1.00 | | 0.67 | 0.54 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 8.3 | 1.2 | | 2.3 | 0.1 | | | 9.9 | | | 8.8 | |
| Delay (s) | 66.2 | 41.8 | | 29.8 | 11.5 | | | 53.5 | | | 55.9 | |
| Level of Service | E | D | | C | B | | | D | | | E | |
| Approach Delay (s) | | 43.0 | | | 23.7 | | | 53.5 | | | 55.9 | |
| Approach LOS | | D | | | C | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 46.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

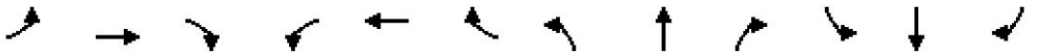
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 80 | 520 | 20 | 90 | 260 | 120 | 810 | 40 | 510 | 340 | 390 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | |
| Flt Protected | | 0.98 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1854 | 2799 | 1805 | 1900 | 1591 | 1805 | 3610 | 1572 | 1805 | 4701 | |
| Flt Permitted | | 0.98 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1854 | 2799 | 1805 | 1900 | 1591 | 1805 | 3610 | 1572 | 1805 | 4701 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 80 | 520 | 20 | 90 | 260 | 120 | 810 | 40 | 510 | 340 | 390 |
| RTOR Reduction (vph) | 0 | 0 | 424 | 0 | 0 | 226 | 0 | 0 | 26 | 0 | 143 | 0 |
| Lane Group Flow (vph) | 0 | 160 | 96 | 20 | 90 | 34 | 120 | 810 | 14 | 510 | 587 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 13.5 | 13.5 | 9.5 | 9.5 | 9.5 | 10.4 | 24.7 | 24.7 | 9.2 | 23.5 | |
| Effective Green, g (s) | | 13.5 | 13.5 | 9.5 | 9.5 | 9.5 | 10.4 | 24.7 | 24.7 | 9.2 | 23.5 | |
| Actuated g/C Ratio | | 0.19 | 0.19 | 0.13 | 0.13 | 0.13 | 0.14 | 0.34 | 0.34 | 0.13 | 0.32 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 343 | 518 | 235 | 248 | 207 | 258 | 1223 | 533 | 228 | 1515 | |
| v/s Ratio Prot | | c0.09 | | 0.01 | c0.05 | | 0.07 | c0.22 | | c0.28 | 0.12 | |
| v/s Ratio Perm | | | 0.03 | | | 0.02 | | | 0.01 | | | |
| v/c Ratio | | 0.47 | 0.19 | 0.09 | 0.36 | 0.16 | 0.47 | 0.66 | 0.03 | 2.24 | 0.39 | |
| Uniform Delay, d1 | | 26.5 | 25.1 | 27.9 | 28.9 | 28.2 | 28.7 | 20.5 | 16.1 | 31.9 | 19.1 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.0 | 0.2 | 0.2 | 0.9 | 0.4 | 1.3 | 1.4 | 0.0 | 570.5 | 0.2 | |
| Delay (s) | | 27.5 | 25.2 | 28.0 | 29.8 | 28.5 | 30.0 | 21.9 | 16.1 | 602.4 | 19.3 | |
| Level of Service | | C | C | C | C | C | C | C | B | F | B | |
| Approach Delay (s) | | 25.8 | | | 28.8 | | | 22.7 | | | 259.1 | |
| Approach LOS | | C | | | C | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 113.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 72.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 78.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

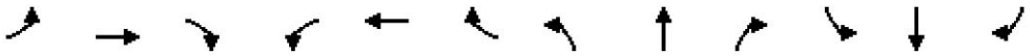
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 310 | 80 | 140 | 330 | 80 | 180 | 990 | 190 | 180 | 1330 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3487 | | 1805 | 3493 | | 1805 | 3610 | 1587 | 1805 | 5187 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3487 | | 1805 | 3493 | | 1805 | 3610 | 1587 | 1805 | 5187 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 310 | 80 | 140 | 330 | 80 | 180 | 990 | 190 | 180 | 1330 | 40 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 21 | 0 | 0 | 0 | 98 | 0 | 0 | 21 |
| Lane Group Flow (vph) | 80 | 367 | 0 | 140 | 389 | 0 | 180 | 990 | 92 | 180 | 1330 | 19 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.3 | 18.9 | | 12.3 | 22.9 | | 17.7 | 55.1 | 55.1 | 17.7 | 55.1 | 55.1 |
| Effective Green, g (s) | 8.3 | 18.9 | | 12.3 | 22.9 | | 17.7 | 55.1 | 55.1 | 17.7 | 55.1 | 55.1 |
| Actuated g/C Ratio | 0.07 | 0.16 | | 0.10 | 0.19 | | 0.15 | 0.46 | 0.46 | 0.15 | 0.46 | 0.46 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 125 | 549 | | 185 | 667 | | 266 | 1658 | 729 | 266 | 2382 | 728 |
| v/s Ratio Prot | 0.04 | c0.11 | | c0.08 | c0.11 | | c0.10 | c0.27 | | 0.10 | 0.26 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | 0.01 |
| v/c Ratio | 0.64 | 0.67 | | 0.76 | 0.58 | | 0.68 | 0.60 | 0.13 | 0.68 | 0.56 | 0.03 |
| Uniform Delay, d1 | 54.4 | 47.6 | | 52.4 | 44.2 | | 48.4 | 24.2 | 18.6 | 48.4 | 23.6 | 17.8 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.34 | 0.26 | 0.10 |
| Incremental Delay, d2 | 10.7 | 3.1 | | 16.1 | 1.3 | | 6.7 | 1.6 | 0.4 | 2.3 | 0.3 | 0.0 |
| Delay (s) | 65.1 | 50.7 | | 68.5 | 45.5 | | 55.1 | 25.8 | 19.0 | 67.1 | 6.5 | 1.8 |
| Level of Service | E | D | | E | D | | E | C | B | E | A | A |
| Approach Delay (s) | | 53.1 | | | 51.4 | | | 28.7 | | | 13.4 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 72.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

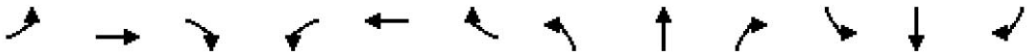
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 340 | 110 | 300 | 660 | 240 | 290 | 750 | 180 | 180 | 1240 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3463 | | 1805 | 3450 | | 1805 | 5187 | 1587 | 1805 | 5072 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3463 | | 1805 | 3450 | | 1805 | 5187 | 1587 | 1805 | 5072 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 340 | 110 | 300 | 660 | 240 | 290 | 750 | 180 | 180 | 1240 | 190 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 33 | 0 | 0 | 0 | 115 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 80 | 421 | 0 | 300 | 867 | 0 | 290 | 750 | 65 | 180 | 1413 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.3 | 28.8 | | 18.0 | 38.5 | | 24.8 | 41.4 | 41.4 | 15.8 | 32.4 | |
| Effective Green, g (s) | 8.3 | 28.8 | | 18.0 | 38.5 | | 24.8 | 41.4 | 41.4 | 15.8 | 32.4 | |
| Actuated g/C Ratio | 0.07 | 0.24 | | 0.15 | 0.32 | | 0.21 | 0.34 | 0.34 | 0.13 | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 831 | | 271 | 1107 | | 373 | 1790 | 548 | 238 | 1369 | |
| v/s Ratio Prot | 0.04 | 0.12 | | c0.17 | c0.25 | | c0.16 | 0.14 | | 0.10 | c0.28 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | |
| v/c Ratio | 0.64 | 0.51 | | 1.11 | 0.78 | | 0.78 | 0.42 | 0.12 | 0.76 | 1.03 | |
| Uniform Delay, d1 | 54.4 | 39.5 | | 51.0 | 37.0 | | 45.0 | 30.1 | 26.8 | 50.2 | 43.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.70 | 0.91 | 2.42 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.7 | 0.5 | | 86.4 | 3.7 | | 9.5 | 0.7 | 0.4 | 12.8 | 33.0 | |
| Delay (s) | 65.1 | 39.9 | | 137.4 | 40.6 | | 41.1 | 28.2 | 65.4 | 63.1 | 76.8 | |
| Level of Service | E | D | | F | D | | D | C | E | E | E | |
| Approach Delay (s) | | 43.7 | | | 64.8 | | | 36.8 | | | 75.3 | |
| Approach LOS | | D | | | E | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 58.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 90.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

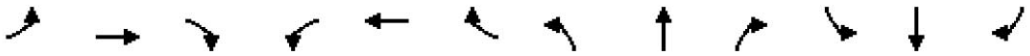
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 550 | 70 | 700 | 920 | 90 | 160 | 210 | 370 | 70 | 250 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.90 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3542 | | 1805 | 3610 | 1592 | 1805 | 3233 | | 1805 | 3428 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3542 | | 1805 | 3610 | 1592 | 1805 | 3233 | | 1805 | 3428 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 550 | 70 | 700 | 920 | 90 | 160 | 210 | 370 | 70 | 250 | 110 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 43 | 0 | 289 | 0 | 0 | 48 | 0 |
| Lane Group Flow (vph) | 80 | 612 | 0 | 700 | 920 | 47 | 160 | 291 | 0 | 70 | 312 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 7.5 | 22.2 | | 25.5 | 40.2 | 47.3 | 13.3 | 20.0 | | 7.1 | 13.8 | |
| Effective Green, g (s) | 7.5 | 22.2 | | 25.5 | 40.2 | 47.3 | 13.3 | 20.0 | | 7.1 | 13.8 | |
| Actuated g/C Ratio | 0.08 | 0.24 | | 0.28 | 0.44 | 0.52 | 0.15 | 0.22 | | 0.08 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 149 | 866 | | 507 | 1598 | 899 | 264 | 712 | | 141 | 521 | |
| v/s Ratio Prot | 0.04 | c0.17 | | c0.39 | 0.25 | 0.00 | c0.09 | 0.09 | | 0.04 | c0.09 | |
| v/s Ratio Perm | | | | | | 0.03 | | | | | | |
| v/c Ratio | 0.54 | 0.71 | | 1.38 | 0.58 | 0.05 | 0.61 | 0.41 | | 0.50 | 0.60 | |
| Uniform Delay, d1 | 40.0 | 31.3 | | 32.6 | 18.9 | 10.7 | 36.3 | 30.3 | | 40.1 | 35.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.7 | 2.6 | | 183.3 | 0.5 | 0.0 | 3.9 | 0.4 | | 2.7 | 1.9 | |
| Delay (s) | 43.7 | 34.0 | | 216.0 | 19.4 | 10.7 | 40.2 | 30.7 | | 42.9 | 37.8 | |
| Level of Service | D | C | | F | B | B | D | C | | D | D | |
| Approach Delay (s) | | 35.1 | | | 99.4 | | | 32.8 | | | 38.6 | |
| Approach LOS | | D | | | F | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 65.8 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 90.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 97.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

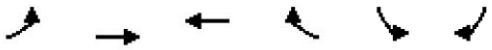
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 650 | 310 | 660 | 1430 | 130 | 320 | 450 | 510 | 160 | 460 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 4911 | | 3502 | 5115 | | 3502 | 3610 | 1601 | 3502 | 3522 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 4911 | | 3502 | 5115 | | 3502 | 3610 | 1601 | 3502 | 3522 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 650 | 310 | 660 | 1430 | 130 | 320 | 450 | 510 | 160 | 460 | 80 |
| RTOR Reduction (vph) | 0 | 70 | 0 | 0 | 8 | 0 | 0 | 0 | 29 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 140 | 890 | 0 | 660 | 1552 | 0 | 320 | 450 | 481 | 160 | 526 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.5 | 28.4 | | 17.3 | 37.2 | | 10.2 | 22.9 | 40.2 | 7.1 | 19.8 | |
| Effective Green, g (s) | 8.5 | 28.4 | | 17.3 | 37.2 | | 10.2 | 22.9 | 40.2 | 7.1 | 19.8 | |
| Actuated g/C Ratio | 0.09 | 0.31 | | 0.19 | 0.41 | | 0.11 | 0.25 | 0.44 | 0.08 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 325 | 1521 | | 661 | 2075 | | 390 | 902 | 772 | 271 | 760 | |
| v/s Ratio Prot | 0.04 | 0.18 | | c0.19 | c0.30 | | c0.09 | 0.12 | c0.12 | 0.05 | 0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.18 | | | |
| v/c Ratio | 0.43 | 0.58 | | 1.00 | 0.75 | | 0.82 | 0.50 | 0.62 | 0.59 | 0.69 | |
| Uniform Delay, d1 | 39.3 | 26.7 | | 37.2 | 23.2 | | 39.9 | 29.5 | 19.9 | 40.9 | 33.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 0.6 | | 34.4 | 1.5 | | 12.9 | 0.4 | 1.6 | 3.4 | 2.7 | |
| Delay (s) | 40.2 | 27.3 | | 71.5 | 24.8 | | 52.8 | 29.9 | 21.5 | 44.3 | 35.9 | |
| Level of Service | D | C | | E | C | | D | C | C | D | D | |
| Approach Delay (s) | | 28.9 | | | 38.7 | | | 32.3 | | | 37.8 | |
| Approach LOS | | C | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 91.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

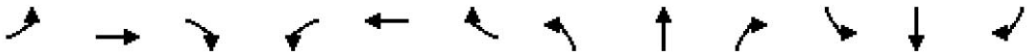
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 610 | 440 | 840 | 60 | 30 | 620 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.91 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 0.86 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 5129 | | 1610 | 1528 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 5129 | | 1610 | 1528 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 610 | 440 | 840 | 60 | 30 | 620 |
| RTOR Reduction (vph) | 0 | 0 | 9 | 0 | 258 | 4 |
| Lane Group Flow (vph) | 610 | 440 | 891 | 0 | 70 | 318 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 29.2 | 51.5 | 18.3 | | 9.2 | 38.4 |
| Effective Green, g (s) | 29.2 | 51.5 | 18.3 | | 9.2 | 38.4 |
| Actuated g/C Ratio | 0.43 | 0.75 | 0.27 | | 0.13 | 0.56 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 767 | 3888 | 1366 | | 216 | 943 |
| v/s Ratio Prot | c0.34 | 0.08 | c0.17 | | 0.04 | c0.14 |
| v/s Ratio Perm | | | | | | 0.06 |
| v/c Ratio | 0.80 | 0.11 | 0.65 | | 0.32 | 0.34 |
| Uniform Delay, d1 | 17.2 | 2.4 | 22.4 | | 26.9 | 8.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.7 | 0.0 | 1.1 | | 0.9 | 0.2 |
| Delay (s) | 22.9 | 2.4 | 23.5 | | 27.8 | 8.4 |
| Level of Service | C | A | C | | C | A |
| Approach Delay (s) | | 14.3 | 23.5 | | 18.2 | |
| Approach LOS | | B | C | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 68.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

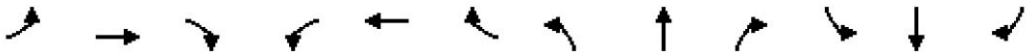
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 460 | 20 | 30 | 980 | 10 | 50 | 100 | 50 | 10 | 40 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.97 | | | 0.89 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5149 | | 1805 | 5178 | | | 1806 | | | 1666 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5149 | | 1805 | 5178 | | | 1806 | | | 1666 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 460 | 20 | 30 | 980 | 10 | 50 | 100 | 50 | 10 | 40 | 230 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 11 | 0 | 0 | 171 | 0 |
| Lane Group Flow (vph) | 170 | 477 | 0 | 30 | 989 | 0 | 0 | 189 | 0 | 0 | 109 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.2 | 28.2 | | 2.4 | 23.4 | | | 12.8 | | | 10.2 | |
| Effective Green, g (s) | 7.2 | 28.2 | | 2.4 | 23.4 | | | 12.8 | | | 10.2 | |
| Actuated g/C Ratio | 0.10 | 0.41 | | 0.03 | 0.34 | | | 0.18 | | | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 187 | 2086 | | 62 | 1741 | | | 332 | | | 244 | |
| v/s Ratio Prot | c0.09 | 0.09 | | 0.02 | c0.19 | | | c0.10 | | | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.91 | 0.23 | | 0.48 | 0.57 | | | 0.57 | | | 0.45 | |
| Uniform Delay, d1 | 30.9 | 13.6 | | 33.0 | 19.0 | | | 25.9 | | | 27.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 40.6 | 0.1 | | 5.8 | 0.4 | | | 2.2 | | | 1.3 | |
| Delay (s) | 71.5 | 13.6 | | 38.8 | 19.4 | | | 28.1 | | | 28.4 | |
| Level of Service | E | B | | D | B | | | C | | | C | |
| Approach Delay (s) | | 28.8 | | | 20.0 | | | 28.1 | | | 28.4 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 69.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

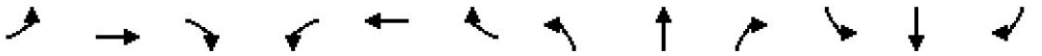
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 460 | 10 | 20 | 950 | 10 | 20 | 0 | 40 | 20 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 0.85 | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5169 | | 1805 | 5178 | | 1805 | | 1615 | 1805 | 1593 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5169 | | 1805 | 5178 | | 1805 | | 1615 | 1805 | 1593 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 460 | 10 | 20 | 950 | 10 | 20 | 0 | 40 | 20 | 0 | 20 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 20 | 469 | 0 | 20 | 960 | 0 | 20 | 0 | 3 | 20 | 0 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.8 | 22.2 | | 2.7 | 24.1 | | 0.8 | | 2.7 | 5.6 | 0.8 | |
| Effective Green, g (s) | 0.8 | 22.2 | | 2.7 | 24.1 | | 0.8 | | 2.7 | 5.6 | 0.8 | |
| Actuated g/C Ratio | 0.02 | 0.52 | | 0.06 | 0.57 | | 0.02 | | 0.06 | 0.13 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 34 | 2700 | | 115 | 2936 | | 34 | | 103 | 238 | 30 | |
| v/s Ratio Prot | c0.01 | 0.09 | | 0.01 | c0.19 | | c0.01 | | 0.00 | c0.01 | 0.00 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.59 | 0.17 | | 0.17 | 0.33 | | 0.59 | | 0.02 | 0.08 | 0.01 | |
| Uniform Delay, d1 | 20.7 | 5.3 | | 18.8 | 4.9 | | 20.7 | | 18.7 | 16.2 | 20.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 23.4 | 0.0 | | 0.7 | 0.1 | | 23.4 | | 0.1 | 0.2 | 0.2 | |
| Delay (s) | 44.1 | 5.4 | | 19.6 | 5.0 | | 44.1 | | 18.8 | 16.4 | 20.6 | |
| Level of Service | D | A | | B | A | | D | | B | B | C | |
| Approach Delay (s) | | 6.9 | | | 5.3 | | | 27.2 | | | 18.5 | |
| Approach LOS | | A | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.26 | | |
| Actuated Cycle Length (s) | 42.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 38.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

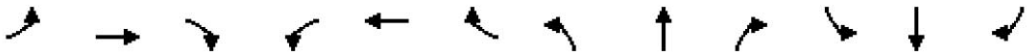
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 170 | 140 | 160 | 220 | 140 | 420 | 920 | 200 | 80 | 1210 | 400 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1586 | 1805 | 1900 | 1587 | 3502 | 5187 | 1586 | 1805 | 5187 | 1579 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1586 | 1805 | 1900 | 1587 | 3502 | 5187 | 1586 | 1805 | 5187 | 1579 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 170 | 140 | 160 | 220 | 140 | 420 | 920 | 200 | 80 | 1210 | 400 |
| RTOR Reduction (vph) | 0 | 0 | 121 | 0 | 0 | 112 | 0 | 0 | 104 | 0 | 0 | 200 |
| Lane Group Flow (vph) | 90 | 170 | 19 | 160 | 220 | 28 | 420 | 920 | 97 | 80 | 1210 | 200 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 16.6 | 16.6 | 16.6 | 20.2 | 20.2 | 20.2 | 22.1 | 57.9 | 57.9 | 9.3 | 45.1 | 45.1 |
| Effective Green, g (s) | 16.6 | 16.6 | 16.6 | 20.2 | 20.2 | 20.2 | 22.1 | 57.9 | 57.9 | 9.3 | 45.1 | 45.1 |
| Actuated g/C Ratio | 0.14 | 0.14 | 0.14 | 0.17 | 0.17 | 0.17 | 0.18 | 0.48 | 0.48 | 0.08 | 0.38 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 250 | 263 | 219 | 304 | 320 | 267 | 645 | 2503 | 765 | 140 | 1949 | 593 |
| v/s Ratio Prot | 0.05 | c0.09 | | 0.09 | c0.12 | | c0.12 | 0.18 | | 0.04 | c0.23 | |
| v/s Ratio Perm | | | 0.01 | | | 0.02 | | | 0.06 | | | 0.13 |
| v/c Ratio | 0.36 | 0.65 | 0.09 | 0.53 | 0.69 | 0.10 | 0.65 | 0.37 | 0.13 | 0.57 | 0.62 | 0.34 |
| Uniform Delay, d1 | 46.9 | 48.9 | 45.1 | 45.5 | 46.9 | 42.2 | 45.4 | 19.5 | 17.1 | 53.4 | 30.5 | 26.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.42 | 0.37 | 0.75 |
| Incremental Delay, d2 | 0.9 | 5.4 | 0.2 | 1.6 | 6.0 | 0.2 | 2.4 | 0.4 | 0.3 | 1.7 | 0.5 | 0.5 |
| Delay (s) | 47.8 | 54.3 | 45.3 | 47.2 | 53.0 | 42.4 | 47.7 | 19.9 | 17.4 | 77.7 | 11.6 | 20.7 |
| Level of Service | D | D | D | D | D | D | D | B | B | E | B | C |
| Approach Delay (s) | | 49.7 | | | 48.3 | | | 27.2 | | | 16.9 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 68.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

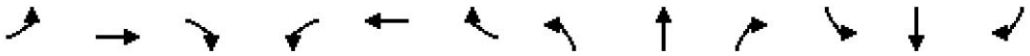
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 350 | 110 | 80 | 330 | 120 | 300 | 550 | 80 | 200 | 790 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3468 | | 1805 | 3451 | | 1805 | 3534 | | 1805 | 3549 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3468 | | 1805 | 3451 | | 1805 | 3534 | | 1805 | 3549 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 100 | 350 | 110 | 80 | 330 | 120 | 300 | 550 | 80 | 200 | 790 | 90 |
| RTOR Reduction (vph) | 0 | 35 | 0 | 0 | 45 | 0 | 0 | 12 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 100 | 425 | 0 | 80 | 405 | 0 | 300 | 618 | 0 | 200 | 871 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 17.3 | | 5.4 | 15.6 | | 11.2 | 25.1 | | 10.2 | 24.1 | |
| Effective Green, g (s) | 7.1 | 17.3 | | 5.4 | 15.6 | | 11.2 | 25.1 | | 10.2 | 24.1 | |
| Actuated g/C Ratio | 0.10 | 0.23 | | 0.07 | 0.21 | | 0.15 | 0.34 | | 0.14 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 173 | 811 | | 132 | 728 | | 273 | 1199 | | 249 | 1156 | |
| v/s Ratio Prot | c0.06 | c0.12 | | 0.04 | 0.12 | | c0.17 | 0.17 | | 0.11 | c0.25 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.58 | 0.52 | | 0.61 | 0.56 | | 1.10 | 0.52 | | 0.80 | 0.75 | |
| Uniform Delay, d1 | 32.0 | 24.8 | | 33.3 | 26.1 | | 31.4 | 19.6 | | 30.9 | 22.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.6 | 0.6 | | 7.6 | 0.9 | | 83.5 | 0.4 | | 16.9 | 2.8 | |
| Delay (s) | 36.6 | 25.4 | | 40.9 | 27.0 | | 114.9 | 20.0 | | 47.8 | 25.1 | |
| Level of Service | D | C | | D | C | | F | B | | D | C | |
| Approach Delay (s) | | 27.4 | | | 29.1 | | | 50.6 | | | 29.3 | |
| Approach LOS | | C | | | C | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 74.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

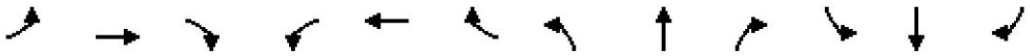
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 330 | 260 | 220 | 150 | 150 | 130 | 220 | 1090 | 200 | 130 | 970 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3338 | | 1805 | 3359 | | 1805 | 3610 | 1615 | 1805 | 3535 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3338 | | 1805 | 3359 | | 1805 | 3610 | 1615 | 1805 | 3535 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 330 | 260 | 220 | 150 | 150 | 130 | 220 | 1090 | 200 | 130 | 970 | 140 |
| RTOR Reduction (vph) | 0 | 164 | 0 | 0 | 113 | 0 | 0 | 0 | 94 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 330 | 316 | 0 | 150 | 167 | 0 | 220 | 1090 | 106 | 130 | 1100 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.9 | 13.5 | | 7.1 | 9.7 | | 8.1 | 30.3 | 37.4 | 8.1 | 30.3 | |
| Effective Green, g (s) | 10.9 | 13.5 | | 7.1 | 9.7 | | 8.1 | 30.3 | 37.4 | 8.1 | 30.3 | |
| Actuated g/C Ratio | 0.15 | 0.18 | | 0.09 | 0.13 | | 0.11 | 0.40 | 0.50 | 0.11 | 0.40 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 509 | 601 | | 171 | 434 | | 195 | 1458 | 891 | 195 | 1428 | |
| v/s Ratio Prot | 0.09 | c0.09 | | c0.08 | 0.05 | | c0.12 | 0.30 | 0.01 | 0.07 | c0.31 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.65 | 0.53 | | 0.88 | 0.38 | | 1.13 | 0.75 | 0.12 | 0.67 | 0.77 | |
| Uniform Delay, d1 | 30.2 | 27.9 | | 33.5 | 29.9 | | 33.5 | 19.1 | 10.0 | 32.2 | 19.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.8 | 0.8 | | 36.0 | 0.6 | | 103.1 | 2.1 | 0.1 | 8.3 | 2.6 | |
| Delay (s) | 33.1 | 28.7 | | 69.6 | 30.5 | | 136.6 | 21.2 | 10.1 | 40.5 | 22.0 | |
| Level of Service | C | C | | E | C | | F | C | B | D | C | |
| Approach Delay (s) | | 30.5 | | | 44.1 | | | 36.6 | | | 23.9 | |
| Approach LOS | | C | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 81.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

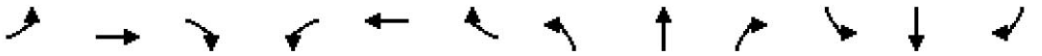
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 670 | 120 | 90 | 1200 | 260 | 190 | 210 | 60 | 190 | 160 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5055 | | 1805 | 5187 | 1593 | 3502 | 1830 | | 1805 | 3380 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5055 | | 1805 | 5187 | 1593 | 3502 | 1830 | | 1805 | 3380 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 670 | 120 | 90 | 1200 | 260 | 190 | 210 | 60 | 190 | 160 | 100 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 0 | 101 | 0 | 11 | 0 | 0 | 75 | 0 |
| Lane Group Flow (vph) | 60 | 774 | 0 | 90 | 1200 | 159 | 190 | 259 | 0 | 190 | 185 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 8.2 | 52.4 | | 11.3 | 55.5 | 73.3 | 10.4 | 22.5 | | 17.8 | 29.9 | |
| Effective Green, g (s) | 8.2 | 52.4 | | 11.3 | 55.5 | 73.3 | 10.4 | 22.5 | | 17.8 | 29.9 | |
| Actuated g/C Ratio | 0.07 | 0.44 | | 0.09 | 0.46 | 0.61 | 0.09 | 0.19 | | 0.15 | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 123 | 2207 | | 170 | 2399 | 973 | 304 | 343 | | 268 | 842 | |
| v/s Ratio Prot | 0.03 | 0.15 | | c0.05 | c0.23 | 0.02 | 0.05 | c0.14 | | c0.11 | 0.05 | |
| v/s Ratio Perm | | | | | | 0.08 | | | | | | |
| v/c Ratio | 0.49 | 0.35 | | 0.53 | 0.50 | 0.16 | 0.62 | 0.76 | | 0.71 | 0.22 | |
| Uniform Delay, d1 | 53.9 | 22.5 | | 51.8 | 22.6 | 10.1 | 52.9 | 46.2 | | 48.6 | 35.8 | |
| Progression Factor | 0.90 | 0.47 | | 1.00 | 1.00 | 1.00 | 0.74 | 0.78 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.9 | 0.4 | | 3.0 | 0.7 | 0.1 | 3.8 | 8.9 | | 8.3 | 0.1 | |
| Delay (s) | 51.2 | 11.1 | | 54.8 | 23.3 | 10.2 | 43.1 | 44.8 | | 56.9 | 35.9 | |
| Level of Service | D | B | | D | C | B | D | D | | E | D | |
| Approach Delay (s) | | 13.9 | | | 22.9 | | | 44.1 | | | 44.8 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 630 | 170 | 80 | 1150 | 20 | 160 | 260 | 120 | 30 | 250 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1591 | 1805 | 5187 | 1595 | 1805 | 1900 | 1599 | 1805 | 3407 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1591 | 1805 | 5187 | 1595 | 1805 | 1900 | 1599 | 1805 | 3407 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 30 | 630 | 170 | 80 | 1150 | 20 | 160 | 260 | 120 | 30 | 250 | 130 |
| RTOR Reduction (vph) | 0 | 0 | 114 | 0 | 0 | 5 | 0 | 0 | 79 | 0 | 82 | 0 |
| Lane Group Flow (vph) | 30 | 630 | 56 | 80 | 1150 | 15 | 160 | 260 | 41 | 30 | 298 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 2.3 | 20.7 | 20.7 | 7.3 | 25.7 | 33.0 | 10.2 | 15.2 | 22.5 | 7.3 | 12.3 | |
| Effective Green, g (s) | 2.3 | 20.7 | 20.7 | 7.3 | 25.7 | 33.0 | 10.2 | 15.2 | 22.5 | 7.3 | 12.3 | |
| Actuated g/C Ratio | 0.03 | 0.31 | 0.31 | 0.11 | 0.39 | 0.50 | 0.15 | 0.23 | 0.34 | 0.11 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 62 | 1615 | 495 | 198 | 2005 | 887 | 277 | 434 | 637 | 198 | 630 | |
| v/s Ratio Prot | 0.02 | 0.12 | | c0.04 | c0.22 | 0.00 | c0.09 | c0.14 | 0.01 | 0.02 | 0.09 | |
| v/s Ratio Perm | | | 0.03 | | | 0.01 | | | 0.02 | | | |
| v/c Ratio | 0.48 | 0.39 | 0.11 | 0.40 | 0.57 | 0.02 | 0.58 | 0.60 | 0.06 | 0.15 | 0.47 | |
| Uniform Delay, d1 | 31.5 | 18.0 | 16.3 | 27.6 | 16.1 | 8.5 | 26.1 | 22.9 | 14.9 | 26.8 | 24.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.8 | 0.2 | 0.1 | 1.3 | 0.4 | 0.0 | 2.9 | 2.2 | 0.0 | 0.4 | 0.6 | |
| Delay (s) | 37.4 | 18.1 | 16.4 | 28.9 | 16.5 | 8.5 | 29.1 | 25.2 | 14.9 | 27.2 | 24.8 | |
| Level of Service | D | B | B | C | B | A | C | C | B | C | C | |
| Approach Delay (s) | | 18.5 | | | 17.1 | | | 24.0 | | | 24.9 | |
| Approach LOS | | B | | | B | | | C | | | C | |

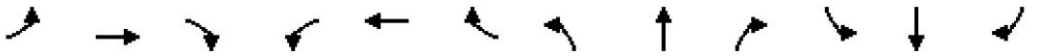
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 66.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 64.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 420 | 180 | 100 | 750 | 110 | 240 | 30 | 70 | 70 | 30 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 0.90 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4954 | | 1805 | 5077 | | 1805 | 3231 | | 1805 | 3090 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4954 | | 1805 | 5077 | | 1805 | 3231 | | 1805 | 3090 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 210 | 420 | 180 | 100 | 750 | 110 | 240 | 30 | 70 | 70 | 30 | 230 |
| RTOR Reduction (vph) | 0 | 57 | 0 | 0 | 15 | 0 | 0 | 58 | 0 | 0 | 204 | 0 |
| Lane Group Flow (vph) | 210 | 543 | 0 | 100 | 845 | 0 | 240 | 42 | 0 | 70 | 56 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 14.7 | 26.9 | | 8.1 | 20.3 | | 16.4 | 12.5 | | 12.5 | 8.6 | |
| Effective Green, g (s) | 14.7 | 26.9 | | 8.1 | 20.3 | | 16.4 | 12.5 | | 12.5 | 8.6 | |
| Actuated g/C Ratio | 0.19 | 0.35 | | 0.11 | 0.27 | | 0.22 | 0.16 | | 0.16 | 0.11 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 349 | 1753 | | 192 | 1356 | | 390 | 531 | | 297 | 350 | |
| v/s Ratio Prot | c0.12 | 0.11 | | 0.06 | c0.17 | | c0.13 | c0.01 | | 0.04 | c0.02 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.60 | 0.31 | | 0.52 | 0.62 | | 0.62 | 0.08 | | 0.24 | 0.16 | |
| Uniform Delay, d1 | 28.0 | 17.8 | | 32.1 | 24.5 | | 26.9 | 26.9 | | 27.6 | 30.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.9 | 0.1 | | 2.5 | 0.9 | | 2.9 | 0.1 | | 0.4 | 0.2 | |
| Delay (s) | 30.9 | 17.9 | | 34.7 | 25.4 | | 29.8 | 26.9 | | 28.0 | 30.7 | |
| Level of Service | C | B | | C | C | | C | C | | C | C | |
| Approach Delay (s) | | 21.3 | | | 26.3 | | | 29.0 | | | 30.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 76.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 68.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

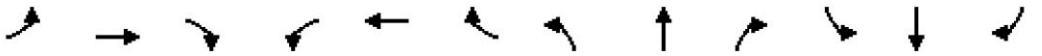
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 170 | 290 | 290 | 410 | 80 | 360 | 660 | 80 | 40 | 870 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1589 | 1805 | 3610 | 1590 | 1805 | 5094 | | 1805 | 5187 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1589 | 1805 | 3610 | 1590 | 1805 | 5094 | | 1805 | 5187 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 170 | 290 | 290 | 410 | 80 | 360 | 660 | 80 | 40 | 870 | 180 |
| RTOR Reduction (vph) | 0 | 0 | 256 | 0 | 0 | 61 | 0 | 11 | 0 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 70 | 170 | 34 | 290 | 410 | 19 | 360 | 729 | 0 | 40 | 870 | 90 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 7.1 | 10.6 | 10.6 | 18.1 | 21.6 | 21.6 | 22.2 | 42.5 | | 4.0 | 24.3 | 24.3 |
| Effective Green, g (s) | 7.1 | 10.6 | 10.6 | 18.1 | 21.6 | 21.6 | 22.2 | 42.5 | | 4.0 | 24.3 | 24.3 |
| Actuated g/C Ratio | 0.08 | 0.12 | 0.12 | 0.20 | 0.24 | 0.24 | 0.24 | 0.47 | | 0.04 | 0.27 | 0.27 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 141 | 603 | 185 | 358 | 855 | 377 | 439 | 2374 | | 79 | 1382 | 423 |
| v/s Ratio Prot | 0.04 | 0.03 | | c0.16 | c0.11 | | c0.20 | 0.14 | | 0.02 | c0.17 | |
| v/s Ratio Perm | | | 0.02 | | | 0.01 | | | | | | 0.06 |
| v/c Ratio | 0.50 | 0.28 | 0.18 | 0.81 | 0.48 | 0.05 | 0.82 | 0.31 | | 0.51 | 0.63 | 0.21 |
| Uniform Delay, d1 | 40.3 | 36.8 | 36.4 | 34.9 | 30.0 | 26.9 | 32.6 | 15.2 | | 42.6 | 29.5 | 26.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.7 | 0.3 | 0.5 | 13.0 | 0.4 | 0.1 | 11.6 | 0.1 | | 5.0 | 0.9 | 0.3 |
| Delay (s) | 43.1 | 37.1 | 36.9 | 47.9 | 30.4 | 26.9 | 44.2 | 15.2 | | 47.7 | 30.4 | 26.3 |
| Level of Service | D | D | D | D | C | C | D | B | | D | C | C |
| Approach Delay (s) | | 37.8 | | | 36.5 | | | 24.7 | | | 30.3 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 91.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

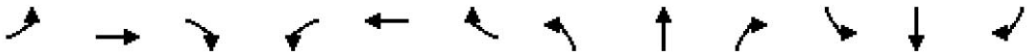
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 530 | 150 | 30 | 630 | 30 | 190 | 310 | 40 | 50 | 300 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3476 | | 1805 | 3582 | | 1805 | 3541 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3476 | | 1805 | 3582 | | 1805 | 3541 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 530 | 150 | 30 | 630 | 30 | 190 | 310 | 40 | 50 | 300 | 100 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 2 | 0 | 0 | 10 | 0 | 0 | 0 | 79 |
| Lane Group Flow (vph) | 110 | 662 | 0 | 30 | 658 | 0 | 190 | 340 | 0 | 50 | 300 | 21 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 12.1 | 57.0 | | 4.6 | 49.5 | | 17.6 | 36.1 | | 6.3 | 24.8 | 24.8 |
| Effective Green, g (s) | 12.1 | 57.0 | | 4.6 | 49.5 | | 17.6 | 36.1 | | 6.3 | 24.8 | 24.8 |
| Actuated g/C Ratio | 0.10 | 0.48 | | 0.04 | 0.41 | | 0.15 | 0.30 | | 0.05 | 0.21 | 0.21 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 182 | 1651 | | 69 | 1478 | | 265 | 1065 | | 95 | 393 | 328 |
| v/s Ratio Prot | c0.06 | 0.19 | | 0.02 | c0.18 | | c0.11 | 0.10 | | 0.03 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.60 | 0.40 | | 0.43 | 0.44 | | 0.72 | 0.32 | | 0.53 | 0.76 | 0.06 |
| Uniform Delay, d1 | 51.7 | 20.4 | | 56.4 | 25.4 | | 48.8 | 32.4 | | 55.4 | 44.8 | 38.3 |
| Progression Factor | 1.09 | 0.61 | | 1.32 | 0.75 | | 1.00 | 1.00 | | 0.94 | 0.91 | 1.17 |
| Incremental Delay, d2 | 5.1 | 0.7 | | 4.0 | 0.9 | | 8.9 | 0.2 | | 5.1 | 8.4 | 0.1 |
| Delay (s) | 61.7 | 13.2 | | 78.2 | 20.0 | | 57.7 | 32.6 | | 57.3 | 49.2 | 44.9 |
| Level of Service | E | B | | E | C | | E | C | | E | D | D |
| Approach Delay (s) | | 19.9 | | | 22.6 | | | 41.5 | | | 49.1 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 70.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

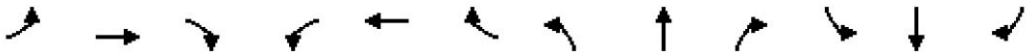
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 370 | 230 | 300 | 480 | 50 | 180 | 590 | 330 | 70 | 520 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3379 | | 1805 | 3553 | | 1805 | 3610 | 1586 | 1805 | 3557 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3379 | | 1805 | 3553 | | 1805 | 3610 | 1586 | 1805 | 3557 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 370 | 230 | 300 | 480 | 50 | 180 | 590 | 330 | 70 | 520 | 50 |
| RTOR Reduction (vph) | 0 | 76 | 0 | 0 | 6 | 0 | 0 | 0 | 239 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 70 | 524 | 0 | 300 | 524 | 0 | 180 | 590 | 91 | 70 | 564 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 7.7 | 34.3 | | 28.8 | 55.4 | | 16.8 | 33.2 | 33.2 | 7.7 | 24.1 | |
| Effective Green, g (s) | 7.7 | 34.3 | | 28.8 | 55.4 | | 16.8 | 33.2 | 33.2 | 7.7 | 24.1 | |
| Actuated g/C Ratio | 0.06 | 0.29 | | 0.24 | 0.46 | | 0.14 | 0.28 | 0.28 | 0.06 | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 116 | 966 | | 433 | 1640 | | 253 | 999 | 439 | 116 | 714 | |
| v/s Ratio Prot | 0.04 | c0.15 | | c0.17 | 0.15 | | c0.10 | 0.16 | | 0.04 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | |
| v/c Ratio | 0.60 | 0.54 | | 0.69 | 0.32 | | 0.71 | 0.59 | 0.21 | 0.60 | 0.79 | |
| Uniform Delay, d1 | 54.7 | 36.2 | | 41.6 | 20.4 | | 49.3 | 37.5 | 33.3 | 54.7 | 45.5 | |
| Progression Factor | 0.66 | 0.80 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.2 | 2.1 | | 4.8 | 0.5 | | 9.1 | 0.9 | 0.2 | 8.6 | 5.8 | |
| Delay (s) | 44.4 | 31.0 | | 46.3 | 20.9 | | 58.4 | 38.5 | 33.5 | 63.2 | 51.3 | |
| Level of Service | D | C | | D | C | | E | D | C | E | D | |
| Approach Delay (s) | | 32.4 | | | 30.1 | | | 40.2 | | | 52.6 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 81.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 140 | 30 | 90 | 180 | 210 | 60 | 70 | 150 | 190 | 40 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.92 | | 1.00 | 0.90 | | 1.00 | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1803 | 3506 | | 1803 | 3294 | | 1803 | 3211 | | 1803 | 3220 | |
| Flt Permitted | 0.52 | 1.00 | | 0.64 | 1.00 | | 0.68 | 1.00 | | 0.61 | 1.00 | |
| Satd. Flow (perm) | 990 | 3506 | | 1223 | 3294 | | 1283 | 3211 | | 1166 | 3220 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 140 | 30 | 90 | 180 | 210 | 60 | 70 | 150 | 190 | 40 | 80 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 134 | 0 | 0 | 103 | 0 | 0 | 55 | 0 |
| Lane Group Flow (vph) | 60 | 151 | 0 | 90 | 256 | 0 | 60 | 117 | 0 | 190 | 65 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.9 | 8.9 | | 8.9 | 8.9 | | 7.7 | 7.7 | | 7.7 | 7.7 | |
| Effective Green, g (s) | 8.9 | 8.9 | | 8.9 | 8.9 | | 7.7 | 7.7 | | 7.7 | 7.7 | |
| Actuated g/C Ratio | 0.36 | 0.36 | | 0.36 | 0.36 | | 0.31 | 0.31 | | 0.31 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 358 | 1268 | | 442 | 1192 | | 402 | 1005 | | 365 | 1008 | |
| v/s Ratio Prot | | 0.04 | | | c0.08 | | | 0.04 | | | 0.02 | |
| v/s Ratio Perm | 0.06 | | | 0.07 | | | 0.05 | | | c0.16 | | |
| v/c Ratio | 0.17 | 0.12 | | 0.20 | 0.21 | | 0.15 | 0.12 | | 0.52 | 0.06 | |
| Uniform Delay, d1 | 5.3 | 5.2 | | 5.4 | 5.4 | | 6.1 | 6.0 | | 6.9 | 5.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.0 | | 0.2 | 0.1 | | 0.2 | 0.1 | | 1.3 | 0.0 | |
| Delay (s) | 5.6 | 5.3 | | 5.6 | 5.5 | | 6.3 | 6.1 | | 8.3 | 6.0 | |
| Level of Service | A | A | | A | A | | A | A | | A | A | |
| Approach Delay (s) | | 5.4 | | | 5.5 | | | 6.1 | | | 7.4 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 24.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

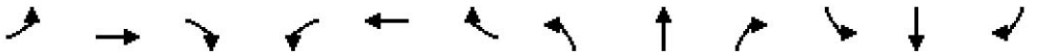
# HCM Signalized Intersection Capacity Analysis
## 55: Cactus Ave & Nason St

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 360 | 300 | 170 | 180 | 360 | 390 | 220 | 290 | 160 | 350 | 300 | 490 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.92 | | 1.00 | 0.95 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3395 | | 1805 | 3302 | | 1805 | 4881 | | 3502 | 4655 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3395 | | 1805 | 3302 | | 1805 | 4881 | | 3502 | 4655 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 360 | 300 | 170 | 180 | 360 | 390 | 220 | 290 | 160 | 350 | 300 | 490 |
| RTOR Reduction (vph) | 0 | 68 | 0 | 0 | 184 | 0 | 0 | 87 | 0 | 0 | 261 | 0 |
| Lane Group Flow (vph) | 360 | 402 | 0 | 180 | 566 | 0 | 220 | 363 | 0 | 350 | 529 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 23.3 | 30.6 | | 14.3 | 21.6 | | 14.2 | 17.8 | | 13.3 | 16.9 | |
| Effective Green, g (s) | 23.3 | 30.6 | | 14.3 | 21.6 | | 14.2 | 17.8 | | 13.3 | 16.9 | |
| Actuated g/C Ratio | 0.25 | 0.33 | | 0.16 | 0.23 | | 0.15 | 0.19 | | 0.14 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 457 | 1129 | | 281 | 775 | | 279 | 944 | | 506 | 855 | |
| v/s Ratio Prot | c0.20 | 0.12 | | 0.10 | c0.17 | | c0.12 | 0.07 | | 0.10 | c0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.79 | 0.36 | | 0.64 | 0.73 | | 0.79 | 0.38 | | 0.69 | 0.88dr | |
| Uniform Delay, d1 | 32.0 | 23.2 | | 36.4 | 32.5 | | 37.5 | 32.3 | | 37.4 | 34.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.7 | 0.2 | | 4.9 | 3.5 | | 13.7 | 0.3 | | 4.1 | 1.3 | |
| Delay (s) | 40.8 | 23.4 | | 41.4 | 36.0 | | 51.2 | 32.6 | | 41.5 | 35.9 | |
| Level of Service | D | C | | D | D | | D | C | | D | D | |
| Approach Delay (s) | | 31.0 | | | 37.0 | | | 38.7 | | | 37.6 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 92.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 87.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

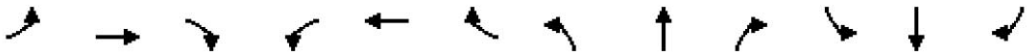
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 990 | 120 | 60 | 1030 | 100 | 60 | 190 | 40 | 110 | 260 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5110 | | 3502 | 3506 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5110 | | 3502 | 3506 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 100 | 990 | 120 | 60 | 1030 | 100 | 60 | 190 | 40 | 110 | 260 | 170 |
| RTOR Reduction (vph) | 0 | 0 | 46 | 0 | 6 | 0 | 0 | 20 | 0 | 0 | 0 | 147 |
| Lane Group Flow (vph) | 100 | 990 | 74 | 60 | 1124 | 0 | 60 | 210 | 0 | 110 | 260 | 23 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.9 | 73.7 | 73.7 | 8.2 | 70.0 | | 5.6 | 14.3 | | 7.8 | 16.5 | 16.5 |
| Effective Green, g (s) | 11.9 | 73.7 | 73.7 | 8.2 | 70.0 | | 5.6 | 14.3 | | 7.8 | 16.5 | 16.5 |
| Actuated g/C Ratio | 0.10 | 0.61 | 0.61 | 0.07 | 0.58 | | 0.05 | 0.12 | | 0.06 | 0.14 | 0.14 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 179 | 2217 | 974 | 123 | 2981 | | 163 | 418 | | 228 | 496 | 218 |
| v/s Ratio Prot | c0.06 | c0.27 | | 0.03 | 0.22 | | 0.02 | 0.06 | | c0.03 | c0.07 | |
| v/s Ratio Perm | | | 0.05 | | | | | | | | | 0.01 |
| v/c Ratio | 0.56 | 0.45 | 0.08 | 0.49 | 0.38 | | 0.37 | 0.50 | | 0.48 | 0.52 | 0.11 |
| Uniform Delay, d1 | 51.5 | 12.3 | 9.4 | 53.9 | 13.4 | | 55.5 | 49.5 | | 54.2 | 48.1 | 45.3 |
| Progression Factor | 1.57 | 0.17 | 0.01 | 0.96 | 0.50 | | 0.99 | 0.85 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.2 | 0.6 | 0.1 | 2.8 | 0.3 | | 1.4 | 0.9 | | 1.6 | 1.0 | 0.2 |
| Delay (s) | 84.3 | 2.6 | 0.3 | 54.5 | 7.1 | | 56.5 | 42.8 | | 55.8 | 49.1 | 45.5 |
| Level of Service | F | A | A | D | A | | E | D | | E | D | D |
| Approach Delay (s) | | 9.1 | | | 9.5 | | | 45.6 | | | 49.3 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

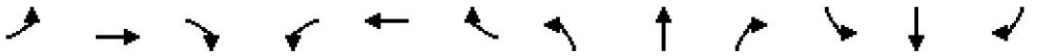
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 850 | 250 | 320 | 980 | 60 | 120 | 240 | 190 | 110 | 390 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.93 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5137 | | 1805 | 3347 | | 1805 | 3530 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5137 | | 1805 | 3347 | | 1805 | 3530 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 850 | 250 | 320 | 980 | 60 | 120 | 240 | 190 | 110 | 390 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 155 | 0 | 4 | 0 | 0 | 149 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 40 | 850 | 95 | 320 | 1036 | 0 | 120 | 281 | 0 | 110 | 438 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 7.0 | 45.4 | 45.4 | 28.0 | 66.4 | | 9.9 | 22.6 | | 8.0 | 20.7 | |
| Effective Green, g (s) | 7.0 | 45.4 | 45.4 | 28.0 | 66.4 | | 9.9 | 22.6 | | 8.0 | 20.7 | |
| Actuated g/C Ratio | 0.06 | 0.38 | 0.38 | 0.23 | 0.55 | | 0.08 | 0.19 | | 0.07 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 105 | 1366 | 600 | 421 | 2842 | | 149 | 630 | | 120 | 609 | |
| v/s Ratio Prot | 0.02 | c0.24 | | c0.18 | 0.20 | | c0.07 | 0.08 | | 0.06 | c0.12 | |
| v/s Ratio Perm | | | 0.06 | | | | | | | | | |
| v/c Ratio | 0.38 | 0.62 | 0.16 | 0.76 | 0.36 | | 0.81 | 0.45 | | 0.92 | 0.72 | |
| Uniform Delay, d1 | 54.4 | 30.3 | 24.7 | 42.9 | 15.0 | | 54.1 | 43.2 | | 55.7 | 46.9 | |
| Progression Factor | 0.88 | 0.96 | 2.17 | 0.50 | 0.74 | | 0.88 | 1.16 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.1 | 2.0 | 0.5 | 6.4 | 0.3 | | 25.4 | 0.5 | | 56.4 | 4.1 | |
| Delay (s) | 49.8 | 31.1 | 54.2 | 27.9 | 11.4 | | 73.1 | 50.7 | | 112.1 | 50.9 | |
| Level of Service | D | C | D | C | B | | E | D | | F | D | |
| Approach Delay (s) | | 36.8 | | | 15.3 | | | 55.6 | | | 63.0 | |
| Approach LOS | | D | | | B | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 800 | 70 | 80 | 1390 | 190 | 140 | 290 | 40 | 170 | 320 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1591 | 1805 | 5083 | | 1805 | 3537 | | 1805 | 3610 | 1601 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1591 | 1805 | 5083 | | 1805 | 3537 | | 1805 | 3610 | 1601 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 800 | 70 | 80 | 1390 | 190 | 140 | 290 | 40 | 170 | 320 | 120 |
| RTOR Reduction (vph) | 0 | 0 | 25 | 0 | 11 | 0 | 0 | 12 | 0 | 0 | 0 | 35 |
| Lane Group Flow (vph) | 130 | 800 | 45 | 80 | 1569 | 0 | 140 | 318 | 0 | 170 | 320 | 85 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 15.1 | 65.6 | 77.9 | 9.3 | 59.8 | | 12.3 | 16.3 | | 12.8 | 16.8 | 31.9 |
| Effective Green, g (s) | 15.1 | 65.6 | 77.9 | 9.3 | 59.8 | | 12.3 | 16.3 | | 12.8 | 16.8 | 31.9 |
| Actuated g/C Ratio | 0.13 | 0.55 | 0.65 | 0.08 | 0.50 | | 0.10 | 0.14 | | 0.11 | 0.14 | 0.27 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 227 | 2836 | 1086 | 140 | 2533 | | 185 | 480 | | 193 | 505 | 479 |
| v/s Ratio Prot | c0.07 | 0.15 | 0.00 | 0.04 | c0.31 | | 0.08 | c0.09 | | c0.09 | 0.09 | 0.02 |
| v/s Ratio Perm | | | 0.02 | | | | | | | | | 0.03 |
| v/c Ratio | 0.57 | 0.28 | 0.04 | 0.57 | 0.62 | | 0.76 | 0.66 | | 0.88 | 0.63 | 0.18 |
| Uniform Delay, d1 | 49.4 | 14.6 | 7.6 | 53.4 | 21.8 | | 52.4 | 49.2 | | 52.8 | 48.7 | 34.0 |
| Progression Factor | 1.51 | 0.36 | 0.00 | 1.09 | 0.81 | | 0.83 | 1.08 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.8 | 0.2 | 0.0 | 4.7 | 1.0 | | 15.3 | 3.2 | | 34.1 | 2.6 | 0.2 |
| Delay (s) | 77.3 | 5.4 | 0.0 | 62.8 | 18.6 | | 58.8 | 56.3 | | 86.9 | 51.3 | 34.1 |
| Level of Service | E | A | A | E | B | | E | E | | F | D | C |
| Approach Delay (s) | | 14.3 | | | 20.7 | | | 57.0 | | | 57.8 | |
| Approach LOS | | B | | | C | | | E | | | E | |

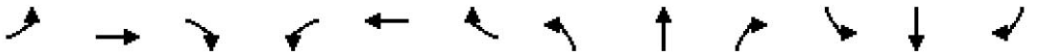
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 74.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 630 | 90 | 110 | 1390 | 110 | 170 | 260 | 90 | 110 | 290 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5078 | | 1805 | 5123 | | 1805 | 3456 | | 1805 | 3446 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5078 | | 1805 | 5123 | | 1805 | 3456 | | 1805 | 3446 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 630 | 90 | 110 | 1390 | 110 | 170 | 260 | 90 | 110 | 290 | 110 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 5 | 0 | 0 | 38 | 0 | 0 | 44 | 0 |
| Lane Group Flow (vph) | 40 | 709 | 0 | 110 | 1495 | 0 | 170 | 312 | 0 | 110 | 356 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.0 | 59.2 | | 12.6 | 64.8 | | 14.2 | 20.4 | | 11.8 | 18.0 | |
| Effective Green, g (s) | 7.0 | 59.2 | | 12.6 | 64.8 | | 14.2 | 20.4 | | 11.8 | 18.0 | |
| Actuated g/C Ratio | 0.06 | 0.49 | | 0.10 | 0.54 | | 0.12 | 0.17 | | 0.10 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 105 | 2505 | | 190 | 2766 | | 214 | 588 | | 177 | 517 | |
| v/s Ratio Prot | 0.02 | 0.14 | | c0.06 | c0.29 | | c0.09 | 0.09 | | 0.06 | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.38 | 0.28 | | 0.58 | 0.54 | | 0.79 | 0.53 | | 0.62 | 0.69 | |
| Uniform Delay, d1 | 54.4 | 17.9 | | 51.2 | 17.9 | | 51.5 | 45.4 | | 52.0 | 48.3 | |
| Progression Factor | 1.11 | 0.54 | | 1.15 | 0.35 | | 0.91 | 0.52 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.2 | 0.3 | | 3.4 | 0.6 | | 17.0 | 0.9 | | 6.6 | 3.8 | |
| Delay (s) | 62.8 | 10.0 | | 62.4 | 7.0 | | 63.8 | 24.3 | | 58.6 | 52.1 | |
| Level of Service | E | A | | E | A | | E | C | | E | D | |
| Approach Delay (s) | | 12.8 | | | 10.7 | | | 37.2 | | | 53.5 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

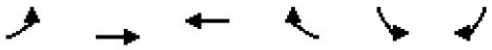
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 400 | 210 | 280 | 1050 | 80 | 440 | 610 | 150 | 190 | 930 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1587 | 3502 | 5126 | | 3502 | 5187 | 1589 | 3502 | 5187 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1587 | 3502 | 5126 | | 3502 | 5187 | 1589 | 3502 | 5187 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 400 | 210 | 280 | 1050 | 80 | 440 | 610 | 150 | 190 | 930 | 180 |
| RTOR Reduction (vph) | 0 | 0 | 137 | 0 | 7 | 0 | 0 | 0 | 103 | 0 | 0 | 135 |
| Lane Group Flow (vph) | 140 | 400 | 74 | 280 | 1123 | 0 | 440 | 610 | 47 | 190 | 930 | 45 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.6 | 42.0 | 42.0 | 14.1 | 46.5 | | 17.6 | 37.5 | 37.5 | 10.4 | 30.3 | 30.3 |
| Effective Green, g (s) | 9.6 | 42.0 | 42.0 | 14.1 | 46.5 | | 17.6 | 37.5 | 37.5 | 10.4 | 30.3 | 30.3 |
| Actuated g/C Ratio | 0.08 | 0.35 | 0.35 | 0.12 | 0.39 | | 0.15 | 0.31 | 0.31 | 0.09 | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 280 | 1264 | 555 | 411 | 1986 | | 514 | 1621 | 497 | 304 | 1310 | 401 |
| v/s Ratio Prot | 0.04 | 0.11 | | c0.08 | c0.22 | | c0.13 | 0.12 | | 0.05 | c0.18 | |
| v/s Ratio Perm | | | 0.05 | | | | | | 0.03 | | | 0.03 |
| v/c Ratio | 0.50 | 0.32 | 0.13 | 0.68 | 0.57 | | 0.86 | 0.38 | 0.09 | 0.62 | 0.71 | 0.11 |
| Uniform Delay, d1 | 52.9 | 28.5 | 26.6 | 50.8 | 28.8 | | 50.0 | 32.1 | 29.2 | 52.9 | 40.8 | 34.5 |
| Progression Factor | 0.70 | 0.81 | 2.27 | 0.94 | 0.52 | | 0.36 | 0.71 | 2.04 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.6 | 0.5 | 4.1 | 1.0 | | 11.6 | 0.1 | 0.1 | 4.0 | 1.8 | 0.1 |
| Delay (s) | 38.5 | 23.7 | 60.9 | 51.8 | 16.1 | | 29.6 | 23.0 | 59.6 | 56.9 | 42.6 | 34.6 |
| Level of Service | D | C | E | D | B | | C | C | E | E | D | C |
| Approach Delay (s) | | 36.9 | | | 23.2 | | | 30.0 | | | 43.6 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 83.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

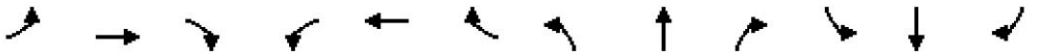
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 1230 | 1500 | 160 | 170 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 3610 | 1590 | 3502 | 1602 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 3610 | 1590 | 3502 | 1602 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 1230 | 1500 | 160 | 170 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 35 | 0 | 16 |
| Lane Group Flow (vph) | 130 | 1230 | 1500 | 125 | 170 | 54 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 13.9 | 100.8 | 82.9 | 94.1 | 11.2 | 25.1 |
| Effective Green, g (s) | 13.9 | 100.8 | 82.9 | 94.1 | 11.2 | 25.1 |
| Actuated g/C Ratio | 0.12 | 0.84 | 0.69 | 0.78 | 0.09 | 0.21 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 209 | 4357 | 2494 | 1300 | 327 | 388 |
| v/s Ratio Prot | c0.07 | 0.24 | c0.42 | 0.01 | c0.05 | 0.02 |
| v/s Ratio Perm | | | | 0.07 | | 0.02 |
| v/c Ratio | 0.62 | 0.28 | 0.60 | 0.10 | 0.52 | 0.14 |
| Uniform Delay, d1 | 50.5 | 2.0 | 9.8 | 3.0 | 51.8 | 38.7 |
| Progression Factor | 0.85 | 0.52 | 0.58 | 0.14 | 1.04 | 1.63 |
| Incremental Delay, d2 | 4.7 | 0.1 | 0.9 | 0.0 | 1.4 | 0.2 |
| Delay (s) | 47.7 | 1.2 | 6.6 | 0.4 | 55.3 | 63.2 |
| Level of Service | D | A | A | A | E | E |
| Approach Delay (s) | | 5.6 | 6.0 | | 57.6 | |
| Approach LOS | | A | A | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

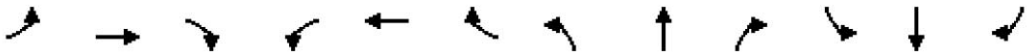
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 820 | 370 | 30 | 1460 | 150 | 190 | 90 | 20 | 190 | 320 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 1805 | 5107 | | 3502 | 3501 | | 1805 | 3610 | 1600 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 1805 | 5107 | | 3502 | 3501 | | 1805 | 3610 | 1600 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 820 | 370 | 30 | 1460 | 150 | 190 | 90 | 20 | 190 | 320 | 140 |
| RTOR Reduction (vph) | 0 | 0 | 147 | 0 | 7 | 0 | 0 | 18 | 0 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 130 | 820 | 223 | 30 | 1603 | 0 | 190 | 92 | 0 | 190 | 320 | 130 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 14.2 | 72.4 | 72.4 | 5.1 | 63.3 | | 10.4 | 11.2 | | 15.3 | 16.1 | 30.3 |
| Effective Green, g (s) | 14.2 | 72.4 | 72.4 | 5.1 | 63.3 | | 10.4 | 11.2 | | 15.3 | 16.1 | 30.3 |
| Actuated g/C Ratio | 0.12 | 0.60 | 0.60 | 0.04 | 0.53 | | 0.09 | 0.09 | | 0.13 | 0.13 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 214 | 3129 | 957 | 77 | 2694 | | 304 | 327 | | 230 | 484 | 457 |
| v/s Ratio Prot | c0.07 | 0.16 | | 0.02 | c0.31 | | 0.05 | 0.03 | | c0.11 | c0.09 | 0.03 |
| v/s Ratio Perm | | | 0.14 | | | | | | | | | 0.05 |
| v/c Ratio | 0.61 | 0.26 | 0.23 | 0.39 | 0.59 | | 0.62 | 0.28 | | 0.83 | 0.66 | 0.28 |
| Uniform Delay, d1 | 50.3 | 11.2 | 11.0 | 55.9 | 19.5 | | 52.9 | 50.7 | | 51.1 | 49.4 | 36.1 |
| Progression Factor | 1.06 | 0.65 | 0.59 | 0.93 | 0.85 | | 1.00 | 1.00 | | 0.67 | 0.69 | 0.98 |
| Incremental Delay, d2 | 4.7 | 0.2 | 0.6 | 2.0 | 0.6 | | 4.0 | 0.5 | | 18.9 | 3.0 | 0.3 |
| Delay (s) | 57.8 | 7.5 | 7.0 | 54.1 | 17.2 | | 56.9 | 51.1 | | 52.9 | 37.2 | 35.6 |
| Level of Service | E | A | A | D | B | | E | D | | D | D | D |
| Approach Delay (s) | | 12.3 | | | 17.9 | | | 54.8 | | | 41.4 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

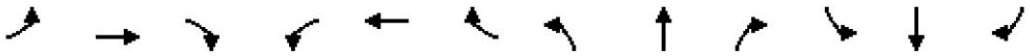
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 650 | 270 | 20 | 1030 | 80 | 700 | 380 | 10 | 70 | 330 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1598 | 1805 | 3566 | | 3502 | 3594 | | 1805 | 3505 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1598 | 1805 | 3566 | | 3502 | 3594 | | 1805 | 3505 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 650 | 270 | 20 | 1030 | 80 | 700 | 380 | 10 | 70 | 330 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 84 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 70 | 650 | 186 | 20 | 1106 | 0 | 700 | 388 | 0 | 70 | 382 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 7.6 | 50.6 | 82.5 | 2.9 | 45.9 | | 31.9 | 42.8 | | 7.7 | 18.6 | |
| Effective Green, g (s) | 7.6 | 50.6 | 82.5 | 2.9 | 45.9 | | 31.9 | 42.8 | | 7.7 | 18.6 | |
| Actuated g/C Ratio | 0.06 | 0.42 | 0.69 | 0.02 | 0.38 | | 0.27 | 0.36 | | 0.06 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 114 | 2187 | 1099 | 44 | 1364 | | 931 | 1282 | | 116 | 543 | |
| v/s Ratio Prot | c0.04 | 0.13 | 0.04 | 0.01 | c0.31 | | c0.20 | 0.11 | | 0.04 | c0.11 | |
| v/s Ratio Perm | | | 0.07 | | | | | | | | | |
| v/c Ratio | 0.61 | 0.30 | 0.17 | 0.45 | 0.81 | | 0.75 | 0.30 | | 0.60 | 0.70 | |
| Uniform Delay, d1 | 54.8 | 22.9 | 6.6 | 57.8 | 33.2 | | 40.4 | 27.8 | | 54.7 | 48.1 | |
| Progression Factor | 0.99 | 0.76 | 4.19 | 1.21 | 0.60 | | 1.00 | 1.00 | | 0.76 | 0.88 | |
| Incremental Delay, d2 | 9.0 | 0.3 | 0.1 | 6.7 | 4.9 | | 3.5 | 0.1 | | 8.4 | 4.0 | |
| Delay (s) | 63.0 | 17.7 | 27.8 | 76.5 | 24.8 | | 43.9 | 28.0 | | 50.1 | 46.2 | |
| Level of Service | E | B | C | E | C | | D | C | | D | D | |
| Approach Delay (s) | | 23.7 | | | 25.7 | | | 38.2 | | | 46.8 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 84.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

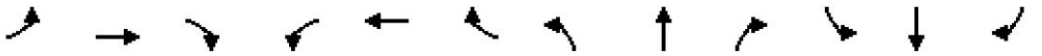
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 520 | 140 | 50 | 850 | 50 | 100 | 370 | 60 | 50 | 410 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3482 | | 1805 | 3576 | | 1805 | 3525 | | 1805 | 3544 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3482 | | 1805 | 3576 | | 1805 | 3525 | | 1805 | 3544 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 520 | 140 | 50 | 850 | 50 | 100 | 370 | 60 | 50 | 410 | 50 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 3 | 0 | 0 | 12 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 90 | 643 | 0 | 50 | 897 | 0 | 100 | 418 | 0 | 50 | 451 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 11.3 | 63.3 | | 7.6 | 59.6 | | 11.4 | 26.8 | | 6.3 | 21.7 | |
| Effective Green, g (s) | 11.3 | 63.3 | | 7.6 | 59.6 | | 11.4 | 26.8 | | 6.3 | 21.7 | |
| Actuated g/C Ratio | 0.09 | 0.53 | | 0.06 | 0.50 | | 0.10 | 0.22 | | 0.05 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 170 | 1837 | | 114 | 1776 | | 171 | 787 | | 95 | 641 | |
| v/s Ratio Prot | c0.05 | c0.18 | | 0.03 | c0.25 | | c0.06 | 0.12 | | 0.03 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.53 | 0.35 | | 0.44 | 0.51 | | 0.58 | 0.53 | | 0.53 | 0.70 | |
| Uniform Delay, d1 | 51.8 | 16.4 | | 54.1 | 20.3 | | 52.0 | 41.1 | | 55.4 | 46.1 | |
| Progression Factor | 0.82 | 2.03 | | 1.34 | 0.42 | | 1.00 | 1.00 | | 1.28 | 1.03 | |
| Incremental Delay, d2 | 2.9 | 0.5 | | 1.9 | 0.7 | | 5.0 | 0.7 | | 5.0 | 3.4 | |
| Delay (s) | 45.5 | 33.8 | | 74.7 | 9.3 | | 57.1 | 41.7 | | 75.6 | 51.0 | |
| Level of Service | D | C | | E | A | | E | D | | E | D | |
| Approach Delay (s) | | 35.2 | | | 12.8 | | | 44.6 | | | 53.4 | |
| Approach LOS | | D | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 64.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

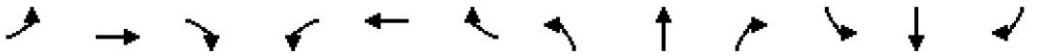
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 460 | 130 | 170 | 700 | 100 | 200 | 1010 | 100 | 110 | 1300 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3477 | | 1805 | 3535 | | 1805 | 5187 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3477 | | 1805 | 3535 | | 1805 | 5187 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 460 | 130 | 170 | 700 | 100 | 200 | 1010 | 100 | 110 | 1300 | 40 |
| RTOR Reduction (vph) | 0 | 22 | 0 | 0 | 9 | 0 | 0 | 0 | 63 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 60 | 569 | 0 | 170 | 791 | 0 | 200 | 1010 | 37 | 110 | 1300 | 21 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 34.0 | | 12.0 | 39.0 | | 14.0 | 44.0 | 44.0 | 14.0 | 44.0 | 44.0 |
| Effective Green, g (s) | 7.0 | 34.0 | | 12.0 | 39.0 | | 14.0 | 44.0 | 44.0 | 14.0 | 44.0 | 44.0 |
| Actuated g/C Ratio | 0.06 | 0.28 | | 0.10 | 0.32 | | 0.12 | 0.37 | 0.37 | 0.12 | 0.37 | 0.37 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 985 | | 181 | 1149 | | 211 | 1902 | 581 | 211 | 1324 | 581 |
| v/s Ratio Prot | 0.03 | 0.16 | | c0.09 | c0.22 | | c0.11 | 0.19 | | 0.06 | c0.36 | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | 0.01 |
| v/c Ratio | 0.57 | 0.58 | | 0.94 | 0.69 | | 0.95 | 0.53 | 0.06 | 0.52 | 0.98 | 0.04 |
| Uniform Delay, d1 | 55.0 | 36.8 | | 53.6 | 35.2 | | 52.6 | 29.9 | 24.6 | 49.8 | 37.6 | 24.4 |
| Progression Factor | 0.84 | 0.98 | | 0.82 | 0.74 | | 1.23 | 0.91 | 1.80 | 0.71 | 0.48 | 0.46 |
| Incremental Delay, d2 | 7.0 | 2.4 | | 46.7 | 3.1 | | 43.3 | 0.9 | 0.2 | 2.0 | 19.0 | 0.1 |
| Delay (s) | 53.3 | 38.4 | | 90.4 | 29.3 | | 108.2 | 28.2 | 44.4 | 37.3 | 37.0 | 11.2 |
| Level of Service | D | D | | F | C | | F | C | D | D | D | B |
| Approach Delay (s) | | 39.8 | | | 40.0 | | | 41.7 | | | 36.3 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 98.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

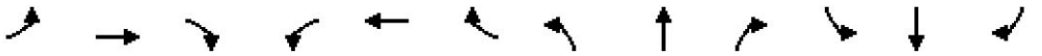
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 440 | 2010 | 150 | 30 | 1870 | 580 | 330 | 290 | 10 | 90 | 50 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1590 | 3502 | 3610 | 2799 | 3502 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1590 | 3502 | 3610 | 2799 | 3502 | 3610 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 440 | 2010 | 150 | 30 | 1870 | 580 | 330 | 290 | 10 | 90 | 50 | 130 |
| RTOR Reduction (vph) | 0 | 0 | 32 | 0 | 0 | 116 | 0 | 0 | 8 | 0 | 0 | 120 |
| Lane Group Flow (vph) | 440 | 2010 | 118 | 30 | 1870 | 464 | 330 | 290 | 2 | 90 | 50 | 10 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 18.0 | 57.6 | 57.6 | 4.1 | 43.7 | 43.7 | 12.8 | 15.1 | 19.2 | 5.5 | 7.8 | 7.8 |
| Effective Green, g (s) | 18.0 | 57.6 | 57.6 | 4.1 | 43.7 | 43.7 | 12.8 | 15.1 | 19.2 | 5.5 | 7.8 | 7.8 |
| Actuated g/C Ratio | 0.18 | 0.59 | 0.59 | 0.04 | 0.44 | 0.44 | 0.13 | 0.15 | 0.20 | 0.06 | 0.08 | 0.08 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 331 | 3039 | 946 | 146 | 2306 | 707 | 456 | 555 | 661 | 196 | 286 | 126 |
| v/s Ratio Prot | c0.24 | 0.39 | | 0.01 | c0.36 | | c0.09 | 0.08 | 0.00 | c0.03 | 0.01 | |
| v/s Ratio Perm | | | 0.07 | | | 0.29 | | | 0.00 | | | 0.01 |
| v/c Ratio | 1.33 | 0.66 | 0.12 | 0.21 | 0.81 | 0.66 | 0.72 | 0.52 | 0.00 | 0.46 | 0.17 | 0.08 |
| Uniform Delay, d1 | 40.1 | 13.8 | 9.1 | 45.5 | 23.7 | 21.4 | 41.1 | 38.3 | 31.8 | 45.0 | 42.2 | 41.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 167.6 | 0.5 | 0.1 | 0.7 | 2.3 | 2.2 | 5.6 | 0.9 | 0.0 | 1.7 | 0.3 | 0.3 |
| Delay (s) | 207.7 | 14.3 | 9.1 | 46.2 | 26.0 | 23.6 | 46.7 | 39.2 | 31.8 | 46.7 | 42.5 | 42.2 |
| Level of Service | F | B | A | D | C | C | D | D | C | D | D | D |
| Approach Delay (s) | | 46.7 | | | 25.7 | | | 43.0 | | | 43.8 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 98.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 94.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

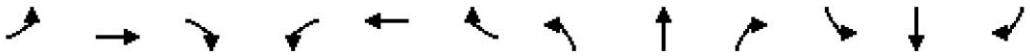
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1520 | 640 | 0 | 2170 | 0 | 0 | 0 | 0 | 190 | 0 | 310 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.96 | | | 1.00 | | | | | 1.00 | 0.87 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (prot) | | 4956 | | | 5187 | | | | | 1715 | 1491 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (perm) | | 4956 | | | 5187 | | | | | 1715 | 1491 | 1534 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 1520 | 640 | 0 | 2170 | 0 | 0 | 0 | 0 | 190 | 0 | 310 |
| RTOR Reduction (vph) | 0 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 |
| Lane Group Flow (vph) | 0 | 2072 | 0 | 0 | 2170 | 0 | 0 | 0 | 0 | 171 | 158 | 157 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 48.8 | | | 48.8 | | | | | 13.2 | 13.2 | 13.2 |
| Effective Green, g (s) | | 48.8 | | | 48.8 | | | | | 13.2 | 13.2 | 13.2 |
| Actuated g/C Ratio | | 0.70 | | | 0.70 | | | | | 0.19 | 0.19 | 0.19 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3455 | | | 3616 | | | | | 323 | 281 | 289 |
| v/s Ratio Prot | | 0.42 | | | c0.42 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | 0.10 | 0.11 | 0.10 |
| v/c Ratio | | 0.60 | | | 0.60 | | | | | 0.53 | 0.56 | 0.54 |
| Uniform Delay, d1 | | 5.5 | | | 5.5 | | | | | 25.6 | 25.8 | 25.7 |
| Progression Factor | | 1.00 | | | 0.29 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.8 | | | 0.4 | | | | | 1.6 | 2.6 | 2.1 |
| Delay (s) | | 6.3 | | | 2.1 | | | | | 27.2 | 28.3 | 27.7 |
| Level of Service | | A | | | A | | | | | C | C | C |
| Approach Delay (s) | | 6.3 | | | 2.1 | | | 0.0 | | | 27.7 | |
| Approach LOS | | A | | | A | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 70.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 76.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

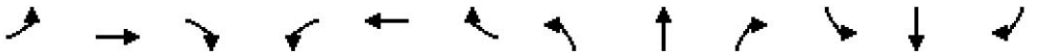
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 1600 | 0 | 0 | 1150 | 170 | 1100 | 10 | 320 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 5076 | | 1715 | 1639 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 5076 | | 1715 | 1639 | 1534 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 120 | 1600 | 0 | 0 | 1150 | 170 | 1100 | 10 | 320 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 3 | 10 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 120 | 1600 | 0 | 0 | 1293 | 0 | 572 | 567 | 278 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.6 | 36.0 | | | 26.4 | | 26.0 | 26.0 | 26.0 | | | |
| Effective Green, g (s) | 5.6 | 36.0 | | | 26.4 | | 26.0 | 26.0 | 26.0 | | | |
| Actuated g/C Ratio | 0.08 | 0.51 | | | 0.38 | | 0.37 | 0.37 | 0.37 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 144 | 2668 | | | 1914 | | 637 | 609 | 570 | | | |
| v/s Ratio Prot | 0.07 | c0.31 | | | c0.25 | | 0.33 | c0.35 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.18 | | | |
| v/c Ratio | 0.83 | 0.60 | | | 0.68 | | 0.90 | 0.93 | 0.49 | | | |
| Uniform Delay, d1 | 31.7 | 11.9 | | | 18.2 | | 20.7 | 21.1 | 16.9 | | | |
| Progression Factor | 0.86 | 0.72 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 27.3 | 0.8 | | | 1.9 | | 15.4 | 21.1 | 0.7 | | | |
| Delay (s) | 54.7 | 9.5 | | | 20.2 | | 36.1 | 42.2 | 17.5 | | | |
| Level of Service | D | A | | | C | | D | D | B | | | |
| Approach Delay (s) | | 12.6 | | | 20.2 | | | 34.8 | | | 0.0 | |
| Approach LOS | | B | | | C | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 70.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 76.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

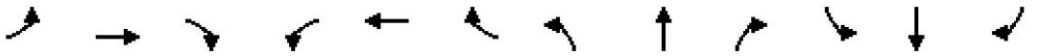
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 380 | 1130 | 330 | 0 | 1110 | 160 | 50 | 160 | 10 | 30 | 20 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.91 | | | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 4993 | | | 5187 | 1615 | 3502 | 3578 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 4993 | | | 5187 | 1615 | 3502 | 3578 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 380 | 1130 | 330 | 0 | 1110 | 160 | 50 | 160 | 10 | 30 | 20 | 160 |
| RTOR Reduction (vph) | 0 | 24 | 0 | 0 | 0 | 69 | 0 | 4 | 0 | 0 | 0 | 145 |
| Lane Group Flow (vph) | 380 | 1436 | 0 | 0 | 1110 | 91 | 50 | 166 | 0 | 30 | 20 | 15 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 18.2 | 90.5 | | | 68.3 | 68.3 | 6.1 | 12.5 | | 5.0 | 11.4 | 11.4 |
| Effective Green, g (s) | 18.2 | 90.5 | | | 68.3 | 68.3 | 6.1 | 12.5 | | 5.0 | 11.4 | 11.4 |
| Actuated g/C Ratio | 0.15 | 0.75 | | | 0.57 | 0.57 | 0.05 | 0.10 | | 0.04 | 0.10 | 0.10 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 531 | 3766 | | | 2952 | 919 | 178 | 373 | | 75 | 343 | 153 |
| v/s Ratio Prot | c0.11 | c0.29 | | | 0.21 | | 0.01 | c0.05 | | c0.02 | 0.01 | |
| v/s Ratio Perm | | | | | | 0.06 | | | | | | 0.01 |
| v/c Ratio | 0.72 | 0.38 | | | 0.38 | 0.10 | 0.28 | 0.44 | | 0.40 | 0.06 | 0.10 |
| Uniform Delay, d1 | 48.4 | 5.1 | | | 14.2 | 11.8 | 54.8 | 50.5 | | 56.0 | 49.4 | 49.6 |
| Progression Factor | 1.00 | 1.00 | | | 0.18 | 0.06 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.6 | 0.3 | | | 0.3 | 0.2 | 0.9 | 0.8 | | 3.5 | 0.1 | 0.3 |
| Delay (s) | 53.0 | 5.4 | | | 2.8 | 0.9 | 55.7 | 51.3 | | 59.5 | 49.5 | 49.9 |
| Level of Service | D | A | | | A | A | E | D | | E | D | D |
| Approach Delay (s) | | 15.2 | | | 2.6 | | | 52.3 | | | 51.2 | |
| Approach LOS | | B | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

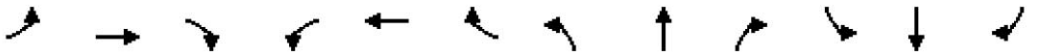
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 950 | 30 | 10 | 1060 | 340 | 40 | 210 | 240 | 210 | 10 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5160 | | 1805 | 5187 | 1585 | 1798 | 3293 | | 1801 | 3050 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.63 | 1.00 | | 0.38 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5160 | | 1805 | 5187 | 1585 | 1188 | 3293 | | 717 | 3050 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 950 | 30 | 10 | 1060 | 340 | 40 | 210 | 240 | 210 | 10 | 170 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 70 | 0 | 129 | 0 | 0 | 118 | 0 |
| Lane Group Flow (vph) | 170 | 978 | 0 | 10 | 1060 | 270 | 40 | 321 | 0 | 210 | 62 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 16.0 | 69.6 | | 1.4 | 55.0 | 55.0 | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Effective Green, g (s) | 16.0 | 69.6 | | 1.4 | 55.0 | 55.0 | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Actuated g/C Ratio | 0.13 | 0.58 | | 0.01 | 0.46 | 0.46 | 0.31 | 0.31 | | 0.31 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 241 | 2993 | | 21 | 2377 | 726 | 366 | 1015 | | 221 | 940 | |
| v/s Ratio Prot | c0.09 | 0.19 | | 0.01 | c0.20 | | | 0.10 | | | 0.02 | |
| v/s Ratio Perm | | | | | | 0.17 | 0.03 | | | c0.29 | | |
| v/c Ratio | 0.71 | 0.33 | | 0.48 | 0.45 | 0.37 | 0.11 | 0.32 | | 0.95 | 0.07 | |
| Uniform Delay, d1 | 49.7 | 13.1 | | 58.9 | 22.1 | 21.2 | 29.7 | 31.8 | | 40.6 | 29.3 | |
| Progression Factor | 1.11 | 0.91 | | 1.30 | 0.49 | 0.33 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.6 | 0.3 | | 14.7 | 0.6 | 1.3 | 0.1 | 0.2 | | 46.5 | 0.0 | |
| Delay (s) | 63.6 | 12.2 | | 91.1 | 11.3 | 8.3 | 29.8 | 32.0 | | 87.1 | 29.3 | |
| Level of Service | E | B | | F | B | A | C | C | | F | C | |
| Approach Delay (s) | | 19.8 | | | 11.2 | | | 31.8 | | | 60.4 | |
| Approach LOS | | B | | | B | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 74.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

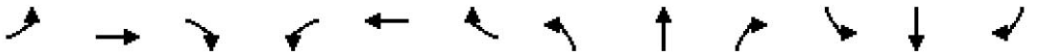
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 1140 | 250 | 170 | 1080 | 80 | 210 | 110 | 90 | 40 | 250 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5030 | | 1805 | 5127 | | 1805 | 3341 | | 1805 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5030 | | 1805 | 5127 | | 1805 | 3341 | | 1805 | 3610 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 1140 | 250 | 170 | 1080 | 80 | 210 | 110 | 90 | 40 | 250 | 100 |
| RTOR Reduction (vph) | 0 | 21 | 0 | 0 | 4 | 0 | 0 | 71 | 0 | 0 | 0 | 88 |
| Lane Group Flow (vph) | 40 | 1369 | 0 | 170 | 1156 | 0 | 210 | 129 | 0 | 40 | 250 | 12 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 7.0 | 56.1 | | 17.6 | 66.7 | | 15.7 | 24.7 | | 5.6 | 14.6 | 14.6 |
| Effective Green, g (s) | 7.0 | 56.1 | | 17.6 | 66.7 | | 15.7 | 24.7 | | 5.6 | 14.6 | 14.6 |
| Actuated g/C Ratio | 0.06 | 0.47 | | 0.15 | 0.56 | | 0.13 | 0.21 | | 0.05 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 2352 | | 265 | 2850 | | 236 | 688 | | 84 | 439 | 193 |
| v/s Ratio Prot | 0.02 | c0.27 | | c0.09 | 0.23 | | c0.12 | 0.04 | | 0.02 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.38 | 0.58 | | 0.64 | 0.41 | | 0.89 | 0.19 | | 0.48 | 0.57 | 0.06 |
| Uniform Delay, d1 | 54.4 | 23.4 | | 48.2 | 15.3 | | 51.3 | 39.4 | | 55.8 | 49.7 | 46.6 |
| Progression Factor | 0.86 | 0.99 | | 1.35 | 0.52 | | 0.93 | 0.97 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.2 | 1.0 | | 5.0 | 0.4 | | 30.5 | 0.1 | | 4.2 | 1.7 | 0.1 |
| Delay (s) | 48.7 | 24.1 | | 70.3 | 8.4 | | 78.4 | 38.1 | | 60.0 | 51.4 | 46.8 |
| Level of Service | D | C | | E | A | | E | D | | E | D | D |
| Approach Delay (s) | | 24.8 | | | 16.3 | | | 58.7 | | | 51.1 | |
| Approach LOS | | C | | | B | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

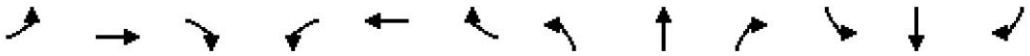
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑ | ↱ | ↰ | ↑↑↑ | | | | | | | ↱ |
| Volume (vph) | 0 | 1820 | 50 | 720 | 860 | 0 | 0 | 0 | 0 | 0 | 0 | 680 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.91 | 1.00 | 1.00 | 0.91 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 5187 | 1572 | 1805 | 5187 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 5187 | 1572 | 1805 | 5187 | | | | | | | 1644 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 1820 | 50 | 720 | 860 | 0 | 0 | 0 | 0 | 0 | 0 | 680 |
| RTOR Reduction (vph) | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 102 |
| Lane Group Flow (vph) | 0 | 1820 | 23 | 720 | 860 | 0 | 0 | 0 | 0 | 0 | 0 | 578 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 46.0 | 46.0 | 66.0 | 70.0 | | | | | | | 42.0 |
| Effective Green, g (s) | | 46.0 | 46.0 | 66.0 | 70.0 | | | | | | | 42.0 |
| Actuated g/C Ratio | | 0.38 | 0.38 | 0.55 | 0.58 | | | | | | | 0.35 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1988 | 603 | 993 | 3026 | | | | | | | 575 |
| v/s Ratio Prot | | c0.35 | | c0.40 | 0.17 | | | | | | | c0.35 |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | |
| v/c Ratio | | 0.92 | 0.04 | 0.73 | 0.28 | | | | | | | 1.01 |
| Uniform Delay, d1 | | 35.2 | 23.2 | 20.2 | 12.5 | | | | | | | 39.0 |
| Progression Factor | | 1.00 | 1.00 | 0.76 | 1.05 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 8.1 | 0.1 | 0.2 | 0.0 | | | | | | | 38.8 |
| Delay (s) | | 43.2 | 23.3 | 15.7 | 13.2 | | | | | | | 77.8 |
| Level of Service | | D | C | B | B | | | | | | | E |
| Approach Delay (s) | | 42.7 | | | 14.3 | | | 0.0 | | | 77.8 | |
| Approach LOS | | D | | | B | | | A | | | E | |

| Intersection Summary | | | | | |
|---|---|---|---|---|---|
| HCM Average Control Delay | 37.6 | HCM Level of Service | | D | |
| HCM Volume to Capacity ratio | 0.92 | | | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | | 12.0 | |
| Intersection Capacity Utilization | 81.7% | ICU Level of Service | | D | |
| Analysis Period (min) | 15 | | | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1860 | 50 | 0 | 1870 | 340 | 620 | 470 | 30 | 300 | 0 | 450 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5167 | | | 5046 | | 1805 | 1883 | | 1805 | 1615 | |
| Flt Permitted | 0.09 | 1.00 | | | 1.00 | | 0.40 | 1.00 | | 0.36 | 1.00 | |
| Satd. Flow (perm) | 169 | 5167 | | | 5046 | | 760 | 1883 | | 689 | 1615 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 1860 | 50 | 0 | 1870 | 340 | 620 | 470 | 30 | 300 | 0 | 450 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 50 | 1908 | 0 | 0 | 2188 | 0 | 620 | 500 | 0 | 300 | 450 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 45.0 | 45.0 | | | 45.0 | | 67.0 | 67.0 | | 67.0 | 67.0 | |
| Effective Green, g (s) | 45.0 | 45.0 | | | 45.0 | | 67.0 | 67.0 | | 67.0 | 67.0 | |
| Actuated g/C Ratio | 0.38 | 0.38 | | | 0.38 | | 0.56 | 0.56 | | 0.56 | 0.56 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 63 | 1938 | | | 1892 | | 424 | 1051 | | 385 | 902 | |
| v/s Ratio Prot | | 0.37 | | | c0.43 | | | 0.27 | | | 0.28 | |
| v/s Ratio Perm | 0.30 | | | | | | c0.82 | | | 0.44 | | |
| v/c Ratio | 0.79 | 0.98 | | | 1.16 | | 1.46 | 0.48 | | 0.78 | 0.50 | |
| Uniform Delay, d1 | 33.4 | 37.1 | | | 37.5 | | 26.5 | 15.9 | | 20.7 | 16.2 | |
| Progression Factor | 0.08 | 0.11 | | | 0.64 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 38.6 | 11.2 | | | 75.6 | | 220.7 | 0.3 | | 9.6 | 0.4 | |
| Delay (s) | 41.3 | 15.1 | | | 99.8 | | 247.2 | 16.3 | | 30.3 | 16.7 | |
| Level of Service | D | B | | | F | | F | B | | C | B | |
| Approach Delay (s) | | 15.8 | | | 99.8 | | | 144.1 | | | 22.1 | |
| Approach LOS | | B | | | F | | | F | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 71.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.34 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 116.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 920 | 1510 | 160 | 1230 | 60 | 530 | 30 | 150 | 60 | 260 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1585 | 1805 | 5187 | 1585 | 1715 | 1636 | | 1715 | 1803 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1585 | 1805 | 5187 | 1585 | 1715 | 1636 | | 1715 | 1803 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 920 | 1510 | 160 | 1230 | 60 | 530 | 30 | 150 | 60 | 260 | 90 |
| RTOR Reduction (vph) | 0 | 0 | 493 | 0 | 0 | 35 | 0 | 25 | 0 | 0 | 0 | 72 |
| Lane Group Flow (vph) | 110 | 920 | 1017 | 160 | 1230 | 25 | 366 | 319 | 0 | 54 | 266 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 13.5 | 29.9 | 29.9 | 19.6 | 36.0 | 36.0 | 31.1 | 31.1 | | 23.4 | 23.4 | 23.4 |
| Effective Green, g (s) | 13.5 | 29.9 | 29.9 | 19.6 | 36.0 | 36.0 | 31.1 | 31.1 | | 23.4 | 23.4 | 23.4 |
| Actuated g/C Ratio | 0.11 | 0.25 | 0.25 | 0.16 | 0.30 | 0.30 | 0.26 | 0.26 | | 0.19 | 0.19 | 0.19 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 203 | 1292 | 395 | 295 | 1556 | 476 | 444 | 424 | | 334 | 352 | 309 |
| v/s Ratio Prot | 0.06 | 0.18 | | c0.09 | c0.24 | | c0.21 | 0.19 | | 0.03 | c0.15 | |
| v/s Ratio Perm | | | c0.64 | | | 0.02 | | | | | | 0.01 |
| v/c Ratio | 0.54 | 0.71 | 2.57 | 0.54 | 0.79 | 0.05 | 0.82 | 0.75 | | 0.16 | 0.76 | 0.06 |
| Uniform Delay, d1 | 50.3 | 41.1 | 45.0 | 46.1 | 38.5 | 29.9 | 41.9 | 40.9 | | 40.1 | 45.6 | 39.3 |
| Progression Factor | 0.80 | 0.77 | 2.08 | 1.26 | 0.52 | 0.49 | 1.00 | 1.00 | | 0.75 | 0.76 | 1.62 |
| Incremental Delay, d2 | 1.6 | 1.9 | 712.3 | 1.7 | 3.4 | 0.2 | 11.8 | 7.4 | | 0.2 | 8.1 | 0.1 |
| Delay (s) | 42.1 | 33.3 | 806.0 | 59.9 | 23.3 | 14.7 | 53.7 | 48.3 | | 30.4 | 42.7 | 63.8 |
| Level of Service | D | C | F | E | C | B | D | D | | C | D | E |
| Approach Delay (s) | | 493.1 | | | 27.0 | | | 51.0 | | | 45.7 | |
| Approach LOS | | F | | | C | | | D | | | D | |

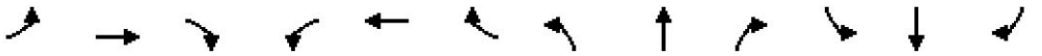
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 263.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.31 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 128.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1190 | 250 | 10 | 930 | 340 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.97 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3498 | | 1805 | 3610 | 1805 | 1594 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3498 | | 1805 | 3610 | 1805 | 1594 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 1190 | 250 | 10 | 930 | 340 | 60 |
| RTOR Reduction (vph) | 16 | 0 | 0 | 0 | 0 | 40 |
| Lane Group Flow (vph) | 1424 | 0 | 10 | 930 | 340 | 20 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 44.4 | | 5.2 | 53.6 | 22.3 | 27.5 |
| Effective Green, g (s) | 44.4 | | 5.2 | 53.6 | 22.3 | 27.5 |
| Actuated g/C Ratio | 0.53 | | 0.06 | 0.64 | 0.27 | 0.33 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1851 | | 112 | 2306 | 480 | 598 |
| v/s Ratio Prot | c0.41 | | 0.01 | c0.26 | c0.19 | 0.00 |
| v/s Ratio Perm | | | | | | 0.01 |
| v/c Ratio | 0.77 | | 0.09 | 0.40 | 0.71 | 0.03 |
| Uniform Delay, d1 | 15.7 | | 37.1 | 7.4 | 27.9 | 19.2 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.0 | | 0.3 | 0.1 | 4.7 | 0.0 |
| Delay (s) | 17.7 | | 37.5 | 7.5 | 32.6 | 19.2 |
| Level of Service | B | | D | A | C | B |
| Approach Delay (s) | 17.7 | | | 7.8 | 30.6 | |
| Approach LOS | B | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 83.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

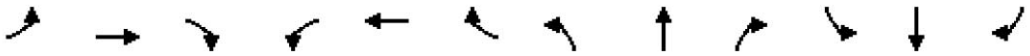
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 980 | 460 | 30 | 330 | 30 | 650 | 280 | 730 | 60 | 40 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 3502 | 3565 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 3502 | 3565 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 980 | 460 | 30 | 330 | 30 | 650 | 280 | 730 | 60 | 40 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 333 | 0 | 5 | 0 | 0 | 0 | 137 | 0 | 0 | 56 |
| Lane Group Flow (vph) | 10 | 980 | 127 | 30 | 355 | 0 | 650 | 280 | 593 | 60 | 40 | 4 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 2.0 | 26.1 | 26.1 | 3.5 | 27.6 | | 43.2 | 43.6 | 43.6 | 5.3 | 5.7 | 5.7 |
| Effective Green, g (s) | 2.0 | 26.1 | 26.1 | 3.5 | 27.6 | | 43.2 | 43.6 | 43.6 | 5.3 | 5.7 | 5.7 |
| Actuated g/C Ratio | 0.02 | 0.28 | 0.28 | 0.04 | 0.29 | | 0.46 | 0.46 | 0.46 | 0.06 | 0.06 | 0.06 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 38 | 1433 | 438 | 130 | 1041 | | 825 | 877 | 745 | 101 | 218 | 96 |
| v/s Ratio Prot | 0.01 | c0.19 | | 0.01 | c0.10 | | 0.36 | 0.15 | | c0.03 | 0.01 | |
| v/s Ratio Perm | | | 0.08 | | | | | | c0.37 | | | 0.00 |
| v/c Ratio | 0.26 | 0.68 | 0.29 | 0.23 | 0.34 | | 0.79 | 0.32 | 0.80 | 0.59 | 0.18 | 0.04 |
| Uniform Delay, d1 | 45.5 | 30.5 | 26.9 | 44.2 | 26.3 | | 21.8 | 16.1 | 21.7 | 43.5 | 42.2 | 41.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.7 | 1.4 | 0.4 | 0.9 | 0.2 | | 5.0 | 0.2 | 5.9 | 9.0 | 0.4 | 0.2 |
| Delay (s) | 49.2 | 31.9 | 27.3 | 45.1 | 26.5 | | 26.8 | 16.3 | 27.5 | 52.6 | 42.6 | 42.0 |
| Level of Service | D | C | C | D | C | | C | B | C | D | D | D |
| Approach Delay (s) | | 30.5 | | | 27.9 | | | 25.3 | | | 46.1 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 94.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 40 | 70 | 0 | 0 | 0 | 0 | 1230 | 590 | 660 | 270 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1721 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1721 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 100 | 40 | 70 | 0 | 0 | 0 | 0 | 1230 | 590 | 660 | 270 | 0 |
| RTOR Reduction (vph) | 0 | 16 | 46 | 0 | 0 | 0 | 0 | 0 | 176 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 100 | 42 | 6 | 0 | 0 | 0 | 0 | 1230 | 414 | 660 | 270 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 5.6 | 5.6 | 5.6 | | | | | 21.3 | 21.3 | 11.1 | 36.4 | |
| Effective Green, g (s) | 5.6 | 5.6 | 5.6 | | | | | 21.3 | 21.3 | 11.1 | 36.4 | |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.11 | | | | | 0.43 | 0.43 | 0.22 | 0.73 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 202 | 193 | 172 | | | | | 1538 | 688 | 777 | 2628 | |
| v/s Ratio Prot | c0.06 | 0.02 | | | | | | c0.34 | | c0.19 | 0.07 | |
| v/s Ratio Perm | | | 0.00 | | | | | | 0.26 | | | |
| v/c Ratio | 0.50 | 0.22 | 0.03 | | | | | 0.80 | 0.60 | 0.85 | 0.10 | |
| Uniform Delay, d1 | 20.9 | 20.2 | 19.8 | | | | | 12.5 | 11.1 | 18.6 | 2.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.08 | 0.86 | |
| Incremental Delay, d2 | 1.9 | 0.6 | 0.1 | | | | | 4.5 | 3.9 | 8.6 | 0.1 | |
| Delay (s) | 22.8 | 20.8 | 19.9 | | | | | 16.9 | 15.0 | 28.8 | 1.8 | |
| Level of Service | C | C | B | | | | | B | B | C | A | |
| Approach Delay (s) | | 21.5 | | | 0.0 | | | 16.3 | | | 21.0 | |
| Approach LOS | | C | | | A | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 71.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 350 | 1130 | 0 | 0 | 310 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 350 | 1130 | 0 | 0 | 310 |
| RTOR Reduction (vph) | 0 | 32 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 130 | 318 | 1130 | 0 | 0 | 310 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 14.2 | 14.2 | 27.8 | | | 27.8 |
| Effective Green, g (s) | 14.2 | 14.2 | 27.8 | | | 27.8 |
| Actuated g/C Ratio | 0.28 | 0.28 | 0.56 | | | 0.56 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 995 | 459 | 2007 | | | 2007 |
| v/s Ratio Prot | 0.04 | | c0.31 | | | 0.09 |
| v/s Ratio Perm | | c0.20 | | | | |
| v/c Ratio | 0.13 | 0.69 | 0.56 | | | 0.15 |
| Uniform Delay, d1 | 13.3 | 16.0 | 7.2 | | | 5.4 |
| Progression Factor | 1.00 | 1.00 | 0.17 | | | 1.00 |
| Incremental Delay, d2 | 0.1 | 4.5 | 0.7 | | | 0.2 |
| Delay (s) | 13.4 | 20.4 | 1.9 | | | 5.6 |
| Level of Service | B | C | A | | | A |
| Approach Delay (s) | 18.5 | | 1.9 | | | 5.6 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 71.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1840 | 10 | 110 | 2250 | 1930 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5182 | | 3502 | 5187 | 5100 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5182 | | 3502 | 5187 | 5100 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 1840 | 10 | 110 | 2250 | 1930 | 10 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 1849 | 0 | 110 | 2250 | 1939 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 43.2 | | 7.1 | 54.3 | 45.6 | |
| Effective Green, g (s) | 43.2 | | 7.1 | 54.3 | 45.6 | |
| Actuated g/C Ratio | 0.40 | | 0.07 | 0.50 | 0.42 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2075 | | 230 | 2610 | 2155 | |
| v/s Ratio Prot | 0.36 | | 0.03 | c0.43 | c0.38 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.89 | | 0.48 | 0.86 | 0.90 | |
| Uniform Delay, d1 | 30.2 | | 48.6 | 23.5 | 29.0 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.3 | | 1.6 | 3.2 | 5.5 | |
| Delay (s) | 35.4 | | 50.2 | 26.7 | 34.5 | |
| Level of Service | D | | D | C | C | |
| Approach Delay (s) | 35.4 | | | 27.8 | 34.5 | |
| Approach LOS | D | | | C | C | |

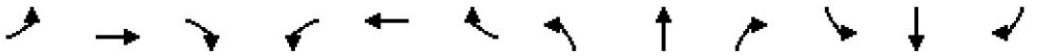
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 107.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 88.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 1920 | 50 | 210 | 2070 | 20 | 130 | 130 | 270 | 210 | 150 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1589 | 3502 | 5178 | | 3502 | 1900 | 1590 | 1805 | 3441 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1589 | 3502 | 5178 | | 3502 | 1900 | 1590 | 1805 | 3441 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 1920 | 50 | 210 | 2070 | 20 | 130 | 130 | 270 | 210 | 150 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 26 | 0 | 1 | 0 | 0 | 0 | 131 | 0 | 53 | 0 |
| Lane Group Flow (vph) | 70 | 1920 | 24 | 210 | 2089 | 0 | 130 | 130 | 139 | 210 | 157 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.5 | 43.0 | 43.0 | 7.0 | 44.5 | | 15.9 | 13.4 | 13.4 | 12.0 | 9.5 | |
| Effective Green, g (s) | 5.5 | 43.0 | 43.0 | 7.0 | 44.5 | | 15.9 | 13.4 | 13.4 | 12.0 | 9.5 | |
| Actuated g/C Ratio | 0.06 | 0.47 | 0.47 | 0.08 | 0.49 | | 0.17 | 0.15 | 0.15 | 0.13 | 0.10 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 109 | 2440 | 748 | 268 | 2521 | | 609 | 279 | 233 | 237 | 358 | |
| v/s Ratio Prot | 0.04 | c0.37 | | 0.06 | c0.40 | | c0.04 | 0.07 | | c0.12 | 0.05 | |
| v/s Ratio Perm | | | 0.01 | | | | | | c0.09 | | | |
| v/c Ratio | 0.64 | 0.79 | 0.03 | 0.78 | 0.83 | | 0.21 | 0.47 | 0.59 | 0.89 | 0.44 | |
| Uniform Delay, d1 | 42.0 | 20.3 | 13.0 | 41.5 | 20.2 | | 32.4 | 35.7 | 36.5 | 39.0 | 38.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 12.2 | 1.7 | 0.0 | 13.9 | 2.4 | | 0.2 | 1.2 | 4.0 | 30.1 | 0.9 | |
| Delay (s) | 54.2 | 22.1 | 13.0 | 55.3 | 22.6 | | 32.6 | 37.0 | 40.5 | 69.1 | 39.3 | |
| Level of Service | D | C | B | E | C | | C | D | D | E | D | |
| Approach Delay (s) | | 23.0 | | | 25.6 | | | 37.7 | | | 54.2 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 91.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

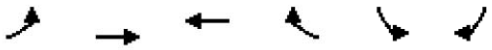
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 700 | 190 | 50 | 530 | 140 | 420 | 900 | 260 | 110 | 420 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1600 | 3502 | 3610 | 1597 | 3502 | 3610 | 1595 | 3502 | 3610 | 1599 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1600 | 3502 | 3610 | 1597 | 3502 | 3610 | 1595 | 3502 | 3610 | 1599 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 700 | 190 | 50 | 530 | 140 | 420 | 900 | 260 | 110 | 420 | 120 |
| RTOR Reduction (vph) | 0 | 0 | 99 | 0 | 0 | 73 | 0 | 0 | 43 | 0 | 0 | 39 |
| Lane Group Flow (vph) | 130 | 700 | 91 | 50 | 530 | 67 | 420 | 900 | 217 | 110 | 420 | 81 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.9 | 24.5 | 40.6 | 7.2 | 19.8 | 27.7 | 16.1 | 29.1 | 36.3 | 7.9 | 20.9 | 32.8 |
| Effective Green, g (s) | 11.9 | 24.5 | 40.6 | 7.2 | 19.8 | 27.7 | 16.1 | 29.1 | 36.3 | 7.9 | 20.9 | 32.8 |
| Actuated g/C Ratio | 0.14 | 0.29 | 0.48 | 0.09 | 0.23 | 0.33 | 0.19 | 0.34 | 0.43 | 0.09 | 0.25 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 254 | 1044 | 843 | 298 | 844 | 598 | 666 | 1240 | 759 | 327 | 891 | 695 |
| v/s Ratio Prot | c0.07 | c0.19 | 0.02 | 0.01 | 0.15 | 0.01 | c0.12 | c0.25 | 0.02 | 0.03 | 0.12 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | 0.03 | | | 0.11 | | | 0.03 |
| v/c Ratio | 0.51 | 0.67 | 0.11 | 0.17 | 0.63 | 0.11 | 0.63 | 0.73 | 0.29 | 0.34 | 0.47 | 0.12 |
| Uniform Delay, d1 | 33.7 | 26.5 | 12.1 | 36.0 | 29.1 | 19.9 | 31.6 | 24.3 | 15.8 | 35.9 | 27.2 | 16.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.7 | 1.7 | 0.1 | 0.3 | 1.5 | 0.1 | 2.0 | 2.1 | 0.2 | 0.6 | 0.4 | 0.1 |
| Delay (s) | 35.4 | 28.2 | 12.2 | 36.2 | 30.6 | 20.0 | 33.5 | 26.5 | 16.0 | 36.6 | 27.6 | 16.7 |
| Level of Service | D | C | B | D | C | B | C | C | B | D | C | B |
| Approach Delay (s) | | 26.2 | | | 28.9 | | | 26.6 | | | 27.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 84.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 72.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

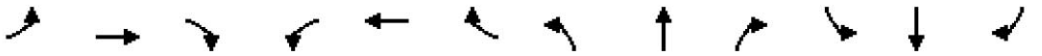
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 230 | 860 | 590 | 560 | 380 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1603 | 3499 | 1459 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1603 | 3499 | 1459 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 230 | 860 | 590 | 560 | 380 | 100 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 104 | 2 | 39 |
| Lane Group Flow (vph) | 230 | 860 | 590 | 456 | 388 | 51 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 12.5 | 31.7 | 15.2 | 28.2 | 13.0 | 25.5 |
| Effective Green, g (s) | 12.5 | 31.7 | 15.2 | 28.2 | 13.0 | 25.5 |
| Actuated g/C Ratio | 0.24 | 0.60 | 0.29 | 0.54 | 0.25 | 0.48 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 428 | 2171 | 1041 | 979 | 863 | 817 |
| v/s Ratio Prot | c0.13 | 0.24 | c0.16 | c0.11 | 0.11 | 0.01 |
| v/s Ratio Perm | | | | 0.17 | | 0.02 |
| v/c Ratio | 0.54 | 0.40 | 0.57 | 0.47 | 0.45 | 0.06 |
| Uniform Delay, d1 | 17.6 | 5.5 | 15.9 | 7.6 | 16.8 | 7.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.3 | 0.1 | 0.7 | 0.4 | 0.4 | 0.0 |
| Delay (s) | 18.9 | 5.6 | 16.7 | 7.9 | 17.2 | 7.3 |
| Level of Service | B | A | B | A | B | A |
| Approach Delay (s) | | 8.4 | 12.4 | | 15.3 | |
| Approach LOS | | A | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 52.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

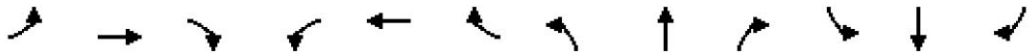
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 500 | 300 | 170 | 620 | 130 | 980 | 430 | 880 | 60 | 130 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1603 | 3502 | 3610 | 1591 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1603 | 3502 | 3610 | 1591 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 260 | 500 | 300 | 170 | 620 | 130 | 980 | 430 | 880 | 60 | 130 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 129 | 0 | 0 | 96 | 0 | 0 | 370 | 0 | 0 | 52 |
| Lane Group Flow (vph) | 260 | 500 | 171 | 170 | 620 | 34 | 980 | 430 | 510 | 60 | 130 | 18 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.0 | 22.5 | 45.6 | 9.2 | 20.7 | 20.7 | 23.1 | 26.7 | 26.7 | 5.7 | 9.3 | 20.3 |
| Effective Green, g (s) | 11.0 | 22.5 | 45.6 | 9.2 | 20.7 | 20.7 | 23.1 | 26.7 | 26.7 | 5.7 | 9.3 | 20.3 |
| Actuated g/C Ratio | 0.14 | 0.28 | 0.57 | 0.11 | 0.26 | 0.26 | 0.29 | 0.33 | 0.33 | 0.07 | 0.12 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 248 | 1457 | 993 | 402 | 933 | 411 | 1010 | 1203 | 530 | 249 | 419 | 487 |
| v/s Ratio Prot | c0.14 | 0.10 | 0.05 | 0.05 | c0.17 | | c0.28 | 0.12 | | 0.02 | 0.04 | 0.01 |
| v/s Ratio Perm | | | 0.06 | | | 0.02 | | | c0.32 | | | 0.01 |
| v/c Ratio | 1.05 | 0.34 | 0.17 | 0.42 | 0.66 | 0.08 | 0.97 | 0.36 | 0.96 | 0.24 | 0.31 | 0.04 |
| Uniform Delay, d1 | 34.5 | 22.9 | 8.2 | 33.0 | 26.6 | 22.5 | 28.2 | 20.2 | 26.2 | 35.2 | 32.5 | 22.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 70.4 | 0.1 | 0.1 | 0.7 | 1.8 | 0.1 | 21.3 | 0.2 | 29.6 | 0.5 | 0.4 | 0.0 |
| Delay (s) | 105.0 | 23.1 | 8.3 | 33.7 | 28.4 | 22.6 | 49.5 | 20.4 | 55.8 | 35.7 | 32.9 | 22.6 |
| Level of Service | F | C | A | C | C | C | D | C | E | D | C | C |
| Approach Delay (s) | | 39.0 | | | 28.6 | | | 46.4 | | | 30.7 | |
| Approach LOS | | D | | | C | | | D | | | C | |

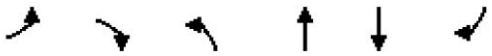
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 80.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 85.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 870 | 580 | 10 | 720 | 0 | 0 | 0 | 0 | 10 | 0 | 550 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.98 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3387 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.20 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3387 | 1470 | 371 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 870 | 580 | 10 | 720 | 0 | 0 | 0 | 0 | 10 | 0 | 550 |
| RTOR Reduction (vph) | 0 | 24 | 238 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 0 |
| Lane Group Flow (vph) | 0 | 985 | 203 | 10 | 720 | 0 | 0 | 0 | 0 | 10 | 461 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 20.5 | 20.5 | 20.5 | 20.5 | | | | | 16.1 | 16.1 | |
| Effective Green, g (s) | | 20.5 | 20.5 | 20.5 | 20.5 | | | | | 16.1 | 16.1 | |
| Actuated g/C Ratio | | 0.46 | 0.46 | 0.46 | 0.46 | | | | | 0.36 | 0.36 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1557 | 676 | 171 | 1659 | | | | | 652 | 583 | |
| v/s Ratio Prot | | c0.29 | | | 0.20 | | | | | | c0.29 | |
| v/s Ratio Perm | | | 0.14 | 0.03 | | | | | | 0.01 | | |
| v/c Ratio | | 0.63 | 0.30 | 0.06 | 0.43 | | | | | 0.02 | 0.79 | |
| Uniform Delay, d1 | | 9.2 | 7.6 | 6.7 | 8.1 | | | | | 9.2 | 12.7 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.8 | 0.3 | 0.1 | 0.2 | | | | | 0.0 | 7.2 | |
| Delay (s) | | 10.0 | 7.8 | 6.8 | 8.3 | | | | | 9.2 | 20.0 | |
| Level of Service | | B | A | A | A | | | | | A | B | |
| Approach Delay (s) | | 9.4 | | | 8.3 | | | 0.0 | | | 19.8 | |
| Approach LOS | | A | | | A | | | A | | | B | |

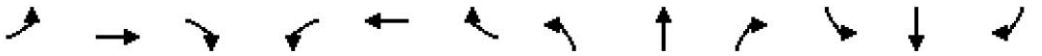
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 44.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 82.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 880 | 0 | 710 | 0 | 0 | 0 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 880 | 0 | 710 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 440 | 440 | 473 | 237 |
| Volume Left (vph) | 440 | 440 | 473 | 237 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 7.3 | 7.3 | 7.5 | 7.5 |
| Degree Utilization, x | 0.89 | 0.89 | 0.98 | 0.49 |
| Capacity (veh/h) | 487 | 492 | 473 | 462 |
| Control Delay (s) | 43.1 | 43.1 | 63.4 | 16.3 |
| Approach Delay (s) | 43.1 | | 47.7 | |
| Approach LOS | E | | E | |

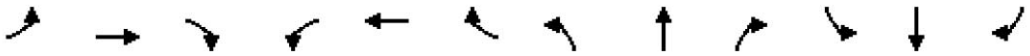
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 45.1 | | |
| HCM Level of Service | E | | |
| Intersection Capacity Utilization | 93.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 10 | 0 | 970 | 10 | 440 | 10 | 1050 | 1080 | 80 | 470 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 10 | 0 | 970 | 10 | 440 | 10 | 1050 | 1080 | 80 | 470 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 241 | 0 | 0 | 257 | 0 | 0 | 4 |
| Lane Group Flow (vph) | 10 | 10 | 0 | 970 | 10 | 199 | 10 | 1050 | 823 | 80 | 470 | 6 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.3 | 1.3 | | 29.2 | 29.2 | 29.2 | 1.2 | 44.7 | 44.7 | 5.4 | 48.9 | 48.9 |
| Effective Green, g (s) | 1.3 | 1.3 | | 29.2 | 29.2 | 29.2 | 1.2 | 44.7 | 44.7 | 5.4 | 48.9 | 48.9 |
| Actuated g/C Ratio | 0.01 | 0.01 | | 0.30 | 0.30 | 0.30 | 0.01 | 0.46 | 0.46 | 0.06 | 0.51 | 0.51 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 24 | 26 | | 1059 | 574 | 488 | 22 | 1670 | 735 | 196 | 1827 | 818 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.28 | 0.01 | | 0.01 | 0.29 | | c0.02 | 0.13 | |
| v/s Ratio Perm | | | | | | c0.12 | | | c0.52 | | | 0.00 |
| v/c Ratio | 0.42 | 0.38 | | 0.92 | 0.02 | 0.41 | 0.45 | 0.63 | 1.12 | 0.41 | 0.26 | 0.01 |
| Uniform Delay, d1 | 47.3 | 47.3 | | 32.5 | 23.6 | 26.8 | 47.4 | 19.7 | 25.9 | 44.1 | 13.5 | 11.8 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 11.3 | 9.2 | | 12.0 | 0.0 | 0.6 | 14.2 | 0.7 | 71.0 | 1.4 | 0.1 | 0.0 |
| Delay (s) | 58.6 | 56.5 | | 44.5 | 23.6 | 27.4 | 61.6 | 20.4 | 97.0 | 45.4 | 13.6 | 11.8 |
| Level of Service | E | E | | D | C | C | E | C | F | D | B | B |
| Approach Delay (s) | | 57.5 | | | 39.1 | | | 59.2 | | | 18.1 | |
| Approach LOS | | E | | | D | | | E | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 46.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 96.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 92.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

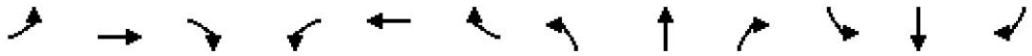
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 980 | 60 | 20 | 1120 | 40 | 110 | 70 | 40 | 50 | 30 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.98 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3579 | | 1805 | 3589 | | | 1803 | | 1801 | 1654 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.58 | | 0.59 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3579 | | 1805 | 3589 | | | 1063 | | 1112 | 1654 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 980 | 60 | 20 | 1120 | 40 | 110 | 70 | 40 | 50 | 30 | 190 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 12 | 0 | 0 | 147 | 0 |
| Lane Group Flow (vph) | 140 | 1037 | 0 | 20 | 1158 | 0 | 0 | 208 | 0 | 50 | 73 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 9.5 | 39.5 | | 1.2 | 31.2 | | | 15.6 | | 15.6 | 15.6 | |
| Effective Green, g (s) | 9.5 | 39.5 | | 1.2 | 31.2 | | | 15.6 | | 15.6 | 15.6 | |
| Actuated g/C Ratio | 0.14 | 0.58 | | 0.02 | 0.46 | | | 0.23 | | 0.23 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 251 | 2070 | | 32 | 1639 | | | 243 | | 254 | 378 | |
| v/s Ratio Prot | c0.08 | 0.29 | | 0.01 | c0.32 | | | | | | 0.04 | |
| v/s Ratio Perm | | | | | | | | c0.20 | | 0.04 | | |
| v/c Ratio | 0.56 | 0.50 | | 0.62 | 0.71 | | | 0.86 | | 0.20 | 0.19 | |
| Uniform Delay, d1 | 27.4 | 8.5 | | 33.3 | 14.9 | | | 25.3 | | 21.3 | 21.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.7 | 0.2 | | 32.4 | 1.4 | | | 24.5 | | 0.4 | 0.3 | |
| Delay (s) | 30.1 | 8.7 | | 65.7 | 16.3 | | | 49.8 | | 21.7 | 21.5 | |
| Level of Service | C | A | | E | B | | | D | | C | C | |
| Approach Delay (s) | | 11.3 | | | 17.1 | | | 49.8 | | | 21.6 | |
| Approach LOS | | B | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 68.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 81.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 920 | 140 | 140 | 990 | 350 | 210 | 1260 | 350 | 220 | 380 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3531 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 | 3502 | 3516 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3531 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 | 3502 | 3516 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 920 | 140 | 140 | 990 | 350 | 210 | 1260 | 350 | 220 | 380 | 70 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 25 | 0 | 0 | 13 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 60 | 1051 | 0 | 140 | 990 | 325 | 210 | 1260 | 337 | 220 | 439 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.4 | 41.9 | | 9.1 | 45.6 | 54.7 | 18.8 | 48.1 | 57.2 | 9.1 | 38.4 | |
| Effective Green, g (s) | 5.4 | 41.9 | | 9.1 | 45.6 | 54.7 | 18.8 | 48.1 | 57.2 | 9.1 | 38.4 | |
| Actuated g/C Ratio | 0.04 | 0.34 | | 0.07 | 0.37 | 0.44 | 0.15 | 0.39 | 0.46 | 0.07 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 78 | 1191 | | 132 | 1325 | 752 | 273 | 1398 | 784 | 257 | 1087 | |
| v/s Ratio Prot | 0.03 | c0.30 | | c0.08 | c0.27 | 0.03 | c0.12 | c0.35 | 0.03 | 0.06 | 0.12 | |
| v/s Ratio Perm | | | | | | 0.17 | | | 0.18 | | | |
| v/c Ratio | 0.77 | 0.88 | | 1.06 | 0.75 | 0.43 | 0.77 | 0.90 | 0.43 | 0.86 | 0.40 | |
| Uniform Delay, d1 | 58.8 | 38.8 | | 57.6 | 34.3 | 24.0 | 50.6 | 35.8 | 22.5 | 56.9 | 33.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 35.7 | 8.0 | | 95.5 | 2.3 | 0.4 | 12.3 | 8.3 | 0.4 | 23.3 | 0.2 | |
| Delay (s) | 94.5 | 46.8 | | 153.0 | 36.6 | 24.4 | 62.9 | 44.1 | 22.9 | 80.2 | 34.1 | |
| Level of Service | F | D | | F | D | C | E | D | C | F | C | |
| Approach Delay (s) | | 49.3 | | | 44.7 | | | 42.2 | | | 49.2 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 124.2 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 92.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

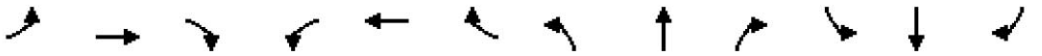
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 100 | 170 | 2030 | 110 | 50 | 1390 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1797 | 1589 | 3610 | 1570 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1797 | 1589 | 3610 | 1570 | 1805 | 3610 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 100 | 170 | 2030 | 110 | 50 | 1390 |
| RTOR Reduction (vph) | 0 | 87 | 0 | 11 | 0 | 0 |
| Lane Group Flow (vph) | 100 | 83 | 2030 | 99 | 50 | 1390 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 11.7 | 11.7 | 65.2 | 65.2 | 5.1 | 74.3 |
| Effective Green, g (s) | 11.7 | 11.7 | 65.2 | 65.2 | 5.1 | 74.3 |
| Actuated g/C Ratio | 0.12 | 0.12 | 0.69 | 0.69 | 0.05 | 0.79 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 224 | 198 | 2504 | 1089 | 98 | 2853 |
| v/s Ratio Prot | | | c0.56 | | 0.03 | c0.39 |
| v/s Ratio Perm | c0.06 | 0.05 | | 0.06 | | |
| v/c Ratio | 0.45 | 0.42 | 0.81 | 0.09 | 0.51 | 0.49 |
| Uniform Delay, d1 | 38.1 | 38.0 | 10.1 | 4.7 | 43.2 | 3.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 1.4 | 2.1 | 0.0 | 4.4 | 0.1 |
| Delay (s) | 39.6 | 39.5 | 12.2 | 4.7 | 47.7 | 3.5 |
| Level of Service | D | D | B | A | D | A |
| Approach Delay (s) | 39.5 | | 11.8 | | | 5.0 |
| Approach LOS | D | | B | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 94.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 76.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

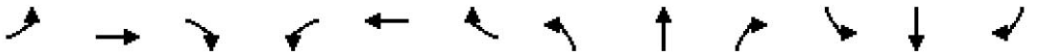
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 1540 | 140 | 580 | 1520 | 310 | 0 | 0 | 0 | 690 | 50 | 530 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1730 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1730 | 1596 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 1540 | 140 | 580 | 1520 | 310 | 0 | 0 | 0 | 690 | 50 | 530 |
| RTOR Reduction (vph) | 0 | 0 | 48 | 0 | 0 | 105 | 0 | 0 | 0 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 80 | 1540 | 92 | 580 | 1520 | 205 | 0 | 0 | 0 | 366 | 374 | 520 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 16.4 | 42.8 | 42.8 | 45.0 | 71.4 | 71.4 | | | | 30.2 | 30.2 | 46.6 |
| Effective Green, g (s) | 16.4 | 42.8 | 42.8 | 45.0 | 71.4 | 71.4 | | | | 30.2 | 30.2 | 46.6 |
| Actuated g/C Ratio | 0.13 | 0.33 | 0.33 | 0.35 | 0.55 | 0.55 | | | | 0.23 | 0.23 | 0.36 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 228 | 1708 | 518 | 625 | 1983 | 863 | | | | 398 | 402 | 621 |
| v/s Ratio Prot | 0.04 | c0.30 | | c0.32 | 0.42 | | | | | 0.21 | c0.22 | 0.11 |
| v/s Ratio Perm | | | 0.06 | | | 0.13 | | | | | | 0.22 |
| v/c Ratio | 0.35 | 0.90 | 0.18 | 0.93 | 0.77 | 0.24 | | | | 0.92 | 0.93 | 0.84 |
| Uniform Delay, d1 | 51.9 | 41.6 | 31.1 | 40.9 | 22.8 | 15.2 | | | | 48.7 | 48.9 | 38.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.59 | 0.42 | 0.08 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 8.2 | 0.8 | 16.7 | 2.3 | 0.5 | | | | 25.8 | 28.0 | 9.6 |
| Delay (s) | 52.9 | 49.7 | 31.8 | 40.8 | 11.9 | 1.8 | | | | 74.5 | 76.9 | 47.8 |
| Level of Service | D | D | C | D | B | A | | | | E | E | D |
| Approach Delay (s) | | 48.5 | | | 17.6 | | | 0.0 | | | 64.1 | |
| Approach LOS | | D | | | B | | | A | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

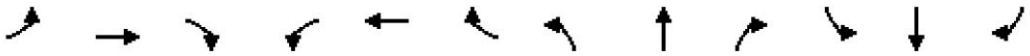
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 1530 | 410 | 190 | 2090 | 400 | 290 | 420 | 610 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3436 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3436 | 2842 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 280 | 1530 | 410 | 190 | 2090 | 400 | 290 | 420 | 610 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 59 | 0 | 0 | 80 | 0 | 0 | 400 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 280 | 1530 | 351 | 190 | 2090 | 320 | 229 | 481 | 210 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 24.9 | 67.8 | 95.0 | 23.0 | 65.9 | 65.9 | 27.2 | 27.2 | 27.2 | | | |
| Effective Green, g (s) | 24.9 | 67.8 | 95.0 | 23.0 | 65.9 | 65.9 | 27.2 | 27.2 | 27.2 | | | |
| Actuated g/C Ratio | 0.19 | 0.52 | 0.73 | 0.18 | 0.51 | 0.51 | 0.21 | 0.21 | 0.21 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 346 | 1883 | 1215 | 319 | 3313 | 804 | 344 | 719 | 595 | | | |
| v/s Ratio Prot | 0.16 | c0.42 | 0.06 | 0.11 | c0.32 | | 0.14 | c0.14 | | | | |
| v/s Ratio Perm | | | 0.16 | | | 0.20 | | | 0.07 | | | |
| v/c Ratio | 0.81 | 0.81 | 0.29 | 0.60 | 0.63 | 0.40 | 0.67 | 0.67 | 0.35 | | | |
| Uniform Delay, d1 | 50.3 | 25.8 | 6.0 | 49.2 | 23.2 | 19.8 | 47.2 | 47.3 | 43.9 | | | |
| Progression Factor | 1.03 | 0.30 | 0.04 | 0.71 | 0.47 | 0.25 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 5.8 | 1.7 | 0.1 | 2.2 | 0.7 | 1.1 | 4.8 | 2.4 | 0.4 | | | |
| Delay (s) | 57.5 | 9.5 | 0.3 | 37.0 | 11.7 | 6.0 | 52.0 | 49.6 | 44.2 | | | |
| Level of Service | E | A | A | D | B | A | D | D | D | | | |
| Approach Delay (s) | | 13.8 | | | 12.6 | | | 47.6 | | | 0.0 | |
| Approach LOS | | B | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 76.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

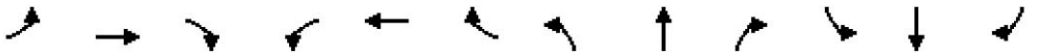
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 2010 | 240 | 70 | 2300 | 10 | 270 | 10 | 180 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 0.86 | | | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5086 | | 1805 | 5183 | | 1805 | 1604 | | | 1783 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.74 | 1.00 | | | 0.91 | |
| Satd. Flow (perm) | 1805 | 5086 | | 1805 | 5183 | | 1401 | 1604 | | | 1646 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 2010 | 240 | 70 | 2300 | 10 | 270 | 10 | 180 | 10 | 10 | 10 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 81 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 40 | 2241 | 0 | 70 | 2310 | 0 | 270 | 109 | 0 | 0 | 22 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 5.6 | 80.6 | | 7.2 | 82.2 | | 30.2 | 30.2 | | | 30.2 | |
| Effective Green, g (s) | 5.6 | 80.6 | | 7.2 | 82.2 | | 30.2 | 30.2 | | | 30.2 | |
| Actuated g/C Ratio | 0.04 | 0.62 | | 0.06 | 0.63 | | 0.23 | 0.23 | | | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 78 | 3153 | | 100 | 3277 | | 325 | 373 | | | 382 | |
| v/s Ratio Prot | 0.02 | 0.44 | | c0.04 | c0.45 | | | 0.07 | | | | |
| v/s Ratio Perm | | | | | | | c0.19 | | | | 0.01 | |
| v/c Ratio | 0.51 | 0.71 | | 0.70 | 0.70 | | 0.83 | 0.29 | | | 0.06 | |
| Uniform Delay, d1 | 60.9 | 16.8 | | 60.3 | 15.9 | | 47.5 | 41.1 | | | 38.8 | |
| Progression Factor | 0.82 | 0.27 | | 0.86 | 0.71 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 3.9 | 1.0 | | 10.1 | 0.6 | | 16.3 | 0.4 | | | 0.1 | |
| Delay (s) | 53.7 | 5.5 | | 62.0 | 11.9 | | 63.8 | 41.5 | | | 38.9 | |
| Level of Service | D | A | | E | B | | E | D | | | D | |
| Approach Delay (s) | | 6.3 | | | 13.4 | | | 54.6 | | | 38.9 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 83.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

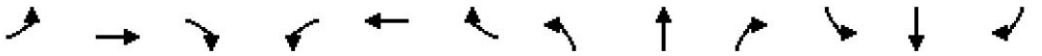
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 1870 | 280 | 90 | 2100 | 10 | 270 | 90 | 40 | 10 | 40 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.99 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1805 | 3524 | | 1805 | 3607 | | | 1803 | | | 1880 | 1586 |
| Flt Permitted | 0.04 | 1.00 | | 0.04 | 1.00 | | | 0.77 | | | 0.93 | 1.00 |
| Satd. Flow (perm) | 85 | 3524 | | 85 | 3607 | | | 1429 | | | 1772 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 1870 | 280 | 90 | 2100 | 10 | 270 | 90 | 40 | 10 | 40 | 120 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 60 | 2141 | 0 | 90 | 2110 | 0 | 0 | 397 | 0 | 0 | 50 | 108 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 89.0 | 89.0 | | 89.0 | 89.0 | | | 33.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 89.0 | 89.0 | | 89.0 | 89.0 | | | 33.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.68 | 0.68 | | 0.68 | 0.68 | | | 0.25 | | | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 58 | 2413 | | 58 | 2469 | | | 363 | | | 450 | 403 |
| v/s Ratio Prot | | 0.61 | | | 0.58 | | | | | | | |
| v/s Ratio Perm | 0.70 | | | c1.05 | | | | c0.28 | | | 0.03 | 0.07 |
| v/c Ratio | 1.03 | 0.89 | | 1.55 | 0.85 | | | 1.09 | | | 0.11 | 0.27 |
| Uniform Delay, d1 | 20.5 | 16.5 | | 20.5 | 15.6 | | | 48.5 | | | 37.2 | 38.8 |
| Progression Factor | 1.23 | 1.18 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 111.2 | 4.0 | | 316.7 | 4.0 | | | 74.8 | | | 0.1 | 0.4 |
| Delay (s) | 136.3 | 23.4 | | 337.2 | 19.6 | | | 123.3 | | | 37.3 | 39.2 |
| Level of Service | F | C | | F | B | | | F | | | D | D |
| Approach Delay (s) | | 26.5 | | | 32.6 | | | 123.3 | | | 38.6 | |
| Approach LOS | | C | | | C | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.42 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 105.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

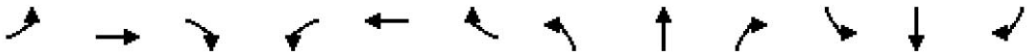
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 1590 | 40 | 450 | 1910 | 270 | 80 | 360 | 420 | 150 | 290 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3594 | | 1805 | 3530 | | 1805 | 1900 | 1600 | 1805 | 1900 | 1587 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3594 | | 1805 | 3530 | | 1805 | 1900 | 1600 | 1805 | 1900 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 180 | 1590 | 40 | 450 | 1910 | 270 | 80 | 360 | 420 | 150 | 290 | 180 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 8 | 0 | 0 | 0 | 5 | 0 | 0 | 128 |
| Lane Group Flow (vph) | 180 | 1629 | 0 | 450 | 2172 | 0 | 80 | 360 | 415 | 150 | 290 | 52 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.1 | 48.1 | | 22.1 | 60.1 | | 7.8 | 27.6 | 49.7 | 8.0 | 27.8 | 27.8 |
| Effective Green, g (s) | 10.1 | 48.1 | | 22.1 | 60.1 | | 7.8 | 27.6 | 49.7 | 8.0 | 27.8 | 27.8 |
| Actuated g/C Ratio | 0.08 | 0.39 | | 0.18 | 0.49 | | 0.06 | 0.23 | 0.41 | 0.07 | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 150 | 1419 | | 328 | 1742 | | 116 | 431 | 653 | 119 | 434 | 362 |
| v/s Ratio Prot | 0.10 | 0.45 | | c0.25 | c0.62 | | 0.04 | c0.19 | 0.12 | c0.08 | 0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.14 | | | 0.03 |
| v/c Ratio | 1.20 | 1.15 | | 1.37 | 1.25 | | 0.69 | 0.84 | 0.64 | 1.26 | 0.67 | 0.14 |
| Uniform Delay, d1 | 55.9 | 36.8 | | 49.8 | 30.8 | | 55.8 | 44.9 | 28.8 | 56.9 | 42.8 | 37.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 137.2 | 75.2 | | 185.6 | 116.0 | | 15.7 | 13.1 | 2.0 | 168.2 | 3.9 | 0.2 |
| Delay (s) | 193.1 | 112.1 | | 235.5 | 146.9 | | 71.6 | 58.0 | 30.9 | 225.1 | 46.7 | 37.7 |
| Level of Service | F | F | | F | F | | E | E | C | F | D | D |
| Approach Delay (s) | | 120.1 | | | 162.1 | | | 46.0 | | | 87.2 | |
| Approach LOS | | F | | | F | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 124.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.14 | | |
| Actuated Cycle Length (s) | 121.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 113.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

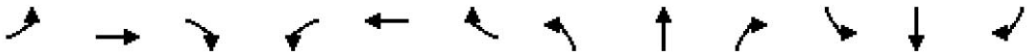
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 970 | 990 | 170 | 1150 | 270 | 1190 | 1590 | 450 | 330 | 640 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2821 | 3502 | 3610 | 1593 | 3502 | 3610 | 1588 | 3502 | 5124 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2821 | 3502 | 3610 | 1593 | 3502 | 3610 | 1588 | 3502 | 5124 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 970 | 990 | 170 | 1150 | 270 | 1190 | 1590 | 450 | 330 | 640 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 21 | 0 | 0 | 27 | 0 | 0 | 5 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 50 | 970 | 969 | 170 | 1150 | 243 | 1190 | 1590 | 445 | 330 | 683 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.6 | 37.6 | 84.0 | 7.0 | 39.0 | 51.0 | 46.4 | 58.0 | 65.0 | 12.0 | 23.6 | |
| Effective Green, g (s) | 5.6 | 37.6 | 84.0 | 7.0 | 39.0 | 51.0 | 46.4 | 58.0 | 65.0 | 12.0 | 23.6 | |
| Actuated g/C Ratio | 0.04 | 0.29 | 0.64 | 0.05 | 0.30 | 0.39 | 0.36 | 0.44 | 0.50 | 0.09 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 77 | 1039 | 1814 | 188 | 1078 | 622 | 1244 | 1603 | 839 | 322 | 926 | |
| v/s Ratio Prot | 0.03 | c0.27 | 0.19 | 0.05 | c0.32 | 0.04 | 0.34 | c0.44 | 0.03 | c0.09 | 0.13 | |
| v/s Ratio Perm | | | 0.15 | | | 0.12 | | | 0.25 | | | |
| v/c Ratio | 0.65 | 0.93 | 0.53 | 0.90 | 1.07 | 0.39 | 0.96 | 0.99 | 0.53 | 1.02 | 0.74 | |
| Uniform Delay, d1 | 61.5 | 45.3 | 12.7 | 61.5 | 45.8 | 28.6 | 41.1 | 36.1 | 22.4 | 59.3 | 50.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 17.3 | 14.5 | 0.3 | 39.6 | 47.1 | 0.4 | 16.1 | 20.5 | 0.6 | 56.7 | 3.1 | |
| Delay (s) | 78.9 | 59.8 | 13.0 | 101.1 | 92.9 | 29.0 | 57.2 | 56.5 | 23.0 | 116.0 | 53.7 | |
| Level of Service | E | E | B | F | F | C | E | E | C | F | D | |
| Approach Delay (s) | | 37.2 | | | 82.9 | | | 52.1 | | | 73.8 | |
| Approach LOS | | D | | | F | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 57.4 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 130.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 104.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

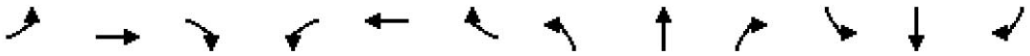
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 50 | 20 | 60 | 40 | 130 | 20 | 3040 | 20 | 60 | 1640 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.98 | | | 0.92 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1811 | | | 1716 | | 1805 | 5181 | | 1805 | 5170 | |
| Flt Permitted | | 0.51 | | | 0.86 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 948 | | | 1502 | | 1805 | 5181 | | 1805 | 5170 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 50 | 20 | 60 | 40 | 130 | 20 | 3040 | 20 | 60 | 1640 | 30 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 155 | 0 | 0 | 182 | 0 | 20 | 3060 | 0 | 60 | 1669 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 16.8 | | | 16.8 | | 2.6 | 64.2 | | 5.4 | 67.0 | |
| Effective Green, g (s) | | 16.8 | | | 16.8 | | 2.6 | 64.2 | | 5.4 | 67.0 | |
| Actuated g/C Ratio | | 0.17 | | | 0.17 | | 0.03 | 0.65 | | 0.05 | 0.68 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 162 | | | 256 | | 48 | 3380 | | 99 | 3520 | |
| v/s Ratio Prot | | | | | | | 0.01 | c0.59 | | c0.03 | c0.32 | |
| v/s Ratio Perm | | c0.16 | | | 0.12 | | | | | | | |
| v/c Ratio | | 0.96 | | | 0.71 | | 0.42 | 0.91 | | 0.61 | 0.47 | |
| Uniform Delay, d1 | | 40.4 | | | 38.5 | | 47.2 | 14.5 | | 45.5 | 7.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 57.4 | | | 8.9 | | 5.8 | 3.9 | | 10.1 | 0.1 | |
| Delay (s) | | 97.8 | | | 47.5 | | 52.9 | 18.4 | | 55.5 | 7.5 | |
| Level of Service | | F | | | D | | D | B | | E | A | |
| Approach Delay (s) | | 97.8 | | | 47.5 | | | 18.7 | | | 9.2 | |
| Approach LOS | | F | | | D | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 98.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 85.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

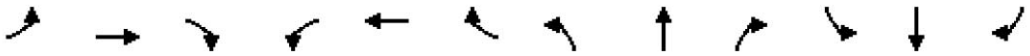
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 50 | 80 | 30 | 40 | 130 | 60 | 2810 | 20 | 30 | 1480 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1800 | 1900 | 1615 | 1805 | 1900 | 1587 | 1805 | 5180 | | 1805 | 5156 | |
| Flt Permitted | 0.57 | 1.00 | 1.00 | 0.72 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1073 | 1900 | 1615 | 1376 | 1900 | 1587 | 1805 | 5180 | | 1805 | 5156 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 160 | 50 | 80 | 30 | 40 | 130 | 60 | 2810 | 20 | 30 | 1480 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 70 | 0 | 0 | 114 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 160 | 50 | 10 | 30 | 40 | 16 | 60 | 2830 | 0 | 30 | 1528 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 20.3 | 13.3 | 13.3 | 14.3 | 10.3 | 10.3 | 7.1 | 71.3 | | 4.0 | 68.2 | |
| Effective Green, g (s) | 20.3 | 13.3 | 13.3 | 14.3 | 10.3 | 10.3 | 7.1 | 71.3 | | 4.0 | 68.2 | |
| Actuated g/C Ratio | 0.19 | 0.12 | 0.12 | 0.13 | 0.09 | 0.09 | 0.07 | 0.66 | | 0.04 | 0.63 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 247 | 233 | 198 | 197 | 180 | 151 | 118 | 3401 | | 66 | 3238 | |
| v/s Ratio Prot | c0.04 | 0.03 | | 0.01 | 0.02 | | 0.03 | c0.55 | | 0.02 | c0.30 | |
| v/s Ratio Perm | c0.08 | | 0.01 | 0.01 | | 0.01 | | | | | | |
| v/c Ratio | 0.65 | 0.21 | 0.05 | 0.15 | 0.22 | 0.11 | 0.51 | 0.83 | | 0.45 | 0.47 | |
| Uniform Delay, d1 | 40.0 | 42.9 | 42.1 | 41.6 | 45.4 | 44.9 | 49.1 | 14.1 | | 51.2 | 10.7 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.7 | 0.5 | 0.1 | 0.4 | 0.6 | 0.3 | 3.4 | 1.9 | | 4.9 | 0.1 | |
| Delay (s) | 45.7 | 43.4 | 42.2 | 42.0 | 46.1 | 45.2 | 52.5 | 16.0 | | 56.1 | 10.8 | |
| Level of Service | D | D | D | D | D | D | D | B | | E | B | |
| Approach Delay (s) | | 44.4 | | | 44.9 | | | 16.7 | | | 11.7 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 108.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

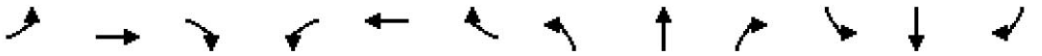
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 250 | 340 | 600 | 100 | 90 | 500 | 2880 | 1010 | 30 | 1620 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.91 | | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3267 | | 5090 | 1752 | | 1805 | 5187 | 1592 | 1805 | 5137 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3267 | | 5090 | 1752 | | 1805 | 5187 | 1592 | 1805 | 5137 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 250 | 340 | 600 | 100 | 90 | 500 | 2880 | 1010 | 30 | 1620 | 100 |
| RTOR Reduction (vph) | 0 | 225 | 0 | 0 | 31 | 0 | 0 | 0 | 133 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 50 | 365 | 0 | 600 | 159 | 0 | 500 | 2880 | 877 | 30 | 1715 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.8 | 18.3 | | 11.0 | 18.5 | | 24.1 | 61.8 | 72.8 | 4.1 | 41.8 | |
| Effective Green, g (s) | 10.8 | 18.3 | | 11.0 | 18.5 | | 24.1 | 61.8 | 72.8 | 4.1 | 41.8 | |
| Actuated g/C Ratio | 0.10 | 0.16 | | 0.10 | 0.17 | | 0.22 | 0.56 | 0.65 | 0.04 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 175 | 538 | | 504 | 291 | | 391 | 2883 | 1100 | 67 | 1931 | |
| v/s Ratio Prot | 0.03 | c0.11 | | c0.12 | 0.09 | | c0.28 | c0.56 | 0.08 | 0.02 | 0.33 | |
| v/s Ratio Perm | | | | | | | | | 0.47 | | | |
| v/c Ratio | 0.29 | 0.68 | | 1.19 | 0.55 | | 1.28 | 1.00 | 0.80 | 0.45 | 0.89 | |
| Uniform Delay, d1 | 46.6 | 43.7 | | 50.1 | 42.5 | | 43.5 | 24.7 | 13.9 | 52.4 | 32.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 3.4 | | 104.1 | 2.1 | | 143.9 | 16.4 | 4.1 | 4.7 | 5.4 | |
| Delay (s) | 47.5 | 47.1 | | 154.2 | 44.6 | | 187.4 | 41.1 | 18.0 | 57.1 | 37.9 | |
| Level of Service | D | D | | F | D | | F | D | B | E | D | |
| Approach Delay (s) | | 47.1 | | | 127.8 | | | 52.4 | | | 38.2 | |
| Approach LOS | | D | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 56.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.01 | | |
| Actuated Cycle Length (s) | 111.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 106.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

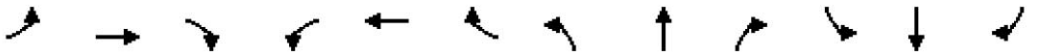
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 30 | 190 | 340 | 70 | 330 | 370 | 1630 | 290 | 180 | 1050 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1798 | 1900 | 2842 | 1805 | 1900 | 1615 | 1805 | 5187 | 1615 | 1805 | 5187 | 1559 |
| Flt Permitted | 0.71 | 1.00 | 1.00 | 0.74 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1339 | 1900 | 2842 | 1398 | 1900 | 1615 | 1805 | 5187 | 1615 | 1805 | 5187 | 1559 |
| Peak-hour factor, PHF | 1.00 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 1.00 | 1.00 | 0.92 | 0.92 | 1.00 | 1.00 |
| Adj. Flow (vph) | 180 | 33 | 190 | 370 | 76 | 359 | 370 | 1630 | 315 | 196 | 1050 | 230 |
| RTOR Reduction (vph) | 0 | 0 | 141 | 0 | 0 | 234 | 0 | 0 | 131 | 0 | 0 | 153 |
| Lane Group Flow (vph) | 180 | 33 | 49 | 370 | 76 | 125 | 370 | 1630 | 184 | 196 | 1050 | 77 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | 5 | | | | | 5 |
| Turn Type | Perm | | Over | Perm | | Over | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | 5 | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 32.6 | 32.6 | 27.6 | 32.6 | 32.6 | 16.4 | 27.6 | 46.7 | 46.7 | 16.4 | 35.5 | 35.5 |
| Effective Green, g (s) | 32.6 | 32.6 | 27.6 | 32.6 | 32.6 | 16.4 | 27.6 | 46.7 | 46.7 | 16.4 | 35.5 | 35.5 |
| Actuated g/C Ratio | 0.30 | 0.30 | 0.26 | 0.30 | 0.30 | 0.15 | 0.26 | 0.43 | 0.43 | 0.15 | 0.33 | 0.33 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 405 | 575 | 728 | 423 | 575 | 246 | 463 | 2249 | 700 | 275 | 1710 | 514 |
| v/s Ratio Prot | | 0.02 | 0.02 | | 0.04 | 0.08 | c0.20 | c0.31 | | c0.11 | 0.20 | |
| v/s Ratio Perm | 0.13 | | | c0.26 | | | | | 0.11 | | | 0.05 |
| v/c Ratio | 0.44 | 0.06 | 0.07 | 0.87 | 0.13 | 0.51 | 0.80 | 0.72 | 0.26 | 0.71 | 0.61 | 0.15 |
| Uniform Delay, d1 | 30.3 | 26.6 | 30.3 | 35.6 | 27.3 | 41.9 | 37.5 | 25.2 | 19.5 | 43.4 | 30.3 | 25.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | 0.0 | 0.0 | 17.9 | 0.1 | 1.7 | 9.3 | 2.1 | 0.9 | 8.4 | 1.7 | 0.6 |
| Delay (s) | 31.0 | 26.7 | 30.3 | 53.5 | 27.4 | 43.6 | 46.8 | 27.3 | 20.4 | 51.9 | 32.0 | 26.1 |
| Level of Service | C | C | C | D | C | D | D | C | C | D | C | C |
| Approach Delay (s) | | 30.4 | | | 46.6 | | | 29.5 | | | 33.7 | |
| Approach LOS | | C | | | D | | | C | | | C | |

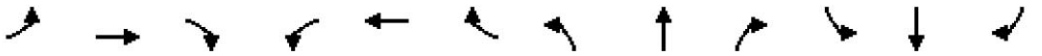
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 107.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 10 | 100 | 40 | 10 | 10 | 330 | 640 | 110 | 10 | 650 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.86 | | 1.00 | 0.93 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1641 | | 1805 | 1758 | | 1805 | 3531 | | 1805 | 3579 | |
| Flt Permitted | 0.74 | 1.00 | | 0.49 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1414 | 1641 | | 936 | 1758 | | 1805 | 3531 | | 1805 | 3579 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 10 | 100 | 40 | 10 | 10 | 330 | 640 | 110 | 10 | 650 | 40 |
| RTOR Reduction (vph) | 0 | 92 | 0 | 0 | 9 | 0 | 0 | 6 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 10 | 18 | 0 | 40 | 11 | 0 | 330 | 744 | 0 | 10 | 687 | 0 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 9.1 | 9.1 | | 9.1 | 9.1 | | 25.5 | 87.4 | | 1.5 | 63.4 | |
| Effective Green, g (s) | 9.1 | 9.1 | | 9.1 | 9.1 | | 25.5 | 87.4 | | 1.5 | 63.4 | |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.08 | 0.08 | | 0.23 | 0.79 | | 0.01 | 0.58 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 117 | 136 | | 77 | 145 | | 418 | 2806 | | 25 | 2063 | |
| v/s Ratio Prot | | 0.01 | | | 0.01 | | c0.18 | 0.21 | | 0.01 | c0.19 | |
| v/s Ratio Perm | 0.01 | | | c0.04 | | | | | | | | |
| v/c Ratio | 0.09 | 0.13 | | 0.52 | 0.07 | | 0.79 | 0.27 | | 0.40 | 0.33 | |
| Uniform Delay, d1 | 46.6 | 46.8 | | 48.4 | 46.6 | | 39.7 | 2.9 | | 53.8 | 12.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.89 | 0.62 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.5 | | 5.8 | 0.2 | | 0.9 | 0.0 | | 10.2 | 0.4 | |
| Delay (s) | 46.9 | 47.2 | | 54.2 | 46.8 | | 36.2 | 1.9 | | 64.0 | 12.7 | |
| Level of Service | D | D | | D | D | | D | A | | E | B | |
| Approach Delay (s) | | 47.2 | | | 51.7 | | | 12.3 | | | 13.4 | |
| Approach LOS | | D | | | D | | | B | | | B | |

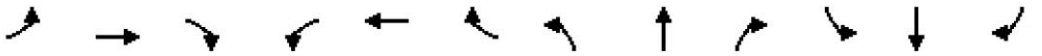
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 56.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 460 | 950 | 480 | 280 | 1710 | 260 | 360 | 80 | 130 | 90 | 60 | 250 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.91 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 4890 | | 1805 | 5187 | 1582 | 1805 | 3241 | | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 4890 | | 1805 | 5187 | 1582 | 1805 | 3241 | | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 460 | 950 | 480 | 280 | 1710 | 260 | 360 | 80 | 130 | 90 | 60 | 250 |
| RTOR Reduction (vph) | 0 | 69 | 0 | 0 | 0 | 151 | 0 | 113 | 0 | 0 | 0 | 228 |
| Lane Group Flow (vph) | 460 | 1361 | 0 | 280 | 1710 | 109 | 360 | 97 | 0 | 90 | 60 | 22 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 41.3 | 42.1 | | 26.5 | 27.3 | 27.3 | 13.0 | 14.4 | | 8.4 | 9.5 | 9.5 |
| Effective Green, g (s) | 41.3 | 42.1 | | 26.5 | 27.3 | 27.3 | 13.0 | 14.4 | | 8.4 | 9.5 | 9.5 |
| Actuated g/C Ratio | 0.38 | 0.38 | | 0.24 | 0.25 | 0.25 | 0.12 | 0.13 | | 0.08 | 0.09 | 0.09 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 678 | 1872 | | 435 | 1287 | 393 | 213 | 424 | | 138 | 312 | 137 |
| v/s Ratio Prot | c0.25 | 0.28 | | 0.16 | c0.33 | | c0.20 | c0.03 | | 0.05 | 0.02 | |
| v/s Ratio Perm | | | | | | 0.07 | | | | | | 0.01 |
| v/c Ratio | 0.68 | 0.73 | | 0.64 | 1.33 | 0.28 | 1.69 | 0.23 | | 0.65 | 0.19 | 0.16 |
| Uniform Delay, d1 | 28.8 | 29.0 | | 37.5 | 41.4 | 33.4 | 48.5 | 42.8 | | 49.4 | 46.7 | 46.5 |
| Progression Factor | 0.93 | 0.68 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.7 | 2.5 | | 3.3 | 153.4 | 1.7 | 330.0 | 0.3 | | 10.5 | 0.3 | 0.5 |
| Delay (s) | 29.4 | 22.1 | | 40.8 | 194.7 | 35.1 | 378.5 | 43.1 | | 59.9 | 47.0 | 47.1 |
| Level of Service | C | C | | D | F | D | F | D | | E | D | D |
| Approach Delay (s) | | 23.9 | | | 157.1 | | | 255.0 | | | 50.0 | |
| Approach LOS | | C | | | F | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 110.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 101.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

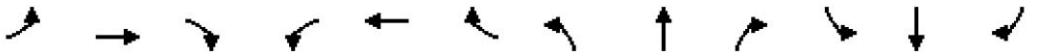
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 370 | 570 | 120 | 110 | 1230 | 440 | 330 | 1420 | 100 | 140 | 950 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1588 | 3502 | 4960 | | 3502 | 5187 | 1588 | 3502 | 5187 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1588 | 3502 | 4960 | | 3502 | 5187 | 1588 | 3502 | 5187 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 370 | 570 | 120 | 110 | 1230 | 440 | 330 | 1420 | 100 | 140 | 950 | 320 |
| RTOR Reduction (vph) | 0 | 0 | 74 | 0 | 53 | 0 | 0 | 0 | 40 | 0 | 0 | 127 |
| Lane Group Flow (vph) | 370 | 570 | 46 | 110 | 1617 | 0 | 330 | 1420 | 60 | 140 | 950 | 193 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 13.7 | 46.0 | 46.0 | 7.7 | 40.0 | | 11.0 | 40.0 | 40.0 | 7.0 | 36.0 | 36.0 |
| Effective Green, g (s) | 13.7 | 46.0 | 46.0 | 7.7 | 40.0 | | 11.0 | 40.0 | 40.0 | 7.0 | 36.0 | 36.0 |
| Actuated g/C Ratio | 0.11 | 0.38 | 0.38 | 0.06 | 0.33 | | 0.09 | 0.33 | 0.33 | 0.06 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 400 | 1988 | 609 | 225 | 1653 | | 321 | 1729 | 529 | 204 | 1556 | 476 |
| v/s Ratio Prot | c0.11 | 0.11 | | 0.03 | c0.33 | | c0.09 | c0.27 | | 0.04 | 0.18 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.04 | | | 0.12 |
| v/c Ratio | 0.93 | 0.29 | 0.08 | 0.49 | 0.98 | | 1.03 | 0.82 | 0.11 | 0.69 | 0.61 | 0.40 |
| Uniform Delay, d1 | 52.6 | 25.6 | 23.5 | 54.2 | 39.6 | | 54.5 | 36.7 | 27.7 | 55.4 | 36.0 | 33.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 26.9 | 0.4 | 0.2 | 1.7 | 17.5 | | 57.6 | 3.3 | 0.1 | 9.2 | 0.7 | 0.6 |
| Delay (s) | 79.6 | 26.0 | 23.7 | 55.9 | 57.1 | | 112.1 | 40.0 | 27.8 | 64.6 | 36.7 | 34.0 |
| Level of Service | E | C | C | E | E | | F | D | C | E | D | C |
| Approach Delay (s) | | 44.4 | | | 57.0 | | | 52.2 | | | 38.9 | |
| Approach LOS | | D | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 49.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 19.3 |
| Intersection Capacity Utilization | 92.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

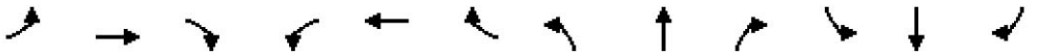
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 360 | 390 | 150 | 10 | 950 | 650 | 390 | 1190 | 30 | 300 | 910 | 500 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 5187 | 1587 | 3502 | 3595 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 5187 | 1587 | 3502 | 3595 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 360 | 390 | 150 | 10 | 950 | 650 | 390 | 1190 | 30 | 300 | 910 | 500 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 153 | 0 | 1 | 0 | 0 | 0 | 113 |
| Lane Group Flow (vph) | 360 | 390 | 150 | 10 | 950 | 497 | 390 | 1219 | 0 | 300 | 910 | 388 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 11.0 | 41.8 | 110.0 | 1.2 | 32.0 | 32.0 | 12.0 | 37.0 | | 10.0 | 35.0 | 35.0 |
| Effective Green, g (s) | 11.0 | 41.8 | 110.0 | 1.2 | 32.0 | 32.0 | 12.0 | 37.0 | | 10.0 | 35.0 | 35.0 |
| Actuated g/C Ratio | 0.10 | 0.38 | 1.00 | 0.01 | 0.29 | 0.29 | 0.11 | 0.34 | | 0.09 | 0.32 | 0.32 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 350 | 1971 | 1593 | 20 | 1509 | 462 | 382 | 1209 | | 318 | 1149 | 505 |
| v/s Ratio Prot | c0.10 | 0.08 | | 0.01 | 0.18 | | c0.11 | c0.34 | | 0.09 | 0.25 | |
| v/s Ratio Perm | | | c0.09 | | | c0.31 | | | | | | 0.24 |
| v/c Ratio | 1.03 | 0.20 | 0.09 | 0.50 | 0.63 | 1.08 | 1.02 | 1.01 | | 0.94 | 0.79 | 0.77 |
| Uniform Delay, d1 | 49.5 | 22.9 | 0.0 | 54.1 | 33.9 | 39.0 | 49.0 | 36.5 | | 49.7 | 34.2 | 33.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.01 | 1.05 | 1.09 |
| Incremental Delay, d2 | 55.6 | 0.2 | 0.1 | 18.3 | 2.0 | 63.6 | 51.5 | 27.8 | | 35.5 | 5.6 | 10.6 |
| Delay (s) | 105.1 | 23.1 | 0.1 | 72.4 | 35.9 | 102.6 | 100.5 | 64.3 | | 85.9 | 41.4 | 47.4 |
| Level of Service | F | C | A | E | D | F | F | E | | F | D | D |
| Approach Delay (s) | | 52.1 | | | 63.0 | | | 73.1 | | | 51.0 | |
| Approach LOS | | D | | | E | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 60.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.99 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 98.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

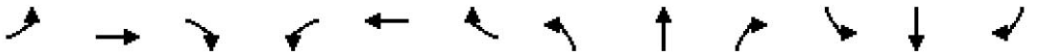
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 20 | 40 | 20 | 10 | 20 | 70 | 1540 | 10 | 30 | 1060 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3212 | | 1805 | 1900 | 1587 | 1805 | 5181 | | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3212 | | 1805 | 1900 | 1587 | 1805 | 5181 | | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 20 | 40 | 20 | 10 | 20 | 70 | 1540 | 10 | 30 | 1060 | 60 |
| RTOR Reduction (vph) | 0 | 37 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 40 | 23 | 0 | 20 | 10 | 1 | 70 | 1550 | 0 | 30 | 1060 | 41 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 3.6 | 7.3 | | 2.4 | 6.2 | 6.2 | 8.4 | 77.8 | | 5.0 | 74.4 | 74.4 |
| Effective Green, g (s) | 3.6 | 7.3 | | 2.4 | 6.2 | 6.2 | 8.4 | 77.8 | | 5.0 | 74.4 | 74.4 |
| Actuated g/C Ratio | 0.03 | 0.07 | | 0.02 | 0.06 | 0.06 | 0.08 | 0.71 | | 0.05 | 0.68 | 0.68 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 59 | 213 | | 39 | 107 | 89 | 138 | 3664 | | 82 | 2442 | 1072 |
| v/s Ratio Prot | c0.02 | c0.01 | | 0.01 | 0.01 | | c0.04 | c0.30 | | 0.02 | 0.29 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.03 |
| v/c Ratio | 0.68 | 0.11 | | 0.51 | 0.09 | 0.01 | 0.51 | 0.42 | | 0.37 | 0.43 | 0.04 |
| Uniform Delay, d1 | 52.6 | 48.3 | | 53.2 | 49.2 | 49.0 | 48.8 | 6.7 | | 51.0 | 8.2 | 5.9 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 26.7 | 0.2 | | 10.9 | 0.4 | 0.1 | 2.9 | 0.4 | | 2.8 | 0.6 | 0.1 |
| Delay (s) | 79.3 | 48.5 | | 64.1 | 49.6 | 49.1 | 51.7 | 7.1 | | 53.7 | 8.7 | 6.0 |
| Level of Service | E | D | | E | D | D | D | A | | D | A | A |
| Approach Delay (s) | | 60.8 | | | 55.2 | | | 9.0 | | | 9.7 | |
| Approach LOS | | E | | | E | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 13.3 |
| Intersection Capacity Utilization | 56.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

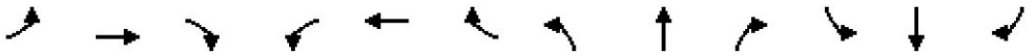
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 90 | 190 | 130 | 120 | 50 | 190 | 1030 | 70 | 30 | 600 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 3610 | 1586 | 1805 | 3571 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 3610 | 1586 | 1805 | 3571 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 90 | 190 | 130 | 120 | 50 | 190 | 1030 | 70 | 30 | 600 | 90 |
| RTOR Reduction (vph) | 0 | 0 | 173 | 0 | 0 | 46 | 0 | 3 | 0 | 0 | 0 | 45 |
| Lane Group Flow (vph) | 150 | 90 | 17 | 130 | 120 | 4 | 190 | 1097 | 0 | 30 | 600 | 45 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 13.1 | 10.0 | 10.0 | 12.5 | 9.4 | 9.4 | 16.7 | 66.5 | | 5.0 | 54.8 | 54.8 |
| Effective Green, g (s) | 13.1 | 10.0 | 10.0 | 12.5 | 9.4 | 9.4 | 16.7 | 66.5 | | 5.0 | 54.8 | 54.8 |
| Actuated g/C Ratio | 0.12 | 0.09 | 0.09 | 0.11 | 0.09 | 0.09 | 0.15 | 0.60 | | 0.05 | 0.50 | 0.50 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 215 | 328 | 144 | 205 | 308 | 136 | 274 | 2159 | | 82 | 1798 | 790 |
| v/s Ratio Prot | c0.08 | 0.02 | | 0.07 | c0.03 | | c0.11 | c0.31 | | 0.02 | 0.17 | |
| v/s Ratio Perm | | | 0.01 | | | 0.00 | | | | | | 0.03 |
| v/c Ratio | 0.70 | 0.27 | 0.12 | 0.63 | 0.39 | 0.03 | 0.69 | 0.51 | | 0.37 | 0.33 | 0.06 |
| Uniform Delay, d1 | 46.5 | 46.6 | 46.0 | 46.6 | 47.6 | 46.1 | 44.2 | 12.4 | | 51.0 | 16.6 | 14.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.93 | 1.27 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.5 | 0.5 | 0.4 | 6.3 | 0.8 | 0.1 | 6.7 | 0.8 | | 2.8 | 0.5 | 0.1 |
| Delay (s) | 56.0 | 47.1 | 46.3 | 52.8 | 48.4 | 46.2 | 47.8 | 16.6 | | 53.7 | 17.1 | 14.4 |
| Level of Service | E | D | D | D | D | D | D | B | | D | B | B |
| Approach Delay (s) | | 49.9 | | | 50.0 | | | 21.2 | | | 18.3 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 60.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

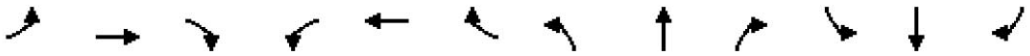
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 110 | 70 | 130 | 160 | 260 | 350 | 1080 | 70 | 40 | 850 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1798 | 3377 | | 1798 | 3610 | 1588 | 1805 | 5134 | | 1805 | 5104 | |
| Flt Permitted | 0.65 | 1.00 | | 0.64 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1231 | 3377 | | 1208 | 3610 | 1588 | 1805 | 5134 | | 1805 | 5104 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 110 | 70 | 130 | 160 | 260 | 350 | 1080 | 70 | 40 | 850 | 90 |
| RTOR Reduction (vph) | 0 | 58 | 0 | 0 | 0 | 149 | 0 | 5 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 20 | 122 | 0 | 130 | 160 | 111 | 350 | 1145 | 0 | 40 | 932 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 16.7 | 16.7 | | 16.7 | 16.7 | 16.7 | 24.3 | 65.5 | | 3.9 | 45.1 | |
| Effective Green, g (s) | 16.7 | 16.7 | | 16.7 | 16.7 | 16.7 | 24.3 | 65.5 | | 3.9 | 45.1 | |
| Actuated g/C Ratio | 0.17 | 0.17 | | 0.17 | 0.17 | 0.17 | 0.24 | 0.65 | | 0.04 | 0.45 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 204 | 560 | | 200 | 599 | 263 | 436 | 3339 | | 70 | 2286 | |
| v/s Ratio Prot | | 0.04 | | | 0.04 | | c0.19 | 0.22 | | 0.02 | c0.18 | |
| v/s Ratio Perm | 0.02 | | | c0.11 | | 0.07 | | | | | | |
| v/c Ratio | 0.10 | 0.22 | | 0.65 | 0.27 | 0.42 | 0.80 | 0.34 | | 0.57 | 0.41 | |
| Uniform Delay, d1 | 35.6 | 36.3 | | 39.3 | 36.7 | 37.7 | 35.9 | 7.9 | | 47.6 | 18.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.2 | | 7.3 | 0.2 | 1.1 | 10.2 | 0.3 | | 10.8 | 0.5 | |
| Delay (s) | 35.8 | 36.5 | | 46.6 | 36.9 | 38.8 | 46.2 | 8.2 | | 58.4 | 19.3 | |
| Level of Service | D | D | | D | D | D | D | A | | E | B | |
| Approach Delay (s) | | 36.5 | | | 40.1 | | | 17.1 | | | 20.9 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 100.7 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 75.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

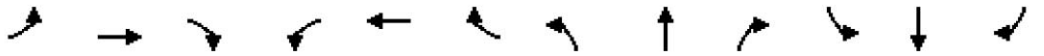
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 290 | 30 | 20 | 450 | 150 | 110 | 740 | 20 | 170 | 940 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 1.00 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3553 | | 1805 | 3460 | | 1805 | 3594 | | 1805 | 3505 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3553 | | 1805 | 3460 | | 1805 | 3594 | | 1805 | 3505 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 290 | 30 | 20 | 450 | 150 | 110 | 740 | 20 | 170 | 940 | 200 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 31 | 0 | 0 | 2 | 0 | 0 | 15 | 0 |
| Lane Group Flow (vph) | 140 | 313 | 0 | 20 | 569 | 0 | 110 | 758 | 0 | 170 | 1125 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 11.4 | 35.7 | | 2.4 | 26.7 | | 10.7 | 41.4 | | 14.5 | 45.2 | |
| Effective Green, g (s) | 11.4 | 35.7 | | 2.4 | 26.7 | | 10.7 | 41.4 | | 14.5 | 45.2 | |
| Actuated g/C Ratio | 0.10 | 0.32 | | 0.02 | 0.24 | | 0.10 | 0.38 | | 0.13 | 0.41 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 187 | 1153 | | 39 | 840 | | 176 | 1353 | | 238 | 1440 | |
| v/s Ratio Prot | c0.08 | 0.09 | | 0.01 | c0.16 | | 0.06 | 0.21 | | c0.09 | c0.32 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.75 | 0.27 | | 0.51 | 0.68 | | 0.62 | 0.56 | | 0.71 | 0.78 | |
| Uniform Delay, d1 | 47.9 | 27.5 | | 53.2 | 37.7 | | 47.7 | 27.1 | | 45.8 | 28.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.89 | 1.07 | |
| Incremental Delay, d2 | 15.1 | 0.1 | | 10.9 | 2.2 | | 6.8 | 1.7 | | 9.6 | 4.2 | |
| Delay (s) | 63.0 | 27.6 | | 64.1 | 39.9 | | 54.5 | 28.8 | | 50.2 | 34.3 | |
| Level of Service | E | C | | E | D | | D | C | | D | C | |
| Approach Delay (s) | | 38.4 | | | 40.7 | | | 32.0 | | | 36.4 | |
| Approach LOS | | D | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 78.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

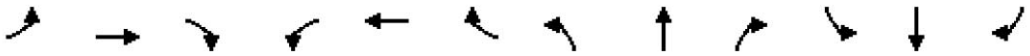
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 290 | 180 | 770 | 390 | 1670 | 0 | 0 | 760 | 480 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | 1.00 | 0.95 | 0.95 | 1.00 | 0.91 | | | 0.91 | 1.00 |
| Frpb, ped/bikes | | | | 1.00 | 0.99 | 0.98 | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 0.91 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1795 | 1616 | 1508 | 1805 | 5187 | | | 5187 | 1564 |
| Flt Permitted | | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1795 | 1616 | 1508 | 1805 | 5187 | | | 5187 | 1564 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 290 | 180 | 770 | 390 | 1670 | 0 | 0 | 760 | 480 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 | 0 | 0 | 272 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 290 | 475 | 449 | 390 | 1670 | 0 | 0 | 760 | 208 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | 37.6 | 37.6 | 37.6 | 27.2 | 64.4 | | | 33.2 | 33.2 |
| Effective Green, g (s) | | | | 37.6 | 37.6 | 37.6 | 27.2 | 64.4 | | | 33.2 | 33.2 |
| Actuated g/C Ratio | | | | 0.34 | 0.34 | 0.34 | 0.25 | 0.59 | | | 0.30 | 0.30 |
| Clearance Time (s) | | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | 614 | 552 | 515 | 446 | 3037 | | | 1566 | 472 |
| v/s Ratio Prot | | | | | 0.29 | | c0.22 | c0.32 | | | 0.15 | |
| v/s Ratio Perm | | | | 0.16 | | c0.30 | | | | | | 0.13 |
| v/c Ratio | | | | 0.47 | 0.86 | 0.87 | 0.87 | 0.55 | | | 0.49 | 0.44 |
| Uniform Delay, d1 | | | | 28.4 | 33.8 | 34.0 | 39.8 | 13.9 | | | 31.4 | 30.9 |
| Progression Factor | | | | 1.00 | 1.00 | 1.00 | 1.35 | 1.18 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 0.6 | 13.0 | 15.0 | 11.5 | 0.4 | | | 1.1 | 3.0 |
| Delay (s) | | | | 29.0 | 46.8 | 49.0 | 65.3 | 16.8 | | | 32.5 | 33.9 |
| Level of Service | | | | C | D | D | E | B | | | C | C |
| Approach Delay (s) | | 0.0 | | | 43.4 | | | 26.0 | | | 33.0 | |
| Approach LOS | | A | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 87.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

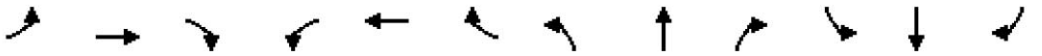
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 430 | 50 | 190 | 0 | 0 | 0 | 0 | 1630 | 180 | 210 | 840 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | | | | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | | | | | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1795 | 1652 | | | | | | 5094 | | 1805 | 5187 | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1795 | 1652 | | | | | | 5094 | | 1805 | 5187 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 430 | 50 | 190 | 0 | 0 | 0 | 0 | 1630 | 180 | 210 | 840 | 0 |
| RTOR Reduction (vph) | 0 | 129 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 430 | 111 | 0 | 0 | 0 | 0 | 0 | 1799 | 0 | 210 | 840 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | | | | | | | | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | 30.9 | 30.9 | | | | | | 50.7 | | 16.4 | 71.1 | |
| Effective Green, g (s) | 30.9 | 30.9 | | | | | | 50.7 | | 16.4 | 71.1 | |
| Actuated g/C Ratio | 0.28 | 0.28 | | | | | | 0.46 | | 0.15 | 0.65 | |
| Clearance Time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 504 | 464 | | | | | | 2348 | | 269 | 3353 | |
| v/s Ratio Prot | | 0.07 | | | | | | c0.35 | | c0.12 | 0.16 | |
| v/s Ratio Perm | c0.24 | | | | | | | | | | | |
| v/c Ratio | 0.85 | 0.24 | | | | | | 0.77 | | 0.78 | 0.25 | |
| Uniform Delay, d1 | 37.4 | 30.5 | | | | | | 24.7 | | 45.1 | 8.2 | |
| Progression Factor | 1.00 | 1.00 | | | | | | 1.00 | | 1.53 | 0.63 | |
| Incremental Delay, d2 | 13.2 | 0.3 | | | | | | 2.5 | | 12.4 | 0.2 | |
| Delay (s) | 50.6 | 30.8 | | | | | | 27.2 | | 81.2 | 5.4 | |
| Level of Service | D | C | | | | | | C | | F | A | |
| Approach Delay (s) | | 43.5 | | | 0.0 | | | 27.2 | | | 20.5 | |
| Approach LOS | | D | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 87.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

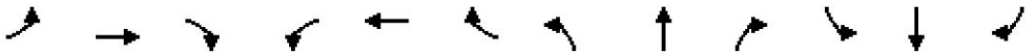
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 110 | 50 | 90 | 350 | 640 | 0 | 0 | 670 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 0.95 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1753 | | 1805 | 3610 | | | 3610 | 1564 |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1753 | | 1805 | 3610 | | | 3610 | 1564 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 110 | 50 | 90 | 350 | 640 | 0 | 0 | 670 | 300 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 147 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 229 | 0 | 350 | 640 | 0 | 0 | 670 | 153 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | | | | 19.5 | | 26.7 | 82.5 | | | 51.8 | 51.8 |
| Effective Green, g (s) | | | | | 19.5 | | 26.7 | 82.5 | | | 51.8 | 51.8 |
| Actuated g/C Ratio | | | | | 0.18 | | 0.24 | 0.75 | | | 0.47 | 0.47 |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 311 | | 438 | 2708 | | | 1700 | 737 |
| v/s Ratio Prot | | | | | | | c0.19 | 0.18 | | | c0.19 | |
| v/s Ratio Perm | | | | | 0.13 | | | | | | | 0.10 |
| v/c Ratio | | | | | 0.74 | | 0.80 | 0.24 | | | 0.39 | 0.21 |
| Uniform Delay, d1 | | | | | 42.8 | | 39.1 | 4.2 | | | 18.9 | 17.1 |
| Progression Factor | | | | | 1.00 | | 1.48 | 0.65 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 8.8 | | 9.3 | 0.2 | | | 0.7 | 0.6 |
| Delay (s) | | | | | 51.6 | | 67.2 | 2.9 | | | 19.6 | 17.7 |
| Level of Service | | | | | D | | E | A | | | B | B |
| Approach Delay (s) | | 0.0 | | | 51.6 | | | 25.7 | | | 19.0 | |
| Approach LOS | | A | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

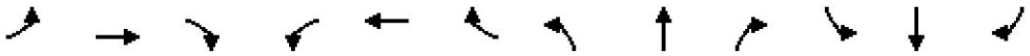
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 30 | 130 | 0 | 0 | 0 | 0 | 880 | 210 | 130 | 660 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | | | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | | | | | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1820 | 1586 | | | | | 3610 | 1564 | 1805 | 3610 | |
| Flt Permitted | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1820 | 1586 | | | | | 3610 | 1564 | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 30 | 130 | 0 | 0 | 0 | 0 | 880 | 210 | 130 | 660 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 114 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 140 | 16 | 0 | 0 | 0 | 0 | 880 | 145 | 130 | 660 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | | 13.8 | 13.8 | | | | | 71.0 | 71.0 | 13.2 | 88.2 | |
| Effective Green, g (s) | | 13.8 | 13.8 | | | | | 71.0 | 71.0 | 13.2 | 88.2 | |
| Actuated g/C Ratio | | 0.13 | 0.13 | | | | | 0.65 | 0.65 | 0.12 | 0.80 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 228 | 199 | | | | | 2330 | 1009 | 217 | 2895 | |
| v/s Ratio Prot | | | | | | | | c0.24 | | c0.07 | 0.18 | |
| v/s Ratio Perm | | 0.08 | 0.01 | | | | | | 0.09 | | | |
| v/c Ratio | | 0.61 | 0.08 | | | | | 0.38 | 0.14 | 0.60 | 0.23 | |
| Uniform Delay, d1 | | 45.6 | 42.5 | | | | | 9.1 | 7.6 | 45.9 | 2.6 | |
| Progression Factor | | 1.00 | 1.00 | | | | | 1.41 | 2.93 | 1.36 | 0.57 | |
| Incremental Delay, d2 | | 4.8 | 0.2 | | | | | 0.4 | 0.3 | 4.1 | 0.2 | |
| Delay (s) | | 50.4 | 42.7 | | | | | 13.3 | 22.6 | 66.4 | 1.7 | |
| Level of Service | | D | D | | | | | B | C | E | A | |
| Approach Delay (s) | | 46.7 | | | 0.0 | | | 15.1 | | | 12.3 | |
| Approach LOS | | D | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

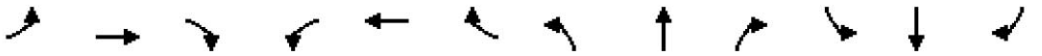
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 160 | 230 | 170 | 460 | 150 | 670 | 1290 | 110 | 40 | 940 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | 4.0 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 4.0 | 4.0 | 5.3 | |
| Lane Util. Factor | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3610 | 2842 | 3502 | 3610 | 1587 | 3502 | 5187 | 1615 | 3502 | 5169 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3610 | 2842 | 3502 | 3610 | 1587 | 3502 | 5187 | 1615 | 3502 | 5169 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 30 | 160 | 230 | 170 | 460 | 150 | 670 | 1290 | 110 | 40 | 940 | 20 |
| RTOR Reduction (vph) | 0 | 0 | 176 | 0 | 0 | 118 | 0 | 0 | 62 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 30 | 160 | 54 | 170 | 460 | 32 | 670 | 1290 | 48 | 40 | 958 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Over | Prot | | Perm | Prot | | Over | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 3.3 | 15.0 | 23.7 | 9.6 | 21.3 | 21.3 | 23.7 | 54.6 | 9.6 | 3.3 | 34.2 | |
| Effective Green, g (s) | 3.3 | 15.0 | 23.7 | 9.6 | 21.3 | 21.3 | 23.7 | 54.6 | 9.6 | 3.3 | 34.2 | |
| Actuated g/C Ratio | 0.03 | 0.15 | 0.24 | 0.10 | 0.21 | 0.21 | 0.24 | 0.54 | 0.10 | 0.03 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.9 | 4.0 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 4.0 | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 115 | 538 | 669 | 334 | 764 | 336 | 824 | 2812 | 154 | 115 | 1756 | |
| v/s Ratio Prot | 0.01 | 0.04 | 0.02 | c0.05 | c0.13 | | c0.19 | 0.25 | 0.03 | 0.01 | c0.19 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.26 | 0.30 | 0.08 | 0.51 | 0.60 | 0.09 | 0.81 | 0.46 | 0.31 | 0.35 | 0.55 | |
| Uniform Delay, d1 | 47.5 | 38.2 | 30.0 | 43.3 | 35.9 | 31.9 | 36.4 | 14.0 | 42.5 | 47.6 | 27.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.2 | 0.3 | 0.1 | 1.2 | 1.3 | 0.1 | 6.2 | 0.5 | 1.2 | 1.8 | 1.2 | |
| Delay (s) | 48.7 | 38.5 | 30.1 | 44.5 | 37.2 | 32.1 | 42.6 | 14.6 | 43.7 | 49.5 | 28.2 | |
| Level of Service | D | D | C | D | D | C | D | B | D | D | C | |
| Approach Delay (s) | | 34.6 | | | 37.8 | | | 25.2 | | | 29.0 | |
| Approach LOS | | C | | | D | | | C | | | C | |

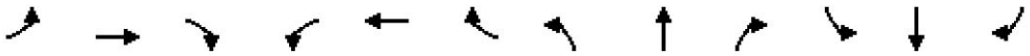
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 100.7 | Sum of lost time (s) | 13.3 |
| Intersection Capacity Utilization | 70.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



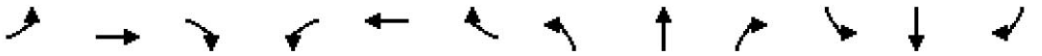
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 10 | 10 | 10 | 10 | 50 | 10 | 930 | 10 | 30 | 690 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.88 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1758 | | 1805 | 1662 | | 1805 | 3604 | | 1805 | 3567 | |
| Flt Permitted | 0.72 | 1.00 | | 0.74 | 1.00 | | 0.36 | 1.00 | | 0.29 | 1.00 | |
| Satd. Flow (perm) | 1364 | 1758 | | 1414 | 1662 | | 678 | 3604 | | 547 | 3567 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 120 | 10 | 10 | 10 | 10 | 50 | 10 | 930 | 10 | 30 | 690 | 60 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 120 | 11 | 0 | 10 | 17 | 0 | 10 | 940 | 0 | 30 | 746 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.0 | 15.0 | | 15.0 | 15.0 | | 87.0 | 87.0 | | 87.0 | 87.0 | |
| Effective Green, g (s) | 15.0 | 15.0 | | 15.0 | 15.0 | | 87.0 | 87.0 | | 87.0 | 87.0 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.14 | 0.14 | | 0.79 | 0.79 | | 0.79 | 0.79 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 186 | 240 | | 193 | 227 | | 536 | 2850 | | 433 | 2821 | |
| v/s Ratio Prot | | 0.01 | | | 0.01 | | | c0.26 | | | 0.21 | |
| v/s Ratio Perm | c0.09 | | | 0.01 | | | 0.01 | | | 0.05 | | |
| v/c Ratio | 0.65 | 0.05 | | 0.05 | 0.07 | | 0.02 | 0.33 | | 0.07 | 0.26 | |
| Uniform Delay, d1 | 45.0 | 41.3 | | 41.3 | 41.4 | | 2.4 | 3.3 | | 2.5 | 3.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.81 | 0.73 | | 0.64 | 0.56 | |
| Incremental Delay, d2 | 7.5 | 0.1 | | 0.1 | 0.1 | | 0.1 | 0.3 | | 0.3 | 0.2 | |
| Delay (s) | 52.4 | 41.4 | | 41.4 | 41.6 | | 2.0 | 2.7 | | 1.9 | 1.9 | |
| Level of Service | D | D | | D | D | | A | A | | A | A | |
| Approach Delay (s) | | 50.9 | | | 41.6 | | | 2.7 | | | 1.9 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 46.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 190 | 40 | 60 | 180 | 100 | 60 | 910 | 40 | 40 | 730 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.95 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3516 | | 1805 | 3417 | | 1805 | 3587 | | 1805 | 3557 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3516 | | 1805 | 3417 | | 1805 | 3587 | | 1805 | 3557 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 190 | 40 | 60 | 180 | 100 | 60 | 910 | 40 | 40 | 730 | 80 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 85 | 0 | 0 | 2 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 60 | 210 | 0 | 60 | 195 | 0 | 60 | 948 | 0 | 40 | 805 | 0 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.6 | 11.9 | | 7.6 | 11.9 | | 7.9 | 69.1 | | 5.4 | 66.6 | |
| Effective Green, g (s) | 7.6 | 11.9 | | 7.6 | 11.9 | | 7.9 | 69.1 | | 5.4 | 66.6 | |
| Actuated g/C Ratio | 0.07 | 0.11 | | 0.07 | 0.11 | | 0.07 | 0.63 | | 0.05 | 0.61 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 380 | | 125 | 370 | | 130 | 2253 | | 89 | 2154 | |
| v/s Ratio Prot | c0.03 | c0.06 | | 0.03 | 0.06 | | c0.03 | c0.26 | | 0.02 | 0.23 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.48 | 0.55 | | 0.48 | 0.53 | | 0.46 | 0.42 | | 0.45 | 0.37 | |
| Uniform Delay, d1 | 49.3 | 46.5 | | 49.3 | 46.4 | | 49.0 | 10.3 | | 50.9 | 11.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.70 | 1.94 | |
| Incremental Delay, d2 | 2.9 | 1.7 | | 2.9 | 1.4 | | 2.6 | 0.6 | | 3.5 | 0.5 | |
| Delay (s) | 52.2 | 48.3 | | 52.2 | 47.8 | | 51.6 | 10.9 | | 39.2 | 21.9 | |
| Level of Service | D | D | | D | D | | D | B | | D | C | |
| Approach Delay (s) | | 49.1 | | | 48.5 | | | 13.3 | | | 22.7 | |
| Approach LOS | | D | | | D | | | B | | | C | |

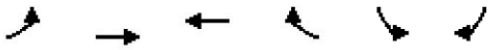
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 54.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 280 | 130 | 190 | 400 | 280 | 230 | 400 | 140 | 200 | 370 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1615 | 3502 | 3610 | 1587 | 3502 | 3610 | 1615 | 3502 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1615 | 3502 | 3610 | 1587 | 3502 | 3610 | 1615 | 3502 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 200 | 280 | 130 | 190 | 400 | 280 | 230 | 400 | 140 | 200 | 370 | 320 |
| RTOR Reduction (vph) | 0 | 0 | 107 | 0 | 0 | 231 | 0 | 0 | 78 | 0 | 0 | 180 |
| Lane Group Flow (vph) | 200 | 280 | 23 | 190 | 400 | 49 | 230 | 400 | 62 | 200 | 370 | 140 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.3 | 18.2 | 18.2 | 11.0 | 17.9 | 17.9 | 12.1 | 45.4 | 45.4 | 11.3 | 44.6 | 44.6 |
| Effective Green, g (s) | 11.3 | 18.2 | 18.2 | 11.0 | 17.9 | 17.9 | 12.1 | 45.4 | 45.4 | 11.3 | 44.6 | 44.6 |
| Actuated g/C Ratio | 0.11 | 0.18 | 0.18 | 0.11 | 0.18 | 0.18 | 0.12 | 0.45 | 0.45 | 0.11 | 0.44 | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 388 | 645 | 288 | 378 | 634 | 279 | 416 | 1608 | 720 | 388 | 1580 | 694 |
| v/s Ratio Prot | c0.06 | 0.08 | | 0.05 | c0.11 | | c0.07 | c0.11 | | 0.06 | 0.10 | |
| v/s Ratio Perm | | | 0.01 | | | 0.03 | | | 0.04 | | | 0.09 |
| v/c Ratio | 0.52 | 0.43 | 0.08 | 0.50 | 0.63 | 0.18 | 0.55 | 0.25 | 0.09 | 0.52 | 0.23 | 0.20 |
| Uniform Delay, d1 | 42.7 | 37.3 | 34.9 | 42.9 | 38.9 | 35.7 | 42.3 | 17.6 | 16.3 | 42.7 | 18.0 | 17.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.2 | 0.5 | 0.1 | 1.1 | 2.1 | 0.3 | 1.6 | 0.4 | 0.2 | 1.2 | 0.3 | 0.7 |
| Delay (s) | 43.9 | 37.7 | 35.0 | 43.9 | 41.0 | 36.0 | 43.9 | 18.0 | 16.5 | 43.9 | 18.3 | 18.3 |
| Level of Service | D | D | C | D | D | D | D | B | B | D | B | B |
| Approach Delay (s) | | 39.2 | | | 40.0 | | | 25.5 | | | 24.1 | |
| Approach LOS | | D | | | D | | | C | | | C | |

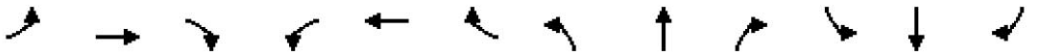
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 101.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 57.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



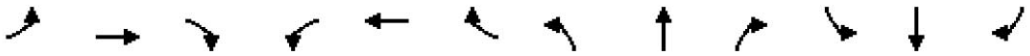
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 170 | 60 | 50 | 400 | 570 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1615 | 1805 | 1615 |
| Flt Permitted | 0.72 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1373 | 3610 | 3610 | 1615 | 1805 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 60 | 50 | 400 | 570 | 180 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 44 |
| Lane Group Flow (vph) | 170 | 60 | 50 | 400 | 570 | 136 |
| Turn Type | Perm | | | pt+ov | | Perm |
| Protected Phases | | 4 | 8 | 8 1 | 1 | |
| Permitted Phases | 4 | | | | | 1 |
| Actuated Green, G (s) | 19.0 | 19.0 | 19.0 | 110.0 | 83.0 | 83.0 |
| Effective Green, g (s) | 19.0 | 19.0 | 19.0 | 110.0 | 83.0 | 83.0 |
| Actuated g/C Ratio | 0.17 | 0.17 | 0.17 | 1.00 | 0.75 | 0.75 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 237 | 624 | 624 | 1615 | 1362 | 1219 |
| v/s Ratio Prot | | 0.02 | 0.01 | 0.25 | c0.32 | |
| v/s Ratio Perm | c0.12 | | | | | 0.08 |
| v/c Ratio | 0.72 | 0.10 | 0.08 | 0.25 | 0.42 | 0.11 |
| Uniform Delay, d1 | 43.0 | 38.3 | 38.2 | 0.0 | 4.8 | 3.6 |
| Progression Factor | 1.00 | 1.00 | 1.72 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.9 | 0.1 | 0.1 | 0.1 | 0.2 | 0.0 |
| Delay (s) | 52.9 | 38.3 | 65.8 | 0.1 | 5.1 | 3.7 |
| Level of Service | D | D | E | A | A | A |
| Approach Delay (s) | | 49.1 | 7.4 | | 4.7 | |
| Approach LOS | | D | A | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



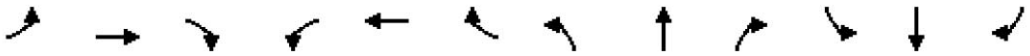
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 100 | 530 | 150 | 380 | 0 | 0 | 0 | 0 | 10 | 20 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.98 | 1.00 |
| Satd. Flow (prot) | | 3610 | 1615 | 1805 | 3610 | | | | | | 1869 | 1615 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.98 | 1.00 |
| Satd. Flow (perm) | | 3610 | 1615 | 1805 | 3610 | | | | | | 1869 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 100 | 530 | 150 | 380 | 0 | 0 | 0 | 0 | 10 | 20 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 0 | 100 | 530 | 150 | 380 | 0 | 0 | 0 | 0 | 0 | 30 | 41 |
| Turn Type | | | Free | Prot | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | 3 | 8 | | | | | | 6 | |
| Permitted Phases | | | Free | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 8.5 | 110.0 | 14.5 | 27.0 | | | | | | 75.0 | 75.0 |
| Effective Green, g (s) | | 8.5 | 110.0 | 14.5 | 27.0 | | | | | | 75.0 | 75.0 |
| Actuated g/C Ratio | | 0.08 | 1.00 | 0.13 | 0.25 | | | | | | 0.68 | 0.68 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 279 | 1615 | 238 | 886 | | | | | | 1274 | 1101 |
| v/s Ratio Prot | | 0.03 | | c0.08 | c0.11 | | | | | | | |
| v/s Ratio Perm | | | c0.33 | | | | | | | | 0.02 | 0.03 |
| v/c Ratio | | 0.36 | 0.33 | 0.63 | 0.43 | | | | | | 0.02 | 0.04 |
| Uniform Delay, d1 | | 48.2 | 0.0 | 45.2 | 35.0 | | | | | | 5.7 | 5.7 |
| Progression Factor | | 1.15 | 1.00 | 1.14 | 1.36 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.7 | 0.5 | 5.3 | 0.3 | | | | | | 0.0 | 0.1 |
| Delay (s) | | 56.1 | 0.5 | 56.9 | 47.9 | | | | | | 5.7 | 5.8 |
| Level of Service | | E | A | E | D | | | | | | A | A |
| Approach Delay (s) | | 9.3 | | | 50.4 | | | 0.0 | | | 5.7 | |
| Approach LOS | | A | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 4.0 |
| Intersection Capacity Utilization | 36.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



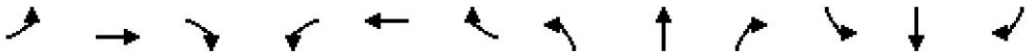
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 60 | 0 | 0 | 220 | 80 | 300 | 100 | 190 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | | | 3610 | 1615 | 1805 | 1900 | 1615 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | | | 3610 | 1615 | 1805 | 1900 | 1615 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 60 | 0 | 0 | 220 | 80 | 300 | 100 | 190 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 71 | 0 | 0 | 51 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 40 | 60 | 0 | 0 | 220 | 9 | 300 | 100 | 139 | 0 | 0 | 0 |
| Turn Type | Prot | | | | | Perm | Perm | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | | | | | | 8 | 2 | | 2 | | | |
| Actuated Green, G (s) | 5.5 | 21.7 | | | 12.2 | 12.2 | 80.3 | 80.3 | 80.3 | | | |
| Effective Green, g (s) | 5.5 | 21.7 | | | 12.2 | 12.2 | 80.3 | 80.3 | 80.3 | | | |
| Actuated g/C Ratio | 0.05 | 0.20 | | | 0.11 | 0.11 | 0.73 | 0.73 | 0.73 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 90 | 712 | | | 400 | 179 | 1318 | 1387 | 1179 | | | |
| v/s Ratio Prot | c0.02 | 0.02 | | | c0.06 | | | 0.05 | | | | |
| v/s Ratio Perm | | | | | | 0.01 | c0.17 | | 0.09 | | | |
| v/c Ratio | 0.44 | 0.08 | | | 0.55 | 0.05 | 0.23 | 0.07 | 0.12 | | | |
| Uniform Delay, d1 | 50.8 | 36.0 | | | 46.3 | 43.7 | 4.8 | 4.2 | 4.4 | | | |
| Progression Factor | 1.88 | 0.49 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 3.5 | 0.1 | | | 1.6 | 0.1 | 0.4 | 0.1 | 0.2 | | | |
| Delay (s) | 99.0 | 17.9 | | | 47.9 | 43.8 | 5.2 | 4.3 | 4.6 | | | |
| Level of Service | F | B | | | D | D | A | A | A | | | |
| Approach Delay (s) | | 50.3 | | | 46.8 | | | 4.9 | | | 0.0 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.28 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 36.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 10 | 20 | 70 | 10 | 170 | 20 | 270 | 20 | 100 | 550 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.90 | | 1.00 | 0.86 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4668 | | 1805 | 4452 | | 1805 | 3573 | | 1805 | 3534 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4668 | | 1805 | 4452 | | 1805 | 3573 | | 1805 | 3534 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 10 | 20 | 70 | 10 | 170 | 20 | 270 | 20 | 100 | 550 | 90 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 158 | 0 | 0 | 3 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 50 | 11 | 0 | 70 | 22 | 0 | 20 | 287 | 0 | 100 | 634 | 0 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.3 | 4.8 | | 10.1 | 7.6 | | 3.2 | 67.7 | | 11.4 | 75.9 | |
| Effective Green, g (s) | 7.3 | 4.8 | | 10.1 | 7.6 | | 3.2 | 67.7 | | 11.4 | 75.9 | |
| Actuated g/C Ratio | 0.07 | 0.04 | | 0.09 | 0.07 | | 0.03 | 0.62 | | 0.10 | 0.69 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 120 | 204 | | 166 | 308 | | 53 | 2199 | | 187 | 2438 | |
| v/s Ratio Prot | 0.03 | 0.00 | | c0.04 | c0.00 | | 0.01 | 0.08 | | c0.06 | c0.18 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.42 | 0.05 | | 0.42 | 0.07 | | 0.38 | 0.13 | | 0.53 | 0.26 | |
| Uniform Delay, d1 | 49.3 | 50.4 | | 47.2 | 47.9 | | 52.4 | 8.8 | | 46.8 | 6.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.3 | 0.1 | | 1.7 | 0.1 | | 4.5 | 0.1 | | 2.9 | 0.3 | |
| Delay (s) | 51.6 | 50.5 | | 48.9 | 48.0 | | 56.9 | 9.0 | | 49.7 | 6.7 | |
| Level of Service | D | D | | D | D | | E | A | | D | A | |
| Approach Delay (s) | | 51.2 | | | 48.3 | | | 12.1 | | | 12.5 | |
| Approach LOS | | D | | | D | | | B | | | B | |

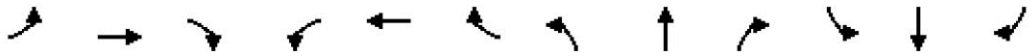
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.29 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 42.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 0 | 10 | 10 | 40 | 20 | 250 | 0 | 0 | 90 | 340 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 10 | 10 | 40 | 20 | 250 | 0 | 0 | 90 | 340 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 595 | 550 | 260 | 550 | 720 | 250 | 430 | | | 250 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 595 | 550 | 260 | 550 | 720 | 250 | 430 | | | 250 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 98 | 97 | 95 | 98 | | | 100 | | |
| cM capacity (veh/h) | 384 | 438 | 784 | 443 | 350 | 794 | 1140 | | | 1327 | | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 60 | 270 | 430 |
| Volume Left | 10 | 20 | 0 |
| Volume Right | 40 | 0 | 340 |
| cSH | 591 | 1140 | 1700 |
| Volume to Capacity | 0.10 | 0.02 | 0.25 |
| Queue Length 95th (ft) | 8 | 1 | 0 |
| Control Delay (s) | 11.8 | 0.8 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 11.8 | 0.8 | 0.0 |
| Approach LOS | B | | |

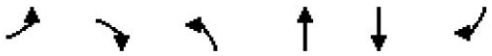
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.2 | | | |
| Intersection Capacity Utilization | 39.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 180 | 10 | 10 | 0 | 0 | 0 | 0 | 100 | 10 | 40 | 50 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 180 | 10 | 10 | 0 | 0 | 0 | 0 | 100 | 10 | 40 | 50 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 235 | 240 | 50 | 250 | 235 | 105 | 50 | | | 110 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 235 | 240 | 50 | 250 | 235 | 105 | 50 | | | 110 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 75 | 98 | 99 | 100 | 100 | 100 | 100 | | | 97 | | |
| cM capacity (veh/h) | 709 | 647 | 1024 | 678 | 651 | 955 | 1570 | | | 1493 | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 180 | 20 | 110 | 90 |
| Volume Left | 180 | 0 | 0 | 40 |
| Volume Right | 0 | 10 | 10 | 0 |
| cSH | 709 | 793 | 1700 | 1493 |
| Volume to Capacity | 0.25 | 0.03 | 0.06 | 0.03 |
| Queue Length 95th (ft) | 25 | 2 | 0 | 2 |
| Control Delay (s) | 11.8 | 9.7 | 0.0 | 3.4 |
| Lane LOS | B | A | | A |
| Approach Delay (s) | 11.6 | | 0.0 | 3.4 |
| Approach LOS | B | | | |

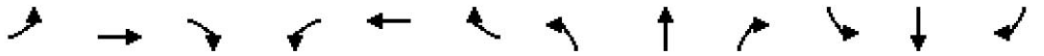
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.6 | | | |
| Intersection Capacity Utilization | 28.2% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 210 | 90 | 100 | 740 | 660 | 240 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 210 | 90 | 100 | 740 | 660 | 240 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1235 | 335 | 900 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1235 | 335 | 900 | | | |
| tC, single (s) | 6.8 | 6.9 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 0 | 86 | 87 | | | |
| cM capacity (veh/h) | 148 | 664 | 763 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 300 | 100 | 370 | 370 | 330 | 330 | 240 |
| Volume Left | 210 | 100 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 90 | 0 | 0 | 0 | 0 | 0 | 240 |
| cSH | 193 | 763 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 1.55 | 0.13 | 0.22 | 0.22 | 0.19 | 0.19 | 0.14 |
| Queue Length 95th (ft) | 480 | 11 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 316.1 | 10.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | B | | | | | |
| Approach Delay (s) | 316.1 | 1.2 | | | 0.0 | | |
| Approach LOS | F | | | | | | |

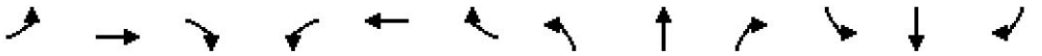
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 47.0 | | |
| Intersection Capacity Utilization | 50.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 20 | 640 | 0 | 0 | 410 | 430 | 330 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 20 | 640 | 0 | 0 | 410 | 430 | 330 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 845 | | | 645 | | | 895 | 1530 | 330 | 780 | 1100 | 215 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 845 | | | 645 | | | 895 | 1530 | 330 | 780 | 1100 | 215 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 100 | | | 0 | 100 | 100 | 100 | 100 | 100 |
| cM capacity (veh/h) | 800 | | | 946 | | | 231 | 115 | 666 | 281 | 208 | 793 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 20 | 320 | 320 | 205 | 205 | 430 | 330 |
| Volume Left | 20 | 0 | 0 | 0 | 0 | 0 | 330 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 430 | 0 |
| cSH | 800 | 1700 | 1700 | 1700 | 1700 | 1700 | 229 |
| Volume to Capacity | 0.02 | 0.19 | 0.19 | 0.12 | 0.12 | 0.25 | 1.44 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 0 | 0 | 478 |
| Control Delay (s) | 9.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 261.8 |
| Lane LOS | A | | | | | | F |
| Approach Delay (s) | 0.3 | | | 0.0 | | | 261.8 |
| Approach LOS | | | | | | | F |

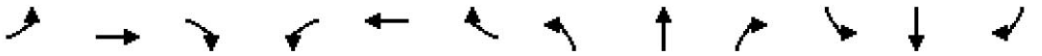
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 47.3 | | |
| Intersection Capacity Utilization | 81.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 220 | 710 | 20 | 760 | 0 | 0 | 0 | 0 | 440 | 0 | 20 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 220 | 710 | 20 | 760 | 0 | 0 | 0 | 0 | 440 | 0 | 20 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 765 | | | 935 | | | 660 | 1030 | 120 | 920 | 1740 | 390 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 765 | | | 935 | | | 660 | 1030 | 120 | 920 | 1740 | 390 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 97 | | | 100 | 100 | 100 | 0 | 100 | 97 |
| cM capacity (veh/h) | 854 | | | 741 | | | 331 | 228 | 911 | 222 | 85 | 609 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 110 | 110 | 710 | 20 | 380 | 380 | 460 |
| Volume Left | 0 | 0 | 0 | 20 | 0 | 0 | 440 |
| Volume Right | 0 | 0 | 710 | 0 | 0 | 0 | 20 |
| cSH | 1700 | 1700 | 1700 | 741 | 1700 | 1700 | 228 |
| Volume to Capacity | 0.06 | 0.06 | 0.42 | 0.03 | 0.22 | 0.22 | 2.01 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 2 | 0 | 0 | 851 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 | 0.0 | 506.6 |
| Lane LOS | | | | A | | | F |
| Approach Delay (s) | 0.0 | | | 0.3 | | | 506.6 |
| Approach LOS | | | | | | | F |

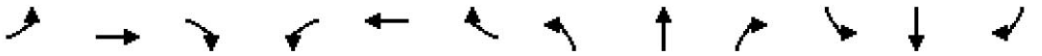
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 107.5 | | | |
| Intersection Capacity Utilization | 81.7% | ICU Level of Service | D | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 290 | 250 | 50 | 30 | 350 | 420 | 270 | 1930 | 370 | 670 | 2450 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1598 | 3502 | 3610 | 1603 | 3502 | 5187 | 1590 | 3502 | 5187 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1598 | 3502 | 3610 | 1603 | 3502 | 5187 | 1590 | 3502 | 5187 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 290 | 250 | 50 | 30 | 350 | 420 | 270 | 1930 | 370 | 670 | 2450 | 190 |
| RTOR Reduction (vph) | 0 | 0 | 36 | 0 | 0 | 1 | 0 | 0 | 122 | 0 | 0 | 48 |
| Lane Group Flow (vph) | 290 | 250 | 14 | 30 | 350 | 419 | 270 | 1930 | 248 | 670 | 2450 | 142 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.0 | 21.4 | 31.4 | 4.1 | 17.5 | 36.5 | 10.0 | 51.0 | 51.0 | 19.0 | 60.0 | 60.0 |
| Effective Green, g (s) | 8.0 | 21.4 | 31.4 | 4.1 | 17.5 | 36.5 | 10.0 | 51.0 | 51.0 | 19.0 | 60.0 | 60.0 |
| Actuated g/C Ratio | 0.07 | 0.19 | 0.28 | 0.04 | 0.16 | 0.33 | 0.09 | 0.46 | 0.46 | 0.17 | 0.54 | 0.54 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 251 | 693 | 507 | 129 | 567 | 582 | 314 | 2373 | 727 | 597 | 2791 | 856 |
| v/s Ratio Prot | c0.08 | c0.07 | 0.00 | 0.01 | 0.10 | c0.12 | 0.08 | 0.37 | | c0.19 | c0.47 | |
| v/s Ratio Perm | | | 0.01 | | | 0.14 | | | 0.16 | | | 0.09 |
| v/c Ratio | 1.16 | 0.36 | 0.03 | 0.23 | 0.62 | 0.72 | 0.86 | 0.81 | 0.34 | 1.12 | 0.88 | 0.17 |
| Uniform Delay, d1 | 51.8 | 39.1 | 29.0 | 52.2 | 43.9 | 33.0 | 50.1 | 26.1 | 19.5 | 46.2 | 22.5 | 13.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 105.3 | 0.3 | 0.0 | 0.9 | 2.0 | 4.2 | 20.2 | 2.2 | 0.3 | 75.3 | 3.5 | 0.1 |
| Delay (s) | 157.1 | 39.4 | 29.0 | 53.1 | 45.9 | 37.2 | 70.3 | 28.4 | 19.7 | 121.5 | 26.0 | 13.2 |
| Level of Service | F | D | C | D | D | D | E | C | B | F | C | B |
| Approach Delay (s) | | 96.4 | | | 41.6 | | | 31.5 | | | 44.6 | |
| Approach LOS | | F | | | D | | | C | | | D | |

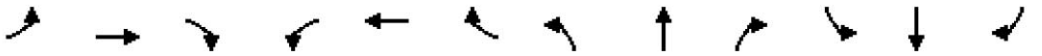
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 111.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 92.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



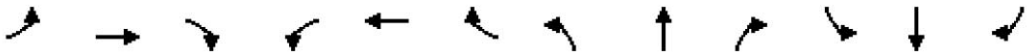
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 30 | 30 | 70 | 420 | 1030 | 0 | 0 | 880 | 1030 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.98 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1854 | 1615 | 1805 | 3610 | | | 3610 | 1615 |
| Flt Permitted | | | | | 0.98 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1854 | 1615 | 1805 | 3610 | | | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 30 | 30 | 70 | 420 | 1030 | 0 | 0 | 880 | 1030 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 270 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 60 | 5 | 420 | 1030 | 0 | 0 | 880 | 760 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | | 7.3 | 7.3 | 29.1 | 86.3 | | | 53.2 | 53.2 |
| Effective Green, g (s) | | | | | 7.3 | 7.3 | 29.1 | 86.3 | | | 53.2 | 53.2 |
| Actuated g/C Ratio | | | | | 0.07 | 0.07 | 0.29 | 0.85 | | | 0.52 | 0.52 |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 133 | 116 | 517 | 3066 | | | 1890 | 846 |
| v/s Ratio Prot | | | | | | | c0.23 | 0.29 | | | 0.24 | |
| v/s Ratio Perm | | | | | 0.03 | 0.00 | | | | | | c0.47 |
| v/c Ratio | | | | | 0.45 | 0.04 | 0.81 | 0.34 | | | 0.47 | 0.90 |
| Uniform Delay, d1 | | | | | 45.2 | 43.9 | 33.7 | 1.6 | | | 15.2 | 21.8 |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 2.4 | 0.2 | 9.4 | 0.1 | | | 0.2 | 12.2 |
| Delay (s) | | | | | 47.7 | 44.1 | 43.1 | 1.7 | | | 15.4 | 34.0 |
| Level of Service | | | | | D | D | D | A | | | B | C |
| Approach Delay (s) | | 0.0 | | | 45.7 | | | 13.7 | | | 25.4 | |
| Approach LOS | | A | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 101.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 102.9% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 490 | 90 | 190 | 0 | 0 | 0 | 0 | 960 | 170 | 280 | 620 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.97 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1745 | 1615 | | | | | 3610 | 1615 | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.97 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1745 | 1615 | | | | | 3610 | 1615 | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 490 | 90 | 190 | 0 | 0 | 0 | 0 | 960 | 170 | 280 | 620 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 139 | 0 | 0 | 0 | 0 | 0 | 111 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 289 | 291 | 51 | 0 | 0 | 0 | 0 | 960 | 59 | 280 | 620 | 0 |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 19.2 | 19.2 | 19.2 | | | | | 24.8 | 24.8 | 15.2 | 44.0 | |
| Effective Green, g (s) | 19.2 | 19.2 | 19.2 | | | | | 24.8 | 24.8 | 15.2 | 44.0 | |
| Actuated g/C Ratio | 0.27 | 0.27 | 0.27 | | | | | 0.35 | 0.35 | 0.21 | 0.62 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 462 | 471 | 436 | | | | | 1257 | 563 | 385 | 2231 | |
| v/s Ratio Prot | | | | | | | | c0.27 | | c0.16 | 0.17 | |
| v/s Ratio Perm | c0.17 | 0.17 | 0.03 | | | | | | 0.04 | | | |
| v/c Ratio | 0.63 | 0.62 | 0.12 | | | | | 0.76 | 0.11 | 0.73 | 0.28 | |
| Uniform Delay, d1 | 22.8 | 22.8 | 19.6 | | | | | 20.6 | 15.7 | 26.1 | 6.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.6 | 2.4 | 0.1 | | | | | 2.8 | 0.1 | 6.7 | 0.1 | |
| Delay (s) | 25.5 | 25.2 | 19.7 | | | | | 23.4 | 15.8 | 32.8 | 6.3 | |
| Level of Service | C | C | B | | | | | C | B | C | A | |
| Approach Delay (s) | | 24.0 | | | 0.0 | | | 22.3 | | | 14.6 | |
| Approach LOS | | C | | | A | | | C | | | B | |

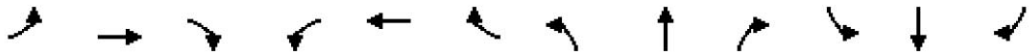
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 71.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 102.9% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 540 | 290 | 220 | 760 | 10 | 290 | 30 | 70 | 30 | 50 | 10 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 540 | 290 | 220 | 760 | 10 | 290 | 30 | 70 | 30 | 50 | 10 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 550 | 290 | 220 | 770 | 290 | 100 | 90 |
| Volume Left (vph) | 10 | 0 | 220 | 0 | 290 | 0 | 30 |
| Volume Right (vph) | 0 | 290 | 0 | 10 | 0 | 70 | 10 |
| Hadj (s) | 0.01 | -0.70 | 0.50 | -0.01 | 0.50 | -0.49 | 0.00 |
| Departure Headway (s) | 7.7 | 7.0 | 8.2 | 7.7 | 8.9 | 7.9 | 9.3 |
| Degree Utilization, x | 1.18 | 0.57 | 0.50 | 1.66 | 0.72 | 0.22 | 0.23 |
| Capacity (veh/h) | 457 | 497 | 430 | 469 | 396 | 445 | 376 |
| Control Delay (s) | 126.1 | 17.6 | 18.1 | 322.8 | 30.2 | 11.9 | 15.0 |
| Approach Delay (s) | 88.6 | | 255.1 | | 25.5 | | 15.0 |
| Approach LOS | F | | F | | D | | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 146.4 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 102.3% | ICU Level of Service | | G |
| Analysis Period (min) | 15 | | | |



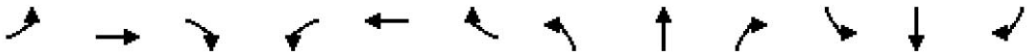
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 450 | 100 | 270 | 650 | 230 | 110 | 330 | 140 | 360 | 680 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1803 | 3500 | | 1801 | 1710 | 1436 | 1805 | 3431 | | 1805 | 3447 | |
| Flt Permitted | 0.19 | 1.00 | | 0.39 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 364 | 3500 | | 736 | 1710 | 1436 | 1805 | 3431 | | 1805 | 3447 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 450 | 100 | 270 | 650 | 230 | 110 | 330 | 140 | 360 | 680 | 230 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 0 | 43 | 0 | 45 | 0 | 0 | 32 | 0 |
| Lane Group Flow (vph) | 140 | 534 | 0 | 270 | 650 | 187 | 110 | 425 | 0 | 360 | 878 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 0 | 0 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 49.2 | 49.2 | | 49.2 | 49.2 | 70.3 | 8.8 | 21.1 | | 21.1 | 33.4 | |
| Effective Green, g (s) | 49.2 | 49.2 | | 49.2 | 49.2 | 70.3 | 8.8 | 21.1 | | 21.1 | 33.4 | |
| Actuated g/C Ratio | 0.48 | 0.48 | | 0.48 | 0.48 | 0.68 | 0.09 | 0.20 | | 0.20 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 173 | 1665 | | 350 | 814 | 1032 | 154 | 700 | | 368 | 1113 | |
| v/s Ratio Prot | | 0.15 | | | 0.38 | 0.04 | 0.06 | 0.12 | | c0.20 | c0.25 | |
| v/s Ratio Perm | c0.38 | | | 0.37 | | 0.09 | | | | | | |
| v/c Ratio | 0.81 | 0.32 | | 0.77 | 0.80 | 0.18 | 0.71 | 0.61 | | 0.98 | 0.79 | |
| Uniform Delay, d1 | 23.1 | 16.8 | | 22.4 | 22.9 | 6.0 | 46.1 | 37.4 | | 40.9 | 31.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 23.6 | 0.1 | | 10.1 | 5.5 | 0.1 | 14.5 | 1.5 | | 40.6 | 3.8 | |
| Delay (s) | 46.7 | 16.9 | | 32.5 | 28.4 | 6.1 | 60.6 | 38.9 | | 81.6 | 35.6 | |
| Level of Service | D | B | | C | C | A | E | D | | F | D | |
| Approach Delay (s) | | 22.9 | | | 24.9 | | | 43.0 | | | 48.6 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 103.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 90.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 240 | 420 | 50 | 400 | 1140 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1800 | 1900 |
| Total Lost time (s) | 5.0 | | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 0.95 | | | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Frt | 0.90 | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | | 0.99 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3228 | | | 3589 | 1710 | 1615 |
| Flt Permitted | 1.00 | | | 0.62 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3228 | | | 2234 | 1710 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 240 | 420 | 50 | 400 | 1140 | 10 |
| RTOR Reduction (vph) | 267 | 0 | 0 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 393 | 0 | 0 | 450 | 1140 | 7 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Perm | | | Prot |
| Protected Phases | 4 | | | 8 | 2 | 2 |
| Permitted Phases | | | 8 | | | |
| Actuated Green, G (s) | 26.4 | | | 26.4 | 78.9 | 78.9 |
| Effective Green, g (s) | 26.4 | | | 26.4 | 78.9 | 78.9 |
| Actuated g/C Ratio | 0.23 | | | 0.23 | 0.68 | 0.68 |
| Clearance Time (s) | 5.0 | | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 739 | | | 512 | 1170 | 1105 |
| v/s Ratio Prot | 0.12 | | | | c0.67 | 0.00 |
| v/s Ratio Perm | | | | c0.20 | | |
| v/c Ratio | 0.53 | | | 0.88 | 0.97 | 0.01 |
| Uniform Delay, d1 | 39.0 | | | 42.9 | 17.2 | 5.8 |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | | | 15.7 | 20.2 | 0.0 |
| Delay (s) | 39.8 | | | 58.6 | 37.5 | 5.8 |
| Level of Service | D | | | E | D | A |
| Approach Delay (s) | 39.8 | | | 58.6 | 37.2 | |
| Approach LOS | D | | | E | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 115.3 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 112.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

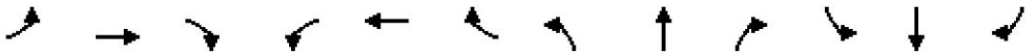
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 240 | 0 | 10 | 580 | 240 | 10 | 20 | 0 | 340 | 10 | 40 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 30 | 240 | 0 | 10 | 580 | 240 | 10 | 20 | 0 | 340 | 10 | 40 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 150 | 120 | 300 | 530 | 30 | 390 |
| Volume Left (vph) | 30 | 0 | 10 | 0 | 10 | 340 |
| Volume Right (vph) | 0 | 0 | 0 | 240 | 0 | 40 |
| Hadj (s) | 0.10 | 0.00 | 0.02 | -0.32 | 0.07 | 0.11 |
| Departure Headway (s) | 7.4 | 7.3 | 6.5 | 6.2 | 7.6 | 6.5 |
| Degree Utilization, x | 0.31 | 0.24 | 0.55 | 0.91 | 0.06 | 0.70 |
| Capacity (veh/h) | 472 | 480 | 541 | 566 | 421 | 539 |
| Control Delay (s) | 12.4 | 11.4 | 15.9 | 42.7 | 11.2 | 23.3 |
| Approach Delay (s) | 11.9 | | 33.0 | | 11.2 | 23.3 |
| Approach LOS | B | | D | | B | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 26.4 | | | |
| HCM Level of Service | D | | | |
| Intersection Capacity Utilization | 66.2% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 510 | 20 | 10 | 740 | 80 | 20 | 10 | 10 | 230 | 10 | 60 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 20 | 510 | 20 | 10 | 740 | 80 | 20 | 10 | 10 | 230 | 10 | 60 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 550 | 830 | 40 | 230 | 70 |
| Volume Left (vph) | 20 | 10 | 20 | 230 | 0 |
| Volume Right (vph) | 20 | 80 | 10 | 0 | 60 |
| Hadj (s) | -0.01 | -0.06 | -0.05 | 0.50 | -0.60 |
| Departure Headway (s) | 6.2 | 6.2 | 8.4 | 8.2 | 7.1 |
| Degree Utilization, x | 0.95 | 1.43 | 0.09 | 0.52 | 0.14 |
| Capacity (veh/h) | 573 | 580 | 404 | 427 | 493 |
| Control Delay (s) | 51.5 | 223.6 | 12.3 | 18.7 | 10.0 |
| Approach Delay (s) | 51.5 | 223.6 | 12.3 | 16.7 | |
| Approach LOS | F | F | B | C | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 127.6 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 73.8% | ICU Level of Service | D | |
| Analysis Period (min) | 15 | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 90 | 660 | 60 | 120 | 720 | 50 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 90 | 660 | 60 | 120 | 720 | 50 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 750 | 180 | 770 |
| Volume Left (vph) | 0 | 60 | 720 |
| Volume Right (vph) | 660 | 0 | 50 |
| Hadj (s) | -0.53 | 0.07 | 0.15 |
| Departure Headway (s) | 5.7 | 7.1 | 6.3 |
| Degree Utilization, x | 1.18 | 0.35 | 1.36 |
| Capacity (veh/h) | 641 | 505 | 580 |
| Control Delay (s) | 118.3 | 13.8 | 191.8 |
| Approach Delay (s) | 118.3 | 13.8 | 191.8 |
| Approach LOS | F | B | F |

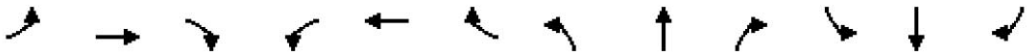
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 140.5 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 108.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 40 | 30 | 250 | 120 | 110 | 270 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 40 | 30 | 250 | 120 | 110 | 270 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 70 | | 675 | 55 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 70 | | 675 | 55 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 84 | | 69 | 73 |
| cM capacity (veh/h) | | | 1544 | | 354 | 1018 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 70 | 370 | 380 |
| Volume Left | 0 | 250 | 110 |
| Volume Right | 30 | 0 | 270 |
| cSH | 1700 | 1544 | 660 |
| Volume to Capacity | 0.04 | 0.16 | 0.58 |
| Queue Length 95th (ft) | 0 | 14 | 92 |
| Control Delay (s) | 0.0 | 5.7 | 17.6 |
| Lane LOS | | A | C |
| Approach Delay (s) | 0.0 | 5.7 | 17.6 |
| Approach LOS | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 10.7 | | |
| Intersection Capacity Utilization | 56.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 10 | 10 | 60 | 10 | 10 | 10 | 270 | 40 | 10 | 270 | 10 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 20 | 10 | 10 | 60 | 10 | 10 | 10 | 270 | 40 | 10 | 270 | 10 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 40 | 80 | 320 | 290 |
| Volume Left (vph) | 20 | 60 | 10 | 10 |
| Volume Right (vph) | 10 | 10 | 40 | 10 |
| Hadj (s) | -0.05 | 0.08 | -0.07 | -0.01 |
| Departure Headway (s) | 5.4 | 5.4 | 4.5 | 4.6 |
| Degree Utilization, x | 0.06 | 0.12 | 0.40 | 0.37 |
| Capacity (veh/h) | 582 | 588 | 772 | 753 |
| Control Delay (s) | 8.7 | 9.2 | 10.5 | 10.3 |
| Approach Delay (s) | 8.7 | 9.2 | 10.5 | 10.3 |
| Approach LOS | A | A | B | B |

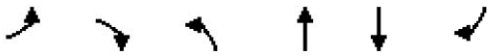
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 10.2 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 34.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 270 | 10 | 400 | 600 | 20 | 70 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 270 | 10 | 400 | 600 | 20 | 70 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 515 | 405 | | | 1000 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 515 | 405 | | | 1000 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 47 | 98 | | | 97 | |
| cM capacity (veh/h) | 506 | 647 | | | 700 | |

| Direction, Lane # | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 270 | 10 | 400 | 600 | 90 |
| Volume Left | 270 | 0 | 0 | 0 | 20 |
| Volume Right | 0 | 10 | 0 | 600 | 0 |
| cSH | 506 | 647 | 1700 | 1700 | 700 |
| Volume to Capacity | 0.53 | 0.02 | 0.24 | 0.35 | 0.03 |
| Queue Length 95th (ft) | 78 | 1 | 0 | 0 | 2 |
| Control Delay (s) | 19.9 | 10.6 | 0.0 | 0.0 | 2.5 |
| Lane LOS | C | B | | | A |
| Approach Delay (s) | 19.6 | | 0.0 | | 2.5 |
| Approach LOS | C | | | | |

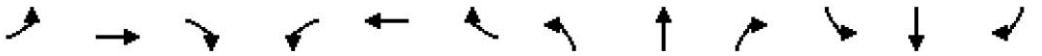
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.2 | | |
| Intersection Capacity Utilization | 48.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 590 | 270 | 1620 | 2400 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1588 | 1805 | 5187 | 5187 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1588 | 1805 | 5187 | 5187 | 1566 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 590 | 270 | 1620 | 2400 | 10 |
| RTOR Reduction (vph) | 0 | 247 | 0 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 10 | 343 | 270 | 1620 | 2400 | 7 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 23.0 | 23.0 | 16.8 | 63.2 | 42.4 | 42.4 |
| Effective Green, g (s) | 23.0 | 23.0 | 16.8 | 63.2 | 42.4 | 42.4 |
| Actuated g/C Ratio | 0.24 | 0.24 | 0.18 | 0.67 | 0.45 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 441 | 388 | 322 | 3480 | 2335 | 705 |
| v/s Ratio Prot | 0.01 | | c0.15 | 0.31 | c0.46 | |
| v/s Ratio Perm | | c0.22 | | | | 0.00 |
| v/c Ratio | 0.02 | 0.88 | 0.84 | 0.47 | 1.03 | 0.01 |
| Uniform Delay, d1 | 27.1 | 34.3 | 37.4 | 7.4 | 25.9 | 14.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.0 | 20.5 | 17.1 | 0.1 | 26.2 | 0.0 |
| Delay (s) | 27.1 | 54.8 | 54.5 | 7.5 | 52.1 | 14.3 |
| Level of Service | C | D | D | A | D | B |
| Approach Delay (s) | 54.3 | | | 14.2 | 51.9 | |
| Approach LOS | D | | | B | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 94.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 90.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

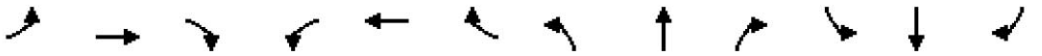
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 230 | 0 | 40 | 5 | 5 | 5 | 30 | 610 | 0 | 10 | 1010 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.98 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.96 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1782 | | | 1769 | | 1805 | 1900 | | 1805 | 1900 | 1571 |
| Flt Permitted | | 0.75 | | | 0.91 | | 0.12 | 1.00 | | 0.33 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1388 | | | 1634 | | 236 | 1900 | | 625 | 1900 | 1571 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 230 | 0 | 40 | 5 | 5 | 5 | 30 | 610 | 0 | 10 | 1010 | 60 |
| RTOR Reduction (vph) | 0 | 12 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| Lane Group Flow (vph) | 0 | 258 | 0 | 0 | 11 | 0 | 30 | 610 | 0 | 10 | 1010 | 39 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 15.0 | | | 15.0 | | 32.2 | 32.2 | | 32.2 | 32.2 | 32.2 |
| Effective Green, g (s) | | 15.0 | | | 15.0 | | 32.2 | 32.2 | | 32.2 | 32.2 | 32.2 |
| Actuated g/C Ratio | | 0.27 | | | 0.27 | | 0.58 | 0.58 | | 0.58 | 0.58 | 0.58 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 377 | | | 444 | | 138 | 1108 | | 365 | 1108 | 916 |
| v/s Ratio Prot | | | | | | | | 0.32 | | | c0.53 | |
| v/s Ratio Perm | | c0.19 | | | 0.01 | | 0.13 | | | 0.02 | | 0.02 |
| v/c Ratio | | 0.69 | | | 0.03 | | 0.22 | 0.55 | | 0.03 | 0.91 | 0.04 |
| Uniform Delay, d1 | | 18.0 | | | 14.7 | | 5.5 | 7.1 | | 4.9 | 10.2 | 4.9 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 5.1 | | | 0.0 | | 0.8 | 0.6 | | 0.0 | 11.2 | 0.0 |
| Delay (s) | | 23.1 | | | 14.8 | | 6.3 | 7.7 | | 4.9 | 21.4 | 4.9 |
| Level of Service | | C | | | B | | A | A | | A | C | A |
| Approach Delay (s) | | 23.1 | | | 14.8 | | | 7.6 | | | 20.4 | |
| Approach LOS | | C | | | B | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 55.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 81.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 460 | 30 | 220 | 170 | 0 | 20 | 600 | 230 | 430 | 600 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | | 1.00 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | | 0.97 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3543 | | | 3511 | | 1805 | 3441 | | 1805 | 3610 | 1583 |
| Flt Permitted | | 0.99 | | | 0.97 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3543 | | | 3511 | | 1805 | 3441 | | 1805 | 3610 | 1583 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 460 | 30 | 220 | 170 | 0 | 20 | 600 | 230 | 430 | 600 | 140 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 50 |
| Lane Group Flow (vph) | 0 | 617 | 0 | 0 | 390 | 0 | 20 | 797 | 0 | 430 | 600 | 90 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 22.5 | | | 18.6 | | 3.3 | 28.5 | | 34.4 | 59.6 | 59.6 |
| Effective Green, g (s) | | 22.5 | | | 18.6 | | 3.3 | 28.5 | | 34.4 | 59.6 | 59.6 |
| Actuated g/C Ratio | | 0.19 | | | 0.16 | | 0.03 | 0.24 | | 0.29 | 0.50 | 0.50 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 664 | | | 544 | | 50 | 817 | | 517 | 1793 | 786 |
| v/s Ratio Prot | | c0.17 | | | c0.11 | | 0.01 | c0.23 | | c0.24 | 0.17 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.06 |
| v/c Ratio | | 0.93 | | | 0.72 | | 0.40 | 0.98 | | 0.83 | 0.33 | 0.11 |
| Uniform Delay, d1 | | 48.0 | | | 48.2 | | 57.4 | 45.4 | | 40.1 | 18.2 | 16.1 |
| Progression Factor | | 0.66 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 17.3 | | | 4.5 | | 5.2 | 25.4 | | 10.9 | 0.1 | 0.1 |
| Delay (s) | | 48.8 | | | 52.7 | | 62.6 | 70.8 | | 51.0 | 18.3 | 16.2 |
| Level of Service | | D | | | D | | E | E | | D | B | B |
| Approach Delay (s) | | 48.8 | | | 52.7 | | | 70.6 | | | 30.1 | |
| Approach LOS | | D | | | D | | | E | | | C | |

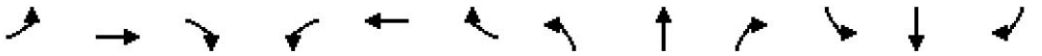
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 95.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 690 | 160 | 20 | 220 | 130 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 690 | 160 | 20 | 220 | 130 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 580 | 5 | 1140 | 450 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 580 | 5 | 1140 | 450 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 97 | 36 | 0 | 95 | 86 | |
| cM capacity (veh/h) | 367 | 1080 | 56 | 435 | 1623 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 10 | 690 | 180 | 220 | 130 |
| Volume Left | 0 | 0 | 160 | 220 | 0 |
| Volume Right | 0 | 690 | 0 | 0 | 130 |
| cSH | 367 | 1080 | 62 | 1623 | 1700 |
| Volume to Capacity | 0.03 | 0.64 | 2.89 | 0.14 | 0.08 |
| Queue Length 95th (ft) | 2 | 121 | 459 | 12 | 0 |
| Control Delay (s) | 15.1 | 14.0 | 992.4 | 7.6 | 0.0 |
| Lane LOS | C | B | F | A | |
| Approach Delay (s) | 14.1 | | 992.4 | 4.8 | |
| Approach LOS | B | | F | | |

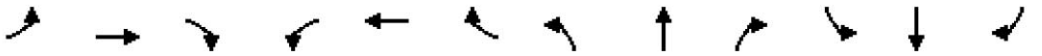
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 154.6 | | |
| Intersection Capacity Utilization | 59.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 350 | 10 | 30 | 0 | 740 | 110 | 0 | 450 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | | | | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.99 |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1801 | 1900 | 1592 | | 3610 | 1579 | | 3610 | 1592 |
| Flt Permitted | | | | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1801 | 1900 | 1592 | | 3610 | 1579 | | 3610 | 1592 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 350 | 10 | 30 | 0 | 740 | 110 | 0 | 450 | 280 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 165 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 350 | 10 | 11 | 0 | 740 | 110 | 0 | 450 | 115 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | | | | Perm | | Perm | | | Free | | | Perm |
| Protected Phases | | | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | Free | | | 6 |
| Actuated Green, G (s) | | | | 13.1 | 13.1 | 13.1 | | 14.6 | 35.7 | | 14.6 | 14.6 |
| Effective Green, g (s) | | | | 13.1 | 13.1 | 13.1 | | 14.6 | 35.7 | | 14.6 | 14.6 |
| Actuated g/C Ratio | | | | 0.37 | 0.37 | 0.37 | | 0.41 | 1.00 | | 0.41 | 0.41 |
| Clearance Time (s) | | | | 4.0 | 4.0 | 4.0 | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | 3.0 | 3.0 | 3.0 | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | 661 | 697 | 584 | | 1476 | 1579 | | 1476 | 651 |
| v/s Ratio Prot | | | | | 0.01 | | | c0.20 | | | 0.12 | |
| v/s Ratio Perm | | | | c0.19 | | 0.01 | | | 0.07 | | | 0.07 |
| v/c Ratio | | | | 0.53 | 0.01 | 0.02 | | 0.50 | 0.07 | | 0.30 | 0.18 |
| Uniform Delay, d1 | | | | 8.9 | 7.2 | 7.2 | | 7.8 | 0.0 | | 7.1 | 6.7 |
| Progression Factor | | | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 0.8 | 0.0 | 0.0 | | 0.3 | 0.1 | | 0.1 | 0.1 |
| Delay (s) | | | | 9.6 | 7.2 | 7.2 | | 8.1 | 0.1 | | 7.2 | 6.8 |
| Level of Service | | | | A | A | A | | A | A | | A | A |
| Approach Delay (s) | | 0.0 | | | 9.4 | | | 7.1 | | | 7.1 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 35.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 46.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 0 | 130 | 0 | 0 | 0 | 0 | 510 | 490 | 0 | 740 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | | | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 1615 | | | | | 3610 | 1615 | | 3610 | 1615 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 1615 | | | | | 3610 | 1615 | | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 320 | 0 | 130 | 0 | 0 | 0 | 0 | 510 | 490 | 0 | 740 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 68 | 0 | 0 | 0 | 0 | 0 | 285 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 320 | 0 | 62 | 0 | 0 | 0 | 0 | 510 | 205 | 0 | 740 | 70 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | Split | | Perm | | | | | | Perm | | | Free |
| Protected Phases | 4 | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | Free |
| Actuated Green, G (s) | 11.9 | | 11.9 | | | | | 14.3 | 14.3 | | 14.3 | 34.2 |
| Effective Green, g (s) | 11.9 | | 11.9 | | | | | 14.3 | 14.3 | | 14.3 | 34.2 |
| Actuated g/C Ratio | 0.35 | | 0.35 | | | | | 0.42 | 0.42 | | 0.42 | 1.00 |
| Clearance Time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | | | | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 628 | | 562 | | | | | 1509 | 675 | | 1509 | 1615 |
| v/s Ratio Prot | c0.18 | | | | | | | 0.14 | | | c0.20 | |
| v/s Ratio Perm | | | 0.04 | | | | | | 0.13 | | | 0.04 |
| v/c Ratio | 0.51 | | 0.11 | | | | | 0.34 | 0.30 | | 0.49 | 0.04 |
| Uniform Delay, d1 | 8.8 | | 7.6 | | | | | 6.7 | 6.6 | | 7.3 | 0.0 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | | 0.1 | | | | | 0.1 | 0.3 | | 0.3 | 0.1 |
| Delay (s) | 9.5 | | 7.6 | | | | | 6.9 | 6.9 | | 7.5 | 0.1 |
| Level of Service | A | | A | | | | | A | A | | A | A |
| Approach Delay (s) | | 9.0 | | | 0.0 | | | 6.9 | | | 6.9 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 34.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 44.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

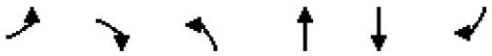
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 180 | 210 | 170 | 130 | 120 | 740 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 180 | 210 | 170 | 130 | 120 | 740 |
| Pedestrians | | | 5 | | | 5 |
| Lane Width (ft) | | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | | | 4.0 | | | 4.0 |
| Percent Blockage | | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1220 | 240 | | | 300 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1220 | 240 | | | 300 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 1 | 74 | | | 91 | |
| cM capacity (veh/h) | 181 | 801 | | | 1273 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 390 | 300 | 860 |
| Volume Left | 180 | 0 | 120 |
| Volume Right | 210 | 130 | 0 |
| cSH | 310 | 1700 | 1273 |
| Volume to Capacity | 1.26 | 0.18 | 0.09 |
| Queue Length 95th (ft) | 451 | 0 | 8 |
| Control Delay (s) | 173.7 | 0.0 | 2.3 |
| Lane LOS | F | | A |
| Approach Delay (s) | 173.7 | 0.0 | 2.3 |
| Approach LOS | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 45.0 | | |
| Intersection Capacity Utilization | 95.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 80 | 90 | 570 | 200 | 110 | 800 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 80 | 90 | 570 | 200 | 110 | 800 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1855 | 515 | 910 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1855 | 515 | 910 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 0 | 84 | 25 | | | |
| cM capacity (veh/h) | 20 | 561 | 757 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 170 | 570 | 200 | 910 |
| Volume Left | 80 | 570 | 0 | 0 |
| Volume Right | 90 | 0 | 0 | 800 |
| cSH | 41 | 757 | 1700 | 1700 |
| Volume to Capacity | 4.11 | 0.75 | 0.12 | 0.54 |
| Queue Length 95th (ft) | Err | 176 | 0 | 0 |
| Control Delay (s) | Err | 22.8 | 0.0 | 0.0 |
| Lane LOS | F | C | | |
| Approach Delay (s) | Err | 16.8 | | 0.0 |
| Approach LOS | F | | | |

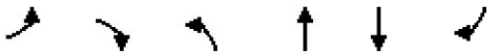
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 925.8 | | |
| Intersection Capacity Utilization | 101.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 320 | 30 | 160 | 170 | 30 | 320 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 320 | 30 | 160 | 170 | 30 | 320 |
| Pedestrians | 5 | | | 5 | 5 | |
| Lane Width (ft) | 12.0 | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | 4.0 | |
| Percent Blockage | 0 | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 355 | | 750 | 185 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 355 | | 750 | 185 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 87 | | 90 | 61 |
| cM capacity (veh/h) | | | 1210 | | 302 | 825 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 | NB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 213 | 137 | 160 | 85 | 85 | 30 | 320 |
| Volume Left | 0 | 0 | 160 | 0 | 0 | 30 | 0 |
| Volume Right | 0 | 30 | 0 | 0 | 0 | 0 | 320 |
| cSH | 1700 | 1700 | 1210 | 1700 | 1700 | 302 | 825 |
| Volume to Capacity | 0.13 | 0.08 | 0.13 | 0.05 | 0.05 | 0.10 | 0.39 |
| Queue Length 95th (ft) | 0 | 0 | 11 | 0 | 0 | 8 | 46 |
| Control Delay (s) | 0.0 | 0.0 | 8.4 | 0.0 | 0.0 | 18.2 | 12.1 |
| Lane LOS | | | A | | | C | B |
| Approach Delay (s) | 0.0 | | 4.1 | | | 12.6 | |
| Approach LOS | | | | | | B | |

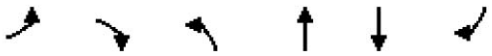
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.6 | | |
| Intersection Capacity Utilization | 37.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 640 | 20 | 10 | 300 | 460 | 330 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1591 | 1805 | 3610 | 3362 | |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1591 | 1805 | 3610 | 3362 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 640 | 20 | 10 | 300 | 460 | 330 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 190 | 0 |
| Lane Group Flow (vph) | 640 | 9 | 10 | 300 | 600 | 0 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Actuated Green, G (s) | 22.6 | 22.6 | 1.0 | 19.8 | 14.8 | |
| Effective Green, g (s) | 22.6 | 22.6 | 1.0 | 19.8 | 14.8 | |
| Actuated g/C Ratio | 0.45 | 0.45 | 0.02 | 0.39 | 0.29 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 809 | 713 | 36 | 1418 | 987 | |
| v/s Ratio Prot | c0.35 | | 0.01 | c0.08 | c0.18 | |
| v/s Ratio Perm | | 0.01 | | | | |
| v/c Ratio | 0.79 | 0.01 | 0.28 | 0.21 | 0.61 | |
| Uniform Delay, d1 | 11.9 | 7.7 | 24.3 | 10.1 | 15.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.3 | 0.0 | 4.2 | 0.1 | 1.1 | |
| Delay (s) | 17.2 | 7.7 | 28.5 | 10.2 | 16.4 | |
| Level of Service | B | A | C | B | B | |
| Approach Delay (s) | 16.9 | | | 10.8 | 16.4 | |
| Approach LOS | B | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 50.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

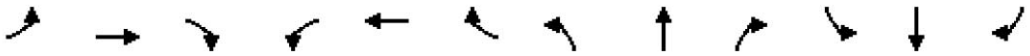
c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 460 | 20 | 90 | 310 | 50 | 150 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 460 | 20 | 90 | 310 | 50 | 150 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | 4 | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 545 | 55 | 200 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 545 | 55 | 200 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 2 | 98 | 93 | | | |
| cM capacity (veh/h) | 468 | 1013 | 1384 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 480 | 90 | 310 | 50 | 150 |
| Volume Left | 460 | 90 | 0 | 0 | 0 |
| Volume Right | 20 | 0 | 0 | 0 | 150 |
| cSH | 483 | 1384 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.99 | 0.07 | 0.18 | 0.03 | 0.09 |
| Queue Length 95th (ft) | 331 | 5 | 0 | 0 | 0 |
| Control Delay (s) | 68.9 | 7.8 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | A | | | |
| Approach Delay (s) | 68.9 | 1.8 | | 0.0 | |
| Approach LOS | F | | | | |

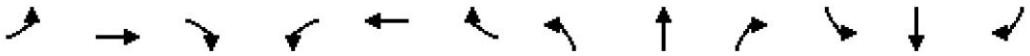
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 31.3 | | |
| Intersection Capacity Utilization | 48.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 630 | 50 | 10 | 400 | 10 | 60 | 0 | 20 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 630 | 50 | 10 | 400 | 10 | 60 | 0 | 20 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 415 | | | 685 | | | 885 | 1095 | 350 | 750 | 1115 | 215 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 415 | | | 685 | | | 885 | 1095 | 350 | 750 | 1115 | 215 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 99 | | | 75 | 100 | 97 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1150 | | | 914 | | | 237 | 211 | 647 | 288 | 206 | 789 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 315 | 365 | 210 | 210 | 60 | 20 | 0 |
| Volume Left | 0 | 0 | 10 | 0 | 60 | 0 | 0 |
| Volume Right | 0 | 50 | 0 | 10 | 0 | 20 | 0 |
| cSH | 1150 | 1700 | 914 | 1700 | 237 | 647 | 1700 |
| Volume to Capacity | 0.00 | 0.21 | 0.01 | 0.12 | 0.25 | 0.03 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 24 | 2 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.5 | 0.0 | 25.2 | 10.7 | 0.0 |
| Lane LOS | | | A | | D | B | A |
| Approach Delay (s) | 0.0 | | 0.3 | | 21.6 | | 0.0 |
| Approach LOS | | | | | C | | A |

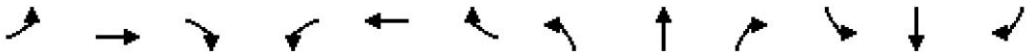
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.6 | | |
| Intersection Capacity Utilization | 29.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 350 | 180 | 110 | 160 | 20 | 120 | 870 | 140 | 50 | 800 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3408 | | 1805 | 3544 | | 1805 | 5068 | | 1805 | 5100 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3408 | | 1805 | 3544 | | 1805 | 5068 | | 1805 | 5100 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 350 | 180 | 110 | 160 | 20 | 120 | 870 | 140 | 50 | 800 | 90 |
| RTOR Reduction (vph) | 0 | 87 | 0 | 0 | 14 | 0 | 0 | 24 | 0 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 110 | 443 | 0 | 110 | 166 | 0 | 120 | 986 | 0 | 50 | 874 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 10.1 | 14.4 | | 5.7 | 10.0 | | 5.7 | 21.9 | | 3.5 | 19.7 | |
| Effective Green, g (s) | 10.1 | 14.4 | | 5.7 | 10.0 | | 5.7 | 21.9 | | 3.5 | 19.7 | |
| Actuated g/C Ratio | 0.16 | 0.23 | | 0.09 | 0.16 | | 0.09 | 0.36 | | 0.06 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 296 | 798 | | 167 | 576 | | 167 | 1805 | | 103 | 1634 | |
| v/s Ratio Prot | 0.06 | c0.13 | | c0.06 | 0.05 | | c0.07 | c0.19 | | 0.03 | 0.17 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.37 | 0.56 | | 0.66 | 0.29 | | 0.72 | 0.55 | | 0.49 | 0.54 | |
| Uniform Delay, d1 | 22.9 | 20.7 | | 27.0 | 22.6 | | 27.1 | 15.8 | | 28.1 | 17.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 0.8 | | 9.0 | 0.3 | | 13.8 | 0.3 | | 3.6 | 0.3 | |
| Delay (s) | 23.7 | 21.6 | | 36.0 | 22.9 | | 40.9 | 16.2 | | 31.7 | 17.5 | |
| Level of Service | C | C | | D | C | | D | B | | C | B | |
| Approach Delay (s) | | 21.9 | | | 27.9 | | | 18.8 | | | 18.2 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 61.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

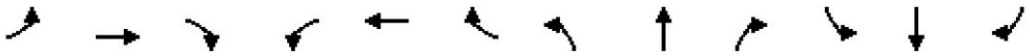
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 440 | 20 | 10 | 210 | 10 | 10 | 10 | 10 | 20 | 10 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.93 | | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1804 | 3584 | | 1804 | 3583 | | 1803 | 3318 | | 1803 | 3125 | |
| Flt Permitted | 0.61 | 1.00 | | 0.55 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1166 | 3584 | | 1041 | 3583 | | 1898 | 3318 | | 1898 | 3125 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 440 | 20 | 10 | 210 | 10 | 10 | 10 | 10 | 20 | 10 | 50 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 9 | 0 | 0 | 44 | 0 |
| Lane Group Flow (vph) | 80 | 454 | 0 | 10 | 214 | 0 | 10 | 11 | 0 | 20 | 16 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 7.3 | 7.3 | | 7.3 | 7.3 | | 1.9 | 1.9 | | 1.9 | 1.9 | |
| Effective Green, g (s) | 7.3 | 7.3 | | 7.3 | 7.3 | | 1.9 | 1.9 | | 1.9 | 1.9 | |
| Actuated g/C Ratio | 0.42 | 0.42 | | 0.42 | 0.42 | | 0.11 | 0.11 | | 0.11 | 0.11 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 495 | 1521 | | 442 | 1521 | | 210 | 367 | | 210 | 345 | |
| v/s Ratio Prot | | c0.13 | | | 0.06 | | | 0.00 | | | 0.00 | |
| v/s Ratio Perm | 0.07 | | | 0.01 | | | 0.01 | | | c0.01 | | |
| v/c Ratio | 0.16 | 0.30 | | 0.02 | 0.14 | | 0.05 | 0.03 | | 0.10 | 0.04 | |
| Uniform Delay, d1 | 3.1 | 3.3 | | 2.9 | 3.0 | | 6.8 | 6.8 | | 6.9 | 6.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.1 | | 0.0 | 0.0 | | 0.1 | 0.0 | | 0.2 | 0.1 | |
| Delay (s) | 3.2 | 3.4 | | 2.9 | 3.1 | | 6.9 | 6.9 | | 7.1 | 6.9 | |
| Level of Service | A | A | | A | A | | A | A | | A | A | |
| Approach Delay (s) | | 3.3 | | | 3.1 | | | 6.9 | | | 6.9 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.26 | | |
| Actuated Cycle Length (s) | 17.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 39.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

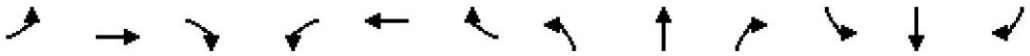
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 90 | 430 | 40 | 190 | 110 | 30 | 20 | 220 | 500 | 60 | 330 | 70 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 90 | 430 | 40 | 190 | 110 | 30 | 20 | 220 | 500 | 60 | 330 | 70 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 90 | 470 | 330 | 240 | 500 | 225 | 235 |
| Volume Left (vph) | 90 | 0 | 190 | 20 | 0 | 60 | 0 |
| Volume Right (vph) | 0 | 40 | 30 | 0 | 500 | 0 | 70 |
| Hadj (s) | 0.50 | -0.06 | 0.06 | 0.04 | -0.70 | 0.13 | -0.21 |
| Departure Headway (s) | 9.6 | 9.0 | 9.5 | 9.1 | 8.3 | 9.5 | 9.2 |
| Degree Utilization, x | 0.24 | 1.18 | 0.87 | 0.60 | 1.16 | 0.59 | 0.60 |
| Capacity (veh/h) | 370 | 403 | 368 | 388 | 437 | 368 | 381 |
| Control Delay (s) | 14.4 | 131.1 | 50.1 | 23.7 | 119.7 | 24.3 | 23.7 |
| Approach Delay (s) | 112.4 | | 50.1 | 88.6 | | 24.0 | |
| Approach LOS | F | | F | F | | C | |

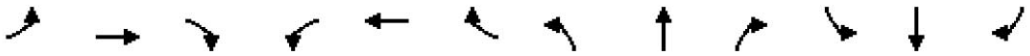
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 74.7 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 82.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 360 | 160 | 110 | 260 | 20 | 100 | 70 | 140 | 30 | 40 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.98 | |
| Satd. Flow (prot) | 1805 | 3417 | | 1805 | 1900 | 1573 | | 1846 | 1591 | | 1830 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.98 | |
| Satd. Flow (perm) | 1805 | 3417 | | 1805 | 1900 | 1573 | | 1846 | 1591 | | 1830 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 360 | 160 | 110 | 260 | 20 | 100 | 70 | 140 | 30 | 40 | 10 |
| RTOR Reduction (vph) | 0 | 51 | 0 | 0 | 0 | 12 | 0 | 0 | 114 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 10 | 469 | 0 | 110 | 260 | 8 | 0 | 170 | 26 | 0 | 74 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.1 | 13.6 | | 10.6 | 23.1 | 23.1 | | 11.0 | 11.0 | | 8.4 | |
| Effective Green, g (s) | 1.1 | 13.6 | | 10.6 | 23.1 | 23.1 | | 11.0 | 11.0 | | 8.4 | |
| Actuated g/C Ratio | 0.02 | 0.23 | | 0.18 | 0.39 | 0.39 | | 0.18 | 0.18 | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 33 | 780 | | 321 | 736 | 610 | | 341 | 294 | | 258 | |
| v/s Ratio Prot | 0.01 | c0.14 | | c0.06 | c0.14 | | | c0.09 | | | c0.04 | |
| v/s Ratio Perm | | | | | | 0.00 | | | 0.02 | | | |
| v/c Ratio | 0.30 | 0.60 | | 0.34 | 0.35 | 0.01 | | 0.50 | 0.09 | | 0.29 | |
| Uniform Delay, d1 | 28.9 | 20.6 | | 21.4 | 12.9 | 11.2 | | 21.8 | 20.1 | | 22.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 5.1 | 1.3 | | 0.6 | 0.3 | 0.0 | | 1.1 | 0.1 | | 0.6 | |
| Delay (s) | 34.0 | 21.9 | | 22.1 | 13.2 | 11.2 | | 23.0 | 20.3 | | 23.5 | |
| Level of Service | C | C | | C | B | B | | C | C | | C | |
| Approach Delay (s) | | 22.1 | | | 15.6 | | | 21.8 | | | 23.5 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 59.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 48.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

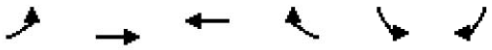
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 210 | 120 | 30 | 140 | 60 | 90 | 680 | 30 | 110 | 560 | 330 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3396 | | 1805 | 3433 | | 1805 | 3610 | 1595 | 1805 | 4871 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3396 | | 1805 | 3433 | | 1805 | 3610 | 1595 | 1805 | 4871 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 280 | 210 | 120 | 30 | 140 | 60 | 90 | 680 | 30 | 110 | 560 | 330 |
| RTOR Reduction (vph) | 0 | 90 | 0 | 0 | 49 | 0 | 0 | 0 | 19 | 0 | 100 | 0 |
| Lane Group Flow (vph) | 280 | 240 | 0 | 30 | 151 | 0 | 90 | 680 | 11 | 110 | 790 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.1 | 14.5 | | 4.0 | 10.4 | | 5.5 | 17.2 | 21.2 | 7.1 | 18.8 | |
| Effective Green, g (s) | 8.1 | 14.5 | | 4.0 | 10.4 | | 5.5 | 17.2 | 21.2 | 7.1 | 18.8 | |
| Actuated g/C Ratio | 0.14 | 0.25 | | 0.07 | 0.18 | | 0.09 | 0.29 | 0.36 | 0.12 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 249 | 837 | | 123 | 607 | | 169 | 1056 | 684 | 218 | 1557 | |
| v/s Ratio Prot | c0.16 | c0.07 | | 0.02 | 0.04 | | 0.05 | c0.19 | 0.00 | c0.06 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 1.12 | 0.29 | | 0.24 | 0.25 | | 0.53 | 0.64 | 0.02 | 0.50 | 0.51 | |
| Uniform Delay, d1 | 25.3 | 18.0 | | 26.0 | 20.8 | | 25.4 | 18.1 | 12.1 | 24.2 | 16.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 94.7 | 0.2 | | 1.0 | 0.2 | | 3.2 | 1.4 | 0.0 | 1.8 | 0.3 | |
| Delay (s) | 120.0 | 18.1 | | 27.0 | 21.0 | | 28.6 | 19.5 | 12.1 | 26.0 | 16.5 | |
| Level of Service | F | B | | C | C | | C | B | B | C | B | |
| Approach Delay (s) | | 64.9 | | | 21.8 | | | 20.2 | | | 17.6 | |
| Approach LOS | | E | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 58.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

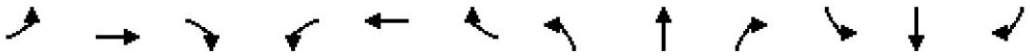
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 30 | 100 | 230 | 10 | 10 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1804 | 3610 | 3586 | | 1804 | 1594 |
| Flt Permitted | 0.87 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 1651 | 3610 | 3586 | | 1804 | 1594 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 30 | 100 | 230 | 10 | 10 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 6 | 0 | 0 | 65 |
| Lane Group Flow (vph) | 30 | 100 | 234 | 0 | 10 | 5 |
| Confl. Peds. (#/hr) | 5 | | | 5 | 5 | 5 |
| Turn Type | Perm | | | | | Perm |
| Protected Phases | | 4 | 8 | | 6 | |
| Permitted Phases | 4 | | | | | 6 |
| Actuated Green, G (s) | 4.6 | 4.6 | 4.6 | | 0.9 | 0.9 |
| Effective Green, g (s) | 4.6 | 4.6 | 4.6 | | 0.9 | 0.9 |
| Actuated g/C Ratio | 0.34 | 0.34 | 0.34 | | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 563 | 1230 | 1222 | | 120 | 106 |
| v/s Ratio Prot | | 0.03 | c0.07 | | c0.01 | |
| v/s Ratio Perm | 0.02 | | | | | 0.00 |
| v/c Ratio | 0.05 | 0.08 | 0.19 | | 0.08 | 0.04 |
| Uniform Delay, d1 | 3.0 | 3.0 | 3.1 | | 5.9 | 5.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.0 | 0.0 | 0.1 | | 0.3 | 0.2 |
| Delay (s) | 3.0 | 3.0 | 3.2 | | 6.2 | 6.1 |
| Level of Service | A | A | A | | A | A |
| Approach Delay (s) | | 3.0 | 3.2 | | 6.1 | |
| Approach LOS | | A | A | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.17 | | |
| Actuated Cycle Length (s) | 13.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 32.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

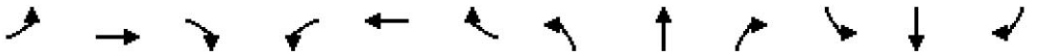
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 130 | 30 | 20 | 10 | 20 | 10 | 10 | 600 | 20 | 10 | 360 | 160 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 130 | 30 | 20 | 10 | 20 | 10 | 10 | 600 | 20 | 10 | 360 | 160 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 145 | 35 | 40 | 310 | 320 | 190 | 340 |
| Volume Left (vph) | 130 | 0 | 10 | 10 | 0 | 10 | 0 |
| Volume Right (vph) | 0 | 20 | 10 | 0 | 20 | 0 | 160 |
| Hadj (s) | 0.45 | -0.40 | -0.10 | 0.02 | -0.04 | 0.03 | -0.33 |
| Departure Headway (s) | 7.6 | 6.8 | 7.3 | 6.0 | 6.0 | 6.2 | 5.8 |
| Degree Utilization, x | 0.31 | 0.07 | 0.08 | 0.52 | 0.53 | 0.33 | 0.55 |
| Capacity (veh/h) | 439 | 486 | 443 | 583 | 589 | 562 | 602 |
| Control Delay (s) | 12.8 | 9.1 | 10.9 | 14.2 | 14.3 | 10.9 | 14.5 |
| Approach Delay (s) | 12.1 | | 10.9 | 14.2 | | 13.2 | |
| Approach LOS | B | | B | B | | B | |

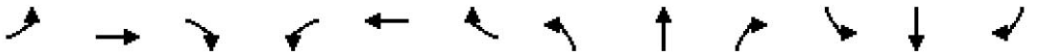
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 13.5 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 44.9% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 20 | 20 | 410 | 40 | 100 | 10 | 490 | 780 | 110 | 500 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3316 | | 1805 | 3190 | | 1805 | 5187 | 1606 | 1805 | 5069 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3316 | | 1805 | 3190 | | 1805 | 5187 | 1606 | 1805 | 5069 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 20 | 20 | 410 | 40 | 100 | 10 | 490 | 780 | 110 | 500 | 80 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 64 | 0 | 0 | 0 | 318 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 50 | 21 | 0 | 410 | 76 | 0 | 10 | 490 | 462 | 110 | 563 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 4.2 | 3.8 | | 24.4 | 24.0 | | 1.2 | 14.7 | 39.1 | 7.1 | 20.6 | |
| Effective Green, g (s) | 4.2 | 3.8 | | 24.4 | 24.0 | | 1.2 | 14.7 | 39.1 | 7.1 | 20.6 | |
| Actuated g/C Ratio | 0.06 | 0.06 | | 0.37 | 0.36 | | 0.02 | 0.22 | 0.59 | 0.11 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 115 | 191 | | 667 | 1160 | | 33 | 1155 | 1049 | 194 | 1582 | |
| v/s Ratio Prot | 0.03 | c0.01 | | c0.23 | 0.02 | | 0.01 | 0.09 | c0.16 | c0.06 | 0.11 | |
| v/s Ratio Perm | | | | | | | | | 0.12 | | | |
| v/c Ratio | 0.43 | 0.11 | | 0.61 | 0.07 | | 0.30 | 0.42 | 0.44 | 0.57 | 0.36 | |
| Uniform Delay, d1 | 29.8 | 29.5 | | 17.0 | 13.7 | | 32.0 | 22.0 | 7.4 | 28.0 | 17.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.6 | 0.3 | | 1.7 | 0.0 | | 5.1 | 0.3 | 0.3 | 3.8 | 0.1 | |
| Delay (s) | 32.4 | 29.8 | | 18.7 | 13.7 | | 37.1 | 22.3 | 7.7 | 31.8 | 17.7 | |
| Level of Service | C | C | | B | B | | D | C | A | C | B | |
| Approach Delay (s) | | 31.2 | | | 17.4 | | | 13.5 | | | 19.9 | |
| Approach LOS | | C | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 66.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

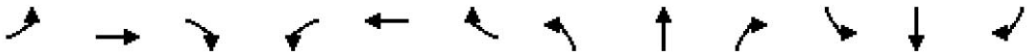
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 460 | 130 | 180 | 320 | 100 | 170 | 710 | 240 | 100 | 680 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1600 | 1805 | 3467 | | 1805 | 3610 | 1593 | 1805 | 3610 | 1593 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1600 | 1805 | 3467 | | 1805 | 3610 | 1593 | 1805 | 3610 | 1593 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 460 | 130 | 180 | 320 | 100 | 170 | 710 | 240 | 100 | 680 | 170 |
| RTOR Reduction (vph) | 0 | 0 | 50 | 0 | 30 | 0 | 0 | 0 | 69 | 0 | 0 | 66 |
| Lane Group Flow (vph) | 150 | 460 | 80 | 180 | 390 | 0 | 170 | 710 | 171 | 100 | 680 | 104 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 14.6 | 21.4 | 38.3 | 14.4 | 21.2 | | 16.9 | 56.3 | 70.7 | 11.9 | 51.3 | 65.9 |
| Effective Green, g (s) | 14.6 | 21.4 | 38.3 | 14.4 | 21.2 | | 16.9 | 56.3 | 70.7 | 11.9 | 51.3 | 65.9 |
| Actuated g/C Ratio | 0.12 | 0.18 | 0.32 | 0.12 | 0.18 | | 0.14 | 0.47 | 0.59 | 0.10 | 0.43 | 0.55 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 220 | 644 | 564 | 217 | 613 | | 254 | 1694 | 992 | 179 | 1543 | 928 |
| v/s Ratio Prot | 0.08 | c0.13 | 0.02 | c0.10 | 0.11 | | c0.09 | 0.20 | 0.02 | 0.06 | c0.19 | 0.01 |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.09 | | | 0.05 |
| v/c Ratio | 0.68 | 0.71 | 0.14 | 0.83 | 0.64 | | 0.67 | 0.42 | 0.17 | 0.56 | 0.44 | 0.11 |
| Uniform Delay, d1 | 50.5 | 46.4 | 29.1 | 51.6 | 45.8 | | 48.9 | 21.0 | 11.3 | 51.5 | 24.2 | 13.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.02 | 0.93 | 0.77 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.4 | 3.8 | 0.1 | 22.3 | 2.2 | | 6.0 | 0.7 | 0.1 | 3.7 | 0.9 | 0.1 |
| Delay (s) | 58.9 | 50.2 | 29.2 | 73.9 | 48.0 | | 55.8 | 20.2 | 8.8 | 55.3 | 25.1 | 13.1 |
| Level of Service | E | D | C | E | D | | E | C | A | E | C | B |
| Approach Delay (s) | | 48.3 | | | 55.8 | | | 23.2 | | | 26.2 | |
| Approach LOS | | D | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

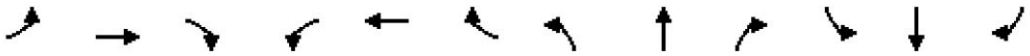
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 230 | 10 | 130 | 450 | 1240 | 0 | 0 | 690 | 360 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3400 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3400 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 230 | 10 | 130 | 450 | 1240 | 0 | 0 | 690 | 360 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 47 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 240 | 86 | 450 | 1240 | 0 | 0 | 1003 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 21.4 | 21.4 | 34.7 | 90.6 | | | 51.9 | |
| Effective Green, g (s) | | | | | 21.4 | 21.4 | 34.7 | 90.6 | | | 51.9 | |
| Actuated g/C Ratio | | | | | 0.18 | 0.18 | 0.29 | 0.75 | | | 0.43 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 323 | 283 | 522 | 2726 | | | 1471 | |
| v/s Ratio Prot | | | | | c0.13 | | c0.25 | 0.34 | | | c0.29 | |
| v/s Ratio Perm | | | | | | 0.05 | | | | | | |
| v/c Ratio | | | | | 0.74 | 0.30 | 0.86 | 0.45 | | | 0.68 | |
| Uniform Delay, d1 | | | | | 46.7 | 42.8 | 40.4 | 5.5 | | | 27.4 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.64 | |
| Incremental Delay, d2 | | | | | 8.9 | 0.6 | 13.7 | 0.5 | | | 2.3 | |
| Delay (s) | | | | | 55.6 | 43.4 | 54.1 | 6.0 | | | 20.0 | |
| Level of Service | | | | | E | D | D | A | | | B | |
| Approach Delay (s) | | 0.0 | | | 51.3 | | | 18.8 | | | 20.0 | |
| Approach LOS | | A | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 104.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

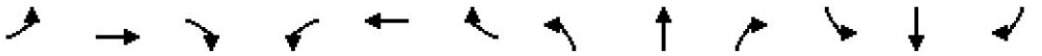
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 540 | 10 | 420 | 0 | 0 | 0 | 0 | 990 | 360 | 230 | 740 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.96 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1722 | 1591 | | | | | 4943 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1722 | 1591 | | | | | 4943 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 540 | 10 | 420 | 0 | 0 | 0 | 0 | 990 | 360 | 230 | 740 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 86 | 0 | 0 | 0 | 0 | 81 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 275 | 275 | 334 | 0 | 0 | 0 | 0 | 1269 | 0 | 230 | 740 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 20.6 | 20.6 | 20.6 | | | | | 20.3 | | 10.2 | 34.5 | |
| Effective Green, g (s) | 20.6 | 20.6 | 20.6 | | | | | 20.3 | | 10.2 | 34.5 | |
| Actuated g/C Ratio | 0.33 | 0.33 | 0.33 | | | | | 0.32 | | 0.16 | 0.55 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 560 | 562 | 519 | | | | | 1590 | | 292 | 1974 | |
| v/s Ratio Prot | 0.16 | 0.16 | | | | | | c0.26 | | c0.13 | 0.20 | |
| v/s Ratio Perm | | | c0.21 | | | | | | | | | |
| v/c Ratio | 0.49 | 0.49 | 0.64 | | | | | 0.80 | | 0.79 | 0.37 | |
| Uniform Delay, d1 | 17.0 | 17.0 | 18.1 | | | | | 19.5 | | 25.4 | 8.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | 0.7 | 2.7 | | | | | 2.9 | | 13.1 | 0.1 | |
| Delay (s) | 17.7 | 17.7 | 20.9 | | | | | 22.4 | | 38.5 | 8.3 | |
| Level of Service | B | B | C | | | | | C | | D | A | |
| Approach Delay (s) | | 19.1 | | | 0.0 | | | 22.4 | | | 15.4 | |
| Approach LOS | | B | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 63.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 104.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

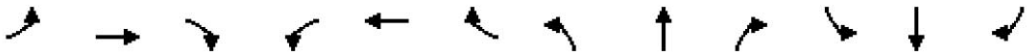


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 530 | 570 | 570 | 80 | 120 | 590 | 160 | 1220 | 190 | 700 | 920 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.88 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1596 | 1805 | 3160 | | 1805 | 5070 | | 3502 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1596 | 1805 | 3160 | | 1805 | 5070 | | 3502 | 3610 | 1596 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 530 | 570 | 570 | 80 | 120 | 590 | 160 | 1220 | 190 | 700 | 920 | 140 |
| RTOR Reduction (vph) | 0 | 0 | 33 | 0 | 274 | 0 | 0 | 17 | 0 | 0 | 0 | 60 |
| Lane Group Flow (vph) | 530 | 570 | 537 | 80 | 436 | 0 | 160 | 1393 | 0 | 700 | 920 | 80 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 20.5 | 33.7 | 49.0 | 7.0 | 20.2 | | 15.3 | 37.3 | | 26.0 | 48.0 | 68.5 |
| Effective Green, g (s) | 20.5 | 33.7 | 49.0 | 7.0 | 20.2 | | 15.3 | 37.3 | | 26.0 | 48.0 | 68.5 |
| Actuated g/C Ratio | 0.17 | 0.28 | 0.41 | 0.06 | 0.17 | | 0.13 | 0.31 | | 0.22 | 0.40 | 0.57 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 598 | 1014 | 705 | 105 | 532 | | 230 | 1576 | | 759 | 1444 | 964 |
| v/s Ratio Prot | c0.15 | 0.16 | c0.10 | 0.04 | 0.14 | | 0.09 | c0.27 | | c0.20 | 0.25 | 0.01 |
| v/s Ratio Perm | | | 0.24 | | | | | | | | | 0.04 |
| v/c Ratio | 0.89 | 0.56 | 0.76 | 0.76 | 1.08dr | | 0.70 | 0.88 | | 0.92 | 0.64 | 0.08 |
| Uniform Delay, d1 | 48.6 | 36.8 | 30.5 | 55.7 | 48.1 | | 50.1 | 39.3 | | 46.0 | 29.0 | 11.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.18 | 0.63 | | 0.82 | 0.48 | 1.39 |
| Incremental Delay, d2 | 14.7 | 0.7 | 4.9 | 27.3 | 9.5 | | 7.9 | 6.8 | | 13.5 | 1.6 | 0.0 |
| Delay (s) | 63.3 | 37.6 | 35.4 | 83.0 | 57.7 | | 67.0 | 31.4 | | 51.1 | 15.6 | 16.2 |
| Level of Service | E | D | D | F | E | | E | C | | D | B | B |
| Approach Delay (s) | | 45.0 | | | 60.2 | | | 35.0 | | | 29.8 | |
| Approach LOS | | D | | | E | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 98.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

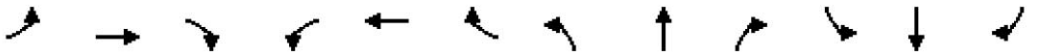
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 150 | 10 | 150 | 490 | 1800 | 0 | 0 | 1590 | 290 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 0.95 | | 0.97 | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.93 | | 1.00 | 1.00 | | | 0.98 | |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 3231 | | 3502 | 5187 | | | 5051 | |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 3231 | | 3502 | 5187 | | | 5051 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 150 | 10 | 150 | 490 | 1800 | 0 | 0 | 1590 | 290 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 269 | 0 | 490 | 1800 | 0 | 0 | 1860 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 15.1 | | 26.0 | 96.9 | | | 66.9 | |
| Effective Green, g (s) | | | | | 15.1 | | 26.0 | 96.9 | | | 66.9 | |
| Actuated g/C Ratio | | | | | 0.13 | | 0.22 | 0.81 | | | 0.56 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 407 | | 759 | 4189 | | | 2816 | |
| v/s Ratio Prot | | | | | c0.08 | | c0.14 | 0.35 | | | c0.37 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.66 | | 0.65 | 0.43 | | | 0.66 | |
| Uniform Delay, d1 | | | | | 50.0 | | 42.8 | 3.4 | | | 18.6 | |
| Progression Factor | | | | | 1.00 | | 0.76 | 0.95 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 4.0 | | 0.9 | 0.2 | | | 1.2 | |
| Delay (s) | | | | | 54.0 | | 33.3 | 3.4 | | | 19.8 | |
| Level of Service | | | | | D | | C | A | | | B | |
| Approach Delay (s) | | 0.0 | | | 54.0 | | | 9.8 | | | 19.8 | |
| Approach LOS | | A | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 71.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 180 | 160 | 60 | 110 | 80 | 100 | 1450 | 50 | 140 | 1270 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 5187 | 1567 | 1805 | 5187 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 5187 | 1567 | 1805 | 5187 | 1566 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 180 | 160 | 60 | 110 | 80 | 100 | 1450 | 50 | 140 | 1270 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 134 | 0 | 0 | 69 | 0 | 0 | 10 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 60 | 180 | 26 | 60 | 110 | 11 | 100 | 1450 | 40 | 140 | 1270 | 38 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 16.7 | 16.7 | 7.0 | 16.7 | 16.7 | 11.9 | 65.8 | 65.8 | 14.5 | 68.4 | 68.4 |
| Effective Green, g (s) | 7.0 | 16.7 | 16.7 | 7.0 | 16.7 | 16.7 | 11.9 | 65.8 | 65.8 | 14.5 | 68.4 | 68.4 |
| Actuated g/C Ratio | 0.06 | 0.14 | 0.14 | 0.06 | 0.14 | 0.14 | 0.10 | 0.55 | 0.55 | 0.12 | 0.57 | 0.57 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 264 | 221 | 105 | 264 | 221 | 179 | 2844 | 859 | 218 | 2957 | 893 |
| v/s Ratio Prot | c0.03 | c0.09 | | 0.03 | 0.06 | | 0.06 | c0.28 | | c0.08 | c0.24 | |
| v/s Ratio Perm | | | 0.02 | | | 0.01 | | | 0.03 | | | 0.02 |
| v/c Ratio | 0.57 | 0.68 | 0.12 | 0.57 | 0.42 | 0.05 | 0.56 | 0.51 | 0.05 | 0.64 | 0.43 | 0.04 |
| Uniform Delay, d1 | 55.0 | 49.1 | 45.2 | 55.0 | 47.2 | 44.8 | 51.5 | 17.0 | 12.6 | 50.3 | 14.7 | 11.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.10 | 0.90 | 0.65 |
| Incremental Delay, d2 | 7.3 | 7.1 | 0.2 | 7.3 | 1.1 | 0.1 | 3.7 | 0.7 | 0.1 | 4.5 | 0.3 | 0.1 |
| Delay (s) | 62.4 | 56.2 | 45.4 | 62.4 | 48.3 | 44.9 | 55.3 | 17.6 | 12.7 | 59.9 | 13.6 | 7.4 |
| Level of Service | E | E | D | E | D | D | E | B | B | E | B | A |
| Approach Delay (s) | | 52.8 | | | 50.6 | | | 19.8 | | | 17.8 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 67.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

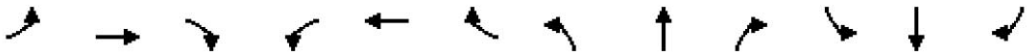
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 570 | 50 | 10 | 530 | 240 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 570 | 50 | 10 | 530 | 240 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 580 | | 410 | 300 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 580 | | 410 | 300 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 95 | | 7 | 68 |
| cM capacity (veh/h) | | | 1004 | | 569 | 741 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 580 | 60 | 530 | 240 |
| Volume Left | 0 | 50 | 530 | 0 |
| Volume Right | 570 | 0 | 0 | 240 |
| cSH | 1700 | 1004 | 569 | 741 |
| Volume to Capacity | 0.34 | 0.05 | 0.93 | 0.32 |
| Queue Length 95th (ft) | 0 | 4 | 296 | 35 |
| Control Delay (s) | 0.0 | 7.4 | 49.5 | 12.2 |
| Lane LOS | | A | E | B |
| Approach Delay (s) | 0.0 | 7.4 | 37.9 | |
| Approach LOS | | | E | |

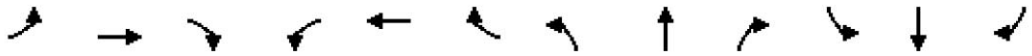
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 21.0 | | |
| Intersection Capacity Utilization | 78.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 180 | 110 | 110 | 100 | 20 | 120 | 720 | 370 | 0 | 590 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.97 | | | 0.95 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 3378 | | 1805 | 3508 | | | 3406 | | | 3553 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 3378 | | 1805 | 3508 | | | 3406 | | | 3553 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 180 | 110 | 110 | 100 | 20 | 120 | 720 | 370 | 0 | 590 | 60 |
| RTOR Reduction (vph) | 0 | 76 | 0 | 0 | 14 | 0 | 0 | 42 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 80 | 214 | 0 | 110 | 106 | 0 | 0 | 1168 | 0 | 0 | 644 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.8 | 25.6 | | 10.0 | 27.8 | | | 44.1 | | | 24.3 | |
| Effective Green, g (s) | 7.8 | 25.6 | | 10.0 | 27.8 | | | 44.1 | | | 24.3 | |
| Actuated g/C Ratio | 0.06 | 0.21 | | 0.08 | 0.23 | | | 0.37 | | | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 117 | 721 | | 150 | 813 | | | 1252 | | | 719 | |
| v/s Ratio Prot | c0.04 | c0.06 | | c0.06 | 0.03 | | | c0.34 | | | c0.18 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.68 | 0.30 | | 0.73 | 0.13 | | | 0.93 | | | 0.90 | |
| Uniform Delay, d1 | 54.9 | 39.6 | | 53.7 | 36.5 | | | 36.5 | | | 46.6 | |
| Progression Factor | 1.00 | 1.00 | | 0.67 | 0.54 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 15.3 | 1.1 | | 16.2 | 0.3 | | | 12.5 | | | 13.7 | |
| Delay (s) | 70.2 | 40.7 | | 52.4 | 20.1 | | | 49.0 | | | 60.3 | |
| Level of Service | E | D | | D | C | | | D | | | E | |
| Approach Delay (s) | | 47.1 | | | 35.6 | | | 49.0 | | | 60.3 | |
| Approach LOS | | D | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 50.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 90.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

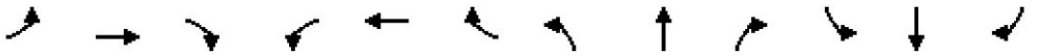


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 60 | 820 | 40 | 240 | 640 | 130 | 620 | 30 | 550 | 390 | 470 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.98 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | |
| Flt Protected | | 0.97 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1836 | 2796 | 1805 | 1900 | 1589 | 1805 | 3610 | 1569 | 1805 | 4682 | |
| Flt Permitted | | 0.97 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1836 | 2796 | 1805 | 1900 | 1589 | 1805 | 3610 | 1569 | 1805 | 4682 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 60 | 820 | 40 | 240 | 640 | 130 | 620 | 30 | 550 | 390 | 470 |
| RTOR Reduction (vph) | 0 | 0 | 640 | 0 | 0 | 312 | 0 | 0 | 23 | 0 | 176 | 0 |
| Lane Group Flow (vph) | 0 | 200 | 180 | 40 | 240 | 328 | 130 | 620 | 7 | 550 | 684 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 20.6 | 20.6 | 24.7 | 24.7 | 24.7 | 11.1 | 22.7 | 22.7 | 9.6 | 21.2 | |
| Effective Green, g (s) | | 20.6 | 20.6 | 24.7 | 24.7 | 24.7 | 11.1 | 22.7 | 22.7 | 9.6 | 21.2 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | 0.26 | 0.26 | 0.26 | 0.12 | 0.24 | 0.24 | 0.10 | 0.23 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 404 | 615 | 476 | 501 | 419 | 214 | 876 | 381 | 185 | 1060 | |
| v/s Ratio Prot | | c0.11 | | 0.02 | 0.13 | | 0.07 | c0.17 | | c0.30 | 0.15 | |
| v/s Ratio Perm | | | 0.06 | | | c0.21 | | | 0.00 | | | |
| v/c Ratio | | 0.50 | 0.29 | 0.08 | 0.48 | 0.78 | 0.61 | 0.71 | 0.02 | 2.97 | 0.88dr | |
| Uniform Delay, d1 | | 31.9 | 30.4 | 25.9 | 29.0 | 32.0 | 39.2 | 32.4 | 27.0 | 42.0 | 32.8 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.0 | 0.3 | 0.1 | 0.7 | 9.2 | 4.8 | 2.6 | 0.0 | 902.3 | 1.4 | |
| Delay (s) | | 32.9 | 30.7 | 26.0 | 29.8 | 41.2 | 44.0 | 35.1 | 27.0 | 944.3 | 34.1 | |
| Level of Service | | C | C | C | C | D | D | D | C | F | C | |
| Approach Delay (s) | | 31.1 | | | 37.5 | | | 36.2 | | | 389.2 | |
| Approach LOS | | C | | | D | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 155.8 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 93.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 90.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

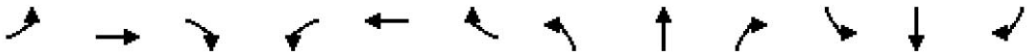
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 290 | 190 | 160 | 170 | 40 | 120 | 1550 | 120 | 100 | 1400 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3373 | | 1805 | 3496 | | 1805 | 3610 | 1587 | 1805 | 5187 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3373 | | 1805 | 3496 | | 1805 | 3610 | 1587 | 1805 | 5187 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 290 | 190 | 160 | 170 | 40 | 120 | 1550 | 120 | 100 | 1400 | 50 |
| RTOR Reduction (vph) | 0 | 108 | 0 | 0 | 20 | 0 | 0 | 0 | 42 | 0 | 0 | 24 |
| Lane Group Flow (vph) | 60 | 372 | 0 | 160 | 190 | 0 | 120 | 1550 | 78 | 100 | 1400 | 26 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 19.9 | | 11.0 | 23.9 | | 13.2 | 59.4 | 59.4 | 13.7 | 59.9 | 59.9 |
| Effective Green, g (s) | 7.0 | 19.9 | | 11.0 | 23.9 | | 13.2 | 59.4 | 59.4 | 13.7 | 59.9 | 59.9 |
| Actuated g/C Ratio | 0.06 | 0.17 | | 0.09 | 0.20 | | 0.11 | 0.49 | 0.49 | 0.11 | 0.50 | 0.50 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 559 | | 165 | 696 | | 199 | 1787 | 786 | 206 | 2589 | 792 |
| v/s Ratio Prot | 0.03 | c0.11 | | c0.09 | c0.05 | | c0.07 | c0.43 | | 0.06 | 0.27 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | 0.02 |
| v/c Ratio | 0.57 | 0.67 | | 0.97 | 0.27 | | 0.60 | 0.87 | 0.10 | 0.49 | 0.54 | 0.03 |
| Uniform Delay, d1 | 55.0 | 46.9 | | 54.3 | 40.7 | | 50.9 | 26.8 | 16.1 | 49.8 | 20.6 | 15.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.41 | 0.43 | 0.09 |
| Incremental Delay, d2 | 7.3 | 3.0 | | 60.3 | 0.2 | | 5.1 | 6.0 | 0.3 | 0.8 | 0.4 | 0.0 |
| Delay (s) | 62.4 | 49.9 | | 114.6 | 40.9 | | 56.0 | 32.8 | 16.3 | 71.3 | 9.3 | 1.4 |
| Level of Service | E | D | | F | D | | E | C | B | E | A | A |
| Approach Delay (s) | | 51.3 | | | 72.8 | | | 33.3 | | | 13.1 | |
| Approach LOS | | D | | | E | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 87.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

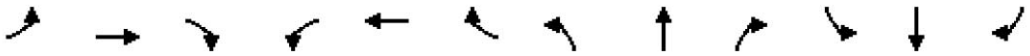
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 610 | 480 | 160 | 310 | 120 | 160 | 1720 | 340 | 340 | 1400 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3347 | | 1805 | 3442 | | 1805 | 5187 | 1587 | 1805 | 5175 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3347 | | 1805 | 3442 | | 1805 | 5187 | 1587 | 1805 | 5175 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 610 | 480 | 160 | 310 | 120 | 160 | 1720 | 340 | 340 | 1400 | 20 |
| RTOR Reduction (vph) | 0 | 118 | 0 | 0 | 33 | 0 | 0 | 0 | 104 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 80 | 972 | 0 | 160 | 397 | 0 | 160 | 1720 | 236 | 340 | 1419 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.3 | 37.4 | | 10.0 | 39.1 | | 13.9 | 35.3 | 35.3 | 21.3 | 42.7 | |
| Effective Green, g (s) | 8.3 | 37.4 | | 10.0 | 39.1 | | 13.9 | 35.3 | 35.3 | 21.3 | 42.7 | |
| Actuated g/C Ratio | 0.07 | 0.31 | | 0.08 | 0.33 | | 0.12 | 0.29 | 0.29 | 0.18 | 0.36 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 1043 | | 150 | 1122 | | 209 | 1526 | 467 | 320 | 1841 | |
| v/s Ratio Prot | 0.04 | c0.29 | | c0.09 | 0.12 | | 0.09 | c0.33 | | c0.19 | 0.27 | |
| v/s Ratio Perm | | | | | | | | | 0.15 | | | |
| v/c Ratio | 0.64 | 0.93 | | 1.07 | 0.35 | | 0.77 | 1.13 | 0.50 | 1.06 | 0.77 | |
| Uniform Delay, d1 | 54.4 | 40.1 | | 55.0 | 30.8 | | 51.5 | 42.4 | 35.1 | 49.4 | 34.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.89 | 0.70 | 0.77 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.7 | 14.3 | | 92.4 | 0.2 | | 4.7 | 60.0 | 1.1 | 67.8 | 3.2 | |
| Delay (s) | 65.1 | 54.4 | | 147.4 | 31.0 | | 50.8 | 89.6 | 28.0 | 117.1 | 37.5 | |
| Level of Service | E | D | | F | C | | D | F | C | F | D | |
| Approach Delay (s) | | 55.1 | | | 62.6 | | | 77.4 | | | 52.9 | |
| Approach LOS | | E | | | E | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 63.8 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.04 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 106.8% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

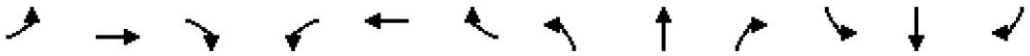


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 1300 | 110 | 530 | 680 | 220 | 60 | 90 | 770 | 200 | 140 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.87 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3563 | | 1805 | 3610 | 1591 | 1805 | 3081 | | 1805 | 3392 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3563 | | 1805 | 3610 | 1591 | 1805 | 3081 | | 1805 | 3392 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 1300 | 110 | 530 | 680 | 220 | 60 | 90 | 770 | 200 | 140 | 80 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 0 | 108 | 0 | 186 | 0 | 0 | 56 | 0 |
| Lane Group Flow (vph) | 60 | 1405 | 0 | 530 | 680 | 112 | 60 | 674 | 0 | 200 | 164 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 6.7 | 35.0 | | 17.1 | 45.4 | 54.4 | 6.7 | 29.9 | | 9.0 | 32.2 | |
| Effective Green, g (s) | 6.7 | 35.0 | | 17.1 | 45.4 | 54.4 | 6.7 | 29.9 | | 9.0 | 32.2 | |
| Actuated g/C Ratio | 0.06 | 0.33 | | 0.16 | 0.42 | 0.51 | 0.06 | 0.28 | | 0.08 | 0.30 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 113 | 1165 | | 288 | 1532 | 868 | 113 | 861 | | 152 | 1021 | |
| v/s Ratio Prot | 0.03 | c0.39 | | c0.29 | 0.19 | 0.01 | 0.03 | c0.22 | | c0.11 | 0.05 | |
| v/s Ratio Perm | | | | | | 0.06 | | | | | | |
| v/c Ratio | 0.53 | 1.21 | | 1.84 | 0.44 | 0.13 | 0.53 | 1.23dr | | 1.32 | 0.16 | |
| Uniform Delay, d1 | 48.6 | 36.0 | | 45.0 | 21.8 | 13.8 | 48.6 | 35.6 | | 49.0 | 27.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.7 | 101.1 | | 391.4 | 0.2 | 0.1 | 4.7 | 4.7 | | 180.9 | 0.1 | |
| Delay (s) | 53.4 | 137.1 | | 436.3 | 22.1 | 13.9 | 53.4 | 40.2 | | 229.9 | 27.5 | |
| Level of Service | D | F | | F | C | B | D | D | | F | C | |
| Approach Delay (s) | | 133.7 | | | 174.3 | | | 41.1 | | | 123.9 | |
| Approach LOS | | F | | | F | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 126.3 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.18 | | |
| Actuated Cycle Length (s) | 107.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 122.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

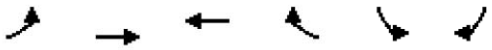
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 1730 | 300 | 700 | 1210 | 130 | 270 | 510 | 650 | 210 | 640 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 5060 | | 3502 | 5103 | | 3502 | 3610 | 1598 | 3502 | 3536 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 5060 | | 3502 | 5103 | | 3502 | 3610 | 1598 | 3502 | 3536 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 200 | 1730 | 300 | 700 | 1210 | 130 | 270 | 510 | 650 | 210 | 640 | 90 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 200 | 2011 | 0 | 700 | 1330 | 0 | 270 | 510 | 649 | 210 | 720 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.6 | 38.1 | | 14.0 | 41.5 | | 10.0 | 30.2 | 44.2 | 7.0 | 27.2 | |
| Effective Green, g (s) | 10.6 | 38.1 | | 14.0 | 41.5 | | 10.0 | 30.2 | 44.2 | 7.0 | 27.2 | |
| Actuated g/C Ratio | 0.10 | 0.36 | | 0.13 | 0.39 | | 0.09 | 0.29 | 0.42 | 0.07 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 353 | 1831 | | 466 | 2011 | | 333 | 1035 | 731 | 233 | 913 | |
| v/s Ratio Prot | 0.06 | c0.40 | | c0.20 | c0.26 | | c0.08 | 0.14 | c0.12 | 0.06 | 0.20 | |
| v/s Ratio Perm | | | | | | | | | 0.29 | | | |
| v/c Ratio | 0.57 | 1.10 | | 1.50 | 0.66 | | 0.81 | 0.49 | 0.89 | 0.90 | 0.79 | |
| Uniform Delay, d1 | 45.2 | 33.6 | | 45.6 | 26.1 | | 46.7 | 31.2 | 28.3 | 48.8 | 36.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.1 | 53.3 | | 237.0 | 0.8 | | 13.9 | 0.4 | 12.7 | 33.7 | 4.6 | |
| Delay (s) | 47.2 | 86.9 | | 282.6 | 27.0 | | 60.6 | 31.6 | 40.9 | 82.5 | 40.9 | |
| Level of Service | D | F | | F | C | | E | C | D | F | D | |
| Approach Delay (s) | | 83.4 | | | 114.7 | | | 41.3 | | | 50.2 | |
| Approach LOS | | F | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 79.2 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.12 | | |
| Actuated Cycle Length (s) | 105.3 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 103.9% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

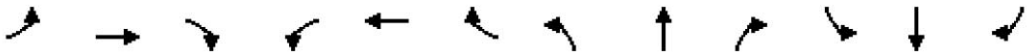
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 660 | 1440 | 1050 | 40 | 70 | 860 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.91 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 0.99 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 0.87 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 5155 | | 1623 | 1526 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 5155 | | 1623 | 1526 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 660 | 1440 | 1050 | 40 | 70 | 860 |
| RTOR Reduction (vph) | 0 | 0 | 4 | 0 | 262 | 1 |
| Lane Group Flow (vph) | 660 | 1440 | 1086 | 0 | 204 | 463 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 29.3 | 54.4 | 21.1 | | 14.4 | 43.7 |
| Effective Green, g (s) | 29.3 | 54.4 | 21.1 | | 14.4 | 43.7 |
| Actuated g/C Ratio | 0.38 | 0.71 | 0.27 | | 0.19 | 0.57 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 689 | 3674 | 1416 | | 304 | 948 |
| v/s Ratio Prot | c0.37 | 0.28 | c0.21 | | c0.13 | 0.19 |
| v/s Ratio Perm | | | | | | 0.12 |
| v/c Ratio | 0.96 | 0.39 | 0.77 | | 0.67 | 0.49 |
| Uniform Delay, d1 | 23.1 | 4.5 | 25.6 | | 29.0 | 9.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 24.1 | 0.1 | 2.5 | | 5.5 | 0.4 |
| Delay (s) | 47.2 | 4.6 | 28.1 | | 34.5 | 10.3 |
| Level of Service | D | A | C | | C | B |
| Approach Delay (s) | | 18.0 | 28.1 | | 22.4 | |
| Approach LOS | | B | C | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 76.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 89.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

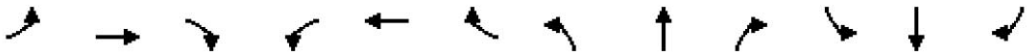
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 1370 | 30 | 70 | 710 | 10 | 40 | 20 | 30 | 10 | 60 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.95 | | | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5167 | | 1805 | 5175 | | | 1766 | | | 1691 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5167 | | 1805 | 5175 | | | 1766 | | | 1691 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 210 | 1370 | 30 | 70 | 710 | 10 | 40 | 20 | 30 | 10 | 60 | 190 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 19 | 0 | 0 | 97 | 0 |
| Lane Group Flow (vph) | 210 | 1399 | 0 | 70 | 719 | 0 | 0 | 71 | 0 | 0 | 163 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.4 | 27.4 | | 5.1 | 25.1 | | | 6.6 | | | 11.7 | |
| Effective Green, g (s) | 7.4 | 27.4 | | 5.1 | 25.1 | | | 6.6 | | | 11.7 | |
| Actuated g/C Ratio | 0.11 | 0.41 | | 0.08 | 0.38 | | | 0.10 | | | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 200 | 2119 | | 138 | 1944 | | | 174 | | | 296 | |
| v/s Ratio Prot | c0.12 | c0.27 | | 0.04 | 0.14 | | | c0.04 | | | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 1.05 | 0.66 | | 0.51 | 0.37 | | | 0.41 | | | 0.55 | |
| Uniform Delay, d1 | 29.7 | 15.9 | | 29.6 | 15.1 | | | 28.3 | | | 25.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 77.4 | 0.8 | | 2.9 | 0.1 | | | 1.6 | | | 2.1 | |
| Delay (s) | 107.1 | 16.7 | | 32.6 | 15.2 | | | 29.8 | | | 27.2 | |
| Level of Service | F | B | | C | B | | | C | | | C | |
| Approach Delay (s) | | 28.5 | | | 16.8 | | | 29.8 | | | 27.2 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 66.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

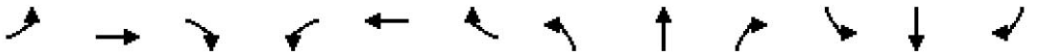
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 1360 | 20 | 20 | 720 | 0 | 20 | 10 | 20 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5175 | | 1805 | 5187 | | 1805 | 1900 | 1609 | 1805 | 1745 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5175 | | 1805 | 5187 | | 1805 | 1900 | 1609 | 1805 | 1745 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 1360 | 20 | 20 | 720 | 0 | 20 | 10 | 20 | 10 | 10 | 10 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 20 | 1379 | 0 | 20 | 720 | 0 | 20 | 10 | 1 | 10 | 10 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.8 | 31.6 | | 2.3 | 33.1 | | 0.8 | 0.9 | 3.2 | 0.8 | 0.9 | |
| Effective Green, g (s) | 0.8 | 31.6 | | 2.3 | 33.1 | | 0.8 | 0.9 | 3.2 | 0.8 | 0.9 | |
| Actuated g/C Ratio | 0.02 | 0.61 | | 0.04 | 0.64 | | 0.02 | 0.02 | 0.06 | 0.02 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 28 | 3169 | | 80 | 3327 | | 28 | 33 | 225 | 28 | 30 | |
| v/s Ratio Prot | c0.01 | c0.27 | | 0.01 | 0.14 | | c0.01 | 0.01 | 0.00 | 0.01 | c0.01 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | |
| v/c Ratio | 0.71 | 0.44 | | 0.25 | 0.22 | | 0.71 | 0.30 | 0.01 | 0.36 | 0.34 | |
| Uniform Delay, d1 | 25.3 | 5.3 | | 23.8 | 3.9 | | 25.3 | 25.0 | 22.7 | 25.1 | 25.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 60.5 | 0.1 | | 1.6 | 0.0 | | 60.5 | 5.1 | 0.0 | 7.7 | 6.6 | |
| Delay (s) | 85.8 | 5.4 | | 25.5 | 3.9 | | 85.8 | 30.2 | 22.7 | 32.8 | 31.7 | |
| Level of Service | F | A | | C | A | | F | C | C | C | C | |
| Approach Delay (s) | | 6.5 | | | 4.5 | | | 49.4 | | | 32.1 | |
| Approach LOS | | A | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 51.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 49.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

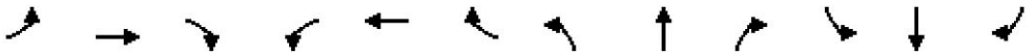
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 630 | 170 | 410 | 110 | 70 | 100 | 90 | 1550 | 130 | 130 | 1480 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1586 | 1805 | 1900 | 1587 | 3502 | 5187 | 1586 | 1805 | 5187 | 1579 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1586 | 1805 | 1900 | 1587 | 3502 | 5187 | 1586 | 1805 | 5187 | 1579 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 630 | 170 | 410 | 110 | 70 | 100 | 90 | 1550 | 130 | 130 | 1480 | 320 |
| RTOR Reduction (vph) | 0 | 0 | 287 | 0 | 0 | 89 | 0 | 0 | 56 | 0 | 0 | 127 |
| Lane Group Flow (vph) | 630 | 170 | 123 | 110 | 70 | 11 | 90 | 1550 | 74 | 130 | 1480 | 193 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 32.0 | 32.0 | 32.0 | 12.9 | 12.9 | 12.9 | 8.6 | 40.6 | 40.6 | 18.5 | 50.5 | 50.5 |
| Effective Green, g (s) | 32.0 | 32.0 | 32.0 | 12.9 | 12.9 | 12.9 | 8.6 | 40.6 | 40.6 | 18.5 | 50.5 | 50.5 |
| Actuated g/C Ratio | 0.27 | 0.27 | 0.27 | 0.11 | 0.11 | 0.11 | 0.07 | 0.34 | 0.34 | 0.15 | 0.42 | 0.42 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 481 | 507 | 423 | 194 | 204 | 171 | 251 | 1755 | 537 | 278 | 2183 | 664 |
| v/s Ratio Prot | c0.35 | 0.09 | | c0.06 | 0.04 | | 0.03 | c0.30 | | c0.07 | c0.29 | |
| v/s Ratio Perm | | | 0.08 | | | 0.01 | | | 0.05 | | | 0.12 |
| v/c Ratio | 1.31 | 0.34 | 0.29 | 0.57 | 0.34 | 0.06 | 0.36 | 0.88 | 0.14 | 0.47 | 0.68 | 0.29 |
| Uniform Delay, d1 | 44.0 | 35.4 | 35.0 | 50.9 | 49.6 | 48.1 | 53.1 | 37.5 | 27.5 | 46.3 | 28.2 | 22.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.17 | 0.63 | 0.20 |
| Incremental Delay, d2 | 153.7 | 0.4 | 0.4 | 3.8 | 1.0 | 0.2 | 0.9 | 6.9 | 0.5 | 0.7 | 0.9 | 0.6 |
| Delay (s) | 197.7 | 35.8 | 35.3 | 54.7 | 50.6 | 48.3 | 54.0 | 44.3 | 28.1 | 54.6 | 18.6 | 5.3 |
| Level of Service | F | D | D | D | D | D | D | D | C | D | B | A |
| Approach Delay (s) | | 120.0 | | | 51.4 | | | 43.6 | | | 18.8 | |
| Approach LOS | | F | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 94.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

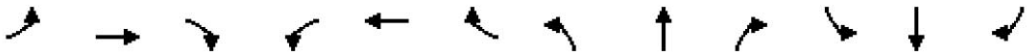


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 70 | 540 | 100 | 60 | 60 | 110 | 1360 | 60 | 100 | 1430 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.87 | | 1.00 | 0.93 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3086 | | 1805 | 3312 | | 1805 | 3585 | | 1805 | 3582 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3086 | | 1805 | 3312 | | 1805 | 3585 | | 1805 | 3582 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 70 | 540 | 100 | 60 | 60 | 110 | 1360 | 60 | 100 | 1430 | 70 |
| RTOR Reduction (vph) | 0 | 139 | 0 | 0 | 49 | 0 | 0 | 3 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 110 | 471 | 0 | 100 | 71 | 0 | 110 | 1417 | 0 | 100 | 1496 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 10.4 | 19.4 | | 7.0 | 16.0 | | 7.0 | 35.1 | | 7.0 | 35.1 | |
| Effective Green, g (s) | 10.4 | 19.4 | | 7.0 | 16.0 | | 7.0 | 35.1 | | 7.0 | 35.1 | |
| Actuated g/C Ratio | 0.12 | 0.23 | | 0.08 | 0.19 | | 0.08 | 0.42 | | 0.08 | 0.42 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 222 | 709 | | 150 | 627 | | 150 | 1489 | | 150 | 1488 | |
| v/s Ratio Prot | 0.06 | c0.15 | | c0.06 | 0.02 | | c0.06 | 0.40 | | 0.06 | c0.42 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.50 | 1.10dr | | 0.67 | 0.11 | | 0.73 | 0.95 | | 0.67 | 1.01 | |
| Uniform Delay, d1 | 34.6 | 29.6 | | 37.6 | 28.4 | | 37.8 | 23.9 | | 37.6 | 24.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.7 | 2.3 | | 10.7 | 0.1 | | 16.8 | 13.5 | | 10.7 | 24.7 | |
| Delay (s) | 36.3 | 31.9 | | 48.3 | 28.5 | | 54.7 | 37.4 | | 48.3 | 49.4 | |
| Level of Service | D | C | | D | C | | D | D | | D | D | |
| Approach Delay (s) | | 32.6 | | | 37.5 | | | 38.6 | | | 49.3 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 84.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

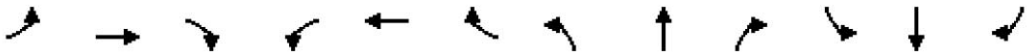
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 70 | 80 | 20 | 40 | 30 | 70 | 860 | 20 | 20 | 650 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3296 | | 1805 | 3378 | | 1805 | 3610 | 1615 | 1805 | 3524 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3296 | | 1805 | 3378 | | 1805 | 3610 | 1615 | 1805 | 3524 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 70 | 80 | 20 | 40 | 30 | 70 | 860 | 20 | 20 | 650 | 110 |
| RTOR Reduction (vph) | 0 | 65 | 0 | 0 | 26 | 0 | 0 | 0 | 10 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 170 | 85 | 0 | 20 | 44 | 0 | 70 | 860 | 10 | 20 | 748 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.1 | 10.7 | | 2.2 | 6.8 | | 3.9 | 26.8 | 29.0 | 1.1 | 24.0 | |
| Effective Green, g (s) | 6.1 | 10.7 | | 2.2 | 6.8 | | 3.9 | 26.8 | 29.0 | 1.1 | 24.0 | |
| Actuated g/C Ratio | 0.11 | 0.19 | | 0.04 | 0.12 | | 0.07 | 0.47 | 0.51 | 0.02 | 0.42 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 376 | 621 | | 70 | 404 | | 124 | 1703 | 938 | 35 | 1489 | |
| v/s Ratio Prot | c0.05 | c0.03 | | 0.01 | 0.01 | | c0.04 | c0.24 | 0.00 | 0.01 | 0.21 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.45 | 0.14 | | 0.29 | 0.11 | | 0.56 | 0.50 | 0.01 | 0.57 | 0.50 | |
| Uniform Delay, d1 | 23.8 | 19.2 | | 26.5 | 22.3 | | 25.6 | 10.4 | 6.8 | 27.6 | 12.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 0.1 | | 2.2 | 0.1 | | 5.8 | 0.2 | 0.0 | 20.6 | 0.3 | |
| Delay (s) | 24.6 | 19.3 | | 28.8 | 22.4 | | 31.4 | 10.6 | 6.8 | 48.2 | 12.3 | |
| Level of Service | C | B | | C | C | | C | B | A | D | B | |
| Approach Delay (s) | | 22.1 | | | 23.8 | | | 12.1 | | | 13.2 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 56.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 56.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

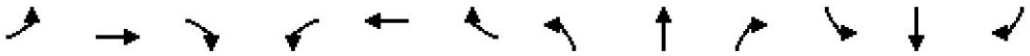
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 1330 | 130 | 100 | 950 | 220 | 110 | 260 | 60 | 230 | 240 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5109 | | 1805 | 5187 | 1595 | 3502 | 1841 | | 1805 | 3460 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5109 | | 1805 | 5187 | 1595 | 3502 | 1841 | | 1805 | 3460 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 1330 | 130 | 100 | 950 | 220 | 110 | 260 | 60 | 230 | 240 | 80 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 101 | 0 | 9 | 0 | 0 | 32 | 0 |
| Lane Group Flow (vph) | 130 | 1451 | 0 | 100 | 950 | 119 | 110 | 311 | 0 | 230 | 288 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 13.1 | 46.3 | | 10.9 | 44.1 | 65.1 | 7.8 | 25.8 | | 21.0 | 39.0 | |
| Effective Green, g (s) | 13.1 | 46.3 | | 10.9 | 44.1 | 65.1 | 7.8 | 25.8 | | 21.0 | 39.0 | |
| Actuated g/C Ratio | 0.11 | 0.39 | | 0.09 | 0.37 | 0.54 | 0.06 | 0.22 | | 0.18 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 197 | 1971 | | 164 | 1906 | 865 | 228 | 396 | | 316 | 1125 | |
| v/s Ratio Prot | c0.07 | c0.28 | | 0.06 | 0.18 | 0.02 | 0.03 | c0.17 | | c0.13 | 0.08 | |
| v/s Ratio Perm | | | | | | 0.05 | | | | | | |
| v/c Ratio | 0.66 | 0.74 | | 0.61 | 0.50 | 0.14 | 0.48 | 0.79 | | 0.73 | 0.26 | |
| Uniform Delay, d1 | 51.3 | 31.6 | | 52.5 | 29.4 | 13.6 | 54.2 | 44.5 | | 46.8 | 29.8 | |
| Progression Factor | 1.08 | 0.50 | | 1.00 | 1.00 | 1.00 | 0.73 | 0.56 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.1 | 1.3 | | 6.3 | 0.9 | 0.1 | 1.6 | 9.6 | | 8.1 | 0.1 | |
| Delay (s) | 59.3 | 17.1 | | 58.8 | 30.3 | 13.6 | 40.8 | 34.3 | | 54.9 | 29.9 | |
| Level of Service | E | B | | E | C | B | D | C | | D | C | |
| Approach Delay (s) | | 20.5 | | | 29.7 | | | 36.0 | | | 40.4 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

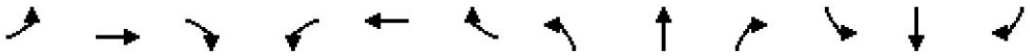
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 1280 | 190 | 110 | 930 | 10 | 170 | 290 | 80 | 20 | 260 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1590 | 1805 | 5187 | 1593 | 1805 | 1900 | 1598 | 1805 | 3433 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1590 | 1805 | 5187 | 1593 | 1805 | 1900 | 1598 | 1805 | 3433 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 120 | 1280 | 190 | 110 | 930 | 10 | 170 | 290 | 80 | 20 | 260 | 110 |
| RTOR Reduction (vph) | 0 | 0 | 57 | 0 | 0 | 3 | 0 | 0 | 54 | 0 | 58 | 0 |
| Lane Group Flow (vph) | 120 | 1280 | 133 | 110 | 930 | 7 | 170 | 290 | 26 | 20 | 312 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 8.5 | 28.8 | 28.8 | 7.1 | 27.4 | 34.5 | 10.2 | 17.2 | 24.3 | 7.1 | 14.1 | |
| Effective Green, g (s) | 8.5 | 28.8 | 28.8 | 7.1 | 27.4 | 34.5 | 10.2 | 17.2 | 24.3 | 7.1 | 14.1 | |
| Actuated g/C Ratio | 0.11 | 0.38 | 0.38 | 0.09 | 0.36 | 0.45 | 0.13 | 0.23 | 0.32 | 0.09 | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 201 | 1960 | 601 | 168 | 1865 | 805 | 242 | 429 | 593 | 168 | 635 | |
| v/s Ratio Prot | c0.07 | c0.25 | | 0.06 | 0.18 | 0.00 | c0.09 | c0.15 | 0.00 | 0.01 | 0.09 | |
| v/s Ratio Perm | | | 0.08 | | | 0.00 | | | 0.01 | | | |
| v/c Ratio | 0.60 | 0.65 | 0.22 | 0.65 | 0.50 | 0.01 | 0.70 | 0.68 | 0.04 | 0.12 | 0.49 | |
| Uniform Delay, d1 | 32.2 | 19.6 | 16.1 | 33.4 | 19.0 | 11.5 | 31.5 | 27.0 | 17.9 | 31.7 | 27.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.7 | 0.8 | 0.2 | 8.8 | 0.2 | 0.0 | 8.9 | 4.2 | 0.0 | 0.3 | 0.6 | |
| Delay (s) | 36.9 | 20.4 | 16.3 | 42.2 | 19.3 | 11.5 | 40.4 | 31.1 | 18.0 | 32.0 | 28.4 | |
| Level of Service | D | C | B | D | B | B | D | C | B | C | C | |
| Approach Delay (s) | | 21.1 | | | 21.6 | | | 32.1 | | | 28.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 76.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

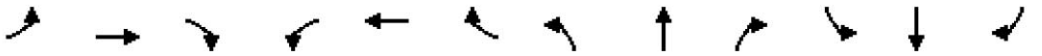
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 240 | 850 | 320 | 100 | 550 | 80 | 280 | 40 | 130 | 110 | 40 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 0.89 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4974 | | 1805 | 5078 | | 1805 | 3196 | | 1805 | 3113 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4974 | | 1805 | 5078 | | 1805 | 3196 | | 1805 | 3113 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 240 | 850 | 320 | 100 | 550 | 80 | 280 | 40 | 130 | 110 | 40 | 220 |
| RTOR Reduction (vph) | 0 | 54 | 0 | 0 | 16 | 0 | 0 | 103 | 0 | 0 | 197 | 0 |
| Lane Group Flow (vph) | 240 | 1116 | 0 | 100 | 614 | 0 | 280 | 67 | 0 | 110 | 63 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 16.1 | 25.0 | | 8.7 | 17.6 | | 18.1 | 15.8 | | 10.1 | 7.8 | |
| Effective Green, g (s) | 16.1 | 25.0 | | 8.7 | 17.6 | | 18.1 | 15.8 | | 10.1 | 7.8 | |
| Actuated g/C Ratio | 0.21 | 0.33 | | 0.12 | 0.23 | | 0.24 | 0.21 | | 0.13 | 0.10 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 384 | 1645 | | 208 | 1182 | | 432 | 668 | | 241 | 321 | |
| v/s Ratio Prot | c0.13 | c0.22 | | 0.06 | 0.12 | | c0.16 | 0.02 | | 0.06 | c0.02 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.62 | 0.68 | | 0.48 | 0.52 | | 0.65 | 0.10 | | 0.46 | 0.20 | |
| Uniform Delay, d1 | 27.0 | 21.8 | | 31.3 | 25.3 | | 25.9 | 24.2 | | 30.2 | 31.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.2 | 1.1 | | 1.7 | 0.4 | | 3.3 | 0.1 | | 1.4 | 0.3 | |
| Delay (s) | 30.2 | 23.0 | | 33.1 | 25.7 | | 29.2 | 24.2 | | 31.6 | 31.3 | |
| Level of Service | C | C | | C | C | | C | C | | C | C | |
| Approach Delay (s) | | 24.2 | | | 26.7 | | | 27.3 | | | 31.4 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 75.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 70.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

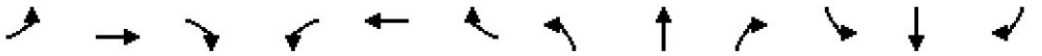
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 500 | 390 | 110 | 280 | 70 | 310 | 1000 | 180 | 40 | 970 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1589 | 1805 | 3610 | 1590 | 1805 | 5056 | | 1805 | 5187 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1589 | 1805 | 3610 | 1590 | 1805 | 5056 | | 1805 | 5187 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 500 | 390 | 110 | 280 | 70 | 310 | 1000 | 180 | 40 | 970 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 320 | 0 | 0 | 58 | 0 | 19 | 0 | 0 | 0 | 30 |
| Lane Group Flow (vph) | 150 | 500 | 70 | 110 | 280 | 12 | 310 | 1161 | 0 | 40 | 970 | 40 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 11.7 | 16.4 | 16.4 | 10.8 | 15.5 | 15.5 | 21.0 | 43.9 | | 3.8 | 26.7 | 26.7 |
| Effective Green, g (s) | 11.7 | 16.4 | 16.4 | 10.8 | 15.5 | 15.5 | 21.0 | 43.9 | | 3.8 | 26.7 | 26.7 |
| Actuated g/C Ratio | 0.13 | 0.18 | 0.18 | 0.12 | 0.17 | 0.17 | 0.23 | 0.48 | | 0.04 | 0.29 | 0.29 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 232 | 936 | 287 | 214 | 616 | 271 | 417 | 2442 | | 75 | 1524 | 467 |
| v/s Ratio Prot | c0.08 | c0.10 | | 0.06 | 0.08 | | c0.17 | 0.23 | | 0.02 | c0.19 | |
| v/s Ratio Perm | | | 0.04 | | | 0.01 | | | | | | 0.02 |
| v/c Ratio | 0.65 | 0.53 | 0.25 | 0.51 | 0.45 | 0.04 | 0.74 | 0.48 | | 0.53 | 0.64 | 0.08 |
| Uniform Delay, d1 | 37.6 | 33.8 | 31.9 | 37.6 | 33.9 | 31.5 | 32.4 | 15.8 | | 42.7 | 27.9 | 23.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.1 | 0.6 | 0.4 | 2.1 | 0.5 | 0.1 | 7.0 | 0.1 | | 7.1 | 0.9 | 0.1 |
| Delay (s) | 43.7 | 34.4 | 32.4 | 39.7 | 34.4 | 31.6 | 39.5 | 15.9 | | 49.8 | 28.8 | 23.3 |
| Level of Service | D | C | C | D | C | C | D | B | | D | C | C |
| Approach Delay (s) | | 35.0 | | | 35.3 | | | 20.8 | | | 29.2 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 90.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

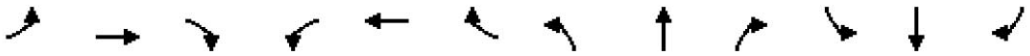
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 600 | 160 | 50 | 470 | 50 | 100 | 370 | 10 | 80 | 410 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3483 | | 1805 | 3552 | | 1805 | 3594 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3483 | | 1805 | 3552 | | 1805 | 3594 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 600 | 160 | 50 | 470 | 50 | 100 | 370 | 10 | 80 | 410 | 60 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 44 |
| Lane Group Flow (vph) | 50 | 743 | 0 | 50 | 514 | 0 | 100 | 379 | 0 | 80 | 410 | 16 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 7.0 | 53.7 | | 7.0 | 53.7 | | 11.1 | 35.0 | | 8.3 | 32.2 | 32.2 |
| Effective Green, g (s) | 7.0 | 53.7 | | 7.0 | 53.7 | | 11.1 | 35.0 | | 8.3 | 32.2 | 32.2 |
| Actuated g/C Ratio | 0.06 | 0.45 | | 0.06 | 0.45 | | 0.09 | 0.29 | | 0.07 | 0.27 | 0.27 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 1559 | | 105 | 1590 | | 167 | 1048 | | 125 | 510 | 425 |
| v/s Ratio Prot | c0.03 | c0.21 | | 0.03 | 0.14 | | c0.06 | c0.11 | | 0.04 | c0.22 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.48 | 0.48 | | 0.48 | 0.32 | | 0.60 | 0.36 | | 0.64 | 0.80 | 0.04 |
| Uniform Delay, d1 | 54.7 | 23.3 | | 54.7 | 21.4 | | 52.3 | 33.6 | | 54.4 | 41.0 | 32.5 |
| Progression Factor | 1.29 | 0.52 | | 0.98 | 0.71 | | 1.00 | 1.00 | | 0.85 | 0.91 | 1.24 |
| Incremental Delay, d2 | 2.3 | 0.7 | | 3.3 | 0.5 | | 5.7 | 0.2 | | 10.1 | 8.5 | 0.0 |
| Delay (s) | 72.9 | 12.8 | | 56.9 | 15.8 | | 58.0 | 33.9 | | 56.1 | 45.7 | 40.4 |
| Level of Service | E | B | | E | B | | E | C | | E | D | D |
| Approach Delay (s) | | 16.5 | | | 19.4 | | | 38.9 | | | 46.7 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 70.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

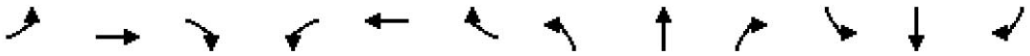
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 420 | 150 | 320 | 420 | 40 | 130 | 480 | 350 | 40 | 440 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3451 | | 1805 | 3557 | | 1805 | 3610 | 1586 | 1805 | 3584 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3451 | | 1805 | 3557 | | 1805 | 3610 | 1586 | 1805 | 3584 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 420 | 150 | 320 | 420 | 40 | 130 | 480 | 350 | 40 | 440 | 20 |
| RTOR Reduction (vph) | 0 | 28 | 0 | 0 | 5 | 0 | 0 | 0 | 265 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 40 | 542 | 0 | 320 | 455 | 0 | 130 | 480 | 85 | 40 | 457 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.2 | 37.3 | | 31.8 | 62.9 | | 14.2 | 29.3 | 29.3 | 5.6 | 20.7 | |
| Effective Green, g (s) | 6.2 | 37.3 | | 31.8 | 62.9 | | 14.2 | 29.3 | 29.3 | 5.6 | 20.7 | |
| Actuated g/C Ratio | 0.05 | 0.31 | | 0.27 | 0.52 | | 0.12 | 0.24 | 0.24 | 0.05 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 93 | 1073 | | 478 | 1864 | | 214 | 881 | 387 | 84 | 618 | |
| v/s Ratio Prot | 0.02 | c0.16 | | c0.18 | 0.13 | | 0.07 | c0.13 | | 0.02 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.43 | 0.51 | | 0.67 | 0.24 | | 0.61 | 0.54 | 0.22 | 0.48 | 0.74 | |
| Uniform Delay, d1 | 55.2 | 33.8 | | 39.4 | 15.6 | | 50.3 | 39.5 | 36.2 | 55.8 | 47.1 | |
| Progression Factor | 0.50 | 0.54 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.9 | 1.5 | | 3.5 | 0.3 | | 4.8 | 0.7 | 0.3 | 4.2 | 4.6 | |
| Delay (s) | 30.3 | 20.0 | | 42.9 | 15.9 | | 55.1 | 40.2 | 36.5 | 60.0 | 51.7 | |
| Level of Service | C | B | | D | B | | E | D | D | E | D | |
| Approach Delay (s) | | 20.6 | | | 27.0 | | | 40.9 | | | 52.4 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

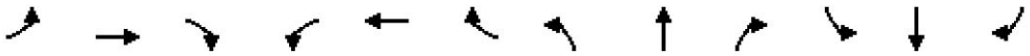
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 310 | 70 | 200 | 290 | 290 | 50 | 50 | 140 | 290 | 70 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.93 | | 1.00 | 0.89 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1803 | 3501 | | 1803 | 3315 | | 1802 | 3177 | | 1802 | 3264 | |
| Flt Permitted | 0.41 | 1.00 | | 0.53 | 1.00 | | 0.64 | 1.00 | | 0.63 | 1.00 | |
| Satd. Flow (perm) | 780 | 3501 | | 999 | 3315 | | 1222 | 3177 | | 1199 | 3264 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 310 | 70 | 200 | 290 | 290 | 50 | 50 | 140 | 290 | 70 | 100 |
| RTOR Reduction (vph) | 0 | 34 | 0 | 0 | 178 | 0 | 0 | 84 | 0 | 0 | 60 | 0 |
| Lane Group Flow (vph) | 110 | 346 | 0 | 200 | 402 | 0 | 50 | 106 | 0 | 290 | 110 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 14.7 | 14.7 | | 14.7 | 14.7 | | 15.3 | 15.3 | | 15.3 | 15.3 | |
| Effective Green, g (s) | 14.7 | 14.7 | | 14.7 | 14.7 | | 15.3 | 15.3 | | 15.3 | 15.3 | |
| Actuated g/C Ratio | 0.39 | 0.39 | | 0.39 | 0.39 | | 0.40 | 0.40 | | 0.40 | 0.40 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 302 | 1354 | | 386 | 1282 | | 492 | 1279 | | 483 | 1314 | |
| v/s Ratio Prot | | 0.10 | | | 0.12 | | | 0.03 | | | 0.03 | |
| v/s Ratio Perm | 0.14 | | | c0.20 | | | 0.04 | | | c0.24 | | |
| v/c Ratio | 0.36 | 0.26 | | 0.52 | 0.31 | | 0.10 | 0.08 | | 0.60 | 0.08 | |
| Uniform Delay, d1 | 8.3 | 7.9 | | 8.9 | 8.1 | | 7.1 | 7.0 | | 8.9 | 7.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | 0.1 | | 1.2 | 0.1 | | 0.1 | 0.0 | | 2.1 | 0.0 | |
| Delay (s) | 9.1 | 8.0 | | 10.1 | 8.3 | | 7.2 | 7.0 | | 11.0 | 7.0 | |
| Level of Service | A | A | | B | A | | A | A | | B | A | |
| Approach Delay (s) | | 8.3 | | | 8.7 | | | 7.1 | | | 9.6 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 38.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

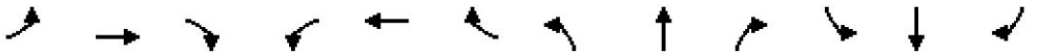


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 480 | 260 | 220 | 180 | 260 | 380 | 160 | 370 | 160 | 510 | 540 | 510 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3338 | | 1805 | 3258 | | 1805 | 4927 | | 3502 | 4770 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3338 | | 1805 | 3258 | | 1805 | 4927 | | 3502 | 4770 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 480 | 260 | 220 | 180 | 260 | 380 | 160 | 370 | 160 | 510 | 540 | 510 |
| RTOR Reduction (vph) | 0 | 143 | 0 | 0 | 247 | 0 | 0 | 64 | 0 | 0 | 137 | 0 |
| Lane Group Flow (vph) | 480 | 337 | 0 | 180 | 393 | 0 | 160 | 466 | 0 | 510 | 913 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 23.3 | 25.8 | | 14.4 | 16.9 | | 12.3 | 23.4 | | 13.2 | 24.3 | |
| Effective Green, g (s) | 23.3 | 25.8 | | 14.4 | 16.9 | | 12.3 | 23.4 | | 13.2 | 24.3 | |
| Actuated g/C Ratio | 0.25 | 0.28 | | 0.16 | 0.18 | | 0.13 | 0.25 | | 0.14 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 453 | 928 | | 280 | 593 | | 239 | 1242 | | 498 | 1249 | |
| v/s Ratio Prot | c0.27 | 0.10 | | 0.10 | c0.12 | | 0.09 | 0.09 | | c0.15 | c0.19 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 1.06 | 0.36 | | 0.64 | 0.66 | | 0.67 | 0.38 | | 1.02 | 0.92dr | |
| Uniform Delay, d1 | 34.8 | 26.9 | | 36.8 | 35.3 | | 38.3 | 28.7 | | 39.8 | 31.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 59.0 | 0.2 | | 5.0 | 2.8 | | 6.9 | 0.2 | | 46.6 | 2.2 | |
| Delay (s) | 93.7 | 27.1 | | 41.8 | 38.1 | | 45.3 | 28.9 | | 86.4 | 33.5 | |
| Level of Service | F | C | | D | D | | D | C | | F | C | |
| Approach Delay (s) | | 60.4 | | | 38.9 | | | 32.7 | | | 50.8 | |
| Approach LOS | | E | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 92.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 92.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

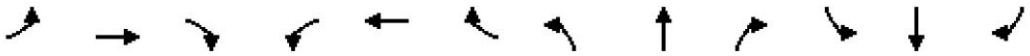
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 1270 | 100 | 70 | 1170 | 260 | 160 | 520 | 70 | 350 | 370 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5030 | | 3502 | 3539 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5030 | | 3502 | 3539 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 210 | 1270 | 100 | 70 | 1170 | 260 | 160 | 520 | 70 | 350 | 370 | 150 |
| RTOR Reduction (vph) | 0 | 0 | 41 | 0 | 27 | 0 | 0 | 10 | 0 | 0 | 0 | 114 |
| Lane Group Flow (vph) | 210 | 1270 | 59 | 70 | 1403 | 0 | 160 | 580 | 0 | 350 | 370 | 36 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 21.5 | 56.8 | 56.8 | 9.0 | 44.3 | | 9.5 | 26.2 | | 12.0 | 28.7 | 28.7 |
| Effective Green, g (s) | 21.5 | 56.8 | 56.8 | 9.0 | 44.3 | | 9.5 | 26.2 | | 12.0 | 28.7 | 28.7 |
| Actuated g/C Ratio | 0.18 | 0.47 | 0.47 | 0.08 | 0.37 | | 0.08 | 0.22 | | 0.10 | 0.24 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 323 | 1709 | 751 | 135 | 1857 | | 277 | 773 | | 350 | 863 | 380 |
| v/s Ratio Prot | c0.12 | c0.35 | | 0.04 | 0.28 | | 0.05 | c0.16 | | c0.10 | 0.10 | |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | 0.02 |
| v/c Ratio | 0.65 | 0.74 | 0.08 | 0.52 | 0.76 | | 0.58 | 0.75 | | 1.00 | 0.43 | 0.09 |
| Uniform Delay, d1 | 45.8 | 25.7 | 17.3 | 53.4 | 33.1 | | 53.3 | 43.8 | | 54.0 | 38.7 | 35.5 |
| Progression Factor | 0.69 | 0.75 | 0.61 | 1.27 | 0.50 | | 1.10 | 1.06 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.6 | 2.3 | 0.2 | 1.6 | 1.4 | | 2.9 | 4.1 | | 48.1 | 0.3 | 0.1 |
| Delay (s) | 35.2 | 21.6 | 10.7 | 69.3 | 18.1 | | 61.5 | 50.7 | | 102.1 | 39.0 | 35.6 |
| Level of Service | D | C | B | E | B | | E | D | | F | D | D |
| Approach Delay (s) | | 22.7 | | | 20.5 | | | 53.0 | | | 63.8 | |
| Approach LOS | | C | | | C | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 84.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

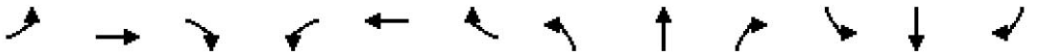
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 1350 | 300 | 310 | 1090 | 120 | 390 | 550 | 240 | 160 | 280 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.95 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5101 | | 1805 | 3429 | | 1805 | 3552 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5101 | | 1805 | 3429 | | 1805 | 3552 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 1350 | 300 | 310 | 1090 | 120 | 390 | 550 | 240 | 160 | 280 | 30 |
| RTOR Reduction (vph) | 0 | 0 | 139 | 0 | 10 | 0 | 0 | 46 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 70 | 1350 | 161 | 310 | 1200 | 0 | 390 | 744 | 0 | 160 | 303 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 8.2 | 37.0 | 37.0 | 21.1 | 49.9 | | 15.0 | 33.3 | | 12.6 | 30.9 | |
| Effective Green, g (s) | 8.2 | 37.0 | 37.0 | 21.1 | 49.9 | | 15.0 | 33.3 | | 12.6 | 30.9 | |
| Actuated g/C Ratio | 0.07 | 0.31 | 0.31 | 0.18 | 0.42 | | 0.12 | 0.28 | | 0.10 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 123 | 1113 | 489 | 317 | 2121 | | 226 | 952 | | 190 | 915 | |
| v/s Ratio Prot | 0.04 | c0.37 | | c0.17 | 0.24 | | c0.22 | c0.22 | | 0.09 | 0.09 | |
| v/s Ratio Perm | | | 0.10 | | | | | | | | | |
| v/c Ratio | 0.57 | 1.21 | 0.33 | 0.98 | 0.57 | | 1.73 | 0.78 | | 0.84 | 0.33 | |
| Uniform Delay, d1 | 54.2 | 41.5 | 31.9 | 49.2 | 26.8 | | 52.5 | 40.0 | | 52.7 | 36.2 | |
| Progression Factor | 1.09 | 0.65 | 0.83 | 0.94 | 0.46 | | 0.90 | 0.84 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.7 | 101.3 | 1.1 | 38.5 | 0.9 | | 343.7 | 4.0 | | 27.2 | 0.2 | |
| Delay (s) | 62.7 | 128.4 | 27.7 | 85.0 | 13.2 | | 391.0 | 37.6 | | 79.9 | 36.4 | |
| Level of Service | E | F | C | F | B | | F | D | | E | D | |
| Approach Delay (s) | | 108.2 | | | 27.8 | | | 154.4 | | | 51.2 | |
| Approach LOS | | F | | | C | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 88.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.07 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 102.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

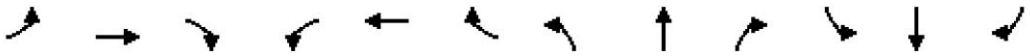
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 1470 | 110 | 50 | 1130 | 260 | 170 | 420 | 110 | 290 | 380 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1593 | 1805 | 5025 | | 1805 | 3486 | | 1805 | 3610 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1593 | 1805 | 5025 | | 1805 | 3486 | | 1805 | 3610 | 1598 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 1470 | 110 | 50 | 1130 | 260 | 170 | 420 | 110 | 290 | 380 | 160 |
| RTOR Reduction (vph) | 0 | 0 | 33 | 0 | 27 | 0 | 0 | 24 | 0 | 0 | 0 | 59 |
| Lane Group Flow (vph) | 110 | 1470 | 77 | 50 | 1363 | 0 | 170 | 506 | 0 | 290 | 380 | 101 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 14.1 | 52.8 | 68.6 | 7.6 | 46.3 | | 15.8 | 23.6 | | 20.0 | 27.8 | 41.9 |
| Effective Green, g (s) | 14.1 | 52.8 | 68.6 | 7.6 | 46.3 | | 15.8 | 23.6 | | 20.0 | 27.8 | 41.9 |
| Actuated g/C Ratio | 0.12 | 0.44 | 0.57 | 0.06 | 0.39 | | 0.13 | 0.20 | | 0.17 | 0.23 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 212 | 2282 | 964 | 114 | 1939 | | 238 | 686 | | 301 | 836 | 611 |
| v/s Ratio Prot | c0.06 | 0.28 | 0.01 | 0.03 | c0.27 | | 0.09 | c0.15 | | c0.16 | 0.11 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | 0.04 |
| v/c Ratio | 0.52 | 0.64 | 0.08 | 0.44 | 0.70 | | 0.71 | 0.74 | | 0.96 | 0.45 | 0.16 |
| Uniform Delay, d1 | 49.8 | 26.3 | 11.5 | 54.1 | 31.1 | | 49.9 | 45.3 | | 49.6 | 39.6 | 27.0 |
| Progression Factor | 1.18 | 0.54 | 0.55 | 1.38 | 0.43 | | 0.80 | 1.17 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.1 | 0.0 | 1.9 | 1.5 | | 9.2 | 3.9 | | 41.7 | 0.4 | 0.1 |
| Delay (s) | 59.1 | 14.4 | 6.3 | 76.5 | 14.8 | | 49.0 | 57.0 | | 91.4 | 40.0 | 27.1 |
| Level of Service | E | B | A | E | B | | D | E | | F | D | C |
| Approach Delay (s) | | 16.8 | | | 17.0 | | | 55.1 | | | 55.4 | |
| Approach LOS | | B | | | B | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 81.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

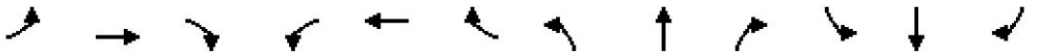
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 1430 | 170 | 120 | 1060 | 190 | 250 | 470 | 190 | 280 | 450 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5095 | | 1805 | 5055 | | 1805 | 3438 | | 1805 | 3529 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5095 | | 1805 | 5055 | | 1805 | 3438 | | 1805 | 3529 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 1430 | 170 | 120 | 1060 | 190 | 250 | 470 | 190 | 280 | 450 | 70 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 19 | 0 | 0 | 44 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 130 | 1589 | 0 | 120 | 1231 | 0 | 250 | 616 | 0 | 280 | 508 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 15.5 | 42.5 | | 15.1 | 42.1 | | 17.0 | 28.4 | | 18.0 | 29.4 | |
| Effective Green, g (s) | 15.5 | 42.5 | | 15.1 | 42.1 | | 17.0 | 28.4 | | 18.0 | 29.4 | |
| Actuated g/C Ratio | 0.13 | 0.35 | | 0.13 | 0.35 | | 0.14 | 0.24 | | 0.15 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 233 | 1804 | | 227 | 1773 | | 256 | 814 | | 271 | 865 | |
| v/s Ratio Prot | c0.07 | c0.31 | | 0.07 | 0.24 | | 0.14 | c0.18 | | c0.16 | 0.14 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.56 | 0.88 | | 0.53 | 0.69 | | 0.98 | 0.76 | | 1.03 | 0.59 | |
| Uniform Delay, d1 | 49.0 | 36.4 | | 49.1 | 33.4 | | 51.3 | 42.6 | | 51.0 | 39.9 | |
| Progression Factor | 0.81 | 0.75 | | 1.02 | 0.37 | | 1.35 | 0.47 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.1 | 4.9 | | 1.6 | 1.6 | | 46.8 | 3.7 | | 63.5 | 1.0 | |
| Delay (s) | 41.8 | 32.2 | | 51.8 | 13.8 | | 116.0 | 23.6 | | 114.5 | 41.0 | |
| Level of Service | D | C | | D | B | | F | C | | F | D | |
| Approach Delay (s) | | 32.9 | | | 17.1 | | | 49.0 | | | 66.7 | |
| Approach LOS | | C | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 88.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

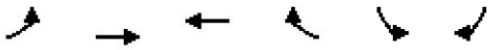
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 310 | 1140 | 390 | 340 | 730 | 160 | 540 | 1070 | 230 | 300 | 970 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1587 | 3502 | 5031 | | 3502 | 5187 | 1589 | 3502 | 5187 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1587 | 3502 | 5031 | | 3502 | 5187 | 1589 | 3502 | 5187 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 310 | 1140 | 390 | 340 | 730 | 160 | 540 | 1070 | 230 | 300 | 970 | 170 |
| RTOR Reduction (vph) | 0 | 0 | 178 | 0 | 27 | 0 | 0 | 0 | 148 | 0 | 0 | 124 |
| Lane Group Flow (vph) | 310 | 1140 | 212 | 340 | 863 | 0 | 540 | 1070 | 82 | 300 | 970 | 46 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 14.4 | 38.6 | 38.6 | 16.1 | 40.3 | | 17.0 | 35.3 | 35.3 | 14.0 | 32.3 | 32.3 |
| Effective Green, g (s) | 14.4 | 38.6 | 38.6 | 16.1 | 40.3 | | 17.0 | 35.3 | 35.3 | 14.0 | 32.3 | 32.3 |
| Actuated g/C Ratio | 0.12 | 0.32 | 0.32 | 0.13 | 0.34 | | 0.14 | 0.29 | 0.29 | 0.12 | 0.27 | 0.27 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 420 | 1161 | 510 | 470 | 1690 | | 496 | 1526 | 467 | 409 | 1396 | 427 |
| v/s Ratio Prot | 0.09 | c0.32 | | c0.10 | 0.17 | | c0.15 | c0.21 | | 0.09 | 0.19 | |
| v/s Ratio Perm | | | 0.13 | | | | | | 0.05 | | | 0.03 |
| v/c Ratio | 0.74 | 0.98 | 0.41 | 0.72 | 0.51 | | 1.09 | 0.70 | 0.18 | 0.73 | 0.69 | 0.11 |
| Uniform Delay, d1 | 51.0 | 40.4 | 31.9 | 49.8 | 31.9 | | 51.5 | 37.7 | 31.5 | 51.2 | 39.4 | 33.0 |
| Progression Factor | 1.09 | 0.63 | 0.69 | 1.12 | 0.45 | | 0.75 | 0.70 | 1.53 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.2 | 14.3 | 1.2 | 5.0 | 1.0 | | 59.3 | 1.0 | 0.1 | 6.7 | 1.5 | 0.1 |
| Delay (s) | 58.8 | 39.5 | 23.1 | 60.8 | 15.3 | | 97.9 | 27.4 | 48.4 | 57.9 | 40.9 | 33.1 |
| Level of Service | E | D | C | E | B | | F | C | D | E | D | C |
| Approach Delay (s) | | 39.3 | | | 27.9 | | | 50.7 | | | 43.5 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 90.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

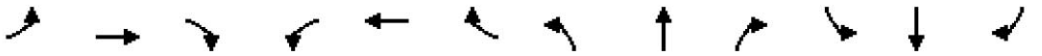
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 90 | 1610 | 1420 | 390 | 310 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 3610 | 1591 | 3502 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 3610 | 1591 | 3502 | 1598 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 1610 | 1420 | 390 | 310 | 110 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 58 | 0 | 24 |
| Lane Group Flow (vph) | 90 | 1610 | 1420 | 332 | 310 | 86 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 11.3 | 95.7 | 80.4 | 96.7 | 16.3 | 27.6 |
| Effective Green, g (s) | 11.3 | 95.7 | 80.4 | 96.7 | 16.3 | 27.6 |
| Actuated g/C Ratio | 0.09 | 0.80 | 0.67 | 0.81 | 0.14 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 170 | 4137 | 2419 | 1335 | 476 | 421 |
| v/s Ratio Prot | c0.05 | 0.31 | c0.39 | 0.03 | c0.09 | 0.02 |
| v/s Ratio Perm | | | | 0.17 | | 0.03 |
| v/c Ratio | 0.53 | 0.39 | 0.59 | 0.25 | 0.65 | 0.20 |
| Uniform Delay, d1 | 51.8 | 3.6 | 10.8 | 2.8 | 49.2 | 37.3 |
| Progression Factor | 1.54 | 0.31 | 1.31 | 6.25 | 0.64 | 0.35 |
| Incremental Delay, d2 | 0.3 | 0.0 | 0.7 | 0.1 | 3.1 | 0.2 |
| Delay (s) | 79.9 | 1.1 | 14.8 | 17.7 | 34.5 | 13.4 |
| Level of Service | E | A | B | B | C | B |
| Approach Delay (s) | | 5.3 | 15.4 | | 29.0 | |
| Approach LOS | | A | B | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 66.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

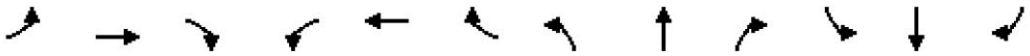
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 1320 | 340 | 20 | 1090 | 210 | 570 | 420 | 30 | 320 | 120 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 1805 | 5048 | | 3502 | 3570 | | 1805 | 3610 | 1601 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 1805 | 5048 | | 3502 | 3570 | | 1805 | 3610 | 1601 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 1320 | 340 | 20 | 1090 | 210 | 570 | 420 | 30 | 320 | 120 | 210 |
| RTOR Reduction (vph) | 0 | 0 | 150 | 0 | 22 | 0 | 0 | 5 | 0 | 0 | 0 | 6 |
| Lane Group Flow (vph) | 170 | 1320 | 190 | 20 | 1278 | 0 | 570 | 445 | 0 | 320 | 120 | 204 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 20.5 | 61.0 | 61.0 | 3.3 | 43.8 | | 19.0 | 20.7 | | 19.0 | 20.7 | 41.2 |
| Effective Green, g (s) | 20.5 | 61.0 | 61.0 | 3.3 | 43.8 | | 19.0 | 20.7 | | 19.0 | 20.7 | 41.2 |
| Actuated g/C Ratio | 0.17 | 0.51 | 0.51 | 0.03 | 0.36 | | 0.16 | 0.17 | | 0.16 | 0.17 | 0.34 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 308 | 2637 | 807 | 50 | 1843 | | 554 | 616 | | 286 | 623 | 603 |
| v/s Ratio Prot | c0.09 | 0.25 | | 0.01 | c0.25 | | 0.16 | c0.12 | | c0.18 | 0.03 | 0.06 |
| v/s Ratio Perm | | | 0.12 | | | | | | | | | 0.07 |
| v/c Ratio | 0.55 | 0.50 | 0.24 | 0.40 | 0.69 | | 1.03 | 0.72 | | 1.12 | 0.19 | 0.34 |
| Uniform Delay, d1 | 45.5 | 19.5 | 16.5 | 57.4 | 32.4 | | 50.5 | 46.9 | | 50.5 | 42.5 | 29.3 |
| Progression Factor | 0.88 | 0.80 | 0.73 | 0.86 | 0.73 | | 1.00 | 1.00 | | 1.03 | 1.12 | 1.40 |
| Incremental Delay, d2 | 2.0 | 0.6 | 0.6 | 4.2 | 1.8 | | 45.8 | 4.2 | | 84.2 | 0.1 | 0.3 |
| Delay (s) | 42.3 | 16.3 | 12.7 | 53.5 | 25.4 | | 96.3 | 51.1 | | 136.4 | 47.7 | 41.2 |
| Level of Service | D | B | B | D | C | | F | D | | F | D | D |
| Approach Delay (s) | | 18.0 | | | 25.8 | | | 76.4 | | | 89.3 | |
| Approach LOS | | B | | | C | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 88.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

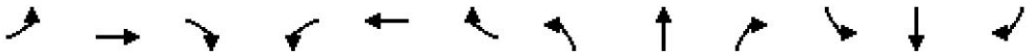
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 1040 | 600 | 10 | 610 | 90 | 570 | 400 | 20 | 80 | 390 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1596 | 1805 | 3532 | | 3502 | 3581 | | 1805 | 3518 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1596 | 1805 | 3532 | | 3502 | 3581 | | 1805 | 3518 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 1040 | 600 | 10 | 610 | 90 | 570 | 400 | 20 | 80 | 390 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 87 | 0 | 8 | 0 | 0 | 3 | 0 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 150 | 1040 | 513 | 10 | 692 | 0 | 570 | 417 | 0 | 80 | 446 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 14.1 | 54.7 | 81.7 | 1.4 | 42.0 | | 27.0 | 39.6 | | 8.3 | 20.9 | |
| Effective Green, g (s) | 14.1 | 54.7 | 81.7 | 1.4 | 42.0 | | 27.0 | 39.6 | | 8.3 | 20.9 | |
| Actuated g/C Ratio | 0.12 | 0.46 | 0.68 | 0.01 | 0.35 | | 0.22 | 0.33 | | 0.07 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 212 | 2364 | 1087 | 21 | 1236 | | 788 | 1182 | | 125 | 613 | |
| v/s Ratio Prot | c0.08 | 0.20 | 0.11 | 0.01 | c0.20 | | c0.16 | 0.12 | | 0.04 | c0.13 | |
| v/s Ratio Perm | | | 0.22 | | | | | | | | | |
| v/c Ratio | 0.71 | 0.44 | 0.47 | 0.48 | 0.56 | | 0.72 | 0.35 | | 0.64 | 0.73 | |
| Uniform Delay, d1 | 51.0 | 22.2 | 9.0 | 58.9 | 31.5 | | 43.0 | 30.5 | | 54.4 | 46.9 | |
| Progression Factor | 1.29 | 0.53 | 0.89 | 1.06 | 0.74 | | 1.00 | 1.00 | | 0.74 | 0.79 | |
| Incremental Delay, d2 | 8.7 | 0.5 | 0.3 | 15.0 | 1.7 | | 3.3 | 0.2 | | 10.4 | 4.2 | |
| Delay (s) | 74.3 | 12.2 | 8.3 | 77.5 | 25.1 | | 46.3 | 30.7 | | 50.8 | 41.0 | |
| Level of Service | E | B | A | E | C | | D | C | | D | D | |
| Approach Delay (s) | | 16.1 | | | 25.8 | | | 39.7 | | | 42.5 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 80.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

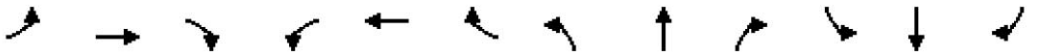
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 760 | 110 | 30 | 540 | 50 | 130 | 570 | 60 | 110 | 500 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3533 | | 1805 | 3559 | | 1805 | 3552 | | 1805 | 3536 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3533 | | 1805 | 3559 | | 1805 | 3552 | | 1805 | 3536 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 760 | 110 | 30 | 540 | 50 | 130 | 570 | 60 | 110 | 500 | 70 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 5 | 0 | 0 | 7 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 90 | 862 | 0 | 30 | 585 | 0 | 130 | 623 | 0 | 110 | 560 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 11.1 | 59.6 | | 4.7 | 53.2 | | 13.7 | 27.4 | | 12.3 | 26.0 | |
| Effective Green, g (s) | 11.1 | 59.6 | | 4.7 | 53.2 | | 13.7 | 27.4 | | 12.3 | 26.0 | |
| Actuated g/C Ratio | 0.09 | 0.50 | | 0.04 | 0.44 | | 0.11 | 0.23 | | 0.10 | 0.22 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 167 | 1755 | | 71 | 1578 | | 206 | 811 | | 185 | 766 | |
| v/s Ratio Prot | c0.05 | c0.24 | | 0.02 | 0.16 | | c0.07 | c0.18 | | 0.06 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.54 | 0.49 | | 0.42 | 0.37 | | 0.63 | 0.77 | | 0.59 | 0.73 | |
| Uniform Delay, d1 | 52.0 | 20.1 | | 56.3 | 22.2 | | 50.7 | 43.3 | | 51.5 | 43.7 | |
| Progression Factor | 0.96 | 1.60 | | 1.29 | 0.50 | | 1.00 | 1.00 | | 1.29 | 0.80 | |
| Incremental Delay, d2 | 3.1 | 0.9 | | 3.5 | 0.6 | | 6.2 | 4.4 | | 4.4 | 3.1 | |
| Delay (s) | 53.0 | 33.1 | | 76.4 | 11.6 | | 56.9 | 47.7 | | 70.9 | 38.2 | |
| Level of Service | D | C | | E | B | | E | D | | E | D | |
| Approach Delay (s) | | 35.0 | | | 14.8 | | | 49.3 | | | 43.5 | |
| Approach LOS | | C | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

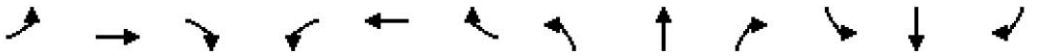
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 620 | 210 | 90 | 410 | 150 | 140 | 1570 | 100 | 190 | 1310 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3458 | | 1805 | 3449 | | 1805 | 5187 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3458 | | 1805 | 3449 | | 1805 | 5187 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 620 | 210 | 90 | 410 | 150 | 140 | 1570 | 100 | 190 | 1310 | 60 |
| RTOR Reduction (vph) | 0 | 28 | 0 | 0 | 30 | 0 | 0 | 0 | 47 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 60 | 802 | 0 | 90 | 530 | 0 | 140 | 1570 | 53 | 190 | 1310 | 31 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 35.0 | | 8.7 | 36.7 | | 12.3 | 45.0 | 45.0 | 15.3 | 48.0 | 48.0 |
| Effective Green, g (s) | 7.0 | 35.0 | | 8.7 | 36.7 | | 12.3 | 45.0 | 45.0 | 15.3 | 48.0 | 48.0 |
| Actuated g/C Ratio | 0.06 | 0.29 | | 0.07 | 0.31 | | 0.10 | 0.38 | 0.38 | 0.13 | 0.40 | 0.40 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 1009 | | 131 | 1055 | | 185 | 1945 | 594 | 230 | 1444 | 634 |
| v/s Ratio Prot | 0.03 | c0.23 | | c0.05 | 0.15 | | 0.08 | 0.30 | | c0.11 | c0.36 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | 0.02 |
| v/c Ratio | 0.57 | 0.80 | | 0.69 | 0.50 | | 0.76 | 0.81 | 0.09 | 0.83 | 0.91 | 0.05 |
| Uniform Delay, d1 | 55.0 | 39.2 | | 54.3 | 34.2 | | 52.4 | 33.6 | 24.3 | 51.1 | 33.9 | 22.0 |
| Progression Factor | 0.69 | 0.95 | | 0.78 | 0.87 | | 1.05 | 0.63 | 0.47 | 0.79 | 0.65 | 0.57 |
| Incremental Delay, d2 | 6.5 | 5.8 | | 13.5 | 1.6 | | 10.7 | 2.4 | 0.2 | 17.3 | 8.2 | 0.1 |
| Delay (s) | 44.4 | 43.0 | | 55.7 | 31.5 | | 65.6 | 23.6 | 11.5 | 57.5 | 30.3 | 12.8 |
| Level of Service | D | D | | E | C | | E | C | B | E | C | B |
| Approach Delay (s) | | 43.1 | | | 34.8 | | | 26.2 | | | 32.9 | |
| Approach LOS | | D | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 91.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

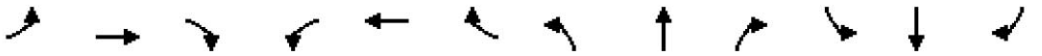
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 230 | 2060 | 200 | 10 | 2400 | 160 | 220 | 60 | 20 | 190 | 230 | 590 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2799 | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2799 | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 230 | 2060 | 200 | 10 | 2400 | 160 | 220 | 60 | 20 | 190 | 230 | 590 |
| RTOR Reduction (vph) | 0 | 0 | 56 | 0 | 0 | 29 | 0 | 0 | 15 | 0 | 0 | 91 |
| Lane Group Flow (vph) | 230 | 2060 | 144 | 10 | 2400 | 131 | 220 | 60 | 5 | 190 | 230 | 499 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.0 | 59.6 | 59.6 | 4.1 | 51.7 | 51.7 | 7.9 | 31.4 | 35.5 | 18.8 | 42.3 | 42.3 |
| Effective Green, g (s) | 12.0 | 59.6 | 59.6 | 4.1 | 51.7 | 51.7 | 7.9 | 31.4 | 35.5 | 18.8 | 42.3 | 42.3 |
| Actuated g/C Ratio | 0.09 | 0.46 | 0.46 | 0.03 | 0.40 | 0.40 | 0.06 | 0.24 | 0.27 | 0.14 | 0.33 | 0.33 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 167 | 2380 | 741 | 111 | 2064 | 632 | 213 | 873 | 851 | 507 | 1176 | 517 |
| v/s Ratio Prot | c0.13 | 0.40 | | 0.00 | c0.46 | | c0.06 | 0.02 | 0.00 | 0.05 | 0.06 | |
| v/s Ratio Perm | | | 0.09 | | | 0.08 | | | 0.00 | | | c0.31 |
| v/c Ratio | 1.38 | 0.87 | 0.19 | 0.09 | 1.16 | 0.21 | 1.03 | 0.07 | 0.01 | 0.37 | 0.20 | 0.97 |
| Uniform Delay, d1 | 59.0 | 31.6 | 20.9 | 61.1 | 39.1 | 25.6 | 61.0 | 38.0 | 34.4 | 50.2 | 31.5 | 43.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 202.7 | 3.6 | 0.1 | 0.4 | 79.0 | 0.2 | 70.5 | 0.0 | 0.0 | 0.5 | 0.1 | 30.6 |
| Delay (s) | 261.7 | 35.1 | 21.0 | 61.4 | 118.1 | 25.8 | 131.5 | 38.0 | 34.4 | 50.7 | 31.6 | 73.7 |
| Level of Service | F | D | C | E | F | C | F | D | C | D | C | E |
| Approach Delay (s) | | 54.9 | | | 112.2 | | | 106.3 | | | 59.8 | |
| Approach LOS | | D | | | F | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 81.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.10 | | |
| Actuated Cycle Length (s) | 129.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 99.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

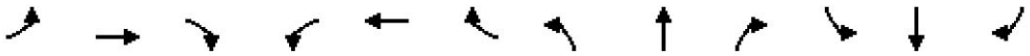
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1470 | 780 | 0 | 2190 | 0 | 0 | 0 | 0 | 230 | 0 | 440 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.95 | | | 1.00 | | | | | 1.00 | 0.86 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4917 | | | 5187 | | | | | 1715 | 1488 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4917 | | | 5187 | | | | | 1715 | 1488 | 1534 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 1470 | 780 | 0 | 2190 | 0 | 0 | 0 | 0 | 230 | 0 | 440 |
| RTOR Reduction (vph) | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 |
| Lane Group Flow (vph) | 0 | 2192 | 0 | 0 | 2190 | 0 | 0 | 0 | 0 | 207 | 228 | 223 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 86.7 | | | 86.7 | | | | | 25.3 | 25.3 | 25.3 |
| Effective Green, g (s) | | 86.7 | | | 86.7 | | | | | 25.3 | 25.3 | 25.3 |
| Actuated g/C Ratio | | 0.72 | | | 0.72 | | | | | 0.21 | 0.21 | 0.21 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3553 | | | 3748 | | | | | 362 | 314 | 323 |
| v/s Ratio Prot | | c0.45 | | | 0.42 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | 0.12 | 0.15 | 0.15 |
| v/c Ratio | | 0.62 | | | 0.58 | | | | | 0.57 | 0.73 | 0.69 |
| Uniform Delay, d1 | | 8.3 | | | 8.0 | | | | | 42.5 | 44.1 | 43.7 |
| Progression Factor | | 1.00 | | | 0.27 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.8 | | | 0.3 | | | | | 2.2 | 8.1 | 6.0 |
| Delay (s) | | 9.1 | | | 2.5 | | | | | 44.7 | 52.2 | 49.7 |
| Level of Service | | A | | | A | | | | | D | D | D |
| Approach Delay (s) | | 9.1 | | | 2.5 | | | 0.0 | | | 49.0 | |
| Approach LOS | | A | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 88.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

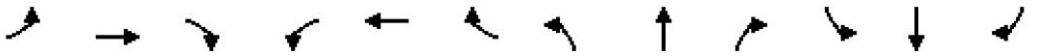
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 370 | 1370 | 0 | 0 | 1590 | 250 | 690 | 10 | 170 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 5068 | | 1715 | 1641 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 5068 | | 1715 | 1641 | 1534 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 370 | 1370 | 0 | 0 | 1590 | 250 | 690 | 10 | 170 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 2 | 55 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 370 | 1370 | 0 | 0 | 1823 | 0 | 359 | 356 | 98 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 29.0 | 82.7 | | | 49.7 | | 29.3 | 29.3 | 29.3 | | | |
| Effective Green, g (s) | 29.0 | 82.7 | | | 49.7 | | 29.3 | 29.3 | 29.3 | | | |
| Actuated g/C Ratio | 0.24 | 0.69 | | | 0.41 | | 0.24 | 0.24 | 0.24 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 436 | 3575 | | | 2099 | | 419 | 401 | 375 | | | |
| v/s Ratio Prot | c0.20 | 0.26 | | | c0.36 | | 0.21 | c0.22 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | |
| v/c Ratio | 0.85 | 0.38 | | | 0.87 | | 0.86 | 0.89 | 0.26 | | | |
| Uniform Delay, d1 | 43.4 | 7.9 | | | 32.2 | | 43.3 | 43.8 | 36.6 | | | |
| Progression Factor | 0.95 | 0.70 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 12.0 | 0.3 | | | 5.2 | | 15.7 | 20.6 | 0.4 | | | |
| Delay (s) | 53.1 | 5.7 | | | 37.4 | | 59.1 | 64.4 | 37.0 | | | |
| Level of Service | D | A | | | D | | E | E | D | | | |
| Approach Delay (s) | | 15.8 | | | 37.4 | | | 57.4 | | | 0.0 | |
| Approach LOS | | B | | | D | | | E | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 88.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

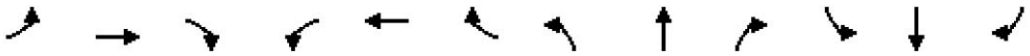
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1280 | 80 | 10 | 1380 | 110 | 30 | 50 | 10 | 110 | 160 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.91 | | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5136 | | 1805 | 5187 | 1615 | 3502 | 3520 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5136 | | 1805 | 5187 | 1615 | 3502 | 3520 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 1280 | 80 | 10 | 1380 | 110 | 30 | 50 | 10 | 110 | 160 | 240 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 45 | 0 | 9 | 0 | 0 | 0 | 205 |
| Lane Group Flow (vph) | 190 | 1356 | 0 | 10 | 1380 | 65 | 30 | 51 | 0 | 110 | 160 | 35 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 11.8 | 80.7 | | 1.5 | 70.4 | 70.4 | 4.3 | 9.2 | | 12.6 | 17.5 | 17.5 |
| Effective Green, g (s) | 11.8 | 80.7 | | 1.5 | 70.4 | 70.4 | 4.3 | 9.2 | | 12.6 | 17.5 | 17.5 |
| Actuated g/C Ratio | 0.10 | 0.67 | | 0.01 | 0.59 | 0.59 | 0.04 | 0.08 | | 0.10 | 0.15 | 0.15 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 344 | 3454 | | 23 | 3043 | 947 | 125 | 270 | | 190 | 526 | 236 |
| v/s Ratio Prot | c0.05 | 0.26 | | 0.01 | c0.27 | | 0.01 | 0.01 | | c0.06 | c0.04 | |
| v/s Ratio Perm | | | | | | 0.04 | | | | | | 0.02 |
| v/c Ratio | 0.55 | 0.39 | | 0.43 | 0.45 | 0.07 | 0.24 | 0.19 | | 0.58 | 0.30 | 0.15 |
| Uniform Delay, d1 | 51.6 | 8.7 | | 58.8 | 14.0 | 10.7 | 56.3 | 51.9 | | 51.2 | 45.8 | 44.7 |
| Progression Factor | 1.00 | 1.00 | | 1.20 | 0.36 | 0.06 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.9 | 0.3 | | 11.2 | 0.4 | 0.1 | 1.0 | 0.3 | | 4.2 | 0.3 | 0.3 |
| Delay (s) | 53.5 | 9.1 | | 81.8 | 5.4 | 0.8 | 57.3 | 52.2 | | 55.4 | 46.1 | 45.0 |
| Level of Service | D | A | | F | A | A | E | D | | E | D | D |
| Approach Delay (s) | | 14.5 | | | 5.6 | | | 53.9 | | | 47.6 | |
| Approach LOS | | B | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

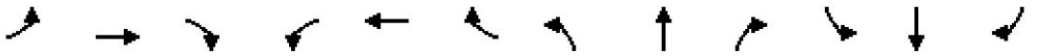
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 1030 | 230 | 230 | 1140 | 550 | 50 | 330 | 130 | 280 | 380 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5029 | | 1805 | 5187 | 1585 | 1802 | 3441 | | 1801 | 3356 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.29 | 1.00 | | 0.41 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5029 | | 1805 | 5187 | 1585 | 541 | 3441 | | 778 | 3356 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 1030 | 230 | 230 | 1140 | 550 | 50 | 330 | 130 | 280 | 380 | 280 |
| RTOR Reduction (vph) | 0 | 27 | 0 | 0 | 0 | 123 | 0 | 38 | 0 | 0 | 121 | 0 |
| Lane Group Flow (vph) | 130 | 1233 | 0 | 230 | 1140 | 427 | 50 | 422 | 0 | 280 | 539 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 11.9 | 42.8 | | 18.4 | 49.3 | 49.3 | 46.8 | 46.8 | | 46.8 | 46.8 | |
| Effective Green, g (s) | 11.9 | 42.8 | | 18.4 | 49.3 | 49.3 | 46.8 | 46.8 | | 46.8 | 46.8 | |
| Actuated g/C Ratio | 0.10 | 0.36 | | 0.15 | 0.41 | 0.41 | 0.39 | 0.39 | | 0.39 | 0.39 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 179 | 1794 | | 277 | 2131 | 651 | 211 | 1342 | | 303 | 1309 | |
| v/s Ratio Prot | 0.07 | 0.25 | | c0.13 | 0.22 | | | 0.12 | | | 0.16 | |
| v/s Ratio Perm | | | | | | c0.27 | 0.09 | | | c0.36 | | |
| v/c Ratio | 0.73 | 0.69 | | 0.83 | 0.53 | 0.66 | 0.24 | 0.31 | | 0.92 | 0.41 | |
| Uniform Delay, d1 | 52.5 | 32.9 | | 49.3 | 26.7 | 28.5 | 24.6 | 25.4 | | 34.9 | 26.6 | |
| Progression Factor | 1.16 | 0.82 | | 0.89 | 0.49 | 0.61 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 13.0 | 2.1 | | 8.9 | 0.4 | 2.2 | 0.6 | 0.1 | | 32.4 | 0.2 | |
| Delay (s) | 73.9 | 29.0 | | 52.7 | 13.6 | 19.7 | 25.2 | 25.6 | | 67.3 | 26.8 | |
| Level of Service | E | C | | D | B | B | C | C | | E | C | |
| Approach Delay (s) | | 33.2 | | | 20.0 | | | 25.5 | | | 38.9 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 84.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

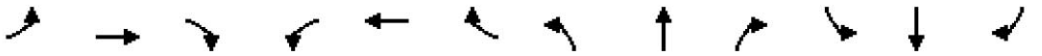
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 1240 | 220 | 130 | 1310 | 90 | 520 | 370 | 170 | 90 | 250 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5056 | | 1805 | 5131 | | 1805 | 3422 | | 1805 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5056 | | 1805 | 5131 | | 1805 | 3422 | | 1805 | 3610 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 160 | 1240 | 220 | 130 | 1310 | 90 | 520 | 370 | 170 | 90 | 250 | 120 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 6 | 0 | 0 | 62 | 0 | 0 | 0 | 106 |
| Lane Group Flow (vph) | 160 | 1443 | 0 | 130 | 1394 | 0 | 520 | 478 | 0 | 90 | 250 | 14 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 21.9 | 47.6 | | 18.5 | 44.2 | | 24.0 | 27.5 | | 10.4 | 13.9 | 13.9 |
| Effective Green, g (s) | 21.9 | 47.6 | | 18.5 | 44.2 | | 24.0 | 27.5 | | 10.4 | 13.9 | 13.9 |
| Actuated g/C Ratio | 0.18 | 0.40 | | 0.15 | 0.37 | | 0.20 | 0.23 | | 0.09 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 329 | 2006 | | 278 | 1890 | | 361 | 784 | | 156 | 418 | 184 |
| v/s Ratio Prot | c0.09 | c0.29 | | 0.07 | 0.27 | | c0.29 | c0.14 | | 0.05 | 0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.49 | 0.72 | | 0.47 | 0.74 | | 1.44 | 0.61 | | 0.58 | 0.60 | 0.08 |
| Uniform Delay, d1 | 44.0 | 30.6 | | 46.3 | 32.9 | | 48.0 | 41.4 | | 52.7 | 50.4 | 47.3 |
| Progression Factor | 1.40 | 0.64 | | 1.59 | 0.34 | | 0.89 | 1.05 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 1.8 | | 0.9 | 2.0 | | 202.8 | 0.4 | | 5.1 | 2.3 | 0.2 |
| Delay (s) | 62.7 | 21.4 | | 74.5 | 13.0 | | 245.6 | 43.7 | | 57.8 | 52.7 | 47.5 |
| Level of Service | E | C | | E | B | | F | D | | E | D | D |
| Approach Delay (s) | | 25.4 | | | 18.2 | | | 142.8 | | | 52.3 | |
| Approach LOS | | C | | | B | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 89.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

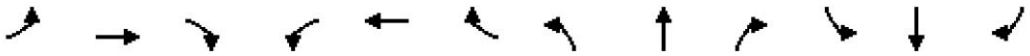
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑ | ↱ | ↰ | ↑↑↑ | | | | | | | ↱ |
| Volume (vph) | 0 | 1760 | 110 | 1700 | 710 | 0 | 0 | 0 | 0 | 0 | 0 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.91 | 1.00 | 1.00 | 0.91 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 5187 | 1568 | 1805 | 5187 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 5187 | 1568 | 1805 | 5187 | | | | | | | 1644 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 1760 | 110 | 1700 | 710 | 0 | 0 | 0 | 0 | 0 | 0 | 320 |
| RTOR Reduction (vph) | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 272 |
| Lane Group Flow (vph) | 0 | 1760 | 85 | 1700 | 710 | 0 | 0 | 0 | 0 | 0 | 0 | 48 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 32.0 | 32.0 | 80.0 | 94.0 | | | | | | | 18.0 |
| Effective Green, g (s) | | 32.0 | 32.0 | 80.0 | 94.0 | | | | | | | 18.0 |
| Actuated g/C Ratio | | 0.27 | 0.27 | 0.67 | 0.78 | | | | | | | 0.15 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1383 | 418 | 1203 | 4063 | | | | | | | 247 |
| v/s Ratio Prot | | c0.34 | | c0.94 | 0.14 | | | | | | | 0.03 |
| v/s Ratio Perm | | | 0.05 | | | | | | | | | |
| v/c Ratio | | 1.27 | 0.20 | 1.41 | 0.17 | | | | | | | 0.19 |
| Uniform Delay, d1 | | 44.0 | 34.1 | 20.0 | 3.3 | | | | | | | 44.7 |
| Progression Factor | | 1.00 | 1.00 | 0.76 | 0.74 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 128.5 | 1.1 | 186.4 | 0.0 | | | | | | | 0.4 |
| Delay (s) | | 172.5 | 35.2 | 201.6 | 2.4 | | | | | | | 45.0 |
| Level of Service | | F | D | F | A | | | | | | | D |
| Approach Delay (s) | | 164.4 | | | 142.9 | | | 0.0 | | | 45.0 | |
| Approach LOS | | F | | | F | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 144.8 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.37 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 134.9% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

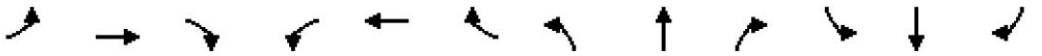


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 870 | 780 | 0 | 2090 | 450 | 410 | 440 | 10 | 730 | 0 | 590 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | | 0.97 | | 1.00 | 1.00 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4819 | | | 5024 | | 1805 | 1894 | | 1805 | 1615 | |
| Flt Permitted | 0.08 | 1.00 | | | 1.00 | | 0.28 | 1.00 | | 0.39 | 1.00 | |
| Satd. Flow (perm) | 158 | 4819 | | | 5024 | | 534 | 1894 | | 736 | 1615 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 870 | 780 | 0 | 2090 | 450 | 410 | 440 | 10 | 730 | 0 | 590 |
| RTOR Reduction (vph) | 0 | 134 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 110 | 1516 | 0 | 0 | 2512 | 0 | 410 | 450 | 0 | 730 | 590 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 48.0 | 48.0 | | | 48.0 | | 64.0 | 64.0 | | 64.0 | 64.0 | |
| Effective Green, g (s) | 48.0 | 48.0 | | | 48.0 | | 64.0 | 64.0 | | 64.0 | 64.0 | |
| Actuated g/C Ratio | 0.40 | 0.40 | | | 0.40 | | 0.53 | 0.53 | | 0.53 | 0.53 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 63 | 1928 | | | 2010 | | 285 | 1010 | | 393 | 861 | |
| v/s Ratio Prot | | 0.31 | | | 0.50 | | | 0.24 | | | 0.37 | |
| v/s Ratio Perm | c0.69 | | | | | | 0.77 | | | c0.99 | | |
| v/c Ratio | 1.75 | 1.00dr | | | 1.25 | | 1.44 | 0.45 | | 1.86 | 0.68 | |
| Uniform Delay, d1 | 36.0 | 31.5 | | | 36.0 | | 28.0 | 17.1 | | 28.0 | 20.6 | |
| Progression Factor | 0.21 | 0.19 | | | 0.31 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 341.6 | 0.3 | | | 112.7 | | 216.3 | 0.3 | | 395.6 | 2.3 | |
| Delay (s) | 349.2 | 6.3 | | | 124.0 | | 244.3 | 17.4 | | 423.6 | 22.9 | |
| Level of Service | F | A | | | F | | F | B | | F | C | |
| Approach Delay (s) | | 27.8 | | | 124.0 | | | 125.6 | | | 244.5 | |
| Approach LOS | | C | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 122.6 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.81 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 134.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 1200 | 550 | 320 | 1060 | 90 | 1640 | 400 | 230 | 130 | 50 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1585 | 1805 | 5187 | 1585 | 1715 | 1706 | | 1715 | 1765 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1585 | 1805 | 5187 | 1585 | 1715 | 1706 | | 1715 | 1765 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 260 | 1200 | 550 | 320 | 1060 | 90 | 1640 | 400 | 230 | 130 | 50 | 140 |
| RTOR Reduction (vph) | 0 | 0 | 413 | 0 | 0 | 68 | 0 | 8 | 0 | 0 | 0 | 99 |
| Lane Group Flow (vph) | 260 | 1200 | 137 | 320 | 1060 | 22 | 1132 | 1130 | 0 | 88 | 92 | 41 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 29.2 | 26.0 | 26.0 | 29.2 | 26.0 | 26.0 | 37.0 | 37.0 | | 11.8 | 11.8 | 11.8 |
| Effective Green, g (s) | 29.2 | 26.0 | 26.0 | 29.2 | 26.0 | 26.0 | 37.0 | 37.0 | | 11.8 | 11.8 | 11.8 |
| Actuated g/C Ratio | 0.24 | 0.22 | 0.22 | 0.24 | 0.22 | 0.22 | 0.31 | 0.31 | | 0.10 | 0.10 | 0.10 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 439 | 1124 | 343 | 439 | 1124 | 343 | 529 | 526 | | 169 | 174 | 156 |
| v/s Ratio Prot | 0.14 | c0.23 | | c0.18 | 0.20 | | 0.66 | c0.66 | | 0.05 | c0.05 | |
| v/s Ratio Perm | | | 0.09 | | | 0.01 | | | | | | 0.03 |
| v/c Ratio | 0.59 | 1.07 | 0.40 | 0.73 | 0.94 | 0.06 | 2.14 | 2.15 | | 0.52 | 0.53 | 0.26 |
| Uniform Delay, d1 | 40.1 | 47.0 | 40.3 | 41.8 | 46.3 | 37.3 | 41.5 | 41.5 | | 51.4 | 51.5 | 50.1 |
| Progression Factor | 0.90 | 0.97 | 0.96 | 0.60 | 0.76 | 1.21 | 1.00 | 1.00 | | 0.92 | 0.92 | 0.91 |
| Incremental Delay, d2 | 0.2 | 32.6 | 0.3 | 5.0 | 14.2 | 0.3 | 519.3 | 523.4 | | 2.6 | 2.6 | 0.8 |
| Delay (s) | 36.3 | 78.1 | 38.9 | 30.2 | 49.5 | 45.4 | 560.8 | 564.9 | | 50.1 | 50.2 | 46.2 |
| Level of Service | D | E | D | C | D | D | F | F | | D | D | D |
| Approach Delay (s) | | 62.0 | | | 45.0 | | | 562.8 | | | 48.4 | |
| Approach LOS | | E | | | D | | | F | | | D | |

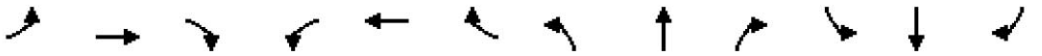
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 244.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.30 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 120.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1520 | 620 | 50 | 770 | 610 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.96 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3419 | | 1805 | 3610 | 1805 | 1590 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3419 | | 1805 | 3610 | 1805 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 1520 | 620 | 50 | 770 | 610 | 20 |
| RTOR Reduction (vph) | 34 | 0 | 0 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 2106 | 0 | 50 | 770 | 610 | 10 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 70.1 | | 5.5 | 79.6 | 41.1 | 46.6 |
| Effective Green, g (s) | 70.1 | | 5.5 | 79.6 | 41.1 | 46.6 |
| Actuated g/C Ratio | 0.54 | | 0.04 | 0.62 | 0.32 | 0.36 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1862 | | 77 | 2233 | 576 | 625 |
| v/s Ratio Prot | c0.62 | | c0.03 | 0.21 | c0.34 | 0.00 |
| v/s Ratio Perm | | | | | | 0.01 |
| v/c Ratio | 1.13 | | 0.65 | 0.34 | 1.06 | 0.02 |
| Uniform Delay, d1 | 29.3 | | 60.7 | 11.9 | 43.8 | 26.3 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 66.4 | | 17.3 | 0.1 | 54.1 | 0.0 |
| Delay (s) | 95.7 | | 78.0 | 12.0 | 97.9 | 26.3 |
| Level of Service | F | | E | B | F | C |
| Approach Delay (s) | 95.7 | | | 16.0 | 95.6 | |
| Approach LOS | F | | | B | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 77.5 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 128.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 102.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

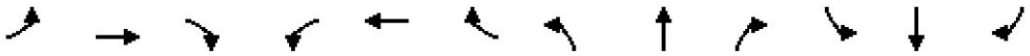
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 920 | 630 | 340 | 440 | 60 | 400 | 150 | 340 | 40 | 80 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1588 | 3502 | 3545 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1588 | 3502 | 3545 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 920 | 630 | 340 | 440 | 60 | 400 | 150 | 340 | 40 | 80 | 20 |
| RTOR Reduction (vph) | 0 | 0 | 435 | 0 | 7 | 0 | 0 | 0 | 230 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 20 | 920 | 195 | 340 | 493 | 0 | 400 | 150 | 111 | 40 | 80 | 1 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 3.1 | 27.2 | 27.2 | 12.3 | 36.4 | | 26.6 | 28.6 | 28.6 | 3.9 | 5.9 | 5.9 |
| Effective Green, g (s) | 3.1 | 27.2 | 27.2 | 12.3 | 36.4 | | 26.6 | 28.6 | 28.6 | 3.9 | 5.9 | 5.9 |
| Actuated g/C Ratio | 0.04 | 0.31 | 0.31 | 0.14 | 0.41 | | 0.30 | 0.33 | 0.33 | 0.04 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 64 | 1603 | 491 | 489 | 1466 | | 546 | 618 | 525 | 80 | 242 | 107 |
| v/s Ratio Prot | 0.01 | c0.18 | | c0.10 | 0.14 | | c0.22 | 0.08 | | c0.02 | 0.02 | |
| v/s Ratio Perm | | | 0.12 | | | | | | 0.07 | | | 0.00 |
| v/c Ratio | 0.31 | 0.57 | 0.40 | 0.70 | 0.34 | | 0.73 | 0.24 | 0.21 | 0.50 | 0.33 | 0.01 |
| Uniform Delay, d1 | 41.4 | 25.5 | 23.9 | 36.1 | 17.6 | | 27.5 | 21.8 | 21.5 | 41.1 | 39.2 | 38.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.8 | 0.5 | 0.5 | 4.3 | 0.1 | | 5.0 | 0.2 | 0.2 | 4.8 | 0.8 | 0.0 |
| Delay (s) | 44.2 | 26.0 | 24.5 | 40.3 | 17.7 | | 32.6 | 22.0 | 21.7 | 45.9 | 40.0 | 38.4 |
| Level of Service | D | C | C | D | B | | C | C | C | D | D | D |
| Approach Delay (s) | | 25.6 | | | 26.9 | | | 26.6 | | | 41.4 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 88.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 70.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 10 | 100 | 0 | 0 | 0 | 0 | 970 | 420 | 620 | 750 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1583 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1583 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 10 | 100 | 0 | 0 | 0 | 0 | 970 | 420 | 620 | 750 | 0 |
| RTOR Reduction (vph) | 0 | 41 | 48 | 0 | 0 | 0 | 0 | 0 | 226 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 40 | 15 | 6 | 0 | 0 | 0 | 0 | 970 | 194 | 620 | 750 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 5.6 | 5.6 | 5.6 | | | | | 20.1 | 20.1 | 12.3 | 36.4 | |
| Effective Green, g (s) | 5.6 | 5.6 | 5.6 | | | | | 20.1 | 20.1 | 12.3 | 36.4 | |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.11 | | | | | 0.40 | 0.40 | 0.25 | 0.73 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 202 | 177 | 172 | | | | | 1451 | 649 | 861 | 2628 | |
| v/s Ratio Prot | c0.02 | 0.01 | | | | | | c0.27 | | c0.18 | 0.21 | |
| v/s Ratio Perm | | | 0.00 | | | | | | 0.12 | | | |
| v/c Ratio | 0.20 | 0.09 | 0.04 | | | | | 0.67 | 0.30 | 0.72 | 0.29 | |
| Uniform Delay, d1 | 20.2 | 19.9 | 19.8 | | | | | 12.2 | 10.2 | 17.3 | 2.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.01 | 0.73 | |
| Incremental Delay, d2 | 0.5 | 0.2 | 0.1 | | | | | 2.5 | 1.2 | 2.9 | 0.3 | |
| Delay (s) | 20.6 | 20.1 | 19.9 | | | | | 14.7 | 11.3 | 20.3 | 2.0 | |
| Level of Service | C | C | B | | | | | B | B | C | A | |
| Approach Delay (s) | | 20.2 | | | 0.0 | | | 13.7 | | | 10.3 | |
| Approach LOS | | C | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 60.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 310 | 250 | 610 | 0 | 0 | 950 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 310 | 250 | 610 | 0 | 0 | 950 |
| RTOR Reduction (vph) | 0 | 173 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 310 | 77 | 610 | 0 | 0 | 950 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 9.9 | 9.9 | 32.1 | | | 32.1 |
| Effective Green, g (s) | 9.9 | 9.9 | 32.1 | | | 32.1 |
| Actuated g/C Ratio | 0.20 | 0.20 | 0.64 | | | 0.64 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 693 | 320 | 2318 | | | 2318 |
| v/s Ratio Prot | c0.09 | | 0.17 | | | c0.26 |
| v/s Ratio Perm | | 0.05 | | | | |
| v/c Ratio | 0.45 | 0.24 | 0.26 | | | 0.41 |
| Uniform Delay, d1 | 17.6 | 16.9 | 3.9 | | | 4.3 |
| Progression Factor | 1.00 | 1.00 | 0.07 | | | 1.00 |
| Incremental Delay, d2 | 0.5 | 0.4 | 0.2 | | | 0.5 |
| Delay (s) | 18.1 | 17.3 | 0.5 | | | 4.9 |
| Level of Service | B | B | A | | | A |
| Approach Delay (s) | 17.7 | | 0.5 | | | 4.9 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 60.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

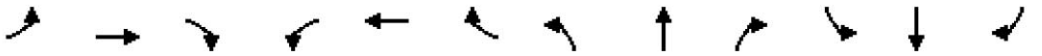
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 2470 | 10 | 260 | 2530 | 640 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5184 | | 3502 | 5187 | 5095 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5184 | | 3502 | 5187 | 5095 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 2470 | 10 | 260 | 2530 | 640 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 2480 | 0 | 260 | 2530 | 648 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 49.3 | | 9.7 | 63.0 | 15.8 | |
| Effective Green, g (s) | 49.3 | | 9.7 | 63.0 | 15.8 | |
| Actuated g/C Ratio | 0.57 | | 0.11 | 0.73 | 0.18 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2944 | | 391 | 3765 | 927 | |
| v/s Ratio Prot | c0.48 | | 0.07 | c0.49 | c0.13 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.84 | | 0.66 | 0.67 | 0.70 | |
| Uniform Delay, d1 | 15.5 | | 37.0 | 6.4 | 33.3 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.4 | | 4.2 | 0.5 | 2.3 | |
| Delay (s) | 17.9 | | 41.2 | 6.8 | 35.6 | |
| Level of Service | B | | D | A | D | |
| Approach Delay (s) | 17.9 | | | 10.1 | 35.6 | |
| Approach LOS | B | | | B | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 86.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

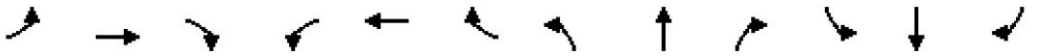
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 2390 | 200 | 530 | 2430 | 80 | 350 | 290 | 250 | 150 | 290 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1588 | 3502 | 5158 | | 3502 | 1900 | 1590 | 1805 | 3458 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1588 | 3502 | 5158 | | 3502 | 1900 | 1590 | 1805 | 3458 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 180 | 2390 | 200 | 530 | 2430 | 80 | 350 | 290 | 250 | 150 | 290 | 100 |
| RTOR Reduction (vph) | 0 | 0 | 106 | 0 | 2 | 0 | 0 | 0 | 177 | 0 | 35 | 0 |
| Lane Group Flow (vph) | 180 | 2390 | 94 | 530 | 2508 | 0 | 350 | 290 | 73 | 150 | 355 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 9.0 | 44.1 | 44.1 | 12.0 | 47.1 | | 14.5 | 21.3 | 21.3 | 9.1 | 15.9 | |
| Effective Green, g (s) | 9.0 | 44.1 | 44.1 | 12.0 | 47.1 | | 14.5 | 21.3 | 21.3 | 9.1 | 15.9 | |
| Actuated g/C Ratio | 0.09 | 0.43 | 0.43 | 0.12 | 0.46 | | 0.14 | 0.21 | 0.21 | 0.09 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 158 | 2232 | 683 | 410 | 2370 | | 495 | 395 | 330 | 160 | 536 | |
| v/s Ratio Prot | 0.10 | c0.46 | | c0.15 | c0.49 | | 0.10 | c0.15 | | c0.08 | 0.10 | |
| v/s Ratio Perm | | | 0.06 | | | | | | 0.05 | | | |
| v/c Ratio | 1.14 | 1.07 | 0.14 | 1.29 | 1.06 | | 0.71 | 0.73 | 0.22 | 0.94 | 0.66 | |
| Uniform Delay, d1 | 46.8 | 29.2 | 17.7 | 45.2 | 27.7 | | 42.0 | 38.0 | 33.7 | 46.4 | 40.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 113.9 | 41.3 | 0.1 | 148.9 | 36.2 | | 4.6 | 6.9 | 0.3 | 52.4 | 3.1 | |
| Delay (s) | 160.7 | 70.5 | 17.8 | 194.1 | 63.9 | | 46.6 | 44.9 | 34.0 | 98.8 | 43.8 | |
| Level of Service | F | E | B | F | E | | D | D | C | F | D | |
| Approach Delay (s) | | 72.5 | | | 86.6 | | | 42.5 | | | 59.1 | |
| Approach LOS | | E | | | F | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 73.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 102.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 101.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

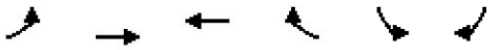
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1190 | 490 | 250 | 840 | 200 | 240 | 510 | 60 | 270 | 970 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1596 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 1190 | 490 | 250 | 840 | 200 | 240 | 510 | 60 | 270 | 970 | 200 |
| RTOR Reduction (vph) | 0 | 0 | 14 | 0 | 0 | 86 | 0 | 0 | 6 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 190 | 1190 | 476 | 250 | 840 | 114 | 240 | 510 | 54 | 270 | 970 | 185 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.0 | 37.2 | 45.2 | 8.0 | 34.2 | 43.2 | 8.0 | 33.1 | 41.1 | 9.0 | 34.1 | 45.1 |
| Effective Green, g (s) | 11.0 | 37.2 | 45.2 | 8.0 | 34.2 | 43.2 | 8.0 | 33.1 | 41.1 | 9.0 | 34.1 | 45.1 |
| Actuated g/C Ratio | 0.11 | 0.36 | 0.44 | 0.08 | 0.33 | 0.42 | 0.08 | 0.32 | 0.40 | 0.09 | 0.33 | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 192 | 1300 | 759 | 271 | 1195 | 728 | 271 | 1157 | 696 | 305 | 1192 | 759 |
| v/s Ratio Prot | c0.11 | c0.33 | 0.05 | 0.07 | 0.23 | 0.01 | 0.07 | 0.14 | 0.01 | c0.08 | c0.27 | 0.03 |
| v/s Ratio Perm | | | 0.25 | | | 0.06 | | | 0.03 | | | 0.09 |
| v/c Ratio | 0.99 | 0.92 | 0.63 | 0.92 | 0.70 | 0.16 | 0.89 | 0.44 | 0.08 | 0.89 | 0.81 | 0.24 |
| Uniform Delay, d1 | 46.1 | 31.5 | 22.5 | 47.3 | 30.1 | 18.7 | 47.2 | 27.8 | 19.3 | 46.6 | 31.7 | 18.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 61.3 | 10.1 | 1.6 | 34.6 | 1.9 | 0.1 | 27.2 | 0.3 | 0.0 | 24.8 | 4.4 | 0.2 |
| Delay (s) | 107.4 | 41.7 | 24.1 | 81.9 | 32.0 | 18.8 | 74.4 | 28.0 | 19.4 | 71.5 | 36.1 | 18.5 |
| Level of Service | F | D | C | F | C | B | E | C | B | E | D | B |
| Approach Delay (s) | | 43.8 | | | 39.6 | | | 41.1 | | | 40.3 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 103.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 88.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

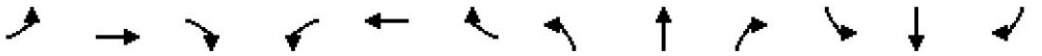
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 1340 | 1010 | 600 | 680 | 270 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 0.99 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1603 | 3493 | 1453 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1603 | 3493 | 1453 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 1340 | 1010 | 600 | 680 | 270 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 47 | 4 | 10 |
| Lane Group Flow (vph) | 130 | 1340 | 1010 | 553 | 703 | 233 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.2 | 34.5 | 23.3 | 44.6 | 21.3 | 28.5 |
| Effective Green, g (s) | 7.2 | 34.5 | 23.3 | 44.6 | 21.3 | 28.5 |
| Actuated g/C Ratio | 0.11 | 0.54 | 0.37 | 0.70 | 0.33 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 204 | 1952 | 1318 | 1221 | 1166 | 740 |
| v/s Ratio Prot | 0.07 | c0.37 | c0.28 | 0.15 | c0.20 | 0.04 |
| v/s Ratio Perm | | | | 0.19 | | 0.12 |
| v/c Ratio | 0.64 | 0.69 | 0.77 | 0.45 | 0.60 | 0.31 |
| Uniform Delay, d1 | 27.1 | 10.7 | 17.9 | 4.2 | 17.7 | 11.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.4 | 1.0 | 2.7 | 0.3 | 0.9 | 0.2 |
| Delay (s) | 33.4 | 11.7 | 20.6 | 4.5 | 18.6 | 11.6 |
| Level of Service | C | B | C | A | B | B |
| Approach Delay (s) | | 13.6 | 14.6 | | 16.8 | |
| Approach LOS | | B | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 63.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

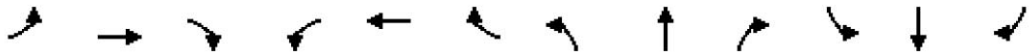
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 1260 | 820 | 520 | 710 | 120 | 540 | 330 | 320 | 240 | 590 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1597 | 3502 | 3610 | 1590 | 3502 | 3610 | 1590 | 3502 | 3610 | 1599 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1597 | 3502 | 3610 | 1590 | 3502 | 3610 | 1590 | 3502 | 3610 | 1599 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 1260 | 820 | 520 | 710 | 120 | 540 | 330 | 320 | 240 | 590 | 280 |
| RTOR Reduction (vph) | 0 | 0 | 41 | 0 | 0 | 80 | 0 | 0 | 167 | 0 | 0 | 32 |
| Lane Group Flow (vph) | 170 | 1260 | 779 | 520 | 710 | 40 | 540 | 330 | 153 | 240 | 590 | 248 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 13.7 | 33.2 | 46.5 | 14.3 | 33.8 | 33.8 | 13.3 | 27.6 | 27.6 | 10.8 | 25.1 | 38.8 |
| Effective Green, g (s) | 13.7 | 33.2 | 46.5 | 14.3 | 33.8 | 33.8 | 13.3 | 27.6 | 27.6 | 10.8 | 25.1 | 38.8 |
| Actuated g/C Ratio | 0.13 | 0.33 | 0.46 | 0.14 | 0.33 | 0.33 | 0.13 | 0.27 | 0.27 | 0.11 | 0.25 | 0.38 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 243 | 1690 | 791 | 491 | 1197 | 527 | 457 | 978 | 431 | 371 | 889 | 672 |
| v/s Ratio Prot | 0.09 | 0.24 | c0.13 | c0.15 | 0.20 | | 0.15 | 0.09 | | 0.07 | c0.16 | 0.05 |
| v/s Ratio Perm | | | 0.36 | | | 0.03 | | | 0.10 | | | 0.11 |
| v/c Ratio | 0.70 | 0.75 | 0.99 | 1.06 | 0.59 | 0.08 | 1.18 | 0.34 | 0.36 | 0.65 | 0.66 | 0.37 |
| Uniform Delay, d1 | 42.1 | 30.6 | 27.4 | 43.8 | 28.3 | 23.3 | 44.3 | 29.8 | 30.0 | 43.7 | 34.6 | 22.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.5 | 1.8 | 28.1 | 57.1 | 0.8 | 0.1 | 102.2 | 0.2 | 0.5 | 3.9 | 1.9 | 0.3 |
| Delay (s) | 50.6 | 32.4 | 55.4 | 100.9 | 29.1 | 23.4 | 146.5 | 30.0 | 30.5 | 47.6 | 36.5 | 23.1 |
| Level of Service | D | C | E | F | C | C | F | C | C | D | D | C |
| Approach Delay (s) | | 42.2 | | | 56.3 | | | 83.0 | | | 35.5 | |
| Approach LOS | | D | | | E | | | F | | | D | |

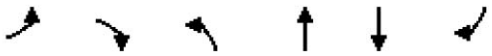
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 101.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 95.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 500 | 1390 | 10 | 670 | 0 | 0 | 0 | 0 | 10 | 0 | 610 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.91 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3156 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.18 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3156 | 1470 | 349 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 500 | 1390 | 10 | 670 | 0 | 0 | 0 | 0 | 10 | 0 | 610 |
| RTOR Reduction (vph) | 0 | 368 | 368 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 112 | 0 |
| Lane Group Flow (vph) | 0 | 827 | 327 | 10 | 670 | 0 | 0 | 0 | 0 | 10 | 498 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 21.8 | 21.8 | 21.8 | 21.8 | | | | | 16.6 | 16.6 | |
| Effective Green, g (s) | | 21.8 | 21.8 | 21.8 | 21.8 | | | | | 16.6 | 16.6 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | 0.47 | 0.47 | | | | | 0.36 | 0.36 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1483 | 691 | 164 | 1696 | | | | | 646 | 578 | |
| v/s Ratio Prot | | c0.26 | | | 0.19 | | | | | | c0.31 | |
| v/s Ratio Perm | | | 0.22 | 0.03 | | | | | | 0.01 | | |
| v/c Ratio | | 0.56 | 0.47 | 0.06 | 0.40 | | | | | 0.02 | 0.86 | |
| Uniform Delay, d1 | | 8.8 | 8.4 | 6.7 | 8.0 | | | | | 9.6 | 13.8 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.5 | 0.5 | 0.2 | 0.2 | | | | | 0.0 | 12.5 | |
| Delay (s) | | 9.3 | 8.9 | 6.9 | 8.2 | | | | | 9.6 | 26.3 | |
| Level of Service | | A | A | A | A | | | | | A | C | |
| Approach Delay (s) | | 9.1 | | | 8.1 | | | 0.0 | | | 26.0 | |
| Approach LOS | | A | | | A | | | A | | | C | |

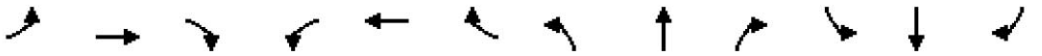
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 46.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 112.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 500 | 0 | 670 | 0 | 0 | 0 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 500 | 0 | 670 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 250 | 250 | 447 | 223 |
| Volume Left (vph) | 250 | 250 | 447 | 223 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 6.9 | 6.9 | 6.6 | 6.6 |
| Degree Utilization, x | 0.48 | 0.48 | 0.81 | 0.41 |
| Capacity (veh/h) | 503 | 504 | 540 | 535 |
| Control Delay (s) | 15.0 | 15.0 | 31.0 | 12.8 |
| Approach Delay (s) | 15.0 | | 25.0 | |
| Approach LOS | C | | C | |

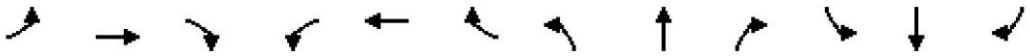
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 20.7 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 123.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 20 | 10 | 1000 | 30 | 210 | 70 | 430 | 1260 | 570 | 1050 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1795 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1795 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 20 | 10 | 1000 | 30 | 210 | 70 | 430 | 1260 | 570 | 1050 | 10 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 146 | 0 | 0 | 546 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 20 | 20 | 0 | 1000 | 30 | 64 | 70 | 430 | 714 | 570 | 1050 | 8 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 2.9 | 5.1 | | 29.1 | 31.3 | 31.3 | 6.3 | 37.9 | 37.9 | 15.1 | 46.7 | 46.7 |
| Effective Green, g (s) | 2.9 | 5.1 | | 29.1 | 31.3 | 31.3 | 6.3 | 37.9 | 37.9 | 15.1 | 46.7 | 46.7 |
| Actuated g/C Ratio | 0.03 | 0.05 | | 0.28 | 0.30 | 0.30 | 0.06 | 0.37 | 0.37 | 0.15 | 0.45 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 51 | 89 | | 987 | 576 | 490 | 110 | 1326 | 584 | 512 | 1634 | 731 |
| v/s Ratio Prot | 0.01 | c0.01 | | c0.29 | 0.02 | | 0.04 | 0.12 | | c0.16 | 0.29 | |
| v/s Ratio Perm | | | | | | 0.04 | | | c0.45 | | | 0.01 |
| v/c Ratio | 0.39 | 0.23 | | 1.01 | 0.05 | 0.13 | 0.64 | 0.32 | 1.22 | 1.11 | 0.64 | 0.01 |
| Uniform Delay, d1 | 49.3 | 47.2 | | 37.0 | 25.4 | 26.1 | 47.3 | 23.5 | 32.7 | 44.1 | 21.8 | 15.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.9 | 1.3 | | 32.0 | 0.0 | 0.1 | 11.5 | 0.1 | 114.9 | 74.6 | 0.9 | 0.0 |
| Delay (s) | 54.2 | 48.5 | | 69.0 | 25.5 | 26.2 | 58.8 | 23.6 | 147.5 | 118.6 | 22.7 | 15.6 |
| Level of Service | D | D | | E | C | C | E | C | F | F | C | B |
| Approach Delay (s) | | 50.8 | | | 60.7 | | | 113.7 | | | 56.2 | |
| Approach LOS | | D | | | E | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 79.0 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 103.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 114.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

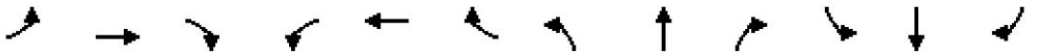
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 1410 | 100 | 70 | 1060 | 60 | 80 | 70 | 50 | 70 | 50 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.97 | | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3574 | | 1805 | 3578 | | | 1793 | | 1802 | 1668 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.52 | | 0.58 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3574 | | 1805 | 3578 | | | 952 | | 1097 | 1668 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 200 | 1410 | 100 | 70 | 1060 | 60 | 80 | 70 | 50 | 70 | 50 | 220 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 4 | 0 | 0 | 19 | 0 | 0 | 172 | 0 |
| Lane Group Flow (vph) | 200 | 1505 | 0 | 70 | 1116 | 0 | 0 | 181 | 0 | 70 | 98 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.2 | 33.2 | | 3.8 | 28.8 | | | 12.9 | | 12.9 | 12.9 | |
| Effective Green, g (s) | 8.2 | 33.2 | | 3.8 | 28.8 | | | 12.9 | | 12.9 | 12.9 | |
| Actuated g/C Ratio | 0.13 | 0.54 | | 0.06 | 0.47 | | | 0.21 | | 0.21 | 0.21 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 239 | 1917 | | 111 | 1665 | | | 198 | | 229 | 348 | |
| v/s Ratio Prot | c0.11 | c0.42 | | 0.04 | 0.31 | | | | | | 0.06 | |
| v/s Ratio Perm | | | | | | | | c0.19 | | 0.06 | | |
| v/c Ratio | 0.84 | 0.79 | | 0.63 | 0.67 | | | 0.91 | | 0.31 | 0.28 | |
| Uniform Delay, d1 | 26.2 | 11.5 | | 28.4 | 12.9 | | | 24.0 | | 20.7 | 20.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 21.7 | 2.2 | | 11.1 | 1.1 | | | 40.5 | | 0.8 | 0.4 | |
| Delay (s) | 47.9 | 13.7 | | 39.5 | 13.9 | | | 64.4 | | 21.5 | 21.1 | |
| Level of Service | D | B | | D | B | | | E | | C | C | |
| Approach Delay (s) | | 17.7 | | | 15.4 | | | 64.4 | | | 21.1 | |
| Approach LOS | | B | | | B | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 61.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 91.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 1270 | 290 | 280 | 950 | 200 | 270 | 670 | 400 | 580 | 1020 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3498 | | 1805 | 3610 | 1594 | 1805 | 3610 | 1594 | 3502 | 3551 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3498 | | 1805 | 3610 | 1594 | 1805 | 3610 | 1594 | 3502 | 3551 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 1270 | 290 | 280 | 950 | 200 | 270 | 670 | 400 | 580 | 1020 | 110 |
| RTOR Reduction (vph) | 0 | 15 | 0 | 0 | 0 | 50 | 0 | 0 | 6 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 40 | 1545 | 0 | 280 | 950 | 150 | 270 | 670 | 394 | 580 | 1124 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 6.2 | 49.8 | | 13.0 | 56.6 | 74.6 | 14.0 | 34.0 | 47.0 | 18.0 | 38.0 | |
| Effective Green, g (s) | 6.2 | 49.8 | | 13.0 | 56.6 | 74.6 | 14.0 | 34.0 | 47.0 | 18.0 | 38.0 | |
| Actuated g/C Ratio | 0.05 | 0.38 | | 0.10 | 0.43 | 0.57 | 0.11 | 0.26 | 0.36 | 0.14 | 0.29 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 86 | 1332 | | 179 | 1562 | 958 | 193 | 938 | 622 | 482 | 1032 | |
| v/s Ratio Prot | 0.02 | c0.44 | | c0.16 | 0.26 | 0.02 | c0.15 | 0.19 | 0.06 | 0.17 | c0.32 | |
| v/s Ratio Perm | | | | | | 0.07 | | | 0.18 | | | |
| v/c Ratio | 0.47 | 1.16 | | 1.56 | 0.61 | 0.16 | 1.40 | 0.71 | 0.63 | 1.20 | 1.09 | |
| Uniform Delay, d1 | 60.7 | 40.5 | | 58.9 | 28.6 | 13.3 | 58.4 | 44.0 | 34.8 | 56.4 | 46.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.9 | 80.7 | | 279.3 | 0.7 | 0.1 | 207.8 | 2.6 | 2.1 | 109.9 | 55.4 | |
| Delay (s) | 64.6 | 121.2 | | 338.2 | 29.2 | 13.3 | 266.2 | 46.6 | 36.9 | 166.3 | 101.8 | |
| Level of Service | E | F | | F | C | B | F | D | D | F | F | |
| Approach Delay (s) | | 119.8 | | | 87.5 | | | 87.9 | | | 123.7 | |
| Approach LOS | | F | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 106.3 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.21 | | |
| Actuated Cycle Length (s) | 130.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 120.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

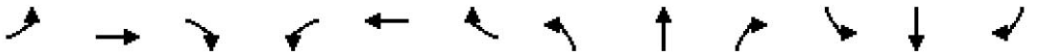
c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 130 | 1540 | 410 | 210 | 1810 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1799 | 1590 | 3610 | 1572 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1799 | 1590 | 3610 | 1572 | 1805 | 3610 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 130 | 1540 | 410 | 210 | 1810 |
| RTOR Reduction (vph) | 0 | 112 | 0 | 72 | 0 | 0 |
| Lane Group Flow (vph) | 130 | 18 | 1540 | 338 | 210 | 1810 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 10.9 | 10.9 | 42.8 | 42.8 | 12.0 | 58.8 |
| Effective Green, g (s) | 10.9 | 10.9 | 42.8 | 42.8 | 12.0 | 58.8 |
| Actuated g/C Ratio | 0.14 | 0.14 | 0.55 | 0.55 | 0.15 | 0.76 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 252 | 223 | 1989 | 866 | 279 | 2732 |
| v/s Ratio Prot | | | c0.43 | | 0.12 | c0.50 |
| v/s Ratio Perm | c0.07 | 0.01 | | 0.22 | | |
| v/c Ratio | 0.52 | 0.08 | 0.77 | 0.39 | 0.75 | 0.66 |
| Uniform Delay, d1 | 31.0 | 29.0 | 13.7 | 10.0 | 31.4 | 4.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.8 | 0.2 | 1.9 | 0.3 | 10.9 | 0.6 |
| Delay (s) | 32.7 | 29.2 | 15.6 | 10.3 | 42.3 | 5.2 |
| Level of Service | C | C | B | B | D | A |
| Approach Delay (s) | 31.0 | | 14.5 | | | 9.1 |
| Approach LOS | C | | B | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 77.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

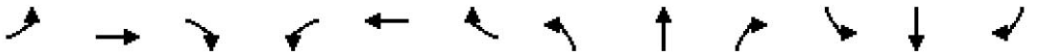
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1970 | 210 | 590 | 1320 | 280 | 0 | 0 | 0 | 920 | 90 | 470 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1734 | 1593 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1734 | 1593 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 1970 | 210 | 590 | 1320 | 280 | 0 | 0 | 0 | 920 | 90 | 470 |
| RTOR Reduction (vph) | 0 | 0 | 56 | 0 | 0 | 105 | 0 | 0 | 0 | 0 | 0 | 17 |
| Lane Group Flow (vph) | 50 | 1970 | 154 | 590 | 1320 | 175 | 0 | 0 | 0 | 506 | 504 | 453 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 11.5 | 46.0 | 46.0 | 38.0 | 72.5 | 72.5 | | | | 34.0 | 34.0 | 45.5 |
| Effective Green, g (s) | 11.5 | 46.0 | 46.0 | 38.0 | 72.5 | 72.5 | | | | 34.0 | 34.0 | 45.5 |
| Actuated g/C Ratio | 0.09 | 0.35 | 0.35 | 0.29 | 0.56 | 0.56 | | | | 0.26 | 0.26 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 160 | 1835 | 556 | 528 | 2013 | 876 | | | | 449 | 454 | 607 |
| v/s Ratio Prot | 0.03 | c0.38 | | c0.33 | 0.37 | | | | | c0.30 | 0.29 | 0.07 |
| v/s Ratio Perm | | | 0.10 | | | 0.11 | | | | | | 0.22 |
| v/c Ratio | 0.31 | 1.07 | 0.28 | 1.12 | 0.66 | 0.20 | | | | 1.13 | 1.11 | 0.75 |
| Uniform Delay, d1 | 55.5 | 42.0 | 30.1 | 46.0 | 20.0 | 14.3 | | | | 48.0 | 48.0 | 37.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.70 | 0.40 | 0.06 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 43.9 | 1.2 | 72.3 | 1.4 | 0.4 | | | | 81.9 | 75.7 | 5.0 |
| Delay (s) | 56.7 | 85.9 | 31.3 | 104.7 | 9.5 | 1.3 | | | | 129.9 | 123.7 | 42.2 |
| Level of Service | E | F | C | F | A | A | | | | F | F | D |
| Approach Delay (s) | | 80.1 | | | 34.1 | | | 0.0 | | | 99.9 | |
| Approach LOS | | F | | | C | | | A | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 68.0 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.10 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 108.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

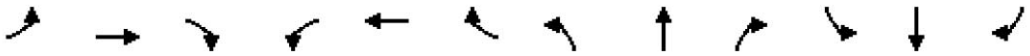
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 350 | 1970 | 450 | 300 | 1940 | 240 | 240 | 320 | 700 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1593 | 1805 | 6536 | 1586 | 1643 | 3432 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1593 | 1805 | 6536 | 1586 | 1643 | 3432 | 2842 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 350 | 1970 | 450 | 300 | 1940 | 240 | 240 | 320 | 700 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 31 | 0 | 0 | 74 | 0 | 0 | 409 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 350 | 1970 | 419 | 300 | 1940 | 166 | 182 | 378 | 291 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 30.0 | 77.0 | 95.0 | 23.0 | 70.0 | 70.0 | 18.0 | 18.0 | 18.0 | | | |
| Effective Green, g (s) | 30.0 | 77.0 | 95.0 | 23.0 | 70.0 | 70.0 | 18.0 | 18.0 | 18.0 | | | |
| Actuated g/C Ratio | 0.23 | 0.59 | 0.73 | 0.18 | 0.54 | 0.54 | 0.14 | 0.14 | 0.14 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 417 | 2138 | 1213 | 319 | 3519 | 854 | 227 | 475 | 394 | | | |
| v/s Ratio Prot | 0.19 | c0.55 | 0.05 | c0.17 | 0.30 | | c0.11 | 0.11 | | | | |
| v/s Ratio Perm | | | 0.22 | | | 0.10 | | | 0.10 | | | |
| v/c Ratio | 0.84 | 0.92 | 0.35 | 0.94 | 0.55 | 0.19 | 0.80 | 0.80 | 0.74 | | | |
| Uniform Delay, d1 | 47.7 | 23.8 | 6.3 | 52.8 | 19.7 | 15.5 | 54.3 | 54.2 | 53.7 | | | |
| Progression Factor | 1.23 | 0.21 | 0.02 | 0.92 | 0.90 | 0.74 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 1.4 | 0.9 | 0.0 | 32.1 | 0.5 | 0.4 | 18.1 | 9.0 | 7.1 | | | |
| Delay (s) | 60.3 | 5.8 | 0.2 | 80.9 | 18.2 | 11.9 | 72.4 | 63.2 | 60.8 | | | |
| Level of Service | E | A | A | F | B | B | E | E | E | | | |
| Approach Delay (s) | | 11.8 | | | 25.2 | | | 63.2 | | | 0.0 | |
| Approach LOS | | B | | | C | | | E | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 91.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

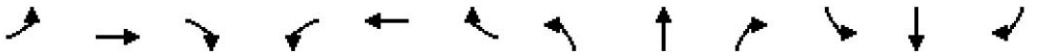
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 2740 | 160 | 160 | 2200 | 10 | 140 | 0 | 70 | 10 | 0 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5135 | | 1805 | 5183 | | 1805 | 1588 | | | 1725 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.74 | 1.00 | | | 0.89 | |
| Satd. Flow (perm) | 1805 | 5135 | | 1805 | 5183 | | 1414 | 1588 | | | 1568 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 2740 | 160 | 160 | 2200 | 10 | 140 | 0 | 70 | 10 | 0 | 10 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 10 | 2897 | 0 | 160 | 2210 | 0 | 140 | 10 | 0 | 0 | 11 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 1.5 | 85.5 | | 14.2 | 98.2 | | 18.3 | 18.3 | | | 18.3 | |
| Effective Green, g (s) | 1.5 | 85.5 | | 14.2 | 98.2 | | 18.3 | 18.3 | | | 18.3 | |
| Actuated g/C Ratio | 0.01 | 0.66 | | 0.11 | 0.76 | | 0.14 | 0.14 | | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 21 | 3377 | | 197 | 3915 | | 199 | 224 | | | 221 | |
| v/s Ratio Prot | 0.01 | c0.56 | | c0.09 | 0.43 | | | 0.01 | | | | |
| v/s Ratio Perm | | | | | | | c0.10 | | | | 0.01 | |
| v/c Ratio | 0.48 | 0.86 | | 0.81 | 0.56 | | 0.70 | 0.04 | | | 0.05 | |
| Uniform Delay, d1 | 63.9 | 17.5 | | 56.6 | 6.8 | | 53.3 | 48.3 | | | 48.3 | |
| Progression Factor | 1.17 | 0.26 | | 0.90 | 1.01 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 8.7 | 1.6 | | 15.3 | 0.4 | | 10.7 | 0.1 | | | 0.1 | |
| Delay (s) | 83.6 | 6.3 | | 66.3 | 7.2 | | 64.0 | 48.4 | | | 48.4 | |
| Level of Service | F | A | | E | A | | E | D | | | D | |
| Approach Delay (s) | | 6.5 | | | 11.2 | | | 58.8 | | | 48.4 | |
| Approach LOS | | A | | | B | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 92.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

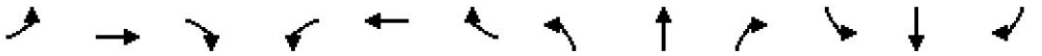
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 2360 | 190 | 30 | 1960 | 10 | 230 | 20 | 50 | 10 | 20 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.98 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.96 | | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 3561 | | 1805 | 3607 | | | 1775 | | | 1867 | 1586 |
| Flt Permitted | 0.05 | 1.00 | | 0.04 | 1.00 | | | 0.76 | | | 0.91 | 1.00 |
| Satd. Flow (perm) | 97 | 3561 | | 83 | 3607 | | | 1394 | | | 1721 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 2360 | 190 | 30 | 1960 | 10 | 230 | 20 | 50 | 10 | 20 | 120 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 17 |
| Lane Group Flow (vph) | 90 | 2546 | 0 | 30 | 1970 | 0 | 0 | 295 | 0 | 0 | 30 | 103 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 91.7 | 91.7 | | 91.7 | 91.7 | | | 30.3 | | | 30.3 | 30.3 |
| Effective Green, g (s) | 91.7 | 91.7 | | 91.7 | 91.7 | | | 30.3 | | | 30.3 | 30.3 |
| Actuated g/C Ratio | 0.71 | 0.71 | | 0.71 | 0.71 | | | 0.23 | | | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 68 | 2512 | | 59 | 2544 | | | 325 | | | 401 | 370 |
| v/s Ratio Prot | | 0.71 | | | 0.55 | | | | | | | |
| v/s Ratio Perm | c0.93 | | | 0.36 | | | | c0.21 | | | 0.02 | 0.07 |
| v/c Ratio | 1.32 | 1.01 | | 0.51 | 0.77 | | | 0.91 | | | 0.07 | 0.28 |
| Uniform Delay, d1 | 19.1 | 19.1 | | 8.8 | 12.4 | | | 48.5 | | | 38.9 | 40.9 |
| Progression Factor | 0.19 | 0.20 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 191.9 | 16.9 | | 28.0 | 2.4 | | | 27.3 | | | 0.1 | 0.4 |
| Delay (s) | 195.5 | 20.8 | | 36.8 | 14.8 | | | 75.8 | | | 39.0 | 41.3 |
| Level of Service | F | C | | D | B | | | E | | | D | D |
| Approach Delay (s) | | 26.8 | | | 15.1 | | | 75.8 | | | 40.8 | |
| Approach LOS | | C | | | B | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 1.21 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 105.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

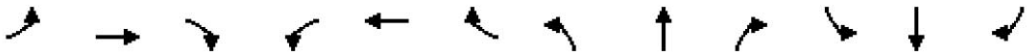
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 2240 | 50 | 270 | 1850 | 40 | 30 | 130 | 420 | 50 | 240 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3596 | | 1805 | 3596 | | 1805 | 1900 | 1598 | 1805 | 1900 | 1587 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3596 | | 1805 | 3596 | | 1805 | 1900 | 1598 | 1805 | 1900 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 180 | 2240 | 50 | 270 | 1850 | 40 | 30 | 130 | 420 | 50 | 240 | 240 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 26 | 0 | 0 | 168 |
| Lane Group Flow (vph) | 180 | 2289 | 0 | 270 | 1889 | 0 | 30 | 130 | 394 | 50 | 240 | 72 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.1 | 60.5 | | 13.1 | 63.5 | | 4.4 | 20.0 | 33.1 | 5.4 | 21.0 | 21.0 |
| Effective Green, g (s) | 10.1 | 60.5 | | 13.1 | 63.5 | | 4.4 | 20.0 | 33.1 | 5.4 | 21.0 | 21.0 |
| Actuated g/C Ratio | 0.09 | 0.53 | | 0.11 | 0.55 | | 0.04 | 0.17 | 0.29 | 0.05 | 0.18 | 0.18 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 159 | 1892 | | 206 | 1986 | | 69 | 330 | 460 | 85 | 347 | 290 |
| v/s Ratio Prot | 0.10 | c0.64 | | c0.15 | 0.53 | | 0.02 | 0.07 | c0.10 | 0.03 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.15 | | | 0.05 |
| v/c Ratio | 1.13 | 1.21 | | 1.31 | 0.95 | | 0.43 | 0.39 | 0.86 | 0.59 | 0.69 | 0.25 |
| Uniform Delay, d1 | 52.5 | 27.2 | | 51.0 | 24.3 | | 54.1 | 42.1 | 38.7 | 53.7 | 44.0 | 40.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 111.3 | 99.6 | | 170.1 | 10.9 | | 4.3 | 0.8 | 14.4 | 10.0 | 5.9 | 0.4 |
| Delay (s) | 163.7 | 126.9 | | 221.1 | 35.2 | | 58.4 | 42.9 | 53.1 | 63.7 | 49.8 | 40.7 |
| Level of Service | F | F | | F | D | | E | D | D | E | D | D |
| Approach Delay (s) | | 129.6 | | | 58.4 | | | 51.1 | | | 47.0 | |
| Approach LOS | | F | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 87.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.13 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 112.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

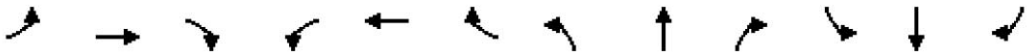
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 1420 | 1040 | 470 | 1090 | 410 | 980 | 980 | 170 | 470 | 1480 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2813 | 3502 | 3610 | 1596 | 3502 | 3610 | 1593 | 3502 | 5148 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2813 | 3502 | 3610 | 1596 | 3502 | 3610 | 1593 | 3502 | 5148 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 160 | 1420 | 1040 | 470 | 1090 | 410 | 980 | 980 | 170 | 470 | 1480 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 5 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 160 | 1420 | 1040 | 470 | 1090 | 391 | 980 | 980 | 165 | 470 | 1546 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 12.5 | 41.0 | 67.0 | 13.0 | 41.5 | 61.8 | 26.0 | 39.7 | 52.7 | 20.3 | 34.0 | |
| Effective Green, g (s) | 12.5 | 41.0 | 67.0 | 13.0 | 41.5 | 61.8 | 26.0 | 39.7 | 52.7 | 20.3 | 34.0 | |
| Actuated g/C Ratio | 0.10 | 0.32 | 0.52 | 0.10 | 0.32 | 0.48 | 0.20 | 0.31 | 0.41 | 0.16 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 174 | 1139 | 1450 | 350 | 1152 | 759 | 700 | 1102 | 695 | 547 | 1346 | |
| v/s Ratio Prot | 0.09 | c0.39 | 0.14 | c0.13 | 0.30 | 0.08 | c0.28 | 0.27 | 0.02 | 0.13 | c0.30 | |
| v/s Ratio Perm | | | 0.23 | | | 0.16 | | | 0.08 | | | |
| v/c Ratio | 0.92 | 1.25 | 0.72 | 1.34 | 0.95 | 0.51 | 1.40 | 0.89 | 0.24 | 0.86 | 1.15 | |
| Uniform Delay, d1 | 58.3 | 44.5 | 24.2 | 58.5 | 43.2 | 23.7 | 52.0 | 43.1 | 25.4 | 53.5 | 48.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 45.1 | 118.5 | 1.7 | 172.3 | 15.2 | 0.6 | 188.6 | 9.0 | 0.2 | 12.7 | 76.1 | |
| Delay (s) | 103.3 | 163.0 | 25.9 | 230.8 | 58.4 | 24.3 | 240.6 | 52.0 | 25.6 | 66.2 | 124.1 | |
| Level of Service | F | F | C | F | E | C | F | D | C | E | F | |
| Approach Delay (s) | | 104.9 | | | 92.4 | | | 136.7 | | | 110.6 | |
| Approach LOS | | F | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 111.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.26 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 124.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

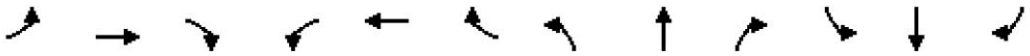
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 10 | 20 | 30 | 10 | 70 | 70 | 1810 | 40 | 70 | 2730 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.97 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1774 | | | 1695 | | 1805 | 5167 | | 1805 | 5160 | |
| Flt Permitted | | 0.62 | | | 0.91 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1134 | | | 1555 | | 1805 | 5167 | | 1805 | 5160 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 10 | 20 | 30 | 10 | 70 | 70 | 1810 | 40 | 70 | 2730 | 80 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 61 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 80 | 0 | 0 | 49 | 0 | 70 | 1849 | 0 | 70 | 2809 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 11.1 | | | 11.1 | | 5.4 | 70.3 | | 7.5 | 72.4 | |
| Effective Green, g (s) | | 11.1 | | | 11.1 | | 5.4 | 70.3 | | 7.5 | 72.4 | |
| Actuated g/C Ratio | | 0.11 | | | 0.11 | | 0.05 | 0.70 | | 0.07 | 0.72 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 125 | | | 171 | | 97 | 3600 | | 134 | 3703 | |
| v/s Ratio Prot | | | | | | | c0.04 | 0.36 | | 0.04 | c0.54 | |
| v/s Ratio Perm | | c0.07 | | | 0.03 | | | | | | | |
| v/c Ratio | | 0.64 | | | 0.28 | | 0.72 | 0.51 | | 0.52 | 0.76 | |
| Uniform Delay, d1 | | 43.0 | | | 41.3 | | 47.0 | 7.2 | | 45.0 | 8.8 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 10.7 | | | 0.9 | | 23.1 | 0.1 | | 3.6 | 0.9 | |
| Delay (s) | | 53.7 | | | 42.2 | | 70.1 | 7.3 | | 48.6 | 9.8 | |
| Level of Service | | D | | | D | | E | A | | D | A | |
| Approach Delay (s) | | 53.7 | | | 42.2 | | | 9.6 | | | 10.7 | |
| Approach LOS | | D | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 100.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

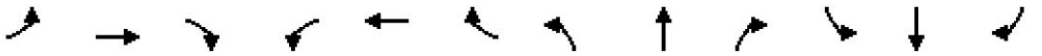
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 50 | 60 | 20 | 60 | 50 | 100 | 1910 | 40 | 130 | 2550 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 1900 | 1615 | 1805 | 1900 | 1588 | 1805 | 5168 | | 1805 | 5155 | |
| Flt Permitted | 0.54 | 1.00 | 1.00 | 0.72 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1033 | 1900 | 1615 | 1376 | 1900 | 1588 | 1805 | 5168 | | 1805 | 5155 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 50 | 60 | 20 | 60 | 50 | 100 | 1910 | 40 | 130 | 2550 | 90 |
| RTOR Reduction (vph) | 0 | 0 | 53 | 0 | 0 | 46 | 0 | 2 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 70 | 50 | 7 | 20 | 60 | 4 | 100 | 1948 | 0 | 130 | 2638 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 16.5 | 11.2 | 11.2 | 11.1 | 8.5 | 8.5 | 7.1 | 45.6 | | 22.9 | 61.4 | |
| Effective Green, g (s) | 16.5 | 11.2 | 11.2 | 11.1 | 8.5 | 8.5 | 7.1 | 45.6 | | 22.9 | 61.4 | |
| Actuated g/C Ratio | 0.17 | 0.11 | 0.11 | 0.11 | 0.09 | 0.09 | 0.07 | 0.46 | | 0.23 | 0.62 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 215 | 216 | 184 | 167 | 164 | 137 | 130 | 2397 | | 420 | 3220 | |
| v/s Ratio Prot | c0.02 | 0.03 | | 0.00 | 0.03 | | 0.06 | c0.38 | | 0.07 | c0.51 | |
| v/s Ratio Perm | c0.04 | | 0.00 | 0.01 | | 0.00 | | | | | | |
| v/c Ratio | 0.33 | 0.23 | 0.04 | 0.12 | 0.37 | 0.03 | 0.77 | 0.81 | | 0.31 | 0.82 | |
| Uniform Delay, d1 | 35.5 | 39.6 | 38.8 | 39.1 | 42.4 | 41.1 | 44.8 | 22.7 | | 31.2 | 14.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 0.6 | 0.1 | 0.3 | 1.4 | 0.1 | 23.5 | 2.2 | | 0.4 | 1.7 | |
| Delay (s) | 36.3 | 40.2 | 38.8 | 39.4 | 43.7 | 41.2 | 68.3 | 24.9 | | 31.6 | 15.9 | |
| Level of Service | D | D | D | D | D | D | E | C | | C | B | |
| Approach Delay (s) | | 38.2 | | | 42.1 | | | 27.0 | | | 16.6 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 98.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

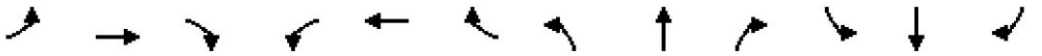


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 240 | 0 | 640 | 720 | 250 | 30 | 570 | 1800 | 1010 | 80 | 2640 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3019 | | 5090 | 1866 | | 1805 | 5187 | 1594 | 1805 | 5174 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3019 | | 5090 | 1866 | | 1805 | 5187 | 1594 | 1805 | 5174 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 240 | 0 | 640 | 720 | 250 | 30 | 570 | 1800 | 1010 | 80 | 2640 | 40 |
| RTOR Reduction (vph) | 0 | 204 | 0 | 0 | 4 | 0 | 0 | 0 | 355 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 240 | 436 | 0 | 720 | 276 | 0 | 570 | 1800 | 655 | 80 | 2679 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 13.9 | 21.4 | | 14.0 | 21.5 | | 17.0 | 53.0 | 67.0 | 7.1 | 43.1 | |
| Effective Green, g (s) | 13.9 | 21.4 | | 14.0 | 21.5 | | 17.0 | 53.0 | 67.0 | 7.1 | 43.1 | |
| Actuated g/C Ratio | 0.12 | 0.19 | | 0.13 | 0.19 | | 0.15 | 0.48 | 0.60 | 0.06 | 0.39 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 225 | 579 | | 639 | 360 | | 275 | 2466 | 1015 | 115 | 2000 | |
| v/s Ratio Prot | c0.13 | 0.14 | | c0.14 | c0.15 | | c0.32 | 0.35 | 0.08 | 0.04 | c0.52 | |
| v/s Ratio Perm | | | | | | | | | 0.33 | | | |
| v/c Ratio | 1.07 | 1.25dr | | 1.13 | 0.77 | | 2.07 | 0.73 | 0.65 | 0.70 | 1.34 | |
| Uniform Delay, d1 | 48.8 | 42.5 | | 48.8 | 42.6 | | 47.2 | 23.5 | 14.5 | 51.1 | 34.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 78.8 | 5.5 | | 75.9 | 9.4 | | 495.1 | 1.1 | 1.4 | 16.7 | 156.2 | |
| Delay (s) | 127.6 | 48.0 | | 124.6 | 52.0 | | 542.3 | 24.6 | 15.9 | 67.8 | 190.4 | |
| Level of Service | F | D | | F | D | | F | C | B | E | F | |
| Approach Delay (s) | | 69.7 | | | 104.3 | | | 109.3 | | | 186.8 | |
| Approach LOS | | E | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 131.0 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.34 | | |
| Actuated Cycle Length (s) | 111.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 133.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

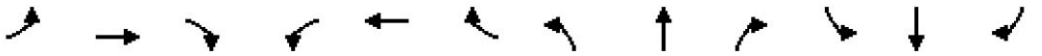


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 70 | 380 | 410 | 40 | 220 | 210 | 1230 | 420 | 410 | 2250 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1796 | 1900 | 2842 | 1805 | 1900 | 1615 | 1805 | 5187 | 1615 | 1805 | 5187 | 1557 |
| Flt Permitted | 0.73 | 1.00 | 1.00 | 0.71 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1378 | 1900 | 2842 | 1344 | 1900 | 1615 | 1805 | 5187 | 1615 | 1805 | 5187 | 1557 |
| Peak-hour factor, PHF | 1.00 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 1.00 | 1.00 | 0.92 | 0.92 | 1.00 | 1.00 |
| Adj. Flow (vph) | 200 | 76 | 380 | 446 | 43 | 239 | 210 | 1230 | 457 | 446 | 2250 | 210 |
| RTOR Reduction (vph) | 0 | 0 | 107 | 0 | 0 | 174 | 0 | 0 | 268 | 0 | 0 | 68 |
| Lane Group Flow (vph) | 200 | 76 | 273 | 446 | 43 | 65 | 210 | 1230 | 189 | 446 | 2250 | 142 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | 5 | | | | | 5 |
| Turn Type | Perm | | Over | Perm | | Over | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | 5 | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 37.0 | 37.0 | 16.7 | 37.0 | 37.0 | 32.3 | 16.7 | 37.4 | 37.4 | 32.3 | 53.0 | 53.0 |
| Effective Green, g (s) | 37.0 | 37.0 | 16.7 | 37.0 | 37.0 | 32.3 | 16.7 | 37.4 | 37.4 | 32.3 | 53.0 | 53.0 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.14 | 0.31 | 0.31 | 0.27 | 0.14 | 0.32 | 0.32 | 0.27 | 0.45 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 430 | 592 | 400 | 419 | 592 | 439 | 254 | 1634 | 509 | 491 | 2316 | 695 |
| v/s Ratio Prot | | 0.04 | 0.10 | | 0.02 | 0.04 | 0.12 | c0.24 | | 0.25 | c0.43 | |
| v/s Ratio Perm | 0.15 | | | c0.33 | | | | | 0.12 | | | 0.09 |
| v/c Ratio | 0.47 | 0.13 | 0.68 | 1.06 | 0.07 | 0.15 | 0.83 | 0.75 | 0.37 | 0.91 | 0.97 | 0.20 |
| Uniform Delay, d1 | 32.9 | 29.3 | 48.5 | 40.9 | 28.8 | 32.8 | 49.6 | 36.5 | 31.5 | 41.8 | 32.1 | 20.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | 0.1 | 4.7 | 62.1 | 0.1 | 0.2 | 19.3 | 3.3 | 2.1 | 20.4 | 13.1 | 0.7 |
| Delay (s) | 33.7 | 29.4 | 53.2 | 103.0 | 28.8 | 32.9 | 68.9 | 39.8 | 33.6 | 62.2 | 45.2 | 20.7 |
| Level of Service | C | C | D | F | C | C | E | D | C | E | D | C |
| Approach Delay (s) | | 44.5 | | | 75.6 | | | 41.5 | | | 46.0 | |
| Approach LOS | | D | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 118.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 94.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

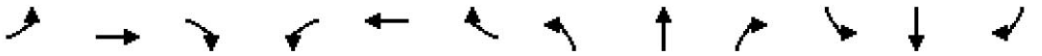
c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis
## 100: Harley Knox Blvd & Evans Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 10 | 410 | 30 | 10 | 10 | 150 | 1160 | 80 | 10 | 1090 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.93 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1622 | | 1805 | 1758 | | 1805 | 3575 | | 1805 | 3595 | |
| Flt Permitted | 0.74 | 1.00 | | 0.21 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1414 | 1622 | | 404 | 1758 | | 1805 | 3575 | | 1805 | 3595 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 10 | 410 | 30 | 10 | 10 | 150 | 1160 | 80 | 10 | 1090 | 30 |
| RTOR Reduction (vph) | 0 | 216 | 0 | 0 | 8 | 0 | 0 | 3 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 80 | 204 | 0 | 30 | 12 | 0 | 150 | 1237 | 0 | 10 | 1119 | 0 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 18.8 | 18.8 | | 18.8 | 18.8 | | 14.0 | 77.9 | | 1.3 | 65.2 | |
| Effective Green, g (s) | 18.8 | 18.8 | | 18.8 | 18.8 | | 14.0 | 77.9 | | 1.3 | 65.2 | |
| Actuated g/C Ratio | 0.17 | 0.17 | | 0.17 | 0.17 | | 0.13 | 0.71 | | 0.01 | 0.59 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 242 | 277 | | 69 | 300 | | 230 | 2532 | | 21 | 2131 | |
| v/s Ratio Prot | | c0.13 | | | 0.01 | | c0.08 | 0.35 | | 0.01 | c0.31 | |
| v/s Ratio Perm | 0.06 | | | 0.07 | | | | | | | | |
| v/c Ratio | 0.33 | 0.74 | | 0.43 | 0.04 | | 0.65 | 0.49 | | 0.48 | 0.53 | |
| Uniform Delay, d1 | 40.1 | 43.2 | | 40.8 | 38.1 | | 45.7 | 7.2 | | 54.0 | 13.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.78 | 2.51 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 9.7 | | 4.3 | 0.1 | | 4.9 | 0.5 | | 16.0 | 0.9 | |
| Delay (s) | 40.9 | 52.9 | | 45.2 | 38.1 | | 40.4 | 18.5 | | 70.1 | 14.2 | |
| Level of Service | D | D | | D | D | | D | B | | E | B | |
| Approach Delay (s) | | 51.0 | | | 42.4 | | | 20.8 | | | 14.7 | |
| Approach LOS | | D | | | D | | | C | | | B | |

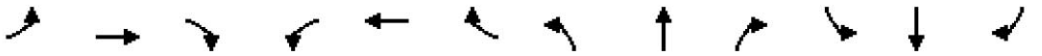
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 310 | 1290 | 610 | 240 | 1050 | 120 | 740 | 120 | 330 | 270 | 190 | 610 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 4903 | | 1805 | 5187 | 1582 | 1805 | 3173 | | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 4903 | | 1805 | 5187 | 1582 | 1805 | 3173 | | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 310 | 1290 | 610 | 240 | 1050 | 120 | 740 | 120 | 330 | 270 | 190 | 610 |
| RTOR Reduction (vph) | 0 | 77 | 0 | 0 | 0 | 90 | 0 | 142 | 0 | 0 | 0 | 115 |
| Lane Group Flow (vph) | 310 | 1823 | 0 | 240 | 1050 | 30 | 740 | 308 | 0 | 270 | 190 | 495 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 10.0 | 29.1 | | 8.0 | 27.1 | 27.1 | 21.0 | 35.9 | | 18.4 | 33.0 | 33.0 |
| Effective Green, g (s) | 10.0 | 29.1 | | 8.0 | 27.1 | 27.1 | 21.0 | 35.9 | | 18.4 | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.09 | 0.26 | | 0.07 | 0.25 | 0.25 | 0.19 | 0.33 | | 0.17 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 164 | 1297 | | 131 | 1278 | 390 | 345 | 1036 | | 302 | 1083 | 476 |
| v/s Ratio Prot | c0.17 | c0.37 | | 0.13 | 0.20 | | c0.41 | c0.10 | | 0.15 | 0.05 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | c0.31 |
| v/c Ratio | 1.89 | 1.41 | | 1.83 | 0.82 | 0.08 | 2.14 | 0.30 | | 0.89 | 0.18 | 1.04 |
| Uniform Delay, d1 | 50.0 | 40.5 | | 51.0 | 39.2 | 31.8 | 44.5 | 27.6 | | 44.8 | 28.4 | 38.5 |
| Progression Factor | 0.96 | 0.79 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 422.5 | 187.1 | | 402.6 | 6.0 | 0.4 | 524.8 | 0.2 | | 26.6 | 0.1 | 52.1 |
| Delay (s) | 470.7 | 219.1 | | 453.6 | 45.2 | 32.2 | 569.3 | 27.8 | | 71.4 | 28.5 | 90.6 |
| Level of Service | F | F | | F | D | C | F | C | | E | C | F |
| Approach Delay (s) | | 254.4 | | | 113.6 | | | 364.5 | | | 74.8 | |
| Approach LOS | | F | | | F | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 210.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.47 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.5 |
| Intersection Capacity Utilization | 117.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

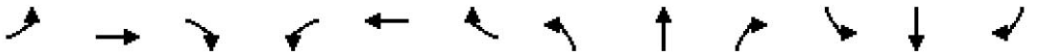
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 420 | 990 | 210 | 70 | 730 | 310 | 240 | 1090 | 80 | 510 | 1630 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1588 | 3502 | 4930 | | 3502 | 5187 | 1588 | 3502 | 5187 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1588 | 3502 | 4930 | | 3502 | 5187 | 1588 | 3502 | 5187 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 420 | 990 | 210 | 70 | 730 | 310 | 240 | 1090 | 80 | 510 | 1630 | 320 |
| RTOR Reduction (vph) | 0 | 0 | 124 | 0 | 64 | 0 | 0 | 0 | 41 | 0 | 0 | 109 |
| Lane Group Flow (vph) | 420 | 990 | 86 | 70 | 976 | 0 | 240 | 1090 | 39 | 510 | 1630 | 211 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 12.0 | 45.7 | 45.7 | 4.0 | 37.7 | | 9.0 | 37.0 | 37.0 | 14.0 | 42.0 | 42.0 |
| Effective Green, g (s) | 12.0 | 45.7 | 45.7 | 4.0 | 37.7 | | 9.0 | 37.0 | 37.0 | 14.0 | 42.0 | 42.0 |
| Actuated g/C Ratio | 0.10 | 0.38 | 0.38 | 0.03 | 0.31 | | 0.08 | 0.31 | 0.31 | 0.12 | 0.35 | 0.35 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 350 | 1975 | 605 | 117 | 1549 | | 263 | 1599 | 490 | 409 | 1815 | 556 |
| v/s Ratio Prot | c0.12 | 0.19 | | 0.02 | c0.20 | | 0.07 | 0.21 | | c0.15 | c0.31 | |
| v/s Ratio Perm | | | 0.05 | | | | | | 0.02 | | | 0.13 |
| v/c Ratio | 1.20 | 0.50 | 0.14 | 0.60 | 0.63 | | 0.91 | 0.68 | 0.08 | 1.25 | 0.90 | 0.38 |
| Uniform Delay, d1 | 54.0 | 28.4 | 24.3 | 57.2 | 35.2 | | 55.1 | 36.3 | 29.4 | 53.0 | 37.0 | 29.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 114.3 | 0.9 | 0.5 | 8.0 | 2.0 | | 33.2 | 1.2 | 0.1 | 130.1 | 6.3 | 0.4 |
| Delay (s) | 168.3 | 29.3 | 24.8 | 65.2 | 37.1 | | 88.3 | 37.6 | 29.5 | 183.1 | 43.3 | 29.7 |
| Level of Service | F | C | C | E | D | | F | D | C | F | D | C |
| Approach Delay (s) | | 64.8 | | | 38.9 | | | 45.7 | | | 70.5 | |
| Approach LOS | | E | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 58.5 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 97.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

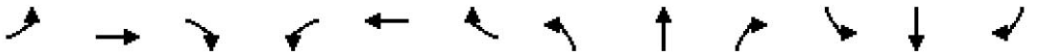
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 300 | 1080 | 460 | 160 | 450 | 260 | 170 | 720 | 110 | 410 | 850 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 5187 | 1587 | 3502 | 3530 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 5187 | 1587 | 3502 | 3530 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 300 | 1080 | 460 | 160 | 450 | 260 | 170 | 720 | 110 | 410 | 850 | 240 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 165 | 0 | 11 | 0 | 0 | 0 | 156 |
| Lane Group Flow (vph) | 300 | 1080 | 460 | 160 | 450 | 95 | 170 | 819 | 0 | 410 | 850 | 84 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 10.0 | 32.0 | 110.0 | 10.0 | 32.0 | 32.0 | 9.4 | 35.0 | | 13.0 | 38.6 | 38.6 |
| Effective Green, g (s) | 10.0 | 32.0 | 110.0 | 10.0 | 32.0 | 32.0 | 9.4 | 35.0 | | 13.0 | 38.6 | 38.6 |
| Actuated g/C Ratio | 0.09 | 0.29 | 1.00 | 0.09 | 0.29 | 0.29 | 0.09 | 0.32 | | 0.12 | 0.35 | 0.35 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 318 | 1509 | 1593 | 164 | 1509 | 462 | 299 | 1123 | | 414 | 1267 | 557 |
| v/s Ratio Prot | 0.09 | c0.21 | | c0.09 | 0.09 | | 0.05 | c0.23 | | c0.12 | 0.24 | |
| v/s Ratio Perm | | | c0.29 | | | 0.06 | | | | | | 0.05 |
| v/c Ratio | 0.94 | 0.72 | 0.29 | 0.98 | 0.30 | 0.21 | 0.57 | 0.73 | | 0.99 | 0.67 | 0.15 |
| Uniform Delay, d1 | 49.7 | 34.9 | 0.0 | 49.9 | 30.3 | 29.4 | 48.4 | 33.3 | | 48.4 | 30.3 | 24.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.93 | 1.33 | 4.09 |
| Incremental Delay, d2 | 35.6 | 2.9 | 0.5 | 62.5 | 0.5 | 1.0 | 2.5 | 4.2 | | 38.0 | 2.4 | 0.5 |
| Delay (s) | 85.3 | 37.9 | 0.5 | 112.3 | 30.8 | 30.4 | 50.8 | 37.5 | | 82.9 | 42.7 | 100.6 |
| Level of Service | F | D | A | F | C | C | D | D | | F | D | F |
| Approach Delay (s) | | 36.2 | | | 45.7 | | | 39.7 | | | 62.9 | |
| Approach LOS | | D | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 46.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 92.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

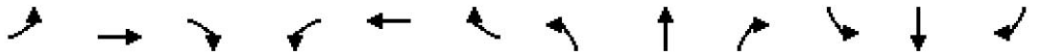
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 10 | 30 | 30 | 10 | 30 | 20 | 1270 | 10 | 20 | 1690 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3163 | | 1805 | 1900 | 1587 | 1805 | 5180 | | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3163 | | 1805 | 1900 | 1587 | 1805 | 5180 | | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 10 | 30 | 30 | 10 | 30 | 20 | 1270 | 10 | 20 | 1690 | 20 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 4 |
| Lane Group Flow (vph) | 40 | 11 | 0 | 30 | 10 | 1 | 20 | 1280 | 0 | 20 | 1690 | 16 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 3.6 | 4.1 | | 3.6 | 4.2 | 4.2 | 3.2 | 81.6 | | 3.2 | 81.6 | 81.6 |
| Effective Green, g (s) | 3.6 | 4.1 | | 3.6 | 4.2 | 4.2 | 3.2 | 81.6 | | 3.2 | 81.6 | 81.6 |
| Actuated g/C Ratio | 0.03 | 0.04 | | 0.03 | 0.04 | 0.04 | 0.03 | 0.74 | | 0.03 | 0.74 | 0.74 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 59 | 118 | | 59 | 73 | 61 | 53 | 3843 | | 53 | 2678 | 1176 |
| v/s Ratio Prot | c0.02 | 0.00 | | 0.02 | c0.01 | | c0.01 | 0.25 | | 0.01 | c0.47 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.01 |
| v/c Ratio | 0.68 | 0.09 | | 0.51 | 0.14 | 0.02 | 0.38 | 0.33 | | 0.38 | 0.63 | 0.01 |
| Uniform Delay, d1 | 52.6 | 51.2 | | 52.3 | 51.1 | 50.9 | 52.4 | 4.9 | | 52.4 | 6.9 | 3.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 26.7 | 0.3 | | 6.7 | 0.9 | 0.1 | 4.5 | 0.2 | | 4.5 | 1.1 | 0.0 |
| Delay (s) | 79.3 | 51.5 | | 59.1 | 52.0 | 51.0 | 56.9 | 5.1 | | 56.9 | 8.0 | 3.7 |
| Level of Service | E | D | | E | D | D | E | A | | E | A | A |
| Approach Delay (s) | | 65.4 | | | 54.6 | | | 5.9 | | | 8.5 | |
| Approach LOS | | E | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 66.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

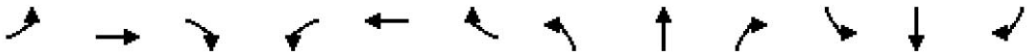
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 20 | 80 | 90 | 20 | 50 | 100 | 740 | 90 | 80 | 1770 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 3610 | 1586 | 1805 | 3544 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 3610 | 1586 | 1805 | 3544 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 20 | 80 | 90 | 20 | 50 | 100 | 740 | 90 | 80 | 1770 | 80 |
| RTOR Reduction (vph) | 0 | 0 | 76 | 0 | 0 | 47 | 0 | 5 | 0 | 0 | 0 | 22 |
| Lane Group Flow (vph) | 50 | 20 | 4 | 90 | 20 | 3 | 100 | 825 | 0 | 80 | 1770 | 58 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 4.8 | 5.9 | 5.9 | 6.0 | 7.1 | 7.1 | 13.7 | 73.2 | | 8.9 | 68.4 | 68.4 |
| Effective Green, g (s) | 4.8 | 5.9 | 5.9 | 6.0 | 7.1 | 7.1 | 13.7 | 73.2 | | 8.9 | 68.4 | 68.4 |
| Actuated g/C Ratio | 0.04 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.12 | 0.67 | | 0.08 | 0.62 | 0.62 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 79 | 194 | 85 | 98 | 233 | 102 | 225 | 2358 | | 146 | 2245 | 986 |
| v/s Ratio Prot | 0.03 | c0.01 | | c0.05 | 0.01 | | c0.06 | 0.23 | | c0.04 | c0.49 | |
| v/s Ratio Perm | | | 0.00 | | | 0.00 | | | | | | 0.04 |
| v/c Ratio | 0.63 | 0.10 | 0.05 | 0.92 | 0.09 | 0.03 | 0.44 | 0.35 | | 0.55 | 0.79 | 0.06 |
| Uniform Delay, d1 | 51.7 | 49.5 | 49.4 | 51.8 | 48.4 | 48.2 | 44.6 | 8.0 | | 48.6 | 15.4 | 8.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.92 | 0.79 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 15.4 | 0.2 | 0.2 | 64.3 | 0.2 | 0.1 | 1.1 | 0.3 | | 4.2 | 2.9 | 0.1 |
| Delay (s) | 67.1 | 49.8 | 49.6 | 116.1 | 48.6 | 48.4 | 41.9 | 6.7 | | 52.8 | 18.3 | 8.3 |
| Level of Service | E | D | D | F | D | D | D | A | | D | B | A |
| Approach Delay (s) | | 55.5 | | | 86.5 | | | 10.5 | | | 19.3 | |
| Approach LOS | | E | | | F | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

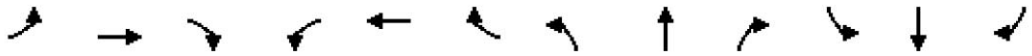
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 130 | 490 | 150 | 60 | 110 | 180 | 890 | 140 | 160 | 1400 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1797 | 3140 | | 1802 | 3610 | 1588 | 1805 | 5069 | | 1805 | 5175 | |
| Flt Permitted | 0.72 | 1.00 | | 0.27 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1354 | 3140 | | 511 | 3610 | 1588 | 1805 | 5069 | | 1805 | 5175 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 130 | 490 | 150 | 60 | 110 | 180 | 890 | 140 | 160 | 1400 | 20 |
| RTOR Reduction (vph) | 0 | 238 | 0 | 0 | 0 | 78 | 0 | 16 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 50 | 382 | 0 | 150 | 60 | 32 | 180 | 1014 | 0 | 160 | 1419 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 29.3 | 29.3 | | 29.3 | 29.3 | 29.3 | 14.4 | 42.5 | | 13.6 | 41.7 | |
| Effective Green, g (s) | 29.3 | 29.3 | | 29.3 | 29.3 | 29.3 | 14.4 | 42.5 | | 13.6 | 41.7 | |
| Actuated g/C Ratio | 0.29 | 0.29 | | 0.29 | 0.29 | 0.29 | 0.14 | 0.42 | | 0.14 | 0.42 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 397 | 920 | | 150 | 1058 | 465 | 260 | 2154 | | 245 | 2158 | |
| v/s Ratio Prot | | 0.12 | | | 0.02 | | c0.10 | 0.20 | | 0.09 | c0.27 | |
| v/s Ratio Perm | 0.04 | | | c0.29 | | 0.02 | | | | | | |
| v/c Ratio | 0.13 | 0.41 | | 1.00 | 0.06 | 0.07 | 0.69 | 0.47 | | 0.65 | 0.66 | |
| Uniform Delay, d1 | 26.0 | 28.5 | | 35.4 | 25.4 | 25.5 | 40.7 | 20.7 | | 41.0 | 23.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 0.3 | | 73.5 | 0.0 | 0.1 | 7.7 | 0.7 | | 6.1 | 1.6 | |
| Delay (s) | 26.1 | 28.8 | | 108.8 | 25.4 | 25.6 | 48.4 | 21.4 | | 47.1 | 25.0 | |
| Level of Service | C | C | | F | C | C | D | C | | D | C | |
| Approach Delay (s) | | 28.6 | | | 64.6 | | | 25.4 | | | 27.2 | |
| Approach LOS | | C | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 83.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

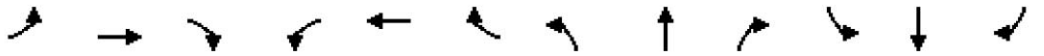
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 310 | 240 | 70 | 10 | 180 | 60 | 50 | 970 | 30 | 60 | 1120 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.96 | | 1.00 | 1.00 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3473 | | 1805 | 3460 | | 1805 | 3592 | | 1805 | 3508 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3473 | | 1805 | 3460 | | 1805 | 3592 | | 1805 | 3508 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 310 | 240 | 70 | 10 | 180 | 60 | 50 | 970 | 30 | 60 | 1120 | 230 |
| RTOR Reduction (vph) | 0 | 28 | 0 | 0 | 35 | 0 | 0 | 2 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 310 | 282 | 0 | 10 | 205 | 0 | 50 | 998 | 0 | 60 | 1338 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 18.0 | 31.8 | | 1.2 | 15.0 | | 7.4 | 52.9 | | 8.1 | 53.6 | |
| Effective Green, g (s) | 18.0 | 31.8 | | 1.2 | 15.0 | | 7.4 | 52.9 | | 8.1 | 53.6 | |
| Actuated g/C Ratio | 0.16 | 0.29 | | 0.01 | 0.14 | | 0.07 | 0.48 | | 0.07 | 0.49 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 295 | 1004 | | 20 | 472 | | 121 | 1727 | | 133 | 1709 | |
| v/s Ratio Prot | c0.17 | 0.08 | | 0.01 | c0.06 | | 0.03 | 0.28 | | c0.03 | c0.38 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 1.05 | 0.28 | | 0.50 | 0.43 | | 0.41 | 0.58 | | 0.45 | 0.78 | |
| Uniform Delay, d1 | 46.0 | 30.2 | | 54.1 | 43.6 | | 49.2 | 20.5 | | 48.8 | 23.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.01 | 0.90 | |
| Incremental Delay, d2 | 66.4 | 0.2 | | 18.3 | 0.6 | | 2.3 | 1.4 | | 1.5 | 2.3 | |
| Delay (s) | 112.4 | 30.4 | | 72.4 | 44.2 | | 51.5 | 21.9 | | 50.6 | 23.4 | |
| Level of Service | F | C | | E | D | | D | C | | D | C | |
| Approach Delay (s) | | 71.4 | | | 45.4 | | | 23.4 | | | 24.6 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

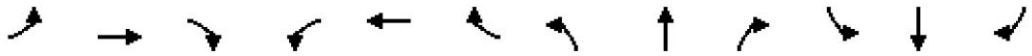
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 170 | 70 | 270 | 280 | 1160 | 0 | 0 | 2160 | 810 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | 1.00 | 0.95 | 0.95 | 1.00 | 0.91 | | | 0.91 | 1.00 |
| Frpb, ped/bikes | | | | 1.00 | 0.99 | 0.98 | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 0.91 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1795 | 1626 | 1508 | 1805 | 5187 | | | 5187 | 1564 |
| Flt Permitted | | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1795 | 1626 | 1508 | 1805 | 5187 | | | 5187 | 1564 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 170 | 70 | 270 | 280 | 1160 | 0 | 0 | 2160 | 810 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 58 | 86 | 0 | 0 | 0 | 0 | 0 | 243 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 170 | 117 | 79 | 280 | 1160 | 0 | 0 | 2160 | 567 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | 16.6 | 16.6 | 16.6 | 22.9 | 85.4 | | | 58.5 | 58.5 |
| Effective Green, g (s) | | | | 16.6 | 16.6 | 16.6 | 22.9 | 85.4 | | | 58.5 | 58.5 |
| Actuated g/C Ratio | | | | 0.15 | 0.15 | 0.15 | 0.21 | 0.78 | | | 0.53 | 0.53 |
| Clearance Time (s) | | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | 271 | 245 | 228 | 376 | 4027 | | | 2759 | 832 |
| v/s Ratio Prot | | | | | 0.07 | | c0.16 | 0.22 | | | c0.42 | |
| v/s Ratio Perm | | | | c0.09 | | 0.05 | | | | | | 0.36 |
| v/c Ratio | | | | 0.63 | 0.48 | 0.35 | 0.74 | 0.29 | | | 0.78 | 0.68 |
| Uniform Delay, d1 | | | | 43.8 | 42.7 | 41.8 | 40.8 | 3.5 | | | 20.7 | 18.9 |
| Progression Factor | | | | 1.00 | 1.00 | 1.00 | 1.35 | 0.71 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 4.5 | 1.5 | 0.9 | 3.8 | 0.1 | | | 2.3 | 4.5 |
| Delay (s) | | | | 48.3 | 44.2 | 42.8 | 58.9 | 2.6 | | | 23.0 | 23.4 |
| Level of Service | | | | D | D | D | E | A | | | C | C |
| Approach Delay (s) | | 0.0 | | | 45.1 | | | 13.5 | | | 23.1 | |
| Approach LOS | | A | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 94.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

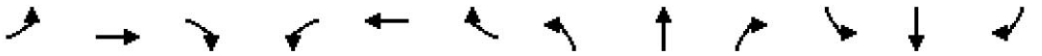
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 250 | 80 | 290 | 0 | 0 | 0 | 0 | 1190 | 400 | 530 | 1810 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | | | | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | | | | | 0.96 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1795 | 1654 | | | | | | 4951 | | 1805 | 5187 | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1795 | 1654 | | | | | | 4951 | | 1805 | 5187 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 250 | 80 | 290 | 0 | 0 | 0 | 0 | 1190 | 400 | 530 | 1810 | 0 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 54 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 250 | 352 | 0 | 0 | 0 | 0 | 0 | 1536 | 0 | 530 | 1810 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | | | | | | | | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | 27.4 | 27.4 | | | | | | 36.1 | | 34.5 | 74.6 | |
| Effective Green, g (s) | 27.4 | 27.4 | | | | | | 36.1 | | 34.5 | 74.6 | |
| Actuated g/C Ratio | 0.25 | 0.25 | | | | | | 0.33 | | 0.31 | 0.68 | |
| Clearance Time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 447 | 412 | | | | | | 1625 | | 566 | 3518 | |
| v/s Ratio Prot | | c0.21 | | | | | | c0.31 | | c0.29 | 0.35 | |
| v/s Ratio Perm | 0.14 | | | | | | | | | | | |
| v/c Ratio | 0.56 | 0.85 | | | | | | 0.95 | | 0.94 | 0.51 | |
| Uniform Delay, d1 | 36.0 | 39.4 | | | | | | 36.0 | | 36.7 | 8.7 | |
| Progression Factor | 1.00 | 1.00 | | | | | | 1.00 | | 1.60 | 1.06 | |
| Incremental Delay, d2 | 1.5 | 15.7 | | | | | | 12.7 | | 16.9 | 0.3 | |
| Delay (s) | 37.6 | 55.1 | | | | | | 48.6 | | 75.6 | 9.6 | |
| Level of Service | D | E | | | | | | D | | E | A | |
| Approach Delay (s) | | 48.0 | | | 0.0 | | | 48.6 | | | 24.5 | |
| Approach LOS | | D | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 94.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

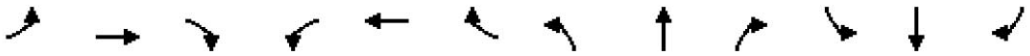
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 180 | 20 | 120 | 150 | 750 | 0 | 0 | 1110 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 0.95 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1737 | | 1805 | 3610 | | | 3610 | 1564 |
| Flt Permitted | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1737 | | 1805 | 3610 | | | 3610 | 1564 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 180 | 20 | 120 | 150 | 750 | 0 | 0 | 1110 | 150 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 299 | 0 | 150 | 750 | 0 | 0 | 1110 | 101 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | | | | 23.8 | | 13.8 | 78.2 | | | 60.4 | 60.4 |
| Effective Green, g (s) | | | | | 23.8 | | 13.8 | 78.2 | | | 60.4 | 60.4 |
| Actuated g/C Ratio | | | | | 0.22 | | 0.13 | 0.71 | | | 0.55 | 0.55 |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 376 | | 226 | 2566 | | | 1982 | 859 |
| v/s Ratio Prot | | | | | | | c0.08 | 0.21 | | | c0.31 | |
| v/s Ratio Perm | | | | | 0.17 | | | | | | | 0.06 |
| v/c Ratio | | | | | 0.79 | | 0.66 | 0.29 | | | 0.56 | 0.12 |
| Uniform Delay, d1 | | | | | 40.8 | | 45.9 | 5.8 | | | 16.1 | 12.0 |
| Progression Factor | | | | | 1.00 | | 1.55 | 0.73 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 11.0 | | 6.7 | 0.3 | | | 1.1 | 0.3 |
| Delay (s) | | | | | 51.8 | | 77.9 | 4.5 | | | 17.3 | 12.2 |
| Level of Service | | | | | D | | E | A | | | B | B |
| Approach Delay (s) | | 0.0 | | | 51.8 | | | 16.8 | | | 16.7 | |
| Approach LOS | | A | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

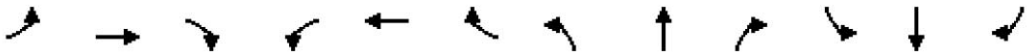
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 40 | 380 | 0 | 0 | 0 | 0 | 740 | 190 | 130 | 1160 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | | | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | | | | | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1817 | 1586 | | | | | 3610 | 1564 | 1805 | 3610 | |
| Flt Permitted | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1817 | 1586 | | | | | 3610 | 1564 | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 40 | 380 | 0 | 0 | 0 | 0 | 740 | 190 | 130 | 1160 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 86 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 210 | 333 | 0 | 0 | 0 | 0 | 740 | 104 | 130 | 1160 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | | 29.4 | 29.4 | | | | | 55.4 | 55.4 | 13.2 | 72.6 | |
| Effective Green, g (s) | | 29.4 | 29.4 | | | | | 55.4 | 55.4 | 13.2 | 72.6 | |
| Actuated g/C Ratio | | 0.27 | 0.27 | | | | | 0.50 | 0.50 | 0.12 | 0.66 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 486 | 424 | | | | | 1818 | 788 | 217 | 2383 | |
| v/s Ratio Prot | | | | | | | | 0.20 | | c0.07 | c0.32 | |
| v/s Ratio Perm | | 0.12 | c0.21 | | | | | | 0.07 | | | |
| v/c Ratio | | 0.43 | 0.79 | | | | | 0.41 | 0.13 | 0.60 | 0.49 | |
| Uniform Delay, d1 | | 33.4 | 37.4 | | | | | 17.0 | 14.5 | 45.9 | 9.4 | |
| Progression Factor | | 1.00 | 1.00 | | | | | 1.55 | 3.34 | 1.24 | 0.68 | |
| Incremental Delay, d2 | | 0.6 | 9.3 | | | | | 0.7 | 0.3 | 3.7 | 0.6 | |
| Delay (s) | | 34.0 | 46.6 | | | | | 27.0 | 48.9 | 60.3 | 7.0 | |
| Level of Service | | C | D | | | | | C | D | E | A | |
| Approach Delay (s) | | 42.1 | | | 0.0 | | | 31.5 | | | 12.3 | |
| Approach LOS | | D | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

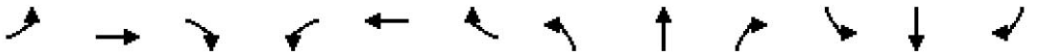
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 560 | 610 | 160 | 160 | 60 | 240 | 980 | 160 | 100 | 1770 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | 4.0 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 4.0 | 4.0 | 5.3 | |
| Lane Util. Factor | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3610 | 2842 | 3502 | 3610 | 1587 | 3502 | 5187 | 1615 | 3502 | 5149 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3610 | 2842 | 3502 | 3610 | 1587 | 3502 | 5187 | 1615 | 3502 | 5149 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 560 | 610 | 160 | 160 | 60 | 240 | 980 | 160 | 100 | 1770 | 80 |
| RTOR Reduction (vph) | 0 | 0 | 543 | 0 | 0 | 46 | 0 | 0 | 117 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 130 | 560 | 67 | 160 | 160 | 14 | 240 | 980 | 43 | 100 | 1846 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Over | Prot | | Perm | Prot | | Over | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 6.0 | 21.4 | 11.7 | 8.6 | 24.0 | 24.0 | 11.7 | 50.8 | 8.6 | 6.8 | 45.9 | |
| Effective Green, g (s) | 6.0 | 21.4 | 11.7 | 8.6 | 24.0 | 24.0 | 11.7 | 50.8 | 8.6 | 6.8 | 45.9 | |
| Actuated g/C Ratio | 0.06 | 0.20 | 0.11 | 0.08 | 0.23 | 0.23 | 0.11 | 0.48 | 0.08 | 0.06 | 0.43 | |
| Clearance Time (s) | 4.0 | 4.9 | 4.0 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 4.0 | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 199 | 730 | 314 | 285 | 819 | 360 | 387 | 2491 | 131 | 225 | 2234 | |
| v/s Ratio Prot | 0.04 | c0.16 | 0.02 | c0.05 | c0.04 | | c0.07 | 0.19 | 0.03 | 0.03 | c0.36 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | |
| v/c Ratio | 0.65 | 0.77 | 0.21 | 0.56 | 0.20 | 0.04 | 0.62 | 0.39 | 0.33 | 0.44 | 0.83 | |
| Uniform Delay, d1 | 48.9 | 39.8 | 42.9 | 46.8 | 33.1 | 31.9 | 44.9 | 17.6 | 45.9 | 47.7 | 26.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.5 | 4.8 | 0.3 | 2.5 | 0.1 | 0.0 | 3.1 | 0.5 | 1.5 | 1.4 | 3.7 | |
| Delay (s) | 56.4 | 44.7 | 43.2 | 49.3 | 33.2 | 31.9 | 48.0 | 18.1 | 47.4 | 49.1 | 30.1 | |
| Level of Service | E | D | D | D | C | C | D | B | D | D | C | |
| Approach Delay (s) | | 45.2 | | | 39.8 | | | 26.7 | | | 31.1 | |
| Approach LOS | | D | | | D | | | C | | | C | |

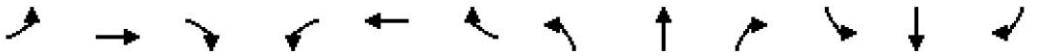
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 105.8 | Sum of lost time (s) | 23.1 |
| Intersection Capacity Utilization | 78.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 10 | 40 | 10 | 10 | 30 | 10 | 770 | 10 | 50 | 1400 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.88 | | 1.00 | 0.89 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1672 | | 1805 | 1686 | | 1805 | 3603 | | 1805 | 3577 | |
| Flt Permitted | 0.73 | 1.00 | | 0.72 | 1.00 | | 0.15 | 1.00 | | 0.34 | 1.00 | |
| Satd. Flow (perm) | 1389 | 1672 | | 1376 | 1686 | | 278 | 3603 | | 654 | 3577 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 10 | 40 | 10 | 10 | 30 | 10 | 770 | 10 | 50 | 1400 | 90 |
| RTOR Reduction (vph) | 0 | 34 | 0 | 0 | 26 | 0 | 0 | 1 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 130 | 16 | 0 | 10 | 14 | 0 | 10 | 779 | 0 | 50 | 1487 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.5 | 15.5 | | 15.5 | 15.5 | | 86.5 | 86.5 | | 86.5 | 86.5 | |
| Effective Green, g (s) | 15.5 | 15.5 | | 15.5 | 15.5 | | 86.5 | 86.5 | | 86.5 | 86.5 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.14 | 0.14 | | 0.79 | 0.79 | | 0.79 | 0.79 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 196 | 236 | | 194 | 238 | | 219 | 2833 | | 514 | 2813 | |
| v/s Ratio Prot | | 0.01 | | | 0.01 | | | 0.22 | | | c0.42 | |
| v/s Ratio Perm | c0.09 | | | 0.01 | | | 0.04 | | | 0.08 | | |
| v/c Ratio | 0.66 | 0.07 | | 0.05 | 0.06 | | 0.05 | 0.28 | | 0.10 | 0.53 | |
| Uniform Delay, d1 | 44.8 | 41.0 | | 40.9 | 40.9 | | 2.6 | 3.2 | | 2.7 | 4.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.75 | 0.74 | | 0.78 | 0.76 | |
| Incremental Delay, d2 | 8.2 | 0.1 | | 0.1 | 0.1 | | 0.4 | 0.2 | | 0.3 | 0.6 | |
| Delay (s) | 52.9 | 41.1 | | 41.0 | 41.0 | | 2.3 | 2.6 | | 2.5 | 3.9 | |
| Level of Service | D | D | | D | D | | A | A | | A | A | |
| Approach Delay (s) | | 49.7 | | | 41.0 | | | 2.6 | | | 3.8 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



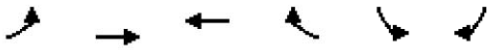
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 110 | 50 | 20 | 80 | 90 | 40 | 860 | 30 | 220 | 1190 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.92 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3441 | | 1805 | 3323 | | 1805 | 3592 | | 1805 | 3572 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3441 | | 1805 | 3323 | | 1805 | 3592 | | 1805 | 3572 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 110 | 50 | 20 | 80 | 90 | 40 | 860 | 30 | 220 | 1190 | 90 |
| RTOR Reduction (vph) | 0 | 43 | 0 | 0 | 82 | 0 | 0 | 1 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 90 | 117 | 0 | 20 | 88 | 0 | 40 | 889 | 0 | 220 | 1277 | 0 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.8 | 15.3 | | 2.4 | 9.9 | | 5.4 | 57.8 | | 18.5 | 70.9 | |
| Effective Green, g (s) | 7.8 | 15.3 | | 2.4 | 9.9 | | 5.4 | 57.8 | | 18.5 | 70.9 | |
| Actuated g/C Ratio | 0.07 | 0.14 | | 0.02 | 0.09 | | 0.05 | 0.53 | | 0.17 | 0.64 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 128 | 479 | | 39 | 299 | | 89 | 1887 | | 304 | 2302 | |
| v/s Ratio Prot | c0.05 | c0.03 | | 0.01 | 0.03 | | 0.02 | 0.25 | | c0.12 | c0.36 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.70 | 0.24 | | 0.51 | 0.29 | | 0.45 | 0.47 | | 0.72 | 0.55 | |
| Uniform Delay, d1 | 50.0 | 42.2 | | 53.2 | 46.8 | | 50.9 | 16.5 | | 43.3 | 10.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.72 | 1.68 | |
| Incremental Delay, d2 | 16.1 | 0.3 | | 10.9 | 0.6 | | 3.6 | 0.8 | | 7.3 | 0.9 | |
| Delay (s) | 66.0 | 42.5 | | 64.1 | 47.3 | | 54.4 | 17.3 | | 38.6 | 19.1 | |
| Level of Service | E | D | | E | D | | D | B | | D | B | |
| Approach Delay (s) | | 50.9 | | | 49.1 | | | 18.9 | | | 21.9 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 300 | 480 | 270 | 180 | 360 | 200 | 170 | 430 | 170 | 280 | 650 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1615 | 3502 | 3610 | 1587 | 3502 | 3610 | 1615 | 3502 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1615 | 3502 | 3610 | 1587 | 3502 | 3610 | 1615 | 3502 | 3610 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 300 | 480 | 270 | 180 | 360 | 200 | 170 | 430 | 170 | 280 | 650 | 280 |
| RTOR Reduction (vph) | 0 | 0 | 211 | 0 | 0 | 166 | 0 | 0 | 103 | 0 | 0 | 134 |
| Lane Group Flow (vph) | 300 | 480 | 59 | 180 | 360 | 34 | 170 | 430 | 67 | 280 | 650 | 146 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 13.6 | 20.0 | 20.0 | 10.3 | 16.7 | 16.7 | 10.0 | 38.2 | 38.2 | 13.1 | 41.3 | 41.3 |
| Effective Green, g (s) | 13.6 | 20.0 | 20.0 | 10.3 | 16.7 | 16.7 | 10.0 | 38.2 | 38.2 | 13.1 | 41.3 | 41.3 |
| Actuated g/C Ratio | 0.14 | 0.20 | 0.20 | 0.11 | 0.17 | 0.17 | 0.10 | 0.39 | 0.39 | 0.13 | 0.42 | 0.42 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 488 | 740 | 331 | 370 | 618 | 272 | 359 | 1413 | 632 | 470 | 1528 | 671 |
| v/s Ratio Prot | c0.09 | c0.13 | | 0.05 | 0.10 | | 0.05 | 0.12 | | c0.08 | c0.18 | |
| v/s Ratio Perm | | | 0.04 | | | 0.02 | | | 0.04 | | | 0.09 |
| v/c Ratio | 0.61 | 0.65 | 0.18 | 0.49 | 0.58 | 0.13 | 0.47 | 0.30 | 0.11 | 0.60 | 0.43 | 0.22 |
| Uniform Delay, d1 | 39.5 | 35.6 | 32.0 | 41.2 | 37.2 | 34.3 | 41.3 | 20.5 | 18.9 | 39.8 | 19.8 | 17.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.3 | 2.0 | 0.3 | 1.0 | 1.4 | 0.2 | 1.0 | 0.6 | 0.3 | 2.0 | 0.9 | 0.7 |
| Delay (s) | 41.8 | 37.5 | 32.3 | 42.2 | 38.6 | 34.5 | 42.3 | 21.1 | 19.2 | 41.8 | 20.7 | 18.6 |
| Level of Service | D | D | C | D | D | C | D | C | B | D | C | B |
| Approach Delay (s) | | 37.4 | | | 38.4 | | | 25.3 | | | 25.1 | |
| Approach LOS | | D | | | D | | | C | | | C | |

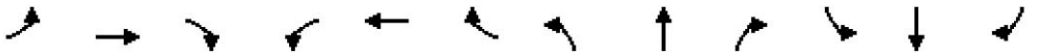
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 97.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 57.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



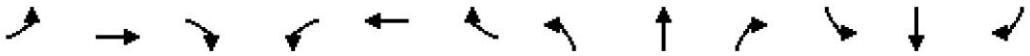
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 260 | 10 | 10 | 490 | 870 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1615 | 1805 | 1615 |
| Flt Permitted | 0.75 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1426 | 3610 | 3610 | 1615 | 1805 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 260 | 10 | 10 | 490 | 870 | 260 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 77 |
| Lane Group Flow (vph) | 260 | 10 | 10 | 490 | 870 | 183 |
| Turn Type | Perm | | | pt+ov | | Perm |
| Protected Phases | | 4 | 8 | 8 1 | 1 | |
| Permitted Phases | 4 | | | | | 1 |
| Actuated Green, G (s) | 24.6 | 24.6 | 24.6 | 110.0 | 77.4 | 77.4 |
| Effective Green, g (s) | 24.6 | 24.6 | 24.6 | 110.0 | 77.4 | 77.4 |
| Actuated g/C Ratio | 0.22 | 0.22 | 0.22 | 1.00 | 0.70 | 0.70 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 319 | 807 | 807 | 1615 | 1270 | 1136 |
| v/s Ratio Prot | | 0.00 | 0.00 | 0.30 | c0.48 | |
| v/s Ratio Perm | c0.18 | | | | | 0.11 |
| v/c Ratio | 0.82 | 0.01 | 0.01 | 0.30 | 0.69 | 0.16 |
| Uniform Delay, d1 | 40.5 | 33.2 | 33.2 | 0.0 | 9.3 | 5.4 |
| Progression Factor | 1.00 | 1.00 | 0.84 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 14.7 | 0.0 | 0.0 | 0.1 | 1.5 | 0.1 |
| Delay (s) | 55.2 | 33.2 | 27.8 | 0.1 | 10.9 | 5.5 |
| Level of Service | E | C | C | A | B | A |
| Approach Delay (s) | | 54.4 | 0.7 | | 9.6 | |
| Approach LOS | | D | A | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 75.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



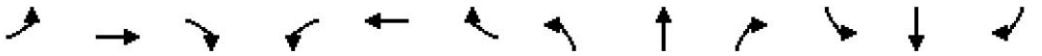
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 400 | 480 | 330 | 320 | 0 | 0 | 0 | 0 | 160 | 190 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.98 | 1.00 |
| Satd. Flow (prot) | | 3610 | 1615 | 1805 | 3610 | | | | | | 1858 | 1615 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.98 | 1.00 |
| Satd. Flow (perm) | | 3610 | 1615 | 1805 | 3610 | | | | | | 1858 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 400 | 480 | 330 | 320 | 0 | 0 | 0 | 0 | 160 | 190 | 180 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 0 | 400 | 480 | 330 | 320 | 0 | 0 | 0 | 0 | 0 | 350 | 143 |
| Turn Type | | | Free | Prot | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | 3 | 8 | | | | | | 6 | |
| Permitted Phases | | | Free | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 17.7 | 110.0 | 24.8 | 46.5 | | | | | | 55.5 | 55.5 |
| Effective Green, g (s) | | 17.7 | 110.0 | 24.8 | 46.5 | | | | | | 55.5 | 55.5 |
| Actuated g/C Ratio | | 0.16 | 1.00 | 0.23 | 0.42 | | | | | | 0.50 | 0.50 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 581 | 1615 | 407 | 1526 | | | | | | 937 | 815 |
| v/s Ratio Prot | | c0.11 | | c0.18 | 0.09 | | | | | | | |
| v/s Ratio Perm | | | 0.30 | | | | | | | | 0.19 | 0.09 |
| v/c Ratio | | 0.69 | 0.30 | 0.81 | 0.21 | | | | | | 0.37 | 0.18 |
| Uniform Delay, d1 | | 43.5 | 0.0 | 40.4 | 20.1 | | | | | | 16.6 | 14.8 |
| Progression Factor | | 1.02 | 1.00 | 1.16 | 1.74 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 2.5 | 0.3 | 11.3 | 0.1 | | | | | | 1.1 | 0.5 |
| Delay (s) | | 46.8 | 0.3 | 58.2 | 35.1 | | | | | | 17.8 | 15.3 |
| Level of Service | | D | A | E | D | | | | | | B | B |
| Approach Delay (s) | | 21.5 | | | 46.8 | | | 0.0 | | | 16.9 | |
| Approach LOS | | C | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 50.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



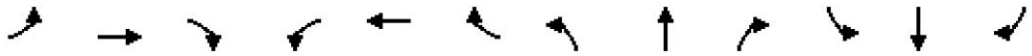
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 510 | 0 | 0 | 250 | 10 | 400 | 20 | 230 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | | | 3610 | 1615 | 1805 | 1900 | 1615 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | | | 3610 | 1615 | 1805 | 1900 | 1615 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 510 | 0 | 0 | 250 | 10 | 400 | 20 | 230 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 63 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 50 | 510 | 0 | 0 | 250 | 1 | 400 | 20 | 167 | 0 | 0 | 0 |
| Turn Type | Prot | | | | | Perm | Perm | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | | | | | | 8 | 2 | | 2 | | | |
| Actuated Green, G (s) | 7.4 | 25.6 | | | 14.2 | 14.2 | 76.4 | 76.4 | 76.4 | | | |
| Effective Green, g (s) | 7.4 | 25.6 | | | 14.2 | 14.2 | 76.4 | 76.4 | 76.4 | | | |
| Actuated g/C Ratio | 0.07 | 0.23 | | | 0.13 | 0.13 | 0.69 | 0.69 | 0.69 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 121 | 840 | | | 466 | 208 | 1254 | 1320 | 1122 | | | |
| v/s Ratio Prot | 0.03 | c0.14 | | | 0.07 | | | 0.01 | | | | |
| v/s Ratio Perm | | | | | | 0.00 | c0.22 | | 0.10 | | | |
| v/c Ratio | 0.41 | 0.61 | | | 0.54 | 0.01 | 0.32 | 0.02 | 0.15 | | | |
| Uniform Delay, d1 | 49.2 | 37.7 | | | 44.8 | 41.7 | 6.6 | 5.2 | 5.7 | | | |
| Progression Factor | 1.50 | 1.54 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 2.1 | 1.2 | | | 1.2 | 0.0 | 0.7 | 0.0 | 0.3 | | | |
| Delay (s) | 75.8 | 59.4 | | | 46.0 | 41.8 | 7.3 | 5.2 | 6.0 | | | |
| Level of Service | E | E | | | D | D | A | A | A | | | |
| Approach Delay (s) | | 60.9 | | | 45.8 | | | 6.8 | | | 0.0 | |
| Approach LOS | | E | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 10 | 60 | 70 | 10 | 130 | 30 | 530 | 60 | 160 | 770 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.87 | | 1.00 | 0.86 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4520 | | 1805 | 4465 | | 1805 | 3555 | | 1805 | 3565 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4520 | | 1805 | 4465 | | 1805 | 3555 | | 1805 | 3565 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 10 | 60 | 70 | 10 | 130 | 30 | 530 | 60 | 160 | 770 | 70 |
| RTOR Reduction (vph) | 0 | 54 | 0 | 0 | 122 | 0 | 0 | 5 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 110 | 16 | 0 | 70 | 18 | 0 | 30 | 585 | 0 | 160 | 836 | 0 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 11.1 | 11.1 | | 7.0 | 7.0 | | 5.0 | 61.0 | | 14.9 | 70.9 | |
| Effective Green, g (s) | 11.1 | 11.1 | | 7.0 | 7.0 | | 5.0 | 61.0 | | 14.9 | 70.9 | |
| Actuated g/C Ratio | 0.10 | 0.10 | | 0.06 | 0.06 | | 0.05 | 0.55 | | 0.14 | 0.64 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 182 | 456 | | 115 | 284 | | 82 | 1971 | | 244 | 2298 | |
| v/s Ratio Prot | c0.06 | 0.00 | | 0.04 | c0.00 | | 0.02 | 0.16 | | c0.09 | c0.23 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.60 | 0.04 | | 0.61 | 0.06 | | 0.37 | 0.30 | | 0.66 | 0.36 | |
| Uniform Delay, d1 | 47.3 | 44.6 | | 50.2 | 48.4 | | 51.0 | 13.1 | | 45.1 | 9.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.6 | 0.0 | | 8.8 | 0.1 | | 2.8 | 0.4 | | 6.2 | 0.4 | |
| Delay (s) | 52.9 | 44.7 | | 59.0 | 48.5 | | 53.7 | 13.4 | | 51.3 | 9.5 | |
| Level of Service | D | D | | E | D | | D | B | | D | A | |
| Approach Delay (s) | | 49.7 | | | 52.0 | | | 15.4 | | | 16.2 | |
| Approach LOS | | D | | | D | | | B | | | B | |

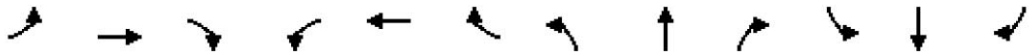
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 49.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 0 | 10 | 10 | 90 | 40 | 470 | 0 | 0 | 190 | 350 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 10 | 10 | 90 | 40 | 470 | 0 | 0 | 190 | 350 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1010 | 915 | 365 | 915 | 1090 | 470 | 540 | | | 470 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1010 | 915 | 365 | 915 | 1090 | 470 | 540 | | | 470 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 96 | 95 | 85 | 96 | | | 100 | | |
| cM capacity (veh/h) | 175 | 264 | 685 | 248 | 209 | 598 | 1039 | | | 1102 | | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 110 | 510 | 540 |
| Volume Left | 10 | 40 | 0 |
| Volume Right | 90 | 0 | 350 |
| cSH | 461 | 1039 | 1700 |
| Volume to Capacity | 0.24 | 0.04 | 0.32 |
| Queue Length 95th (ft) | 23 | 3 | 0 |
| Control Delay (s) | 15.3 | 1.1 | 0.0 |
| Lane LOS | C | A | |
| Approach Delay (s) | 15.3 | 1.1 | 0.0 |
| Approach LOS | C | | |

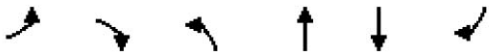
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.9 | | | |
| Intersection Capacity Utilization | 71.1% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 380 | 20 | 40 | 0 | 0 | 0 | 0 | 130 | 10 | 70 | 120 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 380 | 20 | 40 | 0 | 0 | 0 | 0 | 130 | 10 | 70 | 120 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 395 | 400 | 120 | 445 | 395 | 135 | 120 | | | 140 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 395 | 400 | 120 | 445 | 395 | 135 | 120 | | | 140 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 31 | 96 | 96 | 100 | 100 | 100 | 100 | | | 95 | | |
| cM capacity (veh/h) | 547 | 515 | 937 | 472 | 519 | 919 | 1480 | | | 1456 | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 380 | 60 | 140 | 190 |
| Volume Left | 380 | 0 | 0 | 70 |
| Volume Right | 0 | 40 | 10 | 0 |
| cSH | 547 | 736 | 1700 | 1456 |
| Volume to Capacity | 0.69 | 0.08 | 0.08 | 0.05 |
| Queue Length 95th (ft) | 135 | 7 | 0 | 4 |
| Control Delay (s) | 25.2 | 10.3 | 0.0 | 3.0 |
| Lane LOS | D | B | | A |
| Approach Delay (s) | 23.1 | | 0.0 | 3.0 |
| Approach LOS | C | | | |

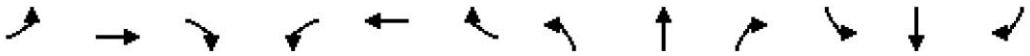
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 14.0 | | | |
| Intersection Capacity Utilization | 48.7% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 300 | 150 | 30 | 870 | 1180 | 380 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 300 | 150 | 30 | 870 | 1180 | 380 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1680 | 595 | 1560 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1680 | 595 | 1560 | | | |
| tC, single (s) | 6.8 | 6.9 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 0 | 67 | 93 | | | |
| cM capacity (veh/h) | 81 | 451 | 430 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 450 | 30 | 435 | 435 | 590 | 590 | 380 |
| Volume Left | 300 | 30 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 150 | 0 | 0 | 0 | 0 | 0 | 380 |
| cSH | 111 | 430 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 4.04 | 0.07 | 0.26 | 0.26 | 0.35 | 0.35 | 0.22 |
| Queue Length 95th (ft) | Err | 6 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | Err | 14.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | B | | | | | |
| Approach Delay (s) | Err | 0.5 | | | 0.0 | | |
| Approach LOS | F | | | | | | |

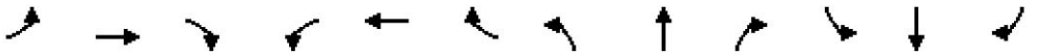
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1546.4 | | |
| Intersection Capacity Utilization | 65.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 30 | 930 | 0 | 0 | 520 | 700 | 550 | 20 | 50 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 30 | 930 | 0 | 0 | 520 | 700 | 550 | 20 | 50 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1225 | | | 935 | | | 1260 | 2220 | 475 | 1090 | 1520 | 270 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1225 | | | 935 | | | 1260 | 2220 | 475 | 1090 | 1520 | 270 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 95 | | | 100 | | | 0 | 52 | 91 | 100 | 100 | 100 |
| cM capacity (veh/h) | 576 | | | 738 | | | 123 | 42 | 537 | 93 | 113 | 731 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 30 | 465 | 465 | 260 | 260 | 700 | 620 |
| Volume Left | 30 | 0 | 0 | 0 | 0 | 0 | 550 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 700 | 50 |
| cSH | 576 | 1700 | 1700 | 1700 | 1700 | 1700 | 123 |
| Volume to Capacity | 0.05 | 0.27 | 0.27 | 0.15 | 0.15 | 0.41 | 5.05 |
| Queue Length 95th (ft) | 4 | 0 | 0 | 0 | 0 | 0 | Err |
| Control Delay (s) | 11.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | Err |
| Lane LOS | B | | | | | | F |
| Approach Delay (s) | 0.4 | | | 0.0 | | | Err |
| Approach LOS | | | | | | | F |

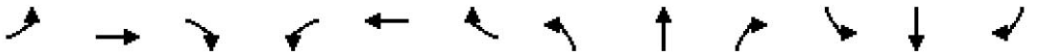
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2214.2 | | | |
| Intersection Capacity Utilization | 88.2% | ICU Level of Service | E | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 740 | 560 | 90 | 980 | 0 | 0 | 0 | 0 | 230 | 10 | 10 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 740 | 560 | 90 | 980 | 0 | 0 | 0 | 0 | 230 | 10 | 10 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 985 | | | 1305 | | | 1430 | 1910 | 380 | 1540 | 2470 | 500 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 985 | | | 1305 | | | 1430 | 1910 | 380 | 1540 | 2470 | 500 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 83 | | | 100 | 100 | 100 | 0 | 60 | 98 |
| cM capacity (veh/h) | 706 | | | 537 | | | 57 | 57 | 621 | 69 | 25 | 517 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 370 | 370 | 560 | 90 | 490 | 490 | 250 |
| Volume Left | 0 | 0 | 0 | 90 | 0 | 0 | 230 |
| Volume Right | 0 | 0 | 560 | 0 | 0 | 0 | 10 |
| cSH | 1700 | 1700 | 1700 | 537 | 1700 | 1700 | 67 |
| Volume to Capacity | 0.22 | 0.22 | 0.33 | 0.17 | 0.29 | 0.29 | 3.73 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 15 | 0 | 0 | Err |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 13.0 | 0.0 | 0.0 | Err |
| Lane LOS | | | | B | | | F |
| Approach Delay (s) | 0.0 | | | 1.1 | | | Err |
| Approach LOS | | | | | | | F |

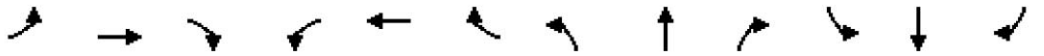
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 954.6 | | | |
| Intersection Capacity Utilization | 88.2% | ICU Level of Service | E | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 350 | 250 | 260 | 260 | 250 | 140 | 2510 | 140 | 440 | 2820 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1598 | 3502 | 3610 | 1601 | 3502 | 5187 | 1590 | 3502 | 5187 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1598 | 3502 | 3610 | 1601 | 3502 | 5187 | 1590 | 3502 | 5187 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 350 | 250 | 260 | 260 | 250 | 140 | 2510 | 140 | 440 | 2820 | 320 |
| RTOR Reduction (vph) | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 34 | 0 | 0 | 69 |
| Lane Group Flow (vph) | 190 | 350 | 249 | 260 | 260 | 246 | 140 | 2510 | 106 | 440 | 2820 | 251 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.9 | 15.9 | 22.9 | 9.0 | 16.0 | 30.0 | 7.0 | 55.0 | 55.0 | 14.0 | 62.0 | 62.0 |
| Effective Green, g (s) | 8.9 | 15.9 | 22.9 | 9.0 | 16.0 | 30.0 | 7.0 | 55.0 | 55.0 | 14.0 | 62.0 | 62.0 |
| Actuated g/C Ratio | 0.08 | 0.14 | 0.21 | 0.08 | 0.15 | 0.27 | 0.06 | 0.50 | 0.50 | 0.13 | 0.56 | 0.56 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 284 | 522 | 391 | 287 | 526 | 495 | 223 | 2596 | 796 | 446 | 2926 | 897 |
| v/s Ratio Prot | 0.05 | 0.10 | c0.04 | c0.07 | 0.07 | 0.06 | 0.04 | 0.48 | | c0.13 | c0.54 | |
| v/s Ratio Perm | | | 0.12 | | | 0.09 | | | 0.07 | | | 0.16 |
| v/c Ratio | 0.67 | 0.67 | 0.64 | 0.91 | 0.49 | 0.50 | 0.63 | 0.97 | 0.13 | 0.99 | 0.96 | 0.28 |
| Uniform Delay, d1 | 49.1 | 44.5 | 39.7 | 50.0 | 43.2 | 33.6 | 50.2 | 26.6 | 14.7 | 47.9 | 22.9 | 12.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.9 | 3.4 | 3.4 | 29.8 | 0.7 | 0.8 | 5.4 | 10.9 | 0.1 | 38.7 | 9.6 | 0.2 |
| Delay (s) | 54.9 | 47.9 | 43.1 | 79.8 | 44.0 | 34.4 | 55.6 | 37.5 | 14.8 | 86.6 | 32.5 | 12.6 |
| Level of Service | D | D | D | E | D | C | E | D | B | F | C | B |
| Approach Delay (s) | | 48.1 | | | 53.0 | | | 37.3 | | | 37.4 | |
| Approach LOS | | D | | | D | | | D | | | D | |

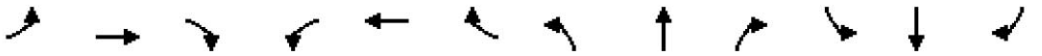
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 109.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 96.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



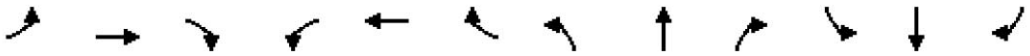
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 30 | 20 | 80 | 370 | 1780 | 0 | 0 | 1530 | 870 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.97 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1845 | 1615 | 1805 | 3610 | | | 3610 | 1615 |
| Flt Permitted | | | | | 0.97 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1845 | 1615 | 1805 | 3610 | | | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 30 | 20 | 80 | 370 | 1780 | 0 | 0 | 1530 | 870 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 279 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 50 | 58 | 370 | 1780 | 0 | 0 | 1530 | 591 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | | 7.4 | 7.4 | 23.1 | 76.3 | | | 49.2 | 49.2 |
| Effective Green, g (s) | | | | | 7.4 | 7.4 | 23.1 | 76.3 | | | 49.2 | 49.2 |
| Actuated g/C Ratio | | | | | 0.08 | 0.08 | 0.25 | 0.83 | | | 0.54 | 0.54 |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 149 | 130 | 455 | 3004 | | | 1937 | 866 |
| v/s Ratio Prot | | | | | | | c0.20 | 0.49 | | | c0.42 | |
| v/s Ratio Perm | | | | | 0.03 | c0.04 | | | | | | 0.37 |
| v/c Ratio | | | | | 0.34 | 0.45 | 0.81 | 0.59 | | | 0.79 | 0.68 |
| Uniform Delay, d1 | | | | | 39.8 | 40.2 | 32.3 | 2.6 | | | 17.1 | 15.5 |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 1.3 | 2.4 | 10.6 | 0.3 | | | 2.2 | 2.2 |
| Delay (s) | | | | | 41.2 | 42.6 | 42.9 | 2.9 | | | 19.3 | 17.8 |
| Level of Service | | | | | D | D | D | A | | | B | B |
| Approach Delay (s) | | 0.0 | | | 42.1 | | | 9.8 | | | 18.8 | |
| Approach LOS | | A | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 91.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 90.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 1110 | 70 | 350 | 0 | 0 | 0 | 0 | 1030 | 60 | 250 | 1300 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1729 | 1615 | | | | | 3610 | 1615 | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1729 | 1615 | | | | | 3610 | 1615 | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 1110 | 70 | 350 | 0 | 0 | 0 | 0 | 1030 | 60 | 250 | 1300 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 41 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 588 | 592 | 329 | 0 | 0 | 0 | 0 | 1030 | 19 | 250 | 1300 | 0 |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 34.2 | 34.2 | 34.2 | | | | | 27.3 | 27.3 | 13.8 | 45.1 | |
| Effective Green, g (s) | 34.2 | 34.2 | 34.2 | | | | | 27.3 | 27.3 | 13.8 | 45.1 | |
| Actuated g/C Ratio | 0.39 | 0.39 | 0.39 | | | | | 0.31 | 0.31 | 0.16 | 0.52 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 672 | 677 | 633 | | | | | 1129 | 505 | 285 | 1865 | |
| v/s Ratio Prot | | | | | | | | c0.29 | | c0.14 | 0.36 | |
| v/s Ratio Perm | c0.34 | 0.34 | 0.20 | | | | | | 0.01 | | | |
| v/c Ratio | 0.88 | 0.87 | 0.52 | | | | | 0.91 | 0.04 | 0.88 | 0.70 | |
| Uniform Delay, d1 | 24.6 | 24.6 | 20.3 | | | | | 28.8 | 20.9 | 35.9 | 15.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 12.2 | 12.1 | 0.7 | | | | | 11.1 | 0.0 | 24.7 | 1.2 | |
| Delay (s) | 36.8 | 36.6 | 21.0 | | | | | 39.9 | 20.9 | 60.6 | 17.1 | |
| Level of Service | D | D | C | | | | | D | C | E | B | |
| Approach Delay (s) | | 33.1 | | | 0.0 | | | 38.9 | | | 24.1 | |
| Approach LOS | | C | | | A | | | D | | | C | |

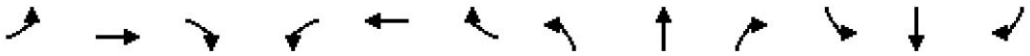
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 87.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 90.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 660 | 150 | 50 | 720 | 20 | 210 | 70 | 290 | 30 | 30 | 10 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 20 | 660 | 150 | 50 | 720 | 20 | 210 | 70 | 290 | 30 | 30 | 10 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 680 | 150 | 50 | 740 | 210 | 360 | 70 |
| Volume Left (vph) | 20 | 0 | 50 | 0 | 210 | 0 | 30 |
| Volume Right (vph) | 0 | 150 | 0 | 20 | 0 | 290 | 10 |
| Hadj (s) | 0.01 | -0.70 | 0.50 | -0.02 | 0.50 | -0.56 | 0.00 |
| Departure Headway (s) | 7.7 | 7.0 | 8.3 | 7.8 | 8.5 | 7.4 | 9.5 |
| Degree Utilization, x | 1.46 | 0.29 | 0.12 | 1.61 | 0.50 | 0.74 | 0.18 |
| Capacity (veh/h) | 463 | 504 | 422 | 465 | 410 | 475 | 368 |
| Control Delay (s) | 239.4 | 11.7 | 11.2 | 301.4 | 18.4 | 27.9 | 14.6 |
| Approach Delay (s) | 198.3 | | 283.0 | | 24.4 | | 14.6 |
| Approach LOS | F | | F | | C | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 178.3 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 87.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 750 | 100 | 250 | 600 | 350 | 150 | 900 | 440 | 380 | 540 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1803 | 3539 | | 1803 | 1710 | 1434 | 1805 | 3412 | | 1805 | 3492 | |
| Flt Permitted | 0.19 | 1.00 | | 0.22 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 363 | 3539 | | 414 | 1710 | 1434 | 1805 | 3412 | | 1805 | 3492 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 180 | 750 | 100 | 250 | 600 | 350 | 150 | 900 | 440 | 380 | 540 | 120 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 9 | 0 | 55 | 0 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 180 | 840 | 0 | 250 | 600 | 341 | 150 | 1285 | 0 | 380 | 643 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 0 | 0 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 48.0 | 48.0 | | 48.0 | 48.0 | 63.0 | 13.5 | 35.0 | | 15.0 | 36.5 | |
| Effective Green, g (s) | 48.0 | 48.0 | | 48.0 | 48.0 | 63.0 | 13.5 | 35.0 | | 15.0 | 36.5 | |
| Actuated g/C Ratio | 0.44 | 0.44 | | 0.44 | 0.44 | 0.57 | 0.12 | 0.32 | | 0.14 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 158 | 1544 | | 181 | 746 | 873 | 222 | 1086 | | 246 | 1159 | |
| v/s Ratio Prot | | 0.24 | | | 0.35 | 0.05 | 0.08 | c0.38 | | c0.21 | 0.18 | |
| v/s Ratio Perm | 0.50 | | | c0.60 | | 0.18 | | | | | | |
| v/c Ratio | 1.14 | 0.54 | | 1.38 | 0.80 | 0.39 | 0.68 | 1.18 | | 1.54 | 0.56 | |
| Uniform Delay, d1 | 31.0 | 22.9 | | 31.0 | 26.9 | 12.9 | 46.2 | 37.5 | | 47.5 | 30.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 113.9 | 0.4 | | 202.1 | 6.3 | 0.3 | 7.9 | 92.2 | | 264.4 | 0.6 | |
| Delay (s) | 144.9 | 23.3 | | 233.1 | 33.2 | 13.2 | 54.0 | 129.7 | | 311.9 | 30.7 | |
| Level of Service | F | C | | F | C | B | D | F | | F | C | |
| Approach Delay (s) | | 44.6 | | | 69.0 | | | 122.1 | | | 133.4 | |
| Approach LOS | | D | | | E | | | F | | | F | |

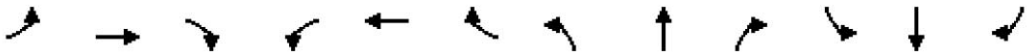
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 94.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.34 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 115.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 650 | 1400 | 30 | 500 | 940 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1800 | 1900 |
| Total Lost time (s) | 5.0 | | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 0.95 | | | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Frt | 0.90 | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3205 | | | 3600 | 1710 | 1615 |
| Flt Permitted | 1.00 | | | 0.64 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3205 | | | 2303 | 1710 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 650 | 1400 | 30 | 500 | 940 | 40 |
| RTOR Reduction (vph) | 517 | 0 | 0 | 0 | 0 | 21 |
| Lane Group Flow (vph) | 1533 | 0 | 0 | 530 | 940 | 19 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Perm | | | Prot |
| Protected Phases | 4 | | | 8 | 2 | 2 |
| Permitted Phases | | | 8 | | | |
| Actuated Green, G (s) | 30.0 | | | 30.0 | 35.0 | 35.0 |
| Effective Green, g (s) | 30.0 | | | 30.0 | 35.0 | 35.0 |
| Actuated g/C Ratio | 0.40 | | | 0.40 | 0.47 | 0.47 |
| Clearance Time (s) | 5.0 | | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1282 | | | 921 | 798 | 754 |
| v/s Ratio Prot | c0.48 | | | | c0.55 | 0.01 |
| v/s Ratio Perm | | | | 0.23 | | |
| v/c Ratio | 1.20dr | | | 0.58 | 1.18 | 0.02 |
| Uniform Delay, d1 | 22.5 | | | 17.5 | 20.0 | 10.8 |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 95.9 | | | 0.9 | 92.9 | 0.0 |
| Delay (s) | 118.4 | | | 18.4 | 112.9 | 10.8 |
| Level of Service | F | | | B | F | B |
| Approach Delay (s) | 118.4 | | | 18.4 | 108.8 | |
| Approach LOS | F | | | B | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 100.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.19 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 126.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

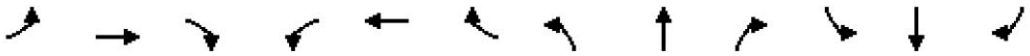
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 670 | 0 | 0 | 270 | 360 | 10 | 30 | 10 | 210 | 10 | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 30 | 670 | 0 | 0 | 270 | 360 | 10 | 30 | 10 | 210 | 10 | 20 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 365 | 335 | 135 | 495 | 50 | 240 |
| Volume Left (vph) | 30 | 0 | 0 | 0 | 10 | 210 |
| Volume Right (vph) | 0 | 0 | 0 | 360 | 10 | 20 |
| Hadj (s) | 0.04 | 0.00 | 0.00 | -0.51 | -0.08 | 0.13 |
| Departure Headway (s) | 6.6 | 6.6 | 6.7 | 6.2 | 7.7 | 7.0 |
| Degree Utilization, x | 0.67 | 0.61 | 0.25 | 0.85 | 0.11 | 0.47 |
| Capacity (veh/h) | 532 | 528 | 522 | 573 | 417 | 487 |
| Control Delay (s) | 20.8 | 18.2 | 10.7 | 33.2 | 11.6 | 16.1 |
| Approach Delay (s) | 19.6 | | 28.4 | | 11.6 | 16.1 |
| Approach LOS | C | | D | | B | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 22.2 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 67.3% | ICU Level of Service | | C |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 750 | 20 | 10 | 570 | 280 | 10 | 10 | 10 | 110 | 0 | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 30 | 750 | 20 | 10 | 570 | 280 | 10 | 10 | 10 | 110 | 0 | 20 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 800 | 860 | 30 | 110 | 20 |
| Volume Left (vph) | 30 | 10 | 10 | 110 | 0 |
| Volume Right (vph) | 20 | 280 | 10 | 0 | 20 |
| Hadj (s) | -0.01 | -0.19 | -0.13 | 0.50 | -0.70 |
| Departure Headway (s) | 5.5 | 5.3 | 7.7 | 8.2 | 7.0 |
| Degree Utilization, x | 1.21 | 1.26 | 0.06 | 0.25 | 0.04 |
| Capacity (veh/h) | 654 | 691 | 455 | 428 | 503 |
| Control Delay (s) | 129.7 | 147.5 | 11.2 | 12.7 | 9.1 |
| Approach Delay (s) | 129.7 | 147.5 | 11.2 | 12.2 | |
| Approach LOS | F | F | B | B | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 127.7 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 78.4% | ICU Level of Service | D | |
| Analysis Period (min) | 15 | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 130 | 670 | 60 | 100 | 800 | 100 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 130 | 670 | 60 | 100 | 800 | 100 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 800 | 160 | 900 |
| Volume Left (vph) | 0 | 60 | 800 |
| Volume Right (vph) | 670 | 0 | 100 |
| Hadj (s) | -0.50 | 0.08 | 0.11 |
| Departure Headway (s) | 5.7 | 7.1 | 6.3 |
| Degree Utilization, x | 1.26 | 0.31 | 1.57 |
| Capacity (veh/h) | 647 | 504 | 580 |
| Control Delay (s) | 147.1 | 13.3 | 280.4 |
| Approach Delay (s) | 147.1 | 13.3 | 280.4 |
| Approach LOS | F | B | F |

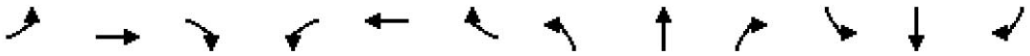
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 200.1 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 115.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 120 | 40 | 230 | 60 | 70 | 240 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 120 | 40 | 230 | 60 | 70 | 240 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 160 | | 660 | 140 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 160 | | 660 | 140 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 84 | | 81 | 74 |
| cM capacity (veh/h) | | | 1432 | | 362 | 913 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 160 | 290 | 310 |
| Volume Left | 0 | 230 | 70 |
| Volume Right | 40 | 0 | 240 |
| cSH | 1700 | 1432 | 679 |
| Volume to Capacity | 0.09 | 0.16 | 0.46 |
| Queue Length 95th (ft) | 0 | 14 | 60 |
| Control Delay (s) | 0.0 | 6.6 | 14.7 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 6.6 | 14.7 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.5 | | |
| Intersection Capacity Utilization | 53.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 10 | 10 | 20 | 10 | 10 | 10 | 300 | 60 | 20 | 270 | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 10 | 10 | 20 | 10 | 10 | 10 | 300 | 60 | 20 | 270 | 20 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 30 | 40 | 370 | 310 |
| Volume Left (vph) | 10 | 20 | 10 | 20 |
| Volume Right (vph) | 10 | 10 | 60 | 20 |
| Hadj (s) | -0.13 | -0.05 | -0.09 | -0.03 |
| Departure Headway (s) | 5.3 | 5.4 | 4.3 | 4.5 |
| Degree Utilization, x | 0.04 | 0.06 | 0.45 | 0.38 |
| Capacity (veh/h) | 586 | 583 | 809 | 781 |
| Control Delay (s) | 8.6 | 8.7 | 10.8 | 10.2 |
| Approach Delay (s) | 8.6 | 8.7 | 10.8 | 10.2 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 10.4 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 35.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix H

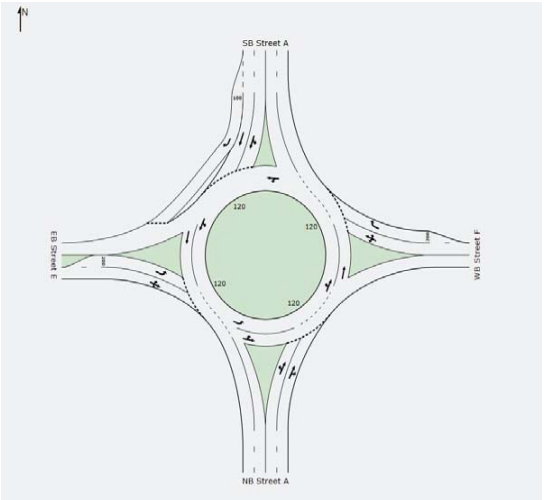
## Intersection LOS Worksheets
## for 2035 Plus Build-out Conditions

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**Title:** Intersection 1 - 2035 Plus Build-out - AM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street A | | | | | | | | | | |
| Lane 1 | 331 | 0.0 | 635 | 0.521 | 100 | 10.9 | LOS B | 3.2 | 79.6 | 0.0 |
| Lane 2 | 359 | 0.0 | 689 | 0.521 | 100 | 10.3 | LOS B | 3.3 | 82.3 | 0.0 |
| Approach | 690 | 0.0 | | 0.521 | | 10.6 | LOS B | 3.3 | 82.3 | |
| East: WB Street F | | | | | | | | | | |
| Lane 1 | 188 | 0.0 | 651 | 0.289 | 100 | 10.8 | LOS B | 1.1 | 28.6 | 0.0 |
| Lane 2 | 212 | 0.0 | 731 | 0.289 | 100 | 9.0 | LOS A | 1.2 | 29.5 | 0.0 |
| Approach | 400 | 0.0 | | 0.289 | | 9.8 | LOS A | 1.2 | 29.5 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 760 | 0.0 | 1299 | 0.585 | 100 | 9.7 | LOS A | 5.1 | 128.4 | 0.0 |
| Lane 2 | 760 | 0.0 | 1299 | 0.585 | 100 | 5.2 | LOS A | 5.1 | 128.4 | 0.0 |
| Lane 3 | 1010 | 0.0 | 1055 | 0.958 | 100 | 9.1 | LOS A | 9.2 | 230.2 | 42.3 |
| Approach | 2530 | 0.0 | | 0.958 | | 8.1 | LOS A | 9.2 | 230.2 | |
| West: EB Street E | | | | | | | | | | |
| Lane 1 | 289 | 0.0 | 544 | 0.531 | 100 | 19.1 | LOS B | 2.7 | 68.0 | 0.0 |
| Lane 2 | 341 | 0.0 | 641 | 0.531 | 100 | 17.3 | LOS B | 2.9 | 72.1 | 0.0 |
| Approach | 630 | 0.0 | | 0.531 | | 18.1 | LOS B | 2.9 | 72.1 | |
| All Vehicles | 4250 | | | 0.958 | | 10.2 | LOS B | 9.2 | 230.2 | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 110 | 480 | 50 | 290 | 560 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1900 | 1591 | 3502 | 1900 | 1805 | 1592 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1900 | 1591 | 3502 | 1900 | 1805 | 1592 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 110 | 480 | 50 | 290 | 560 |
| RTOR Reduction (vph) | 0 | 95 | 0 | 0 | 0 | 386 |
| Lane Group Flow (vph) | 20 | 15 | 480 | 50 | 290 | 174 |
| Confl. Peds. (#/hr) | | 5 | | | 5 | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | 4 | | | | 2 |
| Actuated Green, G (s) | 5.4 | 5.4 | 10.5 | 19.9 | 12.6 | 12.6 |
| Effective Green, g (s) | 5.4 | 5.4 | 10.5 | 19.9 | 12.6 | 12.6 |
| Actuated g/C Ratio | 0.13 | 0.13 | 0.26 | 0.49 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 253 | 212 | 908 | 934 | 562 | 495 |
| v/s Ratio Prot | c0.01 | | c0.14 | 0.03 | c0.16 | |
| v/s Ratio Perm | | 0.01 | | | | 0.11 |
| v/c Ratio | 0.08 | 0.07 | 0.53 | 0.05 | 0.52 | 0.35 |
| Uniform Delay, d1 | 15.4 | 15.4 | 12.9 | 5.4 | 11.4 | 10.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.1 | 0.1 | 0.6 | 0.0 | 0.8 | 0.4 |
| Delay (s) | 15.5 | 15.5 | 13.4 | 5.4 | 12.3 | 11.2 |
| Level of Service | B | B | B | A | B | B |
| Approach Delay (s) | 15.5 | | | 12.7 | 11.6 | |
| Approach LOS | B | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 40.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 49.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

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# LANE OUTPUT

*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 3 - 2035 Plus Build-out - AM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 210 | 0.0 | 953 | 0.220 | 78 | 7.1 | LOS A | 1.3 | 32.2 | 0.0 |
| Lane 2 | 300 | 0.0 | 1060 | 0.283 | 100 | 8.6 | LOS A | 1.8 | 44.6 | 0.0 |
| Approach | 510 | 0.0 | | 0.283 | | 8.0 | LOS A | 1.8 | 44.6 | |
| East: WB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 380 | 0.0 | 1049 | 0.362 | 100 | 13.4 | LOS B | 2.1 | 52.2 | 0.0 |
| Lane 2 | 250 | 0.0 | 964 | 0.259 | 100 | 7.6 | LOS A | 1.3 | 33.3 | 0.0 |
| Approach | 630 | 0.0 | | 0.362 | | 11.1 | LOS B | 2.1 | 52.2 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 270 | 0.0 | 977 | 0.276 | 100 | 14.0 | LOS B | 1.5 | 38.7 | 0.0 |
| Lane 2 | 280 | 0.0 | 1016 | 0.276 | 100 | 7.6 | LOS A | 1.6 | 39.0 | 0.0 |
| Approach | 550 | 0.0 | | 0.276 | | 10.8 | LOS B | 1.6 | 39.0 | |
| All Vehicles | 1690 | | | 0.362 | | 10.1 | LOS B | 2.1 | 52.2 | |



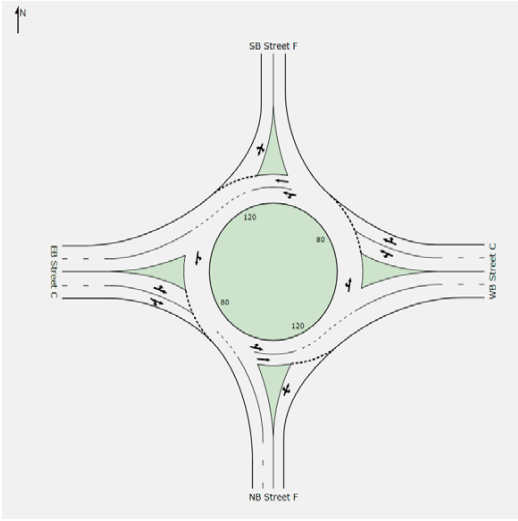
# LANE OUTPUT

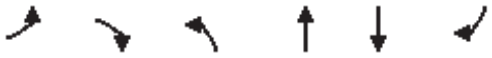
*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 4 - 2035 Plus Build-out - AM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street F | | | | | | | | | | |
| Lane 1 | 270 | 0.0 | 727 | 0.371 | 100 | 12.7 | LOS B | 1.9 | 46.7 | 0.0 |
| Approach | 270 | 0.0 | | 0.371 | | 12.7 | LOS B | 1.9 | 46.7 | |
| East: WB Street C | | | | | | | | | | |
| Lane 1 | 392 | 0.0 | 997 | 0.393 | 100 | 10.8 | LOS B | 2.3 | 57.8 | 0.0 |
| Lane 2 | 408 | 0.0 | 1038 | 0.393 | 100 | 8.1 | LOS A | 2.3 | 58.4 | 0.0 |
| Approach | 800 | 0.0 | | 0.393 | | 9.4 | LOS A | 2.3 | 58.4 | |
| North: SB Street F | | | | | | | | | | |
| Lane 1 | 250 | 0.0 | 673 | 0.372 | 100 | 11.5 | LOS B | 1.7 | 42.3 | 0.0 |
| Approach | 250 | 0.0 | | 0.372 | | 11.5 | LOS B | 1.7 | 42.3 | |
| West: EB Street C | | | | | | | | | | |
| Lane 1 | 314 | 0.0 | 1031 | 0.305 | 100 | 10.7 | LOS B | 1.7 | 41.5 | 0.0 |
| Lane 2 | 326 | 0.0 | 1067 | 0.305 | 100 | 8.5 | LOS A | 1.7 | 41.8 | 0.0 |
| Approach | 640 | 0.0 | | 0.305 | | 9.6 | LOS A | 1.7 | 41.8 | |
| All Vehicles | 1960 | | | 0.393 | | 10.2 | LOS B | 2.3 | 58.4 | |

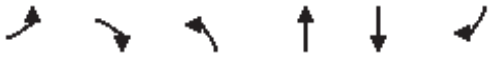




| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 300 | 360 | 860 | 1760 | 1060 | 680 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.88 | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 2791 | 1805 | 5187 | 5187 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 2791 | 1805 | 5187 | 5187 | 1583 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 300 | 360 | 860 | 1760 | 1060 | 680 |
| RTOR Reduction (vph) | 0 | 288 | 0 | 0 | 0 | 334 |
| Lane Group Flow (vph) | 300 | 72 | 860 | 1760 | 1060 | 346 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 23.2 | 23.2 | 55.1 | 84.1 | 25.0 | 25.0 |
| Effective Green, g (s) | 23.2 | 23.2 | 55.1 | 84.1 | 25.0 | 25.0 |
| Actuated g/C Ratio | 0.20 | 0.20 | 0.48 | 0.73 | 0.22 | 0.22 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 363 | 562 | 863 | 3783 | 1125 | 343 |
| v/s Ratio Prot | c0.17 | | c0.48 | 0.34 | 0.20 | |
| v/s Ratio Perm | | 0.03 | | | | c0.22 |
| v/c Ratio | 0.83 | 0.13 | 1.00 | 0.47 | 0.94 | 1.01 |
| Uniform Delay, d1 | 44.1 | 37.8 | 30.0 | 6.4 | 44.4 | 45.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 14.2 | 0.1 | 29.6 | 0.1 | 15.0 | 51.1 |
| Delay (s) | 58.3 | 37.9 | 59.6 | 6.5 | 59.4 | 96.2 |
| Level of Service | E | D | E | A | E | F |
| Approach Delay (s) | 47.2 | | | 23.9 | 73.8 | |
| Approach LOS | D | | | C | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 44.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 115.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 97.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 130 | 320 | 1770 | 1770 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1587 | 1805 | 5187 | 5187 | 1575 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1587 | 1805 | 5187 | 5187 | 1575 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 130 | 320 | 1770 | 1770 | 20 |
| RTOR Reduction (vph) | 0 | 118 | 0 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 10 | 12 | 320 | 1770 | 1770 | 13 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 5.8 | 5.8 | 13.3 | 47.9 | 30.6 | 30.6 |
| Effective Green, g (s) | 5.8 | 5.8 | 13.3 | 47.9 | 30.6 | 30.6 |
| Actuated g/C Ratio | 0.09 | 0.09 | 0.22 | 0.78 | 0.50 | 0.50 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 170 | 149 | 389 | 4027 | 2572 | 781 |
| v/s Ratio Prot | 0.01 | | c0.18 | 0.34 | c0.34 | |
| v/s Ratio Perm | | c0.01 | | | | 0.01 |
| v/c Ratio | 0.06 | 0.08 | 0.82 | 0.44 | 0.69 | 0.02 |
| Uniform Delay, d1 | 25.5 | 25.5 | 23.1 | 2.3 | 11.9 | 7.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.1 | 0.2 | 13.1 | 0.1 | 0.8 | 0.0 |
| Delay (s) | 25.6 | 25.8 | 36.2 | 2.4 | 12.7 | 7.9 |
| Level of Service | C | C | D | A | B | A |
| Approach Delay (s) | 25.7 | | | 7.6 | 12.6 | |
| Approach LOS | C | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 61.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 0 | 70 | 5 | 0 | 5 | 60 | 900 | 0 | 0 | 590 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | 0.96 | | | 0.93 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | 0.97 | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1757 | | | 1706 | | 1805 | 1900 | | | 1900 | 1571 |
| Flt Permitted | | 0.78 | | | 0.87 | | 0.35 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1421 | | | 1524 | | 667 | 1900 | | | 1900 | 1571 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 180 | 0 | 70 | 5 | 0 | 5 | 60 | 900 | 0 | 0 | 590 | 170 |
| RTOR Reduction (vph) | 0 | 28 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 69 |
| Lane Group Flow (vph) | 0 | 222 | 0 | 0 | 6 | 0 | 60 | 900 | 0 | 0 | 590 | 101 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 13.2 | | | 13.2 | | 30.9 | 30.9 | | | 30.9 | 30.9 |
| Effective Green, g (s) | | 13.2 | | | 13.2 | | 30.9 | 30.9 | | | 30.9 | 30.9 |
| Actuated g/C Ratio | | 0.25 | | | 0.25 | | 0.59 | 0.59 | | | 0.59 | 0.59 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 360 | | | 386 | | 396 | 1127 | | | 1127 | 932 |
| v/s Ratio Prot | | | | | | | | c0.47 | | | 0.31 | |
| v/s Ratio Perm | | c0.16 | | | 0.00 | | 0.09 | | | | | 0.06 |
| v/c Ratio | | 0.62 | | | 0.02 | | 0.15 | 0.80 | | | 0.52 | 0.11 |
| Uniform Delay, d1 | | 17.2 | | | 14.6 | | 4.7 | 8.2 | | | 6.3 | 4.6 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 3.1 | | | 0.0 | | 0.2 | 4.0 | | | 0.4 | 0.1 |
| Delay (s) | | 20.4 | | | 14.6 | | 4.9 | 12.2 | | | 6.7 | 4.7 |
| Level of Service | | C | | | B | | A | B | | | A | A |
| Approach Delay (s) | | 20.4 | | | 14.6 | | | 11.8 | | | 6.2 | |
| Approach LOS | | C | | | B | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 52.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 140 | 30 | 380 | 170 | 170 | 50 | 540 | 200 | 70 | 570 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.98 | | | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.98 | | | 0.97 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3478 | | | 3378 | | 1805 | 3446 | | 1805 | 3610 | 1583 |
| Flt Permitted | | 0.98 | | | 0.97 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3478 | | | 3378 | | 1805 | 3446 | | 1805 | 3610 | 1583 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 100 | 140 | 30 | 380 | 170 | 170 | 50 | 540 | 200 | 70 | 570 | 80 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 26 | 0 | 0 | 33 | 0 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 0 | 262 | 0 | 0 | 694 | 0 | 50 | 707 | 0 | 70 | 570 | 43 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 37.6 | | | 30.2 | | 7.2 | 28.7 | | 7.5 | 29.0 | 29.0 |
| Effective Green, g (s) | | 37.6 | | | 30.2 | | 7.2 | 28.7 | | 7.5 | 29.0 | 29.0 |
| Actuated g/C Ratio | | 0.31 | | | 0.25 | | 0.06 | 0.24 | | 0.06 | 0.24 | 0.24 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 1090 | | | 850 | | 108 | 824 | | 113 | 872 | 383 |
| v/s Ratio Prot | | c0.08 | | | c0.21 | | 0.03 | c0.21 | | c0.04 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.03 |
| v/c Ratio | | 0.24 | | | 0.82 | | 0.46 | 0.86 | | 0.62 | 0.65 | 0.11 |
| Uniform Delay, d1 | | 30.6 | | | 42.3 | | 54.5 | 43.7 | | 54.9 | 41.0 | 35.5 |
| Progression Factor | | 0.92 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.3 | | | 6.1 | | 3.1 | 8.8 | | 9.7 | 1.8 | 0.1 |
| Delay (s) | | 28.4 | | | 48.4 | | 57.7 | 52.5 | | 64.6 | 42.7 | 35.6 |
| Level of Service | | C | | | D | | E | D | | E | D | D |
| Approach Delay (s) | | 28.4 | | | 48.4 | | | 52.9 | | | 44.1 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 46.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 150 | 150 | 10 | 290 | 290 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 150 | 150 | 10 | 290 | 290 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 880 | 5 | 740 | 590 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 880 | 5 | 740 | 590 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 96 | 86 | 37 | 97 | 82 | |
| cM capacity (veh/h) | 235 | 1080 | 239 | 344 | 1623 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 10 | 150 | 160 | 290 | 290 |
| Volume Left | 0 | 0 | 150 | 290 | 0 |
| Volume Right | 0 | 150 | 0 | 0 | 290 |
| cSH | 235 | 1080 | 243 | 1623 | 1700 |
| Volume to Capacity | 0.04 | 0.14 | 0.66 | 0.18 | 0.17 |
| Queue Length 95th (ft) | 3 | 12 | 103 | 16 | 0 |
| Control Delay (s) | 21.0 | 8.9 | 44.3 | 7.7 | 0.0 |
| Lane LOS | C | A | E | A | |
| Approach Delay (s) | 9.6 | | 44.3 | 3.9 | |
| Approach LOS | A | | E | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 12.1 | | | |
| Intersection Capacity Utilization | 38.2% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 310 | 10 | 120 | 0 | 660 | 210 | 0 | 490 | 440 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | | | | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.99 |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1801 | 1900 | 1592 | | 3610 | 1579 | | 3610 | 1592 |
| Flt Permitted | | | | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1801 | 1900 | 1592 | | 3610 | 1579 | | 3610 | 1592 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 310 | 10 | 120 | 0 | 660 | 210 | 0 | 490 | 440 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 77 | 0 | 0 | 0 | 0 | 0 | 263 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 310 | 10 | 43 | 0 | 660 | 210 | 0 | 490 | 177 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | | | | Perm | | Perm | | | Free | | | Perm |
| Protected Phases | | | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | Free | | | 6 |
| Actuated Green, G (s) | | | | 11.7 | 11.7 | 11.7 | | 13.2 | 32.9 | | 13.2 | 13.2 |
| Effective Green, g (s) | | | | 11.7 | 11.7 | 11.7 | | 13.2 | 32.9 | | 13.2 | 13.2 |
| Actuated g/C Ratio | | | | 0.36 | 0.36 | 0.36 | | 0.40 | 1.00 | | 0.40 | 0.40 |
| Clearance Time (s) | | | | 4.0 | 4.0 | 4.0 | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | 3.0 | 3.0 | 3.0 | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | 640 | 676 | 566 | | 1448 | 1579 | | 1448 | 639 |
| v/s Ratio Prot | | | | | 0.01 | | | c0.18 | | | 0.14 | |
| v/s Ratio Perm | | | | c0.17 | | 0.03 | | | 0.13 | | | 0.11 |
| v/c Ratio | | | | 0.48 | 0.01 | 0.08 | | 0.46 | 0.13 | | 0.34 | 0.28 |
| Uniform Delay, d1 | | | | 8.3 | 6.9 | 7.0 | | 7.2 | 0.0 | | 6.8 | 6.6 |
| Progression Factor | | | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 0.6 | 0.0 | 0.1 | | 0.2 | 0.2 | | 0.1 | 0.2 |
| Delay (s) | | | | 8.8 | 6.9 | 7.1 | | 7.4 | 0.2 | | 7.0 | 6.9 |
| Level of Service | | | | A | A | A | | A | A | | A | A |
| Approach Delay (s) | | 0.0 | | | 8.3 | | | 5.7 | | | 6.9 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 32.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 42.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

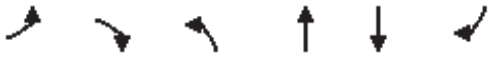
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 0 | 100 | 0 | 0 | 0 | 0 | 720 | 150 | 0 | 890 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | | | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 1615 | | | | | 3610 | 1615 | | 3610 | 1615 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 1615 | | | | | 3610 | 1615 | | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 0 | 100 | 0 | 0 | 0 | 0 | 720 | 150 | 0 | 890 | 120 |
| RTOR Reduction (vph) | 0 | 0 | 49 | 0 | 0 | 0 | 0 | 0 | 70 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 190 | 0 | 51 | 0 | 0 | 0 | 0 | 720 | 80 | 0 | 890 | 120 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | Split | | Perm | | | | | | Perm | | | Free |
| Protected Phases | 4 | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | Free |
| Actuated Green, G (s) | 7.7 | | 7.7 | | | | | 17.9 | 17.9 | | 17.9 | 33.6 |
| Effective Green, g (s) | 7.7 | | 7.7 | | | | | 17.9 | 17.9 | | 17.9 | 33.6 |
| Actuated g/C Ratio | 0.23 | | 0.23 | | | | | 0.53 | 0.53 | | 0.53 | 1.00 |
| Clearance Time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | | | | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 414 | | 370 | | | | | 1923 | 860 | | 1923 | 1615 |
| v/s Ratio Prot | c0.11 | | | | | | | 0.20 | | | c0.25 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.05 | | | 0.07 |
| v/c Ratio | 0.46 | | 0.14 | | | | | 0.37 | 0.09 | | 0.46 | 0.07 |
| Uniform Delay, d1 | 11.2 | | 10.3 | | | | | 4.6 | 3.9 | | 4.9 | 0.0 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | | 0.2 | | | | | 0.1 | 0.0 | | 0.2 | 0.1 |
| Delay (s) | 12.0 | | 10.5 | | | | | 4.7 | 3.9 | | 5.0 | 0.1 |
| Level of Service | B | | B | | | | | A | A | | A | A |
| Approach Delay (s) | | 11.5 | | | 0.0 | | | 4.6 | | | 4.5 | |
| Approach LOS | | B | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 33.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 41.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 230 | 590 | 780 | 350 | 120 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1591 | 3502 | 5187 | 5187 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1591 | 3502 | 5187 | 5187 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 230 | 590 | 780 | 350 | 120 | 190 |
| RTOR Reduction (vph) | 0 | 445 | 0 | 0 | 0 | 161 |
| Lane Group Flow (vph) | 230 | 145 | 780 | 350 | 120 | 29 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 12.3 | 12.3 | 17.9 | 29.6 | 7.7 | 7.7 |
| Effective Green, g (s) | 12.3 | 12.3 | 17.9 | 29.6 | 7.7 | 7.7 |
| Actuated g/C Ratio | 0.25 | 0.25 | 0.36 | 0.59 | 0.15 | 0.15 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 445 | 392 | 1256 | 3077 | 800 | 245 |
| v/s Ratio Prot | c0.13 | | c0.22 | c0.07 | 0.02 | |
| v/s Ratio Perm | | 0.09 | | | | 0.02 |
| v/c Ratio | 0.52 | 0.37 | 0.62 | 0.11 | 0.15 | 0.12 |
| Uniform Delay, d1 | 16.2 | 15.6 | 13.2 | 4.4 | 18.3 | 18.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | 0.6 | 1.0 | 0.0 | 0.1 | 0.2 |
| Delay (s) | 17.3 | 16.2 | 14.2 | 4.4 | 18.4 | 18.4 |
| Level of Service | B | B | B | A | B | B |
| Approach Delay (s) | 16.5 | | | 11.2 | 18.4 | |
| Approach LOS | B | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 49.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 51.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 0 | 1540 | 0 | 0 | 0 | 0 | 1000 | 330 | 0 | 670 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 0.88 | | | | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 0.99 | | | | | 1.00 | 0.99 | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 2804 | | | | | 5187 | 1591 | | 5187 | 1576 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 2804 | | | | | 5187 | 1591 | | 5187 | 1576 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 100 | 0 | 1540 | 0 | 0 | 0 | 0 | 1000 | 330 | 0 | 670 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 109 | 0 | 0 | 17 |
| Lane Group Flow (vph) | 100 | 0 | 1540 | 0 | 0 | 0 | 0 | 1000 | 221 | 0 | 670 | 33 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | custom | | Free | | | | | | Perm | | | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | Free | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 4.7 | | 38.3 | | | | | 25.6 | 25.6 | | 25.6 | 25.6 |
| Effective Green, g (s) | 4.7 | | 38.3 | | | | | 25.6 | 25.6 | | 25.6 | 25.6 |
| Actuated g/C Ratio | 0.12 | | 1.00 | | | | | 0.67 | 0.67 | | 0.67 | 0.67 |
| Clearance Time (s) | 4.0 | | | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 222 | | 2804 | | | | | 3467 | 1063 | | 3467 | 1053 |
| v/s Ratio Prot | | | | | | | | 0.19 | | | 0.13 | |
| v/s Ratio Perm | 0.06 | | c0.55 | | | | | | 0.14 | | | 0.02 |
| v/c Ratio | 0.45 | | 0.55 | | | | | 0.29 | 0.21 | | 0.19 | 0.03 |
| Uniform Delay, d1 | 15.6 | | 0.0 | | | | | 2.6 | 2.4 | | 2.4 | 2.2 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.5 | | 0.8 | | | | | 0.0 | 0.1 | | 0.0 | 0.0 |
| Delay (s) | 17.1 | | 0.8 | | | | | 2.7 | 2.5 | | 2.4 | 2.2 |
| Level of Service | B | | A | | | | | A | A | | A | A |
| Approach Delay (s) | | 1.8 | | | 0.0 | | | 2.6 | | | 2.4 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 2.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 38.3 | Sum of lost time (s) | 0.0 |
| Intersection Capacity Utilization | 31.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 290 | 10 | 30 | 300 | 30 | 160 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 290 | 10 | 30 | 300 | 30 | 160 |
| Pedestrians | 5 | | | 5 | 5 | |
| Lane Width (ft) | 12.0 | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | 4.0 | |
| Percent Blockage | 0 | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 305 | | 515 | 160 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 305 | | 515 | 160 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 98 | | 94 | 81 |
| cM capacity (veh/h) | | | 1262 | | 479 | 856 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 | NB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 193 | 107 | 30 | 150 | 150 | 30 | 160 |
| Volume Left | 0 | 0 | 30 | 0 | 0 | 30 | 0 |
| Volume Right | 0 | 10 | 0 | 0 | 0 | 0 | 160 |
| cSH | 1700 | 1700 | 1262 | 1700 | 1700 | 479 | 856 |
| Volume to Capacity | 0.11 | 0.06 | 0.02 | 0.09 | 0.09 | 0.06 | 0.19 |
| Queue Length 95th (ft) | 0 | 0 | 2 | 0 | 0 | 5 | 17 |
| Control Delay (s) | 0.0 | 0.0 | 7.9 | 0.0 | 0.0 | 13.0 | 10.2 |
| Lane LOS | | | A | | | B | B |
| Approach Delay (s) | 0.0 | | 0.7 | | | 10.6 | |
| Approach LOS | | | | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.8 | | |
| Intersection Capacity Utilization | 27.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 200 | 60 | 90 | 110 | 290 | 20 | 90 | 60 | 530 | 170 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3473 | | 1805 | 3610 | 1591 | 1805 | 3610 | 1591 | 3502 | 3610 | 1591 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3473 | | 1805 | 3610 | 1591 | 1805 | 3610 | 1591 | 3502 | 3610 | 1591 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 200 | 200 | 60 | 90 | 110 | 290 | 20 | 90 | 60 | 530 | 170 | 200 |
| RTOR Reduction (vph) | 0 | 39 | 0 | 0 | 0 | 237 | 0 | 0 | 48 | 0 | 0 | 130 |
| Lane Group Flow (vph) | 200 | 221 | 0 | 90 | 110 | 53 | 20 | 90 | 12 | 530 | 170 | 70 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 10.9 | | 5.6 | 9.5 | 9.5 | 1.3 | 10.7 | 10.7 | 9.0 | 18.4 | 18.4 |
| Effective Green, g (s) | 7.0 | 10.9 | | 5.6 | 9.5 | 9.5 | 1.3 | 10.7 | 10.7 | 9.0 | 18.4 | 18.4 |
| Actuated g/C Ratio | 0.13 | 0.21 | | 0.11 | 0.18 | 0.18 | 0.02 | 0.20 | 0.20 | 0.17 | 0.35 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 470 | 725 | | 194 | 657 | 290 | 45 | 740 | 326 | 604 | 1272 | 561 |
| v/s Ratio Prot | c0.06 | c0.06 | | 0.05 | 0.03 | | 0.01 | 0.02 | | c0.15 | c0.05 | |
| v/s Ratio Perm | | | | | | 0.03 | | | 0.01 | | | 0.04 |
| v/c Ratio | 0.43 | 0.31 | | 0.46 | 0.17 | 0.18 | 0.44 | 0.12 | 0.04 | 0.88 | 0.13 | 0.13 |
| Uniform Delay, d1 | 20.8 | 17.4 | | 21.9 | 18.0 | 18.1 | 25.1 | 16.9 | 16.6 | 21.1 | 11.5 | 11.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.6 | 0.2 | | 1.8 | 0.1 | 0.3 | 6.9 | 0.1 | 0.0 | 13.6 | 0.0 | 0.1 |
| Delay (s) | 21.4 | 17.7 | | 23.6 | 18.1 | 18.4 | 31.9 | 17.0 | 16.7 | 34.6 | 11.5 | 11.6 |
| Level of Service | C | B | | C | B | B | C | B | B | C | B | B |
| Approach Delay (s) | | 19.3 | | | 19.3 | | | 18.6 | | | 25.1 | |
| Approach LOS | | B | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 52.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 47.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 30 | 470 | 180 | 10 | 50 | 360 | 1180 | 240 | 110 | 2120 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.88 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1800 | 1900 | 2800 | 1800 | 1642 | | 3502 | 5187 | 1571 | 1805 | 5187 | 1589 |
| Flt Permitted | 0.72 | 1.00 | 1.00 | 0.74 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1360 | 1900 | 2800 | 1397 | 1642 | | 3502 | 5187 | 1571 | 1805 | 5187 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 120 | 30 | 470 | 180 | 10 | 50 | 360 | 1180 | 240 | 110 | 2120 | 170 |
| RTOR Reduction (vph) | 0 | 0 | 323 | 0 | 40 | 0 | 0 | 0 | 77 | 0 | 0 | 33 |
| Lane Group Flow (vph) | 120 | 30 | 147 | 180 | 20 | 0 | 360 | 1180 | 163 | 110 | 2120 | 137 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | Perm | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 14.4 | 14.4 | 14.4 | 14.4 | 14.4 | | 9.0 | 39.0 | 39.0 | 8.0 | 38.0 | 38.0 |
| Effective Green, g (s) | 14.4 | 14.4 | 14.4 | 14.4 | 14.4 | | 9.0 | 39.0 | 39.0 | 8.0 | 38.0 | 38.0 |
| Actuated g/C Ratio | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | | 0.12 | 0.53 | 0.53 | 0.11 | 0.52 | 0.52 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 267 | 373 | 549 | 274 | 322 | | 429 | 2756 | 835 | 197 | 2685 | 823 |
| v/s Ratio Prot | | 0.02 | | | 0.01 | | c0.10 | 0.23 | | 0.06 | c0.41 | |
| v/s Ratio Perm | 0.09 | | 0.05 | c0.13 | | | | | 0.10 | | | 0.09 |
| v/c Ratio | 0.45 | 0.08 | 0.27 | 0.66 | 0.06 | | 0.84 | 0.43 | 0.20 | 0.56 | 0.79 | 0.17 |
| Uniform Delay, d1 | 26.0 | 24.1 | 25.0 | 27.2 | 24.0 | | 31.5 | 10.4 | 9.0 | 31.0 | 14.4 | 9.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.2 | 0.1 | 0.3 | 5.6 | 0.1 | | 13.4 | 0.1 | 0.1 | 3.4 | 1.6 | 0.1 |
| Delay (s) | 27.2 | 24.2 | 25.3 | 32.8 | 24.1 | | 44.9 | 10.5 | 9.1 | 34.4 | 16.1 | 9.4 |
| Level of Service | C | C | C | C | C | | D | B | A | C | B | A |
| Approach Delay (s) | | 25.6 | | | 30.6 | | | 17.3 | | | 16.4 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 73.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 270 | 50 | 20 | 670 | 0 | 140 | 0 | 30 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 270 | 50 | 20 | 670 | 0 | 140 | 0 | 30 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 675 | | | 325 | | | 680 | 1015 | 170 | 855 | 1040 | 345 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 675 | | | 325 | | | 680 | 1015 | 170 | 855 | 1040 | 345 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 98 | | | 58 | 100 | 96 | 100 | 100 | 100 |
| cM capacity (veh/h) | 922 | | | 1241 | | | 332 | 234 | 843 | 239 | 227 | 651 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 135 | 185 | 355 | 335 | 140 | 30 | 0 |
| Volume Left | 0 | 0 | 20 | 0 | 140 | 0 | 0 |
| Volume Right | 0 | 50 | 0 | 0 | 0 | 30 | 0 |
| cSH | 922 | 1700 | 1241 | 1700 | 332 | 843 | 1700 |
| Volume to Capacity | 0.00 | 0.11 | 0.02 | 0.20 | 0.42 | 0.04 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 50 | 3 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.6 | 0.0 | 23.5 | 9.4 | 0.0 |
| Lane LOS | | | A | | C | A | A |
| Approach Delay (s) | 0.0 | | 0.3 | | 21.0 | | 0.0 |
| Approach LOS | | | | | C | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.2 | | |
| Intersection Capacity Utilization | 45.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 130 | 90 | 80 | 310 | 20 | 210 | 600 | 70 | 20 | 450 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3367 | | 1805 | 3574 | | 1805 | 5097 | | 1805 | 4925 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3367 | | 1805 | 3574 | | 1805 | 5097 | | 1805 | 4925 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 130 | 90 | 80 | 310 | 20 | 210 | 600 | 70 | 20 | 450 | 200 |
| RTOR Reduction (vph) | 0 | 76 | 0 | 0 | 7 | 0 | 0 | 14 | 0 | 0 | 98 | 0 |
| Lane Group Flow (vph) | 60 | 144 | 0 | 80 | 323 | 0 | 210 | 656 | 0 | 20 | 552 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 3.6 | 8.8 | | 5.2 | 10.4 | | 10.4 | 24.7 | | 1.1 | 15.4 | |
| Effective Green, g (s) | 3.6 | 8.8 | | 5.2 | 10.4 | | 10.4 | 24.7 | | 1.1 | 15.4 | |
| Actuated g/C Ratio | 0.06 | 0.16 | | 0.09 | 0.19 | | 0.19 | 0.44 | | 0.02 | 0.28 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 116 | 531 | | 168 | 666 | | 336 | 2256 | | 36 | 1359 | |
| v/s Ratio Prot | 0.03 | 0.04 | | c0.04 | c0.09 | | c0.12 | 0.13 | | 0.01 | c0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.52 | 0.27 | | 0.48 | 0.49 | | 0.62 | 0.29 | | 0.56 | 0.41 | |
| Uniform Delay, d1 | 25.3 | 20.7 | | 24.0 | 20.3 | | 20.9 | 9.9 | | 27.1 | 16.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.9 | 0.3 | | 2.1 | 0.6 | | 3.6 | 0.1 | | 17.3 | 0.2 | |
| Delay (s) | 29.1 | 21.0 | | 26.1 | 20.9 | | 24.5 | 10.0 | | 44.4 | 16.7 | |
| Level of Service | C | C | | C | C | | C | B | | D | B | |
| Approach Delay (s) | | 22.7 | | | 21.9 | | | 13.5 | | | 17.5 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 55.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 56.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 130 | 10 | 10 | 300 | 10 | 10 | 10 | 10 | 10 | 10 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.93 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1804 | 3568 | | 1804 | 3591 | | 1804 | 3318 | | 1803 | 3101 | |
| Flt Permitted | 0.91 | 1.00 | | 0.91 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1726 | 3568 | | 1726 | 3591 | | 1899 | 3318 | | 1898 | 3101 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 130 | 10 | 10 | 300 | 10 | 10 | 10 | 10 | 10 | 10 | 70 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 5 | 0 | 0 | 9 | 0 | 0 | 60 | 0 |
| Lane Group Flow (vph) | 40 | 133 | 0 | 10 | 305 | 0 | 10 | 11 | 0 | 10 | 20 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 4.4 | 4.4 | | 4.4 | 4.4 | | 2.1 | 2.1 | | 2.1 | 2.1 | |
| Effective Green, g (s) | 4.4 | 4.4 | | 4.4 | 4.4 | | 2.1 | 2.1 | | 2.1 | 2.1 | |
| Actuated g/C Ratio | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.14 | 0.14 | | 0.14 | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 524 | 1083 | | 524 | 1090 | | 275 | 481 | | 275 | 449 | |
| v/s Ratio Prot | | 0.04 | | | c0.08 | | | 0.00 | | | c0.01 | |
| v/s Ratio Perm | 0.02 | | | 0.01 | | | 0.01 | | | 0.01 | | |
| v/c Ratio | 0.08 | 0.12 | | 0.02 | 0.28 | | 0.04 | 0.02 | | 0.04 | 0.04 | |
| Uniform Delay, d1 | 3.6 | 3.7 | | 3.5 | 3.8 | | 5.3 | 5.3 | | 5.3 | 5.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 0.1 | | 0.0 | 0.1 | | 0.1 | 0.0 | | 0.1 | 0.0 | |
| Delay (s) | 3.7 | 3.7 | | 3.6 | 4.0 | | 5.4 | 5.3 | | 5.4 | 5.4 | |
| Level of Service | A | A | | A | A | | A | A | | A | A | |
| Approach Delay (s) | | 3.7 | | | 4.0 | | | 5.4 | | | 5.4 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.20 | | |
| Actuated Cycle Length (s) | 14.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 35.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 50 | 10 | 80 | 10 | 10 | 10 | 50 | 410 | 10 | 10 | 200 | 60 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 50 | 10 | 80 | 10 | 10 | 10 | 50 | 410 | 10 | 10 | 200 | 60 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 50 | 90 | 30 | 460 | 10 | 110 | 160 |
| Volume Left (vph) | 50 | 0 | 10 | 50 | 0 | 10 | 0 |
| Volume Right (vph) | 0 | 80 | 10 | 0 | 10 | 0 | 60 |
| Hadj (s) | 0.50 | -0.62 | -0.13 | 0.05 | -0.70 | 0.05 | -0.26 |
| Departure Headway (s) | 6.9 | 5.7 | 6.4 | 5.4 | 4.6 | 5.6 | 5.3 |
| Degree Utilization, x | 0.10 | 0.14 | 0.05 | 0.69 | 0.01 | 0.17 | 0.23 |
| Capacity (veh/h) | 479 | 567 | 494 | 652 | 748 | 618 | 658 |
| Control Delay (s) | 9.4 | 8.5 | 9.8 | 18.1 | 6.5 | 8.5 | 8.6 |
| Approach Delay (s) | 8.8 | | 9.8 | 17.9 | | 8.6 | |
| Approach LOS | A | | A | C | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 13.4 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 52.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 420 | 210 | 80 | 370 | 40 | 220 | 130 | 140 | 20 | 50 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.99 | |
| Satd. Flow (prot) | 1805 | 3400 | | 1805 | 1900 | 1571 | | 1842 | 1590 | | 1841 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.99 | |
| Satd. Flow (perm) | 1805 | 3400 | | 1805 | 1900 | 1571 | | 1842 | 1590 | | 1841 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 420 | 210 | 80 | 370 | 40 | 220 | 130 | 140 | 20 | 50 | 10 |
| RTOR Reduction (vph) | 0 | 59 | 0 | 0 | 0 | 26 | 0 | 0 | 102 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 10 | 571 | 0 | 80 | 370 | 14 | 0 | 350 | 38 | 0 | 74 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.0 | 18.0 | | 7.8 | 24.8 | 24.8 | | 18.8 | 18.8 | | 9.2 | |
| Effective Green, g (s) | 1.0 | 18.0 | | 7.8 | 24.8 | 24.8 | | 18.8 | 18.8 | | 9.2 | |
| Actuated g/C Ratio | 0.01 | 0.26 | | 0.11 | 0.36 | 0.36 | | 0.27 | 0.27 | | 0.13 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 26 | 877 | | 202 | 675 | 558 | | 496 | 428 | | 243 | |
| v/s Ratio Prot | 0.01 | c0.17 | | c0.04 | c0.19 | | | c0.19 | | | c0.04 | |
| v/s Ratio Perm | | | | | | 0.01 | | | 0.02 | | | |
| v/c Ratio | 0.38 | 0.65 | | 0.40 | 0.55 | 0.03 | | 0.71 | 0.09 | | 0.30 | |
| Uniform Delay, d1 | 34.1 | 23.1 | | 28.8 | 18.0 | 14.6 | | 23.0 | 19.1 | | 27.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 9.2 | 1.7 | | 1.3 | 0.9 | 0.0 | | 4.5 | 0.1 | | 0.7 | |
| Delay (s) | 43.3 | 24.8 | | 30.1 | 18.9 | 14.7 | | 27.5 | 19.2 | | 28.1 | |
| Level of Service | D | C | | C | B | B | | C | B | | C | |
| Approach Delay (s) | | 25.1 | | | 20.4 | | | 25.2 | | | 28.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 69.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 230 | 320 | 60 | 40 | 290 | 100 | 100 | 610 | 100 | 40 | 320 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3517 | | 1805 | 3459 | | 1805 | 3610 | 1596 | 1805 | 4859 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3517 | | 1805 | 3459 | | 1805 | 3610 | 1596 | 1805 | 4859 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 230 | 320 | 60 | 40 | 290 | 100 | 100 | 610 | 100 | 40 | 320 | 200 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 46 | 0 | 0 | 0 | 57 | 0 | 116 | 0 |
| Lane Group Flow (vph) | 230 | 360 | 0 | 40 | 344 | 0 | 100 | 610 | 43 | 40 | 404 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.2 | 14.9 | | 5.5 | 12.2 | | 7.1 | 19.5 | 25.0 | 2.4 | 14.8 | |
| Effective Green, g (s) | 8.2 | 14.9 | | 5.5 | 12.2 | | 7.1 | 19.5 | 25.0 | 2.4 | 14.8 | |
| Actuated g/C Ratio | 0.14 | 0.26 | | 0.09 | 0.21 | | 0.12 | 0.33 | 0.43 | 0.04 | 0.25 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 254 | 899 | | 170 | 724 | | 220 | 1207 | 794 | 74 | 1234 | |
| v/s Ratio Prot | c0.13 | c0.10 | | 0.02 | 0.10 | | c0.06 | c0.17 | 0.01 | 0.02 | 0.08 | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | |
| v/c Ratio | 0.91 | 0.40 | | 0.24 | 0.48 | | 0.45 | 0.51 | 0.05 | 0.54 | 0.33 | |
| Uniform Delay, d1 | 24.7 | 18.0 | | 24.5 | 20.2 | | 23.8 | 15.5 | 9.7 | 27.4 | 17.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 32.4 | 0.3 | | 0.7 | 0.5 | | 1.5 | 0.3 | 0.0 | 7.8 | 0.2 | |
| Delay (s) | 57.1 | 18.3 | | 25.2 | 20.7 | | 25.3 | 15.9 | 9.8 | 35.2 | 17.9 | |
| Level of Service | E | B | | C | C | | C | B | A | D | B | |
| Approach Delay (s) | | 32.9 | | | 21.1 | | | 16.3 | | | 19.1 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 58.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 20 | 310 | 400 | 10 | 10 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1804 | 3610 | 3596 | | 1804 | 1594 |
| Flt Permitted | 0.85 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 1616 | 3610 | 3596 | | 1804 | 1594 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 310 | 400 | 10 | 10 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 3 | 0 | 0 | 47 |
| Lane Group Flow (vph) | 20 | 310 | 407 | 0 | 10 | 3 |
| Confl. Peds. (#/hr) | 5 | | | 5 | 5 | 5 |
| Turn Type | Perm | | | | | Perm |
| Protected Phases | | 4 | 8 | | 6 | |
| Permitted Phases | 4 | | | | | 6 |
| Actuated Green, G (s) | 4.7 | 4.7 | 4.7 | | 0.8 | 0.8 |
| Effective Green, g (s) | 4.7 | 4.7 | 4.7 | | 0.8 | 0.8 |
| Actuated g/C Ratio | 0.35 | 0.35 | 0.35 | | 0.06 | 0.06 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 563 | 1257 | 1252 | | 107 | 94 |
| v/s Ratio Prot | | 0.09 | c0.11 | | c0.01 | |
| v/s Ratio Perm | 0.01 | | | | | 0.00 |
| v/c Ratio | 0.04 | 0.25 | 0.32 | | 0.09 | 0.03 |
| Uniform Delay, d1 | 2.9 | 3.1 | 3.2 | | 6.0 | 6.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.0 | 0.1 | 0.2 | | 0.4 | 0.1 |
| Delay (s) | 2.9 | 3.2 | 3.4 | | 6.4 | 6.1 |
| Level of Service | A | A | A | | A | A |
| Approach Delay (s) | | 3.2 | 3.4 | | 6.2 | |
| Approach LOS | | A | A | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.29 | | |
| Actuated Cycle Length (s) | 13.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 31.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 150 | 220 | 80 | 420 | 140 | 120 | 60 | 210 | 260 | 210 | 190 | 90 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 150 | 220 | 80 | 420 | 140 | 120 | 60 | 210 | 260 | 210 | 190 | 90 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 260 | 190 | 680 | 165 | 365 | 305 | 185 |
| Volume Left (vph) | 150 | 0 | 420 | 60 | 0 | 210 | 0 |
| Volume Right (vph) | 0 | 80 | 120 | 0 | 260 | 0 | 90 |
| Hadj (s) | 0.29 | -0.29 | 0.02 | 0.18 | -0.50 | 0.34 | -0.34 |
| Departure Headway (s) | 9.4 | 8.8 | 8.9 | 9.1 | 8.4 | 9.3 | 8.6 |
| Degree Utilization, x | 0.68 | 0.46 | 1.69 | 0.42 | 0.86 | 0.79 | 0.44 |
| Capacity (veh/h) | 372 | 392 | 406 | 390 | 421 | 379 | 410 |
| Control Delay (s) | 28.8 | 18.0 | 340.8 | 17.3 | 43.3 | 38.3 | 17.2 |
| Approach Delay (s) | 24.2 | | 340.8 | 35.2 | | 30.3 | |
| Approach LOS | C | | F | E | | D | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 128.4 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 95.0% | ICU Level of Service | F | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 50 | 10 | 690 | 80 | 250 | 20 | 450 | 530 | 120 | 330 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3511 | | 1805 | 3165 | | 1805 | 5187 | 1606 | 1805 | 4959 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3511 | | 1805 | 3165 | | 1805 | 5187 | 1606 | 1805 | 4959 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 50 | 10 | 690 | 80 | 250 | 20 | 450 | 530 | 120 | 330 | 120 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 169 | 0 | 0 | 0 | 218 | 0 | 50 | 0 |
| Lane Group Flow (vph) | 80 | 51 | 0 | 690 | 161 | 0 | 20 | 450 | 312 | 120 | 400 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.9 | 3.9 | | 24.3 | 21.3 | | 1.2 | 14.2 | 38.5 | 7.1 | 20.1 | |
| Effective Green, g (s) | 6.9 | 3.9 | | 24.3 | 21.3 | | 1.2 | 14.2 | 38.5 | 7.1 | 20.1 | |
| Actuated g/C Ratio | 0.11 | 0.06 | | 0.37 | 0.33 | | 0.02 | 0.22 | 0.59 | 0.11 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 190 | 209 | | 670 | 1029 | | 33 | 1125 | 1042 | 196 | 1522 | |
| v/s Ratio Prot | 0.04 | 0.01 | | c0.38 | c0.05 | | 0.01 | c0.09 | 0.11 | c0.07 | 0.08 | |
| v/s Ratio Perm | | | | | | | | | 0.08 | | | |
| v/c Ratio | 0.42 | 0.24 | | 1.03 | 0.16 | | 0.61 | 0.40 | 0.30 | 0.61 | 0.26 | |
| Uniform Delay, d1 | 27.4 | 29.4 | | 20.6 | 15.7 | | 31.9 | 22.0 | 6.8 | 27.9 | 17.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.5 | 0.6 | | 42.6 | 0.1 | | 27.6 | 0.2 | 0.2 | 5.6 | 0.1 | |
| Delay (s) | 28.9 | 30.0 | | 63.2 | 15.8 | | 59.5 | 22.2 | 6.9 | 33.5 | 17.2 | |
| Level of Service | C | C | | E | B | | E | C | A | C | B | |
| Approach Delay (s) | | 29.4 | | | 47.9 | | | 14.9 | | | 20.6 | |
| Approach LOS | | C | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 65.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 200 | 100 | 140 | 560 | 40 | 70 | 390 | 90 | 50 | 560 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1597 | 1805 | 3570 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1597 | 1805 | 3570 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 200 | 100 | 140 | 560 | 40 | 70 | 390 | 90 | 50 | 560 | 230 |
| RTOR Reduction (vph) | 0 | 0 | 73 | 0 | 5 | 0 | 0 | 0 | 35 | 0 | 0 | 79 |
| Lane Group Flow (vph) | 80 | 200 | 27 | 140 | 595 | 0 | 70 | 390 | 55 | 50 | 560 | 151 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.7 | 22.5 | 32.6 | 13.9 | 26.7 | | 10.1 | 60.0 | 73.9 | 7.6 | 57.5 | 67.2 |
| Effective Green, g (s) | 9.7 | 22.5 | 32.6 | 13.9 | 26.7 | | 10.1 | 60.0 | 73.9 | 7.6 | 57.5 | 67.2 |
| Actuated g/C Ratio | 0.08 | 0.19 | 0.27 | 0.12 | 0.22 | | 0.08 | 0.50 | 0.62 | 0.06 | 0.48 | 0.56 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 146 | 677 | 487 | 209 | 794 | | 152 | 1805 | 1033 | 114 | 1730 | 944 |
| v/s Ratio Prot | 0.04 | 0.06 | 0.00 | c0.08 | c0.17 | | c0.04 | 0.11 | 0.01 | 0.03 | c0.16 | 0.01 |
| v/s Ratio Perm | | | 0.01 | | | | | | 0.03 | | | 0.08 |
| v/c Ratio | 0.55 | 0.30 | 0.06 | 0.67 | 0.75 | | 0.46 | 0.22 | 0.05 | 0.44 | 0.32 | 0.16 |
| Uniform Delay, d1 | 53.0 | 41.9 | 32.3 | 50.9 | 43.5 | | 52.4 | 16.8 | 9.2 | 54.1 | 19.3 | 12.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.96 | 0.83 | 0.57 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.2 | 0.2 | 0.0 | 7.9 | 3.9 | | 2.2 | 0.3 | 0.0 | 2.7 | 0.5 | 0.1 |
| Delay (s) | 57.2 | 42.2 | 32.4 | 58.7 | 47.4 | | 52.3 | 14.2 | 5.2 | 56.8 | 19.8 | 12.8 |
| Level of Service | E | D | C | E | D | | D | B | A | E | B | B |
| Approach Delay (s) | | 42.8 | | | 49.6 | | | 17.6 | | | 20.1 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 510 | 10 | 130 | 270 | 540 | 0 | 0 | 580 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1811 | 1587 | 1805 | 3610 | | | 3402 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1811 | 1587 | 1805 | 3610 | | | 3402 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 510 | 10 | 130 | 270 | 540 | 0 | 0 | 580 | 300 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 49 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 520 | 111 | 270 | 540 | 0 | 0 | 831 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 39.2 | 39.2 | 22.1 | 72.8 | | | 46.7 | |
| Effective Green, g (s) | | | | | 39.2 | 39.2 | 22.1 | 72.8 | | | 46.7 | |
| Actuated g/C Ratio | | | | | 0.33 | 0.33 | 0.18 | 0.61 | | | 0.39 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 592 | 518 | 332 | 2190 | | | 1324 | |
| v/s Ratio Prot | | | | | c0.29 | | c0.15 | 0.15 | | | c0.24 | |
| v/s Ratio Perm | | | | | | 0.07 | | | | | | |
| v/c Ratio | | | | | 0.88 | 0.21 | 0.81 | 0.25 | | | 0.63 | |
| Uniform Delay, d1 | | | | | 38.1 | 29.3 | 47.0 | 10.9 | | | 29.6 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.70 | |
| Incremental Delay, d2 | | | | | 13.9 | 0.2 | 14.1 | 0.3 | | | 2.2 | |
| Delay (s) | | | | | 52.0 | 29.5 | 61.0 | 11.2 | | | 22.9 | |
| Level of Service | | | | | D | C | E | B | | | C | |
| Approach Delay (s) | | 0.0 | | | 47.5 | | | 27.8 | | | 22.9 | |
| Approach LOS | | A | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 94.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 260 | 0 | 340 | 0 | 0 | 0 | 0 | 540 | 110 | 170 | 990 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1715 | 1592 | | | | | 5033 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1715 | 1592 | | | | | 5033 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 260 | 0 | 340 | 0 | 0 | 0 | 0 | 540 | 110 | 170 | 990 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 42 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 130 | 130 | 300 | 0 | 0 | 0 | 0 | 608 | 0 | 170 | 990 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 15.7 | 15.7 | 15.7 | | | | | 12.8 | | 9.4 | 26.2 | |
| Effective Green, g (s) | 15.7 | 15.7 | 15.7 | | | | | 12.8 | | 9.4 | 26.2 | |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.31 | | | | | 0.26 | | 0.19 | 0.53 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 540 | 540 | 501 | | | | | 1291 | | 340 | 1895 | |
| v/s Ratio Prot | 0.08 | 0.08 | | | | | | 0.12 | | 0.09 | c0.27 | |
| v/s Ratio Perm | | | c0.19 | | | | | | | | | |
| v/c Ratio | 0.24 | 0.24 | 0.60 | | | | | 0.47 | | 0.50 | 0.52 | |
| Uniform Delay, d1 | 12.7 | 12.7 | 14.4 | | | | | 15.7 | | 18.1 | 7.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.2 | 1.9 | | | | | 0.3 | | 1.2 | 0.3 | |
| Delay (s) | 12.9 | 12.9 | 16.4 | | | | | 16.0 | | 19.3 | 8.0 | |
| Level of Service | B | B | B | | | | | B | | B | A | |
| Approach Delay (s) | | 14.9 | | | 0.0 | | | 16.0 | | | 9.7 | |
| Approach LOS | | B | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 49.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 94.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 210 | 340 | 50 | 180 | 560 | 120 | 820 | 190 | 530 | 1090 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.89 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1595 | 1805 | 3200 | | 1805 | 5024 | | 3502 | 3610 | 1594 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1595 | 1805 | 3200 | | 1805 | 5024 | | 3502 | 3610 | 1594 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 280 | 210 | 340 | 50 | 180 | 560 | 120 | 820 | 190 | 530 | 1090 | 110 |
| RTOR Reduction (vph) | 0 | 0 | 46 | 0 | 277 | 0 | 0 | 29 | 0 | 0 | 0 | 47 |
| Lane Group Flow (vph) | 280 | 210 | 294 | 50 | 463 | 0 | 120 | 981 | 0 | 530 | 1090 | 63 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 13.8 | 31.8 | 43.7 | 5.6 | 23.6 | | 11.9 | 44.5 | | 22.1 | 54.7 | 68.5 |
| Effective Green, g (s) | 13.8 | 31.8 | 43.7 | 5.6 | 23.6 | | 11.9 | 44.5 | | 22.1 | 54.7 | 68.5 |
| Actuated g/C Ratio | 0.12 | 0.27 | 0.36 | 0.05 | 0.20 | | 0.10 | 0.37 | | 0.18 | 0.46 | 0.57 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 403 | 957 | 634 | 84 | 629 | | 179 | 1863 | | 645 | 1646 | 963 |
| v/s Ratio Prot | c0.08 | 0.06 | 0.05 | 0.03 | c0.14 | | 0.07 | 0.20 | | c0.15 | c0.30 | 0.01 |
| v/s Ratio Perm | | | 0.14 | | | | | | | | | 0.03 |
| v/c Ratio | 0.69 | 0.22 | 0.46 | 0.60 | 0.95dr | | 0.67 | 0.53 | | 0.82 | 0.66 | 0.07 |
| Uniform Delay, d1 | 51.1 | 34.4 | 29.2 | 56.1 | 45.3 | | 52.2 | 29.5 | | 47.1 | 25.4 | 11.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.10 | 0.65 | | 1.23 | 0.26 | 0.30 |
| Incremental Delay, d2 | 5.1 | 0.1 | 0.5 | 10.8 | 4.5 | | 9.1 | 1.0 | | 5.2 | 1.3 | 0.0 |
| Delay (s) | 56.2 | 34.5 | 29.7 | 66.9 | 49.7 | | 66.4 | 20.1 | | 63.1 | 7.9 | 3.4 |
| Level of Service | E | C | C | E | D | | E | C | | E | A | A |
| Approach Delay (s) | | 39.9 | | | 50.8 | | | 25.0 | | | 24.5 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 87.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 150 | 10 | 280 | 600 | 1300 | 0 | 0 | 1650 | 410 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 0.95 | | 0.97 | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.90 | | 1.00 | 1.00 | | | 0.97 | |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 3165 | | 3502 | 5187 | | | 5012 | |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 3165 | | 3502 | 5187 | | | 5012 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 150 | 10 | 280 | 600 | 1300 | 0 | 0 | 1650 | 410 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 102 | 0 | 0 | 0 | 0 | 0 | 34 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 338 | 0 | 600 | 1300 | 0 | 0 | 2026 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 16.7 | | 29.0 | 95.3 | | | 62.3 | |
| Effective Green, g (s) | | | | | 16.7 | | 29.0 | 95.3 | | | 62.3 | |
| Actuated g/C Ratio | | | | | 0.14 | | 0.24 | 0.79 | | | 0.52 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 440 | | 846 | 4119 | | | 2602 | |
| v/s Ratio Prot | | | | | c0.11 | | c0.17 | 0.25 | | | c0.40 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.85dr | | 0.71 | 0.32 | | | 0.78 | |
| Uniform Delay, d1 | | | | | 49.8 | | 41.6 | 3.4 | | | 23.3 | |
| Progression Factor | | | | | 1.00 | | 0.86 | 0.94 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 7.8 | | 2.4 | 0.2 | | | 2.4 | |
| Delay (s) | | | | | 57.6 | | 38.3 | 3.3 | | | 25.7 | |
| Level of Service | | | | | E | | D | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 57.6 | | | 14.4 | | | 25.7 | |
| Approach LOS | | A | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 80 | 60 | 60 | 190 | 160 | 90 | 990 | 40 | 120 | 1420 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 5187 | 1567 | 1805 | 5187 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 5187 | 1567 | 1805 | 5187 | 1566 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 80 | 60 | 60 | 190 | 160 | 90 | 990 | 40 | 120 | 1420 | 30 |
| RTOR Reduction (vph) | 0 | 0 | 52 | 0 | 0 | 133 | 0 | 0 | 11 | 0 | 0 | 6 |
| Lane Group Flow (vph) | 20 | 80 | 8 | 60 | 190 | 27 | 90 | 990 | 29 | 120 | 1420 | 24 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 2.8 | 15.7 | 15.7 | 7.0 | 19.9 | 19.9 | 11.3 | 68.1 | 68.1 | 13.2 | 70.0 | 70.0 |
| Effective Green, g (s) | 2.8 | 15.7 | 15.7 | 7.0 | 19.9 | 19.9 | 11.3 | 68.1 | 68.1 | 13.2 | 70.0 | 70.0 |
| Actuated g/C Ratio | 0.02 | 0.13 | 0.13 | 0.06 | 0.17 | 0.17 | 0.09 | 0.57 | 0.57 | 0.11 | 0.58 | 0.58 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 42 | 249 | 208 | 105 | 315 | 263 | 170 | 2944 | 889 | 199 | 3026 | 914 |
| v/s Ratio Prot | 0.01 | 0.04 | | c0.03 | c0.10 | | 0.05 | 0.19 | | c0.07 | c0.27 | |
| v/s Ratio Perm | | | 0.00 | | | 0.02 | | | 0.02 | | | 0.02 |
| v/c Ratio | 0.48 | 0.32 | 0.04 | 0.57 | 0.60 | 0.10 | 0.53 | 0.34 | 0.03 | 0.60 | 0.47 | 0.03 |
| Uniform Delay, d1 | 57.9 | 47.3 | 45.6 | 55.0 | 46.4 | 42.5 | 51.8 | 13.9 | 11.4 | 50.9 | 14.3 | 10.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.16 | 0.70 | 0.39 |
| Incremental Delay, d2 | 8.3 | 0.8 | 0.1 | 7.3 | 3.2 | 0.2 | 3.0 | 0.3 | 0.1 | 4.2 | 0.4 | 0.0 |
| Delay (s) | 66.2 | 48.1 | 45.6 | 62.4 | 49.6 | 42.6 | 54.8 | 14.2 | 11.5 | 63.0 | 10.5 | 4.2 |
| Level of Service | E | D | D | E | D | D | D | B | B | E | B | A |
| Approach Delay (s) | | 49.4 | | | 48.8 | | | 17.3 | | | 14.4 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 61.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 350 | 170 | 50 | 330 | 160 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 350 | 170 | 50 | 330 | 160 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 360 | | 580 | 190 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 360 | | 580 | 190 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 86 | | 20 | 81 |
| cM capacity (veh/h) | | | 1210 | | 411 | 853 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 360 | 220 | 330 | 160 |
| Volume Left | 0 | 170 | 330 | 0 |
| Volume Right | 350 | 0 | 0 | 160 |
| cSH | 1700 | 1210 | 411 | 853 |
| Volume to Capacity | 0.21 | 0.14 | 0.80 | 0.19 |
| Queue Length 95th (ft) | 0 | 12 | 179 | 17 |
| Control Delay (s) | 0.0 | 6.8 | 41.1 | 10.2 |
| Lane LOS | | A | E | B |
| Approach Delay (s) | 0.0 | 6.8 | 31.0 | |
| Approach LOS | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 15.6 | | |
| Intersection Capacity Utilization | 62.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 150 | 230 | 260 | 120 | 10 | 200 | 480 | 190 | 10 | 570 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.91 | | 1.00 | 0.99 | | | 0.97 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 3242 | | 1805 | 3563 | | | 3437 | | | 3577 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 3242 | | 1805 | 3563 | | | 3437 | | | 3577 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 150 | 230 | 260 | 120 | 10 | 200 | 480 | 190 | 10 | 570 | 30 |
| RTOR Reduction (vph) | 0 | 189 | 0 | 0 | 5 | 0 | 0 | 22 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 20 | 191 | 0 | 260 | 125 | 0 | 0 | 848 | 0 | 0 | 607 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 2.8 | 21.5 | | 28.4 | 47.1 | | | 31.0 | | | 23.1 | |
| Effective Green, g (s) | 2.8 | 21.5 | | 28.4 | 47.1 | | | 31.0 | | | 23.1 | |
| Actuated g/C Ratio | 0.02 | 0.18 | | 0.24 | 0.39 | | | 0.26 | | | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 42 | 581 | | 427 | 1398 | | | 888 | | | 689 | |
| v/s Ratio Prot | 0.01 | c0.06 | | c0.14 | 0.04 | | | c0.25 | | | c0.17 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.48 | 0.33 | | 0.61 | 0.09 | | | 0.96 | | | 0.88 | |
| Uniform Delay, d1 | 57.9 | 43.0 | | 40.8 | 22.9 | | | 43.8 | | | 47.1 | |
| Progression Factor | 1.00 | 1.00 | | 0.70 | 0.60 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 8.3 | 1.5 | | 2.3 | 0.1 | | | 20.0 | | | 12.6 | |
| Delay (s) | 66.2 | 44.5 | | 30.9 | 13.8 | | | 63.8 | | | 59.7 | |
| Level of Service | E | D | | C | B | | | E | | | E | |
| Approach Delay (s) | | 45.6 | | | 25.2 | | | 63.8 | | | 59.7 | |
| Approach LOS | | D | | | C | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 270 | 520 | 30 | 100 | 280 | 140 | 810 | 40 | 510 | 400 | 430 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.98 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | |
| Flt Protected | | 0.98 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1865 | 2797 | 1805 | 1900 | 1589 | 1805 | 3610 | 1570 | 1805 | 4711 | |
| Flt Permitted | | 0.98 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1865 | 2797 | 1805 | 1900 | 1589 | 1805 | 3610 | 1570 | 1805 | 4711 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 160 | 270 | 520 | 30 | 100 | 280 | 140 | 810 | 40 | 510 | 400 | 430 |
| RTOR Reduction (vph) | 0 | 0 | 359 | 0 | 0 | 246 | 0 | 0 | 28 | 0 | 145 | 0 |
| Lane Group Flow (vph) | 0 | 430 | 161 | 30 | 100 | 34 | 140 | 810 | 12 | 510 | 685 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 28.2 | 28.2 | 10.9 | 10.9 | 10.9 | 12.0 | 26.8 | 26.8 | 9.1 | 23.9 | |
| Effective Green, g (s) | | 28.2 | 28.2 | 10.9 | 10.9 | 10.9 | 12.0 | 26.8 | 26.8 | 9.1 | 23.9 | |
| Actuated g/C Ratio | | 0.31 | 0.31 | 0.12 | 0.12 | 0.12 | 0.13 | 0.29 | 0.29 | 0.10 | 0.26 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 578 | 867 | 216 | 228 | 190 | 238 | 1063 | 462 | 181 | 1237 | |
| v/s Ratio Prot | | c0.23 | | 0.02 | c0.05 | | 0.08 | c0.22 | | c0.28 | 0.15 | |
| v/s Ratio Perm | | | 0.06 | | | 0.02 | | | 0.01 | | | |
| v/c Ratio | | 0.74 | 0.19 | 0.14 | 0.44 | 0.18 | 0.59 | 0.76 | 0.03 | 2.82 | 0.55 | |
| Uniform Delay, d1 | | 28.2 | 23.0 | 35.8 | 37.2 | 36.0 | 37.2 | 29.2 | 22.8 | 41.0 | 28.9 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 5.2 | 0.1 | 0.3 | 1.3 | 0.4 | 3.7 | 3.3 | 0.0 | 833.1 | 0.5 | |
| Delay (s) | | 33.3 | 23.1 | 36.1 | 38.6 | 36.5 | 40.9 | 32.5 | 22.8 | 874.0 | 29.5 | |
| Level of Service | | C | C | D | D | D | D | C | C | F | C | |
| Approach Delay (s) | | 27.7 | | | 36.9 | | | 33.3 | | | 350.9 | |
| Approach LOS | | C | | | D | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 147.6 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 91.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 90.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 310 | 80 | 160 | 330 | 80 | 180 | 1120 | 190 | 250 | 1330 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3487 | | 1805 | 3493 | | 1805 | 3610 | 1587 | 1805 | 5187 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3487 | | 1805 | 3493 | | 1805 | 3610 | 1587 | 1805 | 5187 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 310 | 80 | 160 | 330 | 80 | 180 | 1120 | 190 | 250 | 1330 | 60 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 21 | 0 | 0 | 0 | 99 | 0 | 0 | 32 |
| Lane Group Flow (vph) | 80 | 367 | 0 | 160 | 389 | 0 | 180 | 1120 | 91 | 250 | 1330 | 28 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.3 | 19.0 | | 12.6 | 23.3 | | 17.7 | 45.6 | 45.6 | 26.8 | 54.7 | 54.7 |
| Effective Green, g (s) | 8.3 | 19.0 | | 12.6 | 23.3 | | 17.7 | 45.6 | 45.6 | 26.8 | 54.7 | 54.7 |
| Actuated g/C Ratio | 0.07 | 0.16 | | 0.10 | 0.19 | | 0.15 | 0.38 | 0.38 | 0.22 | 0.46 | 0.46 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 125 | 552 | | 190 | 678 | | 266 | 1372 | 603 | 403 | 2364 | 723 |
| v/s Ratio Prot | 0.04 | c0.11 | | c0.09 | 0.11 | | c0.10 | c0.31 | | c0.14 | 0.26 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | 0.02 |
| v/c Ratio | 0.64 | 0.67 | | 0.84 | 0.57 | | 0.68 | 0.82 | 0.15 | 0.62 | 0.56 | 0.04 |
| Uniform Delay, d1 | 54.4 | 47.5 | | 52.7 | 43.8 | | 48.4 | 33.4 | 24.5 | 42.0 | 23.9 | 18.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.49 | 0.27 | 0.09 |
| Incremental Delay, d2 | 10.7 | 3.0 | | 27.2 | 1.2 | | 6.7 | 5.5 | 0.5 | 0.9 | 0.3 | 0.0 |
| Delay (s) | 65.1 | 50.5 | | 79.9 | 45.0 | | 55.1 | 38.9 | 25.0 | 63.7 | 6.9 | 1.7 |
| Level of Service | E | D | | E | D | | E | D | C | E | A | A |
| Approach Delay (s) | | 53.0 | | | 54.8 | | | 39.1 | | | 15.3 | |
| Approach LOS | | D | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 81.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 340 | 130 | 330 | 660 | 240 | 350 | 890 | 180 | 260 | 1240 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3444 | | 1805 | 3450 | | 1805 | 5187 | 1587 | 1805 | 5072 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3444 | | 1805 | 3450 | | 1805 | 5187 | 1587 | 1805 | 5072 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 340 | 130 | 330 | 660 | 240 | 350 | 890 | 180 | 260 | 1240 | 190 |
| RTOR Reduction (vph) | 0 | 36 | 0 | 0 | 33 | 0 | 0 | 0 | 106 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 80 | 434 | 0 | 330 | 867 | 0 | 350 | 890 | 74 | 260 | 1413 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.3 | 28.8 | | 18.0 | 38.5 | | 25.9 | 34.4 | 34.4 | 22.8 | 31.3 | |
| Effective Green, g (s) | 8.3 | 28.8 | | 18.0 | 38.5 | | 25.9 | 34.4 | 34.4 | 22.8 | 31.3 | |
| Actuated g/C Ratio | 0.07 | 0.24 | | 0.15 | 0.32 | | 0.22 | 0.29 | 0.29 | 0.19 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 827 | | 271 | 1107 | | 390 | 1487 | 455 | 343 | 1323 | |
| v/s Ratio Prot | 0.04 | 0.13 | | c0.18 | c0.25 | | c0.19 | c0.17 | | 0.14 | c0.28 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.64 | 0.52 | | 1.22 | 0.78 | | 0.90 | 0.60 | 0.16 | 0.76 | 1.07 | |
| Uniform Delay, d1 | 54.4 | 39.6 | | 51.0 | 37.0 | | 45.8 | 36.9 | 32.0 | 46.0 | 44.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.69 | 0.91 | 1.74 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.7 | 0.6 | | 126.7 | 3.7 | | 21.2 | 1.7 | 0.7 | 9.2 | 45.1 | |
| Delay (s) | 65.1 | 40.2 | | 177.7 | 40.6 | | 52.9 | 35.0 | 56.3 | 55.2 | 89.5 | |
| Level of Service | E | D | | F | D | | D | D | E | E | F | |
| Approach Delay (s) | | 43.9 | | | 77.4 | | | 42.2 | | | 84.2 | |
| Approach LOS | | D | | | E | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 65.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 95.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 680 | 70 | 730 | 940 | 90 | 170 | 210 | 450 | 70 | 250 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.90 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3554 | | 1805 | 3610 | 1591 | 1805 | 3207 | | 1805 | 3427 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3554 | | 1805 | 3610 | 1591 | 1805 | 3207 | | 1805 | 3427 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 680 | 70 | 730 | 940 | 90 | 170 | 210 | 450 | 70 | 250 | 110 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 42 | 0 | 340 | 0 | 0 | 49 | 0 |
| Lane Group Flow (vph) | 80 | 743 | 0 | 730 | 940 | 48 | 170 | 320 | 0 | 70 | 311 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 7.6 | 26.1 | | 25.3 | 43.8 | 50.9 | 13.9 | 20.8 | | 7.1 | 14.0 | |
| Effective Green, g (s) | 7.6 | 26.1 | | 25.3 | 43.8 | 50.9 | 13.9 | 20.8 | | 7.1 | 14.0 | |
| Actuated g/C Ratio | 0.08 | 0.27 | | 0.27 | 0.46 | 0.53 | 0.15 | 0.22 | | 0.07 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 144 | 973 | | 479 | 1659 | 917 | 263 | 700 | | 134 | 503 | |
| v/s Ratio Prot | 0.04 | c0.21 | | c0.40 | 0.26 | 0.00 | c0.09 | 0.10 | | 0.04 | c0.09 | |
| v/s Ratio Perm | | | | | | 0.03 | | | | | | |
| v/c Ratio | 0.56 | 0.76 | | 1.52 | 0.57 | 0.05 | 0.65 | 0.46 | | 0.52 | 0.62 | |
| Uniform Delay, d1 | 42.2 | 31.8 | | 35.0 | 18.8 | 10.6 | 38.4 | 32.3 | | 42.5 | 38.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.6 | 3.6 | | 246.3 | 0.4 | 0.0 | 5.4 | 0.5 | | 3.6 | 2.3 | |
| Delay (s) | 46.8 | 35.4 | | 281.3 | 19.3 | 10.7 | 43.8 | 32.8 | | 46.1 | 40.4 | |
| Level of Service | D | D | | F | B | B | D | C | | D | D | |
| Approach Delay (s) | | 36.5 | | | 127.5 | | | 35.1 | | | 41.3 | |
| Approach LOS | | D | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 78.3 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 95.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 104.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 890 | 310 | 680 | 1480 | 130 | 320 | 450 | 650 | 170 | 460 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 4966 | | 3502 | 5118 | | 3502 | 3610 | 1601 | 3502 | 3522 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 4966 | | 3502 | 5118 | | 3502 | 3610 | 1601 | 3502 | 3522 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 890 | 310 | 680 | 1480 | 130 | 320 | 450 | 650 | 170 | 460 | 80 |
| RTOR Reduction (vph) | 0 | 51 | 0 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 140 | 1149 | 0 | 680 | 1602 | 0 | 320 | 450 | 640 | 170 | 526 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.5 | 30.3 | | 17.2 | 39.0 | | 10.1 | 22.9 | 40.1 | 7.1 | 19.9 | |
| Effective Green, g (s) | 8.5 | 30.3 | | 17.2 | 39.0 | | 10.1 | 22.9 | 40.1 | 7.1 | 19.9 | |
| Actuated g/C Ratio | 0.09 | 0.32 | | 0.18 | 0.42 | | 0.11 | 0.24 | 0.43 | 0.08 | 0.21 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 318 | 1609 | | 644 | 2135 | | 378 | 884 | 755 | 266 | 750 | |
| v/s Ratio Prot | 0.04 | 0.23 | | c0.19 | c0.31 | | c0.09 | 0.12 | c0.16 | 0.05 | 0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.24 | | | |
| v/c Ratio | 0.44 | 0.71 | | 1.06 | 0.75 | | 0.85 | 0.51 | 0.85 | 0.64 | 0.70 | |
| Uniform Delay, d1 | 40.2 | 27.8 | | 38.1 | 23.1 | | 40.9 | 30.5 | 24.0 | 42.0 | 34.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.0 | 1.5 | | 51.1 | 1.5 | | 15.9 | 0.5 | 8.7 | 5.0 | 3.0 | |
| Delay (s) | 41.2 | 29.3 | | 89.3 | 24.6 | | 56.8 | 30.9 | 32.7 | 46.9 | 37.0 | |
| Level of Service | D | C | | F | C | | E | C | C | D | D | |
| Approach Delay (s) | | 30.6 | | | 43.8 | | | 37.6 | | | 39.4 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 93.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 85.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 620 | 840 | 910 | 60 | 30 | 620 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.91 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 0.86 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 5134 | | 1610 | 1528 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 5134 | | 1610 | 1528 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 620 | 840 | 910 | 60 | 30 | 620 |
| RTOR Reduction (vph) | 0 | 0 | 8 | 0 | 259 | 3 |
| Lane Group Flow (vph) | 620 | 840 | 962 | 0 | 69 | 319 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 29.2 | 52.4 | 19.2 | | 9.2 | 38.4 |
| Effective Green, g (s) | 29.2 | 52.4 | 19.2 | | 9.2 | 38.4 |
| Actuated g/C Ratio | 0.42 | 0.75 | 0.28 | | 0.13 | 0.55 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 757 | 3905 | 1416 | | 213 | 931 |
| v/s Ratio Prot | c0.34 | 0.16 | c0.19 | | 0.04 | c0.14 |
| v/s Ratio Perm | | | | | | 0.07 |
| v/c Ratio | 0.82 | 0.22 | 0.68 | | 0.33 | 0.34 |
| Uniform Delay, d1 | 17.9 | 2.5 | 22.5 | | 27.4 | 8.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.9 | 0.0 | 1.3 | | 0.9 | 0.2 |
| Delay (s) | 24.8 | 2.6 | 23.8 | | 28.3 | 8.8 |
| Level of Service | C | A | C | | C | A |
| Approach Delay (s) | | 12.0 | 23.8 | | 18.7 | |
| Approach LOS | | B | C | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 69.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 880 | 20 | 30 | 1050 | 10 | 50 | 100 | 50 | 10 | 40 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.97 | | | 0.89 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5167 | | 1805 | 5179 | | | 1806 | | | 1666 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5167 | | 1805 | 5179 | | | 1806 | | | 1666 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 880 | 20 | 30 | 1050 | 10 | 50 | 100 | 50 | 10 | 40 | 230 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 11 | 0 | 0 | 172 | 0 |
| Lane Group Flow (vph) | 170 | 899 | 0 | 30 | 1059 | 0 | 0 | 189 | 0 | 0 | 108 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.2 | 30.2 | | 2.4 | 25.4 | | | 12.8 | | | 10.2 | |
| Effective Green, g (s) | 7.2 | 30.2 | | 2.4 | 25.4 | | | 12.8 | | | 10.2 | |
| Actuated g/C Ratio | 0.10 | 0.42 | | 0.03 | 0.35 | | | 0.18 | | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 182 | 2179 | | 61 | 1837 | | | 323 | | | 237 | |
| v/s Ratio Prot | c0.09 | 0.17 | | 0.02 | c0.20 | | | c0.10 | | | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.93 | 0.41 | | 0.49 | 0.58 | | | 0.58 | | | 0.46 | |
| Uniform Delay, d1 | 32.0 | 14.5 | | 34.0 | 18.7 | | | 27.0 | | | 28.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 47.7 | 0.1 | | 6.1 | 0.4 | | | 2.7 | | | 1.4 | |
| Delay (s) | 79.7 | 14.6 | | 40.1 | 19.2 | | | 29.6 | | | 29.6 | |
| Level of Service | E | B | | D | B | | | C | | | C | |
| Approach Delay (s) | | 25.0 | | | 19.8 | | | 29.6 | | | 29.6 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 71.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 72.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 880 | 10 | 20 | 1040 | 10 | 20 | 0 | 40 | 20 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 0.85 | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5177 | | 1805 | 5178 | | 1805 | | 1615 | 1805 | 1593 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5177 | | 1805 | 5178 | | 1805 | | 1615 | 1805 | 1593 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 880 | 10 | 20 | 1040 | 10 | 20 | 0 | 40 | 20 | 0 | 20 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 20 | 889 | 0 | 20 | 1050 | 0 | 20 | 0 | 2 | 20 | 0 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.8 | 24.9 | | 2.4 | 26.5 | | 0.8 | | 2.4 | 5.6 | 0.8 | |
| Effective Green, g (s) | 0.8 | 24.9 | | 2.4 | 26.5 | | 0.8 | | 2.4 | 5.6 | 0.8 | |
| Actuated g/C Ratio | 0.02 | 0.55 | | 0.05 | 0.59 | | 0.02 | | 0.05 | 0.12 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 32 | 2871 | | 96 | 3056 | | 32 | | 86 | 225 | 28 | |
| v/s Ratio Prot | c0.01 | 0.17 | | 0.01 | c0.20 | | c0.01 | | 0.00 | c0.01 | 0.00 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.62 | 0.31 | | 0.21 | 0.34 | | 0.62 | | 0.02 | 0.09 | 0.01 | |
| Uniform Delay, d1 | 21.9 | 5.4 | | 20.3 | 4.7 | | 21.9 | | 20.1 | 17.4 | 21.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 32.4 | 0.1 | | 1.1 | 0.1 | | 32.4 | | 0.1 | 0.2 | 0.2 | |
| Delay (s) | 54.3 | 5.4 | | 21.4 | 4.8 | | 54.3 | | 20.3 | 17.6 | 21.8 | |
| Level of Service | D | A | | C | A | | D | | C | B | C | |
| Approach Delay (s) | | 6.5 | | | 5.1 | | | 31.6 | | | 19.7 | |
| Approach LOS | | A | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.28 | | |
| Actuated Cycle Length (s) | 44.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 41.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 170 | 140 | 160 | 230 | 140 | 490 | 1120 | 200 | 90 | 1250 | 400 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1586 | 1805 | 1900 | 1587 | 3502 | 5187 | 1586 | 1805 | 5187 | 1579 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1586 | 1805 | 1900 | 1587 | 3502 | 5187 | 1586 | 1805 | 5187 | 1579 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 170 | 140 | 160 | 230 | 140 | 490 | 1120 | 200 | 90 | 1250 | 400 |
| RTOR Reduction (vph) | 0 | 0 | 121 | 0 | 0 | 107 | 0 | 0 | 97 | 0 | 0 | 208 |
| Lane Group Flow (vph) | 90 | 170 | 19 | 160 | 230 | 33 | 490 | 1120 | 103 | 90 | 1250 | 192 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 16.6 | 16.6 | 16.6 | 20.8 | 20.8 | 20.8 | 26.9 | 55.3 | 55.3 | 11.3 | 39.7 | 39.7 |
| Effective Green, g (s) | 16.6 | 16.6 | 16.6 | 20.8 | 20.8 | 20.8 | 26.9 | 55.3 | 55.3 | 11.3 | 39.7 | 39.7 |
| Actuated g/C Ratio | 0.14 | 0.14 | 0.14 | 0.17 | 0.17 | 0.17 | 0.22 | 0.46 | 0.46 | 0.09 | 0.33 | 0.33 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 250 | 263 | 219 | 313 | 329 | 275 | 785 | 2390 | 731 | 170 | 1716 | 522 |
| v/s Ratio Prot | 0.05 | c0.09 | | 0.09 | c0.12 | | c0.14 | 0.22 | | 0.05 | c0.24 | |
| v/s Ratio Perm | | | 0.01 | | | 0.02 | | | 0.06 | | | 0.12 |
| v/c Ratio | 0.36 | 0.65 | 0.09 | 0.51 | 0.70 | 0.12 | 0.62 | 0.47 | 0.14 | 0.53 | 0.73 | 0.37 |
| Uniform Delay, d1 | 46.9 | 48.9 | 45.1 | 45.0 | 46.7 | 41.9 | 42.0 | 22.2 | 18.7 | 51.8 | 35.4 | 30.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.40 | 0.41 | 0.76 |
| Incremental Delay, d2 | 0.9 | 5.4 | 0.2 | 1.4 | 6.4 | 0.2 | 1.6 | 0.7 | 0.4 | 0.3 | 0.3 | 0.2 |
| Delay (s) | 47.8 | 54.3 | 45.3 | 46.4 | 53.0 | 42.1 | 43.5 | 22.9 | 19.1 | 72.6 | 14.8 | 23.4 |
| Level of Service | D | D | D | D | D | D | D | C | B | E | B | C |
| Approach Delay (s) | | 49.7 | | | 48.1 | | | 28.1 | | | 19.7 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 350 | 160 | 80 | 330 | 120 | 300 | 580 | 80 | 210 | 790 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3423 | | 1805 | 3451 | | 1805 | 3538 | | 1805 | 3531 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3423 | | 1805 | 3451 | | 1805 | 3538 | | 1805 | 3531 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 120 | 350 | 160 | 80 | 330 | 120 | 300 | 580 | 80 | 210 | 790 | 120 |
| RTOR Reduction (vph) | 0 | 62 | 0 | 0 | 45 | 0 | 0 | 11 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 120 | 448 | 0 | 80 | 405 | 0 | 300 | 649 | 0 | 210 | 897 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.1 | 18.3 | | 5.4 | 16.6 | | 11.2 | 25.9 | | 10.2 | 24.9 | |
| Effective Green, g (s) | 7.1 | 18.3 | | 5.4 | 16.6 | | 11.2 | 25.9 | | 10.2 | 24.9 | |
| Actuated g/C Ratio | 0.09 | 0.24 | | 0.07 | 0.22 | | 0.15 | 0.34 | | 0.13 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 169 | 826 | | 129 | 756 | | 267 | 1209 | | 243 | 1160 | |
| v/s Ratio Prot | c0.07 | c0.13 | | 0.04 | 0.12 | | c0.17 | 0.18 | | 0.12 | c0.25 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.71 | 0.54 | | 0.62 | 0.54 | | 1.12 | 0.54 | | 0.86 | 0.77 | |
| Uniform Delay, d1 | 33.4 | 25.1 | | 34.2 | 26.2 | | 32.3 | 20.1 | | 32.1 | 22.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 13.1 | 0.7 | | 8.9 | 0.7 | | 92.5 | 0.5 | | 25.7 | 3.3 | |
| Delay (s) | 46.5 | 25.8 | | 43.1 | 26.9 | | 124.8 | 20.6 | | 57.9 | 26.2 | |
| Level of Service | D | C | | D | C | | F | C | | E | C | |
| Approach Delay (s) | | 29.8 | | | 29.4 | | | 53.1 | | | 32.1 | |
| Approach LOS | | C | | | C | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 75.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 78.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 330 | 260 | 220 | 150 | 150 | 130 | 220 | 1220 | 200 | 130 | 980 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3338 | | 1805 | 3359 | | 1805 | 3610 | 1615 | 1805 | 3535 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3338 | | 1805 | 3359 | | 1805 | 3610 | 1615 | 1805 | 3535 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 330 | 260 | 220 | 150 | 150 | 130 | 220 | 1220 | 200 | 130 | 980 | 140 |
| RTOR Reduction (vph) | 0 | 165 | 0 | 0 | 114 | 0 | 0 | 0 | 80 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 330 | 315 | 0 | 150 | 166 | 0 | 220 | 1220 | 120 | 130 | 1110 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.8 | 13.6 | | 7.0 | 9.8 | | 8.0 | 33.9 | 40.9 | 8.0 | 33.9 | |
| Effective Green, g (s) | 10.8 | 13.6 | | 7.0 | 9.8 | | 8.0 | 33.9 | 40.9 | 8.0 | 33.9 | |
| Actuated g/C Ratio | 0.14 | 0.17 | | 0.09 | 0.12 | | 0.10 | 0.43 | 0.52 | 0.10 | 0.43 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 482 | 578 | | 161 | 419 | | 184 | 1559 | 924 | 184 | 1527 | |
| v/s Ratio Prot | 0.09 | c0.09 | | c0.08 | 0.05 | | c0.12 | c0.34 | 0.01 | 0.07 | 0.31 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | |
| v/c Ratio | 0.68 | 0.54 | | 0.93 | 0.40 | | 1.20 | 0.78 | 0.13 | 0.71 | 0.73 | |
| Uniform Delay, d1 | 32.2 | 29.6 | | 35.5 | 31.6 | | 35.2 | 19.1 | 9.7 | 34.1 | 18.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.0 | 1.1 | | 50.9 | 0.6 | | 128.9 | 2.6 | 0.1 | 11.7 | 1.8 | |
| Delay (s) | 36.2 | 30.7 | | 86.5 | 32.2 | | 164.1 | 21.8 | 9.7 | 45.8 | 20.2 | |
| Level of Service | D | C | | F | C | | F | C | A | D | C | |
| Approach Delay (s) | | 32.9 | | | 51.2 | | | 39.4 | | | 22.9 | |
| Approach LOS | | C | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 78.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 810 | 120 | 90 | 1220 | 270 | 190 | 210 | 60 | 210 | 160 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5075 | | 1805 | 5187 | 1593 | 3502 | 1830 | | 1805 | 3380 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5075 | | 1805 | 5187 | 1593 | 3502 | 1830 | | 1805 | 3380 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 810 | 120 | 90 | 1220 | 270 | 190 | 210 | 60 | 210 | 160 | 100 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 0 | 105 | 0 | 11 | 0 | 0 | 74 | 0 |
| Lane Group Flow (vph) | 60 | 917 | 0 | 90 | 1220 | 165 | 190 | 259 | 0 | 210 | 186 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 8.2 | 51.0 | | 11.3 | 54.1 | 73.3 | 10.4 | 22.5 | | 19.2 | 31.3 | |
| Effective Green, g (s) | 8.2 | 51.0 | | 11.3 | 54.1 | 73.3 | 10.4 | 22.5 | | 19.2 | 31.3 | |
| Actuated g/C Ratio | 0.07 | 0.42 | | 0.09 | 0.45 | 0.61 | 0.09 | 0.19 | | 0.16 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 123 | 2157 | | 170 | 2338 | 973 | 304 | 343 | | 289 | 882 | |
| v/s Ratio Prot | 0.03 | 0.18 | | c0.05 | c0.24 | 0.03 | 0.05 | c0.14 | | c0.12 | 0.06 | |
| v/s Ratio Perm | | | | | | 0.08 | | | | | | |
| v/c Ratio | 0.49 | 0.43 | | 0.53 | 0.52 | 0.17 | 0.62 | 0.76 | | 0.73 | 0.21 | |
| Uniform Delay, d1 | 53.9 | 24.2 | | 51.8 | 23.7 | 10.1 | 52.9 | 46.2 | | 47.9 | 34.7 | |
| Progression Factor | 0.97 | 0.48 | | 1.00 | 1.00 | 1.00 | 0.74 | 0.79 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.8 | 0.6 | | 3.0 | 0.8 | 0.1 | 3.8 | 8.8 | | 8.8 | 0.1 | |
| Delay (s) | 54.9 | 12.1 | | 54.8 | 24.5 | 10.2 | 43.1 | 45.1 | | 56.7 | 34.8 | |
| Level of Service | D | B | | D | C | B | D | D | | E | C | |
| Approach Delay (s) | | 14.7 | | | 23.8 | | | 44.3 | | | 44.6 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 72.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 750 | 180 | 80 | 1170 | 20 | 170 | 260 | 120 | 30 | 250 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1591 | 1805 | 5187 | 1594 | 1805 | 1900 | 1599 | 1805 | 3407 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1591 | 1805 | 5187 | 1594 | 1805 | 1900 | 1599 | 1805 | 3407 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 750 | 180 | 80 | 1170 | 20 | 170 | 260 | 120 | 30 | 250 | 130 |
| RTOR Reduction (vph) | 0 | 0 | 98 | 0 | 0 | 4 | 0 | 0 | 81 | 0 | 83 | 0 |
| Lane Group Flow (vph) | 40 | 750 | 82 | 80 | 1170 | 16 | 170 | 260 | 39 | 30 | 297 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 3.7 | 23.1 | 23.1 | 7.2 | 26.6 | 33.8 | 10.3 | 15.4 | 22.6 | 7.2 | 12.3 | |
| Effective Green, g (s) | 3.7 | 23.1 | 23.1 | 7.2 | 26.6 | 33.8 | 10.3 | 15.4 | 22.6 | 7.2 | 12.3 | |
| Actuated g/C Ratio | 0.05 | 0.34 | 0.34 | 0.10 | 0.39 | 0.49 | 0.15 | 0.22 | 0.33 | 0.10 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 97 | 1739 | 533 | 189 | 2003 | 875 | 270 | 425 | 617 | 189 | 608 | |
| v/s Ratio Prot | 0.02 | 0.14 | | c0.04 | c0.23 | 0.00 | c0.09 | c0.14 | 0.01 | 0.02 | 0.09 | |
| v/s Ratio Perm | | | 0.05 | | | 0.01 | | | 0.02 | | | |
| v/c Ratio | 0.41 | 0.43 | 0.15 | 0.42 | 0.58 | 0.02 | 0.63 | 0.61 | 0.06 | 0.16 | 0.49 | |
| Uniform Delay, d1 | 31.5 | 17.8 | 16.0 | 28.9 | 16.8 | 9.0 | 27.5 | 24.1 | 15.9 | 28.1 | 25.5 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.8 | 0.2 | 0.1 | 1.5 | 0.4 | 0.0 | 4.5 | 2.6 | 0.0 | 0.4 | 0.6 | |
| Delay (s) | 34.4 | 18.0 | 16.2 | 30.4 | 17.2 | 9.0 | 32.1 | 26.7 | 15.9 | 28.5 | 26.1 | |
| Level of Service | C | B | B | C | B | A | C | C | B | C | C | |
| Approach Delay (s) | | 18.3 | | | 17.9 | | | 26.0 | | | 26.3 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 68.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 65.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 220 | 500 | 200 | 100 | 760 | 110 | 240 | 30 | 70 | 70 | 30 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 0.90 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4965 | | 1805 | 5078 | | 1805 | 3231 | | 1805 | 3090 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4965 | | 1805 | 5078 | | 1805 | 3231 | | 1805 | 3090 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 220 | 500 | 200 | 100 | 760 | 110 | 240 | 30 | 70 | 70 | 30 | 230 |
| RTOR Reduction (vph) | 0 | 52 | 0 | 0 | 15 | 0 | 0 | 59 | 0 | 0 | 204 | 0 |
| Lane Group Flow (vph) | 220 | 648 | 0 | 100 | 855 | 0 | 240 | 41 | 0 | 70 | 56 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 15.3 | 27.8 | | 8.1 | 20.6 | | 16.4 | 12.6 | | 12.4 | 8.6 | |
| Effective Green, g (s) | 15.3 | 27.8 | | 8.1 | 20.6 | | 16.4 | 12.6 | | 12.4 | 8.6 | |
| Actuated g/C Ratio | 0.20 | 0.36 | | 0.11 | 0.27 | | 0.21 | 0.16 | | 0.16 | 0.11 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 359 | 1795 | | 190 | 1360 | | 385 | 529 | | 291 | 346 | |
| v/s Ratio Prot | c0.12 | 0.13 | | 0.06 | c0.17 | | c0.13 | c0.01 | | 0.04 | c0.02 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.61 | 0.36 | | 0.53 | 0.63 | | 0.62 | 0.08 | | 0.24 | 0.16 | |
| Uniform Delay, d1 | 28.1 | 18.0 | | 32.6 | 24.8 | | 27.4 | 27.2 | | 28.1 | 30.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.1 | 0.1 | | 2.6 | 0.9 | | 3.1 | 0.1 | | 0.4 | 0.2 | |
| Delay (s) | 31.2 | 18.2 | | 35.2 | 25.7 | | 30.6 | 27.3 | | 28.6 | 31.1 | |
| Level of Service | C | B | | D | C | | C | C | | C | C | |
| Approach Delay (s) | | 21.3 | | | 26.7 | | | 29.6 | | | 30.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 76.9 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 69.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 180 | 330 | 290 | 420 | 80 | 360 | 660 | 80 | 40 | 870 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1589 | 1805 | 3610 | 1590 | 1805 | 5094 | | 1805 | 5187 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1589 | 1805 | 3610 | 1590 | 1805 | 5094 | | 1805 | 5187 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 100 | 180 | 330 | 290 | 420 | 80 | 360 | 660 | 80 | 40 | 870 | 180 |
| RTOR Reduction (vph) | 0 | 0 | 294 | 0 | 0 | 63 | 0 | 11 | 0 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 100 | 180 | 36 | 290 | 420 | 17 | 360 | 729 | 0 | 40 | 870 | 90 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 9.2 | 9.9 | 9.9 | 18.2 | 18.9 | 18.9 | 22.2 | 42.6 | | 4.0 | 24.4 | 24.4 |
| Effective Green, g (s) | 9.2 | 9.9 | 9.9 | 18.2 | 18.9 | 18.9 | 22.2 | 42.6 | | 4.0 | 24.4 | 24.4 |
| Actuated g/C Ratio | 0.10 | 0.11 | 0.11 | 0.20 | 0.21 | 0.21 | 0.24 | 0.47 | | 0.04 | 0.27 | 0.27 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 183 | 566 | 173 | 362 | 752 | 331 | 442 | 2393 | | 80 | 1395 | 427 |
| v/s Ratio Prot | 0.06 | 0.03 | | c0.16 | c0.12 | | c0.20 | 0.14 | | 0.02 | c0.17 | |
| v/s Ratio Perm | | | 0.02 | | | 0.01 | | | | | | 0.06 |
| v/c Ratio | 0.55 | 0.32 | 0.21 | 0.80 | 0.56 | 0.05 | 0.81 | 0.30 | | 0.50 | 0.62 | 0.21 |
| Uniform Delay, d1 | 38.8 | 37.3 | 36.8 | 34.5 | 32.2 | 28.7 | 32.3 | 14.9 | | 42.4 | 29.1 | 25.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.3 | 0.3 | 0.6 | 12.0 | 0.9 | 0.1 | 11.0 | 0.1 | | 4.8 | 0.9 | 0.2 |
| Delay (s) | 42.1 | 37.6 | 37.4 | 46.5 | 33.1 | 28.8 | 43.3 | 15.0 | | 47.2 | 30.0 | 25.9 |
| Level of Service | D | D | D | D | C | C | D | B | | D | C | C |
| Approach Delay (s) | | 38.2 | | | 37.6 | | | 24.2 | | | 30.0 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 90.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 580 | 150 | 30 | 640 | 40 | 190 | 310 | 40 | 50 | 300 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3486 | | 1805 | 3574 | | 1805 | 3541 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3486 | | 1805 | 3574 | | 1805 | 3541 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 580 | 150 | 30 | 640 | 40 | 190 | 310 | 40 | 50 | 300 | 100 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 0 | 79 |
| Lane Group Flow (vph) | 110 | 714 | 0 | 30 | 677 | 0 | 190 | 340 | 0 | 50 | 300 | 21 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 12.1 | 57.0 | | 4.6 | 49.5 | | 17.6 | 36.1 | | 6.3 | 24.8 | 24.8 |
| Effective Green, g (s) | 12.1 | 57.0 | | 4.6 | 49.5 | | 17.6 | 36.1 | | 6.3 | 24.8 | 24.8 |
| Actuated g/C Ratio | 0.10 | 0.48 | | 0.04 | 0.41 | | 0.15 | 0.30 | | 0.05 | 0.21 | 0.21 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 182 | 1656 | | 69 | 1474 | | 265 | 1065 | | 95 | 393 | 328 |
| v/s Ratio Prot | c0.06 | 0.20 | | 0.02 | c0.19 | | c0.11 | 0.10 | | 0.03 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.60 | 0.43 | | 0.43 | 0.46 | | 0.72 | 0.32 | | 0.53 | 0.76 | 0.06 |
| Uniform Delay, d1 | 51.7 | 20.8 | | 56.4 | 25.6 | | 48.8 | 32.4 | | 55.4 | 44.8 | 38.3 |
| Progression Factor | 1.10 | 0.64 | | 1.33 | 0.74 | | 1.00 | 1.00 | | 0.94 | 0.92 | 1.17 |
| Incremental Delay, d2 | 5.0 | 0.7 | | 4.0 | 0.9 | | 8.9 | 0.2 | | 5.1 | 8.4 | 0.1 |
| Delay (s) | 62.0 | 14.0 | | 79.0 | 19.9 | | 57.7 | 32.6 | | 57.0 | 49.5 | 44.8 |
| Level of Service | E | B | | E | B | | E | C | | E | D | D |
| Approach Delay (s) | | 20.3 | | | 22.4 | | | 41.5 | | | 49.3 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 70.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 450 | 230 | 310 | 500 | 60 | 180 | 590 | 400 | 70 | 520 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3406 | | 1805 | 3545 | | 1805 | 3610 | 1586 | 1805 | 3557 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3406 | | 1805 | 3545 | | 1805 | 3610 | 1586 | 1805 | 3557 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 450 | 230 | 310 | 500 | 60 | 180 | 590 | 400 | 70 | 520 | 50 |
| RTOR Reduction (vph) | 0 | 51 | 0 | 0 | 7 | 0 | 0 | 0 | 289 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 70 | 629 | 0 | 310 | 553 | 0 | 180 | 590 | 111 | 70 | 564 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 7.7 | 34.3 | | 28.8 | 55.4 | | 16.8 | 33.2 | 33.2 | 7.7 | 24.1 | |
| Effective Green, g (s) | 7.7 | 34.3 | | 28.8 | 55.4 | | 16.8 | 33.2 | 33.2 | 7.7 | 24.1 | |
| Actuated g/C Ratio | 0.06 | 0.29 | | 0.24 | 0.46 | | 0.14 | 0.28 | 0.28 | 0.06 | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 116 | 974 | | 433 | 1637 | | 253 | 999 | 439 | 116 | 714 | |
| v/s Ratio Prot | 0.04 | c0.18 | | c0.17 | 0.16 | | c0.10 | 0.16 | | 0.04 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.07 | | | |
| v/c Ratio | 0.60 | 0.65 | | 0.72 | 0.34 | | 0.71 | 0.59 | 0.25 | 0.60 | 0.79 | |
| Uniform Delay, d1 | 54.7 | 37.5 | | 41.8 | 20.6 | | 49.3 | 37.5 | 33.7 | 54.7 | 45.5 | |
| Progression Factor | 0.65 | 0.81 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.1 | 3.1 | | 5.6 | 0.6 | | 9.1 | 0.9 | 0.3 | 8.6 | 5.8 | |
| Delay (s) | 43.9 | 33.5 | | 47.4 | 21.2 | | 58.4 | 38.5 | 34.1 | 63.2 | 51.3 | |
| Level of Service | D | C | | D | C | | E | D | C | E | D | |
| Approach Delay (s) | | 34.5 | | | 30.5 | | | 40.0 | | | 52.6 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 81.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 260 | 40 | 90 | 210 | 210 | 60 | 70 | 150 | 210 | 40 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.93 | | 1.00 | 0.90 | | 1.00 | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1803 | 3531 | | 1803 | 3317 | | 1803 | 3211 | | 1803 | 3220 | |
| Flt Permitted | 0.51 | 1.00 | | 0.57 | 1.00 | | 0.68 | 1.00 | | 0.61 | 1.00 | |
| Satd. Flow (perm) | 961 | 3531 | | 1080 | 3317 | | 1283 | 3211 | | 1166 | 3220 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 260 | 40 | 90 | 210 | 210 | 60 | 70 | 150 | 210 | 40 | 80 |
| RTOR Reduction (vph) | 0 | 22 | 0 | 0 | 131 | 0 | 0 | 103 | 0 | 0 | 55 | 0 |
| Lane Group Flow (vph) | 80 | 278 | 0 | 90 | 289 | 0 | 60 | 117 | 0 | 210 | 65 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 9.8 | 9.8 | | 9.8 | 9.8 | | 8.2 | 8.2 | | 8.2 | 8.2 | |
| Effective Green, g (s) | 9.8 | 9.8 | | 9.8 | 9.8 | | 8.2 | 8.2 | | 8.2 | 8.2 | |
| Actuated g/C Ratio | 0.38 | 0.38 | | 0.38 | 0.38 | | 0.32 | 0.32 | | 0.32 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 362 | 1331 | | 407 | 1250 | | 405 | 1013 | | 368 | 1016 | |
| v/s Ratio Prot | | 0.08 | | | c0.09 | | | 0.04 | | | 0.02 | |
| v/s Ratio Perm | 0.08 | | | 0.08 | | | 0.05 | | | c0.18 | | |
| v/c Ratio | 0.22 | 0.21 | | 0.22 | 0.23 | | 0.15 | 0.12 | | 0.57 | 0.06 | |
| Uniform Delay, d1 | 5.5 | 5.5 | | 5.5 | 5.5 | | 6.4 | 6.3 | | 7.4 | 6.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.1 | | 0.3 | 0.1 | | 0.2 | 0.1 | | 2.1 | 0.0 | |
| Delay (s) | 5.8 | 5.6 | | 5.8 | 5.6 | | 6.6 | 6.4 | | 9.6 | 6.2 | |
| Level of Service | A | A | | A | A | | A | A | | A | A | |
| Approach Delay (s) | | 5.6 | | | 5.7 | | | 6.4 | | | 8.4 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 26.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 370 | 300 | 180 | 190 | 360 | 400 | 220 | 290 | 170 | 350 | 300 | 490 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.92 | | 1.00 | 0.94 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3387 | | 1805 | 3298 | | 1805 | 4869 | | 3502 | 4655 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3387 | | 1805 | 3298 | | 1805 | 4869 | | 3502 | 4655 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 370 | 300 | 180 | 190 | 360 | 400 | 220 | 290 | 170 | 350 | 300 | 490 |
| RTOR Reduction (vph) | 0 | 76 | 0 | 0 | 188 | 0 | 0 | 93 | 0 | 0 | 261 | 0 |
| Lane Group Flow (vph) | 370 | 404 | 0 | 190 | 572 | 0 | 220 | 367 | 0 | 350 | 529 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 23.3 | 30.8 | | 14.7 | 22.2 | | 14.2 | 17.8 | | 13.4 | 17.0 | |
| Effective Green, g (s) | 23.3 | 30.8 | | 14.7 | 22.2 | | 14.2 | 17.8 | | 13.4 | 17.0 | |
| Actuated g/C Ratio | 0.25 | 0.33 | | 0.16 | 0.24 | | 0.15 | 0.19 | | 0.14 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 454 | 1125 | | 286 | 790 | | 276 | 935 | | 506 | 854 | |
| v/s Ratio Prot | c0.20 | 0.12 | | 0.11 | c0.17 | | c0.12 | 0.08 | | 0.10 | c0.11 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.81 | 0.36 | | 0.66 | 0.72 | | 0.80 | 0.39 | | 0.69 | 0.89dr | |
| Uniform Delay, d1 | 32.7 | 23.5 | | 36.7 | 32.4 | | 37.9 | 32.7 | | 37.7 | 34.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.8 | 0.2 | | 5.7 | 3.3 | | 14.7 | 0.3 | | 4.1 | 1.3 | |
| Delay (s) | 43.4 | 23.7 | | 42.4 | 35.7 | | 52.6 | 33.0 | | 41.7 | 36.2 | |
| Level of Service | D | C | | D | D | | D | C | | D | D | |
| Approach Delay (s) | | 32.3 | | | 37.1 | | | 39.3 | | | 37.9 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 92.7 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 88.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 1100 | 120 | 60 | 1030 | 100 | 60 | 190 | 40 | 120 | 280 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5110 | | 3502 | 3506 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5110 | | 3502 | 3506 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 1100 | 120 | 60 | 1030 | 100 | 60 | 190 | 40 | 120 | 280 | 170 |
| RTOR Reduction (vph) | 0 | 0 | 43 | 0 | 6 | 0 | 0 | 20 | 0 | 0 | 0 | 146 |
| Lane Group Flow (vph) | 110 | 1100 | 77 | 60 | 1124 | 0 | 60 | 210 | 0 | 120 | 280 | 24 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 12.6 | 73.1 | 73.1 | 8.2 | 68.7 | | 5.6 | 14.9 | | 7.8 | 17.1 | 17.1 |
| Effective Green, g (s) | 12.6 | 73.1 | 73.1 | 8.2 | 68.7 | | 5.6 | 14.9 | | 7.8 | 17.1 | 17.1 |
| Actuated g/C Ratio | 0.10 | 0.61 | 0.61 | 0.07 | 0.57 | | 0.05 | 0.12 | | 0.06 | 0.14 | 0.14 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 190 | 2199 | 966 | 123 | 2925 | | 163 | 435 | | 228 | 514 | 226 |
| v/s Ratio Prot | c0.06 | c0.30 | | 0.03 | 0.22 | | 0.02 | 0.06 | | c0.03 | c0.08 | |
| v/s Ratio Perm | | | 0.05 | | | | | | | | | 0.02 |
| v/c Ratio | 0.58 | 0.50 | 0.08 | 0.49 | 0.38 | | 0.37 | 0.48 | | 0.53 | 0.54 | 0.11 |
| Uniform Delay, d1 | 51.2 | 13.2 | 9.6 | 53.9 | 14.1 | | 55.5 | 49.0 | | 54.3 | 47.8 | 44.8 |
| Progression Factor | 1.60 | 0.15 | 0.01 | 0.96 | 0.51 | | 1.00 | 0.86 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.4 | 0.7 | 0.1 | 2.8 | 0.4 | | 1.4 | 0.8 | | 2.2 | 1.2 | 0.2 |
| Delay (s) | 85.1 | 2.6 | 0.2 | 54.5 | 7.5 | | 57.0 | 42.8 | | 56.5 | 49.0 | 45.0 |
| Level of Service | F | A | A | D | A | | E | D | | E | D | D |
| Approach Delay (s) | | 9.2 | | | 9.9 | | | 45.8 | | | 49.4 | |
| Approach LOS | | A | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 67.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 960 | 260 | 320 | 1000 | 60 | 120 | 240 | 200 | 110 | 390 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.93 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5138 | | 1805 | 3339 | | 1805 | 3530 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5138 | | 1805 | 3339 | | 1805 | 3530 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 960 | 260 | 320 | 1000 | 60 | 120 | 240 | 200 | 110 | 390 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 142 | 0 | 4 | 0 | 0 | 156 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 40 | 960 | 118 | 320 | 1056 | 0 | 120 | 284 | 0 | 110 | 438 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 7.0 | 45.4 | 45.4 | 28.0 | 66.4 | | 9.9 | 22.6 | | 8.0 | 20.7 | |
| Effective Green, g (s) | 7.0 | 45.4 | 45.4 | 28.0 | 66.4 | | 9.9 | 22.6 | | 8.0 | 20.7 | |
| Actuated g/C Ratio | 0.06 | 0.38 | 0.38 | 0.23 | 0.55 | | 0.08 | 0.19 | | 0.07 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 105 | 1366 | 600 | 421 | 2843 | | 149 | 629 | | 120 | 609 | |
| v/s Ratio Prot | 0.02 | c0.27 | | c0.18 | 0.21 | | c0.07 | 0.09 | | 0.06 | c0.12 | |
| v/s Ratio Perm | | | 0.07 | | | | | | | | | |
| v/c Ratio | 0.38 | 0.70 | 0.20 | 0.76 | 0.37 | | 0.81 | 0.45 | | 0.92 | 0.72 | |
| Uniform Delay, d1 | 54.4 | 31.6 | 25.0 | 42.9 | 15.1 | | 54.1 | 43.2 | | 55.7 | 46.9 | |
| Progression Factor | 0.86 | 0.97 | 1.86 | 0.50 | 0.74 | | 0.88 | 1.18 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.1 | 2.7 | 0.7 | 6.4 | 0.3 | | 25.3 | 0.5 | | 56.4 | 4.1 | |
| Delay (s) | 49.0 | 33.2 | 47.1 | 27.8 | 11.5 | | 72.9 | 51.3 | | 112.1 | 50.9 | |
| Level of Service | D | C | D | C | B | | E | D | | F | D | |
| Approach Delay (s) | | 36.6 | | | 15.3 | | | 55.9 | | | 63.0 | |
| Approach LOS | | D | | | B | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 80.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 930 | 80 | 80 | 1390 | 190 | 140 | 290 | 40 | 180 | 320 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1591 | 1805 | 5083 | | 1805 | 3537 | | 1805 | 3610 | 1601 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1591 | 1805 | 5083 | | 1805 | 3537 | | 1805 | 3610 | 1601 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 930 | 80 | 80 | 1390 | 190 | 140 | 290 | 40 | 180 | 320 | 120 |
| RTOR Reduction (vph) | 0 | 0 | 28 | 0 | 11 | 0 | 0 | 12 | 0 | 0 | 0 | 34 |
| Lane Group Flow (vph) | 130 | 930 | 52 | 80 | 1569 | 0 | 140 | 318 | 0 | 180 | 320 | 86 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 15.1 | 65.5 | 77.8 | 9.3 | 59.7 | | 12.3 | 16.2 | | 13.0 | 16.9 | 32.0 |
| Effective Green, g (s) | 15.1 | 65.5 | 77.8 | 9.3 | 59.7 | | 12.3 | 16.2 | | 13.0 | 16.9 | 32.0 |
| Actuated g/C Ratio | 0.13 | 0.55 | 0.65 | 0.08 | 0.50 | | 0.10 | 0.13 | | 0.11 | 0.14 | 0.27 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 227 | 2831 | 1085 | 140 | 2529 | | 185 | 477 | | 196 | 508 | 480 |
| v/s Ratio Prot | c0.07 | 0.18 | 0.00 | 0.04 | c0.31 | | 0.08 | c0.09 | | c0.10 | 0.09 | 0.02 |
| v/s Ratio Perm | | | 0.03 | | | | | | | | | 0.03 |
| v/c Ratio | 0.57 | 0.33 | 0.05 | 0.57 | 0.62 | | 0.76 | 0.67 | | 0.92 | 0.63 | 0.18 |
| Uniform Delay, d1 | 49.4 | 15.1 | 7.7 | 53.4 | 21.9 | | 52.4 | 49.3 | | 53.0 | 48.6 | 33.9 |
| Progression Factor | 1.51 | 0.33 | 0.00 | 1.09 | 0.81 | | 0.83 | 1.08 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.6 | 0.2 | 0.0 | 4.7 | 1.0 | | 15.3 | 3.3 | | 41.5 | 2.4 | 0.2 |
| Delay (s) | 77.4 | 5.2 | 0.0 | 62.8 | 18.7 | | 58.8 | 56.5 | | 94.5 | 51.1 | 34.1 |
| Level of Service | E | A | A | E | B | | E | E | | F | D | C |
| Approach Delay (s) | | 13.0 | | | 20.8 | | | 57.2 | | | 60.4 | |
| Approach LOS | | B | | | C | | | E | | | E | |

| Intersection Summary | | | | | |
|---|---|---|---|---|---|
| HCM Average Control Delay | 29.2 | HCM Level of Service | | C | |
| HCM Volume to Capacity ratio | 0.66 | | | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | | 16.0 | |
| Intersection Capacity Utilization | 75.0% | ICU Level of Service | | D | |
| Analysis Period (min) | 15 | | | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 740 | 100 | 110 | 1390 | 110 | 170 | 260 | 90 | 110 | 290 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5083 | | 1805 | 5123 | | 1805 | 3456 | | 1805 | 3446 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5083 | | 1805 | 5123 | | 1805 | 3456 | | 1805 | 3446 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 740 | 100 | 110 | 1390 | 110 | 170 | 260 | 90 | 110 | 290 | 110 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 5 | 0 | 0 | 38 | 0 | 0 | 44 | 0 |
| Lane Group Flow (vph) | 40 | 830 | 0 | 110 | 1495 | 0 | 170 | 312 | 0 | 110 | 356 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.0 | 59.2 | | 12.6 | 64.8 | | 14.2 | 20.4 | | 11.8 | 18.0 | |
| Effective Green, g (s) | 7.0 | 59.2 | | 12.6 | 64.8 | | 14.2 | 20.4 | | 11.8 | 18.0 | |
| Actuated g/C Ratio | 0.06 | 0.49 | | 0.10 | 0.54 | | 0.12 | 0.17 | | 0.10 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 105 | 2508 | | 190 | 2766 | | 214 | 588 | | 177 | 517 | |
| v/s Ratio Prot | 0.02 | 0.16 | | c0.06 | c0.29 | | c0.09 | 0.09 | | 0.06 | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.38 | 0.33 | | 0.58 | 0.54 | | 0.79 | 0.53 | | 0.62 | 0.69 | |
| Uniform Delay, d1 | 54.4 | 18.4 | | 51.2 | 17.9 | | 51.5 | 45.4 | | 52.0 | 48.3 | |
| Progression Factor | 1.14 | 0.55 | | 1.20 | 0.34 | | 0.91 | 0.52 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.1 | 0.3 | | 3.3 | 0.6 | | 17.0 | 0.9 | | 6.6 | 3.8 | |
| Delay (s) | 64.3 | 10.4 | | 64.7 | 6.6 | | 63.8 | 24.3 | | 58.6 | 52.1 | |
| Level of Service | E | B | | E | A | | E | C | | E | D | |
| Approach Delay (s) | | 12.9 | | | 10.6 | | | 37.2 | | | 53.5 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 500 | 240 | 280 | 1060 | 80 | 440 | 700 | 160 | 220 | 960 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1587 | 3502 | 5126 | | 3502 | 5187 | 1589 | 3502 | 5187 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1587 | 3502 | 5126 | | 3502 | 5187 | 1589 | 3502 | 5187 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 500 | 240 | 280 | 1060 | 80 | 440 | 700 | 160 | 220 | 960 | 190 |
| RTOR Reduction (vph) | 0 | 0 | 158 | 0 | 6 | 0 | 0 | 0 | 109 | 0 | 0 | 133 |
| Lane Group Flow (vph) | 140 | 500 | 82 | 280 | 1134 | 0 | 440 | 700 | 51 | 220 | 960 | 57 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 9.5 | 41.0 | 41.0 | 13.9 | 45.4 | | 17.6 | 38.4 | 38.4 | 10.7 | 31.5 | 31.5 |
| Effective Green, g (s) | 9.5 | 41.0 | 41.0 | 13.9 | 45.4 | | 17.6 | 38.4 | 38.4 | 10.7 | 31.5 | 31.5 |
| Actuated g/C Ratio | 0.08 | 0.34 | 0.34 | 0.12 | 0.38 | | 0.15 | 0.32 | 0.32 | 0.09 | 0.26 | 0.26 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 277 | 1233 | 542 | 406 | 1939 | | 514 | 1660 | 508 | 312 | 1362 | 417 |
| v/s Ratio Prot | 0.04 | 0.14 | | c0.08 | c0.22 | | c0.13 | 0.13 | | 0.06 | c0.19 | |
| v/s Ratio Perm | | | 0.05 | | | | | | 0.03 | | | 0.04 |
| v/c Ratio | 0.51 | 0.41 | 0.15 | 0.69 | 0.58 | | 0.86 | 0.42 | 0.10 | 0.71 | 0.70 | 0.14 |
| Uniform Delay, d1 | 53.0 | 30.2 | 27.4 | 51.0 | 29.8 | | 50.0 | 32.1 | 28.7 | 53.1 | 40.0 | 33.9 |
| Progression Factor | 0.68 | 0.80 | 2.60 | 0.95 | 0.50 | | 0.39 | 0.72 | 2.04 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.9 | 0.6 | 4.3 | 1.1 | | 11.2 | 0.1 | 0.1 | 7.1 | 1.7 | 0.2 |
| Delay (s) | 37.5 | 25.2 | 71.8 | 52.8 | 16.1 | | 30.5 | 23.2 | 58.4 | 60.2 | 41.7 | 34.0 |
| Level of Service | D | C | E | D | B | | C | C | E | E | D | C |
| Approach Delay (s) | | 39.9 | | | 23.3 | | | 30.0 | | | 43.6 | |
| Approach LOS | | D | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 83.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 1270 | 1510 | 160 | 170 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 3610 | 1590 | 3502 | 1602 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 3610 | 1590 | 3502 | 1602 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 1270 | 1510 | 160 | 170 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 35 | 0 | 16 |
| Lane Group Flow (vph) | 130 | 1270 | 1510 | 125 | 170 | 54 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 13.9 | 100.8 | 82.9 | 94.1 | 11.2 | 25.1 |
| Effective Green, g (s) | 13.9 | 100.8 | 82.9 | 94.1 | 11.2 | 25.1 |
| Actuated g/C Ratio | 0.12 | 0.84 | 0.69 | 0.78 | 0.09 | 0.21 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 209 | 4357 | 2494 | 1300 | 327 | 388 |
| v/s Ratio Prot | c0.07 | 0.24 | c0.42 | 0.01 | c0.05 | 0.02 |
| v/s Ratio Perm | | | | 0.07 | | 0.02 |
| v/c Ratio | 0.62 | 0.29 | 0.61 | 0.10 | 0.52 | 0.14 |
| Uniform Delay, d1 | 50.5 | 2.0 | 9.9 | 3.0 | 51.8 | 38.7 |
| Progression Factor | 0.91 | 0.44 | 0.58 | 0.14 | 1.04 | 1.64 |
| Incremental Delay, d2 | 4.5 | 0.1 | 0.9 | 0.0 | 1.4 | 0.2 |
| Delay (s) | 50.7 | 1.0 | 6.6 | 0.4 | 55.3 | 63.6 |
| Level of Service | D | A | A | A | E | E |
| Approach Delay (s) | | 5.6 | 6.0 | | 57.7 | |
| Approach LOS | | A | A | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 860 | 370 | 30 | 1470 | 150 | 190 | 90 | 20 | 190 | 320 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 1805 | 5107 | | 3502 | 3501 | | 1805 | 3610 | 1601 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 1805 | 5107 | | 3502 | 3501 | | 1805 | 3610 | 1601 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 860 | 370 | 30 | 1470 | 150 | 190 | 90 | 20 | 190 | 320 | 140 |
| RTOR Reduction (vph) | 0 | 0 | 147 | 0 | 7 | 0 | 0 | 18 | 0 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 140 | 860 | 223 | 30 | 1613 | 0 | 190 | 92 | 0 | 190 | 320 | 130 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 15.1 | 72.4 | 72.4 | 5.1 | 62.4 | | 10.4 | 11.2 | | 15.3 | 16.1 | 31.2 |
| Effective Green, g (s) | 15.1 | 72.4 | 72.4 | 5.1 | 62.4 | | 10.4 | 11.2 | | 15.3 | 16.1 | 31.2 |
| Actuated g/C Ratio | 0.13 | 0.60 | 0.60 | 0.04 | 0.52 | | 0.09 | 0.09 | | 0.13 | 0.13 | 0.26 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 227 | 3129 | 957 | 77 | 2656 | | 304 | 327 | | 230 | 484 | 470 |
| v/s Ratio Prot | c0.08 | 0.17 | | 0.02 | c0.32 | | 0.05 | 0.03 | | c0.11 | c0.09 | 0.03 |
| v/s Ratio Perm | | | 0.14 | | | | | | | | | 0.05 |
| v/c Ratio | 0.62 | 0.27 | 0.23 | 0.39 | 0.61 | | 0.62 | 0.28 | | 0.83 | 0.66 | 0.28 |
| Uniform Delay, d1 | 49.7 | 11.3 | 11.0 | 55.9 | 20.2 | | 52.9 | 50.7 | | 51.1 | 49.4 | 35.4 |
| Progression Factor | 1.06 | 0.73 | 0.84 | 0.93 | 0.85 | | 1.00 | 1.00 | | 0.68 | 0.71 | 0.98 |
| Incremental Delay, d2 | 4.8 | 0.2 | 0.6 | 2.0 | 0.6 | | 4.0 | 0.5 | | 18.8 | 3.0 | 0.3 |
| Delay (s) | 57.7 | 8.4 | 9.8 | 54.2 | 17.8 | | 56.9 | 51.1 | | 53.4 | 37.9 | 35.0 |
| Level of Service | E | A | A | D | B | | E | D | | D | D | C |
| Approach Delay (s) | | 13.8 | | | 18.5 | | | 54.8 | | | 41.8 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 680 | 280 | 20 | 1040 | 80 | 700 | 380 | 10 | 70 | 330 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1598 | 1805 | 3567 | | 3502 | 3594 | | 1805 | 3505 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1598 | 1805 | 3567 | | 3502 | 3594 | | 1805 | 3505 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 680 | 280 | 20 | 1040 | 80 | 700 | 380 | 10 | 70 | 330 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 88 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 18 | 0 |
| Lane Group Flow (vph) | 70 | 680 | 193 | 20 | 1116 | 0 | 700 | 388 | 0 | 70 | 382 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 7.6 | 50.6 | 82.5 | 2.9 | 45.9 | | 31.9 | 42.8 | | 7.7 | 18.6 | |
| Effective Green, g (s) | 7.6 | 50.6 | 82.5 | 2.9 | 45.9 | | 31.9 | 42.8 | | 7.7 | 18.6 | |
| Actuated g/C Ratio | 0.06 | 0.42 | 0.69 | 0.02 | 0.38 | | 0.27 | 0.36 | | 0.06 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 114 | 2187 | 1099 | 44 | 1364 | | 931 | 1282 | | 116 | 543 | |
| v/s Ratio Prot | c0.04 | 0.13 | 0.05 | 0.01 | c0.31 | | c0.20 | 0.11 | | 0.04 | c0.11 | |
| v/s Ratio Perm | | | 0.07 | | | | | | | | | |
| v/c Ratio | 0.61 | 0.31 | 0.18 | 0.45 | 0.82 | | 0.75 | 0.30 | | 0.60 | 0.70 | |
| Uniform Delay, d1 | 54.8 | 23.1 | 6.7 | 57.8 | 33.3 | | 40.4 | 27.8 | | 54.7 | 48.1 | |
| Progression Factor | 1.00 | 0.78 | 4.42 | 1.21 | 0.61 | | 1.00 | 1.00 | | 0.79 | 0.89 | |
| Incremental Delay, d2 | 9.0 | 0.4 | 0.1 | 6.7 | 5.1 | | 3.5 | 0.1 | | 8.4 | 4.0 | |
| Delay (s) | 63.5 | 18.4 | 29.5 | 76.5 | 25.3 | | 43.9 | 28.0 | | 51.4 | 46.9 | |
| Level of Service | E | B | C | E | C | | D | C | | D | D | |
| Approach Delay (s) | | 24.5 | | | 26.2 | | | 38.2 | | | 47.5 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 84.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 570 | 140 | 50 | 860 | 50 | 100 | 370 | 60 | 50 | 410 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3491 | | 1805 | 3577 | | 1805 | 3525 | | 1805 | 3544 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3491 | | 1805 | 3577 | | 1805 | 3525 | | 1805 | 3544 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 570 | 140 | 50 | 860 | 50 | 100 | 370 | 60 | 50 | 410 | 50 |
| RTOR Reduction (vph) | 0 | 15 | 0 | 0 | 3 | 0 | 0 | 12 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 90 | 695 | 0 | 50 | 907 | 0 | 100 | 418 | 0 | 50 | 451 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 11.3 | 63.3 | | 7.6 | 59.6 | | 11.4 | 26.8 | | 6.3 | 21.7 | |
| Effective Green, g (s) | 11.3 | 63.3 | | 7.6 | 59.6 | | 11.4 | 26.8 | | 6.3 | 21.7 | |
| Actuated g/C Ratio | 0.09 | 0.53 | | 0.06 | 0.50 | | 0.10 | 0.22 | | 0.05 | 0.18 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 170 | 1842 | | 114 | 1777 | | 171 | 787 | | 95 | 641 | |
| v/s Ratio Prot | c0.05 | c0.20 | | 0.03 | c0.25 | | c0.06 | 0.12 | | 0.03 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.53 | 0.38 | | 0.44 | 0.51 | | 0.58 | 0.53 | | 0.53 | 0.70 | |
| Uniform Delay, d1 | 51.8 | 16.7 | | 54.1 | 20.4 | | 52.0 | 41.1 | | 55.4 | 46.1 | |
| Progression Factor | 0.83 | 1.99 | | 1.34 | 0.42 | | 1.00 | 1.00 | | 1.27 | 1.04 | |
| Incremental Delay, d2 | 2.9 | 0.6 | | 1.8 | 0.7 | | 5.0 | 0.7 | | 4.9 | 3.3 | |
| Delay (s) | 45.7 | 33.9 | | 74.6 | 9.3 | | 57.1 | 41.7 | | 75.2 | 51.2 | |
| Level of Service | D | C | | E | A | | E | D | | E | D | |
| Approach Delay (s) | | 35.2 | | | 12.7 | | | 44.6 | | | 53.6 | |
| Approach LOS | | D | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 65.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 460 | 170 | 170 | 710 | 110 | 200 | 1100 | 110 | 130 | 1320 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3448 | | 1805 | 3529 | | 1805 | 5187 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3448 | | 1805 | 3529 | | 1805 | 5187 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 460 | 170 | 170 | 710 | 110 | 200 | 1100 | 110 | 130 | 1320 | 50 |
| RTOR Reduction (vph) | 0 | 32 | 0 | 0 | 10 | 0 | 0 | 0 | 70 | 0 | 0 | 23 |
| Lane Group Flow (vph) | 60 | 598 | 0 | 170 | 810 | 0 | 200 | 1100 | 40 | 130 | 1320 | 27 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 34.0 | | 12.0 | 39.0 | | 14.0 | 44.0 | 44.0 | 14.0 | 44.0 | 44.0 |
| Effective Green, g (s) | 7.0 | 34.0 | | 12.0 | 39.0 | | 14.0 | 44.0 | 44.0 | 14.0 | 44.0 | 44.0 |
| Actuated g/C Ratio | 0.06 | 0.28 | | 0.10 | 0.32 | | 0.12 | 0.37 | 0.37 | 0.12 | 0.37 | 0.37 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 977 | | 181 | 1147 | | 211 | 1902 | 581 | 211 | 1324 | 581 |
| v/s Ratio Prot | 0.03 | 0.17 | | c0.09 | c0.23 | | c0.11 | 0.21 | | 0.07 | c0.37 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | 0.02 |
| v/c Ratio | 0.57 | 0.61 | | 0.94 | 0.71 | | 0.95 | 0.58 | 0.07 | 0.62 | 1.00 | 0.05 |
| Uniform Delay, d1 | 55.0 | 37.3 | | 53.6 | 35.5 | | 52.6 | 30.5 | 24.7 | 50.4 | 37.9 | 24.5 |
| Progression Factor | 0.81 | 0.99 | | 0.82 | 0.75 | | 1.14 | 0.73 | 1.38 | 0.72 | 0.52 | 0.50 |
| Incremental Delay, d2 | 6.9 | 2.7 | | 46.6 | 3.4 | | 38.3 | 0.9 | 0.2 | 4.5 | 22.0 | 0.1 |
| Delay (s) | 51.8 | 39.6 | | 90.5 | 29.8 | | 98.1 | 23.3 | 34.3 | 40.8 | 41.7 | 12.4 |
| Level of Service | D | D | | F | C | | F | C | C | D | D | B |
| Approach Delay (s) | | 40.7 | | | 40.3 | | | 34.8 | | | 40.7 | |
| Approach LOS | | D | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 98.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 460 | 2150 | 160 | 30 | 1880 | 580 | 330 | 290 | 10 | 90 | 50 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1590 | 3502 | 3610 | 2799 | 3502 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1590 | 3502 | 3610 | 2799 | 3502 | 3610 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 460 | 2150 | 160 | 30 | 1880 | 580 | 330 | 290 | 10 | 90 | 50 | 130 |
| RTOR Reduction (vph) | 0 | 0 | 32 | 0 | 0 | 115 | 0 | 0 | 8 | 0 | 0 | 120 |
| Lane Group Flow (vph) | 460 | 2150 | 128 | 30 | 1880 | 465 | 330 | 290 | 2 | 90 | 50 | 10 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 18.0 | 57.6 | 57.6 | 4.1 | 43.7 | 43.7 | 12.8 | 15.1 | 19.2 | 5.5 | 7.8 | 7.8 |
| Effective Green, g (s) | 18.0 | 57.6 | 57.6 | 4.1 | 43.7 | 43.7 | 12.8 | 15.1 | 19.2 | 5.5 | 7.8 | 7.8 |
| Actuated g/C Ratio | 0.18 | 0.59 | 0.59 | 0.04 | 0.44 | 0.44 | 0.13 | 0.15 | 0.20 | 0.06 | 0.08 | 0.08 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 331 | 3039 | 946 | 146 | 2306 | 707 | 456 | 555 | 661 | 196 | 286 | 126 |
| v/s Ratio Prot | c0.25 | 0.41 | | 0.01 | c0.36 | | c0.09 | 0.08 | 0.00 | c0.03 | 0.01 | |
| v/s Ratio Perm | | | 0.08 | | | 0.29 | | | 0.00 | | | 0.01 |
| v/c Ratio | 1.39 | 0.71 | 0.13 | 0.21 | 0.82 | 0.66 | 0.72 | 0.52 | 0.00 | 0.46 | 0.17 | 0.08 |
| Uniform Delay, d1 | 40.1 | 14.4 | 9.1 | 45.5 | 23.8 | 21.4 | 41.1 | 38.3 | 31.8 | 45.0 | 42.2 | 41.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 193.0 | 0.8 | 0.1 | 0.7 | 2.3 | 2.2 | 5.6 | 0.9 | 0.0 | 1.7 | 0.3 | 0.3 |
| Delay (s) | 233.1 | 15.2 | 9.2 | 46.2 | 26.1 | 23.6 | 46.7 | 39.2 | 31.8 | 46.7 | 42.5 | 42.2 |
| Level of Service | F | B | A | D | C | C | D | D | C | D | D | D |
| Approach Delay (s) | | 51.0 | | | 25.8 | | | 43.0 | | | 43.8 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 98.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 95.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1630 | 660 | 0 | 2180 | 0 | 0 | 0 | 0 | 190 | 0 | 310 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.96 | | | 1.00 | | | | | 1.00 | 0.87 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (prot) | | 4963 | | | 5187 | | | | | 1715 | 1491 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 0.99 | 1.00 |
| Satd. Flow (perm) | | 4963 | | | 5187 | | | | | 1715 | 1491 | 1534 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 1630 | 660 | 0 | 2180 | 0 | 0 | 0 | 0 | 190 | 0 | 310 |
| RTOR Reduction (vph) | 0 | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 |
| Lane Group Flow (vph) | 0 | 2205 | 0 | 0 | 2180 | 0 | 0 | 0 | 0 | 171 | 158 | 157 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 48.8 | | | 48.8 | | | | | 13.2 | 13.2 | 13.2 |
| Effective Green, g (s) | | 48.8 | | | 48.8 | | | | | 13.2 | 13.2 | 13.2 |
| Actuated g/C Ratio | | 0.70 | | | 0.70 | | | | | 0.19 | 0.19 | 0.19 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3460 | | | 3616 | | | | | 323 | 281 | 289 |
| v/s Ratio Prot | | c0.44 | | | 0.42 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | 0.10 | 0.11 | 0.10 |
| v/c Ratio | | 0.64 | | | 0.60 | | | | | 0.53 | 0.56 | 0.54 |
| Uniform Delay, d1 | | 5.8 | | | 5.5 | | | | | 25.6 | 25.8 | 25.7 |
| Progression Factor | | 1.00 | | | 0.26 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.9 | | | 0.4 | | | | | 1.6 | 2.6 | 2.1 |
| Delay (s) | | 6.7 | | | 1.8 | | | | | 27.2 | 28.3 | 27.7 |
| Level of Service | | A | | | A | | | | | C | C | C |
| Approach Delay (s) | | 6.7 | | | 1.8 | | | 0.0 | | | 27.7 | |
| Approach LOS | | A | | | A | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 70.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 1710 | 0 | 0 | 1160 | 170 | 1100 | 10 | 320 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 5077 | | 1715 | 1639 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 5077 | | 1715 | 1639 | 1534 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 1710 | 0 | 0 | 1160 | 170 | 1100 | 10 | 320 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 3 | 7 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 130 | 1710 | 0 | 0 | 1302 | 0 | 572 | 567 | 281 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 7.0 | 36.0 | | | 25.0 | | 26.0 | 26.0 | 26.0 | | | |
| Effective Green, g (s) | 7.0 | 36.0 | | | 25.0 | | 26.0 | 26.0 | 26.0 | | | |
| Actuated g/C Ratio | 0.10 | 0.51 | | | 0.36 | | 0.37 | 0.37 | 0.37 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 181 | 2668 | | | 1813 | | 637 | 609 | 570 | | | |
| v/s Ratio Prot | 0.07 | c0.33 | | | c0.26 | | 0.33 | c0.35 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.18 | | | |
| v/c Ratio | 0.72 | 0.64 | | | 0.72 | | 0.90 | 0.93 | 0.49 | | | |
| Uniform Delay, d1 | 30.5 | 12.3 | | | 19.5 | | 20.7 | 21.1 | 16.9 | | | |
| Progression Factor | 0.85 | 0.71 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 10.3 | 0.9 | | | 2.5 | | 15.4 | 21.1 | 0.7 | | | |
| Delay (s) | 36.3 | 9.7 | | | 21.9 | | 36.1 | 42.2 | 17.6 | | | |
| Level of Service | D | A | | | C | | D | D | B | | | |
| Approach Delay (s) | | 11.5 | | | 21.9 | | | 34.8 | | | 0.0 | |
| Approach LOS | | B | | | C | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 70.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 380 | 1230 | 330 | 0 | 1110 | 170 | 50 | 160 | 10 | 30 | 40 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.91 | | | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5006 | | | 5187 | 1615 | 3502 | 3578 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5006 | | | 5187 | 1615 | 3502 | 3578 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 380 | 1230 | 330 | 0 | 1110 | 170 | 50 | 160 | 10 | 30 | 40 | 160 |
| RTOR Reduction (vph) | 0 | 22 | 0 | 0 | 0 | 73 | 0 | 4 | 0 | 0 | 0 | 145 |
| Lane Group Flow (vph) | 380 | 1538 | 0 | 0 | 1110 | 97 | 50 | 166 | 0 | 30 | 40 | 15 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 18.2 | 90.5 | | | 68.3 | 68.3 | 6.1 | 12.5 | | 5.0 | 11.4 | 11.4 |
| Effective Green, g (s) | 18.2 | 90.5 | | | 68.3 | 68.3 | 6.1 | 12.5 | | 5.0 | 11.4 | 11.4 |
| Actuated g/C Ratio | 0.15 | 0.75 | | | 0.57 | 0.57 | 0.05 | 0.10 | | 0.04 | 0.10 | 0.10 |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 531 | 3775 | | | 2952 | 919 | 178 | 373 | | 75 | 343 | 153 |
| v/s Ratio Prot | c0.11 | c0.31 | | | 0.21 | | 0.01 | c0.05 | | c0.02 | 0.01 | |
| v/s Ratio Perm | | | | | | 0.06 | | | | | | 0.01 |
| v/c Ratio | 0.72 | 0.41 | | | 0.38 | 0.11 | 0.28 | 0.44 | | 0.40 | 0.12 | 0.10 |
| Uniform Delay, d1 | 48.4 | 5.2 | | | 14.2 | 11.8 | 54.8 | 50.5 | | 56.0 | 49.7 | 49.6 |
| Progression Factor | 1.00 | 1.00 | | | 0.15 | 0.02 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.6 | 0.3 | | | 0.3 | 0.2 | 0.9 | 0.8 | | 3.5 | 0.2 | 0.3 |
| Delay (s) | 53.0 | 5.6 | | | 2.5 | 0.5 | 55.7 | 51.3 | | 59.5 | 49.8 | 49.9 |
| Level of Service | D | A | | | A | A | E | D | | E | D | D |
| Approach Delay (s) | | 14.9 | | | 2.2 | | | 52.3 | | | 51.1 | |
| Approach LOS | | B | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1070 | 30 | 10 | 1070 | 340 | 40 | 220 | 260 | 210 | 10 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 0.86 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5163 | | 1805 | 5187 | 1585 | 1798 | 3288 | | 1802 | 3050 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.63 | 1.00 | | 0.36 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5163 | | 1805 | 5187 | 1585 | 1191 | 3288 | | 683 | 3050 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 1070 | 30 | 10 | 1070 | 340 | 40 | 220 | 260 | 210 | 10 | 170 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 72 | 0 | 118 | 0 | 0 | 116 | 0 |
| Lane Group Flow (vph) | 190 | 1098 | 0 | 10 | 1070 | 268 | 40 | 362 | 0 | 210 | 64 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 17.0 | 68.5 | | 1.4 | 52.9 | 52.9 | 38.1 | 38.1 | | 38.1 | 38.1 | |
| Effective Green, g (s) | 17.0 | 68.5 | | 1.4 | 52.9 | 52.9 | 38.1 | 38.1 | | 38.1 | 38.1 | |
| Actuated g/C Ratio | 0.14 | 0.57 | | 0.01 | 0.44 | 0.44 | 0.32 | 0.32 | | 0.32 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 256 | 2947 | | 21 | 2287 | 699 | 378 | 1044 | | 217 | 968 | |
| v/s Ratio Prot | c0.11 | 0.21 | | 0.01 | c0.21 | | | 0.11 | | | 0.02 | |
| v/s Ratio Perm | | | | | | 0.17 | 0.03 | | | c0.31 | | |
| v/c Ratio | 0.74 | 0.37 | | 0.48 | 0.47 | 0.38 | 0.11 | 0.35 | | 0.97 | 0.07 | |
| Uniform Delay, d1 | 49.4 | 14.0 | | 58.9 | 23.6 | 22.6 | 28.9 | 31.4 | | 40.3 | 28.5 | |
| Progression Factor | 1.13 | 0.91 | | 1.31 | 0.49 | 0.32 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.4 | 0.3 | | 14.7 | 0.6 | 1.5 | 0.1 | 0.2 | | 51.3 | 0.0 | |
| Delay (s) | 66.1 | 13.1 | | 92.2 | 12.3 | 8.8 | 29.0 | 31.6 | | 91.7 | 28.6 | |
| Level of Service | E | B | | F | B | A | C | C | | F | C | |
| Approach Delay (s) | | 20.9 | | | 12.0 | | | 31.4 | | | 62.6 | |
| Approach LOS | | C | | | B | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 1260 | 270 | 170 | 1090 | 80 | 210 | 120 | 90 | 40 | 250 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5033 | | 1805 | 5127 | | 1805 | 3354 | | 1805 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5033 | | 1805 | 5127 | | 1805 | 3354 | | 1805 | 3610 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 1260 | 270 | 170 | 1090 | 80 | 210 | 120 | 90 | 40 | 250 | 100 |
| RTOR Reduction (vph) | 0 | 21 | 0 | 0 | 4 | 0 | 0 | 71 | 0 | 0 | 0 | 88 |
| Lane Group Flow (vph) | 40 | 1509 | 0 | 170 | 1166 | 0 | 210 | 139 | 0 | 40 | 250 | 12 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 7.0 | 56.1 | | 17.6 | 66.7 | | 15.7 | 24.7 | | 5.6 | 14.6 | 14.6 |
| Effective Green, g (s) | 7.0 | 56.1 | | 17.6 | 66.7 | | 15.7 | 24.7 | | 5.6 | 14.6 | 14.6 |
| Actuated g/C Ratio | 0.06 | 0.47 | | 0.15 | 0.56 | | 0.13 | 0.21 | | 0.05 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 2353 | | 265 | 2850 | | 236 | 690 | | 84 | 439 | 193 |
| v/s Ratio Prot | 0.02 | c0.30 | | c0.09 | 0.23 | | c0.12 | 0.04 | | 0.02 | c0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.38 | 0.64 | | 0.64 | 0.41 | | 0.89 | 0.20 | | 0.48 | 0.57 | 0.06 |
| Uniform Delay, d1 | 54.4 | 24.3 | | 48.2 | 15.3 | | 51.3 | 39.5 | | 55.8 | 49.7 | 46.6 |
| Progression Factor | 0.83 | 1.08 | | 1.35 | 0.50 | | 0.93 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.2 | 1.3 | | 5.0 | 0.4 | | 30.5 | 0.1 | | 4.2 | 1.7 | 0.1 |
| Delay (s) | 47.4 | 27.4 | | 70.1 | 8.1 | | 78.1 | 37.7 | | 60.0 | 51.4 | 46.8 |
| Level of Service | D | C | | E | A | | E | D | | E | D | D |
| Approach Delay (s) | | 28.0 | | | 16.0 | | | 57.9 | | | 51.1 | |
| Approach LOS | | C | | | B | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 75.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑ | ↱ | ↰ | ↑↑↑ | | | | | | | ↱ |
| Volume (vph) | 0 | 1920 | 50 | 730 | 860 | 0 | 0 | 0 | 0 | 0 | 0 | 690 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.91 | 1.00 | 1.00 | 0.91 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 5187 | 1572 | 1805 | 5187 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 5187 | 1572 | 1805 | 5187 | | | | | | | 1644 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 1920 | 50 | 730 | 860 | 0 | 0 | 0 | 0 | 0 | 0 | 690 |
| RTOR Reduction (vph) | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 102 |
| Lane Group Flow (vph) | 0 | 1920 | 24 | 730 | 860 | 0 | 0 | 0 | 0 | 0 | 0 | 588 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 46.0 | 46.0 | 66.0 | 70.0 | | | | | | | 42.0 |
| Effective Green, g (s) | | 46.0 | 46.0 | 66.0 | 70.0 | | | | | | | 42.0 |
| Actuated g/C Ratio | | 0.38 | 0.38 | 0.55 | 0.58 | | | | | | | 0.35 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1988 | 603 | 993 | 3026 | | | | | | | 575 |
| v/s Ratio Prot | | c0.37 | | c0.40 | 0.17 | | | | | | | c0.36 |
| v/s Ratio Perm | | | 0.02 | | | | | | | | | |
| v/c Ratio | | 0.97 | 0.04 | 0.74 | 0.28 | | | | | | | 1.02 |
| Uniform Delay, d1 | | 36.2 | 23.2 | 20.4 | 12.5 | | | | | | | 39.0 |
| Progression Factor | | 1.00 | 1.00 | 0.77 | 1.05 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 13.6 | 0.1 | 0.3 | 0.0 | | | | | | | 43.4 |
| Delay (s) | | 49.8 | 23.3 | 16.0 | 13.2 | | | | | | | 82.4 |
| Level of Service | | D | C | B | B | | | | | | | F |
| Approach Delay (s) | | 49.1 | | | 14.5 | | | 0.0 | | | 82.4 | |
| Approach LOS | | D | | | B | | | A | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1940 | 50 | 0 | 1870 | 340 | 640 | 480 | 30 | 300 | 0 | 450 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5167 | | | 5046 | | 1805 | 1883 | | 1805 | 1615 | |
| Flt Permitted | 0.09 | 1.00 | | | 1.00 | | 0.40 | 1.00 | | 0.36 | 1.00 | |
| Satd. Flow (perm) | 169 | 5167 | | | 5046 | | 760 | 1883 | | 675 | 1615 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 1940 | 50 | 0 | 1870 | 340 | 640 | 480 | 30 | 300 | 0 | 450 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 50 | 1988 | 0 | 0 | 2188 | 0 | 640 | 510 | 0 | 300 | 450 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 45.0 | 45.0 | | | 45.0 | | 67.0 | 67.0 | | 67.0 | 67.0 | |
| Effective Green, g (s) | 45.0 | 45.0 | | | 45.0 | | 67.0 | 67.0 | | 67.0 | 67.0 | |
| Actuated g/C Ratio | 0.38 | 0.38 | | | 0.38 | | 0.56 | 0.56 | | 0.56 | 0.56 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 63 | 1938 | | | 1892 | | 424 | 1051 | | 377 | 902 | |
| v/s Ratio Prot | | 0.38 | | | c0.43 | | | 0.27 | | | 0.28 | |
| v/s Ratio Perm | 0.30 | | | | | | c0.84 | | | 0.44 | | |
| v/c Ratio | 0.79 | 1.03 | | | 1.16 | | 1.51 | 0.48 | | 0.80 | 0.50 | |
| Uniform Delay, d1 | 33.4 | 37.5 | | | 37.5 | | 26.5 | 16.0 | | 21.1 | 16.2 | |
| Progression Factor | 0.07 | 0.09 | | | 0.64 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 32.5 | 20.0 | | | 75.6 | | 241.2 | 0.4 | | 11.1 | 0.4 | |
| Delay (s) | 34.7 | 23.2 | | | 99.4 | | 267.7 | 16.4 | | 32.1 | 16.7 | |
| Level of Service | C | C | | | F | | F | B | | C | B | |
| Approach Delay (s) | | 23.5 | | | 99.4 | | | 156.3 | | | 22.8 | |
| Approach LOS | | C | | | F | | | F | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 75.5 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.37 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 117.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 970 | 1520 | 160 | 1230 | 60 | 530 | 30 | 150 | 60 | 280 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1585 | 1805 | 5187 | 1585 | 1715 | 1636 | | 1715 | 1803 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1585 | 1805 | 5187 | 1585 | 1715 | 1636 | | 1715 | 1803 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 970 | 1520 | 160 | 1230 | 60 | 530 | 30 | 150 | 60 | 280 | 90 |
| RTOR Reduction (vph) | 0 | 0 | 489 | 0 | 0 | 35 | 0 | 25 | 0 | 0 | 0 | 71 |
| Lane Group Flow (vph) | 110 | 970 | 1031 | 160 | 1230 | 25 | 366 | 319 | 0 | 54 | 286 | 19 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 12.9 | 29.1 | 29.1 | 19.1 | 35.3 | 35.3 | 31.1 | 31.1 | | 24.7 | 24.7 | 24.7 |
| Effective Green, g (s) | 12.9 | 29.1 | 29.1 | 19.1 | 35.3 | 35.3 | 31.1 | 31.1 | | 24.7 | 24.7 | 24.7 |
| Actuated g/C Ratio | 0.11 | 0.24 | 0.24 | 0.16 | 0.29 | 0.29 | 0.26 | 0.26 | | 0.21 | 0.21 | 0.21 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 194 | 1258 | 384 | 287 | 1526 | 466 | 444 | 424 | | 353 | 371 | 327 |
| v/s Ratio Prot | 0.06 | 0.19 | | c0.09 | c0.24 | | c0.21 | 0.19 | | 0.03 | c0.16 | |
| v/s Ratio Perm | | | c0.65 | | | 0.02 | | | | | | 0.01 |
| v/c Ratio | 0.57 | 0.77 | 2.69 | 0.56 | 0.81 | 0.05 | 0.82 | 0.75 | | 0.15 | 0.77 | 0.06 |
| Uniform Delay, d1 | 50.9 | 42.3 | 45.5 | 46.6 | 39.2 | 30.4 | 41.9 | 40.9 | | 39.1 | 45.0 | 38.3 |
| Progression Factor | 0.80 | 0.76 | 2.08 | 1.27 | 0.53 | 0.53 | 1.00 | 1.00 | | 0.78 | 0.78 | 1.61 |
| Incremental Delay, d2 | 1.8 | 2.2 | 762.2 | 1.9 | 3.8 | 0.2 | 11.8 | 7.4 | | 0.2 | 8.6 | 0.1 |
| Delay (s) | 42.7 | 34.5 | 856.7 | 61.0 | 24.5 | 16.2 | 53.7 | 48.3 | | 30.5 | 43.5 | 61.7 |
| Level of Service | D | C | F | E | C | B | D | D | | C | D | E |
| Approach Delay (s) | | 515.5 | | | 28.2 | | | 51.0 | | | 45.7 | |
| Approach LOS | | F | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 276.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.34 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 130.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1380 | 280 | 10 | 950 | 340 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.97 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3501 | | 1805 | 3610 | 1805 | 1594 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3501 | | 1805 | 3610 | 1805 | 1594 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 1380 | 280 | 10 | 950 | 340 | 60 |
| RTOR Reduction (vph) | 14 | 0 | 0 | 0 | 0 | 25 |
| Lane Group Flow (vph) | 1646 | 0 | 10 | 950 | 340 | 35 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 52.5 | | 5.2 | 61.7 | 24.1 | 29.3 |
| Effective Green, g (s) | 52.5 | | 5.2 | 61.7 | 24.1 | 29.3 |
| Actuated g/C Ratio | 0.56 | | 0.06 | 0.66 | 0.26 | 0.31 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1960 | | 100 | 2375 | 464 | 566 |
| v/s Ratio Prot | c0.47 | | 0.01 | c0.26 | c0.19 | 0.00 |
| v/s Ratio Perm | | | | | | 0.02 |
| v/c Ratio | 0.84 | | 0.10 | 0.40 | 0.73 | 0.06 |
| Uniform Delay, d1 | 17.2 | | 42.1 | 7.5 | 31.9 | 22.6 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.4 | | 0.4 | 0.1 | 5.9 | 0.0 |
| Delay (s) | 20.5 | | 42.5 | 7.6 | 37.8 | 22.7 |
| Level of Service | C | | D | A | D | C |
| Approach Delay (s) | 20.5 | | | 7.9 | 35.5 | |
| Approach LOS | C | | | A | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 93.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 74.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 1110 | 520 | 30 | 390 | 30 | 650 | 280 | 730 | 60 | 50 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 3502 | 3571 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 3502 | 3571 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 1110 | 520 | 30 | 390 | 30 | 650 | 280 | 730 | 60 | 50 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 333 | 0 | 4 | 0 | 0 | 0 | 140 | 0 | 0 | 56 |
| Lane Group Flow (vph) | 10 | 1110 | 187 | 30 | 416 | 0 | 650 | 280 | 590 | 60 | 50 | 4 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.7 | 28.0 | 28.0 | 3.6 | 29.9 | | 42.8 | 43.3 | 43.3 | 5.3 | 5.8 | 5.8 |
| Effective Green, g (s) | 1.7 | 28.0 | 28.0 | 3.6 | 29.9 | | 42.8 | 43.3 | 43.3 | 5.3 | 5.8 | 5.8 |
| Actuated g/C Ratio | 0.02 | 0.29 | 0.29 | 0.04 | 0.31 | | 0.44 | 0.45 | 0.45 | 0.06 | 0.06 | 0.06 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 32 | 1510 | 462 | 131 | 1110 | | 803 | 855 | 727 | 99 | 218 | 96 |
| v/s Ratio Prot | 0.01 | c0.21 | | 0.01 | c0.12 | | 0.36 | 0.15 | | c0.03 | 0.01 | |
| v/s Ratio Perm | | | 0.12 | | | | | | c0.37 | | | 0.00 |
| v/c Ratio | 0.31 | 0.74 | 0.40 | 0.23 | 0.37 | | 0.81 | 0.33 | 0.81 | 0.61 | 0.23 | 0.04 |
| Uniform Delay, d1 | 46.7 | 30.8 | 27.4 | 45.0 | 25.9 | | 23.2 | 17.1 | 22.9 | 44.4 | 43.1 | 42.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.5 | 1.9 | 0.6 | 0.9 | 0.2 | | 6.0 | 0.2 | 6.9 | 10.1 | 0.5 | 0.2 |
| Delay (s) | 52.2 | 32.7 | 28.0 | 45.8 | 26.1 | | 29.2 | 17.3 | 29.8 | 54.5 | 43.6 | 42.7 |
| Level of Service | D | C | C | D | C | | C | B | C | D | D | D |
| Approach Delay (s) | | 31.3 | | | 27.4 | | | 27.5 | | | 47.1 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 96.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

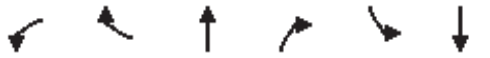
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 60 | 80 | 0 | 0 | 0 | 0 | 1260 | 700 | 770 | 310 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1754 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1754 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 60 | 80 | 0 | 0 | 0 | 0 | 1260 | 700 | 770 | 310 | 0 |
| RTOR Reduction (vph) | 0 | 12 | 59 | 0 | 0 | 0 | 0 | 0 | 149 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 110 | 62 | 7 | 0 | 0 | 0 | 0 | 1260 | 551 | 770 | 310 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 5.6 | 5.6 | 5.6 | | | | | 20.4 | 20.4 | 12.0 | 36.4 | |
| Effective Green, g (s) | 5.6 | 5.6 | 5.6 | | | | | 20.4 | 20.4 | 12.0 | 36.4 | |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.11 | | | | | 0.41 | 0.41 | 0.24 | 0.73 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 202 | 196 | 172 | | | | | 1473 | 659 | 840 | 2628 | |
| v/s Ratio Prot | c0.06 | 0.04 | | | | | | c0.35 | | c0.22 | 0.09 | |
| v/s Ratio Perm | | | 0.00 | | | | | | 0.34 | | | |
| v/c Ratio | 0.54 | 0.31 | 0.04 | | | | | 0.86 | 0.84 | 0.92 | 0.12 | |
| Uniform Delay, d1 | 21.0 | 20.4 | 19.8 | | | | | 13.5 | 13.3 | 18.5 | 2.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.10 | 0.86 | |
| Incremental Delay, d2 | 3.0 | 0.9 | 0.1 | | | | | 6.6 | 12.0 | 14.5 | 0.1 | |
| Delay (s) | 24.0 | 21.4 | 19.9 | | | | | 20.0 | 25.3 | 35.0 | 1.8 | |
| Level of Service | C | C | B | | | | | C | C | C | A | |
| Approach Delay (s) | | 22.1 | | | 0.0 | | | 21.9 | | | 25.5 | |
| Approach LOS | | C | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 81.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 350 | 1130 | 0 | 0 | 400 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 350 | 1130 | 0 | 0 | 400 |
| RTOR Reduction (vph) | 0 | 32 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 130 | 318 | 1130 | 0 | 0 | 400 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 14.2 | 14.2 | 27.8 | | | 27.8 |
| Effective Green, g (s) | 14.2 | 14.2 | 27.8 | | | 27.8 |
| Actuated g/C Ratio | 0.28 | 0.28 | 0.56 | | | 0.56 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 995 | 459 | 2007 | | | 2007 |
| v/s Ratio Prot | 0.04 | | c0.31 | | | 0.11 |
| v/s Ratio Perm | | c0.20 | | | | |
| v/c Ratio | 0.13 | 0.69 | 0.56 | | | 0.20 |
| Uniform Delay, d1 | 13.3 | 16.0 | 7.2 | | | 5.5 |
| Progression Factor | 1.00 | 1.00 | 0.18 | | | 1.00 |
| Incremental Delay, d2 | 0.1 | 4.5 | 0.7 | | | 0.2 |
| Delay (s) | 13.4 | 20.4 | 1.9 | | | 5.8 |
| Level of Service | B | C | A | | | A |
| Approach Delay (s) | 18.5 | | 1.9 | | | 5.8 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 81.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1980 | 10 | 110 | 2250 | 1930 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5183 | | 3502 | 5187 | 5100 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5183 | | 3502 | 5187 | 5100 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 1980 | 10 | 110 | 2250 | 1930 | 10 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 1989 | 0 | 110 | 2250 | 1939 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 44.0 | | 7.0 | 55.0 | 45.7 | |
| Effective Green, g (s) | 44.0 | | 7.0 | 55.0 | 45.7 | |
| Actuated g/C Ratio | 0.40 | | 0.06 | 0.51 | 0.42 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2098 | | 226 | 2625 | 2144 | |
| v/s Ratio Prot | c0.38 | | 0.03 | c0.43 | c0.38 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.95 | | 0.49 | 0.86 | 0.90 | |
| Uniform Delay, d1 | 31.2 | | 49.1 | 23.4 | 29.5 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.0 | | 1.6 | 3.0 | 5.9 | |
| Delay (s) | 41.2 | | 50.8 | 26.4 | 35.3 | |
| Level of Service | D | | D | C | D | |
| Approach Delay (s) | 41.2 | | | 27.5 | 35.3 | |
| Approach LOS | D | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 108.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 90.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 2030 | 80 | 220 | 2070 | 20 | 130 | 130 | 270 | 210 | 160 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1589 | 3502 | 5178 | | 3502 | 1900 | 1591 | 1805 | 3448 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1589 | 3502 | 5178 | | 3502 | 1900 | 1591 | 1805 | 3448 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 2030 | 80 | 220 | 2070 | 20 | 130 | 130 | 270 | 210 | 160 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 43 | 0 | 1 | 0 | 0 | 0 | 131 | 0 | 48 | 0 |
| Lane Group Flow (vph) | 80 | 2030 | 37 | 220 | 2089 | 0 | 130 | 130 | 139 | 210 | 172 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 7.0 | 42.1 | 42.1 | 7.0 | 42.1 | | 15.6 | 13.4 | 13.4 | 12.0 | 9.8 | |
| Effective Green, g (s) | 7.0 | 42.1 | 42.1 | 7.0 | 42.1 | | 15.6 | 13.4 | 13.4 | 12.0 | 9.8 | |
| Actuated g/C Ratio | 0.08 | 0.47 | 0.47 | 0.08 | 0.47 | | 0.17 | 0.15 | 0.15 | 0.13 | 0.11 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 140 | 2413 | 739 | 271 | 2409 | | 604 | 281 | 236 | 239 | 373 | |
| v/s Ratio Prot | 0.04 | c0.39 | | 0.06 | c0.40 | | c0.04 | 0.07 | | c0.12 | 0.05 | |
| v/s Ratio Perm | | | 0.02 | | | | | | c0.09 | | | |
| v/c Ratio | 0.57 | 0.84 | 0.05 | 0.81 | 0.87 | | 0.22 | 0.46 | 0.59 | 0.88 | 0.46 | |
| Uniform Delay, d1 | 40.3 | 21.3 | 13.3 | 41.1 | 21.7 | | 32.2 | 35.3 | 36.0 | 38.5 | 37.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.5 | 2.8 | 0.0 | 16.7 | 3.6 | | 0.2 | 1.2 | 3.7 | 28.4 | 0.9 | |
| Delay (s) | 45.8 | 24.1 | 13.3 | 57.8 | 25.3 | | 32.4 | 36.5 | 39.7 | 66.9 | 38.8 | |
| Level of Service | D | C | B | E | C | | C | D | D | E | D | |
| Approach Delay (s) | | 24.5 | | | 28.4 | | | 37.1 | | | 52.5 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 90.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 790 | 190 | 70 | 530 | 140 | 420 | 900 | 260 | 120 | 430 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1600 | 3502 | 3610 | 1597 | 3502 | 3610 | 1595 | 3502 | 3610 | 1600 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1600 | 3502 | 3610 | 1597 | 3502 | 3610 | 1595 | 3502 | 3610 | 1600 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 790 | 190 | 70 | 530 | 140 | 420 | 900 | 260 | 120 | 430 | 140 |
| RTOR Reduction (vph) | 0 | 0 | 88 | 0 | 0 | 65 | 0 | 0 | 32 | 0 | 0 | 38 |
| Lane Group Flow (vph) | 150 | 790 | 102 | 70 | 530 | 75 | 420 | 900 | 228 | 120 | 430 | 102 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.8 | 26.6 | 42.9 | 7.2 | 21.0 | 28.9 | 16.3 | 29.8 | 37.0 | 7.9 | 21.4 | 34.2 |
| Effective Green, g (s) | 12.8 | 26.6 | 42.9 | 7.2 | 21.0 | 28.9 | 16.3 | 29.8 | 37.0 | 7.9 | 21.4 | 34.2 |
| Actuated g/C Ratio | 0.15 | 0.30 | 0.49 | 0.08 | 0.24 | 0.33 | 0.19 | 0.34 | 0.42 | 0.09 | 0.24 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 264 | 1097 | 858 | 288 | 866 | 600 | 652 | 1229 | 747 | 316 | 883 | 699 |
| v/s Ratio Prot | c0.08 | c0.22 | 0.02 | 0.02 | 0.15 | 0.01 | c0.12 | c0.25 | 0.03 | 0.03 | 0.12 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | 0.04 | | | 0.12 | | | 0.04 |
| v/c Ratio | 0.57 | 0.72 | 0.12 | 0.24 | 0.61 | 0.13 | 0.64 | 0.73 | 0.31 | 0.38 | 0.49 | 0.15 |
| Uniform Delay, d1 | 34.8 | 27.1 | 12.1 | 37.6 | 29.6 | 20.5 | 32.9 | 25.3 | 16.7 | 37.5 | 28.3 | 17.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.8 | 2.4 | 0.1 | 0.4 | 1.3 | 0.1 | 2.2 | 2.3 | 0.2 | 0.8 | 0.4 | 0.1 |
| Delay (s) | 37.6 | 29.5 | 12.1 | 38.0 | 30.9 | 20.6 | 35.1 | 27.6 | 17.0 | 38.3 | 28.8 | 17.3 |
| Level of Service | D | C | B | D | C | C | D | C | B | D | C | B |
| Approach Delay (s) | | 27.6 | | | 29.6 | | | 27.9 | | | 28.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 87.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 74.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 230 | 960 | 610 | 560 | 380 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1602 | 3499 | 1459 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1602 | 3499 | 1459 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 230 | 960 | 610 | 560 | 380 | 100 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 103 | 2 | 36 |
| Lane Group Flow (vph) | 230 | 960 | 610 | 457 | 388 | 54 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 12.5 | 32.1 | 15.6 | 28.7 | 13.1 | 25.6 |
| Effective Green, g (s) | 12.5 | 32.1 | 15.6 | 28.7 | 13.1 | 25.6 |
| Actuated g/C Ratio | 0.23 | 0.60 | 0.29 | 0.54 | 0.25 | 0.48 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 424 | 2178 | 1059 | 985 | 862 | 812 |
| v/s Ratio Prot | c0.13 | 0.27 | c0.17 | c0.11 | 0.11 | 0.02 |
| v/s Ratio Perm | | | | 0.17 | | 0.02 |
| v/c Ratio | 0.54 | 0.44 | 0.58 | 0.46 | 0.45 | 0.07 |
| Uniform Delay, d1 | 17.8 | 5.7 | 16.0 | 7.5 | 17.0 | 7.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.1 | 0.8 | 0.3 | 0.4 | 0.0 |
| Delay (s) | 19.3 | 5.8 | 16.8 | 7.9 | 17.4 | 7.4 |
| Level of Service | B | A | B | A | B | A |
| Approach Delay (s) | | 8.4 | 12.5 | | 15.5 | |
| Approach LOS | | A | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 53.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 270 | 580 | 300 | 170 | 640 | 130 | 980 | 430 | 900 | 70 | 140 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1603 | 3502 | 3610 | 1591 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1603 | 3502 | 3610 | 1591 | 3502 | 3610 | 1591 | 3502 | 3610 | 1604 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 270 | 580 | 300 | 170 | 640 | 130 | 980 | 430 | 900 | 70 | 140 | 90 |
| RTOR Reduction (vph) | 0 | 0 | 129 | 0 | 0 | 96 | 0 | 0 | 381 | 0 | 0 | 67 |
| Lane Group Flow (vph) | 270 | 580 | 171 | 170 | 640 | 34 | 980 | 430 | 519 | 70 | 140 | 23 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.1 | 23.2 | 46.3 | 9.3 | 21.4 | 21.4 | 23.1 | 26.8 | 26.8 | 5.9 | 9.6 | 20.7 |
| Effective Green, g (s) | 11.1 | 23.2 | 46.3 | 9.3 | 21.4 | 21.4 | 23.1 | 26.8 | 26.8 | 5.9 | 9.6 | 20.7 |
| Actuated g/C Ratio | 0.14 | 0.29 | 0.57 | 0.11 | 0.26 | 0.26 | 0.28 | 0.33 | 0.33 | 0.07 | 0.12 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 247 | 1482 | 993 | 401 | 951 | 419 | 996 | 1191 | 525 | 254 | 427 | 488 |
| v/s Ratio Prot | c0.15 | 0.11 | 0.05 | 0.05 | c0.18 | | c0.28 | 0.12 | | 0.02 | 0.04 | 0.01 |
| v/s Ratio Perm | | | 0.06 | | | 0.02 | | | c0.33 | | | 0.01 |
| v/c Ratio | 1.09 | 0.39 | 0.17 | 0.42 | 0.67 | 0.08 | 0.98 | 0.36 | 0.99 | 0.28 | 0.33 | 0.05 |
| Uniform Delay, d1 | 35.1 | 23.3 | 8.3 | 33.5 | 26.8 | 22.5 | 28.9 | 20.7 | 27.1 | 35.6 | 32.8 | 22.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 84.4 | 0.2 | 0.1 | 0.7 | 1.9 | 0.1 | 24.5 | 0.2 | 36.1 | 0.6 | 0.5 | 0.0 |
| Delay (s) | 119.4 | 23.5 | 8.4 | 34.2 | 28.7 | 22.6 | 53.3 | 20.9 | 63.2 | 36.2 | 33.3 | 22.9 |
| Level of Service | F | C | A | C | C | C | D | C | E | D | C | C |
| Approach Delay (s) | | 42.1 | | | 28.8 | | | 51.1 | | | 30.8 | |
| Approach LOS | | D | | | C | | | D | | | C | |

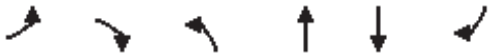
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 81.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 87.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 870 | 730 | 10 | 740 | 0 | 0 | 0 | 0 | 10 | 0 | 550 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.97 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3345 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.19 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3345 | 1470 | 357 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 870 | 730 | 10 | 740 | 0 | 0 | 0 | 0 | 10 | 0 | 550 |
| RTOR Reduction (vph) | 0 | 46 | 261 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 0 |
| Lane Group Flow (vph) | 0 | 1065 | 228 | 10 | 740 | 0 | 0 | 0 | 0 | 10 | 466 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 21.3 | 21.3 | 21.3 | 21.3 | | | | | 16.3 | 16.3 | |
| Effective Green, g (s) | | 21.3 | 21.3 | 21.3 | 21.3 | | | | | 16.3 | 16.3 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | 0.47 | 0.47 | | | | | 0.36 | 0.36 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1562 | 687 | 167 | 1686 | | | | | 645 | 577 | |
| v/s Ratio Prot | | c0.32 | | | 0.20 | | | | | | c0.29 | |
| v/s Ratio Perm | | | 0.16 | 0.03 | | | | | | 0.01 | | |
| v/c Ratio | | 0.68 | 0.33 | 0.06 | 0.44 | | | | | 0.02 | 0.81 | |
| Uniform Delay, d1 | | 9.5 | 7.7 | 6.7 | 8.1 | | | | | 9.5 | 13.2 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.2 | 0.3 | 0.2 | 0.2 | | | | | 0.0 | 8.1 | |
| Delay (s) | | 10.7 | 8.0 | 6.8 | 8.3 | | | | | 9.5 | 21.4 | |
| Level of Service | | B | A | A | A | | | | | A | C | |
| Approach Delay (s) | | 9.9 | | | 8.3 | | | 0.0 | | | 21.1 | |
| Approach LOS | | A | | | A | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 45.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 84.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 880 | 0 | 740 | 0 | 0 | 0 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 880 | 0 | 740 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 440 | 440 | 493 | 247 |
| Volume Left (vph) | 440 | 440 | 493 | 247 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 7.2 | 7.2 | 7.5 | 7.5 |
| Degree Utilization, x | 0.88 | 0.88 | 1.03 | 0.51 |
| Capacity (veh/h) | 489 | 494 | 483 | 462 |
| Control Delay (s) | 42.6 | 42.6 | 74.9 | 17.0 |
| Approach Delay (s) | 42.6 | | 55.6 | |
| Approach LOS | E | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 48.5 | | |
| HCM Level of Service | E | | |
| Intersection Capacity Utilization | 96.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 10 | 0 | 970 | 10 | 440 | 10 | 1050 | 1190 | 90 | 480 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 10 | 0 | 970 | 10 | 440 | 10 | 1050 | 1190 | 90 | 480 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 241 | 0 | 0 | 284 | 0 | 0 | 4 |
| Lane Group Flow (vph) | 10 | 10 | 0 | 970 | 10 | 199 | 10 | 1050 | 906 | 90 | 480 | 6 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.3 | 1.3 | | 29.2 | 29.2 | 29.2 | 1.2 | 44.7 | 44.7 | 5.4 | 48.9 | 48.9 |
| Effective Green, g (s) | 1.3 | 1.3 | | 29.2 | 29.2 | 29.2 | 1.2 | 44.7 | 44.7 | 5.4 | 48.9 | 48.9 |
| Actuated g/C Ratio | 0.01 | 0.01 | | 0.30 | 0.30 | 0.30 | 0.01 | 0.46 | 0.46 | 0.06 | 0.51 | 0.51 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 24 | 26 | | 1059 | 574 | 488 | 22 | 1670 | 735 | 196 | 1827 | 818 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.28 | 0.01 | | 0.01 | 0.29 | | c0.03 | 0.13 | |
| v/s Ratio Perm | | | | | | c0.12 | | | c0.57 | | | 0.00 |
| v/c Ratio | 0.42 | 0.38 | | 0.92 | 0.02 | 0.41 | 0.45 | 0.63 | 1.23 | 0.46 | 0.26 | 0.01 |
| Uniform Delay, d1 | 47.3 | 47.3 | | 32.5 | 23.6 | 26.8 | 47.4 | 19.7 | 25.9 | 44.2 | 13.6 | 11.8 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 11.3 | 9.2 | | 12.0 | 0.0 | 0.6 | 14.2 | 0.7 | 116.6 | 1.7 | 0.1 | 0.0 |
| Delay (s) | 58.6 | 56.5 | | 44.5 | 23.6 | 27.4 | 61.6 | 20.4 | 142.5 | 45.9 | 13.7 | 11.8 |
| Level of Service | E | E | | D | C | C | E | C | F | D | B | B |
| Approach Delay (s) | | 57.5 | | | 39.1 | | | 85.2 | | | 18.6 | |
| Approach LOS | | E | | | D | | | F | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 60.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 96.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 99.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

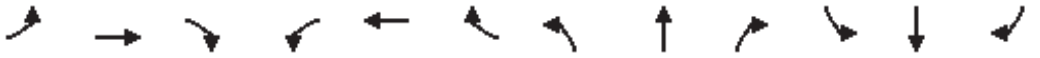
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 1080 | 60 | 20 | 1120 | 40 | 110 | 70 | 50 | 50 | 30 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.97 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3582 | | 1805 | 3589 | | | 1795 | | 1801 | 1654 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.59 | | 0.57 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3582 | | 1805 | 3589 | | | 1082 | | 1085 | 1654 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 1080 | 60 | 20 | 1120 | 40 | 110 | 70 | 50 | 50 | 30 | 190 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 14 | 0 | 0 | 146 | 0 |
| Lane Group Flow (vph) | 140 | 1137 | 0 | 20 | 1158 | 0 | 0 | 216 | 0 | 50 | 74 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 9.5 | 39.6 | | 1.2 | 31.3 | | | 16.0 | | 16.0 | 16.0 | |
| Effective Green, g (s) | 9.5 | 39.6 | | 1.2 | 31.3 | | | 16.0 | | 16.0 | 16.0 | |
| Actuated g/C Ratio | 0.14 | 0.58 | | 0.02 | 0.45 | | | 0.23 | | 0.23 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 249 | 2062 | | 31 | 1633 | | | 252 | | 252 | 385 | |
| v/s Ratio Prot | c0.08 | 0.32 | | 0.01 | c0.32 | | | | | | 0.04 | |
| v/s Ratio Perm | | | | | | | | c0.20 | | 0.05 | | |
| v/c Ratio | 0.56 | 0.55 | | 0.65 | 0.71 | | | 0.86 | | 0.20 | 0.19 | |
| Uniform Delay, d1 | 27.7 | 9.1 | | 33.6 | 15.1 | | | 25.3 | | 21.2 | 21.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.9 | 0.3 | | 37.9 | 1.4 | | | 23.9 | | 0.4 | 0.2 | |
| Delay (s) | 30.6 | 9.4 | | 71.5 | 16.5 | | | 49.2 | | 21.6 | 21.5 | |
| Level of Service | C | A | | E | B | | | D | | C | C | |
| Approach Delay (s) | | 11.7 | | | 17.5 | | | 49.2 | | | 21.5 | |
| Approach LOS | | B | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 68.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 81.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 1030 | 140 | 140 | 990 | 350 | 210 | 1270 | 400 | 240 | 380 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3538 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 | 3502 | 3516 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3538 | | 1805 | 3610 | 1592 | 1805 | 3610 | 1591 | 3502 | 3516 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 1030 | 140 | 140 | 990 | 350 | 210 | 1270 | 400 | 240 | 380 | 70 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 0 | 24 | 0 | 0 | 8 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 60 | 1162 | 0 | 140 | 990 | 326 | 210 | 1270 | 392 | 240 | 439 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.5 | 44.5 | | 9.0 | 48.0 | 57.0 | 19.1 | 49.2 | 58.2 | 9.0 | 39.1 | |
| Effective Green, g (s) | 5.5 | 44.5 | | 9.0 | 48.0 | 57.0 | 19.1 | 49.2 | 58.2 | 9.0 | 39.1 | |
| Actuated g/C Ratio | 0.04 | 0.35 | | 0.07 | 0.38 | 0.45 | 0.15 | 0.39 | 0.46 | 0.07 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 78 | 1233 | | 127 | 1357 | 760 | 270 | 1391 | 775 | 247 | 1077 | |
| v/s Ratio Prot | 0.03 | c0.33 | | c0.08 | c0.27 | 0.03 | 0.12 | c0.35 | 0.04 | c0.07 | 0.12 | |
| v/s Ratio Perm | | | | | | 0.17 | | | 0.21 | | | |
| v/c Ratio | 0.77 | 0.94 | | 1.10 | 0.73 | 0.43 | 0.78 | 0.91 | 0.51 | 0.97 | 0.41 | |
| Uniform Delay, d1 | 60.5 | 40.4 | | 59.4 | 34.3 | 24.2 | 52.3 | 37.2 | 24.6 | 59.2 | 35.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 35.7 | 14.0 | | 110.0 | 2.0 | 0.4 | 13.2 | 9.4 | 0.5 | 49.1 | 0.3 | |
| Delay (s) | 96.2 | 54.4 | | 169.3 | 36.3 | 24.6 | 65.4 | 46.6 | 25.1 | 108.3 | 35.4 | |
| Level of Service | F | D | | F | D | C | E | D | C | F | D | |
| Approach Delay (s) | | 56.4 | | | 46.1 | | | 44.1 | | | 60.7 | |
| Approach LOS | | E | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 49.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 127.7 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 96.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 100 | 170 | 2140 | 170 | 60 | 1390 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1797 | 1588 | 3610 | 1569 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1797 | 1588 | 3610 | 1569 | 1805 | 3610 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 100 | 170 | 2140 | 170 | 60 | 1390 |
| RTOR Reduction (vph) | 0 | 86 | 0 | 15 | 0 | 0 |
| Lane Group Flow (vph) | 100 | 84 | 2140 | 155 | 60 | 1390 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 11.6 | 11.6 | 73.5 | 73.5 | 5.2 | 82.7 |
| Effective Green, g (s) | 11.6 | 11.6 | 73.5 | 73.5 | 5.2 | 82.7 |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.72 | 0.72 | 0.05 | 0.81 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 204 | 180 | 2594 | 1127 | 92 | 2918 |
| v/s Ratio Prot | | | c0.59 | | 0.03 | c0.39 |
| v/s Ratio Perm | c0.06 | 0.05 | | 0.10 | | |
| v/c Ratio | 0.49 | 0.47 | 0.82 | 0.14 | 0.65 | 0.48 |
| Uniform Delay, d1 | 42.6 | 42.5 | 10.0 | 4.5 | 47.7 | 3.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.9 | 1.9 | 2.3 | 0.1 | 15.4 | 0.1 |
| Delay (s) | 44.4 | 44.4 | 12.2 | 4.6 | 63.0 | 3.2 |
| Level of Service | D | D | B | A | E | A |
| Approach Delay (s) | 44.4 | | 11.7 | | | 5.7 |
| Approach LOS | D | | B | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 102.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 79.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 1590 | 140 | 580 | 1520 | 330 | 0 | 0 | 0 | 690 | 50 | 540 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1730 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1730 | 1596 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 1590 | 140 | 580 | 1520 | 330 | 0 | 0 | 0 | 690 | 50 | 540 |
| RTOR Reduction (vph) | 0 | 0 | 46 | 0 | 0 | 114 | 0 | 0 | 0 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 90 | 1590 | 94 | 580 | 1520 | 216 | 0 | 0 | 0 | 366 | 374 | 530 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 17.3 | 42.8 | 42.8 | 45.0 | 70.5 | 70.5 | | | | 30.2 | 30.2 | 47.5 |
| Effective Green, g (s) | 17.3 | 42.8 | 42.8 | 45.0 | 70.5 | 70.5 | | | | 30.2 | 30.2 | 47.5 |
| Actuated g/C Ratio | 0.13 | 0.33 | 0.33 | 0.35 | 0.54 | 0.54 | | | | 0.23 | 0.23 | 0.37 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 240 | 1708 | 518 | 625 | 1958 | 852 | | | | 398 | 402 | 632 |
| v/s Ratio Prot | 0.05 | c0.31 | | c0.32 | 0.42 | | | | | 0.21 | c0.22 | 0.11 |
| v/s Ratio Perm | | | 0.06 | | | 0.14 | | | | | | 0.22 |
| v/c Ratio | 0.38 | 0.93 | 0.18 | 0.93 | 0.78 | 0.25 | | | | 0.92 | 0.93 | 0.84 |
| Uniform Delay, d1 | 51.4 | 42.2 | 31.1 | 40.9 | 23.5 | 15.8 | | | | 48.7 | 48.9 | 37.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.59 | 0.42 | 0.08 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | 10.6 | 0.8 | 16.7 | 2.4 | 0.6 | | | | 25.8 | 28.0 | 9.5 |
| Delay (s) | 52.4 | 52.8 | 31.9 | 41.0 | 12.4 | 1.8 | | | | 74.5 | 76.9 | 47.2 |
| Level of Service | D | D | C | D | B | A | | | | E | E | D |
| Approach Delay (s) | | 51.1 | | | 17.8 | | | 0.0 | | | 63.7 | |
| Approach LOS | | D | | | B | | | A | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 94.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 1580 | 410 | 190 | 2090 | 400 | 290 | 420 | 670 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3436 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1596 | 1805 | 6536 | 1586 | 1643 | 3436 | 2842 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 280 | 1580 | 410 | 190 | 2090 | 400 | 290 | 420 | 670 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 57 | 0 | 0 | 80 | 0 | 0 | 422 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 280 | 1580 | 353 | 190 | 2090 | 320 | 229 | 481 | 248 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 24.9 | 67.8 | 95.0 | 23.0 | 65.9 | 65.9 | 27.2 | 27.2 | 27.2 | | | |
| Effective Green, g (s) | 24.9 | 67.8 | 95.0 | 23.0 | 65.9 | 65.9 | 27.2 | 27.2 | 27.2 | | | |
| Actuated g/C Ratio | 0.19 | 0.52 | 0.73 | 0.18 | 0.51 | 0.51 | 0.21 | 0.21 | 0.21 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 346 | 1883 | 1215 | 319 | 3313 | 804 | 344 | 719 | 595 | | | |
| v/s Ratio Prot | 0.16 | c0.44 | 0.06 | 0.11 | c0.32 | | 0.14 | c0.14 | | | | |
| v/s Ratio Perm | | | 0.16 | | | 0.20 | | | 0.09 | | | |
| v/c Ratio | 0.81 | 0.84 | 0.29 | 0.60 | 0.63 | 0.40 | 0.67 | 0.67 | 0.42 | | | |
| Uniform Delay, d1 | 50.3 | 26.5 | 6.0 | 49.2 | 23.2 | 19.8 | 47.2 | 47.3 | 44.5 | | | |
| Progression Factor | 1.04 | 0.31 | 0.04 | 0.71 | 0.47 | 0.25 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 5.3 | 1.8 | 0.1 | 2.2 | 0.7 | 1.1 | 4.8 | 2.4 | 0.5 | | | |
| Delay (s) | 57.6 | 10.0 | 0.3 | 37.0 | 11.7 | 6.0 | 52.0 | 49.6 | 45.0 | | | |
| Level of Service | E | A | A | D | B | A | D | D | D | | | |
| Approach Delay (s) | | 14.1 | | | 12.6 | | | 47.8 | | | 0.0 | |
| Approach LOS | | B | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 2120 | 240 | 70 | 2300 | 10 | 270 | 10 | 180 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 0.86 | | | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5091 | | 1805 | 5183 | | 1805 | 1604 | | | 1783 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.74 | 1.00 | | | 0.91 | |
| Satd. Flow (perm) | 1805 | 5091 | | 1805 | 5183 | | 1401 | 1604 | | | 1646 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 2120 | 240 | 70 | 2300 | 10 | 270 | 10 | 180 | 10 | 10 | 10 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 79 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 40 | 2351 | 0 | 70 | 2310 | 0 | 270 | 111 | 0 | 0 | 22 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 5.6 | 80.6 | | 7.2 | 82.2 | | 30.2 | 30.2 | | | 30.2 | |
| Effective Green, g (s) | 5.6 | 80.6 | | 7.2 | 82.2 | | 30.2 | 30.2 | | | 30.2 | |
| Actuated g/C Ratio | 0.04 | 0.62 | | 0.06 | 0.63 | | 0.23 | 0.23 | | | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 78 | 3156 | | 100 | 3277 | | 325 | 373 | | | 382 | |
| v/s Ratio Prot | 0.02 | c0.46 | | c0.04 | 0.45 | | | 0.07 | | | | |
| v/s Ratio Perm | | | | | | | c0.19 | | | | 0.01 | |
| v/c Ratio | 0.51 | 0.75 | | 0.70 | 0.70 | | 0.83 | 0.30 | | | 0.06 | |
| Uniform Delay, d1 | 60.9 | 17.4 | | 60.3 | 15.9 | | 47.5 | 41.2 | | | 38.8 | |
| Progression Factor | 0.82 | 0.31 | | 0.86 | 0.71 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 3.7 | 1.1 | | 10.1 | 0.6 | | 16.3 | 0.4 | | | 0.1 | |
| Delay (s) | 53.6 | 6.4 | | 62.0 | 11.9 | | 63.8 | 41.6 | | | 38.9 | |
| Level of Service | D | A | | E | B | | E | D | | | D | |
| Approach Delay (s) | | 7.2 | | | 13.4 | | | 54.6 | | | 38.9 | |
| Approach LOS | | A | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 85.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 1990 | 280 | 90 | 2100 | 10 | 270 | 90 | 40 | 10 | 40 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | | | 0.99 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1805 | 3529 | | 1805 | 3607 | | | 1803 | | | 1880 | 1586 |
| Flt Permitted | 0.04 | 1.00 | | 0.04 | 1.00 | | | 0.77 | | | 0.93 | 1.00 |
| Satd. Flow (perm) | 85 | 3529 | | 85 | 3607 | | | 1429 | | | 1772 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 1990 | 280 | 90 | 2100 | 10 | 270 | 90 | 40 | 10 | 40 | 120 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 60 | 2261 | 0 | 90 | 2110 | 0 | 0 | 397 | 0 | 0 | 50 | 108 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 89.0 | 89.0 | | 89.0 | 89.0 | | | 33.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 89.0 | 89.0 | | 89.0 | 89.0 | | | 33.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.68 | 0.68 | | 0.68 | 0.68 | | | 0.25 | | | 0.25 | 0.25 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 58 | 2416 | | 58 | 2469 | | | 363 | | | 450 | 403 |
| v/s Ratio Prot | | 0.64 | | | 0.58 | | | | | | | |
| v/s Ratio Perm | 0.70 | | | c1.05 | | | | c0.28 | | | 0.03 | 0.07 |
| v/c Ratio | 1.03 | 0.94 | | 1.55 | 0.85 | | | 1.09 | | | 0.11 | 0.27 |
| Uniform Delay, d1 | 20.5 | 18.0 | | 20.5 | 15.6 | | | 48.5 | | | 37.2 | 38.8 |
| Progression Factor | 1.19 | 1.17 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 108.9 | 6.3 | | 316.7 | 4.0 | | | 74.8 | | | 0.1 | 0.4 |
| Delay (s) | 133.3 | 27.4 | | 337.2 | 19.6 | | | 123.3 | | | 37.3 | 39.2 |
| Level of Service | F | C | | F | B | | | F | | | D | D |
| Approach Delay (s) | | 30.1 | | | 32.6 | | | 123.3 | | | 38.6 | |
| Approach LOS | | C | | | C | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.42 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 108.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 1690 | 90 | 450 | 1920 | 270 | 80 | 360 | 420 | 150 | 290 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3577 | | 1805 | 3531 | | 1805 | 1900 | 1600 | 1805 | 1900 | 1587 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3577 | | 1805 | 3531 | | 1805 | 1900 | 1600 | 1805 | 1900 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 180 | 1690 | 90 | 450 | 1920 | 270 | 80 | 360 | 420 | 150 | 290 | 190 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 8 | 0 | 0 | 0 | 4 | 0 | 0 | 132 |
| Lane Group Flow (vph) | 180 | 1777 | 0 | 450 | 2182 | 0 | 80 | 360 | 416 | 150 | 290 | 58 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.1 | 48.1 | | 22.1 | 60.1 | | 7.8 | 27.6 | 49.7 | 8.0 | 27.8 | 27.8 |
| Effective Green, g (s) | 10.1 | 48.1 | | 22.1 | 60.1 | | 7.8 | 27.6 | 49.7 | 8.0 | 27.8 | 27.8 |
| Actuated g/C Ratio | 0.08 | 0.39 | | 0.18 | 0.49 | | 0.06 | 0.23 | 0.41 | 0.07 | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 150 | 1413 | | 328 | 1742 | | 116 | 431 | 653 | 119 | 434 | 362 |
| v/s Ratio Prot | 0.10 | 0.50 | | c0.25 | c0.62 | | 0.04 | c0.19 | 0.12 | c0.08 | 0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.14 | | | 0.04 |
| v/c Ratio | 1.20 | 1.26 | | 1.37 | 1.25 | | 0.69 | 0.84 | 0.64 | 1.26 | 0.67 | 0.16 |
| Uniform Delay, d1 | 55.9 | 36.8 | | 49.8 | 30.8 | | 55.8 | 44.9 | 28.8 | 56.9 | 42.8 | 37.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 137.2 | 121.8 | | 185.6 | 118.5 | | 15.7 | 13.1 | 2.0 | 168.2 | 3.9 | 0.2 |
| Delay (s) | 193.1 | 158.7 | | 235.5 | 149.4 | | 71.6 | 58.0 | 30.9 | 225.1 | 46.7 | 37.9 |
| Level of Service | F | F | | F | F | | E | E | C | F | D | D |
| Approach Delay (s) | | 161.8 | | | 164.1 | | | 46.0 | | | 86.5 | |
| Approach LOS | | F | | | F | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 138.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.15 | | |
| Actuated Cycle Length (s) | 121.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 116.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 1070 | 1020 | 170 | 1150 | 270 | 1190 | 1590 | 450 | 380 | 690 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2820 | 3502 | 3610 | 1593 | 3502 | 3610 | 1588 | 3502 | 5118 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2820 | 3502 | 3610 | 1593 | 3502 | 3610 | 1588 | 3502 | 5118 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 1070 | 1020 | 170 | 1150 | 270 | 1190 | 1590 | 450 | 380 | 690 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 17 | 0 | 0 | 22 | 0 | 0 | 3 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 60 | 1070 | 1003 | 170 | 1150 | 248 | 1190 | 1590 | 447 | 380 | 742 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.6 | 37.8 | 82.2 | 7.0 | 39.2 | 51.2 | 44.4 | 58.0 | 65.0 | 12.0 | 25.6 | |
| Effective Green, g (s) | 5.6 | 37.8 | 82.2 | 7.0 | 39.2 | 51.2 | 44.4 | 58.0 | 65.0 | 12.0 | 25.6 | |
| Actuated g/C Ratio | 0.04 | 0.29 | 0.63 | 0.05 | 0.30 | 0.39 | 0.34 | 0.44 | 0.50 | 0.09 | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 77 | 1043 | 1772 | 187 | 1082 | 624 | 1189 | 1601 | 838 | 321 | 1002 | |
| v/s Ratio Prot | 0.03 | c0.30 | 0.19 | 0.05 | c0.32 | 0.04 | 0.34 | c0.44 | 0.03 | c0.11 | 0.14 | |
| v/s Ratio Perm | | | 0.16 | | | 0.12 | | | 0.25 | | | |
| v/c Ratio | 0.78 | 1.03 | 0.57 | 0.91 | 1.06 | 0.40 | 1.00 | 0.99 | 0.53 | 1.18 | 0.74 | |
| Uniform Delay, d1 | 62.0 | 46.5 | 14.0 | 61.6 | 45.8 | 28.7 | 43.2 | 36.2 | 22.5 | 59.4 | 49.5 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 38.1 | 34.6 | 0.4 | 40.6 | 45.7 | 0.4 | 26.3 | 20.7 | 0.7 | 109.9 | 3.0 | |
| Delay (s) | 100.0 | 81.1 | 14.4 | 102.2 | 91.5 | 29.1 | 69.5 | 56.9 | 23.2 | 169.3 | 52.5 | |
| Level of Service | F | F | B | F | F | C | E | E | C | F | D | |
| Approach Delay (s) | | 50.0 | | | 82.0 | | | 56.9 | | | 91.7 | |
| Approach LOS | | D | | | F | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 64.9 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.03 | | |
| Actuated Cycle Length (s) | 130.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 105.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 50 | 20 | 60 | 40 | 130 | 20 | 3040 | 20 | 60 | 1710 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.98 | | | 0.92 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1811 | | | 1716 | | 1805 | 5181 | | 1805 | 5171 | |
| Flt Permitted | | 0.51 | | | 0.86 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 948 | | | 1502 | | 1805 | 5181 | | 1805 | 5171 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 50 | 20 | 60 | 40 | 130 | 20 | 3040 | 20 | 60 | 1710 | 30 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 155 | 0 | 0 | 182 | 0 | 20 | 3060 | 0 | 60 | 1739 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 16.8 | | | 16.8 | | 2.6 | 64.2 | | 5.4 | 67.0 | |
| Effective Green, g (s) | | 16.8 | | | 16.8 | | 2.6 | 64.2 | | 5.4 | 67.0 | |
| Actuated g/C Ratio | | 0.17 | | | 0.17 | | 0.03 | 0.65 | | 0.05 | 0.68 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 162 | | | 256 | | 48 | 3380 | | 99 | 3521 | |
| v/s Ratio Prot | | | | | | | 0.01 | c0.59 | | c0.03 | c0.34 | |
| v/s Ratio Perm | | c0.16 | | | 0.12 | | | | | | | |
| v/c Ratio | | 0.96 | | | 0.71 | | 0.42 | 0.91 | | 0.61 | 0.49 | |
| Uniform Delay, d1 | | 40.4 | | | 38.5 | | 47.2 | 14.5 | | 45.5 | 7.5 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 57.4 | | | 8.9 | | 5.8 | 3.9 | | 10.1 | 0.1 | |
| Delay (s) | | 97.8 | | | 47.5 | | 52.9 | 18.4 | | 55.5 | 7.7 | |
| Level of Service | | F | | | D | | D | B | | E | A | |
| Approach Delay (s) | | 97.8 | | | 47.5 | | | 18.7 | | | 9.3 | |
| Approach LOS | | F | | | D | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 98.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 85.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 50 | 80 | 30 | 40 | 130 | 60 | 2810 | 20 | 30 | 1540 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1800 | 1900 | 1615 | 1805 | 1900 | 1587 | 1805 | 5180 | | 1805 | 5157 | |
| Flt Permitted | 0.57 | 1.00 | 1.00 | 0.72 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1073 | 1900 | 1615 | 1376 | 1900 | 1587 | 1805 | 5180 | | 1805 | 5157 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 160 | 50 | 80 | 30 | 40 | 130 | 60 | 2810 | 20 | 30 | 1540 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 70 | 0 | 0 | 114 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 160 | 50 | 10 | 30 | 40 | 16 | 60 | 2830 | 0 | 30 | 1588 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 20.3 | 13.3 | 13.3 | 14.3 | 10.3 | 10.3 | 7.1 | 71.3 | | 4.0 | 68.2 | |
| Effective Green, g (s) | 20.3 | 13.3 | 13.3 | 14.3 | 10.3 | 10.3 | 7.1 | 71.3 | | 4.0 | 68.2 | |
| Actuated g/C Ratio | 0.19 | 0.12 | 0.12 | 0.13 | 0.09 | 0.09 | 0.07 | 0.66 | | 0.04 | 0.63 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 247 | 233 | 198 | 197 | 180 | 151 | 118 | 3401 | | 66 | 3239 | |
| v/s Ratio Prot | c0.04 | 0.03 | | 0.01 | 0.02 | | 0.03 | c0.55 | | 0.02 | c0.31 | |
| v/s Ratio Perm | c0.08 | | 0.01 | 0.01 | | 0.01 | | | | | | |
| v/c Ratio | 0.65 | 0.21 | 0.05 | 0.15 | 0.22 | 0.11 | 0.51 | 0.83 | | 0.45 | 0.49 | |
| Uniform Delay, d1 | 40.0 | 42.9 | 42.1 | 41.6 | 45.4 | 44.9 | 49.1 | 14.1 | | 51.2 | 10.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.7 | 0.5 | 0.1 | 0.4 | 0.6 | 0.3 | 3.4 | 1.9 | | 4.9 | 0.1 | |
| Delay (s) | 45.7 | 43.4 | 42.2 | 42.0 | 46.1 | 45.2 | 52.5 | 16.0 | | 56.1 | 11.0 | |
| Level of Service | D | D | D | D | D | D | D | B | | E | B | |
| Approach Delay (s) | | 44.4 | | | 44.9 | | | 16.7 | | | 11.8 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 108.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 250 | 380 | 620 | 100 | 90 | 500 | 2880 | 1010 | 30 | 1690 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.91 | | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3251 | | 5090 | 1752 | | 1805 | 5187 | 1592 | 1805 | 5139 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3251 | | 5090 | 1752 | | 1805 | 5187 | 1592 | 1805 | 5139 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 250 | 380 | 620 | 100 | 90 | 500 | 2880 | 1010 | 30 | 1690 | 100 |
| RTOR Reduction (vph) | 0 | 250 | 0 | 0 | 31 | 0 | 0 | 0 | 135 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 50 | 380 | 0 | 620 | 159 | 0 | 500 | 2880 | 875 | 30 | 1786 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 11.4 | 19.1 | | 11.0 | 18.7 | | 24.1 | 61.8 | 72.8 | 4.1 | 41.8 | |
| Effective Green, g (s) | 11.4 | 19.1 | | 11.0 | 18.7 | | 24.1 | 61.8 | 72.8 | 4.1 | 41.8 | |
| Actuated g/C Ratio | 0.10 | 0.17 | | 0.10 | 0.17 | | 0.22 | 0.55 | 0.65 | 0.04 | 0.37 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 184 | 554 | | 500 | 293 | | 388 | 2862 | 1092 | 66 | 1918 | |
| v/s Ratio Prot | 0.03 | c0.12 | | c0.12 | 0.09 | | c0.28 | c0.56 | 0.08 | 0.02 | 0.35 | |
| v/s Ratio Perm | | | | | | | | | 0.47 | | | |
| v/c Ratio | 0.27 | 0.69 | | 1.24 | 0.54 | | 1.29 | 1.01 | 0.80 | 0.45 | 0.93 | |
| Uniform Delay, d1 | 46.5 | 43.6 | | 50.5 | 42.7 | | 44.0 | 25.1 | 14.3 | 52.9 | 33.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 3.5 | | 124.2 | 2.1 | | 148.1 | 18.4 | 4.3 | 4.9 | 8.8 | |
| Delay (s) | 47.3 | 47.2 | | 174.7 | 44.8 | | 192.0 | 43.5 | 18.6 | 57.8 | 42.5 | |
| Level of Service | D | D | | F | D | | F | D | B | E | D | |
| Approach Delay (s) | | 47.2 | | | 144.2 | | | 54.7 | | | 42.7 | |
| Approach LOS | | D | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 60.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 112.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 109.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 40 | 200 | 340 | 70 | 340 | 370 | 1790 | 300 | 200 | 1100 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1797 | 1900 | 2842 | 1805 | 1900 | 1615 | 1805 | 5187 | 1615 | 1805 | 5187 | 1559 |
| Flt Permitted | 0.71 | 1.00 | 1.00 | 0.73 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1339 | 1900 | 2842 | 1385 | 1900 | 1615 | 1805 | 5187 | 1615 | 1805 | 5187 | 1559 |
| Peak-hour factor, PHF | 1.00 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 1.00 | 1.00 | 0.92 | 0.92 | 1.00 | 1.00 |
| Adj. Flow (vph) | 210 | 43 | 200 | 370 | 76 | 370 | 370 | 1790 | 326 | 217 | 1100 | 240 |
| RTOR Reduction (vph) | 0 | 0 | 148 | 0 | 0 | 206 | 0 | 0 | 125 | 0 | 0 | 153 |
| Lane Group Flow (vph) | 210 | 43 | 52 | 370 | 76 | 164 | 370 | 1790 | 201 | 217 | 1100 | 87 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | 5 | | | | | 5 |
| Turn Type | Perm | | Over | Perm | | Over | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | 5 | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 33.1 | 33.1 | 28.3 | 33.1 | 33.1 | 17.2 | 28.3 | 46.5 | 46.5 | 17.2 | 35.4 | 35.4 |
| Effective Green, g (s) | 33.1 | 33.1 | 28.3 | 33.1 | 33.1 | 17.2 | 28.3 | 46.5 | 46.5 | 17.2 | 35.4 | 35.4 |
| Actuated g/C Ratio | 0.30 | 0.30 | 0.26 | 0.30 | 0.30 | 0.16 | 0.26 | 0.43 | 0.43 | 0.16 | 0.33 | 0.33 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 407 | 578 | 739 | 421 | 578 | 255 | 469 | 2217 | 690 | 285 | 1688 | 507 |
| v/s Ratio Prot | | 0.02 | 0.02 | | 0.04 | 0.10 | 0.20 | c0.35 | | c0.12 | 0.21 | |
| v/s Ratio Perm | 0.16 | | | c0.27 | | | | | 0.12 | | | 0.06 |
| v/c Ratio | 0.52 | 0.07 | 0.07 | 0.88 | 0.13 | 0.64 | 0.79 | 0.81 | 0.29 | 0.76 | 0.65 | 0.17 |
| Uniform Delay, d1 | 31.2 | 26.9 | 30.3 | 35.9 | 27.4 | 42.9 | 37.5 | 27.2 | 20.4 | 43.8 | 31.4 | 26.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 0.1 | 0.0 | 18.4 | 0.1 | 5.4 | 8.6 | 3.3 | 1.1 | 11.4 | 2.0 | 0.7 |
| Delay (s) | 32.3 | 27.0 | 30.4 | 54.3 | 27.5 | 48.4 | 46.0 | 30.5 | 21.4 | 55.2 | 33.4 | 27.0 |
| Level of Service | C | C | C | D | C | D | D | C | C | E | C | C |
| Approach Delay (s) | | 31.0 | | | 49.1 | | | 31.6 | | | 35.4 | |
| Approach LOS | | C | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 108.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 81.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 10 | 100 | 40 | 10 | 10 | 340 | 710 | 110 | 20 | 750 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.86 | | 1.00 | 0.93 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1641 | | 1805 | 1758 | | 1805 | 3537 | | 1805 | 3564 | |
| Flt Permitted | 0.74 | 1.00 | | 0.49 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1414 | 1641 | | 936 | 1758 | | 1805 | 3537 | | 1805 | 3564 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 10 | 100 | 40 | 10 | 10 | 340 | 710 | 110 | 20 | 750 | 70 |
| RTOR Reduction (vph) | 0 | 92 | 0 | 0 | 9 | 0 | 0 | 6 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 20 | 18 | 0 | 40 | 11 | 0 | 340 | 814 | 0 | 20 | 816 | 0 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 9.1 | 9.1 | | 9.1 | 9.1 | | 26.1 | 85.7 | | 3.2 | 62.8 | |
| Effective Green, g (s) | 9.1 | 9.1 | | 9.1 | 9.1 | | 26.1 | 85.7 | | 3.2 | 62.8 | |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.08 | 0.08 | | 0.24 | 0.78 | | 0.03 | 0.57 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 117 | 136 | | 77 | 145 | | 428 | 2756 | | 53 | 2035 | |
| v/s Ratio Prot | | 0.01 | | | 0.01 | | c0.19 | 0.23 | | 0.01 | c0.23 | |
| v/s Ratio Perm | 0.01 | | | c0.04 | | | | | | | | |
| v/c Ratio | 0.17 | 0.13 | | 0.52 | 0.07 | | 0.79 | 0.30 | | 0.38 | 0.40 | |
| Uniform Delay, d1 | 46.9 | 46.8 | | 48.4 | 46.6 | | 39.4 | 3.5 | | 52.4 | 13.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.90 | 0.75 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | 0.5 | | 5.8 | 0.2 | | 1.0 | 0.0 | | 4.5 | 0.6 | |
| Delay (s) | 47.6 | 47.2 | | 54.2 | 46.8 | | 36.6 | 2.6 | | 56.9 | 13.7 | |
| Level of Service | D | D | | D | D | | D | A | | E | B | |
| Approach Delay (s) | | 47.3 | | | 51.7 | | | 12.6 | | | 14.8 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 60.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 470 | 950 | 510 | 290 | 1710 | 270 | 370 | 80 | 130 | 90 | 60 | 250 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.91 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 4878 | | 1805 | 5187 | 1582 | 1805 | 3241 | | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 4878 | | 1805 | 5187 | 1582 | 1805 | 3241 | | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 470 | 950 | 510 | 290 | 1710 | 270 | 370 | 80 | 130 | 90 | 60 | 250 |
| RTOR Reduction (vph) | 0 | 75 | 0 | 0 | 0 | 157 | 0 | 113 | 0 | 0 | 0 | 228 |
| Lane Group Flow (vph) | 470 | 1385 | 0 | 290 | 1710 | 113 | 370 | 97 | 0 | 90 | 60 | 22 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 41.3 | 40.7 | | 27.9 | 27.3 | 27.3 | 13.0 | 14.4 | | 8.4 | 9.5 | 9.5 |
| Effective Green, g (s) | 41.3 | 40.7 | | 27.9 | 27.3 | 27.3 | 13.0 | 14.4 | | 8.4 | 9.5 | 9.5 |
| Actuated g/C Ratio | 0.38 | 0.37 | | 0.25 | 0.25 | 0.25 | 0.12 | 0.13 | | 0.08 | 0.09 | 0.09 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 678 | 1805 | | 458 | 1287 | 393 | 213 | 424 | | 138 | 312 | 137 |
| v/s Ratio Prot | c0.26 | c0.28 | | 0.16 | c0.33 | | c0.20 | c0.03 | | 0.05 | 0.02 | |
| v/s Ratio Perm | | | | | | 0.07 | | | | | | 0.01 |
| v/c Ratio | 0.69 | 0.77 | | 0.63 | 1.33 | 0.29 | 1.74 | 0.23 | | 0.65 | 0.19 | 0.16 |
| Uniform Delay, d1 | 29.0 | 30.5 | | 36.5 | 41.4 | 33.5 | 48.5 | 42.8 | | 49.4 | 46.7 | 46.5 |
| Progression Factor | 0.93 | 0.69 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.0 | 3.2 | | 2.9 | 153.4 | 1.8 | 350.5 | 0.3 | | 10.5 | 0.3 | 0.5 |
| Delay (s) | 30.0 | 24.2 | | 39.4 | 194.7 | 35.3 | 399.0 | 43.1 | | 59.9 | 47.0 | 47.1 |
| Level of Service | C | C | | D | F | D | F | D | | E | D | D |
| Approach Delay (s) | | 25.6 | | | 155.9 | | | 270.2 | | | 50.0 | |
| Approach LOS | | C | | | F | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 112.0 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 102.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 400 | 570 | 120 | 110 | 1230 | 440 | 330 | 1570 | 100 | 140 | 1000 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1588 | 3502 | 4960 | | 3502 | 5187 | 1588 | 3502 | 5187 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1588 | 3502 | 4960 | | 3502 | 5187 | 1588 | 3502 | 5187 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 400 | 570 | 120 | 110 | 1230 | 440 | 330 | 1570 | 100 | 140 | 1000 | 320 |
| RTOR Reduction (vph) | 0 | 0 | 75 | 0 | 54 | 0 | 0 | 0 | 36 | 0 | 0 | 126 |
| Lane Group Flow (vph) | 400 | 570 | 45 | 110 | 1616 | 0 | 330 | 1570 | 64 | 140 | 1000 | 194 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 13.1 | 45.1 | 45.1 | 7.7 | 39.7 | | 11.0 | 40.9 | 40.9 | 7.0 | 36.9 | 36.9 |
| Effective Green, g (s) | 13.1 | 45.1 | 45.1 | 7.7 | 39.7 | | 11.0 | 40.9 | 40.9 | 7.0 | 36.9 | 36.9 |
| Actuated g/C Ratio | 0.11 | 0.38 | 0.38 | 0.06 | 0.33 | | 0.09 | 0.34 | 0.34 | 0.06 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 382 | 1949 | 597 | 225 | 1641 | | 321 | 1768 | 541 | 204 | 1595 | 488 |
| v/s Ratio Prot | c0.11 | 0.11 | | 0.03 | c0.33 | | c0.09 | c0.30 | | 0.04 | 0.19 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.04 | | | 0.12 |
| v/c Ratio | 1.05 | 0.29 | 0.08 | 0.49 | 0.99 | | 1.03 | 0.89 | 0.12 | 0.69 | 0.63 | 0.40 |
| Uniform Delay, d1 | 53.5 | 26.3 | 24.1 | 54.2 | 39.9 | | 54.5 | 37.4 | 27.2 | 55.4 | 35.6 | 32.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 58.9 | 0.4 | 0.2 | 1.7 | 18.9 | | 57.6 | 5.8 | 0.1 | 9.2 | 0.8 | 0.5 |
| Delay (s) | 112.4 | 26.6 | 24.3 | 55.9 | 58.8 | | 112.1 | 43.2 | 27.3 | 64.6 | 36.4 | 33.3 |
| Level of Service | F | C | C | E | E | | F | D | C | E | D | C |
| Approach Delay (s) | | 57.8 | | | 58.6 | | | 53.8 | | | 38.4 | |
| Approach LOS | | E | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 19.3 |
| Intersection Capacity Utilization | 95.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 400 | 390 | 150 | 10 | 950 | 660 | 390 | 1210 | 30 | 310 | 910 | 500 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 5187 | 1587 | 3502 | 3595 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 5187 | 1587 | 3502 | 3595 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 400 | 390 | 150 | 10 | 950 | 660 | 390 | 1210 | 30 | 310 | 910 | 500 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 152 | 0 | 1 | 0 | 0 | 0 | 113 |
| Lane Group Flow (vph) | 400 | 390 | 150 | 10 | 950 | 508 | 390 | 1239 | 0 | 310 | 910 | 388 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 11.0 | 41.8 | 110.0 | 1.2 | 32.0 | 32.0 | 12.0 | 37.0 | | 10.0 | 35.0 | 35.0 |
| Effective Green, g (s) | 11.0 | 41.8 | 110.0 | 1.2 | 32.0 | 32.0 | 12.0 | 37.0 | | 10.0 | 35.0 | 35.0 |
| Actuated g/C Ratio | 0.10 | 0.38 | 1.00 | 0.01 | 0.29 | 0.29 | 0.11 | 0.34 | | 0.09 | 0.32 | 0.32 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 350 | 1971 | 1593 | 20 | 1509 | 462 | 382 | 1209 | | 318 | 1149 | 505 |
| v/s Ratio Prot | c0.11 | 0.08 | | 0.01 | 0.18 | | c0.11 | c0.34 | | 0.09 | 0.25 | |
| v/s Ratio Perm | | | c0.09 | | | c0.32 | | | | | | 0.24 |
| v/c Ratio | 1.14 | 0.20 | 0.09 | 0.50 | 0.63 | 1.10 | 1.02 | 1.02 | | 0.97 | 0.79 | 0.77 |
| Uniform Delay, d1 | 49.5 | 22.9 | 0.0 | 54.1 | 33.9 | 39.0 | 49.0 | 36.5 | | 49.9 | 34.2 | 33.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.01 | 1.09 | 1.15 |
| Incremental Delay, d2 | 92.8 | 0.2 | 0.1 | 18.3 | 2.0 | 71.4 | 51.5 | 32.3 | | 43.1 | 5.6 | 10.6 |
| Delay (s) | 142.3 | 23.1 | 0.1 | 72.4 | 35.9 | 110.4 | 100.5 | 68.8 | | 93.6 | 42.7 | 49.5 |
| Level of Service | F | C | A | E | D | F | F | E | | F | D | D |
| Approach Delay (s) | | 70.1 | | | 66.4 | | | 76.4 | | | 53.8 | |
| Approach LOS | | E | | | E | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 66.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 100.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 20 | 40 | 20 | 10 | 20 | 70 | 1700 | 10 | 30 | 1110 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3212 | | 1805 | 1900 | 1587 | 1805 | 5182 | | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3212 | | 1805 | 1900 | 1587 | 1805 | 5182 | | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 20 | 40 | 20 | 10 | 20 | 70 | 1700 | 10 | 30 | 1110 | 60 |
| RTOR Reduction (vph) | 0 | 37 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 40 | 23 | 0 | 20 | 10 | 1 | 70 | 1710 | 0 | 30 | 1110 | 41 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 3.6 | 7.3 | | 2.4 | 6.2 | 6.2 | 8.4 | 77.8 | | 5.0 | 74.4 | 74.4 |
| Effective Green, g (s) | 3.6 | 7.3 | | 2.4 | 6.2 | 6.2 | 8.4 | 77.8 | | 5.0 | 74.4 | 74.4 |
| Actuated g/C Ratio | 0.03 | 0.07 | | 0.02 | 0.06 | 0.06 | 0.08 | 0.71 | | 0.05 | 0.68 | 0.68 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 59 | 213 | | 39 | 107 | 89 | 138 | 3665 | | 82 | 2442 | 1072 |
| v/s Ratio Prot | c0.02 | c0.01 | | 0.01 | 0.01 | | c0.04 | c0.33 | | 0.02 | 0.31 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.03 |
| v/c Ratio | 0.68 | 0.11 | | 0.51 | 0.09 | 0.01 | 0.51 | 0.47 | | 0.37 | 0.45 | 0.04 |
| Uniform Delay, d1 | 52.6 | 48.3 | | 53.2 | 49.2 | 49.0 | 48.8 | 7.0 | | 51.0 | 8.3 | 5.9 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 26.7 | 0.2 | | 10.9 | 0.4 | 0.1 | 2.9 | 0.4 | | 2.8 | 0.6 | 0.1 |
| Delay (s) | 79.3 | 48.5 | | 64.1 | 49.6 | 49.1 | 51.7 | 7.5 | | 53.7 | 8.9 | 6.0 |
| Level of Service | E | D | | E | D | D | D | A | | D | A | A |
| Approach Delay (s) | | 60.8 | | | 55.2 | | | 9.2 | | | 9.9 | |
| Approach LOS | | E | | | E | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 13.3 |
| Intersection Capacity Utilization | 59.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 90 | 190 | 130 | 120 | 50 | 190 | 1050 | 70 | 30 | 610 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 3610 | 1586 | 1805 | 3572 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 3610 | 1586 | 1805 | 3572 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 90 | 190 | 130 | 120 | 50 | 190 | 1050 | 70 | 30 | 610 | 90 |
| RTOR Reduction (vph) | 0 | 0 | 173 | 0 | 0 | 46 | 0 | 3 | 0 | 0 | 0 | 45 |
| Lane Group Flow (vph) | 150 | 90 | 17 | 130 | 120 | 4 | 190 | 1117 | 0 | 30 | 610 | 45 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 13.1 | 10.0 | 10.0 | 12.5 | 9.4 | 9.4 | 16.7 | 66.5 | | 5.0 | 54.8 | 54.8 |
| Effective Green, g (s) | 13.1 | 10.0 | 10.0 | 12.5 | 9.4 | 9.4 | 16.7 | 66.5 | | 5.0 | 54.8 | 54.8 |
| Actuated g/C Ratio | 0.12 | 0.09 | 0.09 | 0.11 | 0.09 | 0.09 | 0.15 | 0.60 | | 0.05 | 0.50 | 0.50 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 215 | 328 | 144 | 205 | 308 | 136 | 274 | 2159 | | 82 | 1798 | 790 |
| v/s Ratio Prot | c0.08 | 0.02 | | 0.07 | c0.03 | | c0.11 | c0.31 | | 0.02 | 0.17 | |
| v/s Ratio Perm | | | 0.01 | | | 0.00 | | | | | | 0.03 |
| v/c Ratio | 0.70 | 0.27 | 0.12 | 0.63 | 0.39 | 0.03 | 0.69 | 0.52 | | 0.37 | 0.34 | 0.06 |
| Uniform Delay, d1 | 46.5 | 46.6 | 46.0 | 46.6 | 47.6 | 46.1 | 44.2 | 12.5 | | 51.0 | 16.7 | 14.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.93 | 1.29 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.5 | 0.5 | 0.4 | 6.3 | 0.8 | 0.1 | 6.7 | 0.8 | | 2.8 | 0.5 | 0.1 |
| Delay (s) | 56.0 | 47.1 | 46.3 | 52.8 | 48.4 | 46.2 | 47.7 | 17.0 | | 53.7 | 17.2 | 14.4 |
| Level of Service | E | D | D | D | D | D | D | B | | D | B | B |
| Approach Delay (s) | | 49.9 | | | 50.0 | | | 21.4 | | | 18.3 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 60.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 110 | 70 | 130 | 160 | 260 | 350 | 1170 | 70 | 40 | 890 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1798 | 3377 | | 1798 | 3610 | 1588 | 1805 | 5138 | | 1805 | 5099 | |
| Flt Permitted | 0.65 | 1.00 | | 0.64 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1231 | 3377 | | 1208 | 3610 | 1588 | 1805 | 5138 | | 1805 | 5099 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 110 | 70 | 130 | 160 | 260 | 350 | 1170 | 70 | 40 | 890 | 100 |
| RTOR Reduction (vph) | 0 | 58 | 0 | 0 | 0 | 138 | 0 | 4 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 20 | 122 | 0 | 130 | 160 | 122 | 350 | 1236 | 0 | 40 | 981 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 16.7 | 16.7 | | 16.7 | 16.7 | 16.7 | 24.3 | 65.5 | | 3.9 | 45.1 | |
| Effective Green, g (s) | 16.7 | 16.7 | | 16.7 | 16.7 | 16.7 | 24.3 | 65.5 | | 3.9 | 45.1 | |
| Actuated g/C Ratio | 0.17 | 0.17 | | 0.17 | 0.17 | 0.17 | 0.24 | 0.65 | | 0.04 | 0.45 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 204 | 560 | | 200 | 599 | 263 | 436 | 3342 | | 70 | 2284 | |
| v/s Ratio Prot | | 0.04 | | | 0.04 | | c0.19 | 0.24 | | 0.02 | c0.19 | |
| v/s Ratio Perm | 0.02 | | | c0.11 | | 0.08 | | | | | | |
| v/c Ratio | 0.10 | 0.22 | | 0.65 | 0.27 | 0.47 | 0.80 | 0.37 | | 0.57 | 0.43 | |
| Uniform Delay, d1 | 35.6 | 36.3 | | 39.3 | 36.7 | 38.0 | 35.9 | 8.1 | | 47.6 | 19.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.2 | | 7.3 | 0.2 | 1.3 | 10.2 | 0.3 | | 10.8 | 0.6 | |
| Delay (s) | 35.8 | 36.5 | | 46.6 | 36.9 | 39.3 | 46.2 | 8.4 | | 58.4 | 19.6 | |
| Level of Service | D | D | | D | D | D | D | A | | E | B | |
| Approach Delay (s) | | 36.5 | | | 40.3 | | | 16.7 | | | 21.1 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 100.7 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 75.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 290 | 30 | 20 | 450 | 150 | 110 | 760 | 20 | 170 | 950 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 1.00 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3553 | | 1805 | 3460 | | 1805 | 3595 | | 1805 | 3505 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3553 | | 1805 | 3460 | | 1805 | 3595 | | 1805 | 3505 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 290 | 30 | 20 | 450 | 150 | 110 | 760 | 20 | 170 | 950 | 200 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 31 | 0 | 0 | 1 | 0 | 0 | 15 | 0 |
| Lane Group Flow (vph) | 140 | 313 | 0 | 20 | 569 | 0 | 110 | 779 | 0 | 170 | 1135 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 11.4 | 35.7 | | 2.4 | 26.7 | | 10.7 | 41.4 | | 14.5 | 45.2 | |
| Effective Green, g (s) | 11.4 | 35.7 | | 2.4 | 26.7 | | 10.7 | 41.4 | | 14.5 | 45.2 | |
| Actuated g/C Ratio | 0.10 | 0.32 | | 0.02 | 0.24 | | 0.10 | 0.38 | | 0.13 | 0.41 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 187 | 1153 | | 39 | 840 | | 176 | 1353 | | 238 | 1440 | |
| v/s Ratio Prot | c0.08 | 0.09 | | 0.01 | c0.16 | | 0.06 | 0.22 | | c0.09 | c0.32 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.75 | 0.27 | | 0.51 | 0.68 | | 0.62 | 0.58 | | 0.71 | 0.79 | |
| Uniform Delay, d1 | 47.9 | 27.5 | | 53.2 | 37.7 | | 47.7 | 27.3 | | 45.8 | 28.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.89 | 1.07 | |
| Incremental Delay, d2 | 15.1 | 0.1 | | 10.9 | 2.2 | | 6.8 | 1.8 | | 9.6 | 4.4 | |
| Delay (s) | 63.0 | 27.6 | | 64.1 | 39.9 | | 54.5 | 29.1 | | 50.2 | 34.7 | |
| Level of Service | E | C | | E | D | | D | C | | D | C | |
| Approach Delay (s) | | 38.4 | | | 40.7 | | | 32.2 | | | 36.7 | |
| Approach LOS | | D | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 78.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 290 | 180 | 780 | 410 | 1740 | 0 | 0 | 800 | 500 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | 1.00 | 0.95 | 0.95 | 1.00 | 0.91 | | | 0.91 | 1.00 |
| Frpb, ped/bikes | | | | 1.00 | 0.99 | 0.98 | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 0.90 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1795 | 1615 | 1508 | 1805 | 5187 | | | 5187 | 1564 |
| Flt Permitted | | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1795 | 1615 | 1508 | 1805 | 5187 | | | 5187 | 1564 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 290 | 180 | 780 | 410 | 1740 | 0 | 0 | 800 | 500 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 271 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 290 | 481 | 457 | 410 | 1740 | 0 | 0 | 800 | 229 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | 37.8 | 37.8 | 37.8 | 27.9 | 64.2 | | | 32.3 | 32.3 |
| Effective Green, g (s) | | | | 37.8 | 37.8 | 37.8 | 27.9 | 64.2 | | | 32.3 | 32.3 |
| Actuated g/C Ratio | | | | 0.34 | 0.34 | 0.34 | 0.25 | 0.58 | | | 0.29 | 0.29 |
| Clearance Time (s) | | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | 617 | 555 | 518 | 458 | 3027 | | | 1523 | 459 |
| v/s Ratio Prot | | | | | 0.30 | | c0.23 | c0.34 | | | 0.15 | |
| v/s Ratio Perm | | | | 0.16 | | c0.30 | | | | | | 0.15 |
| v/c Ratio | | | | 0.47 | 0.87 | 0.88 | 0.90 | 0.57 | | | 0.53 | 0.50 |
| Uniform Delay, d1 | | | | 28.3 | 33.8 | 34.0 | 39.6 | 14.3 | | | 32.4 | 32.2 |
| Progression Factor | | | | 1.00 | 1.00 | 1.00 | 1.35 | 1.23 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 0.6 | 13.5 | 16.2 | 12.3 | 0.4 | | | 1.3 | 3.9 |
| Delay (s) | | | | 28.8 | 47.2 | 50.2 | 65.7 | 18.0 | | | 33.7 | 36.0 |
| Level of Service | | | | C | D | D | E | B | | | C | D |
| Approach Delay (s) | | 0.0 | | | 44.1 | | | 27.1 | | | 34.6 | |
| Approach LOS | | A | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 90.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 450 | 50 | 190 | 0 | 0 | 0 | 0 | 1700 | 180 | 220 | 870 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | | | | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | | | | | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1795 | 1652 | | | | | | 5097 | | 1805 | 5187 | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1795 | 1652 | | | | | | 5097 | | 1805 | 5187 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 450 | 50 | 190 | 0 | 0 | 0 | 0 | 1700 | 180 | 220 | 870 | 0 |
| RTOR Reduction (vph) | 0 | 119 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 450 | 121 | 0 | 0 | 0 | 0 | 0 | 1869 | 0 | 220 | 870 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | | | | | | | | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | 31.7 | 31.7 | | | | | | 49.6 | | 16.7 | 70.3 | |
| Effective Green, g (s) | 31.7 | 31.7 | | | | | | 49.6 | | 16.7 | 70.3 | |
| Actuated g/C Ratio | 0.29 | 0.29 | | | | | | 0.45 | | 0.15 | 0.64 | |
| Clearance Time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 517 | 476 | | | | | | 2298 | | 274 | 3315 | |
| v/s Ratio Prot | | 0.07 | | | | | | c0.37 | | c0.12 | 0.17 | |
| v/s Ratio Perm | c0.25 | | | | | | | | | | | |
| v/c Ratio | 0.87 | 0.25 | | | | | | 0.81 | | 0.80 | 0.26 | |
| Uniform Delay, d1 | 37.2 | 30.1 | | | | | | 26.2 | | 45.1 | 8.6 | |
| Progression Factor | 1.00 | 1.00 | | | | | | 1.00 | | 1.54 | 0.60 | |
| Incremental Delay, d2 | 14.8 | 0.3 | | | | | | 3.3 | | 13.8 | 0.2 | |
| Delay (s) | 52.0 | 30.4 | | | | | | 29.5 | | 83.3 | 5.3 | |
| Level of Service | D | C | | | | | | C | | F | A | |
| Approach Delay (s) | | 44.5 | | | 0.0 | | | 29.5 | | | 21.1 | |
| Approach LOS | | D | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 90.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 110 | 50 | 90 | 350 | 650 | 0 | 0 | 680 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 0.95 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1753 | | 1805 | 3610 | | | 3610 | 1564 |
| Flt Permitted | | | | | 0.98 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1753 | | 1805 | 3610 | | | 3610 | 1564 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 110 | 50 | 90 | 350 | 650 | 0 | 0 | 680 | 300 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 145 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 229 | 0 | 350 | 650 | 0 | 0 | 680 | 155 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | | | | 19.5 | | 26.7 | 82.5 | | | 51.8 | 51.8 |
| Effective Green, g (s) | | | | | 19.5 | | 26.7 | 82.5 | | | 51.8 | 51.8 |
| Actuated g/C Ratio | | | | | 0.18 | | 0.24 | 0.75 | | | 0.47 | 0.47 |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 311 | | 438 | 2708 | | | 1700 | 737 |
| v/s Ratio Prot | | | | | | | c0.19 | 0.18 | | | c0.19 | |
| v/s Ratio Perm | | | | | 0.13 | | | | | | | 0.10 |
| v/c Ratio | | | | | 0.74 | | 0.80 | 0.24 | | | 0.40 | 0.21 |
| Uniform Delay, d1 | | | | | 42.8 | | 39.1 | 4.2 | | | 19.0 | 17.1 |
| Progression Factor | | | | | 1.00 | | 1.48 | 0.65 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 8.8 | | 9.3 | 0.2 | | | 0.7 | 0.6 |
| Delay (s) | | | | | 51.6 | | 67.3 | 2.9 | | | 19.7 | 17.7 |
| Level of Service | | | | | D | | E | A | | | B | B |
| Approach Delay (s) | | 0.0 | | | 51.6 | | | 25.4 | | | 19.1 | |
| Approach LOS | | A | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 30 | 130 | 0 | 0 | 0 | 0 | 900 | 220 | 130 | 670 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | | | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | | | | | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1820 | 1586 | | | | | 3610 | 1564 | 1805 | 3610 | |
| Flt Permitted | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1820 | 1586 | | | | | 3610 | 1564 | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 30 | 130 | 0 | 0 | 0 | 0 | 900 | 220 | 130 | 670 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 114 | 0 | 0 | 0 | 0 | 0 | 67 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 140 | 16 | 0 | 0 | 0 | 0 | 900 | 153 | 130 | 670 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | | 13.8 | 13.8 | | | | | 71.0 | 71.0 | 13.2 | 88.2 | |
| Effective Green, g (s) | | 13.8 | 13.8 | | | | | 71.0 | 71.0 | 13.2 | 88.2 | |
| Actuated g/C Ratio | | 0.13 | 0.13 | | | | | 0.65 | 0.65 | 0.12 | 0.80 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 228 | 199 | | | | | 2330 | 1009 | 217 | 2895 | |
| v/s Ratio Prot | | | | | | | | c0.25 | | c0.07 | 0.19 | |
| v/s Ratio Perm | | 0.08 | 0.01 | | | | | | 0.10 | | | |
| v/c Ratio | | 0.61 | 0.08 | | | | | 0.39 | 0.15 | 0.60 | 0.23 | |
| Uniform Delay, d1 | | 45.6 | 42.5 | | | | | 9.2 | 7.7 | 45.9 | 2.7 | |
| Progression Factor | | 1.00 | 1.00 | | | | | 1.43 | 2.94 | 1.36 | 0.56 | |
| Incremental Delay, d2 | | 4.8 | 0.2 | | | | | 0.5 | 0.3 | 4.1 | 0.2 | |
| Delay (s) | | 50.4 | 42.7 | | | | | 13.6 | 22.9 | 66.4 | 1.7 | |
| Level of Service | | D | D | | | | | B | C | E | A | |
| Approach Delay (s) | | 46.7 | | | 0.0 | | | 15.4 | | | 12.2 | |
| Approach LOS | | D | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 160 | 230 | 170 | 460 | 160 | 670 | 1370 | 110 | 40 | 1000 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | 4.0 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 4.0 | 4.0 | 5.3 | |
| Lane Util. Factor | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3610 | 2842 | 3502 | 3610 | 1587 | 3502 | 5187 | 1615 | 3502 | 5170 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3610 | 2842 | 3502 | 3610 | 1587 | 3502 | 5187 | 1615 | 3502 | 5170 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 30 | 160 | 230 | 170 | 460 | 160 | 670 | 1370 | 110 | 40 | 1000 | 20 |
| RTOR Reduction (vph) | 0 | 0 | 176 | 0 | 0 | 126 | 0 | 0 | 58 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 30 | 160 | 54 | 170 | 460 | 34 | 670 | 1370 | 52 | 40 | 1018 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Over | Prot | | Perm | Prot | | Over | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 3.3 | 15.0 | 23.7 | 9.6 | 21.3 | 21.3 | 23.7 | 54.6 | 9.6 | 3.3 | 34.2 | |
| Effective Green, g (s) | 3.3 | 15.0 | 23.7 | 9.6 | 21.3 | 21.3 | 23.7 | 54.6 | 9.6 | 3.3 | 34.2 | |
| Actuated g/C Ratio | 0.03 | 0.15 | 0.24 | 0.10 | 0.21 | 0.21 | 0.24 | 0.54 | 0.10 | 0.03 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.9 | 4.0 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 4.0 | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 115 | 538 | 669 | 334 | 764 | 336 | 824 | 2812 | 154 | 115 | 1756 | |
| v/s Ratio Prot | 0.01 | 0.04 | 0.02 | c0.05 | c0.13 | | c0.19 | 0.26 | 0.03 | 0.01 | c0.20 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | |
| v/c Ratio | 0.26 | 0.30 | 0.08 | 0.51 | 0.60 | 0.10 | 0.81 | 0.49 | 0.34 | 0.35 | 0.58 | |
| Uniform Delay, d1 | 47.5 | 38.2 | 30.0 | 43.3 | 35.9 | 32.0 | 36.4 | 14.3 | 42.6 | 47.6 | 27.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.2 | 0.3 | 0.1 | 1.2 | 1.3 | 0.1 | 6.2 | 0.6 | 1.3 | 1.8 | 1.4 | |
| Delay (s) | 48.7 | 38.5 | 30.1 | 44.5 | 37.2 | 32.1 | 42.6 | 14.9 | 43.9 | 49.5 | 28.7 | |
| Level of Service | D | D | C | D | D | C | D | B | D | D | C | |
| Approach Delay (s) | | 34.6 | | | 37.8 | | | 25.0 | | | 29.5 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 100.7 | Sum of lost time (s) | 13.3 |
| Intersection Capacity Utilization | 71.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 10 | 10 | 10 | 10 | 50 | 10 | 960 | 10 | 30 | 700 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.88 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1758 | | 1805 | 1662 | | 1805 | 3604 | | 1805 | 3567 | |
| Flt Permitted | 0.72 | 1.00 | | 0.74 | 1.00 | | 0.35 | 1.00 | | 0.28 | 1.00 | |
| Satd. Flow (perm) | 1364 | 1758 | | 1414 | 1662 | | 670 | 3604 | | 528 | 3567 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 120 | 10 | 10 | 10 | 10 | 50 | 10 | 960 | 10 | 30 | 700 | 60 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 120 | 11 | 0 | 10 | 17 | 0 | 10 | 970 | 0 | 30 | 756 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.0 | 15.0 | | 15.0 | 15.0 | | 87.0 | 87.0 | | 87.0 | 87.0 | |
| Effective Green, g (s) | 15.0 | 15.0 | | 15.0 | 15.0 | | 87.0 | 87.0 | | 87.0 | 87.0 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.14 | 0.14 | | 0.79 | 0.79 | | 0.79 | 0.79 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 186 | 240 | | 193 | 227 | | 530 | 2850 | | 418 | 2821 | |
| v/s Ratio Prot | | 0.01 | | | 0.01 | | | c0.27 | | | 0.21 | |
| v/s Ratio Perm | c0.09 | | | 0.01 | | | 0.01 | | | 0.06 | | |
| v/c Ratio | 0.65 | 0.05 | | 0.05 | 0.07 | | 0.02 | 0.34 | | 0.07 | 0.27 | |
| Uniform Delay, d1 | 45.0 | 41.3 | | 41.3 | 41.4 | | 2.4 | 3.3 | | 2.5 | 3.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.81 | 0.73 | | 0.65 | 0.56 | |
| Incremental Delay, d2 | 7.5 | 0.1 | | 0.1 | 0.1 | | 0.1 | 0.3 | | 0.3 | 0.2 | |
| Delay (s) | 52.4 | 41.4 | | 41.4 | 41.6 | | 2.0 | 2.7 | | 2.0 | 1.9 | |
| Level of Service | D | D | | D | D | | A | A | | A | A | |
| Approach Delay (s) | | 50.9 | | | 41.6 | | | 2.7 | | | 1.9 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 46.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 190 | 40 | 60 | 180 | 100 | 60 | 940 | 40 | 40 | 750 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.95 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3516 | | 1805 | 3417 | | 1805 | 3588 | | 1805 | 3558 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3516 | | 1805 | 3417 | | 1805 | 3588 | | 1805 | 3558 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 190 | 40 | 60 | 180 | 100 | 60 | 940 | 40 | 40 | 750 | 80 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 85 | 0 | 0 | 2 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 60 | 210 | 0 | 60 | 195 | 0 | 60 | 978 | 0 | 40 | 825 | 0 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.6 | 11.9 | | 7.6 | 11.9 | | 7.9 | 69.1 | | 5.4 | 66.6 | |
| Effective Green, g (s) | 7.6 | 11.9 | | 7.6 | 11.9 | | 7.9 | 69.1 | | 5.4 | 66.6 | |
| Actuated g/C Ratio | 0.07 | 0.11 | | 0.07 | 0.11 | | 0.07 | 0.63 | | 0.05 | 0.61 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 380 | | 125 | 370 | | 130 | 2254 | | 89 | 2154 | |
| v/s Ratio Prot | c0.03 | c0.06 | | 0.03 | 0.06 | | c0.03 | c0.27 | | 0.02 | 0.23 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.48 | 0.55 | | 0.48 | 0.53 | | 0.46 | 0.43 | | 0.45 | 0.38 | |
| Uniform Delay, d1 | 49.3 | 46.5 | | 49.3 | 46.4 | | 49.0 | 10.5 | | 50.9 | 11.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.70 | 1.93 | |
| Incremental Delay, d2 | 2.9 | 1.7 | | 2.9 | 1.4 | | 2.6 | 0.6 | | 3.5 | 0.5 | |
| Delay (s) | 52.2 | 48.3 | | 52.2 | 47.8 | | 51.6 | 11.1 | | 39.2 | 22.0 | |
| Level of Service | D | D | | D | D | | D | B | | D | C | |
| Approach Delay (s) | | 49.1 | | | 48.5 | | | 13.4 | | | 22.8 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 280 | 130 | 190 | 400 | 290 | 230 | 420 | 140 | 200 | 380 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1615 | 3502 | 3610 | 1587 | 3502 | 3610 | 1615 | 3502 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1615 | 3502 | 3610 | 1587 | 3502 | 3610 | 1615 | 3502 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 210 | 280 | 130 | 190 | 400 | 290 | 230 | 420 | 140 | 200 | 380 | 320 |
| RTOR Reduction (vph) | 0 | 0 | 106 | 0 | 0 | 239 | 0 | 0 | 78 | 0 | 0 | 181 |
| Lane Group Flow (vph) | 210 | 280 | 24 | 190 | 400 | 51 | 230 | 420 | 62 | 200 | 380 | 139 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.6 | 18.8 | 18.8 | 11.0 | 18.2 | 18.2 | 12.2 | 45.4 | 45.4 | 11.3 | 44.5 | 44.5 |
| Effective Green, g (s) | 11.6 | 18.8 | 18.8 | 11.0 | 18.2 | 18.2 | 12.2 | 45.4 | 45.4 | 11.3 | 44.5 | 44.5 |
| Actuated g/C Ratio | 0.11 | 0.18 | 0.18 | 0.11 | 0.18 | 0.18 | 0.12 | 0.44 | 0.44 | 0.11 | 0.43 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 396 | 662 | 296 | 376 | 641 | 282 | 417 | 1599 | 715 | 386 | 1567 | 688 |
| v/s Ratio Prot | c0.06 | 0.08 | | 0.05 | c0.11 | | c0.07 | c0.12 | | 0.06 | 0.11 | |
| v/s Ratio Perm | | | 0.01 | | | 0.03 | | | 0.04 | | | 0.09 |
| v/c Ratio | 0.53 | 0.42 | 0.08 | 0.51 | 0.62 | 0.18 | 0.55 | 0.26 | 0.09 | 0.52 | 0.24 | 0.20 |
| Uniform Delay, d1 | 42.9 | 37.0 | 34.7 | 43.2 | 39.0 | 35.8 | 42.6 | 18.0 | 16.5 | 43.0 | 18.3 | 18.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.4 | 0.1 | 1.1 | 1.9 | 0.3 | 1.6 | 0.4 | 0.2 | 1.2 | 0.4 | 0.7 |
| Delay (s) | 44.2 | 37.5 | 34.8 | 44.3 | 40.9 | 36.1 | 44.2 | 18.4 | 16.8 | 44.2 | 18.7 | 18.6 |
| Level of Service | D | D | C | D | D | D | D | B | B | D | B | B |
| Approach Delay (s) | | 39.2 | | | 40.0 | | | 25.6 | | | 24.4 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 102.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 58.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 190 | 60 | 50 | 400 | 580 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1615 | 1805 | 1615 |
| Flt Permitted | 0.72 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1373 | 3610 | 3610 | 1615 | 1805 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 60 | 50 | 400 | 580 | 180 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 47 |
| Lane Group Flow (vph) | 190 | 60 | 50 | 400 | 580 | 133 |
| Turn Type | Perm | | | pt+ov | | Perm |
| Protected Phases | | 4 | 8 | 8 1 | 1 | |
| Permitted Phases | 4 | | | | | 1 |
| Actuated Green, G (s) | 20.5 | 20.5 | 20.5 | 110.0 | 81.5 | 81.5 |
| Effective Green, g (s) | 20.5 | 20.5 | 20.5 | 110.0 | 81.5 | 81.5 |
| Actuated g/C Ratio | 0.19 | 0.19 | 0.19 | 1.00 | 0.74 | 0.74 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 256 | 673 | 673 | 1615 | 1337 | 1197 |
| v/s Ratio Prot | | 0.02 | 0.01 | 0.25 | c0.32 | |
| v/s Ratio Perm | c0.14 | | | | | 0.08 |
| v/c Ratio | 0.74 | 0.09 | 0.07 | 0.25 | 0.43 | 0.11 |
| Uniform Delay, d1 | 42.3 | 37.0 | 36.9 | 0.0 | 5.4 | 4.0 |
| Progression Factor | 1.00 | 1.00 | 1.77 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 11.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.0 |
| Delay (s) | 53.3 | 37.1 | 65.3 | 0.1 | 5.7 | 4.1 |
| Level of Service | D | D | E | A | A | A |
| Approach Delay (s) | | 49.4 | 7.3 | | 5.3 | |
| Approach LOS | | D | A | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 56.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 100 | 540 | 150 | 390 | 0 | 0 | 0 | 0 | 10 | 20 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.98 | 1.00 |
| Satd. Flow (prot) | | 3610 | 1615 | 1805 | 3610 | | | | | | 1869 | 1615 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.98 | 1.00 |
| Satd. Flow (perm) | | 3610 | 1615 | 1805 | 3610 | | | | | | 1869 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 100 | 540 | 150 | 390 | 0 | 0 | 0 | 0 | 10 | 20 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 0 | 100 | 540 | 150 | 390 | 0 | 0 | 0 | 0 | 0 | 30 | 41 |
| Turn Type | | | Free | Prot | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | 3 | 8 | | | | | | 6 | |
| Permitted Phases | | | Free | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 8.5 | 110.0 | 14.5 | 27.0 | | | | | | 75.0 | 75.0 |
| Effective Green, g (s) | | 8.5 | 110.0 | 14.5 | 27.0 | | | | | | 75.0 | 75.0 |
| Actuated g/C Ratio | | 0.08 | 1.00 | 0.13 | 0.25 | | | | | | 0.68 | 0.68 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 279 | 1615 | 238 | 886 | | | | | | 1274 | 1101 |
| v/s Ratio Prot | | 0.03 | | c0.08 | c0.11 | | | | | | | |
| v/s Ratio Perm | | | c0.33 | | | | | | | | 0.02 | 0.03 |
| v/c Ratio | | 0.36 | 0.33 | 0.63 | 0.44 | | | | | | 0.02 | 0.04 |
| Uniform Delay, d1 | | 48.2 | 0.0 | 45.2 | 35.1 | | | | | | 5.7 | 5.7 |
| Progression Factor | | 1.10 | 1.00 | 1.14 | 1.35 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.7 | 0.5 | 5.3 | 0.3 | | | | | | 0.0 | 0.1 |
| Delay (s) | | 53.9 | 0.5 | 56.6 | 47.7 | | | | | | 5.7 | 5.8 |
| Level of Service | | D | A | E | D | | | | | | A | A |
| Approach Delay (s) | | 8.9 | | | 50.2 | | | 0.0 | | | 5.7 | |
| Approach LOS | | A | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 4.0 |
| Intersection Capacity Utilization | 36.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 70 | 0 | 0 | 220 | 80 | 310 | 110 | 190 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | | | 3610 | 1615 | 1805 | 1900 | 1615 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | | | 3610 | 1615 | 1805 | 1900 | 1615 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 70 | 0 | 0 | 220 | 80 | 310 | 110 | 190 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 71 | 0 | 0 | 51 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 40 | 70 | 0 | 0 | 220 | 9 | 310 | 110 | 139 | 0 | 0 | 0 |
| Turn Type | Prot | | | | | Perm | Perm | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | | | | | | 8 | 2 | | 2 | | | |
| Actuated Green, G (s) | 5.5 | 21.7 | | | 12.2 | 12.2 | 80.3 | 80.3 | 80.3 | | | |
| Effective Green, g (s) | 5.5 | 21.7 | | | 12.2 | 12.2 | 80.3 | 80.3 | 80.3 | | | |
| Actuated g/C Ratio | 0.05 | 0.20 | | | 0.11 | 0.11 | 0.73 | 0.73 | 0.73 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 90 | 712 | | | 400 | 179 | 1318 | 1387 | 1179 | | | |
| v/s Ratio Prot | c0.02 | 0.02 | | | c0.06 | | | 0.06 | | | | |
| v/s Ratio Perm | | | | | | 0.01 | c0.17 | | 0.09 | | | |
| v/c Ratio | 0.44 | 0.10 | | | 0.55 | 0.05 | 0.24 | 0.08 | 0.12 | | | |
| Uniform Delay, d1 | 50.8 | 36.1 | | | 46.3 | 43.7 | 4.8 | 4.3 | 4.4 | | | |
| Progression Factor | 1.88 | 0.52 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 3.5 | 0.1 | | | 1.6 | 0.1 | 0.4 | 0.1 | 0.2 | | | |
| Delay (s) | 99.0 | 18.8 | | | 47.9 | 43.8 | 5.3 | 4.4 | 4.6 | | | |
| Level of Service | F | B | | | D | D | A | A | A | | | |
| Approach Delay (s) | | 47.9 | | | 46.8 | | | 4.9 | | | 0.0 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.29 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 36.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 10 | 20 | 80 | 10 | 180 | 20 | 290 | 30 | 110 | 560 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.90 | | 1.00 | 0.86 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4668 | | 1805 | 4450 | | 1805 | 3559 | | 1805 | 3535 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4668 | | 1805 | 4450 | | 1805 | 3559 | | 1805 | 3535 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 10 | 20 | 80 | 10 | 180 | 20 | 290 | 30 | 110 | 560 | 90 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 167 | 0 | 0 | 4 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 50 | 11 | 0 | 80 | 23 | 0 | 20 | 316 | 0 | 110 | 644 | 0 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.3 | 4.8 | | 10.3 | 7.8 | | 3.2 | 66.9 | | 12.0 | 75.7 | |
| Effective Green, g (s) | 7.3 | 4.8 | | 10.3 | 7.8 | | 3.2 | 66.9 | | 12.0 | 75.7 | |
| Actuated g/C Ratio | 0.07 | 0.04 | | 0.09 | 0.07 | | 0.03 | 0.61 | | 0.11 | 0.69 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 120 | 204 | | 169 | 316 | | 53 | 2165 | | 197 | 2433 | |
| v/s Ratio Prot | 0.03 | 0.00 | | c0.04 | c0.01 | | 0.01 | 0.09 | | c0.06 | c0.18 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.42 | 0.05 | | 0.47 | 0.07 | | 0.38 | 0.15 | | 0.56 | 0.26 | |
| Uniform Delay, d1 | 49.3 | 50.4 | | 47.3 | 47.7 | | 52.4 | 9.3 | | 46.5 | 6.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.3 | 0.1 | | 2.1 | 0.1 | | 4.5 | 0.1 | | 3.4 | 0.3 | |
| Delay (s) | 51.6 | 50.5 | | 49.4 | 47.8 | | 56.9 | 9.4 | | 49.9 | 6.8 | |
| Level of Service | D | D | | D | D | | E | A | | D | A | |
| Approach Delay (s) | | 51.2 | | | 48.3 | | | 12.2 | | | 13.0 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.30 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 42.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 0 | 10 | 10 | 50 | 20 | 380 | 0 | 0 | 100 | 370 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 10 | 10 | 50 | 20 | 380 | 0 | 0 | 100 | 370 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 760 | 705 | 285 | 705 | 890 | 380 | 470 | | | 380 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 760 | 705 | 285 | 705 | 890 | 380 | 470 | | | 380 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 97 | 96 | 93 | 98 | | | 100 | | |
| cM capacity (veh/h) | 289 | 357 | 759 | 349 | 279 | 671 | 1102 | | | 1190 | | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 70 | 400 | 470 |
| Volume Left | 10 | 20 | 0 |
| Volume Right | 50 | 0 | 370 |
| cSH | 504 | 1102 | 1700 |
| Volume to Capacity | 0.14 | 0.02 | 0.28 |
| Queue Length 95th (ft) | 12 | 1 | 0 |
| Control Delay (s) | 13.3 | 0.6 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 13.3 | 0.6 | 0.0 |
| Approach LOS | B | | |

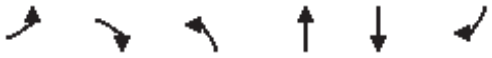
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.2 | | | |
| Intersection Capacity Utilization | 47.1% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 270 | 10 | 10 | 0 | 0 | 0 | 0 | 120 | 10 | 40 | 60 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 270 | 10 | 10 | 0 | 0 | 0 | 0 | 120 | 10 | 40 | 60 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 265 | 270 | 60 | 280 | 265 | 125 | 60 | | | 130 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 265 | 270 | 60 | 280 | 265 | 125 | 60 | | | 130 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 60 | 98 | 99 | 100 | 100 | 100 | 100 | | | 97 | | |
| cM capacity (veh/h) | 677 | 622 | 1011 | 648 | 626 | 931 | 1556 | | | 1468 | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 270 | 20 | 130 | 100 |
| Volume Left | 270 | 0 | 0 | 40 |
| Volume Right | 0 | 10 | 10 | 0 |
| cSH | 677 | 770 | 1700 | 1468 |
| Volume to Capacity | 0.40 | 0.03 | 0.08 | 0.03 |
| Queue Length 95th (ft) | 48 | 2 | 0 | 2 |
| Control Delay (s) | 13.8 | 9.8 | 0.0 | 3.1 |
| Lane LOS | B | A | | A |
| Approach Delay (s) | 13.5 | | 0.0 | 3.1 |
| Approach LOS | B | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 8.1 | | | |
| Intersection Capacity Utilization | 37.3% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 340 | 100 | 110 | 940 | 740 | 290 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 340 | 100 | 110 | 940 | 740 | 290 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1435 | 375 | 1030 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1435 | 375 | 1030 | | | |
| tC, single (s) | 6.8 | 6.9 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 0 | 84 | 84 | | | |
| cM capacity (veh/h) | 106 | 626 | 682 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 440 | 110 | 470 | 470 | 370 | 370 | 290 |
| Volume Left | 340 | 110 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 100 | 0 | 0 | 0 | 0 | 0 | 290 |
| cSH | 131 | 682 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 3.37 | 0.16 | 0.28 | 0.28 | 0.22 | 0.22 | 0.17 |
| Queue Length 95th (ft) | Err | 14 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | Err | 11.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | B | | | | | |
| Approach Delay (s) | Err | 1.2 | | | 0.0 | | |
| Approach LOS | F | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1746.3 | | |
| Intersection Capacity Utilization | 61.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 20 | 660 | 0 | 0 | 480 | 430 | 440 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 20 | 660 | 0 | 0 | 480 | 430 | 440 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 915 | | | 665 | | | 950 | 1620 | 340 | 860 | 1190 | 250 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 915 | | | 665 | | | 950 | 1620 | 340 | 860 | 1190 | 250 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 97 | | | 100 | | | 0 | 100 | 100 | 100 | 100 | 100 |
| cM capacity (veh/h) | 754 | | | 930 | | | 211 | 101 | 656 | 246 | 183 | 753 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 20 | 330 | 330 | 240 | 240 | 430 | 440 |
| Volume Left | 20 | 0 | 0 | 0 | 0 | 0 | 440 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 430 | 0 |
| cSH | 754 | 1700 | 1700 | 1700 | 1700 | 1700 | 209 |
| Volume to Capacity | 0.03 | 0.19 | 0.19 | 0.14 | 0.14 | 0.25 | 2.10 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 0 | 0 | 844 |
| Control Delay (s) | 9.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 549.8 |
| Lane LOS | A | | | | | | F |
| Approach Delay (s) | 0.3 | | | 0.0 | | | 549.8 |
| Approach LOS | | | | | | | F |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 119.3 | | |
| Intersection Capacity Utilization | 85.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 260 | 770 | 20 | 950 | 0 | 0 | 0 | 0 | 440 | 0 | 20 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 260 | 770 | 20 | 950 | 0 | 0 | 0 | 0 | 440 | 0 | 20 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 955 | | | 1035 | | | 795 | 1260 | 140 | 1130 | 2030 | 485 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 955 | | | 1035 | | | 795 | 1260 | 140 | 1130 | 2030 | 485 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 97 | | | 100 | 100 | 100 | 0 | 100 | 96 |
| cM capacity (veh/h) | 725 | | | 679 | | | 263 | 166 | 885 | 156 | 56 | 529 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 130 | 130 | 770 | 20 | 475 | 475 | 460 |
| Volume Left | 0 | 0 | 0 | 20 | 0 | 0 | 440 |
| Volume Right | 0 | 0 | 770 | 0 | 0 | 0 | 20 |
| cSH | 1700 | 1700 | 1700 | 679 | 1700 | 1700 | 161 |
| Volume to Capacity | 0.08 | 0.08 | 0.45 | 0.03 | 0.28 | 0.28 | 2.86 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 2 | 0 | 0 | 1039 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 10.5 | 0.0 | 0.0 | 899.3 |
| Lane LOS | | | | B | | | F |
| Approach Delay (s) | 0.0 | | | 0.2 | | | 899.3 |
| Approach LOS | | | | | | | F |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 168.2 | | | |
| Intersection Capacity Utilization | 85.4% | ICU Level of Service | E | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 290 | 250 | 50 | 100 | 350 | 420 | 270 | 2020 | 370 | 750 | 2450 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1599 | 3502 | 3610 | 1603 | 3502 | 5187 | 1590 | 3502 | 5187 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1599 | 3502 | 3610 | 1603 | 3502 | 5187 | 1590 | 3502 | 5187 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 290 | 250 | 50 | 100 | 350 | 420 | 270 | 2020 | 370 | 750 | 2450 | 190 |
| RTOR Reduction (vph) | 0 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 115 | 0 | 0 | 47 |
| Lane Group Flow (vph) | 290 | 250 | 42 | 100 | 350 | 419 | 270 | 2020 | 255 | 750 | 2450 | 143 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.0 | 16.8 | 26.8 | 7.0 | 15.8 | 34.8 | 10.0 | 51.0 | 51.0 | 19.0 | 60.0 | 60.0 |
| Effective Green, g (s) | 8.0 | 16.8 | 26.8 | 7.0 | 15.8 | 34.8 | 10.0 | 51.0 | 51.0 | 19.0 | 60.0 | 60.0 |
| Actuated g/C Ratio | 0.07 | 0.15 | 0.24 | 0.06 | 0.14 | 0.32 | 0.09 | 0.46 | 0.46 | 0.17 | 0.55 | 0.55 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 255 | 552 | 449 | 223 | 519 | 566 | 319 | 2409 | 739 | 606 | 2834 | 869 |
| v/s Ratio Prot | c0.08 | 0.07 | 0.01 | 0.03 | 0.10 | c0.13 | 0.08 | 0.39 | | c0.21 | c0.47 | |
| v/s Ratio Perm | | | 0.02 | | | 0.13 | | | 0.16 | | | 0.09 |
| v/c Ratio | 1.14 | 0.45 | 0.09 | 0.45 | 0.67 | 0.74 | 0.85 | 0.84 | 0.35 | 1.24 | 0.86 | 0.16 |
| Uniform Delay, d1 | 50.9 | 42.3 | 32.1 | 49.5 | 44.6 | 33.5 | 49.1 | 25.8 | 18.8 | 45.4 | 21.4 | 12.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 98.5 | 0.6 | 0.1 | 1.4 | 3.5 | 5.2 | 18.3 | 2.7 | 0.3 | 120.6 | 3.0 | 0.1 |
| Delay (s) | 149.4 | 42.9 | 32.2 | 51.0 | 48.0 | 38.7 | 67.4 | 28.5 | 19.0 | 166.0 | 24.4 | 12.5 |
| Level of Service | F | D | C | D | D | D | E | C | B | F | C | B |
| Approach Delay (s) | | 94.3 | | | 43.8 | | | 31.1 | | | 55.1 | |
| Approach LOS | | F | | | D | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.94 | | |
| Actuated Cycle Length (s) | 109.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 96.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 30 | 30 | 70 | 440 | 1060 | 0 | 0 | 880 | 1100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.98 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1854 | 1615 | 1805 | 3610 | | | 3610 | 1615 |
| Flt Permitted | | | | | 0.98 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1854 | 1615 | 1805 | 3610 | | | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 30 | 30 | 70 | 440 | 1060 | 0 | 0 | 880 | 1100 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 268 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 60 | 5 | 440 | 1060 | 0 | 0 | 880 | 832 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | | 7.3 | 7.3 | 29.1 | 86.3 | | | 53.2 | 53.2 |
| Effective Green, g (s) | | | | | 7.3 | 7.3 | 29.1 | 86.3 | | | 53.2 | 53.2 |
| Actuated g/C Ratio | | | | | 0.07 | 0.07 | 0.29 | 0.85 | | | 0.52 | 0.52 |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 133 | 116 | 517 | 3066 | | | 1890 | 846 |
| v/s Ratio Prot | | | | | | | c0.24 | 0.29 | | | 0.24 | |
| v/s Ratio Perm | | | | | 0.03 | 0.00 | | | | | | c0.52 |
| v/c Ratio | | | | | 0.45 | 0.04 | 0.85 | 0.35 | | | 0.47 | 0.98 |
| Uniform Delay, d1 | | | | | 45.2 | 43.9 | 34.2 | 1.6 | | | 15.2 | 23.8 |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 2.4 | 0.2 | 12.7 | 0.1 | | | 0.2 | 26.8 |
| Delay (s) | | | | | 47.7 | 44.1 | 46.9 | 1.7 | | | 15.4 | 50.5 |
| Level of Service | | | | | D | D | D | A | | | B | D |
| Approach Delay (s) | | 0.0 | | | 45.7 | | | 15.0 | | | 34.9 | |
| Approach LOS | | A | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 101.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 108.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 520 | 90 | 190 | 0 | 0 | 0 | 0 | 980 | 170 | 280 | 620 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.97 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1743 | 1615 | | | | | 3610 | 1615 | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.97 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1743 | 1615 | | | | | 3610 | 1615 | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 520 | 90 | 190 | 0 | 0 | 0 | 0 | 980 | 170 | 280 | 620 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 137 | 0 | 0 | 0 | 0 | 0 | 111 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 302 | 308 | 53 | 0 | 0 | 0 | 0 | 980 | 59 | 280 | 620 | 0 |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 20.5 | 20.5 | 20.5 | | | | | 25.4 | 25.4 | 15.2 | 44.6 | |
| Effective Green, g (s) | 20.5 | 20.5 | 20.5 | | | | | 25.4 | 25.4 | 15.2 | 44.6 | |
| Actuated g/C Ratio | 0.28 | 0.28 | 0.28 | | | | | 0.35 | 0.35 | 0.21 | 0.61 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 481 | 489 | 453 | | | | | 1254 | 561 | 375 | 2203 | |
| v/s Ratio Prot | | | | | | | | c0.27 | | c0.16 | 0.17 | |
| v/s Ratio Perm | 0.18 | 0.18 | 0.03 | | | | | | 0.04 | | | |
| v/c Ratio | 0.63 | 0.63 | 0.12 | | | | | 0.78 | 0.11 | 0.75 | 0.28 | |
| Uniform Delay, d1 | 23.0 | 23.0 | 19.6 | | | | | 21.4 | 16.2 | 27.1 | 6.7 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.6 | 2.5 | 0.1 | | | | | 3.2 | 0.1 | 7.9 | 0.1 | |
| Delay (s) | 25.5 | 25.5 | 19.7 | | | | | 24.6 | 16.2 | 35.0 | 6.8 | |
| Level of Service | C | C | B | | | | | C | B | D | A | |
| Approach Delay (s) | | 24.1 | | | 0.0 | | | 23.4 | | | 15.6 | |
| Approach LOS | | C | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 73.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 108.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 550 | 330 | 220 | 760 | 10 | 290 | 30 | 70 | 30 | 50 | 10 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 550 | 330 | 220 | 760 | 10 | 290 | 30 | 70 | 30 | 50 | 10 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 560 | 330 | 220 | 770 | 290 | 100 | 90 |
| Volume Left (vph) | 10 | 0 | 220 | 0 | 290 | 0 | 30 |
| Volume Right (vph) | 0 | 330 | 0 | 10 | 0 | 70 | 10 |
| Hadj (s) | 0.01 | -0.70 | 0.50 | -0.01 | 0.50 | -0.49 | 0.00 |
| Departure Headway (s) | 7.7 | 7.0 | 8.3 | 7.8 | 8.9 | 8.0 | 9.3 |
| Degree Utilization, x | 1.20 | 0.64 | 0.51 | 1.66 | 0.72 | 0.22 | 0.23 |
| Capacity (veh/h) | 457 | 499 | 427 | 467 | 394 | 442 | 376 |
| Control Delay (s) | 134.7 | 20.7 | 18.3 | 327.1 | 30.6 | 12.0 | 15.0 |
| Approach Delay (s) | 92.4 | | 258.5 | | 25.8 | | 15.0 |
| Approach LOS | F | | F | | D | | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 148.1 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 102.8% | ICU Level of Service | | G |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 450 | 100 | 280 | 660 | 230 | 110 | 330 | 140 | 360 | 700 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3500 | | 1801 | 1710 | 1436 | 1805 | 3431 | | 1805 | 3451 | |
| Flt Permitted | 0.18 | 1.00 | | 0.39 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 344 | 3500 | | 735 | 1710 | 1436 | 1805 | 3431 | | 1805 | 3451 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 450 | 100 | 280 | 660 | 230 | 110 | 330 | 140 | 360 | 700 | 230 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 0 | 43 | 0 | 45 | 0 | 0 | 31 | 0 |
| Lane Group Flow (vph) | 140 | 534 | 0 | 280 | 660 | 187 | 110 | 425 | 0 | 360 | 899 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 0 | 0 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 49.2 | 49.2 | | 49.2 | 49.2 | 70.3 | 8.8 | 21.6 | | 21.1 | 33.9 | |
| Effective Green, g (s) | 49.2 | 49.2 | | 49.2 | 49.2 | 70.3 | 8.8 | 21.6 | | 21.1 | 33.9 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.47 | 0.47 | 0.68 | 0.08 | 0.21 | | 0.20 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 163 | 1657 | | 348 | 810 | 1027 | 153 | 713 | | 367 | 1126 | |
| v/s Ratio Prot | | 0.15 | | | 0.39 | 0.04 | 0.06 | 0.12 | | c0.20 | c0.26 | |
| v/s Ratio Perm | c0.41 | | | 0.38 | | 0.09 | | | | | | |
| v/c Ratio | 0.86 | 0.32 | | 0.80 | 0.81 | 0.18 | 0.72 | 0.60 | | 0.98 | 0.80 | |
| Uniform Delay, d1 | 24.3 | 17.0 | | 23.3 | 23.4 | 6.2 | 46.3 | 37.2 | | 41.2 | 31.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 33.5 | 0.1 | | 12.7 | 6.3 | 0.1 | 14.9 | 1.3 | | 41.7 | 4.0 | |
| Delay (s) | 57.7 | 17.1 | | 35.9 | 29.8 | 6.3 | 61.3 | 38.5 | | 82.9 | 35.9 | |
| Level of Service | E | B | | D | C | A | E | D | | F | D | |
| Approach Delay (s) | | 25.3 | | | 26.6 | | | 42.9 | | | 49.0 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 103.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 90.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 340 | 460 | 50 | 420 | 1140 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1800 | 1900 |
| Total Lost time (s) | 5.0 | | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 0.95 | | | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Frt | 0.91 | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | | 0.99 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3266 | | | 3590 | 1710 | 1615 |
| Flt Permitted | 1.00 | | | 0.58 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3266 | | | 2097 | 1710 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 340 | 460 | 50 | 420 | 1140 | 10 |
| RTOR Reduction (vph) | 227 | 0 | 0 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 573 | 0 | 0 | 470 | 1140 | 7 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Perm | | | Prot |
| Protected Phases | 4 | | | 8 | 2 | 2 |
| Permitted Phases | | | 8 | | | |
| Actuated Green, G (s) | 26.4 | | | 26.4 | 71.1 | 71.1 |
| Effective Green, g (s) | 26.4 | | | 26.4 | 71.1 | 71.1 |
| Actuated g/C Ratio | 0.25 | | | 0.25 | 0.66 | 0.66 |
| Clearance Time (s) | 5.0 | | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 802 | | | 515 | 1131 | 1068 |
| v/s Ratio Prot | 0.18 | | | | c0.67 | 0.00 |
| v/s Ratio Perm | | | | c0.22 | | |
| v/c Ratio | 0.71 | | | 0.91 | 1.01 | 0.01 |
| Uniform Delay, d1 | 37.1 | | | 39.4 | 18.2 | 6.2 |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.0 | | | 20.5 | 28.7 | 0.0 |
| Delay (s) | 40.1 | | | 60.0 | 46.9 | 6.2 |
| Level of Service | D | | | E | D | A |
| Approach Delay (s) | 40.1 | | | 60.0 | 46.6 | |
| Approach LOS | D | | | E | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 107.5 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 116.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 350 | 0 | 10 | 660 | 250 | 10 | 20 | 0 | 360 | 10 | 40 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 30 | 350 | 0 | 10 | 660 | 250 | 10 | 20 | 0 | 360 | 10 | 40 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 205 | 175 | 340 | 580 | 30 | 410 |
| Volume Left (vph) | 30 | 0 | 10 | 0 | 10 | 360 |
| Volume Right (vph) | 0 | 0 | 0 | 250 | 0 | 40 |
| Hadj (s) | 0.07 | 0.00 | 0.01 | -0.30 | 0.07 | 0.12 |
| Departure Headway (s) | 7.5 | 7.4 | 6.9 | 6.6 | 8.1 | 6.7 |
| Degree Utilization, x | 0.43 | 0.36 | 0.65 | 1.06 | 0.07 | 0.77 |
| Capacity (veh/h) | 465 | 473 | 514 | 555 | 402 | 410 |
| Control Delay (s) | 14.7 | 13.3 | 20.8 | 80.2 | 11.7 | 28.4 |
| Approach Delay (s) | 14.1 | | 58.3 | | 11.7 | 28.4 |
| Approach LOS | B | | F | | B | D |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 40.8 | | | |
| HCM Level of Service | E | | | |
| Intersection Capacity Utilization | 69.8% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 640 | 20 | 10 | 840 | 80 | 20 | 10 | 10 | 250 | 10 | 60 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 20 | 640 | 20 | 10 | 840 | 80 | 20 | 10 | 10 | 250 | 10 | 60 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 680 | 930 | 40 | 250 | 70 |
| Volume Left (vph) | 20 | 10 | 20 | 250 | 0 |
| Volume Right (vph) | 20 | 80 | 10 | 0 | 60 |
| Hadj (s) | -0.01 | -0.05 | -0.05 | 0.50 | -0.60 |
| Departure Headway (s) | 6.4 | 6.3 | 8.6 | 8.3 | 7.2 |
| Degree Utilization, x | 1.20 | 1.63 | 0.10 | 0.58 | 0.14 |
| Capacity (veh/h) | 562 | 575 | 399 | 427 | 493 |
| Control Delay (s) | 128.6 | 309.6 | 12.5 | 20.7 | 10.1 |
| Approach Delay (s) | 128.6 | 309.6 | 12.5 | 18.4 | |
| Approach LOS | F | F | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 193.8 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 80.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 100 | 810 | 60 | 120 | 810 | 50 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 100 | 810 | 60 | 120 | 810 | 50 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 910 | 180 | 860 |
| Volume Left (vph) | 0 | 60 | 810 |
| Volume Right (vph) | 810 | 0 | 50 |
| Hadj (s) | -0.53 | 0.07 | 0.15 |
| Departure Headway (s) | 5.7 | 7.1 | 6.4 |
| Degree Utilization, x | 1.43 | 0.35 | 1.52 |
| Capacity (veh/h) | 639 | 505 | 571 |
| Control Delay (s) | 220.9 | 13.8 | 259.9 |
| Approach Delay (s) | 220.9 | 13.8 | 259.9 |
| Approach LOS | F | B | F |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 219.0 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 114.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 50 | 30 | 260 | 120 | 120 | 270 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 50 | 30 | 260 | 120 | 120 | 270 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 80 | | 705 | 65 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 80 | | 705 | 65 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 83 | | 64 | 73 |
| cM capacity (veh/h) | | | 1531 | | 337 | 1005 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 80 | 380 | 390 |
| Volume Left | 0 | 260 | 120 |
| Volume Right | 30 | 0 | 270 |
| cSH | 1700 | 1531 | 624 |
| Volume to Capacity | 0.05 | 0.17 | 0.62 |
| Queue Length 95th (ft) | 0 | 15 | 109 |
| Control Delay (s) | 0.0 | 5.8 | 19.9 |
| Lane LOS | | A | C |
| Approach Delay (s) | 0.0 | 5.8 | 19.9 |
| Approach LOS | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 11.7 | | |
| Intersection Capacity Utilization | 57.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 10 | 10 | 70 | 10 | 10 | 10 | 290 | 40 | 10 | 300 | 10 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 20 | 10 | 10 | 70 | 10 | 10 | 10 | 290 | 40 | 10 | 300 | 10 |

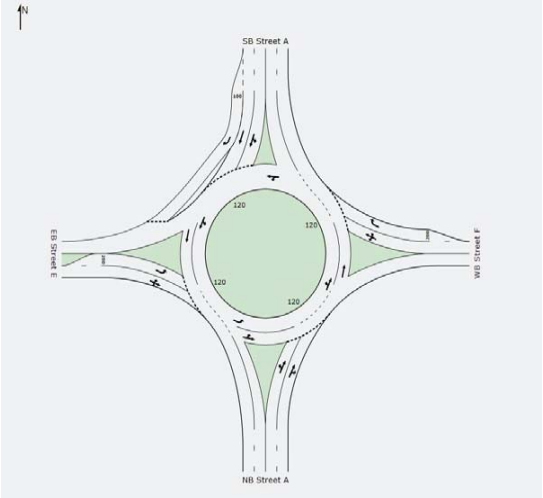
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 40 | 90 | 340 | 320 |
| Volume Left (vph) | 20 | 70 | 10 | 10 |
| Volume Right (vph) | 10 | 10 | 40 | 10 |
| Hadj (s) | -0.05 | 0.09 | -0.06 | -0.01 |
| Departure Headway (s) | 5.5 | 5.6 | 4.6 | 4.7 |
| Degree Utilization, x | 0.06 | 0.14 | 0.43 | 0.41 |
| Capacity (veh/h) | 559 | 570 | 757 | 742 |
| Control Delay (s) | 8.9 | 9.5 | 11.1 | 10.9 |
| Approach Delay (s) | 8.9 | 9.5 | 11.1 | 10.9 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 10.7 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 36.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

**Title:** Intersection 1 - 2035 Plus Build-out - PM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street A | | | | | | | | | | |
| Lane 1 | 584 | 0.0 | 445 | 1.312 | 100 | 165.2 | LOS F | 54.8 | 1368.8 | 0.6 |
| Lane 2 | 676 | 0.0 | 515 | 1.312 | 100 | 163.6 | LOS F | 62.5 | 1562.7 | 4.3 |
| Approach | 1260 | 0.0 | | 1.312 | | 164.4 | LOS F | 62.5 | 1562.7 | |
| East: WB Street F | | | | | | | | | | |
| Lane 1 | 214 | 0.0 | 431 | 0.497 | 100 | 15.6 | LOS B | 2.5 | 61.7 | 0.0 |
| Lane 2 | 266 | 0.0 | 535 | 0.497 | 100 | 13.2 | LOS B | 2.7 | 67.0 | 0.0 |
| Approach | 480 | 0.0 | | 0.497 | | 14.3 | LOS B | 2.7 | 67.0 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 620 | 0.0 | 1378 | 0.450 | 100 | 11.1 | LOS B | 3.4 | 85.6 | 0.0 |
| Lane 2 | 620 | 0.0 | 1378 | 0.450 | 100 | 5.0 | LOS A | 3.4 | 85.6 | 0.0 |
| Lane 3 | 680 | 0.0 | 1056 | 0.644 | 100 | 6.7 | LOS A | 3.6 | 89.7 | 1.9 |
| Approach | 1920 | 0.0 | | 0.644 | | 7.5 | LOS A | 3.6 | 89.7 | |
| West: EB Street E | | | | | | | | | | |
| Lane 1 | 475 | 0.0 | 670 | 0.709 | 100 | 19.8 | LOS B | 4.6 | 114.9 | 0.0 |
| Lane 2 | 535 | 0.0 | 754 | 0.709 | 100 | 18.2 | LOS B | 4.8 | 119.9 | 0.0 |
| Approach | 1010 | 0.0 | | 0.709 | | 19.0 | LOS B | 4.8 | 119.9 | |
| All Vehicles | 4670 | | | 1.312 | | 53.0 | LOS D | 62.5 | 1562.7 | |





| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 120 | 350 | 670 | 40 | 110 | 610 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1900 | 1591 | 3502 | 1900 | 1805 | 1575 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1900 | 1591 | 3502 | 1900 | 1805 | 1575 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 120 | 350 | 670 | 40 | 110 | 610 |
| RTOR Reduction (vph) | 0 | 277 | 0 | 0 | 0 | 474 |
| Lane Group Flow (vph) | 120 | 73 | 670 | 40 | 110 | 136 |
| Confl. Peds. (#/hr) | | 5 | | | 5 | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | 4 | | | | 2 |
| Actuated Green, G (s) | 9.7 | 9.7 | 14.7 | 28.4 | 10.4 | 10.4 |
| Effective Green, g (s) | 9.7 | 9.7 | 14.7 | 28.4 | 10.4 | 10.4 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.31 | 0.61 | 0.22 | 0.22 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 394 | 330 | 1100 | 1153 | 401 | 350 |
| v/s Ratio Prot | c0.06 | | c0.19 | 0.02 | 0.06 | |
| v/s Ratio Perm | | 0.05 | | | | c0.09 |
| v/c Ratio | 0.30 | 0.22 | 0.61 | 0.03 | 0.27 | 0.39 |
| Uniform Delay, d1 | 15.7 | 15.4 | 13.6 | 3.7 | 15.1 | 15.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.3 | 1.0 | 0.0 | 0.4 | 0.7 |
| Delay (s) | 16.1 | 15.7 | 14.6 | 3.7 | 15.4 | 16.2 |
| Level of Service | B | B | B | A | B | B |
| Approach Delay (s) | 15.8 | | | 14.0 | 16.1 | |
| Approach LOS | B | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 46.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 53.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# LANE OUTPUT

*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 3 - 2035 Plus Build-out - PM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 450 | 0.0 | 989 | 0.455 | 84 | 7.5 | LOS A | 3.3 | 82.4 | 0.0 |
| Lane 2 | 580 | 0.0 | 1069 | 0.542 | 100 | 9.2 | LOS A | 4.4 | 109.8 | 0.0 |
| Approach | 1030 | 0.0 | | 0.542 | | 8.4 | LOS A | 4.4 | 109.8 | |
| East: WB Alessandro Blvd | | | | | | | | | | |
| Lane 1 | 360 | 0.0 | 856 | 0.420 | 100 | 14.9 | LOS B | 2.6 | 64.9 | 0.0 |
| Lane 2 | 350 | 0.0 | 856 | 0.409 | 100 | 9.1 | LOS A | 2.5 | 62.5 | 0.0 |
| Approach | 710 | 0.0 | | 0.420 | | 12.1 | LOS B | 2.6 | 64.9 | |
| North: SB Street A | | | | | | | | | | |
| Lane 1 | 260 | 0.0 | 1012 | 0.257 | 100 | 13.8 | LOS B | 1.5 | 37.3 | 0.0 |
| Lane 2 | 200 | 0.0 | 926 | 0.216 | 100 | 7.6 | LOS A | 1.2 | 29.6 | 0.0 |
| Approach | 460 | 0.0 | | 0.257 | | 11.1 | LOS B | 1.5 | 37.3 | |
| All Vehicles | 2200 | | | 0.542 | | 10.2 | LOS B | 4.4 | 109.8 | |



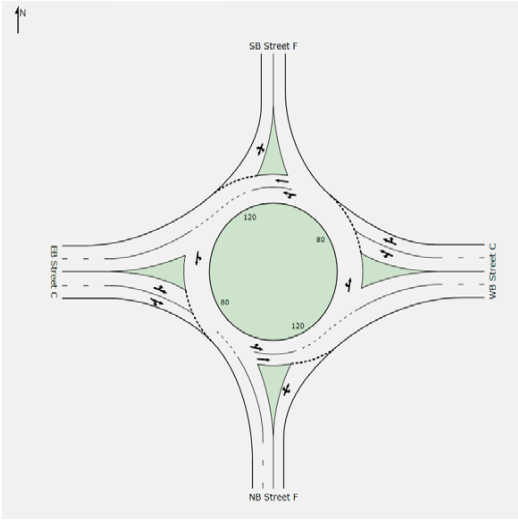
# LANE OUTPUT

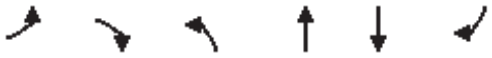
*Use the **Control** sheet to create output data in this sheet. For detailed information, refer to the **Intro** sheet.*

**Title:** Intersection 4 - 2035 Plus Build-out - PM Peak Hour
**Intersection Type:** Roundabout

## Lane Use & Performance

| | Demand Flow veh/h | HV % | Capacity veh/h | Deg. Satn. v/c | Lane Util. % | Average Delay sec | Level of Service | Percentile Back of Queue Vehicles veh | Percentile Back of Queue Distance ft | Prob. Blockage % |
|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Street F | | | | | | | | | | |
| Lane 1 | 560 | 0.0 | 569 | 0.985 | 100 | 43.4 | LOS E | 18.1 | 453.7 | 0.0 |
| Approach | 560 | 0.0 | | 0.985 | | 43.4 | LOS E | 18.1 | 453.7 | |
| East: WB Street C | | | | | | | | | | |
| Lane 1 | 210 | 0.0 | 898 | 0.234 | 100 | 9.9 | LOS A | 1.3 | 33.6 | 0.0 |
| Lane 2 | 220 | 0.0 | 942 | 0.234 | 100 | 7.8 | LOS A | 1.4 | 34.2 | 0.0 |
| Approach | 430 | 0.0 | | 0.234 | | 8.9 | LOS A | 1.4 | 34.2 | |
| North: SB Street F | | | | | | | | | | |
| Lane 1 | 500 | 0.0 | 694 | 0.720 | 100 | 15.8 | LOS C | 5.9 | 147.5 | 0.0 |
| Approach | 500 | 0.0 | | 0.720 | | 15.8 | LOS C | 5.9 | 147.5 | |
| West: EB Street C | | | | | | | | | | |
| Lane 1 | 436 | 0.0 | 998 | 0.437 | 100 | 8.6 | LOS A | 2.8 | 70.7 | 0.0 |
| Lane 2 | 454 | 0.0 | 1039 | 0.437 | 100 | 8.1 | LOS A | 2.9 | 71.6 | 0.0 |
| Approach | 890 | 0.0 | | 0.437 | | 8.3 | LOS A | 2.9 | 71.6 | |
| All Vehicles | 2380 | | | 0.985 | | 18.2 | LOS C | 18.1 | 453.7 | |

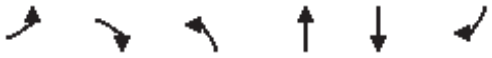




| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 540 | 1090 | 370 | 1720 | 2250 | 360 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.88 | 0.97 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 2792 | 3502 | 5187 | 5187 | 1584 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 2792 | 3502 | 5187 | 5187 | 1584 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 540 | 1090 | 370 | 1720 | 2250 | 360 |
| RTOR Reduction (vph) | 0 | 369 | 0 | 0 | 0 | 126 |
| Lane Group Flow (vph) | 540 | 721 | 370 | 1720 | 2250 | 234 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 32.0 | 32.0 | 15.8 | 67.9 | 48.1 | 48.1 |
| Effective Green, g (s) | 32.0 | 32.0 | 15.8 | 67.9 | 48.1 | 48.1 |
| Actuated g/C Ratio | 0.30 | 0.30 | 0.15 | 0.63 | 0.45 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 535 | 828 | 513 | 3264 | 2312 | 706 |
| v/s Ratio Prot | c0.30 | | c0.11 | 0.33 | c0.43 | |
| v/s Ratio Perm | | 0.26 | | | | 0.15 |
| v/c Ratio | 1.01 | 0.87 | 0.72 | 0.53 | 0.97 | 0.33 |
| Uniform Delay, d1 | 38.0 | 36.0 | 43.9 | 11.1 | 29.3 | 19.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 41.3 | 9.9 | 5.0 | 0.2 | 13.0 | 0.3 |
| Delay (s) | 79.2 | 45.9 | 48.9 | 11.2 | 42.2 | 19.7 |
| Level of Service | E | D | D | B | D | B |
| Approach Delay (s) | 56.9 | | | 17.9 | 39.1 | |
| Approach LOS | E | | | B | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.94 | | |
| Actuated Cycle Length (s) | 107.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 60 | 360 | 220 | 2220 | 2260 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1587 | 1805 | 5187 | 5187 | 1574 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1587 | 1805 | 5187 | 5187 | 1574 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 360 | 220 | 2220 | 2260 | 30 |
| RTOR Reduction (vph) | 0 | 202 | 0 | 0 | 0 | 8 |
| Lane Group Flow (vph) | 60 | 158 | 220 | 2220 | 2260 | 22 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 11.5 | 11.5 | 10.0 | 49.2 | 35.2 | 35.2 |
| Effective Green, g (s) | 11.5 | 11.5 | 10.0 | 49.2 | 35.2 | 35.2 |
| Actuated g/C Ratio | 0.17 | 0.17 | 0.15 | 0.72 | 0.51 | 0.51 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 302 | 266 | 263 | 3715 | 2658 | 806 |
| v/s Ratio Prot | 0.03 | | c0.12 | 0.43 | c0.44 | |
| v/s Ratio Perm | | c0.10 | | | | 0.01 |
| v/c Ratio | 0.20 | 0.59 | 0.84 | 0.60 | 0.85 | 0.03 |
| Uniform Delay, d1 | 24.6 | 26.4 | 28.6 | 4.8 | 14.5 | 8.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.3 | 3.5 | 20.0 | 0.3 | 2.8 | 0.0 |
| Delay (s) | 25.0 | 30.0 | 48.6 | 5.1 | 17.3 | 8.3 |
| Level of Service | C | C | D | A | B | A |
| Approach Delay (s) | 29.2 | | | 9.0 | 17.2 | |
| Approach LOS | C | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 68.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 230 | 0 | 70 | 5 | 5 | 5 | 60 | 720 | 0 | 10 | 1050 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.97 | | | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.96 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1766 | | | 1769 | | 1805 | 1900 | | 1805 | 1900 | 1571 |
| Flt Permitted | | 0.77 | | | 0.91 | | 0.13 | 1.00 | | 0.25 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1405 | | | 1629 | | 241 | 1900 | | 470 | 1900 | 1571 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 230 | 0 | 70 | 5 | 5 | 5 | 60 | 720 | 0 | 10 | 1050 | 170 |
| RTOR Reduction (vph) | 0 | 21 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 58 |
| Lane Group Flow (vph) | 0 | 279 | 0 | 0 | 11 | 0 | 60 | 720 | 0 | 10 | 1050 | 112 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 15.4 | | | 15.4 | | 31.5 | 31.5 | | 31.5 | 31.5 | 31.5 |
| Effective Green, g (s) | | 15.4 | | | 15.4 | | 31.5 | 31.5 | | 31.5 | 31.5 | 31.5 |
| Actuated g/C Ratio | | 0.28 | | | 0.28 | | 0.57 | 0.57 | | 0.57 | 0.57 | 0.57 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 394 | | | 457 | | 138 | 1090 | | 270 | 1090 | 901 |
| v/s Ratio Prot | | | | | | | | 0.38 | | | c0.55 | |
| v/s Ratio Perm | | c0.20 | | | 0.01 | | 0.25 | | | 0.02 | | 0.07 |
| v/c Ratio | | 0.71 | | | 0.02 | | 0.43 | 0.66 | | 0.04 | 0.96 | 0.12 |
| Uniform Delay, d1 | | 17.7 | | | 14.3 | | 6.6 | 8.0 | | 5.1 | 11.1 | 5.4 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 5.7 | | | 0.0 | | 2.2 | 1.5 | | 0.1 | 18.9 | 0.1 |
| Delay (s) | | 23.5 | | | 14.3 | | 8.8 | 9.5 | | 5.2 | 30.1 | 5.4 |
| Level of Service | | C | | | B | | A | A | | A | C | A |
| Approach Delay (s) | | 23.5 | | | 14.3 | | | 9.5 | | | 26.5 | |
| Approach LOS | | C | | | B | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 54.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 85.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 460 | 30 | 230 | 310 | 0 | 20 | 690 | 260 | 480 | 600 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | | 1.00 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3538 | | | 3535 | | 1805 | 3443 | | 1805 | 3610 | 1583 |
| Flt Permitted | | 0.99 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3538 | | | 3535 | | 1805 | 3443 | | 1805 | 3610 | 1583 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 160 | 460 | 30 | 230 | 310 | 0 | 20 | 690 | 260 | 480 | 600 | 140 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 53 |
| Lane Group Flow (vph) | 0 | 647 | 0 | 0 | 540 | 0 | 20 | 919 | 0 | 480 | 600 | 87 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 22.6 | | | 22.9 | | 2.8 | 28.4 | | 30.1 | 55.7 | 55.7 |
| Effective Green, g (s) | | 22.6 | | | 22.9 | | 2.8 | 28.4 | | 30.1 | 55.7 | 55.7 |
| Actuated g/C Ratio | | 0.19 | | | 0.19 | | 0.02 | 0.24 | | 0.25 | 0.46 | 0.46 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 666 | | | 675 | | 42 | 815 | | 453 | 1676 | 735 |
| v/s Ratio Prot | | c0.18 | | | c0.15 | | 0.01 | c0.27 | | c0.27 | 0.17 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.05 |
| v/c Ratio | | 0.97 | | | 0.80 | | 0.48 | 1.13 | | 1.06 | 0.36 | 0.12 |
| Uniform Delay, d1 | | 48.4 | | | 46.4 | | 57.9 | 45.8 | | 45.0 | 20.7 | 18.2 |
| Progression Factor | | 0.67 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 24.1 | | | 6.7 | | 8.3 | 72.7 | | 59.0 | 0.1 | 0.1 |
| Delay (s) | | 56.6 | | | 53.1 | | 66.2 | 118.5 | | 103.9 | 20.8 | 18.3 |
| Level of Service | | E | | | D | | E | F | | F | C | B |
| Approach Delay (s) | | 56.6 | | | 53.1 | | | 117.4 | | | 53.2 | |
| Approach LOS | | E | | | D | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 72.3 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 104.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 750 | 170 | 20 | 280 | 140 |
| Sign Control | Yield | | | Stop | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 750 | 170 | 20 | 280 | 140 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 710 | 5 | 1320 | 570 | 5 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 710 | 5 | 1320 | 570 | 5 | |
| tC, single (s) | 6.5 | 6.2 | 7.1 | 6.5 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.3 | 3.5 | 4.0 | 2.2 | |
| p0 queue free % | 97 | 31 | 0 | 94 | 83 | |
| cM capacity (veh/h) | 296 | 1080 | 35 | 356 | 1623 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|---|
| Volume Total | 10 | 750 | 190 | 280 | 140 |
| Volume Left | 0 | 0 | 170 | 280 | 0 |
| Volume Right | 0 | 750 | 0 | 0 | 140 |
| cSH | 296 | 1080 | 38 | 1623 | 1700 |
| Volume to Capacity | 0.03 | 0.69 | 4.98 | 0.17 | 0.08 |
| Queue Length 95th (ft) | 3 | 149 | Err | 16 | 0 |
| Control Delay (s) | 17.6 | 15.5 | Err | 7.7 | 0.0 |
| Lane LOS | C | C | F | A | |
| Approach Delay (s) | 15.6 | | Err | 5.1 | |
| Approach LOS | C | | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1396.9 | | |
| Intersection Capacity Utilization | 63.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 540 | 10 | 30 | 0 | 870 | 150 | 0 | 450 | 900 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | | | | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.99 |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1800 | 1900 | 1591 | | 3610 | 1579 | | 3610 | 1591 |
| Flt Permitted | | | | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1800 | 1900 | 1591 | | 3610 | 1579 | | 3610 | 1591 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 540 | 10 | 30 | 0 | 870 | 150 | 0 | 450 | 900 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 546 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 540 | 10 | 13 | 0 | 870 | 150 | 0 | 450 | 354 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | | | | Perm | | Perm | | | Free | | | Perm |
| Protected Phases | | | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | Free | | | 6 |
| Actuated Green, G (s) | | | | 18.7 | 18.7 | 18.7 | | 17.3 | 44.0 | | 17.3 | 17.3 |
| Effective Green, g (s) | | | | 18.7 | 18.7 | 18.7 | | 17.3 | 44.0 | | 17.3 | 17.3 |
| Actuated g/C Ratio | | | | 0.42 | 0.42 | 0.42 | | 0.39 | 1.00 | | 0.39 | 0.39 |
| Clearance Time (s) | | | | 4.0 | 4.0 | 4.0 | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | 3.0 | 3.0 | 3.0 | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | 765 | 808 | 676 | | 1419 | 1579 | | 1419 | 626 |
| v/s Ratio Prot | | | | | 0.01 | | | c0.24 | | | 0.12 | |
| v/s Ratio Perm | | | | c0.30 | | 0.01 | | | 0.10 | | | 0.22 |
| v/c Ratio | | | | 0.71 | 0.01 | 0.02 | | 0.61 | 0.09 | | 0.32 | 0.57 |
| Uniform Delay, d1 | | | | 10.4 | 7.3 | 7.3 | | 10.7 | 0.0 | | 9.3 | 10.4 |
| Progression Factor | | | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 3.0 | 0.0 | 0.0 | | 0.8 | 0.1 | | 0.1 | 1.2 |
| Delay (s) | | | | 13.4 | 7.3 | 7.3 | | 11.5 | 0.1 | | 9.4 | 11.6 |
| Level of Service | | | | B | A | A | | B | A | | A | B |
| Approach Delay (s) | | 0.0 | | | 13.0 | | | 9.8 | | | 10.9 | |
| Approach LOS | | A | | | B | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 44.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 71.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

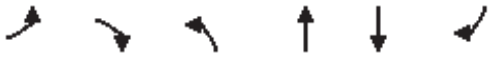
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 0 | 370 | 0 | 0 | 0 | 0 | 1210 | 490 | 0 | 1050 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | | | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 1615 | | | | | 3610 | 1615 | | 3610 | 1615 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 1615 | | | | | 3610 | 1615 | | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 320 | 0 | 370 | 0 | 0 | 0 | 0 | 1210 | 490 | 0 | 1050 | 80 |
| RTOR Reduction (vph) | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 251 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 320 | 0 | 346 | 0 | 0 | 0 | 0 | 1210 | 239 | 0 | 1050 | 80 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | Split | | Perm | | | | | | Perm | | | Free |
| Protected Phases | 4 | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | Free |
| Actuated Green, G (s) | 15.5 | | 15.5 | | | | | 22.4 | 22.4 | | 22.4 | 45.9 |
| Effective Green, g (s) | 15.5 | | 15.5 | | | | | 22.4 | 22.4 | | 22.4 | 45.9 |
| Actuated g/C Ratio | 0.34 | | 0.34 | | | | | 0.49 | 0.49 | | 0.49 | 1.00 |
| Clearance Time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | | | | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 610 | | 545 | | | | | 1762 | 788 | | 1762 | 1615 |
| v/s Ratio Prot | 0.18 | | | | | | | c0.34 | | | 0.29 | |
| v/s Ratio Perm | | | c0.21 | | | | | | 0.15 | | | 0.05 |
| v/c Ratio | 0.52 | | 0.64 | | | | | 0.69 | 0.30 | | 0.60 | 0.05 |
| Uniform Delay, d1 | 12.2 | | 12.8 | | | | | 9.0 | 7.1 | | 8.5 | 0.0 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | | 2.4 | | | | | 1.1 | 0.2 | | 0.5 | 0.1 |
| Delay (s) | 13.1 | | 15.2 | | | | | 10.2 | 7.3 | | 9.0 | 0.1 |
| Level of Service | B | | B | | | | | B | A | | A | A |
| Approach Delay (s) | | 14.2 | | | 0.0 | | | 9.3 | | | 8.4 | |
| Approach LOS | | B | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 45.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 58.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 70 | 450 | 980 | 400 | 750 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.97 | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1591 | 3502 | 5187 | 5187 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1591 | 3502 | 5187 | 5187 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 450 | 980 | 400 | 750 | 170 |
| RTOR Reduction (vph) | 0 | 373 | 0 | 0 | 0 | 124 |
| Lane Group Flow (vph) | 70 | 77 | 980 | 400 | 750 | 46 |
| Confl. Peds. (#/hr) | 5 | 5 | | | | 5 |
| Turn Type | | Perm | Prot | | | Perm |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 9.2 | 9.2 | 18.3 | 36.9 | 14.6 | 14.6 |
| Effective Green, g (s) | 9.2 | 9.2 | 18.3 | 36.9 | 14.6 | 14.6 |
| Actuated g/C Ratio | 0.17 | 0.17 | 0.34 | 0.68 | 0.27 | 0.27 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 307 | 271 | 1185 | 3538 | 1400 | 429 |
| v/s Ratio Prot | 0.04 | | c0.28 | 0.08 | c0.14 | |
| v/s Ratio Perm | | c0.05 | | | | 0.03 |
| v/c Ratio | 0.23 | 0.28 | 0.83 | 0.11 | 0.54 | 0.11 |
| Uniform Delay, d1 | 19.4 | 19.6 | 16.4 | 3.0 | 16.9 | 14.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.6 | 4.9 | 0.0 | 0.4 | 0.1 |
| Delay (s) | 19.8 | 20.1 | 21.3 | 3.0 | 17.3 | 15.0 |
| Level of Service | B | C | C | A | B | B |
| Approach Delay (s) | 20.1 | | | 16.0 | 16.8 | |
| Approach LOS | C | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 54.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 61.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 390 | 0 | 490 | 0 | 0 | 0 | 10 | 980 | 1510 | 0 | 810 | 360 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 0.88 | | | | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 0.99 | | | | | 1.00 | 0.98 | | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | | 0.85 | | | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | | 2804 | | | | | 5184 | 1583 | | 5187 | 1562 |
| Flt Permitted | 0.95 | | 1.00 | | | | | 0.93 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | | 2804 | | | | | 4825 | 1583 | | 5187 | 1562 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 390 | 0 | 490 | 0 | 0 | 0 | 10 | 980 | 1510 | 0 | 810 | 360 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 342 | 0 | 0 | 113 |
| Lane Group Flow (vph) | 390 | 0 | 490 | 0 | 0 | 0 | 0 | 990 | 1168 | 0 | 810 | 247 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | custom | | Free | | | | Perm | | Perm | | | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | Free | | | | 2 | | 2 | | | 6 |
| Actuated Green, G (s) | 28.5 | | 116.6 | | | | | 80.1 | 80.1 | | 80.1 | 80.1 |
| Effective Green, g (s) | 28.5 | | 116.6 | | | | | 80.1 | 80.1 | | 80.1 | 80.1 |
| Actuated g/C Ratio | 0.24 | | 1.00 | | | | | 0.69 | 0.69 | | 0.69 | 0.69 |
| Clearance Time (s) | 4.0 | | | | | | | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 441 | | 2804 | | | | | 3315 | 1087 | | 3563 | 1073 |
| v/s Ratio Prot | | | | | | | | | | | 0.16 | |
| v/s Ratio Perm | c0.22 | | 0.17 | | | | | 0.21 | c0.74 | | | 0.16 |
| v/c Ratio | 0.88 | | 0.17 | | | | | 0.30 | 1.07 | | 0.23 | 0.23 |
| Uniform Delay, d1 | 42.5 | | 0.0 | | | | | 7.2 | 18.2 | | 6.8 | 6.8 |
| Progression Factor | 1.00 | | 1.00 | | | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 18.6 | | 0.1 | | | | | 0.1 | 49.8 | | 0.0 | 0.1 |
| Delay (s) | 61.0 | | 0.1 | | | | | 7.2 | 68.1 | | 6.8 | 6.9 |
| Level of Service | E | | A | | | | | A | E | | A | A |
| Approach Delay (s) | | 27.1 | | | 0.0 | | | 44.0 | | | 6.8 | |
| Approach LOS | | C | | | A | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 116.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 97.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 450 | 30 | 160 | 330 | 60 | 330 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 450 | 30 | 160 | 330 | 60 | 330 |
| Pedestrians | 5 | | | 5 | 5 | |
| Lane Width (ft) | 12.0 | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | 4.0 | |
| Percent Blockage | 0 | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 485 | | 960 | 250 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 485 | | 960 | 250 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 85 | | 72 | 56 |
| cM capacity (veh/h) | | | 1084 | | 218 | 750 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 | NB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 300 | 180 | 160 | 165 | 165 | 60 | 330 |
| Volume Left | 0 | 0 | 160 | 0 | 0 | 60 | 0 |
| Volume Right | 0 | 30 | 0 | 0 | 0 | 0 | 330 |
| cSH | 1700 | 1700 | 1084 | 1700 | 1700 | 218 | 750 |
| Volume to Capacity | 0.18 | 0.11 | 0.15 | 0.10 | 0.10 | 0.28 | 0.44 |
| Queue Length 95th (ft) | 0 | 0 | 13 | 0 | 0 | 27 | 57 |
| Control Delay (s) | 0.0 | 0.0 | 8.9 | 0.0 | 0.0 | 27.6 | 13.5 |
| Lane LOS | | | A | | | D | B |
| Approach Delay (s) | 0.0 | | 2.9 | | | 15.7 | |
| Approach LOS | | | | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.5 | | |
| Intersection Capacity Utilization | 41.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 340 | 350 | 90 | 250 | 210 | 910 | 60 | 250 | 250 | 900 | 250 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3487 | | 1805 | 3610 | 1615 | 1805 | 3610 | 1615 | 3502 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3487 | | 1805 | 3610 | 1615 | 1805 | 3610 | 1615 | 3502 | 3610 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 340 | 350 | 90 | 250 | 210 | 910 | 60 | 250 | 250 | 900 | 250 | 200 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 0 | 368 | 0 | 0 | 217 | 0 | 0 | 131 |
| Lane Group Flow (vph) | 340 | 421 | 0 | 250 | 210 | 542 | 60 | 250 | 33 | 900 | 250 | 69 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.0 | 29.0 | | 16.0 | 34.0 | 34.0 | 6.8 | 13.6 | 13.6 | 29.0 | 35.8 | 35.8 |
| Effective Green, g (s) | 11.0 | 29.0 | | 16.0 | 34.0 | 34.0 | 6.8 | 13.6 | 13.6 | 29.0 | 35.8 | 35.8 |
| Actuated g/C Ratio | 0.11 | 0.28 | | 0.15 | 0.33 | 0.33 | 0.07 | 0.13 | 0.13 | 0.28 | 0.35 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 372 | 976 | | 279 | 1185 | 530 | 118 | 474 | 212 | 980 | 1247 | 548 |
| v/s Ratio Prot | 0.10 | 0.12 | | c0.14 | 0.06 | | 0.03 | c0.07 | | c0.26 | 0.07 | |
| v/s Ratio Perm | | | | | | c0.34 | | | 0.02 | | | 0.04 |
| v/c Ratio | 0.91 | 0.43 | | 0.90 | 0.18 | 1.02 | 0.51 | 0.53 | 0.15 | 0.92 | 0.20 | 0.13 |
| Uniform Delay, d1 | 45.8 | 30.5 | | 43.0 | 24.8 | 34.8 | 46.8 | 42.0 | 39.9 | 36.2 | 23.8 | 23.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 26.2 | 0.3 | | 28.5 | 0.1 | 44.9 | 3.4 | 1.1 | 0.3 | 13.1 | 0.1 | 0.1 |
| Delay (s) | 72.1 | 30.8 | | 71.5 | 24.9 | 79.7 | 50.2 | 43.1 | 40.2 | 49.2 | 23.9 | 23.3 |
| Level of Service | E | C | | E | C | E | D | D | D | D | C | C |
| Approach Delay (s) | | 48.8 | | | 69.8 | | | 42.6 | | | 40.7 | |
| Approach LOS | | D | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 103.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 83.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 560 | 70 | 830 | 230 | 70 | 150 | 800 | 1770 | 210 | 70 | 940 | 290 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.90 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1799 | 1900 | 2795 | 1797 | 1686 | | 3502 | 5187 | 1563 | 1805 | 5187 | 1585 |
| Flt Permitted | 0.57 | 1.00 | 1.00 | 0.71 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1073 | 1900 | 2795 | 1346 | 1686 | | 3502 | 5187 | 1563 | 1805 | 5187 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 560 | 70 | 830 | 230 | 70 | 150 | 800 | 1770 | 210 | 70 | 940 | 290 |
| RTOR Reduction (vph) | 0 | 0 | 428 | 0 | 64 | 0 | 0 | 0 | 48 | 0 | 0 | 127 |
| Lane Group Flow (vph) | 560 | 70 | 402 | 230 | 156 | 0 | 800 | 1770 | 162 | 70 | 940 | 163 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | | | 5 |
| Turn Type | Perm | | Perm | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 56.0 | 56.0 | 56.0 | 56.0 | 56.0 | | 24.0 | 46.2 | 46.2 | 5.6 | 27.8 | 27.8 |
| Effective Green, g (s) | 56.0 | 56.0 | 56.0 | 56.0 | 56.0 | | 24.0 | 46.2 | 46.2 | 5.6 | 27.8 | 27.8 |
| Actuated g/C Ratio | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | | 0.20 | 0.39 | 0.39 | 0.05 | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 502 | 888 | 1307 | 629 | 788 | | 702 | 2000 | 603 | 84 | 1204 | 368 |
| v/s Ratio Prot | | 0.04 | | | 0.09 | | c0.23 | c0.34 | | 0.04 | 0.18 | |
| v/s Ratio Perm | c0.52 | | 0.14 | 0.17 | | | | | 0.10 | | | 0.10 |
| v/c Ratio | 1.12 | 0.08 | 0.31 | 0.37 | 0.20 | | 1.14 | 0.89 | 0.27 | 0.83 | 0.78 | 0.44 |
| Uniform Delay, d1 | 31.9 | 17.6 | 19.8 | 20.5 | 18.7 | | 47.9 | 34.3 | 25.2 | 56.6 | 43.1 | 39.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 75.8 | 0.0 | 0.1 | 0.4 | 0.1 | | 79.4 | 5.1 | 0.2 | 47.7 | 3.4 | 0.9 |
| Delay (s) | 107.7 | 17.7 | 20.0 | 20.9 | 18.8 | | 127.3 | 39.4 | 25.5 | 104.3 | 46.5 | 40.2 |
| Level of Service | F | B | B | C | B | | F | D | C | F | D | D |
| Approach Delay (s) | | 53.5 | | | 19.9 | | | 63.6 | | | 48.2 | |
| Approach LOS | | D | | | B | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.04 | | |
| Actuated Cycle Length (s) | 119.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 102.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 650 | 60 | 10 | 450 | 10 | 60 | 0 | 20 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 650 | 60 | 10 | 450 | 10 | 60 | 0 | 20 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 465 | | | 715 | | | 935 | 1170 | 365 | 810 | 1195 | 240 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 465 | | | 715 | | | 935 | 1170 | 365 | 810 | 1195 | 240 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 99 | | | 72 | 100 | 97 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1102 | | | 891 | | | 218 | 191 | 632 | 260 | 184 | 761 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 325 | 385 | 235 | 235 | 60 | 20 | 0 |
| Volume Left | 0 | 0 | 10 | 0 | 60 | 0 | 0 |
| Volume Right | 0 | 60 | 0 | 10 | 0 | 20 | 0 |
| cSH | 1102 | 1700 | 891 | 1700 | 218 | 632 | 1700 |
| Volume to Capacity | 0.00 | 0.23 | 0.01 | 0.14 | 0.28 | 0.03 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 0 | 27 | 2 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.5 | 0.0 | 27.7 | 10.9 | 0.0 |
| Lane LOS | | | A | | D | B | A |
| Approach Delay (s) | 0.0 | | 0.2 | | 23.5 | | 0.0 |
| Approach LOS | | | | | C | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.6 | | |
| Intersection Capacity Utilization | 29.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 350 | 200 | 140 | 180 | 20 | 140 | 900 | 150 | 50 | 970 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3393 | | 1805 | 3550 | | 1805 | 5064 | | 1805 | 5114 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3393 | | 1805 | 3550 | | 1805 | 5064 | | 1805 | 5114 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 350 | 200 | 140 | 180 | 20 | 140 | 900 | 150 | 50 | 970 | 90 |
| RTOR Reduction (vph) | 0 | 111 | 0 | 0 | 12 | 0 | 0 | 25 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 110 | 439 | 0 | 140 | 188 | 0 | 140 | 1025 | 0 | 50 | 1048 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 10.7 | 14.2 | | 9.1 | 12.6 | | 8.1 | 26.6 | | 3.9 | 22.4 | |
| Effective Green, g (s) | 10.7 | 14.2 | | 9.1 | 12.6 | | 8.1 | 26.6 | | 3.9 | 22.4 | |
| Actuated g/C Ratio | 0.15 | 0.20 | | 0.13 | 0.18 | | 0.12 | 0.38 | | 0.06 | 0.32 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 277 | 690 | | 235 | 641 | | 209 | 1930 | | 101 | 1641 | |
| v/s Ratio Prot | 0.06 | c0.13 | | c0.08 | 0.05 | | c0.08 | 0.20 | | 0.03 | c0.20 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.40 | 0.64 | | 0.60 | 0.29 | | 0.67 | 0.53 | | 0.50 | 0.64 | |
| Uniform Delay, d1 | 26.6 | 25.4 | | 28.6 | 24.7 | | 29.6 | 16.8 | | 32.0 | 20.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 1.9 | | 4.0 | 0.3 | | 7.9 | 0.3 | | 3.8 | 0.8 | |
| Delay (s) | 27.6 | 27.4 | | 32.6 | 25.0 | | 37.5 | 17.0 | | 35.8 | 21.1 | |
| Level of Service | C | C | | C | C | | D | B | | D | C | |
| Approach Delay (s) | | 27.4 | | | 28.1 | | | 19.4 | | | 21.7 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 69.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 66.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 450 | 20 | 10 | 250 | 20 | 10 | 10 | 10 | 20 | 10 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.93 | | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1804 | 3585 | | 1804 | 3566 | | 1803 | 3318 | | 1803 | 3125 | |
| Flt Permitted | 0.59 | 1.00 | | 0.55 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1112 | 3585 | | 1041 | 3566 | | 1898 | 3318 | | 1898 | 3125 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 450 | 20 | 10 | 250 | 20 | 10 | 10 | 10 | 20 | 10 | 50 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 10 | 0 | 0 | 9 | 0 | 0 | 44 | 0 |
| Lane Group Flow (vph) | 80 | 465 | 0 | 10 | 260 | 0 | 10 | 11 | 0 | 20 | 16 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 7.3 | 7.3 | | 7.3 | 7.3 | | 1.9 | 1.9 | | 1.9 | 1.9 | |
| Effective Green, g (s) | 7.3 | 7.3 | | 7.3 | 7.3 | | 1.9 | 1.9 | | 1.9 | 1.9 | |
| Actuated g/C Ratio | 0.42 | 0.42 | | 0.42 | 0.42 | | 0.11 | 0.11 | | 0.11 | 0.11 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 472 | 1522 | | 442 | 1513 | | 210 | 367 | | 210 | 345 | |
| v/s Ratio Prot | | c0.13 | | | 0.07 | | | 0.00 | | | 0.00 | |
| v/s Ratio Perm | 0.07 | | | 0.01 | | | 0.01 | | | c0.01 | | |
| v/c Ratio | 0.17 | 0.31 | | 0.02 | 0.17 | | 0.05 | 0.03 | | 0.10 | 0.04 | |
| Uniform Delay, d1 | 3.1 | 3.3 | | 2.9 | 3.1 | | 6.8 | 6.8 | | 6.9 | 6.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.1 | | 0.0 | 0.1 | | 0.1 | 0.0 | | 0.2 | 0.1 | |
| Delay (s) | 3.2 | 3.4 | | 2.9 | 3.1 | | 6.9 | 6.9 | | 7.1 | 6.9 | |
| Level of Service | A | A | | A | A | | A | A | | A | A | |
| Approach Delay (s) | | 3.4 | | | 3.1 | | | 6.9 | | | 6.9 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.26 | | |
| Actuated Cycle Length (s) | 17.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 39.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 130 | 10 | 110 | 10 | 10 | 10 | 150 | 390 | 10 | 10 | 210 | 110 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 130 | 10 | 110 | 10 | 10 | 10 | 150 | 390 | 10 | 10 | 210 | 110 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 130 | 120 | 30 | 540 | 10 | 115 | 215 |
| Volume Left (vph) | 130 | 0 | 10 | 150 | 0 | 10 | 0 |
| Volume Right (vph) | 0 | 110 | 10 | 0 | 10 | 0 | 110 |
| Hadj (s) | 0.50 | -0.64 | -0.13 | 0.14 | -0.70 | 0.04 | -0.36 |
| Departure Headway (s) | 7.4 | 6.2 | 7.2 | 6.0 | 5.2 | 6.2 | 5.8 |
| Degree Utilization, x | 0.27 | 0.21 | 0.06 | 0.90 | 0.01 | 0.20 | 0.35 |
| Capacity (veh/h) | 465 | 547 | 456 | 584 | 668 | 554 | 592 |
| Control Delay (s) | 11.8 | 9.6 | 10.7 | 39.7 | 7.0 | 9.5 | 10.7 |
| Approach Delay (s) | 10.8 | | 10.7 | 39.2 | | 10.3 | |
| Approach LOS | B | | B | E | | B | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 24.1 | | | |
| HCM Level of Service | C | | | |
| Intersection Capacity Utilization | 63.0% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 500 | 160 | 120 | 430 | 20 | 100 | 70 | 140 | 40 | 40 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.98 | |
| Satd. Flow (prot) | 1805 | 3457 | | 1805 | 1900 | 1572 | | 1846 | 1590 | | 1828 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | | 0.98 | |
| Satd. Flow (perm) | 1805 | 3457 | | 1805 | 1900 | 1572 | | 1846 | 1590 | | 1828 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 500 | 160 | 120 | 430 | 20 | 100 | 70 | 140 | 40 | 40 | 10 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 0 | 12 | 0 | 0 | 115 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 10 | 631 | 0 | 120 | 430 | 8 | 0 | 170 | 25 | 0 | 85 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Split | | Perm | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 1.1 | 17.4 | | 11.1 | 27.4 | 27.4 | | 11.6 | 11.6 | | 8.9 | |
| Effective Green, g (s) | 1.1 | 17.4 | | 11.1 | 27.4 | 27.4 | | 11.6 | 11.6 | | 8.9 | |
| Actuated g/C Ratio | 0.02 | 0.27 | | 0.17 | 0.42 | 0.42 | | 0.18 | 0.18 | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | 31 | 925 | | 308 | 801 | 663 | | 329 | 284 | | 250 | |
| v/s Ratio Prot | 0.01 | c0.18 | | c0.07 | c0.23 | | | c0.09 | | | c0.05 | |
| v/s Ratio Perm | | | | | | 0.01 | | | 0.02 | | | |
| v/c Ratio | 0.32 | 0.68 | | 0.39 | 0.54 | 0.01 | | 0.52 | 0.09 | | 0.34 | |
| Uniform Delay, d1 | 31.6 | 21.3 | | 23.9 | 14.1 | 10.9 | | 24.2 | 22.3 | | 25.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | 6.0 | 2.1 | | 0.8 | 0.7 | 0.0 | | 1.4 | 0.1 | | 0.8 | |
| Delay (s) | 37.5 | 23.4 | | 24.8 | 14.8 | 10.9 | | 25.5 | 22.4 | | 26.2 | |
| Level of Service | D | C | | C | B | B | | C | C | | C | |
| Approach Delay (s) | | 23.6 | | | 16.7 | | | 24.1 | | | 26.2 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 65.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 53.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 340 | 120 | 50 | 380 | 110 | 90 | 710 | 40 | 110 | 780 | 330 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3456 | | 1805 | 3477 | | 1805 | 3610 | 1595 | 1805 | 4933 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3456 | | 1805 | 3477 | | 1805 | 3610 | 1595 | 1805 | 4933 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 280 | 340 | 120 | 50 | 380 | 110 | 90 | 710 | 40 | 110 | 780 | 330 |
| RTOR Reduction (vph) | 0 | 45 | 0 | 0 | 35 | 0 | 0 | 0 | 24 | 0 | 70 | 0 |
| Lane Group Flow (vph) | 280 | 415 | 0 | 50 | 455 | 0 | 90 | 710 | 16 | 110 | 1040 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.1 | 18.3 | | 5.4 | 15.6 | | 5.4 | 21.7 | 27.1 | 7.1 | 23.4 | |
| Effective Green, g (s) | 8.1 | 18.3 | | 5.4 | 15.6 | | 5.4 | 21.7 | 27.1 | 7.1 | 23.4 | |
| Actuated g/C Ratio | 0.12 | 0.27 | | 0.08 | 0.23 | | 0.08 | 0.32 | 0.40 | 0.10 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 213 | 923 | | 142 | 792 | | 142 | 1144 | 724 | 187 | 1685 | |
| v/s Ratio Prot | c0.16 | c0.12 | | 0.03 | c0.13 | | 0.05 | 0.20 | 0.00 | c0.06 | c0.21 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 1.31 | 0.45 | | 0.35 | 0.57 | | 0.63 | 0.62 | 0.02 | 0.59 | 0.62 | |
| Uniform Delay, d1 | 30.2 | 20.9 | | 29.9 | 23.5 | | 30.6 | 19.9 | 12.6 | 29.3 | 18.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 170.8 | 0.4 | | 1.5 | 1.0 | | 8.9 | 1.1 | 0.0 | 4.7 | 0.7 | |
| Delay (s) | 201.0 | 21.3 | | 31.4 | 24.5 | | 39.5 | 21.0 | 12.6 | 34.0 | 19.5 | |
| Level of Service | F | C | | C | C | | D | C | B | C | B | |
| Approach Delay (s) | | 89.3 | | | 25.2 | | | 22.5 | | | 20.8 | |
| Approach LOS | | F | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 68.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 74.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 30 | 330 | 540 | 10 | 10 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1804 | 3610 | 3599 | | 1805 | 1594 |
| Flt Permitted | 0.53 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 1013 | 3610 | 3599 | | 1805 | 1594 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 30 | 330 | 540 | 10 | 10 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 2 | 0 | 0 | 62 |
| Lane Group Flow (vph) | 30 | 330 | 548 | 0 | 10 | 8 |
| Confl. Peds. (#/hr) | 5 | | | 5 | 5 | 5 |
| Turn Type | Perm | | | | | Perm |
| Protected Phases | | 4 | 8 | | 6 | |
| Permitted Phases | 4 | | | | | 6 |
| Actuated Green, G (s) | 7.5 | 7.5 | 7.5 | | 1.9 | 1.9 |
| Effective Green, g (s) | 7.5 | 7.5 | 7.5 | | 1.9 | 1.9 |
| Actuated g/C Ratio | 0.43 | 0.43 | 0.43 | | 0.11 | 0.11 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 437 | 1556 | 1551 | | 197 | 174 |
| v/s Ratio Prot | | 0.09 | c0.15 | | c0.01 | |
| v/s Ratio Perm | 0.03 | | | | | 0.00 |
| v/c Ratio | 0.07 | 0.21 | 0.35 | | 0.05 | 0.04 |
| Uniform Delay, d1 | 2.9 | 3.1 | 3.3 | | 6.9 | 6.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.1 | 0.1 | 0.1 | | 0.1 | 0.1 |
| Delay (s) | 3.0 | 3.2 | 3.5 | | 7.0 | 7.0 |
| Level of Service | A | A | A | | A | A |
| Approach Delay (s) | | 3.2 | 3.5 | | 7.0 | |
| Approach LOS | | A | A | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.29 | | |
| Actuated Cycle Length (s) | 17.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 39.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 150 | 180 | 70 | 460 | 280 | 310 | 120 | 220 | 390 | 150 | 180 | 90 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 150 | 180 | 70 | 460 | 280 | 310 | 120 | 220 | 390 | 150 | 180 | 90 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 240 | 160 | 1050 | 230 | 500 | 240 | 180 |
| Volume Left (vph) | 150 | 0 | 460 | 120 | 0 | 150 | 0 |
| Volume Right (vph) | 0 | 70 | 310 | 0 | 390 | 0 | 90 |
| Hadj (s) | 0.31 | -0.31 | -0.09 | 0.26 | -0.55 | 0.31 | -0.35 |
| Departure Headway (s) | 9.5 | 8.9 | 8.6 | 8.9 | 8.1 | 9.4 | 8.8 |
| Degree Utilization, x | 0.63 | 0.39 | 2.51 | 0.57 | 1.13 | 0.63 | 0.44 |
| Capacity (veh/h) | 368 | 400 | 427 | 393 | 446 | 372 | 404 |
| Control Delay (s) | 26.1 | 16.3 | 705.9 | 21.9 | 109.4 | 25.9 | 17.3 |
| Approach Delay (s) | 22.2 | | 705.9 | 81.8 | | 22.2 | |
| Approach LOS | C | | F | F | | C | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 315.1 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 119.4% | ICU Level of Service | H | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 20 | 20 | 500 | 40 | 100 | 10 | 550 | 810 | 130 | 750 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3315 | | 1805 | 3190 | | 1805 | 5187 | 1605 | 1805 | 5104 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3315 | | 1805 | 3190 | | 1805 | 5187 | 1605 | 1805 | 5104 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 20 | 20 | 500 | 40 | 100 | 10 | 550 | 810 | 130 | 750 | 80 |
| RTOR Reduction (vph) | 0 | 19 | 0 | 0 | 65 | 0 | 0 | 0 | 321 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 50 | 21 | 0 | 500 | 75 | 0 | 10 | 550 | 489 | 130 | 821 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 4.2 | 3.8 | | 24.5 | 24.1 | | 1.2 | 16.7 | 41.2 | 7.2 | 22.7 | |
| Effective Green, g (s) | 4.2 | 3.8 | | 24.5 | 24.1 | | 1.2 | 16.7 | 41.2 | 7.2 | 22.7 | |
| Actuated g/C Ratio | 0.06 | 0.06 | | 0.36 | 0.35 | | 0.02 | 0.24 | 0.60 | 0.11 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 111 | 185 | | 648 | 1127 | | 32 | 1270 | 1064 | 191 | 1699 | |
| v/s Ratio Prot | 0.03 | c0.01 | | c0.28 | 0.02 | | 0.01 | 0.11 | 0.17 | c0.07 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.14 | | | |
| v/c Ratio | 0.45 | 0.11 | | 0.77 | 0.07 | | 0.31 | 0.43 | 0.46 | 0.68 | 0.48 | |
| Uniform Delay, d1 | 30.9 | 30.6 | | 19.4 | 14.6 | | 33.1 | 21.8 | 7.4 | 29.4 | 18.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.9 | 0.3 | | 5.7 | 0.0 | | 5.5 | 0.2 | 0.3 | 9.6 | 0.2 | |
| Delay (s) | 33.8 | 30.9 | | 25.0 | 14.6 | | 38.6 | 22.0 | 7.7 | 39.0 | 18.3 | |
| Level of Service | C | C | | C | B | | D | C | A | D | B | |
| Approach Delay (s) | | 32.5 | | | 22.8 | | | 13.7 | | | 21.1 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 68.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 78.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 460 | 130 | 180 | 340 | 110 | 170 | 710 | 240 | 100 | 680 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1600 | 1805 | 3463 | | 1805 | 3610 | 1593 | 1805 | 3610 | 1593 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1600 | 1805 | 3463 | | 1805 | 3610 | 1593 | 1805 | 3610 | 1593 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 460 | 130 | 180 | 340 | 110 | 170 | 710 | 240 | 100 | 680 | 170 |
| RTOR Reduction (vph) | 0 | 0 | 50 | 0 | 31 | 0 | 0 | 0 | 69 | 0 | 0 | 66 |
| Lane Group Flow (vph) | 150 | 460 | 80 | 180 | 419 | 0 | 170 | 710 | 171 | 100 | 680 | 104 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 14.6 | 21.9 | 38.8 | 14.4 | 21.7 | | 16.9 | 55.8 | 70.2 | 11.9 | 50.8 | 65.4 |
| Effective Green, g (s) | 14.6 | 21.9 | 38.8 | 14.4 | 21.7 | | 16.9 | 55.8 | 70.2 | 11.9 | 50.8 | 65.4 |
| Actuated g/C Ratio | 0.12 | 0.18 | 0.32 | 0.12 | 0.18 | | 0.14 | 0.46 | 0.59 | 0.10 | 0.42 | 0.55 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 220 | 659 | 571 | 217 | 626 | | 254 | 1679 | 985 | 179 | 1528 | 921 |
| v/s Ratio Prot | 0.08 | c0.13 | 0.02 | c0.10 | 0.12 | | c0.09 | 0.20 | 0.02 | 0.06 | c0.19 | 0.01 |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.09 | | | 0.05 |
| v/c Ratio | 0.68 | 0.70 | 0.14 | 0.83 | 0.67 | | 0.67 | 0.42 | 0.17 | 0.56 | 0.45 | 0.11 |
| Uniform Delay, d1 | 50.5 | 46.0 | 28.8 | 51.6 | 45.8 | | 48.9 | 21.4 | 11.5 | 51.5 | 24.6 | 13.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.01 | 0.95 | 0.76 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.4 | 3.2 | 0.1 | 22.3 | 2.7 | | 6.0 | 0.7 | 0.1 | 3.7 | 0.9 | 0.1 |
| Delay (s) | 58.9 | 49.2 | 28.9 | 73.9 | 48.5 | | 55.5 | 21.1 | 8.8 | 55.3 | 25.5 | 13.3 |
| Level of Service | E | D | C | E | D | | E | C | A | E | C | B |
| Approach Delay (s) | | 47.6 | | | 55.8 | | | 23.7 | | | 26.5 | |
| Approach LOS | | D | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 250 | 10 | 130 | 450 | 1250 | 0 | 0 | 690 | 360 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | | | | 1.00 | 0.98 | 1.00 | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.95 | |
| Flt Protected | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3400 | |
| Flt Permitted | | | | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 1813 | 1587 | 1805 | 3610 | | | 3400 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 250 | 10 | 130 | 450 | 1250 | 0 | 0 | 690 | 360 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 48 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 260 | 90 | 450 | 1250 | 0 | 0 | 1002 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | Perm | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | | | | | 22.8 | 22.8 | 34.4 | 89.2 | | | 50.8 | |
| Effective Green, g (s) | | | | | 22.8 | 22.8 | 34.4 | 89.2 | | | 50.8 | |
| Actuated g/C Ratio | | | | | 0.19 | 0.19 | 0.29 | 0.74 | | | 0.42 | |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 344 | 302 | 517 | 2683 | | | 1439 | |
| v/s Ratio Prot | | | | | c0.14 | | c0.25 | 0.35 | | | c0.29 | |
| v/s Ratio Perm | | | | | | 0.06 | | | | | | |
| v/c Ratio | | | | | 0.76 | 0.30 | 0.87 | 0.47 | | | 0.70 | |
| Uniform Delay, d1 | | | | | 46.0 | 41.7 | 40.7 | 6.0 | | | 28.3 | |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 0.66 | |
| Incremental Delay, d2 | | | | | 9.1 | 0.6 | 14.8 | 0.6 | | | 2.6 | |
| Delay (s) | | | | | 55.1 | 42.3 | 55.5 | 6.6 | | | 21.1 | |
| Level of Service | | | | | E | D | E | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 50.8 | | | 19.6 | | | 21.1 | |
| Approach LOS | | A | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 105.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 540 | 10 | 420 | 0 | 0 | 0 | 0 | 1000 | 370 | 240 | 750 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.91 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 0.96 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1722 | 1591 | | | | | 4940 | | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.95 | 1.00 | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1722 | 1591 | | | | | 4940 | | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 540 | 10 | 420 | 0 | 0 | 0 | 0 | 1000 | 370 | 240 | 750 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 83 | 0 | 0 | 0 | 0 | 82 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 275 | 275 | 337 | 0 | 0 | 0 | 0 | 1288 | 0 | 240 | 750 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | |
| Turn Type | Split | | Perm | | | | | | | Prot | | |
| Protected Phases | 4 | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 20.7 | 20.7 | 20.7 | | | | | 20.3 | | 10.2 | 34.5 | |
| Effective Green, g (s) | 20.7 | 20.7 | 20.7 | | | | | 20.3 | | 10.2 | 34.5 | |
| Actuated g/C Ratio | 0.33 | 0.33 | 0.33 | | | | | 0.32 | | 0.16 | 0.55 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 562 | 564 | 521 | | | | | 1587 | | 291 | 1971 | |
| v/s Ratio Prot | 0.16 | 0.16 | | | | | | c0.26 | | c0.13 | 0.21 | |
| v/s Ratio Perm | | | c0.21 | | | | | | | | | |
| v/c Ratio | 0.49 | 0.49 | 0.65 | | | | | 0.81 | | 0.82 | 0.38 | |
| Uniform Delay, d1 | 17.0 | 17.0 | 18.1 | | | | | 19.7 | | 25.6 | 8.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | 0.7 | 2.8 | | | | | 3.3 | | 17.0 | 0.1 | |
| Delay (s) | 17.7 | 17.7 | 20.9 | | | | | 23.0 | | 42.7 | 8.3 | |
| Level of Service | B | B | C | | | | | C | | D | A | |
| Approach Delay (s) | | 19.1 | | | 0.0 | | | 23.0 | | | 16.7 | |
| Approach LOS | | B | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 63.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 105.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 530 | 590 | 570 | 110 | 140 | 630 | 170 | 1230 | 250 | 740 | 990 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.88 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1596 | 1805 | 3167 | | 1805 | 5041 | | 3502 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1596 | 1805 | 3167 | | 1805 | 5041 | | 3502 | 3610 | 1596 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 530 | 590 | 570 | 110 | 140 | 630 | 170 | 1230 | 250 | 740 | 990 | 140 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 272 | 0 | 0 | 25 | 0 | 0 | 0 | 62 |
| Lane Group Flow (vph) | 530 | 590 | 550 | 110 | 498 | 0 | 170 | 1455 | 0 | 740 | 990 | 78 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 20.5 | 34.7 | 50.3 | 7.0 | 21.2 | | 15.6 | 36.0 | | 26.3 | 46.7 | 67.2 |
| Effective Green, g (s) | 20.5 | 34.7 | 50.3 | 7.0 | 21.2 | | 15.6 | 36.0 | | 26.3 | 46.7 | 67.2 |
| Actuated g/C Ratio | 0.17 | 0.29 | 0.42 | 0.06 | 0.18 | | 0.13 | 0.30 | | 0.22 | 0.39 | 0.56 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 598 | 1044 | 722 | 105 | 560 | | 235 | 1512 | | 768 | 1405 | 947 |
| v/s Ratio Prot | c0.15 | 0.16 | c0.10 | 0.06 | 0.16 | | 0.09 | c0.29 | | c0.21 | 0.27 | 0.01 |
| v/s Ratio Perm | | | 0.25 | | | | | | | | | 0.03 |
| v/c Ratio | 0.89 | 0.57 | 0.76 | 1.05 | 1.13dr | | 0.72 | 0.96 | | 0.96 | 0.70 | 0.08 |
| Uniform Delay, d1 | 48.6 | 36.2 | 29.7 | 56.5 | 48.3 | | 50.1 | 41.3 | | 46.4 | 30.8 | 12.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.18 | 0.62 | | 0.86 | 0.50 | 1.07 |
| Incremental Delay, d2 | 14.7 | 0.7 | 4.8 | 101.2 | 15.9 | | 9.3 | 14.4 | | 19.2 | 2.2 | 0.0 |
| Delay (s) | 63.3 | 36.9 | 34.5 | 157.7 | 64.1 | | 68.4 | 40.2 | | 59.2 | 17.6 | 13.1 |
| Level of Service | E | D | C | F | E | | E | D | | E | B | B |
| Approach Delay (s) | | 44.4 | | | 75.8 | | | 43.1 | | | 33.7 | |
| Approach LOS | | D | | | E | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 103.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 230 | 10 | 180 | 490 | 1810 | 0 | 0 | 1600 | 290 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | | | | 0.95 | | 0.97 | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | | | | 0.94 | | 1.00 | 1.00 | | | 0.98 | |
| Flt Protected | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | | 3257 | | 3502 | 5187 | | | 5052 | |
| Flt Permitted | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | | 3257 | | 3502 | 5187 | | | 5052 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 230 | 10 | 180 | 490 | 1810 | 0 | 0 | 1600 | 290 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 21 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 381 | 0 | 490 | 1810 | 0 | 0 | 1869 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | 5 |
| Turn Type | | | | Split | | | Prot | | | | | |
| Protected Phases | | | | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | | 18.0 | | 26.0 | 94.0 | | | 64.0 | |
| Effective Green, g (s) | | | | | 18.0 | | 26.0 | 94.0 | | | 64.0 | |
| Actuated g/C Ratio | | | | | 0.15 | | 0.22 | 0.78 | | | 0.53 | |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | | | | 489 | | 759 | 4063 | | | 2694 | |
| v/s Ratio Prot | | | | | c0.12 | | c0.14 | 0.35 | | | c0.37 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | | 0.78 | | 0.65 | 0.45 | | | 0.69 | |
| Uniform Delay, d1 | | | | | 49.1 | | 42.8 | 4.3 | | | 20.7 | |
| Progression Factor | | | | | 1.00 | | 0.76 | 0.93 | | | 1.00 | |
| Incremental Delay, d2 | | | | | 7.7 | | 0.7 | 0.1 | | | 1.5 | |
| Delay (s) | | | | | 56.8 | | 33.3 | 4.1 | | | 22.2 | |
| Level of Service | | | | | E | | C | A | | | C | |
| Approach Delay (s) | | 0.0 | | | 56.8 | | | 10.4 | | | 22.2 | |
| Approach LOS | | A | | | E | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 180 | 160 | 70 | 120 | 80 | 100 | 1520 | 50 | 140 | 1380 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 5187 | 1567 | 1805 | 5187 | 1566 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1587 | 1805 | 1900 | 1587 | 1805 | 5187 | 1567 | 1805 | 5187 | 1566 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 180 | 160 | 70 | 120 | 80 | 100 | 1520 | 50 | 140 | 1380 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 134 | 0 | 0 | 69 | 0 | 0 | 10 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 60 | 180 | 26 | 70 | 120 | 11 | 100 | 1520 | 40 | 140 | 1380 | 39 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 16.7 | 16.7 | 7.1 | 16.8 | 16.8 | 11.9 | 65.7 | 65.7 | 14.5 | 68.3 | 68.3 |
| Effective Green, g (s) | 7.0 | 16.7 | 16.7 | 7.1 | 16.8 | 16.8 | 11.9 | 65.7 | 65.7 | 14.5 | 68.3 | 68.3 |
| Actuated g/C Ratio | 0.06 | 0.14 | 0.14 | 0.06 | 0.14 | 0.14 | 0.10 | 0.55 | 0.55 | 0.12 | 0.57 | 0.57 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 264 | 221 | 107 | 266 | 222 | 179 | 2840 | 858 | 218 | 2952 | 891 |
| v/s Ratio Prot | 0.03 | c0.09 | | c0.04 | 0.06 | | 0.06 | c0.29 | | c0.08 | c0.27 | |
| v/s Ratio Perm | | | 0.02 | | | 0.01 | | | 0.03 | | | 0.03 |
| v/c Ratio | 0.57 | 0.68 | 0.12 | 0.65 | 0.45 | 0.05 | 0.56 | 0.54 | 0.05 | 0.64 | 0.47 | 0.04 |
| Uniform Delay, d1 | 55.0 | 49.1 | 45.2 | 55.2 | 47.4 | 44.7 | 51.5 | 17.4 | 12.6 | 50.3 | 15.2 | 11.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.14 | 0.84 | 0.60 |
| Incremental Delay, d2 | 7.3 | 7.1 | 0.2 | 13.5 | 1.2 | 0.1 | 3.7 | 0.7 | 0.1 | 4.1 | 0.3 | 0.1 |
| Delay (s) | 62.4 | 56.2 | 45.4 | 68.7 | 48.6 | 44.8 | 55.3 | 18.1 | 12.7 | 61.5 | 13.1 | 6.9 |
| Level of Service | E | E | D | E | D | D | E | B | B | E | B | A |
| Approach Delay (s) | | 52.8 | | | 52.7 | | | 20.2 | | | 17.2 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 68.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 10 | 580 | 150 | 10 | 660 | 280 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 580 | 150 | 10 | 660 | 280 |
| Pedestrians | 5 | | | 5 | | |
| Lane Width (ft) | 12.0 | | | 12.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 590 | | 615 | 305 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 590 | | 615 | 305 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 85 | | 0 | 62 |
| cM capacity (veh/h) | | | 995 | | 387 | 736 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 590 | 160 | 660 | 280 |
| Volume Left | 0 | 150 | 660 | 0 |
| Volume Right | 580 | 0 | 0 | 280 |
| cSH | 1700 | 995 | 387 | 736 |
| Volume to Capacity | 0.35 | 0.15 | 1.70 | 0.38 |
| Queue Length 95th (ft) | 0 | 13 | 1006 | 45 |
| Control Delay (s) | 0.0 | 8.8 | 352.2 | 12.9 |
| Lane LOS | | A | F | B |
| Approach Delay (s) | 0.0 | 8.8 | 251.1 | |
| Approach LOS | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 140.5 | | |
| Intersection Capacity Utilization | 91.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 180 | 110 | 170 | 120 | 90 | 120 | 760 | 370 | 0 | 670 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.94 | | | 0.96 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 3378 | | 1805 | 3348 | | | 3413 | | | 3537 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 3378 | | 1805 | 3348 | | | 3413 | | | 3537 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 180 | 110 | 170 | 120 | 90 | 120 | 760 | 370 | 0 | 670 | 90 |
| RTOR Reduction (vph) | 0 | 77 | 0 | 0 | 70 | 0 | 0 | 39 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 80 | 213 | 0 | 170 | 140 | 0 | 0 | 1211 | 0 | 0 | 751 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.8 | 24.0 | | 10.0 | 26.2 | | | 44.7 | | | 25.3 | |
| Effective Green, g (s) | 7.8 | 24.0 | | 10.0 | 26.2 | | | 44.7 | | | 25.3 | |
| Actuated g/C Ratio | 0.06 | 0.20 | | 0.08 | 0.22 | | | 0.37 | | | 0.21 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 117 | 676 | | 150 | 731 | | | 1271 | | | 746 | |
| v/s Ratio Prot | c0.04 | c0.06 | | c0.09 | 0.04 | | | c0.35 | | | c0.21 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.68 | 0.32 | | 1.13 | 0.19 | | | 0.95 | | | 1.01 | |
| Uniform Delay, d1 | 54.9 | 41.0 | | 55.0 | 38.3 | | | 36.6 | | | 47.4 | |
| Progression Factor | 1.00 | 1.00 | | 0.56 | 0.23 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 15.3 | 1.2 | | 108.6 | 0.5 | | | 15.3 | | | 34.7 | |
| Delay (s) | 70.2 | 42.2 | | 139.4 | 9.4 | | | 51.9 | | | 82.1 | |
| Level of Service | E | D | | F | A | | | D | | | F | |
| Approach Delay (s) | | 48.2 | | | 67.6 | | | 51.9 | | | 82.1 | |
| Approach LOS | | D | | | E | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 61.9 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 98.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 290 | 210 | 820 | 40 | 350 | 660 | 160 | 620 | 40 | 550 | 460 | 470 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.98 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | |
| Flt Protected | | 0.97 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1846 | 2793 | 1805 | 1900 | 1587 | 1805 | 3610 | 1566 | 1805 | 4716 | |
| Flt Permitted | | 0.97 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1846 | 2793 | 1805 | 1900 | 1587 | 1805 | 3610 | 1566 | 1805 | 4716 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 290 | 210 | 820 | 40 | 350 | 660 | 160 | 620 | 40 | 550 | 460 | 470 |
| RTOR Reduction (vph) | 0 | 0 | 539 | 0 | 0 | 205 | 0 | 0 | 31 | 0 | 155 | 0 |
| Lane Group Flow (vph) | 0 | 500 | 281 | 40 | 350 | 455 | 160 | 620 | 9 | 550 | 775 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | | 33.0 | 33.0 | 34.0 | 34.0 | 34.0 | 12.0 | 27.0 | 27.0 | 9.0 | 24.0 | |
| Effective Green, g (s) | | 33.0 | 33.0 | 34.0 | 34.0 | 34.0 | 12.0 | 27.0 | 27.0 | 9.0 | 24.0 | |
| Actuated g/C Ratio | | 0.28 | 0.28 | 0.29 | 0.29 | 0.29 | 0.10 | 0.23 | 0.23 | 0.08 | 0.20 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 512 | 775 | 516 | 543 | 453 | 182 | 819 | 355 | 137 | 951 | |
| v/s Ratio Prot | | c0.27 | | 0.02 | 0.18 | | 0.09 | c0.17 | | c0.30 | 0.16 | |
| v/s Ratio Perm | | | 0.10 | | | c0.29 | | | 0.01 | | | |
| v/c Ratio | | 0.98 | 0.36 | 0.08 | 0.64 | 1.00 | 0.88 | 0.76 | 0.03 | 4.01 | 0.99dr | |
| Uniform Delay, d1 | | 42.6 | 34.5 | 31.0 | 37.2 | 42.5 | 52.8 | 42.9 | 35.8 | 55.0 | 45.4 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 33.4 | 0.3 | 0.1 | 2.6 | 43.4 | 34.8 | 4.0 | 0.0 | 1373.8 | 5.4 | |
| Delay (s) | | 76.1 | 34.8 | 31.1 | 39.8 | 85.9 | 87.5 | 47.0 | 35.8 | 1428.8 | 50.8 | |
| Level of Service | | E | C | C | D | F | F | D | D | F | D | |
| Approach Delay (s) | | 50.5 | | | 68.4 | | | 54.3 | | | 562.9 | |
| Approach LOS | | D | | | E | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 217.6 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.19 | | |
| Actuated Cycle Length (s) | 119.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 109.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 290 | 190 | 200 | 170 | 40 | 150 | 1620 | 120 | 100 | 1470 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3373 | | 1805 | 3496 | | 1805 | 3610 | 1587 | 1805 | 5187 | 1586 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3373 | | 1805 | 3496 | | 1805 | 3610 | 1587 | 1805 | 5187 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 290 | 190 | 200 | 170 | 40 | 150 | 1620 | 120 | 100 | 1470 | 50 |
| RTOR Reduction (vph) | 0 | 108 | 0 | 0 | 20 | 0 | 0 | 0 | 40 | 0 | 0 | 23 |
| Lane Group Flow (vph) | 60 | 372 | 0 | 200 | 190 | 0 | 150 | 1620 | 80 | 100 | 1470 | 27 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 19.9 | | 11.0 | 23.9 | | 15.3 | 59.4 | 59.4 | 13.7 | 57.8 | 57.8 |
| Effective Green, g (s) | 7.0 | 19.9 | | 11.0 | 23.9 | | 15.3 | 59.4 | 59.4 | 13.7 | 57.8 | 57.8 |
| Actuated g/C Ratio | 0.06 | 0.17 | | 0.09 | 0.20 | | 0.13 | 0.49 | 0.49 | 0.11 | 0.48 | 0.48 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 559 | | 165 | 696 | | 230 | 1787 | 786 | 206 | 2498 | 764 |
| v/s Ratio Prot | 0.03 | c0.11 | | c0.11 | c0.05 | | c0.08 | c0.45 | | 0.06 | 0.28 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | 0.02 |
| v/c Ratio | 0.57 | 0.67 | | 1.21 | 0.27 | | 0.65 | 0.91 | 0.10 | 0.49 | 0.59 | 0.03 |
| Uniform Delay, d1 | 55.0 | 46.9 | | 54.5 | 40.7 | | 49.8 | 27.8 | 16.1 | 49.8 | 22.5 | 16.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.41 | 0.45 | 0.12 |
| Incremental Delay, d2 | 7.3 | 3.0 | | 138.4 | 0.2 | | 6.5 | 8.2 | 0.3 | 0.6 | 0.4 | 0.0 |
| Delay (s) | 62.4 | 49.9 | | 192.9 | 40.9 | | 56.3 | 35.9 | 16.4 | 71.0 | 10.6 | 1.9 |
| Level of Service | E | D | | F | D | | E | D | B | E | B | A |
| Approach Delay (s) | | 51.3 | | | 115.1 | | | 36.3 | | | 14.0 | |
| Approach LOS | | D | | | F | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 91.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 610 | 480 | 250 | 310 | 180 | 170 | 1770 | 370 | 370 | 1470 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3347 | | 1805 | 3389 | | 1805 | 5187 | 1587 | 1805 | 5175 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3347 | | 1805 | 3389 | | 1805 | 5187 | 1587 | 1805 | 5175 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 610 | 480 | 250 | 310 | 180 | 170 | 1770 | 370 | 370 | 1470 | 20 |
| RTOR Reduction (vph) | 0 | 118 | 0 | 0 | 67 | 0 | 0 | 0 | 111 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 80 | 972 | 0 | 250 | 423 | 0 | 170 | 1770 | 259 | 370 | 1489 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.3 | 37.4 | | 10.0 | 39.1 | | 14.2 | 35.3 | 35.3 | 21.3 | 42.4 | |
| Effective Green, g (s) | 8.3 | 37.4 | | 10.0 | 39.1 | | 14.2 | 35.3 | 35.3 | 21.3 | 42.4 | |
| Actuated g/C Ratio | 0.07 | 0.31 | | 0.08 | 0.33 | | 0.12 | 0.29 | 0.29 | 0.18 | 0.35 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 1043 | | 150 | 1104 | | 214 | 1526 | 467 | 320 | 1829 | |
| v/s Ratio Prot | 0.04 | c0.29 | | c0.14 | 0.12 | | 0.09 | c0.34 | | c0.20 | 0.29 | |
| v/s Ratio Perm | | | | | | | | | 0.16 | | | |
| v/c Ratio | 0.64 | 0.93 | | 1.67 | 0.38 | | 0.79 | 1.16 | 0.55 | 1.16 | 0.81 | |
| Uniform Delay, d1 | 54.4 | 40.1 | | 55.0 | 31.2 | | 51.5 | 42.4 | 35.7 | 49.4 | 35.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.92 | 0.70 | 0.77 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.7 | 14.3 | | 327.5 | 0.2 | | 1.9 | 72.7 | 0.4 | 99.7 | 4.1 | |
| Delay (s) | 65.1 | 54.4 | | 382.5 | 31.4 | | 49.2 | 102.3 | 27.8 | 149.0 | 39.3 | |
| Level of Service | E | D | | F | C | | D | F | C | F | D | |
| Approach Delay (s) | | 55.1 | | | 150.0 | | | 86.5 | | | 61.1 | |
| Approach LOS | | E | | | F | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 80.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.12 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 114.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

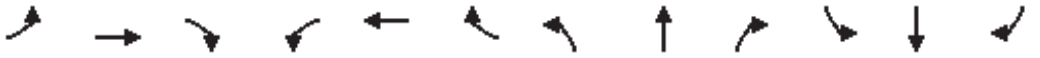


| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 1340 | 110 | 660 | 850 | 220 | 60 | 90 | 800 | 200 | 140 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.87 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3564 | | 1805 | 3610 | 1591 | 1805 | 3079 | | 1805 | 3392 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3564 | | 1805 | 3610 | 1591 | 1805 | 3079 | | 1805 | 3392 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 1340 | 110 | 660 | 850 | 220 | 60 | 90 | 800 | 200 | 140 | 80 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 0 | 110 | 0 | 183 | 0 | 0 | 55 | 0 |
| Lane Group Flow (vph) | 60 | 1445 | 0 | 660 | 850 | 110 | 60 | 707 | 0 | 200 | 165 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 6.7 | 35.0 | | 17.1 | 45.4 | 54.4 | 6.7 | 31.5 | | 9.0 | 33.8 | |
| Effective Green, g (s) | 6.7 | 35.0 | | 17.1 | 45.4 | 54.4 | 6.7 | 31.5 | | 9.0 | 33.8 | |
| Actuated g/C Ratio | 0.06 | 0.32 | | 0.16 | 0.42 | 0.50 | 0.06 | 0.29 | | 0.08 | 0.31 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 111 | 1149 | | 284 | 1509 | 856 | 111 | 893 | | 150 | 1056 | |
| v/s Ratio Prot | 0.03 | c0.41 | | c0.37 | 0.24 | 0.01 | 0.03 | c0.23 | | c0.11 | 0.05 | |
| v/s Ratio Perm | | | | | | 0.06 | | | | | | |
| v/c Ratio | 0.54 | 1.26 | | 2.32 | 0.56 | 0.13 | 0.54 | 1.25dr | | 1.33 | 0.16 | |
| Uniform Delay, d1 | 49.5 | 36.8 | | 45.8 | 24.1 | 14.5 | 49.5 | 35.5 | | 49.8 | 27.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.3 | 123.2 | | 606.7 | 0.5 | 0.1 | 5.3 | 4.8 | | 188.2 | 0.1 | |
| Delay (s) | 54.7 | 160.0 | | 652.4 | 24.5 | 14.5 | 54.7 | 40.4 | | 238.0 | 27.1 | |
| Level of Service | D | F | | F | C | B | D | D | | F | C | |
| Approach Delay (s) | | 155.8 | | | 262.8 | | | 41.3 | | | 127.6 | |
| Approach LOS | | F | | | F | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 169.8 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.29 | | |
| Actuated Cycle Length (s) | 108.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 131.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 220 | 1730 | 340 | 730 | 1470 | 130 | 300 | 510 | 660 | 290 | 640 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | | 0.97 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 5046 | | 3502 | 5117 | | 3502 | 3610 | 1598 | 3502 | 3536 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 5046 | | 3502 | 5117 | | 3502 | 3610 | 1598 | 3502 | 3536 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 220 | 1730 | 340 | 730 | 1470 | 130 | 300 | 510 | 660 | 290 | 640 | 90 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 220 | 2047 | 0 | 730 | 1592 | 0 | 300 | 510 | 660 | 290 | 720 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.9 | 38.1 | | 14.0 | 41.2 | | 10.0 | 30.2 | 44.2 | 7.0 | 27.2 | |
| Effective Green, g (s) | 10.9 | 38.1 | | 14.0 | 41.2 | | 10.0 | 30.2 | 44.2 | 7.0 | 27.2 | |
| Actuated g/C Ratio | 0.10 | 0.36 | | 0.13 | 0.39 | | 0.09 | 0.29 | 0.42 | 0.07 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 363 | 1826 | | 466 | 2002 | | 333 | 1035 | 731 | 233 | 913 | |
| v/s Ratio Prot | 0.06 | c0.41 | | c0.21 | c0.31 | | 0.09 | 0.14 | c0.12 | c0.08 | 0.20 | |
| v/s Ratio Perm | | | | | | | | | 0.29 | | | |
| v/c Ratio | 0.61 | 1.12 | | 1.57 | 0.80 | | 0.90 | 0.49 | 0.90 | 1.24 | 0.79 | |
| Uniform Delay, d1 | 45.1 | 33.6 | | 45.6 | 28.3 | | 47.2 | 31.2 | 28.5 | 49.1 | 36.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.9 | 62.4 | | 265.2 | 2.3 | | 26.1 | 0.4 | 14.5 | 140.8 | 4.6 | |
| Delay (s) | 48.0 | 96.0 | | 310.9 | 30.6 | | 73.2 | 31.6 | 43.0 | 190.0 | 40.9 | |
| Level of Service | D | F | | F | C | | E | C | D | F | D | |
| Approach Delay (s) | | 91.4 | | | 118.4 | | | 45.2 | | | 83.3 | |
| Approach LOS | | F | | | F | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 89.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.17 | | |
| Actuated Cycle Length (s) | 105.3 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 106.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

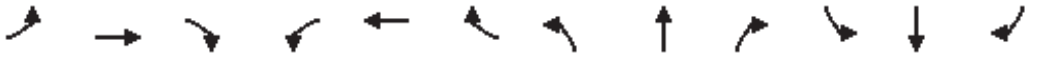
c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 660 | 1510 | 1390 | 60 | 80 | 860 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.91 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 0.99 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 0.88 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 5151 | | 1627 | 1525 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 5151 | | 1627 | 1525 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 660 | 1510 | 1390 | 60 | 80 | 860 |
| RTOR Reduction (vph) | 0 | 0 | 5 | 0 | 225 | 0 |
| Lane Group Flow (vph) | 660 | 1510 | 1445 | 0 | 251 | 464 |
| Confl. Peds. (#/hr) | | | | 5 | 5 | 5 |
| Turn Type | Prot | | | | | pm+ov |
| Protected Phases | 7 | 4 | 8 | | 6 | 7 |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 29.2 | 55.4 | 22.2 | | 16.3 | 45.5 |
| Effective Green, g (s) | 29.2 | 55.4 | 22.2 | | 16.3 | 45.5 |
| Actuated g/C Ratio | 0.37 | 0.70 | 0.28 | | 0.20 | 0.57 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 661 | 3606 | 1435 | | 333 | 947 |
| v/s Ratio Prot | c0.37 | 0.29 | c0.28 | | c0.15 | 0.18 |
| v/s Ratio Perm | | | | | | 0.12 |
| v/c Ratio | 1.00 | 0.42 | 1.01 | | 0.75 | 0.49 |
| Uniform Delay, d1 | 25.2 | 5.2 | 28.8 | | 29.8 | 10.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 34.4 | 0.1 | 25.5 | | 9.3 | 0.4 |
| Delay (s) | 59.6 | 5.3 | 54.2 | | 39.1 | 10.6 |
| Level of Service | E | A | D | | D | B |
| Approach Delay (s) | | 21.8 | 54.2 | | 25.0 | |
| Approach LOS | | C | D | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.94 | | |
| Actuated Cycle Length (s) | 79.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 97.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 1450 | 30 | 70 | 1090 | 10 | 40 | 20 | 30 | 10 | 60 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.95 | | | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 5168 | | 1805 | 5179 | | | 1766 | | | 1691 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 5168 | | 1805 | 5179 | | | 1766 | | | 1691 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 210 | 1450 | 30 | 70 | 1090 | 10 | 40 | 20 | 30 | 10 | 60 | 190 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 19 | 0 | 0 | 97 | 0 |
| Lane Group Flow (vph) | 210 | 1479 | 0 | 70 | 1099 | 0 | 0 | 71 | 0 | 0 | 163 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Split | | | Split | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.3 | 27.8 | | 5.2 | 25.7 | | | 6.6 | | | 11.7 | |
| Effective Green, g (s) | 7.3 | 27.8 | | 5.2 | 25.7 | | | 6.6 | | | 11.7 | |
| Actuated g/C Ratio | 0.11 | 0.41 | | 0.08 | 0.38 | | | 0.10 | | | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 196 | 2135 | | 139 | 1978 | | | 173 | | | 294 | |
| v/s Ratio Prot | c0.12 | c0.29 | | 0.04 | 0.21 | | | c0.04 | | | c0.10 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 1.07 | 0.69 | | 0.50 | 0.56 | | | 0.41 | | | 0.55 | |
| Uniform Delay, d1 | 30.0 | 16.2 | | 29.8 | 16.3 | | | 28.5 | | | 25.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 84.5 | 1.0 | | 2.9 | 0.3 | | | 1.6 | | | 2.2 | |
| Delay (s) | 114.5 | 17.2 | | 32.7 | 16.7 | | | 30.1 | | | 27.7 | |
| Level of Service | F | B | | C | B | | | C | | | C | |
| Approach Delay (s) | | 29.3 | | | 17.6 | | | 30.1 | | | 27.7 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 67.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 1440 | 20 | 20 | 1090 | 0 | 20 | 10 | 20 | 10 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5175 | | 1805 | 5187 | | 1805 | 1900 | 1609 | 1805 | 1745 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5175 | | 1805 | 5187 | | 1805 | 1900 | 1609 | 1805 | 1745 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 1440 | 20 | 20 | 1090 | 0 | 20 | 10 | 20 | 10 | 10 | 10 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 20 | 1459 | 0 | 20 | 1090 | 0 | 20 | 10 | 1 | 10 | 10 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 0.9 | 33.3 | | 2.3 | 34.7 | | 0.9 | 0.9 | 3.2 | 0.9 | 0.9 | |
| Effective Green, g (s) | 0.9 | 33.3 | | 2.3 | 34.7 | | 0.9 | 0.9 | 3.2 | 0.9 | 0.9 | |
| Actuated g/C Ratio | 0.02 | 0.62 | | 0.04 | 0.65 | | 0.02 | 0.02 | 0.06 | 0.02 | 0.02 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 30 | 3227 | | 78 | 3371 | | 30 | 32 | 217 | 30 | 29 | |
| v/s Ratio Prot | c0.01 | c0.28 | | 0.01 | 0.21 | | c0.01 | 0.01 | 0.00 | 0.01 | c0.01 | |
| v/s Ratio Perm | | | | | | | | | 0.00 | | | |
| v/c Ratio | 0.67 | 0.45 | | 0.26 | 0.32 | | 0.67 | 0.31 | 0.01 | 0.33 | 0.35 | |
| Uniform Delay, d1 | 26.1 | 5.3 | | 24.7 | 4.1 | | 26.1 | 25.9 | 23.6 | 26.0 | 26.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 44.1 | 0.1 | | 1.7 | 0.1 | | 44.1 | 5.5 | 0.0 | 6.5 | 7.2 | |
| Delay (s) | 70.2 | 5.4 | | 26.5 | 4.2 | | 70.2 | 31.5 | 23.6 | 32.4 | 33.2 | |
| Level of Service | E | A | | C | A | | E | C | C | C | C | |
| Approach Delay (s) | | 6.2 | | | 4.6 | | | 43.8 | | | 32.9 | |
| Approach LOS | | A | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 53.4 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 51.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

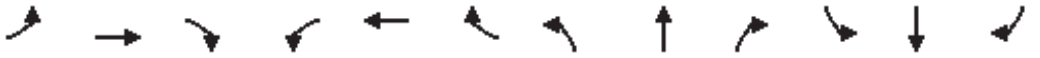
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 630 | 170 | 420 | 110 | 110 | 120 | 90 | 1660 | 130 | 130 | 1610 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | 1586 | 1805 | 1900 | 1587 | 3502 | 5187 | 1586 | 1805 | 5187 | 1579 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | 1586 | 1805 | 1900 | 1587 | 3502 | 5187 | 1586 | 1805 | 5187 | 1579 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 630 | 170 | 420 | 110 | 110 | 120 | 90 | 1660 | 130 | 130 | 1610 | 320 |
| RTOR Reduction (vph) | 0 | 0 | 287 | 0 | 0 | 107 | 0 | 0 | 53 | 0 | 0 | 117 |
| Lane Group Flow (vph) | 630 | 170 | 133 | 110 | 110 | 13 | 90 | 1660 | 77 | 130 | 1610 | 203 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 32.0 | 32.0 | 32.0 | 12.9 | 12.9 | 12.9 | 8.6 | 40.6 | 40.6 | 18.5 | 50.5 | 50.5 |
| Effective Green, g (s) | 32.0 | 32.0 | 32.0 | 12.9 | 12.9 | 12.9 | 8.6 | 40.6 | 40.6 | 18.5 | 50.5 | 50.5 |
| Actuated g/C Ratio | 0.27 | 0.27 | 0.27 | 0.11 | 0.11 | 0.11 | 0.07 | 0.34 | 0.34 | 0.15 | 0.42 | 0.42 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 481 | 507 | 423 | 194 | 204 | 171 | 251 | 1755 | 537 | 278 | 2183 | 664 |
| v/s Ratio Prot | c0.35 | 0.09 | | c0.06 | 0.06 | | 0.03 | c0.32 | | c0.07 | c0.31 | |
| v/s Ratio Perm | | | 0.08 | | | 0.01 | | | 0.05 | | | 0.13 |
| v/c Ratio | 1.31 | 0.34 | 0.31 | 0.57 | 0.54 | 0.08 | 0.36 | 0.95 | 0.14 | 0.47 | 0.74 | 0.31 |
| Uniform Delay, d1 | 44.0 | 35.4 | 35.2 | 50.9 | 50.7 | 48.2 | 53.1 | 38.6 | 27.6 | 46.3 | 29.2 | 23.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.21 | 0.57 | 0.16 |
| Incremental Delay, d2 | 153.7 | 0.4 | 0.4 | 3.8 | 2.7 | 0.2 | 0.9 | 12.0 | 0.6 | 0.4 | 0.8 | 0.4 |
| Delay (s) | 197.7 | 35.8 | 35.6 | 54.7 | 53.5 | 48.4 | 54.0 | 50.6 | 28.2 | 56.2 | 17.4 | 4.1 |
| Level of Service | F | D | D | D | D | D | D | D | C | E | B | A |
| Approach Delay (s) | | 119.4 | | | 52.1 | | | 49.2 | | | 17.8 | |
| Approach LOS | | F | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 53.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 96.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 70 | 540 | 100 | 60 | 60 | 170 | 1390 | 70 | 100 | 1490 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.87 | | 1.00 | 0.93 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3086 | | 1805 | 3312 | | 1805 | 3581 | | 1805 | 3583 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3086 | | 1805 | 3312 | | 1805 | 3581 | | 1805 | 3583 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 70 | 540 | 100 | 60 | 60 | 170 | 1390 | 70 | 100 | 1490 | 70 |
| RTOR Reduction (vph) | 0 | 139 | 0 | 0 | 49 | 0 | 0 | 4 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 110 | 471 | 0 | 100 | 71 | 0 | 170 | 1456 | 0 | 100 | 1556 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 10.4 | 19.5 | | 7.0 | 16.1 | | 7.0 | 35.1 | | 7.0 | 35.1 | |
| Effective Green, g (s) | 10.4 | 19.5 | | 7.0 | 16.1 | | 7.0 | 35.1 | | 7.0 | 35.1 | |
| Actuated g/C Ratio | 0.12 | 0.23 | | 0.08 | 0.19 | | 0.08 | 0.41 | | 0.08 | 0.41 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 222 | 711 | | 149 | 630 | | 149 | 1486 | | 149 | 1487 | |
| v/s Ratio Prot | 0.06 | c0.15 | | c0.06 | 0.02 | | c0.09 | 0.41 | | 0.06 | c0.43 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.50 | 1.10dr | | 0.67 | 0.11 | | 1.14 | 0.98 | | 0.67 | 1.05 | |
| Uniform Delay, d1 | 34.6 | 29.6 | | 37.7 | 28.3 | | 38.8 | 24.4 | | 37.7 | 24.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.7 | 2.3 | | 11.3 | 0.1 | | 116.6 | 18.7 | | 11.3 | 36.6 | |
| Delay (s) | 36.4 | 31.9 | | 49.0 | 28.4 | | 155.4 | 43.1 | | 49.0 | 61.4 | |
| Level of Service | D | C | | D | C | | F | D | | D | E | |
| Approach Delay (s) | | 32.6 | | | 37.8 | | | 54.8 | | | 60.6 | |
| Approach LOS | | C | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 84.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 92.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 70 | 80 | 20 | 40 | 30 | 70 | 900 | 20 | 20 | 730 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.92 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3295 | | 1805 | 3378 | | 1805 | 3610 | 1615 | 1805 | 3520 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3295 | | 1805 | 3378 | | 1805 | 3610 | 1615 | 1805 | 3520 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 70 | 80 | 20 | 40 | 30 | 70 | 900 | 20 | 20 | 730 | 130 |
| RTOR Reduction (vph) | 0 | 65 | 0 | 0 | 27 | 0 | 0 | 0 | 9 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 170 | 85 | 0 | 20 | 43 | 0 | 70 | 900 | 11 | 20 | 847 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.7 | 11.0 | | 3.7 | 6.0 | | 5.6 | 28.7 | 32.4 | 1.1 | 24.2 | |
| Effective Green, g (s) | 8.7 | 11.0 | | 3.7 | 6.0 | | 5.6 | 28.7 | 32.4 | 1.1 | 24.2 | |
| Actuated g/C Ratio | 0.14 | 0.18 | | 0.06 | 0.10 | | 0.09 | 0.47 | 0.54 | 0.02 | 0.40 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 504 | 599 | | 110 | 335 | | 167 | 1713 | 972 | 33 | 1408 | |
| v/s Ratio Prot | c0.05 | c0.03 | | 0.01 | 0.01 | | c0.04 | 0.25 | 0.00 | 0.01 | c0.24 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.34 | 0.14 | | 0.18 | 0.13 | | 0.42 | 0.53 | 0.01 | 0.61 | 0.60 | |
| Uniform Delay, d1 | 23.3 | 20.8 | | 27.0 | 24.9 | | 25.9 | 11.1 | 6.6 | 29.5 | 14.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | 0.1 | | 0.8 | 0.2 | | 1.7 | 0.3 | 0.0 | 27.6 | 0.7 | |
| Delay (s) | 23.7 | 20.9 | | 27.8 | 25.0 | | 27.6 | 11.4 | 6.6 | 57.1 | 15.1 | |
| Level of Service | C | C | | C | C | | C | B | A | E | B | |
| Approach Delay (s) | | 22.4 | | | 25.6 | | | 12.5 | | | 16.0 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 60.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 57.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 1350 | 130 | 110 | 1080 | 230 | 110 | 270 | 60 | 240 | 250 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 0.97 | 1.00 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5110 | | 1805 | 5187 | 1596 | 3502 | 1843 | | 1805 | 3465 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5110 | | 1805 | 5187 | 1596 | 3502 | 1843 | | 1805 | 3465 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 1350 | 130 | 110 | 1080 | 230 | 110 | 270 | 60 | 240 | 250 | 80 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 107 | 0 | 8 | 0 | 0 | 29 | 0 |
| Lane Group Flow (vph) | 130 | 1471 | 0 | 110 | 1080 | 123 | 110 | 322 | 0 | 240 | 301 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 13.1 | 44.6 | | 11.3 | 42.8 | 64.4 | 7.8 | 26.5 | | 21.6 | 40.3 | |
| Effective Green, g (s) | 13.1 | 44.6 | | 11.3 | 42.8 | 64.4 | 7.8 | 26.5 | | 21.6 | 40.3 | |
| Actuated g/C Ratio | 0.11 | 0.37 | | 0.09 | 0.36 | 0.54 | 0.06 | 0.22 | | 0.18 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 197 | 1899 | | 170 | 1850 | 857 | 228 | 407 | | 325 | 1164 | |
| v/s Ratio Prot | c0.07 | c0.29 | | 0.06 | 0.21 | 0.03 | 0.03 | c0.17 | | c0.13 | 0.09 | |
| v/s Ratio Perm | | | | | | 0.05 | | | | | | |
| v/c Ratio | 0.66 | 0.77 | | 0.65 | 0.58 | 0.14 | 0.48 | 0.79 | | 0.74 | 0.26 | |
| Uniform Delay, d1 | 51.3 | 33.3 | | 52.4 | 31.4 | 14.0 | 54.2 | 44.1 | | 46.5 | 29.0 | |
| Progression Factor | 1.07 | 0.49 | | 1.00 | 1.00 | 1.00 | 0.74 | 0.58 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.6 | 1.5 | | 8.2 | 1.4 | 0.1 | 1.5 | 9.8 | | 8.5 | 0.1 | |
| Delay (s) | 58.6 | 17.8 | | 60.6 | 32.7 | 14.0 | 41.8 | 35.2 | | 55.0 | 29.1 | |
| Level of Service | E | B | | E | C | B | D | D | | E | C | |
| Approach Delay (s) | | 21.1 | | | 31.9 | | | 36.8 | | | 40.0 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 1290 | 190 | 110 | 1070 | 20 | 170 | 290 | 80 | 20 | 260 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1590 | 1805 | 5187 | 1594 | 1805 | 1900 | 1598 | 1805 | 3433 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1590 | 1805 | 5187 | 1594 | 1805 | 1900 | 1598 | 1805 | 3433 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 1290 | 190 | 110 | 1070 | 20 | 170 | 290 | 80 | 20 | 260 | 110 |
| RTOR Reduction (vph) | 0 | 0 | 57 | 0 | 0 | 5 | 0 | 0 | 54 | 0 | 58 | 0 |
| Lane Group Flow (vph) | 140 | 1290 | 133 | 110 | 1070 | 15 | 170 | 290 | 26 | 20 | 312 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 10.7 | 27.9 | 27.9 | 7.1 | 24.3 | 31.4 | 10.2 | 17.2 | 24.3 | 7.1 | 14.1 | |
| Effective Green, g (s) | 10.7 | 27.9 | 27.9 | 7.1 | 24.3 | 31.4 | 10.2 | 17.2 | 24.3 | 7.1 | 14.1 | |
| Actuated g/C Ratio | 0.14 | 0.37 | 0.37 | 0.09 | 0.32 | 0.42 | 0.14 | 0.23 | 0.32 | 0.09 | 0.19 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 256 | 1922 | 589 | 170 | 1674 | 749 | 245 | 434 | 601 | 170 | 643 | |
| v/s Ratio Prot | c0.08 | c0.25 | | 0.06 | 0.21 | 0.00 | c0.09 | c0.15 | 0.00 | 0.01 | 0.09 | |
| v/s Ratio Perm | | | 0.08 | | | 0.01 | | | 0.01 | | | |
| v/c Ratio | 0.55 | 0.67 | 0.23 | 0.65 | 0.64 | 0.02 | 0.69 | 0.67 | 0.04 | 0.12 | 0.49 | |
| Uniform Delay, d1 | 30.0 | 19.9 | 16.3 | 32.9 | 21.8 | 12.9 | 31.1 | 26.5 | 17.5 | 31.2 | 27.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.4 | 0.9 | 0.2 | 8.2 | 0.8 | 0.0 | 8.2 | 3.9 | 0.0 | 0.3 | 0.6 | |
| Delay (s) | 32.4 | 20.8 | 16.5 | 41.1 | 22.6 | 12.9 | 39.3 | 30.3 | 17.5 | 31.5 | 27.9 | |
| Level of Service | C | C | B | D | C | B | D | C | B | C | C | |
| Approach Delay (s) | | 21.3 | | | 24.1 | | | 31.3 | | | 28.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 75.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 67.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 240 | 870 | 320 | 100 | 650 | 80 | 310 | 40 | 130 | 110 | 40 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 0.89 | | 1.00 | 0.87 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4978 | | 1805 | 5093 | | 1805 | 3196 | | 1805 | 3113 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4978 | | 1805 | 5093 | | 1805 | 3196 | | 1805 | 3113 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 240 | 870 | 320 | 100 | 650 | 80 | 310 | 40 | 130 | 110 | 40 | 220 |
| RTOR Reduction (vph) | 0 | 52 | 0 | 0 | 13 | 0 | 0 | 103 | 0 | 0 | 198 | 0 |
| Lane Group Flow (vph) | 240 | 1138 | 0 | 100 | 717 | 0 | 310 | 67 | 0 | 110 | 62 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 16.1 | 25.7 | | 8.7 | 18.3 | | 18.1 | 15.8 | | 10.1 | 7.8 | |
| Effective Green, g (s) | 16.1 | 25.7 | | 8.7 | 18.3 | | 18.1 | 15.8 | | 10.1 | 7.8 | |
| Actuated g/C Ratio | 0.21 | 0.34 | | 0.11 | 0.24 | | 0.24 | 0.21 | | 0.13 | 0.10 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 381 | 1677 | | 206 | 1222 | | 428 | 662 | | 239 | 318 | |
| v/s Ratio Prot | c0.13 | c0.23 | | 0.06 | 0.14 | | c0.17 | 0.02 | | 0.06 | c0.02 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.63 | 0.68 | | 0.49 | 0.59 | | 0.72 | 0.10 | | 0.46 | 0.20 | |
| Uniform Delay, d1 | 27.4 | 21.7 | | 31.7 | 25.7 | | 26.8 | 24.5 | | 30.6 | 31.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.2 | 1.1 | | 1.8 | 0.7 | | 6.0 | 0.1 | | 1.4 | 0.3 | |
| Delay (s) | 30.6 | 22.9 | | 33.5 | 26.4 | | 32.8 | 24.6 | | 32.0 | 31.7 | |
| Level of Service | C | C | | C | C | | C | C | | C | C | |
| Approach Delay (s) | | 24.2 | | | 27.2 | | | 29.9 | | | 31.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 76.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 530 | 390 | 110 | 330 | 70 | 310 | 1000 | 180 | 50 | 980 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1589 | 1805 | 3610 | 1590 | 1805 | 5056 | | 1805 | 5187 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1589 | 1805 | 3610 | 1590 | 1805 | 5056 | | 1805 | 5187 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 530 | 390 | 110 | 330 | 70 | 310 | 1000 | 180 | 50 | 980 | 90 |
| RTOR Reduction (vph) | 0 | 0 | 316 | 0 | 0 | 57 | 0 | 19 | 0 | 0 | 0 | 39 |
| Lane Group Flow (vph) | 150 | 530 | 74 | 110 | 330 | 13 | 310 | 1161 | 0 | 50 | 980 | 51 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 11.6 | 17.3 | 17.3 | 10.9 | 16.6 | 16.6 | 21.1 | 42.1 | | 5.3 | 26.3 | 26.3 |
| Effective Green, g (s) | 11.6 | 17.3 | 17.3 | 10.9 | 16.6 | 16.6 | 21.1 | 42.1 | | 5.3 | 26.3 | 26.3 |
| Actuated g/C Ratio | 0.13 | 0.19 | 0.19 | 0.12 | 0.18 | 0.18 | 0.23 | 0.46 | | 0.06 | 0.29 | 0.29 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 229 | 980 | 300 | 215 | 654 | 288 | 416 | 2324 | | 104 | 1489 | 456 |
| v/s Ratio Prot | c0.08 | c0.10 | | 0.06 | 0.09 | | c0.17 | 0.23 | | 0.03 | c0.19 | |
| v/s Ratio Perm | | | 0.05 | | | 0.01 | | | | | | 0.03 |
| v/c Ratio | 0.66 | 0.54 | 0.25 | 0.51 | 0.50 | 0.04 | 0.75 | 0.50 | | 0.48 | 0.66 | 0.11 |
| Uniform Delay, d1 | 38.1 | 33.6 | 31.6 | 37.9 | 33.8 | 31.0 | 32.8 | 17.4 | | 41.8 | 28.7 | 24.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.6 | 0.6 | 0.4 | 2.1 | 0.6 | 0.1 | 7.1 | 0.2 | | 3.5 | 1.1 | 0.1 |
| Delay (s) | 44.7 | 34.2 | 32.0 | 39.9 | 34.4 | 31.0 | 39.9 | 17.5 | | 45.3 | 29.8 | 24.2 |
| Level of Service | D | C | C | D | C | C | D | B | | D | C | C |
| Approach Delay (s) | | 34.9 | | | 35.1 | | | 22.2 | | | 30.0 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 91.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 71.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 660 | 160 | 60 | 540 | 60 | 100 | 380 | 10 | 80 | 420 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3492 | | 1805 | 3549 | | 1805 | 3594 | | 1805 | 1900 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3492 | | 1805 | 3549 | | 1805 | 3594 | | 1805 | 1900 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 660 | 160 | 60 | 540 | 60 | 100 | 380 | 10 | 80 | 420 | 60 |
| RTOR Reduction (vph) | 0 | 15 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 44 |
| Lane Group Flow (vph) | 50 | 805 | 0 | 60 | 594 | 0 | 100 | 389 | 0 | 80 | 420 | 16 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 6.8 | 52.8 | | 7.2 | 53.2 | | 11.1 | 35.7 | | 8.3 | 32.9 | 32.9 |
| Effective Green, g (s) | 6.8 | 52.8 | | 7.2 | 53.2 | | 11.1 | 35.7 | | 8.3 | 32.9 | 32.9 |
| Actuated g/C Ratio | 0.06 | 0.44 | | 0.06 | 0.44 | | 0.09 | 0.30 | | 0.07 | 0.27 | 0.27 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 102 | 1536 | | 108 | 1573 | | 167 | 1069 | | 125 | 521 | 435 |
| v/s Ratio Prot | 0.03 | c0.23 | | c0.03 | 0.17 | | c0.06 | c0.11 | | 0.04 | c0.22 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.49 | 0.52 | | 0.56 | 0.38 | | 0.60 | 0.36 | | 0.64 | 0.81 | 0.04 |
| Uniform Delay, d1 | 54.9 | 24.5 | | 54.8 | 22.3 | | 52.3 | 33.2 | | 54.4 | 40.6 | 31.9 |
| Progression Factor | 1.26 | 0.55 | | 1.03 | 0.65 | | 1.00 | 1.00 | | 0.84 | 0.92 | 1.24 |
| Incremental Delay, d2 | 2.3 | 0.8 | | 5.8 | 0.7 | | 5.7 | 0.2 | | 10.0 | 8.3 | 0.0 |
| Delay (s) | 71.7 | 14.3 | | 62.1 | 15.2 | | 58.0 | 33.4 | | 55.6 | 45.6 | 39.6 |
| Level of Service | E | B | | E | B | | E | C | | E | D | D |
| Approach Delay (s) | | 17.6 | | | 19.5 | | | 38.4 | | | 46.4 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 70.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 490 | 150 | 450 | 520 | 40 | 130 | 480 | 370 | 40 | 440 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3468 | | 1805 | 3567 | | 1805 | 3610 | 1586 | 1805 | 3584 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3468 | | 1805 | 3567 | | 1805 | 3610 | 1586 | 1805 | 3584 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 490 | 150 | 450 | 520 | 40 | 130 | 480 | 370 | 40 | 440 | 20 |
| RTOR Reduction (vph) | 0 | 22 | 0 | 0 | 4 | 0 | 0 | 0 | 280 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 40 | 618 | 0 | 450 | 556 | 0 | 130 | 480 | 90 | 40 | 457 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.2 | 37.3 | | 31.8 | 62.9 | | 14.2 | 29.3 | 29.3 | 5.6 | 20.7 | |
| Effective Green, g (s) | 6.2 | 37.3 | | 31.8 | 62.9 | | 14.2 | 29.3 | 29.3 | 5.6 | 20.7 | |
| Actuated g/C Ratio | 0.05 | 0.31 | | 0.27 | 0.52 | | 0.12 | 0.24 | 0.24 | 0.05 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 93 | 1078 | | 478 | 1870 | | 214 | 881 | 387 | 84 | 618 | |
| v/s Ratio Prot | 0.02 | c0.18 | | c0.25 | 0.16 | | 0.07 | c0.13 | | 0.02 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | |
| v/c Ratio | 0.43 | 0.57 | | 0.94 | 0.30 | | 0.61 | 0.54 | 0.23 | 0.48 | 0.74 | |
| Uniform Delay, d1 | 55.2 | 34.7 | | 43.2 | 16.1 | | 50.3 | 39.5 | 36.3 | 55.8 | 47.1 | |
| Progression Factor | 0.50 | 0.53 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.8 | 1.9 | | 27.0 | 0.4 | | 4.8 | 0.7 | 0.3 | 4.2 | 4.6 | |
| Delay (s) | 30.6 | 20.2 | | 70.2 | 16.5 | | 55.1 | 40.2 | 36.7 | 60.0 | 51.7 | |
| Level of Service | C | C | | E | B | | E | D | D | E | D | |
| Approach Delay (s) | | 20.8 | | | 40.4 | | | 40.8 | | | 52.4 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 420 | 70 | 230 | 520 | 340 | 50 | 50 | 140 | 290 | 70 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.94 | | 1.00 | 0.89 | | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1804 | 3525 | | 1803 | 3376 | | 1801 | 3177 | | 1801 | 3263 | |
| Flt Permitted | 0.25 | 1.00 | | 0.47 | 1.00 | | 0.64 | 1.00 | | 0.63 | 1.00 | |
| Satd. Flow (perm) | 483 | 3525 | | 894 | 3376 | | 1222 | 3177 | | 1199 | 3263 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 420 | 70 | 230 | 520 | 340 | 50 | 50 | 140 | 290 | 70 | 100 |
| RTOR Reduction (vph) | 0 | 22 | 0 | 0 | 176 | 0 | 0 | 86 | 0 | 0 | 62 | 0 |
| Lane Group Flow (vph) | 110 | 468 | 0 | 230 | 684 | 0 | 50 | 104 | 0 | 290 | 108 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 18.4 | 18.4 | | 18.4 | 18.4 | | 16.4 | 16.4 | | 16.4 | 16.4 | |
| Effective Green, g (s) | 18.4 | 18.4 | | 18.4 | 18.4 | | 16.4 | 16.4 | | 16.4 | 16.4 | |
| Actuated g/C Ratio | 0.43 | 0.43 | | 0.43 | 0.43 | | 0.38 | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 208 | 1515 | | 384 | 1451 | | 468 | 1217 | | 459 | 1250 | |
| v/s Ratio Prot | | 0.13 | | | 0.20 | | | 0.03 | | | 0.03 | |
| v/s Ratio Perm | 0.23 | | | c0.26 | | | 0.04 | | | c0.24 | | |
| v/c Ratio | 0.53 | 0.31 | | 0.60 | 0.47 | | 0.11 | 0.09 | | 0.63 | 0.09 | |
| Uniform Delay, d1 | 9.0 | 8.0 | | 9.4 | 8.7 | | 8.5 | 8.4 | | 10.7 | 8.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.4 | 0.1 | | 2.5 | 0.2 | | 0.1 | 0.0 | | 2.8 | 0.0 | |
| Delay (s) | 11.4 | 8.1 | | 11.9 | 9.0 | | 8.6 | 8.4 | | 13.6 | 8.5 | |
| Level of Service | B | A | | B | A | | A | A | | B | A | |
| Approach Delay (s) | | 8.7 | | | 9.6 | | | 8.5 | | | 11.7 | |
| Approach LOS | | A | | | A | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 42.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 480 | 260 | 220 | 220 | 260 | 440 | 160 | 370 | 180 | 510 | 540 | 510 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3338 | | 1805 | 3238 | | 1805 | 4905 | | 3502 | 4769 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3338 | | 1805 | 3238 | | 1805 | 4905 | | 3502 | 4769 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 480 | 260 | 220 | 220 | 260 | 440 | 160 | 370 | 180 | 510 | 540 | 510 |
| RTOR Reduction (vph) | 0 | 144 | 0 | 0 | 241 | 0 | 0 | 71 | 0 | 0 | 138 | 0 |
| Lane Group Flow (vph) | 480 | 336 | 0 | 220 | 459 | 0 | 160 | 479 | 0 | 510 | 912 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 23.3 | 26.2 | | 16.4 | 19.3 | | 12.4 | 23.7 | | 13.2 | 24.5 | |
| Effective Green, g (s) | 23.3 | 26.2 | | 16.4 | 19.3 | | 12.4 | 23.7 | | 13.2 | 24.5 | |
| Actuated g/C Ratio | 0.24 | 0.27 | | 0.17 | 0.20 | | 0.13 | 0.25 | | 0.14 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 440 | 916 | | 310 | 654 | | 234 | 1217 | | 484 | 1223 | |
| v/s Ratio Prot | c0.27 | 0.10 | | 0.12 | c0.14 | | 0.09 | 0.10 | | c0.15 | c0.19 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 1.09 | 0.37 | | 0.71 | 0.70 | | 0.68 | 0.39 | | 1.05 | 0.93dr | |
| Uniform Delay, d1 | 36.1 | 28.0 | | 37.3 | 35.4 | | 39.7 | 29.9 | | 41.1 | 32.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 69.7 | 0.3 | | 7.3 | 3.4 | | 8.0 | 0.2 | | 55.8 | 2.5 | |
| Delay (s) | 105.8 | 28.2 | | 44.6 | 38.8 | | 47.7 | 30.1 | | 96.9 | 35.2 | |
| Level of Service | F | C | | D | D | | D | C | | F | D | |
| Approach Delay (s) | | 67.0 | | | 40.2 | | | 34.1 | | | 55.4 | |
| Approach LOS | | E | | | D | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 95.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 94.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 220 | 1280 | 100 | 80 | 1310 | 310 | 160 | 530 | 70 | 360 | 370 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 5022 | | 3502 | 3540 | | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 5022 | | 3502 | 3540 | | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 220 | 1280 | 100 | 80 | 1310 | 310 | 160 | 530 | 70 | 360 | 370 | 150 |
| RTOR Reduction (vph) | 0 | 0 | 42 | 0 | 31 | 0 | 0 | 10 | 0 | 0 | 0 | 114 |
| Lane Group Flow (vph) | 220 | 1280 | 58 | 80 | 1589 | 0 | 160 | 590 | 0 | 360 | 370 | 36 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 22.8 | 54.2 | 54.2 | 11.3 | 42.7 | | 9.5 | 26.5 | | 12.0 | 29.0 | 29.0 |
| Effective Green, g (s) | 22.8 | 54.2 | 54.2 | 11.3 | 42.7 | | 9.5 | 26.5 | | 12.0 | 29.0 | 29.0 |
| Actuated g/C Ratio | 0.19 | 0.45 | 0.45 | 0.09 | 0.36 | | 0.08 | 0.22 | | 0.10 | 0.24 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 343 | 1631 | 716 | 170 | 1787 | | 277 | 782 | | 350 | 872 | 384 |
| v/s Ratio Prot | c0.12 | c0.35 | | 0.04 | c0.32 | | 0.05 | c0.17 | | c0.10 | 0.10 | |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | 0.02 |
| v/c Ratio | 0.64 | 0.78 | 0.08 | 0.47 | 0.89 | | 0.58 | 0.75 | | 1.03 | 0.42 | 0.09 |
| Uniform Delay, d1 | 44.8 | 27.9 | 18.7 | 51.5 | 36.4 | | 53.3 | 43.7 | | 54.0 | 38.4 | 35.3 |
| Progression Factor | 0.67 | 0.76 | 0.61 | 1.26 | 0.54 | | 1.10 | 1.07 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.1 | 3.0 | 0.2 | 0.9 | 3.2 | | 2.9 | 4.1 | | 55.6 | 0.3 | 0.1 |
| Delay (s) | 33.3 | 24.3 | 11.6 | 65.5 | 22.8 | | 61.4 | 50.8 | | 109.6 | 38.8 | 35.4 |
| Level of Service | C | C | B | E | C | | E | D | | F | D | D |
| Approach Delay (s) | | 24.7 | | | 24.8 | | | 53.0 | | | 67.2 | |
| Approach LOS | | C | | | C | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 1380 | 300 | 310 | 1230 | 130 | 410 | 550 | 240 | 160 | 290 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.95 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 1805 | 5104 | | 1805 | 3429 | | 1805 | 3537 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 1805 | 5104 | | 1805 | 3429 | | 1805 | 3537 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 1380 | 300 | 310 | 1230 | 130 | 410 | 550 | 240 | 160 | 290 | 40 |
| RTOR Reduction (vph) | 0 | 0 | 136 | 0 | 9 | 0 | 0 | 46 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 70 | 1380 | 164 | 310 | 1351 | 0 | 410 | 744 | 0 | 160 | 320 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 8.2 | 37.0 | 37.0 | 21.1 | 49.9 | | 15.0 | 33.3 | | 12.6 | 30.9 | |
| Effective Green, g (s) | 8.2 | 37.0 | 37.0 | 21.1 | 49.9 | | 15.0 | 33.3 | | 12.6 | 30.9 | |
| Actuated g/C Ratio | 0.07 | 0.31 | 0.31 | 0.18 | 0.42 | | 0.12 | 0.28 | | 0.10 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 123 | 1113 | 489 | 317 | 2122 | | 226 | 952 | | 190 | 911 | |
| v/s Ratio Prot | 0.04 | c0.38 | | c0.17 | 0.26 | | c0.23 | c0.22 | | 0.09 | 0.09 | |
| v/s Ratio Perm | | | 0.10 | | | | | | | | | |
| v/c Ratio | 0.57 | 1.24 | 0.33 | 0.98 | 0.64 | | 1.81 | 0.78 | | 0.84 | 0.35 | |
| Uniform Delay, d1 | 54.2 | 41.5 | 32.0 | 49.2 | 27.8 | | 52.5 | 40.0 | | 52.7 | 36.4 | |
| Progression Factor | 1.12 | 0.61 | 0.76 | 0.97 | 0.47 | | 0.90 | 0.85 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.4 | 112.5 | 1.0 | 37.1 | 1.1 | | 382.5 | 4.0 | | 27.2 | 0.2 | |
| Delay (s) | 64.2 | 137.7 | 25.4 | 84.7 | 14.2 | | 429.9 | 38.1 | | 79.9 | 36.6 | |
| Level of Service | E | F | C | F | B | | F | D | | E | D | |
| Approach Delay (s) | | 115.5 | | | 27.3 | | | 171.9 | | | 50.7 | |
| Approach LOS | | F | | | C | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 93.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.09 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 104.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 1490 | 110 | 60 | 1250 | 270 | 180 | 420 | 110 | 300 | 380 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1594 | 1805 | 5033 | | 1805 | 3486 | | 1805 | 3610 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1594 | 1805 | 5033 | | 1805 | 3486 | | 1805 | 3610 | 1598 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 1490 | 110 | 60 | 1250 | 270 | 180 | 420 | 110 | 300 | 380 | 160 |
| RTOR Reduction (vph) | 0 | 0 | 33 | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 0 | 54 |
| Lane Group Flow (vph) | 110 | 1490 | 77 | 60 | 1496 | 0 | 180 | 506 | 0 | 300 | 380 | 106 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 14.1 | 52.1 | 68.2 | 8.3 | 46.3 | | 16.1 | 23.6 | | 20.0 | 27.5 | 41.6 |
| Effective Green, g (s) | 14.1 | 52.1 | 68.2 | 8.3 | 46.3 | | 16.1 | 23.6 | | 20.0 | 27.5 | 41.6 |
| Actuated g/C Ratio | 0.12 | 0.43 | 0.57 | 0.07 | 0.39 | | 0.13 | 0.20 | | 0.17 | 0.23 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 212 | 2252 | 959 | 125 | 1942 | | 242 | 686 | | 301 | 827 | 607 |
| v/s Ratio Prot | c0.06 | 0.29 | 0.01 | 0.03 | c0.30 | | 0.10 | c0.15 | | c0.17 | c0.11 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | | | | | | | 0.05 |
| v/c Ratio | 0.52 | 0.66 | 0.08 | 0.48 | 0.77 | | 0.74 | 0.74 | | 1.00 | 0.46 | 0.17 |
| Uniform Delay, d1 | 49.8 | 27.0 | 11.7 | 53.8 | 32.2 | | 50.0 | 45.3 | | 50.0 | 39.8 | 27.3 |
| Progression Factor | 1.18 | 0.55 | 0.58 | 1.36 | 0.45 | | 0.80 | 1.15 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.1 | 0.0 | 1.9 | 2.0 | | 10.9 | 3.9 | | 50.6 | 0.4 | 0.1 |
| Delay (s) | 59.0 | 15.1 | 6.9 | 75.0 | 16.4 | | 50.8 | 55.8 | | 100.6 | 40.3 | 27.4 |
| Level of Service | E | B | A | E | B | | D | E | | F | D | C |
| Approach Delay (s) | | 17.4 | | | 18.6 | | | 54.6 | | | 59.4 | |
| Approach LOS | | B | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 84.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 1460 | 170 | 120 | 1170 | 190 | 250 | 470 | 190 | 280 | 450 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5096 | | 1805 | 5066 | | 1805 | 3438 | | 1805 | 3529 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5096 | | 1805 | 5066 | | 1805 | 3438 | | 1805 | 3529 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 1460 | 170 | 120 | 1170 | 190 | 250 | 470 | 190 | 280 | 450 | 70 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 17 | 0 | 0 | 44 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 130 | 1619 | 0 | 120 | 1343 | 0 | 250 | 616 | 0 | 280 | 508 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 15.5 | 42.5 | | 15.1 | 42.1 | | 17.0 | 28.4 | | 18.0 | 29.4 | |
| Effective Green, g (s) | 15.5 | 42.5 | | 15.1 | 42.1 | | 17.0 | 28.4 | | 18.0 | 29.4 | |
| Actuated g/C Ratio | 0.13 | 0.35 | | 0.13 | 0.35 | | 0.14 | 0.24 | | 0.15 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 233 | 1805 | | 227 | 1777 | | 256 | 814 | | 271 | 865 | |
| v/s Ratio Prot | c0.07 | c0.32 | | 0.07 | 0.27 | | 0.14 | c0.18 | | c0.16 | 0.14 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.56 | 0.90 | | 0.53 | 0.76 | | 0.98 | 0.76 | | 1.03 | 0.59 | |
| Uniform Delay, d1 | 49.0 | 36.7 | | 49.1 | 34.4 | | 51.3 | 42.6 | | 51.0 | 39.9 | |
| Progression Factor | 0.84 | 0.73 | | 1.13 | 0.34 | | 1.35 | 0.47 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.1 | 5.5 | | 1.4 | 1.9 | | 46.8 | 3.7 | | 63.5 | 1.0 | |
| Delay (s) | 43.5 | 32.4 | | 56.8 | 13.7 | | 116.0 | 23.7 | | 114.5 | 41.0 | |
| Level of Service | D | C | | E | B | | F | C | | F | D | |
| Approach Delay (s) | | 33.2 | | | 17.2 | | | 49.0 | | | 66.7 | |
| Approach LOS | | C | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 89.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 330 | 1140 | 400 | 360 | 810 | 180 | 560 | 1130 | 230 | 320 | 1050 | 170 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1587 | 3502 | 5030 | | 3502 | 5187 | 1589 | 3502 | 5187 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1587 | 3502 | 5030 | | 3502 | 5187 | 1589 | 3502 | 5187 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 330 | 1140 | 400 | 360 | 810 | 180 | 560 | 1130 | 230 | 320 | 1050 | 170 |
| RTOR Reduction (vph) | 0 | 0 | 180 | 0 | 29 | 0 | 0 | 0 | 145 | 0 | 0 | 122 |
| Lane Group Flow (vph) | 330 | 1140 | 220 | 360 | 961 | 0 | 560 | 1130 | 85 | 320 | 1050 | 48 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 14.6 | 37.1 | 37.1 | 16.0 | 38.5 | | 17.0 | 36.6 | 36.6 | 14.3 | 33.9 | 33.9 |
| Effective Green, g (s) | 14.6 | 37.1 | 37.1 | 16.0 | 38.5 | | 17.0 | 36.6 | 36.6 | 14.3 | 33.9 | 33.9 |
| Actuated g/C Ratio | 0.12 | 0.31 | 0.31 | 0.13 | 0.32 | | 0.14 | 0.31 | 0.31 | 0.12 | 0.28 | 0.28 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 426 | 1116 | 491 | 467 | 1614 | | 496 | 1582 | 485 | 417 | 1465 | 449 |
| v/s Ratio Prot | 0.09 | c0.32 | | c0.10 | 0.19 | | c0.16 | c0.22 | | 0.09 | 0.20 | |
| v/s Ratio Perm | | | 0.14 | | | | | | 0.05 | | | 0.03 |
| v/c Ratio | 0.77 | 1.02 | 0.45 | 0.77 | 0.60 | | 1.13 | 0.71 | 0.18 | 0.77 | 0.72 | 0.11 |
| Uniform Delay, d1 | 51.1 | 41.5 | 33.2 | 50.2 | 34.2 | | 51.5 | 37.1 | 30.6 | 51.2 | 38.7 | 31.9 |
| Progression Factor | 1.05 | 0.63 | 0.70 | 1.17 | 0.43 | | 0.78 | 0.73 | 1.42 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.0 | 23.7 | 1.3 | 6.7 | 1.4 | | 73.5 | 1.0 | 0.1 | 8.2 | 1.7 | 0.1 |
| Delay (s) | 57.4 | 49.8 | 24.7 | 65.6 | 16.0 | | 113.7 | 28.2 | 43.5 | 59.5 | 40.4 | 32.0 |
| Level of Service | E | D | C | E | B | | F | C | D | E | D | C |
| Approach Delay (s) | | 45.8 | | | 29.2 | | | 55.0 | | | 43.5 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 44.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 93.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 90 | 1610 | 1460 | 390 | 310 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.95 | 1.00 | 0.97 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 3610 | 1591 | 3502 | 1598 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 3610 | 1591 | 3502 | 1598 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 1610 | 1460 | 390 | 310 | 110 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 58 | 0 | 22 |
| Lane Group Flow (vph) | 90 | 1610 | 1460 | 332 | 310 | 88 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 11.3 | 95.7 | 80.4 | 96.7 | 16.3 | 27.6 |
| Effective Green, g (s) | 11.3 | 95.7 | 80.4 | 96.7 | 16.3 | 27.6 |
| Actuated g/C Ratio | 0.09 | 0.80 | 0.67 | 0.81 | 0.14 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 170 | 4137 | 2419 | 1335 | 476 | 421 |
| v/s Ratio Prot | c0.05 | 0.31 | c0.40 | 0.03 | c0.09 | 0.02 |
| v/s Ratio Perm | | | | 0.17 | | 0.04 |
| v/c Ratio | 0.53 | 0.39 | 0.60 | 0.25 | 0.65 | 0.21 |
| Uniform Delay, d1 | 51.8 | 3.6 | 11.0 | 2.8 | 49.2 | 37.4 |
| Progression Factor | 1.54 | 0.32 | 1.34 | 6.37 | 0.66 | 0.44 |
| Incremental Delay, d2 | 0.3 | 0.0 | 0.7 | 0.1 | 3.1 | 0.2 |
| Delay (s) | 79.9 | 1.2 | 15.4 | 18.1 | 35.7 | 16.7 |
| Level of Service | E | A | B | B | D | B |
| Approach Delay (s) | | 5.3 | 16.0 | | 30.7 | |
| Approach LOS | | A | B | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 1330 | 340 | 20 | 1140 | 220 | 570 | 420 | 30 | 330 | 120 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1587 | 1805 | 5048 | | 3502 | 3570 | | 1805 | 3610 | 1601 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1587 | 1805 | 5048 | | 3502 | 3570 | | 1805 | 3610 | 1601 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 1330 | 340 | 20 | 1140 | 220 | 570 | 420 | 30 | 330 | 120 | 210 |
| RTOR Reduction (vph) | 0 | 0 | 149 | 0 | 22 | 0 | 0 | 5 | 0 | 0 | 0 | 5 |
| Lane Group Flow (vph) | 170 | 1330 | 191 | 20 | 1338 | 0 | 570 | 445 | 0 | 330 | 120 | 205 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | | | | | | | 6 |
| Actuated Green, G (s) | 20.5 | 61.0 | 61.0 | 3.3 | 43.8 | | 19.0 | 20.7 | | 19.0 | 20.7 | 41.2 |
| Effective Green, g (s) | 20.5 | 61.0 | 61.0 | 3.3 | 43.8 | | 19.0 | 20.7 | | 19.0 | 20.7 | 41.2 |
| Actuated g/C Ratio | 0.17 | 0.51 | 0.51 | 0.03 | 0.36 | | 0.16 | 0.17 | | 0.16 | 0.17 | 0.34 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 308 | 2637 | 807 | 50 | 1843 | | 554 | 616 | | 286 | 623 | 603 |
| v/s Ratio Prot | c0.09 | 0.26 | | 0.01 | c0.27 | | 0.16 | c0.12 | | c0.18 | 0.03 | 0.06 |
| v/s Ratio Perm | | | 0.12 | | | | | | | | | 0.07 |
| v/c Ratio | 0.55 | 0.50 | 0.24 | 0.40 | 0.73 | | 1.03 | 0.72 | | 1.15 | 0.19 | 0.34 |
| Uniform Delay, d1 | 45.5 | 19.5 | 16.5 | 57.4 | 32.9 | | 50.5 | 46.9 | | 50.5 | 42.5 | 29.3 |
| Progression Factor | 0.88 | 0.80 | 0.73 | 0.83 | 0.76 | | 1.00 | 1.00 | | 1.03 | 1.14 | 1.39 |
| Incremental Delay, d2 | 2.0 | 0.7 | 0.6 | 4.1 | 2.0 | | 45.8 | 4.2 | | 96.7 | 0.1 | 0.3 |
| Delay (s) | 42.3 | 16.3 | 12.7 | 51.9 | 27.0 | | 96.3 | 51.1 | | 148.7 | 48.4 | 41.0 |
| Level of Service | D | B | B | D | C | | F | D | | F | D | D |
| Approach Delay (s) | | 18.1 | | | 27.4 | | | 76.4 | | | 96.2 | |
| Approach LOS | | B | | | C | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 88.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 1060 | 600 | 10 | 660 | 100 | 570 | 410 | 20 | 90 | 390 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1596 | 1805 | 3531 | | 3502 | 3582 | | 1805 | 3518 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1596 | 1805 | 3531 | | 3502 | 3582 | | 1805 | 3518 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 1060 | 600 | 10 | 660 | 100 | 570 | 410 | 20 | 90 | 390 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 87 | 0 | 9 | 0 | 0 | 3 | 0 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 150 | 1060 | 513 | 10 | 751 | 0 | 570 | 427 | 0 | 90 | 446 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 14.1 | 55.4 | 81.7 | 1.4 | 42.7 | | 26.3 | 37.3 | | 9.9 | 20.9 | |
| Effective Green, g (s) | 14.1 | 55.4 | 81.7 | 1.4 | 42.7 | | 26.3 | 37.3 | | 9.9 | 20.9 | |
| Actuated g/C Ratio | 0.12 | 0.46 | 0.68 | 0.01 | 0.36 | | 0.22 | 0.31 | | 0.08 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 212 | 2395 | 1087 | 21 | 1256 | | 768 | 1113 | | 149 | 613 | |
| v/s Ratio Prot | c0.08 | 0.20 | 0.10 | 0.01 | c0.21 | | c0.16 | 0.12 | | 0.05 | c0.13 | |
| v/s Ratio Perm | | | 0.22 | | | | | | | | | |
| v/c Ratio | 0.71 | 0.44 | 0.47 | 0.48 | 0.60 | | 0.74 | 0.38 | | 0.60 | 0.73 | |
| Uniform Delay, d1 | 51.0 | 21.9 | 9.0 | 58.9 | 31.6 | | 43.7 | 32.4 | | 53.2 | 46.9 | |
| Progression Factor | 1.28 | 0.53 | 0.87 | 1.06 | 0.78 | | 1.00 | 1.00 | | 0.73 | 0.76 | |
| Incremental Delay, d2 | 8.6 | 0.5 | 0.3 | 14.7 | 1.9 | | 3.9 | 0.2 | | 6.6 | 4.2 | |
| Delay (s) | 74.0 | 12.2 | 8.1 | 77.0 | 26.7 | | 47.6 | 32.6 | | 45.6 | 39.9 | |
| Level of Service | E | B | A | E | C | | D | C | | D | D | |
| Approach Delay (s) | | 15.9 | | | 27.3 | | | 41.1 | | | 40.8 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 80.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 790 | 110 | 30 | 590 | 50 | 140 | 570 | 60 | 110 | 510 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3536 | | 1805 | 3563 | | 1805 | 3552 | | 1805 | 3537 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3536 | | 1805 | 3563 | | 1805 | 3552 | | 1805 | 3537 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 790 | 110 | 30 | 590 | 50 | 140 | 570 | 60 | 110 | 510 | 70 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 7 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 90 | 892 | 0 | 30 | 636 | 0 | 140 | 623 | 0 | 110 | 571 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 11.1 | 59.4 | | 4.7 | 53.0 | | 14.2 | 27.6 | | 12.3 | 25.7 | |
| Effective Green, g (s) | 11.1 | 59.4 | | 4.7 | 53.0 | | 14.2 | 27.6 | | 12.3 | 25.7 | |
| Actuated g/C Ratio | 0.09 | 0.49 | | 0.04 | 0.44 | | 0.12 | 0.23 | | 0.10 | 0.21 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 167 | 1750 | | 71 | 1574 | | 214 | 817 | | 185 | 758 | |
| v/s Ratio Prot | c0.05 | c0.25 | | 0.02 | 0.18 | | c0.08 | c0.18 | | 0.06 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.54 | 0.51 | | 0.42 | 0.40 | | 0.65 | 0.76 | | 0.59 | 0.75 | |
| Uniform Delay, d1 | 52.0 | 20.5 | | 56.3 | 22.8 | | 50.6 | 43.1 | | 51.5 | 44.2 | |
| Progression Factor | 0.96 | 1.58 | | 1.26 | 0.52 | | 1.00 | 1.00 | | 1.29 | 0.80 | |
| Incremental Delay, d2 | 3.1 | 1.0 | | 3.4 | 0.6 | | 7.0 | 4.2 | | 4.3 | 3.7 | |
| Delay (s) | 52.8 | 33.3 | | 74.1 | 12.4 | | 57.6 | 47.4 | | 70.9 | 39.0 | |
| Level of Service | D | C | | E | B | | E | D | | E | D | |
| Approach Delay (s) | | 35.1 | | | 15.2 | | | 49.2 | | | 44.1 | |
| Approach LOS | | D | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 650 | 210 | 100 | 430 | 180 | 160 | 1620 | 110 | 210 | 1400 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3463 | | 1805 | 3432 | | 1805 | 5187 | 1585 | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3463 | | 1805 | 3432 | | 1805 | 5187 | 1585 | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 650 | 210 | 100 | 430 | 180 | 160 | 1620 | 110 | 210 | 1400 | 60 |
| RTOR Reduction (vph) | 0 | 26 | 0 | 0 | 37 | 0 | 0 | 0 | 50 | 0 | 0 | 27 |
| Lane Group Flow (vph) | 60 | 834 | 0 | 100 | 573 | 0 | 160 | 1620 | 60 | 210 | 1400 | 33 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 7.0 | 34.5 | | 8.8 | 36.3 | | 12.7 | 45.0 | 45.0 | 15.7 | 48.0 | 48.0 |
| Effective Green, g (s) | 7.0 | 34.5 | | 8.8 | 36.3 | | 12.7 | 45.0 | 45.0 | 15.7 | 48.0 | 48.0 |
| Actuated g/C Ratio | 0.06 | 0.29 | | 0.07 | 0.30 | | 0.11 | 0.38 | 0.38 | 0.13 | 0.40 | 0.40 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 105 | 996 | | 132 | 1038 | | 191 | 1945 | 594 | 236 | 1444 | 634 |
| v/s Ratio Prot | 0.03 | c0.24 | | c0.06 | 0.17 | | 0.09 | 0.31 | | c0.12 | c0.39 | |
| v/s Ratio Perm | | | | | | | | | 0.04 | | | 0.02 |
| v/c Ratio | 0.57 | 0.84 | | 0.76 | 0.55 | | 0.84 | 0.83 | 0.10 | 0.89 | 0.97 | 0.05 |
| Uniform Delay, d1 | 55.0 | 40.1 | | 54.6 | 35.0 | | 52.6 | 34.1 | 24.4 | 51.3 | 35.3 | 22.1 |
| Progression Factor | 0.67 | 0.96 | | 0.74 | 0.87 | | 1.05 | 0.63 | 0.45 | 0.79 | 0.67 | 0.60 |
| Incremental Delay, d2 | 6.5 | 7.4 | | 20.7 | 2.0 | | 17.1 | 2.7 | 0.2 | 25.1 | 14.6 | 0.1 |
| Delay (s) | 43.6 | 45.8 | | 61.1 | 32.5 | | 72.2 | 24.0 | 11.3 | 65.5 | 38.1 | 13.4 |
| Level of Service | D | D | | E | C | | E | C | B | E | D | B |
| Approach Delay (s) | | 45.7 | | | 36.6 | | | 27.3 | | | 40.7 | |
| Approach LOS | | D | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 95.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 240 | 2090 | 210 | 10 | 2490 | 160 | 240 | 60 | 20 | 190 | 230 | 610 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2799 | 3502 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 3502 | 5187 | 1588 | 3502 | 3610 | 2799 | 3502 | 3610 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 240 | 2090 | 210 | 10 | 2490 | 160 | 240 | 60 | 20 | 190 | 230 | 610 |
| RTOR Reduction (vph) | 0 | 0 | 59 | 0 | 0 | 28 | 0 | 0 | 14 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 240 | 2090 | 151 | 10 | 2490 | 132 | 240 | 60 | 6 | 190 | 230 | 520 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.0 | 59.5 | 59.5 | 4.2 | 51.7 | 51.7 | 7.8 | 31.9 | 36.1 | 19.6 | 43.7 | 43.7 |
| Effective Green, g (s) | 12.0 | 59.5 | 59.5 | 4.2 | 51.7 | 51.7 | 7.8 | 31.9 | 36.1 | 19.6 | 43.7 | 43.7 |
| Actuated g/C Ratio | 0.09 | 0.45 | 0.45 | 0.03 | 0.39 | 0.39 | 0.06 | 0.24 | 0.28 | 0.15 | 0.33 | 0.33 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 165 | 2352 | 732 | 112 | 2044 | 626 | 208 | 878 | 855 | 523 | 1202 | 529 |
| v/s Ratio Prot | c0.13 | 0.40 | | 0.00 | c0.48 | | c0.07 | 0.02 | 0.00 | 0.05 | 0.06 | |
| v/s Ratio Perm | | | 0.09 | | | 0.08 | | | 0.00 | | | c0.33 |
| v/c Ratio | 1.45 | 0.89 | 0.21 | 0.09 | 1.22 | 0.21 | 1.15 | 0.07 | 0.01 | 0.36 | 0.19 | 0.98 |
| Uniform Delay, d1 | 59.6 | 32.8 | 21.6 | 61.6 | 39.7 | 26.3 | 61.7 | 38.2 | 34.5 | 50.2 | 31.2 | 43.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 234.9 | 4.5 | 0.1 | 0.3 | 102.9 | 0.2 | 110.1 | 0.0 | 0.0 | 0.4 | 0.1 | 34.5 |
| Delay (s) | 294.5 | 37.3 | 21.8 | 62.0 | 142.6 | 26.4 | 171.8 | 38.2 | 34.5 | 50.6 | 31.2 | 77.9 |
| Level of Service | F | D | C | E | F | C | F | D | C | D | C | E |
| Approach Delay (s) | | 60.4 | | | 135.3 | | | 138.1 | | | 62.4 | |
| Approach LOS | | E | | | F | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 94.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.15 | | |
| Actuated Cycle Length (s) | 131.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 103.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1490 | 780 | 0 | 2260 | 0 | 0 | 0 | 0 | 230 | 0 | 450 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | | | 0.95 | 0.91 | 0.95 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.95 | | | 1.00 | | | | | 1.00 | 0.86 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4920 | | | 5187 | | | | | 1715 | 1487 | 1534 |
| Flt Permitted | | 1.00 | | | 1.00 | | | | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4920 | | | 5187 | | | | | 1715 | 1487 | 1534 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 1490 | 780 | 0 | 2260 | 0 | 0 | 0 | 0 | 230 | 0 | 450 |
| RTOR Reduction (vph) | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 |
| Lane Group Flow (vph) | 0 | 2212 | 0 | 0 | 2260 | 0 | 0 | 0 | 0 | 207 | 234 | 229 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | | | | | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 86.2 | | | 86.2 | | | | | 25.8 | 25.8 | 25.8 |
| Effective Green, g (s) | | 86.2 | | | 86.2 | | | | | 25.8 | 25.8 | 25.8 |
| Actuated g/C Ratio | | 0.72 | | | 0.72 | | | | | 0.22 | 0.22 | 0.22 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 3534 | | | 3726 | | | | | 369 | 320 | 330 |
| v/s Ratio Prot | | c0.45 | | | 0.44 | | | | | | | |
| v/s Ratio Perm | | | | | | | | | | 0.12 | 0.16 | 0.15 |
| v/c Ratio | | 0.63 | | | 0.61 | | | | | 0.56 | 0.73 | 0.69 |
| Uniform Delay, d1 | | 8.6 | | | 8.4 | | | | | 42.0 | 43.9 | 43.4 |
| Progression Factor | | 1.00 | | | 0.26 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.8 | | | 0.3 | | | | | 2.0 | 8.1 | 6.2 |
| Delay (s) | | 9.5 | | | 2.5 | | | | | 44.0 | 51.9 | 49.6 |
| Level of Service | | A | | | A | | | | | D | D | D |
| Approach Delay (s) | | 9.5 | | | 2.5 | | | 0.0 | | | 48.7 | |
| Approach LOS | | A | | | A | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 91.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 390 | 1370 | 0 | 0 | 1710 | 260 | 690 | 10 | 170 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 0.95 | 0.91 | 0.95 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 0.98 | | 1.00 | 0.99 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 5187 | | | 5072 | | 1715 | 1641 | 1534 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 0.96 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 5187 | | | 5072 | | 1715 | 1641 | 1534 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 390 | 1370 | 0 | 0 | 1710 | 260 | 690 | 10 | 170 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 2 | 55 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 390 | 1370 | 0 | 0 | 1954 | 0 | 359 | 356 | 98 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | | | |
| Turn Type | Prot | | | | | | Split | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 29.0 | 82.7 | | | 49.7 | | 29.3 | 29.3 | 29.3 | | | |
| Effective Green, g (s) | 29.0 | 82.7 | | | 49.7 | | 29.3 | 29.3 | 29.3 | | | |
| Actuated g/C Ratio | 0.24 | 0.69 | | | 0.41 | | 0.24 | 0.24 | 0.24 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 436 | 3575 | | | 2101 | | 419 | 401 | 375 | | | |
| v/s Ratio Prot | c0.22 | 0.26 | | | c0.39 | | 0.21 | c0.22 | | | | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | |
| v/c Ratio | 0.89 | 0.38 | | | 0.93 | | 0.86 | 0.89 | 0.26 | | | |
| Uniform Delay, d1 | 44.0 | 7.9 | | | 33.5 | | 43.3 | 43.8 | 36.6 | | | |
| Progression Factor | 0.94 | 0.68 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 17.2 | 0.3 | | | 8.9 | | 15.7 | 20.6 | 0.4 | | | |
| Delay (s) | 58.7 | 5.6 | | | 42.4 | | 59.1 | 64.4 | 37.0 | | | |
| Level of Service | E | A | | | D | | E | E | D | | | |
| Approach Delay (s) | | 17.4 | | | 42.4 | | | 57.4 | | | 0.0 | |
| Approach LOS | | B | | | D | | | E | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 91.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 1300 | 80 | 20 | 1520 | 130 | 30 | 50 | 10 | 120 | 160 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.91 | | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5137 | | 1805 | 5187 | 1615 | 3502 | 3520 | | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5137 | | 1805 | 5187 | 1615 | 3502 | 3520 | | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 1300 | 80 | 20 | 1520 | 130 | 30 | 50 | 10 | 120 | 160 | 240 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 54 | 0 | 9 | 0 | 0 | 0 | 204 |
| Lane Group Flow (vph) | 190 | 1376 | 0 | 20 | 1520 | 76 | 30 | 51 | 0 | 120 | 160 | 36 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 11.8 | 78.3 | | 3.3 | 69.8 | 69.8 | 4.3 | 9.2 | | 13.2 | 18.1 | 18.1 |
| Effective Green, g (s) | 11.8 | 78.3 | | 3.3 | 69.8 | 69.8 | 4.3 | 9.2 | | 13.2 | 18.1 | 18.1 |
| Actuated g/C Ratio | 0.10 | 0.65 | | 0.03 | 0.58 | 0.58 | 0.04 | 0.08 | | 0.11 | 0.15 | 0.15 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 344 | 3352 | | 50 | 3017 | 939 | 125 | 270 | | 199 | 545 | 244 |
| v/s Ratio Prot | c0.05 | 0.27 | | 0.01 | c0.29 | | 0.01 | 0.01 | | c0.07 | c0.04 | |
| v/s Ratio Perm | | | | | | 0.05 | | | | | | 0.02 |
| v/c Ratio | 0.55 | 0.41 | | 0.40 | 0.50 | 0.08 | 0.24 | 0.19 | | 0.60 | 0.29 | 0.15 |
| Uniform Delay, d1 | 51.6 | 9.9 | | 57.4 | 14.9 | 11.0 | 56.3 | 51.9 | | 50.9 | 45.3 | 44.3 |
| Progression Factor | 1.00 | 1.00 | | 1.23 | 0.32 | 0.04 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.9 | 0.4 | | 4.4 | 0.5 | 0.1 | 1.0 | 0.3 | | 5.1 | 0.3 | 0.3 |
| Delay (s) | 53.5 | 10.3 | | 74.9 | 5.2 | 0.6 | 57.3 | 52.2 | | 56.0 | 45.6 | 44.5 |
| Level of Service | D | B | | E | A | A | E | D | | E | D | D |
| Approach Delay (s) | | 15.5 | | | 5.7 | | | 53.9 | | | 47.5 | |
| Approach LOS | | B | | | A | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 1040 | 230 | 250 | 1290 | 560 | 50 | 330 | 130 | 280 | 380 | 290 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5030 | | 1805 | 5187 | 1585 | 1802 | 3441 | | 1801 | 3351 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.28 | 1.00 | | 0.41 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5030 | | 1805 | 5187 | 1585 | 530 | 3441 | | 778 | 3351 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 1040 | 230 | 250 | 1290 | 560 | 50 | 330 | 130 | 280 | 380 | 290 |
| RTOR Reduction (vph) | 0 | 27 | 0 | 0 | 0 | 111 | 0 | 38 | 0 | 0 | 125 | 0 |
| Lane Group Flow (vph) | 130 | 1243 | 0 | 250 | 1290 | 449 | 50 | 422 | 0 | 280 | 545 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 11.9 | 42.0 | | 19.2 | 49.3 | 49.3 | 46.8 | 46.8 | | 46.8 | 46.8 | |
| Effective Green, g (s) | 11.9 | 42.0 | | 19.2 | 49.3 | 49.3 | 46.8 | 46.8 | | 46.8 | 46.8 | |
| Actuated g/C Ratio | 0.10 | 0.35 | | 0.16 | 0.41 | 0.41 | 0.39 | 0.39 | | 0.39 | 0.39 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 179 | 1761 | | 289 | 2131 | 651 | 207 | 1342 | | 303 | 1307 | |
| v/s Ratio Prot | 0.07 | 0.25 | | c0.14 | 0.25 | | | 0.12 | | | 0.16 | |
| v/s Ratio Perm | | | | | | c0.28 | 0.09 | | | c0.36 | | |
| v/c Ratio | 0.73 | 0.71 | | 0.87 | 0.61 | 0.69 | 0.24 | 0.31 | | 0.92 | 0.42 | |
| Uniform Delay, d1 | 52.5 | 33.7 | | 49.1 | 27.7 | 29.1 | 24.6 | 25.4 | | 34.9 | 26.7 | |
| Progression Factor | 1.12 | 0.82 | | 0.96 | 0.46 | 0.55 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 12.9 | 2.3 | | 7.8 | 0.4 | 1.7 | 0.6 | 0.1 | | 32.4 | 0.2 | |
| Delay (s) | 71.7 | 30.0 | | 55.0 | 13.2 | 17.7 | 25.3 | 25.6 | | 67.3 | 26.9 | |
| Level of Service | E | C | | E | B | B | C | C | | E | C | |
| Approach Delay (s) | | 33.9 | | | 19.4 | | | 25.6 | | | 38.8 | |
| Approach LOS | | C | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 85.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 1260 | 220 | 130 | 1460 | 90 | 530 | 370 | 170 | 90 | 260 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5057 | | 1805 | 5136 | | 1805 | 3422 | | 1805 | 3610 | 1589 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5057 | | 1805 | 5136 | | 1805 | 3422 | | 1805 | 3610 | 1589 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 1260 | 220 | 130 | 1460 | 90 | 530 | 370 | 170 | 90 | 260 | 130 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 5 | 0 | 0 | 61 | 0 | 0 | 0 | 114 |
| Lane Group Flow (vph) | 170 | 1463 | 0 | 130 | 1545 | 0 | 530 | 479 | 0 | 90 | 260 | 16 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 23.5 | 47.1 | | 18.5 | 42.1 | | 24.0 | 28.0 | | 10.4 | 14.4 | 14.4 |
| Effective Green, g (s) | 23.5 | 47.1 | | 18.5 | 42.1 | | 24.0 | 28.0 | | 10.4 | 14.4 | 14.4 |
| Actuated g/C Ratio | 0.20 | 0.39 | | 0.15 | 0.35 | | 0.20 | 0.23 | | 0.09 | 0.12 | 0.12 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 353 | 1985 | | 278 | 1802 | | 361 | 798 | | 156 | 433 | 191 |
| v/s Ratio Prot | c0.09 | c0.29 | | 0.07 | c0.30 | | c0.29 | c0.14 | | 0.05 | 0.07 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.01 |
| v/c Ratio | 0.48 | 0.74 | | 0.47 | 0.86 | | 1.47 | 0.60 | | 0.58 | 0.60 | 0.08 |
| Uniform Delay, d1 | 42.8 | 31.2 | | 46.3 | 36.2 | | 48.0 | 41.0 | | 52.7 | 50.1 | 46.9 |
| Progression Factor | 1.38 | 0.64 | | 1.62 | 0.34 | | 0.89 | 1.06 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.8 | 2.0 | | 0.8 | 3.5 | | 214.3 | 0.3 | | 5.1 | 2.3 | 0.2 |
| Delay (s) | 59.8 | 21.9 | | 75.7 | 15.9 | | 256.9 | 43.6 | | 57.8 | 52.4 | 47.1 |
| Level of Service | E | C | | E | B | | F | D | | E | D | D |
| Approach Delay (s) | | 25.8 | | | 20.5 | | | 149.3 | | | 52.0 | |
| Approach LOS | | C | | | C | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 53.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 93.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↑ | ↱ | ↰ | ↑↑↑ | | | | | | | ↱ |
| Volume (vph) | 0 | 1760 | 110 | 1710 | 760 | 0 | 0 | 0 | 0 | 0 | 0 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | | 4.0 |
| Lane Util. Factor | | 0.91 | 1.00 | 1.00 | 0.91 | | | | | | | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.97 | 1.00 | 1.00 | | | | | | | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | | 0.86 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (prot) | | 5187 | 1568 | 1805 | 5187 | | | | | | | 1644 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | | 1.00 |
| Satd. Flow (perm) | | 5187 | 1568 | 1805 | 5187 | | | | | | | 1644 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 1760 | 110 | 1710 | 760 | 0 | 0 | 0 | 0 | 0 | 0 | 320 |
| RTOR Reduction (vph) | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 264 |
| Lane Group Flow (vph) | 0 | 1760 | 86 | 1710 | 760 | 0 | 0 | 0 | 0 | 0 | 0 | 57 |
| Confl. Peds. (#/hr) | | | 5 | | | | | | | | | 5 |
| Turn Type | | | Perm | Prot | | | | | | | | custom |
| Protected Phases | | 4 | | 3 6 | 8 | | | | | | | 6 |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | | 32.0 | 32.0 | 80.0 | 94.0 | | | | | | | 18.0 |
| Effective Green, g (s) | | 32.0 | 32.0 | 80.0 | 94.0 | | | | | | | 18.0 |
| Actuated g/C Ratio | | 0.27 | 0.27 | 0.67 | 0.78 | | | | | | | 0.15 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | | | | | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | | | | | 3.0 |
| Lane Grp Cap (vph) | | 1383 | 418 | 1203 | 4063 | | | | | | | 247 |
| v/s Ratio Prot | | c0.34 | | c0.95 | 0.15 | | | | | | | 0.03 |
| v/s Ratio Perm | | | 0.05 | | | | | | | | | |
| v/c Ratio | | 1.27 | 0.21 | 1.42 | 0.19 | | | | | | | 0.23 |
| Uniform Delay, d1 | | 44.0 | 34.1 | 20.0 | 3.3 | | | | | | | 44.9 |
| Progression Factor | | 1.00 | 1.00 | 0.76 | 0.72 | | | | | | | 1.00 |
| Incremental Delay, d2 | | 128.5 | 1.1 | 190.1 | 0.0 | | | | | | | 0.5 |
| Delay (s) | | 172.5 | 35.2 | 205.3 | 2.4 | | | | | | | 45.4 |
| Level of Service | | F | D | F | A | | | | | | | D |
| Approach Delay (s) | | 164.4 | | | 142.9 | | | 0.0 | | | 45.4 | |
| Approach LOS | | F | | | F | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 144.8 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.38 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 135.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 870 | 780 | 0 | 2170 | 460 | 420 | 440 | 10 | 740 | 0 | 590 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | | 0.97 | | 1.00 | 1.00 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4819 | | | 5026 | | 1805 | 1894 | | 1805 | 1615 | |
| Flt Permitted | 0.08 | 1.00 | | | 1.00 | | 0.28 | 1.00 | | 0.39 | 1.00 | |
| Satd. Flow (perm) | 158 | 4819 | | | 5026 | | 534 | 1894 | | 736 | 1615 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 870 | 780 | 0 | 2170 | 460 | 420 | 440 | 10 | 740 | 0 | 590 |
| RTOR Reduction (vph) | 0 | 134 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 110 | 1516 | 0 | 0 | 2602 | 0 | 420 | 450 | 0 | 740 | 590 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | | | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 48.0 | 48.0 | | | 48.0 | | 64.0 | 64.0 | | 64.0 | 64.0 | |
| Effective Green, g (s) | 48.0 | 48.0 | | | 48.0 | | 64.0 | 64.0 | | 64.0 | 64.0 | |
| Actuated g/C Ratio | 0.40 | 0.40 | | | 0.40 | | 0.53 | 0.53 | | 0.53 | 0.53 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 63 | 1928 | | | 2010 | | 285 | 1010 | | 393 | 861 | |
| v/s Ratio Prot | | 0.31 | | | 0.52 | | | 0.24 | | | 0.37 | |
| v/s Ratio Perm | c0.69 | | | | | | 0.79 | | | c1.00 | | |
| v/c Ratio | 1.75 | 1.00dr | | | 1.29 | | 1.47 | 0.45 | | 1.88 | 0.69 | |
| Uniform Delay, d1 | 36.0 | 31.5 | | | 36.0 | | 28.0 | 17.1 | | 28.0 | 20.6 | |
| Progression Factor | 0.21 | 0.19 | | | 0.32 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 341.6 | 0.3 | | | 133.0 | | 231.3 | 0.3 | | 406.9 | 2.3 | |
| Delay (s) | 349.2 | 6.3 | | | 144.3 | | 259.3 | 17.4 | | 434.9 | 22.9 | |
| Level of Service | F | A | | | F | | F | B | | F | C | |
| Approach Delay (s) | | 27.8 | | | 144.3 | | | 134.2 | | | 252.1 | |
| Approach LOS | | C | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 133.6 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.82 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 136.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 270 | 1200 | 550 | 320 | 1110 | 90 | 1660 | 410 | 230 | 130 | 60 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 0.95 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1585 | 1805 | 5187 | 1585 | 1715 | 1707 | | 1715 | 1772 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | | 0.95 | 0.98 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1585 | 1805 | 5187 | 1585 | 1715 | 1707 | | 1715 | 1772 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 270 | 1200 | 550 | 320 | 1110 | 90 | 1660 | 410 | 230 | 130 | 60 | 140 |
| RTOR Reduction (vph) | 0 | 0 | 413 | 0 | 0 | 65 | 0 | 8 | 0 | 0 | 0 | 99 |
| Lane Group Flow (vph) | 270 | 1200 | 137 | 320 | 1110 | 25 | 1162 | 1130 | 0 | 94 | 96 | 41 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 28.9 | 26.0 | 26.0 | 28.9 | 26.0 | 26.0 | 37.0 | 37.0 | | 12.1 | 12.1 | 12.1 |
| Effective Green, g (s) | 28.9 | 26.0 | 26.0 | 28.9 | 26.0 | 26.0 | 37.0 | 37.0 | | 12.1 | 12.1 | 12.1 |
| Actuated g/C Ratio | 0.24 | 0.22 | 0.22 | 0.24 | 0.22 | 0.22 | 0.31 | 0.31 | | 0.10 | 0.10 | 0.10 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 435 | 1124 | 343 | 435 | 1124 | 343 | 529 | 526 | | 173 | 179 | 160 |
| v/s Ratio Prot | 0.15 | c0.23 | | c0.18 | 0.21 | | c0.68 | 0.66 | | c0.05 | 0.05 | |
| v/s Ratio Perm | | | 0.09 | | | 0.02 | | | | | | 0.03 |
| v/c Ratio | 0.62 | 1.07 | 0.40 | 0.74 | 0.99 | 0.07 | 2.20 | 2.15 | | 0.54 | 0.54 | 0.26 |
| Uniform Delay, d1 | 40.7 | 47.0 | 40.3 | 42.0 | 46.8 | 37.4 | 41.5 | 41.5 | | 51.3 | 51.3 | 49.8 |
| Progression Factor | 0.90 | 0.97 | 0.96 | 0.62 | 0.76 | 1.08 | 1.00 | 1.00 | | 0.92 | 0.92 | 0.90 |
| Incremental Delay, d2 | 0.3 | 32.6 | 0.3 | 5.3 | 21.5 | 0.3 | 544.6 | 523.4 | | 3.1 | 2.8 | 0.8 |
| Delay (s) | 36.8 | 78.2 | 38.9 | 31.5 | 57.0 | 40.7 | 586.1 | 564.9 | | 50.3 | 49.9 | 45.7 |
| Level of Service | D | E | D | C | E | D | F | F | | D | D | D |
| Approach Delay (s) | | 62.0 | | | 50.7 | | | 575.6 | | | 48.2 | |
| Approach LOS | | E | | | D | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 249.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.32 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 121.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1630 | 650 | 50 | 790 | 680 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.96 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3422 | | 1805 | 3610 | 1805 | 1590 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3422 | | 1805 | 3610 | 1805 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 1630 | 650 | 50 | 790 | 680 | 20 |
| RTOR Reduction (vph) | 32 | 0 | 0 | 0 | 0 | 9 |
| Lane Group Flow (vph) | 2248 | 0 | 50 | 790 | 680 | 11 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | pm+ov |
| Protected Phases | 4 | | 3 | 8 | 2 | 3 |
| Permitted Phases | | | | | | 2 |
| Actuated Green, G (s) | 70.1 | | 5.5 | 79.6 | 41.1 | 46.6 |
| Effective Green, g (s) | 70.1 | | 5.5 | 79.6 | 41.1 | 46.6 |
| Actuated g/C Ratio | 0.54 | | 0.04 | 0.62 | 0.32 | 0.36 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1864 | | 77 | 2233 | 576 | 625 |
| v/s Ratio Prot | c0.66 | | c0.03 | 0.22 | c0.38 | 0.00 |
| v/s Ratio Perm | | | | | | 0.01 |
| v/c Ratio | 1.21 | | 0.65 | 0.35 | 1.18 | 0.02 |
| Uniform Delay, d1 | 29.3 | | 60.7 | 12.0 | 43.8 | 26.4 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 98.0 | | 17.3 | 0.1 | 98.2 | 0.0 |
| Delay (s) | 127.3 | | 78.0 | 12.1 | 142.0 | 26.4 |
| Level of Service | F | | E | B | F | C |
| Approach Delay (s) | 127.3 | | | 16.0 | 138.7 | |
| Approach LOS | F | | | B | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 104.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.17 | | |
| Actuated Cycle Length (s) | 128.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 110.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 1020 | 650 | 400 | 440 | 70 | 440 | 150 | 340 | 40 | 80 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1588 | 3502 | 3536 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1588 | 3502 | 3536 | | 1805 | 1900 | 1615 | 1805 | 3610 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 1020 | 650 | 400 | 440 | 70 | 440 | 150 | 340 | 40 | 80 | 20 |
| RTOR Reduction (vph) | 0 | 0 | 433 | 0 | 8 | 0 | 0 | 0 | 224 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 20 | 1020 | 217 | 400 | 502 | 0 | 440 | 150 | 116 | 40 | 80 | 1 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 3.1 | 28.1 | 28.1 | 12.1 | 37.1 | | 29.0 | 31.0 | 31.0 | 4.0 | 6.0 | 6.0 |
| Effective Green, g (s) | 3.1 | 28.1 | 28.1 | 12.1 | 37.1 | | 29.0 | 31.0 | 31.0 | 4.0 | 6.0 | 6.0 |
| Actuated g/C Ratio | 0.03 | 0.31 | 0.31 | 0.13 | 0.41 | | 0.32 | 0.34 | 0.34 | 0.04 | 0.07 | 0.07 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 61 | 1598 | 489 | 465 | 1438 | | 574 | 646 | 549 | 79 | 238 | 105 |
| v/s Ratio Prot | 0.01 | c0.20 | | c0.11 | 0.14 | | c0.24 | 0.08 | | c0.02 | 0.02 | |
| v/s Ratio Perm | | | 0.14 | | | | | | 0.07 | | | 0.00 |
| v/c Ratio | 0.33 | 0.64 | 0.44 | 0.86 | 0.35 | | 0.77 | 0.23 | 0.21 | 0.51 | 0.34 | 0.01 |
| Uniform Delay, d1 | 43.0 | 27.2 | 25.3 | 38.7 | 18.7 | | 28.0 | 21.6 | 21.4 | 42.6 | 40.7 | 39.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.1 | 0.8 | 0.6 | 14.9 | 0.1 | | 6.1 | 0.2 | 0.2 | 5.0 | 0.8 | 0.0 |
| Delay (s) | 46.2 | 28.0 | 25.9 | 53.7 | 18.8 | | 34.1 | 21.8 | 21.6 | 47.7 | 41.5 | 39.9 |
| Level of Service | D | C | C | D | B | | C | C | C | D | D | D |
| Approach Delay (s) | | 27.4 | | | 34.1 | | | 27.5 | | | 43.1 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 91.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 74.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

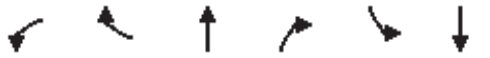
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 120 | 10 | 120 | 0 | 0 | 0 | 0 | 970 | 440 | 660 | 790 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | | | | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.87 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1576 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1576 | 1534 | | | | | 3610 | 1615 | 3502 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 120 | 10 | 120 | 0 | 0 | 0 | 0 | 970 | 440 | 660 | 790 | 0 |
| RTOR Reduction (vph) | 0 | 49 | 58 | 0 | 0 | 0 | 0 | 0 | 224 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 120 | 16 | 7 | 0 | 0 | 0 | 0 | 970 | 216 | 660 | 790 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 5 | | | | | 5 |
| Turn Type | Split | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | 6 | 6 | | | | | | 4 | | 3 | 8 | |
| Permitted Phases | | | 6 | | | | | | 4 | | | |
| Actuated Green, G (s) | 5.6 | 5.6 | 5.6 | | | | | 19.9 | 19.9 | 12.5 | 36.4 | |
| Effective Green, g (s) | 5.6 | 5.6 | 5.6 | | | | | 19.9 | 19.9 | 12.5 | 36.4 | |
| Actuated g/C Ratio | 0.11 | 0.11 | 0.11 | | | | | 0.40 | 0.40 | 0.25 | 0.73 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 202 | 177 | 172 | | | | | 1437 | 643 | 876 | 2628 | |
| v/s Ratio Prot | c0.07 | 0.01 | | | | | | c0.27 | | c0.19 | 0.22 | |
| v/s Ratio Perm | | | 0.00 | | | | | | 0.13 | | | |
| v/c Ratio | 0.59 | 0.09 | 0.04 | | | | | 0.68 | 0.34 | 0.75 | 0.30 | |
| Uniform Delay, d1 | 21.1 | 19.9 | 19.8 | | | | | 12.4 | 10.5 | 17.3 | 2.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.01 | 0.82 | |
| Incremental Delay, d2 | 4.6 | 0.2 | 0.1 | | | | | 2.6 | 1.4 | 3.6 | 0.3 | |
| Delay (s) | 25.7 | 20.1 | 19.9 | | | | | 14.9 | 11.9 | 21.1 | 2.2 | |
| Level of Service | C | C | B | | | | | B | B | C | A | |
| Approach Delay (s) | | 22.8 | | | 0.0 | | | 14.0 | | | 10.8 | |
| Approach LOS | | C | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 62.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 310 | 250 | 670 | 0 | 0 | 970 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | | | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | | | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (prot) | 3502 | 1615 | 3610 | | | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | | 1.00 |
| Satd. Flow (perm) | 3502 | 1615 | 3610 | | | 3610 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 310 | 250 | 670 | 0 | 0 | 970 |
| RTOR Reduction (vph) | 0 | 146 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 310 | 104 | 670 | 0 | 0 | 970 |
| Confl. Peds. (#/hr) | | | | 5 | | |
| Turn Type | | Perm | | | | |
| Protected Phases | 8 | | 2 | | | 6 |
| Permitted Phases | | 8 | | | | |
| Actuated Green, G (s) | 10.1 | 10.1 | 31.9 | | | 31.9 |
| Effective Green, g (s) | 10.1 | 10.1 | 31.9 | | | 31.9 |
| Actuated g/C Ratio | 0.20 | 0.20 | 0.64 | | | 0.64 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 |
| Lane Grp Cap (vph) | 707 | 326 | 2303 | | | 2303 |
| v/s Ratio Prot | c0.09 | | 0.19 | | | c0.27 |
| v/s Ratio Perm | | 0.06 | | | | |
| v/c Ratio | 0.44 | 0.32 | 0.29 | | | 0.42 |
| Uniform Delay, d1 | 17.5 | 17.0 | 4.0 | | | 4.5 |
| Progression Factor | 1.00 | 1.00 | 0.10 | | | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.6 | 0.2 | | | 0.6 |
| Delay (s) | 17.9 | 17.6 | 0.7 | | | 5.0 |
| Level of Service | B | B | A | | | A |
| Approach Delay (s) | 17.8 | | 0.7 | | | 5.0 |
| Approach LOS | B | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 50.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 2480 | 10 | 260 | 2680 | 640 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.91 | | 0.97 | 0.91 | 0.94 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 5184 | | 3502 | 5187 | 5095 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 5184 | | 3502 | 5187 | 5095 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 2480 | 10 | 260 | 2680 | 640 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 2490 | 0 | 260 | 2680 | 648 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 49.3 | | 9.7 | 63.0 | 15.8 | |
| Effective Green, g (s) | 49.3 | | 9.7 | 63.0 | 15.8 | |
| Actuated g/C Ratio | 0.57 | | 0.11 | 0.73 | 0.18 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2944 | | 391 | 3765 | 927 | |
| v/s Ratio Prot | c0.48 | | 0.07 | c0.52 | c0.13 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.85 | | 0.66 | 0.71 | 0.70 | |
| Uniform Delay, d1 | 15.6 | | 37.0 | 6.8 | 33.3 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.4 | | 4.2 | 0.7 | 2.3 | |
| Delay (s) | 18.0 | | 41.2 | 7.4 | 35.6 | |
| Level of Service | B | | D | A | D | |
| Approach Delay (s) | 18.0 | | | 10.4 | 35.6 | |
| Approach LOS | B | | | B | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 86.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 2410 | 210 | 530 | 2490 | 80 | 410 | 310 | 250 | 150 | 290 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1588 | 3502 | 5158 | | 3502 | 1900 | 1590 | 1805 | 3447 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 1588 | 3502 | 5158 | | 3502 | 1900 | 1590 | 1805 | 3447 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 2410 | 210 | 530 | 2490 | 80 | 410 | 310 | 250 | 150 | 290 | 110 |
| RTOR Reduction (vph) | 0 | 0 | 111 | 0 | 2 | 0 | 0 | 0 | 175 | 0 | 40 | 0 |
| Lane Group Flow (vph) | 190 | 2410 | 99 | 530 | 2568 | 0 | 410 | 310 | 75 | 150 | 360 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 9.0 | 44.2 | 44.2 | 12.0 | 47.2 | | 15.7 | 22.9 | 22.9 | 9.1 | 16.3 | |
| Effective Green, g (s) | 9.0 | 44.2 | 44.2 | 12.0 | 47.2 | | 15.7 | 22.9 | 22.9 | 9.1 | 16.3 | |
| Actuated g/C Ratio | 0.09 | 0.42 | 0.42 | 0.12 | 0.45 | | 0.15 | 0.22 | 0.22 | 0.09 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 156 | 2200 | 674 | 403 | 2336 | | 528 | 418 | 349 | 158 | 539 | |
| v/s Ratio Prot | 0.11 | c0.46 | | c0.15 | c0.50 | | c0.12 | c0.16 | | 0.08 | 0.10 | |
| v/s Ratio Perm | | | 0.06 | | | | | | 0.05 | | | |
| v/c Ratio | 1.22 | 1.10 | 0.15 | 1.32 | 1.10 | | 0.78 | 0.74 | 0.22 | 0.95 | 0.67 | |
| Uniform Delay, d1 | 47.6 | 30.0 | 18.4 | 46.1 | 28.5 | | 42.6 | 37.9 | 33.3 | 47.3 | 41.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 142.5 | 50.9 | 0.1 | 158.5 | 52.0 | | 7.1 | 7.0 | 0.3 | 55.9 | 3.1 | |
| Delay (s) | 190.1 | 80.9 | 18.5 | 204.6 | 80.5 | | 49.6 | 44.8 | 33.6 | 103.2 | 44.5 | |
| Level of Service | F | F | B | F | F | | D | D | C | F | D | |
| Approach Delay (s) | | 83.6 | | | 101.7 | | | 44.0 | | | 60.5 | |
| Approach LOS | | F | | | F | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 84.3 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 104.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 102.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 1230 | 490 | 250 | 860 | 200 | 250 | 530 | 60 | 270 | 970 | 210 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1596 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1594 | 3502 | 3610 | 1596 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 200 | 1230 | 490 | 250 | 860 | 200 | 250 | 530 | 60 | 270 | 970 | 210 |
| RTOR Reduction (vph) | 0 | 0 | 14 | 0 | 0 | 78 | 0 | 0 | 5 | 0 | 0 | 14 |
| Lane Group Flow (vph) | 200 | 1230 | 476 | 250 | 860 | 122 | 250 | 530 | 55 | 270 | 970 | 196 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.0 | 38.1 | 46.1 | 8.0 | 35.1 | 44.1 | 8.0 | 33.2 | 41.2 | 9.0 | 34.2 | 45.2 |
| Effective Green, g (s) | 11.0 | 38.1 | 46.1 | 8.0 | 35.1 | 44.1 | 8.0 | 33.2 | 41.2 | 9.0 | 34.2 | 45.2 |
| Actuated g/C Ratio | 0.11 | 0.37 | 0.44 | 0.08 | 0.34 | 0.42 | 0.08 | 0.32 | 0.40 | 0.09 | 0.33 | 0.43 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 190 | 1319 | 766 | 269 | 1215 | 735 | 269 | 1149 | 691 | 302 | 1184 | 753 |
| v/s Ratio Prot | c0.11 | c0.34 | 0.05 | 0.07 | 0.24 | 0.01 | 0.07 | 0.15 | 0.01 | c0.08 | c0.27 | 0.03 |
| v/s Ratio Perm | | | 0.25 | | | 0.06 | | | 0.03 | | | 0.10 |
| v/c Ratio | 1.05 | 0.93 | 0.62 | 0.93 | 0.71 | 0.17 | 0.93 | 0.46 | 0.08 | 0.89 | 0.82 | 0.26 |
| Uniform Delay, d1 | 46.6 | 31.9 | 22.4 | 47.9 | 30.1 | 18.7 | 47.9 | 28.4 | 19.7 | 47.2 | 32.2 | 18.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 79.9 | 12.0 | 1.6 | 36.0 | 1.9 | 0.1 | 36.0 | 0.3 | 0.0 | 26.6 | 4.5 | 0.2 |
| Delay (s) | 126.5 | 43.9 | 24.0 | 83.9 | 32.0 | 18.8 | 83.9 | 28.7 | 19.8 | 73.8 | 36.8 | 19.1 |
| Level of Service | F | D | C | F | C | B | F | C | B | E | D | B |
| Approach Delay (s) | | 47.4 | | | 39.9 | | | 44.5 | | | 41.1 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 104.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 89.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 140 | 1380 | 1030 | 620 | 680 | 270 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 0.99 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1602 | 3493 | 1453 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 3610 | 1602 | 3493 | 1453 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 1380 | 1030 | 620 | 680 | 270 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 39 | 4 | 9 |
| Lane Group Flow (vph) | 140 | 1380 | 1030 | 581 | 703 | 234 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 |
| Turn Type | Prot | | | pm+ov | | pm+ov |
| Protected Phases | 7 | 4 | 8 | 6 | 6 | 7 |
| Permitted Phases | | | | 8 | | 6 |
| Actuated Green, G (s) | 7.2 | 34.9 | 23.7 | 45.1 | 21.4 | 28.6 |
| Effective Green, g (s) | 7.2 | 34.9 | 23.7 | 45.1 | 21.4 | 28.6 |
| Actuated g/C Ratio | 0.11 | 0.54 | 0.37 | 0.70 | 0.33 | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 202 | 1959 | 1331 | 1223 | 1163 | 737 |
| v/s Ratio Prot | 0.08 | c0.38 | 0.29 | 0.16 | c0.20 | 0.04 |
| v/s Ratio Perm | | | | 0.20 | | 0.13 |
| v/c Ratio | 0.69 | 0.70 | 0.77 | 0.47 | 0.60 | 0.32 |
| Uniform Delay, d1 | 27.5 | 10.9 | 17.9 | 4.3 | 17.9 | 11.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.8 | 1.2 | 2.9 | 0.3 | 0.9 | 0.2 |
| Delay (s) | 37.3 | 12.1 | 20.8 | 4.6 | 18.8 | 11.8 |
| Level of Service | D | B | C | A | B | B |
| Approach Delay (s) | | 14.4 | 14.7 | | 17.0 | |
| Approach LOS | | B | B | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 64.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 1280 | 820 | 520 | 730 | 130 | 540 | 360 | 320 | 250 | 600 | 300 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1597 | 3502 | 3610 | 1590 | 3502 | 3610 | 1590 | 3502 | 3610 | 1599 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1597 | 3502 | 3610 | 1590 | 3502 | 3610 | 1590 | 3502 | 3610 | 1599 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 210 | 1280 | 820 | 520 | 730 | 130 | 540 | 360 | 320 | 250 | 600 | 300 |
| RTOR Reduction (vph) | 0 | 0 | 39 | 0 | 0 | 88 | 0 | 0 | 166 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 210 | 1280 | 781 | 520 | 730 | 42 | 540 | 360 | 154 | 250 | 600 | 271 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Prot | | Perm | Prot | | pm+ov |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 14.3 | 33.5 | 46.8 | 14.3 | 33.5 | 33.5 | 13.3 | 27.9 | 27.9 | 10.9 | 25.5 | 39.8 |
| Effective Green, g (s) | 14.3 | 33.5 | 46.8 | 14.3 | 33.5 | 33.5 | 13.3 | 27.9 | 27.9 | 10.9 | 25.5 | 39.8 |
| Actuated g/C Ratio | 0.14 | 0.33 | 0.46 | 0.14 | 0.33 | 0.33 | 0.13 | 0.27 | 0.27 | 0.11 | 0.25 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 252 | 1694 | 791 | 488 | 1179 | 519 | 454 | 982 | 432 | 372 | 897 | 683 |
| v/s Ratio Prot | 0.12 | 0.25 | c0.13 | c0.15 | 0.20 | | c0.15 | 0.10 | | 0.07 | c0.17 | 0.06 |
| v/s Ratio Perm | | | 0.36 | | | 0.03 | | | 0.10 | | | 0.11 |
| v/c Ratio | 0.83 | 0.76 | 0.99 | 1.07 | 0.62 | 0.08 | 1.19 | 0.37 | 0.36 | 0.67 | 0.67 | 0.40 |
| Uniform Delay, d1 | 43.0 | 30.9 | 27.6 | 44.1 | 29.2 | 23.9 | 44.6 | 30.2 | 30.1 | 44.1 | 34.7 | 22.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 20.4 | 2.0 | 28.5 | 59.3 | 1.0 | 0.1 | 105.4 | 0.2 | 0.5 | 4.7 | 1.9 | 0.4 |
| Delay (s) | 63.4 | 32.9 | 56.1 | 103.5 | 30.1 | 24.0 | 150.0 | 30.4 | 30.6 | 48.9 | 36.7 | 23.1 |
| Level of Service | E | C | E | F | C | C | F | C | C | D | D | C |
| Approach Delay (s) | | 43.9 | | | 57.2 | | | 83.4 | | | 35.8 | |
| Approach LOS | | D | | | E | | | F | | | D | |

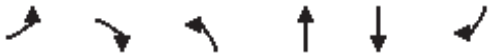
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 53.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.94 | | |
| Actuated Cycle Length (s) | 102.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 95.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 500 | 1480 | 10 | 690 | 0 | 0 | 0 | 0 | 30 | 0 | 610 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Lane Util. Factor | | 0.91 | 0.91 | 1.00 | 0.95 | | | | | 1.00 | 1.00 | |
| Frt | | 0.91 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 3148 | 1470 | 1805 | 3610 | | | | | 1805 | 1615 | |
| Flt Permitted | | 1.00 | 1.00 | 0.18 | 1.00 | | | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 3148 | 1470 | 345 | 3610 | | | | | 1805 | 1615 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 500 | 1480 | 10 | 690 | 0 | 0 | 0 | 0 | 30 | 0 | 610 |
| RTOR Reduction (vph) | 0 | 391 | 391 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 106 | 0 |
| Lane Group Flow (vph) | 0 | 849 | 349 | 10 | 690 | 0 | 0 | 0 | 0 | 30 | 504 | 0 |
| Turn Type | | | Perm | Perm | | | | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | |
| Actuated Green, G (s) | | 22.0 | 22.0 | 22.0 | 22.0 | | | | | 16.7 | 16.7 | |
| Effective Green, g (s) | | 22.0 | 22.0 | 22.0 | 22.0 | | | | | 16.7 | 16.7 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | 0.47 | 0.47 | | | | | 0.36 | 0.36 | |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1483 | 693 | 163 | 1701 | | | | | 645 | 578 | |
| v/s Ratio Prot | | c0.27 | | | 0.19 | | | | | | c0.31 | |
| v/s Ratio Perm | | | 0.24 | 0.03 | | | | | | 0.02 | | |
| v/c Ratio | | 0.57 | 0.50 | 0.06 | 0.41 | | | | | 0.05 | 0.87 | |
| Uniform Delay, d1 | | 8.9 | 8.6 | 6.7 | 8.1 | | | | | 9.8 | 14.0 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.5 | 0.6 | 0.2 | 0.2 | | | | | 0.0 | 13.6 | |
| Delay (s) | | 9.5 | 9.1 | 6.9 | 8.2 | | | | | 9.8 | 27.6 | |
| Level of Service | | A | A | A | A | | | | | A | C | |
| Approach Delay (s) | | 9.4 | | | 8.2 | | | 0.0 | | | 26.8 | |
| Approach LOS | | A | | | A | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 46.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 116.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 500 | 0 | 690 | 0 | 0 | 0 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 500 | 0 | 690 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 250 | 250 | 460 | 230 |
| Volume Left (vph) | 250 | 250 | 460 | 230 |
| Volume Right (vph) | 0 | 0 | 0 | 0 |
| Hadj (s) | 0.50 | 0.50 | 0.50 | 0.50 |
| Departure Headway (s) | 7.0 | 7.0 | 6.6 | 6.6 |
| Degree Utilization, x | 0.49 | 0.49 | 0.84 | 0.42 |
| Capacity (veh/h) | 499 | 500 | 540 | 535 |
| Control Delay (s) | 15.2 | 15.2 | 33.9 | 13.0 |
| Approach Delay (s) | 15.2 | | 26.9 | |
| Approach LOS | C | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 22.0 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 128.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 20 | 10 | 1040 | 30 | 220 | 70 | 450 | 1360 | 570 | 1050 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1795 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1795 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1589 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 20 | 10 | 1040 | 30 | 220 | 70 | 450 | 1360 | 570 | 1050 | 10 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 153 | 0 | 0 | 546 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 20 | 20 | 0 | 1040 | 30 | 67 | 70 | 450 | 814 | 570 | 1050 | 8 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 2.9 | 5.1 | | 29.1 | 31.3 | 31.3 | 6.3 | 37.9 | 37.9 | 15.1 | 46.7 | 46.7 |
| Effective Green, g (s) | 2.9 | 5.1 | | 29.1 | 31.3 | 31.3 | 6.3 | 37.9 | 37.9 | 15.1 | 46.7 | 46.7 |
| Actuated g/C Ratio | 0.03 | 0.05 | | 0.28 | 0.30 | 0.30 | 0.06 | 0.37 | 0.37 | 0.15 | 0.45 | 0.45 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 51 | 89 | | 987 | 576 | 490 | 110 | 1326 | 584 | 512 | 1634 | 731 |
| v/s Ratio Prot | 0.01 | c0.01 | | c0.30 | 0.02 | | 0.04 | 0.12 | | c0.16 | 0.29 | |
| v/s Ratio Perm | | | | | | 0.04 | | | c0.51 | | | 0.01 |
| v/c Ratio | 0.39 | 0.23 | | 1.05 | 0.05 | 0.14 | 0.64 | 0.34 | 1.39 | 1.11 | 0.64 | 0.01 |
| Uniform Delay, d1 | 49.3 | 47.2 | | 37.0 | 25.4 | 26.1 | 47.3 | 23.6 | 32.7 | 44.1 | 21.8 | 15.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.9 | 1.3 | | 43.9 | 0.0 | 0.1 | 11.5 | 0.2 | 187.5 | 74.6 | 0.9 | 0.0 |
| Delay (s) | 54.2 | 48.5 | | 80.9 | 25.5 | 26.3 | 58.8 | 23.8 | 220.1 | 118.6 | 22.7 | 15.6 |
| Level of Service | D | D | | F | C | C | E | C | F | F | C | B |
| Approach Delay (s) | | 50.8 | | | 70.3 | | | 167.1 | | | 56.2 | |
| Approach LOS | | D | | | E | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 102.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.16 | | |
| Actuated Cycle Length (s) | 103.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 120.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 1520 | 110 | 70 | 1070 | 60 | 80 | 70 | 50 | 70 | 50 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 0.97 | | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3573 | | 1805 | 3578 | | | 1793 | | 1802 | 1668 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.52 | | 0.58 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3573 | | 1805 | 3578 | | | 952 | | 1097 | 1668 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 200 | 1520 | 110 | 70 | 1070 | 60 | 80 | 70 | 50 | 70 | 50 | 220 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 4 | 0 | 0 | 19 | 0 | 0 | 172 | 0 |
| Lane Group Flow (vph) | 200 | 1625 | 0 | 70 | 1126 | 0 | 0 | 181 | 0 | 70 | 98 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 8.2 | 33.2 | | 3.8 | 28.8 | | | 12.9 | | 12.9 | 12.9 | |
| Effective Green, g (s) | 8.2 | 33.2 | | 3.8 | 28.8 | | | 12.9 | | 12.9 | 12.9 | |
| Actuated g/C Ratio | 0.13 | 0.54 | | 0.06 | 0.47 | | | 0.21 | | 0.21 | 0.21 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 239 | 1916 | | 111 | 1665 | | | 198 | | 229 | 348 | |
| v/s Ratio Prot | c0.11 | c0.45 | | 0.04 | 0.31 | | | | | | 0.06 | |
| v/s Ratio Perm | | | | | | | | c0.19 | | 0.06 | | |
| v/c Ratio | 0.84 | 0.85 | | 0.63 | 0.68 | | | 0.91 | | 0.31 | 0.28 | |
| Uniform Delay, d1 | 26.2 | 12.2 | | 28.4 | 12.9 | | | 24.0 | | 20.7 | 20.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 21.7 | 3.7 | | 11.1 | 1.1 | | | 40.5 | | 0.8 | 0.4 | |
| Delay (s) | 47.9 | 15.9 | | 39.5 | 14.0 | | | 64.4 | | 21.5 | 21.1 | |
| Level of Service | D | B | | D | B | | | E | | C | C | |
| Approach Delay (s) | | 19.4 | | | 15.5 | | | 64.4 | | | 21.1 | |
| Approach LOS | | B | | | B | | | E | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 61.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 94.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1380 | 300 | 290 | 990 | 230 | 270 | 680 | 400 | 590 | 1020 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3503 | | 1805 | 3610 | 1594 | 1805 | 3610 | 1594 | 3502 | 3551 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3503 | | 1805 | 3610 | 1594 | 1805 | 3610 | 1594 | 3502 | 3551 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 1380 | 300 | 290 | 990 | 230 | 270 | 680 | 400 | 590 | 1020 | 110 |
| RTOR Reduction (vph) | 0 | 14 | 0 | 0 | 0 | 42 | 0 | 0 | 4 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 50 | 1666 | 0 | 290 | 990 | 188 | 270 | 680 | 396 | 590 | 1124 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 6.3 | 49.8 | | 13.0 | 56.5 | 74.5 | 14.0 | 34.0 | 47.0 | 18.0 | 38.0 | |
| Effective Green, g (s) | 6.3 | 49.8 | | 13.0 | 56.5 | 74.5 | 14.0 | 34.0 | 47.0 | 18.0 | 38.0 | |
| Actuated g/C Ratio | 0.05 | 0.38 | | 0.10 | 0.43 | 0.57 | 0.11 | 0.26 | 0.36 | 0.14 | 0.29 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 87 | 1334 | | 179 | 1559 | 957 | 193 | 938 | 622 | 482 | 1032 | |
| v/s Ratio Prot | 0.03 | c0.48 | | c0.16 | 0.27 | 0.03 | c0.15 | 0.19 | 0.06 | 0.17 | c0.32 | |
| v/s Ratio Perm | | | | | | 0.09 | | | 0.19 | | | |
| v/c Ratio | 0.57 | 1.25 | | 1.62 | 0.64 | 0.20 | 1.40 | 0.72 | 0.64 | 1.22 | 1.09 | |
| Uniform Delay, d1 | 60.9 | 40.5 | | 58.9 | 29.1 | 13.6 | 58.4 | 44.1 | 34.8 | 56.4 | 46.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.9 | 118.3 | | 303.2 | 0.9 | 0.1 | 207.8 | 2.8 | 2.1 | 118.2 | 55.4 | |
| Delay (s) | 69.8 | 158.8 | | 362.1 | 29.9 | 13.7 | 266.2 | 46.9 | 37.0 | 174.6 | 101.8 | |
| Level of Service | E | F | | F | C | B | F | D | D | F | F | |
| Approach Delay (s) | | 156.2 | | | 91.3 | | | 87.8 | | | 126.8 | |
| Approach LOS | | F | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 118.0 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.26 | | |
| Actuated Cycle Length (s) | 130.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 123.9% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 150 | 150 | 1650 | 420 | 210 | 1820 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1799 | 1590 | 3610 | 1572 | 1805 | 3610 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1799 | 1590 | 3610 | 1572 | 1805 | 3610 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 150 | 1650 | 420 | 210 | 1820 |
| RTOR Reduction (vph) | 0 | 128 | 0 | 69 | 0 | 0 |
| Lane Group Flow (vph) | 150 | 22 | 1650 | 351 | 210 | 1820 |
| Confl. Peds. (#/hr) | 5 | 5 | | 5 | 5 | |
| Turn Type | | custom | | Perm | Prot | |
| Protected Phases | | | 2 | | 1 | 6 |
| Permitted Phases | 8 | 8 | | 2 | | |
| Actuated Green, G (s) | 11.8 | 11.8 | 43.1 | 43.1 | 12.0 | 59.1 |
| Effective Green, g (s) | 11.8 | 11.8 | 43.1 | 43.1 | 12.0 | 59.1 |
| Actuated g/C Ratio | 0.15 | 0.15 | 0.55 | 0.55 | 0.15 | 0.75 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 269 | 238 | 1972 | 859 | 275 | 2704 |
| v/s Ratio Prot | | | c0.46 | | 0.12 | c0.50 |
| v/s Ratio Perm | c0.08 | 0.01 | | 0.22 | | |
| v/c Ratio | 0.56 | 0.09 | 0.84 | 0.41 | 0.76 | 0.67 |
| Uniform Delay, d1 | 31.1 | 28.9 | 15.0 | 10.5 | 32.1 | 5.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.5 | 0.2 | 3.3 | 0.3 | 11.9 | 0.7 |
| Delay (s) | 33.6 | 29.1 | 18.2 | 10.8 | 44.0 | 5.7 |
| Level of Service | C | C | B | B | D | A |
| Approach Delay (s) | 31.4 | | 16.7 | | | 9.6 |
| Approach LOS | C | | B | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 78.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 78.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1990 | 210 | 600 | 1370 | 290 | 0 | 0 | 0 | 920 | 90 | 470 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1734 | 1593 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 1715 | 1734 | 1593 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 1990 | 210 | 600 | 1370 | 290 | 0 | 0 | 0 | 920 | 90 | 470 |
| RTOR Reduction (vph) | 0 | 0 | 56 | 0 | 0 | 105 | 0 | 0 | 0 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 50 | 1990 | 154 | 600 | 1370 | 185 | 0 | 0 | 0 | 506 | 504 | 455 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 11.6 | 46.0 | 46.0 | 38.0 | 72.4 | 72.4 | | | | 34.0 | 34.0 | 45.6 |
| Effective Green, g (s) | 11.6 | 46.0 | 46.0 | 38.0 | 72.4 | 72.4 | | | | 34.0 | 34.0 | 45.6 |
| Actuated g/C Ratio | 0.09 | 0.35 | 0.35 | 0.29 | 0.56 | 0.56 | | | | 0.26 | 0.26 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 161 | 1835 | 556 | 528 | 2010 | 875 | | | | 449 | 454 | 608 |
| v/s Ratio Prot | 0.03 | c0.38 | | c0.33 | 0.38 | | | | | c0.30 | 0.29 | 0.07 |
| v/s Ratio Perm | | | 0.10 | | | 0.12 | | | | | | 0.22 |
| v/c Ratio | 0.31 | 1.08 | 0.28 | 1.14 | 0.68 | 0.21 | | | | 1.13 | 1.11 | 0.75 |
| Uniform Delay, d1 | 55.5 | 42.0 | 30.1 | 46.0 | 20.6 | 14.5 | | | | 48.0 | 48.0 | 37.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.71 | 0.42 | 0.08 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 48.0 | 1.2 | 79.2 | 1.5 | 0.4 | | | | 81.9 | 75.7 | 5.0 |
| Delay (s) | 56.6 | 90.0 | 31.3 | 111.8 | 10.2 | 1.5 | | | | 129.9 | 123.7 | 42.2 |
| Level of Service | E | F | C | F | B | A | | | | F | F | D |
| Approach Delay (s) | | 83.8 | | | 36.1 | | | 0.0 | | | 100.0 | |
| Approach LOS | | F | | | D | | | A | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 69.8 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.11 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 109.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 350 | 2000 | 450 | 310 | 1990 | 240 | 260 | 320 | 760 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.86 | 1.00 | 0.91 | 0.91 | 0.88 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | 1593 | 1805 | 6536 | 1586 | 1643 | 3426 | 2842 | | | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.99 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | 1593 | 1805 | 6536 | 1586 | 1643 | 3426 | 2842 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 350 | 2000 | 450 | 310 | 1990 | 240 | 260 | 320 | 760 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 29 | 0 | 0 | 72 | 0 | 0 | 408 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 350 | 2000 | 421 | 310 | 1990 | 168 | 187 | 393 | 352 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | Perm | Split | | Perm | | | |
| Protected Phases | 7 | 4 | 2 | 3 | 8 | | 2 | 2 | | | | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 30.0 | 77.0 | 95.0 | 23.0 | 70.0 | 70.0 | 18.0 | 18.0 | 18.0 | | | |
| Effective Green, g (s) | 30.0 | 77.0 | 95.0 | 23.0 | 70.0 | 70.0 | 18.0 | 18.0 | 18.0 | | | |
| Actuated g/C Ratio | 0.23 | 0.59 | 0.73 | 0.18 | 0.54 | 0.54 | 0.14 | 0.14 | 0.14 | | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 417 | 2138 | 1213 | 319 | 3519 | 854 | 227 | 474 | 394 | | | |
| v/s Ratio Prot | 0.19 | c0.55 | 0.05 | c0.17 | 0.30 | | 0.11 | 0.11 | | | | |
| v/s Ratio Perm | | | 0.22 | | | 0.11 | | | c0.12 | | | |
| v/c Ratio | 0.84 | 0.94 | 0.35 | 0.97 | 0.57 | 0.20 | 0.82 | 0.83 | 0.89 | | | |
| Uniform Delay, d1 | 47.7 | 24.2 | 6.3 | 53.2 | 19.9 | 15.5 | 54.5 | 54.5 | 55.0 | | | |
| Progression Factor | 1.24 | 0.23 | 0.02 | 0.92 | 0.89 | 0.71 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 1.4 | 1.1 | 0.0 | 39.1 | 0.6 | 0.4 | 20.9 | 11.4 | 21.6 | | | |
| Delay (s) | 60.4 | 6.6 | 0.2 | 88.2 | 18.3 | 11.4 | 75.3 | 65.9 | 76.6 | | | |
| Level of Service | E | A | A | F | B | B | E | E | E | | | |
| Approach Delay (s) | | 12.3 | | | 26.2 | | | 73.3 | | | 0.0 | |
| Approach LOS | | B | | | C | | | E | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.94 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 2840 | 160 | 160 | 2270 | 10 | 140 | 0 | 70 | 10 | 0 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.85 | | | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 5136 | | 1805 | 5183 | | 1805 | 1588 | | | 1725 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.74 | 1.00 | | | 0.89 | |
| Satd. Flow (perm) | 1805 | 5136 | | 1805 | 5183 | | 1414 | 1588 | | | 1568 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 2840 | 160 | 160 | 2270 | 10 | 140 | 0 | 70 | 10 | 0 | 10 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 10 | 2997 | 0 | 160 | 2280 | 0 | 140 | 10 | 0 | 0 | 11 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 1.5 | 85.5 | | 14.2 | 98.2 | | 18.3 | 18.3 | | | 18.3 | |
| Effective Green, g (s) | 1.5 | 85.5 | | 14.2 | 98.2 | | 18.3 | 18.3 | | | 18.3 | |
| Actuated g/C Ratio | 0.01 | 0.66 | | 0.11 | 0.76 | | 0.14 | 0.14 | | | 0.14 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 21 | 3378 | | 197 | 3915 | | 199 | 224 | | | 221 | |
| v/s Ratio Prot | 0.01 | c0.58 | | c0.09 | 0.44 | | | 0.01 | | | | |
| v/s Ratio Perm | | | | | | | c0.10 | | | | 0.01 | |
| v/c Ratio | 0.48 | 0.89 | | 0.81 | 0.58 | | 0.70 | 0.04 | | | 0.05 | |
| Uniform Delay, d1 | 63.9 | 18.3 | | 56.6 | 6.9 | | 53.3 | 48.3 | | | 48.3 | |
| Progression Factor | 1.18 | 0.28 | | 0.91 | 1.05 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 8.0 | 1.9 | | 14.9 | 0.4 | | 10.7 | 0.1 | | | 0.1 | |
| Delay (s) | 83.6 | 7.0 | | 66.5 | 7.7 | | 64.0 | 48.4 | | | 48.4 | |
| Level of Service | F | A | | E | A | | E | D | | | D | |
| Approach Delay (s) | | 7.3 | | | 11.6 | | | 58.8 | | | 48.4 | |
| Approach LOS | | A | | | B | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 2460 | 190 | 30 | 2020 | 10 | 230 | 20 | 50 | 10 | 20 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.98 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.96 | | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 3563 | | 1805 | 3607 | | | 1775 | | | 1867 | 1586 |
| Flt Permitted | 0.04 | 1.00 | | 0.04 | 1.00 | | | 0.76 | | | 0.91 | 1.00 |
| Satd. Flow (perm) | 83 | 3563 | | 83 | 3607 | | | 1394 | | | 1721 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 2460 | 190 | 30 | 2020 | 10 | 230 | 20 | 50 | 10 | 20 | 120 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 90 | 2646 | 0 | 30 | 2030 | 0 | 0 | 295 | 0 | 0 | 30 | 105 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 91.7 | 91.7 | | 91.7 | 91.7 | | | 30.3 | | | 30.3 | 30.3 |
| Effective Green, g (s) | 91.7 | 91.7 | | 91.7 | 91.7 | | | 30.3 | | | 30.3 | 30.3 |
| Actuated g/C Ratio | 0.71 | 0.71 | | 0.71 | 0.71 | | | 0.23 | | | 0.23 | 0.23 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 59 | 2513 | | 59 | 2544 | | | 325 | | | 401 | 370 |
| v/s Ratio Prot | | 0.74 | | | 0.56 | | | | | | | |
| v/s Ratio Perm | c1.09 | | | 0.36 | | | | c0.21 | | | 0.02 | 0.07 |
| v/c Ratio | 1.53 | 1.05 | | 0.51 | 0.80 | | | 0.91 | | | 0.07 | 0.28 |
| Uniform Delay, d1 | 19.1 | 19.1 | | 8.8 | 12.9 | | | 48.5 | | | 38.9 | 41.0 |
| Progression Factor | 0.26 | 0.22 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 276.0 | 29.7 | | 28.0 | 2.7 | | | 27.3 | | | 0.1 | 0.4 |
| Delay (s) | 281.0 | 33.9 | | 36.8 | 15.6 | | | 75.8 | | | 39.0 | 41.4 |
| Level of Service | F | C | | D | B | | | E | | | D | D |
| Approach Delay (s) | | 42.0 | | | 15.9 | | | 75.8 | | | 40.9 | |
| Approach LOS | | D | | | B | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 1.38 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 105.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 2330 | 50 | 270 | 1920 | 40 | 30 | 130 | 420 | 50 | 240 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3596 | | 1805 | 3597 | | 1805 | 1900 | 1598 | 1805 | 1900 | 1587 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3596 | | 1805 | 3597 | | 1805 | 1900 | 1598 | 1805 | 1900 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 180 | 2330 | 50 | 270 | 1920 | 40 | 30 | 130 | 420 | 50 | 240 | 240 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 26 | 0 | 0 | 168 |
| Lane Group Flow (vph) | 180 | 2379 | 0 | 270 | 1959 | 0 | 30 | 130 | 394 | 50 | 240 | 72 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.1 | 60.5 | | 13.1 | 63.5 | | 4.4 | 20.0 | 33.1 | 5.4 | 21.0 | 21.0 |
| Effective Green, g (s) | 10.1 | 60.5 | | 13.1 | 63.5 | | 4.4 | 20.0 | 33.1 | 5.4 | 21.0 | 21.0 |
| Actuated g/C Ratio | 0.09 | 0.53 | | 0.11 | 0.55 | | 0.04 | 0.17 | 0.29 | 0.05 | 0.18 | 0.18 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 159 | 1892 | | 206 | 1986 | | 69 | 330 | 460 | 85 | 347 | 290 |
| v/s Ratio Prot | 0.10 | c0.66 | | c0.15 | 0.54 | | 0.02 | 0.07 | c0.10 | 0.03 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.15 | | | 0.05 |
| v/c Ratio | 1.13 | 1.26 | | 1.31 | 0.99 | | 0.43 | 0.39 | 0.86 | 0.59 | 0.69 | 0.25 |
| Uniform Delay, d1 | 52.5 | 27.2 | | 51.0 | 25.3 | | 54.1 | 42.1 | 38.7 | 53.7 | 44.0 | 40.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 111.3 | 120.3 | | 170.1 | 16.9 | | 4.3 | 0.8 | 14.4 | 10.0 | 5.9 | 0.4 |
| Delay (s) | 163.7 | 147.6 | | 221.1 | 42.2 | | 58.4 | 42.9 | 53.1 | 63.7 | 49.8 | 40.7 |
| Level of Service | F | F | | F | D | | E | D | D | E | D | D |
| Approach Delay (s) | | 148.7 | | | 63.9 | | | 51.1 | | | 47.0 | |
| Approach LOS | | F | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 97.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.16 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 115.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 1520 | 1040 | 470 | 1110 | 420 | 1030 | 1010 | 170 | 490 | 1480 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 2813 | 3502 | 3610 | 1596 | 3502 | 3610 | 1593 | 3502 | 5148 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 2813 | 3502 | 3610 | 1596 | 3502 | 3610 | 1593 | 3502 | 5148 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 1520 | 1040 | 470 | 1110 | 420 | 1030 | 1010 | 170 | 490 | 1480 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 4 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 170 | 1520 | 1040 | 470 | 1110 | 403 | 1030 | 1010 | 166 | 490 | 1546 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 12.2 | 41.0 | 67.0 | 13.0 | 41.8 | 62.3 | 26.0 | 39.5 | 52.5 | 20.5 | 34.0 | |
| Effective Green, g (s) | 12.2 | 41.0 | 67.0 | 13.0 | 41.8 | 62.3 | 26.0 | 39.5 | 52.5 | 20.5 | 34.0 | |
| Actuated g/C Ratio | 0.09 | 0.32 | 0.52 | 0.10 | 0.32 | 0.48 | 0.20 | 0.30 | 0.40 | 0.16 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 169 | 1139 | 1450 | 350 | 1161 | 765 | 700 | 1097 | 692 | 552 | 1346 | |
| v/s Ratio Prot | 0.09 | c0.42 | 0.14 | c0.13 | 0.31 | 0.08 | c0.29 | 0.28 | 0.02 | 0.14 | c0.30 | |
| v/s Ratio Perm | | | 0.23 | | | 0.17 | | | 0.08 | | | |
| v/c Ratio | 1.01 | 1.33 | 0.72 | 1.34 | 0.96 | 0.53 | 1.47 | 0.92 | 0.24 | 0.89 | 1.15 | |
| Uniform Delay, d1 | 58.9 | 44.5 | 24.2 | 58.5 | 43.2 | 23.6 | 52.0 | 43.7 | 25.6 | 53.6 | 48.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 70.8 | 156.6 | 1.7 | 172.3 | 16.8 | 0.7 | 219.9 | 12.3 | 0.2 | 15.9 | 76.1 | |
| Delay (s) | 129.7 | 201.1 | 25.9 | 230.8 | 60.0 | 24.2 | 271.9 | 56.1 | 25.8 | 69.5 | 124.1 | |
| Level of Service | F | F | C | F | E | C | F | E | C | E | F | |
| Approach Delay (s) | | 129.9 | | | 92.6 | | | 154.3 | | | 110.9 | |
| Approach LOS | | F | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 123.3 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.31 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 128.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 10 | 20 | 30 | 10 | 70 | 80 | 1890 | 40 | 70 | 2730 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.97 | | | 0.91 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1774 | | | 1695 | | 1805 | 5168 | | 1805 | 5160 | |
| Flt Permitted | | 0.61 | | | 0.90 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1119 | | | 1552 | | 1805 | 5168 | | 1805 | 5160 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 10 | 20 | 30 | 10 | 70 | 80 | 1890 | 40 | 70 | 2730 | 80 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 62 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 80 | 0 | 0 | 48 | 0 | 80 | 1929 | 0 | 70 | 2809 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 11.1 | | | 11.1 | | 7.0 | 72.2 | | 7.7 | 72.9 | |
| Effective Green, g (s) | | 11.1 | | | 11.1 | | 7.0 | 72.2 | | 7.7 | 72.9 | |
| Actuated g/C Ratio | | 0.11 | | | 0.11 | | 0.07 | 0.70 | | 0.07 | 0.71 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 121 | | | 167 | | 123 | 3623 | | 135 | 3652 | |
| v/s Ratio Prot | | | | | | | c0.04 | 0.37 | | 0.04 | c0.54 | |
| v/s Ratio Perm | | c0.07 | | | 0.03 | | | | | | | |
| v/c Ratio | | 0.66 | | | 0.29 | | 0.65 | 0.53 | | 0.52 | 0.77 | |
| Uniform Delay, d1 | | 44.2 | | | 42.3 | | 46.8 | 7.3 | | 45.9 | 9.7 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 12.8 | | | 1.0 | | 11.7 | 0.2 | | 3.3 | 1.0 | |
| Delay (s) | | 57.0 | | | 43.3 | | 58.5 | 7.5 | | 49.2 | 10.7 | |
| Level of Service | | E | | | D | | E | A | | D | B | |
| Approach Delay (s) | | 57.0 | | | 43.3 | | | 9.5 | | | 11.6 | |
| Approach LOS | | E | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 103.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 84.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 50 | 70 | 20 | 60 | 50 | 100 | 1990 | 40 | 130 | 2550 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1801 | 1900 | 1615 | 1805 | 1900 | 1588 | 1805 | 5169 | | 1805 | 5155 | |
| Flt Permitted | 0.54 | 1.00 | 1.00 | 0.72 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1033 | 1900 | 1615 | 1376 | 1900 | 1588 | 1805 | 5169 | | 1805 | 5155 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 50 | 70 | 20 | 60 | 50 | 100 | 1990 | 40 | 130 | 2550 | 90 |
| RTOR Reduction (vph) | 0 | 0 | 62 | 0 | 0 | 46 | 0 | 2 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 70 | 50 | 8 | 20 | 60 | 4 | 100 | 2028 | 0 | 130 | 2638 | 0 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | pm+pt | | Perm | pm+pt | | Perm | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 16.5 | 11.2 | 11.2 | 11.1 | 8.5 | 8.5 | 7.1 | 47.1 | | 21.4 | 61.4 | |
| Effective Green, g (s) | 16.5 | 11.2 | 11.2 | 11.1 | 8.5 | 8.5 | 7.1 | 47.1 | | 21.4 | 61.4 | |
| Actuated g/C Ratio | 0.17 | 0.11 | 0.11 | 0.11 | 0.09 | 0.09 | 0.07 | 0.48 | | 0.22 | 0.62 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 215 | 216 | 184 | 167 | 164 | 137 | 130 | 2477 | | 393 | 3220 | |
| v/s Ratio Prot | c0.02 | 0.03 | | 0.00 | 0.03 | | 0.06 | c0.39 | | 0.07 | c0.51 | |
| v/s Ratio Perm | c0.04 | | 0.00 | 0.01 | | 0.00 | | | | | | |
| v/c Ratio | 0.33 | 0.23 | 0.04 | 0.12 | 0.37 | 0.03 | 0.77 | 0.82 | | 0.33 | 0.82 | |
| Uniform Delay, d1 | 35.5 | 39.6 | 38.8 | 39.1 | 42.4 | 41.1 | 44.8 | 21.9 | | 32.4 | 14.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 0.6 | 0.1 | 0.3 | 1.4 | 0.1 | 23.5 | 2.2 | | 0.5 | 1.7 | |
| Delay (s) | 36.3 | 40.2 | 38.9 | 39.4 | 43.7 | 41.2 | 68.3 | 24.2 | | 32.9 | 15.9 | |
| Level of Service | D | D | D | D | D | D | E | C | | C | B | |
| Approach Delay (s) | | 38.3 | | | 42.1 | | | 26.2 | | | 16.7 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 98.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 240 | 0 | 650 | 740 | 270 | 30 | 620 | 1880 | 1040 | 80 | 2640 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.94 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3019 | | 5090 | 1869 | | 1805 | 5187 | 1593 | 1805 | 5174 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3019 | | 5090 | 1869 | | 1805 | 5187 | 1593 | 1805 | 5174 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 240 | 0 | 650 | 740 | 270 | 30 | 620 | 1880 | 1040 | 80 | 2640 | 40 |
| RTOR Reduction (vph) | 0 | 203 | 0 | 0 | 4 | 0 | 0 | 0 | 359 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 240 | 447 | 0 | 740 | 296 | 0 | 620 | 1880 | 681 | 80 | 2679 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 13.3 | 22.1 | | 14.0 | 22.8 | | 17.0 | 53.0 | 67.0 | 7.1 | 43.1 | |
| Effective Green, g (s) | 13.3 | 22.1 | | 14.0 | 22.8 | | 17.0 | 53.0 | 67.0 | 7.1 | 43.1 | |
| Actuated g/C Ratio | 0.12 | 0.20 | | 0.12 | 0.20 | | 0.15 | 0.47 | 0.60 | 0.06 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 214 | 595 | | 635 | 380 | | 273 | 2450 | 1008 | 114 | 1988 | |
| v/s Ratio Prot | c0.13 | 0.15 | | c0.15 | c0.16 | | c0.34 | 0.36 | 0.08 | 0.04 | c0.52 | |
| v/s Ratio Perm | | | | | | | | | 0.34 | | | |
| v/c Ratio | 1.12 | 1.26dr | | 1.17 | 0.78 | | 2.27 | 0.77 | 0.68 | 0.70 | 1.35 | |
| Uniform Delay, d1 | 49.5 | 42.5 | | 49.1 | 42.3 | | 47.6 | 24.5 | 15.3 | 51.5 | 34.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 98.0 | 5.3 | | 90.8 | 9.7 | | 583.5 | 1.5 | 1.8 | 17.7 | 159.8 | |
| Delay (s) | 147.4 | 47.8 | | 139.9 | 52.0 | | 631.1 | 26.0 | 17.1 | 69.2 | 194.3 | |
| Level of Service | F | D | | F | D | | F | C | B | E | F | |
| Approach Delay (s) | | 74.6 | | | 114.5 | | | 129.4 | | | 190.7 | |
| Approach LOS | | E | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 142.1 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.39 | | |
| Actuated Cycle Length (s) | 112.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 137.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 210 | 70 | 380 | 410 | 40 | 220 | 220 | 1300 | 420 | 440 | 2400 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.96 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1796 | 1900 | 2842 | 1805 | 1900 | 1615 | 1805 | 5187 | 1615 | 1805 | 5187 | 1556 |
| Flt Permitted | 0.73 | 1.00 | 1.00 | 0.71 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1378 | 1900 | 2842 | 1344 | 1900 | 1615 | 1805 | 5187 | 1615 | 1805 | 5187 | 1556 |
| Peak-hour factor, PHF | 1.00 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 1.00 | 1.00 | 0.92 | 0.92 | 1.00 | 1.00 |
| Adj. Flow (vph) | 210 | 76 | 380 | 446 | 43 | 239 | 220 | 1300 | 457 | 478 | 2400 | 240 |
| RTOR Reduction (vph) | 0 | 0 | 105 | 0 | 0 | 171 | 0 | 0 | 254 | 0 | 0 | 74 |
| Lane Group Flow (vph) | 210 | 76 | 275 | 446 | 43 | 68 | 220 | 1300 | 203 | 478 | 2400 | 166 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | 5 | | | | | 5 |
| Turn Type | Perm | | Over | Perm | | Over | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | 5 | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 37.0 | 37.0 | 15.0 | 37.0 | 37.0 | 34.3 | 15.0 | 36.7 | 36.7 | 34.3 | 56.0 | 56.0 |
| Effective Green, g (s) | 37.0 | 37.0 | 15.0 | 37.0 | 37.0 | 34.3 | 15.0 | 36.7 | 36.7 | 34.3 | 56.0 | 56.0 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.12 | 0.31 | 0.31 | 0.29 | 0.12 | 0.31 | 0.31 | 0.29 | 0.47 | 0.47 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 425 | 586 | 355 | 414 | 586 | 462 | 226 | 1586 | 494 | 516 | 2421 | 726 |
| v/s Ratio Prot | | 0.04 | 0.10 | | 0.02 | 0.04 | c0.12 | 0.25 | | 0.26 | c0.46 | |
| v/s Ratio Perm | 0.15 | | | c0.33 | | | | | 0.13 | | | 0.11 |
| v/c Ratio | 0.49 | 0.13 | 0.77 | 1.08 | 0.07 | 0.15 | 0.97 | 0.82 | 0.41 | 0.93 | 0.99 | 0.23 |
| Uniform Delay, d1 | 33.9 | 29.9 | 50.9 | 41.5 | 29.4 | 32.0 | 52.3 | 38.6 | 33.1 | 41.6 | 31.8 | 19.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 0.1 | 10.1 | 66.5 | 0.1 | 0.1 | 52.0 | 4.9 | 2.5 | 22.7 | 16.4 | 0.7 |
| Delay (s) | 34.8 | 30.0 | 61.0 | 108.0 | 29.4 | 32.1 | 104.3 | 43.5 | 35.6 | 64.3 | 48.1 | 19.8 |
| Level of Service | C | C | E | F | C | C | F | D | D | E | D | B |
| Approach Delay (s) | | 49.2 | | | 78.4 | | | 48.4 | | | 48.4 | |
| Approach LOS | | D | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 97.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 10 | 410 | 30 | 10 | 10 | 150 | 1210 | 80 | 20 | 1130 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.93 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1622 | | 1805 | 1758 | | 1805 | 3576 | | 1805 | 3591 | |
| Flt Permitted | 0.74 | 1.00 | | 0.21 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1414 | 1622 | | 398 | 1758 | | 1805 | 3576 | | 1805 | 3591 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 10 | 410 | 30 | 10 | 10 | 150 | 1210 | 80 | 20 | 1130 | 40 |
| RTOR Reduction (vph) | 0 | 212 | 0 | 0 | 8 | 0 | 0 | 3 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 90 | 208 | 0 | 30 | 12 | 0 | 150 | 1287 | 0 | 20 | 1168 | 0 |
| Turn Type | Perm | | | Perm | | | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 19.1 | 19.1 | | 19.1 | 19.1 | | 13.9 | 76.1 | | 2.8 | 65.0 | |
| Effective Green, g (s) | 19.1 | 19.1 | | 19.1 | 19.1 | | 13.9 | 76.1 | | 2.8 | 65.0 | |
| Actuated g/C Ratio | 0.17 | 0.17 | | 0.17 | 0.17 | | 0.13 | 0.69 | | 0.03 | 0.59 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 246 | 282 | | 69 | 305 | | 228 | 2474 | | 46 | 2122 | |
| v/s Ratio Prot | | c0.13 | | | 0.01 | | c0.08 | 0.36 | | 0.01 | c0.33 | |
| v/s Ratio Perm | 0.06 | | | 0.08 | | | | | | | | |
| v/c Ratio | 0.37 | 0.74 | | 0.43 | 0.04 | | 0.66 | 0.52 | | 0.43 | 0.55 | |
| Uniform Delay, d1 | 40.1 | 43.1 | | 40.6 | 37.8 | | 45.8 | 8.2 | | 52.8 | 13.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.79 | 2.32 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 9.6 | | 4.3 | 0.1 | | 5.1 | 0.6 | | 6.5 | 1.0 | |
| Delay (s) | 41.0 | 52.7 | | 45.0 | 37.9 | | 41.4 | 19.5 | | 59.3 | 14.7 | |
| Level of Service | D | D | | D | D | | D | B | | E | B | |
| Approach Delay (s) | | 50.6 | | | 42.1 | | | 21.8 | | | 15.4 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 1290 | 610 | 250 | 1050 | 130 | 740 | 120 | 330 | 270 | 190 | 610 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 4903 | | 1805 | 5187 | 1582 | 1805 | 3173 | | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 4903 | | 1805 | 5187 | 1582 | 1805 | 3173 | | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 320 | 1290 | 610 | 250 | 1050 | 130 | 740 | 120 | 330 | 270 | 190 | 610 |
| RTOR Reduction (vph) | 0 | 77 | 0 | 0 | 0 | 98 | 0 | 142 | 0 | 0 | 0 | 115 |
| Lane Group Flow (vph) | 320 | 1823 | 0 | 250 | 1050 | 32 | 740 | 308 | 0 | 270 | 190 | 495 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 10.0 | 29.1 | | 8.0 | 27.1 | 27.1 | 21.0 | 35.9 | | 18.4 | 33.0 | 33.0 |
| Effective Green, g (s) | 10.0 | 29.1 | | 8.0 | 27.1 | 27.1 | 21.0 | 35.9 | | 18.4 | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.09 | 0.26 | | 0.07 | 0.25 | 0.25 | 0.19 | 0.33 | | 0.17 | 0.30 | 0.30 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 4.6 | | 4.0 | 4.9 | 4.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 164 | 1297 | | 131 | 1278 | 390 | 345 | 1036 | | 302 | 1083 | 476 |
| v/s Ratio Prot | c0.18 | c0.37 | | 0.14 | 0.20 | | c0.41 | c0.10 | | 0.15 | 0.05 | |
| v/s Ratio Perm | | | | | | 0.02 | | | | | | c0.31 |
| v/c Ratio | 1.95 | 1.41 | | 1.91 | 0.82 | 0.08 | 2.14 | 0.30 | | 0.89 | 0.18 | 1.04 |
| Uniform Delay, d1 | 50.0 | 40.5 | | 51.0 | 39.2 | 31.9 | 44.5 | 27.6 | | 44.8 | 28.4 | 38.5 |
| Progression Factor | 0.97 | 0.79 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 449.3 | 187.1 | | 435.9 | 6.0 | 0.4 | 524.8 | 0.2 | | 26.6 | 0.1 | 52.1 |
| Delay (s) | 497.6 | 219.1 | | 486.9 | 45.2 | 32.3 | 569.3 | 27.8 | | 71.4 | 28.5 | 90.6 |
| Level of Service | F | F | | F | D | C | F | C | | E | C | F |
| Approach Delay (s) | | 259.2 | | | 121.2 | | | 364.5 | | | 74.8 | |
| Approach LOS | | F | | | F | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 213.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.48 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 17.5 |
| Intersection Capacity Utilization | 118.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 440 | 990 | 210 | 70 | 730 | 310 | 240 | 1150 | 80 | 510 | 1690 | 360 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1588 | 3502 | 4930 | | 3502 | 5187 | 1588 | 3502 | 5187 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1588 | 3502 | 4930 | | 3502 | 5187 | 1588 | 3502 | 5187 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 440 | 990 | 210 | 70 | 730 | 310 | 240 | 1150 | 80 | 510 | 1690 | 360 |
| RTOR Reduction (vph) | 0 | 0 | 124 | 0 | 64 | 0 | 0 | 0 | 39 | 0 | 0 | 119 |
| Lane Group Flow (vph) | 440 | 990 | 86 | 70 | 976 | 0 | 240 | 1150 | 41 | 510 | 1690 | 241 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | 8 | | | 4 |
| Actuated Green, G (s) | 12.0 | 45.7 | 45.7 | 4.0 | 37.7 | | 9.0 | 37.0 | 37.0 | 14.0 | 42.0 | 42.0 |
| Effective Green, g (s) | 12.0 | 45.7 | 45.7 | 4.0 | 37.7 | | 9.0 | 37.0 | 37.0 | 14.0 | 42.0 | 42.0 |
| Actuated g/C Ratio | 0.10 | 0.38 | 0.38 | 0.03 | 0.31 | | 0.08 | 0.31 | 0.31 | 0.12 | 0.35 | 0.35 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 5.3 | 5.3 | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 350 | 1975 | 605 | 117 | 1549 | | 263 | 1599 | 490 | 409 | 1815 | 556 |
| v/s Ratio Prot | c0.13 | 0.19 | | 0.02 | c0.20 | | 0.07 | 0.22 | | c0.15 | c0.33 | |
| v/s Ratio Perm | | | 0.05 | | | | | | 0.03 | | | 0.15 |
| v/c Ratio | 1.26 | 0.50 | 0.14 | 0.60 | 0.63 | | 0.91 | 0.72 | 0.08 | 1.25 | 0.93 | 0.43 |
| Uniform Delay, d1 | 54.0 | 28.4 | 24.3 | 57.2 | 35.2 | | 55.1 | 36.9 | 29.5 | 53.0 | 37.6 | 29.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 137.0 | 0.9 | 0.5 | 8.0 | 2.0 | | 33.2 | 1.6 | 0.1 | 130.1 | 9.2 | 0.5 |
| Delay (s) | 191.0 | 29.3 | 24.8 | 65.2 | 37.1 | | 88.3 | 38.5 | 29.5 | 183.1 | 46.8 | 30.4 |
| Level of Service | F | C | C | E | D | | F | D | C | F | D | C |
| Approach Delay (s) | | 72.1 | | | 38.9 | | | 46.1 | | | 71.6 | |
| Approach LOS | | E | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 60.9 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 99.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 300 | 1080 | 460 | 190 | 450 | 280 | 170 | 720 | 120 | 420 | 850 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1593 | 1805 | 5187 | 1587 | 3502 | 3524 | | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1593 | 1805 | 5187 | 1587 | 3502 | 3524 | | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 300 | 1080 | 460 | 190 | 450 | 280 | 170 | 720 | 120 | 420 | 850 | 240 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 165 | 0 | 12 | 0 | 0 | 0 | 156 |
| Lane Group Flow (vph) | 300 | 1080 | 460 | 190 | 450 | 115 | 170 | 828 | 0 | 420 | 850 | 84 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Free | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | | | | 4 |
| Actuated Green, G (s) | 10.0 | 32.0 | 110.0 | 10.0 | 32.0 | 32.0 | 9.4 | 35.0 | | 13.0 | 38.6 | 38.6 |
| Effective Green, g (s) | 10.0 | 32.0 | 110.0 | 10.0 | 32.0 | 32.0 | 9.4 | 35.0 | | 13.0 | 38.6 | 38.6 |
| Actuated g/C Ratio | 0.09 | 0.29 | 1.00 | 0.09 | 0.29 | 0.29 | 0.09 | 0.32 | | 0.12 | 0.35 | 0.35 |
| Clearance Time (s) | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 318 | 1509 | 1593 | 164 | 1509 | 462 | 299 | 1121 | | 414 | 1267 | 557 |
| v/s Ratio Prot | 0.09 | c0.21 | | c0.11 | 0.09 | | 0.05 | c0.23 | | c0.12 | 0.24 | |
| v/s Ratio Perm | | | c0.29 | | | 0.07 | | | | | | 0.05 |
| v/c Ratio | 0.94 | 0.72 | 0.29 | 1.16 | 0.30 | 0.25 | 0.57 | 0.74 | | 1.01 | 0.67 | 0.15 |
| Uniform Delay, d1 | 49.7 | 34.9 | 0.0 | 50.0 | 30.3 | 29.8 | 48.4 | 33.4 | | 48.5 | 30.3 | 24.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.92 | 1.33 | 4.09 |
| Incremental Delay, d2 | 35.6 | 2.9 | 0.5 | 119.3 | 0.5 | 1.3 | 2.5 | 4.4 | | 43.9 | 2.4 | 0.5 |
| Delay (s) | 85.3 | 37.9 | 0.5 | 169.3 | 30.8 | 31.1 | 50.8 | 37.8 | | 88.5 | 42.8 | 100.5 |
| Level of Service | F | D | A | F | C | C | D | D | | F | D | F |
| Approach Delay (s) | | 36.2 | | | 59.5 | | | 40.0 | | | 64.7 | |
| Approach LOS | | D | | | E | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 49.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 94.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 10 | 30 | 30 | 10 | 30 | 20 | 1310 | 10 | 30 | 1770 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.89 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3163 | | 1805 | 1900 | 1587 | 1805 | 5180 | | 1805 | 3610 | 1585 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3163 | | 1805 | 1900 | 1587 | 1805 | 5180 | | 1805 | 3610 | 1585 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 10 | 30 | 30 | 10 | 30 | 20 | 1310 | 10 | 30 | 1770 | 20 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 4 |
| Lane Group Flow (vph) | 50 | 11 | 0 | 30 | 10 | 1 | 20 | 1320 | 0 | 30 | 1770 | 16 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 4.8 | 5.3 | | 3.6 | 4.2 | 4.2 | 3.2 | 78.6 | | 5.0 | 80.4 | 80.4 |
| Effective Green, g (s) | 4.8 | 5.3 | | 3.6 | 4.2 | 4.2 | 3.2 | 78.6 | | 5.0 | 80.4 | 80.4 |
| Actuated g/C Ratio | 0.04 | 0.05 | | 0.03 | 0.04 | 0.04 | 0.03 | 0.71 | | 0.05 | 0.73 | 0.73 |
| Clearance Time (s) | 4.0 | 4.2 | | 4.0 | 4.1 | 4.1 | 4.0 | 5.3 | | 4.0 | 5.3 | 5.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 79 | 152 | | 59 | 73 | 61 | 53 | 3701 | | 82 | 2639 | 1158 |
| v/s Ratio Prot | c0.03 | 0.00 | | 0.02 | c0.01 | | 0.01 | 0.25 | | c0.02 | c0.49 | |
| v/s Ratio Perm | | | | | | 0.00 | | | | | | 0.01 |
| v/c Ratio | 0.63 | 0.08 | | 0.51 | 0.14 | 0.02 | 0.38 | 0.36 | | 0.37 | 0.67 | 0.01 |
| Uniform Delay, d1 | 51.7 | 50.0 | | 52.3 | 51.1 | 50.9 | 52.4 | 6.0 | | 51.0 | 7.8 | 4.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 15.4 | 0.2 | | 6.7 | 0.9 | 0.1 | 4.5 | 0.3 | | 2.8 | 1.4 | 0.0 |
| Delay (s) | 67.1 | 50.2 | | 59.1 | 52.0 | 51.0 | 56.9 | 6.3 | | 53.7 | 9.2 | 4.0 |
| Level of Service | E | D | | E | D | D | E | A | | D | A | A |
| Approach Delay (s) | | 59.6 | | | 54.6 | | | 7.0 | | | 9.9 | |
| Approach LOS | | E | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.1 |
| Intersection Capacity Utilization | 68.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 20 | 90 | 90 | 20 | 50 | 100 | 760 | 90 | 80 | 1770 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1586 | 1805 | 3610 | 1586 | 1805 | 3546 | | 1805 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1586 | 1805 | 3610 | 1586 | 1805 | 3546 | | 1805 | 3610 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 20 | 90 | 90 | 20 | 50 | 100 | 760 | 90 | 80 | 1770 | 80 |
| RTOR Reduction (vph) | 0 | 0 | 85 | 0 | 0 | 47 | 0 | 5 | 0 | 0 | 0 | 22 |
| Lane Group Flow (vph) | 50 | 20 | 5 | 90 | 20 | 3 | 100 | 845 | 0 | 80 | 1770 | 58 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 4.8 | 5.9 | 5.9 | 6.0 | 7.1 | 7.1 | 13.7 | 73.2 | | 8.9 | 68.4 | 68.4 |
| Effective Green, g (s) | 4.8 | 5.9 | 5.9 | 6.0 | 7.1 | 7.1 | 13.7 | 73.2 | | 8.9 | 68.4 | 68.4 |
| Actuated g/C Ratio | 0.04 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.12 | 0.67 | | 0.08 | 0.62 | 0.62 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 79 | 194 | 85 | 98 | 233 | 102 | 225 | 2360 | | 146 | 2245 | 986 |
| v/s Ratio Prot | 0.03 | c0.01 | | c0.05 | 0.01 | | c0.06 | 0.24 | | c0.04 | c0.49 | |
| v/s Ratio Perm | | | 0.00 | | | 0.00 | | | | | | 0.04 |
| v/c Ratio | 0.63 | 0.10 | 0.06 | 0.92 | 0.09 | 0.03 | 0.44 | 0.36 | | 0.55 | 0.79 | 0.06 |
| Uniform Delay, d1 | 51.7 | 49.5 | 49.4 | 51.8 | 48.4 | 48.2 | 44.6 | 8.1 | | 48.6 | 15.4 | 8.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.92 | 0.78 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 15.4 | 0.2 | 0.3 | 64.3 | 0.2 | 0.1 | 1.1 | 0.3 | | 4.2 | 2.9 | 0.1 |
| Delay (s) | 67.1 | 49.8 | 49.7 | 116.1 | 48.6 | 48.4 | 42.0 | 6.6 | | 52.8 | 18.3 | 8.3 |
| Level of Service | E | D | D | F | D | D | D | A | | D | B | A |
| Approach Delay (s) | | 55.1 | | | 86.5 | | | 10.3 | | | 19.3 | |
| Approach LOS | | E | | | F | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 130 | 490 | 150 | 60 | 110 | 190 | 940 | 140 | 160 | 1480 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1797 | 3140 | | 1802 | 3610 | 1588 | 1805 | 5075 | | 1805 | 5175 | |
| Flt Permitted | 0.72 | 1.00 | | 0.27 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1354 | 3140 | | 510 | 3610 | 1588 | 1805 | 5075 | | 1805 | 5175 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 130 | 490 | 150 | 60 | 110 | 190 | 940 | 140 | 160 | 1480 | 20 |
| RTOR Reduction (vph) | 0 | 238 | 0 | 0 | 0 | 78 | 0 | 14 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 50 | 382 | 0 | 150 | 60 | 32 | 190 | 1066 | 0 | 160 | 1499 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Perm | | | Perm | | Perm | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 29.4 | 29.4 | | 29.4 | 29.4 | 29.4 | 14.8 | 42.8 | | 13.7 | 41.7 | |
| Effective Green, g (s) | 29.4 | 29.4 | | 29.4 | 29.4 | 29.4 | 14.8 | 42.8 | | 13.7 | 41.7 | |
| Actuated g/C Ratio | 0.29 | 0.29 | | 0.29 | 0.29 | 0.29 | 0.15 | 0.43 | | 0.14 | 0.41 | |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | 5.3 | 4.0 | 5.3 | | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 396 | 919 | | 149 | 1056 | 465 | 266 | 2161 | | 246 | 2147 | |
| v/s Ratio Prot | | 0.12 | | | 0.02 | | c0.11 | 0.21 | | 0.09 | c0.29 | |
| v/s Ratio Perm | 0.04 | | | c0.29 | | 0.02 | | | | | | |
| v/c Ratio | 0.13 | 0.42 | | 1.01 | 0.06 | 0.07 | 0.71 | 0.49 | | 0.65 | 0.70 | |
| Uniform Delay, d1 | 26.1 | 28.6 | | 35.5 | 25.6 | 25.7 | 40.8 | 21.0 | | 41.1 | 24.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 0.3 | | 75.5 | 0.0 | 0.1 | 8.8 | 0.8 | | 6.0 | 1.9 | |
| Delay (s) | 26.3 | 28.9 | | 111.1 | 25.6 | 25.7 | 49.6 | 21.8 | | 47.2 | 26.1 | |
| Level of Service | C | C | | F | C | C | D | C | | D | C | |
| Approach Delay (s) | | 28.7 | | | 65.7 | | | 25.9 | | | 28.2 | |
| Approach LOS | | C | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 100.5 | Sum of lost time (s) | 14.6 |
| Intersection Capacity Utilization | 85.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 310 | 240 | 70 | 10 | 180 | 60 | 50 | 990 | 30 | 60 | 1140 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.96 | | 1.00 | 1.00 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3473 | | 1805 | 3460 | | 1805 | 3592 | | 1805 | 3509 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3473 | | 1805 | 3460 | | 1805 | 3592 | | 1805 | 3509 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 310 | 240 | 70 | 10 | 180 | 60 | 50 | 990 | 30 | 60 | 1140 | 230 |
| RTOR Reduction (vph) | 0 | 28 | 0 | 0 | 35 | 0 | 0 | 2 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 310 | 282 | 0 | 10 | 205 | 0 | 50 | 1018 | 0 | 60 | 1358 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 18.0 | 31.8 | | 1.2 | 15.0 | | 7.4 | 52.9 | | 8.1 | 53.6 | |
| Effective Green, g (s) | 18.0 | 31.8 | | 1.2 | 15.0 | | 7.4 | 52.9 | | 8.1 | 53.6 | |
| Actuated g/C Ratio | 0.16 | 0.29 | | 0.01 | 0.14 | | 0.07 | 0.48 | | 0.07 | 0.49 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 295 | 1004 | | 20 | 472 | | 121 | 1727 | | 133 | 1710 | |
| v/s Ratio Prot | c0.17 | 0.08 | | 0.01 | c0.06 | | 0.03 | 0.28 | | c0.03 | c0.39 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 1.05 | 0.28 | | 0.50 | 0.43 | | 0.41 | 0.59 | | 0.45 | 0.79 | |
| Uniform Delay, d1 | 46.0 | 30.2 | | 54.1 | 43.6 | | 49.2 | 20.7 | | 48.8 | 23.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.01 | 0.91 | |
| Incremental Delay, d2 | 66.4 | 0.2 | | 18.3 | 0.6 | | 2.3 | 1.5 | | 1.5 | 2.5 | |
| Delay (s) | 112.4 | 30.4 | | 72.4 | 44.2 | | 51.5 | 22.2 | | 50.8 | 23.8 | |
| Level of Service | F | C | | E | D | | D | C | | D | C | |
| Approach Delay (s) | | 71.4 | | | 45.4 | | | 23.5 | | | 25.0 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 190 | 70 | 280 | 300 | 1190 | 0 | 0 | 2200 | 850 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | 1.00 | 0.95 | 0.95 | 1.00 | 0.91 | | | 0.91 | 1.00 |
| Frpb, ped/bikes | | | | 1.00 | 0.99 | 0.98 | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 0.91 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1795 | 1623 | 1508 | 1805 | 5187 | | | 5187 | 1564 |
| Flt Permitted | | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1795 | 1623 | 1508 | 1805 | 5187 | | | 5187 | 1564 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 190 | 70 | 280 | 300 | 1190 | 0 | 0 | 2200 | 850 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 59 | 79 | 0 | 0 | 0 | 0 | 0 | 255 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 190 | 120 | 92 | 300 | 1190 | 0 | 0 | 2200 | 595 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | 18.0 | 18.0 | 18.0 | 24.6 | 84.0 | | | 55.4 | 55.4 |
| Effective Green, g (s) | | | | 18.0 | 18.0 | 18.0 | 24.6 | 84.0 | | | 55.4 | 55.4 |
| Actuated g/C Ratio | | | | 0.16 | 0.16 | 0.16 | 0.22 | 0.76 | | | 0.50 | 0.50 |
| Clearance Time (s) | | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | 294 | 266 | 247 | 404 | 3961 | | | 2612 | 788 |
| v/s Ratio Prot | | | | | 0.07 | | c0.17 | 0.23 | | | c0.42 | |
| v/s Ratio Perm | | | | c0.11 | | 0.06 | | | | | | 0.38 |
| v/c Ratio | | | | 0.65 | 0.45 | 0.37 | 0.74 | 0.30 | | | 0.84 | 0.76 |
| Uniform Delay, d1 | | | | 43.0 | 41.5 | 41.0 | 39.8 | 4.0 | | | 23.5 | 21.9 |
| Progression Factor | | | | 1.00 | 1.00 | 1.00 | 1.42 | 0.66 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 4.8 | 1.2 | 1.0 | 3.2 | 0.1 | | | 3.5 | 6.7 |
| Delay (s) | | | | 47.8 | 42.7 | 41.9 | 59.5 | 2.7 | | | 27.0 | 28.5 |
| Level of Service | | | | D | D | D | E | A | | | C | C |
| Approach Delay (s) | | 0.0 | | | 44.3 | | | 14.1 | | | 27.5 | |
| Approach LOS | | A | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 95.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 250 | 80 | 290 | 0 | 0 | 0 | 0 | 1230 | 410 | 530 | 1860 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | | | | 0.91 | | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | | | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | | | | | 0.96 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1795 | 1654 | | | | | | 4953 | | 1805 | 5187 | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1795 | 1654 | | | | | | 4953 | | 1805 | 5187 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 250 | 80 | 290 | 0 | 0 | 0 | 0 | 1230 | 410 | 530 | 1860 | 0 |
| RTOR Reduction (vph) | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 53 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 250 | 354 | 0 | 0 | 0 | 0 | 0 | 1587 | 0 | 530 | 1860 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | | | | | | | | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | | | | | | |
| Actuated Green, G (s) | 27.5 | 27.5 | | | | | | 36.0 | | 34.5 | 74.5 | |
| Effective Green, g (s) | 27.5 | 27.5 | | | | | | 36.0 | | 34.5 | 74.5 | |
| Actuated g/C Ratio | 0.25 | 0.25 | | | | | | 0.33 | | 0.31 | 0.68 | |
| Clearance Time (s) | 4.0 | 4.0 | | | | | | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 449 | 414 | | | | | | 1621 | | 566 | 3513 | |
| v/s Ratio Prot | | c0.21 | | | | | | c0.32 | | c0.29 | 0.36 | |
| v/s Ratio Perm | 0.14 | | | | | | | | | | | |
| v/c Ratio | 0.56 | 0.85 | | | | | | 0.98 | | 0.94 | 0.53 | |
| Uniform Delay, d1 | 35.9 | 39.3 | | | | | | 36.6 | | 36.7 | 8.9 | |
| Progression Factor | 1.00 | 1.00 | | | | | | 1.00 | | 1.60 | 1.19 | |
| Incremental Delay, d2 | 1.5 | 15.6 | | | | | | 17.9 | | 15.3 | 0.3 | |
| Delay (s) | 37.4 | 54.9 | | | | | | 54.5 | | 74.0 | 10.9 | |
| Level of Service | D | D | | | | | | D | | E | B | |
| Approach Delay (s) | | 47.9 | | | 0.0 | | | 54.5 | | | 24.9 | |
| Approach LOS | | D | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 95.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 190 | 30 | 120 | 150 | 760 | 0 | 0 | 1120 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 1.00 | | | 1.00 | 0.97 |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | | 0.95 | | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1743 | | 1805 | 3610 | | | 3610 | 1564 |
| Flt Permitted | | | | | 0.97 | | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1743 | | 1805 | 3610 | | | 3610 | 1564 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 190 | 30 | 120 | 150 | 760 | 0 | 0 | 1120 | 150 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 321 | 0 | 150 | 760 | 0 | 0 | 1120 | 101 |
| Confl. Peds. (#/hr) | | | | 5 | | 5 | 5 | | | | | 5 |
| Turn Type | | | | Perm | | | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | | | | 24.8 | | 13.8 | 77.2 | | | 59.4 | 59.4 |
| Effective Green, g (s) | | | | | 24.8 | | 13.8 | 77.2 | | | 59.4 | 59.4 |
| Actuated g/C Ratio | | | | | 0.23 | | 0.13 | 0.70 | | | 0.54 | 0.54 |
| Clearance Time (s) | | | | | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 393 | | 226 | 2534 | | | 1949 | 845 |
| v/s Ratio Prot | | | | | | | c0.08 | 0.21 | | | c0.31 | |
| v/s Ratio Perm | | | | | 0.18 | | | | | | | 0.06 |
| v/c Ratio | | | | | 0.82 | | 0.66 | 0.30 | | | 0.57 | 0.12 |
| Uniform Delay, d1 | | | | | 40.4 | | 45.9 | 6.2 | | | 16.9 | 12.4 |
| Progression Factor | | | | | 1.00 | | 1.57 | 0.71 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 12.3 | | 6.7 | 0.3 | | | 1.2 | 0.3 |
| Delay (s) | | | | | 52.7 | | 78.6 | 4.7 | | | 18.1 | 12.7 |
| Level of Service | | | | | D | | E | A | | | B | B |
| Approach Delay (s) | | 0.0 | | | 52.7 | | | 16.9 | | | 17.5 | |
| Approach LOS | | A | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 40 | 380 | 0 | 0 | 0 | 0 | 750 | 190 | 130 | 1180 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | | | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | | | | | 1.00 | 0.97 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1817 | 1586 | | | | | 3610 | 1564 | 1805 | 3610 | |
| Flt Permitted | | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1817 | 1586 | | | | | 3610 | 1564 | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 40 | 380 | 0 | 0 | 0 | 0 | 750 | 190 | 130 | 1180 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 85 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 210 | 336 | 0 | 0 | 0 | 0 | 750 | 105 | 130 | 1180 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | | | 5 | 5 | | |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | | 29.6 | 29.6 | | | | | 55.2 | 55.2 | 13.2 | 72.4 | |
| Effective Green, g (s) | | 29.6 | 29.6 | | | | | 55.2 | 55.2 | 13.2 | 72.4 | |
| Actuated g/C Ratio | | 0.27 | 0.27 | | | | | 0.50 | 0.50 | 0.12 | 0.66 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 489 | 427 | | | | | 1812 | 785 | 217 | 2376 | |
| v/s Ratio Prot | | | | | | | | 0.21 | | c0.07 | c0.33 | |
| v/s Ratio Perm | | 0.12 | c0.21 | | | | | | 0.07 | | | |
| v/c Ratio | | 0.43 | 0.79 | | | | | 0.41 | 0.13 | 0.60 | 0.50 | |
| Uniform Delay, d1 | | 33.2 | 37.3 | | | | | 17.2 | 14.6 | 45.9 | 9.5 | |
| Progression Factor | | 1.00 | 1.00 | | | | | 1.55 | 3.29 | 1.22 | 0.68 | |
| Incremental Delay, d2 | | 0.6 | 9.3 | | | | | 0.7 | 0.3 | 3.6 | 0.6 | |
| Delay (s) | | 33.8 | 46.6 | | | | | 27.4 | 48.5 | 59.5 | 7.1 | |
| Level of Service | | C | D | | | | | C | D | E | A | |
| Approach Delay (s) | | 42.0 | | | 0.0 | | | 31.6 | | | 12.3 | |
| Approach LOS | | D | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 560 | 610 | 160 | 160 | 60 | 240 | 1030 | 160 | 100 | 1830 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.9 | 4.0 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 4.0 | 4.0 | 5.3 | |
| Lane Util. Factor | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3610 | 2842 | 3502 | 3610 | 1587 | 3502 | 5187 | 1615 | 3502 | 5150 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3610 | 2842 | 3502 | 3610 | 1587 | 3502 | 5187 | 1615 | 3502 | 5150 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 560 | 610 | 160 | 160 | 60 | 240 | 1030 | 160 | 100 | 1830 | 80 |
| RTOR Reduction (vph) | 0 | 0 | 543 | 0 | 0 | 46 | 0 | 0 | 111 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 140 | 560 | 67 | 160 | 160 | 14 | 240 | 1030 | 49 | 100 | 1906 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Over | Prot | | Perm | Prot | | Over | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | |
| Actuated Green, G (s) | 6.0 | 21.4 | 11.7 | 8.6 | 24.0 | 24.0 | 11.7 | 50.8 | 8.6 | 6.8 | 45.9 | |
| Effective Green, g (s) | 6.0 | 21.4 | 11.7 | 8.6 | 24.0 | 24.0 | 11.7 | 50.8 | 8.6 | 6.8 | 45.9 | |
| Actuated g/C Ratio | 0.06 | 0.20 | 0.11 | 0.08 | 0.23 | 0.23 | 0.11 | 0.48 | 0.08 | 0.06 | 0.43 | |
| Clearance Time (s) | 4.0 | 4.9 | 4.0 | 4.0 | 4.9 | 4.9 | 4.0 | 5.3 | 4.0 | 4.0 | 5.3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 199 | 730 | 314 | 285 | 819 | 360 | 387 | 2491 | 131 | 225 | 2234 | |
| v/s Ratio Prot | c0.04 | c0.16 | 0.02 | 0.05 | c0.04 | | c0.07 | 0.20 | 0.03 | 0.03 | c0.37 | |
| v/s Ratio Perm | | | | | | 0.01 | | | | | | |
| v/c Ratio | 0.70 | 0.77 | 0.21 | 0.56 | 0.20 | 0.04 | 0.62 | 0.41 | 0.37 | 0.44 | 0.85 | |
| Uniform Delay, d1 | 49.0 | 39.8 | 42.9 | 46.8 | 33.1 | 31.9 | 44.9 | 17.8 | 46.0 | 47.7 | 26.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.7 | 4.8 | 0.3 | 2.5 | 0.1 | 0.0 | 3.1 | 0.5 | 1.8 | 1.4 | 4.4 | |
| Delay (s) | 59.8 | 44.7 | 43.2 | 49.3 | 33.2 | 31.9 | 48.0 | 18.3 | 47.8 | 49.1 | 31.3 | |
| Level of Service | E | D | D | D | C | C | D | B | D | D | C | |
| Approach Delay (s) | | 45.6 | | | 39.8 | | | 26.6 | | | 32.2 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 105.8 | Sum of lost time (s) | 23.1 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 130 | 10 | 40 | 10 | 10 | 30 | 10 | 790 | 10 | 50 | 1420 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.88 | | 1.00 | 0.89 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1672 | | 1805 | 1686 | | 1805 | 3603 | | 1805 | 3578 | |
| Flt Permitted | 0.73 | 1.00 | | 0.72 | 1.00 | | 0.14 | 1.00 | | 0.34 | 1.00 | |
| Satd. Flow (perm) | 1389 | 1672 | | 1376 | 1686 | | 271 | 3603 | | 639 | 3578 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 10 | 40 | 10 | 10 | 30 | 10 | 790 | 10 | 50 | 1420 | 90 |
| RTOR Reduction (vph) | 0 | 34 | 0 | 0 | 26 | 0 | 0 | 1 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 130 | 16 | 0 | 10 | 14 | 0 | 10 | 799 | 0 | 50 | 1507 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.5 | 15.5 | | 15.5 | 15.5 | | 86.5 | 86.5 | | 86.5 | 86.5 | |
| Effective Green, g (s) | 15.5 | 15.5 | | 15.5 | 15.5 | | 86.5 | 86.5 | | 86.5 | 86.5 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.14 | 0.14 | | 0.79 | 0.79 | | 0.79 | 0.79 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 196 | 236 | | 194 | 238 | | 213 | 2833 | | 502 | 2814 | |
| v/s Ratio Prot | | 0.01 | | | 0.01 | | | 0.22 | | | c0.42 | |
| v/s Ratio Perm | c0.09 | | | 0.01 | | | 0.04 | | | 0.08 | | |
| v/c Ratio | 0.66 | 0.07 | | 0.05 | 0.06 | | 0.05 | 0.28 | | 0.10 | 0.54 | |
| Uniform Delay, d1 | 44.8 | 41.0 | | 40.9 | 40.9 | | 2.6 | 3.2 | | 2.7 | 4.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.75 | 0.73 | | 0.77 | 0.77 | |
| Incremental Delay, d2 | 8.2 | 0.1 | | 0.1 | 0.1 | | 0.4 | 0.2 | | 0.3 | 0.6 | |
| Delay (s) | 52.9 | 41.1 | | 41.0 | 41.0 | | 2.3 | 2.6 | | 2.4 | 4.0 | |
| Level of Service | D | D | | D | D | | A | A | | A | A | |
| Approach Delay (s) | | 49.7 | | | 41.0 | | | 2.6 | | | 3.9 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 110 | 50 | 20 | 80 | 90 | 40 | 880 | 30 | 220 | 1200 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.92 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3441 | | 1805 | 3323 | | 1805 | 3592 | | 1805 | 3572 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3441 | | 1805 | 3323 | | 1805 | 3592 | | 1805 | 3572 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 110 | 50 | 20 | 80 | 90 | 40 | 880 | 30 | 220 | 1200 | 90 |
| RTOR Reduction (vph) | 0 | 43 | 0 | 0 | 82 | 0 | 0 | 1 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 90 | 117 | 0 | 20 | 88 | 0 | 40 | 909 | 0 | 220 | 1287 | 0 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 7.8 | 15.3 | | 2.4 | 9.9 | | 5.4 | 57.8 | | 18.5 | 70.9 | |
| Effective Green, g (s) | 7.8 | 15.3 | | 2.4 | 9.9 | | 5.4 | 57.8 | | 18.5 | 70.9 | |
| Actuated g/C Ratio | 0.07 | 0.14 | | 0.02 | 0.09 | | 0.05 | 0.53 | | 0.17 | 0.64 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 128 | 479 | | 39 | 299 | | 89 | 1887 | | 304 | 2302 | |
| v/s Ratio Prot | c0.05 | c0.03 | | 0.01 | 0.03 | | 0.02 | 0.25 | | c0.12 | c0.36 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.70 | 0.24 | | 0.51 | 0.29 | | 0.45 | 0.48 | | 0.72 | 0.56 | |
| Uniform Delay, d1 | 50.0 | 42.2 | | 53.2 | 46.8 | | 50.9 | 16.6 | | 43.3 | 10.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.72 | 1.67 | |
| Incremental Delay, d2 | 16.1 | 0.3 | | 10.9 | 0.6 | | 3.6 | 0.9 | | 7.3 | 0.9 | |
| Delay (s) | 66.0 | 42.5 | | 64.1 | 47.3 | | 54.4 | 17.5 | | 38.6 | 19.0 | |
| Level of Service | E | D | | E | D | | D | B | | D | B | |
| Approach Delay (s) | | 50.9 | | | 49.1 | | | 19.0 | | | 21.9 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 300 | 480 | 270 | 180 | 360 | 210 | 170 | 450 | 170 | 280 | 670 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1615 | 3502 | 3610 | 1587 | 3502 | 3610 | 1615 | 3502 | 3610 | 1586 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1615 | 3502 | 3610 | 1587 | 3502 | 3610 | 1615 | 3502 | 3610 | 1586 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 300 | 480 | 270 | 180 | 360 | 210 | 170 | 450 | 170 | 280 | 670 | 280 |
| RTOR Reduction (vph) | 0 | 0 | 209 | 0 | 0 | 174 | 0 | 0 | 103 | 0 | 0 | 130 |
| Lane Group Flow (vph) | 300 | 480 | 61 | 180 | 360 | 36 | 170 | 450 | 67 | 280 | 670 | 150 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | | | | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 13.6 | 20.0 | 20.0 | 10.3 | 16.7 | 16.7 | 10.0 | 38.2 | 38.2 | 13.1 | 41.3 | 41.3 |
| Effective Green, g (s) | 13.6 | 20.0 | 20.0 | 10.3 | 16.7 | 16.7 | 10.0 | 38.2 | 38.2 | 13.1 | 41.3 | 41.3 |
| Actuated g/C Ratio | 0.14 | 0.20 | 0.20 | 0.11 | 0.17 | 0.17 | 0.10 | 0.39 | 0.39 | 0.13 | 0.42 | 0.42 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 488 | 740 | 331 | 370 | 618 | 272 | 359 | 1413 | 632 | 470 | 1528 | 671 |
| v/s Ratio Prot | c0.09 | c0.13 | | 0.05 | 0.10 | | 0.05 | 0.12 | | c0.08 | c0.19 | |
| v/s Ratio Perm | | | 0.04 | | | 0.02 | | | 0.04 | | | 0.09 |
| v/c Ratio | 0.61 | 0.65 | 0.18 | 0.49 | 0.58 | 0.13 | 0.47 | 0.32 | 0.11 | 0.60 | 0.44 | 0.22 |
| Uniform Delay, d1 | 39.5 | 35.6 | 32.1 | 41.2 | 37.2 | 34.3 | 41.3 | 20.6 | 18.9 | 39.8 | 19.9 | 17.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.3 | 2.0 | 0.3 | 1.0 | 1.4 | 0.2 | 1.0 | 0.6 | 0.3 | 2.0 | 0.9 | 0.8 |
| Delay (s) | 41.8 | 37.5 | 32.3 | 42.2 | 38.6 | 34.5 | 42.3 | 21.2 | 19.2 | 41.8 | 20.9 | 18.7 |
| Level of Service | D | D | C | D | D | C | D | C | B | D | C | B |
| Approach Delay (s) | | 37.4 | | | 38.3 | | | 25.3 | | | 25.1 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 97.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 57.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 270 | 10 | 10 | 510 | 890 | 260 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 1.00 | 0.85 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 3610 | 1615 | 1805 | 1615 |
| Flt Permitted | 0.75 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1426 | 3610 | 3610 | 1615 | 1805 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 270 | 10 | 10 | 510 | 890 | 260 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 78 |
| Lane Group Flow (vph) | 270 | 10 | 10 | 510 | 890 | 182 |
| Turn Type | Perm | | | pt+ov | | Perm |
| Protected Phases | | 4 | 8 | 8 1 | 1 | |
| Permitted Phases | 4 | | | | | 1 |
| Actuated Green, G (s) | 25.1 | 25.1 | 25.1 | 110.0 | 76.9 | 76.9 |
| Effective Green, g (s) | 25.1 | 25.1 | 25.1 | 110.0 | 76.9 | 76.9 |
| Actuated g/C Ratio | 0.23 | 0.23 | 0.23 | 1.00 | 0.70 | 0.70 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 325 | 824 | 824 | 1615 | 1262 | 1129 |
| v/s Ratio Prot | | 0.00 | 0.00 | 0.32 | c0.49 | |
| v/s Ratio Perm | c0.19 | | | | | 0.11 |
| v/c Ratio | 0.83 | 0.01 | 0.01 | 0.32 | 0.71 | 0.16 |
| Uniform Delay, d1 | 40.4 | 32.9 | 32.9 | 0.0 | 9.8 | 5.6 |
| Progression Factor | 1.00 | 1.00 | 0.77 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 16.3 | 0.0 | 0.0 | 0.1 | 1.8 | 0.1 |
| Delay (s) | 56.7 | 32.9 | 25.5 | 0.1 | 11.6 | 5.7 |
| Level of Service | E | C | C | A | B | A |
| Approach Delay (s) | | 55.9 | 0.6 | | 10.3 | |
| Approach LOS | | E | A | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 410 | 490 | 340 | 330 | 0 | 0 | 0 | 0 | 160 | 190 | 180 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.98 | 1.00 |
| Satd. Flow (prot) | | 3610 | 1615 | 1805 | 3610 | | | | | | 1858 | 1615 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.98 | 1.00 |
| Satd. Flow (perm) | | 3610 | 1615 | 1805 | 3610 | | | | | | 1858 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 410 | 490 | 340 | 330 | 0 | 0 | 0 | 0 | 160 | 190 | 180 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| Lane Group Flow (vph) | 0 | 410 | 490 | 340 | 330 | 0 | 0 | 0 | 0 | 0 | 350 | 142 |
| Turn Type | | | Free | Prot | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | 3 | 8 | | | | | | 6 | |
| Permitted Phases | | | Free | | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 18.1 | 110.0 | 25.3 | 47.4 | | | | | | 54.6 | 54.6 |
| Effective Green, g (s) | | 18.1 | 110.0 | 25.3 | 47.4 | | | | | | 54.6 | 54.6 |
| Actuated g/C Ratio | | 0.16 | 1.00 | 0.23 | 0.43 | | | | | | 0.50 | 0.50 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 594 | 1615 | 415 | 1556 | | | | | | 922 | 802 |
| v/s Ratio Prot | | c0.11 | | c0.19 | 0.09 | | | | | | | |
| v/s Ratio Perm | | | 0.30 | | | | | | | | 0.19 | 0.09 |
| v/c Ratio | | 0.69 | 0.30 | 0.82 | 0.21 | | | | | | 0.38 | 0.18 |
| Uniform Delay, d1 | | 43.3 | 0.0 | 40.2 | 19.6 | | | | | | 17.2 | 15.3 |
| Progression Factor | | 0.99 | 1.00 | 1.16 | 1.70 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 2.4 | 0.3 | 11.6 | 0.1 | | | | | | 1.2 | 0.5 |
| Delay (s) | | 45.2 | 0.3 | 58.1 | 33.5 | | | | | | 18.4 | 15.8 |
| Level of Service | | D | A | E | C | | | | | | B | B |
| Approach Delay (s) | | 20.8 | | | 46.0 | | | 0.0 | | | 17.5 | |
| Approach LOS | | C | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 51.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 510 | 0 | 0 | 250 | 10 | 410 | 20 | 230 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | | | 3610 | 1615 | 1805 | 1900 | 1615 | | | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | |
| Satd. Flow (perm) | 1805 | 3610 | | | 3610 | 1615 | 1805 | 1900 | 1615 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 510 | 0 | 0 | 250 | 10 | 410 | 20 | 230 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 63 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 50 | 510 | 0 | 0 | 250 | 1 | 410 | 20 | 167 | 0 | 0 | 0 |
| Turn Type | Prot | | | | | Perm | Perm | | Perm | | | |
| Protected Phases | 7 | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | | | | | | 8 | 2 | | 2 | | | |
| Actuated Green, G (s) | 7.4 | 25.6 | | | 14.2 | 14.2 | 76.4 | 76.4 | 76.4 | | | |
| Effective Green, g (s) | 7.4 | 25.6 | | | 14.2 | 14.2 | 76.4 | 76.4 | 76.4 | | | |
| Actuated g/C Ratio | 0.07 | 0.23 | | | 0.13 | 0.13 | 0.69 | 0.69 | 0.69 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 121 | 840 | | | 466 | 208 | 1254 | 1320 | 1122 | | | |
| v/s Ratio Prot | 0.03 | c0.14 | | | 0.07 | | | 0.01 | | | | |
| v/s Ratio Perm | | | | | | 0.00 | c0.23 | | 0.10 | | | |
| v/c Ratio | 0.41 | 0.61 | | | 0.54 | 0.01 | 0.33 | 0.02 | 0.15 | | | |
| Uniform Delay, d1 | 49.2 | 37.7 | | | 44.8 | 41.7 | 6.6 | 5.2 | 5.7 | | | |
| Progression Factor | 1.49 | 1.61 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 2.1 | 1.2 | | | 1.2 | 0.0 | 0.7 | 0.0 | 0.3 | | | |
| Delay (s) | 75.4 | 62.0 | | | 46.0 | 41.8 | 7.3 | 5.2 | 6.0 | | | |
| Level of Service | E | E | | | D | D | A | A | A | | | |
| Approach Delay (s) | | 63.2 | | | 45.8 | | | 6.8 | | | 0.0 | |
| Approach LOS | | E | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 10 | 60 | 70 | 10 | 130 | 30 | 540 | 60 | 160 | 780 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 1.00 | 0.91 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.87 | | 1.00 | 0.86 | | 1.00 | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4520 | | 1805 | 4465 | | 1805 | 3556 | | 1805 | 3565 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4520 | | 1805 | 4465 | | 1805 | 3556 | | 1805 | 3565 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 10 | 60 | 70 | 10 | 130 | 30 | 540 | 60 | 160 | 780 | 70 |
| RTOR Reduction (vph) | 0 | 54 | 0 | 0 | 122 | 0 | 0 | 5 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 110 | 16 | 0 | 70 | 18 | 0 | 30 | 595 | 0 | 160 | 846 | 0 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 11.1 | 11.1 | | 7.0 | 7.0 | | 5.0 | 61.0 | | 14.9 | 70.9 | |
| Effective Green, g (s) | 11.1 | 11.1 | | 7.0 | 7.0 | | 5.0 | 61.0 | | 14.9 | 70.9 | |
| Actuated g/C Ratio | 0.10 | 0.10 | | 0.06 | 0.06 | | 0.05 | 0.55 | | 0.14 | 0.64 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 182 | 456 | | 115 | 284 | | 82 | 1972 | | 244 | 2298 | |
| v/s Ratio Prot | c0.06 | 0.00 | | 0.04 | c0.00 | | 0.02 | 0.17 | | c0.09 | c0.24 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.60 | 0.04 | | 0.61 | 0.06 | | 0.37 | 0.30 | | 0.66 | 0.37 | |
| Uniform Delay, d1 | 47.3 | 44.6 | | 50.2 | 48.4 | | 51.0 | 13.1 | | 45.1 | 9.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.6 | 0.0 | | 8.8 | 0.1 | | 2.8 | 0.4 | | 6.2 | 0.5 | |
| Delay (s) | 52.9 | 44.7 | | 59.0 | 48.5 | | 53.7 | 13.5 | | 51.3 | 9.6 | |
| Level of Service | D | D | | E | D | | D | B | | D | A | |
| Approach Delay (s) | | 49.7 | | | 52.0 | | | 15.4 | | | 16.2 | |
| Approach LOS | | D | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 49.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 0 | 10 | 10 | 90 | 40 | 510 | 0 | 0 | 230 | 430 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 10 | 10 | 90 | 40 | 510 | 0 | 0 | 230 | 430 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1130 | 1035 | 445 | 1035 | 1250 | 510 | 660 | | | 510 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1130 | 1035 | 445 | 1035 | 1250 | 510 | 660 | | | 510 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 95 | 94 | 84 | 96 | | | 100 | | |
| cM capacity (veh/h) | 142 | 224 | 617 | 205 | 167 | 567 | 938 | | | 1065 | | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 110 | 550 | 660 |
| Volume Left | 10 | 40 | 0 |
| Volume Right | 90 | 0 | 430 |
| cSH | 411 | 938 | 1700 |
| Volume to Capacity | 0.27 | 0.04 | 0.39 |
| Queue Length 95th (ft) | 27 | 3 | 0 |
| Control Delay (s) | 16.9 | 1.2 | 0.0 |
| Lane LOS | C | A | |
| Approach Delay (s) | 16.9 | 1.2 | 0.0 |
| Approach LOS | C | | |

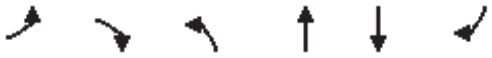
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.9 | | | |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 420 | 20 | 40 | 0 | 0 | 0 | 0 | 130 | 10 | 80 | 150 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 420 | 20 | 40 | 0 | 0 | 0 | 0 | 130 | 10 | 80 | 150 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 445 | 450 | 150 | 495 | 445 | 135 | 150 | | | 140 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 445 | 450 | 150 | 495 | 445 | 135 | 150 | | | 140 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 17 | 96 | 96 | 100 | 100 | 100 | 100 | | | 95 | | |
| cM capacity (veh/h) | 505 | 480 | 902 | 433 | 483 | 919 | 1444 | | | 1456 | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 420 | 60 | 140 | 230 |
| Volume Left | 420 | 0 | 0 | 80 |
| Volume Right | 0 | 40 | 10 | 0 |
| cSH | 505 | 697 | 1700 | 1456 |
| Volume to Capacity | 0.83 | 0.09 | 0.08 | 0.05 |
| Queue Length 95th (ft) | 208 | 7 | 0 | 4 |
| Control Delay (s) | 38.4 | 10.6 | 0.0 | 2.9 |
| Lane LOS | E | B | | A |
| Approach Delay (s) | 34.9 | | 0.0 | 2.9 |
| Approach LOS | D | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 20.5 | | | |
| Intersection Capacity Utilization | 53.0% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 350 | 150 | 30 | 970 | 1370 | 500 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 350 | 150 | 30 | 970 | 1370 | 500 |
| Pedestrians | | | | 5 | 5 | |
| Lane Width (ft) | | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | | | | 4.0 | 4.0 | |
| Percent Blockage | | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1920 | 690 | 1870 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1920 | 690 | 1870 | | | |
| tC, single (s) | 6.8 | 6.9 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 0 | 62 | 91 | | | |
| cM capacity (veh/h) | 55 | 391 | 326 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 500 | 30 | 485 | 485 | 685 | 685 | 500 |
| Volume Left | 350 | 30 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 150 | 0 | 0 | 0 | 0 | 0 | 500 |
| cSH | 74 | 326 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 6.79 | 0.09 | 0.29 | 0.29 | 0.40 | 0.40 | 0.29 |
| Queue Length 95th (ft) | Err | 8 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | Err | 17.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | C | | | | | |
| Approach Delay (s) | Err | 0.5 | | | 0.0 | | |
| Approach LOS | F | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1483.7 | | |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 30 | 970 | 0 | 0 | 550 | 720 | 620 | 30 | 50 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 30 | 970 | 0 | 0 | 550 | 720 | 620 | 30 | 50 | 0 | 0 | 0 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 0.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | 10 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1275 | | | 975 | | | 1315 | 2310 | 495 | 1145 | 1590 | 285 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1275 | | | 975 | | | 1315 | 2310 | 495 | 1145 | 1590 | 285 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 95 | | | 100 | | | 0 | 18 | 90 | 100 | 100 | 100 |
| cM capacity (veh/h) | 551 | | | 713 | | | 112 | 36 | 521 | 42 | 102 | 715 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 30 | 485 | 485 | 275 | 275 | 720 | 700 |
| Volume Left | 30 | 0 | 0 | 0 | 0 | 0 | 620 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 720 | 50 |
| cSH | 551 | 1700 | 1700 | 1700 | 1700 | 1700 | 108 |
| Volume to Capacity | 0.05 | 0.29 | 0.29 | 0.16 | 0.16 | 0.42 | 6.47 |
| Queue Length 95th (ft) | 4 | 0 | 0 | 0 | 0 | 0 | Err |
| Control Delay (s) | 11.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | Err |
| Lane LOS | B | | | | | | F |
| Approach Delay (s) | 0.4 | | | 0.0 | | | Err |
| Approach LOS | | | | | | | F |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2356.8 | | |
| Intersection Capacity Utilization | 93.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 760 | 730 | 100 | 1080 | 0 | 0 | 0 | 0 | 250 | 10 | 10 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 760 | 730 | 100 | 1080 | 0 | 0 | 0 | 0 | 250 | 10 | 10 |
| Pedestrians | | 5 | | | 5 | | | 5 | | | 5 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 0.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | 7 |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1085 | | | 1495 | | | 1520 | 2050 | 390 | 1670 | 2780 | 550 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1085 | | | 1495 | | | 1520 | 2050 | 390 | 1670 | 2780 | 550 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 78 | | | 100 | 100 | 100 | 0 | 33 | 98 |
| cM capacity (veh/h) | 648 | | | 455 | | | 32 | 44 | 612 | 53 | 15 | 480 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 380 | 380 | 730 | 100 | 540 | 540 | 270 |
| Volume Left | 0 | 0 | 0 | 100 | 0 | 0 | 250 |
| Volume Right | 0 | 0 | 730 | 0 | 0 | 0 | 10 |
| cSH | 1700 | 1700 | 1700 | 455 | 1700 | 1700 | 50 |
| Volume to Capacity | 0.22 | 0.22 | 0.43 | 0.22 | 0.32 | 0.32 | 5.42 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 21 | 0 | 0 | Err |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 15.1 | 0.0 | 0.0 | Err |
| Lane LOS | | | | C | | | F |
| Approach Delay (s) | 0.0 | | | 1.3 | | | Err |
| Approach LOS | | | | | | | F |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 918.8 | | |
| Intersection Capacity Utilization | 93.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 350 | 250 | 260 | 260 | 250 | 140 | 2580 | 160 | 440 | 2910 | 320 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 3610 | 1598 | 3502 | 3610 | 1601 | 3502 | 5187 | 1590 | 3502 | 5187 | 1590 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 3610 | 1598 | 3502 | 3610 | 1601 | 3502 | 5187 | 1590 | 3502 | 5187 | 1590 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 350 | 250 | 260 | 260 | 250 | 140 | 2580 | 160 | 440 | 2910 | 320 |
| RTOR Reduction (vph) | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 38 | 0 | 0 | 66 |
| Lane Group Flow (vph) | 190 | 350 | 249 | 260 | 260 | 248 | 140 | 2580 | 122 | 440 | 2910 | 254 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 8.0 | 15.8 | 22.8 | 8.0 | 15.8 | 29.8 | 7.0 | 56.0 | 56.0 | 14.0 | 63.0 | 63.0 |
| Effective Green, g (s) | 8.0 | 15.8 | 22.8 | 8.0 | 15.8 | 29.8 | 7.0 | 56.0 | 56.0 | 14.0 | 63.0 | 63.0 |
| Actuated g/C Ratio | 0.07 | 0.14 | 0.21 | 0.07 | 0.14 | 0.27 | 0.06 | 0.51 | 0.51 | 0.13 | 0.57 | 0.57 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 255 | 519 | 390 | 255 | 519 | 493 | 223 | 2645 | 811 | 447 | 2976 | 912 |
| v/s Ratio Prot | 0.05 | 0.10 | c0.04 | c0.07 | 0.07 | 0.06 | 0.04 | 0.50 | | c0.13 | c0.56 | |
| v/s Ratio Perm | | | 0.12 | | | 0.09 | | | 0.08 | | | 0.16 |
| v/c Ratio | 0.75 | 0.67 | 0.64 | 1.02 | 0.50 | 0.50 | 0.63 | 0.98 | 0.15 | 0.98 | 0.98 | 0.28 |
| Uniform Delay, d1 | 49.9 | 44.6 | 39.7 | 50.9 | 43.4 | 33.7 | 50.1 | 26.2 | 14.3 | 47.8 | 22.7 | 11.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 11.2 | 3.5 | 3.4 | 61.5 | 0.8 | 0.8 | 5.4 | 12.2 | 0.1 | 38.2 | 11.7 | 0.2 |
| Delay (s) | 61.1 | 48.0 | 43.2 | 112.4 | 44.1 | 34.6 | 55.6 | 38.4 | 14.4 | 86.0 | 34.4 | 12.0 |
| Level of Service | E | D | D | F | D | C | E | D | B | F | C | B |
| Approach Delay (s) | | 49.6 | | | 64.1 | | | 37.9 | | | 38.6 | |
| Approach LOS | | D | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 109.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 97.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 30 | 20 | 90 | 390 | 1830 | 0 | 0 | 1530 | 910 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | | | | | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frt | | | | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | | | | 0.97 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1845 | 1615 | 1805 | 3610 | | | 3610 | 1615 |
| Flt Permitted | | | | | 0.97 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1845 | 1615 | 1805 | 3610 | | | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 0 | 0 | 30 | 20 | 90 | 390 | 1830 | 0 | 0 | 1530 | 910 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 294 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 50 | 71 | 390 | 1830 | 0 | 0 | 1530 | 616 |
| Turn Type | | | | Perm | | Perm | Prot | | | | | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | 8 | | 8 | | | | | | 6 |
| Actuated Green, G (s) | | | | | 8.1 | 8.1 | 23.1 | 76.4 | | | 49.3 | 49.3 |
| Effective Green, g (s) | | | | | 8.1 | 8.1 | 23.1 | 76.4 | | | 49.3 | 49.3 |
| Actuated g/C Ratio | | | | | 0.09 | 0.09 | 0.25 | 0.83 | | | 0.53 | 0.53 |
| Clearance Time (s) | | | | | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | | | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 162 | 141 | 451 | 2982 | | | 1924 | 861 |
| v/s Ratio Prot | | | | | | | c0.22 | 0.51 | | | c0.42 | |
| v/s Ratio Perm | | | | | 0.03 | c0.04 | | | | | | 0.38 |
| v/c Ratio | | | | | 0.31 | 0.50 | 0.86 | 0.61 | | | 0.80 | 0.72 |
| Uniform Delay, d1 | | | | | 39.6 | 40.3 | 33.2 | 2.8 | | | 17.5 | 16.3 |
| Progression Factor | | | | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 1.1 | 2.8 | 15.7 | 0.4 | | | 2.4 | 2.8 |
| Delay (s) | | | | | 40.7 | 43.1 | 48.9 | 3.2 | | | 19.9 | 19.1 |
| Level of Service | | | | | D | D | D | A | | | B | B |
| Approach Delay (s) | | 0.0 | | | 42.2 | | | 11.3 | | | 19.6 | |
| Approach LOS | | A | | | D | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 92.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 1170 | 70 | 350 | 0 | 0 | 0 | 0 | 1040 | 60 | 250 | 1300 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | | | | | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | | | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1715 | 1728 | 1615 | | | | | 3610 | 1615 | 1805 | 3610 | |
| Flt Permitted | 0.95 | 0.96 | 1.00 | | | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1715 | 1728 | 1615 | | | | | 3610 | 1615 | 1805 | 3610 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 1170 | 70 | 350 | 0 | 0 | 0 | 0 | 1040 | 60 | 250 | 1300 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 41 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 620 | 620 | 329 | 0 | 0 | 0 | 0 | 1040 | 19 | 250 | 1300 | 0 |
| Turn Type | Perm | | Perm | | | | | | Perm | Prot | | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 35.2 | 35.2 | 35.2 | | | | | 27.9 | 27.9 | 13.8 | 45.7 | |
| Effective Green, g (s) | 35.2 | 35.2 | 35.2 | | | | | 27.9 | 27.9 | 13.8 | 45.7 | |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | | | | | 0.31 | 0.31 | 0.16 | 0.51 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | | | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 679 | 684 | 639 | | | | | 1133 | 507 | 280 | 1856 | |
| v/s Ratio Prot | | | | | | | | c0.29 | | c0.14 | 0.36 | |
| v/s Ratio Perm | c0.36 | 0.36 | 0.20 | | | | | | 0.01 | | | |
| v/c Ratio | 0.91 | 0.91 | 0.51 | | | | | 0.92 | 0.04 | 0.89 | 0.70 | |
| Uniform Delay, d1 | 25.4 | 25.3 | 20.4 | | | | | 29.4 | 21.2 | 36.8 | 16.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 16.7 | 15.6 | 0.7 | | | | | 11.6 | 0.0 | 27.9 | 1.2 | |
| Delay (s) | 42.1 | 40.9 | 21.1 | | | | | 41.0 | 21.2 | 64.8 | 17.6 | |
| Level of Service | D | D | C | | | | | D | C | E | B | |
| Approach Delay (s) | | 37.0 | | | 0.0 | | | 39.9 | | | 25.2 | |
| Approach LOS | | D | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 88.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 20 | 670 | 150 | 50 | 720 | 40 | 210 | 70 | 310 | 30 | 30 | 10 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 20 | 670 | 150 | 50 | 720 | 40 | 210 | 70 | 310 | 30 | 30 | 10 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total (vph) | 690 | 150 | 50 | 760 | 210 | 380 | 70 |
| Volume Left (vph) | 20 | 0 | 50 | 0 | 210 | 0 | 30 |
| Volume Right (vph) | 0 | 150 | 0 | 40 | 0 | 310 | 10 |
| Hadj (s) | 0.01 | -0.70 | 0.50 | -0.04 | 0.50 | -0.57 | 0.00 |
| Departure Headway (s) | 7.8 | 7.1 | 8.4 | 7.8 | 8.5 | 7.4 | 9.5 |
| Degree Utilization, x | 1.49 | 0.30 | 0.12 | 1.66 | 0.50 | 0.78 | 0.19 |
| Capacity (veh/h) | 454 | 500 | 419 | 463 | 410 | 477 | 367 |
| Control Delay (s) | 253.4 | 11.8 | 11.3 | 324.0 | 18.4 | 31.3 | 14.7 |
| Approach Delay (s) | 210.3 | | 304.7 | | 26.7 | | 14.7 |
| Approach LOS | F | | F | | D | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 190.6 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 87.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 770 | 110 | 260 | 600 | 360 | 160 | 960 | 450 | 380 | 570 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1803 | 3534 | | 1803 | 1710 | 1434 | 1805 | 3417 | | 1805 | 3497 | |
| Flt Permitted | 0.19 | 1.00 | | 0.21 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 363 | 3534 | | 390 | 1710 | 1434 | 1805 | 3417 | | 1805 | 3497 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 770 | 110 | 260 | 600 | 360 | 160 | 960 | 450 | 380 | 570 | 120 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 7 | 0 | 50 | 0 | 0 | 15 | 0 |
| Lane Group Flow (vph) | 190 | 870 | 0 | 260 | 600 | 353 | 160 | 1360 | 0 | 380 | 675 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 0 | 0 | | | | | | |
| Turn Type | Perm | | | Perm | | pm+ov | Prot | | | Prot | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | | | | | | |
| Actuated Green, G (s) | 48.0 | 48.0 | | 48.0 | 48.0 | 63.0 | 13.8 | 35.0 | | 15.0 | 36.2 | |
| Effective Green, g (s) | 48.0 | 48.0 | | 48.0 | 48.0 | 63.0 | 13.8 | 35.0 | | 15.0 | 36.2 | |
| Actuated g/C Ratio | 0.44 | 0.44 | | 0.44 | 0.44 | 0.57 | 0.13 | 0.32 | | 0.14 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 158 | 1542 | | 170 | 746 | 873 | 226 | 1087 | | 246 | 1151 | |
| v/s Ratio Prot | | 0.25 | | | 0.35 | 0.06 | 0.09 | c0.40 | | c0.21 | 0.19 | |
| v/s Ratio Perm | 0.52 | | | c0.67 | | 0.19 | | | | | | |
| v/c Ratio | 1.20 | 0.56 | | 1.53 | 0.80 | 0.40 | 0.71 | 1.25 | | 1.54 | 0.59 | |
| Uniform Delay, d1 | 31.0 | 23.2 | | 31.0 | 26.9 | 13.1 | 46.2 | 37.5 | | 47.5 | 30.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 136.4 | 0.5 | | 265.7 | 6.3 | 0.3 | 9.7 | 120.6 | | 264.4 | 0.8 | |
| Delay (s) | 167.4 | 23.7 | | 296.7 | 33.2 | 13.4 | 55.9 | 158.1 | | 311.9 | 31.4 | |
| Level of Service | F | C | | F | C | B | E | F | | F | C | |
| Approach Delay (s) | | 49.2 | | | 83.5 | | | 147.6 | | | 131.0 | |
| Approach LOS | | D | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 106.8 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.43 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 117.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 680 | 1400 | 40 | 630 | 950 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1800 | 1900 |
| Total Lost time (s) | 5.0 | | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | 0.95 | | | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Frt | 0.90 | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3211 | | | 3599 | 1710 | 1615 |
| Flt Permitted | 1.00 | | | 0.60 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3211 | | | 2174 | 1710 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 680 | 1400 | 40 | 630 | 950 | 40 |
| RTOR Reduction (vph) | 494 | 0 | 0 | 0 | 0 | 21 |
| Lane Group Flow (vph) | 1586 | 0 | 0 | 670 | 950 | 19 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Perm | | | Prot |
| Protected Phases | 4 | | | 8 | 2 | 2 |
| Permitted Phases | | | 8 | | | |
| Actuated Green, G (s) | 30.0 | | | 30.0 | 35.0 | 35.0 |
| Effective Green, g (s) | 30.0 | | | 30.0 | 35.0 | 35.0 |
| Actuated g/C Ratio | 0.40 | | | 0.40 | 0.47 | 0.47 |
| Clearance Time (s) | 5.0 | | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1284 | | | 870 | 798 | 754 |
| v/s Ratio Prot | c0.49 | | | | c0.56 | 0.01 |
| v/s Ratio Perm | | | | 0.31 | | |
| v/c Ratio | 1.22dr | | | 0.77 | 1.19 | 0.02 |
| Uniform Delay, d1 | 22.5 | | | 19.5 | 20.0 | 10.8 |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 112.6 | | | 4.2 | 98.0 | 0.0 |
| Delay (s) | 135.1 | | | 23.8 | 118.0 | 10.8 |
| Level of Service | F | | | C | F | B |
| Approach Delay (s) | 135.1 | | | 23.8 | 113.7 | |
| Approach LOS | F | | | C | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 109.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.21 | | |
| Actuated Cycle Length (s) | 75.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 128.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 780 | 0 | 0 | 380 | 380 | 10 | 30 | 10 | 230 | 10 | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 30 | 780 | 0 | 0 | 380 | 380 | 10 | 30 | 10 | 230 | 10 | 20 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total (vph) | 420 | 390 | 190 | 570 | 50 | 260 |
| Volume Left (vph) | 30 | 0 | 0 | 0 | 10 | 230 |
| Volume Right (vph) | 0 | 0 | 0 | 380 | 10 | 20 |
| Hadj (s) | 0.04 | 0.00 | 0.00 | -0.47 | -0.08 | 0.13 |
| Departure Headway (s) | 6.9 | 6.8 | 7.0 | 6.5 | 8.1 | 7.2 |
| Degree Utilization, x | 0.80 | 0.74 | 0.37 | 1.04 | 0.11 | 0.52 |
| Capacity (veh/h) | 518 | 517 | 503 | 551 | 415 | 483 |
| Control Delay (s) | 30.9 | 25.7 | 12.9 | 72.3 | 12.1 | 17.9 |
| Approach Delay (s) | 28.4 | | 57.5 | | 12.1 | 17.9 |
| Approach LOS | D | | F | | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 38.3 | | |
| HCM Level of Service | E | | |
| Intersection Capacity Utilization | 71.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 30 | 880 | 20 | 10 | 700 | 290 | 10 | 10 | 10 | 110 | 0 | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 30 | 880 | 20 | 10 | 700 | 290 | 10 | 10 | 10 | 110 | 0 | 20 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total (vph) | 930 | 1000 | 30 | 110 | 20 |
| Volume Left (vph) | 30 | 10 | 10 | 110 | 0 |
| Volume Right (vph) | 20 | 290 | 10 | 0 | 20 |
| Hadj (s) | -0.01 | -0.17 | -0.13 | 0.50 | -0.70 |
| Departure Headway (s) | 5.5 | 5.3 | 7.7 | 8.2 | 7.0 |
| Degree Utilization, x | 1.41 | 1.47 | 0.06 | 0.25 | 0.04 |
| Capacity (veh/h) | 647 | 684 | 455 | 428 | 503 |
| Control Delay (s) | 211.2 | 236.5 | 11.2 | 12.7 | 9.1 |
| Approach Delay (s) | 211.2 | 236.5 | 11.2 | 12.2 | |
| Approach LOS | F | F | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 208.1 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 85.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 130 | 800 | 60 | 100 | 950 | 100 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 130 | 800 | 60 | 100 | 950 | 100 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total (vph) | 930 | 160 | 1050 |
| Volume Left (vph) | 0 | 60 | 950 |
| Volume Right (vph) | 800 | 0 | 100 |
| Hadj (s) | -0.52 | 0.08 | 0.12 |
| Departure Headway (s) | 5.6 | 7.1 | 6.3 |
| Degree Utilization, x | 1.46 | 0.31 | 1.83 |
| Capacity (veh/h) | 643 | 504 | 581 |
| Control Delay (s) | 231.0 | 13.3 | 396.6 |
| Approach Delay (s) | 231.0 | 13.3 | 396.6 |
| Approach LOS | F | B | F |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 296.0 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 124.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 120 | 40 | 230 | 80 | 70 | 260 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 120 | 40 | 230 | 80 | 70 | 260 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 160 | | 680 | 140 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 160 | | 680 | 140 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 84 | | 80 | 72 |
| cM capacity (veh/h) | | | 1432 | | 352 | 913 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 160 | 310 | 330 |
| Volume Left | 0 | 230 | 70 |
| Volume Right | 40 | 0 | 260 |
| cSH | 1700 | 1432 | 683 |
| Volume to Capacity | 0.09 | 0.16 | 0.48 |
| Queue Length 95th (ft) | 0 | 14 | 66 |
| Control Delay (s) | 0.0 | 6.3 | 15.1 |
| Lane LOS | | A | C |
| Approach Delay (s) | 0.0 | 6.3 | 15.1 |
| Approach LOS | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.7 | | |
| Intersection Capacity Utilization | 55.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 10 | 10 | 20 | 10 | 10 | 10 | 320 | 70 | 20 | 280 | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 10 | 10 | 20 | 10 | 10 | 10 | 320 | 70 | 20 | 280 | 20 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 30 | 40 | 400 | 320 |
| Volume Left (vph) | 10 | 20 | 10 | 20 |
| Volume Right (vph) | 10 | 10 | 70 | 20 |
| Hadj (s) | -0.13 | -0.05 | -0.10 | -0.02 |
| Departure Headway (s) | 5.4 | 5.5 | 4.3 | 4.5 |
| Degree Utilization, x | 0.05 | 0.06 | 0.48 | 0.40 |
| Capacity (veh/h) | 573 | 569 | 808 | 774 |
| Control Delay (s) | 8.7 | 8.8 | 11.3 | 10.5 |
| Approach Delay (s) | 8.7 | 8.8 | 11.3 | 10.5 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 10.8 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 35.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 140 | 30 | 380 | 170 | 170 | 50 | 540 | 200 | 70 | 570 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.98 | | | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.98 | | | 0.97 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3478 | | | 3378 | | 1805 | 3446 | | 3502 | 3610 | 1583 |
| Flt Permitted | | 0.98 | | | 0.97 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3478 | | | 3378 | | 1805 | 3446 | | 3502 | 3610 | 1583 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 100 | 140 | 30 | 380 | 170 | 170 | 50 | 540 | 200 | 70 | 570 | 80 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 26 | 0 | 0 | 33 | 0 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 0 | 263 | 0 | 0 | 694 | 0 | 50 | 707 | 0 | 70 | 570 | 43 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 38.4 | | | 30.2 | | 7.2 | 29.1 | | 6.3 | 28.2 | 28.2 |
| Effective Green, g (s) | | 38.4 | | | 30.2 | | 7.2 | 29.1 | | 6.3 | 28.2 | 28.2 |
| Actuated g/C Ratio | | 0.32 | | | 0.25 | | 0.06 | 0.24 | | 0.05 | 0.23 | 0.23 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 1113 | | | 850 | | 108 | 836 | | 184 | 848 | 372 |
| v/s Ratio Prot | | c0.08 | | | c0.21 | | c0.03 | c0.21 | | 0.02 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.03 |
| v/c Ratio | | 0.24 | | | 0.82 | | 0.46 | 0.85 | | 0.38 | 0.67 | 0.11 |
| Uniform Delay, d1 | | 30.0 | | | 42.3 | | 54.5 | 43.3 | | 55.0 | 41.7 | 36.1 |
| Progression Factor | | 1.06 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.5 | | | 6.1 | | 3.1 | 7.9 | | 1.3 | 2.1 | 0.1 |
| Delay (s) | | 32.2 | | | 48.4 | | 57.7 | 51.2 | | 56.3 | 43.8 | 36.2 |
| Level of Service | | C | | | D | | E | D | | E | D | D |
| Approach Delay (s) | | 32.2 | | | 48.4 | | | 51.6 | | | 44.2 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 46.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 150 | 150 | 10 | 290 | 290 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.96 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1900 | 1615 | | 1815 | 1805 | 1615 |
| Flt Permitted | 1.00 | 1.00 | | 0.73 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1900 | 1615 | | 1391 | 1805 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 150 | 150 | 10 | 290 | 290 |
| RTOR Reduction (vph) | 0 | 121 | 0 | 0 | 0 | 138 |
| Lane Group Flow (vph) | 10 | 29 | 0 | 160 | 290 | 152 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | Perm | Perm | | | Perm |
| Protected Phases | 4 | | | 8 | 2 | |
| Permitted Phases | | 4 | 8 | | | 2 |
| Actuated Green, G (s) | 5.4 | 5.4 | | 5.4 | 14.7 | 14.7 |
| Effective Green, g (s) | 5.4 | 5.4 | | 5.4 | 14.7 | 14.7 |
| Actuated g/C Ratio | 0.19 | 0.19 | | 0.19 | 0.52 | 0.52 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 365 | 310 | | 267 | 944 | 845 |
| v/s Ratio Prot | 0.01 | | | | c0.16 | |
| v/s Ratio Perm | | 0.02 | | c0.11 | | 0.09 |
| v/c Ratio | 0.03 | 0.09 | | 0.60 | 0.31 | 0.18 |
| Uniform Delay, d1 | 9.2 | 9.3 | | 10.4 | 3.8 | 3.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.0 | 0.1 | | 3.6 | 0.2 | 0.1 |
| Delay (s) | 9.2 | 9.5 | | 14.0 | 4.0 | 3.6 |
| Level of Service | A | A | | B | A | A |
| Approach Delay (s) | 9.5 | | | 14.0 | 3.8 | |
| Approach LOS | A | | | B | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 28.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 38.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 230 | 320 | 60 | 40 | 290 | 100 | 100 | 610 | 100 | 40 | 320 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3517 | | 1805 | 3459 | | 1805 | 3610 | 1596 | 1805 | 4859 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3517 | | 1805 | 3459 | | 1805 | 3610 | 1596 | 1805 | 4859 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 230 | 320 | 60 | 40 | 290 | 100 | 100 | 610 | 100 | 40 | 320 | 200 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 46 | 0 | 0 | 0 | 57 | 0 | 116 | 0 |
| Lane Group Flow (vph) | 230 | 360 | 0 | 40 | 344 | 0 | 100 | 610 | 43 | 40 | 404 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.1 | 14.8 | | 5.5 | 12.2 | | 7.1 | 19.6 | 25.1 | 2.4 | 14.9 | |
| Effective Green, g (s) | 8.1 | 14.8 | | 5.5 | 12.2 | | 7.1 | 19.6 | 25.1 | 2.4 | 14.9 | |
| Actuated g/C Ratio | 0.14 | 0.25 | | 0.09 | 0.21 | | 0.12 | 0.34 | 0.43 | 0.04 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 487 | 893 | | 170 | 724 | | 220 | 1214 | 797 | 74 | 1242 | |
| v/s Ratio Prot | c0.07 | c0.10 | | 0.02 | 0.10 | | c0.06 | c0.17 | 0.01 | 0.02 | 0.08 | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | |
| v/c Ratio | 0.47 | 0.40 | | 0.24 | 0.48 | | 0.45 | 0.50 | 0.05 | 0.54 | 0.33 | |
| Uniform Delay, d1 | 23.1 | 18.1 | | 24.5 | 20.2 | | 23.8 | 15.5 | 9.7 | 27.4 | 17.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | 0.3 | | 0.7 | 0.5 | | 1.5 | 0.3 | 0.0 | 7.8 | 0.2 | |
| Delay (s) | 23.9 | 18.4 | | 25.2 | 20.7 | | 25.3 | 15.8 | 9.7 | 35.2 | 17.8 | |
| Level of Service | C | B | | C | C | | C | B | A | D | B | |
| Approach Delay (s) | | 20.4 | | | 21.1 | | | 16.2 | | | 19.0 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 58.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 58.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 220 | 80 | 420 | 140 | 120 | 60 | 210 | 260 | 210 | 190 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.93 | | | 0.93 | | | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 3452 | | 3502 | 1756 | | | 3284 | | | 3424 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.86 | | | 0.63 | |
| Satd. Flow (perm) | 1805 | 3452 | | 3502 | 1756 | | | 2833 | | | 2207 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 220 | 80 | 420 | 140 | 120 | 60 | 210 | 260 | 210 | 190 | 90 |
| RTOR Reduction (vph) | 0 | 61 | 0 | 0 | 57 | 0 | 0 | 174 | 0 | 0 | 30 | 0 |
| Lane Group Flow (vph) | 150 | 239 | 0 | 420 | 203 | 0 | 0 | 356 | 0 | 0 | 460 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 7.2 | 10.8 | | 7.2 | 10.8 | | | 14.8 | | | 14.8 | |
| Effective Green, g (s) | 7.2 | 10.8 | | 7.2 | 10.8 | | | 14.8 | | | 14.8 | |
| Actuated g/C Ratio | 0.16 | 0.24 | | 0.16 | 0.24 | | | 0.33 | | | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 290 | 832 | | 563 | 423 | | | 936 | | | 729 | |
| v/s Ratio Prot | 0.08 | 0.07 | | c0.12 | c0.12 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.13 | | | c0.21 | |
| v/c Ratio | 0.52 | 0.29 | | 0.75 | 0.48 | | | 0.38 | | | 0.63 | |
| Uniform Delay, d1 | 17.2 | 13.9 | | 17.9 | 14.6 | | | 11.5 | | | 12.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 1.6 | 0.2 | | 5.3 | 0.9 | | | 0.3 | | | 1.8 | |
| Delay (s) | 18.8 | 14.1 | | 23.3 | 15.5 | | | 11.7 | | | 14.5 | |
| Level of Service | B | B | | C | B | | | B | | | B | |
| Approach Delay (s) | | 15.6 | | | 20.3 | | | 11.7 | | | 14.5 | |
| Approach LOS | | B | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 44.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 350 | 170 | 50 | 330 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.87 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1628 | | 1805 | 1900 | 1805 | 1577 |
| Flt Permitted | 1.00 | | 0.50 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1628 | | 954 | 1900 | 1805 | 1577 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 350 | 170 | 50 | 330 | 160 |
| RTOR Reduction (vph) | 216 | 0 | 0 | 0 | 0 | 101 |
| Lane Group Flow (vph) | 144 | 0 | 170 | 50 | 330 | 59 |
| Confl. Peds. (#/hr) | | 5 | | | 5 | 5 |
| Turn Type | | | Perm | | | Perm |
| Protected Phases | 4 | | | 8 | 2 | |
| Permitted Phases | | | 8 | | | 2 |
| Actuated Green, G (s) | 12.4 | | 12.4 | 12.4 | 12.0 | 12.0 |
| Effective Green, g (s) | 12.4 | | 12.4 | 12.4 | 12.0 | 12.0 |
| Actuated g/C Ratio | 0.38 | | 0.38 | 0.38 | 0.37 | 0.37 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 623 | | 365 | 727 | 669 | 584 |
| v/s Ratio Prot | 0.09 | | | 0.03 | c0.18 | |
| v/s Ratio Perm | | | c0.18 | | | 0.04 |
| v/c Ratio | 0.23 | | 0.47 | 0.07 | 0.49 | 0.10 |
| Uniform Delay, d1 | 6.8 | | 7.5 | 6.3 | 7.9 | 6.7 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | | 0.9 | 0.0 | 0.6 | 0.1 |
| Delay (s) | 7.0 | | 8.5 | 6.4 | 8.4 | 6.7 |
| Level of Service | A | | A | A | A | A |
| Approach Delay (s) | 7.0 | | | 8.0 | 7.9 | |
| Approach LOS | A | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 32.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 60.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 150 | 230 | 260 | 120 | 10 | 200 | 480 | 190 | 10 | 570 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.91 | | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3242 | | 1805 | 3563 | | 1805 | 3437 | | 1805 | 3579 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3242 | | 1805 | 3563 | | 1805 | 3437 | | 1805 | 3579 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 150 | 230 | 260 | 120 | 10 | 200 | 480 | 190 | 10 | 570 | 30 |
| RTOR Reduction (vph) | 0 | 177 | 0 | 0 | 5 | 0 | 0 | 34 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 20 | 203 | 0 | 260 | 125 | 0 | 200 | 636 | 0 | 10 | 597 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 2.9 | 27.8 | | 30.3 | 55.2 | | 17.9 | 44.5 | | 1.4 | 28.0 | |
| Effective Green, g (s) | 2.9 | 27.8 | | 30.3 | 55.2 | | 17.9 | 44.5 | | 1.4 | 28.0 | |
| Actuated g/C Ratio | 0.02 | 0.23 | | 0.25 | 0.46 | | 0.15 | 0.37 | | 0.01 | 0.23 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 44 | 751 | | 456 | 1639 | | 269 | 1275 | | 21 | 835 | |
| v/s Ratio Prot | c0.01 | c0.06 | | c0.14 | 0.04 | | c0.11 | 0.19 | | 0.01 | c0.17 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.45 | 0.27 | | 0.57 | 0.08 | | 0.74 | 0.50 | | 0.48 | 0.71 | |
| Uniform Delay, d1 | 57.8 | 37.8 | | 39.2 | 18.1 | | 48.9 | 29.1 | | 58.9 | 42.3 | |
| Progression Factor | 1.00 | 1.00 | | 0.71 | 0.59 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.3 | 0.9 | | 1.6 | 0.1 | | 10.6 | 0.3 | | 16.0 | 2.9 | |
| Delay (s) | 65.1 | 38.7 | | 29.6 | 10.9 | | 59.4 | 29.5 | | 75.0 | 45.3 | |
| Level of Service | E | D | | C | B | | E | C | | E | D | |
| Approach Delay (s) | | 40.0 | | | 23.4 | | | 36.3 | | | 45.7 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 270 | 520 | 30 | 100 | 280 | 140 | 810 | 40 | 510 | 400 | 430 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 2799 | 1805 | 1900 | 1590 | 1805 | 3610 | 1589 | 3502 | 4720 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 2799 | 1805 | 1900 | 1590 | 1805 | 3610 | 1589 | 3502 | 4720 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 160 | 270 | 520 | 30 | 100 | 280 | 140 | 810 | 40 | 510 | 400 | 430 |
| RTOR Reduction (vph) | 0 | 0 | 367 | 0 | 0 | 190 | 0 | 0 | 28 | 0 | 187 | 0 |
| Lane Group Flow (vph) | 160 | 270 | 153 | 30 | 100 | 90 | 140 | 810 | 12 | 510 | 643 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 8.3 | 22.7 | 22.7 | 2.3 | 16.7 | 16.7 | 7.2 | 22.6 | 22.6 | 13.4 | 28.8 | |
| Effective Green, g (s) | 8.3 | 22.7 | 22.7 | 2.3 | 16.7 | 16.7 | 7.2 | 22.6 | 22.6 | 13.4 | 28.8 | |
| Actuated g/C Ratio | 0.11 | 0.29 | 0.29 | 0.03 | 0.22 | 0.22 | 0.09 | 0.29 | 0.29 | 0.17 | 0.37 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 195 | 560 | 825 | 54 | 412 | 345 | 169 | 1060 | 466 | 609 | 1765 | |
| v/s Ratio Prot | c0.09 | c0.14 | | 0.02 | 0.05 | | 0.08 | c0.22 | | c0.15 | 0.14 | |
| v/s Ratio Perm | | | 0.05 | | | 0.06 | | | 0.01 | | | |
| v/c Ratio | 0.82 | 0.48 | 0.19 | 0.56 | 0.24 | 0.26 | 0.83 | 0.76 | 0.03 | 0.84 | 0.36 | |
| Uniform Delay, d1 | 33.6 | 22.3 | 20.3 | 36.8 | 24.9 | 25.0 | 34.3 | 24.8 | 19.4 | 30.7 | 17.5 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 23.3 | 0.7 | 0.1 | 11.8 | 0.3 | 0.4 | 27.1 | 3.3 | 0.0 | 9.8 | 0.1 | |
| Delay (s) | 56.9 | 23.0 | 20.4 | 48.6 | 25.2 | 25.4 | 61.4 | 28.1 | 19.4 | 40.5 | 17.6 | |
| Level of Service | E | C | C | D | C | C | E | C | B | D | B | |
| Approach Delay (s) | | 27.3 | | | 27.1 | | | 32.5 | | | 26.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 77.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 340 | 130 | 330 | 660 | 240 | 350 | 890 | 180 | 260 | 1240 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3444 | | 3502 | 3450 | | 1805 | 5187 | 1587 | 3502 | 5072 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3444 | | 3502 | 3450 | | 1805 | 5187 | 1587 | 3502 | 5072 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 340 | 130 | 330 | 660 | 240 | 350 | 890 | 180 | 260 | 1240 | 190 |
| RTOR Reduction (vph) | 0 | 35 | 0 | 0 | 32 | 0 | 0 | 0 | 99 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 80 | 435 | 0 | 330 | 868 | 0 | 350 | 890 | 81 | 260 | 1413 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 7.8 | 32.7 | | 11.0 | 35.9 | | 26.1 | 47.3 | 47.3 | 13.0 | 34.2 | |
| Effective Green, g (s) | 7.8 | 32.7 | | 11.0 | 35.9 | | 26.1 | 47.3 | 47.3 | 13.0 | 34.2 | |
| Actuated g/C Ratio | 0.06 | 0.27 | | 0.09 | 0.30 | | 0.22 | 0.39 | 0.39 | 0.11 | 0.29 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 117 | 938 | | 321 | 1032 | | 393 | 2045 | 626 | 379 | 1446 | |
| v/s Ratio Prot | 0.04 | 0.13 | | c0.09 | c0.25 | | c0.19 | 0.17 | | 0.07 | c0.28 | |
| v/s Ratio Perm | | | | | | | | | 0.05 | | | |
| v/c Ratio | 0.68 | 0.46 | | 1.03 | 0.84 | | 0.89 | 0.44 | 0.13 | 0.69 | 0.98 | |
| Uniform Delay, d1 | 54.9 | 36.3 | | 54.5 | 39.4 | | 45.6 | 26.6 | 23.2 | 51.5 | 42.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.69 | 0.85 | 1.83 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 15.3 | 0.4 | | 57.6 | 6.3 | | 20.2 | 0.6 | 0.4 | 5.1 | 18.8 | |
| Delay (s) | 70.2 | 36.7 | | 112.1 | 45.7 | | 51.6 | 23.2 | 42.8 | 56.6 | 61.3 | |
| Level of Service | E | D | | F | D | | D | C | D | E | E | |
| Approach Delay (s) | | 41.6 | | | 63.5 | | | 32.7 | | | 60.6 | |
| Approach LOS | | D | | | E | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 93.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 680 | 70 | 730 | 940 | 90 | 170 | 210 | 450 | 70 | 250 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 | 1.00 | 1.00 | 0.88 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5107 | | 3502 | 3610 | 1592 | 1805 | 1900 | 2800 | 1805 | 3428 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5107 | | 3502 | 3610 | 1592 | 1805 | 1900 | 2800 | 1805 | 3428 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 680 | 70 | 730 | 940 | 90 | 170 | 210 | 450 | 70 | 250 | 110 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 44 | 0 | 0 | 348 | 0 | 48 | 0 |
| Lane Group Flow (vph) | 80 | 739 | 0 | 730 | 940 | 46 | 170 | 210 | 102 | 70 | 312 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 7.5 | 20.3 | | 25.1 | 37.9 | 45.0 | 13.5 | 20.0 | 20.0 | 7.1 | 13.6 | |
| Effective Green, g (s) | 7.5 | 20.3 | | 25.1 | 37.9 | 45.0 | 13.5 | 20.0 | 20.0 | 7.1 | 13.6 | |
| Actuated g/C Ratio | 0.08 | 0.23 | | 0.28 | 0.43 | 0.51 | 0.15 | 0.23 | 0.23 | 0.08 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 153 | 1171 | | 993 | 1546 | 881 | 275 | 429 | 633 | 145 | 527 | |
| v/s Ratio Prot | 0.04 | 0.14 | | c0.21 | c0.26 | 0.00 | c0.09 | 0.11 | | 0.04 | c0.09 | |
| v/s Ratio Perm | | | | | | 0.02 | | | 0.04 | | | |
| v/c Ratio | 0.52 | 0.63 | | 0.74 | 0.61 | 0.05 | 0.62 | 0.49 | 0.16 | 0.48 | 0.59 | |
| Uniform Delay, d1 | 38.8 | 30.7 | | 28.7 | 19.6 | 11.0 | 35.1 | 29.8 | 27.5 | 38.9 | 34.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.2 | 1.1 | | 2.9 | 0.7 | 0.0 | 4.1 | 0.9 | 0.1 | 2.5 | 1.8 | |
| Delay (s) | 42.0 | 31.8 | | 31.6 | 20.2 | 11.0 | 39.2 | 30.7 | 27.6 | 41.5 | 36.6 | |
| Level of Service | D | C | | C | C | B | D | C | C | D | D | |
| Approach Delay (s) | | 32.8 | | | 24.5 | | | 30.8 | | | 37.4 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 88.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 890 | 310 | 680 | 1480 | 130 | 320 | 450 | 650 | 170 | 460 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.94 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 5187 | 1590 | 5090 | 5118 | | 3502 | 3610 | 1601 | 3502 | 3522 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 5187 | 1590 | 5090 | 5118 | | 3502 | 3610 | 1601 | 3502 | 3522 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 890 | 310 | 680 | 1480 | 130 | 320 | 450 | 650 | 170 | 460 | 80 |
| RTOR Reduction (vph) | 0 | 0 | 167 | 0 | 8 | 0 | 0 | 0 | 10 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 140 | 890 | 143 | 680 | 1602 | 0 | 320 | 450 | 640 | 170 | 526 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.5 | 29.6 | 29.6 | 17.0 | 38.1 | | 10.2 | 22.9 | 39.9 | 7.1 | 19.8 | |
| Effective Green, g (s) | 8.5 | 29.6 | 29.6 | 17.0 | 38.1 | | 10.2 | 22.9 | 39.9 | 7.1 | 19.8 | |
| Actuated g/C Ratio | 0.09 | 0.32 | 0.32 | 0.18 | 0.41 | | 0.11 | 0.25 | 0.43 | 0.08 | 0.21 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 321 | 1658 | 508 | 934 | 2106 | | 386 | 893 | 759 | 269 | 753 | |
| v/s Ratio Prot | 0.04 | 0.17 | | 0.13 | c0.31 | | c0.09 | 0.12 | c0.15 | 0.05 | 0.15 | |
| v/s Ratio Perm | | | 0.09 | | | | | | 0.24 | | | |
| v/c Ratio | 0.44 | 0.54 | 0.28 | 0.73 | 0.76 | | 0.83 | 0.50 | 0.84 | 0.63 | 0.70 | |
| Uniform Delay, d1 | 39.8 | 25.9 | 23.5 | 35.6 | 23.3 | | 40.3 | 30.0 | 23.5 | 41.5 | 33.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.0 | 0.3 | 0.3 | 2.9 | 1.7 | | 13.7 | 0.4 | 8.5 | 4.8 | 2.8 | |
| Delay (s) | 40.7 | 26.2 | 23.8 | 38.5 | 25.0 | | 54.0 | 30.4 | 32.0 | 46.3 | 36.5 | |
| Level of Service | D | C | C | D | C | | D | C | C | D | D | |
| Approach Delay (s) | | 27.2 | | | 29.0 | | | 36.5 | | | 38.8 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 92.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 78.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 450 | 230 | 310 | 500 | 60 | 180 | 590 | 400 | 70 | 520 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3406 | | 3502 | 3545 | | 1805 | 3610 | 1586 | 1805 | 3557 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3406 | | 3502 | 3545 | | 1805 | 3610 | 1586 | 1805 | 3557 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 450 | 230 | 310 | 500 | 60 | 180 | 590 | 400 | 70 | 520 | 50 |
| RTOR Reduction (vph) | 0 | 51 | 0 | 0 | 7 | 0 | 0 | 0 | 289 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 70 | 629 | 0 | 310 | 553 | 0 | 180 | 590 | 111 | 70 | 564 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 7.7 | 34.3 | | 28.8 | 55.4 | | 16.8 | 33.2 | 33.2 | 7.7 | 24.1 | |
| Effective Green, g (s) | 7.7 | 34.3 | | 28.8 | 55.4 | | 16.8 | 33.2 | 33.2 | 7.7 | 24.1 | |
| Actuated g/C Ratio | 0.06 | 0.29 | | 0.24 | 0.46 | | 0.14 | 0.28 | 0.28 | 0.06 | 0.20 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 116 | 974 | | 840 | 1637 | | 253 | 999 | 439 | 116 | 714 | |
| v/s Ratio Prot | 0.04 | c0.18 | | c0.09 | 0.16 | | c0.10 | 0.16 | | 0.04 | c0.16 | |
| v/s Ratio Perm | | | | | | | | | 0.07 | | | |
| v/c Ratio | 0.60 | 0.65 | | 0.37 | 0.34 | | 0.71 | 0.59 | 0.25 | 0.60 | 0.79 | |
| Uniform Delay, d1 | 54.7 | 37.5 | | 38.0 | 20.6 | | 49.3 | 37.5 | 33.7 | 54.7 | 45.5 | |
| Progression Factor | 0.65 | 0.81 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.1 | 3.1 | | 0.3 | 0.6 | | 9.1 | 0.9 | 0.3 | 8.6 | 5.8 | |
| Delay (s) | 43.9 | 33.5 | | 38.3 | 21.2 | | 58.4 | 38.5 | 34.1 | 63.2 | 51.3 | |
| Level of Service | D | C | | D | C | | E | D | C | E | D | |
| Approach Delay (s) | | 34.5 | | | 27.3 | | | 40.0 | | | 52.6 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 73.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 960 | 260 | 320 | 1000 | 60 | 120 | 240 | 200 | 110 | 390 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.93 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 3502 | 5138 | | 3502 | 3339 | | 1805 | 3530 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 3502 | 5138 | | 3502 | 3339 | | 1805 | 3530 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 960 | 260 | 320 | 1000 | 60 | 120 | 240 | 200 | 110 | 390 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 118 | 0 | 4 | 0 | 0 | 157 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 40 | 960 | 142 | 320 | 1056 | 0 | 120 | 283 | 0 | 110 | 438 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 7.0 | 58.1 | 58.1 | 16.2 | 67.3 | | 9.0 | 21.7 | | 8.0 | 20.7 | |
| Effective Green, g (s) | 7.0 | 58.1 | 58.1 | 16.2 | 67.3 | | 9.0 | 21.7 | | 8.0 | 20.7 | |
| Actuated g/C Ratio | 0.06 | 0.48 | 0.48 | 0.13 | 0.56 | | 0.08 | 0.18 | | 0.07 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 105 | 1748 | 767 | 473 | 2882 | | 263 | 604 | | 120 | 609 | |
| v/s Ratio Prot | 0.02 | c0.27 | | c0.09 | 0.21 | | 0.03 | 0.08 | | c0.06 | c0.12 | |
| v/s Ratio Perm | | | 0.09 | | | | | | | | | |
| v/c Ratio | 0.38 | 0.55 | 0.18 | 0.68 | 0.37 | | 0.46 | 0.47 | | 0.92 | 0.72 | |
| Uniform Delay, d1 | 54.4 | 21.7 | 17.5 | 49.4 | 14.6 | | 53.2 | 44.0 | | 55.7 | 46.9 | |
| Progression Factor | 0.86 | 1.08 | 2.30 | 0.76 | 0.72 | | 0.88 | 1.16 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.1 | 1.1 | 0.5 | 3.1 | 0.3 | | 1.2 | 0.6 | | 56.4 | 4.1 | |
| Delay (s) | 48.8 | 24.7 | 40.8 | 40.7 | 10.8 | | 47.7 | 51.7 | | 112.1 | 50.9 | |
| Level of Service | D | C | D | D | B | | D | D | | F | D | |
| Approach Delay (s) | | 28.8 | | | 17.7 | | | 50.9 | | | 63.0 | |
| Approach LOS | | C | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 460 | 2150 | 160 | 30 | 1880 | 580 | 330 | 290 | 10 | 90 | 50 | 130 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1615 | 3502 | 5187 | 1590 | 3502 | 3610 | 2798 | 3502 | 3610 | 1609 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1615 | 3502 | 5187 | 1590 | 3502 | 3610 | 2798 | 3502 | 3610 | 1609 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 460 | 2150 | 160 | 30 | 1880 | 580 | 330 | 290 | 10 | 90 | 50 | 130 |
| RTOR Reduction (vph) | 0 | 0 | 31 | 0 | 0 | 112 | 0 | 0 | 8 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 460 | 2150 | 129 | 30 | 1880 | 468 | 330 | 290 | 2 | 90 | 50 | 130 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 17.6 | 57.6 | 57.6 | 4.0 | 44.0 | 44.0 | 12.6 | 12.9 | 16.9 | 5.4 | 5.7 | 23.3 |
| Effective Green, g (s) | 17.6 | 57.6 | 57.6 | 4.0 | 44.0 | 44.0 | 12.6 | 12.9 | 16.9 | 5.4 | 5.7 | 23.3 |
| Actuated g/C Ratio | 0.18 | 0.60 | 0.60 | 0.04 | 0.46 | 0.46 | 0.13 | 0.13 | 0.18 | 0.06 | 0.06 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 643 | 3115 | 970 | 146 | 2380 | 730 | 460 | 486 | 610 | 197 | 215 | 391 |
| v/s Ratio Prot | c0.13 | 0.41 | | 0.01 | c0.36 | | c0.09 | 0.08 | 0.00 | c0.03 | 0.01 | 0.06 |
| v/s Ratio Perm | | | 0.08 | | | 0.29 | | | 0.00 | | | 0.02 |
| v/c Ratio | 0.72 | 0.69 | 0.13 | 0.21 | 0.79 | 0.64 | 0.72 | 0.60 | 0.00 | 0.46 | 0.23 | 0.33 |
| Uniform Delay, d1 | 36.8 | 13.1 | 8.3 | 44.4 | 22.0 | 19.9 | 39.9 | 39.1 | 32.6 | 43.8 | 43.0 | 29.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.8 | 0.7 | 0.1 | 0.7 | 1.8 | 1.9 | 5.3 | 2.0 | 0.0 | 1.7 | 0.6 | 0.5 |
| Delay (s) | 40.6 | 13.7 | 8.4 | 45.1 | 23.8 | 21.8 | 45.2 | 41.0 | 32.6 | 45.5 | 43.6 | 30.4 |
| Level of Service | D | B | A | D | C | C | D | D | C | D | D | C |
| Approach Delay (s) | | 17.9 | | | 23.6 | | | 43.1 | | | 37.9 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 95.9 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 82.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1940 | 50 | 0 | 1870 | 340 | 640 | 480 | 30 | 300 | 0 | 450 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | | 0.91 | 1.00 | 0.97 | 1.00 | | 0.97 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 0.97 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | | 5187 | 1570 | 3502 | 1883 | | 3502 | 1615 | |
| Flt Permitted | 0.08 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.37 | 1.00 | | 0.33 | 1.00 | |
| Satd. Flow (perm) | 149 | 5187 | 1615 | | 5187 | 1570 | 1379 | 1883 | | 1200 | 1615 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 1940 | 50 | 0 | 1870 | 340 | 640 | 480 | 30 | 300 | 0 | 450 |
| RTOR Reduction (vph) | 0 | 0 | 17 | 0 | 0 | 123 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 50 | 1940 | 33 | 0 | 1870 | 217 | 640 | 510 | 0 | 300 | 450 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | Perm | | | Perm | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 50.9 | 50.9 | 50.9 | | 50.9 | 50.9 | 61.1 | 61.1 | | 61.1 | 61.1 | |
| Effective Green, g (s) | 50.9 | 50.9 | 50.9 | | 50.9 | 50.9 | 61.1 | 61.1 | | 61.1 | 61.1 | |
| Actuated g/C Ratio | 0.42 | 0.42 | 0.42 | | 0.42 | 0.42 | 0.51 | 0.51 | | 0.51 | 0.51 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 63 | 2200 | 685 | | 2200 | 666 | 702 | 959 | | 611 | 822 | |
| v/s Ratio Prot | | c0.37 | | | 0.36 | | | 0.27 | | | 0.28 | |
| v/s Ratio Perm | 0.33 | | 0.02 | | | 0.14 | c0.46 | | | 0.25 | | |
| v/c Ratio | 0.79 | 0.88 | 0.05 | | 0.85 | 0.33 | 0.91 | 0.53 | | 0.49 | 0.55 | |
| Uniform Delay, d1 | 30.0 | 31.8 | 20.3 | | 31.1 | 23.1 | 27.0 | 19.8 | | 19.3 | 20.0 | |
| Progression Factor | 0.06 | 0.06 | 0.00 | | 0.59 | 0.50 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 32.5 | 2.3 | 0.1 | | 4.0 | 1.2 | 16.1 | 0.6 | | 0.6 | 0.7 | |
| Delay (s) | 34.1 | 4.1 | 0.1 | | 22.4 | 12.6 | 43.1 | 20.4 | | 19.9 | 20.8 | |
| Level of Service | C | A | A | | C | B | D | C | | B | C | |
| Approach Delay (s) | | 4.7 | | | 20.9 | | | 33.0 | | | 20.4 | |
| Approach LOS | | A | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 97.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 970 | 1520 | 160 | 1230 | 60 | 530 | 30 | 150 | 60 | 280 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.88 | 0.97 | 0.91 | 1.00 | 0.94 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 2753 | 3502 | 5187 | 1585 | 5090 | 1900 | 1588 | 1715 | 1803 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 2753 | 3502 | 5187 | 1585 | 5090 | 1900 | 1588 | 1715 | 1803 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 970 | 1520 | 160 | 1230 | 60 | 530 | 30 | 150 | 60 | 280 | 90 |
| RTOR Reduction (vph) | 0 | 0 | 675 | 0 | 0 | 32 | 0 | 0 | 126 | 0 | 0 | 71 |
| Lane Group Flow (vph) | 110 | 970 | 845 | 160 | 1230 | 29 | 530 | 30 | 25 | 54 | 286 | 19 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | Perm | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 15.3 | 48.6 | 48.6 | 11.1 | 44.4 | 44.4 | 19.6 | 19.6 | 19.6 | 24.7 | 24.7 | 24.7 |
| Effective Green, g (s) | 15.3 | 48.6 | 48.6 | 11.1 | 44.4 | 44.4 | 19.6 | 19.6 | 19.6 | 24.7 | 24.7 | 24.7 |
| Actuated g/C Ratio | 0.13 | 0.41 | 0.41 | 0.09 | 0.37 | 0.37 | 0.16 | 0.16 | 0.16 | 0.21 | 0.21 | 0.21 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 230 | 2101 | 1115 | 324 | 1919 | 586 | 831 | 310 | 259 | 353 | 371 | 327 |
| v/s Ratio Prot | c0.06 | 0.19 | | 0.05 | 0.24 | | c0.10 | 0.02 | | 0.03 | c0.16 | |
| v/s Ratio Perm | | | c0.31 | | | 0.02 | | | 0.02 | | | 0.01 |
| v/c Ratio | 0.48 | 0.46 | 0.76 | 0.49 | 0.64 | 0.05 | 0.64 | 0.10 | 0.09 | 0.15 | 0.77 | 0.06 |
| Uniform Delay, d1 | 48.6 | 26.1 | 30.6 | 51.8 | 31.2 | 24.3 | 46.9 | 42.7 | 42.7 | 39.1 | 45.0 | 38.3 |
| Progression Factor | 0.97 | 0.58 | 1.87 | 1.36 | 0.49 | 0.52 | 1.00 | 1.00 | 1.00 | 0.83 | 0.83 | 1.16 |
| Incremental Delay, d2 | 1.1 | 0.5 | 3.3 | 1.0 | 1.4 | 0.1 | 1.6 | 0.1 | 0.2 | 0.2 | 8.6 | 0.1 |
| Delay (s) | 48.3 | 15.6 | 60.6 | 71.6 | 16.6 | 12.8 | 48.5 | 42.8 | 42.8 | 32.4 | 45.8 | 44.5 |
| Level of Service | D | B | E | E | B | B | D | D | D | C | D | D |
| Approach Delay (s) | | 43.3 | | | 22.5 | | | 47.1 | | | 43.9 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 86.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1380 | 280 | 10 | 950 | 340 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 0.97 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.97 | | 1.00 | 1.00 | 0.98 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.96 | |
| Satd. Flow (prot) | 3502 | | 1804 | 3610 | 3443 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.96 | |
| Satd. Flow (perm) | 3502 | | 1804 | 3610 | 3443 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 1380 | 280 | 10 | 950 | 340 | 60 |
| RTOR Reduction (vph) | 13 | 0 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 1647 | 0 | 10 | 950 | 387 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 41.2 | | 0.9 | 46.1 | 15.3 | |
| Effective Green, g (s) | 41.2 | | 0.9 | 46.1 | 15.3 | |
| Actuated g/C Ratio | 0.59 | | 0.01 | 0.66 | 0.22 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2079 | | 23 | 2398 | 759 | |
| v/s Ratio Prot | c0.47 | | 0.01 | c0.26 | c0.11 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.79 | | 0.43 | 0.40 | 0.51 | |
| Uniform Delay, d1 | 10.8 | | 34.0 | 5.3 | 23.8 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.1 | | 12.6 | 0.1 | 0.5 | |
| Delay (s) | 13.0 | | 46.6 | 5.4 | 24.3 | |
| Level of Service | B | | D | A | C | |
| Approach Delay (s) | 13.0 | | | 5.8 | 24.3 | |
| Approach LOS | B | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 69.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

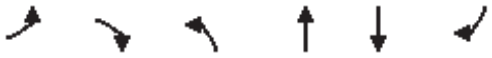
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 2030 | 80 | 220 | 2070 | 20 | 130 | 130 | 270 | 210 | 160 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.94 | 0.91 | | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 5187 | 1589 | 5090 | 5179 | | 3502 | 3610 | 1590 | 1805 | 3448 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 5187 | 1589 | 5090 | 5179 | | 3502 | 3610 | 1590 | 1805 | 3448 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 2030 | 80 | 220 | 2070 | 20 | 130 | 130 | 270 | 210 | 160 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 42 | 0 | 1 | 0 | 0 | 0 | 132 | 0 | 48 | 0 |
| Lane Group Flow (vph) | 80 | 2030 | 38 | 220 | 2089 | 0 | 130 | 130 | 138 | 210 | 172 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 5.5 | 43.0 | 43.0 | 7.0 | 44.5 | | 15.4 | 13.2 | 13.2 | 12.0 | 9.8 | |
| Effective Green, g (s) | 5.5 | 43.0 | 43.0 | 7.0 | 44.5 | | 15.4 | 13.2 | 13.2 | 12.0 | 9.8 | |
| Actuated g/C Ratio | 0.06 | 0.47 | 0.47 | 0.08 | 0.49 | | 0.17 | 0.14 | 0.14 | 0.13 | 0.11 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 211 | 2446 | 749 | 391 | 2527 | | 591 | 523 | 230 | 238 | 371 | |
| v/s Ratio Prot | 0.02 | c0.39 | | 0.04 | c0.40 | | c0.04 | 0.04 | | c0.12 | 0.05 | |
| v/s Ratio Perm | | | 0.02 | | | | | | c0.09 | | | |
| v/c Ratio | 0.38 | 0.83 | 0.05 | 0.56 | 0.83 | | 0.22 | 0.25 | 0.60 | 0.88 | 0.46 | |
| Uniform Delay, d1 | 41.2 | 20.9 | 13.0 | 40.6 | 20.0 | | 32.7 | 34.6 | 36.5 | 38.9 | 38.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.1 | 2.5 | 0.0 | 1.9 | 2.4 | | 0.2 | 0.3 | 4.4 | 29.4 | 0.9 | |
| Delay (s) | 42.3 | 23.4 | 13.1 | 42.5 | 22.4 | | 32.9 | 34.9 | 40.9 | 68.4 | 39.1 | |
| Level of Service | D | C | B | D | C | | C | C | D | E | D | |
| Approach Delay (s) | | 23.7 | | | 24.3 | | | 37.5 | | | 53.4 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 91.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 81.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 880 | 0 | 740 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | | |
| Lane Util. Factor | 0.97 | | 0.95 | 0.95 | | |
| Frt | 1.00 | | 1.00 | 1.00 | | |
| Flt Protected | 0.95 | | 0.95 | 0.95 | | |
| Satd. Flow (prot) | 3502 | | 1715 | 1715 | | |
| Flt Permitted | 0.95 | | 0.95 | 0.95 | | |
| Satd. Flow (perm) | 3502 | | 1715 | 1715 | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 880 | 0 | 740 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 880 | 0 | 370 | 370 | 0 | 0 |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 2 | | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | 15.5 | | 14.8 | 14.8 | | |
| Effective Green, g (s) | 15.5 | | 14.8 | 14.8 | | |
| Actuated g/C Ratio | 0.40 | | 0.39 | 0.39 | | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | | |
| Lane Grp Cap (vph) | 1417 | | 663 | 663 | | |
| v/s Ratio Prot | c0.25 | | | | | |
| v/s Ratio Perm | | | c0.22 | 0.22 | | |
| v/c Ratio | 0.62 | | 0.56 | 0.56 | | |
| Uniform Delay, d1 | 9.1 | | 9.2 | 9.2 | | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 0.9 | | 1.0 | 1.0 | | |
| Delay (s) | 9.9 | | 10.2 | 10.2 | | |
| Level of Service | A | | B | B | | |
| Approach Delay (s) | 9.9 | | | 10.2 | 0.0 | |
| Approach LOS | A | | | B | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 38.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 96.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 10 | 0 | 970 | 10 | 440 | 10 | 1050 | 1190 | 90 | 480 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1602 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1900 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1602 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 10 | 0 | 970 | 10 | 440 | 10 | 1050 | 1190 | 90 | 480 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 226 | 0 | 0 | 206 | 0 | 0 | 4 |
| Lane Group Flow (vph) | 10 | 10 | 0 | 970 | 10 | 214 | 10 | 1050 | 984 | 90 | 480 | 6 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 1.1 | 1.1 | | 29.8 | 29.8 | 29.8 | 1.1 | 33.9 | 63.7 | 5.4 | 38.2 | 38.2 |
| Effective Green, g (s) | 1.1 | 1.1 | | 29.8 | 29.8 | 29.8 | 1.1 | 33.9 | 63.7 | 5.4 | 38.2 | 38.2 |
| Actuated g/C Ratio | 0.01 | 0.01 | | 0.35 | 0.35 | 0.35 | 0.01 | 0.39 | 0.74 | 0.06 | 0.44 | 0.44 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 23 | 24 | | 1211 | 657 | 558 | 23 | 1420 | 1258 | 219 | 1600 | 716 |
| v/s Ratio Prot | 0.01 | 0.01 | | c0.28 | 0.01 | | 0.01 | 0.29 | c0.27 | c0.03 | 0.13 | |
| v/s Ratio Perm | | | | | | c0.13 | | | 0.34 | | | 0.00 |
| v/c Ratio | 0.43 | 0.42 | | 0.80 | 0.02 | 0.38 | 0.43 | 0.74 | 0.78 | 0.41 | 0.30 | 0.01 |
| Uniform Delay, d1 | 42.2 | 42.2 | | 25.5 | 18.5 | 21.3 | 42.2 | 22.4 | 7.0 | 38.9 | 15.4 | 13.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 12.6 | 11.3 | | 3.9 | 0.0 | 0.4 | 12.6 | 2.1 | 3.2 | 1.3 | 0.1 | 0.0 |
| Delay (s) | 54.9 | 53.5 | | 29.4 | 18.6 | 21.7 | 54.9 | 24.4 | 10.2 | 40.1 | 15.5 | 13.4 |
| Level of Service | D | D | | C | B | C | D | C | B | D | B | B |
| Approach Delay (s) | | 54.2 | | | 27.0 | | | 17.0 | | | 19.3 | |
| Approach LOS | | D | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 86.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 99.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 1030 | 140 | 140 | 990 | 350 | 210 | 1270 | 400 | 240 | 380 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1588 | 3502 | 3610 | 1592 | 3502 | 3610 | 1591 | 3502 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1588 | 3502 | 3610 | 1592 | 3502 | 3610 | 1591 | 3502 | 3610 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 1030 | 140 | 140 | 990 | 350 | 210 | 1270 | 400 | 240 | 380 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 36 | 0 | 0 | 25 | 0 | 0 | 8 | 0 | 0 | 44 |
| Lane Group Flow (vph) | 60 | 1030 | 104 | 140 | 990 | 325 | 210 | 1270 | 392 | 240 | 380 | 26 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 5.4 | 41.0 | 41.0 | 8.7 | 44.3 | 53.4 | 12.8 | 47.8 | 56.5 | 9.1 | 44.1 | 44.1 |
| Effective Green, g (s) | 5.4 | 41.0 | 41.0 | 8.7 | 44.3 | 53.4 | 12.8 | 47.8 | 56.5 | 9.1 | 44.1 | 44.1 |
| Actuated g/C Ratio | 0.04 | 0.33 | 0.33 | 0.07 | 0.36 | 0.44 | 0.10 | 0.39 | 0.46 | 0.07 | 0.36 | 0.36 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 80 | 1207 | 531 | 249 | 1304 | 745 | 366 | 1407 | 785 | 260 | 1299 | 571 |
| v/s Ratio Prot | 0.03 | c0.29 | | 0.04 | c0.27 | 0.03 | 0.06 | c0.35 | c0.04 | c0.07 | 0.11 | |
| v/s Ratio Perm | | | 0.07 | | | 0.17 | | | 0.21 | | | 0.02 |
| v/c Ratio | 0.75 | 0.85 | 0.20 | 0.56 | 0.76 | 0.44 | 0.57 | 0.90 | 0.50 | 0.92 | 0.29 | 0.05 |
| Uniform Delay, d1 | 57.9 | 38.0 | 29.1 | 55.1 | 34.5 | 24.1 | 52.3 | 35.2 | 23.1 | 56.4 | 28.1 | 25.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 32.0 | 6.0 | 0.2 | 2.9 | 2.6 | 0.4 | 2.2 | 8.4 | 0.5 | 35.7 | 0.1 | 0.0 |
| Delay (s) | 90.0 | 44.0 | 29.2 | 58.0 | 37.0 | 24.5 | 54.5 | 43.6 | 23.6 | 92.1 | 28.2 | 25.6 |
| Level of Service | F | D | C | E | D | C | D | D | C | F | C | C |
| Approach Delay (s) | | 44.6 | | | 36.1 | | | 40.6 | | | 50.2 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 122.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 90.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 1590 | 140 | 580 | 1520 | 330 | 0 | 0 | 0 | 690 | 50 | 540 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 3285 | 1662 | 1599 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 3285 | 1662 | 1599 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 90 | 1590 | 140 | 580 | 1520 | 330 | 0 | 0 | 0 | 690 | 50 | 540 |
| RTOR Reduction (vph) | 0 | 0 | 44 | 0 | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 90 | 1590 | 96 | 580 | 1520 | 278 | 0 | 0 | 0 | 490 | 250 | 530 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 21.9 | 46.6 | 46.6 | 45.1 | 69.8 | 69.8 | | | | 26.3 | 26.3 | 48.2 |
| Effective Green, g (s) | 21.9 | 46.6 | 46.6 | 45.1 | 69.8 | 69.8 | | | | 26.3 | 26.3 | 48.2 |
| Actuated g/C Ratio | 0.17 | 0.36 | 0.36 | 0.35 | 0.54 | 0.54 | | | | 0.20 | 0.20 | 0.37 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 304 | 1859 | 564 | 626 | 1938 | 844 | | | | 665 | 336 | 642 |
| v/s Ratio Prot | 0.05 | c0.31 | | c0.32 | 0.42 | | | | | 0.15 | 0.15 | c0.14 |
| v/s Ratio Perm | | | 0.06 | | | 0.18 | | | | | | 0.19 |
| v/c Ratio | 0.30 | 0.86 | 0.17 | 0.93 | 0.78 | 0.33 | | | | 0.74 | 0.74 | 0.83 |
| Uniform Delay, d1 | 47.3 | 38.6 | 28.5 | 40.9 | 24.1 | 16.9 | | | | 48.6 | 48.7 | 37.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.59 | 0.42 | 0.29 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 5.3 | 0.7 | 16.5 | 2.6 | 0.8 | | | | 4.3 | 8.6 | 8.5 |
| Delay (s) | 47.9 | 43.9 | 29.1 | 40.8 | 12.7 | 5.7 | | | | 52.9 | 57.3 | 45.6 |
| Level of Service | D | D | C | D | B | A | | | | D | E | D |
| Approach Delay (s) | | 42.9 | | | 18.4 | | | 0.0 | | | 50.7 | |
| Approach LOS | | D | | | B | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 88.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 1690 | 90 | 450 | 1920 | 270 | 80 | 360 | 420 | 150 | 290 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5143 | | 3502 | 3610 | 1568 | 1805 | 1900 | 1600 | 3502 | 1900 | 1587 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5143 | | 3502 | 3610 | 1568 | 1805 | 1900 | 1600 | 3502 | 1900 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 180 | 1690 | 90 | 450 | 1920 | 270 | 80 | 360 | 420 | 150 | 290 | 190 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 78 | 0 | 0 | 4 | 0 | 0 | 133 |
| Lane Group Flow (vph) | 180 | 1776 | 0 | 450 | 1920 | 192 | 80 | 360 | 416 | 150 | 290 | 57 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 11.1 | 50.4 | | 22.8 | 62.1 | 62.1 | 7.8 | 27.6 | 50.4 | 7.0 | 26.8 | 26.8 |
| Effective Green, g (s) | 11.1 | 50.4 | | 22.8 | 62.1 | 62.1 | 7.8 | 27.6 | 50.4 | 7.0 | 26.8 | 26.8 |
| Actuated g/C Ratio | 0.09 | 0.41 | | 0.18 | 0.50 | 0.50 | 0.06 | 0.22 | 0.41 | 0.06 | 0.22 | 0.22 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 162 | 2094 | | 645 | 1811 | 787 | 114 | 424 | 651 | 198 | 411 | 344 |
| v/s Ratio Prot | c0.10 | 0.35 | | 0.13 | c0.53 | | c0.04 | c0.19 | 0.12 | 0.04 | 0.15 | |
| v/s Ratio Perm | | | | | | 0.12 | | | 0.14 | | | 0.04 |
| v/c Ratio | 1.11 | 0.85 | | 0.70 | 1.06 | 0.24 | 0.70 | 0.85 | 0.64 | 0.76 | 0.71 | 0.17 |
| Uniform Delay, d1 | 56.4 | 33.2 | | 47.3 | 30.8 | 17.5 | 56.9 | 46.1 | 29.4 | 57.6 | 44.9 | 39.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 103.6 | 3.4 | | 3.3 | 39.2 | 0.2 | 17.7 | 14.6 | 2.1 | 15.2 | 5.4 | 0.2 |
| Delay (s) | 160.0 | 36.6 | | 50.6 | 70.0 | 17.7 | 74.6 | 60.7 | 31.5 | 72.8 | 50.3 | 39.6 |
| Level of Service | F | D | | D | E | B | E | E | C | E | D | D |
| Approach Delay (s) | | 48.0 | | | 61.4 | | | 47.7 | | | 52.4 | |
| Approach LOS | | D | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 123.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 102.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 1070 | 1020 | 170 | 1150 | 270 | 1190 | 1590 | 450 | 380 | 690 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 0.88 | 0.94 | 0.91 | 0.88 | 0.94 | 0.95 | 0.88 | 0.94 | 0.86 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 2822 | 5090 | 5187 | 2779 | 5090 | 3610 | 2796 | 5090 | 6449 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 2822 | 5090 | 5187 | 2779 | 5090 | 3610 | 2796 | 5090 | 6449 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 1070 | 1020 | 170 | 1150 | 270 | 1190 | 1590 | 450 | 380 | 690 | 60 |
| RTOR Reduction (vph) | 0 | 0 | 16 | 0 | 0 | 40 | 0 | 0 | 4 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 60 | 1070 | 1004 | 170 | 1150 | 230 | 1190 | 1590 | 446 | 380 | 738 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 5.5 | 34.7 | 83.3 | 7.0 | 36.2 | 48.1 | 48.6 | 58.1 | 65.1 | 11.9 | 21.4 | |
| Effective Green, g (s) | 5.5 | 34.7 | 83.3 | 7.0 | 36.2 | 48.1 | 48.6 | 58.1 | 65.1 | 11.9 | 21.4 | |
| Actuated g/C Ratio | 0.04 | 0.27 | 0.65 | 0.05 | 0.28 | 0.38 | 0.38 | 0.45 | 0.51 | 0.09 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 78 | 1409 | 1841 | 279 | 1470 | 1047 | 1937 | 1642 | 1513 | 474 | 1081 | |
| v/s Ratio Prot | 0.03 | c0.21 | 0.21 | 0.03 | c0.22 | 0.02 | 0.23 | c0.44 | 0.02 | c0.07 | 0.11 | |
| v/s Ratio Perm | | | 0.15 | | | 0.06 | | | 0.14 | | | |
| v/c Ratio | 0.77 | 0.76 | 0.55 | 0.61 | 0.78 | 0.22 | 0.61 | 0.97 | 0.29 | 0.80 | 0.68 | |
| Uniform Delay, d1 | 60.5 | 42.7 | 12.0 | 59.0 | 42.1 | 27.0 | 32.0 | 33.9 | 18.1 | 56.7 | 50.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 35.7 | 2.4 | 0.3 | 3.7 | 2.8 | 0.1 | 0.6 | 15.2 | 0.1 | 9.4 | 1.8 | |
| Delay (s) | 96.2 | 45.1 | 12.3 | 62.8 | 44.9 | 27.2 | 32.6 | 49.1 | 18.2 | 66.2 | 51.8 | |
| Level of Service | F | D | B | E | D | C | C | D | B | E | D | |
| Approach Delay (s) | | 31.0 | | | 43.8 | | | 38.7 | | | 56.6 | |
| Approach LOS | | C | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 127.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 250 | 380 | 620 | 100 | 90 | 500 | 2880 | 1010 | 30 | 1690 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 0.88 | 0.94 | 0.95 | | 0.97 | 0.91 | 0.88 | 1.00 | 0.86 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 2796 | 5090 | 3328 | | 3502 | 5187 | 2776 | 1805 | 6475 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 2796 | 5090 | 3328 | | 3502 | 5187 | 2776 | 1805 | 6475 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 250 | 380 | 620 | 100 | 90 | 500 | 2880 | 1010 | 30 | 1690 | 100 |
| RTOR Reduction (vph) | 0 | 0 | 306 | 0 | 79 | 0 | 0 | 0 | 253 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 50 | 250 | 74 | 620 | 111 | 0 | 500 | 2880 | 757 | 30 | 1784 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 18.7 | 21.6 | 21.6 | 11.1 | 14.0 | | 19.8 | 58.4 | 69.5 | 3.9 | 42.5 | |
| Effective Green, g (s) | 18.7 | 21.6 | 21.6 | 11.1 | 14.0 | | 19.8 | 58.4 | 69.5 | 3.9 | 42.5 | |
| Actuated g/C Ratio | 0.17 | 0.19 | 0.19 | 0.10 | 0.13 | | 0.18 | 0.53 | 0.63 | 0.04 | 0.38 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 304 | 370 | 544 | 509 | 420 | | 625 | 2729 | 1838 | 63 | 2479 | |
| v/s Ratio Prot | 0.03 | c0.13 | | c0.12 | 0.03 | | c0.14 | c0.56 | 0.04 | 0.02 | 0.28 | |
| v/s Ratio Perm | | | 0.03 | | | | | | 0.23 | | | |
| v/c Ratio | 0.16 | 0.68 | 0.14 | 1.22 | 0.27 | | 0.80 | 1.06 | 0.41 | 0.48 | 0.72 | |
| Uniform Delay, d1 | 39.5 | 41.5 | 37.0 | 50.0 | 43.8 | | 43.7 | 26.3 | 10.5 | 52.5 | 29.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | 4.8 | 0.1 | 115.0 | 0.3 | | 7.2 | 34.1 | 0.2 | 5.6 | 1.0 | |
| Delay (s) | 39.7 | 46.3 | 37.1 | 164.9 | 44.2 | | 51.0 | 60.4 | 10.6 | 58.1 | 30.2 | |
| Level of Service | D | D | D | F | D | | D | E | B | E | C | |
| Approach Delay (s) | | 40.7 | | | 136.6 | | | 47.9 | | | 30.7 | |
| Approach LOS | | D | | | F | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.99 | | |
| Actuated Cycle Length (s) | 111.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 102.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 470 | 950 | 510 | 290 | 1710 | 270 | 370 | 80 | 130 | 90 | 60 | 250 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 4.0 | 4.0 | 4.6 | 4.0 | 4.0 | 4.9 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 1805 | 5187 | 1615 | 3502 | 3610 | 1615 | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 1805 | 5187 | 1615 | 3502 | 3610 | 1615 | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 470 | 950 | 510 | 290 | 1710 | 270 | 370 | 80 | 130 | 90 | 60 | 250 |
| RTOR Reduction (vph) | 0 | 0 | 396 | 0 | 0 | 141 | 0 | 0 | 103 | 0 | 0 | 148 |
| Lane Group Flow (vph) | 470 | 950 | 114 | 290 | 1710 | 129 | 370 | 80 | 27 | 90 | 60 | 102 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Over | Prot | | Over | Prot | | Over | Prot | | Over |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | 7 | 3 | 8 | 1 | 7 | 4 | 5 |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 48.8 | 60.1 | 10.0 | 24.7 | 36.0 | 8.4 | 10.0 | 8.2 | 24.7 | 8.4 | 6.3 | 48.8 |
| Effective Green, g (s) | 48.8 | 60.1 | 10.0 | 24.7 | 36.0 | 8.4 | 10.0 | 8.2 | 24.7 | 8.4 | 6.3 | 48.8 |
| Actuated g/C Ratio | 0.41 | 0.50 | 0.08 | 0.21 | 0.30 | 0.07 | 0.08 | 0.07 | 0.21 | 0.07 | 0.05 | 0.41 |
| Clearance Time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 4.0 | 4.0 | 4.6 | 4.0 | 4.0 | 4.9 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 734 | 2598 | 135 | 372 | 1556 | 113 | 292 | 247 | 332 | 126 | 190 | 657 |
| v/s Ratio Prot | c0.26 | 0.18 | 0.07 | c0.16 | c0.33 | 0.08 | c0.11 | c0.02 | 0.02 | 0.05 | 0.02 | 0.06 |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.64 | 0.37 | 0.84 | 0.78 | 1.10 | 1.14 | 1.27 | 0.32 | 0.08 | 0.71 | 0.32 | 0.15 |
| Uniform Delay, d1 | 28.6 | 18.3 | 54.2 | 45.1 | 42.0 | 55.8 | 55.0 | 53.3 | 38.5 | 54.6 | 54.8 | 22.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.77 | 1.17 | 0.80 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.9 | 0.4 | 35.7 | 6.5 | 51.5 | 109.4 | 144.5 | 0.8 | 0.1 | 17.4 | 1.0 | 0.1 |
| Delay (s) | 30.5 | 18.7 | 89.9 | 41.2 | 100.5 | 154.3 | 199.5 | 54.0 | 38.6 | 72.0 | 55.7 | 22.7 |
| Level of Service | C | B | F | D | F | F | F | D | D | E | E | C |
| Approach Delay (s) | | 40.4 | | | 99.3 | | | 143.4 | | | 38.7 | |
| Approach LOS | | D | | | F | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 77.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 90.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

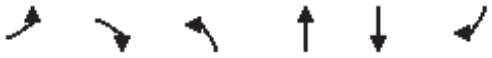
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 290 | 30 | 20 | 450 | 150 | 110 | 760 | 20 | 170 | 950 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.96 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3553 | | 1805 | 3460 | | 1805 | 3595 | | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3553 | | 1805 | 3460 | | 1805 | 3595 | | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 290 | 30 | 20 | 450 | 150 | 110 | 760 | 20 | 170 | 950 | 200 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 31 | 0 | 0 | 1 | 0 | 0 | 0 | 119 |
| Lane Group Flow (vph) | 140 | 313 | 0 | 20 | 569 | 0 | 110 | 779 | 0 | 170 | 950 | 81 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 11.9 | 35.4 | | 3.2 | 26.7 | | 10.7 | 39.9 | | 15.5 | 44.7 | 44.7 |
| Effective Green, g (s) | 11.9 | 35.4 | | 3.2 | 26.7 | | 10.7 | 39.9 | | 15.5 | 44.7 | 44.7 |
| Actuated g/C Ratio | 0.11 | 0.32 | | 0.03 | 0.24 | | 0.10 | 0.36 | | 0.14 | 0.41 | 0.41 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 195 | 1143 | | 53 | 840 | | 176 | 1304 | | 254 | 1467 | 645 |
| v/s Ratio Prot | c0.08 | 0.09 | | 0.01 | c0.16 | | 0.06 | 0.22 | | c0.09 | c0.26 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.05 |
| v/c Ratio | 0.72 | 0.27 | | 0.38 | 0.68 | | 0.62 | 0.60 | | 0.67 | 0.65 | 0.13 |
| Uniform Delay, d1 | 47.4 | 27.7 | | 52.4 | 37.7 | | 47.7 | 28.5 | | 44.8 | 26.3 | 20.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.87 | 0.97 | 1.91 |
| Incremental Delay, d2 | 11.9 | 0.1 | | 4.5 | 2.2 | | 6.8 | 2.0 | | 6.4 | 2.2 | 0.4 |
| Delay (s) | 59.3 | 27.9 | | 56.9 | 39.9 | | 54.5 | 30.5 | | 45.6 | 27.7 | 39.5 |
| Level of Service | E | C | | E | D | | D | C | | D | C | D |
| Approach Delay (s) | | 37.4 | | | 40.5 | | | 33.5 | | | 31.8 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 340 | 100 | 110 | 940 | 740 | 290 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.97 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.96 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1773 | | 1805 | 3610 | 3610 | 1615 |
| Flt Permitted | 0.96 | | 0.33 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1773 | | 618 | 3610 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 340 | 100 | 110 | 940 | 740 | 290 |
| RTOR Reduction (vph) | 17 | 0 | 0 | 0 | 0 | 159 |
| Lane Group Flow (vph) | 423 | 0 | 110 | 940 | 740 | 131 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Perm | | | Perm |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | | 2 | | | 6 |
| Actuated Green, G (s) | 14.8 | | 18.8 | 18.8 | 18.8 | 18.8 |
| Effective Green, g (s) | 14.8 | | 18.8 | 18.8 | 18.8 | 18.8 |
| Actuated g/C Ratio | 0.36 | | 0.45 | 0.45 | 0.45 | 0.45 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 631 | | 279 | 1631 | 1631 | 730 |
| v/s Ratio Prot | c0.24 | | | c0.26 | 0.20 | |
| v/s Ratio Perm | | | 0.18 | | | 0.08 |
| v/c Ratio | 0.67 | | 0.39 | 0.58 | 0.45 | 0.18 |
| Uniform Delay, d1 | 11.3 | | 7.6 | 8.4 | 7.9 | 6.8 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.7 | | 0.9 | 0.5 | 0.2 | 0.1 |
| Delay (s) | 14.0 | | 8.5 | 8.9 | 8.1 | 6.9 |
| Level of Service | B | | A | A | A | A |
| Approach Delay (s) | 14.0 | | | 8.9 | 7.7 | |
| Approach LOS | B | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 41.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 61.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 660 | 0 | 0 | 480 | 430 | 440 | 0 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | 1.00 | | 1.00 | | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | 0.95 | | | | |
| Satd. Flow (prot) | 1805 | 3610 | | | 3610 | 1615 | | 1805 | | | | |
| Flt Permitted | 0.48 | 1.00 | | | 1.00 | 1.00 | | 0.95 | | | | |
| Satd. Flow (perm) | 908 | 3610 | | | 3610 | 1615 | | 1805 | | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 660 | 0 | 0 | 480 | 430 | 440 | 0 | 0 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 267 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 20 | 660 | 0 | 0 | 480 | 163 | 0 | 440 | 0 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | Perm | | | | | Perm | Perm | | Perm | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | 2 | | | |
| Actuated Green, G (s) | 14.0 | 14.0 | | | 14.0 | 14.0 | | 15.0 | | | | |
| Effective Green, g (s) | 14.0 | 14.0 | | | 14.0 | 14.0 | | 15.0 | | | | |
| Actuated g/C Ratio | 0.38 | 0.38 | | | 0.38 | 0.38 | | 0.41 | | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | | | | |
| Lane Grp Cap (vph) | 344 | 1366 | | | 1366 | 611 | | 732 | | | | |
| v/s Ratio Prot | | c0.18 | | | 0.13 | | | | | | | |
| v/s Ratio Perm | 0.02 | | | | | 0.10 | | 0.24 | | | | |
| v/c Ratio | 0.06 | 0.48 | | | 0.35 | 0.27 | | 0.60 | | | | |
| Uniform Delay, d1 | 7.3 | 8.7 | | | 8.2 | 7.9 | | 8.6 | | | | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | | |
| Incremental Delay, d2 | 0.1 | 0.3 | | | 0.2 | 0.2 | | 1.4 | | | | |
| Delay (s) | 7.4 | 9.0 | | | 8.4 | 8.2 | | 10.0 | | | | |
| Level of Service | A | A | | | A | A | | B | | | | |
| Approach Delay (s) | | 9.0 | | | 8.3 | | | 10.0 | | | 0.0 | |
| Approach LOS | | A | | | A | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 37.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 87.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 260 | 770 | 20 | 950 | 0 | 0 | 0 | 0 | 440 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 3610 | 1615 | 1805 | 3610 | | | | | | 1805 | 1615 |
| Flt Permitted | | 1.00 | 1.00 | 0.59 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 3610 | 1615 | 1123 | 3610 | | | | | | 1805 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 260 | 770 | 20 | 950 | 0 | 0 | 0 | 0 | 440 | 0 | 20 |
| RTOR Reduction (vph) | 0 | 0 | 430 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 0 | 260 | 340 | 20 | 950 | 0 | 0 | 0 | 0 | 0 | 440 | 8 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | | | Perm | Perm | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 20.0 | 20.0 | 20.0 | 20.0 | | | | | | 17.3 | 17.3 |
| Effective Green, g (s) | | 20.0 | 20.0 | 20.0 | 20.0 | | | | | | 17.3 | 17.3 |
| Actuated g/C Ratio | | 0.44 | 0.44 | 0.44 | 0.44 | | | | | | 0.38 | 0.38 |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 1594 | 713 | 496 | 1594 | | | | | | 689 | 617 |
| v/s Ratio Prot | | 0.07 | | | c0.26 | | | | | | | |
| v/s Ratio Perm | | | 0.21 | 0.02 | | | | | | | 0.24 | 0.00 |
| v/c Ratio | | 0.16 | 0.48 | 0.04 | 0.60 | | | | | | 0.64 | 0.01 |
| Uniform Delay, d1 | | 7.6 | 8.9 | 7.2 | 9.6 | | | | | | 11.4 | 8.7 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.0 | 0.5 | 0.0 | 0.6 | | | | | | 2.0 | 0.0 |
| Delay (s) | | 7.7 | 9.5 | 7.2 | 10.2 | | | | | | 13.4 | 8.7 |
| Level of Service | | A | A | A | B | | | | | | B | A |
| Approach Delay (s) | | 9.0 | | | 10.1 | | | 0.0 | | | 13.2 | |
| Approach LOS | | A | | | B | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 45.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 87.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL | NBT | NBR | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 550 | 330 | 5 | 220 | 5 | 760 | 10 | 290 | 30 | 70 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | | | 1.00 | 1.00 | 0.97 | 1.00 | 0.98 | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Frt | 1.00 | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | 1.00 | 0.90 | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1802 | 1900 | 1569 | | | 1800 | 1634 | 1350 | 1798 | 1668 | | |
| Flt Permitted | 0.20 | 1.00 | 1.00 | | | 0.34 | 1.00 | 1.00 | 0.70 | 1.00 | | |
| Satd. Flow (perm) | 379 | 1900 | 1569 | | | 650 | 1634 | 1350 | 1334 | 1668 | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 550 | 330 | 5 | 220 | 5 | 760 | 10 | 290 | 30 | 70 | 30 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 50 | 0 | 0 |
| Lane Group Flow (vph) | 10 | 550 | 335 | 0 | 0 | 225 | 760 | 9 | 290 | 50 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | 5 | | | 5 | 5 | | 5 | 5 |
| Parking (#/hr) | | | | | | | 8 | 8 | | | | |
| Turn Type | Perm | | Perm | | Perm | Perm | | Perm | Perm | | | Perm |
| Protected Phases | | 4 | | | | | 8 | | | 2 | | |
| Permitted Phases | 4 | | 4 | | 8 | 8 | | 8 | 2 | | | 6 |
| Actuated Green, G (s) | 51.5 | 51.5 | 51.5 | | | 51.5 | 51.5 | 51.5 | 25.4 | 25.4 | | |
| Effective Green, g (s) | 51.5 | 51.5 | 51.5 | | | 51.5 | 51.5 | 51.5 | 25.4 | 25.4 | | |
| Actuated g/C Ratio | 0.57 | 0.57 | 0.57 | | | 0.57 | 0.57 | 0.57 | 0.28 | 0.28 | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | |
| Lane Grp Cap (vph) | 217 | 1086 | 897 | | | 372 | 934 | 772 | 376 | 470 | | |
| v/s Ratio Prot | | 0.29 | | | | | c0.47 | | | 0.03 | | |
| v/s Ratio Perm | 0.03 | | 0.21 | | | 0.35 | | 0.01 | c0.22 | | | |
| v/c Ratio | 0.05 | 0.51 | 0.37 | | | 0.60 | 0.81 | 0.01 | 0.77 | 0.11 | | |
| Uniform Delay, d1 | 8.5 | 11.6 | 10.5 | | | 12.6 | 15.5 | 8.3 | 29.7 | 23.9 | | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 0.1 | 0.4 | 0.3 | | | 2.8 | 5.5 | 0.0 | 9.4 | 0.1 | | |
| Delay (s) | 8.6 | 12.0 | 10.8 | | | 15.4 | 21.0 | 8.3 | 39.1 | 24.0 | | |
| Level of Service | A | B | B | | | B | C | A | D | C | | |
| Approach Delay (s) | | 11.5 | | | | | 19.6 | | | 35.3 | | |
| Approach LOS | | B | | | | | B | | | D | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 90.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 88.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | SBT | SBR | SBR2 | NEL2 | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 50 | 10 | 5 | 5 | 0 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | | | 1.00 | 1.00 |
| Frt | 0.98 | | | | 1.00 | 0.85 |
| Flt Protected | 0.98 | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1822 | | | | 1805 | 1615 |
| Flt Permitted | 0.90 | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | 1673 | | | | 1805 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 10 | 5 | 5 | 0 | 5 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 94 | 0 | 0 | 0 | 5 | 5 |
| Confl. Peds. (#/hr) | | | 5 | | | |
| Parking (#/hr) | | | | | | |
| Turn Type | | | | Perm | | Perm |
| Protected Phases | 6 | | | | 9 | |
| Permitted Phases | | | | 9 | | 9 |
| Actuated Green, G (s) | 25.4 | | | | 1.2 | 1.2 |
| Effective Green, g (s) | 25.4 | | | | 1.2 | 1.2 |
| Actuated g/C Ratio | 0.28 | | | | 0.01 | 0.01 |
| Clearance Time (s) | 4.0 | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 472 | | | | 24 | 22 |
| v/s Ratio Prot | | | | | | |
| v/s Ratio Perm | 0.06 | | | | 0.00 | c0.00 |
| v/c Ratio | 0.20 | | | | 0.21 | 0.23 |
| Uniform Delay, d1 | 24.6 | | | | 44.0 | 44.0 |
| Progression Factor | 1.00 | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | | | | 4.3 | 5.2 |
| Delay (s) | 24.8 | | | | 48.3 | 49.2 |
| Level of Service | C | | | | D | D |
| Approach Delay (s) | 24.8 | | | | 48.7 | |
| Approach LOS | C | | | | D | |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 450 | 100 | 280 | 660 | 230 | 110 | 330 | 140 | 360 | 700 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3610 | 1597 | 3502 | 3430 | 1438 | 1805 | 3610 | 1597 | 3502 | 3462 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3610 | 1597 | 3502 | 3430 | 1438 | 1805 | 3610 | 1597 | 3502 | 3462 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 140 | 450 | 100 | 280 | 660 | 230 | 110 | 330 | 140 | 360 | 700 | 230 |
| RTOR Reduction (vph) | 0 | 0 | 43 | 0 | 0 | 98 | 0 | 0 | 71 | 0 | 30 | 0 |
| Lane Group Flow (vph) | 140 | 450 | 57 | 280 | 660 | 132 | 110 | 330 | 69 | 360 | 900 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 0 | 0 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 7.9 | 21.2 | 30.6 | 10.8 | 24.1 | 37.3 | 9.4 | 26.3 | 37.1 | 13.2 | 30.1 | |
| Effective Green, g (s) | 7.9 | 21.2 | 30.6 | 10.8 | 24.1 | 37.3 | 9.4 | 26.3 | 37.1 | 13.2 | 30.1 | |
| Actuated g/C Ratio | 0.09 | 0.24 | 0.35 | 0.12 | 0.28 | 0.43 | 0.11 | 0.30 | 0.42 | 0.15 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 316 | 875 | 631 | 432 | 945 | 679 | 194 | 1085 | 750 | 528 | 1191 | |
| v/s Ratio Prot | 0.04 | 0.12 | 0.01 | c0.08 | c0.19 | 0.03 | 0.06 | 0.09 | 0.01 | c0.10 | c0.26 | |
| v/s Ratio Perm | | | 0.03 | | | 0.06 | | | 0.03 | | | |
| v/c Ratio | 0.44 | 0.51 | 0.09 | 0.65 | 0.70 | 0.20 | 0.57 | 0.30 | 0.09 | 0.68 | 0.76 | |
| Uniform Delay, d1 | 37.7 | 28.7 | 19.1 | 36.5 | 28.4 | 15.7 | 37.1 | 23.6 | 15.1 | 35.2 | 25.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.0 | 0.5 | 0.1 | 3.3 | 2.3 | 0.1 | 3.8 | 0.2 | 0.1 | 3.6 | 2.8 | |
| Delay (s) | 38.7 | 29.2 | 19.2 | 39.9 | 30.7 | 15.8 | 40.9 | 23.7 | 15.2 | 38.8 | 28.2 | |
| Level of Service | D | C | B | D | C | B | D | C | B | D | C | |
| Approach Delay (s) | | 29.7 | | | 30.0 | | | 24.9 | | | 31.2 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 87.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 340 | 460 | 50 | 420 | 1140 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1800 | 1900 |
| Total Lost time (s) | 5.0 | | | 5.0 | 5.0 | |
| Lane Util. Factor | 0.95 | | | 0.95 | 0.97 | |
| Frpb, ped/bikes | 0.99 | | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.91 | | | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | | 0.99 | 0.95 | |
| Satd. Flow (prot) | 3271 | | | 3591 | 3322 | |
| Flt Permitted | 1.00 | | | 0.76 | 0.95 | |
| Satd. Flow (perm) | 3271 | | | 2743 | 3322 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 340 | 460 | 50 | 420 | 1140 | 10 |
| RTOR Reduction (vph) | 314 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 486 | 0 | 0 | 470 | 1149 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 8 | 2 | |
| Permitted Phases | | | 8 | | | |
| Actuated Green, G (s) | 15.4 | | | 15.4 | 23.2 | |
| Effective Green, g (s) | 15.4 | | | 15.4 | 23.2 | |
| Actuated g/C Ratio | 0.32 | | | 0.32 | 0.48 | |
| Clearance Time (s) | 5.0 | | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 1036 | | | 869 | 1586 | |
| v/s Ratio Prot | 0.15 | | | | c0.35 | |
| v/s Ratio Perm | | | | c0.17 | | |
| v/c Ratio | 0.47 | | | 0.54 | 0.72 | |
| Uniform Delay, d1 | 13.3 | | | 13.7 | 10.1 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | | | 0.7 | 1.7 | |
| Delay (s) | 13.7 | | | 14.4 | 11.8 | |
| Level of Service | B | | | B | B | |
| Approach Delay (s) | 13.7 | | | 14.4 | 11.8 | |
| Approach LOS | B | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 48.6 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 84.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 350 | 0 | 10 | 660 | 250 | 10 | 20 | 0 | 360 | 10 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.96 | | | 1.00 | | | 0.99 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.96 | |
| Satd. Flow (prot) | | 3596 | | | 3461 | | | 1869 | | | 1796 | |
| Flt Permitted | | 0.85 | | | 0.95 | | | 0.87 | | | 0.73 | |
| Satd. Flow (perm) | | 3081 | | | 3289 | | | 1654 | | | 1370 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 30 | 350 | 0 | 10 | 660 | 250 | 10 | 20 | 0 | 360 | 10 | 40 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 66 | 0 | 0 | 0 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 380 | 0 | 0 | 854 | 0 | 0 | 30 | 0 | 0 | 403 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 18.8 | | | 18.8 | | | 18.6 | | | 18.6 | |
| Effective Green, g (s) | | 18.8 | | | 18.8 | | | 18.6 | | | 18.6 | |
| Actuated g/C Ratio | | 0.40 | | | 0.40 | | | 0.39 | | | 0.39 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1222 | | | 1304 | | | 649 | | | 538 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.12 | | | c0.26 | | | 0.02 | | | c0.29 | |
| v/c Ratio | | 0.31 | | | 0.65 | | | 0.05 | | | 0.75 | |
| Uniform Delay, d1 | | 9.8 | | | 11.7 | | | 8.9 | | | 12.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.1 | | | 1.2 | | | 0.0 | | | 5.7 | |
| Delay (s) | | 10.0 | | | 12.8 | | | 8.9 | | | 18.1 | |
| Level of Service | | A | | | B | | | A | | | B | |
| Approach Delay (s) | | 10.0 | | | 12.8 | | | 8.9 | | | 18.1 | |
| Approach LOS | | A | | | B | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 47.4 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 71.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 640 | 20 | 10 | 840 | 80 | 20 | 10 | 10 | 250 | 10 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.97 | | 1.00 | 0.87 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1890 | | | 1877 | | | 1791 | | 1805 | 1656 | |
| Flt Permitted | | 0.97 | | | 0.99 | | | 0.87 | | 0.73 | 1.00 | |
| Satd. Flow (perm) | | 1828 | | | 1865 | | | 1602 | | 1389 | 1656 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 640 | 20 | 10 | 840 | 80 | 20 | 10 | 10 | 250 | 10 | 60 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 7 | 0 | 0 | 44 | 0 |
| Lane Group Flow (vph) | 0 | 679 | 0 | 0 | 926 | 0 | 0 | 33 | 0 | 250 | 26 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | | 2 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 35.7 | | | 35.7 | | | 16.7 | | 16.7 | 16.7 | |
| Effective Green, g (s) | | 35.7 | | | 35.7 | | | 16.7 | | 16.7 | 16.7 | |
| Actuated g/C Ratio | | 0.57 | | | 0.57 | | | 0.27 | | 0.27 | 0.27 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1046 | | | 1067 | | | 429 | | 372 | 443 | |
| v/s Ratio Prot | | | | | | | | | | | 0.02 | |
| v/s Ratio Perm | | 0.37 | | | c0.50 | | | 0.02 | | c0.18 | | |
| v/c Ratio | | 0.65 | | | 0.87 | | | 0.08 | | 0.67 | 0.06 | |
| Uniform Delay, d1 | | 9.1 | | | 11.3 | | | 17.1 | | 20.4 | 17.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.4 | | | 7.6 | | | 0.1 | | 4.7 | 0.1 | |
| Delay (s) | | 10.5 | | | 18.9 | | | 17.2 | | 25.1 | 17.1 | |
| Level of Service | | B | | | B | | | B | | C | B | |
| Approach Delay (s) | | 10.5 | | | 18.9 | | | 17.2 | | | 23.4 | |
| Approach LOS | | B | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 62.4 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 82.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 100 | 810 | 60 | 120 | 810 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.99 | |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.96 | |
| Satd. Flow (prot) | 1900 | 1604 | | 1866 | 1798 | |
| Flt Permitted | 1.00 | 1.00 | | 0.85 | 0.96 | |
| Satd. Flow (perm) | 1900 | 1604 | | 1613 | 1798 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 100 | 810 | 60 | 120 | 810 | 50 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 100 | 810 | 0 | 180 | 858 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | 5 | 5 |
| Turn Type | | pm+ov | Perm | | | |
| Protected Phases | 4 | 2 | | 8 | 2 | |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 11.2 | 43.6 | | 11.2 | 32.4 | |
| Effective Green, g (s) | 11.2 | 43.6 | | 11.2 | 32.4 | |
| Actuated g/C Ratio | 0.21 | 0.81 | | 0.21 | 0.60 | |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 397 | 1604 | | 337 | 1087 | |
| v/s Ratio Prot | 0.05 | c0.31 | | | c0.48 | |
| v/s Ratio Perm | | 0.20 | | 0.11 | | |
| v/c Ratio | 0.25 | 0.50 | | 0.53 | 0.79 | |
| Uniform Delay, d1 | 17.7 | 1.6 | | 18.9 | 8.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.3 | | 1.6 | 3.9 | |
| Delay (s) | 18.0 | 1.8 | | 20.5 | 11.9 | |
| Level of Service | B | A | | C | B | |
| Approach Delay (s) | 3.6 | | | 20.5 | 11.9 | |
| Approach LOS | A | | | C | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 53.6 | Sum of lost time (s) | 5.0 |
| Intersection Capacity Utilization | 72.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 160 | 460 | 30 | 230 | 310 | 0 | 20 | 690 | 260 | 480 | 600 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 0.95 | | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | | 1.00 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3538 | | | 3535 | | 1805 | 3443 | | 3502 | 3610 | 1583 |
| Flt Permitted | | 0.99 | | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3538 | | | 3535 | | 1805 | 3443 | | 3502 | 3610 | 1583 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 160 | 460 | 30 | 230 | 310 | 0 | 20 | 690 | 260 | 480 | 600 | 140 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 53 |
| Lane Group Flow (vph) | 0 | 647 | 0 | 0 | 540 | 0 | 20 | 922 | 0 | 480 | 600 | 87 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Split | | | Split | | | Prot | | | Prot | | Perm |
| Protected Phases | 4 | 4 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | | 22.6 | | | 22.9 | | 2.8 | 36.9 | | 21.6 | 55.7 | 55.7 |
| Effective Green, g (s) | | 22.6 | | | 22.9 | | 2.8 | 36.9 | | 21.6 | 55.7 | 55.7 |
| Actuated g/C Ratio | | 0.19 | | | 0.19 | | 0.02 | 0.31 | | 0.18 | 0.46 | 0.46 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 666 | | | 675 | | 42 | 1059 | | 630 | 1676 | 735 |
| v/s Ratio Prot | | c0.18 | | | c0.15 | | 0.01 | c0.27 | | c0.14 | 0.17 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.05 |
| v/c Ratio | | 0.97 | | | 0.80 | | 0.48 | 0.87 | | 0.76 | 0.36 | 0.12 |
| Uniform Delay, d1 | | 48.4 | | | 46.4 | | 57.9 | 39.3 | | 46.8 | 20.7 | 18.2 |
| Progression Factor | | 0.79 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 26.6 | | | 6.7 | | 8.3 | 7.9 | | 5.4 | 0.1 | 0.1 |
| Delay (s) | | 65.1 | | | 53.1 | | 66.2 | 47.2 | | 52.2 | 20.8 | 18.3 |
| Level of Service | | E | | | D | | E | D | | D | C | B |
| Approach Delay (s) | | 65.1 | | | 53.1 | | | 47.6 | | | 32.9 | |
| Approach LOS | | E | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 46.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 91.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 750 | 170 | 20 | 280 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | | 0.96 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1900 | 1592 | | 1815 | 1805 | 1577 |
| Flt Permitted | 1.00 | 1.00 | | 0.74 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1900 | 1592 | | 1406 | 1805 | 1577 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 750 | 170 | 20 | 280 | 140 |
| RTOR Reduction (vph) | 0 | 471 | 0 | 0 | 0 | 90 |
| Lane Group Flow (vph) | 10 | 279 | 0 | 190 | 280 | 50 |
| Confl. Peds. (#/hr) | | 5 | 5 | | 5 | 5 |
| Turn Type | | Perm | Perm | | | Perm |
| Protected Phases | 4 | | | 8 | 2 | |
| Permitted Phases | | 4 | 8 | | | 2 |
| Actuated Green, G (s) | 10.9 | 10.9 | | 10.9 | 10.4 | 10.4 |
| Effective Green, g (s) | 10.9 | 10.9 | | 10.9 | 10.4 | 10.4 |
| Actuated g/C Ratio | 0.37 | 0.37 | | 0.37 | 0.35 | 0.35 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 707 | 592 | | 523 | 641 | 560 |
| v/s Ratio Prot | 0.01 | | | | c0.16 | |
| v/s Ratio Perm | | c0.18 | | 0.14 | | 0.03 |
| v/c Ratio | 0.01 | 0.47 | | 0.36 | 0.44 | 0.09 |
| Uniform Delay, d1 | 5.8 | 7.0 | | 6.7 | 7.2 | 6.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.0 | 0.6 | | 0.4 | 0.5 | 0.1 |
| Delay (s) | 5.8 | 7.6 | | 7.1 | 7.7 | 6.4 |
| Level of Service | A | A | | A | A | A |
| Approach Delay (s) | 7.6 | | | 7.1 | 7.2 | |
| Approach LOS | A | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 29.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 64.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 280 | 340 | 120 | 50 | 380 | 110 | 90 | 710 | 40 | 110 | 780 | 330 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3456 | | 1805 | 3477 | | 1805 | 3610 | 1595 | 1805 | 4933 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3456 | | 1805 | 3477 | | 1805 | 3610 | 1595 | 1805 | 4933 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 280 | 340 | 120 | 50 | 380 | 110 | 90 | 710 | 40 | 110 | 780 | 330 |
| RTOR Reduction (vph) | 0 | 45 | 0 | 0 | 35 | 0 | 0 | 0 | 24 | 0 | 70 | 0 |
| Lane Group Flow (vph) | 280 | 415 | 0 | 50 | 455 | 0 | 90 | 710 | 16 | 110 | 1040 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.1 | 18.3 | | 5.4 | 15.6 | | 5.4 | 21.7 | 27.1 | 7.1 | 23.4 | |
| Effective Green, g (s) | 8.1 | 18.3 | | 5.4 | 15.6 | | 5.4 | 21.7 | 27.1 | 7.1 | 23.4 | |
| Actuated g/C Ratio | 0.12 | 0.27 | | 0.08 | 0.23 | | 0.08 | 0.32 | 0.40 | 0.10 | 0.34 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 414 | 923 | | 142 | 792 | | 142 | 1144 | 724 | 187 | 1685 | |
| v/s Ratio Prot | c0.08 | c0.12 | | 0.03 | c0.13 | | 0.05 | 0.20 | 0.00 | c0.06 | c0.21 | |
| v/s Ratio Perm | | | | | | | | | 0.01 | | | |
| v/c Ratio | 0.68 | 0.45 | | 0.35 | 0.57 | | 0.63 | 0.62 | 0.02 | 0.59 | 0.62 | |
| Uniform Delay, d1 | 28.9 | 20.9 | | 29.9 | 23.5 | | 30.6 | 19.9 | 12.6 | 29.3 | 18.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.3 | 0.4 | | 1.5 | 1.0 | | 8.9 | 1.1 | 0.0 | 4.7 | 0.7 | |
| Delay (s) | 33.3 | 21.3 | | 31.4 | 24.5 | | 39.5 | 21.0 | 12.6 | 34.0 | 19.5 | |
| Level of Service | C | C | | C | C | | D | C | B | C | B | |
| Approach Delay (s) | | 25.8 | | | 25.2 | | | 22.5 | | | 20.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 68.5 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 67.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 150 | 180 | 70 | 460 | 280 | 310 | 120 | 220 | 390 | 150 | 180 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.92 | | | 0.92 | | | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 0.98 | |
| Satd. Flow (prot) | 1805 | 3443 | | 3502 | 1736 | | | 3247 | | | 3419 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.76 | | | 0.59 | |
| Satd. Flow (perm) | 1805 | 3443 | | 3502 | 1736 | | | 2490 | | | 2059 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 150 | 180 | 70 | 460 | 280 | 310 | 120 | 220 | 390 | 150 | 180 | 90 |
| RTOR Reduction (vph) | 0 | 44 | 0 | 0 | 61 | 0 | 0 | 280 | 0 | 0 | 42 | 0 |
| Lane Group Flow (vph) | 150 | 206 | 0 | 460 | 529 | 0 | 0 | 450 | 0 | 0 | 378 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Perm | | | Perm | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 7.2 | 20.5 | | 7.2 | 20.5 | | | 15.6 | | | 15.6 | |
| Effective Green, g (s) | 7.2 | 20.5 | | 7.2 | 20.5 | | | 15.6 | | | 15.6 | |
| Actuated g/C Ratio | 0.13 | 0.37 | | 0.13 | 0.37 | | | 0.28 | | | 0.28 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 235 | 1276 | | 456 | 644 | | | 702 | | | 581 | |
| v/s Ratio Prot | 0.08 | 0.06 | | c0.13 | c0.30 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.18 | | | c0.18 | |
| v/c Ratio | 0.64 | 0.16 | | 1.01 | 0.82 | | | 0.64 | | | 0.65 | |
| Uniform Delay, d1 | 22.8 | 11.6 | | 24.0 | 15.7 | | | 17.4 | | | 17.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 5.6 | 0.1 | | 44.4 | 8.3 | | | 2.0 | | | 2.6 | |
| Delay (s) | 28.4 | 11.7 | | 68.4 | 24.0 | | | 19.4 | | | 20.1 | |
| Level of Service | C | B | | E | C | | | B | | | C | |
| Approach Delay (s) | | 18.0 | | | 43.5 | | | 19.4 | | | 20.1 | |
| Approach LOS | | B | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 55.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 91.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 10 | 580 | 150 | 10 | 660 | 280 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 0.98 | | 1.00 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.87 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1622 | | 1805 | 1900 | 1805 | 1572 |
| Flt Permitted | 1.00 | | 0.23 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1622 | | 429 | 1900 | 1805 | 1572 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 580 | 150 | 10 | 660 | 280 |
| RTOR Reduction (vph) | 332 | 0 | 0 | 0 | 0 | 159 |
| Lane Group Flow (vph) | 258 | 0 | 150 | 10 | 660 | 121 |
| Confl. Peds. (#/hr) | | 5 | | | 5 | 5 |
| Turn Type | | | Perm | | | Perm |
| Protected Phases | 4 | | | 8 | 2 | |
| Permitted Phases | | | 8 | | | 2 |
| Actuated Green, G (s) | 24.3 | | 24.3 | 24.3 | 24.6 | 24.6 |
| Effective Green, g (s) | 24.3 | | 24.3 | 24.3 | 24.6 | 24.6 |
| Actuated g/C Ratio | 0.43 | | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 693 | | 183 | 811 | 780 | 680 |
| v/s Ratio Prot | 0.16 | | | 0.01 | c0.37 | |
| v/s Ratio Perm | | | c0.35 | | | 0.08 |
| v/c Ratio | 0.37 | | 0.82 | 0.01 | 0.85 | 0.18 |
| Uniform Delay, d1 | 11.1 | | 14.4 | 9.4 | 14.5 | 9.9 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.3 | | 24.0 | 0.0 | 8.4 | 0.1 |
| Delay (s) | 11.4 | | 38.4 | 9.4 | 22.9 | 10.1 |
| Level of Service | B | | D | A | C | B |
| Approach Delay (s) | 11.4 | | | 36.6 | 19.1 | |
| Approach LOS | B | | | D | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 56.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 91.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 180 | 110 | 170 | 120 | 90 | 120 | 760 | 370 | 0 | 670 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.94 | | 1.00 | 0.94 | | 1.00 | 0.95 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 3378 | | 1805 | 3348 | | 1805 | 3410 | | | 3537 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 3378 | | 1805 | 3348 | | 1805 | 3410 | | | 3537 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 180 | 110 | 170 | 120 | 90 | 120 | 760 | 370 | 0 | 670 | 90 |
| RTOR Reduction (vph) | 0 | 66 | 0 | 0 | 52 | 0 | 0 | 52 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 80 | 224 | 0 | 170 | 158 | 0 | 120 | 1078 | 0 | 0 | 750 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 9.3 | 38.7 | | 20.8 | 50.2 | | 12.5 | 48.5 | | | 32.0 | |
| Effective Green, g (s) | 9.3 | 38.7 | | 20.8 | 50.2 | | 12.5 | 48.5 | | | 32.0 | |
| Actuated g/C Ratio | 0.08 | 0.32 | | 0.17 | 0.42 | | 0.10 | 0.40 | | | 0.27 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 140 | 1089 | | 313 | 1401 | | 188 | 1378 | | | 943 | |
| v/s Ratio Prot | c0.04 | c0.07 | | c0.09 | 0.05 | | 0.07 | c0.32 | | | 0.21 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.57 | 0.21 | | 0.54 | 0.11 | | 0.64 | 0.78 | | | 0.80 | |
| Uniform Delay, d1 | 53.4 | 29.5 | | 45.3 | 21.3 | | 51.6 | 31.2 | | | 40.9 | |
| Progression Factor | 1.00 | 1.00 | | 0.50 | 0.20 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 5.5 | 0.4 | | 1.7 | 0.1 | | 6.9 | 3.0 | | | 4.7 | |
| Delay (s) | 59.0 | 29.9 | | 24.3 | 4.4 | | 58.5 | 34.1 | | | 45.6 | |
| Level of Service | E | C | | C | A | | E | C | | | D | |
| Approach Delay (s) | | 36.2 | | | 13.3 | | | 36.5 | | | 45.6 | |
| Approach LOS | | D | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 290 | 210 | 820 | 40 | 350 | 660 | 160 | 620 | 40 | 550 | 460 | 470 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 1900 | 2795 | 1805 | 1900 | 1588 | 1805 | 3610 | 1587 | 3502 | 4726 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 1900 | 2795 | 1805 | 1900 | 1588 | 1805 | 3610 | 1587 | 3502 | 4726 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 290 | 210 | 820 | 40 | 350 | 660 | 160 | 620 | 40 | 550 | 460 | 470 |
| RTOR Reduction (vph) | 0 | 0 | 380 | 0 | 0 | 195 | 0 | 0 | 31 | 0 | 175 | 0 |
| Lane Group Flow (vph) | 290 | 210 | 440 | 40 | 350 | 465 | 160 | 620 | 9 | 550 | 755 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 16.1 | 46.3 | 46.3 | 4.0 | 34.2 | 34.2 | 10.0 | 22.9 | 22.9 | 16.1 | 29.0 | |
| Effective Green, g (s) | 16.1 | 46.3 | 46.3 | 4.0 | 34.2 | 34.2 | 10.0 | 22.9 | 22.9 | 16.1 | 29.0 | |
| Actuated g/C Ratio | 0.15 | 0.44 | 0.44 | 0.04 | 0.32 | 0.32 | 0.09 | 0.22 | 0.22 | 0.15 | 0.28 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 276 | 835 | 1229 | 69 | 617 | 516 | 171 | 785 | 345 | 535 | 1302 | |
| v/s Ratio Prot | c0.16 | 0.11 | | 0.02 | 0.18 | | 0.09 | c0.17 | | c0.16 | 0.16 | |
| v/s Ratio Perm | | | 0.16 | | | c0.29 | | | 0.01 | | | |
| v/c Ratio | 1.05 | 0.25 | 0.36 | 0.58 | 0.57 | 0.90 | 0.94 | 0.79 | 0.03 | 1.03 | 0.58 | |
| Uniform Delay, d1 | 44.6 | 18.6 | 19.6 | 49.8 | 29.4 | 33.9 | 47.3 | 38.9 | 32.4 | 44.6 | 32.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 68.1 | 0.2 | 0.2 | 11.3 | 1.2 | 18.8 | 49.9 | 5.3 | 0.0 | 46.3 | 0.6 | |
| Delay (s) | 112.7 | 18.7 | 19.8 | 61.1 | 30.6 | 52.7 | 97.2 | 44.2 | 32.4 | 90.9 | 33.5 | |
| Level of Service | F | B | B | E | C | D | F | D | C | F | C | |
| Approach Delay (s) | | 40.0 | | | 45.7 | | | 54.0 | | | 54.8 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 105.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 85.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 610 | 480 | 250 | 310 | 180 | 170 | 1770 | 370 | 370 | 1470 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.93 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3347 | | 3502 | 3389 | | 1805 | 5187 | 1587 | 3502 | 5175 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3347 | | 3502 | 3389 | | 1805 | 5187 | 1587 | 3502 | 5175 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 80 | 610 | 480 | 250 | 310 | 180 | 170 | 1770 | 370 | 370 | 1470 | 20 |
| RTOR Reduction (vph) | 0 | 118 | 0 | 0 | 67 | 0 | 0 | 0 | 106 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 80 | 972 | 0 | 250 | 423 | 0 | 170 | 1770 | 264 | 370 | 1489 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 8.3 | 37.4 | | 10.0 | 39.1 | | 14.2 | 39.0 | 39.0 | 17.6 | 42.4 | |
| Effective Green, g (s) | 8.3 | 37.4 | | 10.0 | 39.1 | | 14.2 | 39.0 | 39.0 | 17.6 | 42.4 | |
| Actuated g/C Ratio | 0.07 | 0.31 | | 0.08 | 0.33 | | 0.12 | 0.32 | 0.32 | 0.15 | 0.35 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 1043 | | 292 | 1104 | | 214 | 1686 | 516 | 514 | 1829 | |
| v/s Ratio Prot | 0.04 | c0.29 | | c0.07 | 0.12 | | 0.09 | c0.34 | | c0.11 | c0.29 | |
| v/s Ratio Perm | | | | | | | | | 0.17 | | | |
| v/c Ratio | 0.64 | 0.93 | | 0.86 | 0.38 | | 0.79 | 1.05 | 0.51 | 0.72 | 0.81 | |
| Uniform Delay, d1 | 54.4 | 40.1 | | 54.3 | 31.2 | | 51.5 | 40.5 | 32.8 | 48.8 | 35.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.92 | 0.68 | 0.73 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.7 | 14.3 | | 21.0 | 0.2 | | 1.9 | 24.3 | 0.3 | 4.8 | 4.1 | |
| Delay (s) | 65.1 | 54.4 | | 75.3 | 31.4 | | 49.2 | 51.8 | 24.2 | 53.6 | 39.3 | |
| Level of Service | E | D | | E | C | | D | D | C | D | D | |
| Approach Delay (s) | | 55.1 | | | 46.2 | | | 47.2 | | | 42.2 | |
| Approach LOS | | E | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 97.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

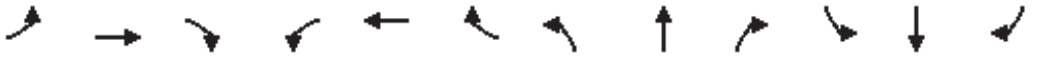
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 1340 | 110 | 660 | 850 | 220 | 60 | 90 | 800 | 200 | 140 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 | 1.00 | 1.00 | 0.88 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5122 | | 3502 | 3610 | 1594 | 1805 | 1900 | 2830 | 1805 | 3393 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5122 | | 3502 | 3610 | 1594 | 1805 | 1900 | 2830 | 1805 | 3393 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 60 | 1340 | 110 | 660 | 850 | 220 | 60 | 90 | 800 | 200 | 140 | 80 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 80 | 0 | 0 | 14 | 0 | 68 | 0 |
| Lane Group Flow (vph) | 60 | 1444 | 0 | 660 | 850 | 140 | 60 | 90 | 786 | 200 | 152 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 6.4 | 30.1 | | 18.1 | 41.8 | 52.9 | 6.4 | 7.8 | 25.9 | 11.1 | 12.5 | |
| Effective Green, g (s) | 6.4 | 30.1 | | 18.1 | 41.8 | 52.9 | 6.4 | 7.8 | 25.9 | 11.1 | 12.5 | |
| Actuated g/C Ratio | 0.08 | 0.36 | | 0.22 | 0.50 | 0.64 | 0.08 | 0.09 | 0.31 | 0.13 | 0.15 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 139 | 1855 | | 763 | 1816 | 1091 | 139 | 178 | 1018 | 241 | 510 | |
| v/s Ratio Prot | 0.03 | c0.28 | | c0.19 | 0.24 | 0.02 | 0.03 | 0.05 | c0.17 | c0.11 | 0.04 | |
| v/s Ratio Perm | | | | | | 0.07 | | | 0.11 | | | |
| v/c Ratio | 0.43 | 0.78 | | 0.87 | 0.47 | 0.13 | 0.43 | 0.51 | 0.77 | 0.83 | 0.30 | |
| Uniform Delay, d1 | 36.6 | 23.5 | | 31.3 | 13.4 | 6.0 | 36.6 | 35.8 | 25.9 | 35.1 | 31.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.1 | 2.1 | | 10.1 | 0.2 | 0.1 | 2.1 | 2.3 | 3.7 | 20.5 | 0.3 | |
| Delay (s) | 38.8 | 25.7 | | 41.4 | 13.6 | 6.0 | 38.8 | 38.1 | 29.6 | 55.5 | 31.7 | |
| Level of Service | D | C | | D | B | A | D | D | C | E | C | |
| Approach Delay (s) | | 26.2 | | | 23.2 | | | 31.0 | | | 43.1 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 83.1 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 82.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 220 | 1730 | 340 | 730 | 1470 | 130 | 300 | 510 | 660 | 290 | 640 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.94 | 0.91 | | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 5187 | 1589 | 5090 | 5117 | | 3502 | 3610 | 1598 | 3502 | 3536 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 5187 | 1589 | 5090 | 5117 | | 3502 | 3610 | 1598 | 3502 | 3536 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 220 | 1730 | 340 | 730 | 1470 | 130 | 300 | 510 | 660 | 290 | 640 | 90 |
| RTOR Reduction (vph) | 0 | 0 | 121 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 220 | 1730 | 219 | 730 | 1592 | 0 | 300 | 510 | 660 | 290 | 720 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 10.9 | 38.1 | 38.1 | 14.0 | 41.2 | | 10.0 | 30.2 | 44.2 | 7.0 | 27.2 | |
| Effective Green, g (s) | 10.9 | 38.1 | 38.1 | 14.0 | 41.2 | | 10.0 | 30.2 | 44.2 | 7.0 | 27.2 | |
| Actuated g/C Ratio | 0.10 | 0.36 | 0.36 | 0.13 | 0.39 | | 0.09 | 0.29 | 0.42 | 0.07 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 363 | 1877 | 575 | 677 | 2002 | | 333 | 1035 | 731 | 233 | 913 | |
| v/s Ratio Prot | 0.06 | c0.33 | | 0.14 | c0.31 | | 0.09 | 0.14 | c0.12 | c0.08 | 0.20 | |
| v/s Ratio Perm | | | 0.14 | | | | | | 0.29 | | | |
| v/c Ratio | 0.61 | 0.92 | 0.38 | 1.08 | 0.80 | | 0.90 | 0.49 | 0.90 | 1.24 | 0.79 | |
| Uniform Delay, d1 | 45.1 | 32.2 | 24.9 | 45.6 | 28.3 | | 47.2 | 31.2 | 28.5 | 49.1 | 36.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.9 | 8.0 | 0.4 | 57.6 | 2.3 | | 26.1 | 0.4 | 14.5 | 140.8 | 4.6 | |
| Delay (s) | 48.0 | 40.2 | 25.3 | 103.3 | 30.6 | | 73.2 | 31.6 | 43.0 | 190.0 | 40.9 | |
| Level of Service | D | D | C | F | C | | E | C | D | F | D | |
| Approach Delay (s) | | 38.7 | | | 53.4 | | | 45.2 | | | 83.3 | |
| Approach LOS | | D | | | D | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 105.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 93.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 490 | 150 | 450 | 520 | 40 | 130 | 480 | 370 | 40 | 440 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3468 | | 3502 | 3567 | | 1805 | 3610 | 1586 | 1805 | 3584 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3468 | | 3502 | 3567 | | 1805 | 3610 | 1586 | 1805 | 3584 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 490 | 150 | 450 | 520 | 40 | 130 | 480 | 370 | 40 | 440 | 20 |
| RTOR Reduction (vph) | 0 | 22 | 0 | 0 | 4 | 0 | 0 | 0 | 280 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 40 | 618 | 0 | 450 | 556 | 0 | 130 | 480 | 90 | 40 | 457 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Actuated Green, G (s) | 6.2 | 37.3 | | 31.8 | 62.9 | | 14.2 | 29.3 | 29.3 | 5.6 | 20.7 | |
| Effective Green, g (s) | 6.2 | 37.3 | | 31.8 | 62.9 | | 14.2 | 29.3 | 29.3 | 5.6 | 20.7 | |
| Actuated g/C Ratio | 0.05 | 0.31 | | 0.27 | 0.52 | | 0.12 | 0.24 | 0.24 | 0.05 | 0.17 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 93 | 1078 | | 928 | 1870 | | 214 | 881 | 387 | 84 | 618 | |
| v/s Ratio Prot | 0.02 | c0.18 | | c0.13 | 0.16 | | 0.07 | c0.13 | | 0.02 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.06 | | | |
| v/c Ratio | 0.43 | 0.57 | | 0.48 | 0.30 | | 0.61 | 0.54 | 0.23 | 0.48 | 0.74 | |
| Uniform Delay, d1 | 55.2 | 34.7 | | 37.2 | 16.1 | | 50.3 | 39.5 | 36.3 | 55.8 | 47.1 | |
| Progression Factor | 0.50 | 0.53 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.8 | 1.9 | | 0.4 | 0.4 | | 4.8 | 0.7 | 0.3 | 4.2 | 4.6 | |
| Delay (s) | 30.6 | 20.2 | | 37.6 | 16.5 | | 55.1 | 40.2 | 36.7 | 60.0 | 51.7 | |
| Level of Service | C | C | | D | B | | E | D | D | E | D | |
| Approach Delay (s) | | 20.8 | | | 25.9 | | | 40.8 | | | 52.4 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 1380 | 300 | 310 | 1230 | 130 | 410 | 550 | 240 | 160 | 290 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.91 | | 0.97 | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 0.95 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 3610 | 1585 | 3502 | 5104 | | 3502 | 3429 | | 1805 | 3537 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 3610 | 1585 | 3502 | 5104 | | 3502 | 3429 | | 1805 | 3537 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 70 | 1380 | 300 | 310 | 1230 | 130 | 410 | 550 | 240 | 160 | 290 | 40 |
| RTOR Reduction (vph) | 0 | 0 | 126 | 0 | 9 | 0 | 0 | 46 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 70 | 1380 | 174 | 310 | 1351 | 0 | 410 | 744 | 0 | 160 | 320 | 0 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | | | | |
| Actuated Green, G (s) | 8.2 | 43.0 | 43.0 | 15.1 | 49.9 | | 15.0 | 33.3 | | 12.6 | 30.9 | |
| Effective Green, g (s) | 8.2 | 43.0 | 43.0 | 15.1 | 49.9 | | 15.0 | 33.3 | | 12.6 | 30.9 | |
| Actuated g/C Ratio | 0.07 | 0.36 | 0.36 | 0.13 | 0.42 | | 0.12 | 0.28 | | 0.10 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 123 | 1294 | 568 | 441 | 2122 | | 438 | 952 | | 190 | 911 | |
| v/s Ratio Prot | 0.04 | c0.38 | | c0.09 | 0.26 | | c0.12 | c0.22 | | 0.09 | 0.09 | |
| v/s Ratio Perm | | | 0.11 | | | | | | | | | |
| v/c Ratio | 0.57 | 1.07 | 0.31 | 0.70 | 0.64 | | 0.94 | 0.78 | | 0.84 | 0.35 | |
| Uniform Delay, d1 | 54.2 | 38.5 | 27.7 | 50.3 | 27.8 | | 52.0 | 40.0 | | 52.7 | 36.4 | |
| Progression Factor | 1.12 | 0.57 | 0.66 | 1.12 | 0.47 | | 0.91 | 0.85 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.4 | 39.5 | 0.8 | 3.7 | 1.1 | | 26.5 | 4.0 | | 27.2 | 0.2 | |
| Delay (s) | 64.2 | 61.2 | 19.0 | 60.1 | 14.2 | | 73.8 | 38.0 | | 79.9 | 36.6 | |
| Level of Service | E | E | B | E | B | | E | D | | E | D | |
| Approach Delay (s) | | 54.1 | | | 22.7 | | | 50.2 | | | 50.7 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 94.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 240 | 2090 | 210 | 10 | 2490 | 160 | 240 | 60 | 20 | 190 | 230 | 610 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.95 | 0.88 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3502 | 5187 | 1615 | 3502 | 5187 | 1590 | 3502 | 3610 | 2798 | 3502 | 3610 | 1603 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3502 | 5187 | 1615 | 3502 | 5187 | 1590 | 3502 | 3610 | 2798 | 3502 | 3610 | 1603 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 240 | 2090 | 210 | 10 | 2490 | 160 | 240 | 60 | 20 | 190 | 230 | 610 |
| RTOR Reduction (vph) | 0 | 0 | 43 | 0 | 0 | 22 | 0 | 0 | 18 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 240 | 2090 | 167 | 10 | 2490 | 138 | 240 | 60 | 2 | 190 | 230 | 610 |
| Confl. Peds. (#/hr) | 5 | | | | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.0 | 59.5 | 59.5 | 4.1 | 51.6 | 51.6 | 7.9 | 6.6 | 10.7 | 12.7 | 11.4 | 23.4 |
| Effective Green, g (s) | 12.0 | 59.5 | 59.5 | 4.1 | 51.6 | 51.6 | 7.9 | 6.6 | 10.7 | 12.7 | 11.4 | 23.4 |
| Actuated g/C Ratio | 0.12 | 0.60 | 0.60 | 0.04 | 0.52 | 0.52 | 0.08 | 0.07 | 0.11 | 0.13 | 0.12 | 0.24 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 425 | 3121 | 972 | 145 | 2706 | 830 | 280 | 241 | 416 | 450 | 416 | 379 |
| v/s Ratio Prot | 0.07 | 0.40 | | 0.00 | c0.48 | | c0.07 | 0.02 | 0.00 | 0.05 | 0.06 | c0.20 |
| v/s Ratio Perm | | | 0.10 | | | 0.09 | | | 0.00 | | | 0.19 |
| v/c Ratio | 0.56 | 0.67 | 0.17 | 0.07 | 0.92 | 0.17 | 0.86 | 0.25 | 0.01 | 0.42 | 0.55 | 1.61 |
| Uniform Delay, d1 | 41.0 | 13.1 | 8.8 | 45.6 | 21.8 | 12.4 | 44.9 | 43.8 | 39.4 | 39.7 | 41.3 | 37.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.7 | 0.6 | 0.1 | 0.2 | 5.8 | 0.1 | 21.9 | 0.5 | 0.0 | 0.6 | 1.6 | 286.3 |
| Delay (s) | 42.7 | 13.7 | 8.8 | 45.8 | 27.5 | 12.5 | 66.8 | 44.3 | 39.4 | 40.4 | 42.9 | 324.0 |
| Level of Service | D | B | A | D | C | B | E | D | D | D | D | F |
| Approach Delay (s) | | 16.0 | | | 26.7 | | | 60.9 | | | 208.9 | |
| Approach LOS | | B | | | C | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.06 | | |
| Actuated Cycle Length (s) | 98.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 103.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 870 | 780 | 0 | 2170 | 460 | 420 | 440 | 10 | 740 | 0 | 590 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | | 0.91 | 1.00 | 0.97 | 1.00 | | 0.97 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 0.97 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 0.85 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | | 5187 | 1570 | 3502 | 1894 | | 3502 | 1615 | |
| Flt Permitted | 0.08 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.28 | 1.00 | | 0.39 | 1.00 | |
| Satd. Flow (perm) | 157 | 5187 | 1615 | | 5187 | 1570 | 1029 | 1894 | | 1424 | 1615 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 110 | 870 | 780 | 0 | 2170 | 460 | 420 | 440 | 10 | 740 | 0 | 590 |
| RTOR Reduction (vph) | 0 | 0 | 466 | 0 | 0 | 155 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 110 | 870 | 314 | 0 | 2170 | 305 | 420 | 450 | 0 | 740 | 590 | 0 |
| Confl. Peds. (#/hr) | | | | | | 5 | | | | | | |
| Turn Type | Perm | | Perm | | | Perm | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 48.3 | 48.3 | 48.3 | | 48.3 | 48.3 | 63.7 | 63.7 | | 63.7 | 63.7 | |
| Effective Green, g (s) | 48.3 | 48.3 | 48.3 | | 48.3 | 48.3 | 63.7 | 63.7 | | 63.7 | 63.7 | |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | | 0.40 | 0.40 | 0.53 | 0.53 | | 0.53 | 0.53 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 63 | 2088 | 650 | | 2088 | 632 | 546 | 1005 | | 756 | 857 | |
| v/s Ratio Prot | | 0.17 | | | 0.42 | | | 0.24 | | | 0.37 | |
| v/s Ratio Perm | c0.70 | | 0.19 | | | 0.19 | 0.41 | | | c0.52 | | |
| v/c Ratio | 1.75 | 0.42 | 0.48 | | 1.04 | 0.48 | 0.77 | 0.45 | | 0.98 | 0.69 | |
| Uniform Delay, d1 | 35.9 | 25.7 | 26.6 | | 35.9 | 26.6 | 22.3 | 17.3 | | 27.5 | 20.8 | |
| Progression Factor | 0.09 | 0.00 | 5.73 | | 0.31 | 0.29 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 367.3 | 0.3 | 1.3 | | 22.0 | 0.6 | 6.5 | 0.3 | | 27.2 | 2.3 | |
| Delay (s) | 370.3 | 0.4 | 153.7 | | 33.2 | 8.4 | 28.8 | 17.6 | | 54.7 | 23.1 | |
| Level of Service | F | A | F | | C | A | C | B | | D | C | |
| Approach Delay (s) | | 91.4 | | | 28.9 | | | 23.0 | | | 40.7 | |
| Approach LOS | | F | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.31 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 109.9% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 270 | 1200 | 550 | 320 | 1110 | 90 | 1660 | 410 | 230 | 130 | 60 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 0.88 | 0.97 | 0.91 | 1.00 | 0.94 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 2753 | 3502 | 5187 | 1585 | 5090 | 1900 | 1588 | 1715 | 1772 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.98 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 2753 | 3502 | 5187 | 1585 | 5090 | 1900 | 1588 | 1715 | 1772 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 270 | 1200 | 550 | 320 | 1110 | 90 | 1660 | 410 | 230 | 130 | 60 | 140 |
| RTOR Reduction (vph) | 0 | 0 | 388 | 0 | 0 | 65 | 0 | 0 | 159 | 0 | 0 | 99 |
| Lane Group Flow (vph) | 270 | 1200 | 162 | 320 | 1110 | 25 | 1660 | 410 | 71 | 94 | 96 | 41 |
| Confl. Peds. (#/hr) | | | 5 | | | 5 | | | 5 | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | Split | | Perm | Split | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 28.9 | 31.7 | 31.7 | 23.2 | 26.0 | 26.0 | 37.0 | 37.0 | 37.0 | 12.1 | 12.1 | 12.1 |
| Effective Green, g (s) | 28.9 | 31.7 | 31.7 | 23.2 | 26.0 | 26.0 | 37.0 | 37.0 | 37.0 | 12.1 | 12.1 | 12.1 |
| Actuated g/C Ratio | 0.24 | 0.26 | 0.26 | 0.19 | 0.22 | 0.22 | 0.31 | 0.31 | 0.31 | 0.10 | 0.10 | 0.10 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 435 | 1370 | 727 | 677 | 1124 | 343 | 1569 | 586 | 490 | 173 | 179 | 160 |
| v/s Ratio Prot | c0.15 | c0.23 | | 0.09 | c0.21 | | c0.33 | 0.22 | | c0.05 | 0.05 | |
| v/s Ratio Perm | | | 0.06 | | | 0.02 | | | 0.04 | | | 0.03 |
| v/c Ratio | 0.62 | 0.88 | 0.22 | 0.47 | 0.99 | 0.07 | 1.06 | 0.70 | 0.14 | 0.54 | 0.54 | 0.26 |
| Uniform Delay, d1 | 40.7 | 42.3 | 34.5 | 43.0 | 46.8 | 37.4 | 41.5 | 36.6 | 30.0 | 51.3 | 51.3 | 49.8 |
| Progression Factor | 0.89 | 0.98 | 0.86 | 0.79 | 0.76 | 1.08 | 1.00 | 1.00 | 1.00 | 0.92 | 0.92 | 0.90 |
| Incremental Delay, d2 | 2.3 | 7.0 | 0.6 | 0.4 | 21.5 | 0.3 | 39.8 | 3.7 | 0.1 | 3.1 | 2.8 | 0.8 |
| Delay (s) | 38.6 | 48.6 | 30.3 | 34.3 | 57.0 | 40.7 | 81.3 | 40.3 | 30.2 | 50.3 | 49.9 | 45.7 |
| Level of Service | D | D | C | C | E | D | F | D | C | D | D | D |
| Approach Delay (s) | | 42.3 | | | 51.3 | | | 68.9 | | | 48.2 | |
| Approach LOS | | D | | | D | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 90.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1630 | 650 | 50 | 790 | 680 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 0.97 | |
| Frpb, ped/bikes | 0.99 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.96 | | 1.00 | 1.00 | 1.00 | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (prot) | 3422 | | 1805 | 3610 | 3497 | |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | 0.95 | |
| Satd. Flow (perm) | 3422 | | 1805 | 3610 | 3497 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 1630 | 650 | 50 | 790 | 680 | 20 |
| RTOR Reduction (vph) | 30 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 2250 | 0 | 50 | 790 | 698 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Prot | | | |
| Protected Phases | 4 | | 3 | 8 | 2 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 78.4 | | 5.4 | 87.8 | 28.7 | |
| Effective Green, g (s) | 78.4 | | 5.4 | 87.8 | 28.7 | |
| Actuated g/C Ratio | 0.63 | | 0.04 | 0.71 | 0.23 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 2155 | | 78 | 2546 | 806 | |
| v/s Ratio Prot | c0.66 | | c0.03 | 0.22 | c0.20 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 1.04 | | 0.64 | 0.31 | 0.87 | |
| Uniform Delay, d1 | 23.0 | | 58.6 | 6.9 | 46.1 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 32.0 | | 16.6 | 0.1 | 9.7 | |
| Delay (s) | 55.1 | | 75.2 | 7.0 | 55.8 | |
| Level of Service | E | | E | A | E | |
| Approach Delay (s) | 55.1 | | | 11.1 | 55.8 | |
| Approach LOS | E | | | B | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 124.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

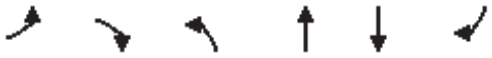
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 2410 | 210 | 530 | 2490 | 80 | 410 | 310 | 250 | 150 | 290 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.94 | 0.91 | | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 5187 | 1589 | 5090 | 5160 | | 3502 | 3610 | 1590 | 1805 | 3447 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 5187 | 1589 | 5090 | 5160 | | 3502 | 3610 | 1590 | 1805 | 3447 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 2410 | 210 | 530 | 2490 | 80 | 410 | 310 | 250 | 150 | 290 | 110 |
| RTOR Reduction (vph) | 0 | 0 | 105 | 0 | 2 | 0 | 0 | 0 | 190 | 0 | 40 | 0 |
| Lane Group Flow (vph) | 190 | 2410 | 105 | 530 | 2568 | 0 | 410 | 310 | 60 | 150 | 360 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 9.0 | 44.0 | 44.0 | 12.0 | 47.0 | | 9.0 | 14.5 | 14.5 | 9.8 | 15.3 | |
| Effective Green, g (s) | 9.0 | 44.0 | 44.0 | 12.0 | 47.0 | | 9.0 | 14.5 | 14.5 | 9.8 | 15.3 | |
| Actuated g/C Ratio | 0.09 | 0.46 | 0.46 | 0.12 | 0.49 | | 0.09 | 0.15 | 0.15 | 0.10 | 0.16 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 327 | 2370 | 726 | 634 | 2518 | | 327 | 544 | 239 | 184 | 548 | |
| v/s Ratio Prot | 0.05 | c0.46 | | 0.10 | c0.50 | | c0.12 | 0.09 | | 0.08 | c0.10 | |
| v/s Ratio Perm | | | 0.07 | | | | | | 0.04 | | | |
| v/c Ratio | 0.58 | 1.02 | 0.14 | 0.84 | 1.02 | | 1.25 | 0.57 | 0.25 | 0.82 | 0.66 | |
| Uniform Delay, d1 | 41.8 | 26.1 | 15.2 | 41.2 | 24.6 | | 43.6 | 38.0 | 36.1 | 42.4 | 38.0 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.6 | 22.8 | 0.1 | 9.3 | 23.1 | | 136.9 | 1.4 | 0.6 | 23.4 | 2.8 | |
| Delay (s) | 44.5 | 49.0 | 15.3 | 50.5 | 47.8 | | 180.6 | 39.4 | 36.7 | 65.8 | 40.9 | |
| Level of Service | D | D | B | D | D | | F | D | D | E | D | |
| Approach Delay (s) | | 46.2 | | | 48.2 | | | 98.3 | | | 47.7 | |
| Approach LOS | | D | | | D | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 53.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 96.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 97.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 500 | 0 | 690 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | | |
| Lane Util. Factor | 0.97 | | 0.95 | 0.95 | | |
| Frt | 1.00 | | 1.00 | 1.00 | | |
| Flt Protected | 0.95 | | 0.95 | 0.95 | | |
| Satd. Flow (prot) | 3502 | | 1715 | 1715 | | |
| Flt Permitted | 0.95 | | 0.95 | 0.95 | | |
| Satd. Flow (perm) | 3502 | | 1715 | 1715 | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 500 | 0 | 690 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 500 | 0 | 345 | 345 | 0 | 0 |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 2 | | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | 10.3 | | 13.2 | 13.2 | | |
| Effective Green, g (s) | 10.3 | | 13.2 | 13.2 | | |
| Actuated g/C Ratio | 0.33 | | 0.42 | 0.42 | | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | | |
| Lane Grp Cap (vph) | 1145 | | 719 | 719 | | |
| v/s Ratio Prot | c0.14 | | | | | |
| v/s Ratio Perm | | | c0.20 | 0.20 | | |
| v/c Ratio | 0.44 | | 0.48 | 0.48 | | |
| Uniform Delay, d1 | 8.3 | | 6.7 | 6.7 | | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 0.3 | | 0.5 | 0.5 | | |
| Delay (s) | 8.6 | | 7.2 | 7.2 | | |
| Level of Service | A | | A | A | | |
| Approach Delay (s) | 8.6 | | | 7.2 | 0.0 | |
| Approach LOS | A | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 31.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 128.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 20 | 10 | 1040 | 30 | 220 | 70 | 450 | 1360 | 570 | 1050 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 1796 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1603 | 3502 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 1796 | | 3502 | 1900 | 1615 | 1805 | 3610 | 1603 | 3502 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 20 | 10 | 1040 | 30 | 220 | 70 | 450 | 1360 | 570 | 1050 | 10 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 144 | 0 | 0 | 294 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 20 | 21 | 0 | 1040 | 30 | 76 | 70 | 450 | 1066 | 570 | 1050 | 8 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | | | 5 | 5 | | |
| Turn Type | Prot | | | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 2.7 | 4.8 | | 29.9 | 32.0 | 32.0 | 6.1 | 26.4 | 56.3 | 15.4 | 35.7 | 35.7 |
| Effective Green, g (s) | 2.7 | 4.8 | | 29.9 | 32.0 | 32.0 | 6.1 | 26.4 | 56.3 | 15.4 | 35.7 | 35.7 |
| Actuated g/C Ratio | 0.03 | 0.05 | | 0.32 | 0.35 | 0.35 | 0.07 | 0.29 | 0.61 | 0.17 | 0.39 | 0.39 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 53 | 93 | | 1132 | 657 | 559 | 119 | 1030 | 1045 | 583 | 1393 | 623 |
| v/s Ratio Prot | 0.01 | c0.01 | | 0.30 | 0.02 | | 0.04 | 0.12 | c0.33 | c0.16 | 0.29 | |
| v/s Ratio Perm | | | | | | 0.05 | | | 0.34 | | | 0.01 |
| v/c Ratio | 0.38 | 0.22 | | 0.92 | 0.05 | 0.14 | 0.59 | 0.44 | 1.02 | 0.98 | 0.75 | 0.01 |
| Uniform Delay, d1 | 44.1 | 42.1 | | 30.1 | 20.1 | 20.8 | 42.0 | 27.0 | 18.1 | 38.4 | 24.6 | 17.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.5 | 1.2 | | 11.7 | 0.0 | 0.1 | 7.2 | 0.3 | 32.9 | 31.3 | 2.4 | 0.0 |
| Delay (s) | 48.5 | 43.3 | | 41.8 | 20.1 | 20.9 | 49.2 | 27.3 | 51.0 | 69.7 | 27.0 | 17.5 |
| Level of Service | D | D | | D | C | C | D | C | D | E | C | B |
| Approach Delay (s) | | 45.4 | | | 37.7 | | | 45.3 | | | 41.8 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 92.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 120.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1380 | 300 | 290 | 990 | 230 | 270 | 680 | 400 | 590 | 1020 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3610 | 1587 | 3502 | 3610 | 1595 | 3502 | 3610 | 1594 | 3502 | 3610 | 1587 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3610 | 1587 | 3502 | 3610 | 1595 | 3502 | 3610 | 1594 | 3502 | 3610 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 1380 | 300 | 290 | 990 | 230 | 270 | 680 | 400 | 590 | 1020 | 110 |
| RTOR Reduction (vph) | 0 | 0 | 56 | 0 | 0 | 47 | 0 | 0 | 5 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 50 | 1380 | 244 | 290 | 990 | 183 | 270 | 680 | 395 | 590 | 1020 | 81 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | pm+ov | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 6.8 | 48.9 | 48.9 | 11.0 | 53.1 | 75.1 | 11.9 | 30.4 | 41.4 | 22.0 | 40.5 | 40.5 |
| Effective Green, g (s) | 6.8 | 48.9 | 48.9 | 11.0 | 53.1 | 75.1 | 11.9 | 30.4 | 41.4 | 22.0 | 40.5 | 40.5 |
| Actuated g/C Ratio | 0.05 | 0.38 | 0.38 | 0.09 | 0.41 | 0.59 | 0.09 | 0.24 | 0.32 | 0.17 | 0.32 | 0.32 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 96 | 1376 | 605 | 300 | 1494 | 983 | 325 | 855 | 564 | 600 | 1140 | 501 |
| v/s Ratio Prot | 0.03 | c0.38 | | c0.08 | 0.27 | 0.03 | 0.08 | 0.19 | 0.06 | c0.17 | c0.28 | |
| v/s Ratio Perm | | | 0.15 | | | 0.08 | | | 0.19 | | | 0.05 |
| v/c Ratio | 0.52 | 1.00 | 0.40 | 0.97 | 0.66 | 0.19 | 0.83 | 0.80 | 0.70 | 0.98 | 0.89 | 0.16 |
| Uniform Delay, d1 | 59.2 | 39.7 | 29.0 | 58.5 | 30.4 | 12.4 | 57.2 | 46.0 | 38.0 | 53.0 | 41.9 | 31.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.0 | 25.0 | 0.4 | 42.5 | 1.1 | 0.1 | 16.3 | 5.2 | 3.9 | 32.3 | 9.3 | 0.2 |
| Delay (s) | 64.2 | 64.7 | 29.5 | 101.0 | 31.5 | 12.5 | 73.5 | 51.2 | 42.0 | 85.3 | 51.1 | 31.8 |
| Level of Service | E | E | C | F | C | B | E | D | D | F | D | C |
| Approach Delay (s) | | 58.5 | | | 41.9 | | | 52.9 | | | 61.6 | |
| Approach LOS | | E | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 128.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 96.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1990 | 210 | 600 | 1370 | 290 | 0 | 0 | 0 | 920 | 90 | 470 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | | | 0.91 | 0.91 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | | | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 3285 | 1668 | 1593 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1572 | 1805 | 3610 | 1571 | | | | 3285 | 1668 | 1593 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 50 | 1990 | 210 | 600 | 1370 | 290 | 0 | 0 | 0 | 920 | 90 | 470 |
| RTOR Reduction (vph) | 0 | 0 | 54 | 0 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 15 |
| Lane Group Flow (vph) | 50 | 1990 | 156 | 600 | 1370 | 244 | 0 | 0 | 0 | 672 | 338 | 455 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | | | | | | 5 |
| Turn Type | Prot | | Perm | Prot | | Perm | | | | Split | | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | | | | 6 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 11.6 | 47.9 | 47.9 | 38.1 | 74.4 | 74.4 | | | | 32.0 | 32.0 | 43.6 |
| Effective Green, g (s) | 11.6 | 47.9 | 47.9 | 38.1 | 74.4 | 74.4 | | | | 32.0 | 32.0 | 43.6 |
| Actuated g/C Ratio | 0.09 | 0.37 | 0.37 | 0.29 | 0.57 | 0.57 | | | | 0.25 | 0.25 | 0.34 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 161 | 1911 | 579 | 529 | 2066 | 899 | | | | 809 | 411 | 583 |
| v/s Ratio Prot | 0.03 | c0.38 | | c0.33 | 0.38 | | | | | c0.20 | 0.20 | 0.07 |
| v/s Ratio Perm | | | 0.10 | | | 0.16 | | | | | | 0.22 |
| v/c Ratio | 0.31 | 1.04 | 0.27 | 1.13 | 0.66 | 0.27 | | | | 0.83 | 0.82 | 0.78 |
| Uniform Delay, d1 | 55.5 | 41.0 | 28.8 | 46.0 | 19.2 | 14.1 | | | | 46.4 | 46.3 | 38.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.71 | 0.41 | 0.21 | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 32.3 | 1.1 | 78.3 | 1.4 | 0.6 | | | | 7.3 | 12.5 | 6.5 |
| Delay (s) | 56.6 | 73.3 | 29.9 | 110.9 | 9.3 | 3.6 | | | | 53.7 | 58.8 | 45.4 |
| Level of Service | E | E | C | F | A | A | | | | D | E | D |
| Approach Delay (s) | | 68.9 | | | 35.6 | | | 0.0 | | | 52.2 | |
| Approach LOS | | E | | | D | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.01 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 101.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 2330 | 50 | 270 | 1920 | 40 | 30 | 130 | 420 | 50 | 240 | 240 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | | 0.97 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5169 | | 3502 | 3610 | 1569 | 1805 | 1900 | 1598 | 3502 | 1900 | 1587 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5169 | | 3502 | 3610 | 1569 | 1805 | 1900 | 1598 | 3502 | 1900 | 1587 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 180 | 2330 | 50 | 270 | 1920 | 40 | 30 | 130 | 420 | 50 | 240 | 240 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 10 | 0 | 0 | 26 | 0 | 0 | 168 |
| Lane Group Flow (vph) | 180 | 2379 | 0 | 270 | 1920 | 30 | 30 | 130 | 394 | 50 | 240 | 72 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | Perm | Prot | | pm+ov | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 10.1 | 60.5 | | 13.1 | 63.5 | 63.5 | 4.4 | 20.0 | 33.1 | 5.4 | 21.0 | 21.0 |
| Effective Green, g (s) | 10.1 | 60.5 | | 13.1 | 63.5 | 63.5 | 4.4 | 20.0 | 33.1 | 5.4 | 21.0 | 21.0 |
| Actuated g/C Ratio | 0.09 | 0.53 | | 0.11 | 0.55 | 0.55 | 0.04 | 0.17 | 0.29 | 0.05 | 0.18 | 0.18 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 159 | 2719 | | 399 | 1993 | 866 | 69 | 330 | 460 | 164 | 347 | 290 |
| v/s Ratio Prot | c0.10 | 0.46 | | 0.08 | c0.53 | | 0.02 | 0.07 | c0.10 | 0.01 | c0.13 | |
| v/s Ratio Perm | | | | | | 0.02 | | | 0.15 | | | 0.05 |
| v/c Ratio | 1.13 | 0.87 | | 0.68 | 0.96 | 0.03 | 0.43 | 0.39 | 0.86 | 0.30 | 0.69 | 0.25 |
| Uniform Delay, d1 | 52.5 | 23.9 | | 48.9 | 24.6 | 11.8 | 54.1 | 42.1 | 38.7 | 53.0 | 44.0 | 40.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 111.3 | 3.5 | | 4.5 | 12.6 | 0.0 | 4.3 | 0.8 | 14.4 | 1.1 | 5.9 | 0.4 |
| Delay (s) | 163.7 | 27.4 | | 53.4 | 37.2 | 11.8 | 58.4 | 42.9 | 53.1 | 54.0 | 49.8 | 40.7 |
| Level of Service | F | C | | D | D | B | E | D | D | D | D | D |
| Approach Delay (s) | | 37.0 | | | 38.7 | | | 51.1 | | | 46.1 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 97.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 170 | 1520 | 1040 | 470 | 1110 | 420 | 1030 | 1010 | 170 | 490 | 1480 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.91 | 0.88 | 0.94 | 0.91 | 0.88 | 0.94 | 0.95 | 0.88 | 0.94 | 0.86 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 5187 | 2814 | 5090 | 5187 | 2783 | 5090 | 3610 | 2804 | 5090 | 6487 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 5187 | 2814 | 5090 | 5187 | 2783 | 5090 | 3610 | 2804 | 5090 | 6487 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 1520 | 1040 | 470 | 1110 | 420 | 1030 | 1010 | 170 | 490 | 1480 | 70 |
| RTOR Reduction (vph) | 0 | 0 | 3 | 0 | 0 | 70 | 0 | 0 | 1 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 170 | 1520 | 1037 | 470 | 1110 | 350 | 1030 | 1010 | 169 | 490 | 1545 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 18.4 | 37.0 | 63.0 | 16.0 | 34.6 | 49.4 | 26.0 | 45.2 | 61.2 | 14.8 | 34.0 | |
| Effective Green, g (s) | 18.4 | 37.0 | 63.0 | 16.0 | 34.6 | 49.4 | 26.0 | 45.2 | 61.2 | 14.8 | 34.0 | |
| Actuated g/C Ratio | 0.14 | 0.29 | 0.49 | 0.12 | 0.27 | 0.38 | 0.20 | 0.35 | 0.47 | 0.11 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 257 | 1488 | 1374 | 631 | 1391 | 1066 | 1026 | 1265 | 1417 | 584 | 1710 | |
| v/s Ratio Prot | 0.09 | c0.29 | 0.15 | 0.09 | c0.21 | 0.04 | c0.20 | 0.28 | 0.01 | 0.10 | c0.24 | |
| v/s Ratio Perm | | | 0.22 | | | 0.09 | | | 0.05 | | | |
| v/c Ratio | 0.66 | 1.02 | 0.76 | 0.74 | 0.80 | 0.33 | 1.00 | 0.80 | 0.12 | 0.84 | 0.90 | |
| Uniform Delay, d1 | 52.4 | 46.0 | 26.7 | 54.5 | 43.9 | 28.1 | 51.5 | 37.8 | 18.9 | 55.9 | 45.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 6.3 | 28.9 | 2.4 | 4.8 | 3.3 | 0.2 | 29.0 | 3.6 | 0.0 | 10.2 | 7.1 | |
| Delay (s) | 58.6 | 74.9 | 29.2 | 59.3 | 47.2 | 28.3 | 80.5 | 41.4 | 18.9 | 66.2 | 53.0 | |
| Level of Service | E | E | C | E | D | C | F | D | B | E | D | |
| Approach Delay (s) | | 56.5 | | | 46.1 | | | 57.9 | | | 56.2 | |
| Approach LOS | | E | | | D | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 129.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 95.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 240 | 0 | 650 | 740 | 270 | 30 | 620 | 1880 | 1040 | 80 | 2640 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | 0.88 | 0.94 | 0.95 | | 0.97 | 0.91 | 0.88 | 1.00 | 0.86 | |
| Frpb, ped/bikes | 1.00 | | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | 0.95 | | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | | 2797 | 5090 | 3550 | | 3502 | 5187 | 2780 | 1805 | 6520 | |
| Flt Permitted | 0.95 | | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | | 2797 | 5090 | 3550 | | 3502 | 5187 | 2780 | 1805 | 6520 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 240 | 0 | 650 | 740 | 270 | 30 | 620 | 1880 | 1040 | 80 | 2640 | 40 |
| RTOR Reduction (vph) | 0 | 0 | 344 | 0 | 8 | 0 | 0 | 0 | 381 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 240 | 0 | 306 | 740 | 292 | 0 | 620 | 1880 | 659 | 80 | 2679 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Perm | Prot | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | | | | 2 | | | |
| Actuated Green, G (s) | 16.3 | | 16.4 | 14.0 | 14.1 | | 15.1 | 54.2 | 68.2 | 7.0 | 46.1 | |
| Effective Green, g (s) | 16.3 | | 16.4 | 14.0 | 14.1 | | 15.1 | 54.2 | 68.2 | 7.0 | 46.1 | |
| Actuated g/C Ratio | 0.15 | | 0.15 | 0.13 | 0.13 | | 0.14 | 0.50 | 0.63 | 0.07 | 0.43 | |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 273 | | 426 | 662 | 465 | | 491 | 2613 | 1865 | 117 | 2793 | |
| v/s Ratio Prot | c0.13 | | | c0.15 | 0.08 | | c0.18 | 0.36 | 0.05 | 0.04 | c0.41 | |
| v/s Ratio Perm | | | 0.11 | | | | | | 0.19 | | | |
| v/c Ratio | 0.88 | | 0.72 | 1.12 | 0.63 | | 1.26 | 0.72 | 0.35 | 0.68 | 0.96 | |
| Uniform Delay, d1 | 44.7 | | 43.4 | 46.8 | 44.3 | | 46.2 | 20.8 | 9.3 | 49.2 | 29.8 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 25.8 | | 5.7 | 72.0 | 2.7 | | 133.8 | 1.0 | 0.1 | 15.3 | 9.3 | |
| Delay (s) | 70.5 | | 49.1 | 118.8 | 46.9 | | 180.0 | 21.8 | 9.4 | 64.5 | 39.1 | |
| Level of Service | E | | D | F | D | | F | C | A | E | D | |
| Approach Delay (s) | | 54.9 | | | 98.1 | | | 45.9 | | | 39.8 | |
| Approach LOS | | D | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.02 | | |
| Actuated Cycle Length (s) | 107.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 95.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 320 | 1290 | 610 | 250 | 1050 | 130 | 740 | 120 | 330 | 270 | 190 | 610 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 4.0 | 4.0 | 4.6 | 4.0 | 4.0 | 4.9 | 4.0 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 5187 | 1615 | 1805 | 5187 | 1615 | 3502 | 3610 | 1615 | 1805 | 3610 | 1615 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 5187 | 1615 | 1805 | 5187 | 1615 | 3502 | 3610 | 1615 | 1805 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 320 | 1290 | 610 | 250 | 1050 | 130 | 740 | 120 | 330 | 270 | 190 | 610 |
| RTOR Reduction (vph) | 0 | 0 | 348 | 0 | 0 | 108 | 0 | 0 | 259 | 0 | 0 | 327 |
| Lane Group Flow (vph) | 320 | 1290 | 262 | 250 | 1050 | 22 | 740 | 120 | 71 | 270 | 190 | 283 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | Over | Prot | | Over | Prot | | Over | Prot | | Over |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | 7 | 3 | 8 | 1 | 7 | 4 | 5 |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 32.9 | 40.6 | 23.0 | 25.8 | 33.5 | 20.6 | 23.0 | 14.4 | 25.8 | 20.6 | 11.7 | 32.9 |
| Effective Green, g (s) | 32.9 | 40.6 | 23.0 | 25.8 | 33.5 | 20.6 | 23.0 | 14.4 | 25.8 | 20.6 | 11.7 | 32.9 |
| Actuated g/C Ratio | 0.27 | 0.34 | 0.19 | 0.22 | 0.28 | 0.17 | 0.19 | 0.12 | 0.22 | 0.17 | 0.10 | 0.27 |
| Clearance Time (s) | 4.0 | 6.0 | 4.0 | 4.0 | 6.0 | 4.0 | 4.0 | 4.6 | 4.0 | 4.0 | 4.9 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 495 | 1755 | 310 | 388 | 1448 | 277 | 671 | 433 | 347 | 310 | 352 | 443 |
| v/s Ratio Prot | c0.18 | c0.25 | 0.16 | 0.14 | 0.20 | 0.01 | c0.21 | 0.03 | 0.04 | 0.15 | c0.05 | 0.18 |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.65 | 0.74 | 0.84 | 0.64 | 0.73 | 0.08 | 1.10 | 0.28 | 0.20 | 0.87 | 0.54 | 0.64 |
| Uniform Delay, d1 | 38.4 | 35.0 | 46.8 | 42.9 | 39.1 | 41.7 | 48.5 | 48.1 | 38.7 | 48.4 | 51.6 | 38.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.93 | 1.31 | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.9 | 2.8 | 18.5 | 2.9 | 2.5 | 0.1 | 66.3 | 0.4 | 0.3 | 22.4 | 1.6 | 3.0 |
| Delay (s) | 41.3 | 37.7 | 65.3 | 42.6 | 53.6 | 40.4 | 114.8 | 48.4 | 39.0 | 70.8 | 53.2 | 41.3 |
| Level of Service | D | D | E | D | D | D | F | D | D | E | D | D |
| Approach Delay (s) | | 45.8 | | | 50.5 | | | 87.1 | | | 50.9 | |
| Approach LOS | | D | | | D | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 56.2 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.9 |
| Intersection Capacity Utilization | 91.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

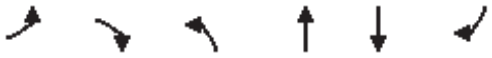
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 310 | 240 | 70 | 10 | 180 | 60 | 50 | 990 | 30 | 60 | 1140 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.96 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1805 | 3473 | | 1805 | 3460 | | 1805 | 3592 | | 1805 | 3610 | 1588 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1805 | 3473 | | 1805 | 3460 | | 1805 | 3592 | | 1805 | 3610 | 1588 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 310 | 240 | 70 | 10 | 180 | 60 | 50 | 990 | 30 | 60 | 1140 | 230 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 35 | 0 | 0 | 2 | 0 | 0 | 0 | 110 |
| Lane Group Flow (vph) | 310 | 281 | 0 | 10 | 205 | 0 | 50 | 1018 | 0 | 60 | 1140 | 120 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | 6 |
| Actuated Green, G (s) | 20.0 | 33.8 | | 1.2 | 15.0 | | 7.4 | 50.9 | | 8.1 | 51.6 | 51.6 |
| Effective Green, g (s) | 20.0 | 33.8 | | 1.2 | 15.0 | | 7.4 | 50.9 | | 8.1 | 51.6 | 51.6 |
| Actuated g/C Ratio | 0.18 | 0.31 | | 0.01 | 0.14 | | 0.07 | 0.46 | | 0.07 | 0.47 | 0.47 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 328 | 1067 | | 20 | 472 | | 121 | 1662 | | 133 | 1693 | 745 |
| v/s Ratio Prot | c0.17 | 0.08 | | 0.01 | c0.06 | | 0.03 | 0.28 | | c0.03 | c0.32 | |
| v/s Ratio Perm | | | | | | | | | | | | 0.08 |
| v/c Ratio | 0.95 | 0.26 | | 0.50 | 0.43 | | 0.41 | 0.61 | | 0.45 | 0.67 | 0.16 |
| Uniform Delay, d1 | 44.5 | 28.7 | | 54.1 | 43.6 | | 49.2 | 22.2 | | 48.8 | 22.7 | 16.8 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.01 | 0.81 | 1.40 |
| Incremental Delay, d2 | 35.2 | 0.1 | | 18.3 | 0.6 | | 2.3 | 1.7 | | 1.5 | 1.4 | 0.3 |
| Delay (s) | 79.7 | 28.8 | | 72.4 | 44.2 | | 51.5 | 23.9 | | 50.8 | 19.7 | 23.8 |
| Level of Service | E | C | | E | D | | D | C | | D | B | C |
| Approach Delay (s) | | 54.3 | | | 45.4 | | | 25.1 | | | 21.6 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 110.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 75.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 350 | 150 | 30 | 970 | 1370 | 500 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | 1.00 | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.96 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.97 | | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1761 | | 1805 | 3610 | 3610 | 1615 |
| Flt Permitted | 0.97 | | 0.14 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1761 | | 261 | 3610 | 3610 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 350 | 150 | 30 | 970 | 1370 | 500 |
| RTOR Reduction (vph) | 26 | 0 | 0 | 0 | 0 | 234 |
| Lane Group Flow (vph) | 474 | 0 | 30 | 970 | 1370 | 266 |
| Confl. Peds. (#/hr) | | | | | | |
| Turn Type | | | Perm | | | Perm |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | | 2 | | | 6 |
| Actuated Green, G (s) | 17.6 | | 29.1 | 29.1 | 29.1 | 29.1 |
| Effective Green, g (s) | 17.6 | | 29.1 | 29.1 | 29.1 | 29.1 |
| Actuated g/C Ratio | 0.32 | | 0.53 | 0.53 | 0.53 | 0.53 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 567 | | 139 | 1920 | 1920 | 859 |
| v/s Ratio Prot | c0.27 | | | 0.27 | c0.38 | |
| v/s Ratio Perm | | | 0.11 | | | 0.16 |
| v/c Ratio | 0.84 | | 0.22 | 0.51 | 0.71 | 0.31 |
| Uniform Delay, d1 | 17.2 | | 6.8 | 8.2 | 9.7 | 7.2 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 10.4 | | 0.8 | 0.2 | 1.3 | 0.2 |
| Delay (s) | 27.6 | | 7.5 | 8.4 | 10.9 | 7.4 |
| Level of Service | C | | A | A | B | A |
| Approach Delay (s) | 27.6 | | | 8.4 | 10.0 | |
| Approach LOS | C | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 54.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 970 | 0 | 0 | 550 | 720 | 620 | 30 | 50 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | 4.0 | | | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | 1.00 | | 1.00 | 1.00 | | | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Frt | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | 0.85 | | | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 | | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | 1805 | 3610 | | | 3610 | 1615 | | 1814 | 1615 | | | |
| Flt Permitted | 0.40 | 1.00 | | | 1.00 | 1.00 | | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | 757 | 3610 | | | 3610 | 1615 | | 1814 | 1615 | | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 30 | 970 | 0 | 0 | 550 | 720 | 620 | 30 | 50 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 427 | 0 | 0 | 27 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 30 | 970 | 0 | 0 | 550 | 293 | 0 | 650 | 23 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | Perm | | | | | Perm | Perm | | Perm | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | 2 | | | |
| Actuated Green, G (s) | 23.3 | 23.3 | | | 23.3 | 23.3 | | 25.9 | 25.9 | | | |
| Effective Green, g (s) | 23.3 | 23.3 | | | 23.3 | 23.3 | | 25.9 | 25.9 | | | |
| Actuated g/C Ratio | 0.41 | 0.41 | | | 0.41 | 0.41 | | 0.45 | 0.45 | | | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | | 4.0 | 4.0 | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | 3.0 | | | |
| Lane Grp Cap (vph) | 308 | 1471 | | | 1471 | 658 | | 821 | 731 | | | |
| v/s Ratio Prot | | c0.27 | | | 0.15 | | | | | | | |
| v/s Ratio Perm | 0.04 | | | | | 0.18 | | 0.36 | 0.01 | | | |
| v/c Ratio | 0.10 | 0.66 | | | 0.37 | 0.45 | | 0.79 | 0.03 | | | |
| Uniform Delay, d1 | 10.5 | 13.7 | | | 11.9 | 12.3 | | 13.3 | 8.7 | | | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | 0.1 | 1.1 | | | 0.2 | 0.5 | | 5.3 | 0.0 | | | |
| Delay (s) | 10.6 | 14.8 | | | 12.0 | 12.8 | | 18.6 | 8.7 | | | |
| Level of Service | B | B | | | B | B | | B | A | | | |
| Approach Delay (s) | | 14.7 | | | 12.4 | | | 17.9 | | | 0.0 | |
| Approach LOS | | B | | | B | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 57.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 96.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 760 | 730 | 100 | 1080 | 0 | 0 | 0 | 0 | 250 | 10 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 0.95 | 1.00 | 1.00 | 0.95 | | | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 3610 | 1615 | 1805 | 3610 | | | | | | 1813 | 1615 |
| Flt Permitted | | 1.00 | 1.00 | 0.33 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 3610 | 1615 | 633 | 3610 | | | | | | 1813 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 0 | 760 | 730 | 100 | 1080 | 0 | 0 | 0 | 0 | 250 | 10 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 360 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 0 | 760 | 370 | 100 | 1080 | 0 | 0 | 0 | 0 | 0 | 260 | 3 |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Turn Type | | | Perm | Perm | | | | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | | | | 6 | | 6 |
| Actuated Green, G (s) | | 20.6 | 20.6 | 20.6 | 20.6 | | | | | | 12.0 | 12.0 |
| Effective Green, g (s) | | 20.6 | 20.6 | 20.6 | 20.6 | | | | | | 12.0 | 12.0 |
| Actuated g/C Ratio | | 0.51 | 0.51 | 0.51 | 0.51 | | | | | | 0.30 | 0.30 |
| Clearance Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 1832 | 819 | 321 | 1832 | | | | | | 536 | 477 |
| v/s Ratio Prot | | 0.21 | | | c0.30 | | | | | | | |
| v/s Ratio Perm | | | 0.23 | 0.16 | | | | | | | 0.14 | 0.00 |
| v/c Ratio | | 0.41 | 0.45 | 0.31 | 0.59 | | | | | | 0.49 | 0.01 |
| Uniform Delay, d1 | | 6.2 | 6.4 | 5.9 | 7.0 | | | | | | 11.8 | 10.1 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.2 | 0.4 | 0.6 | 0.5 | | | | | | 0.7 | 0.0 |
| Delay (s) | | 6.4 | 6.8 | 6.4 | 7.5 | | | | | | 12.5 | 10.1 |
| Level of Service | | A | A | A | A | | | | | | B | B |
| Approach Delay (s) | | 6.6 | | | 7.4 | | | 0.0 | | | 12.4 | |
| Approach LOS | | A | | | A | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 40.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 96.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL | NBT | NBR | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 20 | 670 | 150 | 10 | 50 | 10 | 720 | 40 | 210 | 70 | 310 | 30 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | | | 1.00 | 1.00 | 0.97 | 1.00 | 0.98 | | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Frt | 1.00 | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | 1.00 | 0.88 | | |
| Flt Protected | 0.95 | 1.00 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1802 | 1900 | 1570 | | | 1801 | 1634 | 1350 | 1798 | 1631 | | |
| Flt Permitted | 0.24 | 1.00 | 1.00 | | | 0.27 | 1.00 | 1.00 | 0.73 | 1.00 | | |
| Satd. Flow (perm) | 451 | 1900 | 1570 | | | 513 | 1634 | 1350 | 1379 | 1631 | | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 20 | 670 | 150 | 10 | 50 | 10 | 720 | 40 | 210 | 70 | 310 | 30 |
| RTOR Reduction (vph) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 140 | 0 | 0 |
| Lane Group Flow (vph) | 20 | 670 | 159 | 0 | 0 | 60 | 720 | 35 | 210 | 240 | 0 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | | 5 | | | 5 | 5 | | 5 | 5 |
| Parking (#/hr) | | | | | | | 8 | 8 | | | | |
| Turn Type | Perm | | Perm | | Perm | Perm | | Perm | Perm | | | Perm |
| Protected Phases | | 4 | | | | | 8 | | | 2 | | |
| Permitted Phases | 4 | | 4 | | 8 | 8 | | 8 | 2 | | | 6 |
| Actuated Green, G (s) | 51.3 | 51.3 | 51.3 | | | 51.3 | 51.3 | 51.3 | 19.9 | 19.9 | | |
| Effective Green, g (s) | 51.3 | 51.3 | 51.3 | | | 51.3 | 51.3 | 51.3 | 19.9 | 19.9 | | |
| Actuated g/C Ratio | 0.59 | 0.59 | 0.59 | | | 0.59 | 0.59 | 0.59 | 0.23 | 0.23 | | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | |
| Lane Grp Cap (vph) | 264 | 1114 | 920 | | | 301 | 958 | 791 | 314 | 371 | | |
| v/s Ratio Prot | | 0.35 | | | | | c0.44 | | | 0.15 | | |
| v/s Ratio Perm | 0.04 | | 0.10 | | | 0.12 | | 0.03 | c0.15 | | | |
| v/c Ratio | 0.08 | 0.60 | 0.17 | | | 0.20 | 0.75 | 0.04 | 0.67 | 0.65 | | |
| Uniform Delay, d1 | 7.8 | 11.6 | 8.3 | | | 8.5 | 13.4 | 7.7 | 30.8 | 30.6 | | |
| Progression Factor | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 0.1 | 0.9 | 0.1 | | | 0.3 | 3.4 | 0.0 | 5.3 | 3.9 | | |
| Delay (s) | 8.0 | 12.5 | 8.4 | | | 8.8 | 16.8 | 7.7 | 36.1 | 34.5 | | |
| Level of Service | A | B | A | | | A | B | A | D | C | | |
| Approach Delay (s) | | 11.6 | | | | | 15.7 | | | 35.1 | | |
| Approach LOS | | B | | | | | B | | | D | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 87.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 93.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | SBT | SBR | SBR2 | NEL2 | NEL | NER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 30 | 10 | 10 | 20 | 10 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | | | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | | | 1.00 | 1.00 |
| Frt | 0.97 | | | | 1.00 | 0.85 |
| Flt Protected | 0.98 | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1793 | | | | 1805 | 1615 |
| Flt Permitted | 0.50 | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | 919 | | | | 1805 | 1615 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 30 | 10 | 10 | 20 | 10 | 20 |
| RTOR Reduction (vph) | 5 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 75 | 0 | 0 | 0 | 30 | 20 |
| Confl. Peds. (#/hr) | | | 5 | | | |
| Parking (#/hr) | | | | | | |
| Turn Type | | | | Perm | | Perm |
| Protected Phases | 6 | | | | 9 | |
| Permitted Phases | | | | 9 | | 9 |
| Actuated Green, G (s) | 19.9 | | | | 4.3 | 4.3 |
| Effective Green, g (s) | 19.9 | | | | 4.3 | 4.3 |
| Actuated g/C Ratio | 0.23 | | | | 0.05 | 0.05 |
| Clearance Time (s) | 4.0 | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 209 | | | | 89 | 79 |
| v/s Ratio Prot | | | | | | |
| v/s Ratio Perm | 0.08 | | | | 0.02 | 0.01 |
| v/c Ratio | 0.36 | | | | 0.34 | 0.25 |
| Uniform Delay, d1 | 28.4 | | | | 40.2 | 40.1 |
| Progression Factor | 1.00 | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | | | | 2.2 | 1.7 |
| Delay (s) | 29.5 | | | | 42.5 | 41.7 |
| Level of Service | C | | | | D | D |
| Approach Delay (s) | 29.5 | | | | 42.2 | |
| Approach LOS | C | | | | D | |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 190 | 770 | 110 | 260 | 600 | 360 | 160 | 960 | 450 | 380 | 570 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3502 | 3610 | 1596 | 3502 | 3430 | 1437 | 1805 | 3610 | 1594 | 3502 | 3506 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3502 | 3610 | 1596 | 3502 | 3430 | 1437 | 1805 | 3610 | 1594 | 3502 | 3506 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 190 | 770 | 110 | 260 | 600 | 360 | 160 | 960 | 450 | 380 | 570 | 120 |
| RTOR Reduction (vph) | 0 | 0 | 46 | 0 | 0 | 16 | 0 | 0 | 20 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 190 | 770 | 64 | 260 | 600 | 344 | 160 | 960 | 430 | 380 | 674 | 0 |
| Confl. Peds. (#/hr) | 5 | | 5 | 5 | | 5 | 5 | | 5 | 5 | | 5 |
| Parking (#/hr) | | | | | 0 | 0 | | | | | | |
| Turn Type | Prot | | pm+ov | Prot | | pm+ov | Prot | | pm+ov | Prot | | |
| Protected Phases | 7 | 4 | 5 | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 9.5 | 27.8 | 38.9 | 10.0 | 28.3 | 42.5 | 11.1 | 31.9 | 41.9 | 14.2 | 35.0 | |
| Effective Green, g (s) | 9.5 | 27.8 | 38.9 | 10.0 | 28.3 | 42.5 | 11.1 | 31.9 | 41.9 | 14.2 | 35.0 | |
| Actuated g/C Ratio | 0.10 | 0.28 | 0.39 | 0.10 | 0.28 | 0.43 | 0.11 | 0.32 | 0.42 | 0.14 | 0.35 | |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 333 | 1005 | 685 | 351 | 972 | 669 | 201 | 1153 | 732 | 498 | 1228 | |
| v/s Ratio Prot | 0.05 | c0.21 | 0.01 | c0.07 | 0.17 | 0.07 | 0.09 | c0.27 | 0.06 | c0.11 | c0.19 | |
| v/s Ratio Perm | | | 0.03 | | | 0.17 | | | 0.21 | | | |
| v/c Ratio | 0.57 | 0.77 | 0.09 | 0.74 | 0.62 | 0.51 | 0.80 | 0.83 | 0.59 | 0.76 | 0.55 | |
| Uniform Delay, d1 | 43.2 | 33.1 | 19.3 | 43.7 | 31.1 | 21.1 | 43.3 | 31.5 | 22.3 | 41.2 | 26.1 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.4 | 3.5 | 0.1 | 8.2 | 1.2 | 0.7 | 19.2 | 5.3 | 1.2 | 6.8 | 0.5 | |
| Delay (s) | 45.6 | 36.6 | 19.4 | 51.9 | 32.3 | 21.8 | 62.5 | 36.8 | 23.6 | 48.1 | 26.6 | |
| Level of Service | D | D | B | D | C | C | E | D | C | D | C | |
| Approach Delay (s) | | 36.4 | | | 33.3 | | | 35.6 | | | 34.2 | |
| Approach LOS | | D | | | C | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 99.9 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 80.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 680 | 1400 | 40 | 630 | 950 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1800 | 1900 |
| Total Lost time (s) | 5.0 | | | 5.0 | 5.0 | |
| Lane Util. Factor | 0.95 | | | 0.95 | 0.97 | |
| Frpb, ped/bikes | 0.99 | | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.90 | | | 1.00 | 0.99 | |
| Flt Protected | 1.00 | | | 1.00 | 0.95 | |
| Satd. Flow (prot) | 3210 | | | 3599 | 3308 | |
| Flt Permitted | 1.00 | | | 0.61 | 0.95 | |
| Satd. Flow (perm) | 3210 | | | 2213 | 3308 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 680 | 1400 | 40 | 630 | 950 | 40 |
| RTOR Reduction (vph) | 396 | 0 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 1684 | 0 | 0 | 670 | 987 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | | 5 |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 8 | 2 | |
| Permitted Phases | | | 8 | | | |
| Actuated Green, G (s) | 47.1 | | | 47.1 | 30.1 | |
| Effective Green, g (s) | 47.1 | | | 47.1 | 30.1 | |
| Actuated g/C Ratio | 0.54 | | | 0.54 | 0.35 | |
| Clearance Time (s) | 5.0 | | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 1734 | | | 1195 | 1142 | |
| v/s Ratio Prot | c0.52 | | | | c0.30 | |
| v/s Ratio Perm | | | | 0.30 | | |
| v/c Ratio | 1.10dr | | | 0.56 | 0.86 | |
| Uniform Delay, d1 | 19.4 | | | 13.2 | 26.6 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 15.2 | | | 0.6 | 7.0 | |
| Delay (s) | 34.6 | | | 13.8 | 33.6 | |
| Level of Service | C | | | B | C | |
| Approach Delay (s) | 34.6 | | | 13.8 | 33.6 | |
| Approach LOS | C | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 87.2 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 102.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 780 | 0 | 0 | 380 | 380 | 10 | 30 | 10 | 230 | 10 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.93 | | | 0.97 | | | 0.99 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.96 | |
| Satd. Flow (prot) | | 3603 | | | 3339 | | | 1830 | | | 1801 | |
| Flt Permitted | | 0.91 | | | 1.00 | | | 0.91 | | | 0.71 | |
| Satd. Flow (perm) | | 3289 | | | 3339 | | | 1678 | | | 1344 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 30 | 780 | 0 | 0 | 380 | 380 | 10 | 30 | 10 | 230 | 10 | 20 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 204 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 810 | 0 | 0 | 556 | 0 | 0 | 43 | 0 | 0 | 253 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 17.7 | | | 17.7 | | | 10.5 | | | 10.5 | |
| Effective Green, g (s) | | 17.7 | | | 17.7 | | | 10.5 | | | 10.5 | |
| Actuated g/C Ratio | | 0.46 | | | 0.46 | | | 0.27 | | | 0.27 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1524 | | | 1547 | | | 461 | | | 369 | |
| v/s Ratio Prot | | | | | 0.17 | | | | | | | |
| v/s Ratio Perm | | c0.25 | | | | | | 0.03 | | | c0.19 | |
| v/c Ratio | | 0.53 | | | 0.36 | | | 0.09 | | | 0.69 | |
| Uniform Delay, d1 | | 7.3 | | | 6.6 | | | 10.3 | | | 12.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.4 | | | 0.1 | | | 0.1 | | | 5.2 | |
| Delay (s) | | 7.7 | | | 6.7 | | | 10.4 | | | 17.6 | |
| Level of Service | | A | | | A | | | B | | | B | |
| Approach Delay (s) | | 7.7 | | | 6.7 | | | 10.4 | | | 17.6 | |
| Approach LOS | | A | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 38.2 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 72.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 880 | 20 | 10 | 700 | 290 | 10 | 10 | 10 | 110 | 0 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | | | 0.96 | | | 0.95 | | 1.00 | 0.85 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1891 | | | 1825 | | | 1785 | | 1805 | 1615 | |
| Flt Permitted | | 0.96 | | | 0.99 | | | 0.90 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | | 1811 | | | 1809 | | | 1630 | | 1401 | 1615 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 30 | 880 | 20 | 10 | 700 | 290 | 10 | 10 | 10 | 110 | 0 | 20 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 13 | 0 | 0 | 9 | 0 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 0 | 929 | 0 | 0 | 987 | 0 | 0 | 21 | 0 | 110 | 3 | 0 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | | 2 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 40.1 | | | 40.1 | | | 8.1 | | 8.1 | 8.1 | |
| Effective Green, g (s) | | 40.1 | | | 40.1 | | | 8.1 | | 8.1 | 8.1 | |
| Actuated g/C Ratio | | 0.69 | | | 0.69 | | | 0.14 | | 0.14 | 0.14 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 1248 | | | 1246 | | | 227 | | 195 | 225 | |
| v/s Ratio Prot | | | | | | | | | | | 0.00 | |
| v/s Ratio Perm | | 0.51 | | | c0.55 | | | 0.01 | | c0.08 | | |
| v/c Ratio | | 0.74 | | | 0.79 | | | 0.09 | | 0.56 | 0.01 | |
| Uniform Delay, d1 | | 5.8 | | | 6.2 | | | 21.9 | | 23.4 | 21.6 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 2.5 | | | 3.5 | | | 0.2 | | 3.7 | 0.0 | |
| Delay (s) | | 8.2 | | | 9.7 | | | 22.0 | | 27.1 | 21.6 | |
| Level of Service | | A | | | A | | | C | | C | C | |
| Approach Delay (s) | | 8.2 | | | 9.7 | | | 22.0 | | | 26.3 | |
| Approach LOS | | A | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 58.2 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 87.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 130 | 800 | 60 | 100 | 950 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.99 | |
| Flt Protected | 1.00 | 1.00 | | 0.98 | 0.96 | |
| Satd. Flow (prot) | 1900 | 1606 | | 1861 | 1790 | |
| Flt Permitted | 1.00 | 1.00 | | 0.82 | 0.96 | |
| Satd. Flow (perm) | 1900 | 1606 | | 1558 | 1790 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 130 | 800 | 60 | 100 | 950 | 100 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 130 | 800 | 0 | 160 | 1047 | 0 |
| Confl. Peds. (#/hr) | | 5 | 5 | | 5 | 5 |
| Turn Type | | pm+ov | Perm | | | |
| Protected Phases | 4 | 2 | | 8 | 2 | |
| Permitted Phases | | 4 | 8 | | | |
| Actuated Green, G (s) | 12.8 | 62.0 | | 12.8 | 49.2 | |
| Effective Green, g (s) | 12.8 | 62.0 | | 12.8 | 49.2 | |
| Actuated g/C Ratio | 0.18 | 0.86 | | 0.18 | 0.68 | |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 338 | 1606 | | 277 | 1223 | |
| v/s Ratio Prot | 0.07 | c0.34 | | | c0.58 | |
| v/s Ratio Perm | | 0.16 | | 0.10 | | |
| v/c Ratio | 0.38 | 0.50 | | 0.58 | 0.86 | |
| Uniform Delay, d1 | 26.1 | 1.2 | | 27.1 | 8.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | 0.2 | | 2.9 | 6.1 | |
| Delay (s) | 26.9 | 1.5 | | 30.0 | 14.8 | |
| Level of Service | C | A | | C | B | |
| Approach Delay (s) | 5.0 | | | 30.0 | 14.8 | |
| Approach LOS | A | | | C | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 72.0 | Sum of lost time (s) | 5.0 |
| Intersection Capacity Utilization | 88.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix I

## Freeway LOS Worksheets
## for Existing Conditions

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HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_AM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6024 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1619 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1655 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1655 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_AM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8762 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 2258 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2308 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2308 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 41.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_PM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7822 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1995 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2039 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2039 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_PM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6381 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1679 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1716 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1716 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_AM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5687 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1529 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1562 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1562 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_AM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8283 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 2135 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2182 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2182 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_PM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9400 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2398 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2451 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2451 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 47.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_PM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5925 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1559 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1594 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1594 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_AM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6339 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1704 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1742 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1742 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_AM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6336 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1633 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1669 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1669 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_PM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9338 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2382 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2435 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2435 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 46.6 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_PM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6076 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1599 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1634 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1634 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_AM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6205 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1668 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1705 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1705 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_AM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6259 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1613 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1649 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1649 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_PM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6664 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1700 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1737 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1737 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_PM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6495 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1709 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1747 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1747 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_AM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7650 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 2056 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2102 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2102 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_AM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6461 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1665 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1702 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1702 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_PM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9091 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2319 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2370 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2370 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 43.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_PM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6302 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1658 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1695 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1695 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_AM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6923 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1861 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1902 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1902 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_AM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6274 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1617 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1644 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1644 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_PM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9400 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2398 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2451 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2451 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 47.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_PM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6699 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1763 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1802 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1802 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_AM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6823 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1834 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1865 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1865 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_AM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7658 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1974 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2007 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2007 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_PM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9400 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2398 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2451 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2451 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 47.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_PM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6245 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1643 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1680 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1680 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2012_AM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6268 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1685 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1714 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1714 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2012_PM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6471 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1651 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1687 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1687 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_AM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6096 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1639 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1333 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1333 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_AM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5804 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1496 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1217 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1217 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_PM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6864 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1751 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1432 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1432 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 20.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_PM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5698 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1499 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1226 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1226 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 17.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_AM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4234 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1138 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1158 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1158 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_AM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5456 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1406 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1423 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1423 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_PM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4529 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1155 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1181 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1181 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_PM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5111 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1345 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1361 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1361 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_AM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2593 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 697 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 716 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 716 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.2 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_AM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4490 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1157 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 937 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 937 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 13.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_PM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2910 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 742 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 759 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 759 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_PM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4275 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1125 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 911 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 911 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 13.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_AM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3026 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 813 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 835 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 835 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_AM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4220 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1088 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1101 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1101 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_PM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3968 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1012 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1035 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1035 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_PM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3881 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1021 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1034 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1034 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_AM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2596 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 698 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 717 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 717 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.2 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_AM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4172 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1075 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1088 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1088 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_PM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3061 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 781 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 798 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 798 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_PM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3963 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1043 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1055 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1055 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_AM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2813 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 756 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 777 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 777 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_AM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3216 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 829 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 839 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 839 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_PM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3334 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 851 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 869 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 869 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_PM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3068 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 807 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 817 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 817 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_AM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3348 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 900 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 924 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 924 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_AM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2653 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 684 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 692 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 692 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 9.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_PM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3642 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 929 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 950 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 950 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_PM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2567 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 676 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 684 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 684 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 9.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_AM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4398 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1182 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1611 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1611 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_AM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4532 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1168 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1576 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1576 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_PM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4252 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1085 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1478 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1478 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_PM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4725 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1243 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1678 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1678 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_AM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4943 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1329 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1811 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1811 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_AM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3568 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 920 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1241 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1241 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_PM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4706 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1201 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1644 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1644 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_PM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3868 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1018 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1373 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1373 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_AM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4498 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1209 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1648 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1648 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_AM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5631 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1451 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1958 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1958 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_PM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7050 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1798 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2463 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2463 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 47.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_PM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5109 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1344 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1814 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1814 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2012_AM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5248 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1353 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1825 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1825 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2012_PM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1242 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1676 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1676 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_AM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5865 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1577 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.948 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1663 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1663 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_AM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7050 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1817 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1944 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1944 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_PM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8976 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2290 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.948 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2416 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2416 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 45.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_PM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5800 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1526 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1633 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1633 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_AM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4332 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1165 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1184 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1184 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_AM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7461 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1923 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1965 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1965 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_PM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6795 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1733 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1763 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1763 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_PM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6376 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1678 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1715 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1715 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2012_AM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7050 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1817 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2464 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2464 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 47.9 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2012_PM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3093 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 814 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1115 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1115 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_AM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2702 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 726 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1492 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1492 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 21.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_AM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3013 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 777 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1579 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1579 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_PM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3713 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 947 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1927 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1927 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 30.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_PM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3254 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 856 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1759 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1759 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 26.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_AM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2349 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 631 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1297 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1297 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_AM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2638 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 680 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1383 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1383 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_PM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3355 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 856 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1741 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1741 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_PM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2671 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 703 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1444 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1444 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_AM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1812 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 487 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1000 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1000 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_AM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1910 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 492 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1001 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1001 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_PM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2344 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 598 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1216 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1216 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_PM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2045 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 538 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1105 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1105 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-32_2012_AM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Nason St to Moreno Beach Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1619 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 435 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 894 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 894 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-32_2012_PM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Nason St to Moreno Beach Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2038 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 520 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1057 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1057 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_AM_Peak_SR_60_EB_Moreno_Beach_to_Redlands_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1326 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 356 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 732 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 732 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 10.5 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_AM_Peak_SR_60_WB_Redlands_Blvd_to_Moreno_Beach.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands Blvd to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 988 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 255 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 518 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 518 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 7.4 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_PM_Peak_SR_60_EB_Moreno_Beach_to_Redlands_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1397 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 356 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 725 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 725 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 10.4 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_PM_Peak_SR_60_WB_Redlands_Blvd_to_Moreno_Beach.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands Blvd to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1336 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 352 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 722 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 722 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 10.3 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_AM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1614 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 434 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 891 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 891 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_AM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1193 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 307 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 625 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 625 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 8.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_PM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1920 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 490 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 996 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 996 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_PM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1498 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 394 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 810 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 810 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 11.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_AM_Peak_SR_60_EB_Theodore_St_to_Gilman_Spring.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Theodore St to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1521 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 409 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 840 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 840 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_AM_Peak_SR_60_WB_Gilman_Springs_Rd_to_Theodore.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Gilman Springs Rd to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1183 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 305 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 620 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 620 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 8.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_PM_Peak_SR_60_EB_Theodore_St_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Theodore St to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1915 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 489 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 994 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 994 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_PM_Peak_SR_60_WB_Gilman_Springs_Rd_to_Theodore.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Gilman Springs Rd to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1393 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 367 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 753 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 753 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 10.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_AM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1213 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 326 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.830 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 786 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 786 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 11.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_AM_Peak_SR_60_WB_Jack_Rabbit_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 837 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 216 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.881 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 490 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 490 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 7.0 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_PM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1484 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 379 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.881 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 859 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 859 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_PM_Peak_SR_60_WB_Jack_Rabbit_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1002 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 264 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.830 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 635 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 635 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 9.1 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_AM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1215 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 327 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 671 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 671 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 9.6 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_AM_Peak_SR_60_WB_I-10_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Jack Rabbit Trail |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 837 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 216 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 439 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 439 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 6.3 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_PM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1482 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 378 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 769 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 769 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 11.0 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_PM_Peak_SR_60_WB_I-10_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Jack Rabbit Trail |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1002 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 264 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 542 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 542 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 7.7 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_AM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5914 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1524 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1550 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1550 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_AM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6402 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1650 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1686 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1686 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_PM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9400 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 2527 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2570 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2570 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 53.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_PM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5971 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1605 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1632 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1632 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_AM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5382 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1387 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1881 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1881 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_AM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4788 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1234 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1682 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1682 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_PM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5427 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1459 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1978 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1978 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_PM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5183 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1393 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1889 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1889 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_AM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4888 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1260 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1708 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1708 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_AM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4629 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1193 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1626 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1626 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_PM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4922 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1323 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1794 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1794 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_PM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7050 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1895 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2570 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2570 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 53.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2012_AM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4894 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1261 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1719 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1719 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2012_PM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7050 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1895 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2570 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2570 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 53.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_AM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4585 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1182 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1602 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1602 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_AM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4467 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1151 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1569 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1569 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_PM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4939 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1328 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1800 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1800 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_PM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5167 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1389 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1883 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1883 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_AM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5704 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1470 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1495 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1495 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_AM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5769 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1487 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1520 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1520 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_PM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5851 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1573 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1600 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1600 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_PM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6661 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1791 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1821 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1821 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_AM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5841 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1505 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1531 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1531 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_AM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5342 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1377 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1407 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1407 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_PM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4999 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1344 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1367 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1367 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_PM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6401 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1721 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1750 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1750 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_AM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6531 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1683 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1737 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1737 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_AM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4939 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1273 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1301 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1301 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_PM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4742 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1275 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1309 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1309 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_PM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5453 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1466 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1483 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1483 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_AM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5879 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1515 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1564 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1564 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_AM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4218 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1087 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1481 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1481 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_PM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4530 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1218 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1251 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1251 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_PM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4711 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1266 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1709 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1709 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_AM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6021 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1552 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2104 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2104 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 34.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_AM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4737 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1221 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1664 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1664 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_PM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5391 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1449 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1955 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1955 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_PM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4940 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1328 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1792 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1792 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2012_AM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7244 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1867 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1519 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1519 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 22.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2012_PM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6394 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1719 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1392 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1392 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 20.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_AM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3037 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 816 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 830 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 830 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_AM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4288 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1247 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1268 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1268 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_PM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4252 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1131 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1150 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1150 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_PM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3675 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 947 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 963 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 963 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_AM_Peak_I-10_EB_Beaumont_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3087 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 830 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 844 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 844 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_AM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4358 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1267 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1288 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1288 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_PM_Peak_I-10_EB_Beaumont_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4322 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1149 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1169 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1169 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_PM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3736 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 963 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 979 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 979 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_AM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3236 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 870 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 885 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 885 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_AM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4569 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1328 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1351 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1351 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_PM_Peak_I-10_EB_Pennsylvania_to_Highland_Spring.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Spring |
| Jurisdiction: | |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4531 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1205 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1226 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1226 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_PM_Peak_I-10_WB_Highland_Spring_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Spring to Pennsylvania |
| Jurisdiction: | |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3916 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1009 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1026 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1026 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_AM_Peak_I-10_EB_Highland_Springs_to_Sunset.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3112 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 837 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 851 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 851 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_AM_Peak_I-10_WB_Sunset_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4393 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1277 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1299 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1299 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_PM_Peak_I-10_EB_Highland_Springs_to_Sunset.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4357 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1159 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1178 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1178 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_PM_Peak_I-10_WB_Sunset_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3766 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 971 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 987 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 987 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_AM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3037 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 816 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 830 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 830 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_AM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4288 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1247 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1268 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1268 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_PM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4252 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1131 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1150 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1150 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_PM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3675 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 947 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 963 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 963 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_AM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2987 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 803 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 817 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 817 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_AM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4218 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1226 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1247 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1247 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_PM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4182 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1112 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1131 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1131 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_PM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3615 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 932 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 948 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 948 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_AM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2987 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 803 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 817 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 817 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_AM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4218 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1226 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1247 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1247 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_PM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4182 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1112 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1131 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1131 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_PM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3615 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 932 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 948 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 948 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_AM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2689 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 723 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 735 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 735 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.5 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_AM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3796 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1103 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1122 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1122 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_PM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3764 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1001 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1018 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1018 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_PM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3254 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 839 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 853 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 853 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_AM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2564 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 689 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 701 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 701 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.0 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_AM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3620 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1052 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1070 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1070 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_PM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3590 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 955 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 971 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 971 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_PM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3103 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 800 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 813 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 813 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_AM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2265 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 609 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 619 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 619 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_AM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3198 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 930 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 945 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 945 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_PM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3172 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 844 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 858 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 858 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_PM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2741 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 706 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 718 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 718 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.3 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_AM_Peak_I-10_EB_Main_to_Haugen-Lehmann_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2265 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 609 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 619 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 619 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_AM_Peak_I-10_WB_Haugen-Lehmann_Way_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann Way to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3198 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 930 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 945 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 945 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_PM_Peak_I-10_EB_Main_to_Haugen-Lehmann_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3172 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 844 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 858 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 858 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_PM_Peak_I-10_WB_Haugen-Lehmann_Way_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann Way to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2741 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 706 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 718 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 718 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.3 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_AM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1967 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 529 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 538 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 538 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 7.7 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_AM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2777 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 807 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 821 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 821 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_PM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2753 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 732 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 745 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 745 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.6 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_PM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2380 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 613 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 624 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 624 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_AM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1967 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 529 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 538 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 538 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 7.7 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_AM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2777 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 807 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 821 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 821 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_PM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2753 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 732 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 745 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 745 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.6 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_PM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2380 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 613 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 624 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 624 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_AM_Peak_I-215_NB_Scott_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2739 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 744 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1514 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1514 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 22.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_AM_Peak_I-215_SB_Newport_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2294 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 591 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1203 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1203 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_PM_Peak_I-215_NB_Scott_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3285 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 847 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1722 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1722 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_PM_Peak_I-215_SB_Newport_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2318 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 591 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1203 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1203 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_AM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1900 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 516 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1050 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1050 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_AM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2528 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 652 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1325 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1325 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_PM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2047 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 528 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1073 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1073 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_PM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3111 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 794 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1614 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1614 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_AM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2457 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 668 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1358 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1358 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_AM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3069 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 791 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1609 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1609 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_PM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3293 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 849 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1726 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1726 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_PM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2539 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 648 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1317 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1317 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_AM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3787 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1029 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2093 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2093 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 34.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_AM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2882 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 743 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1511 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1511 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_PM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3150 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 812 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1651 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1651 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_PM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3854 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 983 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2000 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2000 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_AM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3350 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 910 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1852 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1852 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_AM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4539 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1170 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2379 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2379 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 44.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_PM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4181 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1078 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2192 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2192 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 37.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_PM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3710 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 946 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1925 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1925 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 30.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_AM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5587 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1518 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2059 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2059 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 33.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_AM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5191 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1338 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1814 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1814 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_PM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5150 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1327 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1800 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1800 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_PM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4917 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1254 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1701 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1701 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_AM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5474 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1487 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2017 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2017 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_AM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5541 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1428 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1936 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1936 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_PM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5034 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1297 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1759 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1759 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_PM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5235 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1335 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1811 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1811 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_AM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5341 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1451 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1968 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1968 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_AM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5414 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1395 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1892 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1892 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_PM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5164 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1331 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1805 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1805 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_PM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5196 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1326 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1797 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1797 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_AM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5738 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1559 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2114 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2114 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_AM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5435 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1401 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1899 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1899 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_PM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5533 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1426 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1934 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1934 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_PM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5256 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1341 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1818 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1818 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_AM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5582 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1517 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1543 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1543 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_AM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5776 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1489 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1514 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1514 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_PM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5420 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1397 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1421 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1421 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_PM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5606 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1430 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1454 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1454 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_AM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4319 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1174 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1194 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1194 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_AM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4022 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1037 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1054 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1054 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_PM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4533 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1168 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1188 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1188 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_PM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4090 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1043 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1061 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1061 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_AM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3023 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 821 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1671 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1671 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_AM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4537 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1169 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2378 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2378 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 44.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_PM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3355 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 865 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1759 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1759 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 26.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_PM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4700 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1199 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2439 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2439 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 46.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_AM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4568 | 948 | 300 | 167 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1228 | 249 | 79 | 44 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5020 | 1010 | 320 | 178 | pc/h |

Volume ratio, VR 0.204

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1330 | lc/h |
| Weaving lane changes, LCW | 1965 | lc/h |
| Non-weaving vehicle index, INW | 884 | |
| Non-weaving lane change, LCNW | 1029 | lc/h |
| Total lane changes, LCALL | 2994 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.353 | |
| Average weaving speed, SW | 55.6 | mi/h |
| Average non-weaving speed, SNW | 54.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.5 | mi/h |
| Weaving segment density, D | 24.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.599 | |
| Weaving segment flow rate, v | 6528 | pc/h |
| Weaving segment capacity, cW | 10665 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4574 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2180 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.599 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_AM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4643 | 375 | 1039 | 66 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1197 | 99 | 273 | 17 | |
| Trucks and buses | 4 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4892 | 403 | 1118 | 70 | pc/h |

Volume ratio, VR 0.235

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 403 | lc/h |
| Weaving lane changes, LCW | 1113 | lc/h |
| Non-weaving vehicle index, INW | 1017 | |
| Non-weaving lane change, LCNW | 1170 | lc/h |
| Total lane changes, LCALL | 2283 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.246 | |
| Average weaving speed, SW | 59.1 | mi/h |
| Average non-weaving speed, SNW | 60.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.5 | mi/h |
| Weaving segment density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.563 | |
| Weaving segment flow rate, v | 6483 | pc/h |
| Weaving segment capacity, cW | 11262 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3327 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2302 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.563 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_PM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6963 | 1106 | 350 | 195 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1776 | 291 | 92 | 51 | |
| Trucks and buses | 4 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7261 | 1190 | 377 | 208 | pc/h |

Volume ratio, VR 0.173

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1567 | lc/h |
| Weaving lane changes, LCW | 2202 | lc/h |
| Non-weaving vehicle index, INW | 1270 | |
| Non-weaving lane change, LCNW | 1497 | lc/h |
| Total lane changes, LCALL | 3699 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.417 | |
| Average weaving speed, SW | 53.8 | mi/h |
| Average non-weaving speed, SNW | 50.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.7 | mi/h |
| Weaving segment density, D | 35.7 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.820 | |
| Weaving segment flow rate, v | 9036 | pc/h |
| Weaving segment capacity, cW | 10783 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4266 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2204 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.820 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_PM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4589 | 354 | 885 | 62 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1208 | 93 | 233 | 16 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4937 | 377 | 943 | 66 | pc/h |

Volume ratio, VR 0.209

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 377 | lc/h |
| Weaving lane changes, LCW | 1087 | lc/h |
| Non-weaving vehicle index, INW | 1026 | |
| Non-weaving lane change, LCNW | 1179 | lc/h |
| Total lane changes, LCALL | 2266 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.245 | |
| Average weaving speed, SW | 59.2 | mi/h |
| Average non-weaving speed, SNW | 61.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.8 | mi/h |
| Weaving segment density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.544 | |
| Weaving segment flow rate, v | 6323 | pc/h |
| Weaving segment capacity, cW | 11365 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3060 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2323 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.544 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2012_AM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5276 | 500 | 484 | 26 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1360 | 132 | 127 | 7 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5532 | 533 | 516 | 28 | pc/h |

Volume ratio, VR 0.159

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1049 | lc/h |
| Weaving lane changes, LCW | 1799 | lc/h |
| Non-weaving vehicle index, INW | 1251 | |
| Non-weaving lane change, LCNW | 1402 | lc/h |
| Total lane changes, LCALL | 3201 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.298 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 56.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.3 | mi/h |
| Weaving segment density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.586 | |
| Weaving segment flow rate, v | 6609 | pc/h |
| Weaving segment capacity, cW | 11096 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4119 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2257 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.586 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2012_PM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4889 | 743 | 398 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1287 | 196 | 105 | 10 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5260 | 791 | 424 | 42 | pc/h |

Volume ratio, VR 0.186

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1215 | lc/h |
| Weaving lane changes, LCW | 1965 | lc/h |
| Non-weaving vehicle index, INW | 1193 | |
| Non-weaving lane change, LCNW | 1349 | lc/h |
| Total lane changes, LCALL | 3314 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.307 | |
| Average weaving speed, SW | 57.1 | mi/h |
| Average non-weaving speed, SNW | 55.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.4 | mi/h |
| Weaving segment density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.583 | |
| Weaving segment flow rate, v | 6517 | pc/h |
| Weaving segment capacity, cW | 10939 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4398 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2236 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.583 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2012_AM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4380 | 365 | 607 | 64 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1177 | 96 | 160 | 17 | |
| Trucks and buses | 4 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4813 | 393 | 653 | 68 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.176 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 653 | lc/h |
| Weaving lane changes, LCW | 870 | lc/h |
| Non-weaving vehicle index, INW | 342 | |
| Non-weaving lane change, LCNW | 614 | lc/h |
| Total lane changes, LCALL | 1484 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.409 | |
| Average weaving speed, SW | 54.0 | mi/h |
| Average non-weaving speed, SNW | 58.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.4 | mi/h |
| Weaving segment density, D | 25.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.697 | |
| Weaving segment flow rate, v | 5927 | pc/h |
| Weaving segment capacity, cW | 8317 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4297 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2125 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.697 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2012_PM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5996 | 269 | 736 | 47 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1530 | 71 | 194 | 12 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6253 | 287 | 784 | 50 | pc/h |

Volume ratio, VR 0.145

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 784 | lc/h |
| Weaving lane changes, LCW | 1001 | lc/h |
| Non-weaving vehicle index, INW | 441 | |
| Non-weaving lane change, LCNW | 907 | lc/h |
| Total lane changes, LCALL | 1908 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.499 | |
| Average weaving speed, SW | 51.7 | mi/h |
| Average non-weaving speed, SNW | 55.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.9 | mi/h |
| Weaving segment density, D | 33.6 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.858 | |
| Weaving segment flow rate, v | 7374 | pc/h |
| Weaving segment capacity, cW | 8411 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3984 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2149 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.858 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_AM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2363 | 1137 | 183 | 200 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 635 | 299 | 48 | 53 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2597 | 1211 | 195 | 213 | pc/h |

Volume ratio, VR 0.333

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1211 | lc/h |
| Weaving lane changes, LCW | 1734 | lc/h |
| Non-weaving vehicle index, INW | 351 | |
| Non-weaving lane change, LCNW | 293 | lc/h |
| Total lane changes, LCALL | 2027 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.331 | |
| Average weaving speed, SW | 56.3 | mi/h |
| Average non-weaving speed, SNW | 57.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.9 | mi/h |
| Weaving segment density, D | 14.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.402 | |
| Weaving segment flow rate, v | 4216 | pc/h |
| Weaving segment capacity, cW | 10269 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4380 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2161 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.402 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_AM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6153 | 593 | 877 | 104 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1586 | 156 | 231 | 27 | |
| Trucks and buses | 4 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6483 | 638 | 943 | 111 | pc/h |

Volume ratio, VR 0.193

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 638 | lc/h |
| Weaving lane changes, LCW | 1133 | lc/h |
| Non-weaving vehicle index, INW | 758 | |
| Non-weaving lane change, LCNW | 1019 | lc/h |
| Total lane changes, LCALL | 2152 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.371 | |
| Average weaving speed, SW | 55.1 | mi/h |
| Average non-weaving speed, SNW | 57.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.1 | mi/h |
| Weaving segment density, D | 28.6 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.722 | |
| Weaving segment flow rate, v | 8175 | pc/h |
| Weaving segment capacity, cW | 11086 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2903 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2266 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.722 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_PM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7625 | 1326 | 213 | 234 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1945 | 349 | 56 | 62 | |
| Trucks and buses | 4 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7952 | 1426 | 229 | 249 | pc/h |

Volume ratio, VR 0.168

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1426 | lc/h |
| Weaving lane changes, LCW | 1949 | lc/h |
| Non-weaving vehicle index, INW | 1025 | |
| Non-weaving lane change, LCNW | 1404 | lc/h |
| Total lane changes, LCALL | 3353 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.492 | |
| Average weaving speed, SW | 51.9 | mi/h |
| Average non-weaving speed, SNW | 50.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.5 | mi/h |
| Weaving segment density, D | 39.0 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.860 | |
| Weaving segment flow rate, v | 9856 | pc/h |
| Weaving segment capacity, cW | 11218 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2645 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2293 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.860 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_PM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5676 | 691 | 719 | 122 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1494 | 182 | 189 | 32 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6106 | 736 | 766 | 130 | pc/h |

Volume ratio, VR 0.194

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 736 | lc/h |
| Weaving lane changes, LCW | 1231 | lc/h |
| Non-weaving vehicle index, INW | 717 | |
| Non-weaving lane change, LCNW | 945 | lc/h |
| Total lane changes, LCALL | 2176 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.374 | |
| Average weaving speed, SW | 55.0 | mi/h |
| Average non-weaving speed, SNW | 57.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.8 | mi/h |
| Weaving segment density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.683 | |
| Weaving segment flow rate, v | 7738 | pc/h |
| Weaving segment capacity, cW | 11081 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2910 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2265 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.683 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_AM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3299 | 313 | 289 | 16 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 887 | 82 | 76 | 4 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3796 | 343 | 316 | 18 | pc/h |

Volume ratio, VR 0.147

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 659 | lc/h |
| Weaving lane changes, LCW | 1051 | lc/h |
| Non-weaving vehicle index, INW | 610 | |
| Non-weaving lane change, LCNW | 882 | lc/h |
| Total lane changes, LCALL | 1933 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.262 | |
| Average weaving speed, SW | 58.6 | mi/h |
| Average non-weaving speed, SNW | 59.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.7 | mi/h |
| Weaving segment density, D | 18.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.505 | |
| Weaving segment flow rate, v | 4473 | pc/h |
| Weaving segment capacity, cW | 8284 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4005 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2216 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.505 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_AM_Peak_SR_60_WB_University_Ave_to_W_Blaine.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5103 | 106 | 498 | 5 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1315 | 28 | 131 | 1 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5629 | 116 | 545 | 5 | pc/h |

Volume ratio, VR 0.105

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 116 | lc/h |
| Weaving lane changes, LCW | 679 | lc/h |
| Non-weaving vehicle index, INW | 789 | |
| Non-weaving lane change, LCNW | 956 | lc/h |
| Total lane changes, LCALL | 1635 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.255 | |
| Average weaving speed, SW | 58.8 | mi/h |
| Average non-weaving speed, SNW | 63.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.6 | mi/h |
| Weaving segment density, D | 20.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.535 | |
| Weaving segment flow rate, v | 6295 | pc/h |
| Weaving segment capacity, cW | 10991 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2022 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2352 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.535 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_PM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5746 | 946 | 307 | 49 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1466 | 249 | 81 | 13 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6274 | 1036 | 336 | 54 | pc/h |

Volume ratio, VR 0.178

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1372 | lc/h |
| Weaving lane changes, LCW | 1764 | lc/h |
| Non-weaving vehicle index, INW | 1012 | |
| Non-weaving lane change, LCNW | 1400 | lc/h |
| Total lane changes, LCALL | 3164 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.387 | |
| Average weaving speed, SW | 54.7 | mi/h |
| Average non-weaving speed, SNW | 50.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.5 | mi/h |
| Weaving segment density, D | 37.4 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.878 | |
| Weaving segment flow rate, v | 7700 | pc/h |
| Weaving segment capacity, cW | 8194 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4314 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2192 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.878 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_PM_Peak_SR_60_WB_University_Ave_to_W_Blaine.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5460 | 311 | 415 | 16 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1437 | 82 | 109 | 4 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6150 | 340 | 454 | 18 | pc/h |

Volume ratio, VR 0.114

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 340 | lc/h |
| Weaving lane changes, LCW | 903 | lc/h |
| Non-weaving vehicle index, INW | 864 | |
| Non-weaving lane change, LCNW | 1066 | lc/h |
| Total lane changes, LCALL | 1969 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.296 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 60.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.5 | mi/h |
| Weaving segment density, D | 23.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.594 | |
| Weaving segment flow rate, v | 6962 | pc/h |
| Weaving segment capacity, cW | 10963 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2110 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2346 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.594 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_AM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3874 | 234 | 405 | 12 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1041 | 62 | 107 | 3 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4257 | 249 | 431 | 13 | pc/h |

Volume ratio, VR 0.137

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 431 | lc/h |
| Weaving lane changes, LCW | 738 | lc/h |
| Non-weaving vehicle index, INW | 470 | |
| Non-weaving lane change, LCNW | 705 | lc/h |
| Total lane changes, LCALL | 1443 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.280 | |
| Average weaving speed, SW | 58.0 | mi/h |
| Average non-weaving speed, SNW | 61.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.5 | mi/h |
| Weaving segment density, D | 20.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.566 | |
| Weaving segment flow rate, v | 4950 | pc/h |
| Weaving segment capacity, cW | 8552 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3906 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2186 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.566 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_AM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4237 | 741 | 584 | 39 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1092 | 195 | 154 | 10 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4464 | 789 | 622 | 42 | pc/h |

Volume ratio, VR 0.238

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1411 | lc/h |
| Weaving lane changes, LCW | 1718 | lc/h |
| Non-weaving vehicle index, INW | 496 | |
| Non-weaving lane change, LCNW | 754 | lc/h |
| Total lane changes, LCALL | 2472 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.428 | |
| Average weaving speed, SW | 53.5 | mi/h |
| Average non-weaving speed, SNW | 52.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.9 | mi/h |
| Weaving segment density, D | 28.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.702 | |
| Weaving segment flow rate, v | 5917 | pc/h |
| Weaving segment capacity, cW | 8247 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4933 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2107 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.702 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_PM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4802 | 874 | 207 | 46 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1225 | 230 | 54 | 12 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5008 | 931 | 221 | 49 | pc/h |

Volume ratio, VR 0.186

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 221 | lc/h |
| Weaving lane changes, LCW | 528 | lc/h |
| Non-weaving vehicle index, INW | 556 | |
| Non-weaving lane change, LCNW | 868 | lc/h |
| Total lane changes, LCALL | 1396 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.273 | |
| Average weaving speed, SW | 58.2 | mi/h |
| Average non-weaving speed, SNW | 61.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.4 | mi/h |
| Weaving segment density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.723 | |
| Weaving segment flow rate, v | 6209 | pc/h |
| Weaving segment capacity, cW | 8407 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4389 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2148 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.723 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_PM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5101 | 241 | 521 | 12 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1342 | 63 | 137 | 3 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5488 | 257 | 555 | 13 | pc/h |

Volume ratio, VR 0.129

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 812 | lc/h |
| Weaving lane changes, LCW | 1119 | lc/h |
| Non-weaving vehicle index, INW | 605 | |
| Non-weaving lane change, LCNW | 959 | lc/h |
| Total lane changes, LCALL | 2078 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.373 | |
| Average weaving speed, SW | 55.0 | mi/h |
| Average non-weaving speed, SNW | 56.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.4 | mi/h |
| Weaving segment density, D | 28.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.720 | |
| Weaving segment flow rate, v | 6313 | pc/h |
| Weaving segment capacity, cW | 8579 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3820 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2192 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.720 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_AM_Peak_SR_60_EB_Central_Ave_to_Box_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3109 | 336 | 392 | 17 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 836 | 88 | 103 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.948 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3527 | 368 | 429 | 19 | pc/h |

Volume ratio, VR 0.184

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 797 | lc/h |
| Weaving lane changes, LCW | 1556 | lc/h |
| Non-weaving vehicle index, INW | 816 | |
| Non-weaving lane change, LCNW | 1014 | lc/h |
| Total lane changes, LCALL | 2570 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.247 | |
| Average weaving speed, SW | 59.1 | mi/h |
| Average non-weaving speed, SNW | 60.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.9 | mi/h |
| Weaving segment density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.387 | |
| Weaving segment flow rate, v | 4343 | pc/h |
| Weaving segment capacity, cW | 10626 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4368 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2241 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.387 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_AM_Peak_SR_60_WB_Box_Springs_Rd_to_Central.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5514 | 1151 | 323 | 60 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1421 | 303 | 85 | 16 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6082 | 1260 | 354 | 66 | pc/h |

Volume ratio, VR 0.208

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1260 | lc/h |
| Weaving lane changes, LCW | 1695 | lc/h |
| Non-weaving vehicle index, INW | 1168 | |
| Non-weaving lane change, LCNW | 1526 | lc/h |
| Total lane changes, LCALL | 3221 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.343 | |
| Average weaving speed, SW | 56.0 | mi/h |
| Average non-weaving speed, SNW | 51.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.5 | mi/h |
| Weaving segment density, D | 37.0 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.839 | |
| Weaving segment flow rate, v | 7762 | pc/h |
| Weaving segment capacity, cW | 8643 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3051 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2312 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.839 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_PM_Peak_SR_60_EB_Central_Ave_to_Box_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6525 | 860 | 408 | 45 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1665 | 226 | 107 | 12 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.948 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7024 | 941 | 447 | 49 | pc/h |

Volume ratio, VR 0.164

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1388 | lc/h |
| Weaving lane changes, LCW | 2147 | lc/h |
| Non-weaving vehicle index, INW | 1627 | |
| Non-weaving lane change, LCNW | 2508 | lc/h |
| Total lane changes, LCALL | 4655 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.394 | |
| Average weaving speed, SW | 54.4 | mi/h |
| Average non-weaving speed, SNW | 51.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.3 | mi/h |
| Weaving segment density, D | 32.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.750 | |
| Weaving segment flow rate, v | 8461 | pc/h |
| Weaving segment capacity, cW | 10697 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4172 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2257 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.750 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_PM_Peak_SR_60_WB_Box_Springs_Rd_to_Central.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5043 | 544 | 410 | 28 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1327 | 143 | 108 | 7 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5680 | 596 | 449 | 31 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.155 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 596 | lc/h |
| Weaving lane changes, LCW | 1031 | lc/h |
| Non-weaving vehicle index, INW | 1085 | |
| Non-weaving lane change, LCNW | 1436 | lc/h |
| Total lane changes, LCALL | 2467 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.278 | |
| Average weaving speed, SW | 58.0 | mi/h |
| Average non-weaving speed, SNW | 57.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.7 | mi/h |
| Weaving segment density, D | 29.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.718 | |
| Weaving segment flow rate, v | 6756 | pc/h |
| Weaving segment capacity, cW | 8796 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2512 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2353 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.718 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2012_AM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2314 | 103 | 551 | 18 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 622 | 27 | 145 | 5 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2700 | 113 | 603 | 20 | pc/h |

Volume ratio, VR 0.208

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 113 | lc/h |
| Weaving lane changes, LCW | 622 | lc/h |
| Non-weaving vehicle index, INW | 326 | |
| Non-weaving lane change, LCNW | 248 | lc/h |
| Total lane changes, LCALL | 870 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.175 | |
| Average weaving speed, SW | 61.8 | mi/h |
| Average non-weaving speed, SNW | 65.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 65.0 | mi/h |
| Weaving segment density, D | 10.6 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.304 | |
| Weaving segment flow rate, v | 3436 | pc/h |
| Weaving segment capacity, cW | 10406 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3056 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2258 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.304 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2012_PM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3898 | 140 | 640 | 24 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 994 | 37 | 168 | 6 | |
| Trucks and buses | 3 | 60 | 60 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.948 | 0.524 | 0.524 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4196 | 281 | 1287 | 26 | pc/h |
| Volume ratio, VR | | 0.271 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 281 | lc/h |
| Weaving lane changes, LCW | 790 | lc/h |
| Non-weaving vehicle index, INW | 507 | |
| Non-weaving lane change, LCNW | 557 | lc/h |
| Total lane changes, LCALL | 1347 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.248 | |
| Average weaving speed, SW | 59.1 | mi/h |
| Average non-weaving speed, SNW | 62.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.5 | mi/h |
| Weaving segment density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.524 | |
| Weaving segment flow rate, v | 5790 | pc/h |
| Weaving segment capacity, cW | 10464 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3707 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2208 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.524 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_AM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1720 | 194 | 1069 | 10 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 462 | 51 | 281 | 3 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1899 | 207 | 1139 | 11 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.413 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 207 | lc/h |
| Weaving lane changes, LCW | 551 | lc/h |
| Non-weaving vehicle index, INW | 248 | |
| Non-weaving lane change, LCNW | 328 | lc/h |
| Total lane changes, LCALL | 879 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.166 | |
| Average weaving speed, SW | 62.2 | mi/h |
| Average non-weaving speed, SNW | 64.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.6 | mi/h |
| Weaving segment density, D | 12.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.388 | |
| Weaving segment flow rate, v | 3256 | pc/h |
| Weaving segment capacity, cW | 8167 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5266 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2097 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.388 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_AM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3287 | 747 | 625 | 39 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 847 | 197 | 164 | 10 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3446 | 796 | 666 | 42 | pc/h |

Volume ratio, VR 0.295

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1462 | lc/h |
| Weaving lane changes, LCW | 1742 | lc/h |
| Non-weaving vehicle index, INW | 837 | |
| Non-weaving lane change, LCNW | 1442 | lc/h |
| Total lane changes, LCALL | 3184 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.282 | |
| Average weaving speed, SW | 57.9 | mi/h |
| Average non-weaving speed, SNW | 51.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.3 | mi/h |
| Weaving segment density, D | 31.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.764 | |
| Weaving segment flow rate, v | 4950 | pc/h |
| Weaving segment capacity, cW | 6372 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5534 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2161 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.764 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_PM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3033 | 456 | 1236 | 24 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 774 | 120 | 325 | 6 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3148 | 486 | 1317 | 26 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.362 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 486 | lc/h |
| Weaving lane changes, LCW | 830 | lc/h |
| Non-weaving vehicle index, INW | 413 | |
| Non-weaving lane change, LCNW | 588 | lc/h |
| Total lane changes, LCALL | 1418 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.242 | |
| Average weaving speed, SW | 59.3 | mi/h |
| Average non-weaving speed, SNW | 60.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.1 | mi/h |
| Weaving segment density, D | 20.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.581 | |
| Weaving segment flow rate, v | 4977 | pc/h |
| Weaving segment capacity, cW | 8417 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4695 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2140 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.581 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_PM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3050 | 576 | 539 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 803 | 152 | 142 | 8 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3297 | 614 | 574 | 32 | pc/h |

Volume ratio, VR 0.263

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1188 | lc/h |
| Weaving lane changes, LCW | 1468 | lc/h |
| Non-weaving vehicle index, INW | 799 | |
| Non-weaving lane change, LCNW | 1409 | lc/h |
| Total lane changes, LCALL | 2877 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.261 | |
| Average weaving speed, SW | 58.6 | mi/h |
| Average non-weaving speed, SNW | 54.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.3 | mi/h |
| Weaving segment density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.688 | |
| Weaving segment flow rate, v | 4517 | pc/h |
| Weaving segment capacity, cW | 6389 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5190 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2187 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.688 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2012_AM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 863 | 679 | 30 | 35 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 222 | 179 | 8 | 9 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 905 | 723 | 32 | 37 | pc/h |

Volume ratio, VR 0.445

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 755 | lc/h |
| Weaving lane changes, LCW | 984 | lc/h |
| Non-weaving vehicle index, INW | 160 | |
| Non-weaving lane change, LCNW | 538 | lc/h |
| Total lane changes, LCALL | 1522 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.207 | |
| Average weaving speed, SW | 60.6 | mi/h |
| Average non-weaving speed, SNW | 61.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.3 | mi/h |
| Weaving segment density, D | 9.2 | pc/mi/ln |
| Level of service, LOS | A | |
| Weaving segment v/c ratio | 0.315 | |
| Weaving segment flow rate, v | 1697 | pc/h |
| Weaving segment capacity, cW | 5304 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 7190 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1980 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.315 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2012_PM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1088 | 536 | 98 | 28 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 286 | 141 | 26 | 7 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1176 | 571 | 104 | 30 | pc/h |

Volume ratio, VR 0.359

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 675 | lc/h |
| Weaving lane changes, LCW | 904 | lc/h |
| Non-weaving vehicle index, INW | 205 | |
| Non-weaving lane change, LCNW | 592 | lc/h |
| Total lane changes, LCALL | 1496 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.204 | |
| Average weaving speed, SW | 60.7 | mi/h |
| Average non-weaving speed, SNW | 62.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.6 | mi/h |
| Weaving segment density, D | 10.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.305 | |
| Weaving segment flow rate, v | 1881 | pc/h |
| Weaving segment capacity, cW | 6000 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6224 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2054 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.305 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2012_AM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4020 | 645 | 746 | 33 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1036 | 170 | 196 | 9 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4215 | 687 | 795 | 35 | pc/h |

Volume ratio, VR 0.259

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 687 | lc/h |
| Weaving lane changes, LCW | 1094 | lc/h |
| Non-weaving vehicle index, INW | 723 | |
| Non-weaving lane change, LCNW | 1027 | lc/h |
| Total lane changes, LCALL | 2121 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.269 | |
| Average weaving speed, SW | 58.3 | mi/h |
| Average non-weaving speed, SNW | 58.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.2 | mi/h |
| Weaving segment density, D | 24.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.635 | |
| Weaving segment flow rate, v | 5732 | pc/h |
| Weaving segment capacity, cW | 8873 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3578 | 1700 | a,b |
| Density-based capacty, cIWL (pc/h/ln) | | Maximum 2400 | Analyzed 2256 | c |
| v/c ratio | | Maximum 1.00 | Analyzed 0.635 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2012_PM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3888 | 885 | 863 | 46 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1045 | 233 | 227 | 12 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4252 | 943 | 919 | 49 | pc/h |

Volume ratio, VR 0.302

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 943 | lc/h |
| Weaving lane changes, LCW | 1350 | lc/h |
| Non-weaving vehicle index, INW | 731 | |
| Non-weaving lane change, LCNW | 1037 | lc/h |
| Total lane changes, LCALL | 2387 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.295 | |
| Average weaving speed, SW | 57.5 | mi/h |
| Average non-weaving speed, SNW | 55.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.3 | mi/h |
| Weaving segment density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.694 | |
| Weaving segment flow rate, v | 6163 | pc/h |
| Weaving segment capacity, cW | 8735 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4041 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2221 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.694 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_AM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6021 | 428 | 577 | 22 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1552 | 113 | 152 | 6 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6406 | 456 | 615 | 23 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.143 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1071 | lc/h |
| Weaving lane changes, LCW | 1333 | lc/h |
| Non-weaving vehicle index, INW | 566 | |
| Non-weaving lane change, LCNW | 1031 | lc/h |
| Total lane changes, LCALL | 2364 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.493 | |
| Average weaving speed, SW | 51.8 | mi/h |
| Average non-weaving speed, SNW | 53.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.1 | mi/h |
| Weaving segment density, D | 35.3 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.866 | |
| Weaving segment flow rate, v | 7500 | pc/h |
| Weaving segment capacity, cW | 8388 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3960 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2164 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.866 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_AM_Peak_SR_91_WB_Central_Ave_to_Arlington.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3892 | 280 | 454 | 14 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1003 | 74 | 119 | 4 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4101 | 298 | 484 | 15 | pc/h |

Volume ratio, VR 0.160

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 782 | lc/h |
| Weaving lane changes, LCW | 1082 | lc/h |
| Non-weaving vehicle index, INW | 436 | |
| Non-weaving lane change, LCNW | 652 | lc/h |
| Total lane changes, LCALL | 1734 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.333 | |
| Average weaving speed, SW | 56.3 | mi/h |
| Average non-weaving speed, SNW | 58.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.1 | mi/h |
| Weaving segment density, D | 21.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.566 | |
| Weaving segment flow rate, v | 4898 | pc/h |
| Weaving segment capacity, cW | 8474 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4128 | 1060 | a,b |
| Density-based capacty, cIWL (pc/h/ln) | | Maximum 2400 | Analyzed 2165 | c |
| v/c ratio | | Maximum 1.00 | Analyzed 0.566 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_PM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3104 | 268 | 685 | 14 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 834 | 71 | 180 | 4 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3428 | 285 | 730 | 15 | pc/h |

Volume ratio, VR 0.228

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1015 | lc/h |
| Weaving lane changes, LCW | 1277 | lc/h |
| Non-weaving vehicle index, INW | 303 | |
| Non-weaving lane change, LCNW | 416 | lc/h |
| Total lane changes, LCALL | 1693 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.379 | |
| Average weaving speed, SW | 54.9 | mi/h |
| Average non-weaving speed, SNW | 57.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.8 | mi/h |
| Weaving segment density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.531 | |
| Weaving segment flow rate, v | 4458 | pc/h |
| Weaving segment capacity, cW | 8171 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4821 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2098 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.531 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_PM_Peak_SR_91_WB_Central_Ave_to_Arlington.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4485 | 230 | 389 | 12 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1206 | 61 | 102 | 3 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4880 | 245 | 414 | 13 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.119 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 659 | lc/h |
| Weaving lane changes, LCW | 959 | lc/h |
| Non-weaving vehicle index, INW | 519 | |
| Non-weaving lane change, LCNW | 812 | lc/h |
| Total lane changes, LCALL | 1771 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.339 | |
| Average weaving speed, SW | 56.1 | mi/h |
| Average non-weaving speed, SNW | 58.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.3 | mi/h |
| Weaving segment density, D | 23.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.632 | |
| Weaving segment flow rate, v | 5552 | pc/h |
| Weaving segment capacity, cW | 8680 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3722 | 1060 | a,b |
| Density-based capacty, cIWL (pc/h/ln) | | Maximum 2400 | Analyzed 2196 | c |
| v/c ratio | | Maximum 1.00 | Analyzed 0.632 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_AM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3700 | 283 | 645 | 14 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 954 | 74 | 170 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3879 | 301 | 687 | 15 | pc/h |

Volume ratio, VR 0.202

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 988 | lc/h |
| Weaving lane changes, LCW | 1170 | lc/h |
| Non-weaving vehicle index, INW | 226 | |
| Non-weaving lane change, LCNW | 346 | lc/h |
| Total lane changes, LCALL | 1516 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.482 | |
| Average weaving speed, SW | 52.1 | mi/h |
| Average non-weaving speed, SNW | 57.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.0 | mi/h |
| Weaving segment density, D | 21.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.583 | |
| Weaving segment flow rate, v | 4882 | pc/h |
| Weaving segment capacity, cW | 8240 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4561 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2096 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.583 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_AM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4397 | 152 | 622 | 8 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1133 | 40 | 164 | 2 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4633 | 162 | 663 | 9 | pc/h |

Volume ratio, VR 0.151

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 825 | lc/h |
| Weaving lane changes, LCW | 1013 | lc/h |
| Non-weaving vehicle index, INW | 279 | |
| Non-weaving lane change, LCNW | 511 | lc/h |
| Total lane changes, LCALL | 1524 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.472 | |
| Average weaving speed, SW | 52.4 | mi/h |
| Average non-weaving speed, SNW | 57.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.7 | mi/h |
| Weaving segment density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.640 | |
| Weaving segment flow rate, v | 5467 | pc/h |
| Weaving segment capacity, cW | 8364 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4040 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2137 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.640 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_PM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3338 | 332 | 752 | 17 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 897 | 87 | 198 | 4 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3632 | 354 | 801 | 18 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.240 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1155 | lc/h |
| Weaving lane changes, LCW | 1337 | lc/h |
| Non-weaving vehicle index, INW | 212 | |
| Non-weaving lane change, LCNW | 296 | lc/h |
| Total lane changes, LCALL | 1633 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.511 | |
| Average weaving speed, SW | 51.4 | mi/h |
| Average non-weaving speed, SNW | 55.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.8 | mi/h |
| Weaving segment density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.582 | |
| Weaving segment flow rate, v | 4805 | pc/h |
| Weaving segment capacity, cW | 8162 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4953 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2066 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.582 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_PM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6202 | 307 | 523 | 16 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1667 | 81 | 138 | 4 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6749 | 327 | 557 | 17 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.116 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 884 | lc/h |
| Weaving lane changes, LCW | 1072 | lc/h |
| Non-weaving vehicle index, INW | 406 | |
| Non-weaving lane change, LCNW | 949 | lc/h |
| Total lane changes, LCALL | 2021 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.589 | |
| Average weaving speed, SW | 49.6 | mi/h |
| Average non-weaving speed, SNW | 54.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.8 | mi/h |
| Weaving segment density, D | 35.5 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.884 | |
| Weaving segment flow rate, v | 7650 | pc/h |
| Weaving segment capacity, cW | 8553 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3691 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2163 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.884 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2012_AM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2904 | 834 | 342 | 147 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 748 | 219 | 90 | 39 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3060 | 888 | 364 | 157 | pc/h |

Volume ratio, VR 0.280

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 364 | lc/h |
| Weaving lane changes, LCW | 720 | lc/h |
| Non-weaving vehicle index, INW | 238 | |
| Non-weaving lane change, LCNW | 101 | lc/h |
| Total lane changes, LCALL | 821 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.245 | |
| Average weaving speed, SW | 59.2 | mi/h |
| Average non-weaving speed, SNW | 63.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.9 | mi/h |
| Weaving segment density, D | 14.4 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.413 | |
| Weaving segment flow rate, v | 4469 | pc/h |
| Weaving segment capacity, cW | 10592 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3806 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2166 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.413 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2012_PM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6201 | 715 | 293 | 126 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1667 | 188 | 77 | 33 | |
| Trucks and buses | 2 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6748 | 769 | 315 | 134 | pc/h |

Volume ratio, VR 0.136

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 315 | lc/h |
| Weaving lane changes, LCW | 671 | lc/h |
| Non-weaving vehicle index, INW | 509 | |
| Non-weaving lane change, LCNW | 856 | lc/h |
| Total lane changes, LCALL | 1527 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.400 | |
| Average weaving speed, SW | 54.3 | mi/h |
| Average non-weaving speed, SNW | 60.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.2 | mi/h |
| Weaving segment density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.699 | |
| Weaving segment flow rate, v | 7966 | pc/h |
| Weaving segment capacity, cW | 11260 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2327 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2279 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.699 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_AM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1305 | 71 | 876 | 12 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 352 | 19 | 231 | 3 | |
| Trucks and buses | 3 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1430 | 76 | 942 | 13 | pc/h |

Volume ratio, VR 0.414

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 76 | lc/h |
| Weaving lane changes, LCW | 652 | lc/h |
| Non-weaving vehicle index, INW | 209 | |
| Non-weaving lane change, LCNW | 120 | lc/h |
| Total lane changes, LCALL | 772 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.137 | |
| Average weaving speed, SW | 63.4 | mi/h |
| Average non-weaving speed, SNW | 67.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 65.5 | mi/h |
| Weaving segment density, D | 7.5 | pc/mi/ln |
| Level of service, LOS | A | |
| Weaving segment v/c ratio | 0.291 | |
| Weaving segment flow rate, v | 2461 | pc/h |
| Weaving segment capacity, cW | 8320 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5269 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2108 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.291 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_AM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2787 | 368 | 22 | 19 | veh/h |
| Peak hour factor, PHF | 0.86 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 806 | 97 | 6 | 5 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3279 | 392 | 23 | 20 | pc/h |

Volume ratio, VR 0.112

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 415 | lc/h |
| Weaving lane changes, LCW | 895 | lc/h |
| Non-weaving vehicle index, INW | 363 | |
| Non-weaving lane change, LCNW | 313 | lc/h |
| Total lane changes, LCALL | 1208 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.243 | |
| Average weaving speed, SW | 59.2 | mi/h |
| Average non-weaving speed, SNW | 63.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.9 | mi/h |
| Weaving segment density, D | 11.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.337 | |
| Weaving segment flow rate, v | 3714 | pc/h |
| Weaving segment capacity, cW | 10841 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3654 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2204 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.337 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_PM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2430 | 54 | 677 | 9 | veh/h |
| Peak hour factor, PHF | 0.94 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 647 | 14 | 178 | 2 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2632 | 58 | 721 | 10 | pc/h |

Volume ratio, VR 0.228

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 58 | lc/h |
| Weaving lane changes, LCW | 634 | lc/h |
| Non-weaving vehicle index, INW | 383 | |
| Non-weaving lane change, LCNW | 367 | lc/h |
| Total lane changes, LCALL | 1001 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.169 | |
| Average weaving speed, SW | 62.1 | mi/h |
| Average non-weaving speed, SNW | 66.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 65.3 | mi/h |
| Weaving segment density, D | 10.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.302 | |
| Weaving segment flow rate, v | 3421 | pc/h |
| Weaving segment capacity, cW | 11121 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3255 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2262 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.302 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_PM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1370 | 1271 | 33 | 66 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 352 | 334 | 9 | 17 | |
| Trucks and buses | 3 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1433 | 1367 | 36 | 70 | pc/h |

Volume ratio, VR 0.483

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1403 | lc/h |
| Weaving lane changes, LCW | 1883 | lc/h |
| Non-weaving vehicle index, INW | 165 | |
| Non-weaving lane change, LCNW | 0 | lc/h |
| Total lane changes, LCALL | 1883 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.345 | |
| Average weaving speed, SW | 55.9 | mi/h |
| Average non-weaving speed, SNW | 57.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.5 | mi/h |
| Weaving segment density, D | 10.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.585 | |
| Weaving segment flow rate, v | 2906 | pc/h |
| Weaving segment capacity, cW | 4888 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 7626 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1901 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.585 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_AM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4137 | 1702 | 119 | 300 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1124 | 448 | 31 | 79 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4573 | 1813 | 127 | 320 | pc/h |

Volume ratio, VR 0.284

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1940 | lc/h |
| Weaving lane changes, LCW | 2381 | lc/h |
| Non-weaving vehicle index, INW | 954 | |
| Non-weaving lane change, LCNW | 1294 | lc/h |
| Total lane changes, LCALL | 3675 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.373 | |
| Average weaving speed, SW | 55.1 | mi/h |
| Average non-weaving speed, SNW | 47.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.7 | mi/h |
| Weaving segment density, D | 34.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.808 | |
| Weaving segment flow rate, v | 6833 | pc/h |
| Weaving segment capacity, cW | 8312 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5412 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2135 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.808 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_AM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4131 | 408 | 1266 | 72 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1065 | 107 | 333 | 19 | |
| Trucks and buses | 3 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4331 | 439 | 1362 | 77 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.290 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 439 | lc/h |
| Weaving lane changes, LCW | 705 | lc/h |
| Non-weaving vehicle index, INW | 397 | |
| Non-weaving lane change, LCNW | 625 | lc/h |
| Total lane changes, LCALL | 1330 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.308 | |
| Average weaving speed, SW | 57.1 | mi/h |
| Average non-weaving speed, SNW | 59.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.7 | mi/h |
| Weaving segment density, D | 26.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.715 | |
| Weaving segment flow rate, v | 6209 | pc/h |
| Weaving segment capacity, cW | 8535 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3912 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2170 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.715 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_PM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3759 | 1428 | 107 | 252 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 969 | 376 | 28 | 66 | |
| Trucks and buses | 3 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3941 | 1536 | 115 | 268 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.282 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1651 | lc/h |
| Weaving lane changes, LCW | 2092 | lc/h |
| Non-weaving vehicle index, INW | 821 | |
| Non-weaving lane change, LCNW | 1154 | lc/h |
| Total lane changes, LCALL | 3246 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.338 | |
| Average weaving speed, SW | 56.1 | mi/h |
| Average non-weaving speed, SNW | 51.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.4 | mi/h |
| Weaving segment density, D | 28.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.688 | |
| Weaving segment flow rate, v | 5860 | pc/h |
| Weaving segment capacity, cW | 8376 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5389 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2137 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.688 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_PM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3458 | 476 | 1477 | 84 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 882 | 125 | 389 | 22 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3589 | 507 | 1573 | 89 | pc/h |

Volume ratio, VR 0.361

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 507 | lc/h |
| Weaving lane changes, LCW | 773 | lc/h |
| Non-weaving vehicle index, INW | 331 | |
| Non-weaving lane change, LCNW | 475 | lc/h |
| Total lane changes, LCALL | 1248 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.292 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 59.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.7 | mi/h |
| Weaving segment density, D | 24.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.682 | |
| Weaving segment flow rate, v | 5758 | pc/h |
| Weaving segment capacity, cW | 8303 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4684 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2111 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.682 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_AM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3225 | 348 | 764 | 61 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 876 | 92 | 201 | 16 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3565 | 371 | 814 | 65 | pc/h |

Volume ratio, VR 0.246

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 814 | lc/h |
| Weaving lane changes, LCW | 1337 | lc/h |
| Non-weaving vehicle index, INW | 454 | |
| Non-weaving lane change, LCNW | 462 | lc/h |
| Total lane changes, LCALL | 1799 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.301 | |
| Average weaving speed, SW | 57.3 | mi/h |
| Average non-weaving speed, SNW | 59.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.9 | mi/h |
| Weaving segment density, D | 16.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.494 | |
| Weaving segment flow rate, v | 4815 | pc/h |
| Weaving segment capacity, cW | 9589 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5013 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2112 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.494 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_AM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3615 | 190 | 1050 | 33 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 932 | 50 | 276 | 9 | |
| Trucks and buses | 3 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3790 | 204 | 1130 | 35 | pc/h |

Volume ratio, VR 0.259

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 408 | lc/h |
| Weaving lane changes, LCW | 917 | lc/h |
| Non-weaving vehicle index, INW | 459 | |
| Non-weaving lane change, LCNW | 475 | lc/h |
| Total lane changes, LCALL | 1392 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.254 | |
| Average weaving speed, SW | 58.9 | mi/h |
| Average non-weaving speed, SNW | 62.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.2 | mi/h |
| Weaving segment density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.465 | |
| Weaving segment flow rate, v | 5159 | pc/h |
| Weaving segment capacity, cW | 10905 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3578 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2218 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.465 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_PM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2953 | 485 | 622 | 85 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 761 | 128 | 164 | 22 | |
| Trucks and buses | 3 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3096 | 522 | 669 | 91 | pc/h |

Volume ratio, VR 0.272

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 669 | lc/h |
| Weaving lane changes, LCW | 1192 | lc/h |
| Non-weaving vehicle index, INW | 398 | |
| Non-weaving lane change, LCNW | 371 | lc/h |
| Total lane changes, LCALL | 1563 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.270 | |
| Average weaving speed, SW | 58.3 | mi/h |
| Average non-weaving speed, SNW | 61.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.2 | mi/h |
| Weaving segment density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.496 | |
| Weaving segment flow rate, v | 4378 | pc/h |
| Weaving segment capacity, cW | 8675 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5286 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2091 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.496 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_PM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3379 | 391 | 752 | 69 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 862 | 103 | 198 | 18 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3507 | 417 | 801 | 74 | pc/h |

Volume ratio, VR 0.254

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 834 | lc/h |
| Weaving lane changes, LCW | 1343 | lc/h |
| Non-weaving vehicle index, INW | 430 | |
| Non-weaving lane change, LCNW | 425 | lc/h |
| Total lane changes, LCALL | 1768 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.307 | |
| Average weaving speed, SW | 57.1 | mi/h |
| Average non-weaving speed, SNW | 59.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.8 | mi/h |
| Weaving segment density, D | 16.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.432 | |
| Weaving segment flow rate, v | 4799 | pc/h |
| Weaving segment capacity, cW | 10924 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3528 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2222 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.432 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_AM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3968 | 340 | 717 | 17 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1078 | 89 | 189 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4386 | 362 | 764 | 18 | pc/h |

Volume ratio, VR 0.204

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 362 | lc/h |
| Weaving lane changes, LCW | 628 | lc/h |
| Non-weaving vehicle index, INW | 396 | |
| Non-weaving lane change, LCNW | 625 | lc/h |
| Total lane changes, LCALL | 1253 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.293 | |
| Average weaving speed, SW | 57.5 | mi/h |
| Average non-weaving speed, SNW | 60.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.1 | mi/h |
| Weaving segment density, D | 23.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.652 | |
| Weaving segment flow rate, v | 5530 | pc/h |
| Weaving segment capacity, cW | 8334 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4573 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2119 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.652 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_AM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3545 | 535 | 331 | 28 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 914 | 141 | 87 | 7 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3717 | 570 | 353 | 30 | pc/h |

Volume ratio, VR 0.198

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 570 | lc/h |
| Weaving lane changes, LCW | 836 | lc/h |
| Non-weaving vehicle index, INW | 337 | |
| Non-weaving lane change, LCNW | 489 | lc/h |
| Total lane changes, LCALL | 1325 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.307 | |
| Average weaving speed, SW | 57.1 | mi/h |
| Average non-weaving speed, SNW | 60.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.6 | mi/h |
| Weaving segment density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.550 | |
| Weaving segment flow rate, v | 4670 | pc/h |
| Weaving segment capacity, cW | 8354 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4512 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2123 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.550 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_PM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4034 | 430 | 607 | 22 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1040 | 113 | 160 | 6 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4229 | 458 | 647 | 23 | pc/h |

Volume ratio, VR 0.206

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 458 | lc/h |
| Weaving lane changes, LCW | 724 | lc/h |
| Non-weaving vehicle index, INW | 383 | |
| Non-weaving lane change, LCNW | 593 | lc/h |
| Total lane changes, LCALL | 1317 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.305 | |
| Average weaving speed, SW | 57.1 | mi/h |
| Average non-weaving speed, SNW | 60.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.6 | mi/h |
| Weaving segment density, D | 22.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.633 | |
| Weaving segment flow rate, v | 5357 | pc/h |
| Weaving segment capacity, cW | 8326 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4600 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2117 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.633 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_PM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3335 | 625 | 387 | 32 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 851 | 164 | 102 | 8 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3461 | 666 | 412 | 34 | pc/h |

Volume ratio, VR 0.236

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 666 | lc/h |
| Weaving lane changes, LCW | 932 | lc/h |
| Non-weaving vehicle index, INW | 315 | |
| Non-weaving lane change, LCNW | 437 | lc/h |
| Total lane changes, LCALL | 1369 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.315 | |
| Average weaving speed, SW | 56.8 | mi/h |
| Average non-weaving speed, SNW | 59.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.0 | mi/h |
| Weaving segment density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.546 | |
| Weaving segment flow rate, v | 4573 | pc/h |
| Weaving segment capacity, cW | 8236 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4905 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2093 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.546 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_AM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2955 | 266 | 518 | 14 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 803 | 70 | 136 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3267 | 283 | 552 | 15 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.203 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 283 | lc/h |
| Weaving lane changes, LCW | 711 | lc/h |
| Non-weaving vehicle index, INW | 607 | |
| Non-weaving lane change, LCNW | 908 | lc/h |
| Total lane changes, LCALL | 1619 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.203 | |
| Average weaving speed, SW | 60.7 | mi/h |
| Average non-weaving speed, SNW | 63.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.5 | mi/h |
| Weaving segment density, D | 16.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.470 | |
| Weaving segment flow rate, v | 4117 | pc/h |
| Weaving segment capacity, cW | 8621 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4565 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2192 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.470 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_AM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2688 | 570 | 318 | 30 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 693 | 150 | 84 | 8 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2818 | 607 | 339 | 32 | pc/h |

Volume ratio, VR 0.249

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 607 | lc/h |
| Weaving lane changes, LCW | 1035 | lc/h |
| Non-weaving vehicle index, INW | 527 | |
| Non-weaving lane change, LCNW | 819 | lc/h |
| Total lane changes, LCALL | 1854 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.226 | |
| Average weaving speed, SW | 59.8 | mi/h |
| Average non-weaving speed, SNW | 61.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.8 | mi/h |
| Weaving segment density, D | 15.6 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.440 | |
| Weaving segment flow rate, v | 3796 | pc/h |
| Weaving segment capacity, cW | 8480 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5045 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2156 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.440 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_PM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2905 | 228 | 444 | 12 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 749 | 60 | 117 | 3 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3046 | 243 | 473 | 13 | pc/h |

Volume ratio, VR 0.190

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 243 | lc/h |
| Weaving lane changes, LCW | 671 | lc/h |
| Non-weaving vehicle index, INW | 566 | |
| Non-weaving lane change, LCNW | 862 | lc/h |
| Total lane changes, LCALL | 1533 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.195 | |
| Average weaving speed, SW | 61.0 | mi/h |
| Average non-weaving speed, SNW | 63.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.2 | mi/h |
| Weaving segment density, D | 14.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.428 | |
| Weaving segment flow rate, v | 3775 | pc/h |
| Weaving segment capacity, cW | 8665 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4431 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2202 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.428 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_PM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2410 | 665 | 371 | 35 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 615 | 175 | 98 | 9 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2501 | 708 | 395 | 37 | pc/h |

Volume ratio, VR 0.303

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 708 | lc/h |
| Weaving lane changes, LCW | 1136 | lc/h |
| Non-weaving vehicle index, INW | 470 | |
| Non-weaving lane change, LCNW | 755 | lc/h |
| Total lane changes, LCALL | 1891 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.230 | |
| Average weaving speed, SW | 59.7 | mi/h |
| Average non-weaving speed, SNW | 60.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.3 | mi/h |
| Weaving segment density, D | 15.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.460 | |
| Weaving segment flow rate, v | 3641 | pc/h |
| Weaving segment capacity, cW | 7790 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5615 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2112 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.460 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2012_AM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4109 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 242 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 418 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4109 | 242 | 418 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1101 | 64 | 110 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4479 | 258 | 445 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.186 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 831$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4737 | 9600 | No |
| $v_3$ or $v_{av34}$ | 1824 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 1791$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2049 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 16.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.302$ | |
| Space mean speed in ramp influence area, | $S_R = 61.5$ | mph |
| Space mean speed in outer lanes, | $S_0 = 67.0$ | mph |
| Space mean speed for all vehicles, | $S = 64.5$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2012_PM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 5677 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 906 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 254 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 5677 | 906 | 254 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1445 | 238 | 67 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 5879 | 965 | 271 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.097 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 571$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 6844 | 9600 | No |
| $v_3$ or $v_{av34}$ | | 2654 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2351$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3316 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 26.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.379$ | |
| Space mean speed in ramp influence area, | $S_R = 59.4$ | mph |
| Space mean speed in outer lanes, | $S_0 = 65.4$ | mph |
| Space mean speed for all vehicles, | $S = 62.4$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2012_AM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 5795 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 349 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 69 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 5795 | 349 | 69 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1553 | 92 | 18 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 6317 | 372 | 74 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

$P$ = 0.171 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 1082$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 6689 | 9600 | No |
| $v_3$ or $v_{av34}$ | 2617 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2526$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2898 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 18.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.287$ | |
| Space mean speed in ramp influence area, | $S_R = 62.0$ | mph |
| Space mean speed in outer lanes, | $S_0 = 65.0$ | mph |
| Space mean speed for all vehicles, | $S = 63.6$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2012_PM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8867 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 904 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 108 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8867 | 904 | 108 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2257 | 238 | 28 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9182 | 963 | 115 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.097 Using Equation 4

$v_{12} = v_{F}(P_{FM}) = 895$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 10145 | 9600 | Yes |
| $v_3$ or $v_{av34}$ | 4143 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 3672$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4635 | 4600 | Yes |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A = 31.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.618$ | |
| Space mean speed in ramp influence area, | $S_R = 52.7$ | mph |
| Space mean speed in outer lanes, | $S_0 = 60.7$ | mph |
| Space mean speed for all vehicles, | $S = 56.8$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2012_AM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - No Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1326 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 207 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 26 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1326 | 207 | 26 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 356 | 54 | 7 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1464 | 221 | 28 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1464 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1464 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1243 | 4800 | No |
| $v_R$ | 221 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1464$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1464 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 3.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S = 0.448$

Space mean speed in ramp influence area, $S_R = 57.5$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.5$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2012_PM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - No Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1397 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 434 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 25 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1397 | 434 | 25 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 356 | 114 | 7 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1450 | 462 | 27 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_{FD} - v_F) P_{FD} = 1450 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 1450 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 988 | 4800 | No |
| $v_R$ | 462 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1450$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1450 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D = 3.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S = 0.470$

Space mean speed in ramp influence area, $S_R = 56.9$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 56.9$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2012_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - No Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1119 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 26 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 2007 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1119 | 26 | 2007 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 301 | 7 | 528 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1236 | 28 | 2138 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1236$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1264 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1236 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1264 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 12.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.300 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.6 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.6 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2012_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - No Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 963 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 25 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 434 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 963 | 25 | 434 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 246 | 7 | 114 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 999 | 27 | 462 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 999$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1026 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 999 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1026 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A$ = 10.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.297 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.7 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.7 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-6_2012_AM_Peak_SR_60_EB_Off-Ramp_to_Theodore.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - No Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1614 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 119 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 70 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1614 | 119 | 70 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 434 | 31 | 18 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1782 | 127 | 75 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_{FD} - v_F) P_{FD} = 1782 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1782 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1655 | 4800 | No |
| $v_R$ | 127 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1782$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1782 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D = 17.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.439$

Space mean speed in ramp influence area, $S_R = 57.7$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.7$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-6_2012_PM_Peak_SR_60_EB_Off-Ramp_to_Theodore.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - No Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1920 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 30 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 71 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1920 | 30 | 71 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 490 | 8 | 19 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1992 | 32 | 76 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1992 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1992 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1960 | 4800 | No |
| $v_R$ | 32 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1992$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1992 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 19.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.431$

Space mean speed in ramp influence area, $S_R = 57.9$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.9$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2012_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - No Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1495 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 70 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 119 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1495 | 70 | 119 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 402 | 18 | 31 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1651 | 75 | 127 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

```
                  FM
                 v  = v  (P  ) =  1651   pc/h
                  12   F   FM

_____________________________Capacity Checks_____________________________

                           Actual        Maximum         LOS F?
     v                     1726          4800            No
      FO
     v  or v               0    pc/h     (Equation 13-14 or 13-17)
      3     av34
Is   v  or v      > 2700 pc/h?           No
      3     av34
Is   v  or v      > 1.5 v  /2            No
      3     av34         12
If yes, v    = 1651                   (Equation 13-15, 13-16, 18, or 19)
         12A

_____________________Flow Entering Merge Influence Area_____________________
                      Actual        Max Desirable         Violation?
     v                1726          4600                  No
      R12
_________________Level of Service Determination (if not F)__________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   17.3    pc/mi/ln
          R                   R          12           A
Level of service for ramp-freeway junction areas of influence B

_____________________________Speed Estimation_____________________________

Intermediate speed variable,                M  = 0.325
                                             S
Space mean speed in ramp influence area,    S  = 60.9    mph
                                             R
Space mean speed in outer lanes,            S  =  N/A    mph
                                             0
Space mean speed for all vehicles,          S  = 60.9    mph
_____________________________________________________________________________
```

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2012_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - No Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1890 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 71 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 30 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1890 | 71 | 30 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 482 | 19 | 8 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1961 | 76 | 32 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{F}(P_{FM}) = 1961$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2037 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 1961$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2037 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A = 19.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.333 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.7 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.7 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-9_2012_AM_Peak_SR_60_EB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1520 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 330 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 7 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1520 | 330 | 7 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 407 | 87 | 2 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1673 | 352 | 7 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1673 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi} = v_F$ | | 1673 | 4800 | No |
| $v_{FO} = v_F - v_R$ | | 1321 | 4800 | No |
| $v_R$ | | 352 | 2000 | No |
| $v_3$ or $v_{av34}$ | | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 1673$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1673 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 16.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.460$

Space mean speed in ramp influence area, $S_R = 57.1$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.1$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-9_2012_PM_Peak_SR_60_EB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1914 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 385 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 8 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1914 | 385 | 8 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 487 | 101 | 2 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1982 | 410 | 9 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1982 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1982 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1572 | 4800 | No |
| $v_R$ | 410 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1982$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1982 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 19.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.465$

Space mean speed in ramp influence area, $S_R = 57.0$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.0$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2012_AM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1190 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 7 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 330 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1190 | 7 | 330 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 319 | 2 | 87 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1310 | 7 | 352 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1310$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1317 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | No | |

If yes, $v_{12A}$ = 1310 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1317 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.318 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.1 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.1 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2012_PM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1529 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 8 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 385 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1529 | 8 | 385 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 389 | 2 | 101 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1583 | 9 | 410 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

```
                  FM
                 v  = v  (P  ) =  1583   pc/h
                  12   F   FM

_____________________________Capacity Checks_____________________________

                           Actual        Maximum         LOS F?
     v                     1592          4800            No
      FO
     v  or v               0    pc/h     (Equation 13-14 or 13-17)
      3     av34
Is   v  or v      > 2700 pc/h?           No
      3     av34
Is   v  or v      > 1.5 v  /2            No
      3     av34         12
If yes, v    = 1583                  (Equation 13-15, 13-16, 18, or 19)
         12A

_____________________Flow Entering Merge Influence Area_____________________
                      Actual        Max Desirable         Violation?
     v                1592          4600                  No
      R12
_________________Level of Service Determination (if not F)__________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   16.3    pc/mi/ln
          R                   R           12            A
Level of service for ramp-freeway junction areas of influence B

_____________________________Speed Estimation_____________________________

Intermediate speed variable,                M  = 0.323
                                             S
Space mean speed in ramp influence area,    S  = 61.0    mph
                                             R
Space mean speed in outer lanes,            S  =  N/A    mph
                                             0
Space mean speed for all vehicles,          S  = 61.0    mph
_____________________________________________________________________________
```

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-11_2012_AM_Peak_SR_60_WB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 836 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 10 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 357 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 836 | 10 | 357 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 216 | 3 | 94 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 879 | 11 | 380 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_{FD} - v_F) P_{FD} = 879 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 879 | 4800 | No |
| $v_{FO} = v - v_F - v_R$ | 868 | 4800 | No |
| $v_R$ | 11 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 879$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 879 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 9.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S = 0.429$

Space mean speed in ramp influence area, $S_R = 58.0$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 58.0$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-11_2012_PM_Peak_SR_60_WB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1001 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 9 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 306 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1001 | 9 | 306 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 262 | | 81 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1078 | 10 | 326 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1078 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1078 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1068 | 4800 | No |
| $v_R$ | 10 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1078 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1078 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 11.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.429

Space mean speed in ramp influence area, $S_R$ = 58.0 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 58.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2012_AM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 826 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 357 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 10 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 826 | 357 | 10 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 213 | 94 | 3 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 868 | 380 | 11 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 868$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1248 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | No | |

If yes, $v_{12A}$ = 868 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1248 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, $M_S$ = 0.317

Space mean speed in ramp influence area, $S_R$ = 61.1 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 61.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2012_PM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 992 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 306 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 9 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 992 | 306 | 9 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 260 | 81 | | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1068 | 326 | 10 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1068$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1394 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1068$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1394 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 14.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, $M_S = 0.319$

Space mean speed in ramp influence area, $S_R = 61.1$ mph

Space mean speed in outer lanes, $S_0 = N/A$ mph

Space mean speed for all vehicles, $S = 61.1$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-13_2012_AM_Peak_SR_60_WB_Off-Ramp_to_Theodore_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1182 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 24 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 34 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1182 | 24 | 34 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 305 | 6 | 9 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1242 | 26 | 36 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1242 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1242 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1216 | 4800 | No |
| $v_R$ | 26 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 1242$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1242 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 12.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.430$

Space mean speed in ramp influence area, $S_R = 58.0$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 58.0$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-13_2012_PM_Peak_SR_60_WB_Off-Ramp_to_Theodore_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1392 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 26 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 131 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1392 | 26 | 131 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 365 | 7 | 34 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1499 | 28 | 140 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_{FD} - v_F) P_{FD} = 1499 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 1499 | 4800 | No |
| $v_{FO} = v - v_F - v_R$ | 1471 | 4800 | No |
| $v_R$ | 28 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1499 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1499 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 14.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.431

Space mean speed in ramp influence area, $S_R$ = 57.9 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2012_AM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1158 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 34 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 24 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1158 | 34 | 24 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 299 | 9 | 6 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1217 | 36 | 26 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

```
                  FM
                 v  = v  (P  ) =  1217   pc/h
                  12   F   FM

_____________________________Capacity Checks_____________________________

                           Actual        Maximum         LOS F?
     v                     1253          4800            No
      FO
     v  or v               0    pc/h     (Equation 13-14 or 13-17)
      3     av34
Is   v  or v      > 2700 pc/h?           No
      3     av34
Is   v  or v      > 1.5 v  /2            No
      3     av34         12
If yes, v    = 1217                   (Equation 13-15, 13-16, 18, or 19)
         12A

_____________________Flow Entering Merge Influence Area_____________________
                      Actual        Max Desirable         Violation?
     v                1253          4600                  No
      R12
_________________Level of Service Determination (if not F)__________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   12.1    pc/mi/ln
          R                   R           12            A
Level of service for ramp-freeway junction areas of influence B

_____________________________Speed Estimation_____________________________

Intermediate speed variable,                M  = 0.300
                                             S
Space mean speed in ramp influence area,    S  = 61.6    mph
                                             R
Space mean speed in outer lanes,            S  =  N/A    mph
                                             0
Space mean speed for all vehicles,          S  = 61.6    mph
_____________________________________________________________________________
```

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2012_PM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1366 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 131 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 26 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1366 | 131 | 26 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 358 | 34 | 7 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1471 | 140 | 28 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1471$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1611 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1471 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1611 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 14.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.306 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.4 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.4 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2012_AM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1192 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 49 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 329 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1192 | 49 | 329 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 308 | 13 | 87 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1253 | 52 | 350 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1253 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1253 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1201 | 4800 | No |
| $v_R$ | 52 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1253$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1253 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 12.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.433$

Space mean speed in ramp influence area, $S_R = 57.9$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.9$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2012_PM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1497 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 38 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 361 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1497 | 38 | 361 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 392 | 10 | 95 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1612 | 40 | 385 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1612 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi} = v_F$ | | 1612 | 4800 | No |
| $v_{FO} = v_F - v_R$ | | 1572 | 4800 | No |
| $v_R$ | | 40 | 2000 | No |
| $v_3$ or $v_{av34}$ | | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 1612$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1612 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086 v_{12} - 0.009 L_D = 15.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.432$

Space mean speed in ramp influence area, $S_R = 57.9$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.9$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-16_2012_AM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1143 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 329 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 49 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1143 | 329 | 49 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 295 | 87 | 13 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1201 | 350 | 52 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1201$ pc/h

### Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1551 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 1201$ (Equation 13-15, 13-16, 13-18, or 13-19)

### Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1551 | 4600 | No |

### Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A = 14.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

### Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.304$ | |
| Space mean speed in ramp influence area, | $S_R = 61.5$ | mph |
| Space mean speed in outer lanes, | $S_0 =$ N/A | mph |
| Space mean speed for all vehicles, | $S = 61.5$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-16_2012_PM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/21/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1459 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 361 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 38 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1459 | 361 | 38 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 382 | 95 | 10 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1571 | 385 | 40 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

```
                  FM
                 v  = v  (P  ) =  1571   pc/h
                  12   F   FM

_____________________________Capacity Checks_____________________________

                           Actual        Maximum         LOS F?
     v                     1956          4800            No
      FO
     v  or v               0    pc/h     (Equation 13-14 or 13-17)
      3     av34
Is   v  or v      > 2700 pc/h?           No
      3     av34
Is   v  or v      > 1.5 v  /2            No
      3     av34         12
If yes, v    = 1571                  (Equation 13-15, 13-16, 18, or 19)
         12A

_____________________Flow Entering Merge Influence Area_____________________
                      Actual        Max Desirable         Violation?
     v                1956          4600                  No
      R12
_________________Level of Service Determination (if not F)__________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   17.4    pc/mi/ln
          R                   R           12            A
Level of service for ramp-freeway junction areas of influence B

_____________________________Speed Estimation_____________________________

Intermediate speed variable,                M  = 0.314
                                             S
Space mean speed in ramp influence area,    S  = 61.2    mph
                                             R
Space mean speed in outer lanes,            S  =  N/A    mph
                                             0
Space mean speed for all vehicles,          S  = 61.2    mph
_____________________________________________________________________________
```

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2012_AM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 7050 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 474 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 780 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 7050 | 474 | 780 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1817 | 125 | 205 | v |
| Trucks and buses | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7428 | 505 | 831 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3523 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi} = v_F$ | | 7428 | 9600 | No |
| $v_{FO} = v_F - v_R$ | | 6923 | 9600 | No |
| $v_R$ | | 505 | 2000 | No |
| $v_3$ or $v_{av34}$ | | 1952 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 3523$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3523 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D = 21.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S = 0.473$

Space mean speed in ramp influence area, $S_R = 56.7$ mph

Space mean speed in outer lanes, $S_0 = 73.1$ mph

Space mean speed for all vehicles, $S = 64.3$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2012_PM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Existing Conditions |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 5799 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 337 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 254 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 5799 | 337 | 254 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1526 | 89 | 67 | v |
| Trucks and buses | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 6239 | 359 | 271 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2923 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi}$ | $= v_F$ | 6239 | 9600 | No |
| $v_{FO}$ | $= v_F - v_R$ | 5880 | 9600 | No |
| $v_R$ | | 359 | 2000 | No |
| $v_3$ or $v_{av34}$ | | 1658 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | $> 2700$ pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | $> 1.5\ v_{12}/2$ | | No | |

If yes, $v_{12A} = 2923$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2923 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D = 15.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.460$

Space mean speed in ramp influence area, $S_R = 57.1$ mph

Space mean speed in outer lanes, $S_0 = 74.2$ mph

Space mean speed for all vehicles, $S = 65.1$ mph

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **Existing Conditions**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 7,050 |
| Peak Hour Factor, PHF | 0.97 |
| % Trucks and buses | 4 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.978 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **7,428** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 7,428 |
| Max Upstream Fwy Flow, $V_{F1}$ | 9,400 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 4 |
| Density, D | **32.6** |
| **Level of service, LOS** | **D** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **Existing Conditions**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 6,026 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 4 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.978 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **6,483** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 6,483 |
| Max Upstream Fwy Flow, $V_{F1}$ | 9,400 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 4 |
| Density, D | **28.5** |
| **Level of service, LOS** | **D** |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix J

## Freeway LOS Worksheets
## for Existing Plus Phase 1 Conditions

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HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_AM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6200 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1667 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1720 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1720 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_AM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8670 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 2235 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2295 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2295 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 40.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_PM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7770 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1982 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2036 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2036 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_PM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1708 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1754 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1754 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_AM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5880 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1581 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1631 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1631 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_AM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8170 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 2106 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2163 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2163 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 36.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_PM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9330 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2380 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2444 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2444 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 47.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_PM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6040 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1589 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1632 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1632 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_AM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6540 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1758 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1814 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1814 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_AM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6220 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1603 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1646 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1646 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_PM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9280 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2367 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2431 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2431 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 46.4 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_PM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1632 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1676 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1676 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_AM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6410 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1723 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1778 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1778 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_AM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6150 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1585 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1628 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1628 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_PM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6590 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1681 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1735 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1735 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_PM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1742 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1789 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1789 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_AM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7860 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 2113 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2170 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2170 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 36.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_AM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6350 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1637 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1681 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1681 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_PM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9010 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2298 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2361 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2361 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 43.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_PM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1692 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1738 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1738 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_AM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7130 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1917 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1968 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1968 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_AM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6150 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1585 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1620 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1620 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_PM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9320 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2378 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2442 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2442 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 46.9 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_PM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6830 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1797 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1846 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1846 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_AM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7030 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1890 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1931 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1931 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_AM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7510 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1936 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1978 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1978 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_PM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9310 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2375 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2439 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2439 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 46.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_PM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1679 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1733 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1733 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2012_AM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6480 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1742 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1789 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1789 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2012_PM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6370 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1625 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1677 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1677 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_AM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6310 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1696 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1394 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1394 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 20.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_AM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5640 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1454 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1188 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1188 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_PM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6750 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1722 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1422 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1422 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 20.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_PM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1539 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1271 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1271 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_AM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4430 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1191 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1229 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1229 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_AM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5240 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1351 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1373 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1373 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_PM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4430 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1130 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1166 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1166 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_PM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1387 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1417 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1417 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_AM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2840 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 763 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 799 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 799 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_AM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4300 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1108 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 906 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 906 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 12.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_PM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2770 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 707 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 736 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 736 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.5 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_PM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4460 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1174 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 964 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 964 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 13.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_AM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3290 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 884 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 926 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 926 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_AM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4010 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1034 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1056 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1056 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_PM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3850 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 982 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1018 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1018 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_PM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1082 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1111 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1111 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_AM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2860 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 769 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 809 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 809 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_AM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3970 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1023 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1046 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1046 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_PM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2950 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 753 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 784 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 784 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_PM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1103 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1132 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1132 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_AM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3100 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 833 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 872 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 872 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_AM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3010 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 776 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 797 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 797 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_PM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3160 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 806 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 840 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 840 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_PM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 863 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 891 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 891 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_AM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3640 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 978 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1024 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1024 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_AM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2460 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 634 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 654 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 654 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 9.3 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_PM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3460 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 883 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 920 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 920 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_PM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 734 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 761 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 761 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_AM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4690 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1261 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1743 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1743 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_AM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4320 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1113 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1517 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1517 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_PM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4080 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1041 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1439 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1439 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_PM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1303 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1784 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1784 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_AM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5250 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1411 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1951 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1951 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_AM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3390 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 874 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1196 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1196 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_PM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4600 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1173 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1630 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1630 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_PM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1084 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1485 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1485 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_AM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4800 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1290 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1784 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1784 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_AM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5440 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1402 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1911 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1911 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_PM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6940 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1770 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2448 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2448 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 47.1 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_PM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1408 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1928 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1928 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2012_AM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5100 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1314 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1791 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1791 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2012_PM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1295 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1773 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1773 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_AM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6280 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1688 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1908 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1908 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_AM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6910 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1781 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1959 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1959 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_PM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8860 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2260 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2486 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2486 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 50.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 48.9 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_PM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6150 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1618 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1829 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1829 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_AM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4680 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1258 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1317 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1317 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_AM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7280 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1876 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1936 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1936 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_PM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6750 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1722 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1777 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1777 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_PM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1774 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1848 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1848 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2012_AM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7020 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1809 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2490 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2490 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 50.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 49.1 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2012_PM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3340 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 879 | v |
| Trucks and buses | 14 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1256 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1256 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_AM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3050 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 820 | v |
| Trucks and buses | 16 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1774 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1774 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 26.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_AM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2990 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 771 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1614 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1614 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_PM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3770 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 962 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2023 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2023 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 32.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_PM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 934 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1994 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1994 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 31.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_AM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2840 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 763 | v |
| Trucks and buses | 17 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.920 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1660 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1660 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_AM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2680 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 691 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1453 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1453 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 21.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_PM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3420 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 872 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1844 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1844 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 28.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_PM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3040 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 800 | v |
| Trucks and buses | 15 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.929 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1723 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1723 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_AM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2340 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 629 | v |
| Trucks and buses | 19 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.912 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1380 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1380 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_AM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2030 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 523 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1116 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1116 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_PM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2460 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 628 | v |
| Trucks and buses | 15 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.929 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1352 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1352 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_PM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 655 | v |
| Trucks and buses | 17 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.920 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1425 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1425 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 20.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-32_2012_AM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Nason St to Moreno Beach Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2070 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 556 | v |
| Trucks and buses | 22 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.899 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1238 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1238 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-32_2012_PM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Nason St to Moreno Beach Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2160 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 551 | v |
| Trucks and buses | 16 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1192 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1192 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_AM_Peak_SR_60_EB_Moreno_Beach_to_Redlands_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1930 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 519 | v |
| Trucks and buses | 25 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.887 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1169 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1169 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_AM_Peak_SR_60_WB_Redlands_Blvd_to_Moreno_Beach.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands Blvd to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1270 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 327 | v |
| Trucks and buses | 21 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.903 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 725 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 725 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 10.4 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_PM_Peak_SR_60_EB_Moreno_Beach_to_Redlands_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1660 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 423 | v |
| Trucks and buses | 22 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.899 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 942 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 942 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_PM_Peak_SR_60_WB_Redlands_Blvd_to_Moreno_Beach.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands Blvd to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1900 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 500 | v |
| Trucks and buses | 23 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.895 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1117 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1117 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 16.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_AM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2310 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 621 | v |
| Trucks and buses | 21 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.903 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1375 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1375 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_AM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1560 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 402 | v |
| Trucks and buses | 18 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 878 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 878 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_PM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2260 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 577 | v |
| Trucks and buses | 18 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1259 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1259 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_PM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 555 | v |
| Trucks and buses | 18 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1213 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1213 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_AM_Peak_SR_60_EB_Theodore_St_to_Gilman_Spring.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Theodore St to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1480 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 398 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 825 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 825 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 11.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_AM_Peak_SR_60_WB_Gilman_Springs_Rd_to_Theodore.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Gilman Springs Rd to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1170 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 302 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 628 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 628 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 9.0 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_PM_Peak_SR_60_EB_Theodore_St_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Theodore St to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1900 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 485 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1000 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1000 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_PM_Peak_SR_60_WB_Gilman_Springs_Rd_to_Theodore.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Gilman Springs Rd to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 355 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 740 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 740 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 10.6 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_AM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1190 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 320 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.784 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 816 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 816 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 11.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_AM_Peak_SR_60_WB_Jack_Rabbit_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 970 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 250 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.763 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 655 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 655 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 9.4 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_PM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1590 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 406 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.806 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1006 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1006 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_PM_Peak_SR_60_WB_Jack_Rabbit_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 261 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.743 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 701 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 701 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 10.0 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_AM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1200 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 323 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 669 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 669 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 9.6 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_AM_Peak_SR_60_WB_I-10_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Jack Rabbit Trail |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 970 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 250 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 521 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 521 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 7.4 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_PM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1590 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 406 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 837 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 837 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_PM_Peak_SR_60_WB_I-10_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Jack Rabbit Trail |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 261 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 546 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 546 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 7.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_AM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6030 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1554 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1588 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1588 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_AM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6310 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1626 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1670 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1670 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_PM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9350 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 2513 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2556 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2556 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 52.5 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_PM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6080 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1634 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1670 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1670 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_AM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5510 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1420 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1935 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1935 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_AM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4690 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1209 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1655 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1655 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_PM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5370 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1444 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1967 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1967 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_PM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5290 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1422 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1938 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1938 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_AM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5020 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1294 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1772 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1772 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_AM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4540 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1170 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1602 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1602 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_PM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4860 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1306 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1780 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1780 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_PM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7150 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1922 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2619 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2619 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 46.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 56.2 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2012_AM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4800 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1237 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1694 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1694 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2012_PM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7140 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1919 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2615 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2615 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 46.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 55.9 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_AM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4700 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1211 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1659 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1659 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_AM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4370 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1126 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1542 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1542 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_PM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4890 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1315 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1791 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1791 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_PM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5260 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1414 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1927 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1927 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_AM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5810 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1497 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1530 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1530 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_AM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5690 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1466 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1506 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1506 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_PM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5810 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1562 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1596 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1596 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_PM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6740 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1812 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1852 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1852 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_AM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5930 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1528 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1562 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1562 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_AM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5280 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1361 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1398 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1398 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_PM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4970 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1336 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1365 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1365 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_PM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6490 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1745 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1783 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1783 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_AM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6620 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1706 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1769 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1769 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_AM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4890 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1260 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1294 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1294 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_PM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4720 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1269 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1309 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1309 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_PM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5530 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1487 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1512 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1512 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_AM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5960 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1536 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1593 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1593 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_AM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4170 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1075 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1472 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1472 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_PM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4510 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1212 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1251 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1251 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_PM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4780 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1285 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1751 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1751 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_AM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6070 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1564 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2132 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2132 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_AM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4720 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1216 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1666 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1666 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_PM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5400 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1452 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1968 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1968 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_PM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4990 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1341 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1819 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1819 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2012_AM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7280 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1876 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1534 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1534 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2012_PM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6410 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1723 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1402 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1402 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 20.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_AM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3040 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 817 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 835 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 835 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_AM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4320 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1256 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1283 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1283 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_PM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4320 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1149 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1174 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1174 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_PM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3710 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 956 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 977 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 977 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_AM_Peak_I-10_EB_Beaumont_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3080 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 828 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 846 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 846 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_AM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4400 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1279 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1307 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1307 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_PM_Peak_I-10_EB_Beaumont_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4370 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1162 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1188 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1188 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_PM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3740 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 964 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 985 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 985 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_AM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3220 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 866 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 885 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 885 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_AM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4610 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1340 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1370 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1370 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_PM_Peak_I-10_EB_Pennsylvania_to_Highland_Spring.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Spring |
| Jurisdiction: | |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4580 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1218 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1245 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1245 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_PM_Peak_I-10_WB_Highland_Spring_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Spring to Pennsylvania |
| Jurisdiction: | |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3910 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1008 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1030 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1030 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_AM_Peak_I-10_EB_Highland_Springs_to_Sunset.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3080 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 828 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 846 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 846 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_AM_Peak_I-10_WB_Sunset_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4430 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1288 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1316 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1316 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_PM_Peak_I-10_EB_Highland_Springs_to_Sunset.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4390 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1168 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1193 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1193 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_PM_Peak_I-10_WB_Sunset_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3750 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 966 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 988 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 988 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_AM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3000 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 806 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 824 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 824 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_AM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4330 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1259 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1286 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1286 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_PM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4290 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1141 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1166 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1166 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_PM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3660 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 943 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 964 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 964 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_AM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2950 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 793 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 810 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 810 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_AM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4260 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1238 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1266 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1266 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_PM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4220 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1122 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1147 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1147 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_PM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3600 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 928 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 948 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 948 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_AM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2940 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 790 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 808 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 808 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_AM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4250 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1235 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1263 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1263 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_PM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4210 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1120 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1144 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1144 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_PM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3590 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 925 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 946 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 946 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_AM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2640 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 710 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 725 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 725 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.4 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_AM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3830 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1113 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1138 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1138 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_PM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3800 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1011 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1033 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1033 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_PM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3220 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 830 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 848 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 848 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_AM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2510 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 675 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 690 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 690 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 9.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_AM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3660 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1064 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1087 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1087 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_PM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3620 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 963 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 984 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 984 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_PM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3070 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 791 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 809 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 809 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_AM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2220 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 597 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 610 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 610 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.7 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_AM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3240 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 942 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 963 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 963 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_PM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3210 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 854 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 873 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 873 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_PM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2710 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 698 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 714 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 714 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.2 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_AM_Peak_I-10_EB_Main_to_Haugen-Lehmann_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2220 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 597 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 610 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 610 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.7 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_AM_Peak_I-10_WB_Haugen-Lehmann_Way_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann Way to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3240 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 942 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 963 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 963 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_PM_Peak_I-10_EB_Main_to_Haugen-Lehmann_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3210 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 854 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 873 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 873 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_PM_Peak_I-10_WB_Haugen-Lehmann_Way_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann Way to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2710 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 698 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 714 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 714 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.2 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_AM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1920 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 516 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 527 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 527 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 7.5 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_AM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2810 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 817 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 835 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 835 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_PM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2780 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 739 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 756 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 756 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_PM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2360 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 608 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 622 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 622 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_AM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1940 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 522 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 533 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 533 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 7.6 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_AM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2810 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 817 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 835 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 835 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_PM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2780 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 739 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 756 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 756 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_PM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2360 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 608 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 622 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 622 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_AM_Peak_I-215_NB_Scott_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2700 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 734 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1500 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1500 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 21.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_AM_Peak_I-215_SB_Newport_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2280 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 588 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1195 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1195 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_PM_Peak_I-215_NB_Scott_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3280 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 845 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1719 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1719 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_PM_Peak_I-215_SB_Newport_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2280 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 582 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1189 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1189 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_AM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1860 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 505 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1033 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1033 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_AM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2530 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 652 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1326 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1326 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_PM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2050 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 528 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1080 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1080 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_PM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3070 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 783 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1593 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1593 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_AM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2400 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 652 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1333 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1333 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_AM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3070 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 791 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1609 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1609 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_PM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3290 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 848 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1725 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1725 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_PM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2510 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 640 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1309 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1309 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_AM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3730 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1014 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2072 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2072 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 33.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_AM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2890 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 745 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1515 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1515 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 22.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_PM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3160 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 814 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1657 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1657 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_PM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3850 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 982 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1998 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1998 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 31.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_AM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3290 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 894 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1827 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1827 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 27.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_AM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4570 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1178 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2396 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2396 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 44.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_PM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4210 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1085 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2207 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2207 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 37.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_PM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3680 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 939 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1909 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1909 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 29.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_AM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5550 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1508 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2045 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2045 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 33.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_AM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5260 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1356 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1847 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1847 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_PM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5230 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1348 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1828 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1828 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_PM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4890 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1247 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1692 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1692 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_AM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5440 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1478 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2005 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2005 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_AM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5630 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1451 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1977 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1977 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_PM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5100 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1314 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1782 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1782 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_PM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5210 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1329 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1802 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1802 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_AM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5300 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1440 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1953 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1953 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_AM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5480 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1412 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1915 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1915 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_PM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5230 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1348 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1828 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1828 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_PM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5170 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1319 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1788 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1788 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_AM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5680 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1543 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2093 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2093 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 34.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_AM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5500 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1418 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1922 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1922 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_PM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5620 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1448 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1964 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1964 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_PM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5230 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1334 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1809 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1809 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_AM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5510 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1497 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1523 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1523 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_AM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5850 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1508 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1533 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1533 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_PM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5510 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1420 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1444 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1444 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_PM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5580 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1423 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1448 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1448 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_AM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4240 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1152 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1172 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1172 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_AM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4080 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1052 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1075 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1075 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_PM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4580 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1180 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1200 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1200 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_PM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4040 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1031 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1048 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1048 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_AM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2970 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 807 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1642 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1642 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_AM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4590 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1183 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2406 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2406 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 45.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_PM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3400 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 876 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1782 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1782 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_PM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4650 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1186 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2413 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2413 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 45.6 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_AM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4718 | 968 | 302 | 170 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1268 | 255 | 79 | 45 | |
| Trucks and buses | 6 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5235 | 1031 | 328 | 181 | pc/h |

Volume ratio, VR 0.201

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1359 | lc/h |
| Weaving lane changes, LCW | 1994 | lc/h |
| Non-weaving vehicle index, INW | 921 | |
| Non-weaving lane change, LCNW | 1074 | lc/h |
| Total lane changes, LCALL | 3068 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.360 | |
| Average weaving speed, SW | 55.4 | mi/h |
| Average non-weaving speed, SNW | 53.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.0 | mi/h |
| Weaving segment density, D | 25.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.621 | |
| Weaving segment flow rate, v | 6775 | pc/h |
| Weaving segment capacity, cW | 10577 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4542 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2182 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.621 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_AM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4518 | 376 | 1058 | 66 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1164 | 99 | 278 | 17 | |
| Trucks and buses | 5 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4783 | 406 | 1127 | 70 | pc/h |

Volume ratio, VR 0.240

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 406 | lc/h |
| Weaving lane changes, LCW | 1116 | lc/h |
| Non-weaving vehicle index, INW | 995 | |
| Non-weaving lane change, LCNW | 1148 | lc/h |
| Total lane changes, LCALL | 2264 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.244 | |
| Average weaving speed, SW | 59.2 | mi/h |
| Average non-weaving speed, SNW | 60.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.5 | mi/h |
| Weaving segment density, D | 21.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.556 | |
| Weaving segment flow rate, v | 6386 | pc/h |
| Weaving segment capacity, cW | 11188 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3384 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2298 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.556 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_PM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6880 | 1122 | 347 | 198 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1755 | 295 | 91 | 52 | |
| Trucks and buses | 5 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7210 | 1195 | 375 | 211 | pc/h |

Volume ratio, VR 0.175

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1570 | lc/h |
| Weaving lane changes, LCW | 2205 | lc/h |
| Non-weaving vehicle index, INW | 1262 | |
| Non-weaving lane change, LCNW | 1487 | lc/h |
| Total lane changes, LCALL | 3692 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.417 | |
| Average weaving speed, SW | 53.8 | mi/h |
| Average non-weaving speed, SNW | 50.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.7 | mi/h |
| Weaving segment density, D | 35.5 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.816 | |
| Weaving segment flow rate, v | 8991 | pc/h |
| Weaving segment capacity, cW | 10725 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4278 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2202 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.816 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_PM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4676 | 356 | 904 | 62 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1231 | 94 | 238 | 16 | |
| Trucks and buses | 5 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5055 | 387 | 963 | 66 | pc/h |

Volume ratio, VR 0.209

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 387 | lc/h |
| Weaving lane changes, LCW | 1097 | lc/h |
| Non-weaving vehicle index, INW | 1050 | |
| Non-weaving lane change, LCNW | 1203 | lc/h |
| Total lane changes, LCALL | 2300 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.247 | |
| Average weaving speed, SW | 59.1 | mi/h |
| Average non-weaving speed, SNW | 61.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.6 | mi/h |
| Weaving segment density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.557 | |
| Weaving segment flow rate, v | 6471 | pc/h |
| Weaving segment capacity, cW | 11310 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3059 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2323 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.557 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2012_AM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5109 | 506 | 487 | 26 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1317 | 133 | 128 | 7 | |
| Trucks and buses | 4 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5383 | 542 | 519 | 28 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.164 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1061 | lc/h |
| Weaving lane changes, LCW | 1811 | lc/h |
| Non-weaving vehicle index, INW | 1217 | |
| Non-weaving lane change, LCNW | 1371 | lc/h |
| Total lane changes, LCALL | 3182 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.297 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 56.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.3 | mi/h |
| Weaving segment density, D | 23.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.574 | |
| Weaving segment flow rate, v | 6472 | pc/h |
| Weaving segment capacity, cW | 11023 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4171 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2253 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.574 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2012_PM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5021 | 744 | 404 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1321 | 196 | 106 | 10 | |
| Trucks and buses | 6 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5454 | 796 | 430 | 42 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.182 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1226 | lc/h |
| Weaving lane changes, LCW | 1976 | lc/h |
| Non-weaving vehicle index, INW | 1237 | |
| Non-weaving lane change, LCNW | 1389 | lc/h |
| Total lane changes, LCALL | 3365 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.310 | |
| Average weaving speed, SW | 57.0 | mi/h |
| Average non-weaving speed, SNW | 54.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.1 | mi/h |
| Weaving segment density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.600 | |
| Weaving segment flow rate, v | 6722 | pc/h |
| Weaving segment capacity, cW | 10848 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4357 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2239 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.600 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2012_AM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4640 | 376 | 606 | 66 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1247 | 99 | 159 | 17 | |
| Trucks and buses | 7 | 4 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.978 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5174 | 404 | 655 | 70 | pc/h |

Volume ratio, VR 0.168

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 655 | lc/h |
| Weaving lane changes, LCW | 872 | lc/h |
| Non-weaving vehicle index, INW | 367 | |
| Non-weaving lane change, LCNW | 689 | lc/h |
| Total lane changes, LCALL | 1561 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.426 | |
| Average weaving speed, SW | 53.6 | mi/h |
| Average non-weaving speed, SNW | 57.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.0 | mi/h |
| Weaving segment density, D | 27.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.739 | |
| Weaving segment flow rate, v | 6303 | pc/h |
| Weaving segment capacity, cW | 8220 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4212 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2131 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.739 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2012_PM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5908 | 277 | 734 | 49 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1507 | 73 | 193 | 13 | |
| Trucks and buses | 6 | 4 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.978 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6221 | 298 | 793 | 52 | pc/h |

Volume ratio, VR 0.148

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 793 | lc/h |
| Weaving lane changes, LCW | 1010 | lc/h |
| Non-weaving vehicle index, INW | 439 | |
| Non-weaving lane change, LCNW | 901 | lc/h |
| Total lane changes, LCALL | 1911 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.499 | |
| Average weaving speed, SW | 51.7 | mi/h |
| Average non-weaving speed, SNW | 55.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.9 | mi/h |
| Weaving segment density, D | 33.6 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.857 | |
| Weaving segment flow rate, v | 7364 | pc/h |
| Weaving segment capacity, cW | 8322 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4013 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2147 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.857 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_AM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2691 | 1195 | 181 | 211 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 723 | 314 | 48 | 56 | |
| Trucks and buses | 10 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3044 | 1273 | 197 | 225 | pc/h |

Volume ratio, VR 0.310

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1273 | lc/h |
| Weaving lane changes, LCW | 1796 | lc/h |
| Non-weaving vehicle index, INW | 409 | |
| Non-weaving lane change, LCNW | 388 | lc/h |
| Total lane changes, LCALL | 2184 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.351 | |
| Average weaving speed, SW | 55.7 | mi/h |
| Average non-weaving speed, SNW | 56.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.1 | mi/h |
| Weaving segment density, D | 16.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.435 | |
| Weaving segment flow rate, v | 4739 | pc/h |
| Weaving segment capacity, cW | 10361 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4127 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2180 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.435 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_AM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5897 | 593 | 924 | 104 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1520 | 156 | 243 | 27 | |
| Trucks and buses | 6 | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.960 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6274 | 650 | 984 | 111 | pc/h |

Volume ratio, VR 0.204

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 650 | lc/h |
| Weaving lane changes, LCW | 1145 | lc/h |
| Non-weaving vehicle index, INW | 734 | |
| Non-weaving lane change, LCNW | 976 | lc/h |
| Total lane changes, LCALL | 2121 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.366 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 57.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.1 | mi/h |
| Weaving segment density, D | 28.1 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.710 | |
| Weaving segment flow rate, v | 8019 | pc/h |
| Weaving segment capacity, cW | 10940 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3009 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2258 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.710 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_PM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7540 | 1340 | 212 | 236 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1923 | 353 | 56 | 62 | |
| Trucks and buses | 6 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7940 | 1427 | 229 | 251 | pc/h |
| Volume ratio, VR | | 0.168 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1427 | lc/h |
| Weaving lane changes, LCW | 1950 | lc/h |
| Non-weaving vehicle index, INW | 1024 | |
| Non-weaving lane change, LCNW | 1402 | lc/h |
| Total lane changes, LCALL | 3352 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.492 | |
| Average weaving speed, SW | 51.9 | mi/h |
| Average non-weaving speed, SNW | 50.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.5 | mi/h |
| Weaving segment density, D | 39.0 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.859 | |
| Weaving segment flow rate, v | 9847 | pc/h |
| Weaving segment capacity, cW | 11109 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2647 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2293 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.859 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_PM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5926 | 692 | 788 | 122 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1559 | 182 | 207 | 32 | |
| Trucks and buses | 7 | 11 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.946 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6469 | 770 | 839 | 130 | pc/h |

Volume ratio, VR 0.196

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 770 | lc/h |
| Weaving lane changes, LCW | 1265 | lc/h |
| Non-weaving vehicle index, INW | 759 | |
| Non-weaving lane change, LCNW | 1020 | lc/h |
| Total lane changes, LCALL | 2285 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.388 | |
| Average weaving speed, SW | 54.6 | mi/h |
| Average non-weaving speed, SNW | 56.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.2 | mi/h |
| Weaving segment density, D | 29.2 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.725 | |
| Weaving segment flow rate, v | 8208 | pc/h |
| Weaving segment capacity, cW | 10916 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2930 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2264 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.725 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_AM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3631 | 321 | 290 | 16 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 976 | 84 | 76 | 4 | |
| Trucks and buses | 11 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.851 | 0.962 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4588 | 351 | 327 | 18 | pc/h |
| Volume ratio, VR | | 0.128 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 678 | lc/h |
| Weaving lane changes, LCW | 1070 | lc/h |
| Non-weaving vehicle index, INW | 737 | |
| Non-weaving lane change, LCNW | 1046 | lc/h |
| Total lane changes, LCALL | 2116 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.282 | |
| Average weaving speed, SW | 57.9 | mi/h |
| Average non-weaving speed, SNW | 58.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.7 | mi/h |
| Weaving segment density, D | 22.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.592 | |
| Weaving segment flow rate, v | 5284 | pc/h |
| Weaving segment capacity, cW | 7591 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3816 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2231 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.592 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_AM_Peak_SR_60_WB_University_Ave_to_W_Blaine.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4906 | 107 | 500 | 5 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1264 | 28 | 132 | 1 | |
| Trucks and buses | 7 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | 0.962 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5639 | 117 | 555 | 5 | pc/h |

Volume ratio, VR 0.106

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 117 | lc/h |
| Weaving lane changes, LCW | 680 | lc/h |
| Non-weaving vehicle index, INW | 790 | |
| Non-weaving lane change, LCNW | 958 | lc/h |
| Total lane changes, LCALL | 1638 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.256 | |
| Average weaving speed, SW | 58.8 | mi/h |
| Average non-weaving speed, SNW | 63.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.6 | mi/h |
| Weaving segment density, D | 20.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.537 | |
| Weaving segment flow rate, v | 6316 | pc/h |
| Weaving segment capacity, cW | 10543 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2036 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2352 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.537 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_PM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5672 | 950 | 306 | 50 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1447 | 250 | 81 | 13 | |
| Trucks and buses | 7 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6453 | 1040 | 335 | 55 | pc/h |

Volume ratio, VR 0.174

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1375 | lc/h |
| Weaving lane changes, LCW | 1767 | lc/h |
| Non-weaving vehicle index, INW | 1041 | |
| Non-weaving lane change, LCNW | 1437 | lc/h |
| Total lane changes, LCALL | 3204 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.391 | |
| Average weaving speed, SW | 54.5 | mi/h |
| Average non-weaving speed, SNW | 50.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.3 | mi/h |
| Weaving segment density, D | 38.4 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.898 | |
| Weaving segment flow rate, v | 7883 | pc/h |
| Weaving segment capacity, cW | 7874 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4276 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2196 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.898 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_PM_Peak_SR_60_WB_University_Ave_to_W_Blaine.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5788 | 313 | 432 | 16 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1523 | 82 | 114 | 4 | |
| Trucks and buses | 8 | 4 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | 0.935 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6885 | 353 | 480 | 18 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.108 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 353 | lc/h |
| Weaving lane changes, LCW | 916 | lc/h |
| Non-weaving vehicle index, INW | 966 | |
| Non-weaving lane change, LCNW | 1218 | lc/h |
| Total lane changes, LCALL | 2134 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.315 | |
| Average weaving speed, SW | 56.8 | mi/h |
| Average non-weaving speed, SNW | 60.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.7 | mi/h |
| Weaving segment density, D | 25.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.658 | |
| Weaving segment flow rate, v | 7736 | pc/h |
| Weaving segment capacity, cW | 10398 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2048 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2350 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.658 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_AM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4199 | 260 | 416 | 13 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1129 | 68 | 109 | 3 | |
| Trucks and buses | 10 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4750 | 277 | 445 | 14 | pc/h |

Volume ratio, VR 0.132

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 445 | lc/h |
| Weaving lane changes, LCW | 752 | lc/h |
| Non-weaving vehicle index, INW | 524 | |
| Non-weaving lane change, LCNW | 807 | lc/h |
| Total lane changes, LCALL | 1559 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.298 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 60.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.8 | mi/h |
| Weaving segment density, D | 22.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.626 | |
| Weaving segment flow rate, v | 5486 | pc/h |
| Weaving segment capacity, cW | 8327 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3849 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2189 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.626 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_AM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4054 | 750 | 585 | 39 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1045 | 197 | 154 | 10 | |
| Trucks and buses | 7 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4334 | 799 | 623 | 42 | pc/h |

Volume ratio, VR 0.245

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1422 | lc/h |
| Weaving lane changes, LCW | 1729 | lc/h |
| Non-weaving vehicle index, INW | 481 | |
| Non-weaving lane change, LCNW | 727 | lc/h |
| Total lane changes, LCALL | 2456 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.426 | |
| Average weaving speed, SW | 53.6 | mi/h |
| Average non-weaving speed, SNW | 52.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.0 | mi/h |
| Weaving segment density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.690 | |
| Weaving segment flow rate, v | 5798 | pc/h |
| Weaving segment capacity, cW | 8104 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5004 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2102 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.690 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_PM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4680 | 879 | 223 | 46 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1194 | 231 | 59 | 12 | |
| Trucks and buses | 8 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4976 | 936 | 239 | 49 | pc/h |
| Volume ratio, VR | | 0.190 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 239 | lc/h |
| Weaving lane changes, LCW | 546 | lc/h |
| Non-weaving vehicle index, INW | 553 | |
| Non-weaving lane change, LCNW | 861 | lc/h |
| Total lane changes, LCALL | 1407 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.274 | |
| Average weaving speed, SW | 58.2 | mi/h |
| Average non-weaving speed, SNW | 60.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.3 | mi/h |
| Weaving segment density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.723 | |
| Weaving segment flow rate, v | 6200 | pc/h |
| Weaving segment capacity, cW | 8234 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4429 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2145 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.723 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_PM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5251 | 389 | 538 | 20 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1382 | 102 | 142 | 5 | |
| Trucks and buses | 8 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5760 | 416 | 573 | 21 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.146 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 989 | lc/h |
| Weaving lane changes, LCW | 1296 | lc/h |
| Non-weaving vehicle index, INW | 636 | |
| Non-weaving lane change, LCNW | 1017 | lc/h |
| Total lane changes, LCALL | 2313 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.406 | |
| Average weaving speed, SW | 54.1 | mi/h |
| Average non-weaving speed, SNW | 54.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.7 | mi/h |
| Weaving segment density, D | 31.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.777 | |
| Weaving segment flow rate, v | 6770 | pc/h |
| Weaving segment capacity, cW | 8365 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3992 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2179 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.777 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_AM_Peak_SR_60_EB_Central_Ave_to_Box_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3502 | 418 | 387 | 22 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 941 | 110 | 102 | 6 | |
| Trucks and buses | 10 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.862 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4368 | 458 | 424 | 24 | pc/h |
| Volume ratio, VR | | 0.167 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 882 | lc/h |
| Weaving lane changes, LCW | 1641 | lc/h |
| Non-weaving vehicle index, INW | 1010 | |
| Non-weaving lane change, LCNW | 1188 | lc/h |
| Total lane changes, LCALL | 2829 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.266 | |
| Average weaving speed, SW | 58.4 | mi/h |
| Average non-weaving speed, SNW | 58.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.6 | mi/h |
| Weaving segment density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.468 | |
| Weaving segment flow rate, v | 5274 | pc/h |
| Weaving segment capacity, cW | 9716 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4204 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2255 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.468 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_AM_Peak_SR_60_WB_Box_Springs_Rd_to_Central.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5398 | 1151 | 329 | 60 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1391 | 303 | 87 | 16 | |
| Trucks and buses | 7 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6205 | 1260 | 360 | 66 | pc/h |

Volume ratio, VR 0.205

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1260 | lc/h |
| Weaving lane changes, LCW | 1695 | lc/h |
| Non-weaving vehicle index, INW | 1191 | |
| Non-weaving lane change, LCNW | 1551 | lc/h |
| Total lane changes, LCALL | 3246 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.345 | |
| Average weaving speed, SW | 55.9 | mi/h |
| Average non-weaving speed, SNW | 51.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.3 | mi/h |
| Weaving segment density, D | 37.7 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.853 | |
| Weaving segment flow rate, v | 7891 | pc/h |
| Weaving segment capacity, cW | 8301 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3024 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2314 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.853 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_PM_Peak_SR_60_EB_Central_Ave_to_Box_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6492 | 883 | 407 | 46 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1656 | 232 | 107 | 12 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7287 | 967 | 446 | 50 | pc/h |
| Volume ratio, VR | | 0.161 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1413 | lc/h |
| Weaving lane changes, LCW | 2172 | lc/h |
| Non-weaving vehicle index, INW | 1688 | |
| Non-weaving lane change, LCNW | 2707 | lc/h |
| Total lane changes, LCALL | 4879 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.409 | |
| Average weaving speed, SW | 54.0 | mi/h |
| Average non-weaving speed, SNW | 51.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.8 | mi/h |
| Weaving segment density, D | 33.8 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.775 | |
| Weaving segment flow rate, v | 8750 | pc/h |
| Weaving segment capacity, cW | 10268 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4146 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2259 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.775 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_PM_Peak_SR_60_WB_Box_Springs_Rd_to_Central.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5292 | 567 | 410 | 29 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1393 | 149 | 108 | 8 | |
| Trucks and buses | 8 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6295 | 621 | 449 | 32 | pc/h |

Volume ratio, VR 0.145

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 621 | lc/h |
| Weaving lane changes, LCW | 1056 | lc/h |
| Non-weaving vehicle index, INW | 1202 | |
| Non-weaving lane change, LCNW | 1563 | lc/h |
| Total lane changes, LCALL | 2619 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.291 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 56.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.8 | mi/h |
| Weaving segment density, D | 32.6 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.783 | |
| Weaving segment flow rate, v | 7397 | pc/h |
| Weaving segment capacity, cW | 8358 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2412 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2361 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.783 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2012_AM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2616 | 293 | 518 | 51 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 703 | 77 | 136 | 13 | |
| Trucks and buses | 14 | 2 | 34 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.820 | 0.962 | 0.658 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3432 | 321 | 829 | 56 | pc/h |

Volume ratio, VR 0.248

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 321 | lc/h |
| Weaving lane changes, LCW | 830 | lc/h |
| Non-weaving vehicle index, INW | 419 | |
| Non-weaving lane change, LCNW | 406 | lc/h |
| Total lane changes, LCALL | 1236 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.231 | |
| Average weaving speed, SW | 59.7 | mi/h |
| Average non-weaving speed, SNW | 63.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.3 | mi/h |
| Weaving segment density, D | 14.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.417 | |
| Weaving segment flow rate, v | 4638 | pc/h |
| Weaving segment capacity, cW | 9127 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3466 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2227 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.417 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2012_PM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3951 | 153 | 637 | 27 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1008 | 40 | 168 | 7 | |
| Trucks and buses | 9 | 2 | 63 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.962 | 0.512 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4616 | 167 | 1311 | 30 | pc/h |
| Volume ratio, VR | | 0.241 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 167 | lc/h |
| Weaving lane changes, LCW | 676 | lc/h |
| Non-weaving vehicle index, INW | 558 | |
| Non-weaving lane change, LCNW | 644 | lc/h |
| Total lane changes, LCALL | 1320 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.244 | |
| Average weaving speed, SW | 59.2 | mi/h |
| Average non-weaving speed, SNW | 62.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.0 | mi/h |
| Weaving segment density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.549 | |
| Weaving segment flow rate, v | 6124 | pc/h |
| Weaving segment capacity, cW | 9747 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3397 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2232 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.549 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_AM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2123 | 196 | 1069 | 10 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 571 | 52 | 281 | 3 | |
| Trucks and buses | 14 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2447 | 209 | 1144 | 11 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.355 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 209 | lc/h |
| Weaving lane changes, LCW | 553 | lc/h |
| Non-weaving vehicle index, INW | 320 | |
| Non-weaving lane change, LCNW | 441 | lc/h |
| Total lane changes, LCALL | 994 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.183 | |
| Average weaving speed, SW | 61.5 | mi/h |
| Average non-weaving speed, SNW | 63.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.0 | mi/h |
| Weaving segment density, D | 15.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.444 | |
| Weaving segment flow rate, v | 3811 | pc/h |
| Weaving segment capacity, cW | 8007 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4616 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2146 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.444 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_AM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3126 | 748 | 626 | 39 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 806 | 197 | 165 | 10 | |
| Trucks and buses | 7 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3342 | 797 | 667 | 42 | pc/h |

Volume ratio, VR 0.302

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1464 | lc/h |
| Weaving lane changes, LCW | 1744 | lc/h |
| Non-weaving vehicle index, INW | 812 | |
| Non-weaving lane change, LCNW | 1420 | lc/h |
| Total lane changes, LCALL | 3164 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.281 | |
| Average weaving speed, SW | 57.9 | mi/h |
| Average non-weaving speed, SNW | 51.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.4 | mi/h |
| Weaving segment density, D | 30.2 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.750 | |
| Weaving segment flow rate, v | 4848 | pc/h |
| Weaving segment capacity, cW | 6234 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5605 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2155 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.750 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_PM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3021 | 457 | 1236 | 24 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 771 | 120 | 325 | 6 | |
| Trucks and buses | 9 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3228 | 487 | 1317 | 26 | pc/h |

Volume ratio, VR 0.357

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 487 | lc/h |
| Weaving lane changes, LCW | 831 | lc/h |
| Non-weaving vehicle index, INW | 423 | |
| Non-weaving lane change, LCNW | 605 | lc/h |
| Total lane changes, LCALL | 1436 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.244 | |
| Average weaving speed, SW | 59.2 | mi/h |
| Average non-weaving speed, SNW | 60.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.0 | mi/h |
| Weaving segment density, D | 21.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.589 | |
| Weaving segment flow rate, v | 5058 | pc/h |
| Weaving segment capacity, cW | 8195 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4634 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2145 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.589 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_PM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3286 | 641 | 558 | 33 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 865 | 169 | 147 | 9 | |
| Trucks and buses | 11 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3656 | 683 | 597 | 35 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.257 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1280 | lc/h |
| Weaving lane changes, LCW | 1560 | lc/h |
| Non-weaving vehicle index, INW | 886 | |
| Non-weaving lane change, LCNW | 1483 | lc/h |
| Total lane changes, LCALL | 3043 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.273 | |
| Average weaving speed, SW | 58.2 | mi/h |
| Average non-weaving speed, SNW | 52.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.1 | mi/h |
| Weaving segment density, D | 30.6 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.756 | |
| Weaving segment flow rate, v | 4971 | pc/h |
| Weaving segment capacity, cW | 6219 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5132 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2191 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.756 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2012_AM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1022 | 679 | 42 | 35 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 263 | 179 | 11 | 9 | |
| Trucks and buses | 14 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1129 | 734 | 45 | 37 | pc/h |

Volume ratio, VR 0.401

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 779 | lc/h |
| Weaving lane changes, LCW | 1008 | lc/h |
| Non-weaving vehicle index, INW | 198 | |
| Non-weaving lane change, LCNW | 584 | lc/h |
| Total lane changes, LCALL | 1592 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.215 | |
| Average weaving speed, SW | 60.3 | mi/h |
| Average non-weaving speed, SNW | 61.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.9 | mi/h |
| Weaving segment density, D | 10.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.325 | |
| Weaving segment flow rate, v | 1945 | pc/h |
| Weaving segment capacity, cW | 5590 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6687 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2018 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.325 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2012_PM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1432 | 598 | 107 | 31 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 377 | 157 | 28 | 8 | |
| Trucks and buses | 19 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.912 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1654 | 640 | 114 | 33 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.309 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 754 | lc/h |
| Weaving lane changes, LCW | 983 | lc/h |
| Non-weaving vehicle index, INW | 287 | |
| Non-weaving lane change, LCNW | 691 | lc/h |
| Total lane changes, LCALL | 1674 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.223 | |
| Average weaving speed, SW | 60.0 | mi/h |
| Average non-weaving speed, SNW | 60.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.4 | mi/h |
| Weaving segment density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.388 | |
| Weaving segment flow rate, v | 2441 | pc/h |
| Weaving segment capacity, cW | 5732 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5679 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2095 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.388 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2012_AM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4133 | 646 | 746 | 34 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1065 | 170 | 196 | 9 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4355 | 688 | 795 | 36 | pc/h |

Volume ratio, VR 0.252

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 688 | lc/h |
| Weaving lane changes, LCW | 1095 | lc/h |
| Non-weaving vehicle index, INW | 746 | |
| Non-weaving lane change, LCNW | 1056 | lc/h |
| Total lane changes, LCALL | 2151 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.272 | |
| Average weaving speed, SW | 58.2 | mi/h |
| Average non-weaving speed, SNW | 58.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.1 | mi/h |
| Weaving segment density, D | 25.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.650 | |
| Weaving segment flow rate, v | 5874 | pc/h |
| Weaving segment capacity, cW | 8849 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3514 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2262 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.650 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2012_PM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3833 | 886 | 863 | 46 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1030 | 233 | 227 | 12 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4212 | 944 | 919 | 49 | pc/h |

Volume ratio, VR 0.304

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 944 | lc/h |
| Weaving lane changes, LCW | 1351 | lc/h |
| Non-weaving vehicle index, INW | 724 | |
| Non-weaving lane change, LCNW | 1029 | lc/h |
| Total lane changes, LCALL | 2380 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.295 | |
| Average weaving speed, SW | 57.5 | mi/h |
| Average non-weaving speed, SNW | 55.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.3 | mi/h |
| Weaving segment density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.690 | |
| Weaving segment flow rate, v | 6124 | pc/h |
| Weaving segment capacity, cW | 8685 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4063 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2219 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.690 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_AM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6092 | 428 | 606 | 22 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1570 | 113 | 159 | 6 | |
| Trucks and buses | 7 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6513 | 456 | 646 | 23 | pc/h |

Volume ratio, VR 0.144

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1102 | lc/h |
| Weaving lane changes, LCW | 1364 | lc/h |
| Non-weaving vehicle index, INW | 575 | |
| Non-weaving lane change, LCNW | 1053 | lc/h |
| Total lane changes, LCALL | 2417 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.502 | |
| Average weaving speed, SW | 51.6 | mi/h |
| Average non-weaving speed, SNW | 52.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.7 | mi/h |
| Weaving segment density, D | 36.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.883 | |
| Weaving segment flow rate, v | 7638 | pc/h |
| Weaving segment capacity, cW | 8343 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3974 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2163 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.883 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_AM_Peak_SR_91_WB_Central_Ave_to_Arlington.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3817 | 283 | 454 | 14 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 984 | 74 | 119 | 4 | |
| Trucks and buses | 5 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4041 | 301 | 486 | 15 | pc/h |

Volume ratio, VR 0.163

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 787 | lc/h |
| Weaving lane changes, LCW | 1087 | lc/h |
| Non-weaving vehicle index, INW | 430 | |
| Non-weaving lane change, LCNW | 640 | lc/h |
| Total lane changes, LCALL | 1727 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.332 | |
| Average weaving speed, SW | 56.3 | mi/h |
| Average non-weaving speed, SNW | 58.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.1 | mi/h |
| Weaving segment density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.560 | |
| Weaving segment flow rate, v | 4843 | pc/h |
| Weaving segment capacity, cW | 8425 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4156 | 1060 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2163 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.560 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_PM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3107 | 269 | 689 | 14 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 835 | 71 | 181 | 4 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3448 | 287 | 734 | 15 | pc/h |

Volume ratio, VR 0.228

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1021 | lc/h |
| Weaving lane changes, LCW | 1283 | lc/h |
| Non-weaving vehicle index, INW | 305 | |
| Non-weaving lane change, LCNW | 420 | lc/h |
| Total lane changes, LCALL | 1703 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.380 | |
| Average weaving speed, SW | 54.8 | mi/h |
| Average non-weaving speed, SNW | 57.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.7 | mi/h |
| Weaving segment density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.534 | |
| Weaving segment flow rate, v | 4484 | pc/h |
| Weaving segment capacity, cW | 8132 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4821 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2098 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.534 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_PM_Peak_SR_91_WB_Central_Ave_to_Arlington.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4536 | 251 | 388 | 13 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1219 | 66 | 102 | 3 | |
| Trucks and buses | 3 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4960 | 267 | 415 | 14 | pc/h |

Volume ratio, VR 0.121

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 682 | lc/h |
| Weaving lane changes, LCW | 982 | lc/h |
| Non-weaving vehicle index, INW | 527 | |
| Non-weaving lane change, LCNW | 829 | lc/h |
| Total lane changes, LCALL | 1811 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.345 | |
| Average weaving speed, SW | 55.9 | mi/h |
| Average non-weaving speed, SNW | 58.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.0 | mi/h |
| Weaving segment density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.644 | |
| Weaving segment flow rate, v | 5656 | pc/h |
| Weaving segment capacity, cW | 8633 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3740 | 1060 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2195 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.644 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_AM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3725 | 283 | 645 | 14 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 960 | 74 | 170 | 4 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3944 | 301 | 687 | 15 | pc/h |

Volume ratio, VR 0.200

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 988 | lc/h |
| Weaving lane changes, LCW | 1170 | lc/h |
| Non-weaving vehicle index, INW | 230 | |
| Non-weaving lane change, LCNW | 360 | lc/h |
| Total lane changes, LCALL | 1530 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.486 | |
| Average weaving speed, SW | 52.0 | mi/h |
| Average non-weaving speed, SNW | 57.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.9 | mi/h |
| Weaving segment density, D | 22.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.590 | |
| Weaving segment flow rate, v | 4947 | pc/h |
| Weaving segment capacity, cW | 8171 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4533 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2097 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.590 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_AM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4427 | 152 | 622 | 8 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1141 | 40 | 164 | 2 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4687 | 162 | 663 | 9 | pc/h |
| Volume ratio, VR | | 0.149 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 825 | lc/h |
| Weaving lane changes, LCW | 1013 | lc/h |
| Non-weaving vehicle index, INW | 282 | |
| Non-weaving lane change, LCNW | 522 | lc/h |
| Total lane changes, LCALL | 1535 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.474 | |
| Average weaving speed, SW | 52.3 | mi/h |
| Average non-weaving speed, SNW | 57.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.6 | mi/h |
| Weaving segment density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.646 | |
| Weaving segment flow rate, v | 5521 | pc/h |
| Weaving segment capacity, cW | 8327 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4026 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2138 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.646 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_PM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3343 | 336 | 752 | 17 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 899 | 88 | 198 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3656 | 358 | 801 | 18 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.240 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1159 | lc/h |
| Weaving lane changes, LCW | 1341 | lc/h |
| Non-weaving vehicle index, INW | 213 | |
| Non-weaving lane change, LCNW | 301 | lc/h |
| Total lane changes, LCALL | 1642 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.514 | |
| Average weaving speed, SW | 51.3 | mi/h |
| Average non-weaving speed, SNW | 55.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.7 | mi/h |
| Weaving segment density, D | 22.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.585 | |
| Weaving segment flow rate, v | 4833 | pc/h |
| Weaving segment capacity, cW | 8126 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4947 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2066 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.585 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_PM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6207 | 322 | 522 | 16 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1669 | 85 | 137 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6788 | 343 | 556 | 17 | pc/h |

Volume ratio, VR 0.117

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 899 | lc/h |
| Weaving lane changes, LCW | 1087 | lc/h |
| Non-weaving vehicle index, INW | 408 | |
| Non-weaving lane change, LCNW | 957 | lc/h |
| Total lane changes, LCALL | 2044 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.594 | |
| Average weaving speed, SW | 49.5 | mi/h |
| Average non-weaving speed, SNW | 54.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.7 | mi/h |
| Weaving segment density, D | 35.9 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.890 | |
| Weaving segment flow rate, v | 7704 | pc/h |
| Weaving segment capacity, cW | 8507 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3702 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2162 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.890 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2012_AM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2884 | 874 | 335 | 154 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 743 | 230 | 88 | 41 | |
| Trucks and buses | 5 | 2 | 8 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.960 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3053 | 931 | 367 | 164 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.287 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 367 | lc/h |
| Weaving lane changes, LCW | 723 | lc/h |
| Non-weaving vehicle index, INW | 238 | |
| Non-weaving lane change, LCNW | 101 | lc/h |
| Total lane changes, LCALL | 824 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.246 | |
| Average weaving speed, SW | 59.1 | mi/h |
| Average non-weaving speed, SNW | 63.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.9 | mi/h |
| Weaving segment density, D | 14.6 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.418 | |
| Weaving segment flow rate, v | 4515 | pc/h |
| Weaving segment capacity, cW | 10511 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3884 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2160 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.418 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2012_PM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6153 | 774 | 285 | 136 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1654 | 204 | 75 | 36 | |
| Trucks and buses | 3 | 2 | 11 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.946 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6729 | 825 | 317 | 145 | pc/h |

Volume ratio, VR 0.142

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 317 | lc/h |
| Weaving lane changes, LCW | 673 | lc/h |
| Non-weaving vehicle index, INW | 509 | |
| Non-weaving lane change, LCNW | 854 | lc/h |
| Total lane changes, LCALL | 1527 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.400 | |
| Average weaving speed, SW | 54.3 | mi/h |
| Average non-weaving speed, SNW | 60.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.1 | mi/h |
| Weaving segment density, D | 27.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.705 | |
| Weaving segment flow rate, v | 8016 | pc/h |
| Weaving segment capacity, cW | 11180 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2390 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2274 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.705 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_AM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1257 | 71 | 878 | 12 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 339 | 19 | 231 | 3 | |
| Trucks and buses | 4 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1384 | 76 | 935 | 13 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.420 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 76 | lc/h |
| Weaving lane changes, LCW | 652 | lc/h |
| Non-weaving vehicle index, INW | 203 | |
| Non-weaving lane change, LCNW | 111 | lc/h |
| Total lane changes, LCALL | 763 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.136 | |
| Average weaving speed, SW | 63.4 | mi/h |
| Average non-weaving speed, SNW | 67.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 65.5 | mi/h |
| Weaving segment density, D | 7.4 | pc/mi/ln |
| Level of service, LOS | A | |
| Weaving segment v/c ratio | 0.289 | |
| Weaving segment flow rate, v | 2408 | pc/h |
| Weaving segment capacity, cW | 8157 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5339 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2102 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.289 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_AM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2825 | 372 | 22 | 19 | veh/h |
| Peak hour factor, PHF | 0.86 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 817 | 98 | 6 | 5 | |
| Trucks and buses | 4 | 2 | 7 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.964 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3340 | 396 | 24 | 20 | pc/h |

Volume ratio, VR 0.111

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 420 | lc/h |
| Weaving lane changes, LCW | 900 | lc/h |
| Non-weaving vehicle index, INW | 370 | |
| Non-weaving lane change, LCNW | 325 | lc/h |
| Total lane changes, LCALL | 1225 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.246 | |
| Average weaving speed, SW | 59.1 | mi/h |
| Average non-weaving speed, SNW | 63.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.9 | mi/h |
| Weaving segment density, D | 12.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.343 | |
| Weaving segment flow rate, v | 3780 | pc/h |
| Weaving segment capacity, cW | 10788 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3648 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2205 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.343 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_PM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2464 | 54 | 681 | 9 | veh/h |
| Peak hour factor, PHF | 0.94 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 656 | 14 | 179 | 2 | |
| Trucks and buses | 4 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2682 | 58 | 725 | 10 | pc/h |

Volume ratio, VR 0.225

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 58 | lc/h |
| Weaving lane changes, LCW | 634 | lc/h |
| Non-weaving vehicle index, INW | 390 | |
| Non-weaving lane change, LCNW | 377 | lc/h |
| Total lane changes, LCALL | 1011 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.170 | |
| Average weaving speed, SW | 62.0 | mi/h |
| Average non-weaving speed, SNW | 66.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 65.2 | mi/h |
| Weaving segment density, D | 10.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.307 | |
| Weaving segment flow rate, v | 3475 | pc/h |
| Weaving segment capacity, cW | 11076 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3231 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2264 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.307 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_PM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1335 | 1274 | 32 | 67 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 343 | 335 | 8 | 18 | |
| Trucks and buses | 4 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1404 | 1357 | 34 | 71 | pc/h |

Volume ratio, VR 0.485

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1391 | lc/h |
| Weaving lane changes, LCW | 1871 | lc/h |
| Non-weaving vehicle index, INW | 162 | |
| Non-weaving lane change, LCNW | 0 | lc/h |
| Total lane changes, LCALL | 1871 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.344 | |
| Average weaving speed, SW | 55.9 | mi/h |
| Average non-weaving speed, SNW | 57.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.6 | mi/h |
| Weaving segment density, D | 10.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.580 | |
| Weaving segment flow rate, v | 2866 | pc/h |
| Weaving segment capacity, cW | 4838 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 7656 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1899 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.580 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_AM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4101 | 1717 | 118 | 303 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1114 | 452 | 31 | 80 | |
| Trucks and buses | 3 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4533 | 1829 | 127 | 323 | pc/h |

Volume ratio, VR 0.287

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1956 | lc/h |
| Weaving lane changes, LCW | 2397 | lc/h |
| Non-weaving vehicle index, INW | 947 | |
| Non-weaving lane change, LCNW | 1287 | lc/h |
| Total lane changes, LCALL | 3684 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.373 | |
| Average weaving speed, SW | 55.0 | mi/h |
| Average non-weaving speed, SNW | 47.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.6 | mi/h |
| Weaving segment density, D | 34.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.815 | |
| Weaving segment flow rate, v | 6812 | pc/h |
| Weaving segment capacity, cW | 8219 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5446 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2133 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.815 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_AM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4128 | 414 | 1333 | 73 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1064 | 109 | 351 | 19 | |
| Trucks and buses | 4 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4349 | 450 | 1420 | 78 | pc/h |

Volume ratio, VR 0.297

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 450 | lc/h |
| Weaving lane changes, LCW | 716 | lc/h |
| Non-weaving vehicle index, INW | 398 | |
| Non-weaving lane change, LCNW | 629 | lc/h |
| Total lane changes, LCALL | 1345 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.310 | |
| Average weaving speed, SW | 57.0 | mi/h |
| Average non-weaving speed, SNW | 59.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.5 | mi/h |
| Weaving segment density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.727 | |
| Weaving segment flow rate, v | 6297 | pc/h |
| Weaving segment capacity, cW | 8470 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3985 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2164 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.727 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_PM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3724 | 1459 | 168 | 257 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 960 | 384 | 44 | 68 | |
| Trucks and buses | 3 | 2 | 7 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.964 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3904 | 1554 | 183 | 274 | pc/h |

Volume ratio, VR 0.294

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1737 | lc/h |
| Weaving lane changes, LCW | 2178 | lc/h |
| Non-weaving vehicle index, INW | 815 | |
| Non-weaving lane change, LCNW | 1147 | lc/h |
| Total lane changes, LCALL | 3325 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.344 | |
| Average weaving speed, SW | 55.9 | mi/h |
| Average non-weaving speed, SNW | 50.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.9 | mi/h |
| Weaving segment density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.724 | |
| Weaving segment flow rate, v | 5915 | pc/h |
| Weaving segment capacity, cW | 8036 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5516 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2127 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.724 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_PM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

### Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3404 | 478 | 1493 | 84 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 868 | 126 | 393 | 22 | |
| Trucks and buses | 3 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3533 | 517 | 1590 | 89 | pc/h |

Volume ratio, VR 0.368

### Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 517 | lc/h |
| Weaving lane changes, LCW | 783 | lc/h |
| Non-weaving vehicle index, INW | 326 | |
| Non-weaving lane change, LCNW | 464 | lc/h |
| Total lane changes, LCALL | 1247 | lc/h |

### Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.292 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 59.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.7 | mi/h |
| Weaving segment density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.680 | |
| Weaving segment flow rate, v | 5729 | pc/h |
| Weaving segment capacity, cW | 8279 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4756 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2105 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.680 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_AM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3138 | 353 | 764 | 62 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 853 | 93 | 201 | 16 | |
| Trucks and buses | 3 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3469 | 376 | 826 | 66 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.254 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 826 | lc/h |
| Weaving lane changes, LCW | 1349 | lc/h |
| Non-weaving vehicle index, INW | 442 | |
| Non-weaving lane change, LCNW | 443 | lc/h |
| Total lane changes, LCALL | 1792 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.300 | |
| Average weaving speed, SW | 57.3 | mi/h |
| Average non-weaving speed, SNW | 59.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.9 | mi/h |
| Weaving segment density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.501 | |
| Weaving segment flow rate, v | 4737 | pc/h |
| Weaving segment capacity, cW | 9300 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5093 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2106 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.501 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_AM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3664 | 191 | 1050 | 33 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 944 | 50 | 276 | 9 | |
| Trucks and buses | 3 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3842 | 204 | 1119 | 35 | pc/h |

Volume ratio, VR 0.254

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 408 | lc/h |
| Weaving lane changes, LCW | 917 | lc/h |
| Non-weaving vehicle index, INW | 465 | |
| Non-weaving lane change, LCNW | 486 | lc/h |
| Total lane changes, LCALL | 1403 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.256 | |
| Average weaving speed, SW | 58.8 | mi/h |
| Average non-weaving speed, SNW | 62.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.2 | mi/h |
| Weaving segment density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.468 | |
| Weaving segment flow rate, v | 5200 | pc/h |
| Weaving segment capacity, cW | 10919 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3534 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2222 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.468 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_PM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2888 | 485 | 740 | 85 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 744 | 128 | 195 | 22 | |
| Trucks and buses | 4 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3043 | 517 | 800 | 91 | pc/h |

Volume ratio, VR 0.296

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 800 | lc/h |
| Weaving lane changes, LCW | 1323 | lc/h |
| Non-weaving vehicle index, INW | 392 | |
| Non-weaving lane change, LCNW | 360 | lc/h |
| Total lane changes, LCALL | 1683 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.286 | |
| Average weaving speed, SW | 57.8 | mi/h |
| Average non-weaving speed, SNW | 60.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.3 | mi/h |
| Weaving segment density, D | 15.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.549 | |
| Weaving segment flow rate, v | 4451 | pc/h |
| Weaving segment capacity, cW | 7937 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5540 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2072 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.549 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_PM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3302 | 402 | 753 | 71 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 842 | 106 | 198 | 19 | |
| Trucks and buses | 3 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3427 | 432 | 802 | 76 | pc/h |

Volume ratio, VR 0.261

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 864 | lc/h |
| Weaving lane changes, LCW | 1373 | lc/h |
| Non-weaving vehicle index, INW | 420 | |
| Non-weaving lane change, LCNW | 409 | lc/h |
| Total lane changes, LCALL | 1782 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.309 | |
| Average weaving speed, SW | 57.0 | mi/h |
| Average non-weaving speed, SNW | 59.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.6 | mi/h |
| Weaving segment density, D | 16.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.427 | |
| Weaving segment flow rate, v | 4737 | pc/h |
| Weaving segment capacity, cW | 10900 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3598 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2216 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.427 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_AM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3891 | 342 | 718 | 18 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1057 | 90 | 189 | 5 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4301 | 364 | 765 | 19 | pc/h |

Volume ratio, VR 0.207

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 364 | lc/h |
| Weaving lane changes, LCW | 630 | lc/h |
| Non-weaving vehicle index, INW | 389 | |
| Non-weaving lane change, LCNW | 607 | lc/h |
| Total lane changes, LCALL | 1237 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.290 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 60.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.1 | mi/h |
| Weaving segment density, D | 22.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.644 | |
| Weaving segment flow rate, v | 5449 | pc/h |
| Weaving segment capacity, cW | 8323 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4610 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2116 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.644 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_AM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3602 | 537 | 331 | 28 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 928 | 141 | 87 | 7 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3777 | 572 | 353 | 30 | pc/h |

Volume ratio, VR 0.195

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 572 | lc/h |
| Weaving lane changes, LCW | 838 | lc/h |
| Non-weaving vehicle index, INW | 343 | |
| Non-weaving lane change, LCNW | 502 | lc/h |
| Total lane changes, LCALL | 1340 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.309 | |
| Average weaving speed, SW | 57.0 | mi/h |
| Average non-weaving speed, SNW | 60.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.6 | mi/h |
| Weaving segment density, D | 19.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.557 | |
| Weaving segment flow rate, v | 4732 | pc/h |
| Weaving segment capacity, cW | 8358 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4490 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2126 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.557 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_PM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3970 | 433 | 712 | 22 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1023 | 114 | 187 | 6 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4162 | 461 | 758 | 23 | pc/h |

Volume ratio, VR 0.226

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 461 | lc/h |
| Weaving lane changes, LCW | 727 | lc/h |
| Non-weaving vehicle index, INW | 377 | |
| Non-weaving lane change, LCNW | 580 | lc/h |
| Total lane changes, LCALL | 1307 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.303 | |
| Average weaving speed, SW | 57.2 | mi/h |
| Average non-weaving speed, SNW | 60.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.5 | mi/h |
| Weaving segment density, D | 22.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.643 | |
| Weaving segment flow rate, v | 5404 | pc/h |
| Weaving segment capacity, cW | 8267 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4799 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2101 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.643 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_PM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3282 | 626 | 388 | 32 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 837 | 165 | 102 | 8 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3406 | 667 | 413 | 34 | pc/h |

Volume ratio, VR 0.239

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 667 | lc/h |
| Weaving lane changes, LCW | 933 | lc/h |
| Non-weaving vehicle index, INW | 310 | |
| Non-weaving lane change, LCNW | 426 | lc/h |
| Total lane changes, LCALL | 1359 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.313 | |
| Average weaving speed, SW | 56.9 | mi/h |
| Average non-weaving speed, SNW | 59.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.1 | mi/h |
| Weaving segment density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.540 | |
| Weaving segment flow rate, v | 4520 | pc/h |
| Weaving segment capacity, cW | 8224 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4938 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2091 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.540 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_AM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2901 | 266 | 518 | 14 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 788 | 70 | 136 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3207 | 283 | 552 | 15 | pc/h |

Volume ratio, VR 0.206

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 283 | lc/h |
| Weaving lane changes, LCW | 711 | lc/h |
| Non-weaving vehicle index, INW | 596 | |
| Non-weaving lane change, LCNW | 896 | lc/h |
| Total lane changes, LCALL | 1607 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.202 | |
| Average weaving speed, SW | 60.7 | mi/h |
| Average non-weaving speed, SNW | 63.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.6 | mi/h |
| Weaving segment density, D | 16.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.463 | |
| Weaving segment flow rate, v | 4057 | pc/h |
| Weaving segment capacity, cW | 8614 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4596 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2190 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.463 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_AM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2739 | 572 | 317 | 30 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 706 | 151 | 83 | 8 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2886 | 609 | 338 | 32 | pc/h |

Volume ratio, VR 0.245

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 609 | lc/h |
| Weaving lane changes, LCW | 1037 | lc/h |
| Non-weaving vehicle index, INW | 540 | |
| Non-weaving lane change, LCNW | 833 | lc/h |
| Total lane changes, LCALL | 1870 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.228 | |
| Average weaving speed, SW | 59.8 | mi/h |
| Average non-weaving speed, SNW | 61.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.7 | mi/h |
| Weaving segment density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.448 | |
| Weaving segment flow rate, v | 3865 | pc/h |
| Weaving segment capacity, cW | 8450 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5002 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2159 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.448 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_PM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2841 | 266 | 518 | 14 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 732 | 70 | 136 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2979 | 283 | 552 | 15 | pc/h |

Volume ratio, VR 0.218

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 283 | lc/h |
| Weaving lane changes, LCW | 711 | lc/h |
| Non-weaving vehicle index, INW | 554 | |
| Non-weaving lane change, LCNW | 849 | lc/h |
| Total lane changes, LCALL | 1560 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.198 | |
| Average weaving speed, SW | 60.9 | mi/h |
| Average non-weaving speed, SNW | 63.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.8 | mi/h |
| Weaving segment density, D | 15.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.439 | |
| Weaving segment flow rate, v | 3829 | pc/h |
| Weaving segment capacity, cW | 8574 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4722 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2180 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.439 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_PM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2367 | 666 | 371 | 35 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 604 | 175 | 98 | 9 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2456 | 709 | 395 | 37 | pc/h |

Volume ratio, VR 0.307

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 709 | lc/h |
| Weaving lane changes, LCW | 1137 | lc/h |
| Non-weaving vehicle index, INW | 461 | |
| Non-weaving lane change, LCNW | 746 | lc/h |
| Total lane changes, LCALL | 1883 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.229 | |
| Average weaving speed, SW | 59.7 | mi/h |
| Average non-weaving speed, SNW | 60.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.3 | mi/h |
| Weaving segment density, D | 14.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.460 | |
| Weaving segment flow rate, v | 3597 | pc/h |
| Weaving segment capacity, cW | 7689 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5658 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2109 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.460 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2012_AM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4460 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 290 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 430 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4460 | 290 | 430 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1195 | 76 | 113 | v |
| Trucks and buses | 10 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.978 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 5029 | 312 | 458 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.179 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 899$ pc/h

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 5341 | 9600 | No |
| $v_3$ or $v_{av34}$ | | 2065 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2011$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2323 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 19.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.312$ | |
| Space mean speed in ramp influence area, | $S_R = 61.3$ | mph |
| Space mean speed in outer lanes, | $S_0 = 66.4$ | mph |
| Space mean speed for all vehicles, | $S = 64.0$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2012_PM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 5560 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1290 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 270 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 5560 | 1290 | 270 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1415 | 339 | 71 | v |
| Trucks and buses | 8 | 2 | 0 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.998 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 5899 | 1374 | 285 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.046 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 272$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 7273 | 9600 | No |
| $v_3$ or $v_{av34}$ | 2813 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2359$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3733 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 29.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.435$ | |
| Space mean speed in ramp influence area, | $S_R = 57.8$ | mph |
| Space mean speed in outer lanes, | $S_0 = 65.4$ | mph |
| Space mean speed for all vehicles, | $S = 61.3$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2012_AM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6190 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 440 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6190 | 440 | 90 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1659 | 116 | 24 | v |
| Trucks and buses | 8 | 2 | 7 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.964 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 6913 | 469 | 98 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.159 Using Equation 4

$v_{12} = v_{FM}(P_{FM}) = 1100$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 7382 | 9600 | No |
| $v_3$ or $v_{av34}$ | 2906 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | Yes | |

If yes, $v_{12A} = 2765$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3234 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 21.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.315 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.2 | mph |
| Space mean speed in outer lanes, | $S_0$ = 64.3 | mph |
| Space mean speed for all vehicles, | $S$ = 62.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2012_PM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8740 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 930 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 120 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8740 | 930 | 120 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2225 | 245 | 32 | v |
| Trucks and buses | 6 | 2 | 6 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.969 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9184 | 991 | 130 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.094 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 863$ pc/h

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 10175 | 9600 | Yes |
| $v_3$ or $v_{av34}$ | | 4160 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}/2$ | | Yes | |

If yes, $v_{12A} = 3673$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4664 | 4600 | Yes |

## Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 32.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.630$ | |
| Space mean speed in ramp influence area, | $S_R = 52.4$ | mph |
| Space mean speed in outer lanes, | $S_0 = 60.7$ | mph |
| Space mean speed for all vehicles, | $S = 56.6$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2012_AM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1930 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 350 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 80 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1930 | 350 | 80 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 517 | 92 | 21 | v |
| Trucks and buses | 25 | 7 | 8 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.887 | 0.964 | 0.960 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2331 | 382 | 88 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2331 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 2331 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1949 | 4800 | No |
| $v_R$ | 382 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2331 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2331 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 10.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.462

Space mean speed in ramp influence area, $S_R$ = 57.1 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2012_PM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1660 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 440 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1660 | 440 | 90 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 423 | 116 | 24 | v |
| Trucks and buses | 22 | 4 | 23 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.899 | 0.978 | 0.895 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1880 | 473 | 106 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_{FD} - v_F) P_{FD} = 1880 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1880 | 4800 | No |
| $v_{FO} = v_{FD} - v_R$ | 1407 | 4800 | No |
| $v_R$ | 473 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1880$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1880 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 6.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S = 0.471$

Space mean speed in ramp influence area, $S_R = 56.8$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 56.8$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2012_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1580 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 80 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 350 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1580 | 80 | 350 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 423 | 21 | 92 | v |
| Trucks and buses | 25 | 8 | 7 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.887 | 0.960 | 0.964 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1909 | 88 | 382 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1909$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1997 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}/2$ | No | |

If yes, $v_{12A} = 1909$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1997 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 17.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, $M_S = 0.315$

Space mean speed in ramp influence area, $S_R = 61.2$ mph

Space mean speed in outer lanes, $S_0 =$ N/A mph

Space mean speed for all vehicles, $S = 61.2$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2012_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1220 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 90 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 440 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1220 | 90 | 440 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 311 | 24 | 116 | v |
| Trucks and buses | 22 | 23 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.899 | 0.895 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1381 | 106 | 473 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1381$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1487 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1381 (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1487 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.303 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.5 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.5 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2012_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1370 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 10 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 940 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1370 | 10 | 940 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 367 | 3 | 247 | v |
| Trucks and buses | 21 | 11 | 45 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.903 | 0.946 | 0.815 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1625 | 11 | 1214 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1625$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1636 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1625$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1636 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 16.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.324 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.9 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2012_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1680 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 20 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 580 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1680 | 20 | 580 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 428 | 5 | 153 | v |
| Trucks and buses | 18 | 2 | 60 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | 0.988 | 0.768 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1868 | 21 | 795 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1868$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1889 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A}$ = 1868 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1889 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 18.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.329 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.8 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.8 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-8_2012_AM_Peak_SR_60_EB_Direct_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1360 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 90 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1360 | 90 | 90 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 364 | 24 | 24 | v |
| Trucks and buses | 21 | 33 | 33 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.903 | 0.857 | 0.857 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1614 | 111 | 111 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1614$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1725 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | No | |

If yes, $v_{12A}$ = 1614 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1725 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 17.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.325 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.9 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-8_2012_PM_Peak_SR_60_EB_Direct_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1660 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 200 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 200 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1660 | 200 | 200 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 423 | 53 | 53 | v |
| Trucks and buses | 18 | 23 | 23 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | 0.895 | 0.895 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1850 | 235 | 235 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1850$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2085 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1850 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2085 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 20.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.335 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.6 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.6 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-9_2012_AM_Peak_SR_60_EB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1480 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 380 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 20 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1480 | 380 | 20 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 397 | 100 | 5 | v |
| Trucks and buses | 7 | 15 | 26 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.929 | 0.883 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1645 | 431 | 24 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_{FD} - v_F) P_{FD} = 1645 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1645 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1214 | 4800 | No |
| $v_R$ | 431 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1645$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1645 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 16.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.467$

Space mean speed in ramp influence area, $S_R = 56.9$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 56.9$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-9_2012_PM_Peak_SR_60_EB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1900 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 410 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 36 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1900 | 410 | 36 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 484 | 108 | 9 | v |
| Trucks and buses | 6 | 8 | 24 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.960 | 0.891 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1997 | 450 | 43 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1997 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 1997 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1547 | 4800 | No |
| $v_R$ | 450 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1997 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1997 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 19.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.469

Space mean speed in ramp influence area, $S_R$ = 56.9 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 56.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2012_AM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1100 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 20 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 380 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1100 | 20 | 380 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 295 | 5 | 100 | v |
| Trucks and buses | 7 | 26 | 15 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.883 | 0.929 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1223 | 24 | 431 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1223$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1247 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | No | |

If yes, $v_{12A} = 1223$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1247 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 13.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.317 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.1 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.1 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2012_PM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1489 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 37 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 410 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1489 | 37 | 410 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 379 | 10 | 108 | v |
| Trucks and buses | 6 | 24 | 8 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.891 | 0.960 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1565 | 44 | 450 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1565$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1609 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 1565$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1609 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 16.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.323 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.0 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.0 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-11_2012_AM_Peak_SR_60_WB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 970 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 59 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 384 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 970 | 59 | 384 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 251 | 16 | 101 | v |
| Trucks and buses | 8 | 26 | 9 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.883 | 0.955 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1045 | 70 | 423 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1045 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 1045 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 975 | 4800 | No |
| $v_R$ | 70 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A}$ = 1045 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1045 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 11.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.434

Space mean speed in ramp influence area, $S_R$ = 57.8 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-11_2012_PM_Peak_SR_60_WB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 990 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 20 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 396 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 990 | 20 | 396 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 260 | 5 | 104 | v |
| Trucks and buses | 9 | 35 | 18 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.850 | 0.916 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1087 | 25 | 455 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1087 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 1087 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1062 | 4800 | No |
| $v_R$ | 25 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1087 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1087 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 11.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.430

Space mean speed in ramp influence area, $S_R$ = 58.0 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 58.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2012_AM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 910 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 384 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 59 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 910 | 384 | 59 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 235 | 101 | 16 | v |
| Trucks and buses | 8 | 9 | 26 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.955 | 0.883 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 980 | 423 | 70 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 980$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1403 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 980$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1403 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 14.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.319$ | |
| Space mean speed in ramp influence area, | $S_R = 61.1$ | mph |
| Space mean speed in outer lanes, | $S_0 =$ N/A | mph |
| Space mean speed for all vehicles, | $S = 61.1$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2012_PM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 969 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 397 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 20 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 969 | 397 | 20 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 254 | 104 | 5 | v |
| Trucks and buses | 9 | 18 | 35 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.916 | 0.850 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1064 | 456 | 25 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1064$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 1520 | 4800 | No |
| $v_3$ or $v_{av34}$ | | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 1064$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1520 | 4600 | No |

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 15.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.321$ | |
| Space mean speed in ramp influence area, | $S_R = 61.0$ | mph |
| Space mean speed in outer lanes, | $S_0 =$ N/A | mph |
| Space mean speed for all vehicles, | $S = 61.0$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2012_AM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 980 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 560 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 190 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 980 | 560 | 190 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 253 | 147 | 50 | v |
| Trucks and buses | 8 | 46 | 31 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.812 | 0.864 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1055 | 726 | 231 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1055$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1781 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1055 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1781 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 15.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, $M_S$ = 0.309

Space mean speed in ramp influence area, $S_R$ = 61.3 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 61.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2012_PM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1280 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 800 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 70 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1280 | 800 | 70 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 336 | 211 | 18 | v |
| Trucks and buses | 8 | 39 | 64 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.835 | 0.756 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1399 | 1008 | 97 | pcph |

## Estimation of V12 Merge Areas

L EQ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1399$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2407 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1399 (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2407 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 20.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.329 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.8 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.8 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2012_AM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1560 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 90 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 340 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1560 | 90 | 340 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 403 | 24 | 89 | v |
| Trucks and buses | 18 | 22 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | 0.899 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1761 | 105 | 366 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1761 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1761 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1656 | 4800 | No |
| $v_R$ | 105 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1761$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1761 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 17.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.437$

Space mean speed in ramp influence area, $S_R = 57.8$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.8$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2012_PM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2110 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 50 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 550 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2110 | 50 | 550 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 553 | 13 | 145 | v |
| Trucks and buses | 18 | 9 | 15 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | 0.955 | 0.929 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2416 | 55 | 624 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2416 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 2416 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2361 | 4800 | No |
| $v_R$ | 55 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2416 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2416 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 22.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.433

Space mean speed in ramp influence area, $S_R$ = 57.9 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-16_2012_AM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1470 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 340 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1470 | 340 | 90 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 380 | 89 | 24 | v |
| Trucks and buses | 18 | 4 | 22 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | 0.978 | 0.899 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1659 | 366 | 105 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1659$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2025 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | No | |

If yes, $v_{12A}$ = 1659 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2025 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{R12} + 0.0078\, v_{12} - 0.00627\, L_A = 18.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.316 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.2 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.2 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-16_2012_PM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2060 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 550 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 50 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2060 | 550 | 50 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 540 | 145 | 13 | v |
| Trucks and buses | 18 | 15 | 9 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | 0.929 | 0.955 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2359 | 624 | 55 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 2359$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2983 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2359 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2983 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 25.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.363 | |
| Space mean speed in ramp influence area, | $S_R$ = 59.8 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 59.8 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2012_AM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - With Project Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6910 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 490 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 790 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6910 | 490 | 790 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1781 | 129 | 208 | v |
| Trucks and buses | 6 | 2 | 1 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.993 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7352 | 522 | 837 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3500 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 7352 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 6830 | 9600 | No |
| $v_R$ | 522 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1926 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 3500$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3500 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D = 20.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S = 0.475$

Space mean speed in ramp influence area, $S_R = 56.7$ mph

Space mean speed in outer lanes, $S_0 = 73.2$ mph

Space mean speed for all vehicles, $S = 64.3$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2012_PM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - With Project Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6150 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 350 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 410 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6150 | 350 | 410 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1618 | 92 | 108 | v |
| Trucks and buses | 8 | 6 | 0 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.969 | 0.998 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 6746 | 380 | 432 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3156 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi} = v_F$ | | 6746 | 9600 | No |
| $v_{FO} = v_F - v_R$ | | 6366 | 9600 | No |
| $v_R$ | | 380 | 2000 | No |
| $v_3$ or $v_{av34}$ | | 1795 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 3156$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3156 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 17.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.462$

Space mean speed in ramp influence area, $S_R = 57.1$ mph

Space mean speed in outer lanes, $S_0 = 73.7$ mph

Space mean speed for all vehicles, $S = 64.8$ mph

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_AM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7860 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 2113 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1736 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1736 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_PM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9010 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2298 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1888 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1888 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 29.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_AM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6280 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1688 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1526 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1526 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 22.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_PM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8860 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2260 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1989 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1989 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 31.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2012_AM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7020 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1809 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1867 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1867 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2012_PM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3340 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 879 | v |
| Trucks and buses | 14 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 942 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 942 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_AM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4540 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1170 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1202 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1202 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_PM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7150 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1922 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1964 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1964 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2012_AM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4800 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1237 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1271 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1271 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2012_PM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7140 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1919 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1962 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1962 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_AM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6070 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1564 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1599 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1599 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_PM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5400 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1452 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1476 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1476 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_AM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3290 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 894 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1218 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1218 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_AM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4570 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1178 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1597 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1597 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_PM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4210 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1085 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1471 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1471 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_PM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3680 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 939 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1273 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1273 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_AM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4590 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1183 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1604 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1604 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_PM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4650 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1186 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1609 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1609 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_AM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3631 | 321 | 290 | 16 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 976 | 84 | 76 | 4 | |
| Trucks and buses | 11 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.851 | 0.962 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4588 | 351 | 327 | 18 | pc/h |

Volume ratio, VR 0.128

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 351 | lc/h |
| Weaving lane changes, LCW | 743 | lc/h |
| Non-weaving vehicle index, INW | 737 | |
| Non-weaving lane change, LCNW | 1046 | lc/h |
| Total lane changes, LCALL | 1789 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.247 | |
| Average weaving speed, SW | 59.1 | mi/h |
| Average non-weaving speed, SNW | 61.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.9 | mi/h |
| Weaving segment density, D | 21.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.562 | |
| Weaving segment flow rate, v | 5284 | pc/h |
| Weaving segment capacity, cW | 8000 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2250 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2350 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.562 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_PM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5672 | 950 | 306 | 50 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1447 | 250 | 81 | 13 | |
| Trucks and buses | 7 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6453 | 1040 | 335 | 55 | pc/h |

Volume ratio, VR 0.174

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1040 | lc/h |
| Weaving lane changes, LCW | 1432 | lc/h |
| Non-weaving vehicle index, INW | 1041 | |
| Non-weaving lane change, LCNW | 1437 | lc/h |
| Total lane changes, LCALL | 2869 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.358 | |
| Average weaving speed, SW | 55.5 | mi/h |
| Average non-weaving speed, SNW | 53.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.5 | mi/h |
| Weaving segment density, D | 36.9 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.851 | |
| Weaving segment flow rate, v | 7883 | pc/h |
| Weaving segment capacity, cW | 8305 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2710 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2315 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.851 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_AM_Peak_SR_60_WB_Box_Springs_Rd_to_Central.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5398 | 1151 | 329 | 60 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1391 | 303 | 87 | 16 | |
| Trucks and buses | 7 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6205 | 1260 | 360 | 66 | pc/h |

Volume ratio, VR 0.205

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1260 | lc/h |
| Weaving lane changes, LCW | 1939 | lc/h |
| Non-weaving vehicle index, INW | 1191 | |
| Non-weaving lane change, LCNW | 1359 | lc/h |
| Total lane changes, LCALL | 3298 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.349 | |
| Average weaving speed, SW | 55.8 | mi/h |
| Average non-weaving speed, SNW | 53.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.8 | mi/h |
| Weaving segment density, D | 29.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.682 | |
| Weaving segment flow rate, v | 7891 | pc/h |
| Weaving segment capacity, cW | 10377 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3024 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2314 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.682 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_PM_Peak_SR_60_WB_Box_Springs_Rd_to_Central.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5292 | 567 | 410 | 29 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1393 | 149 | 108 | 8 | |
| Trucks and buses | 8 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6295 | 621 | 449 | 32 | pc/h |

Volume ratio, VR 0.145

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 621 | lc/h |
| Weaving lane changes, LCW | 1300 | lc/h |
| Non-weaving vehicle index, INW | 1202 | |
| Non-weaving lane change, LCNW | 1370 | lc/h |
| Total lane changes, LCALL | 2670 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.296 | |
| Average weaving speed, SW | 57.5 | mi/h |
| Average non-weaving speed, SNW | 58.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.3 | mi/h |
| Weaving segment density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.627 | |
| Weaving segment flow rate, v | 7397 | pc/h |
| Weaving segment capacity, cW | 10447 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2412 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2361 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.627 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_AM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6092 | 428 | 606 | 22 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1570 | 113 | 159 | 6 | |
| Trucks and buses | 7 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6513 | 456 | 646 | 23 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.144 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 456 | lc/h |
| Weaving lane changes, LCW | 718 | lc/h |
| Non-weaving vehicle index, INW | 575 | |
| Non-weaving lane change, LCNW | 1053 | lc/h |
| Total lane changes, LCALL | 1771 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.392 | |
| Average weaving speed, SW | 54.5 | mi/h |
| Average non-weaving speed, SNW | 57.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.1 | mi/h |
| Weaving segment density, D | 33.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.836 | |
| Weaving segment flow rate, v | 7638 | pc/h |
| Weaving segment capacity, cW | 8806 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2408 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2283 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.836 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_PM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3107 | 269 | 689 | 14 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 835 | 71 | 181 | 4 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3448 | 287 | 734 | 15 | pc/h |

Volume ratio, VR 0.228

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 287 | lc/h |
| Weaving lane changes, LCW | 549 | lc/h |
| Non-weaving vehicle index, INW | 305 | |
| Non-weaving lane change, LCNW | 420 | lc/h |
| Total lane changes, LCALL | 969 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.244 | |
| Average weaving speed, SW | 59.2 | mi/h |
| Average non-weaving speed, SNW | 62.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.8 | mi/h |
| Weaving segment density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.505 | |
| Weaving segment flow rate, v | 4484 | pc/h |
| Weaving segment capacity, cW | 8597 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3255 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2218 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.505 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_AM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4427 | 152 | 622 | 8 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1141 | 40 | 164 | 2 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4687 | 162 | 663 | 9 | pc/h |

Volume ratio, VR 0.149

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 162 | lc/h |
| Weaving lane changes, LCW | 350 | lc/h |
| Non-weaving vehicle index, INW | 282 | |
| Non-weaving lane change, LCNW | 522 | lc/h |
| Total lane changes, LCALL | 872 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.304 | |
| Average weaving speed, SW | 57.2 | mi/h |
| Average non-weaving speed, SNW | 62.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.4 | mi/h |
| Weaving segment density, D | 22.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.611 | |
| Weaving segment flow rate, v | 5521 | pc/h |
| Weaving segment capacity, cW | 8795 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2460 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2258 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.611 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_PM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6207 | 322 | 522 | 16 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1669 | 85 | 137 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6788 | 343 | 556 | 17 | pc/h |

Volume ratio, VR 0.117

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 343 | lc/h |
| Weaving lane changes, LCW | 531 | lc/h |
| Non-weaving vehicle index, INW | 408 | |
| Non-weaving lane change, LCNW | 957 | lc/h |
| Total lane changes, LCALL | 1488 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.463 | |
| Average weaving speed, SW | 52.6 | mi/h |
| Average non-weaving speed, SNW | 58.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.6 | mi/h |
| Weaving segment density, D | 33.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.844 | |
| Weaving segment flow rate, v | 7704 | pc/h |
| Weaving segment capacity, cW | 8975 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2136 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2282 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.844 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2012_AM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6190 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 440 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6190 | 440 | 90 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1664 | 116 | 24 | v |
| Trucks and buses | 8 | 2 | 7 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.964 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 6935 | 469 | 98 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.159 Using Equation 4

$v_{12} = v_{FM}(P_{FM}) = 806$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 5532 | 9600 | No |
| $v_3$ or $v_{av34}$ | 2128 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | Yes | |

If yes, $v_{12A} = 2025$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2494 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 15.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.263 | |
| Space mean speed in ramp influence area, | $S_R$ = 62.6 | mph |
| Space mean speed in outer lanes, | $S_0$ = 66.3 | mph |
| Space mean speed for all vehicles, | $S$ = 64.6 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2012_PM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/03/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8740 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 930 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 120 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8740 | 930 | 120 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2230 | 245 | 32 | v |
| Trucks and buses | 6 | 2 | 6 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.969 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9204 | 991 | 130 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.094 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 630$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 7695 | 9600 | No |
| $v_3$ or $v_{av34}$ | | 3037 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}/2$ | | Yes | |

If yes, $v_{12A} = 2681$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3672 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 24.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.369$ | |
| Space mean speed in ramp influence area, | $S_R = 59.7$ | mph |
| Space mean speed in outer lanes, | $S_0 = 64.6$ | mph |
| Space mean speed for all vehicles, | $S = 62.1$ | mph |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-7 Off-Ramp to Theodore**
**ANALYSIS YEAR:** **Existing Plus Phase 1**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 2,310 |
| Peak Hour Factor, PHF | 0.93 |
| % Trucks and buses | 21 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.903 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **2,750** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 2,750 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **16.1** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-7 Off-Ramp to Theodore**
**ANALYSIS YEAR:** **Existing Plus Phase 1**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 2,260 |
| Peak Hour Factor, PHF | 0.98 |
| % Trucks and buses | 18 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.916 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **2,518** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 2,518 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **14.8** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-13 Off-Ramp to Theodore**
**ANALYSIS YEAR:** **Existing Plus Phase 1**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 1,170 |
| Peak Hour Factor, PHF | 0.97 |
| % Trucks and buses | 8 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.960 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **1,257** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 1,257 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **7.4** |
| **Level of service, LOS** | **A** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-13 Off-Ramp to Theodore**
**ANALYSIS YEAR:** **Existing Plus Phase 1**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 1,350 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 8 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.960 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **1,481** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 1,481 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **8.7** |
| **Level of service, LOS** | **A** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **Existing Plus Phase 1**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 6,940 |
| Peak Hour Factor, PHF | 0.97 |
| % Trucks and buses | 7 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.964 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **7,419** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 7,419 |
| Max Upstream Fwy Flow, $V_{F1}$ | 9,400 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 4 |
| Density, D | **32.6** |
| **Level of service, LOS** | **D** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **Existing Plus Phase 1**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 6,300 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 8 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.960 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **6,910** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 6,910 |
| Max Upstream Fwy Flow, $V_{F1}$ | 9,400 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 4 |
| Density, D | **30.4** |
| **Level of service, LOS** | **D** |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix K

## Freeway LOS Worksheets
## for Existing Plus Build-out Conditions

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HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_AM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6340 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1704 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1767 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1767 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_AM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8590 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 2214 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2274 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2274 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 40.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_PM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7720 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1969 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2032 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2032 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2012_PM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1732 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1787 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1787 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_AM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6020 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1618 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1678 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1678 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_AM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8080 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 2082 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2139 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2139 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_PM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9280 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2367 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2443 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2443 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 46.9 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2012_PM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1616 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1676 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1676 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_AM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6690 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1798 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1865 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1865 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_AM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6120 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1577 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1628 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1628 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_PM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9230 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2355 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2430 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2430 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 46.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2012_PM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6300 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1658 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1719 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1719 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_AM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6560 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1763 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1829 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1829 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_AM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6060 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1562 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1612 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1612 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_PM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6540 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1668 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1730 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1730 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2012_PM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6710 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1766 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1822 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1822 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_AM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8010 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 2153 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2222 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2222 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 38.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_AM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6260 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1613 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1665 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1665 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_PM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8950 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2283 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2356 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2356 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 43.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_PM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6520 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1716 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1779 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1779 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_AM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7290 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1960 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2022 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2022 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_AM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6050 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1559 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1601 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1601 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_PM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9260 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2362 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2438 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2438 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 46.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2012_PM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6930 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1824 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1882 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1882 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_AM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7180 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1930 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1992 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1992 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_AM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7400 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1907 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1959 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1959 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_PM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9240 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2357 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2433 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2433 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 46.5 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2012_PM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1708 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1771 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1771 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2012_AM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6650 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1788 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1845 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1845 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2012_PM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6290 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1605 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1664 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1664 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_AM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6480 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1742 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1438 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1438 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 20.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_AM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5510 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1420 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1167 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1167 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_PM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6670 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1702 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1412 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1412 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2012_PM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5960 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1568 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1301 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1301 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_AM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4580 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1231 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1277 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1277 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_AM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5070 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1307 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1342 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1342 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_PM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4350 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1110 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1156 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1156 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2012_PM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1418 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1464 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1464 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_AM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3030 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 815 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 865 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 865 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_AM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4160 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1072 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 881 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 881 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 12.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_PM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2670 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 681 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 723 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 723 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.3 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2012_PM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4600 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1211 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1004 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1004 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 14.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_AM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3490 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 938 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 996 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 996 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_AM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3850 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 992 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1024 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1024 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_PM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3770 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 962 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1012 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1012 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2012_PM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1129 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1171 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1171 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_AM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3060 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 823 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 878 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 878 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_AM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3820 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 985 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1016 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1016 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_PM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2870 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 732 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 778 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 778 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2012_PM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1147 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1190 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1190 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_AM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3320 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 892 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 948 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 948 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_AM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2860 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 737 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 764 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 764 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_PM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3030 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 773 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 821 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 821 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2012_PM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3440 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 905 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 948 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 948 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_AM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3860 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1038 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1097 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1097 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_AM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2310 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 595 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 623 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 623 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_PM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3320 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 847 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 895 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 895 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2012_PM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2960 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 779 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 819 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 819 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_AM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4920 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1323 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1846 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1846 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_AM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4150 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1070 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1472 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1472 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_PM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3950 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1008 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1413 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1413 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2012_PM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1347 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1863 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1863 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_AM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5490 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1476 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2060 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2060 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 33.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_AM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3260 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 840 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1162 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1162 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 16.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_PM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4510 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1151 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1614 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1614 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2012_PM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1137 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1579 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1579 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_AM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5040 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1355 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1891 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1891 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_AM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5290 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1363 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1867 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1867 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_PM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6850 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1747 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2439 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2439 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 46.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2012_PM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1458 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2016 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2016 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2012_AM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4990 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1286 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1770 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1770 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2012_PM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1334 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1845 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1845 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_AM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6600 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1774 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.851 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2085 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2085 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_AM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6800 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1753 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1980 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1980 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_PM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8760 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2235 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2525 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2525 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 49.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 50.9 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_PM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1689 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.851 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1985 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1985 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_AM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4950 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1331 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1420 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1420 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_AM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7140 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1840 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1917 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1917 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_PM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6710 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1712 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1792 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1792 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2012_PM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7030 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1850 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1955 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1955 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2012_AM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7000 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1804 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2507 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2507 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 50.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 50.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2012_PM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 929 | v |
| Trucks and buses | 19 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.912 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1359 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1359 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_AM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3330 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 895 | v |
| Trucks and buses | 23 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.895 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2000 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2000 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_AM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2980 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 768 | v |
| Trucks and buses | 14 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1647 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1647 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_PM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3820 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 974 | v |
| Trucks and buses | 15 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.929 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2099 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2099 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 34.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_PM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 992 | v |
| Trucks and buses | 19 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.912 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2177 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2177 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 36.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_AM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3220 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 866 | v |
| Trucks and buses | 23 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.895 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1934 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1934 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 30.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_AM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2710 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 698 | v |
| Trucks and buses | 16 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1511 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1511 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_PM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3480 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 888 | v |
| Trucks and buses | 17 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.920 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1930 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1930 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 30.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2012_PM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 874 | v |
| Trucks and buses | 21 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.903 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1934 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1934 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 30.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_AM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2750 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 739 | v |
| Trucks and buses | 27 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.880 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1681 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1681 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_AM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2120 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 546 | v |
| Trucks and buses | 20 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.907 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1204 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1204 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_PM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2540 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 648 | v |
| Trucks and buses | 23 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.895 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1448 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1448 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2012_PM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2830 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 745 | v |
| Trucks and buses | 24 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.891 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1671 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1671 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-32_2012_AM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Nason St to Moreno Beach Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2420 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 651 | v |
| Trucks and buses | 30 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.868 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1499 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1499 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 21.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-32_2012_PM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Nason St to Moreno Beach Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2260 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 577 | v |
| Trucks and buses | 25 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.887 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1299 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1299 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_AM_Peak_SR_60_EB_Moreno_Beach_to_Redlands_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2140 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 575 | v |
| Trucks and buses | 34 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.853 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1348 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1348 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_AM_Peak_SR_60_WB_Redlands_Blvd_to_Moreno_Beach.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands Blvd to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1330 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 343 | v |
| Trucks and buses | 30 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.868 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 790 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 790 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 11.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_PM_Peak_SR_60_EB_Moreno_Beach_to_Redlands_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1750 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 446 | v |
| Trucks and buses | 32 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.861 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1037 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1037 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2012_PM_Peak_SR_60_WB_Redlands_Blvd_to_Moreno_Beach.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands Blvd to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 545 | v |
| Trucks and buses | 32 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.861 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1266 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1266 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_AM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2590 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 696 | v |
| Trucks and buses | 26 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.883 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1576 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1576 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_AM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1660 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 428 | v |
| Trucks and buses | 26 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.883 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 969 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 969 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 13.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_PM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2380 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 607 | v |
| Trucks and buses | 25 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.887 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1368 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1368 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2012_PM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2300 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 605 | v |
| Trucks and buses | 23 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.895 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1352 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1352 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_AM_Peak_SR_60_EB_Theodore_St_to_Gilman_Spring.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Theodore St to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1550 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 417 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 889 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 889 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_AM_Peak_SR_60_WB_Gilman_Springs_Rd_to_Theodore.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Gilman Springs Rd to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1100 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 284 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 605 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 605 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 8.6 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_PM_Peak_SR_60_EB_Theodore_St_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Theodore St to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1830 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 467 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 978 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 978 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-35_2012_PM_Peak_SR_60_WB_Gilman_Springs_Rd_to_Theodore.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Gilman Springs Rd to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 397 | v |
| Trucks and buses | 16 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 860 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 860 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_AM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1180 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 317 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.743 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 853 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 853 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_AM_Peak_SR_60_WB_Jack_Rabbit_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1070 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 276 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.725 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 761 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 761 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 10.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_PM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1680 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 429 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.784 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1093 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1093 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2012_PM_Peak_SR_60_WB_Jack_Rabbit_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 258 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.690 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 748 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 748 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 10.7 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_AM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1180 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 317 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 664 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 664 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 9.5 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_AM_Peak_SR_60_WB_I-10_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Jack Rabbit Trail |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1070 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 276 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 580 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 580 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 8.3 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_PM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1680 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 429 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 889 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 889 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2012_PM_Peak_SR_60_WB_I-10_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Jack Rabbit Trail |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 258 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 548 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 548 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 7.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_AM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6120 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1577 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1620 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1620 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_AM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6240 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1608 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1652 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1652 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_PM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9310 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 2503 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2558 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2558 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 52.6 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2012_PM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6170 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1659 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1703 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1703 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_AM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5610 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1446 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1980 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1980 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_AM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4620 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1191 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1638 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1638 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_PM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5320 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1430 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1958 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1958 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2012_PM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5370 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1444 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1977 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1977 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_AM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5110 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1317 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1812 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1812 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_AM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4470 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1152 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1585 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1585 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_PM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4820 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1296 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1774 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1774 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_PM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7230 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1944 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2661 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2661 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 45.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 58.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2012_AM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4740 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1222 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1681 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1681 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2012_PM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7210 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1938 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2654 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2654 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 45.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 58.4 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_AM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4790 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1235 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1699 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1699 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_AM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4290 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1106 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1521 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1521 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_PM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4860 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1306 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1789 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1789 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2012_PM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5330 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1433 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1962 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1962 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_AM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5890 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1518 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1559 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1559 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_AM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5630 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1451 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1497 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1497 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_PM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5780 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1554 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1596 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1596 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2012_PM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6810 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1831 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1880 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1880 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_AM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6010 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1549 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1591 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1591 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_AM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5230 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1348 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1391 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1391 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_PM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4940 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1328 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1364 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1364 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2012_PM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6560 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1763 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1811 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1811 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_AM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6690 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1724 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1797 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1797 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_AM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4840 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1247 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1287 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1287 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_PM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4700 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1263 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1310 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1310 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2012_PM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5590 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1503 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1536 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1536 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_AM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6020 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1552 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1617 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1617 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_AM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4140 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1067 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1468 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1468 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_PM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4500 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1210 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1254 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1254 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2012_PM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4830 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1298 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1778 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1778 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_AM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6100 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1572 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2153 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2153 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 36.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_AM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4700 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1211 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1667 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1667 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_PM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5410 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1454 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1982 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1982 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_PM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5030 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1352 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1852 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1852 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2012_AM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7300 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1881 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1546 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1546 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 22.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2012_PM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6420 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1726 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1404 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1404 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 20.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_AM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3050 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 820 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 838 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 838 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_AM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4340 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1262 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1296 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1296 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_PM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4380 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1165 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1191 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1191 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2012_PM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3730 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 961 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 982 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 982 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_AM_Peak_I-10_EB_Beaumont_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3070 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 825 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 843 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 843 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_AM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4430 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1288 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1316 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1316 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_PM_Peak_I-10_EB_Beaumont_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4400 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1170 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1196 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1196 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2012_PM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3750 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 966 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 988 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 988 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_AM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3200 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 860 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 879 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 879 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_AM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4630 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1346 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1376 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1376 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_PM_Peak_I-10_EB_Pennsylvania_to_Highland_Spring.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Spring |
| Jurisdiction: | |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4610 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1226 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1253 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1253 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2012_PM_Peak_I-10_WB_Highland_Spring_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Spring to Pennsylvania |
| Jurisdiction: | |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3910 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1008 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1030 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1030 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_AM_Peak_I-10_EB_Highland_Springs_to_Sunset.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3060 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 823 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 841 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 841 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_AM_Peak_I-10_WB_Sunset_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4460 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1297 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1325 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1325 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_PM_Peak_I-10_EB_Highland_Springs_to_Sunset.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4420 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1176 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1201 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1201 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2012_PM_Peak_I-10_WB_Sunset_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3750 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 966 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 988 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 988 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_AM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2970 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 798 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 816 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 816 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_AM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4350 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1265 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1292 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1292 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_PM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4310 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1146 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1171 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1171 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2012_PM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3640 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 938 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 959 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 959 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_AM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2920 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 785 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 802 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 802 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_AM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4280 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1244 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1272 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1272 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_PM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4240 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1128 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1152 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1152 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2012_PM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3580 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 923 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 943 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 943 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_AM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2910 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 782 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 799 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 799 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_AM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4280 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1244 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1272 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1272 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_PM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4240 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1128 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1152 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1152 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2012_PM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3570 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 920 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 940 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 940 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_AM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2600 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 699 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 714 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 714 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.2 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_AM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3860 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1122 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1147 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1147 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_PM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3820 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 1016 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1038 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1038 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2012_PM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3190 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 822 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 840 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 840 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_AM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2480 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 667 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 681 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 681 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 9.7 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_AM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3680 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 1070 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1093 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1093 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_PM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3650 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 971 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 992 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 992 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2012_PM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3040 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 784 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 801 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 801 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_AM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2190 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 589 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 602 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 602 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.6 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_AM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3260 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 948 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 969 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 969 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_PM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3230 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 859 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 878 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 878 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2012_PM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2680 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 691 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 709 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 709 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.1 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_AM_Peak_I-10_EB_Main_to_Haugen-Lehmann_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2180 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 586 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 599 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 599 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.6 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_AM_Peak_I-10_WB_Haugen-Lehmann_Way_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann Way to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3270 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 951 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 971 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 971 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_PM_Peak_I-10_EB_Main_to_Haugen-Lehmann_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3230 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 859 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 878 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 878 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2012_PM_Peak_I-10_WB_Haugen-Lehmann_Way_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann Way to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2680 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 691 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 709 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 709 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.1 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_AM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1890 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 508 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 519 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 519 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 7.4 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_AM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2840 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 826 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 844 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 844 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_PM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2810 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 747 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 764 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 764 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2012_PM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2340 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 603 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 616 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 616 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_AM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1920 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 516 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 527 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 527 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 7.5 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_AM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2840 | veh/h |
| Peak-hour factor, PHF | 0.86 | |
| Peak 15-min volume, v15 | 826 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 844 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 844 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_PM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2810 | veh/h |
| Peak-hour factor, PHF | 0.94 | |
| Peak 15-min volume, v15 | 747 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 764 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 764 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.9 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2012_PM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2340 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 603 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 616 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 616 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 8.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_AM_Peak_I-215_NB_Scott_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2660 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 723 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1477 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1477 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_AM_Peak_I-215_SB_Newport_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2270 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 585 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1196 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1196 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_PM_Peak_I-215_NB_Scott_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3280 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 845 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1728 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1728 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2012_PM_Peak_I-215_SB_Newport_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2240 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 571 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1168 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1168 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_AM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1840 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 500 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1027 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1027 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_AM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2530 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 652 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1333 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1333 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_PM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2040 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 526 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1075 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1075 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2012_PM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3040 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 776 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1585 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1585 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_AM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2360 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 641 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1311 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1311 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_AM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3080 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 794 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1623 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1623 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_PM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3290 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 848 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1733 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1733 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 26.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2012_PM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2490 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 635 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1298 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1298 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_AM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3690 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1003 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2050 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2050 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 33.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_AM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2900 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 747 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1528 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1528 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 22.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_PM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3160 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 814 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1665 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1665 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2012_PM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3840 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 980 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2002 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2002 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.5 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_AM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3240 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 880 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1800 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1800 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_AM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4600 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1186 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2411 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2411 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 45.5 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_PM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4230 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1090 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2228 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2228 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 38.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_PM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3650 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 931 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1903 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1903 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 29.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_AM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5520 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1500 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2044 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2044 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 33.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_AM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5320 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1371 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1868 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1868 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_PM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5290 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1363 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1858 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1858 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2012_PM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4870 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1242 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1693 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1693 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_AM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5410 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1470 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2003 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2003 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_AM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5690 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1466 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1998 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1998 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_PM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5160 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1330 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1812 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1812 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2012_PM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5180 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1321 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1801 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1801 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_AM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5260 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1429 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1948 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1948 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_AM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5530 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1425 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1942 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1942 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_PM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5290 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1363 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1858 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1858 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2012_PM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5160 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1316 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1794 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1794 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_AM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5640 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1533 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2078 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2078 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 34.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_AM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5550 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1430 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1949 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1949 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_PM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5680 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1464 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1995 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1995 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2012_PM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5210 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1329 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1811 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1811 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_AM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5450 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1481 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1506 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1506 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_AM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5900 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1521 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1554 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1554 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_PM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5580 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1438 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1470 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1470 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2012_PM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5550 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1416 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1440 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1440 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_AM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4190 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 1139 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1164 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1164 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_AM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4120 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1062 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1085 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1085 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_PM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4620 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1191 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1217 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1217 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2012_PM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4000 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1020 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1043 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1043 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_AM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2920 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 793 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1622 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1622 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_AM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4630 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1193 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2439 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2439 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 46.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_PM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3440 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 887 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1812 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1812 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_PM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4610 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1176 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2404 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2404 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 45.2 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_AM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4838 | 983 | 303 | 173 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1301 | 259 | 80 | 46 | |
| Trucks and buses | 7 | 7 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.964 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5395 | 1073 | 323 | 184 | pc/h |

Volume ratio, VR 0.200

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1396 | lc/h |
| Weaving lane changes, LCW | 2031 | lc/h |
| Non-weaving vehicle index, INW | 948 | |
| Non-weaving lane change, LCNW | 1108 | lc/h |
| Total lane changes, LCALL | 3139 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.367 | |
| Average weaving speed, SW | 55.2 | mi/h |
| Average non-weaving speed, SNW | 53.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.6 | mi/h |
| Weaving segment density, D | 26.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.639 | |
| Weaving segment flow rate, v | 6975 | pc/h |
| Weaving segment capacity, cW | 10526 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4538 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2183 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.639 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_AM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4433 | 377 | 1072 | 66 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1143 | 99 | 282 | 17 | |
| Trucks and buses | 6 | 3 | 7 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.983 | 0.964 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4716 | 404 | 1170 | 70 | pc/h |

Volume ratio, VR 0.247

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 404 | lc/h |
| Weaving lane changes, LCW | 1114 | lc/h |
| Non-weaving vehicle index, INW | 981 | |
| Non-weaving lane change, LCNW | 1134 | lc/h |
| Total lane changes, LCALL | 2248 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.243 | |
| Average weaving speed, SW | 59.2 | mi/h |
| Average non-weaving speed, SNW | 61.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.5 | mi/h |
| Weaving segment density, D | 21.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.555 | |
| Weaving segment flow rate, v | 6360 | pc/h |
| Weaving segment capacity, cW | 11105 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3461 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2292 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.555 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_PM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6818 | 1135 | 345 | 200 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1739 | 299 | 91 | 53 | |
| Trucks and buses | 6 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7180 | 1233 | 368 | 213 | pc/h |

Volume ratio, VR 0.178

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1601 | lc/h |
| Weaving lane changes, LCW | 2236 | lc/h |
| Non-weaving vehicle index, INW | 1257 | |
| Non-weaving lane change, LCNW | 1481 | lc/h |
| Total lane changes, LCALL | 3717 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.419 | |
| Average weaving speed, SW | 53.8 | mi/h |
| Average non-weaving speed, SNW | 49.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.5 | mi/h |
| Weaving segment density, D | 35.6 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.818 | |
| Weaving segment flow rate, v | 8994 | pc/h |
| Weaving segment capacity, cW | 10659 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4313 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2200 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.818 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2012_PM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4748 | 358 | 919 | 63 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1249 | 94 | 242 | 17 | |
| Trucks and buses | 7 | 2 | 7 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.964 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5183 | 381 | 1003 | 67 | pc/h |

Volume ratio, VR 0.209

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 381 | lc/h |
| Weaving lane changes, LCW | 1091 | lc/h |
| Non-weaving vehicle index, INW | 1076 | |
| Non-weaving lane change, LCNW | 1230 | lc/h |
| Total lane changes, LCALL | 2321 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.249 | |
| Average weaving speed, SW | 59.0 | mi/h |
| Average non-weaving speed, SNW | 60.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.5 | mi/h |
| Weaving segment density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.571 | |
| Weaving segment flow rate, v | 6634 | pc/h |
| Weaving segment capacity, cW | 11201 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3059 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2323 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.571 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2012_AM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4983 | 509 | 489 | 26 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1284 | 134 | 129 | 7 | |
| Trucks and buses | 5 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5276 | 542 | 523 | 28 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.167 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1065 | lc/h |
| Weaving lane changes, LCW | 1815 | lc/h |
| Non-weaving vehicle index, INW | 1193 | |
| Non-weaving lane change, LCNW | 1349 | lc/h |
| Total lane changes, LCALL | 3164 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.296 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 56.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.4 | mi/h |
| Weaving segment density, D | 22.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.566 | |
| Weaving segment flow rate, v | 6369 | pc/h |
| Weaving segment capacity, cW | 10959 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4204 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2251 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.566 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2012_PM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5126 | 744 | 409 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1349 | 196 | 108 | 10 | |
| Trucks and buses | 7 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5595 | 793 | 440 | 42 | pc/h |
| Volume ratio, VR | | 0.179 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1233 | lc/h |
| Weaving lane changes, LCW | 1983 | lc/h |
| Non-weaving vehicle index, INW | 1268 | |
| Non-weaving lane change, LCNW | 1418 | lc/h |
| Total lane changes, LCALL | 3401 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.313 | |
| Average weaving speed, SW | 56.9 | mi/h |
| Average non-weaving speed, SNW | 54.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.9 | mi/h |
| Weaving segment density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.613 | |
| Weaving segment flow rate, v | 6870 | pc/h |
| Weaving segment capacity, cW | 10805 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4327 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2241 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.613 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2012_AM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4832 | 384 | 605 | 67 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1299 | 101 | 159 | 18 | |
| Trucks and buses | 9 | 7 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.964 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5440 | 419 | 651 | 71 | pc/h |

Volume ratio, VR 0.163

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 651 | lc/h |
| Weaving lane changes, LCW | 868 | lc/h |
| Non-weaving vehicle index, INW | 386 | |
| Non-weaving lane change, LCNW | 744 | lc/h |
| Total lane changes, LCALL | 1612 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.436 | |
| Average weaving speed, SW | 53.3 | mi/h |
| Average non-weaving speed, SNW | 57.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.7 | mi/h |
| Weaving segment density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.770 | |
| Weaving segment flow rate, v | 6581 | pc/h |
| Weaving segment capacity, cW | 8160 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4157 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2135 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.770 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2012_PM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5841 | 285 | 733 | 50 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1490 | 75 | 193 | 13 | |
| Trucks and buses | 8 | 8 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.960 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6211 | 313 | 789 | 53 | pc/h |

Volume ratio, VR 0.150

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 789 | lc/h |
| Weaving lane changes, LCW | 1006 | lc/h |
| Non-weaving vehicle index, INW | 438 | |
| Non-weaving lane change, LCNW | 899 | lc/h |
| Total lane changes, LCALL | 1905 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.498 | |
| Average weaving speed, SW | 51.7 | mi/h |
| Average non-weaving speed, SNW | 55.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.9 | mi/h |
| Weaving segment density, D | 33.6 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.859 | |
| Weaving segment flow rate, v | 7366 | pc/h |
| Weaving segment capacity, cW | 8234 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4027 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2145 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.859 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_AM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2949 | 1241 | 179 | 219 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 793 | 327 | 47 | 58 | |
| Trucks and buses | 14 | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | 0.960 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3399 | 1361 | 191 | 233 | pc/h |

Volume ratio, VR 0.299

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1361 | lc/h |
| Weaving lane changes, LCW | 1884 | lc/h |
| Non-weaving vehicle index, INW | 454 | |
| Non-weaving lane change, LCNW | 463 | lc/h |
| Total lane changes, LCALL | 2347 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.372 | |
| Average weaving speed, SW | 55.1 | mi/h |
| Average non-weaving speed, SNW | 55.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.2 | mi/h |
| Weaving segment density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.474 | |
| Weaving segment flow rate, v | 5184 | pc/h |
| Weaving segment capacity, cW | 10210 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4011 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2189 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.474 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_AM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5701 | 593 | 960 | 104 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1469 | 156 | 253 | 27 | |
| Trucks and buses | 8 | 2 | 12 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.942 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6124 | 632 | 1073 | 111 | pc/h |

Volume ratio, VR 0.215

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 632 | lc/h |
| Weaving lane changes, LCW | 1127 | lc/h |
| Non-weaving vehicle index, INW | 717 | |
| Non-weaving lane change, LCNW | 945 | lc/h |
| Total lane changes, LCALL | 2072 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.360 | |
| Average weaving speed, SW | 55.5 | mi/h |
| Average non-weaving speed, SNW | 57.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.3 | mi/h |
| Weaving segment density, D | 27.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.706 | |
| Weaving segment flow rate, v | 7940 | pc/h |
| Weaving segment capacity, cW | 10792 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3121 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2249 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.706 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_PM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7469 | 1351 | 210 | 238 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1905 | 356 | 55 | 63 | |
| Trucks and buses | 8 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7942 | 1468 | 224 | 254 | pc/h |

Volume ratio, VR 0.171

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1468 | lc/h |
| Weaving lane changes, LCW | 1991 | lc/h |
| Non-weaving vehicle index, INW | 1025 | |
| Non-weaving lane change, LCNW | 1403 | lc/h |
| Total lane changes, LCALL | 3394 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.497 | |
| Average weaving speed, SW | 51.7 | mi/h |
| Average non-weaving speed, SNW | 49.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.2 | mi/h |
| Weaving segment density, D | 39.4 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.863 | |
| Weaving segment flow rate, v | 9888 | pc/h |
| Weaving segment capacity, cW | 10993 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2677 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2291 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.863 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_PM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6112 | 692 | 842 | 122 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1608 | 182 | 222 | 32 | |
| Trucks and buses | 10 | 2 | 16 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.924 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6768 | 737 | 959 | 130 | pc/h |

Volume ratio, VR 0.197

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 737 | lc/h |
| Weaving lane changes, LCW | 1232 | lc/h |
| Non-weaving vehicle index, INW | 793 | |
| Non-weaving lane change, LCNW | 1081 | lc/h |
| Total lane changes, LCALL | 2313 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.392 | |
| Average weaving speed, SW | 54.5 | mi/h |
| Average non-weaving speed, SNW | 56.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.0 | mi/h |
| Weaving segment density, D | 30.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.760 | |
| Weaving segment flow rate, v | 8594 | pc/h |
| Weaving segment capacity, cW | 10756 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2943 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2263 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.760 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_AM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3885 | 327 | 289 | 17 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1044 | 86 | 76 | 4 | |
| Trucks and buses | 15 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.810 | 0.909 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5159 | 379 | 316 | 19 | pc/h |

Volume ratio, VR 0.118

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 695 | lc/h |
| Weaving lane changes, LCW | 1087 | lc/h |
| Non-weaving vehicle index, INW | 828 | |
| Non-weaving lane change, LCNW | 1163 | lc/h |
| Total lane changes, LCALL | 2250 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.296 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 57.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.9 | mi/h |
| Weaving segment density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.656 | |
| Weaving segment flow rate, v | 5873 | pc/h |
| Weaving segment capacity, cW | 7249 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3718 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2238 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.656 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_AM_Peak_SR_60_WB_University_Ave_to_W_Blaine.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4743 | 108 | 502 | 5 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1222 | 28 | 132 | 1 | |
| Trucks and buses | 10 | 4 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.862 | 0.935 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5672 | 122 | 557 | 5 | pc/h |

Volume ratio, VR 0.107

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 122 | lc/h |
| Weaving lane changes, LCW | 685 | lc/h |
| Non-weaving vehicle index, INW | 795 | |
| Non-weaving lane change, LCNW | 965 | lc/h |
| Total lane changes, LCALL | 1650 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.257 | |
| Average weaving speed, SW | 58.7 | mi/h |
| Average non-weaving speed, SNW | 63.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.5 | mi/h |
| Weaving segment density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.541 | |
| Weaving segment flow rate, v | 6356 | pc/h |
| Weaving segment capacity, cW | 10134 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2040 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2351 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.541 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_PM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5618 | 954 | 306 | 50 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1433 | 251 | 81 | 13 | |
| Trucks and buses | 9 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.948 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6564 | 1059 | 335 | 55 | pc/h |

Volume ratio, VR 0.174

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1394 | lc/h |
| Weaving lane changes, LCW | 1786 | lc/h |
| Non-weaving vehicle index, INW | 1059 | |
| Non-weaving lane change, LCNW | 1460 | lc/h |
| Total lane changes, LCALL | 3246 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.395 | |
| Average weaving speed, SW | 54.4 | mi/h |
| Average non-weaving speed, SNW | 50.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.0 | mi/h |
| Weaving segment density, D | 39.3 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.912 | |
| Weaving segment flow rate, v | 8013 | pc/h |
| Weaving segment capacity, cW | 7672 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4272 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2196 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.912 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_PM_Peak_SR_60_WB_University_Ave_to_W_Blaine.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6043 | 314 | 445 | 16 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1590 | 83 | 117 | 4 | |
| Trucks and buses | 10 | 3 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.862 | 0.948 | 0.922 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7379 | 349 | 508 | 18 | pc/h |

Volume ratio, VR 0.104

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 349 | lc/h |
| Weaving lane changes, LCW | 912 | lc/h |
| Non-weaving vehicle index, INW | 1036 | |
| Non-weaving lane change, LCNW | 1320 | lc/h |
| Total lane changes, LCALL | 2232 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.327 | |
| Average weaving speed, SW | 56.5 | mi/h |
| Average non-weaving speed, SNW | 59.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.2 | mi/h |
| Weaving segment density, D | 27.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.702 | |
| Weaving segment flow rate, v | 8254 | pc/h |
| Weaving segment capacity, cW | 10142 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2011 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2353 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.702 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_AM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4458 | 281 | 415 | 14 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1198 | 74 | 109 | 4 | |
| Trucks and buses | 14 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5139 | 302 | 442 | 15 | pc/h |

Volume ratio, VR 0.126

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 442 | lc/h |
| Weaving lane changes, LCW | 749 | lc/h |
| Non-weaving vehicle index, INW | 567 | |
| Non-weaving lane change, LCNW | 888 | lc/h |
| Total lane changes, LCALL | 1637 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.309 | |
| Average weaving speed, SW | 57.0 | mi/h |
| Average non-weaving speed, SNW | 59.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.4 | mi/h |
| Weaving segment density, D | 24.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.672 | |
| Weaving segment flow rate, v | 5898 | pc/h |
| Weaving segment capacity, cW | 8187 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3795 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2194 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.672 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_AM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3923 | 750 | 586 | 39 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1011 | 197 | 154 | 10 | |
| Trucks and buses | 10 | 1 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.993 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4255 | 795 | 624 | 42 | pc/h |

Volume ratio, VR 0.248

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1419 | lc/h |
| Weaving lane changes, LCW | 1726 | lc/h |
| Non-weaving vehicle index, INW | 473 | |
| Non-weaving lane change, LCNW | 711 | lc/h |
| Total lane changes, LCALL | 2437 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.423 | |
| Average weaving speed, SW | 53.6 | mi/h |
| Average non-weaving speed, SNW | 52.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.1 | mi/h |
| Weaving segment density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.681 | |
| Weaving segment flow rate, v | 5716 | pc/h |
| Weaving segment capacity, cW | 7981 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5035 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2099 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.681 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_PM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4597 | 882 | 233 | 46 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1173 | 232 | 61 | 12 | |
| Trucks and buses | 10 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4935 | 944 | 248 | 49 | pc/h |

Volume ratio, VR 0.193

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 248 | lc/h |
| Weaving lane changes, LCW | 555 | lc/h |
| Non-weaving vehicle index, INW | 548 | |
| Non-weaving lane change, LCNW | 853 | lc/h |
| Total lane changes, LCALL | 1408 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.275 | |
| Average weaving speed, SW | 58.2 | mi/h |
| Average non-weaving speed, SNW | 60.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.3 | mi/h |
| Weaving segment density, D | 25.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.721 | |
| Weaving segment flow rate, v | 6176 | pc/h |
| Weaving segment capacity, cW | 8148 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4465 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2143 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.721 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2012_PM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5472 | 389 | 557 | 20 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1440 | 102 | 147 | 5 | |
| Trucks and buses | 11 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6088 | 414 | 596 | 21 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.142 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1010 | lc/h |
| Weaving lane changes, LCW | 1317 | lc/h |
| Non-weaving vehicle index, INW | 672 | |
| Non-weaving lane change, LCNW | 1084 | lc/h |
| Total lane changes, LCALL | 2401 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.418 | |
| Average weaving speed, SW | 53.8 | mi/h |
| Average non-weaving speed, SNW | 54.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.1 | mi/h |
| Weaving segment density, D | 32.9 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.816 | |
| Weaving segment flow rate, v | 7119 | pc/h |
| Weaving segment capacity, cW | 8257 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3951 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2182 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.816 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_AM_Peak_SR_60_EB_Central_Ave_to_Box_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3834 | 456 | 385 | 24 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1031 | 120 | 101 | 6 | |
| Trucks and buses | 14 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.820 | 0.948 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5030 | 506 | 421 | 26 | pc/h |

Volume ratio, VR 0.155

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 927 | lc/h |
| Weaving lane changes, LCW | 1686 | lc/h |
| Non-weaving vehicle index, INW | 1163 | |
| Non-weaving lane change, LCNW | 1325 | lc/h |
| Total lane changes, LCALL | 3011 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.280 | |
| Average weaving speed, SW | 58.0 | mi/h |
| Average non-weaving speed, SNW | 57.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.6 | mi/h |
| Weaving segment density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.529 | |
| Weaving segment flow rate, v | 5983 | pc/h |
| Weaving segment capacity, cW | 9279 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4081 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2264 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.529 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_AM_Peak_SR_60_WB_Box_Springs_Rd_to_Central.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5308 | 1151 | 339 | 60 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1368 | 303 | 89 | 16 | |
| Trucks and buses | 9 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.962 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6266 | 1260 | 376 | 66 | pc/h |

Volume ratio, VR 0.205

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1260 | lc/h |
| Weaving lane changes, LCW | 1695 | lc/h |
| Non-weaving vehicle index, INW | 1203 | |
| Non-weaving lane change, LCNW | 1564 | lc/h |
| Total lane changes, LCALL | 3259 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.346 | |
| Average weaving speed, SW | 55.9 | mi/h |
| Average non-weaving speed, SNW | 51.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.2 | mi/h |
| Weaving segment density, D | 38.1 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.861 | |
| Weaving segment flow rate, v | 7968 | pc/h |
| Weaving segment capacity, cW | 8084 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3025 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2314 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.861 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_PM_Peak_SR_60_EB_Central_Ave_to_Box_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6416 | 950 | 403 | 50 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1637 | 250 | 106 | 13 | |
| Trucks and buses | 8 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | 0.948 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7398 | 1055 | 441 | 55 | pc/h |
| Volume ratio, VR | | 0.167 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1496 | lc/h |
| Weaving lane changes, LCW | 2255 | lc/h |
| Non-weaving vehicle index, INW | 1714 | |
| Non-weaving lane change, LCNW | 2795 | lc/h |
| Total lane changes, LCALL | 5050 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.420 | |
| Average weaving speed, SW | 53.7 | mi/h |
| Average non-weaving speed, SNW | 50.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.1 | mi/h |
| Weaving segment density, D | 35.0 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.794 | |
| Weaving segment flow rate, v | 8949 | pc/h |
| Weaving segment capacity, cW | 9973 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4203 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2255 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.794 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_PM_Peak_SR_60_WB_Box_Springs_Rd_to_Central.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5465 | 584 | 419 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1438 | 154 | 110 | 8 | |
| Trucks and buses | 11 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.851 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6759 | 639 | 459 | 33 | pc/h |
| Volume ratio, VR | | 0.139 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 639 | lc/h |
| Weaving lane changes, LCW | 1074 | lc/h |
| Non-weaving vehicle index, INW | 1290 | |
| Non-weaving lane change, LCNW | 1659 | lc/h |
| Total lane changes, LCALL | 2733 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.301 | |
| Average weaving speed, SW | 57.3 | mi/h |
| Average non-weaving speed, SNW | 55.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.1 | mi/h |
| Weaving segment density, D | 35.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.834 | |
| Weaving segment flow rate, v | 7890 | pc/h |
| Weaving segment capacity, cW | 8051 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2358 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2365 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.834 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2012_AM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2860 | 439 | 492 | 77 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 769 | 116 | 129 | 20 | |
| Trucks and buses | 19 | 29 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.772 | 0.692 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3982 | 668 | 539 | 84 | pc/h |

Volume ratio, VR 0.229

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 668 | lc/h |
| Weaving lane changes, LCW | 1177 | lc/h |
| Non-weaving vehicle index, INW | 488 | |
| Non-weaving lane change, LCNW | 525 | lc/h |
| Total lane changes, LCALL | 1702 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.298 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 60.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.5 | mi/h |
| Weaving segment density, D | 17.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.470 | |
| Weaving segment flow rate, v | 5273 | pc/h |
| Weaving segment capacity, cW | 8656 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3268 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2242 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.470 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2012_PM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3980 | 164 | 635 | 28 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1015 | 43 | 167 | 7 | |
| Trucks and buses | 13 | 66 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.830 | 0.500 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4894 | 345 | 695 | 31 | pc/h |

Volume ratio, VR 0.174

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 345 | lc/h |
| Weaving lane changes, LCW | 854 | lc/h |
| Non-weaving vehicle index, INW | 591 | |
| Non-weaving lane change, LCNW | 702 | lc/h |
| Total lane changes, LCALL | 1556 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.277 | |
| Average weaving speed, SW | 58.1 | mi/h |
| Average non-weaving speed, SNW | 61.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.1 | mi/h |
| Weaving segment density, D | 19.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.522 | |
| Weaving segment flow rate, v | 5965 | pc/h |
| Weaving segment capacity, cW | 9481 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2710 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2285 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.522 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_AM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2431 | 197 | 1070 | 10 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 653 | 52 | 282 | 3 | |
| Trucks and buses | 20 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.907 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2881 | 211 | 1140 | 11 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.318 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 211 | lc/h |
| Weaving lane changes, LCW | 555 | lc/h |
| Non-weaving vehicle index, INW | 376 | |
| Non-weaving lane change, LCNW | 530 | lc/h |
| Total lane changes, LCALL | 1085 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.196 | |
| Average weaving speed, SW | 61.0 | mi/h |
| Average non-weaving speed, SNW | 63.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.6 | mi/h |
| Weaving segment density, D | 16.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.487 | |
| Weaving segment flow rate, v | 4243 | pc/h |
| Weaving segment capacity, cW | 7902 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4216 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2177 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.487 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_AM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3165 | 748 | 627 | 39 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 816 | 197 | 165 | 10 | |
| Trucks and buses | 10 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3433 | 797 | 668 | 42 | pc/h |

Volume ratio, VR 0.297

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1465 | lc/h |
| Weaving lane changes, LCW | 1745 | lc/h |
| Non-weaving vehicle index, INW | 834 | |
| Non-weaving lane change, LCNW | 1439 | lc/h |
| Total lane changes, LCALL | 3184 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.282 | |
| Average weaving speed, SW | 57.9 | mi/h |
| Average non-weaving speed, SNW | 51.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.3 | mi/h |
| Weaving segment density, D | 30.9 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.763 | |
| Weaving segment flow rate, v | 4940 | pc/h |
| Weaving segment capacity, cW | 6157 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5547 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2159 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.763 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_PM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3010 | 458 | 1236 | 24 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 768 | 121 | 325 | 6 | |
| Trucks and buses | 13 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3277 | 490 | 1317 | 26 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.354 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 490 | lc/h |
| Weaving lane changes, LCW | 834 | lc/h |
| Non-weaving vehicle index, INW | 429 | |
| Non-weaving lane change, LCNW | 615 | lc/h |
| Total lane changes, LCALL | 1449 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.246 | |
| Average weaving speed, SW | 59.1 | mi/h |
| Average non-weaving speed, SNW | 60.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.9 | mi/h |
| Weaving segment density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.595 | |
| Weaving segment flow rate, v | 5110 | pc/h |
| Weaving segment capacity, cW | 8052 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4600 | 1300 | a,b |
| Density-based capacty, cIWL (pc/h/ln) | | Maximum 2400 | Analyzed 2147 | c |
| v/c ratio | | Maximum 1.00 | Analyzed 0.595 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2012_PM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3459 | 691 | 572 | 36 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 910 | 182 | 151 | 9 | |
| Trucks and buses | 16 | 4 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | 0.978 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3940 | 743 | 612 | 38 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.254 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1355 | lc/h |
| Weaving lane changes, LCW | 1635 | lc/h |
| Non-weaving vehicle index, INW | 955 | |
| Non-weaving lane change, LCNW | 1542 | lc/h |
| Total lane changes, LCALL | 3177 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.282 | |
| Average weaving speed, SW | 57.9 | mi/h |
| Average non-weaving speed, SNW | 51.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.2 | mi/h |
| Weaving segment density, D | 33.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.810 | |
| Weaving segment flow rate, v | 5333 | pc/h |
| Weaving segment capacity, cW | 6083 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5097 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2194 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.810 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2012_AM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1143 | 678 | 51 | 35 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 295 | 178 | 13 | 9 | |
| Trucks and buses | 22 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.899 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1310 | 722 | 55 | 37 | pc/h |

Volume ratio, VR 0.366

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 777 | lc/h |
| Weaving lane changes, LCW | 1006 | lc/h |
| Non-weaving vehicle index, INW | 229 | |
| Non-weaving lane change, LCNW | 621 | lc/h |
| Total lane changes, LCALL | 1627 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.218 | |
| Average weaving speed, SW | 60.1 | mi/h |
| Average non-weaving speed, SNW | 61.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.7 | mi/h |
| Weaving segment density, D | 11.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.346 | |
| Weaving segment flow rate, v | 2124 | pc/h |
| Weaving segment capacity, cW | 5525 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6301 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2048 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.346 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2012_PM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1685 | 646 | 114 | 34 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 443 | 170 | 30 | 9 | |
| Trucks and buses | 27 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.880 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2017 | 688 | 123 | 36 | pc/h |

Volume ratio, VR 0.283

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 811 | lc/h |
| Weaving lane changes, LCW | 1040 | lc/h |
| Non-weaving vehicle index, INW | 349 | |
| Non-weaving lane change, LCNW | 767 | lc/h |
| Total lane changes, LCALL | 1807 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.237 | |
| Average weaving speed, SW | 59.5 | mi/h |
| Average non-weaving speed, SNW | 59.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.5 | mi/h |
| Weaving segment density, D | 16.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.451 | |
| Weaving segment flow rate, v | 2864 | pc/h |
| Weaving segment capacity, cW | 5586 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5404 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2117 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.451 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2012_AM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4212 | 647 | 746 | 34 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1086 | 170 | 196 | 9 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4460 | 689 | 795 | 36 | pc/h |

Volume ratio, VR 0.248

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 689 | lc/h |
| Weaving lane changes, LCW | 1096 | lc/h |
| Non-weaving vehicle index, INW | 764 | |
| Non-weaving lane change, LCNW | 1077 | lc/h |
| Total lane changes, LCALL | 2173 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.274 | |
| Average weaving speed, SW | 58.2 | mi/h |
| Average non-weaving speed, SNW | 57.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.9 | mi/h |
| Weaving segment density, D | 25.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.660 | |
| Weaving segment flow rate, v | 5980 | pc/h |
| Weaving segment capacity, cW | 8822 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3468 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2265 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.660 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2012_PM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3793 | 886 | 863 | 46 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1020 | 233 | 227 | 12 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4189 | 944 | 919 | 49 | pc/h |

Volume ratio, VR 0.305

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 944 | lc/h |
| Weaving lane changes, LCW | 1351 | lc/h |
| Non-weaving vehicle index, INW | 720 | |
| Non-weaving lane change, LCNW | 1024 | lc/h |
| Total lane changes, LCALL | 2375 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.294 | |
| Average weaving speed, SW | 57.5 | mi/h |
| Average non-weaving speed, SNW | 55.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.4 | mi/h |
| Weaving segment density, D | 27.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.688 | |
| Weaving segment flow rate, v | 6101 | pc/h |
| Weaving segment capacity, cW | 8639 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4075 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2219 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.688 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_AM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6139 | 428 | 629 | 22 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1582 | 113 | 166 | 6 | |
| Trucks and buses | 8 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6595 | 456 | 670 | 23 | pc/h |

Volume ratio, VR 0.145

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1126 | lc/h |
| Weaving lane changes, LCW | 1388 | lc/h |
| Non-weaving vehicle index, INW | 582 | |
| Non-weaving lane change, LCNW | 1070 | lc/h |
| Total lane changes, LCALL | 2458 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.508 | |
| Average weaving speed, SW | 51.5 | mi/h |
| Average non-weaving speed, SNW | 52.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.4 | mi/h |
| Weaving segment density, D | 36.9 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.896 | |
| Weaving segment flow rate, v | 7744 | pc/h |
| Weaving segment capacity, cW | 8299 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3986 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2163 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.896 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_AM_Peak_SR_91_WB_Central_Ave_to_Arlington.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3766 | 284 | 454 | 14 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 971 | 75 | 119 | 4 | |
| Trucks and buses | 6 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4007 | 306 | 484 | 15 | pc/h |

Volume ratio, VR 0.164

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 790 | lc/h |
| Weaving lane changes, LCW | 1090 | lc/h |
| Non-weaving vehicle index, INW | 426 | |
| Non-weaving lane change, LCNW | 633 | lc/h |
| Total lane changes, LCALL | 1723 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.332 | |
| Average weaving speed, SW | 56.3 | mi/h |
| Average non-weaving speed, SNW | 58.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.2 | mi/h |
| Weaving segment density, D | 20.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.556 | |
| Weaving segment flow rate, v | 4812 | pc/h |
| Weaving segment capacity, cW | 8380 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4173 | 1060 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2162 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.556 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_PM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3104 | 269 | 691 | 14 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 834 | 71 | 182 | 4 | |
| Trucks and buses | 7 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3461 | 287 | 740 | 15 | pc/h |

Volume ratio, VR 0.228

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1027 | lc/h |
| Weaving lane changes, LCW | 1289 | lc/h |
| Non-weaving vehicle index, INW | 306 | |
| Non-weaving lane change, LCNW | 423 | lc/h |
| Total lane changes, LCALL | 1712 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.382 | |
| Average weaving speed, SW | 54.8 | mi/h |
| Average non-weaving speed, SNW | 57.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.6 | mi/h |
| Weaving segment density, D | 19.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.537 | |
| Weaving segment flow rate, v | 4503 | pc/h |
| Weaving segment capacity, cW | 8093 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4825 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2098 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.537 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_PM_Peak_SR_91_WB_Central_Ave_to_Arlington.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4580 | 266 | 388 | 14 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1231 | 70 | 102 | 4 | |
| Trucks and buses | 5 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5058 | 285 | 413 | 15 | pc/h |

Volume ratio, VR 0.121

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 698 | lc/h |
| Weaving lane changes, LCW | 998 | lc/h |
| Non-weaving vehicle index, INW | 538 | |
| Non-weaving lane change, LCNW | 849 | lc/h |
| Total lane changes, LCALL | 1847 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.350 | |
| Average weaving speed, SW | 55.7 | mi/h |
| Average non-weaving speed, SNW | 58.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.8 | mi/h |
| Weaving segment density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.657 | |
| Weaving segment flow rate, v | 5771 | pc/h |
| Weaving segment capacity, cW | 8549 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3744 | 1060 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2195 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.657 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_AM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3745 | 283 | 645 | 14 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 965 | 74 | 170 | 4 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3984 | 301 | 687 | 15 | pc/h |

Volume ratio, VR 0.198

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 988 | lc/h |
| Weaving lane changes, LCW | 1170 | lc/h |
| Non-weaving vehicle index, INW | 232 | |
| Non-weaving lane change, LCNW | 368 | lc/h |
| Total lane changes, LCALL | 1538 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.488 | |
| Average weaving speed, SW | 52.0 | mi/h |
| Average non-weaving speed, SNW | 56.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.9 | mi/h |
| Weaving segment density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.594 | |
| Weaving segment flow rate, v | 4987 | pc/h |
| Weaving segment capacity, cW | 8136 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4517 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2099 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.594 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_AM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4446 | 152 | 623 | 8 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1146 | 40 | 164 | 2 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4730 | 162 | 664 | 9 | pc/h |

Volume ratio, VR 0.148

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 826 | lc/h |
| Weaving lane changes, LCW | 1014 | lc/h |
| Non-weaving vehicle index, INW | 284 | |
| Non-weaving lane change, LCNW | 531 | lc/h |
| Total lane changes, LCALL | 1545 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.477 | |
| Average weaving speed, SW | 52.2 | mi/h |
| Average non-weaving speed, SNW | 57.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.6 | mi/h |
| Weaving segment density, D | 24.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.650 | |
| Weaving segment flow rate, v | 5565 | pc/h |
| Weaving segment capacity, cW | 8291 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4016 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2139 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.650 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_PM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3351 | 338 | 751 | 17 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 901 | 89 | 198 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3664 | 360 | 800 | 18 | pc/h |

Volume ratio, VR 0.240

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1160 | lc/h |
| Weaving lane changes, LCW | 1342 | lc/h |
| Non-weaving vehicle index, INW | 214 | |
| Non-weaving lane change, LCNW | 302 | lc/h |
| Total lane changes, LCALL | 1644 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.514 | |
| Average weaving speed, SW | 51.3 | mi/h |
| Average non-weaving speed, SNW | 55.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.7 | mi/h |
| Weaving segment density, D | 22.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.586 | |
| Weaving segment flow rate, v | 4842 | pc/h |
| Weaving segment capacity, cW | 8126 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4945 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2066 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.586 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_PM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6206 | 334 | 522 | 17 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1668 | 88 | 137 | 4 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6820 | 356 | 556 | 18 | pc/h |

Volume ratio, VR 0.118

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 912 | lc/h |
| Weaving lane changes, LCW | 1100 | lc/h |
| Non-weaving vehicle index, INW | 410 | |
| Non-weaving lane change, LCNW | 963 | lc/h |
| Total lane changes, LCALL | 2063 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.599 | |
| Average weaving speed, SW | 49.4 | mi/h |
| Average non-weaving speed, SNW | 54.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.5 | mi/h |
| Weaving segment density, D | 36.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.896 | |
| Weaving segment flow rate, v | 7750 | pc/h |
| Weaving segment capacity, cW | 8462 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3712 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2162 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.896 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2012_AM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2870 | 905 | 330 | 159 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 740 | 238 | 87 | 42 | |
| Trucks and buses | 6 | 12 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.942 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3053 | 1012 | 352 | 169 | pc/h |

Volume ratio, VR 0.297

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 352 | lc/h |
| Weaving lane changes, LCW | 708 | lc/h |
| Non-weaving vehicle index, INW | 238 | |
| Non-weaving lane change, LCNW | 102 | lc/h |
| Total lane changes, LCALL | 810 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.243 | |
| Average weaving speed, SW | 59.3 | mi/h |
| Average non-weaving speed, SNW | 63.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.9 | mi/h |
| Weaving segment density, D | 14.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.426 | |
| Weaving segment flow rate, v | 4586 | pc/h |
| Weaving segment capacity, cW | 10422 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3990 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2152 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.426 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2012_PM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6122 | 820 | 279 | 144 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1646 | 216 | 73 | 38 | |
| Trucks and buses | 3 | 16 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.924 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6695 | 934 | 297 | 153 | pc/h |

Volume ratio, VR 0.152

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 297 | lc/h |
| Weaving lane changes, LCW | 653 | lc/h |
| Non-weaving vehicle index, INW | 507 | |
| Non-weaving lane change, LCNW | 849 | lc/h |
| Total lane changes, LCALL | 1502 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.395 | |
| Average weaving speed, SW | 54.4 | mi/h |
| Average non-weaving speed, SNW | 60.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.2 | mi/h |
| Weaving segment density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.713 | |
| Weaving segment flow rate, v | 8079 | pc/h |
| Weaving segment capacity, cW | 11141 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2489 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2266 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.713 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_AM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1216 | 71 | 879 | 12 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 328 | 19 | 231 | 3 | |
| Trucks and buses | 4 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1339 | 76 | 941 | 13 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.429 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 76 | lc/h |
| Weaving lane changes, LCW | 652 | lc/h |
| Non-weaving vehicle index, INW | 196 | |
| Non-weaving lane change, LCNW | 101 | lc/h |
| Total lane changes, LCALL | 753 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.135 | |
| Average weaving speed, SW | 63.5 | mi/h |
| Average non-weaving speed, SNW | 67.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 65.5 | mi/h |
| Weaving segment density, D | 7.2 | pc/mi/ln |
| Level of service, LOS | A | |
| Weaving segment v/c ratio | 0.291 | |
| Weaving segment flow rate, v | 2369 | pc/h |
| Weaving segment capacity, cW | 7977 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5446 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2095 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.291 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_AM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2852 | 375 | 22 | 19 | veh/h |
| Peak hour factor, PHF | 0.86 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 825 | 99 | 6 | 5 | |
| Trucks and buses | 4 | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.960 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3372 | 411 | 23 | 20 | pc/h |

Volume ratio, VR 0.113

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 434 | lc/h |
| Weaving lane changes, LCW | 914 | lc/h |
| Non-weaving vehicle index, INW | 373 | |
| Non-weaving lane change, LCNW | 332 | lc/h |
| Total lane changes, LCALL | 1246 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.249 | |
| Average weaving speed, SW | 59.0 | mi/h |
| Average non-weaving speed, SNW | 63.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.7 | mi/h |
| Weaving segment density, D | 12.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.347 | |
| Weaving segment flow rate, v | 3826 | pc/h |
| Weaving segment capacity, cW | 10778 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3670 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2204 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.347 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_PM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2480 | 54 | 685 | 9 | veh/h |
| Peak hour factor, PHF | 0.94 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 660 | 14 | 180 | 2 | |
| Trucks and buses | 4 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2699 | 58 | 741 | 10 | pc/h |

Volume ratio, VR 0.228

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 58 | lc/h |
| Weaving lane changes, LCW | 634 | lc/h |
| Non-weaving vehicle index, INW | 393 | |
| Non-weaving lane change, LCNW | 381 | lc/h |
| Total lane changes, LCALL | 1015 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.171 | |
| Average weaving speed, SW | 62.0 | mi/h |
| Average non-weaving speed, SNW | 66.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 65.2 | mi/h |
| Weaving segment density, D | 10.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.310 | |
| Weaving segment flow rate, v | 3508 | pc/h |
| Weaving segment capacity, cW | 11067 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3256 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2262 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.310 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2012_PM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1303 | 1276 | 32 | 67 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 335 | 336 | 8 | 18 | |
| Trucks and buses | 5 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1377 | 1373 | 34 | 71 | pc/h |

Volume ratio, VR 0.493

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1407 | lc/h |
| Weaving lane changes, LCW | 1887 | lc/h |
| Non-weaving vehicle index, INW | 159 | |
| Non-weaving lane change, LCNW | 0 | lc/h |
| Total lane changes, LCALL | 1887 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.346 | |
| Average weaving speed, SW | 55.9 | mi/h |
| Average non-weaving speed, SNW | 57.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.5 | mi/h |
| Weaving segment density, D | 10.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.586 | |
| Weaving segment flow rate, v | 2855 | pc/h |
| Weaving segment capacity, cW | 4742 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 7743 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1892 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.586 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_AM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4079 | 1728 | 116 | 305 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1108 | 455 | 31 | 80 | |
| Trucks and buses | 4 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4531 | 1868 | 124 | 325 | pc/h |

Volume ratio, VR 0.291

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1992 | lc/h |
| Weaving lane changes, LCW | 2433 | lc/h |
| Non-weaving vehicle index, INW | 947 | |
| Non-weaving lane change, LCNW | 1287 | lc/h |
| Total lane changes, LCALL | 3720 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.376 | |
| Average weaving speed, SW | 55.0 | mi/h |
| Average non-weaving speed, SNW | 47.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.4 | mi/h |
| Weaving segment density, D | 34.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.830 | |
| Weaving segment flow rate, v | 6848 | pc/h |
| Weaving segment capacity, cW | 8073 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5486 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2129 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.830 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_AM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4120 | 419 | 1386 | 74 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1062 | 110 | 365 | 19 | |
| Trucks and buses | 4 | 2 | 8 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.960 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4341 | 446 | 1520 | 79 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.308 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 446 | lc/h |
| Weaving lane changes, LCW | 712 | lc/h |
| Non-weaving vehicle index, INW | 398 | |
| Non-weaving lane change, LCNW | 628 | lc/h |
| Total lane changes, LCALL | 1340 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.309 | |
| Average weaving speed, SW | 57.0 | mi/h |
| Average non-weaving speed, SNW | 59.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.5 | mi/h |
| Weaving segment density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.741 | |
| Weaving segment flow rate, v | 6386 | pc/h |
| Weaving segment capacity, cW | 8434 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4102 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2155 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.741 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_PM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3755 | 1483 | 168 | 261 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 968 | 390 | 44 | 69 | |
| Trucks and buses | 4 | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.960 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3956 | 1627 | 179 | 278 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.299 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1806 | lc/h |
| Weaving lane changes, LCW | 2247 | lc/h |
| Non-weaving vehicle index, INW | 826 | |
| Non-weaving lane change, LCNW | 1159 | lc/h |
| Total lane changes, LCALL | 3406 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.351 | |
| Average weaving speed, SW | 55.7 | mi/h |
| Average non-weaving speed, SNW | 49.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.4 | mi/h |
| Weaving segment density, D | 29.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.752 | |
| Weaving segment flow rate, v | 6040 | pc/h |
| Weaving segment capacity, cW | 7854 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5573 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2123 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.752 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2012_PM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3371 | 479 | 1505 | 84 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 860 | 126 | 396 | 22 | |
| Trucks and buses | 4 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3515 | 510 | 1635 | 89 | pc/h |

Volume ratio, VR 0.373

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 510 | lc/h |
| Weaving lane changes, LCW | 776 | lc/h |
| Non-weaving vehicle index, INW | 324 | |
| Non-weaving lane change, LCNW | 460 | lc/h |
| Total lane changes, LCALL | 1236 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.290 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 59.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.7 | mi/h |
| Weaving segment density, D | 24.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.684 | |
| Weaving segment flow rate, v | 5749 | pc/h |
| Weaving segment capacity, cW | 8219 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4815 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2101 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.684 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_AM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3083 | 358 | 765 | 63 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 838 | 94 | 201 | 17 | |
| Trucks and buses | 4 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3425 | 387 | 815 | 67 | pc/h |

Volume ratio, VR 0.256

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 815 | lc/h |
| Weaving lane changes, LCW | 1338 | lc/h |
| Non-weaving vehicle index, INW | 437 | |
| Non-weaving lane change, LCNW | 434 | lc/h |
| Total lane changes, LCALL | 1772 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.298 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 59.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.0 | mi/h |
| Weaving segment density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.501 | |
| Weaving segment flow rate, v | 4694 | pc/h |
| Weaving segment capacity, cW | 9171 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5117 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2104 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.501 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_AM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

### Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3693 | 192 | 1050 | 33 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 952 | 51 | 276 | 9 | |
| Trucks and buses | 4 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.983 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3891 | 206 | 1124 | 35 | pc/h |

Volume ratio, VR 0.253

### Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 412 | lc/h |
| Weaving lane changes, LCW | 921 | lc/h |
| Non-weaving vehicle index, INW | 471 | |
| Non-weaving lane change, LCNW | 496 | lc/h |
| Total lane changes, LCALL | 1417 | lc/h |

### Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.258 | |
| Average weaving speed, SW | 58.7 | mi/h |
| Average non-weaving speed, SNW | 62.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.1 | mi/h |
| Weaving segment density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.473 | |
| Weaving segment flow rate, v | 5256 | pc/h |
| Weaving segment capacity, cW | 10876 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3520 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2223 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.473 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_PM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2927 | 485 | 741 | 85 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 754 | 128 | 195 | 22 | |
| Trucks and buses | 4 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3084 | 524 | 789 | 91 | pc/h |

Volume ratio, VR 0.293

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 789 | lc/h |
| Weaving lane changes, LCW | 1312 | lc/h |
| Non-weaving vehicle index, INW | 397 | |
| Non-weaving lane change, LCNW | 369 | lc/h |
| Total lane changes, LCALL | 1681 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.286 | |
| Average weaving speed, SW | 57.8 | mi/h |
| Average non-weaving speed, SNW | 60.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.3 | mi/h |
| Weaving segment density, D | 15.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.547 | |
| Weaving segment flow rate, v | 4488 | pc/h |
| Weaving segment capacity, cW | 8027 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5504 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2074 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.547 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2012_PM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3251 | 411 | 754 | 72 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 829 | 108 | 198 | 19 | |
| Trucks and buses | 4 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3390 | 438 | 811 | 77 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.265 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 876 | lc/h |
| Weaving lane changes, LCW | 1385 | lc/h |
| Non-weaving vehicle index, INW | 416 | |
| Non-weaving lane change, LCNW | 402 | lc/h |
| Total lane changes, LCALL | 1787 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.309 | |
| Average weaving speed, SW | 57.0 | mi/h |
| Average non-weaving speed, SNW | 59.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.6 | mi/h |
| Weaving segment density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.426 | |
| Weaving segment flow rate, v | 4716 | pc/h |
| Weaving segment capacity, cW | 10827 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3644 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2213 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.426 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_AM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3838 | 344 | 718 | 18 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1043 | 91 | 189 | 5 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4264 | 366 | 765 | 19 | pc/h |

Volume ratio, VR 0.209

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 366 | lc/h |
| Weaving lane changes, LCW | 632 | lc/h |
| Non-weaving vehicle index, INW | 385 | |
| Non-weaving lane change, LCNW | 600 | lc/h |
| Total lane changes, LCALL | 1232 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.290 | |
| Average weaving speed, SW | 57.7 | mi/h |
| Average non-weaving speed, SNW | 60.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.2 | mi/h |
| Weaving segment density, D | 22.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.640 | |
| Weaving segment flow rate, v | 5414 | pc/h |
| Weaving segment capacity, cW | 8278 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4627 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2115 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.640 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_AM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3641 | 538 | 331 | 28 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 938 | 142 | 87 | 7 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3836 | 573 | 353 | 30 | pc/h |
| Volume ratio, VR | | 0.193 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 573 | lc/h |
| Weaving lane changes, LCW | 839 | lc/h |
| Non-weaving vehicle index, INW | 348 | |
| Non-weaving lane change, LCNW | 514 | lc/h |
| Total lane changes, LCALL | 1353 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.312 | |
| Average weaving speed, SW | 56.9 | mi/h |
| Average non-weaving speed, SNW | 60.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.5 | mi/h |
| Weaving segment density, D | 20.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.563 | |
| Weaving segment flow rate, v | 4792 | pc/h |
| Weaving segment capacity, cW | 8325 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4467 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2127 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.563 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_PM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4007 | 435 | 714 | 22 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1033 | 114 | 188 | 6 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4222 | 463 | 761 | 23 | pc/h |

Volume ratio, VR 0.224

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 463 | lc/h |
| Weaving lane changes, LCW | 729 | lc/h |
| Non-weaving vehicle index, INW | 382 | |
| Non-weaving lane change, LCNW | 592 | lc/h |
| Total lane changes, LCALL | 1321 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.306 | |
| Average weaving speed, SW | 57.1 | mi/h |
| Average non-weaving speed, SNW | 60.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.4 | mi/h |
| Weaving segment density, D | 23.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.650 | |
| Weaving segment flow rate, v | 5469 | pc/h |
| Weaving segment capacity, cW | 8231 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4781 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2103 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.650 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2012_PM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3241 | 627 | 388 | 33 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 827 | 165 | 102 | 9 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3380 | 668 | 413 | 35 | pc/h |

Volume ratio, VR 0.240

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 668 | lc/h |
| Weaving lane changes, LCW | 934 | lc/h |
| Non-weaving vehicle index, INW | 307 | |
| Non-weaving lane change, LCNW | 421 | lc/h |
| Total lane changes, LCALL | 1355 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.312 | |
| Average weaving speed, SW | 56.9 | mi/h |
| Average non-weaving speed, SNW | 59.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.1 | mi/h |
| Weaving segment density, D | 19.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.538 | |
| Weaving segment flow rate, v | 4496 | pc/h |
| Weaving segment capacity, cW | 8180 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4954 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2090 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.538 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_AM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2860 | 266 | 519 | 14 | veh/h |
| Peak hour factor, PHF | 0.92 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 777 | 70 | 137 | 4 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3177 | 283 | 553 | 15 | pc/h |

Volume ratio, VR 0.208

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 283 | lc/h |
| Weaving lane changes, LCW | 711 | lc/h |
| Non-weaving vehicle index, INW | 591 | |
| Non-weaving lane change, LCNW | 890 | lc/h |
| Total lane changes, LCALL | 1601 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.202 | |
| Average weaving speed, SW | 60.8 | mi/h |
| Average non-weaving speed, SNW | 63.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.6 | mi/h |
| Weaving segment density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.460 | |
| Weaving segment flow rate, v | 4028 | pc/h |
| Weaving segment capacity, cW | 8568 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4614 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2188 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.460 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_AM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2787 | 574 | 317 | 30 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 718 | 151 | 83 | 8 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2936 | 611 | 338 | 32 | pc/h |

Volume ratio, VR 0.242

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 611 | lc/h |
| Weaving lane changes, LCW | 1039 | lc/h |
| Non-weaving vehicle index, INW | 549 | |
| Non-weaving lane change, LCNW | 844 | lc/h |
| Total lane changes, LCALL | 1883 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.229 | |
| Average weaving speed, SW | 59.7 | mi/h |
| Average non-weaving speed, SNW | 60.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.6 | mi/h |
| Weaving segment density, D | 16.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.453 | |
| Weaving segment flow rate, v | 3917 | pc/h |
| Weaving segment capacity, cW | 8458 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4973 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2161 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.453 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_PM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2869 | 266 | 519 | 14 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 739 | 70 | 137 | 4 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3023 | 283 | 553 | 15 | pc/h |

Volume ratio, VR 0.216

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 283 | lc/h |
| Weaving lane changes, LCW | 711 | lc/h |
| Non-weaving vehicle index, INW | 562 | |
| Non-weaving lane change, LCNW | 858 | lc/h |
| Total lane changes, LCALL | 1569 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.198 | |
| Average weaving speed, SW | 60.9 | mi/h |
| Average non-weaving speed, SNW | 63.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.8 | mi/h |
| Weaving segment density, D | 15.4 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.444 | |
| Weaving segment flow rate, v | 3874 | pc/h |
| Weaving segment capacity, cW | 8540 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4698 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2182 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.444 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2012_PM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2326 | 666 | 371 | 35 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 593 | 175 | 98 | 9 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2426 | 709 | 395 | 37 | pc/h |

Volume ratio, VR 0.310

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 709 | lc/h |
| Weaving lane changes, LCW | 1137 | lc/h |
| Non-weaving vehicle index, INW | 456 | |
| Non-weaving lane change, LCNW | 740 | lc/h |
| Total lane changes, LCALL | 1877 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.229 | |
| Average weaving speed, SW | 59.8 | mi/h |
| Average non-weaving speed, SNW | 60.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.3 | mi/h |
| Weaving segment density, D | 14.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.460 | |
| Weaving segment flow rate, v | 3567 | pc/h |
| Weaving segment capacity, cW | 7587 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5686 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2106 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.460 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2012_AM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4740 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 350 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 430 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4740 | 350 | 430 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1270 | 92 | 113 | v |
| Trucks and buses | 14 | 8 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | 0.960 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 5446 | 384 | 458 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.170 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 925$ pc/h

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 5830 | 9600 | No |
| $v_3$ or $v_{av34}$ | | 2260 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2178$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2562 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 20.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.323$ | |
| Space mean speed in ramp influence area, | $S_R = 61.0$ | mph |
| Space mean speed in outer lanes, | $S_0 = 65.9$ | mph |
| Space mean speed for all vehicles, | $S = 63.6$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2012_PM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 5480 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1300 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 280 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 5480 | 1300 | 280 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1395 | 342 | 74 | v |
| Trucks and buses | 10 | 3 | 0 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.983 | 0.998 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 5870 | 1392 | 295 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.044 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 257$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 7262 | 9600 | No |
| $v_3$ or $v_{av34}$ | 2806 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2348$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3740 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 29.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.436$ | |
| Space mean speed in ramp influence area, | $S_R = 57.8$ | mph |
| Space mean speed in outer lanes, | $S_0 = 65.5$ | mph |
| Space mean speed for all vehicles, | $S = 61.3$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2012_AM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6510 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 480 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6510 | 480 | 90 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1744 | 126 | 24 | v |
| Trucks and buses | 11 | 3 | 7 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.983 | 0.964 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7375 | 514 | 98 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.154 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 1132$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 7889 | 9600 | No |
| $v_3$ or $v_{av34}$ | 3121 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2950$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3464 | 4600 | No |

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 22.9 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.341$ | |
| Space mean speed in ramp influence area, | $S_R = 60.5$ | mph |
| Space mean speed in outer lanes, | $S_0 = 63.8$ | mph |
| Space mean speed for all vehicles, | $S = 62.3$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2012_PM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8630 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1000 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 130 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8630 | 1000 | 130 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2197 | 263 | 34 | v |
| Trucks and buses | 8 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.983 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9156 | 1071 | 138 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.084 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 768$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| | $v_{FO}$ | 10227 | 9600 | Yes |
| | $v_3$ or $v_{av34}$ | 4194 pc/h | (Equation 13-14 or 13-17) | |
| Is | $v_3$ or $v_{av34}$ | > 2700 pc/h? | Yes | |
| Is | $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | Yes | |

If yes, $v_{12A} = 3662$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4733 | 4600 | Yes |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 32.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.659$ | |
| Space mean speed in ramp influence area, | $S_R = 51.5$ | mph |
| Space mean speed in outer lanes, | $S_0 = 60.8$ | mph |
| Space mean speed for all vehicles, | $S = 56.1$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2012_AM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2140 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 390 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 80 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2140 | 390 | 80 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 573 | 103 | 21 | v |
| Trucks and buses | 34 | 21 | 13 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.853 | 0.903 | 0.937 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2688 | 454 | 90 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2688 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 2688 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2234 | 4800 | No |
| $v_R$ | 454 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2688 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2688 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.469

Space mean speed in ramp influence area, $S_R$ = 56.9 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 56.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2012_PM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1750 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 450 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 110 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1750 | 450 | 110 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 445 | 118 | 29 | v |
| Trucks and buses | 32 | 3 | 31 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.861 | 0.983 | 0.864 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2071 | 482 | 134 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2071 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 2071 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1589 | 4800 | No |
| $v_R$ | 482 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2071 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2071 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 8.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.471

Space mean speed in ramp influence area, $S_R$ = 56.8 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 56.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2012_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1750 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 80 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 390 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1750 | 80 | 390 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 469 | 21 | 103 | v |
| Trucks and buses | 34 | 13 | 21 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.853 | 0.937 | 0.903 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2198 | 90 | 454 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 2198$ pc/h

### Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2288 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2198$ (Equation 13-15, 13-16, 13-18, or 13-19)

### Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2288 | 4600 | No |

### Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A = 20.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

### Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.324$ | |
| Space mean speed in ramp influence area, | $S_R = 60.9$ | mph |
| Space mean speed in outer lanes, | $S_0 =$ N/A | mph |
| Space mean speed for all vehicles, | $S = 60.9$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2012_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1300 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 110 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 450 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1300 | 110 | 450 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 331 | 29 | 118 | v |
| Trucks and buses | 32 | 31 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.861 | 0.864 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1538 | 134 | 482 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1538$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1672 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}/2$ | No | |

If yes, $v_{12A} = 1538$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1672 | 4600 | No |

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_{R12} + 0.0078\, v_{12} - 0.00627\, L_A = 15.3 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.307 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.4 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.4 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-6_2012_AM_Peak_SR_60_EB_Off-Ramp_to_Theodore.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2590 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 2 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1160 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | 1500 | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 10 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2590 | 1160 | 10 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 694 | 305 | 3 | v |
| Trucks and buses | 26 | 45 | 10 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.883 | 0.815 | 0.951 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3142 | 1498 | 11 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.450 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2238 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 3142 | 7200 | No |
| $v_{FO} = v_F - v_R$ | 1644 | 7200 | No |
| $v_R$ | 1498 | 4000 | No |
| $v_3$ or $v_{av34}$ | 904 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2238 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2238 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D = -17.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S = 0.563$

Space mean speed in ramp influence area, $S_R = 54.2$ mph

Space mean speed in outer lanes, $S_0 = 76.8$ mph

Space mean speed for all vehicles, $S = 59.2$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-6_2012_PM_Peak_SR_60_EB_Off-Ramp_to_Theodore.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2380 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 2 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 810 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | 1500 | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 10 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2380 | 810 | 10 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 606 | 213 | 3 | v |
| Trucks and buses | 25 | 62 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.887 | 0.762 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2731 | 1119 | 11 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.450 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1844 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 2731 | 7200 | No |
| $v_{FO} = v_F - v_R$ | 1612 | 7200 | No |
| $v_R$ | 1119 | 4000 | No |
| $v_3$ or $v_{av34}$ | 887 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1844 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1844 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = -20.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.529

Space mean speed in ramp influence area, $S_R$ = 55.2 mph

Space mean speed in outer lanes, $S_0$ = 76.8 mph

Space mean speed for all vehicles, $S$ = 60.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2012_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1430 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 10 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 1160 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1430 | 10 | 1160 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 383 | 3 | 305 | v |
| Trucks and buses | 26 | 10 | 45 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.883 | 0.951 | 0.815 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1735 | 11 | 1498 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1735$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1746 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 1735$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1746 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 17.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.326$ | |
| Space mean speed in ramp influence area, | $S_R = 60.9$ | mph |
| Space mean speed in outer lanes, | $S_0 =$ N/A | mph |
| Space mean speed for all vehicles, | $S = 60.9$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2012_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1570 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 10 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 810 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1570 | 10 | 810 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 400 | 3 | 213 | v |
| Trucks and buses | 25 | 2 | 62 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.887 | 0.988 | 0.762 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1802 | 11 | 1119 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1802$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 1813 | 4800 | No |
| $v_3$ or $v_{av34}$ | | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1802 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1813 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 18.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.327 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.8 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.8 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-8_2012_AM_Peak_SR_60_EB_Direct_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1420 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 120 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 10 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1420 | 120 | 10 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 380 | 32 | 3 | v |
| Trucks and buses | 26 | 33 | 10 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.883 | 0.857 | 0.951 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1723 | 147 | 11 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

```
                  FM
                 v  = v  (P  ) =  1723   pc/h
                  12   F   FM

_____________________________Capacity Checks_____________________________

                           Actual        Maximum         LOS F?
     v                     1870          4800            No
      FO
     v  or v               0    pc/h     (Equation 13-14 or 13-17)
      3     av34
Is   v  or v      > 2700 pc/h?           No
      3     av34
Is   v  or v      > 1.5 v  /2            No
      3     av34         12
If yes, v    = 1723                  (Equation 13-15, 13-16, 18, or 19)
         12A

_____________________Flow Entering Merge Influence Area_____________________
                      Actual        Max Desirable         Violation?
     v                1870          4600                  No
      R12
_________________Level of Service Determination (if not F)__________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   18.4    pc/mi/ln
          R                   R           12            A
Level of service for ramp-freeway junction areas of influence B

_____________________________Speed Estimation_____________________________

Intermediate speed variable,                M  = 0.329
                                             S
Space mean speed in ramp influence area,    S  = 60.8    mph
                                             R
Space mean speed in outer lanes,            S  =  N/A    mph
                                             0
Space mean speed for all vehicles,          S  = 60.8    mph
_____________________________________________________________________________
```

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-8_2012_PM_Peak_SR_60_EB_Direct_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1560 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 250 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 10 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1560 | 250 | 10 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 398 | 66 | 3 | v |
| Trucks and buses | 25 | 26 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.887 | 0.883 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1794 | 298 | 11 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{F}(P_{FM}) = 1794$ pc/h

### Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2092 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 1794$ (Equation 13-15, 13-16, 13-18, or 13-19)

### Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2092 | 4600 | No |

### Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A = 20.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

### Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.335$ | |
| Space mean speed in ramp influence area, | $S_R = 60.6$ | mph |
| Space mean speed in outer lanes, | $S_0 =$ N/A | mph |
| Space mean speed for all vehicles, | $S = 60.6$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-9_2012_AM_Peak_SR_60_EB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1550 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 419 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 30 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1550 | 419 | 30 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 415 | 110 | 8 | v |
| Trucks and buses | 13 | 23 | 30 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | 0.895 | 0.868 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1773 | 493 | 36 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1773 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 1773 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1280 | 4800 | No |
| $v_R$ | 493 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1773 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1773 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 17.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.472

Space mean speed in ramp influence area, $S_R$ = 56.8 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 56.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-9_2012_PM_Peak_SR_60_EB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1830 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 430 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 59 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1830 | 430 | 59 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 466 | 113 | 16 | v |
| Trucks and buses | 9 | 12 | 26 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.942 | 0.883 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1951 | 481 | 70 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1951 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 1951 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1470 | 4800 | No |
| $v_R$ | 481 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1951 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1951 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 18.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.471

Space mean speed in ramp influence area, $S_R$ = 56.8 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 56.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2012_AM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1130 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 30 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 419 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1130 | 30 | 419 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 303 | 8 | 110 | v |
| Trucks and buses | 13 | 30 | 23 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | 0.868 | 0.895 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1292 | 36 | 493 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1292$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1328 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | No | |

If yes, $v_{12A}$ = 1292 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1328 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, $M_S$ = 0.318

Space mean speed in ramp influence area, $S_R$ = 61.1 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 61.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2012_PM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1399 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 59 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 430 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1399 | 59 | 430 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 356 | 16 | 113 | v |
| Trucks and buses | 9 | 26 | 12 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.883 | 0.942 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1491 | 70 | 481 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 1491$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1561 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1491 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1561 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 16.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.322 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.0 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | S = 61.0 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-11_2012_AM_Peak_SR_60_WB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1070 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 97 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 404 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1070 | 97 | 404 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 276 | 26 | 106 | v |
| Trucks and buses | 10 | 28 | 14 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.876 | 0.933 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1163 | 117 | 456 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1163 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1163 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1046 | 4800 | No |
| $v_R$ | 117 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 1163$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1163 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 12.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.439$

Space mean speed in ramp influence area, $S_R = 57.7$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.7$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-11_2012_PM_Peak_SR_60_WB_Off-Ramp_to_Gilman_Spring.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 980 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 30 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 466 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 980 | 30 | 466 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 257 | 8 | 123 | v |
| Trucks and buses | 12 | 43 | 26 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | 0.822 | 0.883 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1091 | 38 | 555 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1091 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi} = v_F$ | | 1091 | 4800 | No |
| $v_{FO} = v_F - v_R$ | | 1053 | 4800 | No |
| $v_R$ | | 38 | 2000 | No |
| $v_3$ or $v_{av34}$ | | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1091 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1091 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 11.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $D_S$ = 0.431 | |
| Space mean speed in ramp influence area, | $S_R$ = 57.9 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 57.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2012_AM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 972 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 404 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 97 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 972 | 404 | 97 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 251 | 106 | 26 | v |
| Trucks and buses | 10 | 14 | 28 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.933 | 0.876 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1057 | 456 | 117 | pcph |

## Estimation of V12 Merge Areas

L = (Equation 13-6 or 13-7)
EQ
P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1057$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1513 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1057 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1513 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 15.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.321 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.0 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.0 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2012_PM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 949 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 466 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 30 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 949 | 466 | 30 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 249 | 123 | 8 | v |
| Trucks and buses | 12 | 26 | 43 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | 0.883 | 0.822 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1057 | 555 | 38 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1057$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1612 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1057 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1612 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, $M_S$ = 0.323

Space mean speed in ramp influence area, $S_R$ = 61.0 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 61.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-13_2012_AM_Peak_SR_60_WB_Off-Ramp_to_Theodore_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1100 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 2 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 210 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | 1500 | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 740 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1100 | 210 | 740 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 284 | 55 | 195 | v |
| Trucks and buses | 13 | 33 | 49 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | 0.857 | 0.802 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1213 | 258 | 971 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.450 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 688 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 1213 | 7200 | No |
| $v_{FO} = v_F - v_R$ | 955 | 7200 | No |
| $v_R$ | 258 | 4000 | No |
| $v_3$ or $v_{av34}$ | 525 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | Yes | |

If yes, $v_{12A}$ = 693 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12A}$ | 693 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D = -30.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S = 0.451$

Space mean speed in ramp influence area, $S_R = 57.4$ mph

Space mean speed in outer lanes, $S_0 = 76.8$ mph

Space mean speed for all vehicles, $S = 64.3$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-13_2012_PM_Peak_SR_60_WB_Off-Ramp_to_Theodore_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1510 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 2 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 90 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | 1500 | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 850 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1510 | 90 | 850 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 396 | 24 | 224 | v |
| Trucks and buses | 16 | 70 | 40 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | 0.740 | 0.832 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1713 | 128 | 1075 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.450 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 841 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 1713 | 7200 | No |
| $v_{FO} = v_F - v_R$ | 1585 | 7200 | No |
| $v_R$ | 128 | 4000 | No |
| $v_3$ or $v_{av34}$ | 872 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A}$ = 978 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12A}$ | 978 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D = -27.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S = 0.440$

Space mean speed in ramp influence area, $S_R = 57.7$ mph

Space mean speed in outer lanes, $S_0 = 76.8$ mph

Space mean speed for all vehicles, $S = 64.6$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2012_AM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 890 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 740 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 210 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 890 | 740 | 210 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 230 | 195 | 55 | v |
| Trucks and buses | 13 | 49 | 33 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | 0.802 | 0.857 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 981 | 971 | 258 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 981$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 1952 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 981$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1952 | 4600 | No |

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 17.1 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.313 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.2 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.2 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2012_PM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1420 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 850 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1420 | 850 | 90 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 372 | 224 | 24 | v |
| Trucks and buses | 16 | 40 | 70 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | 0.832 | 0.740 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1611 | 1075 | 128 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{F}(P_{FM}) = 1611$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2686 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 1611$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2686 | 4600 | No |

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_{R12} + 0.0078\, v_{12} - 0.00627\, L_A = 22.8 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.343 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.4 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.4 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2012_AM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1660 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 100 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 350 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1660 | 100 | 350 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 429 | 26 | 92 | v |
| Trucks and buses | 26 | 31 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.883 | 0.864 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1942 | 122 | 375 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 1942 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 1942 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1820 | 4800 | No |
| $v_R$ | 122 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1942 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 1942 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.439

Space mean speed in ramp influence area, $S_R$ = 57.7 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2012_PM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2300 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 60 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 590 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2300 | 60 | 590 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 603 | 16 | 155 | v |
| Trucks and buses | 23 | 27 | 27 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.895 | 0.880 | 0.880 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2694 | 72 | 706 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2694 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 2694 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2622 | 4800 | No |
| $v_R$ | 72 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 2694$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2694 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086 v_{12} - 0.009 L_D = 25.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S = 0.434$

Space mean speed in ramp influence area, $S_R = 57.8$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.8$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-16_2012_AM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1560 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 350 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 100 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1560 | 350 | 100 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 403 | 92 | 26 | v |
| Trucks and buses | 26 | 3 | 31 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.883 | 0.983 | 0.864 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1825 | 375 | 122 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1825$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2200 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1825 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2200 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A$ = 19.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.321 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.0 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.0 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-16_2012_PM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2240 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 590 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 60 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2240 | 590 | 60 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 587 | 155 | 16 | v |
| Trucks and buses | 23 | 27 | 27 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.895 | 0.880 | 0.880 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2624 | 706 | 72 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 2624$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3330 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2624 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3330 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 28.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.395 | |
| Space mean speed in ramp influence area, | $S_R$ = 58.9 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 58.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-18_2012_AM_Peak_SR_60_WB_Off-Ramp_to_Central_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6860 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 2 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 400 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | 1500 | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 592 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6860 | 400 | 592 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1773 | 105 | 156 | v |
| Trucks and buses | 9 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.983 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7423 | 428 | 631 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.260 Using Equation 0

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2247 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 7423 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 6995 | 9600 | No |
| $v_R$ | 428 | 4000 | No |
| $v_3$ or $v_{av34}$ | 2588 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A}$ = 2969 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12A}$ | 2969 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = -10.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

| | |
|---|---|
| Intermediate speed variable, | $D_S$ = 0.467 |
| Space mean speed in ramp influence area, | $S_R$ = 56.9 mph |
| Space mean speed in outer lanes, | $S_0$ = 72.0 mph |
| Space mean speed for all vehicles, | S = 65.1 mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-18_2012_PM_Peak_SR_60_WB_Off-Ramp_to_Central_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6500 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 2 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 450 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | 1500 | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 89 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6500 | 450 | 89 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1704 | 118 | 23 | v |
| Trucks and buses | 11 | 2 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.988 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7205 | 479 | 95 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.260 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2228 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 7205 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 6726 | 9600 | No |
| $v_R$ | 479 | 4000 | No |
| $v_3$ or $v_{av34}$ | 2488 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | Yes | |

If yes, $v_{12A} = 2882$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12A}$ | 2882 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = -11.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S = 0.471$

Space mean speed in ramp influence area, $S_R = 56.8$ mph

Space mean speed in outer lanes, $S_0 = 72.3$ mph

Space mean speed for all vehicles, $S = 65.2$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2012_AM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - With Project Buildout |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6800 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 510 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 790 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6800 | 510 | 790 | vph |
| Peak-hour factor, PHF | 0.97 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1753 | 134 | 208 | v |
| Trucks and buses | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7305 | 543 | 842 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3491 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 7305 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 6762 | 9600 | No |
| $v_R$ | 543 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1907 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 3491 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3491 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 20.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $D_S$ = 0.477 | |
| Space mean speed in ramp influence area, | $S_R$ = 56.6 | mph |
| Space mean speed in outer lanes, | $S_0$ = 73.3 | mph |
| Space mean speed for all vehicles, | $S$ = 64.3 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2012_PM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - With Project Buildout |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6420 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 370 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 2 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6420 | 370 | 2 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1689 | 97 | 1 | v |
| Trucks and buses | 11 | 7 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.964 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7143 | 404 | 2 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3342 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 7143 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 6739 | 9600 | No |
| $v_R$ | 404 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1900 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 3342$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3342 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 19.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.464$

Space mean speed in ramp influence area, $S_R = 57.0$ mph

Space mean speed in outer lanes, $S_0 = 73.3$ mph

Space mean speed for all vehicles, $S = 64.6$ mph

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_AM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8010 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 2153 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1778 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1778 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2012_PM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8950 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2283 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1885 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1885 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 29.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_AM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6600 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1774 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.851 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1668 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1668 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 24.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2012_PM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8760 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 2235 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2020 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2020 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.2 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 32.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2012_AM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7000 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1804 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1880 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1880 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2012_PM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 929 | v |
| Trucks and buses | 19 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.912 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1019 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1019 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_AM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2980 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 768 | v |
| Trucks and buses | 14 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1098 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1098 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 15.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2012_PM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 992 | v |
| Trucks and buses | 19 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.912 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1451 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1451 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_AM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4470 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1152 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1189 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1189 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2012_PM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7230 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1944 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1996 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1996 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2012_AM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4740 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1222 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1261 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1261 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2012_PM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7210 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1938 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1991 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1991 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_AM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6100 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1572 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1615 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1615 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2012_PM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5410 | veh/h |
| Peak-hour factor, PHF | 0.93 | |
| Peak 15-min volume, v15 | 1454 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1486 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1486 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_AM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3240 | veh/h |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, v15 | 880 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1200 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1200 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_AM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4600 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1186 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1608 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1608 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_PM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4230 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1090 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1486 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1486 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2012_PM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3650 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 931 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1269 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1269 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_AM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4630 | veh/h |
| Peak-hour factor, PHF | 0.97 | |
| Peak 15-min volume, v15 | 1193 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1626 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1626 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2012_PM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4610 | veh/h |
| Peak-hour factor, PHF | 0.98 | |
| Peak 15-min volume, v15 | 1176 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1603 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1603 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_AM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2185 | 1241 | 179 | 219 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 587 | 327 | 47 | 58 | |
| Trucks and buses | 14 | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | 0.960 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2519 | 1361 | 191 | 233 | pc/h |

Volume ratio, VR 0.361

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1361 | lc/h |
| Weaving lane changes, LCW | 1884 | lc/h |
| Non-weaving vehicle index, INW | 344 | |
| Non-weaving lane change, LCNW | 281 | lc/h |
| Total lane changes, LCALL | 2165 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.349 | |
| Average weaving speed, SW | 55.8 | mi/h |
| Average non-weaving speed, SNW | 56.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.0 | mi/h |
| Weaving segment density, D | 15.4 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.443 | |
| Weaving segment flow rate, v | 4304 | pc/h |
| Weaving segment capacity, cW | 9054 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4677 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2137 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.443 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2012_PM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5925 | 1351 | 210 | 238 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1511 | 356 | 55 | 63 | |
| Trucks and buses | 8 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6300 | 1468 | 224 | 254 | pc/h |

Volume ratio, VR 0.205

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1468 | lc/h |
| Weaving lane changes, LCW | 1991 | lc/h |
| Non-weaving vehicle index, INW | 819 | |
| Non-weaving lane change, LCNW | 1065 | lc/h |
| Total lane changes, LCALL | 3056 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.458 | |
| Average weaving speed, SW | 52.7 | mi/h |
| Average non-weaving speed, SNW | 51.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.8 | mi/h |
| Weaving segment density, D | 31.9 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.728 | |
| Weaving segment flow rate, v | 8246 | pc/h |
| Weaving segment capacity, cW | 10864 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3023 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2264 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.728 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_AM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3885 | 327 | 289 | 17 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1044 | 86 | 76 | 4 | |
| Trucks and buses | 15 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.810 | 0.909 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5159 | 379 | 316 | 19 | pc/h |

Volume ratio, VR 0.118

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 695 | lc/h |
| Weaving lane changes, LCW | 1307 | lc/h |
| Non-weaving vehicle index, INW | 828 | |
| Non-weaving lane change, LCNW | 971 | lc/h |
| Total lane changes, LCALL | 2278 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.299 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 59.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.1 | mi/h |
| Weaving segment density, D | 19.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.525 | |
| Weaving segment flow rate, v | 5873 | pc/h |
| Weaving segment capacity, cW | 9061 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3718 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2238 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.525 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2012_PM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5618 | 954 | 306 | 50 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1433 | 251 | 81 | 13 | |
| Trucks and buses | 9 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.948 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6564 | 1059 | 335 | 55 | pc/h |

Volume ratio, VR 0.174

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1394 | lc/h |
| Weaving lane changes, LCW | 2006 | lc/h |
| Non-weaving vehicle index, INW | 1059 | |
| Non-weaving lane change, LCNW | 1268 | lc/h |
| Total lane changes, LCALL | 3274 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.398 | |
| Average weaving speed, SW | 54.4 | mi/h |
| Average non-weaving speed, SNW | 52.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.6 | mi/h |
| Weaving segment density, D | 30.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.730 | |
| Weaving segment flow rate, v | 8013 | pc/h |
| Weaving segment capacity, cW | 9590 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4272 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2196 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.730 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_AM_Peak_SR_60_EB_Central_Ave_to_Box_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3051 | 456 | 385 | 24 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 820 | 120 | 101 | 6 | |
| Trucks and buses | 14 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.820 | 0.948 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4002 | 506 | 421 | 26 | pc/h |

Volume ratio, VR 0.187

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 927 | lc/h |
| Weaving lane changes, LCW | 1686 | lc/h |
| Non-weaving vehicle index, INW | 926 | |
| Non-weaving lane change, LCNW | 1113 | lc/h |
| Total lane changes, LCALL | 2799 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.264 | |
| Average weaving speed, SW | 58.5 | mi/h |
| Average non-weaving speed, SNW | 58.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.6 | mi/h |
| Weaving segment density, D | 16.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.443 | |
| Weaving segment flow rate, v | 4955 | pc/h |
| Weaving segment capacity, cW | 9176 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4405 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2239 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.443 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_AM_Peak_SR_60_WB_Box_Springs_Rd_to_Central.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5308 | 1151 | 339 | 60 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1368 | 303 | 89 | 16 | |
| Trucks and buses | 9 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.962 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6266 | 1260 | 376 | 66 | pc/h |

Volume ratio, VR 0.205

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1260 | lc/h |
| Weaving lane changes, LCW | 1939 | lc/h |
| Non-weaving vehicle index, INW | 1203 | |
| Non-weaving lane change, LCNW | 1371 | lc/h |
| Total lane changes, LCALL | 3310 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.350 | |
| Average weaving speed, SW | 55.7 | mi/h |
| Average non-weaving speed, SNW | 53.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.8 | mi/h |
| Weaving segment density, D | 29.6 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.689 | |
| Weaving segment flow rate, v | 7968 | pc/h |
| Weaving segment capacity, cW | 10105 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3025 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2314 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.689 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_PM_Peak_SR_60_EB_Central_Ave_to_Box_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5113 | 950 | 403 | 50 | veh/h |
| Peak hour factor, PHF | 0.98 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1304 | 250 | 106 | 13 | |
| Trucks and buses | 8 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | 0.948 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5896 | 1055 | 441 | 55 | pc/h |

Volume ratio, VR 0.201

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1055 | lc/h |
| Weaving lane changes, LCW | 1814 | lc/h |
| Non-weaving vehicle index, INW | 1369 | |
| Non-weaving lane change, LCNW | 1669 | lc/h |
| Total lane changes, LCALL | 3483 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.314 | |
| Average weaving speed, SW | 56.9 | mi/h |
| Average non-weaving speed, SNW | 55.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.6 | mi/h |
| Weaving segment density, D | 26.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.634 | |
| Weaving segment flow rate, v | 7447 | pc/h |
| Weaving segment capacity, cW | 10389 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2979 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2348 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.634 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2012_PM_Peak_SR_60_WB_Box_Springs_Rd_to_Central.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5465 | 584 | 419 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1438 | 154 | 110 | 8 | |
| Trucks and buses | 11 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.851 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6759 | 639 | 459 | 33 | pc/h |

Volume ratio, VR 0.139

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 639 | lc/h |
| Weaving lane changes, LCW | 1318 | lc/h |
| Non-weaving vehicle index, INW | 1290 | |
| Non-weaving lane change, LCNW | 1466 | lc/h |
| Total lane changes, LCALL | 2784 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.306 | |
| Average weaving speed, SW | 57.1 | mi/h |
| Average non-weaving speed, SNW | 57.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.7 | mi/h |
| Weaving segment density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.667 | |
| Weaving segment flow rate, v | 7890 | pc/h |
| Weaving segment capacity, cW | 10064 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2358 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2365 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.667 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_AM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6139 | 428 | 629 | 22 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1582 | 113 | 166 | 6 | |
| Trucks and buses | 8 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6595 | 456 | 670 | 23 | pc/h |

Volume ratio, VR 0.145

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 456 | lc/h |
| Weaving lane changes, LCW | 718 | lc/h |
| Non-weaving vehicle index, INW | 582 | |
| Non-weaving lane change, LCNW | 1070 | lc/h |
| Total lane changes, LCALL | 1788 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.395 | |
| Average weaving speed, SW | 54.4 | mi/h |
| Average non-weaving speed, SNW | 57.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.0 | mi/h |
| Weaving segment density, D | 34.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.848 | |
| Weaving segment flow rate, v | 7744 | pc/h |
| Weaving segment capacity, cW | 8760 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2420 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2283 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.848 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2012_PM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3104 | 269 | 691 | 14 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 834 | 71 | 182 | 4 | |
| Trucks and buses | 7 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3461 | 287 | 740 | 15 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.228 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 287 | lc/h |
| Weaving lane changes, LCW | 549 | lc/h |
| Non-weaving vehicle index, INW | 306 | |
| Non-weaving lane change, LCNW | 423 | lc/h |
| Total lane changes, LCALL | 972 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.244 | |
| Average weaving speed, SW | 59.2 | mi/h |
| Average non-weaving speed, SNW | 62.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.7 | mi/h |
| Weaving segment density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.508 | |
| Weaving segment flow rate, v | 4503 | pc/h |
| Weaving segment capacity, cW | 8555 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3259 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2218 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.508 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_AM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4446 | 152 | 623 | 8 | veh/h |
| Peak hour factor, PHF | 0.97 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1146 | 40 | 164 | 2 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4730 | 162 | 664 | 9 | pc/h |

Volume ratio, VR 0.148

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 162 | lc/h |
| Weaving lane changes, LCW | 350 | lc/h |
| Non-weaving vehicle index, INW | 284 | |
| Non-weaving lane change, LCNW | 531 | lc/h |
| Total lane changes, LCALL | 881 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.306 | |
| Average weaving speed, SW | 57.1 | mi/h |
| Average non-weaving speed, SNW | 62.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.4 | mi/h |
| Weaving segment density, D | 22.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.616 | |
| Weaving segment flow rate, v | 5565 | pc/h |
| Weaving segment capacity, cW | 8752 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2450 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2259 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.616 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2012_PM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6206 | 334 | 522 | 17 | veh/h |
| Peak hour factor, PHF | 0.93 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1668 | 88 | 137 | 4 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6820 | 356 | 556 | 18 | pc/h |

Volume ratio, VR 0.118

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 356 | lc/h |
| Weaving lane changes, LCW | 544 | lc/h |
| Non-weaving vehicle index, INW | 410 | |
| Non-weaving lane change, LCNW | 963 | lc/h |
| Total lane changes, LCALL | 1507 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.467 | |
| Average weaving speed, SW | 52.5 | mi/h |
| Average non-weaving speed, SNW | 58.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.4 | mi/h |
| Weaving segment density, D | 33.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.849 | |
| Weaving segment flow rate, v | 7750 | pc/h |
| Weaving segment capacity, cW | 8932 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2146 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2281 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.849 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2012_AM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center – Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6510 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 480 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6510 | 480 | 90 | vph |
| Peak-hour factor, PHF | 0.93 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1750 | 126 | 24 | v |
| Trucks and buses | 11 | 3 | 7 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.983 | 0.964 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7399 | 514 | 98 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.154 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 829$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 5916 | 9600 | No |
| $v_3$ or $v_{av34}$ | | 2286 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2160$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2674 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 16.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.273$ | |
| Space mean speed in ramp influence area, | $S_R = 62.4$ | mph |
| Space mean speed in outer lanes, | $S_0 = 66.0$ | mph |
| Space mean speed for all vehicles, | $S = 64.3$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2012_PM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2012 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8630 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1000 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 7 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8630 | 1000 | 7 | vph |
| Peak-hour factor, PHF | 0.98 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2202 | 263 | 2 | v |
| Trucks and buses | 8 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.983 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9176 | 1071 | 7 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.084 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 560$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 7747 | 9600 | No |
| $v_3$ or $v_{av34}$ | | 3058 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A}$ = 2670 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3741 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 24.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.380 | |
| Space mean speed in ramp influence area, | $S_R$ = 59.4 | mph |
| Space mean speed in outer lanes, | $S_0$ = 64.6 | mph |
| Space mean speed for all vehicles, | $S$ = 61.9 | mph |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-6 Off-Ramp to Theodore**
**ANALYSIS YEAR:** **Existing Plus Build-out**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 2,590 |
| Peak Hour Factor, PHF | 0.93 |
| % Trucks and buses | 26 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.883 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **3,153** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 3,153 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **18.5** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-6 Off-Ramp to Theodore**
**ANALYSIS YEAR:** **Existing Plus Build-out**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 2,380 |
| Peak Hour Factor, PHF | 0.98 |
| % Trucks and buses | 25 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.887 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **2,737** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 2,737 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **16.0** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-13 Off-Ramp to Theodore**
**ANALYSIS YEAR:** **Existing Plus Build-out**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 1,100 |
| Peak Hour Factor, PHF | 0.97 |
| % Trucks and buses | 13 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.937 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **1,210** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 1,210 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **7.1** |
| **Level of service, LOS** | **A** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-13 Off-Ramp to Theodore**
**ANALYSIS YEAR:** **Existing Plus Build-out**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 1,510 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 16 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.924 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **1,720** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 1,720 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **10.1** |
| **Level of service, LOS** | **A** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **Existing Plus Build-out**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 6,860 |
| Peak Hour Factor, PHF | 0.97 |
| % Trucks and buses | 9 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.955 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **7,405** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 7,405 |
| Max Upstream Fwy Flow, $V_{F1}$ | 9,400 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 4 |
| Density, D | **32.5** |
| **Level of service, LOS** | **D** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **Existing Plus Build-out**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 6,500 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 11 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.946 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **7,232** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 7,232 |
| Max Upstream Fwy Flow, $V_{F1}$ | 9,400 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 4 |
| Density, D | **31.8** |
| **Level of service, LOS** | **D** |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix L

## Freeway LOS Worksheets
## for 2022 No-Project Conditions

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HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2022_AM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1897 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1939 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1939 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2022_AM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2308 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2359 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2359 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 43.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2022_PM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7830 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2061 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2116 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2116 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2022_PM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7150 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1882 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1923 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1923 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2022_AM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1803 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1842 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1842 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2022_AM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2182 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2230 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2230 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 38.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2022_PM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2468 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2535 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2535 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 49.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 51.4 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2022_PM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1776 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1815 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1815 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2022_AM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1997 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2041 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2041 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2022_AM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6340 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1668 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1705 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1705 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2022_PM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2461 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2527 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2527 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 49.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 51.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2022_PM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1839 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1880 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1880 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2022_AM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7520 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1979 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2022 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2022 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2022_AM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1647 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1684 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1684 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2022_PM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6690 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1761 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1808 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1808 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2022_PM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7440 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1958 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2001 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2001 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2022_AM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2366 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2418 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2418 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 45.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2022_AM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6470 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1703 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1740 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1740 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2022_PM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2442 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2508 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2508 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 50.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 50.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2022_PM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1924 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1966 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1966 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_AM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2150 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2197 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2197 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_AM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1666 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1702 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1702 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_PM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2508 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2576 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2576 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 53.6 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_PM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2084 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2130 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2130 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2022_AM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2126 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2162 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2162 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 36.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2022_AM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7670 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2018 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2063 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2063 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2022_PM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9470 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2492 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2559 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2559 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 52.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2022_PM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1987 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2031 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2031 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2022_AM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1997 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2031 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2031 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2022_PM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6630 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1745 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1792 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1792 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2022_AM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1947 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1584 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1584 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.3 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 23.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2022_AM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1539 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1259 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1259 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2022_PM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7040 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1853 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1522 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1522 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 22.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2022_PM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1871 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1530 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1530 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2022_AM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1389 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1413 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1413 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2022_AM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1461 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1493 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1493 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2022_PM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1192 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1218 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1218 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2022_PM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1855 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1887 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1887 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2022_AM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1205 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1232 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1232 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2022_AM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1182 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 957 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 957 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 13.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2022_PM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3440 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 905 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 934 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 934 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2022_PM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1539 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1253 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1253 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 17.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2022_AM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1334 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1364 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1364 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2022_AM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4220 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1111 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1135 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1135 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2022_PM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4460 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1174 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1205 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1205 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2022_PM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5830 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1534 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1560 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1560 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2022_AM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4600 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1211 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1237 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1237 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2022_AM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1116 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1140 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1140 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2022_PM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 937 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 967 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 967 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2022_PM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1539 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1566 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1566 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2022_AM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1216 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1243 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1243 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2022_AM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 866 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 885 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 885 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2022_PM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3710 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 976 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1008 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1008 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2022_PM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5010 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1318 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1341 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1341 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2022_AM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1366 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1396 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1396 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2022_AM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 721 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 741 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 741 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.6 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2022_PM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1050 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1084 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1084 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2022_PM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1187 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1207 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1207 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_AM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1653 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2252 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2252 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 39.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_AM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4630 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1218 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1652 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1652 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_PM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1192 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1632 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1632 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_PM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1718 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2330 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2330 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 42.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_AM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1821 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2481 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2481 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 48.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_AM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3630 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 955 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1302 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1302 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_PM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1303 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1792 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1792 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_PM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5660 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1489 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2020 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2020 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_AM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6450 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1697 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2313 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2313 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 41.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_AM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1542 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2091 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2091 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 34.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_PM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1911 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2629 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2629 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 46.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 56.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_PM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6820 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1795 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2434 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2434 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 46.5 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2022_AM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5450 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1434 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1945 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1945 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2022_PM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1739 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2347 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2347 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 42.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2022_AM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8440 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2221 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.962 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2310 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2310 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 41.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2022_AM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1858 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1613 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1613 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 23.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2022_PM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2405 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2574 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2574 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 53.5 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2022_PM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2021 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.948 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1706 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1706 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 25.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2022_AM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6450 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1697 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1718 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1718 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2022_AM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1945 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1997 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1997 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2022_PM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1913 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1955 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1955 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2022_PM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2239 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2278 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2278 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 40.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2022_AM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1908 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2587 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2587 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 47.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 54.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2022_PM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1021 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1391 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1391 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_AM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3520 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 926 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1884 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1884 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 29.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_AM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3460 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 911 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1852 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1852 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_PM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1105 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2248 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2248 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 39.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_PM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1016 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2076 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2076 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 34.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_AM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3160 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 832 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1683 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1683 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_AM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3300 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 868 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1766 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1766 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 26.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_PM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1066 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2168 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2168 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 36.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_PM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 884 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1807 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1807 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 27.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2022_AM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 682 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1380 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1380 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2022_AM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 734 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1493 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1493 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 21.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2022_PM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 808 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1643 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1643 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2022_PM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 671 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1365 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1365 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2022_AM_Peak_SR_60_EB_Moreno_Beach_to_Redlands.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1910 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 503 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1017 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1017 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2022_AM_Peak_SR_60_WB_Redlands_to_Moreno_Beach.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 476 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 964 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 964 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 13.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2022_PM_Peak_SR_60_EB_Moreno_Beach_to_Redlands.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 624 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1262 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1262 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2022_PM_Peak_SR_60_WB_Redlands_to_Moreno_Beach.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 461 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 937 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 937 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 13.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2022_AM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2460 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 647 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1310 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1310 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2022_AM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 600 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1214 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1214 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2022_PM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 853 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1726 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1726 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2022_PM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 579 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1178 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1178 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2022_AM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 608 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1337 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1337 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2022_AM_Peak_SR_60_WB_Jack_Rabbit_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2180 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 574 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1262 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1262 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2022_PM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 729 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1604 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1604 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2022_PM_Peak_SR_60_WB_Jack_Rabbit_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 487 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1071 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1071 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2022_AM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 545 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1103 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1103 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2022_AM_Peak_SR_60_WB_I-10_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Jack Rabbit Trail |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 576 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1166 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1166 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2022_PM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2820 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 742 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1502 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1502 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 21.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2022_PM_Peak_SR_60_WB_I-10_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Jack Rabbit Trail |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1690 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 445 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 905 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 905 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2022_AM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1892 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1532 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1532 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2022_AM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1916 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1958 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1958 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2022_PM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2737 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2227 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2227 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 38.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2022_PM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1929 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1962 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1962 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2022_AM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6500 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1711 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1740 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1740 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2022_AM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5440 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1432 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1960 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1960 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2022_PM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1566 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1600 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1600 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2022_PM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1666 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2259 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2259 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 39.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_AM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1571 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2120 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2120 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_AM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1371 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1877 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1877 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_PM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1424 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1940 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1940 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_PM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2126 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2883 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2883 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 37.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 77.6 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2022_AM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5450 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1434 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1964 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1964 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2022_PM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8040 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2116 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2869 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2869 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 37.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 76.1 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2022_AM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1445 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1959 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1959 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2022_AM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4800 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1263 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1730 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1730 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2022_PM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1376 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1875 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1875 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2022_PM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1574 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2134 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2134 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2022_AM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6600 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1737 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1766 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1766 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2022_AM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1624 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1668 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1668 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2022_PM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1574 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1608 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1608 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2022_PM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1953 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1986 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1986 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2022_AM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6700 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1763 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1793 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1793 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2022_AM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1529 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1570 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1570 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2022_PM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1382 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1412 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1412 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2022_PM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7160 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1884 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1916 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1916 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2022_AM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1924 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1976 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1976 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2022_AM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1426 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1465 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1465 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2022_PM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1308 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1350 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1350 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2022_PM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1634 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1654 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1654 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2022_AM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6710 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1766 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1813 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1813 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2022_AM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1258 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1722 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1722 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2022_PM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1308 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1350 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1350 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2022_PM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1461 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1971 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1971 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2022_AM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5910 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1555 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2109 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2109 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 34.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2022_AM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4340 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1142 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1173 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1173 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2022_PM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1334 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1818 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1818 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2022_PM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1192 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1212 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1212 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2022_AM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2176 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1762 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1762 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.3 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2022_PM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7700 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2026 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1641 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1641 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 24.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2022_AM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1155 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1175 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1175 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2022_AM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1476 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1509 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1509 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2022_PM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1600 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1635 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1635 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2022_PM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1413 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1437 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1437 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2022_AM_Peak_I-10_EB_Beaumont_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4450 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1171 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1197 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1197 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2022_AM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5470 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1439 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1471 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1471 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2022_PM_Peak_I-10_EB_Beaumont_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1642 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1678 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1678 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2022_PM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1387 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1410 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1410 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2022_AM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4640 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1221 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1248 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1248 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2022_AM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1558 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1592 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1592 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2022_PM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1705 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1743 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1743 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2022_PM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1442 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1467 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1467 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2022_AM_Peak_I-10_EB_Highland_Springs_to_Sunset_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1200 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1226 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1226 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2022_AM_Peak_I-10_WB_Sunset_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5690 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1497 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1530 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1530 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2022_PM_Peak_I-10_EB_Highland_Springs_to_Sunset_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1634 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1670 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1670 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2022_PM_Peak_I-10_WB_Sunset_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1368 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1399 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1399 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2022_AM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4470 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1176 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1202 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1202 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2022_AM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5450 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1434 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1466 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1466 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2022_PM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5960 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1568 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1603 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1603 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2022_PM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5090 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1339 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1369 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1369 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2022_AM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1153 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1178 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1178 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2022_AM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1400 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1431 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1431 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2022_PM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5800 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1526 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1560 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1560 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2022_PM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1345 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1368 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1368 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2022_AM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1150 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1175 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1175 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2022_AM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1382 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1412 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1412 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2022_PM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5730 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1508 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1541 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1541 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2022_PM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1382 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1405 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1405 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2022_AM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1079 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1103 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1103 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2022_AM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1266 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1294 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1294 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2022_PM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1408 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1439 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1439 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2022_PM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5020 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1321 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1344 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1344 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2022_AM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 992 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1014 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1014 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2022_AM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4600 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1211 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1237 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1237 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2022_PM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1337 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1366 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1366 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2022_PM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4830 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1271 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1299 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1299 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2022_AM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 897 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 917 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 917 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2022_AM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1082 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1105 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1105 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2022_PM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4670 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1229 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1256 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1256 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2022_PM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1116 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1140 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1140 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2022_AM_Peak_I-10_EB_Main_to_Haugen-Lehmann.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 863 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 882 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 882 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2022_AM_Peak_I-10_WB_Haugen-Lehmann_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1113 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1138 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1138 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2022_PM_Peak_I-10_EB_Main_to_Haugen-Lehmann.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1242 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1269 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1269 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2022_PM_Peak_I-10_WB_Haugen-Lehmann_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4300 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1132 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1156 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1156 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2022_AM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 776 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 793 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 793 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2022_AM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 968 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 990 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 990 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2022_PM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1089 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1113 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1113 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2022_PM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3760 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 989 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1006 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1006 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2022_AM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 739 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 756 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 756 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2022_AM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3700 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 974 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 995 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 995 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2022_PM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1097 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1122 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1122 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2022_PM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 992 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1009 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1009 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2022_AM_Peak_I-215_NB_Scott_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 750 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1017 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1017 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2022_AM_Peak_I-215_SB_Newport_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3670 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 966 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1303 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1303 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2022_PM_Peak_I-215_NB_Scott_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1139 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1538 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1538 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2022_PM_Peak_I-215_SB_Newport_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2500 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 658 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 888 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 888 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 12.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2022_AM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 553 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 753 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 753 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 10.8 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2022_AM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3820 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1005 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1363 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1363 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2022_PM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 826 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1115 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1115 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2022_PM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3520 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 926 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1256 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1256 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2022_AM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 724 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 981 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 981 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 14.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2022_AM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1153 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1563 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1563 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2022_PM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1153 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1555 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1555 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2022_PM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 776 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1053 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1053 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 15.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2022_AM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1105 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1499 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1499 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2022_AM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1082 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1467 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1467 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2022_PM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1079 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1456 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1456 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2022_PM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1118 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1509 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1509 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2022_AM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 918 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1239 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1239 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2022_AM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5730 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1508 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2045 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2045 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 33.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2022_PM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4800 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1263 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1704 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1704 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2022_PM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1016 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1371 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1371 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_AM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6090 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1603 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2173 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2173 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 36.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_AM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1682 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2269 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2269 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 40.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_PM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6030 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1587 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2152 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2152 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 36.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_PM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1403 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1902 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1902 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2022_AM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5830 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1534 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2080 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2080 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 34.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2022_AM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1811 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2443 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2443 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 46.9 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2022_PM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5800 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1526 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2070 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2070 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 33.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2022_PM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1463 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1984 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1984 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_AM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5690 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1497 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2030 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2030 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_AM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6700 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1763 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2379 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2379 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 44.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_PM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6130 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1613 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2187 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2187 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 37.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_PM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5570 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1466 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1988 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1988 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_AM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1574 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2134 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2134 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_AM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1768 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2386 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2386 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 44.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_PM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1724 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2337 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2337 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 42.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_PM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1476 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2002 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2002 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2022_AM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1518 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1544 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1544 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2022_AM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1863 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1886 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1886 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2022_PM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6660 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1753 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1782 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1782 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2022_PM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5890 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1550 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1576 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1576 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2022_AM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1182 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1202 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1202 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2022_AM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1261 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1276 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1276 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2022_PM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5500 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1447 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1465 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1465 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2022_PM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1089 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1108 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1108 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2022_AM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3030 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 797 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1081 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1081 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 15.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2022_AM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1389 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1875 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1875 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2022_PM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1068 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1442 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1442 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2022_PM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4700 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1237 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1677 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1677 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2022_AM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5601 | 1028 | 338 | 181 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1474 | 271 | 89 | 48 | |
| Trucks and buses | 4 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6025 | 1106 | 360 | 193 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.191 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1466 | lc/h |
| Weaving lane changes, LCW | 2101 | lc/h |
| Non-weaving vehicle index, INW | 1057 | |
| Non-weaving lane change, LCNW | 1239 | lc/h |
| Total lane changes, LCALL | 3340 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.385 | |
| Average weaving speed, SW | 54.7 | mi/h |
| Average non-weaving speed, SNW | 52.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.6 | mi/h |
| Weaving segment density, D | 29.2 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.702 | |
| Weaving segment flow rate, v | 7684 | pc/h |
| Weaving segment capacity, cW | 10714 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4442 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2190 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.702 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2022_AM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4629 | 391 | 1041 | 69 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1218 | 103 | 274 | 18 | |
| Trucks and buses | 4 | 3 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.983 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4980 | 419 | 1120 | 74 | pc/h |

Volume ratio, VR 0.233

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 419 | lc/h |
| Weaving lane changes, LCW | 1129 | lc/h |
| Non-weaving vehicle index, INW | 1036 | |
| Non-weaving lane change, LCNW | 1189 | lc/h |
| Total lane changes, LCALL | 2318 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.249 | |
| Average weaving speed, SW | 59.0 | mi/h |
| Average non-weaving speed, SNW | 60.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.3 | mi/h |
| Weaving segment density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.573 | |
| Weaving segment flow rate, v | 6593 | pc/h |
| Weaving segment capacity, cW | 11267 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3315 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2304 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.573 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2022_PM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6877 | 1173 | 383 | 207 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1810 | 309 | 101 | 54 | |
| Trucks and buses | 5 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7434 | 1274 | 408 | 221 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.180 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1682 | lc/h |
| Weaving lane changes, LCW | 2317 | lc/h |
| Non-weaving vehicle index, INW | 1301 | |
| Non-weaving lane change, LCNW | 1539 | lc/h |
| Total lane changes, LCALL | 3856 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.431 | |
| Average weaving speed, SW | 53.4 | mi/h |
| Average non-weaving speed, SNW | 48.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.7 | mi/h |
| Weaving segment density, D | 37.6 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.850 | |
| Weaving segment flow rate, v | 9337 | pc/h |
| Weaving segment capacity, cW | 10701 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4334 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2199 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.850 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2022_PM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5285 | 425 | 935 | 75 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1391 | 112 | 246 | 20 | |
| Trucks and buses | 4 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5686 | 453 | 1006 | 80 | pc/h |

Volume ratio, VR 0.202

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 453 | lc/h |
| Weaving lane changes, LCW | 1163 | lc/h |
| Non-weaving vehicle index, INW | 1182 | |
| Non-weaving lane change, LCNW | 1336 | lc/h |
| Total lane changes, LCALL | 2499 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.264 | |
| Average weaving speed, SW | 58.5 | mi/h |
| Average non-weaving speed, SNW | 59.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.5 | mi/h |
| Weaving segment density, D | 24.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.621 | |
| Weaving segment flow rate, v | 7225 | pc/h |
| Weaving segment capacity, cW | 11389 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2990 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2328 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.621 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2022_AM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5248 | 541 | 511 | 28 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1381 | 142 | 134 | 7 | |
| Trucks and buses | 4 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5646 | 576 | 547 | 30 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.165 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1123 | lc/h |
| Weaving lane changes, LCW | 1873 | lc/h |
| Non-weaving vehicle index, INW | 1277 | |
| Non-weaving lane change, LCNW | 1426 | lc/h |
| Total lane changes, LCALL | 3299 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.306 | |
| Average weaving speed, SW | 57.1 | mi/h |
| Average non-weaving speed, SNW | 55.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.7 | mi/h |
| Weaving segment density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.604 | |
| Weaving segment flow rate, v | 6799 | pc/h |
| Weaving segment capacity, cW | 11018 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4183 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2252 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.604 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2022_PM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6129 | 750 | 410 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1613 | 197 | 108 | 10 | |
| Trucks and buses | 4 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6594 | 799 | 439 | 42 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.157 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1238 | lc/h |
| Weaving lane changes, LCW | 1988 | lc/h |
| Non-weaving vehicle index, INW | 1493 | |
| Non-weaving lane change, LCNW | 2083 | lc/h |
| Total lane changes, LCALL | 4071 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.361 | |
| Average weaving speed, SW | 55.4 | mi/h |
| Average non-weaving speed, SNW | 53.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.8 | mi/h |
| Weaving segment density, D | 29.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.697 | |
| Weaving segment flow rate, v | 7874 | pc/h |
| Weaving segment capacity, cW | 11047 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4104 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2258 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.697 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2022_AM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5971 | 518 | 768 | 91 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1571 | 136 | 202 | 24 | |
| Trucks and buses | 4 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6424 | 552 | 826 | 97 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.174 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 826 | lc/h |
| Weaving lane changes, LCW | 1043 | lc/h |
| Non-weaving vehicle index, INW | 456 | |
| Non-weaving lane change, LCNW | 952 | lc/h |
| Total lane changes, LCALL | 1995 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.516 | |
| Average weaving speed, SW | 51.3 | mi/h |
| Average non-weaving speed, SNW | 54.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.0 | mi/h |
| Weaving segment density, D | 36.6 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.929 | |
| Weaving segment flow rate, v | 7899 | pc/h |
| Weaving segment capacity, cW | 8321 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4277 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2127 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.929 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2022_PM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6017 | 323 | 973 | 57 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1583 | 85 | 256 | 15 | |
| Trucks and buses | 5 | 3 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6505 | 346 | 1047 | 61 | pc/h |

Volume ratio, VR 0.175

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1047 | lc/h |
| Weaving lane changes, LCW | 1264 | lc/h |
| Non-weaving vehicle index, INW | 460 | |
| Non-weaving lane change, LCNW | 962 | lc/h |
| Total lane changes, LCALL | 2226 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.563 | |
| Average weaving speed, SW | 50.2 | mi/h |
| Average non-weaving speed, SNW | 52.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.4 | mi/h |
| Weaving segment density, D | 38.0 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.936 | |
| Weaving segment flow rate, v | 7959 | pc/h |
| Weaving segment capacity, cW | 8280 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4282 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2126 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.936 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_AM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4036 | 1453 | 263 | 256 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1062 | 382 | 69 | 67 | |
| Trucks and buses | 2 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4299 | 1548 | 282 | 273 | pc/h |

Volume ratio, VR 0.286

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1548 | lc/h |
| Weaving lane changes, LCW | 2071 | lc/h |
| Non-weaving vehicle index, INW | 572 | |
| Non-weaving lane change, LCNW | 656 | lc/h |
| Total lane changes, LCALL | 2727 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.418 | |
| Average weaving speed, SW | 53.8 | mi/h |
| Average non-weaving speed, SNW | 52.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.0 | mi/h |
| Weaving segment density, D | 24.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.582 | |
| Weaving segment flow rate, v | 6402 | pc/h |
| Weaving segment capacity, cW | 10870 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3867 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2200 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.582 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_AM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6069 | 620 | 920 | 109 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1597 | 163 | 242 | 29 | |
| Trucks and buses | 5 | 3 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6561 | 664 | 999 | 116 | pc/h |

Volume ratio, VR 0.199

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 664 | lc/h |
| Weaving lane changes, LCW | 1159 | lc/h |
| Non-weaving vehicle index, INW | 768 | |
| Non-weaving lane change, LCNW | 1036 | lc/h |
| Total lane changes, LCALL | 2195 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.376 | |
| Average weaving speed, SW | 55.0 | mi/h |
| Average non-weaving speed, SNW | 57.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.7 | mi/h |
| Weaving segment density, D | 29.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.738 | |
| Weaving segment flow rate, v | 8340 | pc/h |
| Weaving segment capacity, cW | 11008 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2964 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2262 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.738 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_PM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7935 | 1334 | 254 | 235 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2088 | 351 | 67 | 62 | |
| Trucks and buses | 5 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8578 | 1435 | 273 | 250 | pc/h |

Volume ratio, VR 0.162

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1435 | lc/h |
| Weaving lane changes, LCW | 1958 | lc/h |
| Non-weaving vehicle index, INW | 1104 | |
| Non-weaving lane change, LCNW | 1533 | lc/h |
| Total lane changes, LCALL | 3491 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.508 | |
| Average weaving speed, SW | 51.5 | mi/h |
| Average non-weaving speed, SNW | 49.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.9 | mi/h |
| Weaving segment density, D | 42.3 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.917 | |
| Weaving segment flow rate, v | 10536 | pc/h |
| Weaving segment capacity, cW | 11188 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2586 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2298 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.917 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_PM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7449 | 790 | 910 | 139 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1960 | 208 | 239 | 37 | |
| Trucks and buses | 4 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8014 | 842 | 974 | 148 | pc/h |

Volume ratio, VR 0.182

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 842 | lc/h |
| Weaving lane changes, LCW | 1337 | lc/h |
| Non-weaving vehicle index, INW | 939 | |
| Non-weaving lane change, LCNW | 1342 | lc/h |
| Total lane changes, LCALL | 2679 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.440 | |
| Average weaving speed, SW | 53.2 | mi/h |
| Average non-weaving speed, SNW | 54.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.1 | mi/h |
| Weaving segment density, D | 36.9 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.877 | |
| Weaving segment flow rate, v | 9978 | pc/h |
| Weaving segment capacity, cW | 11130 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2787 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2275 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.877 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2022_AM_Peak_SR_60_EB_WBlaine_StSt_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | WBlaine StSt to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4969 | 370 | 350 | 19 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1308 | 97 | 92 | 5 | |
| Trucks and buses | 2 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.962 | 0.962 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5440 | 405 | 394 | 21 | pc/h |

Volume ratio, VR 0.128

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 799 | lc/h |
| Weaving lane changes, LCW | 1411 | lc/h |
| Non-weaving vehicle index, INW | 874 | |
| Non-weaving lane change, LCNW | 1029 | lc/h |
| Total lane changes, LCALL | 2440 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.315 | |
| Average weaving speed, SW | 56.8 | mi/h |
| Average non-weaving speed, SNW | 58.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.1 | mi/h |
| Weaving segment density, D | 21.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.561 | |
| Weaving segment flow rate, v | 6260 | pc/h |
| Weaving segment capacity, cW | 10726 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3810 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2231 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.561 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2022_AM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5056 | 114 | 524 | 6 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1331 | 30 | 138 | 2 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5854 | 125 | 574 | 7 | pc/h |

Volume ratio, VR 0.107

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 125 | lc/h |
| Weaving lane changes, LCW | 688 | lc/h |
| Non-weaving vehicle index, INW | 821 | |
| Non-weaving lane change, LCNW | 1003 | lc/h |
| Total lane changes, LCALL | 1691 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.262 | |
| Average weaving speed, SW | 58.6 | mi/h |
| Average non-weaving speed, SNW | 62.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.3 | mi/h |
| Weaving segment density, D | 21.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.558 | |
| Weaving segment flow rate, v | 6560 | pc/h |
| Weaving segment capacity, cW | 10686 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2037 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2351 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.558 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2022_PM_Peak_SR_60_EB_WBlaine_StSt_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | WBlaine StSt to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5861 | 978 | 318 | 51 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1542 | 257 | 84 | 13 | |
| Trucks and buses | 5 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | 0.962 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6694 | 1071 | 353 | 56 | pc/h |

Volume ratio, VR 0.174

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1424 | lc/h |
| Weaving lane changes, LCW | 2036 | lc/h |
| Non-weaving vehicle index, INW | 1080 | |
| Non-weaving lane change, LCNW | 1295 | lc/h |
| Total lane changes, LCALL | 3331 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.403 | |
| Average weaving speed, SW | 54.2 | mi/h |
| Average non-weaving speed, SNW | 51.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.3 | mi/h |
| Weaving segment density, D | 31.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.745 | |
| Weaving segment flow rate, v | 8174 | pc/h |
| Weaving segment capacity, cW | 10115 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4274 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2196 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.745 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2022_PM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7292 | 427 | 537 | 22 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1919 | 112 | 141 | 6 | |
| Trucks and buses | 3 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.948 | 0.948 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8098 | 474 | 596 | 24 | pc/h |

Volume ratio, VR 0.116

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 474 | lc/h |
| Weaving lane changes, LCW | 1037 | lc/h |
| Non-weaving vehicle index, INW | 1137 | |
| Non-weaving lane change, LCNW | 1469 | lc/h |
| Total lane changes, LCALL | 2506 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.358 | |
| Average weaving speed, SW | 55.5 | mi/h |
| Average non-weaving speed, SNW | 57.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.5 | mi/h |
| Weaving segment density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.784 | |
| Weaving segment flow rate, v | 9192 | pc/h |
| Weaving segment capacity, cW | 11109 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2134 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2344 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.784 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2022_AM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5629 | 560 | 400 | 29 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1481 | 147 | 105 | 8 | |
| Trucks and buses | 3 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6026 | 602 | 426 | 31 | pc/h |

Volume ratio, VR 0.145

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 426 | lc/h |
| Weaving lane changes, LCW | 906 | lc/h |
| Non-weaving vehicle index, INW | 666 | |
| Non-weaving lane change, LCNW | 881 | lc/h |
| Total lane changes, LCALL | 1787 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.331 | |
| Average weaving speed, SW | 56.3 | mi/h |
| Average non-weaving speed, SNW | 60.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.5 | mi/h |
| Weaving segment density, D | 23.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.650 | |
| Weaving segment flow rate, v | 7085 | pc/h |
| Weaving segment capacity, cW | 10713 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3983 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2180 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.650 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2022_AM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4190 | 760 | 610 | 40 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1103 | 200 | 161 | 11 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4552 | 810 | 650 | 43 | pc/h |

Volume ratio, VR 0.241

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1460 | lc/h |
| Weaving lane changes, LCW | 1940 | lc/h |
| Non-weaving vehicle index, INW | 505 | |
| Non-weaving lane change, LCNW | 580 | lc/h |
| Total lane changes, LCALL | 2520 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.435 | |
| Average weaving speed, SW | 53.3 | mi/h |
| Average non-weaving speed, SNW | 53.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.6 | mi/h |
| Weaving segment density, D | 22.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.608 | |
| Weaving segment flow rate, v | 6055 | pc/h |
| Weaving segment capacity, cW | 9645 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4961 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2105 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.608 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2022_PM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4858 | 921 | 231 | 48 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1278 | 242 | 61 | 13 | |
| Trucks and buses | 5 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5252 | 986 | 246 | 51 | pc/h |

Volume ratio, VR 0.189

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 246 | lc/h |
| Weaving lane changes, LCW | 726 | lc/h |
| Non-weaving vehicle index, INW | 583 | |
| Non-weaving lane change, LCNW | 726 | lc/h |
| Total lane changes, LCALL | 1452 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.281 | |
| Average weaving speed, SW | 57.9 | mi/h |
| Average non-weaving speed, SNW | 62.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.2 | mi/h |
| Weaving segment density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.609 | |
| Weaving segment flow rate, v | 6535 | pc/h |
| Weaving segment capacity, cW | 10448 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4419 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2146 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.609 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2022_PM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6473 | 437 | 687 | 23 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1703 | 115 | 181 | 6 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6964 | 466 | 732 | 25 | pc/h |

Volume ratio, VR 0.146

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1198 | lc/h |
| Weaving lane changes, LCW | 1678 | lc/h |
| Non-weaving vehicle index, INW | 769 | |
| Non-weaving lane change, LCNW | 1073 | lc/h |
| Total lane changes, LCALL | 2751 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.466 | |
| Average weaving speed, SW | 52.5 | mi/h |
| Average non-weaving speed, SNW | 53.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.4 | mi/h |
| Weaving segment density, D | 30.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.751 | |
| Weaving segment flow rate, v | 8187 | pc/h |
| Weaving segment capacity, cW | 10660 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3995 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2179 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.751 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_AM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5115 | 665 | 765 | 35 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1346 | 175 | 201 | 9 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.962 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5600 | 728 | 837 | 38 | pc/h |

Volume ratio, VR 0.217

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1565 | lc/h |
| Weaving lane changes, LCW | 2324 | lc/h |
| Non-weaving vehicle index, INW | 1297 | |
| Non-weaving lane change, LCNW | 1445 | lc/h |
| Total lane changes, LCALL | 3769 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.334 | |
| Average weaving speed, SW | 56.2 | mi/h |
| Average non-weaving speed, SNW | 51.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.7 | mi/h |
| Weaving segment density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.652 | |
| Weaving segment flow rate, v | 7203 | pc/h |
| Weaving segment capacity, cW | 10621 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4714 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2216 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.652 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_AM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5370 | 1330 | 340 | 70 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1413 | 350 | 89 | 18 | |
| Trucks and buses | 5 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | 0.948 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6133 | 1477 | 372 | 77 | pc/h |

Volume ratio, VR 0.229

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1477 | lc/h |
| Weaving lane changes, LCW | 2156 | lc/h |
| Non-weaving vehicle index, INW | 1180 | |
| Non-weaving lane change, LCNW | 1346 | lc/h |
| Total lane changes, LCALL | 3502 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.366 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 51.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.4 | mi/h |
| Weaving segment density, D | 30.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.702 | |
| Weaving segment flow rate, v | 8059 | pc/h |
| Weaving segment capacity, cW | 10576 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3273 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2295 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.702 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_PM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6646 | 1064 | 634 | 56 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1749 | 280 | 167 | 15 | |
| Trucks and buses | 4 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | 0.962 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7485 | 1165 | 714 | 61 | pc/h |

Volume ratio, VR 0.199

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1879 | lc/h |
| Weaving lane changes, LCW | 2638 | lc/h |
| Non-weaving vehicle index, INW | 1736 | |
| Non-weaving lane change, LCNW | 2866 | lc/h |
| Total lane changes, LCALL | 5504 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.450 | |
| Average weaving speed, SW | 52.9 | mi/h |
| Average non-weaving speed, SNW | 47.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.4 | mi/h |
| Weaving segment density, D | 38.9 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.846 | |
| Weaving segment flow rate, v | 9425 | pc/h |
| Weaving segment capacity, cW | 10416 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4530 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2230 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.846 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_PM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6391 | 969 | 479 | 51 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1682 | 255 | 126 | 13 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7198 | 1061 | 524 | 56 | pc/h |

Volume ratio, VR 0.179

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1061 | lc/h |
| Weaving lane changes, LCW | 1740 | lc/h |
| Non-weaving vehicle index, INW | 1378 | |
| Non-weaving lane change, LCNW | 1771 | lc/h |
| Total lane changes, LCALL | 3511 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.367 | |
| Average weaving speed, SW | 55.2 | mi/h |
| Average non-weaving speed, SNW | 53.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.1 | mi/h |
| Weaving segment density, D | 32.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.757 | |
| Weaving segment flow rate, v | 8839 | pc/h |
| Weaving segment capacity, cW | 10907 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2760 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2334 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.757 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2022_AM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3099 | 221 | 641 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 816 | 58 | 169 | 10 | |
| Trucks and buses | 3 | 32 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.948 | 0.671 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3442 | 347 | 702 | 43 | pc/h |

Volume ratio, VR 0.231

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 347 | lc/h |
| Weaving lane changes, LCW | 856 | lc/h |
| Non-weaving vehicle index, INW | 418 | |
| Non-weaving lane change, LCNW | 405 | lc/h |
| Total lane changes, LCALL | 1261 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.235 | |
| Average weaving speed, SW | 59.5 | mi/h |
| Average non-weaving speed, SNW | 63.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.3 | mi/h |
| Weaving segment density, D | 14.6 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.405 | |
| Weaving segment flow rate, v | 4534 | pc/h |
| Weaving segment capacity, cW | 10616 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3293 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2240 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.405 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2022_PM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4265 | 314 | 644 | 55 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1122 | 83 | 169 | 14 | |
| Trucks and buses | 3 | 28 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.948 | 0.699 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4736 | 473 | 705 | 60 | pc/h |

Volume ratio, VR 0.197

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 473 | lc/h |
| Weaving lane changes, LCW | 982 | lc/h |
| Non-weaving vehicle index, INW | 576 | |
| Non-weaving lane change, LCNW | 675 | lc/h |
| Total lane changes, LCALL | 1657 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.292 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 60.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.2 | mi/h |
| Weaving segment density, D | 19.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.527 | |
| Weaving segment flow rate, v | 5974 | pc/h |
| Weaving segment capacity, cW | 10744 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2941 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2267 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.527 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2022_AM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2462 | 237 | 1177 | 12 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 648 | 62 | 310 | 3 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2636 | 252 | 1254 | 13 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.362 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 252 | lc/h |
| Weaving lane changes, LCW | 596 | lc/h |
| Non-weaving vehicle index, INW | 344 | |
| Non-weaving lane change, LCNW | 480 | lc/h |
| Total lane changes, LCALL | 1076 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.195 | |
| Average weaving speed, SW | 61.0 | mi/h |
| Average non-weaving speed, SNW | 63.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.4 | mi/h |
| Weaving segment density, D | 16.6 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.485 | |
| Weaving segment flow rate, v | 4155 | pc/h |
| Weaving segment capacity, cW | 8417 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4697 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2140 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.485 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2022_AM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3341 | 779 | 809 | 41 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 879 | 205 | 213 | 11 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3577 | 830 | 862 | 44 | pc/h |

Volume ratio, VR 0.318

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1692 | lc/h |
| Weaving lane changes, LCW | 1972 | lc/h |
| Non-weaving vehicle index, INW | 869 | |
| Non-weaving lane change, LCNW | 1469 | lc/h |
| Total lane changes, LCALL | 3441 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.300 | |
| Average weaving speed, SW | 57.3 | mi/h |
| Average non-weaving speed, SNW | 49.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.6 | mi/h |
| Weaving segment density, D | 34.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.827 | |
| Weaving segment flow rate, v | 5313 | pc/h |
| Weaving segment capacity, cW | 6316 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5783 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2142 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.827 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2022_PM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3318 | 532 | 1252 | 28 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 873 | 140 | 329 | 7 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3552 | 567 | 1334 | 30 | pc/h |

Volume ratio, VR 0.347

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 567 | lc/h |
| Weaving lane changes, LCW | 911 | lc/h |
| Non-weaving vehicle index, INW | 466 | |
| Non-weaving lane change, LCNW | 672 | lc/h |
| Total lane changes, LCALL | 1583 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.264 | |
| Average weaving speed, SW | 58.5 | mi/h |
| Average non-weaving speed, SNW | 59.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.0 | mi/h |
| Weaving segment density, D | 23.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.637 | |
| Weaving segment flow rate, v | 5483 | pc/h |
| Weaving segment capacity, cW | 8468 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4524 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2153 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.637 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2022_PM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3506 | 693 | 623 | 36 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 923 | 182 | 164 | 9 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3772 | 738 | 664 | 38 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.269 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1402 | lc/h |
| Weaving lane changes, LCW | 1682 | lc/h |
| Non-weaving vehicle index, INW | 914 | |
| Non-weaving lane change, LCNW | 1508 | lc/h |
| Total lane changes, LCALL | 3190 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.283 | |
| Average weaving speed, SW | 57.9 | mi/h |
| Average non-weaving speed, SNW | 51.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.1 | mi/h |
| Weaving segment density, D | 32.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.796 | |
| Weaving segment flow rate, v | 5212 | pc/h |
| Weaving segment capacity, cW | 6405 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5254 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2182 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.796 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2022_AM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Nason St to Moreno Beach Dr |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1270 | 199 | 849 | 10 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 334 | 52 | 223 | 3 | |
| Trucks and buses | 2 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1353 | 212 | 909 | 11 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.451 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1121 | lc/h |
| Weaving lane changes, LCW | 1350 | lc/h |
| Non-weaving vehicle index, INW | 232 | |
| Non-weaving lane change, LCNW | 625 | lc/h |
| Total lane changes, LCALL | 1975 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.254 | |
| Average weaving speed, SW | 58.8 | mi/h |
| Average non-weaving speed, SNW | 58.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.4 | mi/h |
| Weaving segment density, D | 14.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.467 | |
| Weaving segment flow rate, v | 2485 | pc/h |
| Weaving segment capacity, cW | 5257 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 7261 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1975 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.467 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2022_AM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1530 | 760 | 80 | 40 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 403 | 200 | 21 | 11 | |
| Trucks and buses | 3 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1638 | 818 | 85 | 43 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.349 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 903 | lc/h |
| Weaving lane changes, LCW | 1132 | lc/h |
| Non-weaving vehicle index, INW | 286 | |
| Non-weaving lane change, LCNW | 690 | lc/h |
| Total lane changes, LCALL | 1822 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.239 | |
| Average weaving speed, SW | 59.4 | mi/h |
| Average non-weaving speed, SNW | 59.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.4 | mi/h |
| Weaving segment density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.418 | |
| Weaving segment flow rate, v | 2584 | pc/h |
| Weaving segment capacity, cW | 6083 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6120 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2062 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.418 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2022_PM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Nason St to Moreno Beach Dr |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1634 | 275 | 955 | 14 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 430 | 72 | 251 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1749 | 293 | 1017 | 15 | pc/h |

Volume ratio, VR 0.426

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1310 | lc/h |
| Weaving lane changes, LCW | 1539 | lc/h |
| Non-weaving vehicle index, INW | 300 | |
| Non-weaving lane change, LCNW | 707 | lc/h |
| Total lane changes, LCALL | 2246 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.282 | |
| Average weaving speed, SW | 57.9 | mi/h |
| Average non-weaving speed, SNW | 55.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.6 | mi/h |
| Weaving segment density, D | 18.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.546 | |
| Weaving segment flow rate, v | 3074 | pc/h |
| Weaving segment capacity, cW | 5538 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6976 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1997 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.546 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2022_PM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1219 | 750 | 180 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 321 | 197 | 47 | 10 | |
| Trucks and buses | 3 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1305 | 803 | 192 | 42 | pc/h |

Volume ratio, VR 0.425

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 995 | lc/h |
| Weaving lane changes, LCW | 1224 | lc/h |
| Non-weaving vehicle index, INW | 229 | |
| Non-weaving lane change, LCNW | 621 | lc/h |
| Total lane changes, LCALL | 1845 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.241 | |
| Average weaving speed, SW | 59.3 | mi/h |
| Average non-weaving speed, SNW | 59.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.2 | mi/h |
| Weaving segment density, D | 13.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.415 | |
| Weaving segment flow rate, v | 2342 | pc/h |
| Weaving segment capacity, cW | 5555 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6961 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1997 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.415 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2022_AM_Peak_SR_60_EB_Gilman_Springs_to_Theodore.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Gilman Springs to Theodore |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1819 | 361 | 161 | 19 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 479 | 95 | 42 | 5 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1938 | 385 | 172 | 20 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.221 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 557 | lc/h |
| Weaving lane changes, LCW | 786 | lc/h |
| Non-weaving vehicle index, INW | 333 | |
| Non-weaving lane change, LCNW | 747 | lc/h |
| Total lane changes, LCALL | 1533 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.208 | |
| Average weaving speed, SW | 60.5 | mi/h |
| Average non-weaving speed, SNW | 62.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.6 | mi/h |
| Weaving segment density, D | 13.6 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.387 | |
| Weaving segment flow rate, v | 2515 | pc/h |
| Weaving segment capacity, cW | 6421 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4757 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2167 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.387 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2022_AM_Peak_SR_60_EB_Theodore_to_Gilman_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Theodore to Gilman Springs |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2000 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1885 | 104 | 324 | 5 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 496 | 27 | 85 | 1 | |
| Trucks and buses | 2 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2008 | 113 | 345 | 5 | pc/h |

Volume ratio, VR 0.185

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 113 | lc/h |
| Weaving lane changes, LCW | 365 | lc/h |
| Non-weaving vehicle index, INW | 403 | |
| Non-weaving lane change, LCNW | 921 | lc/h |
| Total lane changes, LCALL | 1286 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.160 | |
| Average weaving speed, SW | 62.4 | mi/h |
| Average non-weaving speed, SNW | 65.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 64.7 | mi/h |
| Weaving segment density, D | 12.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.352 | |
| Weaving segment flow rate, v | 2471 | pc/h |
| Weaving segment capacity, cW | 6928 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2821 | 2000 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2337 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.352 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2022_PM_Peak_SR_60_EB_Gilman_Springs_to_Theodore.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Gilman Springs to Theodore |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1615 | 294 | 104 | 15 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 425 | 77 | 27 | 4 | |
| Trucks and buses | 2 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1720 | 313 | 112 | 16 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.197 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 425 | lc/h |
| Weaving lane changes, LCW | 654 | lc/h |
| Non-weaving vehicle index, INW | 295 | |
| Non-weaving lane change, LCNW | 701 | lc/h |
| Total lane changes, LCALL | 1355 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.189 | |
| Average weaving speed, SW | 61.3 | mi/h |
| Average non-weaving speed, SNW | 63.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.0 | mi/h |
| Weaving segment density, D | 11.4 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.330 | |
| Weaving segment flow rate, v | 2161 | pc/h |
| Weaving segment capacity, cW | 6480 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4502 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2185 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.330 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2022_PM_Peak_SR_60_EB_Theodore_to_Gilman_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Theodore to Gilman Springs |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2000 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2463 | 256 | 636 | 13 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 648 | 67 | 167 | 3 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2624 | 273 | 678 | 14 | pc/h |

Volume ratio, VR 0.265

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 273 | lc/h |
| Weaving lane changes, LCW | 525 | lc/h |
| Non-weaving vehicle index, INW | 528 | |
| Non-weaving lane change, LCNW | 1050 | lc/h |
| Total lane changes, LCALL | 1575 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.187 | |
| Average weaving speed, SW | 61.3 | mi/h |
| Average non-weaving speed, SNW | 62.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.0 | mi/h |
| Weaving segment density, D | 19.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.526 | |
| Weaving segment flow rate, v | 3589 | pc/h |
| Weaving segment capacity, cW | 6741 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3645 | 2000 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2274 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.526 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2022_AM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4818 | 722 | 822 | 38 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1268 | 190 | 216 | 10 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5158 | 769 | 876 | 40 | pc/h |

Volume ratio, VR 0.240

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 769 | lc/h |
| Weaving lane changes, LCW | 1176 | lc/h |
| Non-weaving vehicle index, INW | 884 | |
| Non-weaving lane change, LCNW | 1222 | lc/h |
| Total lane changes, LCALL | 2398 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.296 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 56.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.5 | mi/h |
| Weaving segment density, D | 30.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.753 | |
| Weaving segment flow rate, v | 6843 | pc/h |
| Weaving segment capacity, cW | 8932 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3387 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2271 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.753 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2022_PM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4088 | 921 | 891 | 48 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1076 | 242 | 234 | 13 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4398 | 981 | 949 | 51 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.303 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 981 | lc/h |
| Weaving lane changes, LCW | 1388 | lc/h |
| Non-weaving vehicle index, INW | 756 | |
| Non-weaving lane change, LCNW | 1067 | lc/h |
| Total lane changes, LCALL | 2455 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.302 | |
| Average weaving speed, SW | 57.2 | mi/h |
| Average non-weaving speed, SNW | 55.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.9 | mi/h |
| Weaving segment density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.718 | |
| Weaving segment flow rate, v | 6379 | pc/h |
| Weaving segment capacity, cW | 8693 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4045 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2220 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.718 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2022_AM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5805 | 475 | 915 | 25 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1528 | 125 | 241 | 7 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6306 | 506 | 975 | 27 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.190 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1481 | lc/h |
| Weaving lane changes, LCW | 1743 | lc/h |
| Non-weaving vehicle index, INW | 557 | |
| Non-weaving lane change, LCNW | 1011 | lc/h |
| Total lane changes, LCALL | 2754 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.556 | |
| Average weaving speed, SW | 50.3 | mi/h |
| Average non-weaving speed, SNW | 50.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.0 | mi/h |
| Weaving segment density, D | 39.0 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.918 | |
| Weaving segment flow rate, v | 7814 | pc/h |
| Weaving segment capacity, cW | 8248 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4429 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2128 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.918 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2022_AM_Peak_SR_91_WB_Central_Ave_to_Arlington_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3635 | 285 | 575 | 15 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 957 | 75 | 151 | 4 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3930 | 304 | 613 | 16 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.189 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 917 | lc/h |
| Weaving lane changes, LCW | 1217 | lc/h |
| Non-weaving vehicle index, INW | 418 | |
| Non-weaving lane change, LCNW | 617 | lc/h |
| Total lane changes, LCALL | 1834 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.348 | |
| Average weaving speed, SW | 55.8 | mi/h |
| Average non-weaving speed, SNW | 57.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.2 | mi/h |
| Weaving segment density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.567 | |
| Weaving segment flow rate, v | 4863 | pc/h |
| Weaving segment capacity, cW | 8347 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4420 | 1060 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2143 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.567 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2022_PM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2540 | 380 | 740 | 20 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 668 | 100 | 195 | 5 | |
| Trucks and buses | 8 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2786 | 405 | 788 | 21 | pc/h |

Volume ratio, VR 0.298

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1193 | lc/h |
| Weaving lane changes, LCW | 1455 | lc/h |
| Non-weaving vehicle index, INW | 247 | |
| Non-weaving lane change, LCNW | 285 | lc/h |
| Total lane changes, LCALL | 1740 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.387 | |
| Average weaving speed, SW | 54.7 | mi/h |
| Average non-weaving speed, SNW | 56.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.0 | mi/h |
| Weaving segment density, D | 17.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.497 | |
| Weaving segment flow rate, v | 4000 | pc/h |
| Weaving segment capacity, cW | 7723 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5565 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2042 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.497 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2022_PM_Peak_SR_91_WB_Central_Ave_to_Arlington_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4103 | 437 | 487 | 23 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1080 | 115 | 128 | 6 | |
| Trucks and buses | 3 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4392 | 470 | 519 | 25 | pc/h |

Volume ratio, VR 0.183

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 989 | lc/h |
| Weaving lane changes, LCW | 1289 | lc/h |
| Non-weaving vehicle index, INW | 468 | |
| Non-weaving lane change, LCNW | 714 | lc/h |
| Total lane changes, LCALL | 2003 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.373 | |
| Average weaving speed, SW | 55.0 | mi/h |
| Average non-weaving speed, SNW | 56.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.1 | mi/h |
| Weaving segment density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.630 | |
| Weaving segment flow rate, v | 5406 | pc/h |
| Weaving segment capacity, cW | 8444 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4363 | 1060 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2147 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.630 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2022_AM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3827 | 323 | 863 | 17 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1007 | 85 | 227 | 4 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4077 | 344 | 919 | 18 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.236 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1263 | lc/h |
| Weaving lane changes, LCW | 1445 | lc/h |
| Non-weaving vehicle index, INW | 238 | |
| Non-weaving lane change, LCNW | 388 | lc/h |
| Total lane changes, LCALL | 1833 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.560 | |
| Average weaving speed, SW | 50.3 | mi/h |
| Average non-weaving speed, SNW | 54.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.4 | mi/h |
| Weaving segment density, D | 25.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.647 | |
| Weaving segment flow rate, v | 5358 | pc/h |
| Weaving segment capacity, cW | 8178 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4905 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2069 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.647 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2022_AM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4101 | 209 | 769 | 11 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1079 | 55 | 202 | 3 | |
| Trucks and buses | 5 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4433 | 224 | 819 | 12 | pc/h |

Volume ratio, VR 0.190

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1043 | lc/h |
| Weaving lane changes, LCW | 1337 | lc/h |
| Non-weaving vehicle index, INW | 267 | |
| Non-weaving lane change, LCNW | 278 | lc/h |
| Total lane changes, LCALL | 1615 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.494 | |
| Average weaving speed, SW | 51.8 | mi/h |
| Average non-weaving speed, SNW | 57.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.1 | mi/h |
| Weaving segment density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.521 | |
| Weaving segment flow rate, v | 5488 | pc/h |
| Weaving segment capacity, cW | 10258 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4435 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2107 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.521 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2022_PM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3412 | 418 | 958 | 22 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 898 | 110 | 252 | 6 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3653 | 445 | 1021 | 23 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.285 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1466 | lc/h |
| Weaving lane changes, LCW | 1648 | lc/h |
| Non-weaving vehicle index, INW | 213 | |
| Non-weaving lane change, LCNW | 301 | lc/h |
| Total lane changes, LCALL | 1949 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.588 | |
| Average weaving speed, SW | 49.6 | mi/h |
| Average non-weaving speed, SNW | 53.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.2 | mi/h |
| Weaving segment density, D | 24.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.634 | |
| Weaving segment flow rate, v | 5142 | pc/h |
| Weaving segment capacity, cW | 7980 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5425 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2029 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.634 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2022_PM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5904 | 456 | 636 | 24 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1554 | 120 | 167 | 6 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6289 | 486 | 678 | 26 | pc/h |

Volume ratio, VR 0.156

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1164 | lc/h |
| Weaving lane changes, LCW | 1458 | lc/h |
| Non-weaving vehicle index, INW | 379 | |
| Non-weaving lane change, LCNW | 663 | lc/h |
| Total lane changes, LCALL | 2121 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.612 | |
| Average weaving speed, SW | 49.1 | mi/h |
| Average non-weaving speed, SNW | 54.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.5 | mi/h |
| Weaving segment density, D | 27.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.701 | |
| Weaving segment flow rate, v | 7479 | pc/h |
| Weaving segment capacity, cW | 10539 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4088 | 600 | a,b |
| Density-based capacty, cIWL (pc/h/ln) | | Maximum 2400 | Analyzed 2133 | c |
| v/c ratio | | Maximum 1.00 | Analyzed 0.701 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2022_AM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2777 | 875 | 375 | 154 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 731 | 230 | 99 | 41 | |
| Trucks and buses | 5 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3002 | 951 | 399 | 164 | pc/h |

Volume ratio, VR 0.299

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 399 | lc/h |
| Weaving lane changes, LCW | 755 | lc/h |
| Non-weaving vehicle index, INW | 234 | |
| Non-weaving lane change, LCNW | 90 | lc/h |
| Total lane changes, LCALL | 845 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.251 | |
| Average weaving speed, SW | 59.0 | mi/h |
| Average non-weaving speed, SNW | 62.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.6 | mi/h |
| Weaving segment density, D | 14.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.420 | |
| Weaving segment flow rate, v | 4516 | pc/h |
| Weaving segment capacity, cW | 10467 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4007 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2150 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.420 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2022_PM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5992 | 892 | 332 | 157 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1577 | 235 | 87 | 41 | |
| Trucks and buses | 2 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6383 | 955 | 354 | 167 | pc/h |

Volume ratio, VR 0.167

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 354 | lc/h |
| Weaving lane changes, LCW | 710 | lc/h |
| Non-weaving vehicle index, INW | 485 | |
| Non-weaving lane change, LCNW | 787 | lc/h |
| Total lane changes, LCALL | 1497 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.394 | |
| Average weaving speed, SW | 54.5 | mi/h |
| Average non-weaving speed, SNW | 59.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.9 | mi/h |
| Weaving segment density, D | 26.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.697 | |
| Weaving segment flow rate, v | 7859 | pc/h |
| Weaving segment capacity, cW | 11141 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2631 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2255 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.697 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2022_AM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2239 | 110 | 930 | 19 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 589 | 29 | 245 | 5 | |
| Trucks and buses | 4 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2409 | 117 | 1000 | 20 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.315 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 117 | lc/h |
| Weaving lane changes, LCW | 693 | lc/h |
| Non-weaving vehicle index, INW | 352 | |
| Non-weaving lane change, LCNW | 323 | lc/h |
| Total lane changes, LCALL | 1016 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.171 | |
| Average weaving speed, SW | 62.0 | mi/h |
| Average non-weaving speed, SNW | 65.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 64.5 | mi/h |
| Weaving segment density, D | 11.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.324 | |
| Weaving segment flow rate, v | 3546 | pc/h |
| Weaving segment capacity, cW | 10719 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4179 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2191 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.324 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2022_AM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3665 | 475 | 45 | 25 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 964 | 125 | 12 | 7 | |
| Trucks and buses | 4 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3943 | 516 | 48 | 27 | pc/h |

Volume ratio, VR 0.124

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 564 | lc/h |
| Weaving lane changes, LCW | 1044 | lc/h |
| Non-weaving vehicle index, INW | 437 | |
| Non-weaving lane change, LCNW | 451 | lc/h |
| Total lane changes, LCALL | 1495 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.288 | |
| Average weaving speed, SW | 57.7 | mi/h |
| Average non-weaving speed, SNW | 61.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.1 | mi/h |
| Weaving segment density, D | 14.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.413 | |
| Weaving segment flow rate, v | 4534 | pc/h |
| Weaving segment capacity, cW | 10739 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3778 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2195 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.413 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2022_PM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3785 | 85 | 825 | 15 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 996 | 22 | 217 | 4 | |
| Trucks and buses | 4 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4072 | 91 | 892 | 16 | pc/h |

Volume ratio, VR 0.194

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 91 | lc/h |
| Weaving lane changes, LCW | 667 | lc/h |
| Non-weaving vehicle index, INW | 593 | |
| Non-weaving lane change, LCNW | 665 | lc/h |
| Total lane changes, LCALL | 1332 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.211 | |
| Average weaving speed, SW | 60.4 | mi/h |
| Average non-weaving speed, SNW | 64.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.6 | mi/h |
| Weaving segment density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.443 | |
| Weaving segment flow rate, v | 5071 | pc/h |
| Weaving segment capacity, cW | 11199 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2907 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2288 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.443 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2022_PM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2706 | 1453 | 73 | 76 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 712 | 382 | 19 | 20 | |
| Trucks and buses | 4 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2911 | 1563 | 78 | 81 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.354 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1641 | lc/h |
| Weaving lane changes, LCW | 2121 | lc/h |
| Non-weaving vehicle index, INW | 329 | |
| Non-weaving lane change, LCNW | 250 | lc/h |
| Total lane changes, LCALL | 2371 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.414 | |
| Average weaving speed, SW | 53.9 | mi/h |
| Average non-weaving speed, SNW | 53.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.8 | mi/h |
| Weaving segment density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.684 | |
| Weaving segment flow rate, v | 4633 | pc/h |
| Weaving segment capacity, cW | 6630 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6173 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2012 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.684 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2022_AM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4611 | 1708 | 218 | 301 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1213 | 449 | 57 | 79 | |
| Trucks and buses | 3 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4936 | 1828 | 232 | 321 | pc/h |

Volume ratio, VR 0.282

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2060 | lc/h |
| Weaving lane changes, LCW | 2501 | lc/h |
| Non-weaving vehicle index, INW | 1025 | |
| Non-weaving lane change, LCNW | 1369 | lc/h |
| Total lane changes, LCALL | 3870 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.388 | |
| Average weaving speed, SW | 54.6 | mi/h |
| Average non-weaving speed, SNW | 46.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.4 | mi/h |
| Weaving segment density, D | 37.8 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.858 | |
| Weaving segment flow rate, v | 7317 | pc/h |
| Weaving segment capacity, cW | 8382 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5387 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2137 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.858 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2022_AM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4777 | 552 | 1612 | 97 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1257 | 145 | 424 | 26 | |
| Trucks and buses | 3 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5114 | 591 | 1717 | 103 | pc/h |

Volume ratio, VR 0.307

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 591 | lc/h |
| Weaving lane changes, LCW | 857 | lc/h |
| Non-weaving vehicle index, INW | 470 | |
| Non-weaving lane change, LCNW | 792 | lc/h |
| Total lane changes, LCALL | 1649 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.364 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 56.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.3 | mi/h |
| Weaving segment density, D | 33.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.873 | |
| Weaving segment flow rate, v | 7525 | pc/h |
| Weaving segment capacity, cW | 8480 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4090 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2156 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.873 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2022_PM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4346 | 1623 | 283 | 286 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1144 | 427 | 74 | 75 | |
| Trucks and buses | 3 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4653 | 1746 | 301 | 305 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.292 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2047 | lc/h |
| Weaving lane changes, LCW | 2488 | lc/h |
| Non-weaving vehicle index, INW | 967 | |
| Non-weaving lane change, LCNW | 1308 | lc/h |
| Total lane changes, LCALL | 3796 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.382 | |
| Average weaving speed, SW | 54.8 | mi/h |
| Average non-weaving speed, SNW | 46.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.9 | mi/h |
| Weaving segment density, D | 35.8 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.853 | |
| Weaving segment flow rate, v | 7005 | pc/h |
| Weaving segment capacity, cW | 8076 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5501 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2129 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.853 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2022_PM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3911 | 629 | 1459 | 111 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1029 | 166 | 384 | 29 | |
| Trucks and buses | 3 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4187 | 670 | 1570 | 118 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.342 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 670 | lc/h |
| Weaving lane changes, LCW | 936 | lc/h |
| Non-weaving vehicle index, INW | 387 | |
| Non-weaving lane change, LCNW | 604 | lc/h |
| Total lane changes, LCALL | 1540 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.345 | |
| Average weaving speed, SW | 55.9 | mi/h |
| Average non-weaving speed, SNW | 57.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.8 | mi/h |
| Weaving segment density, D | 28.8 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.770 | |
| Weaving segment flow rate, v | 6545 | pc/h |
| Weaving segment capacity, cW | 8362 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4475 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2127 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.770 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2022_AM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3272 | 467 | 787 | 82 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 861 | 123 | 207 | 22 | |
| Trucks and buses | 3 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3503 | 505 | 838 | 87 | pc/h |

Volume ratio, VR 0.272

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 838 | lc/h |
| Weaving lane changes, LCW | 1361 | lc/h |
| Non-weaving vehicle index, INW | 449 | |
| Non-weaving lane change, LCNW | 454 | lc/h |
| Total lane changes, LCALL | 1815 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.303 | |
| Average weaving speed, SW | 57.2 | mi/h |
| Average non-weaving speed, SNW | 59.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.7 | mi/h |
| Weaving segment density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.560 | |
| Weaving segment flow rate, v | 4933 | pc/h |
| Weaving segment capacity, cW | 8668 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5288 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2091 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.560 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2022_AM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4519 | 221 | 1051 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1189 | 58 | 277 | 10 | |
| Trucks and buses | 2 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.983 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4814 | 237 | 1125 | 42 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.219 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 474 | lc/h |
| Weaving lane changes, LCW | 983 | lc/h |
| Non-weaving vehicle index, INW | 583 | |
| Non-weaving lane change, LCNW | 688 | lc/h |
| Total lane changes, LCALL | 1671 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.293 | |
| Average weaving speed, SW | 57.5 | mi/h |
| Average non-weaving speed, SNW | 60.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.9 | mi/h |
| Weaving segment density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.553 | |
| Weaving segment flow rate, v | 6218 | pc/h |
| Weaving segment capacity, cW | 11117 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3166 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2250 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.553 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2022_PM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3748 | 612 | 742 | 108 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 986 | 161 | 195 | 28 | |
| Trucks and buses | 2 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3993 | 662 | 790 | 115 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.261 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 790 | lc/h |
| Weaving lane changes, LCW | 1313 | lc/h |
| Non-weaving vehicle index, INW | 514 | |
| Non-weaving lane change, LCNW | 561 | lc/h |
| Total lane changes, LCALL | 1874 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.311 | |
| Average weaving speed, SW | 57.0 | mi/h |
| Average non-weaving speed, SNW | 59.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.4 | mi/h |
| Weaving segment density, D | 19.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.605 | |
| Weaving segment flow rate, v | 5560 | pc/h |
| Weaving segment capacity, cW | 9081 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5171 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2100 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.605 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2022_PM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3558 | 442 | 792 | 78 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 936 | 116 | 208 | 21 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3809 | 471 | 844 | 83 | pc/h |

Volume ratio, VR 0.253

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 942 | lc/h |
| Weaving lane changes, LCW | 1451 | lc/h |
| Non-weaving vehicle index, INW | 467 | |
| Non-weaving lane change, LCNW | 489 | lc/h |
| Total lane changes, LCALL | 1940 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.330 | |
| Average weaving speed, SW | 56.3 | mi/h |
| Average non-weaving speed, SNW | 58.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.7 | mi/h |
| Weaving segment density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.468 | |
| Weaving segment flow rate, v | 5207 | pc/h |
| Weaving segment capacity, cW | 10929 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3514 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2223 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.468 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2022_AM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3968 | 351 | 751 | 18 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1044 | 92 | 198 | 5 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4248 | 374 | 800 | 19 | pc/h |

Volume ratio, VR 0.216

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 374 | lc/h |
| Weaving lane changes, LCW | 790 | lc/h |
| Non-weaving vehicle index, INW | 384 | |
| Non-weaving lane change, LCNW | 404 | lc/h |
| Total lane changes, LCALL | 1194 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.282 | |
| Average weaving speed, SW | 57.9 | mi/h |
| Average non-weaving speed, SNW | 62.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.1 | mi/h |
| Weaving segment density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.516 | |
| Weaving segment flow rate, v | 5441 | pc/h |
| Weaving segment capacity, cW | 10369 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4698 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2109 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.516 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2022_AM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4280 | 570 | 420 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1126 | 150 | 111 | 8 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4559 | 607 | 447 | 32 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.187 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 607 | lc/h |
| Weaving lane changes, LCW | 1023 | lc/h |
| Non-weaving vehicle index, INW | 413 | |
| Non-weaving lane change, LCNW | 471 | lc/h |
| Total lane changes, LCALL | 1494 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.337 | |
| Average weaving speed, SW | 56.1 | mi/h |
| Average non-weaving speed, SNW | 60.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.4 | mi/h |
| Weaving segment density, D | 19.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.530 | |
| Weaving segment flow rate, v | 5645 | pc/h |
| Weaving segment capacity, cW | 10534 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4401 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2132 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.530 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2022_PM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4714 | 456 | 716 | 24 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1241 | 120 | 188 | 6 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5022 | 486 | 763 | 26 | pc/h |

Volume ratio, VR 0.198

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 486 | lc/h |
| Weaving lane changes, LCW | 902 | lc/h |
| Non-weaving vehicle index, INW | 454 | |
| Non-weaving lane change, LCNW | 565 | lc/h |
| Total lane changes, LCALL | 1467 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.332 | |
| Average weaving speed, SW | 56.3 | mi/h |
| Average non-weaving speed, SNW | 60.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.6 | mi/h |
| Weaving segment density, D | 21.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.593 | |
| Weaving segment flow rate, v | 6297 | pc/h |
| Weaving segment capacity, cW | 10489 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4519 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2123 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.593 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2022_PM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3305 | 674 | 394 | 35 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 870 | 177 | 104 | 9 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3538 | 718 | 420 | 37 | pc/h |

Volume ratio, VR 0.241

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 718 | lc/h |
| Weaving lane changes, LCW | 1134 | lc/h |
| Non-weaving vehicle index, INW | 322 | |
| Non-weaving lane change, LCNW | 261 | lc/h |
| Total lane changes, LCALL | 1395 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.319 | |
| Average weaving speed, SW | 56.7 | mi/h |
| Average non-weaving speed, SNW | 60.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.4 | mi/h |
| Weaving segment density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.474 | |
| Weaving segment flow rate, v | 4713 | pc/h |
| Weaving segment capacity, cW | 9773 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4964 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2089 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.474 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2022_AM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2915 | 285 | 545 | 15 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 767 | 75 | 143 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3121 | 304 | 581 | 16 | pc/h |

Volume ratio, VR 0.220

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 304 | lc/h |
| Weaving lane changes, LCW | 972 | lc/h |
| Non-weaving vehicle index, INW | 580 | |
| Non-weaving lane change, LCNW | 686 | lc/h |
| Total lane changes, LCALL | 1658 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.207 | |
| Average weaving speed, SW | 60.6 | mi/h |
| Average non-weaving speed, SNW | 64.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.2 | mi/h |
| Weaving segment density, D | 12.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.369 | |
| Weaving segment flow rate, v | 4022 | pc/h |
| Weaving segment capacity, cW | 10713 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4742 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2179 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.369 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2022_AM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3560 | 570 | 380 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 937 | 150 | 100 | 8 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3792 | 607 | 405 | 32 | pc/h |

Volume ratio, VR 0.209

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 607 | lc/h |
| Weaving lane changes, LCW | 1275 | lc/h |
| Non-weaving vehicle index, INW | 707 | |
| Non-weaving lane change, LCNW | 827 | lc/h |
| Total lane changes, LCALL | 2102 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.250 | |
| Average weaving speed, SW | 59.0 | mi/h |
| Average non-weaving speed, SNW | 61.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.6 | mi/h |
| Weaving segment density, D | 16.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.442 | |
| Weaving segment flow rate, v | 4836 | pc/h |
| Weaving segment capacity, cW | 10805 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4631 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2187 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.442 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2022_PM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3568 | 342 | 522 | 18 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 939 | 90 | 137 | 5 | |
| Trucks and buses | 2 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3801 | 364 | 556 | 19 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.194 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 364 | lc/h |
| Weaving lane changes, LCW | 1032 | lc/h |
| Non-weaving vehicle index, INW | 707 | |
| Non-weaving lane change, LCNW | 827 | lc/h |
| Total lane changes, LCALL | 1859 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.227 | |
| Average weaving speed, SW | 59.8 | mi/h |
| Average non-weaving speed, SNW | 62.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.2 | mi/h |
| Weaving segment density, D | 15.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.431 | |
| Weaving segment flow rate, v | 4740 | pc/h |
| Weaving segment capacity, cW | 10865 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4476 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2199 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.431 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2022_PM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2346 | 693 | 413 | 36 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 617 | 182 | 109 | 9 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2511 | 738 | 440 | 38 | pc/h |

Volume ratio, VR 0.316

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 738 | lc/h |
| Weaving lane changes, LCW | 1406 | lc/h |
| Non-weaving vehicle index, INW | 472 | |
| Non-weaving lane change, LCNW | 565 | lc/h |
| Total lane changes, LCALL | 1971 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.238 | |
| Average weaving speed, SW | 59.4 | mi/h |
| Average non-weaving speed, SNW | 61.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.6 | mi/h |
| Weaving segment density, D | 12.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.491 | |
| Weaving segment flow rate, v | 3727 | pc/h |
| Weaving segment capacity, cW | 7466 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5757 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2101 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.491 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2022_AM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6190 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 710 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 430 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6190 | 710 | 430 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1629 | 187 | 113 | v |
| Trucks and buses | 3 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 6627 | 764 | 458 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.122 Using Equation 4

$v_{12} = v_{FM}(P_{FM}) = 810$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 7391 | 9600 | No |
| $v_3$ or $v_{av34}$ | | 2908 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}/2$ | | Yes | |

If yes, $v_{12A} = 2650$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3414 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 27.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.391$ | |
| Space mean speed in ramp influence area, | $S_R = 59.1$ | mph |
| Space mean speed in outer lanes, | $S_0 = 64.6$ | mph |
| Space mean speed for all vehicles, | $S = 61.9$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2022_PM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 5780 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1320 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 280 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 5780 | 1320 | 280 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1521 | 347 | 74 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 6248 | 1406 | 298 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.042 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 263$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 7654 | 9600 | No |
| $v_3$ or $v_{av34}$ | 2992 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | Yes | |

If yes, $v_{12A}$ = 2499 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3905 | 4600 | No |

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 30.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.466 | |
| Space mean speed in ramp influence area, | $S_R$ = 57.0 | mph |
| Space mean speed in outer lanes, | $S_0$ = 65.1 | mph |
| Space mean speed for all vehicles, | $S$ = 60.7 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2022_AM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8170 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 710 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 270 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8170 | 710 | 270 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2150 | 187 | 71 | v |
| Trucks and buses | 2 | 2 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 8703 | 756 | 290 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.123 Using Equation 4

$v_{12} = v_{FM}(P_{FM}) = 1073$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 9459 | 9600 | No |
| $v_3$ or $v_{av34}$ | 3815 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | Yes | |

If yes, $v_{12A} = 3481$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4237 | 4600 | No |

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 28.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.486$

Space mean speed in ramp influence area, $S_R = 56.4$ mph

Space mean speed in outer lanes, $S_0 = 61.6$ mph

Space mean speed for all vehicles, $S = 59.2$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2022_PM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 9010 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1120 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 130 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 9010 | 1120 | 130 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2371 | 295 | 34 | v |
| Trucks and buses | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9693 | 1193 | 138 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.069 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 666$ pc/h

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 10886 | 9600 | Yes |
| $v_3$ or $v_{av34}$ | | 4513 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 3877$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 5070 | 4600 | Yes |

## Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{R12} - 0.00627 L_A = 35.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.837$ | |
| Space mean speed in ramp influence area, | $S_R = 46.6$ | mph |
| Space mean speed in outer lanes, | $S_0 = 59.8$ | mph |
| Space mean speed for all vehicles, | $S = 52.8$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2022_AM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1910 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 220 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1910 | 220 | 90 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 503 | 58 | 24 | v |
| Trucks and buses | 2 | 4 | 9 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.978 | 0.955 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2035 | 237 | 99 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2035 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 2035 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 1798 | 4800 | No |
| $v_R$ | 237 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A}$ = 2035 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2035 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 8.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.449

Space mean speed in ramp influence area, $S_R$ = 57.4 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2022_PM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2370 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 520 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 210 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2370 | 520 | 210 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 624 | 137 | 55 | v |
| Trucks and buses | 2 | 2 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2525 | 554 | 225 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_{FD} - v_F) P_{FD} = 2525 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi} = v_F$ | | 2525 | 4800 | No |
| $v_{FO} = v_{FD} - v_R$ | | 1971 | 4800 | No |
| $v_R$ | | 554 | 2000 | No |
| $v_3$ or $v_{av34}$ | | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2525$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2525 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 12.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.478$

Space mean speed in ramp influence area, $S_R = 56.6$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 56.6$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2022_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1690 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 90 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 220 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1690 | 90 | 220 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 445 | 24 | 58 | v |
| Trucks and buses | 2 | 9 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.955 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1800 | 99 | 237 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1800$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 1899 | 4800 | No |
| $v_3$ or $v_{av34}$ | | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}/2$ | | No | |

If yes, $v_{12A} = 1800$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1899 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 17.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.312$ | |
| Space mean speed in ramp influence area, | $S_R = 61.3$ | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S = 61.3$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2022_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1850 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 210 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 520 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1850 | 210 | 520 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 487 | 55 | 137 | v |
| Trucks and buses | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.983 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1971 | 225 | 554 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 1971$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2196 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1971 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2196 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 19.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.321 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.0 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.0 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-6_2022_AM_Peak_SR_60_EB_Off-Ramp_to_Theodore.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2460 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 250 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 110 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2460 | 250 | 110 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 647 | 66 | 29 | v |
| Trucks and buses | 2 | 12 | 6 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.942 | 0.969 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2621 | 279 | 119 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2621 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 2621 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2342 | 4800 | No |
| $v_R$ | 279 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 2621$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2621 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D = 24.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S = 0.453$

Space mean speed in ramp influence area, $S_R = 57.3$ mph

Space mean speed in outer lanes, $S_0 =$ N/A mph

Space mean speed for all vehicles, $S = 57.3$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-6_2022_PM_Peak_SR_60_EB_Off-Ramp_to_Theodore.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3240 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 150 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 270 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3240 | 150 | 270 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 853 | 39 | 71 | v |
| Trucks and buses | 2 | 12 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.942 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3451 | 168 | 288 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3451 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 3451 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 3283 | 4800 | No |
| $v_R$ | 168 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 3451 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3451 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 31.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.443

Space mean speed in ramp influence area, $S_R$ = 57.6 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2022_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2210 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 110 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 250 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2210 | 110 | 250 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 582 | 29 | 66 | v |
| Trucks and buses | 2 | 6 | 12 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.969 | 0.942 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2354 | 119 | 279 | pcph |

## Estimation of V12 Merge Areas

L EQ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2354$ pc/h

### Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2473 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2354$ (Equation 13-15, 13-16, 13-18, or 13-19)

### Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2473 | 4600 | No |

### Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 23.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

### Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.350$ | |
| Space mean speed in ramp influence area, | $S_R = 60.2$ | mph |
| Space mean speed in outer lanes, | $S_0 =$ N/A | mph |
| Space mean speed for all vehicles, | $S = 60.2$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2022_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3090 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 270 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 150 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3090 | 270 | 150 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 813 | 71 | 39 | v |
| Trucks and buses | 2 | 2 | 12 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.942 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3292 | 288 | 168 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 3292$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3580 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 3292 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3580 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 31.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.443 | |
| Space mean speed in ramp influence area, | $S_R$ = 57.6 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 57.6 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2022_AM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1990 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 270 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 330 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1990 | 270 | 330 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 524 | 71 | 87 | v |
| Trucks and buses | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.983 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2120 | 289 | 352 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2120$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2409 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2120$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2409 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 14.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.259 | |
| Space mean speed in ramp influence area, | $S_R$ = 62.7 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 62.7 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2022_PM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2720 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 140 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 650 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2720 | 140 | 650 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 716 | 37 | 171 | v |
| Trucks and buses | 2 | 7 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.964 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2898 | 153 | 692 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2898$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3051 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2898 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3051 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 19.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.298 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.6 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.6 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2022_AM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1980 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 380 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 230 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1980 | 380 | 230 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 521 | 100 | 61 | v |
| Trucks and buses | 2 | 2 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2109 | 405 | 246 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 2109$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2514 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A}$ = 2109 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2514 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 15.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.264 | |
| Space mean speed in ramp influence area, | $S_R$ = 62.6 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 62.6 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2022_PM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1690 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 310 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 190 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1690 | 310 | 190 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 445 | 82 | 50 | v |
| Trucks and buses | 3 | 2 | 5 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.974 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1809 | 330 | 205 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

```
                  FM
                 v  = v  (P  ) =  1809   pc/h
                  12   F   FM

_____________________________Capacity Checks_____________________________

                           Actual        Maximum         LOS F?
     v                     2139          4800            No
      FO
     v  or v               0    pc/h     (Equation 13-14 or 13-17)
      3     av34
Is   v  or v      > 2700 pc/h?           No
      3     av34
Is   v  or v      > 1.5 v  /2            No
      3     av34         12
If yes, v    = 1809                  (Equation 13-15, 13-16, 18, or 19)
         12A

_____________________Flow Entering Merge Influence Area_____________________
                      Actual        Max Desirable         Violation?
     v                2139          4600                  No
      R12
_________________Level of Service Determination (if not F)__________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   12.6    pc/mi/ln
          R                   R           12            A
Level of service for ramp-freeway junction areas of influence B

_____________________________Speed Estimation_____________________________

Intermediate speed variable,                M  = 0.249
                                             S
Space mean speed in ramp influence area,    S  = 63.0    mph
                                             R
Space mean speed in outer lanes,            S  =  N/A    mph
                                             0
Space mean speed for all vehicles,          S  = 63.0    mph
_____________________________________________________________________________
```

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-13_2022_AM_Peak_SR_60_WB_Off-Ramp_to_Theodore_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2360 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 180 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 100 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2360 | 180 | 100 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 621 | 47 | 26 | v |
| Trucks and buses | 2 | 2 | 22 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.899 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2514 | 192 | 117 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2514 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 2514 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2322 | 4800 | No |
| $v_R$ | 192 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 2514$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2514 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 12.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.445$

Space mean speed in ramp influence area, $S_R = 57.5$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.5$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-13_2022_PM_Peak_SR_60_WB_Off-Ramp_to_Theodore_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2030 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 120 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 290 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2030 | 120 | 290 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 534 | 32 | 76 | v |
| Trucks and buses | 2 | 5 | 7 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.974 | 0.964 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2162 | 130 | 317 | pcph |

## Estimation of V12 Diverge Areas

L = (Equation 13-12 or 13-13)
EQ
P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2162 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi} = v_F$ | | 2162 | 4800 | No |
| $v_{FO} = v_F - v_R$ | | 2032 | 4800 | No |
| $v_R$ | | 130 | 2000 | No |
| $v_3$ or $v_{av34}$ | | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2162$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2162 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 9.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

Intermediate speed variable, $D_S = 0.440$

Space mean speed in ramp influence area, $S_R = 57.7$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.7$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2022_AM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2180 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 100 | vph |
| Length of first accel/decel lane | 550 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 180 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2180 | 100 | 180 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 574 | 26 | 47 | v |
| Trucks and buses | 2 | 22 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.899 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2322 | 117 | 192 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

```
                  FM
                 v  = v  (P  ) =  2322   pc/h
                  12   F   FM

_____________________________Capacity Checks_____________________________

                           Actual        Maximum         LOS F?
     v                     2439          4800            No
      FO
     v  or v               0    pc/h     (Equation 13-14 or 13-17)
      3     av34
Is   v  or v      > 2700 pc/h?           No
      3     av34
Is   v  or v      > 1.5 v  /2            No
      3     av34         12
If yes, v    = 2322                  (Equation 13-15, 13-16, 18, or 19)
         12A

_____________________Flow Entering Merge Influence Area_____________________
                      Actual        Max Desirable         Violation?
     v                2439          4600                  No
      R12
_________________Level of Service Determination (if not F)__________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   21.0    pc/mi/ln
          R                   R           12            A
Level of service for ramp-freeway junction areas of influence C

_____________________________Speed Estimation_____________________________

Intermediate speed variable,                M  = 0.327
                                             S
Space mean speed in ramp influence area,    S  = 60.8    mph
                                             R
Space mean speed in outer lanes,            S  =  N/A    mph
                                             0
Space mean speed for all vehicles,          S  = 60.8    mph
_____________________________________________________________________________
```

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2022_PM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1910 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 290 | vph |
| Length of first accel/decel lane | 550 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 120 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1910 | 290 | 120 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 503 | 76 | 32 | v |
| Trucks and buses | 2 | 7 | 5 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.964 | 0.974 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2035 | 317 | 130 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2035$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2352 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2035 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2352 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 20.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.323 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.9 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2022_AM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2280 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 170 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 440 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2280 | 170 | 440 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 600 | 45 | 116 | v |
| Trucks and buses | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.983 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2429 | 182 | 469 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2429 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 2429 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2247 | 4800 | No |
| $v_R$ | 182 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 2429$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2429 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086 v_{12} - 0.009 L_D = 22.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S = 0.444$

Space mean speed in ramp influence area, $S_R = 57.6$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.6$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2022_PM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2200 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 100 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 380 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2200 | 100 | 380 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 579 | 26 | 100 | v |
| Trucks and buses | 3 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.969 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2355 | 109 | 405 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2355 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 2355 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2246 | 4800 | No |
| $v_R$ | 109 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 2355$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2355 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D = 22.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S = 0.438$

Space mean speed in ramp influence area, $S_R = 57.7$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.7$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-16_2022_AM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2110 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 440 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 170 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2110 | 440 | 170 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 555 | 116 | 45 | v |
| Trucks and buses | 2 | 2 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2248 | 469 | 182 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

```
                  FM
                 v  = v  (P  ) =  2248   pc/h
                  12   F   FM

_____________________________Capacity Checks_____________________________

                           Actual        Maximum         LOS F?
     v                     2717          4800            No
      FO
     v  or v               0    pc/h     (Equation 13-14 or 13-17)
      3     av34
Is   v  or v      > 2700 pc/h?           No
      3     av34
Is   v  or v      > 1.5 v  /2            No
      3     av34         12
If yes, v    = 2248                  (Equation 13-15, 13-16, 18, or 19)
         12A

_____________________Flow Entering Merge Influence Area_____________________
                      Actual        Max Desirable         Violation?
     v                2717          4600                  No
      R12
_________________Level of Service Determination (if not F)__________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   23.3    pc/mi/ln
          R                   R           12            A
Level of service for ramp-freeway junction areas of influence C

_____________________________Speed Estimation_____________________________

Intermediate speed variable,                M  = 0.345
                                             S
Space mean speed in ramp influence area,    S  = 60.3    mph
                                             R
Space mean speed in outer lanes,            S  =  N/A    mph
                                             0
Space mean speed for all vehicles,          S  = 60.3    mph
_____________________________________________________________________________
```

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-16_2022_PM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2100 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 380 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 100 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2100 | 380 | 100 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 553 | 100 | 26 | v |
| Trucks and buses | 3 | 2 | 6 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.969 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2248 | 405 | 109 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2248$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2653 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2248 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2653 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 22.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.341 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.4 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.4 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2022_AM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/25/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 7060 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 510 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 800 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 7060 | 510 | 800 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1858 | 134 | 211 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7632 | 543 | 852 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2968 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi} = v_F$ | | 6106 | 9600 | No |
| $v_{FO} = v_F - v_R$ | | 5563 | 9600 | No |
| $v_R$ | | 543 | 2000 | No |
| $v_3$ or $v_{av34}$ | | 1569 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2968$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2968 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 16.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.477$

Space mean speed in ramp influence area, $S_R = 56.6$ mph

Space mean speed in outer lanes, $S_0 = 74.6$ mph

Space mean speed for all vehicles, $S = 64.6$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2022_PM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/25/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 7680 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 430 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 460 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 7680 | 430 | 460 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2021 | 113 | 121 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 8222 | 458 | 490 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3126 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi}$ | $= v_F$ | 6578 | 9600 | No |
| $v_{FO}$ | $= v_F - v_R$ | 6120 | 9600 | No |
| $v_R$ | | 458 | 2000 | No |
| $v_3$ | or $v_{av34}$ | 1726 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ | or $v_{av34}$ $> 2700$ pc/h? | | No | |
| Is $v_3$ | or $v_{av34}$ $> 1.5\ v_{12}/2$ | | No | |

If yes, $v_{12A} = 3126$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3126 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D = 17.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.469$

Space mean speed in ramp influence area, $S_R = 56.9$ mph

Space mean speed in outer lanes, $S_0 = 74.0$ mph

Space mean speed for all vehicles, $S = 64.7$ mph

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-9 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2022 No-Project**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 2,320 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 2 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.988 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **2,471** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 2,471 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **14.5** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-9 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2022 No-Project**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 3,370 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 2 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.988 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **3,590** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 3,590 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **21.0** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-11 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2022 No-Project**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 2,210 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 2 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.988 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **2,354** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 2,354 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **13.8** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-11 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2022 No-Project**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 1,880 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 3 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.983 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **2,013** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 2,013 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **11.8** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **2022 No-Project**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 7,110 |
| Peak Hour Factor, PHF | 0.97 |
| % Trucks and buses | 5 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.974 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **7,528** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 7,528 |
| Max Upstream Fwy Flow, $V_{F1}$ | 11,750 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 5 |
| Density, D | **26.5** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **2022 No-Project**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 7,890 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 4 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.978 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **8,488** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 8,488 |
| Max Upstream Fwy Flow, $V_{F1}$ | 11,750 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 5 |
| Density, D | **29.8** |
| **Level of service, LOS** | **D** |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix M

## Freeway LOS Worksheets
## for 2022 Plus Phase 1 Conditions

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HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2022_AM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1947 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2000 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2000 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2022_AM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8690 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2287 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2349 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2349 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 43.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2022_PM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2055 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2121 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2121 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2022_PM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1911 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1962 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1962 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2022_AM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7010 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1845 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1895 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1895 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2022_AM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2161 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2219 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2219 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 38.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2022_PM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9340 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2458 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2524 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2524 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 49.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 50.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2022_PM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1805 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1854 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1854 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2022_AM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2039 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2095 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2095 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2022_AM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1647 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1692 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1692 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2022_PM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2453 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2531 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2531 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 49.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 51.2 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2022_PM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1868 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1919 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1919 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2022_AM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7690 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2024 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2078 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2078 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2022_AM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1629 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1673 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1673 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2022_PM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6640 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1747 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1803 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1803 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2022_PM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1989 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2043 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2043 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2022_AM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2418 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2484 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2484 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 50.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 48.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2022_AM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1682 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1727 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1727 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2022_PM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2432 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2509 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2509 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 50.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 50.1 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2022_PM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1953 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2005 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2005 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_AM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2203 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2262 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2262 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 39.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_AM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1645 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1689 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1689 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_PM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2495 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2562 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2562 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 52.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_PM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2121 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2178 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2178 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2022_AM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2179 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2227 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2227 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 38.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2022_AM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1995 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2049 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2049 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2022_PM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2476 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2556 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2556 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 52.5 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2022_PM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2021 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2076 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2076 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2022_AM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2055 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2100 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2100 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2022_PM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1726 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1782 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1782 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2022_AM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7630 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2008 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1642 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1642 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 24.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2022_AM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1511 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1241 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1241 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 17.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2022_PM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1829 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1510 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1510 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2022_PM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1913 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1572 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1572 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 23.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2022_AM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5500 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1447 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1486 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1486 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2022_AM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1429 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1468 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1468 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2022_PM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4440 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1168 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1206 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1206 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2022_PM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1903 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1944 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1944 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2022_AM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4840 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1274 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1314 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1314 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2022_AM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1147 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 938 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 938 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 13.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2022_PM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 889 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 931 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 931 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2022_PM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1600 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1308 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1308 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 18.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2022_AM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5300 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1395 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1439 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1439 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2022_AM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1082 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1111 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1111 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2022_PM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1153 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1201 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1201 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2022_PM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1592 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1627 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1627 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2022_AM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1276 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1324 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1324 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2022_AM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4130 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1087 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1116 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1116 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2022_PM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 916 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 959 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 959 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2022_PM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6130 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1613 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1649 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1649 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2022_AM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1284 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1332 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1332 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2022_AM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3150 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 829 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 855 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 855 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2022_PM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3640 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 958 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1003 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1003 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2022_PM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1384 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1422 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1422 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2022_AM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5460 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1437 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1483 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1483 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2022_AM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 689 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 715 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 715 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.2 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2022_PM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3910 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1029 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1072 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1072 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2022_PM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1247 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1281 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1281 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_AM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1718 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2365 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2365 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 43.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_AM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1187 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1625 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1625 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_PM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4450 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1171 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1627 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1627 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_PM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1792 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2442 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2442 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 46.9 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_AM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7180 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1889 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2587 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2587 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 47.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 54.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_AM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3520 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 926 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1275 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1275 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_PM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1279 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1777 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1777 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_PM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5940 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1563 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2130 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2130 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_AM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1792 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2466 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2466 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 48.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_AM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1495 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2037 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2037 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_PM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1903 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2631 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2631 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 46.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 56.9 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_PM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7090 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1866 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2542 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2542 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 49.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 51.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2022_AM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1392 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1906 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1906 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2022_PM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1811 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2467 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2467 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 48.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2022_AM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2363 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2564 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2564 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 53.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2022_AM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1842 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1643 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1643 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 24.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2022_PM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2424 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2666 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2666 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 45.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 59.2 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2022_PM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2118 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1864 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1864 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 28.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2022_AM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6900 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1816 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1874 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1874 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2022_AM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1924 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1995 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1995 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2022_PM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1926 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1988 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1988 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2022_PM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8900 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2342 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2417 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2417 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 45.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2022_AM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1897 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2611 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2611 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 46.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 55.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2022_PM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1108 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1561 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1561 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_AM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3930 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1034 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2186 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2186 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 37.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_AM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3460 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 911 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1898 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1898 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 29.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_PM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1097 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2298 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2298 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 41.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_PM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1137 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2403 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2403 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 45.2 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_AM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 995 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2113 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2113 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 35.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_AM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 887 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1848 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1848 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 28.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_PM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1071 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2243 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2243 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 39.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_PM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3900 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1026 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2170 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2170 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 36.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2022_AM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 861 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1836 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1836 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 28.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2022_AM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2900 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 763 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1598 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1598 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2022_PM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 826 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1747 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1747 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2022_PM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 845 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1803 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1803 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2022_AM_Peak_SR_60_EB_Moreno_Beach_to_Redlands.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 732 | v |
| Trucks and buses | 18 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1598 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1598 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2022_AM_Peak_SR_60_WB_Redlands_to_Moreno_Beach.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 542 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1157 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1157 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 16.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2022_PM_Peak_SR_60_EB_Moreno_Beach_to_Redlands.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 668 | v |
| Trucks and buses | 14 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1433 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1433 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 20.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2022_PM_Peak_SR_60_WB_Redlands_to_Moreno_Beach.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 689 | v |
| Trucks and buses | 17 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.920 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1499 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1499 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 21.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2022_AM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3300 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 868 | v |
| Trucks and buses | 15 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.929 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1871 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1871 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 28.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2022_AM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 679 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1435 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1435 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 20.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2022_PM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 882 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1864 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1864 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 28.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2022_PM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 768 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1640 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1640 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2022_AM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 589 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1297 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1297 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2022_AM_Peak_SR_60_WB_Jack_Rabbit_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 592 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.830 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1427 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1427 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 20.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2022_PM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 732 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1609 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1609 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2022_PM_Peak_SR_60_WB_Jack_Rabbit_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit to Gilman Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 466 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1025 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1025 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2022_AM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2040 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 537 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1097 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1097 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2022_AM_Peak_SR_60_WB_I-10_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Jack Rabbit Trail |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 603 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1232 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1232 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2022_PM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 750 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1533 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1533 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2022_PM_Peak_SR_60_WB_I-10_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Jack Rabbit Trail |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1660 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 437 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 902 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 902 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 12.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2022_AM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1929 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1569 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1569 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 22.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2022_AM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1903 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1954 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1954 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2022_PM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2724 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2227 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2227 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 38.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2022_PM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1947 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1980 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1980 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2022_AM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1742 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1772 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1772 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2022_AM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1421 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1946 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1946 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2022_PM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5900 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1553 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1595 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1595 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2022_PM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1684 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2295 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2295 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 40.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_AM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1597 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2166 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2166 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 36.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_AM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5180 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1363 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1867 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1867 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_PM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1408 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1928 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1928 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_PM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8150 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2145 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2908 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2908 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 36.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 80.4 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2022_AM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1424 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1949 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1949 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2022_PM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2137 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2912 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2912 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 36.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 80.9 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2022_AM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5600 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1474 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2008 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2008 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2022_AM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4760 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1253 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1724 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1724 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2022_PM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1368 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1874 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1874 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2022_PM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1592 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2170 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2170 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 36.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2022_AM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6700 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1763 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1802 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1802 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2022_AM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1624 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1668 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1668 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2022_PM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1566 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1608 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1608 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2022_PM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1971 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2014 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2014 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2022_AM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1784 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1823 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1823 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2022_AM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1529 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1570 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1570 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2022_PM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5220 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1374 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1411 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1411 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2022_PM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1903 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1944 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1944 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2022_AM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1942 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2004 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2004 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2022_AM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1426 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1465 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1465 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2022_PM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4940 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1300 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1348 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1348 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2022_PM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1653 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1681 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1681 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2022_AM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1782 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1839 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1839 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2022_AM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1261 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1734 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1734 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2022_PM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1303 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1351 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1351 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2022_PM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1476 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2002 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2002 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2022_AM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5940 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1563 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2130 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2130 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2022_AM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1134 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1171 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1171 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2022_PM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1334 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1818 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1818 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2022_PM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4570 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1203 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1229 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1229 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2022_AM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2197 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1788 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1788 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2022_PM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7700 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2026 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1649 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1649 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2022_AM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1147 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1173 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1173 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2022_AM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1479 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1511 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1511 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2022_PM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1600 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1635 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1635 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2022_PM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1416 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1447 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1447 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2022_AM_Peak_I-10_EB_Beaumont_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1166 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1191 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1191 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2022_AM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1450 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1482 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1482 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2022_PM_Peak_I-10_EB_Beaumont_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1647 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1684 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1684 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2022_PM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1384 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1415 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1415 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2022_AM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1216 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1243 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1243 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2022_AM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5960 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1568 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1603 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1603 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2022_PM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1713 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1751 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1751 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2022_PM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1429 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1460 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1460 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2022_AM_Peak_I-10_EB_Highland_Springs_to_Sunset_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1192 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1218 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1218 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2022_AM_Peak_I-10_WB_Sunset_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1511 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1551 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1551 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2022_PM_Peak_I-10_EB_Highland_Springs_to_Sunset_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1642 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1678 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1678 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2022_PM_Peak_I-10_WB_Sunset_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5180 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1363 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1393 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1393 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2022_AM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1166 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1191 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1191 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2022_AM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1445 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1484 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1484 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2022_PM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1576 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1611 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1611 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2022_PM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1337 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1366 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1366 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2022_AM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4340 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1142 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1167 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1167 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2022_AM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1413 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1451 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1451 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2022_PM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5840 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1537 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1571 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1571 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2022_PM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1345 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1374 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1374 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2022_AM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1139 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1165 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1165 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2022_AM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5300 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1395 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1432 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1432 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2022_PM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1518 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1552 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1552 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2022_PM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1376 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1407 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1407 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2022_AM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4040 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1063 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1087 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1087 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2022_AM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1279 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1313 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1313 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2022_PM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1418 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1450 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1450 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2022_PM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1311 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1339 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1339 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2022_AM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 979 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1000 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1000 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2022_AM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4650 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1224 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1257 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1257 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2022_PM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5130 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1350 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1380 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1380 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2022_PM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1261 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1288 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1288 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2022_AM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 884 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 904 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 904 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2022_AM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1097 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1127 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1127 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2022_PM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4710 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1239 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1267 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1267 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2022_PM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1108 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1132 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1132 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2022_AM_Peak_I-10_EB_Main_to_Haugen-Lehmann.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 850 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 869 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 869 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2022_AM_Peak_I-10_WB_Haugen-Lehmann_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1129 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1159 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1159 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2022_PM_Peak_I-10_EB_Main_to_Haugen-Lehmann.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1255 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1283 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1283 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2022_PM_Peak_I-10_WB_Haugen-Lehmann_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1124 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1148 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1148 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2022_AM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2900 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 763 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 780 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 780 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2022_AM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 984 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1011 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1011 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2022_PM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4180 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1100 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1124 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1124 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2022_PM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 987 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1009 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1009 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2022_AM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 732 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 748 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 748 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.7 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2022_AM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3760 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 989 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1016 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1016 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2022_PM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4220 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1111 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1135 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1135 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2022_PM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 987 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1009 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1009 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2022_AM_Peak_I-215_NB_Scott_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2830 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 745 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1015 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1015 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2022_AM_Peak_I-215_SB_Newport_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3640 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 958 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1293 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1293 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2022_PM_Peak_I-215_NB_Scott_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1139 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1538 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1538 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2022_PM_Peak_I-215_SB_Newport_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2520 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 663 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 899 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 899 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 12.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2022_AM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2090 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 550 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 749 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 749 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 10.7 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2022_AM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 997 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1352 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1352 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2022_PM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 821 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1108 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1108 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 15.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2022_PM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3520 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 926 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1256 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1256 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2022_AM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2730 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 718 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 979 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 979 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 14.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2022_AM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1147 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1556 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1556 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2022_PM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1147 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1556 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1556 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2022_PM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2940 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 774 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1049 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1049 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 15.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2022_AM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1097 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1488 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1488 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2022_AM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1079 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1463 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1463 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2022_PM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1074 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1456 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1456 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2022_PM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1118 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1517 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1517 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2022_AM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3470 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 913 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1238 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1238 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2022_AM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5730 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1508 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2045 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2045 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 33.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2022_PM_Peak_I-215_NB_SR-74_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1258 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1706 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1706 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2022_PM_Peak_I-215_SB_Redlands_Blvd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3870 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1018 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1381 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1381 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_AM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1595 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2162 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2162 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 36.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_AM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1689 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2291 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2291 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 40.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_PM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1595 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2162 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2162 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 36.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_PM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1397 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1895 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1895 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2022_AM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1529 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2073 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2073 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 33.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2022_AM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1821 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2469 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2469 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 48.1 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2022_PM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5840 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1537 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2084 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2084 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 34.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2022_PM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1458 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1977 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1977 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_AM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1495 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2027 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2027 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_AM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1776 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2409 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2409 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 45.4 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_PM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1629 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2209 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2209 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 38.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_PM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1461 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1980 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1980 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_AM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5960 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1568 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2127 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2127 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_AM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1782 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2416 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2416 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 45.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_PM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1739 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2359 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2359 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 43.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_PM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1468 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1991 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1991 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2022_AM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1511 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1536 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1536 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2022_AM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7150 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1882 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1914 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1914 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2022_PM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1776 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1807 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1807 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2022_PM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5870 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1545 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1571 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1571 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2022_AM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4440 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1168 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1188 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1188 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2022_AM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1266 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1287 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1287 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2022_PM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1455 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1480 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1480 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2022_PM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1084 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1103 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1103 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2022_AM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3020 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 795 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1078 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1078 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 15.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2022_AM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1403 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1902 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1902 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2022_PM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1082 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1467 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1467 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2022_PM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4700 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1237 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1677 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1677 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2022_AM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5759 | 1054 | 341 | 186 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1516 | 277 | 90 | 49 | |
| Trucks and buses | 5 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6226 | 1145 | 363 | 198 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.190 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1508 | lc/h |
| Weaving lane changes, LCW | 2143 | lc/h |
| Non-weaving vehicle index, INW | 1092 | |
| Non-weaving lane change, LCNW | 1282 | lc/h |
| Total lane changes, LCALL | 3425 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.393 | |
| Average weaving speed, SW | 54.5 | mi/h |
| Average non-weaving speed, SNW | 51.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.1 | mi/h |
| Weaving segment density, D | 30.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.724 | |
| Weaving segment flow rate, v | 7932 | pc/h |
| Weaving segment capacity, cW | 10667 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4435 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2191 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.724 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2022_AM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4538 | 395 | 1056 | 69 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1194 | 104 | 278 | 18 | |
| Trucks and buses | 5 | 3 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4906 | 423 | 1142 | 74 | pc/h |

Volume ratio, VR 0.239

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 423 | lc/h |
| Weaving lane changes, LCW | 1133 | lc/h |
| Non-weaving vehicle index, INW | 1021 | |
| Non-weaving lane change, LCNW | 1174 | lc/h |
| Total lane changes, LCALL | 2307 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.248 | |
| Average weaving speed, SW | 59.1 | mi/h |
| Average non-weaving speed, SNW | 60.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.3 | mi/h |
| Weaving segment density, D | 21.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.569 | |
| Weaving segment flow rate, v | 6545 | pc/h |
| Weaving segment capacity, cW | 11193 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3374 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2299 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.569 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2022_PM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6864 | 1163 | 386 | 205 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1806 | 306 | 102 | 54 | |
| Trucks and buses | 6 | 7 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.964 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7456 | 1270 | 411 | 218 | pc/h |

Volume ratio, VR 0.180

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1681 | lc/h |
| Weaving lane changes, LCW | 2316 | lc/h |
| Non-weaving vehicle index, INW | 1305 | |
| Non-weaving lane change, LCNW | 1552 | lc/h |
| Total lane changes, LCALL | 3868 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.432 | |
| Average weaving speed, SW | 53.4 | mi/h |
| Average non-weaving speed, SNW | 48.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.7 | mi/h |
| Weaving segment density, D | 37.7 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.851 | |
| Weaving segment flow rate, v | 9355 | pc/h |
| Weaving segment capacity, cW | 10654 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4330 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2199 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.851 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2022_PM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5361 | 439 | 971 | 77 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1411 | 116 | 256 | 20 | |
| Trucks and buses | 5 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5796 | 468 | 1055 | 82 | pc/h |

Volume ratio, VR 0.206

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 468 | lc/h |
| Weaving lane changes, LCW | 1178 | lc/h |
| Non-weaving vehicle index, INW | 1205 | |
| Non-weaving lane change, LCNW | 1359 | lc/h |
| Total lane changes, LCALL | 2537 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.267 | |
| Average weaving speed, SW | 58.4 | mi/h |
| Average non-weaving speed, SNW | 59.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.3 | mi/h |
| Weaving segment density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.637 | |
| Weaving segment flow rate, v | 7401 | pc/h |
| Weaving segment capacity, cW | 11319 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3029 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2325 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.637 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2022_AM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5143 | 549 | 508 | 28 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1353 | 144 | 134 | 7 | |
| Trucks and buses | 5 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5560 | 585 | 544 | 30 | pc/h |
| Volume ratio, VR | | 0.168 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1129 | lc/h |
| Weaving lane changes, LCW | 1879 | lc/h |
| Non-weaving vehicle index, INW | 1258 | |
| Non-weaving lane change, LCNW | 1408 | lc/h |
| Total lane changes, LCALL | 3287 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.305 | |
| Average weaving speed, SW | 57.2 | mi/h |
| Average non-weaving speed, SNW | 55.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.7 | mi/h |
| Weaving segment density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.597 | |
| Weaving segment flow rate, v | 6719 | pc/h |
| Weaving segment capacity, cW | 10954 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4212 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2250 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.597 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2022_PM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6276 | 745 | 418 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1652 | 196 | 110 | 10 | |
| Trucks and buses | 5 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6785 | 794 | 450 | 42 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.154 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1244 | lc/h |
| Weaving lane changes, LCW | 1994 | lc/h |
| Non-weaving vehicle index, INW | 1536 | |
| Non-weaving lane change, LCNW | 2225 | lc/h |
| Total lane changes, LCALL | 4219 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.371 | |
| Average weaving speed, SW | 55.1 | mi/h |
| Average non-weaving speed, SNW | 53.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.6 | mi/h |
| Weaving segment density, D | 30.1 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.714 | |
| Weaving segment flow rate, v | 8071 | pc/h |
| Weaving segment capacity, cW | 11008 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4073 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2261 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.714 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2022_AM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6250 | 518 | 759 | 91 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1645 | 136 | 200 | 24 | |
| Trucks and buses | 6 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6789 | 557 | 817 | 97 | pc/h |

Volume ratio, VR 0.166

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 817 | lc/h |
| Weaving lane changes, LCW | 1034 | lc/h |
| Non-weaving vehicle index, INW | 482 | |
| Non-weaving lane change, LCNW | 1028 | lc/h |
| Total lane changes, LCALL | 2062 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.530 | |
| Average weaving speed, SW | 50.9 | mi/h |
| Average non-weaving speed, SNW | 54.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.6 | mi/h |
| Weaving segment density, D | 38.5 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.968 | |
| Weaving segment flow rate, v | 8260 | pc/h |
| Weaving segment capacity, cW | 8267 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4195 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2133 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.968 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2022_PM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6045 | 315 | 963 | 55 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1591 | 83 | 253 | 14 | |
| Trucks and buses | 6 | 6 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.969 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6567 | 342 | 1036 | 59 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.172 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1036 | lc/h |
| Weaving lane changes, LCW | 1253 | lc/h |
| Non-weaving vehicle index, INW | 464 | |
| Non-weaving lane change, LCNW | 974 | lc/h |
| Total lane changes, LCALL | 2227 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.563 | |
| Average weaving speed, SW | 50.2 | mi/h |
| Average non-weaving speed, SNW | 52.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.4 | mi/h |
| Weaving segment density, D | 38.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.940 | |
| Weaving segment flow rate, v | 8004 | pc/h |
| Weaving segment capacity, cW | 8248 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4254 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2128 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.940 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_AM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4440 | 1480 | 257 | 261 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1168 | 389 | 68 | 69 | |
| Trucks and buses | 6 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4823 | 1592 | 276 | 278 | pc/h |

Volume ratio, VR 0.268

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1592 | lc/h |
| Weaving lane changes, LCW | 2115 | lc/h |
| Non-weaving vehicle index, INW | 638 | |
| Non-weaving lane change, LCNW | 765 | lc/h |
| Total lane changes, LCALL | 2880 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.437 | |
| Average weaving speed, SW | 53.3 | mi/h |
| Average non-weaving speed, SNW | 51.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.2 | mi/h |
| Weaving segment density, D | 26.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.630 | |
| Weaving segment flow rate, v | 6969 | pc/h |
| Weaving segment capacity, cW | 10727 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3678 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2214 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.630 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_AM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5962 | 622 | 945 | 109 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1569 | 164 | 249 | 29 | |
| Trucks and buses | 7 | 3 | 9 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.983 | 0.955 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6508 | 666 | 1041 | 116 | pc/h |

Volume ratio, VR 0.205

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 666 | lc/h |
| Weaving lane changes, LCW | 1161 | lc/h |
| Non-weaving vehicle index, INW | 762 | |
| Non-weaving lane change, LCNW | 1025 | lc/h |
| Total lane changes, LCALL | 2186 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.375 | |
| Average weaving speed, SW | 55.0 | mi/h |
| Average non-weaving speed, SNW | 57.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.7 | mi/h |
| Weaving segment density, D | 29.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.738 | |
| Weaving segment flow rate, v | 8331 | pc/h |
| Weaving segment capacity, cW | 10882 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3020 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2257 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.738 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_PM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7894 | 1343 | 246 | 237 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2077 | 353 | 65 | 62 | |
| Trucks and buses | 7 | 5 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.974 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8617 | 1452 | 265 | 252 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.162 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1452 | lc/h |
| Weaving lane changes, LCW | 1975 | lc/h |
| Non-weaving vehicle index, INW | 1109 | |
| Non-weaving lane change, LCNW | 1542 | lc/h |
| Total lane changes, LCALL | 3517 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.511 | |
| Average weaving speed, SW | 51.4 | mi/h |
| Average non-weaving speed, SNW | 49.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.7 | mi/h |
| Weaving segment density, D | 42.6 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.921 | |
| Weaving segment flow rate, v | 10586 | pc/h |
| Weaving segment capacity, cW | 11080 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2587 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2298 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.921 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_PM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7748 | 787 | 994 | 139 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2039 | 207 | 262 | 37 | |
| Trucks and buses | 6 | 3 | 8 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.983 | 0.960 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8417 | 843 | 1090 | 148 | pc/h |

Volume ratio, VR 0.184

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 843 | lc/h |
| Weaving lane changes, LCW | 1338 | lc/h |
| Non-weaving vehicle index, INW | 985 | |
| Non-weaving lane change, LCNW | 1425 | lc/h |
| Total lane changes, LCALL | 2763 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.451 | |
| Average weaving speed, SW | 52.9 | mi/h |
| Average non-weaving speed, SNW | 53.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.7 | mi/h |
| Weaving segment density, D | 39.1 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.924 | |
| Weaving segment flow rate, v | 10498 | pc/h |
| Weaving segment capacity, cW | 11013 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2809 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2273 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.924 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2022_AM_Peak_SR_60_EB_WBlaine_StSt_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | WBlaine StSt to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5406 | 380 | 332 | 20 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1423 | 100 | 87 | 5 | |
| Trucks and buses | 7 | 3 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | 0.948 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6345 | 422 | 374 | 22 | pc/h |

Volume ratio, VR 0.111

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 796 | lc/h |
| Weaving lane changes, LCW | 1408 | lc/h |
| Non-weaving vehicle index, INW | 1019 | |
| Non-weaving lane change, LCNW | 1216 | lc/h |
| Total lane changes, LCALL | 2624 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.334 | |
| Average weaving speed, SW | 56.2 | mi/h |
| Average non-weaving speed, SNW | 57.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.3 | mi/h |
| Weaving segment density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.639 | |
| Weaving segment flow rate, v | 7163 | pc/h |
| Weaving segment capacity, cW | 10058 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3648 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2243 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.639 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2022_AM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4964 | 116 | 532 | 6 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1306 | 31 | 140 | 2 | |
| Trucks and buses | 8 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | 0.948 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5905 | 129 | 591 | 7 | pc/h |

Volume ratio, VR 0.109

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 129 | lc/h |
| Weaving lane changes, LCW | 692 | lc/h |
| Non-weaving vehicle index, INW | 828 | |
| Non-weaving lane change, LCNW | 1014 | lc/h |
| Total lane changes, LCALL | 1706 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.264 | |
| Average weaving speed, SW | 58.5 | mi/h |
| Average non-weaving speed, SNW | 62.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.2 | mi/h |
| Weaving segment density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.564 | |
| Weaving segment flow rate, v | 6632 | pc/h |
| Weaving segment capacity, cW | 10398 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2057 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2349 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.564 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2022_PM_Peak_SR_60_EB_WBlaine_StSt_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | WBlaine StSt to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5884 | 995 | 317 | 52 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1548 | 262 | 83 | 14 | |
| Trucks and buses | 7 | 3 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | 0.948 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6906 | 1105 | 357 | 57 | pc/h |

Volume ratio, VR 0.174

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1462 | lc/h |
| Weaving lane changes, LCW | 2074 | lc/h |
| Non-weaving vehicle index, INW | 1114 | |
| Non-weaving lane change, LCNW | 1339 | lc/h |
| Total lane changes, LCALL | 3413 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.411 | |
| Average weaving speed, SW | 54.0 | mi/h |
| Average non-weaving speed, SNW | 51.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.8 | mi/h |
| Weaving segment density, D | 32.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.767 | |
| Weaving segment flow rate, v | 8425 | pc/h |
| Weaving segment capacity, cW | 9848 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4267 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2196 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.767 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2022_PM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7677 | 423 | 546 | 22 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2020 | 111 | 144 | 6 | |
| Trucks and buses | 6 | 3 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | 0.948 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8889 | 470 | 615 | 24 | pc/h |

Volume ratio, VR 0.109

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 470 | lc/h |
| Weaving lane changes, LCW | 1033 | lc/h |
| Non-weaving vehicle index, INW | 1248 | |
| Non-weaving lane change, LCNW | 1632 | lc/h |
| Total lane changes, LCALL | 2665 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.376 | |
| Average weaving speed, SW | 55.0 | mi/h |
| Average non-weaving speed, SNW | 57.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.8 | mi/h |
| Weaving segment density, D | 35.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.851 | |
| Weaving segment flow rate, v | 9998 | pc/h |
| Weaving segment capacity, cW | 10682 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2057 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2349 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.851 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2022_AM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6084 | 625 | 397 | 32 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1601 | 164 | 104 | 8 | |
| Trucks and buses | 6 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6609 | 676 | 423 | 34 | pc/h |

Volume ratio, VR 0.142

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 423 | lc/h |
| Weaving lane changes, LCW | 903 | lc/h |
| Non-weaving vehicle index, INW | 731 | |
| Non-weaving lane change, LCNW | 1002 | lc/h |
| Total lane changes, LCALL | 1905 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.349 | |
| Average weaving speed, SW | 55.8 | mi/h |
| Average non-weaving speed, SNW | 59.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.0 | mi/h |
| Weaving segment density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.710 | |
| Weaving segment flow rate, v | 7742 | pc/h |
| Weaving segment capacity, cW | 10572 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3951 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2182 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.710 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2022_AM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4094 | 760 | 606 | 40 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1077 | 200 | 159 | 11 | |
| Trucks and buses | 8 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4490 | 810 | 646 | 43 | pc/h |

Volume ratio, VR 0.243

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1456 | lc/h |
| Weaving lane changes, LCW | 1936 | lc/h |
| Non-weaving vehicle index, INW | 499 | |
| Non-weaving lane change, LCNW | 567 | lc/h |
| Total lane changes, LCALL | 2503 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.432 | |
| Average weaving speed, SW | 53.4 | mi/h |
| Average non-weaving speed, SNW | 53.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.7 | mi/h |
| Weaving segment density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.607 | |
| Weaving segment flow rate, v | 5989 | pc/h |
| Weaving segment capacity, cW | 9474 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4982 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2103 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.607 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2022_PM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4930 | 909 | 242 | 47 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1297 | 239 | 64 | 12 | |
| Trucks and buses | 8 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5407 | 978 | 258 | 50 | pc/h |

Volume ratio, VR 0.185

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 258 | lc/h |
| Weaving lane changes, LCW | 738 | lc/h |
| Non-weaving vehicle index, INW | 600 | |
| Non-weaving lane change, LCNW | 757 | lc/h |
| Total lane changes, LCALL | 1495 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.288 | |
| Average weaving speed, SW | 57.7 | mi/h |
| Average non-weaving speed, SNW | 61.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.9 | mi/h |
| Weaving segment density, D | 22.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.623 | |
| Weaving segment flow rate, v | 6693 | pc/h |
| Weaving segment capacity, cW | 10312 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4380 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2149 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.623 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2022_PM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6808 | 437 | 712 | 23 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1792 | 115 | 187 | 6 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7396 | 466 | 758 | 25 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.142 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1224 | lc/h |
| Weaving lane changes, LCW | 1704 | lc/h |
| Non-weaving vehicle index, INW | 816 | |
| Non-weaving lane change, LCNW | 1162 | lc/h |
| Total lane changes, LCALL | 2866 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.481 | |
| Average weaving speed, SW | 52.1 | mi/h |
| Average non-weaving speed, SNW | 52.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.8 | mi/h |
| Weaving segment density, D | 32.8 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.792 | |
| Weaving segment flow rate, v | 8645 | pc/h |
| Weaving segment capacity, cW | 10572 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3948 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2182 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.792 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_AM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5656 | 779 | 764 | 41 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1488 | 205 | 201 | 11 | |
| Trucks and buses | 6 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | 0.935 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6549 | 877 | 836 | 45 | pc/h |

Volume ratio, VR 0.206

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1713 | lc/h |
| Weaving lane changes, LCW | 2472 | lc/h |
| Non-weaving vehicle index, INW | 1517 | |
| Non-weaving lane change, LCNW | 2148 | lc/h |
| Total lane changes, LCALL | 4620 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.392 | |
| Average weaving speed, SW | 54.5 | mi/h |
| Average non-weaving speed, SNW | 49.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.6 | mi/h |
| Weaving segment density, D | 32.8 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.747 | |
| Weaving segment flow rate, v | 8307 | pc/h |
| Weaving segment capacity, cW | 10109 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4600 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2224 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.747 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_AM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5359 | 1280 | 412 | 67 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1410 | 337 | 108 | 18 | |
| Trucks and buses | 7 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | 0.948 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6290 | 1421 | 458 | 73 | pc/h |

Volume ratio, VR 0.228

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1421 | lc/h |
| Weaving lane changes, LCW | 2100 | lc/h |
| Non-weaving vehicle index, INW | 1209 | |
| Non-weaving lane change, LCNW | 1378 | lc/h |
| Total lane changes, LCALL | 3478 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.364 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 51.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.6 | mi/h |
| Weaving segment density, D | 31.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.718 | |
| Weaving segment flow rate, v | 8242 | pc/h |
| Weaving segment capacity, cW | 10296 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3258 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2296 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.718 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_PM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6623 | 1064 | 617 | 56 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1743 | 280 | 162 | 15 | |
| Trucks and buses | 6 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | 0.962 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7669 | 1165 | 695 | 61 | pc/h |

Volume ratio, VR 0.194

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1860 | lc/h |
| Weaving lane changes, LCW | 2619 | lc/h |
| Non-weaving vehicle index, INW | 1778 | |
| Non-weaving lane change, LCNW | 3006 | lc/h |
| Total lane changes, LCALL | 5625 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.458 | |
| Average weaving speed, SW | 52.7 | mi/h |
| Average non-weaving speed, SNW | 47.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.3 | mi/h |
| Weaving segment density, D | 39.7 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.859 | |
| Weaving segment flow rate, v | 9590 | pc/h |
| Weaving segment capacity, cW | 10155 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4474 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2234 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.859 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_PM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6775 | 1014 | 486 | 53 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1783 | 267 | 128 | 14 | |
| Trucks and buses | 6 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | 0.962 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7845 | 1110 | 547 | 58 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.173 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1110 | lc/h |
| Weaving lane changes, LCW | 1789 | lc/h |
| Non-weaving vehicle index, INW | 1502 | |
| Non-weaving lane change, LCNW | 2240 | lc/h |
| Total lane changes, LCALL | 4029 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.409 | |
| Average weaving speed, SW | 54.0 | mi/h |
| Average non-weaving speed, SNW | 52.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.0 | mi/h |
| Weaving segment density, D | 36.1 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.817 | |
| Weaving segment flow rate, v | 9560 | pc/h |
| Weaving segment capacity, cW | 10632 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2699 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2339 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.817 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2022_AM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3614 | 352 | 620 | 62 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 951 | 93 | 163 | 16 | |
| Trucks and buses | 10 | 29 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.862 | 0.692 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4413 | 535 | 679 | 68 | pc/h |

Volume ratio, VR 0.213

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 535 | lc/h |
| Weaving lane changes, LCW | 1044 | lc/h |
| Non-weaving vehicle index, INW | 538 | |
| Non-weaving lane change, LCNW | 610 | lc/h |
| Total lane changes, LCALL | 1654 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.291 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 60.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.0 | mi/h |
| Weaving segment density, D | 19.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.505 | |
| Weaving segment flow rate, v | 5695 | pc/h |
| Weaving segment capacity, cW | 9716 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3105 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2254 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.505 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2022_PM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4384 | 225 | 670 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1154 | 59 | 176 | 10 | |
| Trucks and buses | 8 | 42 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | 0.610 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5215 | 388 | 733 | 43 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.176 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 388 | lc/h |
| Weaving lane changes, LCW | 897 | lc/h |
| Non-weaving vehicle index, INW | 631 | |
| Non-weaving lane change, LCNW | 771 | lc/h |
| Total lane changes, LCALL | 1668 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.293 | |
| Average weaving speed, SW | 57.5 | mi/h |
| Average non-weaving speed, SNW | 61.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.4 | mi/h |
| Weaving segment density, D | 21.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.559 | |
| Weaving segment flow rate, v | 6379 | pc/h |
| Weaving segment capacity, cW | 10102 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2724 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2283 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.559 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2022_AM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2925 | 237 | 1174 | 12 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 770 | 62 | 309 | 3 | |
| Trucks and buses | 11 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3254 | 252 | 1251 | 13 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.315 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 252 | lc/h |
| Weaving lane changes, LCW | 596 | lc/h |
| Non-weaving vehicle index, INW | 425 | |
| Non-weaving lane change, LCNW | 607 | lc/h |
| Total lane changes, LCALL | 1203 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.213 | |
| Average weaving speed, SW | 60.4 | mi/h |
| Average non-weaving speed, SNW | 62.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.8 | mi/h |
| Weaving segment density, D | 19.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.547 | |
| Weaving segment flow rate, v | 4770 | pc/h |
| Weaving segment capacity, cW | 8250 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4180 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2180 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.547 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2022_AM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3320 | 766 | 822 | 40 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 874 | 202 | 216 | 11 | |
| Trucks and buses | 7 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3624 | 820 | 876 | 43 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.316 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1696 | lc/h |
| Weaving lane changes, LCW | 1976 | lc/h |
| Non-weaving vehicle index, INW | 880 | |
| Non-weaving lane change, LCNW | 1478 | lc/h |
| Total lane changes, LCALL | 3454 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.301 | |
| Average weaving speed, SW | 57.3 | mi/h |
| Average non-weaving speed, SNW | 49.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.5 | mi/h |
| Weaving segment density, D | 34.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.834 | |
| Weaving segment flow rate, v | 5363 | pc/h |
| Weaving segment capacity, cW | 6200 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5759 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2143 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.834 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2022_PM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3315 | 529 | 1247 | 27 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 872 | 139 | 328 | 7 | |
| Trucks and buses | 8 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3636 | 564 | 1328 | 29 | pc/h |

Volume ratio, VR 0.340

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 564 | lc/h |
| Weaving lane changes, LCW | 908 | lc/h |
| Non-weaving vehicle index, INW | 476 | |
| Non-weaving lane change, LCNW | 689 | lc/h |
| Total lane changes, LCALL | 1597 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.266 | |
| Average weaving speed, SW | 58.4 | mi/h |
| Average non-weaving speed, SNW | 59.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.0 | mi/h |
| Weaving segment density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.643 | |
| Weaving segment flow rate, v | 5557 | pc/h |
| Weaving segment capacity, cW | 8288 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4456 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2159 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.643 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2022_PM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3864 | 741 | 626 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1017 | 195 | 165 | 10 | |
| Trucks and buses | 10 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4279 | 789 | 667 | 42 | pc/h |

Volume ratio, VR 0.252

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1456 | lc/h |
| Weaving lane changes, LCW | 1736 | lc/h |
| Non-weaving vehicle index, INW | 1037 | |
| Non-weaving lane change, LCNW | 1613 | lc/h |
| Total lane changes, LCALL | 3349 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.294 | |
| Average weaving speed, SW | 57.5 | mi/h |
| Average non-weaving speed, SNW | 50.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.9 | mi/h |
| Weaving segment density, D | 37.1 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.877 | |
| Weaving segment flow rate, v | 5777 | pc/h |
| Weaving segment capacity, cW | 6260 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5075 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2195 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.877 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2022_AM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Nason St to Moreno Beach Dr |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1875 | 225 | 847 | 11 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 493 | 59 | 223 | 3 | |
| Trucks and buses | 14 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2116 | 240 | 907 | 12 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.350 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1147 | lc/h |
| Weaving lane changes, LCW | 1376 | lc/h |
| Non-weaving vehicle index, INW | 362 | |
| Non-weaving lane change, LCNW | 782 | lc/h |
| Total lane changes, LCALL | 2158 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.273 | |
| Average weaving speed, SW | 58.2 | mi/h |
| Average non-weaving speed, SNW | 56.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.1 | mi/h |
| Weaving segment density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.530 | |
| Weaving segment flow rate, v | 3275 | pc/h |
| Weaving segment capacity, cW | 5768 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6129 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2061 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.530 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2022_AM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1702 | 720 | 99 | 37 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 448 | 189 | 26 | 10 | |
| Trucks and buses | 10 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.983 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1885 | 771 | 106 | 39 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.313 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 877 | lc/h |
| Weaving lane changes, LCW | 1106 | lc/h |
| Non-weaving vehicle index, INW | 327 | |
| Non-weaving lane change, LCNW | 740 | lc/h |
| Total lane changes, LCALL | 1846 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.241 | |
| Average weaving speed, SW | 59.3 | mi/h |
| Average non-weaving speed, SNW | 59.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.2 | mi/h |
| Weaving segment density, D | 15.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.446 | |
| Weaving segment flow rate, v | 2801 | pc/h |
| Weaving segment capacity, cW | 5966 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5725 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2092 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.446 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2022_PM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Nason St to Moreno Beach Dr |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1692 | 275 | 957 | 14 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 445 | 72 | 252 | 4 | |
| Trucks and buses | 12 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1891 | 293 | 1019 | 15 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.408 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1312 | lc/h |
| Weaving lane changes, LCW | 1541 | lc/h |
| Non-weaving vehicle index, INW | 324 | |
| Non-weaving lane change, LCNW | 736 | lc/h |
| Total lane changes, LCALL | 2277 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.285 | |
| Average weaving speed, SW | 57.8 | mi/h |
| Average non-weaving speed, SNW | 55.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.4 | mi/h |
| Weaving segment density, D | 19.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.547 | |
| Weaving segment flow rate, v | 3218 | pc/h |
| Weaving segment capacity, cW | 5543 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6768 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2012 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.547 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2022_PM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1817 | 779 | 203 | 41 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 478 | 205 | 53 | 11 | |
| Trucks and buses | 15 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.929 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2060 | 834 | 216 | 44 | pc/h |

Volume ratio, VR 0.333

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1050 | lc/h |
| Weaving lane changes, LCW | 1279 | lc/h |
| Non-weaving vehicle index, INW | 358 | |
| Non-weaving lane change, LCNW | 777 | lc/h |
| Total lane changes, LCALL | 2056 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.263 | |
| Average weaving speed, SW | 58.6 | mi/h |
| Average non-weaving speed, SNW | 57.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.8 | mi/h |
| Weaving segment density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.506 | |
| Weaving segment flow rate, v | 3154 | pc/h |
| Weaving segment capacity, cW | 5783 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5940 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2076 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.506 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2022_AM_Peak_SR_60_EB_Theodore_to_Gilman_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Theodore to Gilman Springs |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2000 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1728 | 190 | 422 | 10 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 455 | 50 | 111 | 3 | |
| Trucks and buses | 5 | 22 | 16 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.899 | 0.924 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1868 | 222 | 481 | 11 | pc/h |

Volume ratio, VR 0.272

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 222 | lc/h |
| Weaving lane changes, LCW | 474 | lc/h |
| Non-weaving vehicle index, INW | 376 | |
| Non-weaving lane change, LCNW | 893 | lc/h |
| Total lane changes, LCALL | 1367 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.167 | |
| Average weaving speed, SW | 62.1 | mi/h |
| Average non-weaving speed, SNW | 64.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.7 | mi/h |
| Weaving segment density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.379 | |
| Weaving segment flow rate, v | 2582 | pc/h |
| Weaving segment capacity, cW | 6625 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3722 | 2000 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2268 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.379 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2022_AM_Peak_SR_60_WB_Gilman_Springs_to_Theodore.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Gilman Springs to Theodore |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1614 | 385 | 289 | 20 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 425 | 101 | 76 | 5 | |
| Trucks and buses | 4 | 11 | 23 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.946 | 0.895 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1736 | 428 | 340 | 21 | pc/h |

Volume ratio, VR 0.304

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 428 | lc/h |
| Weaving lane changes, LCW | 657 | lc/h |
| Non-weaving vehicle index, INW | 299 | |
| Non-weaving lane change, LCNW | 706 | lc/h |
| Total lane changes, LCALL | 1363 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.190 | |
| Average weaving speed, SW | 61.2 | mi/h |
| Average non-weaving speed, SNW | 62.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.4 | mi/h |
| Weaving segment density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.379 | |
| Weaving segment flow rate, v | 2525 | pc/h |
| Weaving segment capacity, cW | 6514 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4063 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2219 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.379 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2022_PM_Peak_SR_60_EB_Theodore_to_Gilman_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Theodore to Gilman Springs |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2000 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2353 | 389 | 516 | 20 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 619 | 102 | 136 | 5 | |
| Trucks and buses | 4 | 14 | 8 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.933 | 0.960 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2531 | 439 | 566 | 21 | pc/h |

Volume ratio, VR 0.283

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 439 | lc/h |
| Weaving lane changes, LCW | 691 | lc/h |
| Non-weaving vehicle index, INW | 510 | |
| Non-weaving lane change, LCNW | 1032 | lc/h |
| Total lane changes, LCALL | 1723 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.201 | |
| Average weaving speed, SW | 60.8 | mi/h |
| Average non-weaving speed, SNW | 61.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.0 | mi/h |
| Weaving segment density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.525 | |
| Weaving segment flow rate, v | 3557 | pc/h |
| Weaving segment capacity, cW | 6634 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3831 | 2000 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2260 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.525 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2022_PM_Peak_SR_60_WB_Gilman_Springs_to_Theodore.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Gilman Springs to Theodore |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1380 | 429 | 147 | 22 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 363 | 113 | 39 | 6 | |
| Trucks and buses | 6 | 20 | 33 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.907 | 0.857 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1499 | 498 | 181 | 23 | pc/h |

Volume ratio, VR 0.308

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 498 | lc/h |
| Weaving lane changes, LCW | 727 | lc/h |
| Non-weaving vehicle index, INW | 259 | |
| Non-weaving lane change, LCNW | 657 | lc/h |
| Total lane changes, LCALL | 1384 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.192 | |
| Average weaving speed, SW | 61.1 | mi/h |
| Average non-weaving speed, SNW | 62.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.3 | mi/h |
| Weaving segment density, D | 11.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.331 | |
| Weaving segment flow rate, v | 2201 | pc/h |
| Weaving segment capacity, cW | 6442 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4109 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2216 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.331 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2022_AM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4932 | 727 | 851 | 38 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1298 | 191 | 224 | 10 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5280 | 774 | 907 | 40 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.240 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 774 | lc/h |
| Weaving lane changes, LCW | 1181 | lc/h |
| Non-weaving vehicle index, INW | 904 | |
| Non-weaving lane change, LCNW | 1247 | lc/h |
| Total lane changes, LCALL | 2428 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.299 | |
| Average weaving speed, SW | 57.3 | mi/h |
| Average non-weaving speed, SNW | 56.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.3 | mi/h |
| Weaving segment density, D | 31.1 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.771 | |
| Weaving segment flow rate, v | 7001 | pc/h |
| Weaving segment capacity, cW | 8932 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3384 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2271 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.771 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2022_PM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4056 | 924 | 890 | 48 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1067 | 243 | 234 | 13 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4385 | 984 | 948 | 51 | pc/h |

Volume ratio, VR 0.303

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 984 | lc/h |
| Weaving lane changes, LCW | 1391 | lc/h |
| Non-weaving vehicle index, INW | 754 | |
| Non-weaving lane change, LCNW | 1065 | lc/h |
| Total lane changes, LCALL | 2456 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.302 | |
| Average weaving speed, SW | 57.2 | mi/h |
| Average non-weaving speed, SNW | 55.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.9 | mi/h |
| Weaving segment density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.717 | |
| Weaving segment flow rate, v | 6368 | pc/h |
| Weaving segment capacity, cW | 8647 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4054 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2220 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.717 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2022_AM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5860 | 464 | 950 | 24 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1542 | 122 | 250 | 6 | |
| Trucks and buses | 7 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6397 | 494 | 1017 | 26 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.190 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1511 | lc/h |
| Weaving lane changes, LCW | 1773 | lc/h |
| Non-weaving vehicle index, INW | 565 | |
| Non-weaving lane change, LCNW | 1030 | lc/h |
| Total lane changes, LCALL | 2803 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.564 | |
| Average weaving speed, SW | 50.2 | mi/h |
| Average non-weaving speed, SNW | 49.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.7 | mi/h |
| Weaving segment density, D | 39.9 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.932 | |
| Weaving segment flow rate, v | 7934 | pc/h |
| Weaving segment capacity, cW | 8208 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4439 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2128 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.932 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2022_AM_Peak_SR_91_WB_Central_Ave_to_Arlington_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3638 | 281 | 575 | 14 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 957 | 74 | 151 | 4 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3952 | 299 | 613 | 15 | pc/h |

Volume ratio, VR 0.187

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 912 | lc/h |
| Weaving lane changes, LCW | 1212 | lc/h |
| Non-weaving vehicle index, INW | 421 | |
| Non-weaving lane change, LCNW | 621 | lc/h |
| Total lane changes, LCALL | 1833 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.348 | |
| Average weaving speed, SW | 55.8 | mi/h |
| Average non-weaving speed, SNW | 57.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.2 | mi/h |
| Weaving segment density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.569 | |
| Weaving segment flow rate, v | 4879 | pc/h |
| Weaving segment capacity, cW | 8310 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4403 | 1060 | a,b |
| Density-based capacty, cIWL (pc/h/ln) | | Maximum 2400 | Analyzed 2144 | c |
| v/c ratio | | Maximum 1.00 | Analyzed 0.569 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2022_PM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2535 | 380 | 723 | 20 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 667 | 100 | 190 | 5 | |
| Trucks and buses | 9 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2794 | 405 | 774 | 21 | pc/h |

Volume ratio, VR 0.295

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1179 | lc/h |
| Weaving lane changes, LCW | 1441 | lc/h |
| Non-weaving vehicle index, INW | 248 | |
| Non-weaving lane change, LCNW | 286 | lc/h |
| Total lane changes, LCALL | 1727 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.385 | |
| Average weaving speed, SW | 54.7 | mi/h |
| Average non-weaving speed, SNW | 56.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.1 | mi/h |
| Weaving segment density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.491 | |
| Weaving segment flow rate, v | 3994 | pc/h |
| Weaving segment capacity, cW | 7765 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5532 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2044 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.491 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2022_PM_Peak_SR_91_WB_Central_Ave_to_Arlington_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4143 | 473 | 478 | 24 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1090 | 124 | 126 | 6 | |
| Trucks and buses | 4 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4457 | 509 | 509 | 26 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.185 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1018 | lc/h |
| Weaving lane changes, LCW | 1318 | lc/h |
| Non-weaving vehicle index, INW | 475 | |
| Non-weaving lane change, LCNW | 728 | lc/h |
| Total lane changes, LCALL | 2046 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.380 | |
| Average weaving speed, SW | 54.9 | mi/h |
| Average non-weaving speed, SNW | 56.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.8 | mi/h |
| Weaving segment density, D | 24.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.641 | |
| Weaving segment flow rate, v | 5501 | pc/h |
| Weaving segment capacity, cW | 8399 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4384 | 1060 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2146 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.641 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2022_AM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3892 | 315 | 875 | 16 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1024 | 83 | 230 | 4 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4187 | 336 | 932 | 17 | pc/h |

Volume ratio, VR 0.232

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1268 | lc/h |
| Weaving lane changes, LCW | 1450 | lc/h |
| Non-weaving vehicle index, INW | 244 | |
| Non-weaving lane change, LCNW | 410 | lc/h |
| Total lane changes, LCALL | 1860 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.567 | |
| Average weaving speed, SW | 50.1 | mi/h |
| Average non-weaving speed, SNW | 54.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.3 | mi/h |
| Weaving segment density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.660 | |
| Weaving segment flow rate, v | 5472 | pc/h |
| Weaving segment capacity, cW | 8110 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4863 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2072 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.660 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2022_AM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4092 | 199 | 767 | 10 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1077 | 52 | 202 | 3 | |
| Trucks and buses | 6 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4445 | 213 | 817 | 11 | pc/h |

Volume ratio, VR 0.188

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1030 | lc/h |
| Weaving lane changes, LCW | 1324 | lc/h |
| Non-weaving vehicle index, INW | 267 | |
| Non-weaving lane change, LCNW | 280 | lc/h |
| Total lane changes, LCALL | 1604 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.491 | |
| Average weaving speed, SW | 51.9 | mi/h |
| Average non-weaving speed, SNW | 57.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.2 | mi/h |
| Weaving segment density, D | 19.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.521 | |
| Weaving segment flow rate, v | 5486 | pc/h |
| Weaving segment capacity, cW | 10213 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4411 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2108 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.521 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2022_PM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3441 | 415 | 961 | 21 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 906 | 109 | 253 | 6 | |
| Trucks and buses | 4 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3702 | 442 | 1029 | 22 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.283 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1471 | lc/h |
| Weaving lane changes, LCW | 1653 | lc/h |
| Non-weaving vehicle index, INW | 216 | |
| Non-weaving lane change, LCNW | 311 | lc/h |
| Total lane changes, LCALL | 1964 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.592 | |
| Average weaving speed, SW | 49.6 | mi/h |
| Average non-weaving speed, SNW | 53.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.1 | mi/h |
| Weaving segment density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.639 | |
| Weaving segment flow rate, v | 5195 | pc/h |
| Weaving segment capacity, cW | 7949 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5404 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2031 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.639 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2022_PM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5876 | 468 | 640 | 24 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1546 | 123 | 168 | 6 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6290 | 499 | 682 | 26 | pc/h |

Volume ratio, VR 0.158

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1181 | lc/h |
| Weaving lane changes, LCW | 1475 | lc/h |
| Non-weaving vehicle index, INW | 379 | |
| Non-weaving lane change, LCNW | 663 | lc/h |
| Total lane changes, LCALL | 2138 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.616 | |
| Average weaving speed, SW | 49.0 | mi/h |
| Average non-weaving speed, SNW | 54.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.4 | mi/h |
| Weaving segment density, D | 28.1 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.703 | |
| Weaving segment flow rate, v | 7497 | pc/h |
| Weaving segment capacity, cW | 10482 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4107 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2131 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.703 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2022_AM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2746 | 896 | 373 | 158 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 723 | 236 | 98 | 42 | |
| Trucks and buses | 6 | 9 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.955 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2983 | 987 | 397 | 168 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.305 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 397 | lc/h |
| Weaving lane changes, LCW | 753 | lc/h |
| Non-weaving vehicle index, INW | 233 | |
| Non-weaving lane change, LCNW | 87 | lc/h |
| Total lane changes, LCALL | 840 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.250 | |
| Average weaving speed, SW | 59.0 | mi/h |
| Average non-weaving speed, SNW | 62.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.6 | mi/h |
| Weaving segment density, D | 14.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.423 | |
| Weaving segment flow rate, v | 4535 | pc/h |
| Weaving segment capacity, cW | 10392 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4074 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2145 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.423 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2022_PM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5912 | 963 | 328 | 170 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1556 | 253 | 86 | 45 | |
| Trucks and buses | 3 | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.960 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6329 | 1056 | 349 | 181 | pc/h |

Volume ratio, VR 0.178

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 349 | lc/h |
| Weaving lane changes, LCW | 705 | lc/h |
| Non-weaving vehicle index, INW | 482 | |
| Non-weaving lane change, LCNW | 779 | lc/h |
| Total lane changes, LCALL | 1484 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.391 | |
| Average weaving speed, SW | 54.5 | mi/h |
| Average non-weaving speed, SNW | 59.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.9 | mi/h |
| Weaving segment density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.705 | |
| Weaving segment flow rate, v | 7915 | pc/h |
| Weaving segment capacity, cW | 11047 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2742 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2246 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.705 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2022_AM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2195 | 111 | 933 | 19 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 578 | 29 | 246 | 5 | |
| Trucks and buses | 4 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2361 | 118 | 1009 | 20 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.321 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 118 | lc/h |
| Weaving lane changes, LCW | 694 | lc/h |
| Non-weaving vehicle index, INW | 345 | |
| Non-weaving lane change, LCNW | 313 | lc/h |
| Total lane changes, LCALL | 1007 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.170 | |
| Average weaving speed, SW | 62.0 | mi/h |
| Average non-weaving speed, SNW | 65.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 64.5 | mi/h |
| Weaving segment density, D | 10.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.322 | |
| Weaving segment flow rate, v | 3508 | pc/h |
| Weaving segment capacity, cW | 10660 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4247 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2186 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.322 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2022_AM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3731 | 478 | 44 | 25 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 982 | 126 | 12 | 7 | |
| Trucks and buses | 5 | 7 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.964 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4033 | 522 | 47 | 27 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.123 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 569 | lc/h |
| Weaving lane changes, LCW | 1049 | lc/h |
| Non-weaving vehicle index, INW | 447 | |
| Non-weaving lane change, LCNW | 470 | lc/h |
| Total lane changes, LCALL | 1519 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.292 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 61.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.0 | mi/h |
| Weaving segment density, D | 15.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.422 | |
| Weaving segment flow rate, v | 4629 | pc/h |
| Weaving segment capacity, cW | 10691 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3763 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2196 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.422 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2022_PM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3831 | 85 | 827 | 15 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1008 | 22 | 218 | 4 | |
| Trucks and buses | 4 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4121 | 91 | 894 | 16 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.192 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 91 | lc/h |
| Weaving lane changes, LCW | 667 | lc/h |
| Non-weaving vehicle index, INW | 600 | |
| Non-weaving lane change, LCNW | 675 | lc/h |
| Total lane changes, LCALL | 1342 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.213 | |
| Average weaving speed, SW | 60.4 | mi/h |
| Average non-weaving speed, SNW | 64.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.6 | mi/h |
| Weaving segment density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.447 | |
| Weaving segment flow rate, v | 5122 | pc/h |
| Weaving segment capacity, cW | 11204 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2892 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2290 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.447 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2022_PM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2691 | 1439 | 73 | 75 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 708 | 379 | 19 | 20 | |
| Trucks and buses | 4 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2895 | 1556 | 78 | 80 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.355 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1634 | lc/h |
| Weaving lane changes, LCW | 2114 | lc/h |
| Non-weaving vehicle index, INW | 327 | |
| Non-weaving lane change, LCNW | 246 | lc/h |
| Total lane changes, LCALL | 2360 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.413 | |
| Average weaving speed, SW | 53.9 | mi/h |
| Average non-weaving speed, SNW | 53.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.9 | mi/h |
| Weaving segment density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.681 | |
| Weaving segment flow rate, v | 4609 | pc/h |
| Weaving segment capacity, cW | 6624 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6176 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2011 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.681 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2022_AM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4567 | 1715 | 224 | 302 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1202 | 451 | 59 | 79 | |
| Trucks and buses | 3 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4889 | 1845 | 239 | 322 | pc/h |

Volume ratio, VR 0.286

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2084 | lc/h |
| Weaving lane changes, LCW | 2525 | lc/h |
| Non-weaving vehicle index, INW | 1016 | |
| Non-weaving lane change, LCNW | 1360 | lc/h |
| Total lane changes, LCALL | 3885 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.389 | |
| Average weaving speed, SW | 54.6 | mi/h |
| Average non-weaving speed, SNW | 46.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.4 | mi/h |
| Weaving segment density, D | 37.7 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.868 | |
| Weaving segment flow rate, v | 7295 | pc/h |
| Weaving segment capacity, cW | 8261 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5431 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2133 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.868 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2022_AM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4762 | 565 | 1642 | 99 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1253 | 149 | 432 | 26 | |
| Trucks and buses | 3 | 3 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.983 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5098 | 605 | 1766 | 105 | pc/h |

Volume ratio, VR 0.313

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 605 | lc/h |
| Weaving lane changes, LCW | 871 | lc/h |
| Non-weaving vehicle index, INW | 468 | |
| Non-weaving lane change, LCNW | 789 | lc/h |
| Total lane changes, LCALL | 1660 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.366 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 56.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.1 | mi/h |
| Weaving segment density, D | 33.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.880 | |
| Weaving segment flow rate, v | 7574 | pc/h |
| Weaving segment capacity, cW | 8460 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4158 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2151 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.880 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2022_PM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4337 | 1667 | 280 | 294 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1141 | 439 | 74 | 77 | |
| Trucks and buses | 3 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4643 | 1811 | 298 | 313 | pc/h |

Volume ratio, VR 0.299

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2109 | lc/h |
| Weaving lane changes, LCW | 2550 | lc/h |
| Non-weaving vehicle index, INW | 966 | |
| Non-weaving lane change, LCNW | 1307 | lc/h |
| Total lane changes, LCALL | 3857 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.387 | |
| Average weaving speed, SW | 54.7 | mi/h |
| Average non-weaving speed, SNW | 46.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.5 | mi/h |
| Weaving segment density, D | 36.4 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.879 | |
| Weaving segment flow rate, v | 7065 | pc/h |
| Weaving segment capacity, cW | 7905 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5568 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2123 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.879 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2022_PM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3867 | 622 | 1470 | 109 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1018 | 164 | 387 | 29 | |
| Trucks and buses | 3 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4140 | 663 | 1589 | 116 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.346 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 663 | lc/h |
| Weaving lane changes, LCW | 929 | lc/h |
| Non-weaving vehicle index, INW | 383 | |
| Non-weaving lane change, LCNW | 594 | lc/h |
| Total lane changes, LCALL | 1523 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.342 | |
| Average weaving speed, SW | 56.0 | mi/h |
| Average non-weaving speed, SNW | 57.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.9 | mi/h |
| Weaving segment density, D | 28.6 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.766 | |
| Weaving segment flow rate, v | 6508 | pc/h |
| Weaving segment capacity, cW | 8350 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4517 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2123 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.766 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2022_AM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3241 | 476 | 789 | 84 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 853 | 125 | 208 | 22 | |
| Trucks and buses | 3 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3470 | 515 | 840 | 89 | pc/h |

Volume ratio, VR 0.276

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 840 | lc/h |
| Weaving lane changes, LCW | 1363 | lc/h |
| Non-weaving vehicle index, INW | 445 | |
| Non-weaving lane change, LCNW | 448 | lc/h |
| Total lane changes, LCALL | 1811 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.303 | |
| Average weaving speed, SW | 57.2 | mi/h |
| Average non-weaving speed, SNW | 59.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.7 | mi/h |
| Weaving segment density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.565 | |
| Weaving segment flow rate, v | 4914 | pc/h |
| Weaving segment capacity, cW | 8558 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5325 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2088 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.565 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2022_AM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4542 | 222 | 1045 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1195 | 58 | 275 | 10 | |
| Trucks and buses | 3 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.983 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4862 | 238 | 1119 | 42 | pc/h |

Volume ratio, VR 0.217

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 476 | lc/h |
| Weaving lane changes, LCW | 985 | lc/h |
| Non-weaving vehicle index, INW | 588 | |
| Non-weaving lane change, LCNW | 698 | lc/h |
| Total lane changes, LCALL | 1683 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.295 | |
| Average weaving speed, SW | 57.5 | mi/h |
| Average non-weaving speed, SNW | 60.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.9 | mi/h |
| Weaving segment density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.556 | |
| Weaving segment flow rate, v | 6261 | pc/h |
| Weaving segment capacity, cW | 11067 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3142 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2251 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.556 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2022_PM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3793 | 606 | 743 | 106 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 998 | 159 | 196 | 28 | |
| Trucks and buses | 3 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4061 | 655 | 791 | 113 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.257 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 791 | lc/h |
| Weaving lane changes, LCW | 1314 | lc/h |
| Non-weaving vehicle index, INW | 522 | |
| Non-weaving lane change, LCNW | 574 | lc/h |
| Total lane changes, LCALL | 1888 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.313 | |
| Average weaving speed, SW | 56.9 | mi/h |
| Average non-weaving speed, SNW | 58.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.4 | mi/h |
| Weaving segment density, D | 19.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.602 | |
| Weaving segment flow rate, v | 5620 | pc/h |
| Weaving segment capacity, cW | 9172 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5130 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2103 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.602 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2022_PM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3493 | 458 | 797 | 80 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 919 | 121 | 210 | 21 | |
| Trucks and buses | 3 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3739 | 488 | 853 | 85 | pc/h |

Volume ratio, VR 0.260

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 976 | lc/h |
| Weaving lane changes, LCW | 1485 | lc/h |
| Non-weaving vehicle index, INW | 459 | |
| Non-weaving lane change, LCNW | 475 | lc/h |
| Total lane changes, LCALL | 1960 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.333 | |
| Average weaving speed, SW | 56.3 | mi/h |
| Average non-weaving speed, SNW | 58.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.5 | mi/h |
| Weaving segment density, D | 17.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.466 | |
| Weaving segment flow rate, v | 5165 | pc/h |
| Weaving segment capacity, cW | 10900 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3589 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2217 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.466 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2022_AM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3957 | 348 | 745 | 18 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1041 | 92 | 196 | 5 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4236 | 371 | 794 | 19 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.215 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 371 | lc/h |
| Weaving lane changes, LCW | 787 | lc/h |
| Non-weaving vehicle index, INW | 383 | |
| Non-weaving lane change, LCNW | 401 | lc/h |
| Total lane changes, LCALL | 1188 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.281 | |
| Average weaving speed, SW | 57.9 | mi/h |
| Average non-weaving speed, SNW | 62.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.2 | mi/h |
| Weaving segment density, D | 17.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.514 | |
| Weaving segment flow rate, v | 5420 | pc/h |
| Weaving segment capacity, cW | 10374 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4690 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2110 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.514 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2022_AM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4301 | 573 | 424 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1132 | 151 | 112 | 8 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4604 | 610 | 452 | 32 | pc/h |

Volume ratio, VR 0.186

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 610 | lc/h |
| Weaving lane changes, LCW | 1026 | lc/h |
| Non-weaving vehicle index, INW | 417 | |
| Non-weaving lane change, LCNW | 480 | lc/h |
| Total lane changes, LCALL | 1506 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.339 | |
| Average weaving speed, SW | 56.1 | mi/h |
| Average non-weaving speed, SNW | 60.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.3 | mi/h |
| Weaving segment density, D | 19.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.535 | |
| Weaving segment flow rate, v | 5698 | pc/h |
| Weaving segment capacity, cW | 10482 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4397 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2133 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.535 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2022_PM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4760 | 444 | 711 | 23 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1253 | 117 | 187 | 6 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5096 | 473 | 757 | 25 | pc/h |

Volume ratio, VR 0.194

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 473 | lc/h |
| Weaving lane changes, LCW | 889 | lc/h |
| Non-weaving vehicle index, INW | 461 | |
| Non-weaving lane change, LCNW | 580 | lc/h |
| Total lane changes, LCALL | 1469 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.333 | |
| Average weaving speed, SW | 56.3 | mi/h |
| Average non-weaving speed, SNW | 60.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.6 | mi/h |
| Weaving segment density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.597 | |
| Weaving segment flow rate, v | 6351 | pc/h |
| Weaving segment capacity, cW | 10457 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4472 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2127 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.597 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2022_PM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3292 | 670 | 391 | 35 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 866 | 176 | 103 | 9 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3524 | 714 | 417 | 37 | pc/h |

Volume ratio, VR 0.241

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 714 | lc/h |
| Weaving lane changes, LCW | 1130 | lc/h |
| Non-weaving vehicle index, INW | 320 | |
| Non-weaving lane change, LCNW | 258 | lc/h |
| Total lane changes, LCALL | 1388 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.318 | |
| Average weaving speed, SW | 56.7 | mi/h |
| Average non-weaving speed, SNW | 60.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.4 | mi/h |
| Weaving segment density, D | 15.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.471 | |
| Weaving segment flow rate, v | 4692 | pc/h |
| Weaving segment capacity, cW | 9790 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4960 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2089 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.471 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2022_AM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2908 | 282 | 544 | 14 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 765 | 74 | 143 | 4 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3113 | 300 | 580 | 15 | pc/h |

Volume ratio, VR 0.220

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 300 | lc/h |
| Weaving lane changes, LCW | 968 | lc/h |
| Non-weaving vehicle index, INW | 579 | |
| Non-weaving lane change, LCNW | 684 | lc/h |
| Total lane changes, LCALL | 1652 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.207 | |
| Average weaving speed, SW | 60.6 | mi/h |
| Average non-weaving speed, SNW | 64.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.2 | mi/h |
| Weaving segment density, D | 12.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.368 | |
| Weaving segment flow rate, v | 4008 | pc/h |
| Weaving segment capacity, cW | 10713 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4737 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2179 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.368 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2022_AM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3590 | 570 | 378 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 945 | 150 | 99 | 8 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3843 | 607 | 403 | 32 | pc/h |

Volume ratio, VR 0.207

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 607 | lc/h |
| Weaving lane changes, LCW | 1275 | lc/h |
| Non-weaving vehicle index, INW | 717 | |
| Non-weaving lane change, LCNW | 838 | lc/h |
| Total lane changes, LCALL | 2113 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.251 | |
| Average weaving speed, SW | 59.0 | mi/h |
| Average non-weaving speed, SNW | 60.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.5 | mi/h |
| Weaving segment density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.446 | |
| Weaving segment flow rate, v | 4885 | pc/h |
| Weaving segment capacity, cW | 10762 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4605 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2189 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.446 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2022_PM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3614 | 342 | 514 | 18 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 951 | 90 | 135 | 5 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3869 | 364 | 548 | 19 | pc/h |

Volume ratio, VR 0.190

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 364 | lc/h |
| Weaving lane changes, LCW | 1032 | lc/h |
| Non-weaving vehicle index, INW | 719 | |
| Non-weaving lane change, LCNW | 841 | lc/h |
| Total lane changes, LCALL | 1873 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.228 | |
| Average weaving speed, SW | 59.8 | mi/h |
| Average non-weaving speed, SNW | 62.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.2 | mi/h |
| Weaving segment density, D | 15.4 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.436 | |
| Weaving segment flow rate, v | 4800 | pc/h |
| Weaving segment capacity, cW | 10826 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4434 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2202 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.436 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2022_PM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2327 | 692 | 413 | 36 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 612 | 182 | 109 | 9 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2491 | 737 | 440 | 38 | pc/h |

Volume ratio, VR 0.318

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 737 | lc/h |
| Weaving lane changes, LCW | 1405 | lc/h |
| Non-weaving vehicle index, INW | 468 | |
| Non-weaving lane change, LCNW | 561 | lc/h |
| Total lane changes, LCALL | 1966 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.237 | |
| Average weaving speed, SW | 59.5 | mi/h |
| Average non-weaving speed, SNW | 61.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.6 | mi/h |
| Weaving segment density, D | 12.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.490 | |
| Weaving segment flow rate, v | 3706 | pc/h |
| Weaving segment capacity, cW | 7431 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5773 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2100 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.490 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2022_AM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6710 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 740 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 430 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6710 | 740 | 430 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1766 | 195 | 113 | v |
| Trucks and buses | 6 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.969 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7289 | 804 | 458 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

$P$ = 0.117 Using Equation 4

$v_{12} = v_{F}(P_{FM}) = 855$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 8093 | 9600 | No |
| $v_3$ or $v_{av34}$ | | 3217 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}/2$ | | Yes | |

If yes, $v_{12A} = 2915$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3719 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 29.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.433$

Space mean speed in ramp influence area, $S_R = 57.9$ mph

Space mean speed in outer lanes, $S_0 = 63.9$ mph

Space mean speed for all vehicles, $S = 61.0$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2022_PM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 5840 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1340 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 290 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 5840 | 1340 | 290 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1537 | 353 | 76 | v |
| Trucks and buses | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 6406 | 1427 | 309 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.039 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 253$ pc/h

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 7833 | 9600 | No |
| $v_3$ or $v_{av34}$ | | 3076 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2562$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3989 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{R12} - 0.00627 L_A = 31.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.483$ | |
| Space mean speed in ramp influence area, | $S_R = 56.5$ | mph |
| Space mean speed in outer lanes, | $S_0 = 64.9$ | mph |
| Space mean speed for all vehicles, | $S = 60.3$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2022_AM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8700 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 820 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 280 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8700 | 820 | 280 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2289 | 216 | 74 | v |
| Trucks and buses | 5 | 4 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9405 | 882 | 301 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

$P$ = 0.108 Using Equation 4

$v_{12} = v_F (P_{FM}) = 1012$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 10287 | 9600 | Yes |
| $v_3$ or $v_{av34}$ | 4196 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 3762$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4644 | 4600 | Yes |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 31.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.621$ | |
| Space mean speed in ramp influence area, | $S_R = 52.6$ | mph |
| Space mean speed in outer lanes, | $S_0 = 60.3$ | mph |
| Space mean speed for all vehicles, | $S = 56.6$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2022_PM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 9080 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1120 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 130 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 9080 | 1120 | 130 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2389 | 295 | 34 | v |
| Trucks and buses | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9864 | 1193 | 138 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.069 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 677$ pc/h

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 11057 | 9600 | Yes |
| $v_3$ or $v_{av34}$ | | 4593 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 3945$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 5138 | 4600 | Yes |

## Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 35.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.880$ | |
| Space mean speed in ramp influence area, | $S_R = 45.3$ | mph |
| Space mean speed in outer lanes, | $S_0 = 59.5$ | mph |
| Space mean speed for all vehicles, | $S = 52.0$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2022_AM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2780 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 430 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2780 | 430 | 90 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 732 | 113 | 24 | v |
| Trucks and buses | 18 | 6 | 9 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | 0.969 | 0.955 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3196 | 467 | 99 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3196 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 3196 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2729 | 4800 | No |
| $v_R$ | 467 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 3196$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3196 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 18.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.470$

Space mean speed in ramp influence area, $S_R = 56.8$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 56.8$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2022_PM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2540 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 560 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 250 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2540 | 560 | 250 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 668 | 147 | 66 | v |
| Trucks and buses | 14 | 4 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | 0.978 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2866 | 602 | 268 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2866 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 2866 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2264 | 4800 | No |
| $v_R$ | 602 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 2866$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2866 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 15.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.482$

Space mean speed in ramp influence area, $S_R = 56.5$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 56.5$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2022_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2350 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 90 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 430 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2350 | 90 | 430 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 618 | 24 | 113 | v |
| Trucks and buses | 18 | 9 | 6 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | 0.955 | 0.969 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2701 | 99 | 467 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

```
                  FM
                 v  = v  (P  ) =  2701   pc/h
                  12   F   FM

_____________________________Capacity Checks_____________________________

                           Actual        Maximum         LOS F?
     v                     2800          4800            No
      FO
     v  or v               0    pc/h     (Equation 13-14 or 13-17)
      3     av34
Is   v  or v      > 2700 pc/h?           No
      3     av34
Is   v  or v      > 1.5 v  /2            No
      3     av34         12
If yes, v    = 2701                  (Equation 13-15, 13-16, 13-18, or 13-19)
         12A

_____________________Flow Entering Merge Influence Area_____________________
                      Actual        Max Desirable         Violation?
     v                2800          4600                  No
      R12
_________________Level of Service Determination (if not F)__________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   24.1    pc/mi/ln
          R                   R           12            A
Level of service for ramp-freeway junction areas of influence C

_____________________________Speed Estimation_____________________________

Intermediate speed variable,                 M  = 0.350
                                              S
Space mean speed in ramp influence area,     S  = 60.2    mph
                                              R
Space mean speed in outer lanes,             S  =  N/A    mph
                                              0
Space mean speed for all vehicles,           S  = 60.2    mph
                                              
_____________________________________________________________________________
```

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2022_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1980 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 250 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 560 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1980 | 250 | 560 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 521 | 66 | 147 | v |
| Trucks and buses | 14 | 3 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.933 | 0.983 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2234 | 268 | 602 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{F}(P_{FM}) = 2234$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2502 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2234$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2502 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A = 21.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.334 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.7 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.7 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2022_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2390 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 40 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 910 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2390 | 40 | 910 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 629 | 11 | 239 | v |
| Trucks and buses | 15 | 8 | 45 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.929 | 0.960 | 0.815 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2710 | 44 | 1175 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2710$ pc/h

### Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2754 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2710$ (Equation 13-15, 13-16, 13-18, or 13-19)

### Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2754 | 4600 | No |

### Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 25.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

### Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.365$ | |
| Space mean speed in ramp influence area, | $S_R = 59.8$ | mph |
| Space mean speed in outer lanes, | $S_0 =$ N/A | mph |
| Space mean speed for all vehicles, | $S = 59.8$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2022_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2810 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 70 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 540 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2810 | 70 | 540 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 739 | 18 | 142 | v |
| Trucks and buses | 11 | 6 | 58 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.969 | 0.774 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3126 | 76 | 734 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 3126$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3202 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 3126$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3202 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 28.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.399$ | |
| Space mean speed in ramp influence area, | $S_R = 58.8$ | mph |
| Space mean speed in outer lanes, | $S_0 =$ N/A | mph |
| Space mean speed for all vehicles, | $S = 58.8$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-8_2022_AM_Peak_SR_60_EB_Direct_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2350 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 200 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 40 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2350 | 200 | 40 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 618 | 53 | 11 | v |
| Trucks and buses | 15 | 22 | 8 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.929 | 0.899 | 0.960 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2664 | 234 | 44 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2664$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2898 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2664$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2898 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 18.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.287 | |
| Space mean speed in ramp influence area, | $S_R$ = 62.0 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 62.0 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-8_2022_PM_Peak_SR_60_EB_Direct_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2740 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 410 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 70 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2740 | 410 | 70 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 721 | 108 | 18 | v |
| Trucks and buses | 11 | 14 | 6 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.933 | 0.969 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3049 | 463 | 76 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 3049$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3512 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 3049$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3512 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 23.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.347 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.3 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.3 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2022_AM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1918 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 288 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 432 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1918 | 288 | 432 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 505 | 76 | 114 | v |
| Trucks and buses | 5 | 6 | 16 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.969 | 0.924 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2073 | 313 | 492 | pcph |

## Estimation of V12 Merge Areas

L EQ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{F}(P_{FM}) = 2073$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2386 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2073$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2386 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A = 14.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.258 | |
| Space mean speed in ramp influence area, | $S_R$ = 62.8 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 62.8 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2022_PM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 55.0 | mph |
| Volume on freeway | 2743 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 211 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 537 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2743 | 211 | 537 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 722 | 56 | 141 | v |
| Trucks and buses | 4 | 12 | 8 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.942 | 0.960 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2951 | 236 | 589 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2951$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3187 | 4500 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2951 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3187 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 20.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.310 | |
| Space mean speed in ramp influence area, | $S_R$ = 51.0 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 51.0 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2022_AM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1994 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 406 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 326 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1994 | 406 | 326 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 525 | 107 | 86 | v |
| Trucks and buses | 5 | 11 | 10 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.946 | 0.951 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2156 | 452 | 361 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 2156$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2608 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2156 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2608 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 16.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.269 | |
| Space mean speed in ramp influence area, | $S_R$ = 62.5 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 62.5 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2022_PM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1607 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 452 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 233 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1607 | 452 | 233 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 423 | 119 | 61 | v |
| Trucks and buses | 6 | 20 | 13 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.907 | 0.937 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1746 | 524 | 262 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1746$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2270 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1746 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2270 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 13.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.254 | |
| Space mean speed in ramp influence area, | $S_R$ = 62.9 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 62.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2022_AM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2000 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 560 | vph |
| Length of first accel/decel lane | 550 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 310 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2000 | 560 | 310 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 526 | 147 | 82 | v |
| Trucks and buses | 4 | 45 | 23 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.815 | 0.895 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2152 | 723 | 364 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2152$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2875 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}/2$ No

If yes, $v_{12A} = 2152$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2875 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A$ = 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.352 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.2 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.2 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2022_PM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 1810 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 790 | vph |
| Length of first accel/decel lane | 550 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 170 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 1810 | 790 | 170 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 476 | 208 | 45 | v |
| Trucks and buses | 6 | 39 | 33 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.835 | 0.857 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 1966 | 995 | 209 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 1966$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2961 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 1966 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2961 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 24.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.358 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.0 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.0 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2022_AM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2580 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 250 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 470 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2580 | 250 | 470 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 679 | 66 | 124 | v |
| Trucks and buses | 11 | 9 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.955 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2871 | 276 | 506 | pcph |

## Estimation of V12 Diverge Areas

L = (Equation 13-12 or 13-13)
EQ
P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2871 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 2871 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2595 | 4800 | No |
| $v_R$ | 276 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2871 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2871 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 26.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.453

Space mean speed in ramp influence area, $S_R$ = 57.3 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2022_PM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2920 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 160 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 700 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2920 | 160 | 700 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 768 | 42 | 184 | v |
| Trucks and buses | 13 | 4 | 13 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | 0.978 | 0.937 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3280 | 172 | 786 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3280 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 3280 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 3108 | 4800 | No |
| $v_R$ | 172 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 3280$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3280 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 30.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

Intermediate speed variable, $D_S = 0.443$

Space mean speed in ramp influence area, $S_R = 57.6$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.6$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-16_2022_AM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2330 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 470 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 250 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2330 | 470 | 250 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 613 | 124 | 66 | v |
| Trucks and buses | 11 | 4 | 9 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.978 | 0.955 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2592 | 506 | 276 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2592$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3098 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2592 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3098 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 26.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.372 | |
| Space mean speed in ramp influence area, | $S_R$ = 59.6 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 59.6 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-16_2022_PM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2760 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 700 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 160 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2760 | 700 | 160 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 726 | 184 | 42 | v |
| Trucks and buses | 13 | 13 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | 0.937 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3100 | 786 | 172 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 3100$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3886 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 3100$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3886 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 32.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.476 | |
| Space mean speed in ramp influence area, | $S_R$ = 56.7 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 56.7 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2022_AM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 7000 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 520 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 800 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 7000 | 520 | 800 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1842 | 137 | 211 | v |
| Trucks and buses | 7 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7641 | 554 | 852 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2978 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 6113 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 5559 | 9600 | No |
| $v_R$ | 554 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1567 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 2978$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2978 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086 v_{12} - 0.009 L_D = 16.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S = 0.478$

Space mean speed in ramp influence area, $S_R = 56.6$ mph

Space mean speed in outer lanes, $S_0 = 74.6$ mph

Space mean speed for all vehicles, $S = 64.6$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2022_PM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8050 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 430 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 460 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8050 | 430 | 460 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2118 | 113 | 121 | v |
| Trucks and buses | 6 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.978 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 8745 | 463 | 490 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3311 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 6996 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 6533 | 9600 | No |
| $v_R$ | 463 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1842 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 3311 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3311 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 19.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.470

Space mean speed in ramp influence area, $S_R$ = 56.8 mph

Space mean speed in outer lanes, $S_0$ = 73.5 mph

Space mean speed for all vehicles, $S$ = 64.6 mph

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2022_AM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1947 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1600 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1600 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2022_PM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2055 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1697 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1697 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 25.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2022_AM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2039 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1676 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1676 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2022_PM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2453 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2025 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2025 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.1 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 32.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2022_AM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2418 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1987 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1987 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 31.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2022_PM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2432 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2008 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2008 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 32.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_AM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2203 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1810 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1810 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_AM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1645 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1351 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1351 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_PM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2495 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2050 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2050 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 33.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2022_PM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2121 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1743 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1743 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2022_AM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2179 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1782 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1782 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2022_PM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2476 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2044 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2044 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 33.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_AM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1718 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1773 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1773 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_AM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1187 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1219 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1219 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_PM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4450 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1171 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1220 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1220 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2022_PM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1792 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1832 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1832 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_AM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7180 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1889 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1940 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1940 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_AM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3520 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 926 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 956 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 956 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_PM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1279 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1333 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1333 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2022_PM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5940 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1563 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1598 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1598 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_AM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1792 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1849 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1849 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_AM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1495 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1528 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1528 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_PM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1903 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1973 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1973 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2022_PM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7090 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1866 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1907 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1907 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2022_AM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1392 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1430 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1430 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2022_PM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1811 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1850 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1850 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2022_AM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2363 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2051 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2051 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 33.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2022_PM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2424 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2133 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2133 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 35.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2022_AM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1924 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1596 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1596 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2022_PM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8900 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2342 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1934 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1934 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 30.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2022_AM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1897 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1958 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1958 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2022_PM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1108 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1171 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1171 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_AM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3930 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1034 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1458 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1458 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_AM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3460 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 911 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1265 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1265 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_PM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1097 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1532 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1532 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2022_PM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1137 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1602 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1602 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_AM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 995 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1409 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1409 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_AM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 887 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1232 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1232 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_PM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1071 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1495 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1495 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2022_PM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3900 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1026 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1446 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1446 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2022_AM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1421 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1459 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1459 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2022_PM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1684 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1721 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1721 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_AM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1597 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1625 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1625 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_AM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5180 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1363 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1400 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1400 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_PM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1408 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1446 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1446 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2022_PM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8150 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2145 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2181 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2181 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2022_AM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1424 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1462 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1462 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2022_PM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2137 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2184 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2184 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2022_AM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4760 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1253 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1293 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1293 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2022_PM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1592 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1627 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1627 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2022_AM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5940 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1563 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1598 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1598 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2022_PM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1334 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1364 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1364 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_AM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1595 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1622 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1622 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_AM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1689 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1718 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1718 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_PM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1595 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1622 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1622 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2022_PM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1397 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1421 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1421 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2022_AM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1821 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1852 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1852 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2022_PM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1458 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1483 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1483 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_AM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1495 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1520 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1520 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_AM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1776 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1807 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1807 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_PM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1629 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1657 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1657 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2022_PM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1461 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1485 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1485 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_AM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5960 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1568 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1595 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1595 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_AM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1782 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1812 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1812 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_PM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1739 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1769 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1769 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2022_PM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1468 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1493 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1493 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-94_2022_AM_Peak_I-215_NB_Alessandro_Blvd_to_Eucalyptus.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Alessandro Blvd to Eucalyptus |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1971 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2014 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2014 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-94_2022_PM_Peak_I-215_NB_Alessandro_Blvd_to_Eucalyptus.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Alessandro Blvd to Eucalyptus |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1558 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1584 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1584 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-95_2022_AM_Peak_I-215_NB_Eucalyptus_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Eucalyptus Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1855 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1896 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1896 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-95_2022_PM_Peak_I-215_NB_Eucalyptus_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Eucalyptus Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6030 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1587 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1614 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1614 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2022_AM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4536 | 1054 | 341 | 186 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1194 | 277 | 90 | 49 | |
| Trucks and buses | 5 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4904 | 1145 | 363 | 198 | pc/h |

Volume ratio, VR 0.228

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1508 | lc/h |
| Weaving lane changes, LCW | 2143 | lc/h |
| Non-weaving vehicle index, INW | 867 | |
| Non-weaving lane change, LCNW | 1009 | lc/h |
| Total lane changes, LCALL | 3152 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.368 | |
| Average weaving speed, SW | 55.2 | mi/h |
| Average non-weaving speed, SNW | 52.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.3 | mi/h |
| Weaving segment density, D | 24.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.628 | |
| Weaving segment flow rate, v | 6610 | pc/h |
| Weaving segment capacity, cW | 10243 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4826 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2161 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.628 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2022_PM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5428 | 1164 | 387 | 205 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1428 | 306 | 102 | 54 | |
| Trucks and buses | 6 | 7 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.964 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5897 | 1271 | 412 | 218 | pc/h |

Volume ratio, VR 0.216

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1683 | lc/h |
| Weaving lane changes, LCW | 2318 | lc/h |
| Non-weaving vehicle index, INW | 1040 | |
| Non-weaving lane change, LCNW | 1218 | lc/h |
| Total lane changes, LCALL | 3536 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.403 | |
| Average weaving speed, SW | 54.2 | mi/h |
| Average non-weaving speed, SNW | 50.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.2 | mi/h |
| Weaving segment density, D | 30.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.718 | |
| Weaving segment flow rate, v | 7798 | pc/h |
| Weaving segment capacity, cW | 10518 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4699 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2170 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.718 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2022_AM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6250 | 518 | 759 | 91 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1645 | 136 | 200 | 24 | |
| Trucks and buses | 6 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6789 | 557 | 817 | 97 | pc/h |

Volume ratio, VR 0.166

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 817 | lc/h |
| Weaving lane changes, LCW | 1157 | lc/h |
| Non-weaving vehicle index, INW | 482 | |
| Non-weaving lane change, LCNW | 835 | lc/h |
| Total lane changes, LCALL | 1992 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.516 | |
| Average weaving speed, SW | 51.3 | mi/h |
| Average non-weaving speed, SNW | 56.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.3 | mi/h |
| Weaving segment density, D | 29.9 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.775 | |
| Weaving segment flow rate, v | 8260 | pc/h |
| Weaving segment capacity, cW | 10334 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4195 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2133 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.775 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2022_PM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6045 | 315 | 963 | 55 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1591 | 83 | 253 | 14 | |
| Trucks and buses | 6 | 6 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.969 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6567 | 342 | 1036 | 59 | pc/h |

Volume ratio, VR 0.172

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1036 | lc/h |
| Weaving lane changes, LCW | 1376 | lc/h |
| Non-weaving vehicle index, INW | 464 | |
| Non-weaving lane change, LCNW | 781 | lc/h |
| Total lane changes, LCALL | 2157 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.549 | |
| Average weaving speed, SW | 50.5 | mi/h |
| Average non-weaving speed, SNW | 54.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.1 | mi/h |
| Weaving segment density, D | 29.6 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.752 | |
| Weaving segment flow rate, v | 8004 | pc/h |
| Weaving segment capacity, cW | 10310 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4254 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2128 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.752 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_AM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3367 | 1480 | 257 | 261 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 886 | 389 | 68 | 69 | |
| Trucks and buses | 6 | 4 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.978 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3658 | 1592 | 276 | 278 | pc/h |

Volume ratio, VR 0.322

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1592 | lc/h |
| Weaving lane changes, LCW | 2115 | lc/h |
| Non-weaving vehicle index, INW | 492 | |
| Non-weaving lane change, LCNW | 525 | lc/h |
| Total lane changes, LCALL | 2640 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.408 | |
| Average weaving speed, SW | 54.1 | mi/h |
| Average non-weaving speed, SNW | 53.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.3 | mi/h |
| Weaving segment density, D | 21.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.535 | |
| Weaving segment flow rate, v | 5804 | pc/h |
| Weaving segment capacity, cW | 10514 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4253 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2170 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.535 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_AM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4689 | 622 | 945 | 109 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1234 | 164 | 249 | 29 | |
| Trucks and buses | 7 | 3 | 9 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.983 | 0.955 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5118 | 666 | 1041 | 116 | pc/h |

Volume ratio, VR 0.246

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 666 | lc/h |
| Weaving lane changes, LCW | 1161 | lc/h |
| Non-weaving vehicle index, INW | 602 | |
| Non-weaving lane change, LCNW | 739 | lc/h |
| Total lane changes, LCALL | 1900 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.336 | |
| Average weaving speed, SW | 56.2 | mi/h |
| Average non-weaving speed, SNW | 58.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.9 | mi/h |
| Weaving segment density, D | 24.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.624 | |
| Weaving segment flow rate, v | 6941 | pc/h |
| Weaving segment capacity, cW | 10723 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3445 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2224 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.624 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_PM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6274 | 1343 | 246 | 237 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1651 | 353 | 65 | 62 | |
| Trucks and buses | 7 | 5 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.974 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6849 | 1452 | 265 | 252 | pc/h |

Volume ratio, VR 0.195

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1452 | lc/h |
| Weaving lane changes, LCW | 1975 | lc/h |
| Non-weaving vehicle index, INW | 888 | |
| Non-weaving lane change, LCNW | 1177 | lc/h |
| Total lane changes, LCALL | 3152 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.469 | |
| Average weaving speed, SW | 52.4 | mi/h |
| Average non-weaving speed, SNW | 51.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.3 | mi/h |
| Weaving segment density, D | 34.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.776 | |
| Weaving segment flow rate, v | 8818 | pc/h |
| Weaving segment capacity, cW | 10959 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2916 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2272 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.776 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2022_PM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6136 | 787 | 994 | 139 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1615 | 207 | 262 | 37 | |
| Trucks and buses | 6 | 3 | 8 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.983 | 0.960 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6666 | 843 | 1090 | 148 | pc/h |

Volume ratio, VR 0.221

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 843 | lc/h |
| Weaving lane changes, LCW | 1338 | lc/h |
| Non-weaving vehicle index, INW | 784 | |
| Non-weaving lane change, LCNW | 1064 | lc/h |
| Total lane changes, LCALL | 2402 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.404 | |
| Average weaving speed, SW | 54.2 | mi/h |
| Average non-weaving speed, SNW | 55.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.2 | mi/h |
| Weaving segment density, D | 31.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.780 | |
| Weaving segment flow rate, v | 8747 | pc/h |
| Weaving segment capacity, cW | 10872 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3186 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2244 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.780 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2022_AM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4027 | 116 | 532 | 6 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1060 | 31 | 140 | 2 | |
| Trucks and buses | 8 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | 0.948 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4790 | 129 | 591 | 7 | pc/h |

Volume ratio, VR 0.131

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 129 | lc/h |
| Weaving lane changes, LCW | 692 | lc/h |
| Non-weaving vehicle index, INW | 672 | |
| Non-weaving lane change, LCNW | 784 | lc/h |
| Total lane changes, LCALL | 1476 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.236 | |
| Average weaving speed, SW | 59.5 | mi/h |
| Average non-weaving speed, SNW | 63.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.2 | mi/h |
| Weaving segment density, D | 17.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.473 | |
| Weaving segment flow rate, v | 5517 | pc/h |
| Weaving segment capacity, cW | 10323 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2272 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2333 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.473 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2022_PM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6232 | 423 | 546 | 22 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1640 | 111 | 144 | 6 | |
| Trucks and buses | 6 | 3 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | 0.948 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7216 | 470 | 615 | 24 | pc/h |

Volume ratio, VR 0.130

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 470 | lc/h |
| Weaving lane changes, LCW | 1033 | lc/h |
| Non-weaving vehicle index, INW | 1014 | |
| Non-weaving lane change, LCNW | 1287 | lc/h |
| Total lane changes, LCALL | 2320 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.337 | |
| Average weaving speed, SW | 56.1 | mi/h |
| Average non-weaving speed, SNW | 58.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.3 | mi/h |
| Weaving segment density, D | 28.6 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.714 | |
| Weaving segment flow rate, v | 8325 | pc/h |
| Weaving segment capacity, cW | 10605 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2270 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2334 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.714 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_AM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4449 | 779 | 764 | 41 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1171 | 205 | 201 | 11 | |
| Trucks and buses | 6 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | 0.935 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5151 | 877 | 836 | 45 | pc/h |

Volume ratio, VR 0.248

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1713 | lc/h |
| Weaving lane changes, LCW | 2472 | lc/h |
| Non-weaving vehicle index, INW | 1195 | |
| Non-weaving lane change, LCNW | 1354 | lc/h |
| Total lane changes, LCALL | 3826 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.338 | |
| Average weaving speed, SW | 56.1 | mi/h |
| Average non-weaving speed, SNW | 51.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.2 | mi/h |
| Weaving segment density, D | 26.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.714 | |
| Weaving segment flow rate, v | 6909 | pc/h |
| Weaving segment capacity, cW | 8800 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5032 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2191 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.714 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_AM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4173 | 1280 | 412 | 67 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1098 | 337 | 108 | 18 | |
| Trucks and buses | 7 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | 0.948 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4898 | 1421 | 458 | 73 | pc/h |

Volume ratio, VR 0.274

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1421 | lc/h |
| Weaving lane changes, LCW | 2100 | lc/h |
| Non-weaving vehicle index, INW | 944 | |
| Non-weaving lane change, LCNW | 1091 | lc/h |
| Total lane changes, LCALL | 3191 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.340 | |
| Average weaving speed, SW | 56.0 | mi/h |
| Average non-weaving speed, SNW | 53.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.9 | mi/h |
| Weaving segment density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.606 | |
| Weaving segment flow rate, v | 6850 | pc/h |
| Weaving segment capacity, cW | 10130 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3744 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2259 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.606 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_PM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5230 | 1064 | 617 | 56 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1376 | 280 | 162 | 15 | |
| Trucks and buses | 6 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | 0.962 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6056 | 1165 | 695 | 61 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.233 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1860 | lc/h |
| Weaving lane changes, LCW | 2619 | lc/h |
| Non-weaving vehicle index, INW | 1407 | |
| Non-weaving lane change, LCNW | 1792 | lc/h |
| Total lane changes, LCALL | 4411 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.378 | |
| Average weaving speed, SW | 54.9 | mi/h |
| Average non-weaving speed, SNW | 49.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.2 | mi/h |
| Weaving segment density, D | 31.8 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.775 | |
| Weaving segment flow rate, v | 7977 | pc/h |
| Weaving segment capacity, cW | 9357 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4878 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2203 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.775 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2022_PM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5387 | 1014 | 486 | 53 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1418 | 267 | 128 | 14 | |
| Trucks and buses | 6 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | 0.962 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6238 | 1110 | 547 | 58 | pc/h |

Volume ratio, VR 0.208

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1110 | lc/h |
| Weaving lane changes, LCW | 1789 | lc/h |
| Non-weaving vehicle index, INW | 1196 | |
| Non-weaving lane change, LCNW | 1364 | lc/h |
| Total lane changes, LCALL | 3153 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.337 | |
| Average weaving speed, SW | 56.1 | mi/h |
| Average non-weaving speed, SNW | 54.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.7 | mi/h |
| Weaving segment density, D | 29.1 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.688 | |
| Weaving segment flow rate, v | 7953 | pc/h |
| Weaving segment capacity, cW | 10509 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3056 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2312 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.688 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2022_AM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3320 | 766 | 822 | 40 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 874 | 202 | 216 | 11 | |
| Trucks and buses | 7 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3624 | 820 | 876 | 43 | pc/h |

Volume ratio, VR 0.316

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1696 | lc/h |
| Weaving lane changes, LCW | 2194 | lc/h |
| Non-weaving vehicle index, INW | 880 | |
| Non-weaving lane change, LCNW | 1286 | lc/h |
| Total lane changes, LCALL | 3480 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.303 | |
| Average weaving speed, SW | 57.2 | mi/h |
| Average non-weaving speed, SNW | 51.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.1 | mi/h |
| Weaving segment density, D | 25.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.707 | |
| Weaving segment flow rate, v | 5363 | pc/h |
| Weaving segment capacity, cW | 7318 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5759 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2143 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.707 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2022_PM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3864 | 741 | 626 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1017 | 195 | 165 | 10 | |
| Trucks and buses | 10 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4279 | 789 | 667 | 42 | pc/h |

Volume ratio, VR 0.252

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1456 | lc/h |
| Weaving lane changes, LCW | 1954 | lc/h |
| Non-weaving vehicle index, INW | 1037 | |
| Non-weaving lane change, LCNW | 1421 | lc/h |
| Total lane changes, LCALL | 3375 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.296 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 52.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.7 | mi/h |
| Weaving segment density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.658 | |
| Weaving segment flow rate, v | 5777 | pc/h |
| Weaving segment capacity, cW | 8346 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5075 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2195 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.658 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2022_AM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5860 | 464 | 950 | 24 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1542 | 122 | 250 | 6 | |
| Trucks and buses | 7 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6397 | 494 | 1017 | 26 | pc/h |

Volume ratio, VR 0.190

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 494 | lc/h |
| Weaving lane changes, LCW | 756 | lc/h |
| Non-weaving vehicle index, INW | 565 | |
| Non-weaving lane change, LCNW | 1030 | lc/h |
| Total lane changes, LCALL | 1786 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.395 | |
| Average weaving speed, SW | 54.4 | mi/h |
| Average non-weaving speed, SNW | 56.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.4 | mi/h |
| Weaving segment density, D | 35.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.882 | |
| Weaving segment flow rate, v | 7934 | pc/h |
| Weaving segment capacity, cW | 8671 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2873 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2248 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.882 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2022_PM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2535 | 380 | 723 | 20 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 667 | 100 | 190 | 5 | |
| Trucks and buses | 9 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2794 | 405 | 774 | 21 | pc/h |

Volume ratio, VR 0.295

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 405 | lc/h |
| Weaving lane changes, LCW | 667 | lc/h |
| Non-weaving vehicle index, INW | 248 | |
| Non-weaving lane change, LCNW | 286 | lc/h |
| Total lane changes, LCALL | 953 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.241 | |
| Average weaving speed, SW | 59.3 | mi/h |
| Average non-weaving speed, SNW | 62.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.4 | mi/h |
| Weaving segment density, D | 16.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.461 | |
| Weaving segment flow rate, v | 3994 | pc/h |
| Weaving segment capacity, cW | 8267 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3966 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2164 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.461 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2022_AM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4567 | 1715 | 224 | 302 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1202 | 451 | 59 | 79 | |
| Trucks and buses | 3 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4889 | 1845 | 239 | 322 | pc/h |

Volume ratio, VR 0.286

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1845 | lc/h |
| Weaving lane changes, LCW | 2286 | lc/h |
| Non-weaving vehicle index, INW | 1016 | |
| Non-weaving lane change, LCNW | 1360 | lc/h |
| Total lane changes, LCALL | 3646 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.370 | |
| Average weaving speed, SW | 55.1 | mi/h |
| Average non-weaving speed, SNW | 48.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.8 | mi/h |
| Weaving segment density, D | 36.6 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.809 | |
| Weaving segment flow rate, v | 7295 | pc/h |
| Weaving segment capacity, cW | 8865 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3865 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2253 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.809 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2022_PM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4337 | 1667 | 280 | 294 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1141 | 439 | 74 | 77 | |
| Trucks and buses | 3 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4643 | 1811 | 298 | 313 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.299 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1811 | lc/h |
| Weaving lane changes, LCW | 2252 | lc/h |
| Non-weaving vehicle index, INW | 966 | |
| Non-weaving lane change, LCNW | 1307 | lc/h |
| Total lane changes, LCALL | 3559 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.363 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 48.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.3 | mi/h |
| Weaving segment density, D | 35.1 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.787 | |
| Weaving segment flow rate, v | 7065 | pc/h |
| Weaving segment capacity, cW | 8822 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4002 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2243 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.787 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2022_AM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8700 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 820 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 280 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8700 | 820 | 280 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2289 | 216 | 74 | v |
| Trucks and buses | 5 | 4 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9405 | 882 | 301 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.108 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 743$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 7787 | 9600 | No |
| $v_3$ or $v_{av34}$ | 3081 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2762$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3644 | 4600 | No |

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 24.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.365$ | |
| Space mean speed in ramp influence area, | $S_R = 59.8$ | mph |
| Space mean speed in outer lanes, | $S_0 = 64.3$ | mph |
| Space mean speed for all vehicles, | $S = 62.1$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2022_PM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2022 |
| Description: | World Logistics Center - Plus Phase 1 - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 9080 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1120 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 130 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 9080 | 1120 | 130 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2389 | 295 | 34 | v |
| Trucks and buses | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9864 | 1193 | 138 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.069 Using Equation 4

$v_{12} = v_{F}(P_{FM}) = 506$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 8557 | 9600 | No |
| $v_3$ or $v_{av34}$ | 3429 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | Yes | |

If yes, $v_{12A} = 2945$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4138 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 27.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $M_S = 0.460$

Space mean speed in ramp influence area, $S_R = 57.1$ mph

Space mean speed in outer lanes, $S_0 = 63.8$ mph

Space mean speed for all vehicles, $S = 60.4$ mph

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-6 Off-Ramp to Theodore St**
**ANALYSIS YEAR:** **2022 Plus Phase 1**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 3,300 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 15 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.929 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **3,741** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 3,741 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **21.9** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-6 Off-Ramp to Theodore St**
**ANALYSIS YEAR:** **2022 Plus Phase 1**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 3,350 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 11 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.946 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **3,727** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 3,727 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **21.8** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-9 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2022 Plus Phase 1**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 2,350 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 5 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.974 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **2,540** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 2,540 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **14.9** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-9 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2022 Plus Phase 1**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 3,280 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 4 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.978 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **3,529** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 3,529 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **20.7** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-11 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2022 Plus Phase 1**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 2,320 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 5 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.974 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **2,508** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 2,508 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **14.7** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-11 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2022 Plus Phase 1**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 1,840 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 6 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.969 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **1,999** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 1,999 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **11.7** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-13 Off-Ramp to Theodore St**
**ANALYSIS YEAR:** **2022 Plus Phase 1**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 2,310 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 4 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.978 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **2,485** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 2,485 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **14.6** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-13 Off-Ramp to Theodore St**
**ANALYSIS YEAR:** **2022 Plus Phase 1**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 1,980 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 6 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.969 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **2,151** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 2,151 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **12.6** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **2022 Plus Phase 1**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 7,120 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 7 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.964 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **7,772** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 7,772 |
| Max Upstream Fwy Flow, $V_{F1}$ | 11,750 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 5 |
| Density, D | **27.3** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **2022 Plus Phase 1**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 8,330 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 6 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.969 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **9,049** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 9,049 |
| Max Upstream Fwy Flow, $V_{F1}$ | 11,750 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 5 |
| Density, D | **31.8** |
| **Level of service, LOS** | **D** |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix N

## Freeway LOS Worksheets
## for 2035 No-Project Conditions

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HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_AM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2253 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2302 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2302 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 41.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_AM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2308 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2359 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2359 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 43.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_PM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2303 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2365 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2365 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 43.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_PM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7840 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2063 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2098 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2098 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2035_AM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2155 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2203 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2203 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2035_AM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2126 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2184 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2184 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2035_PM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2692 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2765 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2765 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 41.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 66.5 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2035_PM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2032 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2066 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2066 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2035_AM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8900 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2342 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2394 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2394 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 44.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2035_AM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6340 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1668 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1705 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1705 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2035_PM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2687 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2759 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2759 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 41.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 66.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2035_PM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1995 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2029 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2029 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_AM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2311 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2361 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2361 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 43.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_AM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1639 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1692 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1692 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_PM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1997 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2051 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2051 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_PM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2171 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2208 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2208 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_AM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2611 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2668 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2668 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 45.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 59.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_AM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6470 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1703 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1740 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1740 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_PM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2547 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2616 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2616 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 46.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 56.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_PM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2092 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2128 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2128 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_AM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2424 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2477 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2477 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 48.5 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_AM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1653 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1681 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1681 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_PM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2645 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2716 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2716 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 43.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 62.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_PM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8150 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2145 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2181 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2181 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2035_AM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2389 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2430 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2430 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 46.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2035_AM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7660 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2016 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2050 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2050 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2035_PM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2687 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2759 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2759 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 41.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 66.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2035_PM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7640 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2011 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2045 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2045 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2035_AM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2218 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2256 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2256 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 39.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2035_PM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1929 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1981 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1981 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2035_AM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2218 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1805 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1805 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2035_AM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1713 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1408 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1408 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2035_PM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2134 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1753 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1753 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2035_PM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2097 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1715 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1715 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 25.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2035_AM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5160 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1358 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1381 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1381 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2035_AM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5460 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1437 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1454 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1454 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2035_PM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1192 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1218 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1218 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2035_PM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7180 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1889 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1912 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1912 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2035_AM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1089 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1113 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1113 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2035_AM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4840 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1274 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1041 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1041 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 14.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2035_PM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 721 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 741 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 741 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.6 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2035_PM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1674 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1355 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1355 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2035_AM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1303 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1331 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1331 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2035_AM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4220 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1111 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1124 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1124 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2035_PM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1097 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1127 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1127 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2035_PM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1479 | v |
| Trucks and buses | 1 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.993 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1489 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1489 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2035_AM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1153 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1178 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1178 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2035_AM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1089 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1113 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1113 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2035_PM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3150 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 829 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 851 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 851 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2035_PM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5660 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1489 | v |
| Trucks and buses | 1 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.993 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1500 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1500 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2035_AM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1216 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1243 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1243 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2035_AM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 858 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 877 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 877 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2035_PM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 950 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 976 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 976 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2035_PM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4820 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1268 | v |
| Trucks and buses | 1 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.993 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1277 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1277 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2035_AM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1332 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1361 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1361 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2035_AM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2470 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 650 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 668 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 668 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 9.5 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2035_PM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1021 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1049 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1049 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2035_PM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3930 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1034 | v |
| Trucks and buses | 1 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.993 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1041 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1041 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_AM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6160 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1621 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2209 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2209 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 38.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_AM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1200 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1635 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1635 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_PM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1013 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1387 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1387 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_PM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1674 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2258 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2258 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 39.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2035_AM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1708 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2327 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2327 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 42.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2035_AM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 897 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1223 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1223 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2035_PM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1108 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1524 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1524 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2035_PM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1347 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1818 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1818 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_AM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6020 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1584 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2159 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2159 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 36.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_AM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1455 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1983 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1983 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_PM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1742 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2397 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2397 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 44.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_PM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1653 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2230 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2230 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 38.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2035_AM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1400 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1908 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1908 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2035_PM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1661 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2241 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2241 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 39.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_AM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9500 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2500 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2675 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2675 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 44.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 59.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_AM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2192 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1955 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1955 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 30.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_PM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2595 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2815 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2815 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 39.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 70.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_PM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2363 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2051 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2051 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 33.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2035_AM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6090 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1603 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1638 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1638 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2035_AM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7500 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1974 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2047 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2047 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2035_PM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1524 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1565 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1565 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2035_PM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2361 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2436 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2436 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 46.6 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2035_AM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1855 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2516 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2516 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 49.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 50.4 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2035_PM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 945 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1300 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1300 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_AM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 876 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1800 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1800 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_AM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3650 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 961 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1973 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1973 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 31.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_PM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1084 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2216 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2216 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 38.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_PM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3910 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1029 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2113 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2113 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 35.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_AM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3020 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 795 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1632 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1632 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_AM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 937 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1924 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1924 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 30.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_PM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1105 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2259 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2259 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 39.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_PM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 897 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1843 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1843 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 28.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2035_AM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2670 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 703 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1450 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1450 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2035_AM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 876 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1800 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1800 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2035_PM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3520 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 926 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1893 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1893 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 29.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2035_PM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 732 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1510 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1510 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2035_AM_Peak_SR_60_EB_Moreno_Beach_Dr_to_Redlands.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach Dr to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 653 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1341 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1341 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2035_AM_Peak_SR_60_WB_Redlands_Blvd_to_Moreno_Beach_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands Blvd to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3150 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 829 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1694 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1694 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2035_PM_Peak_SR_60_EB_Moreno_Beach_Dr_to_Redlands.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach Dr to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3130 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 824 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1684 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1684 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2035_PM_Peak_SR_60_WB_Redlands_Blvd_to_Moreno_Beach_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands Blvd to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 705 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1449 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1449 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2035_AM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 842 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1730 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1730 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2035_AM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4010 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1055 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2157 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2157 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 36.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2035_PM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4500 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1184 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2409 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2409 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 45.4 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2035_PM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 929 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1908 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1908 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 29.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2035_AM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 637 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1401 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1401 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 20.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2035_AM_Peak_SR_60_WB_Jack_Rabbit_Trail_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit Trail to Gilman Springs |
| Jurisdiction: | ings |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 882 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1939 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1939 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 30.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2035_PM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1166 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2565 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2565 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 53.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2035_PM_Peak_SR_60_WB_Jack_Rabbit_Trail_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit Trail to Gilman Springs |
| Jurisdiction: | ings |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 768 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1691 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1691 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2035_AM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_Potrero_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to Potrero Blvd |
| Jurisdiction: | vd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2500 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 658 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 905 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 905 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 12.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2035_AM_Peak_SR_60_WB_Potrero_Blvd_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Potrero Blvd to Jack Rabbit Trail |
| Jurisdiction: | il |
| Analysis Year: | 2035 |
| Description: | World Logistics Center – No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3690 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 971 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1985 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1985 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 31.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2035_PM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_Potrero_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to Potrero Blvd |
| Jurisdiction: | vd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1250 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1695 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1695 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2035_PM_Peak_SR_60_WB_Potrero_Blvd_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Potrero Blvd to Jack Rabbit Trail |
| Jurisdiction: | il |
| Analysis Year: | 2035 |
| Description: | World Logistics Center – No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3010 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 792 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1627 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1627 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 24.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-38_2035_AM_Peak_SR_60_EB_Potrero_Blvd_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Potrero Blvd to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center – No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2300 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 605 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1243 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1243 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-38_2035_AM_Peak_SR_60_WB_I-10_to_Potrero_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Potrero Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center – No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 621 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1276 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1276 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-38_2035_PM_Peak_SR_60_EB_Potrero_Blvd_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Potrero Blvd to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center – No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 953 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1947 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1947 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.5 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 30.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-38_2035_PM_Peak_SR_60_WB_I-10_to_Potrero_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Potrero Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center – No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1930 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 508 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1048 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1048 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 15.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2035_AM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2142 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1751 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1751 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2035_AM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2261 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1857 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1857 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 28.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2035_PM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 11870 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 3124 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2554 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2554 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 52.4 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2035_PM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8630 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2271 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1857 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1857 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 28.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2035_AM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1839 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1880 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1880 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2035_AM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1724 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1779 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1779 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2035_PM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6910 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1818 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1877 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1877 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2035_PM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7440 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1958 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2001 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2001 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_AM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1692 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2306 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2306 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 41.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_AM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1647 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2267 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2267 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 39.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_PM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1674 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2303 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2303 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 41.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_PM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2368 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 3227 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 3227 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 22.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 144.5 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2035_AM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6130 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1613 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2220 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2220 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 38.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2035_PM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8600 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2263 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 3084 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 3084 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 28.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 107.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_AM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1624 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2213 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2213 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 38.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_AM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5460 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1437 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1977 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1977 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_PM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1645 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2263 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2263 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 39.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_PM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1682 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2291 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2291 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 40.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2035_AM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1908 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1950 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1950 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2035_AM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1811 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1868 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1868 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2035_PM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1829 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1887 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1887 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2035_PM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2097 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2144 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2144 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2035_AM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1913 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1955 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1955 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2035_AM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1734 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1790 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1790 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2035_PM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1655 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1708 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1708 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2035_PM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2032 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2076 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2076 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2035_AM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2100 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2167 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2167 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 36.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2035_AM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1650 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1703 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1703 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2035_PM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6030 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1587 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1646 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1646 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2035_PM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1834 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1875 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1875 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2035_AM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1842 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1901 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1901 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2035_AM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1458 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2006 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2006 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2035_PM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1418 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1478 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1478 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2035_PM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1655 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2256 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2256 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 39.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2035_AM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1684 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2295 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2295 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 40.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2035_AM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1392 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1444 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1444 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2035_PM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5730 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1508 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2055 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2055 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 33.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2035_PM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5460 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1437 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1468 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1468 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2035_AM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8160 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2147 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1756 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1756 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2035_PM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1953 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1596 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1596 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_AM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5030 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1324 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1373 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1373 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_AM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7820 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2058 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2124 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2124 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_PM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2150 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2219 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2219 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 38.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_PM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1595 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1654 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1654 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2035_AM_Peak_I-10_EB_Beaumont_to_Pennsylvania_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1342 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1398 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1398 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2035_AM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7660 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2016 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2080 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2080 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2035_PM_Peak_I-10_EB_Beaumont_to_Pennsylvania_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8030 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2113 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2181 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2181 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2035_PM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5840 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1537 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1601 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1601 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_AM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1379 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1437 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1437 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_AM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8180 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2153 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2222 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2222 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 38.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_PM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2150 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2219 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2219 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 38.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_PM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1558 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1623 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1623 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_AM_Peak_I-10_EB_Highland_Springs_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1408 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1467 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1467 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_AM_Peak_I-10_WB_Sunset_Ave_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset Ave to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2103 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2170 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2170 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 36.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_PM_Peak_I-10_EB_Highland_Springs_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2168 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2238 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2238 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 38.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_PM_Peak_I-10_WB_Sunset_Ave_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset Ave to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1471 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1533 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1533 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2035_AM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1308 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1363 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1363 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2035_AM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2005 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2069 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2069 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2035_PM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7670 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2018 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2093 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2093 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2035_PM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1426 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1486 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1486 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2035_AM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1284 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1345 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1345 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2035_AM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2021 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2096 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2096 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2035_PM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1968 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2041 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2041 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2035_PM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5130 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1350 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1413 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1413 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_AM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1316 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1371 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1371 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_AM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2050 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2126 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2126 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_PM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2045 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2110 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2110 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_PM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1413 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1480 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1480 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2035_AM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4770 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1255 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1314 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1314 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2035_AM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2003 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2077 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2077 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2035_PM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2097 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2175 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2175 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 36.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2035_PM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1316 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1378 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1378 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2035_AM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1050 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1105 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1105 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2035_AM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7150 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1882 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1951 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1951 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2035_PM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1971 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2044 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2044 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2035_PM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4620 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1216 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1279 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1279 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2035_AM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1137 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1196 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1196 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2035_AM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7040 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1853 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1921 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1921 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2035_PM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7800 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2053 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2118 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2118 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2035_PM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5040 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1326 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1389 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1389 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2035_AM_Peak_I-10_EB_Main_to_Haugen-Lehmann_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1074 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1130 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1130 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2035_AM_Peak_I-10_WB_Haugen-Lehmann_Way_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann Way to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1861 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1929 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1929 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2035_PM_Peak_I-10_EB_Main_to_Haugen-Lehmann_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1982 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2045 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2045 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2035_PM_Peak_I-10_WB_Haugen-Lehmann_Way_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann Way to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1161 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1215 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1215 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2035_AM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3660 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 963 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1013 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1013 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2035_AM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1689 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1744 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1744 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2035_PM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1926 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1988 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1988 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2035_PM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1279 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1339 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1339 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2035_AM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3700 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 974 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1024 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1024 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2035_AM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1692 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1746 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1746 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2035_PM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1929 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1991 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1991 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2035_PM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4870 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1282 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1342 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1342 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2035_AM_Peak_I-215_NB_Scott_Rd_to_Barboni_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Barboni Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 882 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1201 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1201 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.2 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2035_AM_Peak_I-215_SB_Garboni_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Garboni Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5470 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1439 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1952 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1952 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2035_PM_Peak_I-215_NB_Scott_Rd_to_Barboni_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Barboni Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6010 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1582 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2145 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2145 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 36.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2035_PM_Peak_I-215_SB_Garboni_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Garboni Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4160 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1095 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1484 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1484 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2035_AM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2910 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 766 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1049 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1049 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 15.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2035_AM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5020 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1321 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1791 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1791 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2035_PM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1213 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1653 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1653 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2035_PM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1379 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1870 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1870 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2035_AM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3530 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 929 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1266 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1266 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2035_AM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1421 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1936 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1936 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2035_PM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5570 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1466 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1997 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1997 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2035_PM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4800 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1263 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1713 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1713 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2035_AM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1379 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1879 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1879 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2035_AM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1418 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1933 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1933 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2035_PM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5650 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1487 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2026 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2026 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2035_PM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6220 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1637 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2220 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2220 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 38.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2035_AM_Peak_I-215_NB_SR-74_to_Ellis_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Ellis Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1368 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1865 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1865 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2035_AM_Peak_I-215_SB_Ellis_Ave_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ellis Ave to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1887 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2571 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2571 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 53.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2035_PM_Peak_I-215_NB_SR-74_to_Ellis_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Ellis Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6760 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1779 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2424 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2424 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 46.1 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2035_PM_Peak_I-215_SB_Ellis_Ave_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ellis Ave to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1574 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2134 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2134 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2035_AM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1082 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1488 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1488 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2035_AM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1316 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1802 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1802 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2035_PM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 882 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1225 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1225 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2035_PM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 968 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1333 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1333 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2035_AM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4940 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1300 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1780 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1780 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2035_AM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1571 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2141 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2141 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2035_PM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1124 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1554 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1554 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2035_PM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4690 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1234 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1690 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1690 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2035_AM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1284 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1759 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1759 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2035_AM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1332 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1823 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1823 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2035_PM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1134 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1561 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1561 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2035_PM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 995 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1369 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1369 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2035_AM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1400 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1917 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1917 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2035_AM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1458 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1987 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1987 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2035_PM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4700 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1237 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1702 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1702 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2035_PM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1108 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1524 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1524 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2035_AM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1345 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1381 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1381 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2035_AM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1705 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1743 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1743 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2035_PM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1505 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1546 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1546 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2035_PM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1371 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1408 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1408 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2035_AM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1232 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1259 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1259 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2035_AM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5600 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1474 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1499 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1499 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2035_PM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1574 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1608 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1608 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2035_PM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1195 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1221 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1221 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2035_AM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 858 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1175 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1175 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2035_AM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6910 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1818 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2466 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2466 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 48.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2035_PM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4890 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1287 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1754 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1754 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2035_PM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5450 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1434 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1954 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1954 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-84_2035_AM_Peak_I-215_NB_Barboni_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barboni Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3150 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 829 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1130 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1130 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-84_2035_AM_Peak_I-215_SB_Newport_Rd_to_Garboni_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Garboni Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1303 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1766 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1766 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-84_2035_PM_Peak_I-215_NB_Barboni_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barboni Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1495 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2037 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2037 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-84_2035_PM_Peak_I-215_SB_Newport_Rd_to_Garboni_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Garboni Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4040 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1063 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1449 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1449 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-85_2035_AM_Peak_I-215_NB_Ellis_Ave_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ellis Ave to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4820 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1268 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1728 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1728 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-85_2035_AM_Peak_I-215_SB_Redlands_Blvd_to_Ellis_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to Ellis Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1726 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2352 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2352 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 43.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-85_2035_PM_Peak_I-215_NB_Ellis_Ave_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ellis Ave to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1632 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2223 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2223 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 38.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-85_2035_PM_Peak_I-215_SB_Redlands_Blvd_to_Ellis_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to Ellis Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1445 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1969 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1969 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2035_AM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6303 | 1777 | 237 | 313 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1659 | 468 | 62 | 82 | |
| Trucks and buses | 4 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6781 | 1930 | 252 | 333 | pc/h |

Volume ratio, VR 0.235

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2182 | lc/h |
| Weaving lane changes, LCW | 2817 | lc/h |
| Non-weaving vehicle index, INW | 1209 | |
| Non-weaving lane change, LCNW | 1424 | lc/h |
| Total lane changes, LCALL | 4241 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.465 | |
| Average weaving speed, SW | 52.5 | mi/h |
| Average non-weaving speed, SNW | 45.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 46.9 | mi/h |
| Weaving segment density, D | 39.7 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.909 | |
| Weaving segment flow rate, v | 9296 | pc/h |
| Weaving segment capacity, cW | 10005 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4894 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2155 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.909 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2035_AM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4010 | 400 | 1650 | 70 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1055 | 105 | 434 | 18 | |
| Trucks and buses | 4 | 3 | 8 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.983 | 0.960 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4314 | 428 | 1810 | 75 | pc/h |

Volume ratio, VR 0.338

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 428 | lc/h |
| Weaving lane changes, LCW | 1138 | lc/h |
| Non-weaving vehicle index, INW | 900 | |
| Non-weaving lane change, LCNW | 1052 | lc/h |
| Total lane changes, LCALL | 2190 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.238 | |
| Average weaving speed, SW | 59.4 | mi/h |
| Average non-weaving speed, SNW | 60.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.2 | mi/h |
| Weaving segment density, D | 22.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.639 | |
| Weaving segment flow rate, v | 6627 | pc/h |
| Weaving segment capacity, cW | 10141 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4426 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2218 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.639 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2035_PM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7251 | 1879 | 239 | 331 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1908 | 494 | 63 | 87 | |
| Trucks and buses | 5 | 7 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.964 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7839 | 2051 | 255 | 353 | pc/h |

Volume ratio, VR 0.220

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2306 | lc/h |
| Weaving lane changes, LCW | 2941 | lc/h |
| Non-weaving vehicle index, INW | 1393 | |
| Non-weaving lane change, LCNW | 1912 | lc/h |
| Total lane changes, LCALL | 4853 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.517 | |
| Average weaving speed, SW | 51.3 | mi/h |
| Average non-weaving speed, SNW | 43.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 44.8 | mi/h |
| Weaving segment density, D | 46.8 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.968 | |
| Weaving segment flow rate, v | 10498 | pc/h |
| Weaving segment capacity, cW | 10555 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4738 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2167 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.968 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2035_PM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4911 | 519 | 1989 | 91 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1292 | 137 | 523 | 24 | |
| Trucks and buses | 3 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5257 | 553 | 2150 | 97 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.335 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 553 | lc/h |
| Weaving lane changes, LCW | 1263 | lc/h |
| Non-weaving vehicle index, INW | 1098 | |
| Non-weaving lane change, LCNW | 1251 | lc/h |
| Total lane changes, LCALL | 2514 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.265 | |
| Average weaving speed, SW | 58.5 | mi/h |
| Average non-weaving speed, SNW | 58.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.3 | mi/h |
| Weaving segment density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.772 | |
| Weaving segment flow rate, v | 8057 | pc/h |
| Weaving segment capacity, cW | 10258 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4402 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2220 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.772 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2035_AM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5290 | 580 | 1010 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1392 | 153 | 266 | 8 | |
| Trucks and buses | 4 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5691 | 618 | 1087 | 32 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.230 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1705 | lc/h |
| Weaving lane changes, LCW | 2455 | lc/h |
| Non-weaving vehicle index, INW | 1288 | |
| Non-weaving lane change, LCNW | 1435 | lc/h |
| Total lane changes, LCALL | 3890 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.348 | |
| Average weaving speed, SW | 55.8 | mi/h |
| Average non-weaving speed, SNW | 50.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.7 | mi/h |
| Weaving segment density, D | 28.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.710 | |
| Weaving segment flow rate, v | 7428 | pc/h |
| Weaving segment capacity, cW | 10231 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4840 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2201 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.710 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2035_PM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6238 | 922 | 972 | 48 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1642 | 243 | 256 | 13 | |
| Trucks and buses | 4 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6711 | 982 | 1051 | 51 | pc/h |

Volume ratio, VR 0.231

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2033 | lc/h |
| Weaving lane changes, LCW | 2783 | lc/h |
| Non-weaving vehicle index, INW | 1521 | |
| Non-weaving lane change, LCNW | 2177 | lc/h |
| Total lane changes, LCALL | 4960 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.422 | |
| Average weaving speed, SW | 53.7 | mi/h |
| Average non-weaving speed, SNW | 46.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.3 | mi/h |
| Weaving segment density, D | 36.4 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.847 | |
| Weaving segment flow rate, v | 8795 | pc/h |
| Weaving segment capacity, cW | 10159 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4857 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2201 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.847 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2035_AM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5878 | 502 | 592 | 88 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1547 | 132 | 156 | 23 | |
| Trucks and buses | 4 | 4 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6323 | 540 | 640 | 94 | pc/h |

Volume ratio, VR 0.155

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 640 | lc/h |
| Weaving lane changes, LCW | 857 | lc/h |
| Non-weaving vehicle index, INW | 449 | |
| Non-weaving lane change, LCNW | 931 | lc/h |
| Total lane changes, LCALL | 1788 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.474 | |
| Average weaving speed, SW | 52.3 | mi/h |
| Average non-weaving speed, SNW | 56.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.6 | mi/h |
| Weaving segment density, D | 34.1 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.887 | |
| Weaving segment flow rate, v | 7597 | pc/h |
| Weaving segment capacity, cW | 8380 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4085 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2141 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.887 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2035_PM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6031 | 289 | 739 | 51 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1587 | 76 | 194 | 13 | |
| Trucks and buses | 4 | 6 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.969 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6488 | 314 | 795 | 54 | pc/h |

Volume ratio, VR 0.145

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 795 | lc/h |
| Weaving lane changes, LCW | 1012 | lc/h |
| Non-weaving vehicle index, INW | 458 | |
| Non-weaving lane change, LCNW | 957 | lc/h |
| Total lane changes, LCALL | 1969 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.511 | |
| Average weaving speed, SW | 51.4 | mi/h |
| Average non-weaving speed, SNW | 55.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.5 | mi/h |
| Weaving segment density, D | 35.1 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.890 | |
| Weaving segment flow rate, v | 7651 | pc/h |
| Weaving segment capacity, cW | 8411 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3981 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2149 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.890 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_AM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4839 | 1921 | 181 | 339 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1273 | 506 | 48 | 89 | |
| Trucks and buses | 5 | 5 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.974 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5231 | 2077 | 194 | 361 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.289 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2077 | lc/h |
| Weaving lane changes, LCW | 2600 | lc/h |
| Non-weaving vehicle index, INW | 699 | |
| Non-weaving lane change, LCNW | 866 | lc/h |
| Total lane changes, LCALL | 3466 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.505 | |
| Average weaving speed, SW | 51.5 | mi/h |
| Average non-weaving speed, SNW | 47.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.6 | mi/h |
| Weaving segment density, D | 32.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.716 | |
| Weaving segment flow rate, v | 7863 | pc/h |
| Weaving segment capacity, cW | 10696 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3898 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2197 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.716 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_AM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6103 | 757 | 1497 | 133 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1606 | 199 | 394 | 35 | |
| Trucks and buses | 7 | 3 | 9 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.983 | 0.955 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6662 | 810 | 1650 | 142 | pc/h |

Volume ratio, VR 0.266

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 810 | lc/h |
| Weaving lane changes, LCW | 1305 | lc/h |
| Non-weaving vehicle index, INW | 782 | |
| Non-weaving lane change, LCNW | 1062 | lc/h |
| Total lane changes, LCALL | 2367 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.399 | |
| Average weaving speed, SW | 54.3 | mi/h |
| Average non-weaving speed, SNW | 55.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.0 | mi/h |
| Weaving segment density, D | 33.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.839 | |
| Weaving segment flow rate, v | 9264 | pc/h |
| Weaving segment capacity, cW | 10651 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3651 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2208 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.839 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_PM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 8478 | 1692 | 172 | 298 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2231 | 445 | 45 | 78 | |
| Trucks and buses | 5 | 6 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.969 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 9165 | 1838 | 184 | 317 | pc/h |

Volume ratio, VR 0.176

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | | lc/h |
| Weaving lane changes, LCW | | lc/h |
| Non-weaving vehicle index, INW | | |
| Non-weaving lane change, LCNW | | lc/h |
| Total lane changes, LCALL | | lc/h |

## Weaving and Non-Weaving Speeds

| | |
|---|---|
| Weaving intensity factor, W | |
| Average weaving speed, SW | mi/h |
| Average non-weaving speed, SNW | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | | mi/h |
| Weaving segment density, D | | pc/mi/ln |
| Level of service, LOS | F | |
| Weaving segment v/c ratio | 1.006 | |
| Weaving segment flow rate, v | 11504 | pc/h |
| Weaving segment capacity, cW | 11134 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2724 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2287 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 1.006 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_PM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7726 | 884 | 1204 | 156 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2033 | 233 | 317 | 41 | |
| Trucks and buses | 5 | 3 | 9 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.955 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8352 | 946 | 1327 | 166 | pc/h |

Volume ratio, VR 0.211

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 946 | lc/h |
| Weaving lane changes, LCW | 1441 | lc/h |
| Non-weaving vehicle index, INW | 980 | |
| Non-weaving lane change, LCNW | 1415 | lc/h |
| Total lane changes, LCALL | 2856 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.463 | |
| Average weaving speed, SW | 52.6 | mi/h |
| Average non-weaving speed, SNW | 52.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.8 | mi/h |
| Weaving segment density, D | 40.9 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.958 | |
| Weaving segment flow rate, v | 10791 | pc/h |
| Weaving segment capacity, cW | 10964 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3079 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2252 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.958 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_AM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6348 | 342 | 412 | 18 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1671 | 90 | 108 | 5 | |
| Trucks and buses | 5 | 4 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | 0.935 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7250 | 385 | 458 | 20 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.104 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 843 | lc/h |
| Weaving lane changes, LCW | 1455 | lc/h |
| Non-weaving vehicle index, INW | 1163 | |
| Non-weaving lane change, LCNW | 1402 | lc/h |
| Total lane changes, LCALL | 2857 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.357 | |
| Average weaving speed, SW | 55.5 | mi/h |
| Average non-weaving speed, SNW | 56.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.1 | mi/h |
| Weaving segment density, D | 28.9 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.721 | |
| Weaving segment flow rate, v | 8113 | pc/h |
| Weaving segment capacity, cW | 10364 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3578 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2249 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.721 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_AM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5686 | 114 | 514 | 6 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1496 | 30 | 135 | 2 | |
| Trucks and buses | 8 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | 0.962 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6763 | 125 | 571 | 7 | pc/h |

Volume ratio, VR 0.093

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 125 | lc/h |
| Weaving lane changes, LCW | 688 | lc/h |
| Non-weaving vehicle index, INW | 948 | |
| Non-weaving lane change, LCNW | 1190 | lc/h |
| Total lane changes, LCALL | 1878 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.285 | |
| Average weaving speed, SW | 57.8 | mi/h |
| Average non-weaving speed, SNW | 61.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.5 | mi/h |
| Weaving segment density, D | 24.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.632 | |
| Weaving segment flow rate, v | 7466 | pc/h |
| Weaving segment capacity, cW | 10447 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 1908 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2361 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.632 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_PM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7030 | 950 | 430 | 50 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1850 | 250 | 113 | 13 | |
| Trucks and buses | 6 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | 0.962 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8140 | 1040 | 478 | 55 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.156 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1518 | lc/h |
| Weaving lane changes, LCW | 2130 | lc/h |
| Non-weaving vehicle index, INW | 1311 | |
| Non-weaving lane change, LCNW | 1626 | lc/h |
| Total lane changes, LCALL | 3756 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.443 | |
| Average weaving speed, SW | 53.1 | mi/h |
| Average non-weaving speed, SNW | 49.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.2 | mi/h |
| Weaving segment density, D | 38.7 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.879 | |
| Weaving segment flow rate, v | 9713 | pc/h |
| Weaving segment capacity, cW | 10041 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4094 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2209 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.879 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_PM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7873 | 437 | 557 | 23 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2072 | 115 | 147 | 6 | |
| Trucks and buses | 5 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | 0.962 | 0.909 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8992 | 478 | 645 | 25 | pc/h |

Volume ratio, VR 0.111

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 478 | lc/h |
| Weaving lane changes, LCW | 1041 | lc/h |
| Non-weaving vehicle index, INW | 1262 | |
| Non-weaving lane change, LCNW | 1653 | lc/h |
| Total lane changes, LCALL | 2694 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.379 | |
| Average weaving speed, SW | 54.9 | mi/h |
| Average non-weaving speed, SNW | 56.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.6 | mi/h |
| Weaving segment density, D | 35.8 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.864 | |
| Weaving segment flow rate, v | 10140 | pc/h |
| Weaving segment capacity, cW | 10820 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2078 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2348 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.864 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2035_AM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6830 | 580 | 520 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1797 | 153 | 137 | 8 | |
| Trucks and buses | 5 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7384 | 624 | 554 | 32 | pc/h |

Volume ratio, VR 0.137

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 554 | lc/h |
| Weaving lane changes, LCW | 1034 | lc/h |
| Non-weaving vehicle index, INW | 816 | |
| Non-weaving lane change, LCNW | 1161 | lc/h |
| Total lane changes, LCALL | 2195 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.390 | |
| Average weaving speed, SW | 54.6 | mi/h |
| Average non-weaving speed, SNW | 57.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.3 | mi/h |
| Weaving segment density, D | 30.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.786 | |
| Weaving segment flow rate, v | 8594 | pc/h |
| Weaving segment capacity, cW | 10643 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3903 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2186 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.786 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2035_AM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5264 | 836 | 606 | 44 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1385 | 220 | 159 | 12 | |
| Trucks and buses | 7 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5746 | 891 | 649 | 47 | pc/h |

Volume ratio, VR 0.210

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1540 | lc/h |
| Weaving lane changes, LCW | 2020 | lc/h |
| Non-weaving vehicle index, INW | 637 | |
| Non-weaving lane change, LCNW | 827 | lc/h |
| Total lane changes, LCALL | 2847 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.479 | |
| Average weaving speed, SW | 52.2 | mi/h |
| Average non-weaving speed, SNW | 51.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.9 | mi/h |
| Weaving segment density, D | 28.2 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.689 | |
| Weaving segment flow rate, v | 7333 | pc/h |
| Weaving segment capacity, cW | 10265 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4639 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2129 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.689 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2035_PM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5546 | 884 | 564 | 46 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1459 | 233 | 148 | 12 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6025 | 942 | 601 | 49 | pc/h |

Volume ratio, VR 0.203

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 601 | lc/h |
| Weaving lane changes, LCW | 1081 | lc/h |
| Non-weaving vehicle index, INW | 668 | |
| Non-weaving lane change, LCNW | 884 | lc/h |
| Total lane changes, LCALL | 1965 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.357 | |
| Average weaving speed, SW | 55.5 | mi/h |
| Average non-weaving speed, SNW | 58.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.8 | mi/h |
| Weaving segment density, D | 26.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.714 | |
| Weaving segment flow rate, v | 7617 | pc/h |
| Weaving segment capacity, cW | 10344 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4563 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2135 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.714 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2035_PM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7605 | 475 | 725 | 25 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2001 | 125 | 191 | 7 | |
| Trucks and buses | 5 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8221 | 506 | 776 | 27 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.135 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1282 | lc/h |
| Weaving lane changes, LCW | 1762 | lc/h |
| Non-weaving vehicle index, INW | 907 | |
| Non-weaving lane change, LCNW | 1332 | lc/h |
| Total lane changes, LCALL | 3094 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.511 | |
| Average weaving speed, SW | 51.4 | mi/h |
| Average non-weaving speed, SNW | 51.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.6 | mi/h |
| Weaving segment density, D | 36.9 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.871 | |
| Weaving segment flow rate, v | 9530 | pc/h |
| Weaving segment capacity, cW | 10648 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3878 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2187 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.871 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_AM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5941 | 1159 | 729 | 61 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1563 | 305 | 192 | 16 | |
| Trucks and buses | 4 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | 0.935 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6691 | 1305 | 798 | 67 | pc/h |

Volume ratio, VR 0.237

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2103 | lc/h |
| Weaving lane changes, LCW | 2862 | lc/h |
| Non-weaving vehicle index, INW | 1554 | |
| Non-weaving lane change, LCNW | 2271 | lc/h |
| Total lane changes, LCALL | 5133 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.426 | |
| Average weaving speed, SW | 53.6 | mi/h |
| Average non-weaving speed, SNW | 46.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 47.9 | mi/h |
| Weaving segment density, D | 37.0 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.876 | |
| Weaving segment flow rate, v | 8861 | pc/h |
| Weaving segment capacity, cW | 9451 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4921 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2200 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.876 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_AM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6539 | 1321 | 411 | 69 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1721 | 348 | 108 | 18 | |
| Trucks and buses | 7 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | 0.948 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7675 | 1467 | 450 | 76 | pc/h |

Volume ratio, VR 0.198

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1467 | lc/h |
| Weaving lane changes, LCW | 2146 | lc/h |
| Non-weaving vehicle index, INW | 1473 | |
| Non-weaving lane change, LCNW | 2129 | lc/h |
| Total lane changes, LCALL | 4275 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.429 | |
| Average weaving speed, SW | 53.5 | mi/h |
| Average non-weaving speed, SNW | 50.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.8 | mi/h |
| Weaving segment density, D | 38.1 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.834 | |
| Weaving segment flow rate, v | 9668 | pc/h |
| Weaving segment capacity, cW | 10399 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2953 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2320 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.834 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_PM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7058 | 922 | 612 | 48 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1857 | 243 | 161 | 13 | |
| Trucks and buses | 5 | 5 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | 0.922 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8061 | 1053 | 689 | 53 | pc/h |

Volume ratio, VR 0.177

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1742 | lc/h |
| Weaving lane changes, LCW | 2501 | lc/h |
| Non-weaving vehicle index, INW | 1866 | |
| Non-weaving lane change, LCNW | 3299 | lc/h |
| Total lane changes, LCALL | 5800 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.469 | |
| Average weaving speed, SW | 52.4 | mi/h |
| Average non-weaving speed, SNW | 48.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.7 | mi/h |
| Weaving segment density, D | 40.5 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.877 | |
| Weaving segment flow rate, v | 9856 | pc/h |
| Weaving segment capacity, cW | 10355 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4300 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2247 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.877 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_PM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7814 | 846 | 496 | 44 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2056 | 223 | 131 | 12 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8924 | 926 | 543 | 48 | pc/h |

Volume ratio, VR 0.141

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 926 | lc/h |
| Weaving lane changes, LCW | 1605 | lc/h |
| Non-weaving vehicle index, INW | 1705 | |
| Non-weaving lane change, LCNW | 3020 | lc/h |
| Total lane changes, LCALL | 4625 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.456 | |
| Average weaving speed, SW | 52.8 | mi/h |
| Average non-weaving speed, SNW | 53.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.2 | mi/h |
| Weaving segment density, D | 39.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.883 | |
| Weaving segment flow rate, v | 10441 | pc/h |
| Weaving segment capacity, cW | 10894 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2373 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2364 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.883 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2035_AM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2505 | 825 | 505 | 145 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 659 | 217 | 133 | 38 | |
| Trucks and buses | 5 | 16 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.922 | 0.800 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2861 | 1086 | 553 | 159 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.352 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1086 | lc/h |
| Weaving lane changes, LCW | 1595 | lc/h |
| Non-weaving vehicle index, INW | 362 | |
| Non-weaving lane change, LCNW | 310 | lc/h |
| Total lane changes, LCALL | 1905 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.325 | |
| Average weaving speed, SW | 56.5 | mi/h |
| Average non-weaving speed, SNW | 57.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.3 | mi/h |
| Weaving segment density, D | 16.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.468 | |
| Weaving segment flow rate, v | 4659 | pc/h |
| Weaving segment capacity, cW | 9170 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4580 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2141 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.468 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2035_PM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4147 | 1343 | 483 | 237 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1091 | 353 | 127 | 62 | |
| Trucks and buses | 4 | 12 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.935 | 0.840 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4671 | 1682 | 529 | 259 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.310 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1682 | lc/h |
| Weaving lane changes, LCW | 2191 | lc/h |
| Non-weaving vehicle index, INW | 592 | |
| Non-weaving lane change, LCNW | 703 | lc/h |
| Total lane changes, LCALL | 2894 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.453 | |
| Average weaving speed, SW | 52.9 | mi/h |
| Average non-weaving speed, SNW | 51.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.6 | mi/h |
| Weaving segment density, D | 27.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.656 | |
| Weaving segment flow rate, v | 7141 | pc/h |
| Weaving segment capacity, cW | 10173 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4121 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2176 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.656 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2035_AM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2372 | 238 | 1138 | 12 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 624 | 63 | 299 | 3 | |
| Trucks and buses | 5 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2564 | 254 | 1218 | 13 | pc/h |

Volume ratio, VR 0.364

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 254 | lc/h |
| Weaving lane changes, LCW | 598 | lc/h |
| Non-weaving vehicle index, INW | 335 | |
| Non-weaving lane change, LCNW | 465 | lc/h |
| Total lane changes, LCALL | 1063 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.193 | |
| Average weaving speed, SW | 61.1 | mi/h |
| Average non-weaving speed, SNW | 63.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.5 | mi/h |
| Weaving segment density, D | 16.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.473 | |
| Weaving segment flow rate, v | 4049 | pc/h |
| Weaving segment capacity, cW | 8331 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4710 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2139 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.473 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2035_AM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/25/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3029 | 751 | 971 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 797 | 198 | 256 | 10 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3275 | 800 | 1034 | 42 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.356 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1834 | lc/h |
| Weaving lane changes, LCW | 2114 | lc/h |
| Non-weaving vehicle index, INW | 796 | |
| Non-weaving lane change, LCNW | 1406 | lc/h |
| Total lane changes, LCALL | 3520 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.306 | |
| Average weaving speed, SW | 57.1 | mi/h |
| Average non-weaving speed, SNW | 48.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.3 | mi/h |
| Weaving segment density, D | 33.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.814 | |
| Weaving segment flow rate, v | 5151 | pc/h |
| Weaving segment capacity, cW | 6164 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6193 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2110 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.814 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2035_PM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3248 | 722 | 1652 | 38 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 855 | 190 | 435 | 10 | |
| Trucks and buses | 4 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3494 | 769 | 1769 | 40 | pc/h |

Volume ratio, VR 0.418

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 769 | lc/h |
| Weaving lane changes, LCW | 1113 | lc/h |
| Non-weaving vehicle index, INW | 459 | |
| Non-weaving lane change, LCNW | 662 | lc/h |
| Total lane changes, LCALL | 1775 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.289 | |
| Average weaving speed, SW | 57.7 | mi/h |
| Average non-weaving speed, SNW | 57.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.4 | mi/h |
| Weaving segment density, D | 26.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.725 | |
| Weaving segment flow rate, v | 6072 | pc/h |
| Weaving segment capacity, cW | 8192 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5318 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2093 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.725 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2035_PM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/25/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3410 | 580 | 770 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 897 | 153 | 203 | 8 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3686 | 618 | 820 | 32 | pc/h |

Volume ratio, VR 0.279

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1438 | lc/h |
| Weaving lane changes, LCW | 1718 | lc/h |
| Non-weaving vehicle index, INW | 892 | |
| Non-weaving lane change, LCNW | 1489 | lc/h |
| Total lane changes, LCALL | 3207 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.284 | |
| Average weaving speed, SW | 57.8 | mi/h |
| Average non-weaving speed, SNW | 51.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.0 | mi/h |
| Weaving segment density, D | 32.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.790 | |
| Weaving segment flow rate, v | 5156 | pc/h |
| Weaving segment capacity, cW | 6351 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5359 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2174 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.790 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2035_AM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Nason St to Moreno Beach Dr |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1477 | 333 | 813 | 17 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 389 | 88 | 214 | 4 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 1597 | 355 | 866 | 18 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.431 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1221 | lc/h |
| Weaving lane changes, LCW | 1450 | lc/h |
| Non-weaving vehicle index, INW | 275 | |
| Non-weaving lane change, LCNW | 676 | lc/h |
| Total lane changes, LCALL | 2126 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.270 | |
| Average weaving speed, SW | 58.3 | mi/h |
| Average non-weaving speed, SNW | 56.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.4 | mi/h |
| Weaving segment density, D | 16.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.509 | |
| Weaving segment flow rate, v | 2836 | pc/h |
| Weaving segment capacity, cW | 5428 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 7026 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1992 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.509 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2035_AM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2430 | 580 | 270 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 639 | 153 | 71 | 8 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2627 | 618 | 288 | 32 | pc/h |

Volume ratio, VR 0.254

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 906 | lc/h |
| Weaving lane changes, LCW | 1135 | lc/h |
| Non-weaving vehicle index, INW | 452 | |
| Non-weaving lane change, LCNW | 891 | lc/h |
| Total lane changes, LCALL | 2026 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.260 | |
| Average weaving speed, SW | 58.7 | mi/h |
| Average non-weaving speed, SNW | 57.8 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.0 | mi/h |
| Weaving segment density, D | 20.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.555 | |
| Weaving segment flow rate, v | 3565 | pc/h |
| Weaving segment capacity, cW | 6251 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5097 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2140 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.555 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2035_PM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Nason St to Moreno Beach Dr |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2100 | 380 | 980 | 20 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 553 | 100 | 258 | 5 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2259 | 405 | 1044 | 21 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.389 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1449 | lc/h |
| Weaving lane changes, LCW | 1678 | lc/h |
| Non-weaving vehicle index, INW | 388 | |
| Non-weaving lane change, LCNW | 813 | lc/h |
| Total lane changes, LCALL | 2491 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.306 | |
| Average weaving speed, SW | 57.1 | mi/h |
| Average non-weaving speed, SNW | 53.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.9 | mi/h |
| Weaving segment density, D | 22.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.613 | |
| Weaving segment flow rate, v | 3729 | pc/h |
| Weaving segment capacity, cW | 5956 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6553 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2028 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.613 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2035_PM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1885 | 475 | 295 | 25 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 496 | 125 | 78 | 7 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2048 | 506 | 314 | 27 | pc/h |

Volume ratio, VR 0.283

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 820 | lc/h |
| Weaving lane changes, LCW | 1049 | lc/h |
| Non-weaving vehicle index, INW | 353 | |
| Non-weaving lane change, LCNW | 771 | lc/h |
| Total lane changes, LCALL | 1820 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.238 | |
| Average weaving speed, SW | 59.4 | mi/h |
| Average non-weaving speed, SNW | 59.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.4 | mi/h |
| Weaving segment density, D | 16.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.456 | |
| Weaving segment flow rate, v | 2895 | pc/h |
| Weaving segment capacity, cW | 6154 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5405 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2117 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.456 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2035_AM_Peak_SR_60_EB_Gilman_Springs_to_Theodore.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Gilman Springs to Theodore |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2656 | 1264 | 574 | 66 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 699 | 333 | 151 | 17 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2843 | 1346 | 611 | 70 | pc/h |

Volume ratio, VR 0.402

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1957 | lc/h |
| Weaving lane changes, LCW | 2186 | lc/h |
| Non-weaving vehicle index, INW | 495 | |
| Non-weaving lane change, LCNW | 944 | lc/h |
| Total lane changes, LCALL | 3130 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.366 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 48.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.8 | mi/h |
| Weaving segment density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.815 | |
| Weaving segment flow rate, v | 4870 | pc/h |
| Weaving segment capacity, cW | 5873 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6702 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2017 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.815 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2035_AM_Peak_SR_60_EB_Theodore_to_Gilman_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Theodore to Gilman Springs |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2000 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2087 | 143 | 833 | 7 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 549 | 38 | 219 | 2 | |
| Trucks and buses | 5 | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.974 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2256 | 155 | 887 | 7 | pc/h |

Volume ratio, VR 0.315

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 155 | lc/h |
| Weaving lane changes, LCW | 407 | lc/h |
| Non-weaving vehicle index, INW | 453 | |
| Non-weaving lane change, LCNW | 972 | lc/h |
| Total lane changes, LCALL | 1379 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.169 | |
| Average weaving speed, SW | 62.1 | mi/h |
| Average non-weaving speed, SNW | 63.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.1 | mi/h |
| Weaving segment density, D | 17.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.493 | |
| Weaving segment flow rate, v | 3305 | pc/h |
| Weaving segment capacity, cW | 6523 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4182 | 2000 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2233 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.493 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2035_PM_Peak_SR_60_EB_Gilman_Springs_to_Theodore.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Gilman Springs to Theodore |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2217 | 1083 | 323 | 57 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 583 | 285 | 85 | 15 | |
| Trucks and buses | 4 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2385 | 1154 | 346 | 61 | pc/h |

Volume ratio, VR 0.380

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1500 | lc/h |
| Weaving lane changes, LCW | 1729 | lc/h |
| Non-weaving vehicle index, INW | 416 | |
| Non-weaving lane change, LCNW | 847 | lc/h |
| Total lane changes, LCALL | 2576 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.314 | |
| Average weaving speed, SW | 56.9 | mi/h |
| Average non-weaving speed, SNW | 52.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.3 | mi/h |
| Weaving segment density, D | 24.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.646 | |
| Weaving segment flow rate, v | 3946 | pc/h |
| Weaving segment capacity, cW | 5977 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6459 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2036 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.646 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2035_PM_Peak_SR_60_EB_Theodore_to_Gilman_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Theodore to Gilman Springs |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2000 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2857 | 1283 | 1503 | 67 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 752 | 338 | 396 | 18 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3058 | 1367 | 1601 | 71 | pc/h |

Volume ratio, VR 0.487

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1367 | lc/h |
| Weaving lane changes, LCW | 1619 | lc/h |
| Non-weaving vehicle index, INW | 626 | |
| Non-weaving lane change, LCNW | 1151 | lc/h |
| Total lane changes, LCALL | 2770 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.292 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 50.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.7 | mi/h |
| Weaving segment density, D | 37.9 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.974 | |
| Weaving segment flow rate, v | 6097 | pc/h |
| Weaving segment capacity, cW | 6153 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6107 | 2000 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2086 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.974 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2035_AM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5409 | 751 | 771 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1423 | 198 | 203 | 10 | |
| Trucks and buses | 4 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5819 | 800 | 825 | 42 | pc/h |

Volume ratio, VR 0.217

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 800 | lc/h |
| Weaving lane changes, LCW | 1207 | lc/h |
| Non-weaving vehicle index, INW | 996 | |
| Non-weaving lane change, LCNW | 1358 | lc/h |
| Total lane changes, LCALL | 2565 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.313 | |
| Average weaving speed, SW | 56.9 | mi/h |
| Average non-weaving speed, SNW | 55.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.6 | mi/h |
| Weaving segment density, D | 33.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.818 | |
| Weaving segment flow rate, v | 7486 | pc/h |
| Weaving segment capacity, cW | 8959 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3145 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2289 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.818 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2035_PM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5117 | 903 | 863 | 47 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1347 | 238 | 227 | 12 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5559 | 962 | 919 | 50 | pc/h |

Volume ratio, VR 0.251

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 962 | lc/h |
| Weaving lane changes, LCW | 1369 | lc/h |
| Non-weaving vehicle index, INW | 954 | |
| Non-weaving lane change, LCNW | 1306 | lc/h |
| Total lane changes, LCALL | 2675 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.323 | |
| Average weaving speed, SW | 56.6 | mi/h |
| Average non-weaving speed, SNW | 54.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.7 | mi/h |
| Weaving segment density, D | 34.2 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.828 | |
| Weaving segment flow rate, v | 7490 | pc/h |
| Weaving segment capacity, cW | 8767 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3500 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2262 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.828 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2035_AM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6353 | 437 | 807 | 23 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1672 | 115 | 212 | 6 | |
| Trucks and buses | 7 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6935 | 466 | 860 | 25 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.160 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1326 | lc/h |
| Weaving lane changes, LCW | 1588 | lc/h |
| Non-weaving vehicle index, INW | 612 | |
| Non-weaving lane change, LCNW | 1140 | lc/h |
| Total lane changes, LCALL | 2728 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.552 | |
| Average weaving speed, SW | 50.4 | mi/h |
| Average non-weaving speed, SNW | 50.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.5 | mi/h |
| Weaving segment density, D | 41.0 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.963 | |
| Weaving segment flow rate, v | 8286 | pc/h |
| Weaving segment capacity, cW | 8297 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4132 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2151 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.963 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2035_AM_Peak_SR_91_WB_Central_Ave_to_Arlington_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4275 | 285 | 585 | 15 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1125 | 75 | 154 | 4 | |
| Trucks and buses | 7 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4667 | 304 | 623 | 16 | pc/h |

Volume ratio, VR 0.165

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 927 | lc/h |
| Weaving lane changes, LCW | 1227 | lc/h |
| Non-weaving vehicle index, INW | 496 | |
| Non-weaving lane change, LCNW | 769 | lc/h |
| Total lane changes, LCALL | 1996 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.372 | |
| Average weaving speed, SW | 55.1 | mi/h |
| Average non-weaving speed, SNW | 56.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.3 | mi/h |
| Weaving segment density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.649 | |
| Weaving segment flow rate, v | 5610 | pc/h |
| Weaving segment capacity, cW | 8336 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4184 | 1060 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2161 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.649 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2035_PM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3344 | 276 | 736 | 14 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 880 | 73 | 194 | 4 | |
| Trucks and buses | 8 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3668 | 294 | 788 | 15 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.227 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1082 | lc/h |
| Weaving lane changes, LCW | 1344 | lc/h |
| Non-weaving vehicle index, INW | 324 | |
| Non-weaving lane change, LCNW | 465 | lc/h |
| Total lane changes, LCALL | 1809 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.399 | |
| Average weaving speed, SW | 54.3 | mi/h |
| Average non-weaving speed, SNW | 56.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.0 | mi/h |
| Weaving segment density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.568 | |
| Weaving segment flow rate, v | 4765 | pc/h |
| Weaving segment capacity, cW | 8058 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4815 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2099 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.568 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2035_PM_Peak_SR_91_WB_Central_Ave_to_Arlington_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4983 | 247 | 517 | 13 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1311 | 65 | 136 | 3 | |
| Trucks and buses | 4 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5361 | 263 | 553 | 14 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.132 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 816 | lc/h |
| Weaving lane changes, LCW | 1116 | lc/h |
| Non-weaving vehicle index, INW | 570 | |
| Non-weaving lane change, LCNW | 911 | lc/h |
| Total lane changes, LCALL | 2027 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.377 | |
| Average weaving speed, SW | 54.9 | mi/h |
| Average non-weaving speed, SNW | 56.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.5 | mi/h |
| Weaving segment density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.708 | |
| Weaving segment flow rate, v | 6191 | pc/h |
| Weaving segment capacity, cW | 8556 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3851 | 1060 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2186 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.708 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2035_AM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4225 | 295 | 775 | 15 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1112 | 78 | 204 | 4 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4545 | 314 | 826 | 16 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.200 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1140 | lc/h |
| Weaving lane changes, LCW | 1322 | lc/h |
| Non-weaving vehicle index, INW | 265 | |
| Non-weaving lane change, LCNW | 484 | lc/h |
| Total lane changes, LCALL | 1806 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.554 | |
| Average weaving speed, SW | 50.4 | mi/h |
| Average non-weaving speed, SNW | 55.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.0 | mi/h |
| Weaving segment density, D | 26.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.680 | |
| Weaving segment flow rate, v | 5701 | pc/h |
| Weaving segment capacity, cW | 8207 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4536 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2097 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.680 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2035_AM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5109 | 181 | 771 | 9 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1344 | 48 | 203 | 2 | |
| Trucks and buses | 6 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5550 | 194 | 821 | 10 | pc/h |

Volume ratio, VR 0.154

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1015 | lc/h |
| Weaving lane changes, LCW | 1309 | lc/h |
| Non-weaving vehicle index, INW | 334 | |
| Non-weaving lane change, LCNW | 508 | lc/h |
| Total lane changes, LCALL | 1817 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.542 | |
| Average weaving speed, SW | 50.7 | mi/h |
| Average non-weaving speed, SNW | 56.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.4 | mi/h |
| Weaving segment density, D | 23.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.616 | |
| Weaving segment flow rate, v | 6575 | pc/h |
| Weaving segment capacity, cW | 10339 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4075 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2134 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.616 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2035_PM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3702 | 428 | 908 | 22 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 974 | 113 | 239 | 6 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4002 | 456 | 967 | 23 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.261 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1423 | lc/h |
| Weaving lane changes, LCW | 1605 | lc/h |
| Non-weaving vehicle index, INW | 233 | |
| Non-weaving lane change, LCNW | 373 | lc/h |
| Total lane changes, LCALL | 1978 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.595 | |
| Average weaving speed, SW | 49.5 | mi/h |
| Average non-weaving speed, SNW | 53.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.2 | mi/h |
| Weaving segment density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.665 | |
| Weaving segment flow rate, v | 5448 | pc/h |
| Weaving segment capacity, cW | 7981 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5171 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2049 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.665 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2035_PM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6834 | 456 | 696 | 24 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1798 | 120 | 183 | 6 | |
| Trucks and buses | 4 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7352 | 486 | 741 | 26 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.143 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1227 | lc/h |
| Weaving lane changes, LCW | 1521 | lc/h |
| Non-weaving vehicle index, INW | 443 | |
| Non-weaving lane change, LCNW | 882 | lc/h |
| Total lane changes, LCALL | 2403 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.675 | |
| Average weaving speed, SW | 47.8 | mi/h |
| Average non-weaving speed, SNW | 52.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.1 | mi/h |
| Weaving segment density, D | 33.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.803 | |
| Weaving segment flow rate, v | 8605 | pc/h |
| Weaving segment capacity, cW | 10484 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3958 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2143 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.803 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2035_AM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3011 | 1386 | 776 | 244 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 792 | 365 | 204 | 64 | |
| Trucks and buses | 6 | 9 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.955 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3271 | 1528 | 827 | 260 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.400 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 827 | lc/h |
| Weaving lane changes, LCW | 1183 | lc/h |
| Non-weaving vehicle index, INW | 261 | |
| Non-weaving lane change, LCNW | 165 | lc/h |
| Total lane changes, LCALL | 1348 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.363 | |
| Average weaving speed, SW | 55.4 | mi/h |
| Average non-weaving speed, SNW | 58.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.1 | mi/h |
| Weaving segment density, D | 20.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.673 | |
| Weaving segment flow rate, v | 5886 | pc/h |
| Weaving segment capacity, cW | 8477 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5116 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2065 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.673 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2035_PM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6506 | 1156 | 576 | 204 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1712 | 304 | 152 | 54 | |
| Trucks and buses | 3 | 9 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.955 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6965 | 1274 | 614 | 217 | pc/h |

Volume ratio, VR 0.208

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 614 | lc/h |
| Weaving lane changes, LCW | 970 | lc/h |
| Non-weaving vehicle index, INW | 531 | |
| Non-weaving lane change, LCNW | 918 | lc/h |
| Total lane changes, LCALL | 1888 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.473 | |
| Average weaving speed, SW | 52.3 | mi/h |
| Average non-weaving speed, SNW | 56.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.9 | mi/h |
| Weaving segment density, D | 32.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.816 | |
| Weaving segment flow rate, v | 9070 | pc/h |
| Weaving segment capacity, cW | 10929 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3054 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2223 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.816 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2035_AM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2951 | 119 | 1079 | 21 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 777 | 31 | 284 | 6 | |
| Trucks and buses | 10 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3268 | 127 | 1172 | 22 | pc/h |

Volume ratio, VR 0.283

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 127 | lc/h |
| Weaving lane changes, LCW | 703 | lc/h |
| Non-weaving vehicle index, INW | 477 | |
| Non-weaving lane change, LCNW | 501 | lc/h |
| Total lane changes, LCALL | 1204 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.195 | |
| Average weaving speed, SW | 61.0 | mi/h |
| Average non-weaving speed, SNW | 64.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.6 | mi/h |
| Weaving segment density, D | 14.4 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.414 | |
| Weaving segment flow rate, v | 4589 | pc/h |
| Weaving segment capacity, cW | 10537 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3837 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2217 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.414 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2035_AM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6291 | 779 | 159 | 41 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1656 | 205 | 42 | 11 | |
| Trucks and buses | 7 | 9 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.955 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6867 | 859 | 169 | 44 | pc/h |

Volume ratio, VR 0.129

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1028 | lc/h |
| Weaving lane changes, LCW | 1508 | lc/h |
| Non-weaving vehicle index, INW | 760 | |
| Non-weaving lane change, LCNW | 1057 | lc/h |
| Total lane changes, LCALL | 2565 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.441 | |
| Average weaving speed, SW | 53.2 | mi/h |
| Average non-weaving speed, SNW | 55.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.7 | mi/h |
| Weaving segment density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.725 | |
| Weaving segment flow rate, v | 7939 | pc/h |
| Weaving segment capacity, cW | 10564 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3828 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2192 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.725 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2035_PM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6285 | 765 | 1235 | 135 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1654 | 201 | 325 | 36 | |
| Trucks and buses | 6 | 5 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.974 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6827 | 827 | 1342 | 144 | pc/h |

Volume ratio, VR 0.237

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 827 | lc/h |
| Weaving lane changes, LCW | 1403 | lc/h |
| Non-weaving vehicle index, INW | 1011 | |
| Non-weaving lane change, LCNW | 1259 | lc/h |
| Total lane changes, LCALL | 2662 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.365 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 55.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.3 | mi/h |
| Weaving segment density, D | 33.1 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.811 | |
| Weaving segment flow rate, v | 9140 | pc/h |
| Weaving segment capacity, cW | 10921 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3355 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2254 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.811 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2035_PM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2831 | 1539 | 1049 | 81 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 745 | 405 | 276 | 21 | |
| Trucks and buses | 9 | 6 | 7 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.969 | 0.964 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3120 | 1672 | 1145 | 86 | pc/h |

Volume ratio, VR 0.468

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | | lc/h |
| Weaving lane changes, LCW | | lc/h |
| Non-weaving vehicle index, INW | | |
| Non-weaving lane change, LCNW | | lc/h |
| Total lane changes, LCALL | | lc/h |

## Weaving and Non-Weaving Speeds

| | |
|---|---|
| Weaving intensity factor, W | |
| Average weaving speed, SW | mi/h |
| Average non-weaving speed, SNW | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | | mi/h |
| Weaving segment density, D | | pc/mi/ln |
| Level of service, LOS | F | |
| Weaving segment v/c ratio | 1.174 | |
| Weaving segment flow rate, v | 6023 | pc/h |
| Weaving segment capacity, cW | 4901 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 7451 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1914 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 1.174 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2035_AM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3091 | 1709 | 229 | 301 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 813 | 450 | 60 | 79 | |
| Trucks and buses | 5 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3342 | 1830 | 244 | 321 | pc/h |

Volume ratio, VR 0.362

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2074 | lc/h |
| Weaving lane changes, LCW | 2515 | lc/h |
| Non-weaving vehicle index, INW | 714 | |
| Non-weaving lane change, LCNW | 1041 | lc/h |
| Total lane changes, LCALL | 3556 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.363 | |
| Average weaving speed, SW | 55.4 | mi/h |
| Average non-weaving speed, SNW | 48.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.5 | mi/h |
| Weaving segment density, D | 28.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.864 | |
| Weaving segment flow rate, v | 5737 | pc/h |
| Weaving segment capacity, cW | 6464 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6253 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2070 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.864 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2035_AM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3235 | 1165 | 2055 | 205 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 851 | 307 | 541 | 54 | |
| Trucks and buses | 4 | 3 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.983 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3480 | 1247 | 2222 | 218 | pc/h |

Volume ratio, VR 0.484

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1247 | lc/h |
| Weaving lane changes, LCW | 1513 | lc/h |
| Non-weaving vehicle index, INW | 333 | |
| Non-weaving lane change, LCNW | 479 | lc/h |
| Total lane changes, LCALL | 1992 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.423 | |
| Average weaving speed, SW | 53.7 | mi/h |
| Average non-weaving speed, SNW | 52.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.0 | mi/h |
| Weaving segment density, D | 33.8 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.991 | |
| Weaving segment flow rate, v | 7167 | pc/h |
| Weaving segment capacity, cW | 7075 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6074 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2004 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.991 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2035_PM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2280 | 1700 | 330 | 300 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 600 | 447 | 87 | 79 | |
| Trucks and buses | 6 | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.960 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2477 | 1865 | 352 | 320 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.442 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2217 | lc/h |
| Weaving lane changes, LCW | 2658 | lc/h |
| Non-weaving vehicle index, INW | 545 | |
| Non-weaving lane change, LCNW | 863 | lc/h |
| Total lane changes, LCALL | 3521 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.360 | |
| Average weaving speed, SW | 55.4 | mi/h |
| Average non-weaving speed, SNW | 48.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.0 | mi/h |
| Weaving segment density, D | 24.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.924 | |
| Weaving segment flow rate, v | 5014 | pc/h |
| Weaving segment capacity, cW | 5260 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 7158 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2002 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.924 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2035_PM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2254 | 1326 | 1756 | 234 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 593 | 349 | 462 | 62 | |
| Trucks and buses | 5 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2437 | 1413 | 1908 | 249 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.553 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1413 | lc/h |
| Weaving lane changes, LCW | 1679 | lc/h |
| Non-weaving vehicle index, INW | 242 | |
| Non-weaving lane change, LCNW | 271 | lc/h |
| Total lane changes, LCALL | 1950 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.416 | |
| Average weaving speed, SW | 53.8 | mi/h |
| Average non-weaving speed, SNW | 52.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.3 | mi/h |
| Weaving segment density, D | 28.2 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.949 | |
| Weaving segment flow rate, v | 6007 | pc/h |
| Weaving segment capacity, cW | 6164 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6885 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1942 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.949 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2035_AM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3083 | 587 | 817 | 103 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 811 | 154 | 215 | 27 | |
| Trucks and buses | 4 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3317 | 628 | 870 | 110 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.304 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 870 | lc/h |
| Weaving lane changes, LCW | 1393 | lc/h |
| Non-weaving vehicle index, INW | 428 | |
| Non-weaving lane change, LCNW | 420 | lc/h |
| Total lane changes, LCALL | 1813 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.303 | |
| Average weaving speed, SW | 57.2 | mi/h |
| Average non-weaving speed, SNW | 59.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.4 | mi/h |
| Weaving segment density, D | 16.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.624 | |
| Weaving segment flow rate, v | 4925 | pc/h |
| Weaving segment capacity, cW | 7721 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5629 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2065 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.624 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2035_AM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4462 | 238 | 1458 | 42 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1174 | 63 | 384 | 11 | |
| Trucks and buses | 4 | 4 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4800 | 256 | 1561 | 45 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.273 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 512 | lc/h |
| Weaving lane changes, LCW | 1021 | lc/h |
| Non-weaving vehicle index, INW | 581 | |
| Non-weaving lane change, LCNW | 685 | lc/h |
| Total lane changes, LCALL | 1706 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.298 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 59.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.2 | mi/h |
| Weaving segment density, D | 22.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.604 | |
| Weaving segment flow rate, v | 6662 | pc/h |
| Weaving segment capacity, cW | 10797 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3727 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2206 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.604 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2035_PM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3886 | 884 | 714 | 156 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1023 | 233 | 188 | 41 | |
| Trucks and buses | 5 | 4 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4201 | 951 | 764 | 166 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.282 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 764 | lc/h |
| Weaving lane changes, LCW | 1287 | lc/h |
| Non-weaving vehicle index, INW | 546 | |
| Non-weaving lane change, LCNW | 614 | lc/h |
| Total lane changes, LCALL | 1901 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.315 | |
| Average weaving speed, SW | 56.8 | mi/h |
| Average non-weaving speed, SNW | 58.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.1 | mi/h |
| Weaving segment density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.715 | |
| Weaving segment flow rate, v | 6082 | pc/h |
| Weaving segment capacity, cW | 8287 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5391 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2083 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.715 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2035_PM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3557 | 493 | 813 | 87 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 936 | 130 | 214 | 23 | |
| Trucks and buses | 5 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3845 | 525 | 883 | 93 | pc/h |

Volume ratio, VR 0.263

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1050 | lc/h |
| Weaving lane changes, LCW | 1559 | lc/h |
| Non-weaving vehicle index, INW | 473 | |
| Non-weaving lane change, LCNW | 499 | lc/h |
| Total lane changes, LCALL | 2058 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.346 | |
| Average weaving speed, SW | 55.9 | mi/h |
| Average non-weaving speed, SNW | 57.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.9 | mi/h |
| Weaving segment density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.483 | |
| Weaving segment flow rate, v | 5346 | pc/h |
| Weaving segment capacity, cW | 10779 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3628 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2215 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.483 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2035_AM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4028 | 342 | 802 | 18 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1060 | 90 | 211 | 5 | |
| Trucks and buses | 4 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4333 | 368 | 854 | 19 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.219 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 368 | lc/h |
| Weaving lane changes, LCW | 784 | lc/h |
| Non-weaving vehicle index, INW | 392 | |
| Non-weaving lane change, LCNW | 421 | lc/h |
| Total lane changes, LCALL | 1205 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.285 | |
| Average weaving speed, SW | 57.8 | mi/h |
| Average non-weaving speed, SNW | 62.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.0 | mi/h |
| Weaving segment density, D | 18.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.529 | |
| Weaving segment flow rate, v | 5574 | pc/h |
| Weaving segment capacity, cW | 10308 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4734 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2107 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.529 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2035_AM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5161 | 589 | 579 | 31 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1358 | 155 | 152 | 8 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5525 | 627 | 617 | 33 | pc/h |

Volume ratio, VR 0.183

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 627 | lc/h |
| Weaving lane changes, LCW | 1043 | lc/h |
| Non-weaving vehicle index, INW | 500 | |
| Non-weaving lane change, LCNW | 670 | lc/h |
| Total lane changes, LCALL | 1713 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.376 | |
| Average weaving speed, SW | 55.0 | mi/h |
| Average non-weaving speed, SNW | 59.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.2 | mi/h |
| Weaving segment density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.637 | |
| Weaving segment flow rate, v | 6802 | pc/h |
| Weaving segment capacity, cW | 10497 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4362 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2135 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.637 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2035_PM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5173 | 437 | 827 | 23 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1361 | 115 | 218 | 6 | |
| Trucks and buses | 4 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5565 | 468 | 881 | 25 | pc/h |

Volume ratio, VR 0.194

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 468 | lc/h |
| Weaving lane changes, LCW | 884 | lc/h |
| Non-weaving vehicle index, INW | 503 | |
| Non-weaving lane change, LCNW | 676 | lc/h |
| Total lane changes, LCALL | 1560 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.349 | |
| Average weaving speed, SW | 55.8 | mi/h |
| Average non-weaving speed, SNW | 60.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.1 | mi/h |
| Weaving segment density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.653 | |
| Weaving segment flow rate, v | 6939 | pc/h |
| Weaving segment capacity, cW | 10401 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4479 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2127 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.653 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2035_PM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3807 | 713 | 423 | 37 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1002 | 188 | 111 | 10 | |
| Trucks and buses | 4 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4096 | 760 | 453 | 39 | pc/h |

Volume ratio, VR 0.227

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 760 | lc/h |
| Weaving lane changes, LCW | 1176 | lc/h |
| Non-weaving vehicle index, INW | 372 | |
| Non-weaving lane change, LCNW | 377 | lc/h |
| Total lane changes, LCALL | 1553 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.348 | |
| Average weaving speed, SW | 55.8 | mi/h |
| Average non-weaving speed, SNW | 59.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.5 | mi/h |
| Weaving segment density, D | 18.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.509 | |
| Weaving segment flow rate, v | 5348 | pc/h |
| Weaving segment capacity, cW | 10279 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4812 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2101 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.509 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2035_AM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2968 | 352 | 562 | 18 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 781 | 93 | 148 | 5 | |
| Trucks and buses | 5 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3209 | 379 | 599 | 19 | pc/h |

Volume ratio, VR 0.233

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 379 | lc/h |
| Weaving lane changes, LCW | 1047 | lc/h |
| Non-weaving vehicle index, INW | 597 | |
| Non-weaving lane change, LCNW | 705 | lc/h |
| Total lane changes, LCALL | 1752 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.217 | |
| Average weaving speed, SW | 60.2 | mi/h |
| Average non-weaving speed, SNW | 63.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.5 | mi/h |
| Weaving segment density, D | 13.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.408 | |
| Weaving segment flow rate, v | 4206 | pc/h |
| Weaving segment capacity, cW | 10050 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4871 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2168 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.408 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2035_AM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4352 | 618 | 608 | 32 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1145 | 163 | 160 | 8 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4659 | 658 | 648 | 34 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.218 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 658 | lc/h |
| Weaving lane changes, LCW | 1326 | lc/h |
| Non-weaving vehicle index, INW | 868 | |
| Non-weaving lane change, LCNW | 1006 | lc/h |
| Total lane changes, LCALL | 2332 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.271 | |
| Average weaving speed, SW | 58.3 | mi/h |
| Average non-weaving speed, SNW | 59.5 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.2 | mi/h |
| Weaving segment density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.550 | |
| Weaving segment flow rate, v | 5999 | pc/h |
| Weaving segment capacity, cW | 10723 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4718 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2180 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.550 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2035_PM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3895 | 485 | 575 | 25 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1025 | 128 | 151 | 7 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4211 | 517 | 613 | 27 | pc/h |

| | | |
|---|---|---|
| Volume ratio, VR | 0.211 | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 517 | lc/h |
| Weaving lane changes, LCW | 1185 | lc/h |
| Non-weaving vehicle index, INW | 784 | |
| Non-weaving lane change, LCNW | 913 | lc/h |
| Total lane changes, LCALL | 2098 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.250 | |
| Average weaving speed, SW | 59.0 | mi/h |
| Average non-weaving speed, SNW | 61.1 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.7 | mi/h |
| Weaving segment density, D | 17.7 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.491 | |
| Weaving segment flow rate, v | 5368 | pc/h |
| Weaving segment capacity, cW | 10643 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4644 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2186 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.491 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2035_PM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2858 | 722 | 442 | 38 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 752 | 190 | 116 | 10 | |
| Trucks and buses | 5 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3090 | 769 | 473 | 40 | pc/h |
| Volume ratio, VR | | 0.284 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 769 | lc/h |
| Weaving lane changes, LCW | 1437 | lc/h |
| Non-weaving vehicle index, INW | 579 | |
| Non-weaving lane change, LCNW | 684 | lc/h |
| Total lane changes, LCALL | 2121 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.252 | |
| Average weaving speed, SW | 58.9 | mi/h |
| Average non-weaving speed, SNW | 60.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.9 | mi/h |
| Weaving segment density, D | 14.6 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.518 | |
| Weaving segment flow rate, v | 4372 | pc/h |
| Weaving segment capacity, cW | 8226 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5414 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2127 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.518 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2035_AM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 7410 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 580 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 550 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 7410 | 580 | 550 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1950 | 153 | 145 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 8011 | 618 | 586 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.141 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 1126$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 8629 | 9600 | No |
| $v_3$ or $v_{av34}$ | | 3442 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 3204$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3822 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 30.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.450$

Space mean speed in ramp influence area, $S_R = 57.4$ mph

Space mean speed in outer lanes, $S_0 = 62.9$ mph

Space mean speed for all vehicles, $S = 60.3$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2035_PM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6430 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1400 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 610 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6430 | 1400 | 610 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1692 | 368 | 161 | v |
| Trucks and buses | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 6985 | 1491 | 650 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

$P$ = 0.031 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 220$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{FO}$ | | 8476 | 9600 | No |
| $v_3$ or $v_{av34}$ | | 3382 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}/2$ | | Yes | |

If yes, $v_{12A} = 2794$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4285 | 4600 | No |

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{R12} - 0.00627 L_A = 33.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.555$

Space mean speed in ramp influence area, $S_R = 54.5$ mph

Space mean speed in outer lanes, $S_0 = 64.3$ mph

Space mean speed for all vehicles, $S = 58.9$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2035_AM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 7890 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1220 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 200 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 7890 | 1220 | 200 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2076 | 321 | 53 | v |
| Trucks and buses | 4 | 4 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.978 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 8488 | 1312 | 215 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

$P$ = 0.054 Using Equation 4

$v_{12} = v_{FM} (P_{FM}) = 457$ pc/h

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| | $v_{FO}$ | 9800 | 9600 | Yes |
| | $v_3$ or $v_{av34}$ | 4015 pc/h | (Equation 13-14 or 13-17) | |
| Is | $v_3$ or $v_{av34}$ | > 2700 pc/h? | Yes | |
| Is | $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | Yes | |

If yes, $v_{12A} = 3395$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4707 | 4600 | Yes |

## Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 32.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

Intermediate speed variable, $M_S = 0.648$

Space mean speed in ramp influence area, $S_R = 51.9$ mph

Space mean speed in outer lanes, $S_0 = 62.0$ mph

Space mean speed for all vehicles, $S = 56.7$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2035_PM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8630 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 970 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 150 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8630 | 970 | 150 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2271 | 255 | 39 | v |
| Trucks and buses | 5 | 5 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.974 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9329 | 1049 | 161 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.087 Using Equation 4

$v_{12} = v_F (P_{FM}) = 809$ pc/h

Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| | $v_{FO}$ | 10378 | 9600 | Yes |
| | $v_3$ or $v_{av34}$ | 4260 pc/h | (Equation 13-14 or 13-17) | |
| Is | $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is | $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 3731$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4780 | 4600 | Yes |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 32.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.681$ | |
| Space mean speed in ramp influence area, | $S_R = 50.9$ | mph |
| Space mean speed in outer lanes, | $S_0 = 60.5$ | mph |
| Space mean speed for all vehicles, | $S = 55.7$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2035_AM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2480 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 220 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2480 | 220 | 90 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 653 | 58 | 24 | v |
| Trucks and buses | 5 | 4 | 5 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.974 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2681 | 237 | 97 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 2681 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 2681 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2444 | 4800 | No |
| $v_R$ | 237 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2681 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2681 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $D_S$ = 0.449 | |
| Space mean speed in ramp influence area, | $S_R$ = 57.4 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 57.4 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2035_PM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3130 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 440 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 60 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3130 | 440 | 60 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 824 | 116 | 16 | v |
| Trucks and buses | 4 | 2 | 6 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.969 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3367 | 469 | 65 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3367 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 3367 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2898 | 4800 | No |
| $v_R$ | 469 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 3367$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3367 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 19.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $D_S$ = 0.470 | |
| Space mean speed in ramp influence area, | $S_R$ = 56.8 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 56.8 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2035_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2260 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 90 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 220 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2260 | 90 | 220 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 595 | 24 | 58 | v |
| Trucks and buses | 5 | 5 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.974 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2443 | 97 | 237 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2443$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2540 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 2443 (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2540 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A$ = 22.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $M_S$ = 0.335

Space mean speed in ramp influence area, $S_R$ = 60.6 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 60.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2035_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2690 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 60 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 440 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2690 | 60 | 440 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 708 | 16 | 116 | v |
| Trucks and buses | 4 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.969 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2894 | 65 | 469 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2894$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2959 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2894$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2959 | 4600 | No |

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 25.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.361 | |
| Space mean speed in ramp influence area, | $S_R$ = 59.9 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 59.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-5_2035_AM_Peak_SR_60_EB_Direct_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2350 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 110 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2350 | 110 | 90 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 618 | 29 | 24 | v |
| Trucks and buses | 5 | 7 | 5 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.964 | 0.974 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2540 | 120 | 97 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2540$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2660 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2540$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2660 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 19.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.307 | |
| Space mean speed in ramp influence area, | $S_R$ = 61.4 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 61.4 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-5_2035_PM_Peak_SR_60_EB_Direct_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2750 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 480 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 60 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2750 | 480 | 60 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 724 | 126 | 16 | v |
| Trucks and buses | 4 | 2 | 6 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.969 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2958 | 511 | 65 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 2958$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3469 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2958 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3469 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 26.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S$ = 0.376

Space mean speed in ramp influence area, $S_R$ = 59.5 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 59.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-6_2035_AM_Peak_SR_60_EB_Off-Ramp_to_Theodore.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3200 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 270 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 150 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3200 | 270 | 150 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 842 | 71 | 39 | v |
| Trucks and buses | 5 | 11 | 5 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.946 | 0.974 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3459 | 300 | 162 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3459 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi} = v_F$ | | 3459 | 4800 | No |
| $v_{FO} = v_F - v_R$ | | 3159 | 4800 | No |
| $v_R$ | | 300 | 2000 | No |
| $v_3$ or $v_{av34}$ | | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 3459$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3459 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 25.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S = 0.455$

Space mean speed in ramp influence area, $S_R = 57.3$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.3$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-6_2035_PM_Peak_SR_60_EB_Off-Ramp_to_Theodore.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4500 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 150 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 1350 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4500 | 150 | 1350 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1184 | 39 | 355 | v |
| Trucks and buses | 3 | 9 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.955 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4817 | 165 | 1438 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 4817 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 4817 | 4800 | Yes |
| $v_{FO} = v_F - v_R$ | 4652 | 4800 | No |
| $v_R$ | 165 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 4817$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 4817 | 4400 | Yes |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 36.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $D_S$ = 0.443 | |
| Space mean speed in ramp influence area, | $S_R$ = 57.6 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 57.6 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2035_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2930 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 150 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 270 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2930 | 150 | 270 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 771 | 39 | 71 | v |
| Trucks and buses | 5 | 5 | 11 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.974 | 0.946 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3167 | 162 | 300 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 3167$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3329 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 3167$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3329 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A = 22.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.325 | |
| Space mean speed in ramp influence area, | $S_R$ = 60.9 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 60.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2035_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4350 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1350 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 150 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4350 | 1350 | 150 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1145 | 355 | 39 | v |
| Trucks and buses | 3 | 2 | 9 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.955 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4657 | 1438 | 165 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 4657$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 6095 | 4800 | Yes |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}/2$ No

If yes, $v_{12A}$ = 4657 (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 6095 | 4600 | Yes |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A$ = 42.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

Intermediate speed variable, $M_S$ = 1.946

Space mean speed in ramp influence area, $S_R$ = 15.5 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 15.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2035_AM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2230 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 260 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 840 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2230 | 260 | 840 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 587 | 68 | 221 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2411 | 277 | 895 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 2411$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2688 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | No | |

If yes, $v_{12A}$ = 2411 (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2688 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.273 | |
| Space mean speed in ramp influence area, | $S_R$ = 62.3 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 62.3 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2035_PM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4140 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 470 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 1570 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4140 | 470 | 1570 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1089 | 124 | 413 | v |
| Trucks and buses | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4432 | 501 | 1672 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 4432$ pc/h

### Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4933 | 4800 | Yes |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 4432$ (Equation 13-15, 13-16, 18, or 19)

### Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4933 | 4600 | Yes |

### Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A = 34.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

### Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.757$ | |
| Space mean speed in ramp influence area, | $S_R = 48.8$ | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S = 48.8$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2035_AM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3110 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1330 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 240 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3110 | 1330 | 240 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 818 | 350 | 63 | v |
| Trucks and buses | 1 | 3 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.993 | 0.983 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3297 | 1424 | 257 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 3297$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4721 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 3297 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4721 | 4600 | Yes |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 32.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S$ = 0.654

Space mean speed in ramp influence area, $S_R$ = 51.7 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 51.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2035_PM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2360 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1140 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 560 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2360 | 1140 | 560 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 621 | 300 | 147 | v |
| Trucks and buses | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2514 | 1214 | 597 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 2514$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3728 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2514 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3728 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 24.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.378 | |
| Space mean speed in ramp influence area, | $S_R$ = 59.4 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 59.4 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-13_2035_AM_Peak_SR_60_WB_Off-Ramp_to_Theodore_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4560 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 640 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 90 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4560 | 640 | 90 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1200 | 168 | 24 | v |
| Trucks and buses | 3 | 2 | 22 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.899 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4882 | 682 | 105 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 4882 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 4882 | 4800 | Yes |
| $v_{FO} = v_F - v_R$ | 4200 | 4800 | No |
| $v_R$ | 682 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 4882$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 4882 | 4400 | Yes |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 32.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

Intermediate speed variable, $D_S = 0.489$

Space mean speed in ramp influence area, $S_R = 56.3$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 56.3$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-13_2035_PM_Peak_SR_60_WB_Off-Ramp_to_Theodore_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3680 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 380 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 230 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3680 | 380 | 230 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 968 | 100 | 61 | v |
| Trucks and buses | 4 | 2 | 9 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.955 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3959 | 405 | 253 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_{FD} - v_F) P_{FD} = 3959 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 3959 | 4800 | No |
| $v_{FO} = v_{FD} - v_R$ | 3554 | 4800 | No |
| $v_R$ | 405 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 3959$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3959 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086 v_{12} - 0.009 L_D = 24.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S = 0.464$

Space mean speed in ramp influence area, $S_R = 57.0$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 57.0$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2035_AM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3920 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 90 | vph |
| Length of first accel/decel lane | 550 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 640 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3920 | 90 | 640 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1032 | 24 | 168 | v |
| Trucks and buses | 3 | 3 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.983 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4196 | 96 | 685 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 4196$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4292 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 4196$ (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4292 | 4600 | No |

Level of Service Determination (if not F)

$$\text{Density, } D = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 35.5 \text{ pc/mi/ln}$$

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.568$ | |
| Space mean speed in ramp influence area, | $S_R = 54.1$ | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S = 54.1$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2035_PM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3300 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 230 | vph |
| Length of first accel/decel lane | 550 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 380 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3300 | 230 | 380 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 868 | 61 | 100 | v |
| Trucks and buses | 4 | 3 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.983 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3550 | 246 | 407 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 3550$ pc/h

Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3796 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 3550 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3796 | 4600 | No |

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 31.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S$ = 0.456

Space mean speed in ramp influence area, $S_R$ = 57.2 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2035_AM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4010 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 310 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 200 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4010 | 310 | 200 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1055 | 82 | 53 | v |
| Trucks and buses | 4 | 22 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.899 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4314 | 363 | 213 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 4314 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 4314 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 3951 | 4800 | No |
| $v_R$ | 363 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 4314 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 4314 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 32.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.461

Space mean speed in ramp influence area, $S_R$ = 57.1 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2035_PM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3530 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 370 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 110 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3530 | 370 | 110 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 929 | 97 | 29 | v |
| Trucks and buses | 5 | 9 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.955 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3816 | 408 | 117 | pcph |

## Estimation of V12 Diverge Areas

L = (Equation 13-12 or 13-13)
EQ
P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3816 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 3816 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 3408 | 4800 | No |
| $v_R$ | 408 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 3816 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3816 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_R - 0.009\ L_D$ = 28.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $D_S$ = 0.465 | |
| Space mean speed in ramp influence area, | $S_R$ = 57.0 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 57.0 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

File Name: R-16_2035_AM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3700 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 200 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 310 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3700 | 200 | 310 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 974 | 53 | 82 | v |
| Trucks and buses | 4 | 3 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.983 | 0.983 | |

| | | | | |
|---|---|---|---|---|
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3980 | 214 | 332 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

$P_{FM}$ = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3980 pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4194 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A}$ = 3980 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4194 | 4600 | No |

## Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 36.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

## Speed Estimation

Intermediate speed variable, $M_S$ = 0.562

Space mean speed in ramp influence area, $S_R$ = 54.3 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 54.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

File Name: R-16_2035_PM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3160 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 110 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 370 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3160 | 110 | 370 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 832 | 29 | 97 | v |
| Trucks and buses | 5 | 5 | 5 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.974 | 0.974 | |

| | | | | |
|---|---|---|---|---|
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3416 | 119 | 400 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

$P_{FM}$ = 1.000 Using Equation 0

$v_{12} = v_{F} (P_{FM}) =$ 3416 pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3535 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A}$ = 3416 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3535 | 4600 | No |

## Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_{A} =$ 31.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

Intermediate speed variable, $M_S$ = 0.437

Space mean speed in ramp influence area, $S_R$ = 57.8 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-17_2035_AM_Peak_SR_60_WB_Direct_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Direct On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3900 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 350 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 200 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3900 | 350 | 200 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1026 | 92 | 53 | v |
| Trucks and buses | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4196 | 373 | 213 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 4196$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4569 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 4196$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4569 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 34.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.627$ | |
| Space mean speed in ramp influence area, | $S_R = 52.4$ | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S = 52.4$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-17_2035_PM_Peak_SR_60_WB_Direct_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Direct On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3270 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 280 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 110 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3270 | 280 | 110 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 861 | 74 | 29 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3535 | 298 | 117 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM}(P_{FM}) = 3535$ pc/h

### Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3833 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 3535$ (Equation 13-15, 13-16, 13-18, or 13-19)

### Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3833 | 4600 | No |

### Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A = 29.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

### Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.431$ | |
| Space mean speed in ramp influence area, | $S_R = 57.9$ | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S = 57.9$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2035_AM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8330 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 710 | vph |
| Length of first accel/decel lane | 300 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 880 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8330 | 710 | 880 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2192 | 187 | 232 | v |
| Trucks and buses | 7 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9093 | 756 | 937 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3598 \text{ pc/h}$$

## Capacity Checks

| | | | |
|---|---|---|---|
| | Actual | Maximum | LOS F? |
| $v_{Fi} = v_F$ | 7275 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 6519 | 9600 | No |
| $v_R$ | 756 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1838 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 3598$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3598 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 32.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

Intermediate speed variable, $D_S = 0.496$

Space mean speed in ramp influence area, $S_R = 56.1$ mph

Space mean speed in outer lanes, $S_0 = 73.5$ mph

Space mean speed for all vehicles, $S = 63.7$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2035_PM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - No-Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8980 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 660 | vph |
| Length of first accel/decel lane | 300 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 500 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8980 | 660 | 500 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2363 | 174 | 132 | v |
| Trucks and buses | 5 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9708 | 703 | 533 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3783 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 7767 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 7064 | 9600 | No |
| $v_R$ | 703 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1992 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 3783$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3783 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 34.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

Intermediate speed variable, $D_S = 0.491$

Space mean speed in ramp influence area, $S_R = 56.2$ mph

Space mean speed in outer lanes, $S_0 = 72.9$ mph

Space mean speed for all vehicles, $S = 63.7$ mph

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-9 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2035 No-Project**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 3,070 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 5 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.974 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **3,319** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 3,319 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **19.4** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 EB**
**RAMP:** **R-9 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2035 No-Project**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 5,710 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 3 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.983 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **6,113** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 6,113 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **35.8** |
| **Level of service, LOS** | **E** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-11 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2035 No-Project**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 3,350 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 2 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.988 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **3,569** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 3,569 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **20.9** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-11 Off-Ramp to Gilman Springs**
**ANALYSIS YEAR:** **2035 No-Project**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 2,920 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 2 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.988 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **3,111** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 3,111 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **18.2** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **2035 No-Project**
**ANALYSIS PERIOD:** **AM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 8,340 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 7 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.964 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **9,104** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 9,104 |
| Max Upstream Fwy Flow, $V_{F1}$ | 11,750 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 5 |
| Density, D | **32.0** |
| **Level of service, LOS** | **D** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** **SR-60 WB**
**RAMP:** **R-18 Off-Ramp to Central**
**ANALYSIS YEAR:** **2035 No-Project**
**ANALYSIS PERIOD:** **PM Peak Hour**

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 9,200 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 5 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.974 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **9,946** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 9,946 |
| Max Upstream Fwy Flow, $V_{F1}$ | 11,750 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 5 |
| Density, D | **35.0** |
| **Level of service, LOS** | **D** |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix O

## Freeway LOS Worksheets
## for 2035 Plus Build-out Conditions

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HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_AM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2300 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2362 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2362 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 43.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_AM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8670 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2282 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2343 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2343 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 42.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_PM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8640 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2274 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2346 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2346 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 42.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_PM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2084 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2140 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2140 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2035_AM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2203 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2262 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2262 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 39.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2035_AM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2097 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2164 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2164 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 36.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2035_PM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2668 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2754 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2754 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 42.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 65.6 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2035_PM_Peak_SR_60_WB_Central_Ave_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central Ave to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2050 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2105 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2105 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2035_AM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2395 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2459 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2459 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 47.6 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2035_AM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1647 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1692 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1692 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2035_PM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2661 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2746 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2746 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 42.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 65.0 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2035_PM_Peak_SR_60_WB_Mountain_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mountain Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7630 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2008 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2062 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2062 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_AM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2366 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2430 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2430 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 46.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_AM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1611 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1670 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1670 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_PM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1968 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2041 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2041 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_PM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2187 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2246 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2246 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 39.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_AM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2663 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2735 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2735 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 42.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 64.1 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_AM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1682 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1727 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1727 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_PM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2521 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2602 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2602 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 47.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 55.1 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_PM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2118 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2176 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2176 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 36.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_AM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2476 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2543 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2543 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 49.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 51.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_AM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1632 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1667 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1667 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_PM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9960 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2621 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2705 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2705 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 43.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 61.9 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_PM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2168 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2227 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2227 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 38.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2035_AM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2445 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2499 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2499 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 50.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 49.6 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2035_AM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7570 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1992 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2036 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2036 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2035_PM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2658 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2743 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2743 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 42.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 64.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2035_PM_Peak_SR_60_WB_Archibald_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Archibald Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2032 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2086 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2086 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2035_AM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8650 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2276 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2338 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2338 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 42.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2035_PM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7220 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1900 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1970 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1970 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2035_AM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8690 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2287 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1879 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1879 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 29.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2035_AM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1679 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1386 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1386 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 19.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2035_PM_Peak_SR_60_EB_Haven_Ave_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Haven Ave to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2100 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1742 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1742 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-10_2035_PM_Peak_SR_60_WB_Miliken_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Miliken Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2132 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1751 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1751 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2035_AM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1426 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1472 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1472 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2035_AM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1408 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1439 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1439 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2035_PM_Peak_SR_60_EB_Miliken_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Miliken Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4460 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1174 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1217 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1217 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-11_2035_PM_Peak_SR_60_WB_I-15_to_Miliken_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-15 to Miliken Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1926 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1969 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1969 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2035_AM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1153 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1195 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1195 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2035_AM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4690 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1234 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1019 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1019 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 14.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2035_PM_Peak_SR_60_EB_I-15_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | I-15 to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2640 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 695 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 734 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 734 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 10.5 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-12_2035_PM_Peak_SR_60_WB_Etiwanda_Ave_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Etiwanda Ave to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6520 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1716 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1403 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1403 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 20.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2035_AM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1366 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1416 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1416 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2035_AM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1074 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1103 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1103 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2035_PM_Peak_SR_60_EB_Etiwanda_Ave_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Etiwanda Ave to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1050 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1099 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1099 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-13_2035_PM_Peak_SR_60_WB_Mission_Blvd_to_Etiwanda_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Mission Blvd to Etiwanda Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1524 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1565 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1565 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2035_AM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4650 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1224 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1275 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1275 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2035_AM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4010 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1055 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1089 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1089 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2035_PM_Peak_SR_60_EB_Mission_Blvd_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mission Blvd to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 782 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 822 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 822 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 11.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-14_2035_PM_Peak_SR_60_WB_Pedley_Rd_to_Mission_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pedley Rd to Mission Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5750 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1513 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1554 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1554 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2035_AM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4870 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1282 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1329 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1329 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2035_AM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 818 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 849 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 849 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 12.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2035_PM_Peak_SR_60_EB_Pedley_Rd_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pedley Rd to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 895 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 937 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 937 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 13.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-15_2035_PM_Peak_SR_60_WB_Pyrite_St_to_Pedley_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Pyrite St to Pedley Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1279 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1313 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1313 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2035_AM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1397 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1449 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1449 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2035_AM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 613 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 642 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 642 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 9.2 | pc/mi/ln |
| Level of service, LOS | A | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2035_PM_Peak_SR_60_EB_Pyrite_St_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pyrite St to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3650 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 961 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1006 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1006 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-16_2035_PM_Peak_SR_60_WB_Valley_Way_to_Pyrite_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Valley Way to Pyrite St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1053 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1086 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1086 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_AM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1687 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2332 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2332 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 42.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_AM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1163 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1601 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1601 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_PM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 997 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1399 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1399 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_PM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1682 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2303 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2303 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 41.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2035_AM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6710 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1766 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2441 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2441 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 46.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2035_AM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 863 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1199 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1199 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2035_PM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1089 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1528 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1528 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2035_PM_Peak_SR_60_WB_Market_St_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Market St to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1426 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1963 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1963 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_AM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1642 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2270 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2270 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 40.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_AM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1421 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1955 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1955 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_PM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1739 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2428 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2428 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 46.2 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_PM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1692 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2317 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2317 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 41.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2035_AM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5300 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1395 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1919 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1919 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2035_PM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1705 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2335 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2335 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 42.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_AM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2626 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2928 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2928 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 35.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 82.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_AM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2168 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1986 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1986 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 31.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_PM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2647 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2992 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2992 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 32.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 91.4 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_PM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2468 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2261 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2261 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 39.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2035_AM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1721 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1793 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1793 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2035_AM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1953 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2064 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2064 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2035_PM_Peak_SR_60_EB_Box_Springs_Rd_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Box Springs Rd to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6010 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1582 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1648 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1648 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2035_PM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2434 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2549 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2549 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 52.1 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2035_AM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1863 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2576 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2576 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 48.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 53.6 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2035_PM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1003 | v |
| Trucks and buses | 15 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.929 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1440 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1440 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_AM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 945 | v |
| Trucks and buses | 18 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2063 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2063 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 33.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_AM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 945 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2007 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2007 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.4 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 32.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_PM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1082 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2308 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2308 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 41.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_PM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1084 | v |
| Trucks and buses | 15 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.929 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2335 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2335 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 42.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_AM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 932 | v |
| Trucks and buses | 18 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2035 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2035 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 32.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_AM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 950 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2018 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2018 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 32.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_PM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1116 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2381 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2381 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 44.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_PM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3730 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 982 | v |
| Trucks and buses | 16 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2124 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2124 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 35.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2035_AM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 845 | v |
| Trucks and buses | 21 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.903 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1870 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1870 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 28.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2035_AM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 903 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1926 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1926 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 30.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2035_PM_Peak_SR_60_EB_Perris_Blvd_to_Nason_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Perris Blvd to Nason St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 950 | v |
| Trucks and buses | 16 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2056 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2056 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.5 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 33.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-31_2035_PM_Peak_SR_60_WB_Nason_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Nason St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 826 | v |
| Trucks and buses | 19 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.912 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1813 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1813 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2035_AM_Peak_SR_60_EB_Moreno_Beach_Dr_to_Redlands.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach Dr to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2910 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 766 | v |
| Trucks and buses | 22 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.899 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1703 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1703 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2035_AM_Peak_SR_60_WB_Redlands_Blvd_to_Moreno_Beach_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands Blvd to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 861 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1836 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1836 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 28.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2035_PM_Peak_SR_60_EB_Moreno_Beach_Dr_to_Redlands.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Moreno Beach Dr to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 853 | v |
| Trucks and buses | 17 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.920 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1854 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1854 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-33_2035_PM_Peak_SR_60_WB_Redlands_Blvd_to_Moreno_Beach_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Redlands Blvd to Moreno Beach |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3010 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 792 | v |
| Trucks and buses | 19 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.912 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1738 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1738 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2035_AM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3630 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 955 | v |
| Trucks and buses | 17 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.920 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2077 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2077 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 34.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2035_AM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1129 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2375 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2375 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 44.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2035_PM_Peak_SR_60_EB_Redlands_Blvd_to_Theodore_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Redlands Blvd to Theodore St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1126 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2370 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2370 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 43.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2035_PM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 995 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2113 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2113 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.3 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 35.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2035_AM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 611 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1343 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1343 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2035_AM_Peak_SR_60_WB_Jack_Rabbit_Trail_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit Trail to Gilman Springs |
| Jurisdiction: | ings |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3450 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 908 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1997 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1997 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.6 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 31.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2035_PM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1205 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2652 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2652 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 45.5 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 58.2 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2035_PM_Peak_SR_60_WB_Jack_Rabbit_Trail_to_Gilman_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Jack Rabbit Trail to Gilman Springs |
| Jurisdiction: | ings |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 705 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.881 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1601 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1601 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2035_AM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_Potrero_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to Potrero Blvd |
| Jurisdiction: | vd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 632 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1304 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1304 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 18.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2035_AM_Peak_SR_60_WB_Potrero_Blvd_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Potrero Blvd to Jack Rabbit Trail |
| Jurisdiction: | il |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3840 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1011 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2086 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2086 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.9 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 34.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2035_PM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_Potrero_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to Potrero Blvd |
| Jurisdiction: | vd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1303 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2676 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2676 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 44.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 59.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2035_PM_Peak_SR_60_WB_Potrero_Blvd_to_Jack_Rabbit_Trail_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Potrero Blvd to Jack Rabbit Trail |
| Jurisdiction: | il |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2820 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 742 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1539 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1539 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 22.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-38_2035_AM_Peak_SR_60_EB_Potrero_Blvd_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Potrero Blvd to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 576 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1184 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1184 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 16.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-38_2035_AM_Peak_SR_60_WB_I-10_to_Potrero_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Potrero Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2450 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 645 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1344 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1344 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 19.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-38_2035_PM_Peak_SR_60_EB_Potrero_Blvd_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Potrero Blvd to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1003 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2069 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2069 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.2 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 33.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-38_2035_PM_Peak_SR_60_WB_I-10_to_Potrero_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-10 to Potrero Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 1810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 476 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 988 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 2 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 988 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 2 | |
| Density, D | 14.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2035_AM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2182 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1792 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1792 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2035_AM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2218 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1832 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1832 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 28.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2035_PM_Peak_SR-91_EB_I-15_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | I-15 to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 11740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 3089 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2538 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2538 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 49.2 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 51.6 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-39_2035_PM_Peak_SR-91_WB_McKinley_St_to_I-15.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | McKinley St to I-15 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2329 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1913 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1913 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.1 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 29.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2035_AM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1871 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1922 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1922 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2035_AM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1692 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1755 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1755 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2035_PM_Peak_SR-91_EB_McKinley_St_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | McKinley St to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6870 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1808 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1875 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1875 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-40_2035_PM_Peak_SR-91_WB_Pierce_St_to_McKinley_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Pierce St to McKinley St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7630 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2008 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2062 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2062 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_AM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1724 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2372 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2372 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 43.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_AM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6160 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1621 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2241 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2241 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 39.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_PM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1661 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2296 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2296 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 41.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_PM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2413 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 3304 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 3304 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 18.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 177.2 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2035_AM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1592 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2201 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2201 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 37.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2035_PM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2295 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 3142 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 3142 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 26.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 119.7 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_AM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1645 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2263 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2263 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 39.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_AM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1416 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1958 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1958 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 30.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_PM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1634 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2260 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2260 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 39.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_PM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1713 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2357 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2357 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 43.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2035_AM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1934 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1986 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1986 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2035_AM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1792 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1858 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1858 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2035_PM_Peak_SR-91_EB_Tyler_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Tyler St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1821 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1888 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1888 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2035_PM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2126 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2184 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2184 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2035_AM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1937 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1989 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1989 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2035_AM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1721 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1785 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1785 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2035_PM_Peak_SR-91_EB_Van_Buren_Blvd_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Van Buren Blvd to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1647 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1708 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1708 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2035_PM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7830 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2061 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2116 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2116 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2035_AM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2121 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2210 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2210 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 38.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2035_AM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1645 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1706 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1706 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2035_PM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1579 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1653 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1653 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2035_PM_Peak_SR-91_WB_Madison_St_to_Adam_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Madison St to Adam St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1863 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1913 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1913 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2035_AM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7030 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1850 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1928 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1928 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2035_AM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1463 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2023 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2023 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2035_PM_Peak_SR-91_EB_Madison_St_to_Indiana_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Madison St to Indiana Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1413 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1480 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1480 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2035_PM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1674 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2292 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2292 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 56.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 40.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2035_AM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1687 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2310 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2310 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 41.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2035_AM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1387 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1445 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1445 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2035_PM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1468 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2011 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2011 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2035_PM_Peak_SR-91_WB_14th_St_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | 14th St to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1468 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1515 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1515 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2035_AM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2134 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1745 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1745 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-51_2035_PM_Peak_SR-91_EB_University_Ave_to_Spruce_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | University Ave to Spruce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1918 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1569 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1569 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 22.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_AM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1332 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1388 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1388 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_AM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2074 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2150 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2150 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 36.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_PM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2166 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2246 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2246 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 39.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_PM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6040 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1589 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1656 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1656 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2035_AM_Peak_I-10_EB_Beaumont_to_Pennsylvania_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5130 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1350 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1413 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1413 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2035_AM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2021 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2086 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2086 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2035_PM_Peak_I-10_EB_Beaumont_to_Pennsylvania_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Beaumont to Pennsylvania |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2103 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2180 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2180 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-53_2035_PM_Peak_I-10_WB_Pennsylvania_to_Beaumont.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Pennsylvania to Beaumont |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5820 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1532 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1596 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1596 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_AM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1384 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1442 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1442 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_AM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2171 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2251 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2251 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 39.4 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_PM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2158 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2238 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2238 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 38.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_PM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1542 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1615 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1615 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_AM_Peak_I-10_EB_Highland_Springs_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5340 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1405 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1471 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1471 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_AM_Peak_I-10_WB_Sunset_Ave_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset Ave to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2121 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2200 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2200 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_PM_Peak_I-10_EB_Highland_Springs_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2166 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2246 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2246 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 39.2 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_PM_Peak_I-10_WB_Sunset_Ave_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset Ave to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1461 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1529 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1529 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2035_AM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1303 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1364 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1364 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2035_AM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2032 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2107 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2107 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2035_PM_Peak_I-10_EB_Sunset_Ave_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Sunset Ave to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2021 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2096 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2096 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-56_2035_PM_Peak_I-10_WB_22nd_St_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | 22nd St to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1429 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1496 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1496 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2035_AM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4870 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1282 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1342 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1342 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2035_AM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2021 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2096 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2096 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2035_PM_Peak_I-10_EB_22nd_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | 22nd St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7500 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1974 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2047 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2047 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-57_2035_PM_Peak_I-10_WB_S_8th_St_to_22nd_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | S 8th St to 22nd St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1347 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1417 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1417 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_AM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1308 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1369 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1369 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_AM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2068 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2145 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2145 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 36.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_PM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2055 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2131 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2131 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_PM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1408 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1481 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1481 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2035_AM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4730 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1245 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1303 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1303 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2035_AM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2032 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2107 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2107 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 60.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 34.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2035_PM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8020 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2111 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2189 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2189 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 37.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2035_PM_Peak_I-10_WB_Field_Rd_to_N_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Field Rd to N Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1311 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1379 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1379 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2035_AM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1039 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1099 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1099 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2035_AM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7270 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1913 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1984 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1984 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2035_PM_Peak_I-10_EB_Field_Rd__to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Field Rd to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7520 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1979 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2052 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2052 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-60_2035_PM_Peak_I-10_WB_Main_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1208 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1277 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1277 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2035_AM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1134 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1193 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1193 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2035_AM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1892 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1962 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1962 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2035_PM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2066 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2142 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2142 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 35.9 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2035_PM_Peak_I-10_WB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5010 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1318 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1387 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1387 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2035_AM_Peak_I-10_EB_Main_to_Haugen-Lehmann_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1068 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1129 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1129 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2035_AM_Peak_I-10_WB_Haugen-Lehmann_Way_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann Way to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1903 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1973 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1973 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 31.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2035_PM_Peak_I-10_EB_Main_to_Haugen-Lehmann_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main to Haugen-Lehmann Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7600 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2000 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2074 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2074 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 33.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-62_2035_PM_Peak_I-10_WB_Haugen-Lehmann_Way_to_Main.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Haugen-Lehmann Way to Main |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1200 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1262 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1262 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2035_AM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3640 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 958 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1008 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1008 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2035_AM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1726 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1790 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1790 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2035_PM_Peak_I-10_EB_SR-111_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-111 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1953 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2025 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2025 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-64_2035_PM_Peak_I-10_WB_Tipton_Rd_to_SR-111.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Tipton Rd to SR-111 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4830 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1271 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1331 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1331 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2035_AM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 968 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1019 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1019 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 14.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2035_AM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6570 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1729 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1793 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1793 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2035_PM_Peak_I-10_EB_Tipton_Rd_to_SR-62.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Tipton Rd to SR-62 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7440 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1958 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2030 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2030 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 32.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-65_2035_PM_Peak_I-10_WB_SR-62_to_Tipton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | SR-62 to Tipton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4840 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1274 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1334 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1334 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2035_AM_Peak_I-215_NB_Scott_Rd_to_Barboni_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Barboni Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 887 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1214 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1214 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2035_AM_Peak_I-215_SB_Garboni_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Garboni Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1416 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1910 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1910 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2035_PM_Peak_I-215_NB_Scott_Rd_to_Barboni_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Scott Rd to Barboni Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1574 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2134 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2134 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-66_2035_PM_Peak_I-215_SB_Garboni_Rd_to_Scott_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Garboni Rd to Scott Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1097 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1495 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1495 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2035_AM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 784 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1074 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1074 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 15.3 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2035_AM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4930 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1297 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1759 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1759 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2035_PM_Peak_I-215_NB_Newport_Rd_to_MacCall_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Newport Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1205 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1642 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1642 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 24.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-68_2035_PM_Peak_I-215_SB_MacCall_Blvd_to_Newport_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | MacCall Blvd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1376 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1875 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1875 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2035_AM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3600 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 947 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1291 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1291 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 18.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2035_AM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5330 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1403 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1902 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1902 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2035_PM_Peak_I-215_NB_MacCall_Blvd_to_Ethanac_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | MacCall Blvd to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1458 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1987 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1987 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-69_2035_PM_Peak_I-215_SB_Ethanac_Rd_to_MacCall_Blvd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ethanac Rd to MacCall Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1261 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1718 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1718 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2035_AM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1392 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1897 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1897 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2035_AM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1400 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1898 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1898 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2035_PM_Peak_I-215_NB_Ethanac_Rd_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ethanac Rd to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1476 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2012 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2012 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-70_2035_PM_Peak_I-215_SB_SR-74_to_Ethanac_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | SR-74 to Ethanac Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6220 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1637 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2220 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2220 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 57.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 38.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2035_AM_Peak_I-215_NB_SR-74_to_Ellis_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Ellis Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1368 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1865 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1865 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2035_AM_Peak_I-215_SB_Ellis_Ave_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ellis Ave to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1871 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2537 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2537 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 49.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 51.5 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2035_PM_Peak_I-215_NB_SR-74_to_Ellis_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | SR-74 to Ellis Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1774 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2417 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2417 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 52.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 45.8 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2035_PM_Peak_I-215_SB_Ellis_Ave_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ellis Ave to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1579 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2141 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2141 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 35.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2035_AM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4090 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1076 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1481 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1481 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2035_AM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1308 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1791 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1791 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2035_PM_Peak_I-215_NB_Columbia_Ave_to_Center_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Columbia Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 897 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1247 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1247 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-74_2035_PM_Peak_I-215_SB_Center_St_to_Columbia_Ave_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Center St to Columbia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3680 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 968 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1339 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1339 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2035_AM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4930 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1297 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1785 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1785 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2035_AM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6010 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1582 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2166 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2166 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 36.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2035_PM_Peak_I-215_NB_Center_St_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Center St to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1145 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1583 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1583 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2035_PM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1247 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1716 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1716 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2035_AM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4900 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1289 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1766 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1766 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2035_AM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1342 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1838 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1838 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 28.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2035_PM_Peak_I-215_NB_Iowa_Ave_to_Barton_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Iowa Ave to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1158 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1601 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1601 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-76_2035_PM_Peak_I-215_SB_Barton_Rd_to_Iowa_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Barton Rd to Iowa Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 997 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1379 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1379 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2035_AM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5280 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1389 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1903 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1903 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 29.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2035_AM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1471 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2014 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2014 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2035_PM_Peak_I-215_NB_Barton_Rd_to_Washington_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barton Rd to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4760 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1253 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1724 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1724 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 25.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-77_2035_PM_Peak_I-215_SB_Washington_St_to_Barton_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Washington St to Barton Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4220 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1111 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1528 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1528 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2035_AM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5070 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1334 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1370 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1370 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 19.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2035_AM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6570 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1729 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1767 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1767 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2035_PM_Peak_I-215_NB_Washington_St_to_I-10.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Washington St to I-10 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5870 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1545 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1594 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1594 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-78_2035_PM_Peak_I-215_SB_I-10_to_Washington_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | I-10 to Washington St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5190 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1366 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1409 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1409 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2035_AM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4600 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1211 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1243 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1243 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2035_AM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5500 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1447 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1479 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1479 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2035_PM_Peak_I-215_NB_Auto_Plaza_Dr_to_Mill_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Auto Plaza Dr to Mill St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6030 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1587 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1630 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1630 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-80_2035_PM_Peak_I-215_SB_Mill_St_to_Auto_Plaza_Dr.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Mill St to Auto Plaza Dr |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4570 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1203 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1235 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1235 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2035_AM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 855 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1171 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1171 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 16.7 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2035_AM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6930 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1824 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2473 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2473 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.2 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 48.3 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2035_PM_Peak_I-215_NB_Baseline_Rd_to_Highland_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Baseline Rd to Highland Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1316 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1802 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1802 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2035_PM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1445 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1978 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1978 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-84_2035_AM_Peak_I-215_NB_Barboni_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barboni Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 842 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1153 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1153 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 16.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-84_2035_AM_Peak_I-215_SB_Newport_Rd_to_Garboni_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Garboni Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1284 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1741 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1741 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-84_2035_PM_Peak_I-215_NB_Barboni_Rd_to_Newport_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Barboni Rd to Newport Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5650 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1487 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2026 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2026 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 32.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-84_2035_PM_Peak_I-215_SB_Newport_Rd_to_Garboni_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Newport Rd to Garboni Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4030 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1061 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1445 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1445 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-85_2035_AM_Peak_I-215_NB_Ellis_Ave_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ellis Ave to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4840 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1274 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1736 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1736 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-85_2035_AM_Peak_I-215_SB_Redlands_Blvd_to_Ellis_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to Ellis Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1713 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2323 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2323 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 55.4 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 42.0 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-85_2035_PM_Peak_I-215_NB_Ellis_Ave_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 NB |
| From/To: | Ellis Ave to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1624 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2213 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2213 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.1 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 38.1 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-85_2035_PM_Peak_I-215_SB_Redlands_Blvd_to_Ellis_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Redlands Blvd to Ellis Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1450 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1976 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1976 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 31.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2035_AM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6476 | 1794 | 234 | 316 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1704 | 472 | 62 | 83 | |
| Trucks and buses | 5 | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.960 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7001 | 1968 | 249 | 337 | pc/h |
| Volume ratio, VR | | 0.232 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2217 | lc/h |
| Weaving lane changes, LCW | 2852 | lc/h |
| Non-weaving vehicle index, INW | 1247 | |
| Non-weaving lane change, LCNW | 1470 | lc/h |
| Total lane changes, LCALL | 4322 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.472 | |
| Average weaving speed, SW | 52.4 | mi/h |
| Average non-weaving speed, SNW | 44.9 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 46.4 | mi/h |
| Weaving segment density, D | 41.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.924 | |
| Weaving segment flow rate, v | 9555 | pc/h |
| Weaving segment capacity, cW | 10072 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4866 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2158 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.924 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2035_AM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3890 | 400 | 1680 | 70 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1024 | 105 | 442 | 18 | |
| Trucks and buses | 5 | 3 | 10 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.951 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4205 | 428 | 1860 | 75 | pc/h |
| Volume ratio, VR | | 0.348 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 428 | lc/h |
| Weaving lane changes, LCW | 1138 | lc/h |
| Non-weaving vehicle index, INW | 877 | |
| Non-weaving lane change, LCNW | 1030 | lc/h |
| Total lane changes, LCALL | 2168 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.236 | |
| Average weaving speed, SW | 59.5 | mi/h |
| Average non-weaving speed, SNW | 60.6 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.2 | mi/h |
| Weaving segment density, D | 21.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.654 | |
| Weaving segment flow rate, v | 6568 | pc/h |
| Weaving segment capacity, cW | 9783 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4542 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2210 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.654 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2035_PM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7113 | 1887 | 237 | 333 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1872 | 497 | 62 | 88 | |
| Trucks and buses | 6 | 9 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.955 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7727 | 2080 | 252 | 355 | pc/h |
| Volume ratio, VR | | 0.224 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2332 | lc/h |
| Weaving lane changes, LCW | 2967 | lc/h |
| Non-weaving vehicle index, INW | 1374 | |
| Non-weaving lane change, LCNW | 1836 | lc/h |
| Total lane changes, LCALL | 4803 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.513 | |
| Average weaving speed, SW | 51.4 | mi/h |
| Average non-weaving speed, SNW | 43.2 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 44.8 | mi/h |
| Weaving segment density, D | 46.5 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.972 | |
| Weaving segment flow rate, v | 10414 | pc/h |
| Weaving segment capacity, cW | 10385 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4782 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2164 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.972 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2035_PM_Peak_SR_60_WB_Reservoir_Rd_to_SR-71.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Reservoir Rd to SR-71 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2050 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4943 | 527 | 2057 | 93 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1301 | 139 | 541 | 24 | |
| Trucks and buses | 5 | 2 | 7 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.964 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5344 | 561 | 2245 | 99 | pc/h |

Volume ratio, VR 0.340

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 561 | lc/h |
| Weaving lane changes, LCW | 1271 | lc/h |
| Non-weaving vehicle index, INW | 1116 | |
| Non-weaving lane change, LCNW | 1269 | lc/h |
| Total lane changes, LCALL | 2540 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.268 | |
| Average weaving speed, SW | 58.4 | mi/h |
| Average non-weaving speed, SNW | 58.0 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.2 | mi/h |
| Weaving segment density, D | 28.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.802 | |
| Weaving segment flow rate, v | 8249 | pc/h |
| Weaving segment capacity, cW | 10019 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4453 | 2050 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2216 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.802 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2035_AM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5181 | 589 | 999 | 31 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1363 | 155 | 263 | 8 | |
| Trucks and buses | 6 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5628 | 627 | 1080 | 33 | pc/h |
| Volume ratio, VR | | 0.232 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1707 | lc/h |
| Weaving lane changes, LCW | 2457 | lc/h |
| Non-weaving vehicle index, INW | 1274 | |
| Non-weaving lane change, LCNW | 1423 | lc/h |
| Total lane changes, LCALL | 3880 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.347 | |
| Average weaving speed, SW | 55.8 | mi/h |
| Average non-weaving speed, SNW | 50.6 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.7 | mi/h |
| Weaving segment density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.711 | |
| Weaving segment flow rate, v | 7368 | pc/h |
| Weaving segment capacity, cW | 10038 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4863 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2200 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.711 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2035_PM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6327 | 893 | 1003 | 47 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1665 | 235 | 264 | 12 | |
| Trucks and buses | 5 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6840 | 951 | 1090 | 50 | pc/h |
| Volume ratio, VR | | 0.229 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2041 | lc/h |
| Weaving lane changes, LCW | 2791 | lc/h |
| Non-weaving vehicle index, INW | 1550 | |
| Non-weaving lane change, LCNW | 2272 | lc/h |
| Total lane changes, LCALL | 5063 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.429 | |
| Average weaving speed, SW | 53.5 | mi/h |
| Average non-weaving speed, SNW | 46.7 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.1 | mi/h |
| Weaving segment density, D | 37.1 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.850 | |
| Weaving segment flow rate, v | 8931 | pc/h |
| Weaving segment capacity, cW | 10226 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4830 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2202 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.850 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2035_AM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6091 | 519 | 579 | 91 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1603 | 137 | 152 | 24 | |
| Trucks and buses | 7 | 6 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.969 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6649 | 564 | 623 | 97 | pc/h |
| Volume ratio, VR | | 0.150 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 623 | lc/h |
| Weaving lane changes, LCW | 840 | lc/h |
| Non-weaving vehicle index, INW | 472 | |
| Non-weaving lane change, LCNW | 999 | lc/h |
| Total lane changes, LCALL | 1839 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.484 | |
| Average weaving speed, SW | 52.1 | mi/h |
| Average non-weaving speed, SNW | 56.0 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.4 | mi/h |
| Weaving segment density, D | 35.8 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.925 | |
| Weaving segment flow rate, v | 7933 | pc/h |
| Weaving segment capacity, cW | 8274 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4028 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2145 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.925 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2035_PM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5952 | 298 | 738 | 52 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1566 | 78 | 194 | 14 | |
| Trucks and buses | 7 | 9 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.955 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6497 | 328 | 794 | 55 | pc/h |
| Volume ratio, VR | | 0.146 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 794 | lc/h |
| Weaving lane changes, LCW | 1011 | lc/h |
| Non-weaving vehicle index, INW | 459 | |
| Non-weaving lane change, LCNW | 959 | lc/h |
| Total lane changes, LCALL | 1970 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.511 | |
| Average weaving speed, SW | 51.4 | mi/h |
| Average non-weaving speed, SNW | 55.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.5 | mi/h |
| Weaving segment density, D | 35.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.893 | |
| Weaving segment flow rate, v | 7674 | pc/h |
| Weaving segment capacity, cW | 8285 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3994 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2148 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.893 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_AM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5073 | 1947 | 177 | 343 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1335 | 512 | 47 | 90 | |
| Trucks and buses | 8 | 6 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.969 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5564 | 2115 | 189 | 365 | pc/h |
| Volume ratio, VR | | 0.280 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2115 | lc/h |
| Weaving lane changes, LCW | 2638 | lc/h |
| Non-weaving vehicle index, INW | 741 | |
| Non-weaving lane change, LCNW | 936 | lc/h |
| Total lane changes, LCALL | 3574 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.518 | |
| Average weaving speed, SW | 51.2 | mi/h |
| Average non-weaving speed, SNW | 46.9 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.0 | mi/h |
| Weaving segment density, D | 34.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.747 | |
| Weaving segment flow rate, v | 8233 | pc/h |
| Weaving segment capacity, cW | 10581 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3803 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2205 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.747 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_AM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5992 | 748 | 1508 | 132 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1577 | 197 | 397 | 35 | |
| Trucks and buses | 9 | 3 | 13 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.983 | 0.937 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6604 | 801 | 1694 | 141 | pc/h |
| Volume ratio, VR | | 0.270 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 801 | lc/h |
| Weaving lane changes, LCW | 1296 | lc/h |
| Non-weaving vehicle index, INW | 776 | |
| Non-weaving lane change, LCNW | 1050 | lc/h |
| Total lane changes, LCALL | 2346 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.397 | |
| Average weaving speed, SW | 54.4 | mi/h |
| Average non-weaving speed, SNW | 55.4 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.1 | mi/h |
| Weaving segment density, D | 33.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.838 | |
| Weaving segment flow rate, v | 9240 | pc/h |
| Weaving segment capacity, cW | 10530 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3699 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2205 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.838 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_PM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 8429 | 1751 | 151 | 309 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2218 | 461 | 40 | 81 | |
| Trucks and buses | 8 | 8 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.960 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 9245 | 1921 | 162 | 329 | pc/h |
| Volume ratio, VR | | 0.179 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | | lc/h |
| Weaving lane changes, LCW | | lc/h |
| Non-weaving vehicle index, INW | | |
| Non-weaving lane change, LCNW | | lc/h |
| Total lane changes, LCALL | | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | | |
| Average weaving speed, SW | | mi/h |
| Average non-weaving speed, SNW | | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | | mi/h |
| Weaving segment density, D | | pc/mi/ln |
| Level of service, LOS | F | |
| Weaving segment v/c ratio | 1.020 | |
| Weaving segment flow rate, v | 11657 | pc/h |
| Weaving segment capacity, cW | 10964 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2753 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2285 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 1.020 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_PM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7967 | 893 | 1273 | 157 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2097 | 235 | 335 | 41 | |
| Trucks and buses | 8 | 3 | 17 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.983 | 0.920 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8739 | 956 | 1457 | 167 | pc/h |
| Volume ratio, VR | | 0.213 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | | lc/h |
| Weaving lane changes, LCW | | lc/h |
| Non-weaving vehicle index, INW | | |
| Non-weaving lane change, LCNW | | lc/h |
| Total lane changes, LCALL | | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | | |
| Average weaving speed, SW | | mi/h |
| Average non-weaving speed, SNW | | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | | mi/h |
| Weaving segment density, D | | pc/mi/ln |
| Level of service, LOS | F | |
| Weaving segment v/c ratio | 1.006 | |
| Weaving segment flow rate, v | 11319 | pc/h |
| Weaving segment capacity, cW | 10797 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3105 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2251 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 1.006 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_AM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6678 | 352 | 412 | 18 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1757 | 93 | 108 | 5 | |
| Trucks and buses | 8 | 5 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | 0.922 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7943 | 402 | 458 | 20 | pc/h |
| Volume ratio, VR | | 0.097 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 860 | lc/h |
| Weaving lane changes, LCW | 1472 | lc/h |
| Non-weaving vehicle index, INW | 1274 | |
| Non-weaving lane change, LCNW | 1545 | lc/h |
| Total lane changes, LCALL | 3017 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.373 | |
| Average weaving speed, SW | 55.1 | mi/h |
| Average non-weaving speed, SNW | 55.3 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.3 | mi/h |
| Weaving segment density, D | 31.9 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.783 | |
| Weaving segment flow rate, v | 8823 | pc/h |
| Weaving segment capacity, cW | 9969 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3515 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2254 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.783 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_AM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5686 | 114 | 514 | 6 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1496 | 30 | 135 | 2 | |
| Trucks and buses | 11 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.851 | 0.962 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7033 | 125 | 579 | 7 | pc/h |
| Volume ratio, VR | | 0.091 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 125 | lc/h |
| Weaving lane changes, LCW | 688 | lc/h |
| Non-weaving vehicle index, INW | 986 | |
| Non-weaving lane change, LCNW | 1246 | lc/h |
| Total lane changes, LCALL | 1934 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.292 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 61.7 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.3 | mi/h |
| Weaving segment density, D | 25.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.655 | |
| Weaving segment flow rate, v | 7744 | pc/h |
| Weaving segment capacity, cW | 10055 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 1886 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2363 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.655 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_PM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7170 | 950 | 400 | 50 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1887 | 250 | 105 | 13 | |
| Trucks and buses | 9 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.948 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8642 | 1055 | 444 | 55 | pc/h |
| Volume ratio, VR | | 0.147 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1499 | lc/h |
| Weaving lane changes, LCW | 2111 | lc/h |
| Non-weaving vehicle index, INW | 1392 | |
| Non-weaving lane change, LCNW | 1968 | lc/h |
| Total lane changes, LCALL | 4079 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.473 | |
| Average weaving speed, SW | 52.3 | mi/h |
| Average non-weaving speed, SNW | 49.4 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.8 | mi/h |
| Weaving segment density, D | 40.9 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.920 | |
| Weaving segment flow rate, v | 10196 | pc/h |
| Weaving segment capacity, cW | 9677 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4002 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2216 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.920 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_PM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 8222 | 418 | 558 | 22 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2164 | 110 | 147 | 6 | |
| Trucks and buses | 9 | 2 | 8 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.962 | 0.885 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 9910 | 458 | 664 | 24 | pc/h |
| Volume ratio, VR | | 0.101 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 458 | lc/h |
| Weaving lane changes, LCW | 1021 | lc/h |
| Non-weaving vehicle index, INW | 1391 | |
| Non-weaving lane change, LCNW | 2130 | lc/h |
| Total lane changes, LCALL | 3151 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.429 | |
| Average weaving speed, SW | 53.5 | mi/h |
| Average non-weaving speed, SNW | 56.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.8 | mi/h |
| Weaving segment density, D | 39.6 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.939 | |
| Weaving segment flow rate, v | 11056 | pc/h |
| Weaving segment capacity, cW | 10284 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 1988 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2355 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.939 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2035_AM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7133 | 627 | 517 | 33 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1877 | 165 | 136 | 9 | |
| Trucks and buses | 8 | 6 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.969 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7824 | 681 | 551 | 35 | pc/h |
| Volume ratio, VR | | 0.136 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 551 | lc/h |
| Weaving lane changes, LCW | 1031 | lc/h |
| Non-weaving vehicle index, INW | 864 | |
| Non-weaving lane change, LCNW | 1252 | lc/h |
| Total lane changes, LCALL | 2283 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.402 | |
| Average weaving speed, SW | 54.2 | mi/h |
| Average non-weaving speed, SNW | 57.3 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.9 | mi/h |
| Weaving segment density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.831 | |
| Weaving segment flow rate, v | 9091 | pc/h |
| Weaving segment capacity, cW | 10494 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3888 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2186 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.831 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2035_AM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5194 | 836 | 596 | 44 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1367 | 220 | 157 | 12 | |
| Trucks and buses | 11 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5779 | 891 | 641 | 47 | pc/h |
| Volume ratio, VR | | 0.208 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1532 | lc/h |
| Weaving lane changes, LCW | 2012 | lc/h |
| Non-weaving vehicle index, INW | 641 | |
| Non-weaving lane change, LCNW | 833 | lc/h |
| Total lane changes, LCALL | 2845 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.478 | |
| Average weaving speed, SW | 52.2 | mi/h |
| Average non-weaving speed, SNW | 51.9 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.0 | mi/h |
| Weaving segment density, D | 28.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.691 | |
| Weaving segment flow rate, v | 7358 | pc/h |
| Weaving segment capacity, cW | 10080 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4620 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2131 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.691 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2035_PM_Peak_SR_60_EB_University_Ave_to_MLK_Blvd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | University Ave to MLK Blvd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5646 | 884 | 584 | 46 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1486 | 233 | 154 | 12 | |
| Trucks and buses | 10 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6252 | 946 | 622 | 49 | pc/h |
| Volume ratio, VR | | 0.199 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 622 | lc/h |
| Weaving lane changes, LCW | 1102 | lc/h |
| Non-weaving vehicle index, INW | 693 | |
| Non-weaving lane change, LCNW | 931 | lc/h |
| Total lane changes, LCALL | 2033 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.367 | |
| Average weaving speed, SW | 55.2 | mi/h |
| Average non-weaving speed, SNW | 58.0 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.4 | mi/h |
| Weaving segment density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.736 | |
| Weaving segment flow rate, v | 7869 | pc/h |
| Weaving segment capacity, cW | 10162 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4529 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2138 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.736 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2035_PM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7905 | 475 | 725 | 25 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2080 | 125 | 191 | 7 | |
| Trucks and buses | 9 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8712 | 506 | 780 | 27 | pc/h |
| Volume ratio, VR | | 0.128 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1286 | lc/h |
| Weaving lane changes, LCW | 1766 | lc/h |
| Non-weaving vehicle index, INW | 961 | |
| Non-weaving lane change, LCNW | 1433 | lc/h |
| Total lane changes, LCALL | 3199 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.525 | |
| Average weaving speed, SW | 51.1 | mi/h |
| Average non-weaving speed, SNW | 51.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.1 | mi/h |
| Weaving segment density, D | 39.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.915 | |
| Weaving segment flow rate, v | 10025 | pc/h |
| Weaving segment capacity, cW | 10468 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3816 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2192 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.915 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_AM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6308 | 1292 | 702 | 68 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1660 | 340 | 185 | 18 | |
| Trucks and buses | 9 | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.885 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7603 | 1537 | 769 | 74 | pc/h |
| Volume ratio, VR | | 0.231 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2306 | lc/h |
| Weaving lane changes, LCW | 3065 | lc/h |
| Non-weaving vehicle index, INW | 1766 | |
| Non-weaving lane change, LCNW | 2966 | lc/h |
| Total lane changes, LCALL | 6031 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.484 | |
| Average weaving speed, SW | 52.1 | mi/h |
| Average non-weaving speed, SNW | 43.8 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 45.5 | mi/h |
| Weaving segment density, D | 43.9 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.961 | |
| Weaving segment flow rate, v | 9983 | pc/h |
| Weaving segment capacity, cW | 9074 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4856 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2204 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.961 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_AM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6379 | 1311 | 411 | 69 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1679 | 345 | 108 | 18 | |
| Trucks and buses | 10 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.862 | 0.948 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7789 | 1456 | 450 | 76 | pc/h |
| Volume ratio, VR | | 0.195 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1456 | lc/h |
| Weaving lane changes, LCW | 2135 | lc/h |
| Non-weaving vehicle index, INW | 1494 | |
| Non-weaving lane change, LCNW | 2212 | lc/h |
| Total lane changes, LCALL | 4347 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.434 | |
| Average weaving speed, SW | 53.3 | mi/h |
| Average non-weaving speed, SNW | 50.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.7 | mi/h |
| Weaving segment density, D | 38.5 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.842 | |
| Weaving segment flow rate, v | 9771 | pc/h |
| Weaving segment capacity, cW | 10009 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2920 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2322 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.842 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_PM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7138 | 922 | 652 | 48 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1878 | 243 | 172 | 13 | |
| Trucks and buses | 9 | 9 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.873 | 0.909 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8603 | 1111 | 755 | 53 | pc/h |
| Volume ratio, VR | | 0.177 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1866 | lc/h |
| Weaving lane changes, LCW | 2625 | lc/h |
| Non-weaving vehicle index, INW | 1991 | |
| Non-weaving lane change, LCNW | 3619 | lc/h |
| Total lane changes, LCALL | 6244 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.497 | |
| Average weaving speed, SW | 51.7 | mi/h |
| Average non-weaving speed, SNW | 46.5 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 47.3 | mi/h |
| Weaving segment density, D | 44.5 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.937 | |
| Weaving segment flow rate, v | 10522 | pc/h |
| Weaving segment capacity, cW | 9812 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4306 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2247 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.937 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_PM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 8117 | 903 | 493 | 47 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2136 | 238 | 130 | 12 | |
| Trucks and buses | 9 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 9783 | 989 | 540 | 51 | pc/h |
| Volume ratio, VR | | 0.135 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 989 | lc/h |
| Weaving lane changes, LCW | 1668 | lc/h |
| Non-weaving vehicle index, INW | 1868 | |
| Non-weaving lane change, LCNW | 3658 | lc/h |
| Total lane changes, LCALL | 5326 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.510 | |
| Average weaving speed, SW | 51.4 | mi/h |
| Average non-weaving speed, SNW | 52.0 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 51.9 | mi/h |
| Weaving segment density, D | 43.8 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.960 | |
| Weaving segment flow rate, v | 11363 | pc/h |
| Weaving segment capacity, cW | 10341 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2312 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2368 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.960 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2035_AM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2788 | 1012 | 482 | 178 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 734 | 266 | 127 | 47 | |
| Trucks and buses | 15 | 23 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.810 | 0.738 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3624 | 1443 | 528 | 195 | pc/h |
| Volume ratio, VR | | 0.340 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1443 | lc/h |
| Weaving lane changes, LCW | 1952 | lc/h |
| Non-weaving vehicle index, INW | 458 | |
| Non-weaving lane change, LCNW | 474 | lc/h |
| Total lane changes, LCALL | 2426 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.394 | |
| Average weaving speed, SW | 54.5 | mi/h |
| Average non-weaving speed, SNW | 54.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.2 | mi/h |
| Weaving segment density, D | 21.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.563 | |
| Weaving segment flow rate, v | 5790 | pc/h |
| Weaving segment capacity, cW | 8325 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4455 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2151 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.563 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-27_2035_PM_Peak_SR_60_EB_I-215_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | I-215 to Day St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4212 | 1318 | 438 | 232 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1108 | 347 | 115 | 61 | |
| Trucks and buses | 10 | 21 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.862 | 0.755 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5143 | 1838 | 479 | 254 | pc/h |
| Volume ratio, VR | | 0.300 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1838 | lc/h |
| Weaving lane changes, LCW | 2347 | lc/h |
| Non-weaving vehicle index, INW | 648 | |
| Non-weaving lane change, LCNW | 799 | lc/h |
| Total lane changes, LCALL | 3146 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.483 | |
| Average weaving speed, SW | 52.1 | mi/h |
| Average non-weaving speed, SNW | 49.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.1 | mi/h |
| Weaving segment density, D | 30.8 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.706 | |
| Weaving segment flow rate, v | 7714 | pc/h |
| Weaving segment capacity, cW | 9414 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4022 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2184 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.706 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2035_AM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2752 | 264 | 1160 | 13 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 724 | 69 | 305 | 3 | |
| Trucks and buses | 16 | 4 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | 0.978 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3134 | 284 | 1242 | 14 | pc/h |
| Volume ratio, VR | | 0.326 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 284 | lc/h |
| Weaving lane changes, LCW | 628 | lc/h |
| Non-weaving vehicle index, INW | 409 | |
| Non-weaving lane change, LCNW | 583 | lc/h |
| Total lane changes, LCALL | 1211 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.214 | |
| Average weaving speed, SW | 60.3 | mi/h |
| Average non-weaving speed, SNW | 62.3 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.7 | mi/h |
| Weaving segment density, D | 18.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.538 | |
| Weaving segment flow rate, v | 4674 | pc/h |
| Weaving segment capacity, cW | 8022 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4304 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2171 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.538 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2035_AM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3028 | 756 | 996 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 797 | 199 | 262 | 10 | |
| Trucks and buses | 10 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3353 | 809 | 1061 | 42 | pc/h |
| Volume ratio, VR | | 0.355 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1870 | lc/h |
| Weaving lane changes, LCW | 2150 | lc/h |
| Non-weaving vehicle index, INW | 815 | |
| Non-weaving lane change, LCNW | 1422 | lc/h |
| Total lane changes, LCALL | 3572 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.309 | |
| Average weaving speed, SW | 57.0 | mi/h |
| Average non-weaving speed, SNW | 48.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.9 | mi/h |
| Weaving segment density, D | 34.5 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.831 | |
| Weaving segment flow rate, v | 5265 | pc/h |
| Weaving segment capacity, cW | 6020 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6183 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2111 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.831 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2035_PM_Peak_SR_60_EB_Day_St_to_Pigeon_Pass_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Day St to Pigeon Pass Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3327 | 703 | 1623 | 37 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 876 | 185 | 427 | 10 | |
| Trucks and buses | 11 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3702 | 749 | 1737 | 39 | pc/h |
| Volume ratio, VR | | 0.399 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 749 | lc/h |
| Weaving lane changes, LCW | 1093 | lc/h |
| Non-weaving vehicle index, INW | 486 | |
| Non-weaving lane change, LCNW | 705 | lc/h |
| Total lane changes, LCALL | 1798 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.292 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 57.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.3 | mi/h |
| Weaving segment density, D | 27.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.738 | |
| Weaving segment flow rate, v | 6227 | pc/h |
| Weaving segment capacity, cW | 7981 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5106 | 1300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2109 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.738 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2035_PM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3710 | 580 | 780 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 976 | 153 | 205 | 8 | |
| Trucks and buses | 13 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4167 | 618 | 831 | 32 | pc/h |
| Volume ratio, VR | | 0.257 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1449 | lc/h |
| Weaving lane changes, LCW | 1729 | lc/h |
| Non-weaving vehicle index, INW | 1008 | |
| Non-weaving lane change, LCNW | 1588 | lc/h |
| Total lane changes, LCALL | 3317 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.292 | |
| Average weaving speed, SW | 57.6 | mi/h |
| Average non-weaving speed, SNW | 50.5 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.2 | mi/h |
| Weaving segment density, D | 36.1 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.859 | |
| Weaving segment flow rate, v | 5648 | pc/h |
| Weaving segment capacity, cW | 6163 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5123 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2191 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.859 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2035_AM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Nason St to Moreno Beach Dr |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2016 | 314 | 804 | 16 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 531 | 83 | 212 | 4 | |
| Trucks and buses | 21 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.903 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2349 | 336 | 856 | 17 | pc/h |
| Volume ratio, VR | | 0.335 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1192 | lc/h |
| Weaving lane changes, LCW | 1421 | lc/h |
| Non-weaving vehicle index, INW | 402 | |
| Non-weaving lane change, LCNW | 831 | lc/h |
| Total lane changes, LCALL | 2252 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.282 | |
| Average weaving speed, SW | 57.9 | mi/h |
| Average non-weaving speed, SNW | 55.7 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.4 | mi/h |
| Weaving segment density, D | 21.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.572 | |
| Weaving segment flow rate, v | 3558 | pc/h |
| Weaving segment capacity, cW | 5621 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5963 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2074 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.572 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2035_AM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2570 | 570 | 290 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 676 | 150 | 76 | 8 | |
| Trucks and buses | 13 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2887 | 607 | 309 | 32 | pc/h |
| Volume ratio, VR | | 0.239 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 916 | lc/h |
| Weaving lane changes, LCW | 1145 | lc/h |
| Non-weaving vehicle index, INW | 496 | |
| Non-weaving lane change, LCNW | 945 | lc/h |
| Total lane changes, LCALL | 2090 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.266 | |
| Average weaving speed, SW | 58.4 | mi/h |
| Average non-weaving speed, SNW | 57.3 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.5 | mi/h |
| Weaving segment density, D | 22.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.594 | |
| Weaving segment flow rate, v | 3835 | pc/h |
| Weaving segment capacity, cW | 6051 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4937 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2152 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.594 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2035_PM_Peak_SR_60_EB_Nason_St_to_Moreno_Beach_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Nason St to Moreno Beach Dr |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2280 | 390 | 960 | 20 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 600 | 103 | 253 | 5 | |
| Trucks and buses | 16 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2597 | 415 | 1028 | 21 | pc/h |
| Volume ratio, VR | | 0.355 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1443 | lc/h |
| Weaving lane changes, LCW | 1672 | lc/h |
| Non-weaving vehicle index, INW | 445 | |
| Non-weaving lane change, LCNW | 883 | lc/h |
| Total lane changes, LCALL | 2555 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.312 | |
| Average weaving speed, SW | 56.9 | mi/h |
| Average non-weaving speed, SNW | 53.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.4 | mi/h |
| Weaving segment density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.658 | |
| Weaving segment flow rate, v | 4061 | pc/h |
| Weaving segment capacity, cW | 5703 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6185 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2057 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.658 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-32_2035_PM_Peak_SR_60_WB_Moreno_Beach_Dr_to_Nason_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Moreno Beach Dr to Nason St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2249 | 483 | 282 | 25 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 592 | 127 | 74 | 7 | |
| Trucks and buses | 19 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.912 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2597 | 517 | 300 | 27 | pc/h |
| Volume ratio, VR | | 0.237 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 817 | lc/h |
| Weaving lane changes, LCW | 1046 | lc/h |
| Non-weaving vehicle index, INW | 446 | |
| Non-weaving lane change, LCNW | 884 | lc/h |
| Total lane changes, LCALL | 1930 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.250 | |
| Average weaving speed, SW | 59.0 | mi/h |
| Average non-weaving speed, SNW | 58.6 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.7 | mi/h |
| Weaving segment density, D | 19.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.533 | |
| Weaving segment flow rate, v | 3441 | pc/h |
| Weaving segment capacity, cW | 5888 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4922 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2154 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.533 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2035_AM_Peak_SR_60_EB_Gilman_Springs_to_Theodore.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Gilman Springs to Theodore |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2512 | 998 | 658 | 52 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 661 | 263 | 173 | 14 | |
| Trucks and buses | 6 | 5 | 10 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.974 | 0.951 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2729 | 1079 | 729 | 55 | pc/h |
| Volume ratio, VR | | 0.394 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1079 | lc/h |
| Weaving lane changes, LCW | 1308 | lc/h |
| Non-weaving vehicle index, INW | 473 | |
| Non-weaving lane change, LCNW | 917 | lc/h |
| Total lane changes, LCALL | 2225 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.279 | |
| Average weaving speed, SW | 58.0 | mi/h |
| Average non-weaving speed, SNW | 54.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.1 | mi/h |
| Weaving segment density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.714 | |
| Weaving segment flow rate, v | 4592 | pc/h |
| Weaving segment capacity, cW | 6233 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5045 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2144 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.714 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2035_AM_Peak_SR_60_EB_Theodore_to_Gilman_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Theodore to Gilman Springs |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2000 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1853 | 247 | 967 | 13 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 488 | 65 | 254 | 3 | |
| Trucks and buses | 8 | 19 | 12 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.912 | 0.942 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2032 | 285 | 1081 | 14 | pc/h |
| Volume ratio, VR | | 0.400 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 285 | lc/h |
| Weaving lane changes, LCW | 537 | lc/h |
| Non-weaving vehicle index, INW | 409 | |
| Non-weaving lane change, LCNW | 928 | lc/h |
| Total lane changes, LCALL | 1465 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.177 | |
| Average weaving speed, SW | 61.7 | mi/h |
| Average non-weaving speed, SNW | 62.5 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.2 | mi/h |
| Weaving segment density, D | 18.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.526 | |
| Weaving segment flow rate, v | 3412 | pc/h |
| Weaving segment capacity, cW | 6222 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5119 | 2000 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2162 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.526 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2035_PM_Peak_SR_60_EB_Gilman_Springs_to_Theodore.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Gilman Springs to Theodore |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 1976 | 1074 | 364 | 56 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 520 | 283 | 96 | 15 | |
| Trucks and buses | 7 | 9 | 16 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.955 | 0.924 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2157 | 1184 | 415 | 60 | pc/h |
| Volume ratio, VR | | 0.419 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1184 | lc/h |
| Weaving lane changes, LCW | 1413 | lc/h |
| Non-weaving vehicle index, INW | 377 | |
| Non-weaving lane change, LCNW | 800 | lc/h |
| Total lane changes, LCALL | 2213 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.278 | |
| Average weaving speed, SW | 58.0 | mi/h |
| Average non-weaving speed, SNW | 55.4 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.5 | mi/h |
| Weaving segment density, D | 22.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.599 | |
| Weaving segment flow rate, v | 3816 | pc/h |
| Weaving segment capacity, cW | 6139 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5329 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2122 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.599 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-35_2035_PM_Peak_SR_60_EB_Theodore_to_Gilman_Springs.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Theodore to Gilman Springs |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 3 | ln |
| Weaving segment length, LS | 2000 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2790 | 1330 | 1170 | 70 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 734 | 350 | 308 | 18 | |
| Trucks and buses | 5 | 5 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.974 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3016 | 1438 | 1265 | 75 | pc/h |
| Volume ratio, VR | | 0.467 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1438 | lc/h |
| Weaving lane changes, LCW | 1690 | lc/h |
| Non-weaving vehicle index, INW | 618 | |
| Non-weaving lane change, LCNW | 1143 | lc/h |
| Total lane changes, LCALL | 2833 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.297 | |
| Average weaving speed, SW | 57.4 | mi/h |
| Average non-weaving speed, SNW | 50.4 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.4 | mi/h |
| Weaving segment density, D | 36.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.918 | |
| Weaving segment flow rate, v | 5794 | pc/h |
| Weaving segment capacity, cW | 6146 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5872 | 2000 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2103 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.918 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2035_AM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5519 | 741 | 781 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1452 | 195 | 206 | 10 | |
| Trucks and buses | 5 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5966 | 789 | 836 | 42 | pc/h |
| Volume ratio, VR | | 0.213 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 789 | lc/h |
| Weaving lane changes, LCW | 1196 | lc/h |
| Non-weaving vehicle index, INW | 1021 | |
| Non-weaving lane change, LCNW | 1389 | lc/h |
| Total lane changes, LCALL | 2585 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.315 | |
| Average weaving speed, SW | 56.8 | mi/h |
| Average non-weaving speed, SNW | 55.2 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.5 | mi/h |
| Weaving segment density, D | 34.4 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.832 | |
| Weaving segment flow rate, v | 7633 | pc/h |
| Weaving segment capacity, cW | 8931 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3102 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2293 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.832 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-42_2035_PM_Peak_SR_91_EB_Magnolia_Ave_to_La_Sierra_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Magnolia Ave to La Sierra Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5068 | 912 | 872 | 48 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1334 | 240 | 229 | 13 | |
| Trucks and buses | 7 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5532 | 972 | 929 | 51 | pc/h |
| Volume ratio, VR | | 0.254 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 972 | lc/h |
| Weaving lane changes, LCW | 1379 | lc/h |
| Non-weaving vehicle index, INW | 949 | |
| Non-weaving lane change, LCNW | 1301 | lc/h |
| Total lane changes, LCALL | 2680 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.324 | |
| Average weaving speed, SW | 56.6 | mi/h |
| Average non-weaving speed, SNW | 54.0 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.6 | mi/h |
| Weaving segment density, D | 34.2 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.828 | |
| Weaving segment flow rate, v | 7484 | pc/h |
| Weaving segment capacity, cW | 8717 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3530 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2260 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.828 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2035_AM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6372 | 428 | 838 | 22 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1677 | 113 | 221 | 6 | |
| Trucks and buses | 8 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6989 | 456 | 897 | 23 | pc/h |
| Volume ratio, VR | | 0.162 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1353 | lc/h |
| Weaving lane changes, LCW | 1615 | lc/h |
| Non-weaving vehicle index, INW | 617 | |
| Non-weaving lane change, LCNW | 1151 | lc/h |
| Total lane changes, LCALL | 2766 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.558 | |
| Average weaving speed, SW | 50.3 | mi/h |
| Average non-weaving speed, SNW | 50.2 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.2 | mi/h |
| Weaving segment density, D | 41.6 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.973 | |
| Weaving segment flow rate, v | 8365 | pc/h |
| Weaving segment capacity, cW | 8253 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4149 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2150 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.973 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2035_AM_Peak_SR_91_WB_Central_Ave_to_Arlington_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4255 | 285 | 585 | 15 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1120 | 75 | 154 | 4 | |
| Trucks and buses | 8 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4667 | 304 | 623 | 16 | pc/h |
| Volume ratio, VR | | 0.165 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 927 | lc/h |
| Weaving lane changes, LCW | 1227 | lc/h |
| Non-weaving vehicle index, INW | 496 | |
| Non-weaving lane change, LCNW | 769 | lc/h |
| Total lane changes, LCALL | 1996 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.372 | |
| Average weaving speed, SW | 55.1 | mi/h |
| Average non-weaving speed, SNW | 56.6 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.3 | mi/h |
| Weaving segment density, D | 24.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.649 | |
| Weaving segment flow rate, v | 5610 | pc/h |
| Weaving segment capacity, cW | 8296 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4184 | 1060 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2161 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.649 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2035_PM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3214 | 266 | 726 | 14 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 846 | 70 | 191 | 4 | |
| Trucks and buses | 10 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3559 | 283 | 777 | 15 | pc/h |
| Volume ratio, VR | | 0.229 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1060 | lc/h |
| Weaving lane changes, LCW | 1322 | lc/h |
| Non-weaving vehicle index, INW | 315 | |
| Non-weaving lane change, LCNW | 443 | lc/h |
| Total lane changes, LCALL | 1765 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.391 | |
| Average weaving speed, SW | 54.5 | mi/h |
| Average non-weaving speed, SNW | 56.8 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.3 | mi/h |
| Weaving segment density, D | 20.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.552 | |
| Weaving segment flow rate, v | 4634 | pc/h |
| Weaving segment capacity, cW | 7977 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4832 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2097 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.552 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2035_PM_Peak_SR_91_WB_Central_Ave_to_Arlington_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | Central Ave to Arlington Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1060 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5059 | 244 | 515 | 12 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1331 | 64 | 136 | 3 | |
| Trucks and buses | 6 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5496 | 260 | 551 | 13 | pc/h |
| Volume ratio, VR | | 0.128 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 811 | lc/h |
| Weaving lane changes, LCW | 1111 | lc/h |
| Non-weaving vehicle index, INW | 584 | |
| Non-weaving lane change, LCNW | 939 | lc/h |
| Total lane changes, LCALL | 2050 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.380 | |
| Average weaving speed, SW | 54.8 | mi/h |
| Average non-weaving speed, SNW | 56.6 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.3 | mi/h |
| Weaving segment density, D | 28.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.722 | |
| Weaving segment flow rate, v | 6320 | pc/h |
| Weaving segment capacity, cW | 8484 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3817 | 1060 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2189 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.722 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2035_AM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4185 | 285 | 775 | 15 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1101 | 75 | 204 | 4 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4524 | 304 | 826 | 16 | pc/h |
| Volume ratio, VR | | 0.199 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1130 | lc/h |
| Weaving lane changes, LCW | 1312 | lc/h |
| Non-weaving vehicle index, INW | 263 | |
| Non-weaving lane change, LCNW | 479 | lc/h |
| Total lane changes, LCALL | 1791 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.550 | |
| Average weaving speed, SW | 50.5 | mi/h |
| Average non-weaving speed, SNW | 55.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.1 | mi/h |
| Weaving segment density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.676 | |
| Weaving segment flow rate, v | 5670 | pc/h |
| Weaving segment capacity, cW | 8171 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4529 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2098 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.676 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2035_AM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5049 | 184 | 777 | 9 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1329 | 48 | 204 | 2 | |
| Trucks and buses | 7 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5511 | 197 | 828 | 10 | pc/h |
| Volume ratio, VR | | 0.157 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1025 | lc/h |
| Weaving lane changes, LCW | 1319 | lc/h |
| Non-weaving vehicle index, INW | 331 | |
| Non-weaving lane change, LCNW | 500 | lc/h |
| Total lane changes, LCALL | 1819 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.542 | |
| Average weaving speed, SW | 50.7 | mi/h |
| Average non-weaving speed, SNW | 56.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 55.4 | mi/h |
| Weaving segment density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.614 | |
| Weaving segment flow rate, v | 6546 | pc/h |
| Weaving segment capacity, cW | 10280 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4097 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2132 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.614 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2035_PM_Peak_SR_91_EB_14th_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | 14th St to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 580 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3577 | 427 | 904 | 22 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 941 | 112 | 238 | 6 | |
| Trucks and buses | 6 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3886 | 455 | 963 | 23 | pc/h |
| Volume ratio, VR | | 0.266 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1418 | lc/h |
| Weaving lane changes, LCW | 1600 | lc/h |
| Non-weaving vehicle index, INW | 227 | |
| Non-weaving lane change, LCNW | 349 | lc/h |
| Total lane changes, LCALL | 1949 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.588 | |
| Average weaving speed, SW | 49.6 | mi/h |
| Average non-weaving speed, SNW | 53.4 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.3 | mi/h |
| Weaving segment density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.651 | |
| Weaving segment flow rate, v | 5327 | pc/h |
| Weaving segment capacity, cW | 7926 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5224 | 580 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2045 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.651 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-50_2035_PM_Peak_SR_91_WB_University_Ave_to_14th_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | University Ave to 14th St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6878 | 455 | 693 | 23 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1810 | 120 | 182 | 6 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7435 | 485 | 738 | 25 | pc/h |
| Volume ratio, VR | | 0.141 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1223 | lc/h |
| Weaving lane changes, LCW | 1517 | lc/h |
| Non-weaving vehicle index, INW | 448 | |
| Non-weaving lane change, LCNW | 899 | lc/h |
| Total lane changes, LCALL | 2416 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.678 | |
| Average weaving speed, SW | 47.8 | mi/h |
| Average non-weaving speed, SNW | 52.9 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.1 | mi/h |
| Weaving segment density, D | 33.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.810 | |
| Weaving segment flow rate, v | 8683 | pc/h |
| Weaving segment capacity, cW | 10438 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3940 | 600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2144 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.810 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2035_AM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2960 | 1390 | 788 | 245 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 779 | 366 | 207 | 64 | |
| Trucks and buses | 7 | 13 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.937 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3231 | 1561 | 839 | 261 | pc/h |
| Volume ratio, VR | | 0.407 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 839 | lc/h |
| Weaving lane changes, LCW | 1195 | lc/h |
| Non-weaving vehicle index, INW | 258 | |
| Non-weaving lane change, LCNW | 157 | lc/h |
| Total lane changes, LCALL | 1352 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.364 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 58.3 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.1 | mi/h |
| Weaving segment density, D | 20.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.686 | |
| Weaving segment flow rate, v | 5892 | pc/h |
| Weaving segment capacity, cW | 8286 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5197 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2059 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.686 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-51_2035_PM_Peak_SR_91_WB_SR-60_to_Mission_Inn_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 WB |
| Weaving Location: | SR-60 to Mission Inn Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 740 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6484 | 1216 | 536 | 214 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1706 | 320 | 141 | 56 | |
| Trucks and buses | 4 | 17 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.920 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6975 | 1391 | 571 | 228 | pc/h |
| Volume ratio, VR | | 0.214 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 571 | lc/h |
| Weaving lane changes, LCW | 927 | lc/h |
| Non-weaving vehicle index, INW | 533 | |
| Non-weaving lane change, LCNW | 922 | lc/h |
| Total lane changes, LCALL | 1849 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.465 | |
| Average weaving speed, SW | 52.5 | mi/h |
| Average non-weaving speed, SNW | 57.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.0 | mi/h |
| Weaving segment density, D | 32.7 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.826 | |
| Weaving segment flow rate, v | 9165 | pc/h |
| Weaving segment capacity, cW | 10851 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3115 | 740 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2218 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.826 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2035_AM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2931 | 119 | 1069 | 21 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 771 | 31 | 281 | 6 | |
| Trucks and buses | 10 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3246 | 127 | 1161 | 22 | pc/h |
| Volume ratio, VR | | 0.283 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 127 | lc/h |
| Weaving lane changes, LCW | 703 | lc/h |
| Non-weaving vehicle index, INW | 474 | |
| Non-weaving lane change, LCNW | 496 | lc/h |
| Total lane changes, LCALL | 1199 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.195 | |
| Average weaving speed, SW | 61.0 | mi/h |
| Average non-weaving speed, SNW | 64.7 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 63.6 | mi/h |
| Weaving segment density, D | 14.3 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.411 | |
| Weaving segment flow rate, v | 4556 | pc/h |
| Weaving segment capacity, cW | 10542 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3833 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2217 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.411 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2035_AM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6422 | 808 | 168 | 42 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1690 | 213 | 44 | 11 | |
| Trucks and buses | 7 | 10 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.951 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7010 | 895 | 179 | 45 | pc/h |
| Volume ratio, VR | | 0.132 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1074 | lc/h |
| Weaving lane changes, LCW | 1554 | lc/h |
| Non-weaving vehicle index, INW | 776 | |
| Non-weaving lane change, LCNW | 1087 | lc/h |
| Total lane changes, LCALL | 2641 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.451 | |
| Average weaving speed, SW | 52.9 | mi/h |
| Average non-weaving speed, SNW | 54.5 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.3 | mi/h |
| Weaving segment density, D | 30.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.743 | |
| Weaving segment flow rate, v | 8129 | pc/h |
| Weaving segment capacity, cW | 10554 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3854 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2189 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.743 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2035_PM_Peak_I_10_EB_Haugen-Lehmann_to_SR-111.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | Haugen-Lehmann to SR-111 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1450 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6334 | 816 | 1256 | 144 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1667 | 215 | 331 | 38 | |
| Trucks and buses | 7 | 6 | 7 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.969 | 0.964 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6914 | 886 | 1371 | 153 | pc/h |
| Volume ratio, VR | | 0.242 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 886 | lc/h |
| Weaving lane changes, LCW | 1462 | lc/h |
| Non-weaving vehicle index, INW | 1025 | |
| Non-weaving lane change, LCNW | 1279 | lc/h |
| Total lane changes, LCALL | 2741 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.374 | |
| Average weaving speed, SW | 55.0 | mi/h |
| Average non-weaving speed, SNW | 54.7 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.8 | mi/h |
| Weaving segment density, D | 34.1 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.829 | |
| Weaving segment flow rate, v | 9324 | pc/h |
| Weaving segment capacity, cW | 10849 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3405 | 1450 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2251 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.829 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-63_2035_PM_Peak_I_10_EB_SR-111_to_Hugen-Lehmann.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 10 EB |
| Weaving Location: | SR-111 to Hugen-Lehmann |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2990 | 1530 | 860 | 80 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 787 | 403 | 226 | 21 | |
| Trucks and buses | 10 | 6 | 7 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.969 | 0.964 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3311 | 1662 | 939 | 85 | pc/h |
| Volume ratio, VR | | 0.434 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | | lc/h |
| Weaving lane changes, LCW | | lc/h |
| Non-weaving vehicle index, INW | | |
| Non-weaving lane change, LCNW | | lc/h |
| Total lane changes, LCALL | | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | | |
| Average weaving speed, SW | | mi/h |
| Average non-weaving speed, SNW | | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | | mi/h |
| Weaving segment density, D | | pc/mi/ln |
| Level of service, LOS | F | |
| Weaving segment v/c ratio | 1.084 | |
| Weaving segment flow rate, v | 5997 | pc/h |
| Weaving segment capacity, cW | 5260 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 7062 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1944 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 1.084 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2035_AM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3046 | 1734 | 214 | 306 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 802 | 456 | 56 | 81 | |
| Trucks and buses | 5 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3293 | 1865 | 228 | 326 | pc/h |
| Volume ratio, VR | | 0.366 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2093 | lc/h |
| Weaving lane changes, LCW | 2534 | lc/h |
| Non-weaving vehicle index, INW | 706 | |
| Non-weaving lane change, LCNW | 1032 | lc/h |
| Total lane changes, LCALL | 3566 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.364 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 48.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.5 | mi/h |
| Weaving segment density, D | 28.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.872 | |
| Weaving segment flow rate, v | 5712 | pc/h |
| Weaving segment capacity, cW | 6378 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6307 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2067 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.872 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2035_AM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3202 | 1148 | 2088 | 202 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 843 | 302 | 549 | 53 | |
| Trucks and buses | 5 | 3 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3462 | 1229 | 2268 | 215 | pc/h |
| Volume ratio, VR | | 0.487 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1229 | lc/h |
| Weaving lane changes, LCW | 1495 | lc/h |
| Non-weaving vehicle index, INW | 331 | |
| Non-weaving lane change, LCNW | 475 | lc/h |
| Total lane changes, LCALL | 1970 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.419 | |
| Average weaving speed, SW | 53.8 | mi/h |
| Average non-weaving speed, SNW | 52.5 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.1 | mi/h |
| Weaving segment density, D | 33.8 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.999 | |
| Weaving segment flow rate, v | 7174 | pc/h |
| Weaving segment capacity, cW | 6991 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6114 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2002 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.999 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2035_PM_Peak_I_215_NB_SR-60_to_Columbia_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | SR-60 to Columbia Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 1950 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2314 | 1726 | 326 | 304 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 609 | 454 | 86 | 80 | |
| Trucks and buses | 6 | 9 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.955 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2514 | 1902 | 347 | 324 | pc/h |
| Volume ratio, VR | | 0.442 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2249 | lc/h |
| Weaving lane changes, LCW | 2690 | lc/h |
| Non-weaving vehicle index, INW | 553 | |
| Non-weaving lane change, LCNW | 871 | lc/h |
| Total lane changes, LCALL | 3561 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.363 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 47.7 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 50.8 | mi/h |
| Weaving segment density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.937 | |
| Weaving segment flow rate, v | 5087 | pc/h |
| Weaving segment capacity, cW | 5260 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 7158 | 1950 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2002 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.937 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-73_2035_PM_Peak_I_215_SB_Columbia_Ave_to_SR-60_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Columbia Ave to SR-60 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2194 | 1326 | 1826 | 234 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 577 | 349 | 481 | 62 | |
| Trucks and buses | 5 | 2 | 8 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.960 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 2372 | 1413 | 2003 | 249 | pc/h |
| Volume ratio, VR | | 0.566 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1413 | lc/h |
| Weaving lane changes, LCW | 1679 | lc/h |
| Non-weaving vehicle index, INW | 236 | |
| Non-weaving lane change, LCNW | 257 | lc/h |
| Total lane changes, LCALL | 1936 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.414 | |
| Average weaving speed, SW | 53.9 | mi/h |
| Average non-weaving speed, SNW | 52.6 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.3 | mi/h |
| Weaving segment density, D | 28.3 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.976 | |
| Weaving segment flow rate, v | 6037 | pc/h |
| Weaving segment capacity, cW | 6023 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 7040 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 1930 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.976 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2035_AM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3046 | 604 | 814 | 106 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 802 | 159 | 214 | 28 | |
| Trucks and buses | 5 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3293 | 647 | 867 | 113 | pc/h |
| Volume ratio, VR | | 0.308 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 867 | lc/h |
| Weaving lane changes, LCW | 1390 | lc/h |
| Non-weaving vehicle index, INW | 426 | |
| Non-weaving lane change, LCNW | 416 | lc/h |
| Total lane changes, LCALL | 1806 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.302 | |
| Average weaving speed, SW | 57.2 | mi/h |
| Average non-weaving speed, SNW | 59.0 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.5 | mi/h |
| Weaving segment density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.631 | |
| Weaving segment flow rate, v | 4920 | pc/h |
| Weaving segment capacity, cW | 7594 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5667 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2062 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.631 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2035_AM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4533 | 247 | 1417 | 43 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1193 | 65 | 373 | 11 | |
| Trucks and buses | 4 | 5 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.974 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4877 | 267 | 1517 | 46 | pc/h |
| Volume ratio, VR | | 0.266 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 534 | lc/h |
| Weaving lane changes, LCW | 1043 | lc/h |
| Non-weaving vehicle index, INW | 591 | |
| Non-weaving lane change, LCNW | 702 | lc/h |
| Total lane changes, LCALL | 1745 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.304 | |
| Average weaving speed, SW | 57.2 | mi/h |
| Average non-weaving speed, SNW | 59.7 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.0 | mi/h |
| Weaving segment density, D | 22.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.606 | |
| Weaving segment flow rate, v | 6707 | pc/h |
| Weaving segment capacity, cW | 10822 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3656 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2212 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.606 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2035_PM_Peak_I_215_NB_I-10_to_Auto_Plaza_Dr.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | I-10 to Auto Plaza Dr |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3993 | 867 | 717 | 153 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1051 | 228 | 189 | 40 | |
| Trucks and buses | 5 | 4 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4317 | 933 | 768 | 163 | pc/h |
| Volume ratio, VR | | 0.275 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 768 | lc/h |
| Weaving lane changes, LCW | 1291 | lc/h |
| Non-weaving vehicle index, INW | 560 | |
| Non-weaving lane change, LCNW | 637 | lc/h |
| Total lane changes, LCALL | 1928 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.318 | |
| Average weaving speed, SW | 56.7 | mi/h |
| Average non-weaving speed, SNW | 58.5 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.0 | mi/h |
| Weaving segment density, D | 21.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.709 | |
| Weaving segment flow rate, v | 6181 | pc/h |
| Weaving segment capacity, cW | 8492 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5319 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2089 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.709 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-79_2035_PM_Peak_I_215_SB_Auto_Plaza_Dr_to_I-10_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Auto Plaza Dr to I-10 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3577 | 493 | 813 | 87 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 941 | 130 | 214 | 23 | |
| Trucks and buses | 5 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3867 | 525 | 883 | 93 | pc/h |
| Volume ratio, VR | | 0.262 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 2 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1050 | lc/h |
| Weaving lane changes, LCW | 1559 | lc/h |
| Non-weaving vehicle index, INW | 475 | |
| Non-weaving lane change, LCNW | 503 | lc/h |
| Total lane changes, LCALL | 2062 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.346 | |
| Average weaving speed, SW | 55.8 | mi/h |
| Average non-weaving speed, SNW | 57.3 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.9 | mi/h |
| Weaving segment density, D | 18.9 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.485 | |
| Weaving segment flow rate, v | 5368 | pc/h |
| Weaving segment capacity, cW | 10784 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3617 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2215 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.485 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2035_AM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4000 | 347 | 795 | 18 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1053 | 91 | 209 | 5 | |
| Trucks and buses | 5 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4324 | 373 | 847 | 19 | pc/h |
| Volume ratio, VR | | 0.219 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 373 | lc/h |
| Weaving lane changes, LCW | 789 | lc/h |
| Non-weaving vehicle index, INW | 391 | |
| Non-weaving lane change, LCNW | 419 | lc/h |
| Total lane changes, LCALL | 1208 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.285 | |
| Average weaving speed, SW | 57.8 | mi/h |
| Average non-weaving speed, SNW | 62.0 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.0 | mi/h |
| Weaving segment density, D | 18.2 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.528 | |
| Weaving segment flow rate, v | 5563 | pc/h |
| Weaving segment capacity, cW | 10258 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4735 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2107 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.528 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2035_AM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5168 | 594 | 577 | 31 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1360 | 156 | 152 | 8 | |
| Trucks and buses | 3 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5532 | 636 | 615 | 33 | pc/h |
| Volume ratio, VR | | 0.184 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 636 | lc/h |
| Weaving lane changes, LCW | 1052 | lc/h |
| Non-weaving vehicle index, INW | 501 | |
| Non-weaving lane change, LCNW | 671 | lc/h |
| Total lane changes, LCALL | 1723 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.377 | |
| Average weaving speed, SW | 54.9 | mi/h |
| Average non-weaving speed, SNW | 58.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.1 | mi/h |
| Weaving segment density, D | 23.5 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.638 | |
| Weaving segment flow rate, v | 6816 | pc/h |
| Weaving segment capacity, cW | 10497 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4369 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2134 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.638 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2035_PM_Peak_I_215_NB_Mill_St_to_2rd_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | Mill St to 2rd St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5273 | 437 | 827 | 23 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1388 | 115 | 218 | 6 | |
| Trucks and buses | 4 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5673 | 468 | 881 | 25 | pc/h |
| Volume ratio, VR | | 0.191 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 468 | lc/h |
| Weaving lane changes, LCW | 884 | lc/h |
| Non-weaving vehicle index, INW | 513 | |
| Non-weaving lane change, LCNW | 699 | lc/h |
| Total lane changes, LCALL | 1583 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.353 | |
| Average weaving speed, SW | 55.7 | mi/h |
| Average non-weaving speed, SNW | 59.9 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.0 | mi/h |
| Weaving segment density, D | 23.9 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.662 | |
| Weaving segment flow rate, v | 7047 | pc/h |
| Weaving segment capacity, cW | 10416 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4449 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2129 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.662 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-81_2035_PM_Peak_I_215_SB_2rd_St_to_Mill_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | 2rd St to Mill St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3857 | 703 | 423 | 37 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1015 | 185 | 111 | 10 | |
| Trucks and buses | 5 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.983 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4170 | 753 | 453 | 39 | pc/h |
| Volume ratio, VR | | 0.223 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 753 | lc/h |
| Weaving lane changes, LCW | 1169 | lc/h |
| Non-weaving vehicle index, INW | 379 | |
| Non-weaving lane change, LCNW | 392 | lc/h |
| Total lane changes, LCALL | 1561 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.349 | |
| Average weaving speed, SW | 55.8 | mi/h |
| Average non-weaving speed, SNW | 59.4 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.5 | mi/h |
| Weaving segment density, D | 18.5 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.515 | |
| Weaving segment flow rate, v | 5415 | pc/h |
| Weaving segment capacity, cW | 10243 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4770 | 900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2104 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.515 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2035_AM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2948 | 352 | 562 | 18 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 776 | 93 | 148 | 5 | |
| Trucks and buses | 5 | 4 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.978 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3187 | 379 | 599 | 19 | pc/h |
| Volume ratio, VR | | 0.234 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 379 | lc/h |
| Weaving lane changes, LCW | 1047 | lc/h |
| Non-weaving vehicle index, INW | 593 | |
| Non-weaving lane change, LCNW | 700 | lc/h |
| Total lane changes, LCALL | 1747 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.216 | |
| Average weaving speed, SW | 60.2 | mi/h |
| Average non-weaving speed, SNW | 63.3 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.5 | mi/h |
| Weaving segment density, D | 13.4 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.407 | |
| Weaving segment flow rate, v | 4184 | pc/h |
| Weaving segment capacity, cW | 9998 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4884 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2168 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.407 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2035_AM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4362 | 608 | 618 | 32 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1148 | 160 | 163 | 8 | |
| Trucks and buses | 3 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4670 | 648 | 658 | 34 | pc/h |
| Volume ratio, VR | | 0.217 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 648 | lc/h |
| Weaving lane changes, LCW | 1316 | lc/h |
| Non-weaving vehicle index, INW | 870 | |
| Non-weaving lane change, LCNW | 1009 | lc/h |
| Total lane changes, LCALL | 2325 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.271 | |
| Average weaving speed, SW | 58.3 | mi/h |
| Average non-weaving speed, SNW | 59.6 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.3 | mi/h |
| Weaving segment density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.551 | |
| Weaving segment flow rate, v | 6010 | pc/h |
| Weaving segment capacity, cW | 10723 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4714 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2181 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.551 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2035_PM_Peak_I_215_NB_2rd_St_to_Baseline_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 NB |
| Weaving Location: | 2rd St to Baseline Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3965 | 485 | 575 | 25 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1043 | 128 | 151 | 7 | |
| Trucks and buses | 5 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4286 | 517 | 613 | 27 | pc/h |
| Volume ratio, VR | | 0.208 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 517 | lc/h |
| Weaving lane changes, LCW | 1185 | lc/h |
| Non-weaving vehicle index, INW | 798 | |
| Non-weaving lane change, LCNW | 928 | lc/h |
| Total lane changes, LCALL | 2113 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.251 | |
| Average weaving speed, SW | 59.0 | mi/h |
| Average non-weaving speed, SNW | 61.1 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 60.6 | mi/h |
| Weaving segment density, D | 18.0 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.497 | |
| Weaving segment flow rate, v | 5443 | pc/h |
| Weaving segment capacity, cW | 10657 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4614 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2188 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.497 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-82_2035_PM_Peak_I_215_SB_Baseline_Rd_to_2rd_St_.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | I 215 SB |
| Weaving Location: | Baseline Rd to 2rd St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1850 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 2858 | 722 | 442 | 38 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 752 | 190 | 116 | 10 | |
| Trucks and buses | 5 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3090 | 769 | 473 | 40 | pc/h |
| Volume ratio, VR | | 0.284 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 769 | lc/h |
| Weaving lane changes, LCW | 1437 | lc/h |
| Non-weaving vehicle index, INW | 579 | |
| Non-weaving lane change, LCNW | 684 | lc/h |
| Total lane changes, LCALL | 2121 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.252 | |
| Average weaving speed, SW | 58.9 | mi/h |
| Average non-weaving speed, SNW | 60.3 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 59.9 | mi/h |
| Weaving segment density, D | 14.6 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.518 | |
| Weaving segment flow rate, v | 4372 | pc/h |
| Weaving segment capacity, cW | 8226 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5414 | 1850 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2127 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.518 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2035_AM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 7760 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 680 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 550 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 7760 | 680 | 550 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2042 | 179 | 145 | v |
| Trucks and buses | 8 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.974 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 8511 | 735 | 586 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.126 Using Equation 4

$v_{12} = v_F (P_{FM}) = 1072$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 9246 | 9600 | No |
| $v_3$ or $v_{av34}$ | 3719 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 3404$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4139 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A = 33.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.517$ | |
| Space mean speed in ramp influence area, | $S_R = 55.5$ | mph |
| Space mean speed in outer lanes, | $S_0 = 62.0$ | mph |
| Space mean speed for all vehicles, | $S = 58.9$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2035_PM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6530 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1460 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 630 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6530 | 1460 | 630 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1718 | 384 | 166 | v |
| Trucks and buses | 10 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7231 | 1555 | 671 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.023 Using Equation 4

$v_{12} = v_F (P_{FM}) = 169$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 8786 | 9600 | No |
| $v_3$ or $v_{av34}$ | 3531 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | Yes | |

If yes, $v_{12A} = 2892$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4447 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A = 35.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.605 | |
| Space mean speed in ramp influence area, | $S_R$ = 53.1 | mph |
| Space mean speed in outer lanes, | $S_0$ = 64.0 | mph |
| Space mean speed for all vehicles, | $S$ = 57.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2035_AM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8370 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1360 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 240 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8370 | 1360 | 240 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2203 | 358 | 63 | v |
| Trucks and buses | 7 | 8 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.960 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9137 | 1492 | 258 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.031 Using Equation 4

$v_{12} = v_F (P_{FM}) = 286$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 10629 | 9600 | Yes |
| $v_3$ or $v_{av34}$ | 4425 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 3654$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 5146 | 4600 | Yes |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A = 35.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.886$ | |
| Space mean speed in ramp influence area, | $S_R = 45.2$ | mph |
| Space mean speed in outer lanes, | $S_0 = 60.8$ | mph |
| Space mean speed for all vehicles, | $S = 52.1$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2035_PM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 4 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8760 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 970 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 230 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8760 | 970 | 230 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2305 | 255 | 61 | v |
| Trucks and buses | 8 | 9 | 7 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.955 | 0.964 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9608 | 1069 | 251 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.084 Using Equation 4

$v_{12} = v_F (P_{FM}) = 809$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 10677 | 9600 | Yes |
| $v_3$ or $v_{av34}$ | 4399 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | Yes | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |
| If yes, $v_{12A}$ = 3843 | | (Equation 13-15, 13-16, 13-18, or 13-19) | |

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4912 | 4600 | Yes |

## Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 33.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.746 | |
| Space mean speed in ramp influence area, | $S_R$ = 49.1 | mph |
| Space mean speed in outer lanes, | $S_0$ = 60.0 | mph |
| Space mean speed for all vehicles, | $S$ = 54.4 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2035_AM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2910 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 280 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 110 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2910 | 280 | 110 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 766 | 74 | 29 | v |
| Trucks and buses | 22 | 4 | 7 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.899 | 0.978 | 0.964 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3406 | 301 | 120 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3406 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 3406 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 3105 | 4800 | No |
| $v_R$ | 301 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 3406 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3406 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 20.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.455

Space mean speed in ramp influence area, $S_R$ = 57.3 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 57.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-3_2035_PM_Peak_SR_60_EB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3240 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 680 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 70 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3240 | 680 | 70 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 853 | 179 | 18 | v |
| Trucks and buses | 17 | 3 | 8 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.920 | 0.983 | 0.960 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3707 | 728 | 77 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3707 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 3707 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 2979 | 4800 | No |
| $v_R$ | 728 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 3707 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3707 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 22.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $D_S$ = 0.494 | |
| Space mean speed in ramp influence area, | $S_R$ = 56.2 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 56.2 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2035_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2630 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 110 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 280 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2630 | 110 | 280 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 692 | 29 | 74 | v |
| Trucks and buses | 22 | 7 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.899 | 0.964 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3078 | 120 | 301 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 3078$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3198 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A} = 3078$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3198 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A = 27.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.381$ | |
| Space mean speed in ramp influence area, | $S_R = 59.3$ | mph |
| Space mean speed in outer lanes, | $S_0 =$ N/A | mph |
| Space mean speed for all vehicles, | $S = 59.3$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-4_2035_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2560 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 70 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 680 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2560 | 70 | 680 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 674 | 18 | 179 | v |
| Trucks and buses | 17 | 8 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.920 | 0.960 | 0.983 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2929 | 77 | 728 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 2929$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3006 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 2929 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3006 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 25.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $M_S$ = 0.365

Space mean speed in ramp influence area, $S_R$ = 59.8 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 59.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-5_2035_AM_Peak_SR_60_EB_Direct_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2740 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 140 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 110 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2740 | 140 | 110 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 721 | 37 | 29 | v |
| Trucks and buses | 22 | 6 | 7 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.899 | 0.969 | 0.964 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3207 | 152 | 120 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

FM
$v_{12} = v_F (P_{FM}) = 3207$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3359 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A} = 3207$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3359 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 25.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $M_S = 0.363$

Space mean speed in ramp influence area, $S_R = 59.8$ mph

Space mean speed in outer lanes, $S_0 =$ N/A mph

Space mean speed for all vehicles, $S = 59.8$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-5_2035_PM_Peak_SR_60_EB_Direct_On-Ramp_from_Redlands.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2630 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 480 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 70 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2630 | 480 | 70 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 692 | 126 | 18 | v |
| Trucks and buses | 17 | 2 | 8 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.920 | 0.988 | 0.960 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3009 | 511 | 77 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 3009$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3520 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 3009 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3520 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 26.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $M_S$ = 0.383

Space mean speed in ramp influence area, $S_R$ = 59.3 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 59.3 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2035_AM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2780 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 50 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 850 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2780 | 50 | 850 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 732 | 13 | 224 | v |
| Trucks and buses | 17 | 9 | 53 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.920 | 0.955 | 0.789 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3181 | 55 | 1134 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 3181$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3236 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 3181$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3236 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A = 27.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.385$ | |
| Space mean speed in ramp influence area, | $S_R = 59.2$ | mph |
| Space mean speed in outer lanes, | $S_0 =$ N/A | mph |
| Space mean speed for all vehicles, | $S = 59.2$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-7_2035_PM_Peak_SR_60_EB_Loop_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Loop On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3870 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 350 | vph |
| Length of first accel/decel lane | 500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 410 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3870 | 350 | 410 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1018 | 92 | 108 | v |
| Trucks and buses | 10 | 5 | 65 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.974 | 0.754 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4286 | 378 | 573 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 4286$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4664 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 4286 (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4664 | 4600 | Yes |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 38.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.700 | |
| Space mean speed in ramp influence area, | $S_R$ = 50.4 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 50.4 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-8_2035_AM_Peak_SR_60_EB_Direct_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2830 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 260 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 50 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2830 | 260 | 50 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 745 | 68 | 13 | v |
| Trucks and buses | 17 | 19 | 9 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.920 | 0.912 | 0.955 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3238 | 300 | 55 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 3238$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3538 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 3238 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3538 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 23.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $M_S$ = 0.350

Space mean speed in ramp influence area, $S_R$ = 60.2 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 60.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-8_2035_PM_Peak_SR_60_EB_Direct_On-Ramp_from_Theodore.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | Direct On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4220 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1400 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 350 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4220 | 1400 | 350 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1111 | 368 | 92 | v |
| Trucks and buses | 10 | 5 | 5 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.974 | 0.974 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4673 | 1513 | 378 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 4673$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 6186 | 4800 | Yes |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 4673 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 6186 | 4600 | Yes |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{12} - 0.00627 L_A$ = 43.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 2.111 | |
| Space mean speed in ramp influence area, | $S_R$ = 10.9 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 10.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2035_AM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2100 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 300 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 976 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2100 | 300 | 976 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 553 | 79 | 257 | v |
| Trucks and buses | 8 | 9 | 12 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.955 | 0.942 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2303 | 331 | 1091 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 2303$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2634 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 2303 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2634 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.270 | |
| Space mean speed in ramp influence area, | $S_R$ = 62.4 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 62.4 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2035_PM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4120 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 690 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 1236 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4120 | 690 | 1236 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1084 | 182 | 325 | v |
| Trucks and buses | 5 | 8 | 5 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.960 | 0.974 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4454 | 757 | 1336 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 4454$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 5211 | 4800 | Yes |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 4454 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 5211 | 4600 | Yes |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 36.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.931 | |
| Space mean speed in ramp influence area, | $S_R$ = 43.9 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 43.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2035_AM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3000 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1050 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 448 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3000 | 1050 | 448 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 789 | 276 | 118 | v |
| Trucks and buses | 2 | 5 | 13 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.988 | 0.974 | 0.937 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3196 | 1135 | 503 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 3196$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4331 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 3196 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4331 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 29.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.512 | |
| Space mean speed in ramp influence area, | $S_R$ = 55.7 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 55.7 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-12_2035_PM_Peak_SR_60_WB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2150 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1130 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 533 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1800 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2150 | 1130 | 533 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 566 | 297 | 140 | v |
| Trucks and buses | 3 | 9 | 9 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | 0.955 | 0.955 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2302 | 1245 | 587 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_{FM} (P_{FM}) = 2302$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3547 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 2302 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3547 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R} + 0.0078 v_{12} - 0.00627 L_A$ = 23.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $M_S$ = 0.351

Space mean speed in ramp influence area, $S_R$ = 60.2 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 60.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2035_AM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3510 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 520 | vph |
| Length of first accel/decel lane | 550 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 710 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3510 | 520 | 710 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 924 | 137 | 187 | v |
| Trucks and buses | 6 | 50 | 10 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.799 | 0.951 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3813 | 685 | 786 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 3813$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4498 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 3813 (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4498 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 36.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.633 | |
| Space mean speed in ramp influence area, | $S_R$ = 52.3 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 52.3 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2035_PM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3050 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 640 | vph |
| Length of first accel/decel lane | 550 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 420 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3050 | 640 | 420 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 803 | 168 | 111 | v |
| Trucks and buses | 7 | 46 | 16 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.812 | 0.924 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3329 | 830 | 478 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 3329$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4159 | 4800 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 3329 (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4159 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A$ = 34.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.532 | |
| Space mean speed in ramp influence area, | $S_R$ = 55.1 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 55.1 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2035_AM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4290 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 420 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 210 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4290 | 420 | 210 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1129 | 111 | 55 | v |
| Trucks and buses | 10 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.983 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4751 | 450 | 224 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4751 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 4751 | 4800 | No |
| $v_{FO} = v_F - v_R$ | 4301 | 4800 | No |
| $v_R$ | 450 | 2000 | No |
| $v_3$ or $v_{av34}$ | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A}$ = 4751 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 4751 | 4400 | Yes |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086 v_{12} - 0.009 L_D$ = 36.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.469

Space mean speed in ramp influence area, $S_R$ = 56.9 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 56.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2035_PM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3780 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 540 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 150 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3780 | 540 | 150 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 995 | 142 | 39 | v |
| Trucks and buses | 12 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | 0.969 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4226 | 587 | 160 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 1.000 Using Equation 0

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4226 \text{ pc/h}$$

## Capacity Checks

| | | Actual | Maximum | LOS F? |
|---|---|---|---|---|
| $v_{Fi} = v_F$ | | 4226 | 4800 | No |
| $v_{FO} = v_F - v_R$ | | 3639 | 4800 | No |
| $v_R$ | | 587 | 2000 | No |
| $v_3$ or $v_{av34}$ | | 0 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 4226$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 4226 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086 v_{12} - 0.009 L_D = 31.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

Intermediate speed variable, $D_S = 0.481$

Space mean speed in ramp influence area, $S_R = 56.5$ mph

Space mean speed in outer lanes, $S_0 = $ N/A mph

Space mean speed for all vehicles, $S = 56.5$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

File Name: R-16_2035_AM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - With Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3870 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 210 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 420 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3870 | 210 | 420 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1018 | 55 | 111 | v |
| Trucks and buses | 10 | 2 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.983 | |

| | | | | |
|---|---|---|---|---|
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4286 | 224 | 450 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

$P_{FM}$ = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 4286 pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4510 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 4286 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4510 | 4600 | No |

## Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_R - 0.00627\ L_A$ = 39.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

## Speed Estimation

Intermediate speed variable, $M_S$ = 0.658

Space mean speed in ramp influence area, $S_R$ = 51.6 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, S = 51.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

File Name: R-16_2035_PM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - With Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3240 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 150 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 540 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3240 | 150 | 540 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 853 | 39 | 142 | v |
| Trucks and buses | 12 | 2 | 6 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | 0.988 | 0.969 | |

| | | | | |
|---|---|---|---|---|
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3622 | 160 | 587 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

$P_{FM}$ = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3622 pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3782 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 3622 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3782 | 4600 | No |

## Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 33.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

Intermediate speed variable, $M_S$ = 0.475

Space mean speed in ramp influence area, $S_R$ = 56.7 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, S = 56.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-17_2035_AM_Peak_SR_60_WB_Direct_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Direct On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4080 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 390 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 210 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4080 | 390 | 210 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1074 | 103 | 55 | v |
| Trucks and buses | 10 | 11 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.946 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4518 | 434 | 224 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 4518$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4952 | 4800 | Yes |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 4518 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4952 | 4600 | Yes |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 37.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.803 | |
| Space mean speed in ramp influence area, | $S_R$ = 47.5 | mph |
| Space mean speed in outer lanes, | $S_0$ = N/A | mph |
| Space mean speed for all vehicles, | $S$ = 47.5 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-17_2035_PM_Peak_SR_60_WB_Direct_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Direct On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 2 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3390 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 630 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 150 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3390 | 630 | 150 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 892 | 166 | 39 | v |
| Trucks and buses | 12 | 25 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | 0.887 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3790 | 747 | 160 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) = 3790$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4537 | 4800 | No |

$v_3$ or $v_{av34}$ 0 pc/h (Equation 13-14 or 13-17)

Is $v_3$ or $v_{av34}$ > 2700 pc/h? No

Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 No

If yes, $v_{12A}$ = 3790 (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4537 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 34.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

Intermediate speed variable, $M_S$ = 0.615

Space mean speed in ramp influence area, $S_R$ = 52.8 mph

Space mean speed in outer lanes, $S_0$ = N/A mph

Space mean speed for all vehicles, $S$ = 52.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2035_AM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8240 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 720 | vph |
| Length of first accel/decel lane | 300 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 880 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8240 | 720 | 880 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2168 | 189 | 232 | v |
| Trucks and buses | 9 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9081 | 767 | 937 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3600 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 7265 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 6498 | 9600 | No |
| $v_R$ | 767 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1832 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 3600$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3600 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 32.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

Intermediate speed variable, $D_S = 0.497$

Space mean speed in ramp influence area, $S_R = 56.1$ mph

Space mean speed in outer lanes, $S_0 = 73.5$ mph

Space mean speed for all vehicles, $S = 63.7$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2035_PM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 9380 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 670 | vph |
| Length of first accel/decel lane | 300 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 500 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 9380 | 670 | 500 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2468 | 176 | 132 | v |
| Trucks and buses | 9 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.983 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 10338 | 717 | 533 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4011 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 8271 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 7554 | 9600 | No |
| $v_R$ | 717 | 2000 | No |
| $v_3$ or $v_{av34}$ | 2130 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A}$ = 4011 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 4011 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 36.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

## Speed Estimation

Intermediate speed variable, $D_S$ = 0.493

Space mean speed in ramp influence area, $S_R$ = 56.2 mph

Space mean speed in outer lanes, $S_0$ = 72.4 mph

Space mean speed for all vehicles, $S$ = 63.5 mph

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_AM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2300 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1890 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1890 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 29.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_AM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8670 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2282 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1875 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1875 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_PM_Peak_SR_60_EB_Reservoir_Rd_to_Ramona_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Reservoir Rd to Ramona Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8640 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2274 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1877 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1877 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 29.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-2_2035_PM_Peak_SR_60_WB_Ramona_Ave_to_S_Reservoir_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Ramona Ave to S Reservoir St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7920 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2084 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1712 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1712 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 25.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2035_AM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8370 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2203 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1810 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1810 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-3_2035_PM_Peak_SR_60_EB_Ramona_Ave_to_Central_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Ramona Ave to Central Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2668 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2203 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2203 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.3 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 37.8 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2035_AM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2395 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1968 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1968 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.2 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 31.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-4_2035_PM_Peak_SR_60_EB_Central_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Central Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2661 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2197 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2197 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 37.6 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_AM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8990 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2366 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1944 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1944 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 30.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_AM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1611 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1336 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1336 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_PM_Peak_SR_60_EB_Mountain_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Mountain Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1968 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1633 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1633 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 24.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-5_2035_PM_Peak_SR_60_WB_Euclid_Ave_to_Mountain_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Euclid Ave to Mountain Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2187 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1797 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1797 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_AM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2663 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2188 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2188 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.7 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 37.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_AM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1682 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1382 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1382 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 19.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_PM_Peak_SR_60_EB_Euclid_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Euclid Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2521 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2081 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2081 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 34.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-6_2035_PM_Peak_SR_60_WB_Grove_Ave_to_Euclid_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Grove Ave to Euclid Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2118 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1740 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1740 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_AM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2476 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2035 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2035 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 32.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_AM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1632 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1334 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1334 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 19.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_PM_Peak_SR_60_EB_Grove_Ave_to_Vineyard_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Grove Ave to Vineyard Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9960 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2621 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2164 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2164 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 59.2 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 36.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-7_2035_PM_Peak_SR_60_WB_Vineyard_Ave_to_Grove_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Vineyard Ave to Grove Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2168 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1782 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1782 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2035_AM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2445 | v |
| Trucks and buses | 4 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.978 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1999 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1999 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 62.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 31.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-8_2035_PM_Peak_SR_60_EB_Vineyard_Ave_to_Archibald_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Vineyard Ave to Archibald Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10100 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2658 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2194 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2194 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 58.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 37.5 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2035_AM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8650 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2276 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1870 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1870 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 28.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-9_2035_PM_Peak_SR_60_EB_Archibald_Ave_to_Haven_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Archibald Ave to Haven Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7220 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1900 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1576 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1576 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 23.1 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_AM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1687 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1749 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1749 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_AM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1163 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1200 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1200 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 17.1 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_PM_Peak_SR_60_EB_Valley_Way_to_Rubidoux_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Valley Way to Rubidoux Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3790 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 997 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1049 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1049 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.0 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-17_2035_PM_Peak_SR_60_WB_Rubidoux_Blvd_to_Valley_Way.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Rubidoux Blvd to Valley Way |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6390 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1682 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1727 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1727 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2035_AM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6710 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1766 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1831 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1831 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.4 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-18_2035_PM_Peak_SR_60_EB_Rubidoux_Blvd_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Rubidoux Blvd to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4140 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1089 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1146 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1146 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 16.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_AM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1642 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1703 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1703 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_AM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1421 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1467 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1467 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_PM_Peak_SR_60_EB_Market_St_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Market St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1739 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1821 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1821 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 27.8 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-19_2035_PM_Peak_SR_60_WB_Main_St_to_Market_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Main St to Market St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6430 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1692 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1738 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1738 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2035_AM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5300 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1395 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1439 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1439 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 20.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-20_2035_PM_Peak_SR_60_WB_SR-91_to_Main_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | SR-91 to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6480 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1705 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1751 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1751 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_AM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9980 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2626 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.897 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2343 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2343 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 42.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_AM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2168 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1655 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 6 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1655 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 6 | |
| Density, D | 24.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_PM_Peak_SR_60_EB_Martin_Luther_King_to_Central.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Martin Luther King to Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 10060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2647 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2393 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2393 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 53.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 44.7 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-24_2035_PM_Peak_SR_60_WB_Central_to_Martin_Luther_King.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Central to Martin Luther King |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2468 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Rolling | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1884 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 6 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1884 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.6 | mi/h |
| Number of lanes, N | 6 | |
| Density, D | 29.2 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2035_AM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7420 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1953 | v |
| Trucks and buses | 11 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1651 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1651 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-26_2035_PM_Peak_SR_60_WB_I-215_to_Box_Springs_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | I-215 to Box Springs Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2434 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2039 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2039 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 61.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 33.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2035_AM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1863 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1932 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1932 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 63.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 30.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-27_2035_PM_Peak_SR_60_WB_Day_St_to_I-215.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Day St to I-215 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1003 | v |
| Trucks and buses | 15 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.929 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1080 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1080 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 15.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_AM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 945 | v |
| Trucks and buses | 18 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1376 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1376 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.6 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_AM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3590 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 945 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1338 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1338 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_PM_Peak_SR_60_EB_Pigeon_Pass_Rd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Pigeon Pass Rd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1082 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1539 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1539 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-29_2035_PM_Peak_SR_60_WB_Heacock_St_to_Pigeon_Pass_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Heacock St to Pigeon Pass Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4120 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1084 | v |
| Trucks and buses | 15 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.929 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1557 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1557 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 22.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_AM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 932 | v |
| Trucks and buses | 18 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.916 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1356 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1356 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.7 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_AM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3610 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 950 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1345 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1345 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 19.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_PM_Peak_SR_60_EB_Heacock_St_to_Perris_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Heacock St to Perris Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4240 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1116 | v |
| Trucks and buses | 13 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1587 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1587 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-30_2035_PM_Peak_SR_60_WB_Perris_Blvd_to_Heacock_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Perris Blvd to Heacock St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3730 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 982 | v |
| Trucks and buses | 16 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.924 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1416 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1416 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2035_AM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4290 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1129 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1584 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1584 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 23.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-34_2035_PM_Peak_SR_60_WB_Theodore_St_to_Redlands_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 WB |
| From/To: | Theodore St to Redlands Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3780 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 995 | v |
| Trucks and buses | 12 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1409 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1409 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.5 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 20.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2035_AM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2320 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 611 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 895 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 895 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 12.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-36_2035_PM_Peak_SR_60_EB_Gilman_Springs_to_Jack_Rabbit.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Gilman Springs to Jack Rabbit |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1205 | v |
| Trucks and buses | 2 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Mountainous | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 4.5 | |
| Recreational vehicle PCE, ER | 4.0 | |
| Heavy vehicle adjustment, fHV | 0.909 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1768 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1768 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.3 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 26.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2035_AM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_Potrero_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to Potrero Blvd |
| Jurisdiction: | vd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 2400 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 632 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 869 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 869 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 12.4 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-37_2035_PM_Peak_SR_60_EB_Jack_Rabbit_Trail_to_Potrero_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR 60 EB |
| From/To: | Jack Rabbit Trail to Potrero Blvd |
| Jurisdiction: | vd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4950 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1303 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1784 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 3 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1784 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 3 | |
| Density, D | 27.0 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_AM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1724 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1779 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1779 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.9 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_AM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6160 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1621 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1681 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1681 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_PM_Peak_SR-91_EB_Pierce_St_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Pierce St to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1661 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1722 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1722 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.8 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-41_2035_PM_Peak_SR-91_WB_Magnolia_Ave_to_Pierce_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Magnolia Ave to Pierce St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 9170 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2413 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2478 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2478 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 51.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 48.5 | pc/mi/ln |
| Level of service, LOS | F | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2035_AM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6050 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1592 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1651 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1651 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.6 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 24.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-42_2035_PM_Peak_SR-91_WB_La_Sierra_Ave_to_Magnolia_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | La Sierra Ave to Magnolia Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8720 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2295 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 2357 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 2357 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 54.5 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 43.3 | pc/mi/ln |
| Level of service, LOS | E | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_AM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1645 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1697 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1697 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.3 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_AM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5380 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1416 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1468 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1468 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_PM_Peak_SR-91_EB_La_Sierra_Ave_to_Tyler_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | La Sierra Ave to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6210 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1634 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1695 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1695 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-43_2035_PM_Peak_SR-91_WB_Tyler_St_to_La_Sierra_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Tyler St to La Sierra Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6510 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1713 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1768 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1768 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2035_AM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1792 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1487 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1487 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-44_2035_PM_Peak_SR-91_WB_Van_Buren_Blvd_to_Tyler_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Van Buren Blvd to Tyler St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8080 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2126 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1747 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1747 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2035_AM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6540 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1721 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1428 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1428 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 20.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-45_2035_PM_Peak_SR-91_WB_Adam_St_to_Van_Buren_Blvd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Adam St to Van Buren Blvd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7830 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2061 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1693 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1693 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.2 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2035_AM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2121 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1768 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1768 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.3 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.7 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-46_2035_PM_Peak_SR-91_EB_Adam_St_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Adam St to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1579 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1323 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1323 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 18.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2035_AM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5560 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1463 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1517 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1517 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.8 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 22.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-47_2035_PM_Peak_SR-91_WB_Arlington_Ave_to_Madison_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 WB |
| From/To: | Arlington Ave to Madison St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6360 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1674 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1719 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1719 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2035_AM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6410 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1687 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1732 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1732 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.7 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 26.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-49_2035_PM_Peak_SR-91_EB_Central_Ave_to_14th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | SR-91 EB |
| From/To: | Central Ave to 14th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5580 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1468 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1508 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1508 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_AM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1332 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1110 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1110 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 15.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_AM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7880 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2074 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1720 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1720 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 25.7 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_PM_Peak_I-10_EB_SR-60_to_Beaumont_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | SR-60 to Beaumont Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2166 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1797 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1797 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-52_2035_PM_Peak_I-10_WB_Beaumont_Ave_to_SR-60.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Beaumont Ave to SR-60 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6040 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1589 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1325 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1325 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 19.0 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_AM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5260 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1384 | v |
| Trucks and buses | 8 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1154 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1154 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 16.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_AM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8250 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2171 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1801 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1801 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.8 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_PM_Peak_I-10_EB_Pennsylvania_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Pennsylvania to Highland Springs |
| Jurisdiction: | s |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8200 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2158 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1790 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1790 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.1 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-54_2035_PM_Peak_I-10_WB_Highland_Springs_to_Pennsylvania.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Highland Springs to Pennsylvania |
| Jurisdiction: | a |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1542 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1292 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1292 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 18.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_AM_Peak_I-10_EB_Highland_Springs_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5340 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1405 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1177 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1177 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 16.8 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_AM_Peak_I-10_WB_Sunset_Ave_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset Ave to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8060 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2121 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1760 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1760 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.4 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_PM_Peak_I-10_EB_Highland_Springs_to_Sunset_Ave.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Highland Springs to Sunset Ave |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8230 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2166 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1797 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1797 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-55_2035_PM_Peak_I-10_WB_Sunset_Ave_to_Highland_Springs.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | Sunset Ave to Highland Springs |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5550 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1461 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1223 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1223 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 17.5 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_AM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4970 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1308 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1095 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1095 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 15.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_AM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7860 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2068 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1716 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1716 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 25.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_PM_Peak_I-10_EB_S_8th_St_to_S_Hargrave_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S 8th St to S Hargrave St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7810 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2055 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1705 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1705 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 25.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-58_2035_PM_Peak_I-10_WB_N_Hargrave_St_to_S_8th_St.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 WB |
| From/To: | N Hargrave St to S 8th St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5350 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1408 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1185 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1185 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 16.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2035_AM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4730 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1245 | v |
| Trucks and buses | 9 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1043 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1043 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 14.9 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-59_2035_PM_Peak_I-10_EB_S_Hargrave_St_to_Field_Rd.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | S Hargrave St to Field Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 8020 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2111 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1751 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1751 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.5 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 26.3 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2035_AM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4310 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1134 | v |
| Trucks and buses | 10 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 955 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 955 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 70.0 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 13.6 | pc/mi/ln |
| Level of service, LOS | B | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-61_2035_PM_Peak_I-10_EB_Main_St_to_Main_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-10 EB |
| From/To: | Main St to Main St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7850 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 2066 | v |
| Trucks and buses | 7 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1714 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 5 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1714 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 66.9 | mi/h |
| Number of lanes, N | 5 | |
| Density, D | 25.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2035_AM_Peak_I-215_SB_Ellis_Ave_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ellis Ave to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 7110 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1871 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1903 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1903 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 64.3 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 29.6 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-71_2035_PM_Peak_I-215_SB_Ellis_Ave_to_SR-74.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Ellis Ave to SR-74 |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6000 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1579 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1606 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1606 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 68.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.6 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2035_AM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6010 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1582 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1624 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1624 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 67.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 23.9 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-75_2035_PM_Peak_I-215_SB_Iowa_Ave_to_Center_St_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Iowa Ave to Center St |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4740 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1247 | v |
| Trucks and buses | 6 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1287 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1287 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.9 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 18.4 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2035_AM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6930 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1824 | v |
| Trucks and buses | 3 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.983 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1855 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1855 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 65.0 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 28.5 | pc/mi/ln |
| Level of service, LOS | D | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Basic Freeway Segments Release 6.3

Segment: F-83_2035_PM_Peak_I-215_SB_Highland_Ave_to_Baseline_Rd_.xhf

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency or Company: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Direction: | I-215 SB |
| From/To: | Highland Ave to Baseline Rd |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5490 | veh/h |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, v15 | 1445 | v |
| Trucks and buses | 5 | % |
| Recreational vehicles | 1 | % |
| Terrain type: | Level | |
| Grade | - | % |
| Segment length | - | mi |
| Trucks and buses PCE, ET | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | |
| Driver population factor, fp | 1.00 | |
| Flow rate, vp | 1484 | pc/h/ln |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | - | ft |
| Right-side lateral clearance | - | ft |
| Total ramp density, TRD | - | ramps/mi |
| Number of lanes, N | 4 | |
| Free-flow speed: | Measured | |
| FFS or BFFS | 70.0 | mi/h |
| Lane width adjustment, fLW | - | mi/h |
| Lateral clearance adjustment, fLC | - | mi/h |
| TRD adjustment | - | mi/h |
| Free-flow speed, FFS | 70.0 | mi/h |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, vp | 1484 | pc/h/ln |
| Free-flow speed, FFS | 70.0 | mi/h |
| Average passenger-car speed, S | 69.1 | mi/h |
| Number of lanes, N | 4 | |
| Density, D | 21.5 | pc/mi/ln |
| Level of service, LOS | C | |

Overall results are not computed when free-flow speed is less than 55 mph.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2035_AM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5006 | 1794 | 234 | 317 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1317 | 472 | 62 | 83 | |
| Trucks and buses | 5 | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.960 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5412 | 1968 | 249 | 338 | pc/h |
| Volume ratio, VR | | 0.278 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2217 | lc/h |
| Weaving lane changes, LCW | 2852 | lc/h |
| Non-weaving vehicle index, INW | 978 | |
| Non-weaving lane change, LCNW | 1143 | lc/h |
| Total lane changes, LCALL | 3995 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.443 | |
| Average weaving speed, SW | 53.1 | mi/h |
| Average non-weaving speed, SNW | 46.4 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 48.1 | mi/h |
| Weaving segment density, D | 33.1 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.924 | |
| Weaving segment flow rate, v | 7967 | pc/h |
| Weaving segment capacity, cW | 8398 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5352 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2121 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.924 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-1_2035_PM_Peak_SR_60_EB_SR-71_to_Reservoir_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-71 to Reservoir Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5518 | 1887 | 237 | 333 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1452 | 497 | 62 | 88 | |
| Trucks and buses | 6 | 9 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.955 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5994 | 2080 | 252 | 355 | pc/h |
| Volume ratio, VR | | 0.269 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2332 | lc/h |
| Weaving lane changes, LCW | 2967 | lc/h |
| Non-weaving vehicle index, INW | 1079 | |
| Non-weaving lane change, LCNW | 1266 | lc/h |
| Total lane changes, LCALL | 4233 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.464 | |
| Average weaving speed, SW | 52.6 | mi/h |
| Average non-weaving speed, SNW | 44.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 46.7 | mi/h |
| Weaving segment density, D | 37.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.972 | |
| Weaving segment flow rate, v | 8681 | pc/h |
| Weaving segment capacity, cW | 8657 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5250 | 1700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2128 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.972 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2035_AM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5179 | 587 | 1003 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1363 | 154 | 264 | 8 | |
| Trucks and buses | 6 | 2 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.988 | 0.974 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5626 | 625 | 1084 | 32 | pc/h |
| Volume ratio, VR | | 0.232 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 625 | lc/h |
| Weaving lane changes, LCW | 1375 | lc/h |
| Non-weaving vehicle index, INW | 1273 | |
| Non-weaving lane change, LCNW | 1422 | lc/h |
| Total lane changes, LCALL | 2797 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.268 | |
| Average weaving speed, SW | 58.4 | mi/h |
| Average non-weaving speed, SNW | 58.4 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.4 | mi/h |
| Weaving segment density, D | 25.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.635 | |
| Weaving segment flow rate, v | 7367 | pc/h |
| Weaving segment capacity, cW | 11240 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3300 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2320 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.635 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-9_2035_PM_Peak_SR_60_WB_Haven_Ave_to_Archibald_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Haven Ave to Archibald Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6327 | 893 | 1003 | 47 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1665 | 235 | 264 | 12 | |
| Trucks and buses | 5 | 2 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.988 | 0.969 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6840 | 951 | 1090 | 50 | pc/h |
| Volume ratio, VR | | 0.229 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 951 | lc/h |
| Weaving lane changes, LCW | 1701 | lc/h |
| Non-weaving vehicle index, INW | 1550 | |
| Non-weaving lane change, LCNW | 2272 | lc/h |
| Total lane changes, LCALL | 3973 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.354 | |
| Average weaving speed, SW | 55.6 | mi/h |
| Average non-weaving speed, SNW | 54.6 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.8 | mi/h |
| Weaving segment density, D | 32.6 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.769 | |
| Weaving segment flow rate, v | 8931 | pc/h |
| Weaving segment capacity, cW | 11305 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3264 | 2250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2322 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.769 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2035_AM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6086 | 519 | 583 | 91 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1602 | 137 | 153 | 24 | |
| Trucks and buses | 7 | 6 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.969 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6643 | 564 | 627 | 97 | pc/h |
| Volume ratio, VR | | 0.150 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 627 | lc/h |
| Weaving lane changes, LCW | 967 | lc/h |
| Non-weaving vehicle index, INW | 472 | |
| Non-weaving lane change, LCNW | 805 | lc/h |
| Total lane changes, LCALL | 1772 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.470 | |
| Average weaving speed, SW | 52.4 | mi/h |
| Average non-weaving speed, SNW | 57.9 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.0 | mi/h |
| Weaving segment density, D | 27.8 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.740 | |
| Weaving segment flow rate, v | 7931 | pc/h |
| Weaving segment capacity, cW | 10342 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4033 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2145 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.740 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-20_2035_PM_Peak_SR_60_EB_Main_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Main St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 700 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5950 | 298 | 739 | 52 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1566 | 78 | 194 | 14 | |
| Trucks and buses | 7 | 9 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.955 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6495 | 328 | 795 | 55 | pc/h |
| Volume ratio, VR | | 0.146 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 0 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 795 | lc/h |
| Weaving lane changes, LCW | 1135 | lc/h |
| Non-weaving vehicle index, INW | 459 | |
| Non-weaving lane change, LCNW | 766 | lc/h |
| Total lane changes, LCALL | 1901 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.497 | |
| Average weaving speed, SW | 51.7 | mi/h |
| Average non-weaving speed, SNW | 56.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.1 | mi/h |
| Weaving segment density, D | 27.4 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.714 | |
| Weaving segment flow rate, v | 7673 | pc/h |
| Weaving segment capacity, cW | 10357 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3995 | 700 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2148 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.714 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_AM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3816 | 1947 | 177 | 344 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1004 | 512 | 47 | 91 | |
| Trucks and buses | 8 | 6 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.969 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4186 | 2115 | 189 | 366 | pc/h |
| Volume ratio, VR | | 0.336 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2115 | lc/h |
| Weaving lane changes, LCW | 2638 | lc/h |
| Non-weaving vehicle index, INW | 569 | |
| Non-weaving lane change, LCNW | 652 | lc/h |
| Total lane changes, LCALL | 3290 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.485 | |
| Average weaving speed, SW | 52.0 | mi/h |
| Average non-weaving speed, SNW | 48.2 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.4 | mi/h |
| Weaving segment density, D | 27.7 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.658 | |
| Weaving segment flow rate, v | 6856 | pc/h |
| Weaving segment capacity, cW | 9995 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4408 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2158 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.658 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_AM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1150 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4597 | 750 | 1503 | 132 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1210 | 197 | 396 | 35 | |
| Trucks and buses | 9 | 3 | 13 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.983 | 0.937 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5066 | 803 | 1688 | 141 | pc/h |
| Volume ratio, VR | | 0.324 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 803 | lc/h |
| Weaving lane changes, LCW | 1298 | lc/h |
| Non-weaving vehicle index, INW | 599 | |
| Non-weaving lane change, LCNW | 733 | lc/h |
| Total lane changes, LCALL | 2031 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.354 | |
| Average weaving speed, SW | 55.6 | mi/h |
| Average non-weaving speed, SNW | 56.8 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.4 | mi/h |
| Weaving segment density, D | 27.3 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.712 | |
| Weaving segment flow rate, v | 7698 | pc/h |
| Weaving segment capacity, cW | 10320 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4272 | 1150 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2161 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.712 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_PM_Peak_SR_60_EB_SR-91_to_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | SR-91 to Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1250 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6654 | 1748 | 156 | 309 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1751 | 460 | 41 | 81 | |
| Trucks and buses | 8 | 8 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.960 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7298 | 1917 | 167 | 329 | pc/h |
| Volume ratio, VR | | 0.215 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1917 | lc/h |
| Weaving lane changes, LCW | 2440 | lc/h |
| Non-weaving vehicle index, INW | 953 | |
| Non-weaving lane change, LCNW | 1286 | lc/h |
| Total lane changes, LCALL | 3726 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.535 | |
| Average weaving speed, SW | 50.8 | mi/h |
| Average non-weaving speed, SNW | 46.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 47.7 | mi/h |
| Weaving segment density, D | 40.7 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.861 | |
| Weaving segment flow rate, v | 9711 | pc/h |
| Weaving segment capacity, cW | 10830 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3120 | 1250 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2257 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.861 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-21_2035_PM_Peak_SR_60_WB_W_Blaine_St_to_SR-91.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | W Blaine St to SR-91 |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1200 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6250 | 897 | 1270 | 158 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1645 | 236 | 334 | 42 | |
| Trucks and buses | 8 | 3 | 17 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.983 | 0.920 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6855 | 960 | 1453 | 168 | pc/h |
| Volume ratio, VR | | 0.256 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 960 | lc/h |
| Weaving lane changes, LCW | 1469 | lc/h |
| Non-weaving vehicle index, INW | 843 | |
| Non-weaving lane change, LCNW | 1134 | lc/h |
| Total lane changes, LCALL | 2603 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.416 | |
| Average weaving speed, SW | 53.8 | mi/h |
| Average non-weaving speed, SNW | 54.0 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 54.0 | mi/h |
| Weaving segment density, D | 35.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.850 | |
| Weaving segment flow rate, v | 9436 | pc/h |
| Weaving segment capacity, cW | 10653 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3548 | 1200 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2220 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.850 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_AM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6681 | 347 | 414 | 18 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1758 | 91 | 109 | 5 | |
| Trucks and buses | 8 | 5 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.885 | 0.922 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7947 | 396 | 460 | 20 | pc/h |
| Volume ratio, VR | | 0.097 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 396 | lc/h |
| Weaving lane changes, LCW | 1008 | lc/h |
| Non-weaving vehicle index, INW | 1275 | |
| Non-weaving lane change, LCNW | 1545 | lc/h |
| Total lane changes, LCALL | 2553 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.327 | |
| Average weaving speed, SW | 56.5 | mi/h |
| Average non-weaving speed, SNW | 58.7 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 58.5 | mi/h |
| Weaving segment density, D | 30.2 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.743 | |
| Weaving segment flow rate, v | 8823 | pc/h |
| Weaving segment capacity, cW | 10504 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 1945 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2374 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.743 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_AM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

### Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4631 | 118 | 511 | 6 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1219 | 31 | 134 | 2 | |
| Trucks and buses | 11 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.851 | 0.962 | 0.935 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5728 | 129 | 576 | 7 | pc/h |
| Volume ratio, VR | | 0.109 | | | |

### Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 129 | lc/h |
| Weaving lane changes, LCW | 692 | lc/h |
| Non-weaving vehicle index, INW | 803 | |
| Non-weaving lane change, LCNW | 977 | lc/h |
| Total lane changes, LCALL | 1669 | lc/h |

### Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.260 | |
| Average weaving speed, SW | 58.7 | mi/h |
| Average non-weaving speed, SNW | 62.9 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 62.4 | mi/h |
| Weaving segment density, D | 20.6 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.548 | |
| Weaving segment flow rate, v | 6440 | pc/h |
| Weaving segment capacity, cW | 9996 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2066 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2349 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.548 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_PM_Peak_SR_60_EB_Blaine_St_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Blaine St to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1600 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7167 | 954 | 399 | 50 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1886 | 251 | 105 | 13 | |
| Trucks and buses | 9 | 3 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.948 | 0.948 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8638 | 1059 | 443 | 55 | pc/h |
| Volume ratio, VR | | 0.147 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1059 | lc/h |
| Weaving lane changes, LCW | 1671 | lc/h |
| Non-weaving vehicle index, INW | 1391 | |
| Non-weaving lane change, LCNW | 1965 | lc/h |
| Total lane changes, LCALL | 3636 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.432 | |
| Average weaving speed, SW | 53.4 | mi/h |
| Average non-weaving speed, SNW | 52.6 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.7 | mi/h |
| Weaving segment density, D | 38.7 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.873 | |
| Weaving segment flow rate, v | 10195 | pc/h |
| Weaving segment capacity, cW | 10201 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2439 | 1600 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2336 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.873 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-22_2035_PM_Peak_SR_60_WB_University_Ave_to_W_Blaine_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | University Ave to W Blaine St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6689 | 417 | 555 | 22 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1760 | 110 | 146 | 6 | |
| Trucks and buses | 9 | 2 | 8 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.962 | 0.885 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8062 | 457 | 660 | 24 | pc/h |
| Volume ratio, VR | | 0.121 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 457 | lc/h |
| Weaving lane changes, LCW | 1020 | lc/h |
| Non-weaving vehicle index, INW | 1132 | |
| Non-weaving lane change, LCNW | 1462 | lc/h |
| Total lane changes, LCALL | 2482 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.355 | |
| Average weaving speed, SW | 55.6 | mi/h |
| Average non-weaving speed, SNW | 57.9 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 57.6 | mi/h |
| Weaving segment density, D | 32.0 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.787 | |
| Weaving segment flow rate, v | 9203 | pc/h |
| Weaving segment capacity, cW | 10218 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2182 | 1400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2340 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.787 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2035_AM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5192 | 836 | 598 | 44 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1366 | 220 | 157 | 12 | |
| Trucks and buses | 11 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.946 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5777 | 891 | 643 | 47 | pc/h |
| Volume ratio, VR | | 0.208 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 891 | lc/h |
| Weaving lane changes, LCW | 1371 | lc/h |
| Non-weaving vehicle index, INW | 641 | |
| Non-weaving lane change, LCNW | 833 | lc/h |
| Total lane changes, LCALL | 2204 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.391 | |
| Average weaving speed, SW | 54.5 | mi/h |
| Average non-weaving speed, SNW | 56.5 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.1 | mi/h |
| Weaving segment density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.654 | |
| Weaving segment flow rate, v | 7358 | pc/h |
| Weaving segment capacity, cW | 10643 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3057 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2251 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.654 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-23_2035_PM_Peak_SR_60_WB_MLK_Blvd_to_University_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | MLK Blvd to University Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1100 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 7904 | 475 | 726 | 25 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2080 | 125 | 191 | 7 | |
| Trucks and buses | 9 | 2 | 4 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.988 | 0.978 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 8711 | 506 | 781 | 27 | pc/h |
| Volume ratio, VR | | 0.128 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 506 | lc/h |
| Weaving lane changes, LCW | 986 | lc/h |
| Non-weaving vehicle index, INW | 961 | |
| Non-weaving lane change, LCNW | 1433 | lc/h |
| Total lane changes, LCALL | 2419 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.421 | |
| Average weaving speed, SW | 53.7 | mi/h |
| Average non-weaving speed, SNW | 56.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.3 | mi/h |
| Weaving segment density, D | 35.6 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.867 | |
| Weaving segment flow rate, v | 10025 | pc/h |
| Weaving segment capacity, cW | 11041 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2251 | 1100 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2312 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.867 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_AM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 4917 | 1292 | 698 | 68 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1294 | 340 | 184 | 18 | |
| Trucks and buses | 9 | 8 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.885 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 5926 | 1537 | 764 | 74 | pc/h |
| Volume ratio, VR | | 0.277 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 2301 | lc/h |
| Weaving lane changes, LCW | 3060 | lc/h |
| Non-weaving vehicle index, INW | 1380 | |
| Non-weaving lane change, LCNW | 1705 | lc/h |
| Total lane changes, LCALL | 4765 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.402 | |
| Average weaving speed, SW | 54.2 | mi/h |
| Average non-weaving speed, SNW | 45.5 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 47.6 | mi/h |
| Weaving segment density, D | 34.9 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.959 | |
| Weaving segment flow rate, v | 8301 | pc/h |
| Weaving segment capacity, cW | 7562 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5341 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2168 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.959 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_AM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

### Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5020 | 1309 | 411 | 69 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1321 | 344 | 108 | 18 | |
| Trucks and buses | 10 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.862 | 0.948 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6130 | 1454 | 450 | 76 | pc/h |
| Volume ratio, VR | | 0.235 | | | |

### Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1454 | lc/h |
| Weaving lane changes, LCW | 2133 | lc/h |
| Non-weaving vehicle index, INW | 1179 | |
| Non-weaving lane change, LCNW | 1345 | lc/h |
| Total lane changes, LCALL | 3478 | lc/h |

### Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.364 | |
| Average weaving speed, SW | 55.3 | mi/h |
| Average non-weaving speed, SNW | 51.7 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.5 | mi/h |
| Weaving segment density, D | 30.9 | pc/mi/ln |
| Level of service, LOS | D | |
| Weaving segment v/c ratio | 0.708 | |
| Weaving segment flow rate, v | 8110 | pc/h |
| Weaving segment capacity, cW | 9875 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3329 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2291 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.708 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_PM_Peak_SR_60_EB_Central_Ave_to_Box_Springs_Rd.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Weaving Location: | Central Ave to Box Springs Rd |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 2300 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 5681 | 922 | 649 | 48 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1495 | 243 | 171 | 13 | |
| Trucks and buses | 9 | 9 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.873 | 0.909 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6847 | 1111 | 751 | 53 | pc/h |
| Volume ratio, VR | | 0.213 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1862 | lc/h |
| Weaving lane changes, LCW | 2621 | lc/h |
| Non-weaving vehicle index, INW | 1587 | |
| Non-weaving lane change, LCNW | 2377 | lc/h |
| Total lane changes, LCALL | 4998 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.417 | |
| Average weaving speed, SW | 53.8 | mi/h |
| Average non-weaving speed, SNW | 48.2 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 49.3 | mi/h |
| Weaving segment density, D | 35.6 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.790 | |
| Weaving segment flow rate, v | 8762 | pc/h |
| Weaving segment capacity, cW | 9690 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 4664 | 2300 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2219 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.790 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-25_2035_PM_Peak_SR_60_WB_Box_Springs_Rd_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Box Springs Rd to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 5 | ln |
| Weaving segment length, LS | 1900 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Rolling | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6521 | 906 | 492 | 48 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1716 | 238 | 129 | 13 | |
| Trucks and buses | 9 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 2.5 | 2.5 | 2.5 | 2.5 | |
| Recreational vehicle PCE, ER | 2.0 | 2.0 | 2.0 | 2.0 | |
| Heavy vehicle adjustment, fHV | 0.873 | 0.962 | 0.962 | 0.962 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 7860 | 992 | 539 | 53 | pc/h |
| Volume ratio, VR | | 0.162 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 992 | lc/h |
| Weaving lane changes, LCW | 1671 | lc/h |
| Non-weaving vehicle index, INW | 1503 | |
| Non-weaving lane change, LCNW | 2247 | lc/h |
| Total lane changes, LCALL | 3918 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.400 | |
| Average weaving speed, SW | 54.3 | mi/h |
| Average non-weaving speed, SNW | 53.8 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.9 | mi/h |
| Weaving segment density, D | 35.1 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.805 | |
| Weaving segment flow rate, v | 9444 | pc/h |
| Weaving segment capacity, cW | 10249 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2587 | 1900 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2348 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.805 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2035_AM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3028 | 756 | 996 | 39 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 797 | 199 | 262 | 10 | |
| Trucks and buses | 10 | 3 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.983 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3353 | 809 | 1061 | 42 | pc/h |
| Volume ratio, VR | | 0.355 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1870 | lc/h |
| Weaving lane changes, LCW | 2368 | lc/h |
| Non-weaving vehicle index, INW | 815 | |
| Non-weaving lane change, LCNW | 1230 | lc/h |
| Total lane changes, LCALL | 3598 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.311 | |
| Average weaving speed, SW | 57.0 | mi/h |
| Average non-weaving speed, SNW | 50.2 | mi/h |

## Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 52.4 | mi/h |
| Weaving segment density, D | 25.1 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.779 | |
| Weaving segment flow rate, v | 5265 | pc/h |
| Weaving segment capacity, cW | 6423 | veh/h |

## Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 6183 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2111 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.779 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-28_2035_PM_Peak_SR_60_WB_Pigeon_Pass_Rd_to_Day_St.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Weaving Location: | Pigeon Pass Rd to Day St |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 2400 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3712 | 579 | 778 | 30 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 977 | 152 | 205 | 8 | |
| Trucks and buses | 13 | 2 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.937 | 0.988 | 0.988 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 4169 | 617 | 829 | 32 | pc/h |
| Volume ratio, VR | | 0.256 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 2 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 1 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 1446 | lc/h |
| Weaving lane changes, LCW | 1944 | lc/h |
| Non-weaving vehicle index, INW | 1008 | |
| Non-weaving lane change, LCNW | 1396 | lc/h |
| Total lane changes, LCALL | 3340 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.293 | |
| Average weaving speed, SW | 57.5 | mi/h |
| Average non-weaving speed, SNW | 52.8 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 53.9 | mi/h |
| Weaving segment density, D | 26.2 | pc/mi/ln |
| Level of service, LOS | C | |
| Weaving segment v/c ratio | 0.644 | |
| Weaving segment flow rate, v | 5647 | pc/h |
| Weaving segment capacity, cW | 8217 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 5117 | 2400 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2192 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.644 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2035_AM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 6372 | 429 | 837 | 22 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1677 | 113 | 220 | 6 | |
| Trucks and buses | 8 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 6989 | 457 | 896 | 23 | pc/h |
| Volume ratio, VR | | 0.162 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 457 | lc/h |
| Weaving lane changes, LCW | 719 | lc/h |
| Non-weaving vehicle index, INW | 617 | |
| Non-weaving lane change, LCNW | 1151 | lc/h |
| Total lane changes, LCALL | 1870 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.410 | |
| Average weaving speed, SW | 54.0 | mi/h |
| Average non-weaving speed, SNW | 56.7 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 56.2 | mi/h |
| Weaving segment density, D | 37.2 | pc/mi/ln |
| Level of service, LOS | E | |
| Weaving segment v/c ratio | 0.921 | |
| Weaving segment flow rate, v | 8365 | pc/h |
| Weaving segment capacity, cW | 8714 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 2583 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2270 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.921 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.3

Segment: W-48_2035_PM_Peak_SR_91_EB_Arlington_Ave_to_Central_Ave.xhw

## Operational Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/07/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 91 EB |
| Weaving Location: | Arlington Ave to Central Ave |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Inputs

| | | |
|---|---|---|
| Segment Type | Freeway | |
| Weaving configuration | One-Sided | |
| Number of lanes, N | 4 | ln |
| Weaving segment length, LS | 880 | ft |
| Freeway free-flow speed, FFS | 70 | mi/h |
| Minimum segment speed, SMIN | 15 | mi/h |
| Freeway maximum capacity, cIFL | 2400 | pc/h/ln |
| Terrain type | Level | |
| Grade | - | % |
| Length | - | mi |

## Conversion to pc/h Under Base Conditions

| | Volume Components | | | | |
|---|---|---|---|---|---|
| | VFF | VRF | VFR | VRR | |
| Volume, V | 3216 | 269 | 721 | 14 | veh/h |
| Peak hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 846 | 71 | 190 | 4 | |
| Trucks and buses | 10 | 2 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | 1 | % |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.983 | 0.988 | |
| Driver population adjustment, fP | 1.00 | 1.00 | 1.00 | 1.00 | |
| Flow rate, v | 3561 | 287 | 772 | 15 | pc/h |
| Volume ratio, VR | | 0.228 | | | |

## Configuration Characteristics

| | | |
|---|---|---|
| Number of maneuver lanes, NWL | 3 | ln |
| Interchange density, ID | 1.0 | int/mi |
| Minimum RF lane changes, LCRF | 1 | lc/pc |
| Minimum FR lane changes, LCFR | 0 | lc/pc |
| Minimum RR lane changes, LCRR | | lc/pc |
| Minimum weaving lane changes, LCMIN | 287 | lc/h |
| Weaving lane changes, LCW | 549 | lc/h |
| Non-weaving vehicle index, INW | 315 | |
| Non-weaving lane change, LCNW | 443 | lc/h |
| Total lane changes, LCALL | 992 | lc/h |

## Weaving and Non-Weaving Speeds

| | | |
|---|---|---|
| Weaving intensity factor, W | 0.248 | |
| Average weaving speed, SW | 59.1 | mi/h |
| Average non-weaving speed, SNW | 62.4 | mi/h |

Weaving Segment Speed, Density, Level of Service and Capacity

| | | |
|---|---|---|
| Weaving segment speed, S | 61.6 | mi/h |
| Weaving segment density, D | 18.8 | pc/mi/ln |
| Level of service, LOS | B | |
| Weaving segment v/c ratio | 0.522 | |
| Weaving segment flow rate, v | 4635 | pc/h |
| Weaving segment capacity, cW | 8433 | veh/h |

Limitations on Weaving Segments

If limit reached, see note.

| | Minimum | Maximum | Actual | Note |
|---|---|---|---|---|
| Weaving length (ft) | 300 | 3263 | 880 | a,b |
| | | Maximum | Analyzed | |
| Density-based capacty, cIWL (pc/h/ln) | | 2400 | 2218 | c |
| | | Maximum | Analyzed | |
| v/c ratio | | 1.00 | 0.522 | d |

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, 'Freeway Merge and Diverge Segments.'
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2035_AM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 7760 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 680 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 550 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 7760 | 680 | 550 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2042 | 179 | 145 | v |
| Trucks and buses | 8 | 5 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.974 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 8511 | 735 | 586 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.126 Using Equation 4

$v_{12} = v_F (P_{FM}) = 757$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 6746 | 9600 | No |
| $v_3$ or $v_{av34}$ | 2627 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2404$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3139 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 25.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.362$ | |
| Space mean speed in ramp influence area, | $S_R = 59.9$ | mph |
| Space mean speed in outer lanes, | $S_0 = 65.3$ | mph |
| Space mean speed for all vehicles, | $S = 62.7$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-1_2035_PM_Peak_SR_60_EB_On-Ramp_from_MLK.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6530 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1460 | vph |
| Length of first accel/decel lane | 700 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 630 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6530 | 1460 | 630 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1718 | 384 | 166 | v |
| Trucks and buses | 10 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7231 | 1555 | 671 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.023 Using Equation 4

$v_{12} = v_F (P_{FM}) = 124$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 6834 | 9600 | No |
| $v_3$ or $v_{av34}$ | 2577 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | Yes | |

If yes, $v_{12A} = 2111$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3666 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A = 29.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.424$ | |
| Space mean speed in ramp influence area, | $S_R = 58.1$ | mph |
| Space mean speed in outer lanes, | $S_0 = 66.1$ | mph |
| Space mean speed for all vehicles, | $S = 61.6$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2035_AM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8370 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 1360 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 240 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8370 | 1360 | 240 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2203 | 358 | 63 | v |
| Trucks and buses | 7 | 8 | 4 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.960 | 0.978 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9137 | 1492 | 258 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.031 Using Equation 4

$v_{12} = v_F (P_{FM}) = 208$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 8129 | 9600 | No |
| $v_3$ or $v_{av34}$ | 3214 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | Yes | |

If yes, $v_{12A} = 2654$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 4146 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A = 27.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.462$ | |
| Space mean speed in ramp influence area, | $S_R = 57.1$ | mph |
| Space mean speed in outer lanes, | $S_0 = 64.6$ | mph |
| Space mean speed for all vehicles, | $S = 60.5$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-2_2035_PM_Peak_SR_60_EB_On-Ramp_from_Central.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Central |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 8760 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 970 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 230 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 8760 | 970 | 230 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2305 | 255 | 61 | v |
| Trucks and buses | 8 | 9 | 7 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.955 | 0.964 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 9608 | 1069 | 251 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.084 Using Equation 4

$v_{12} = v_F (P_{FM}) = 598$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 8177 | 9600 | No |
| $v_3$ or $v_{av34}$ | 3255 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | Yes | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | Yes | |

If yes, $v_{12A} = 2843$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3912 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A = 26.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.411$ | |
| Space mean speed in ramp influence area, | $S_R = 58.5$ | mph |
| Space mean speed in outer lanes, | $S_0 = 64.1$ | mph |
| Space mean speed for all vehicles, | $S = 61.3$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2035_AM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 2100 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 300 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 976 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 2100 | 300 | 976 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 553 | 79 | 257 | v |
| Trucks and buses | 8 | 9 | 12 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.960 | 0.955 | 0.942 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 2303 | 331 | 1091 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = 657.88 (Equation 13-6 or 13-7)

P = 0.619 Using Equation 1

$v_{12} = v_F (P_{FM}) = 1427$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 2634 | 7200 | No |
| $v_3$ or $v_{av34}$ | 876 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$/2 | | No | |

If yes, $v_{12A}$ = 1427 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 1758 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 9.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.239 | |
| Space mean speed in ramp influence area, | $S_R$ = 63.3 | mph |
| Space mean speed in outer lanes, | $S_0$ = 68.6 | mph |
| Space mean speed for all vehicles, | $S$ = 65.0 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-10_2035_PM_Peak_SR_60_EB_On-Ramp_from_Gilman_Spring.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 EB |
| Junction: | On-Ramp from Gilman Spring |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4120 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 690 | vph |
| Length of first accel/decel lane | 1500 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 1236 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 2000 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4120 | 690 | 1236 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1084 | 182 | 325 | v |
| Trucks and buses | 5 | 8 | 5 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.974 | 0.960 | 0.974 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4454 | 757 | 1336 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = 1209.35 (Equation 13-6 or 13-7)

P = 0.619 Using Equation 1

$v_{12} = v_F (P_{FM}) = 2759$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 5211 | 7200 | No |
| $v_3$ or $v_{av34}$ | 1695 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2759$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3516 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 23.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.347$ | |
| Space mean speed in ramp influence area, | $S_R = 60.3$ | mph |
| Space mean speed in outer lanes, | $S_0 = 65.7$ | mph |
| Space mean speed for all vehicles, | $S = 61.9$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2035_AM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3510 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 520 | vph |
| Length of first accel/decel lane | 550 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 710 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3510 | 520 | 710 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 924 | 137 | 187 | v |
| Trucks and buses | 6 | 50 | 10 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.969 | 0.799 | 0.951 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3813 | 685 | 786 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = 634.97 (Equation 13-6 or 13-7)

P = 0.593 Using Equation 1

$v_{12} = v_F (P_{FM}) = 2261$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4498 | 7200 | No |
| $v_3$ or $v_{av34}$ | 1552 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2261$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2946 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A = 24.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.357$ | |
| Space mean speed in ramp influence area, | $S_R = 60.0$ | mph |
| Space mean speed in outer lanes, | $S_0 = 66.2$ | mph |
| Space mean speed for all vehicles, | $S = 62.0$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-14_2035_PM_Peak_SR_60_WB_On-Ramp_from_Theodore_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | On-Ramp from Theodore |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3050 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 640 | vph |
| Length of first accel/decel lane | 550 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 420 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3050 | 640 | 420 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 803 | 168 | 111 | v |
| Trucks and buses | 7 | 46 | 16 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.964 | 0.812 | 0.924 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3329 | 830 | 478 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = 562.43 (Equation 13-6 or 13-7)

P = 0.593 Using Equation 1

$v_{12} = v_F (P_{FM}) = 1974$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4159 | 7200 | No |
| $v_3$ or $v_{av34}$ | 1355 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 1974$ (Equation 13-15, 13-16, 18, or 19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2804 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A = 23.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.347$ | |
| Space mean speed in ramp influence area, | $S_R = 60.3$ | mph |
| Space mean speed in outer lanes, | $S_0 = 66.9$ | mph |
| Space mean speed for all vehicles, | $S = 62.3$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2035_AM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4290 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 420 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 210 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4290 | 420 | 210 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1129 | 111 | 55 | v |
| Trucks and buses | 10 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.983 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4751 | 450 | 224 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.621 Using Equation 5

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3119 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 4751 | 7200 | No |
| $v_{FO} = v_F - v_R$ | 4301 | 7200 | No |
| $v_R$ | 450 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1632 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A}$ = 3119 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3119 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 22.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $D_S$ = 0.469 | |
| Space mean speed in ramp influence area, | $S_R$ = 56.9 | mph |
| Space mean speed in outer lanes, | $S_O$ = 74.3 | mph |
| Space mean speed for all vehicles, | $S$ = 61.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-15_2035_PM_Peak_SR_60_WB_Off-Ramp_to_Redlands_.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3780 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 540 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 150 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3780 | 540 | 150 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 995 | 142 | 39 | v |
| Trucks and buses | 12 | 6 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | 0.969 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4226 | 587 | 160 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.627 Using Equation 5

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 2870 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 4226 | 7200 | No |
| $v_{FO} = v_F - v_R$ | 3639 | 7200 | No |
| $v_R$ | 587 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1356 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A}$ = 2870 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 2870 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 19.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $D_S$ = 0.481 | |
| Space mean speed in ramp influence area, | $S_R$ = 56.5 | mph |
| Space mean speed in outer lanes, | $S_O$ = 75.4 | mph |
| Space mean speed for all vehicles, | $S$ = 61.5 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

File Name: R-16_2035_AM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - With Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3870 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 210 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 420 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3870 | 210 | 420 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1018 | 55 | 111 | v |
| Trucks and buses | 10 | 2 | 3 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.988 | 0.983 | |

| | | | | |
|---|---|---|---|---|
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4286 | 224 | 450 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = 504.34 (Equation 13-6 or 13-7)

$P_{FM}$ = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2505 pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4510 | 7200 | No |
| $v_3$ or $v_{av34}$ | 1781 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A}$ = 2505 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2729 | 4600 | No |

## Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 25.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S$ = 0.363 | |
| Space mean speed in ramp influence area, | $S_R$ = 59.8 | mph |
| Space mean speed in outer lanes, | $S_0$ = 65.4 | mph |
| Space mean speed for all vehicles, | S = 61.9 | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

File Name: R-16_2035_PM_Peak_SR_60_WB_L_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | L On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - With Project |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3240 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 150 | vph |
| Length of first accel/decel lane | 250 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 540 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | Off | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3240 | 150 | 540 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 853 | 39 | 142 | v |
| Trucks and buses | 12 | 2 | 6 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | 0.988 | 0.969 | |

| | | | | |
|---|---|---|---|---|
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3622 | 160 | 587 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = 348.55 (Equation 13-6 or 13-7)

$P_{FM}$ = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2117 pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 3782 | 7200 | No |
| $v_3$ or $v_{av34}$ | 1505 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A}$ = 2117 (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 2277 | 4600 | No |

## Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 21.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $M_S$ = 0.342

Space mean speed in ramp influence area, $S_R$ = 60.4 mph

Space mean speed in outer lanes, $S_0$ = 66.4 mph

Space mean speed for all vehicles, S = 62.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-17_2035_AM_Peak_SR_60_WB_Direct_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Direct On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 4080 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 390 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 210 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 4080 | 390 | 210 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1074 | 103 | 55 | v |
| Trucks and buses | 10 | 11 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.951 | 0.946 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 4518 | 434 | 224 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.605 Using Equation 1

$v_{12} = v_F (P_{FM}) = 2736$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4952 | 7200 | No |
| $v_3$ or $v_{av34}$ | 1782 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2736$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3170 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 23.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.344$ | |
| Space mean speed in ramp influence area, | $S_R = 60.4$ | mph |
| Space mean speed in outer lanes, | $S_0 = 65.4$ | mph |
| Space mean speed for all vehicles, | $S = 62.1$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-17_2035_PM_Peak_SR_60_WB_Direct_On-Ramp_from_Redlands_.xhr

## Merge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Direct On-Ramp from Redlands |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Merge | |
| Number of lanes in freeway | 3 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 3390 | vph |

## On Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 630 | vph |
| Length of first accel/decel lane | 1000 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 150 | vph |
| Position of adjacent ramp | Upstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 1200 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 3390 | 630 | 150 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 892 | 166 | 39 | v |
| Trucks and buses | 12 | 25 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.942 | 0.887 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 3790 | 747 | 160 | pcph |

## Estimation of V12 Merge Areas

$L_{EQ}$ = (Equation 13-6 or 13-7)

P = 0.605 Using Equation 1

$v_{12} = v_F (P_{FM}) = 2295$ pc/h

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{FO}$ | 4537 | 7200 | No |
| $v_3$ or $v_{av34}$ | 1495 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ > 2700 pc/h? | | No | |
| Is $v_3$ or $v_{av34}$ > 1.5 $v_{12}$ /2 | | No | |

If yes, $v_{12A} = 2295$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Merge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{R12}$ | 3042 | 4600 | No |

## Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R} + 0.0078\ v_{12} - 0.00627\ L_A = 22.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

| | | |
|---|---|---|
| Intermediate speed variable, | $M_S = 0.333$ | |
| Space mean speed in ramp influence area, | $S_R = 60.7$ | mph |
| Space mean speed in outer lanes, | $S_0 = 66.4$ | mph |
| Space mean speed for all vehicles, | $S = 62.5$ | mph |

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2035_AM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | AM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 6867 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 720 | vph |
| Length of first accel/decel lane | 300 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 880 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 6867 | 720 | 880 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 1807 | 189 | 232 | v |
| Trucks and buses | 9 | 2 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.988 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 7568 | 767 | 937 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 3073 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 6055 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 5288 | 9600 | No |
| $v_R$ | 767 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1491 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 3073$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3073 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D = 28.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

## Speed Estimation

Intermediate speed variable, $D_S = 0.497$

Space mean speed in ramp influence area, $S_R = 56.1$ mph

Space mean speed in outer lanes, $S_O = 74.9$ mph

Space mean speed for all vehicles, $S = 64.0$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Segment: R-19_2035_PM_Peak_SR_60_WB_Off-Ramp_to_MLK.xhr

## Diverge Analysis

| | |
|---|---|
| Analyst: | PB |
| Agency/Co.: | Parsons Brinckerhoff |
| Date Performed: | 10/22/2013 |
| Analysis Time Period: | PM Peak |
| Freeway/Dir of Travel: | SR 60 WB |
| Junction: | Off-Ramp to MLK |
| Jurisdiction: | Caltrans |
| Analysis Year: | 2035 |
| Description: | World Logistics Center - Plus Build-out - Mitigation |

## Freeway Data

| | | |
|---|---|---|
| Type of analysis | Diverge | |
| Number of lanes in freeway | 5 | |
| Free-flow speed on freeway | 70.0 | mph |
| Volume on freeway | 7817 | vph |

## Off Ramp Data

| | | |
|---|---|---|
| Side of freeway | Right | |
| Number of lanes in ramp | 1 | |
| Free-Flow speed on ramp | 35.0 | mph |
| Volume on ramp | 670 | vph |
| Length of first accel/decel lane | 300 | ft |
| Length of second accel/decel lane | | ft |

## Adjacent Ramp Data (if one exists)

| | | |
|---|---|---|
| Does adjacent ramp exist? | Yes | |
| Volume on adjacent ramp | 500 | vph |
| Position of adjacent ramp | Downstream | |
| Type of adjacent ramp | On | |
| Distance to adjacent ramp | 2400 | ft |

## Conversion to pc/h Under Base Conditions

| Junction Components | Freeway | Ramp | Adjacent Ramp | |
|---|---|---|---|---|
| Volume, V (vph) | 7817 | 670 | 500 | vph |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | |
| Peak 15-min volume, v15 | 2057 | 176 | 132 | v |
| Trucks and buses | 9 | 3 | 2 | % |
| Recreational vehicles | 1 | 1 | 1 | % |
| Terrain type: | Level | Level | Level | |
| Grade | % | % | % | |
| Length | mi | mi | mi | |
| Trucks and buses PCE, ET | 1.5 | 1.5 | 1.5 | |
| Recreational vehicle PCE, ER | 1.2 | 1.2 | 1.2 | |
| Heavy vehicle adjustment, fHV | 0.955 | 0.983 | 0.988 | |
| Driver population factor, fP | 1.00 | 1.00 | 1.00 | |
| Flow rate, vp | 8615 | 717 | 533 | pcph |

## Estimation of V12 Diverge Areas

$L_{EQ}$ = (Equation 13-12 or 13-13)

P = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_{FD}) P_{FD} = 3409 \text{ pc/h}$$

## Capacity Checks

| | Actual | Maximum | LOS F? |
|---|---|---|---|
| $v_{Fi} = v_F$ | 6892 | 9600 | No |
| $v_{FO} = v_F - v_R$ | 6175 | 9600 | No |
| $v_R$ | 717 | 2000 | No |
| $v_3$ or $v_{av34}$ | 1741 pc/h | (Equation 13-14 or 13-17) | |
| Is $v_3$ or $v_{av34}$ | > 2700 pc/h? | No | |
| Is $v_3$ or $v_{av34}$ | > 1.5 $v_{12}$ /2 | No | |

If yes, $v_{12A} = 3409$ (Equation 13-15, 13-16, 13-18, or 13-19)

## Flow Entering Diverge Influence Area

| | Actual | Max Desirable | Violation? |
|---|---|---|---|
| $v_{12}$ | 3409 | 4400 | No |

## Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086 v_{12} - 0.009 L_D = 30.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

## Speed Estimation

Intermediate speed variable, $D_S = 0.493$

Space mean speed in ramp influence area, $S_R = 56.2$ mph

Space mean speed in outer lanes, $S_0 = 73.9$ mph

Space mean speed for all vehicles, $S = 63.9$ mph

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 EB
**RAMP:** R-6 Off-Ramp to Theodore St
**ANALYSIS YEAR:** 2035 Plus Build-out
**ANALYSIS PERIOD:** AM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 3,630 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 17 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.920 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **4,153** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 4,153 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **24.3** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 EB
**RAMP:** R-6 Off-Ramp to Theodore St
**ANALYSIS YEAR:** 2035 Plus Build-out
**ANALYSIS PERIOD:** PM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 4,280 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 10 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.951 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **4,740** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 4,740 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **27.8** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 EB
**RAMP:** R-9 Off-Ramp to Gilman Springs
**ANALYSIS YEAR:** 2035 Plus Build-out
**ANALYSIS PERIOD:** AM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 3,080 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 8 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.960 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **3,378** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 3,378 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **19.8** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 EB
**RAMP:** R-9 Off-Ramp to Gilman Springs
**ANALYSIS YEAR:** 2035 Plus Build-out
**ANALYSIS PERIOD:** PM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 5,360 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 5 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.974 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **5,794** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 5,794 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **34.0** |
| **Level of service, LOS** | **D** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 WB
**RAMP:** R-11 Off-Ramp to Gilman Springs
**ANALYSIS YEAR:** 2035 Plus Build-out
**ANALYSIS PERIOD:** AM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 3,450 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 2 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.988 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **3,675** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 3,675 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **21.5** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 WB
**RAMP:** R-11 Off-Ramp to Gilman Springs
**ANALYSIS YEAR:** 2035 Plus Build-out
**ANALYSIS PERIOD:** PM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 2,680 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 3 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.983 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **2,869** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 2,869 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **16.8** |
| **Level of service, LOS** | **B** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 WB
**RAMP:** R-13 Off-Ramp to Theodore St
**ANALYSIS YEAR:** 2035 Plus Build-out
**ANALYSIS PERIOD:** AM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 4,220 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 6 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.969 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **4,584** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 4,584 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **26.9** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 WB
**RAMP:** R-13 Off-Ramp to Theodore St
**ANALYSIS YEAR:** 2035 Plus Build-out
**ANALYSIS PERIOD:** PM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 3,470 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 7 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.964 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **3,788** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 3,788 |
| Max Upstream Fwy Flow, $V_{F1}$ | 7,050 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 3 |
| Density, D | **22.2** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 WB
**RAMP:** R-18 Off-Ramp to Central
**ANALYSIS YEAR:** 2035 Plus Build-out
**ANALYSIS PERIOD:** AM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 8,170 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 10 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.951 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **9,047** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 9,047 |
| Max Upstream Fwy Flow, $V_{F1}$ | 11,750 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 5 |
| Density, D | **31.8** |
| **Level of service, LOS** | **D** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 WB
**RAMP:** R-18 Off-Ramp to Central
**ANALYSIS YEAR:** 2035 Plus Build-out
**ANALYSIS PERIOD:** PM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 9,560 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 9 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.955 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **10,536** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 10,536 |
| Max Upstream Fwy Flow, $V_{F1}$ | 11,750 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 5 |
| Density, D | **37.0** |
| **Level of service, LOS** | **E** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 WB
**RAMP:** R-18 Off-Ramp to Central
**ANALYSIS YEAR:** 2035 Plus Build-out - Mitigation
**ANALYSIS PERIOD:** AM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 8,170 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 10 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.951 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **9,047** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 9,047 |
| Max Upstream Fwy Flow, $V_{F1}$ | 14,100 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 6 |
| Density, D | **26.5** |
| **Level of service, LOS** | **C** |

## WLC ANALYSIS MAJOR DIVERGE WORKSHEET

**ROUTE:** SR-60 WB
**RAMP:** R-18 Off-Ramp to Central
**ANALYSIS YEAR:** 2035 Plus Build-out - Mitigation
**ANALYSIS PERIOD:** PM Peak Hour

**Flow Inputs and Adjustments**

| | |
|---|---|
| Volume, V | 9,560 |
| Peak Hour Factor, PHF | 0.95 |
| % Trucks and buses | 9 |
| % RVs | 1 |
| Trucks and buses PCE, ET | 1.5 |
| Recreational vehicle PCE, ER | 1.2 |
| Heavy vehicle adjustment, fHV | 0.955 |
| Driver population factor, fp | 1.00 |
| Terrain type | Level |
| **Flow rate, $V_F$** | **10,536** |

**LOS and Performance Measures**

| | |
|---|---|
| Flow rate, $V_F$ | 10,536 |
| Max Upstream Fwy Flow, $V_{F1}$ | 14,100 |
| If overcapacity (v>Max v)? | No |
| Density Factor | 0.01758 |
| Number of lanes, N | 6 |
| Density, D | **30.9** |
| **Level of service, LOS** | **D** |

# Traffic Impact Analysis Report

# for the World Logistics Center

## Appendix P

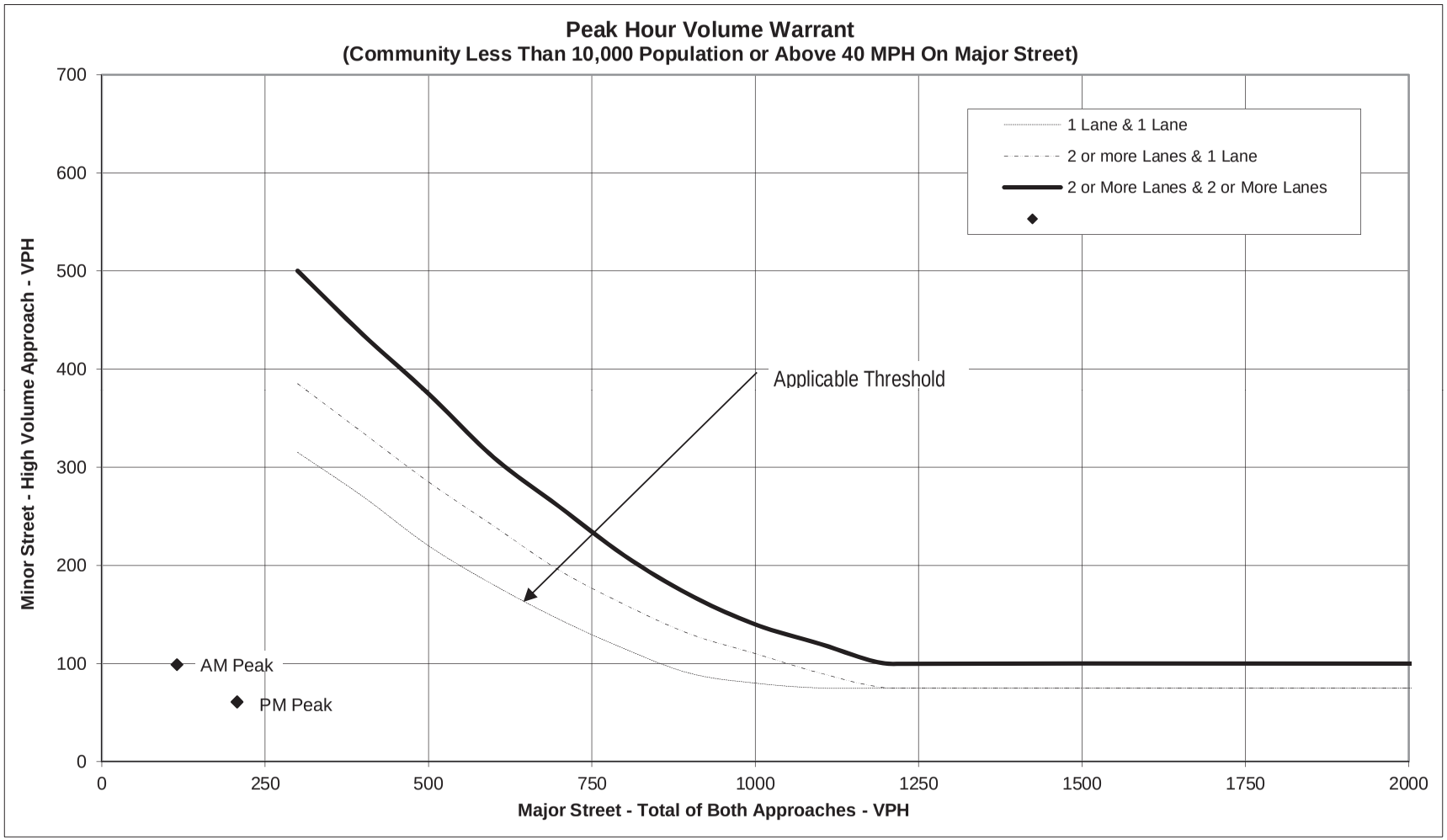
## Signal Warrant Worksheets

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# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 3 - Alessandro Blvd & Theodore St
Type: 1 Lane & 1 Lane
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): Alessandro Blvd (WB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 0 | 99 | 99 | 100 | 15 | 115 | No |
| PM Peak | 0 | 61 | 61 | 162 | 45 | 207 | No |

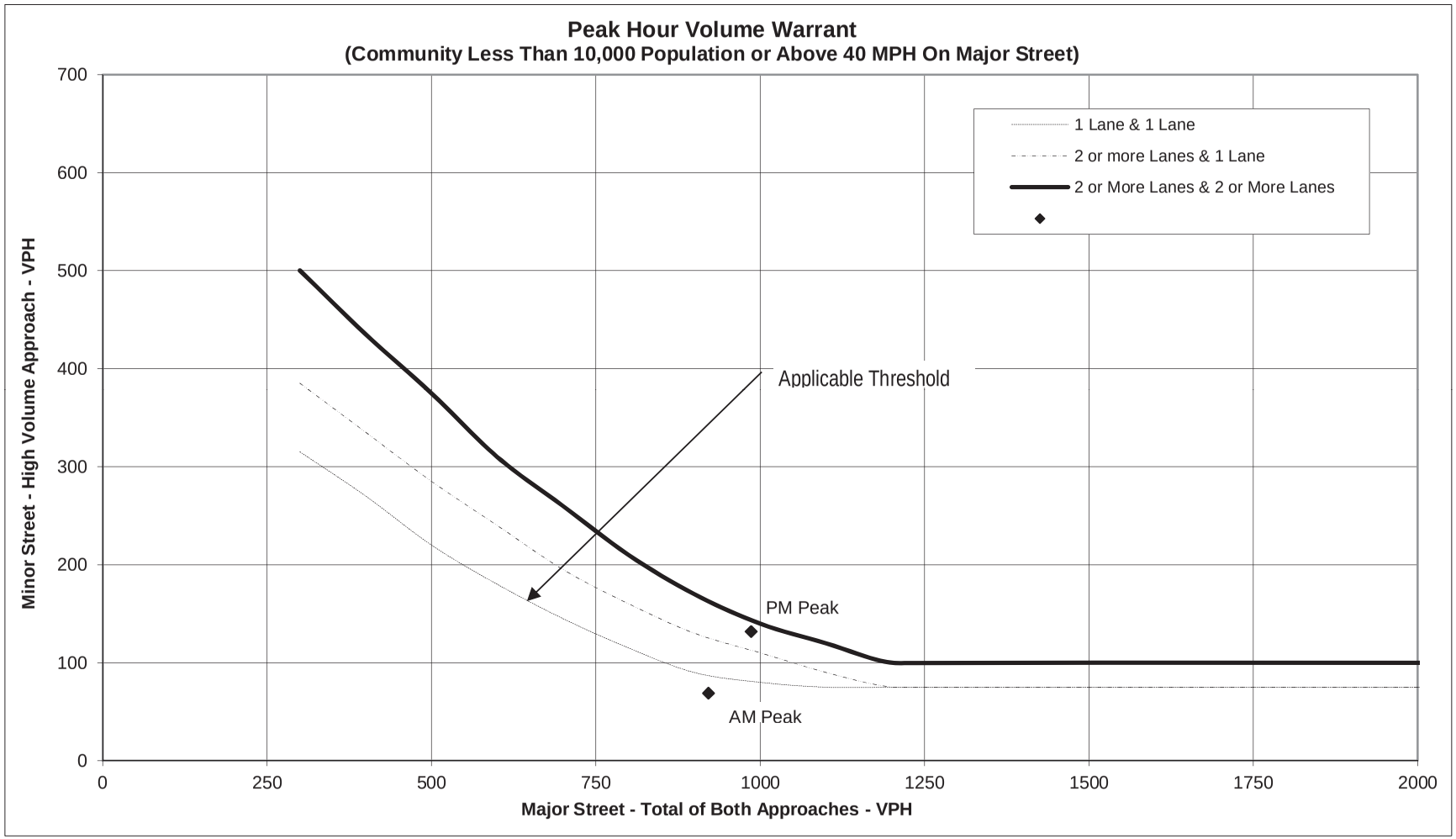



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 6 - Alessandro Blvd & Gilman Springs Rd
Type: 1 Lane & 1 Lane
Major Street (Orientation): Gilman Springs Rd (NB-SB)
Minor Street (Orientation): Alessandro Blvd (EB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Gilman Springs) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 69 | 0 | 69 | 680 | 241 | 921 | No |
| PM Peak | 132 | 0 | 132 | 372 | 614 | 986 | Yes |

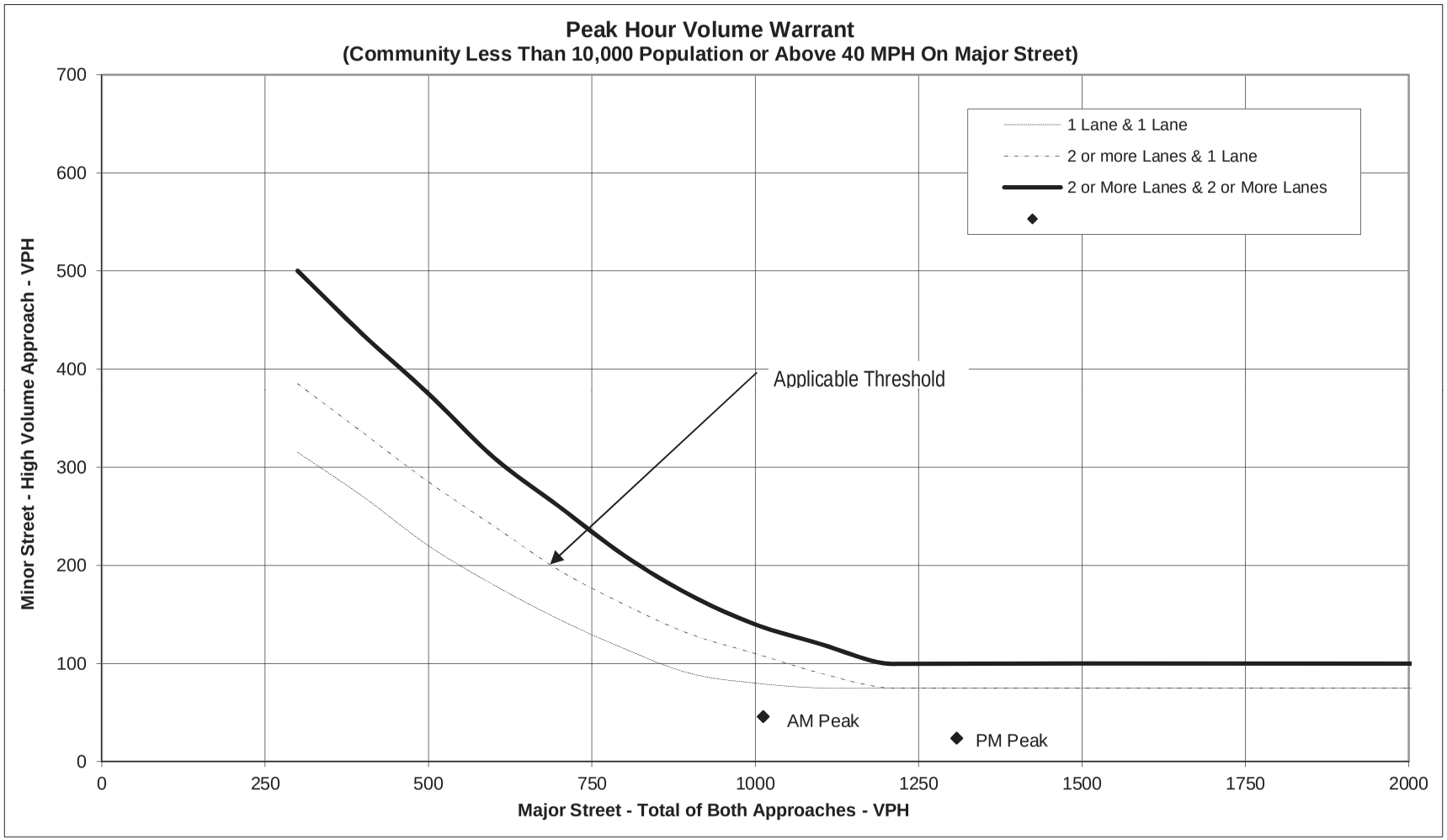



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 10 - Locust Ave & Rredlands Blvd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Redlands Blvd (NB-SB)
Minor Street (Orientation): Locust (EB-WB)

| | Minor Street Approach Volume (Locust) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 46 | 2 | 46 | 601 | 411 | 1,012 | No |
| PM Peak | 24 | 6 | 24 | 549 | 759 | 1,308 | No |

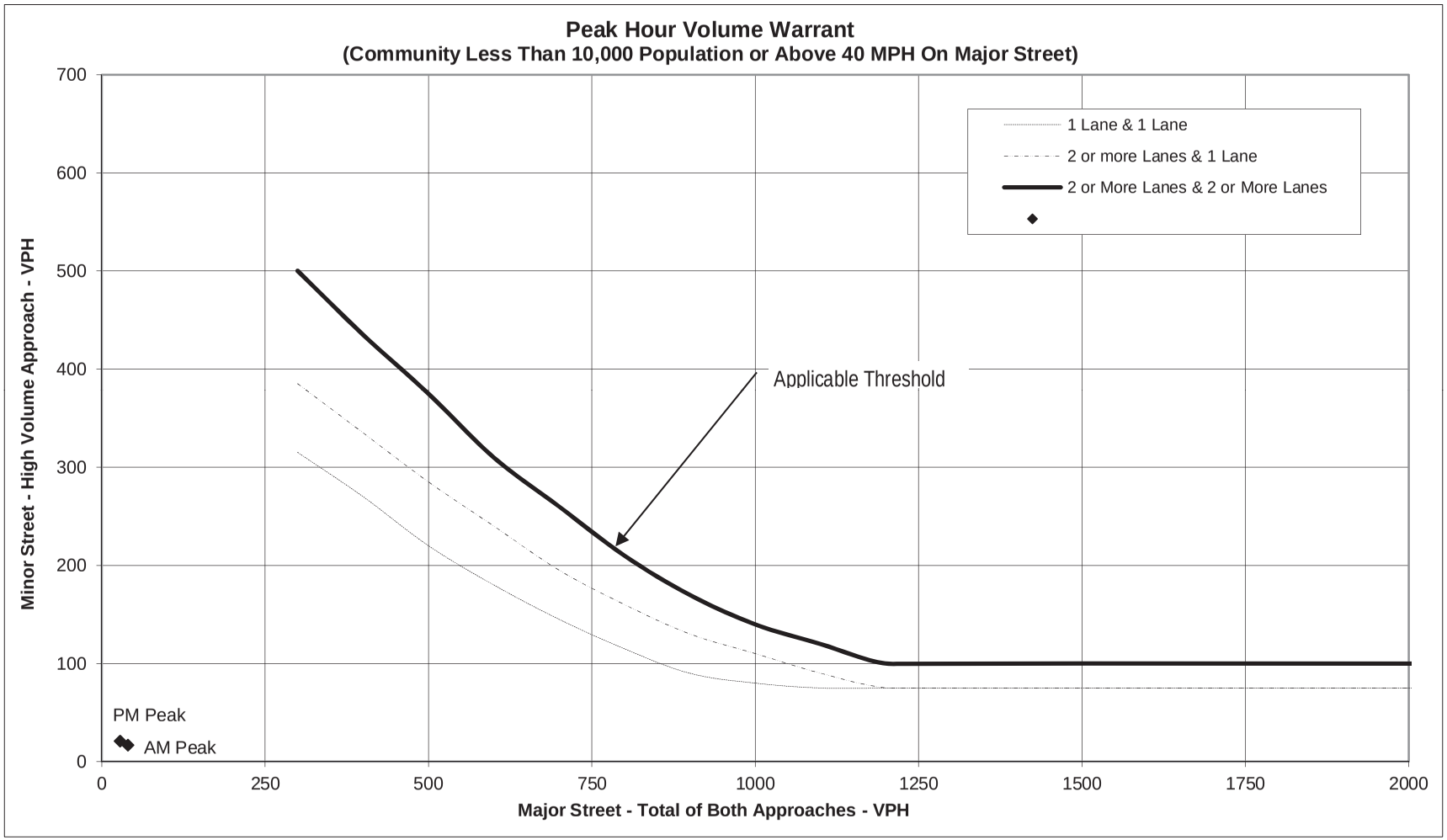



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 12 - Ironwood Ave. & Theodore St
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB)
Minor Street (Orientation): Ironwood Ave (EB-WB)

| | Minor Street Approach Volume (Ironwood) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 17 | 11 | 17 | 40 | 0 | 40 | No |
| PM Peak | 16 | 21 | 21 | 28 | 0 | 28 | No |

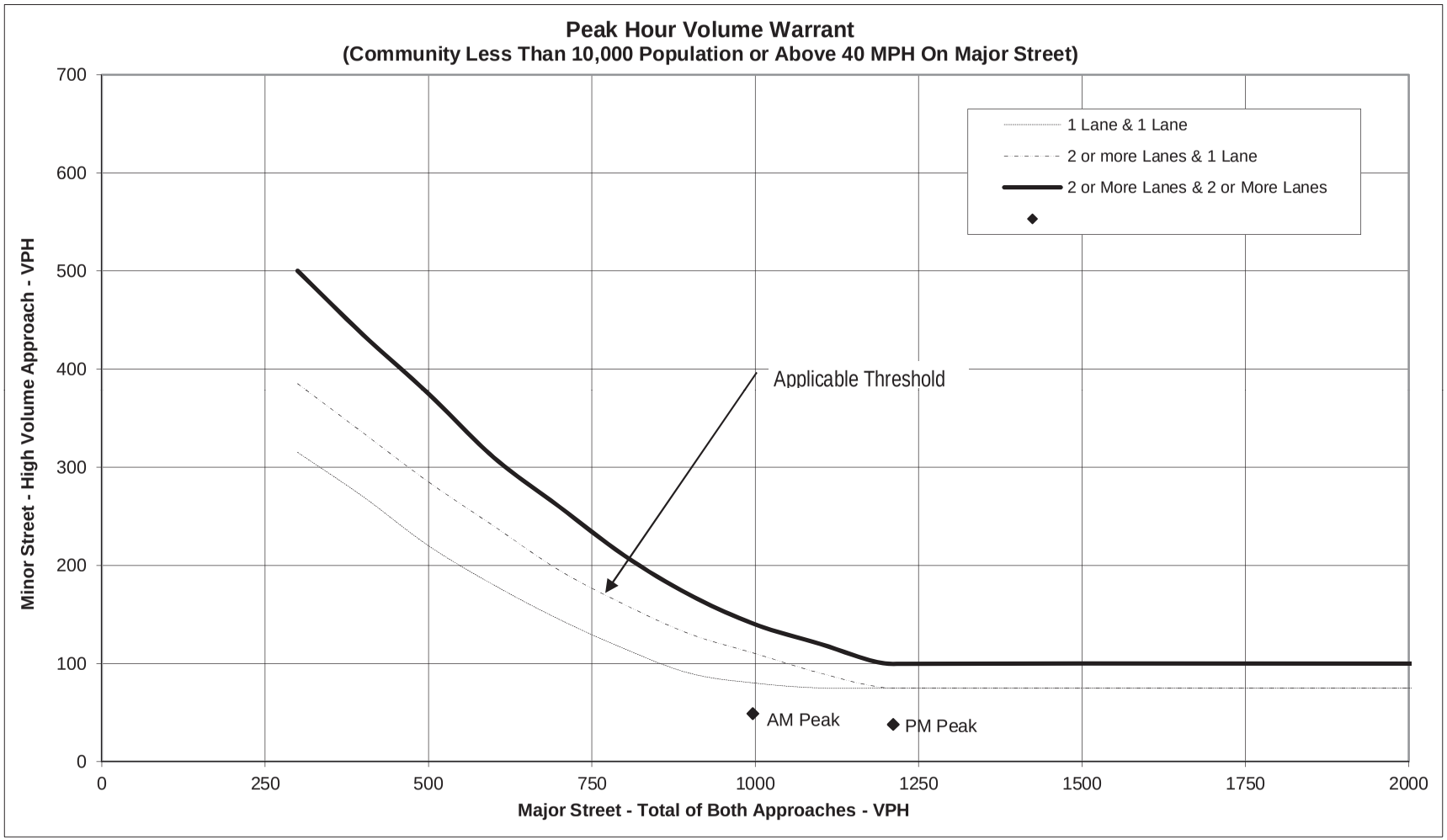



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 13 - SR-60 WB Ramps & Redlands Blvd
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Redlands Blvd (NB-SB)
Minor Street (Orientation): SR-60 WB Ramps (EB-WB)

| | Minor Street Approach Volume (SR-60 WB Ramp | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 6 | 49 | 49 | 609 | 387 | 996 | No |
| PM Peak | 9 | 38 | 38 | 598 | 613 | 1,211 | No |

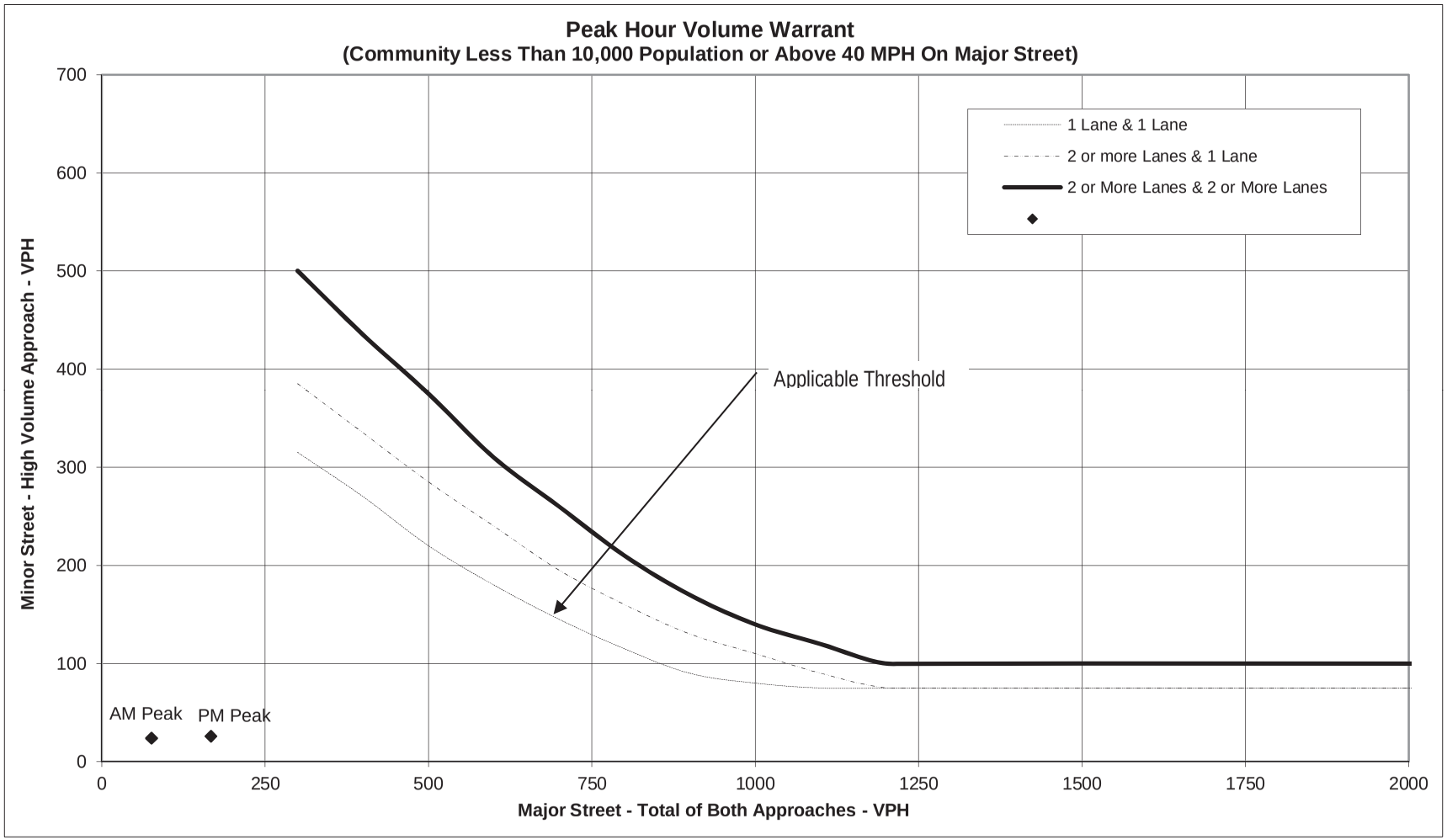



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 15 - SR-60 WB Ramps & Theodore St.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): SR-60 WB Ramps (WB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 0 | 24 | 24 | 50 | 26 | 76 | No |
| PM Peak | 0 | 26 | 26 | 140 | 27 | 167 | No |

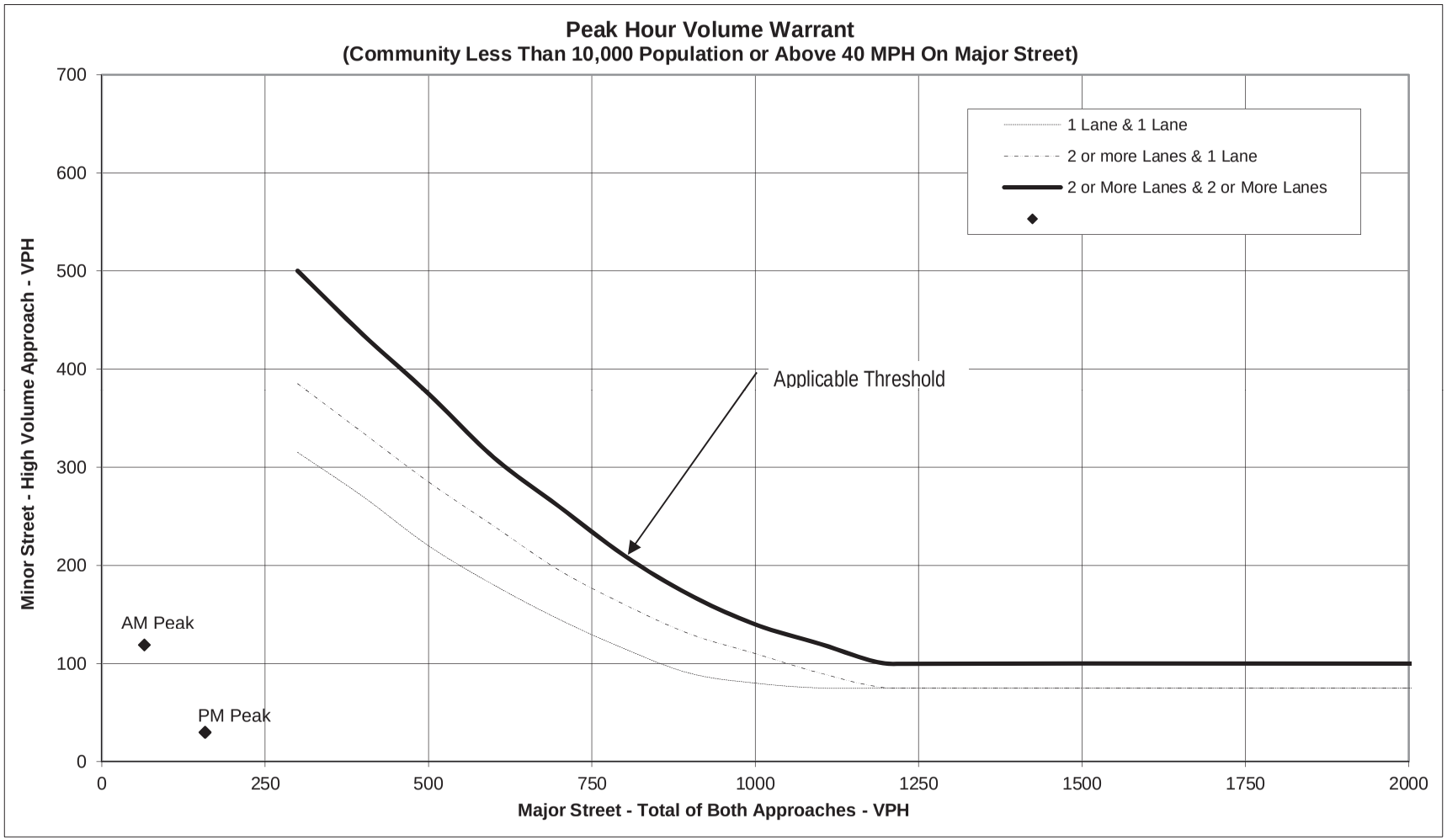



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 16 - SR-60 EB Ramps & Theodore St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): SR-60 EB Ramps (EB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 119 | 0 | 119 | 44 | 21 | 65 | No |
| PM Peak | 30 | 0 | 30 | 131 | 27 | 158 | No |

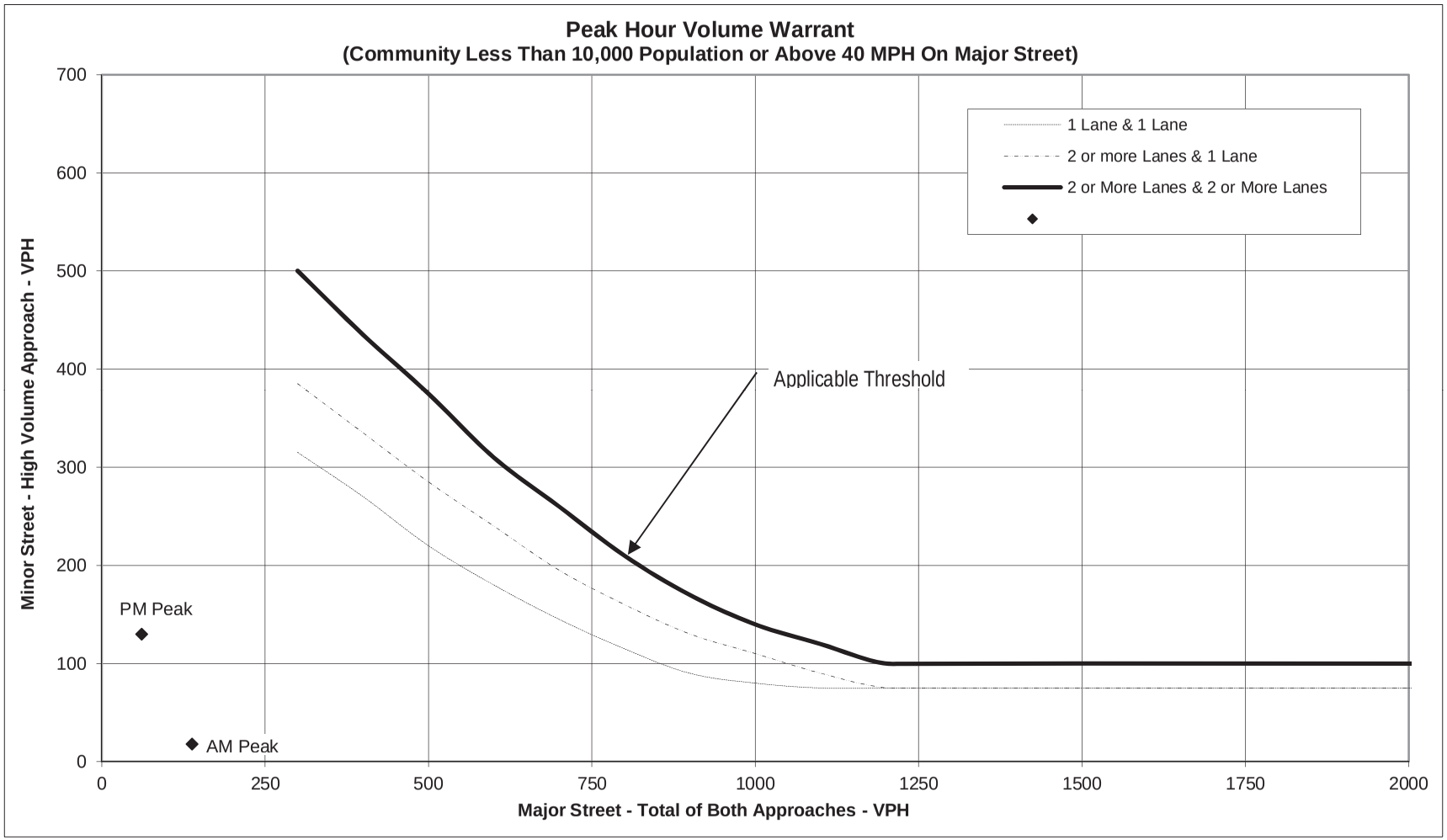



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 19 - Eucalyptus Ave & Theodore St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): Eucalyptus Ave (EB)

| | Minor Street Approach Volume (Eucalyptus Ave | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 18 | 0 | 18 | 36 | 102 | 138 | No |
| PM Peak | 130 | 0 | 130 | 26 | 35 | 61 | No |

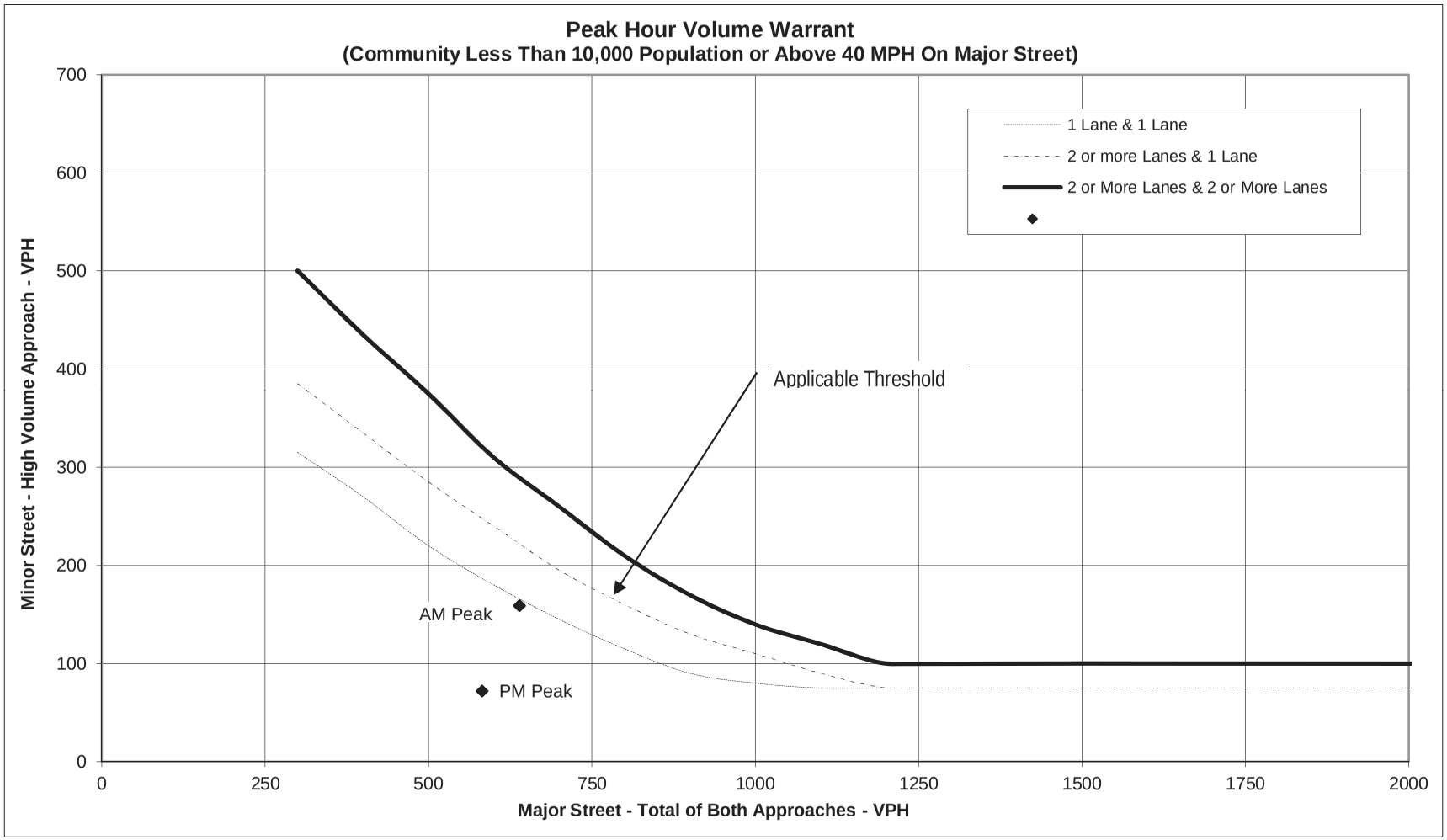



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 20 - Alessandro Blvd. & Oliver St.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Alessandro Blvd (EB-WB)
Minor Street (Orientation): Oliver St (NB-SB)

| | Minor Street Approach Volume (Oliver St) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 159 | 2 | 159 | 227 | 412 | 639 | No |
| PM Peak | 72 | 0 | 72 | 346 | 236 | 582 | No |

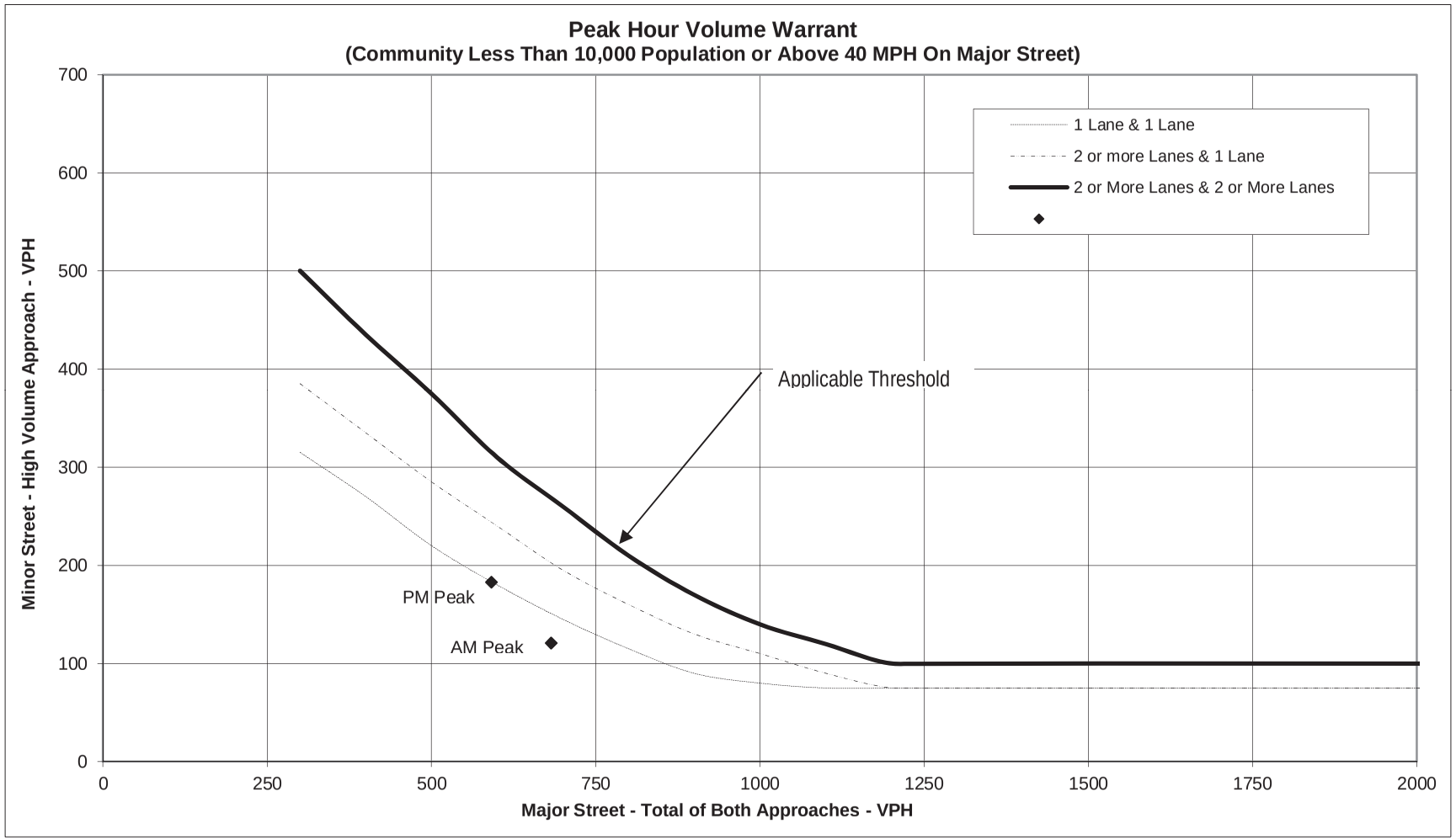



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 23 - Alessandro Blvd. & Redlands Blvd
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Redlands (NB-SB)
Minor Street (Orientation): Alessandro Blvd (EB-WB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 114 | 121 | 121 | 438 | 244 | 682 | No |
| PM Peak | 183 | 90 | 183 | 221 | 370 | 591 | No |

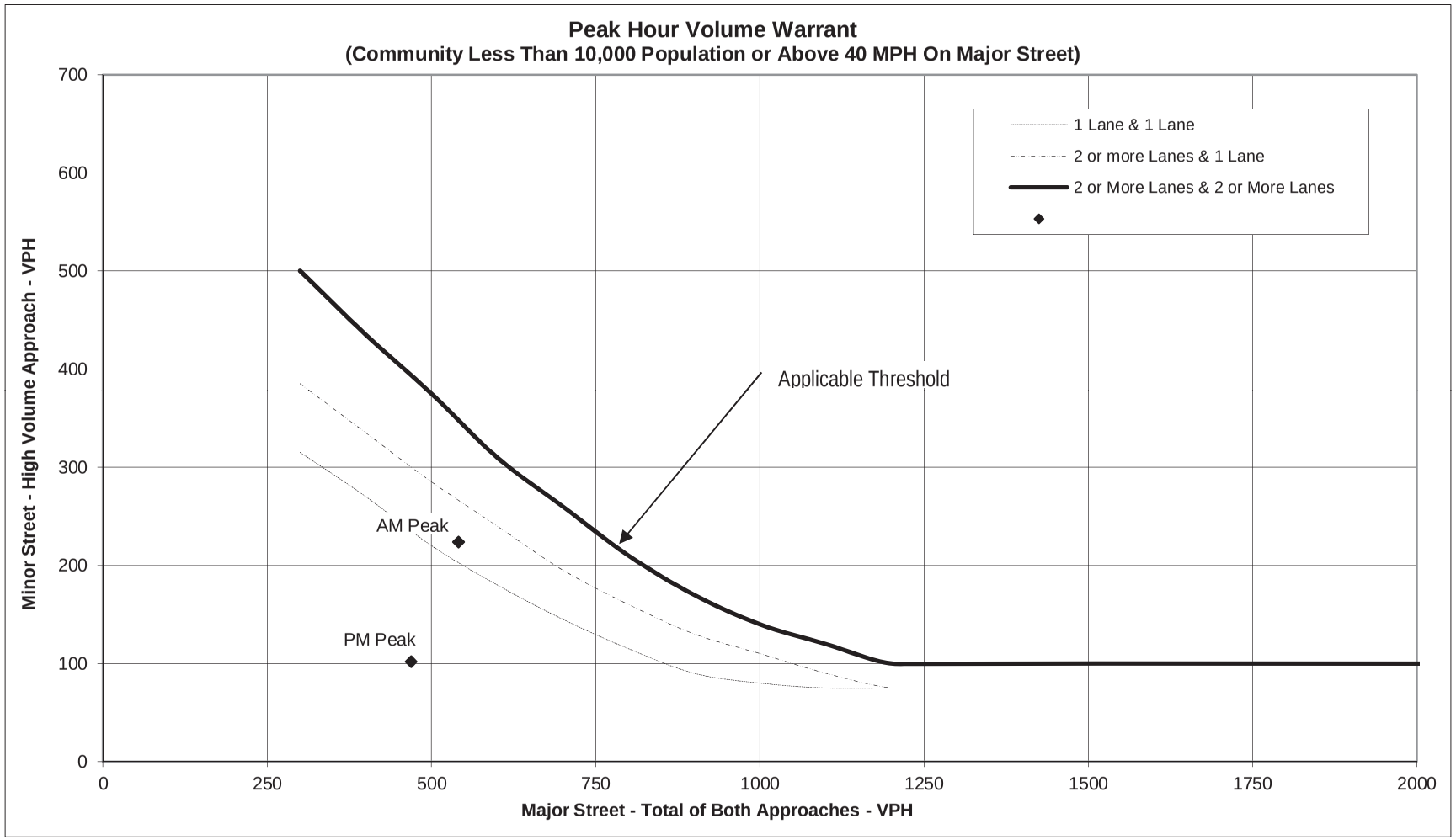



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 27 - Cactus Ave. & Redlands Blvd
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Redlands Blvd. (NB-SB)
Minor Street (Orientation): Cactus Ave. (EB-WB)

| | Minor Street Approach Volume (Cactus) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 224 | 23 | 224 | 271 | 270 | 541 | No |
| PM Peak | 102 | 10 | 102 | 132 | 337 | 469 | No |

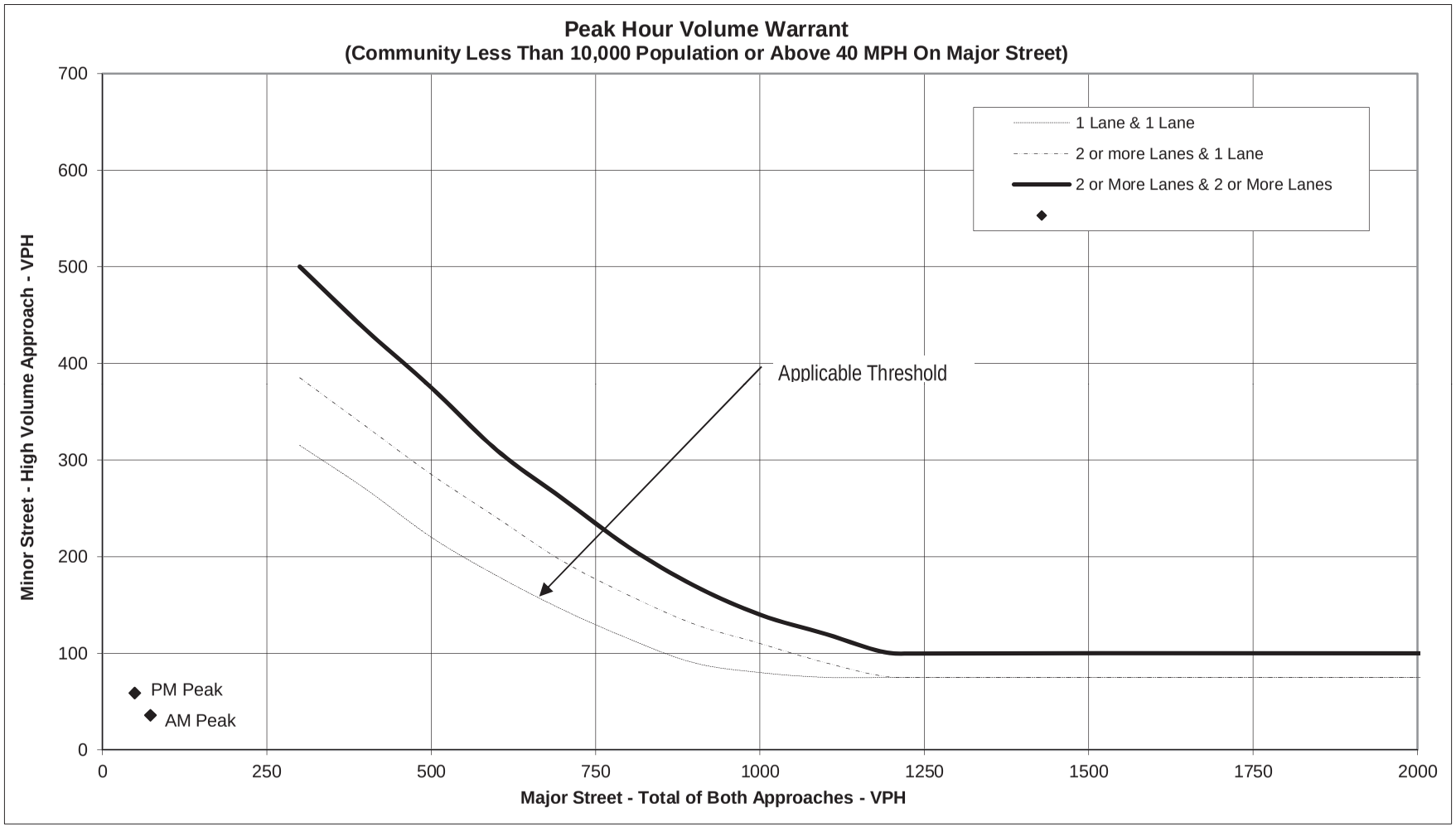



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 35 - Locust Ave & Moreno Beach Dr
Type: 1 Lane & 1 Lane
Major Street (Orientation): Locust Ave (EB-WB)
Minor Street (Orientation): Moreno Beach Dr. (NB)

| | Minor Street Approach Volume (Moreno Beach) | | | Major Street Approach Volume (Locust) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 36 | 0 | 36 | 7 | 66 | 73 | No |
| PM Peak | 59 | 0 | 59 | 6 | 43 | 49 | No |

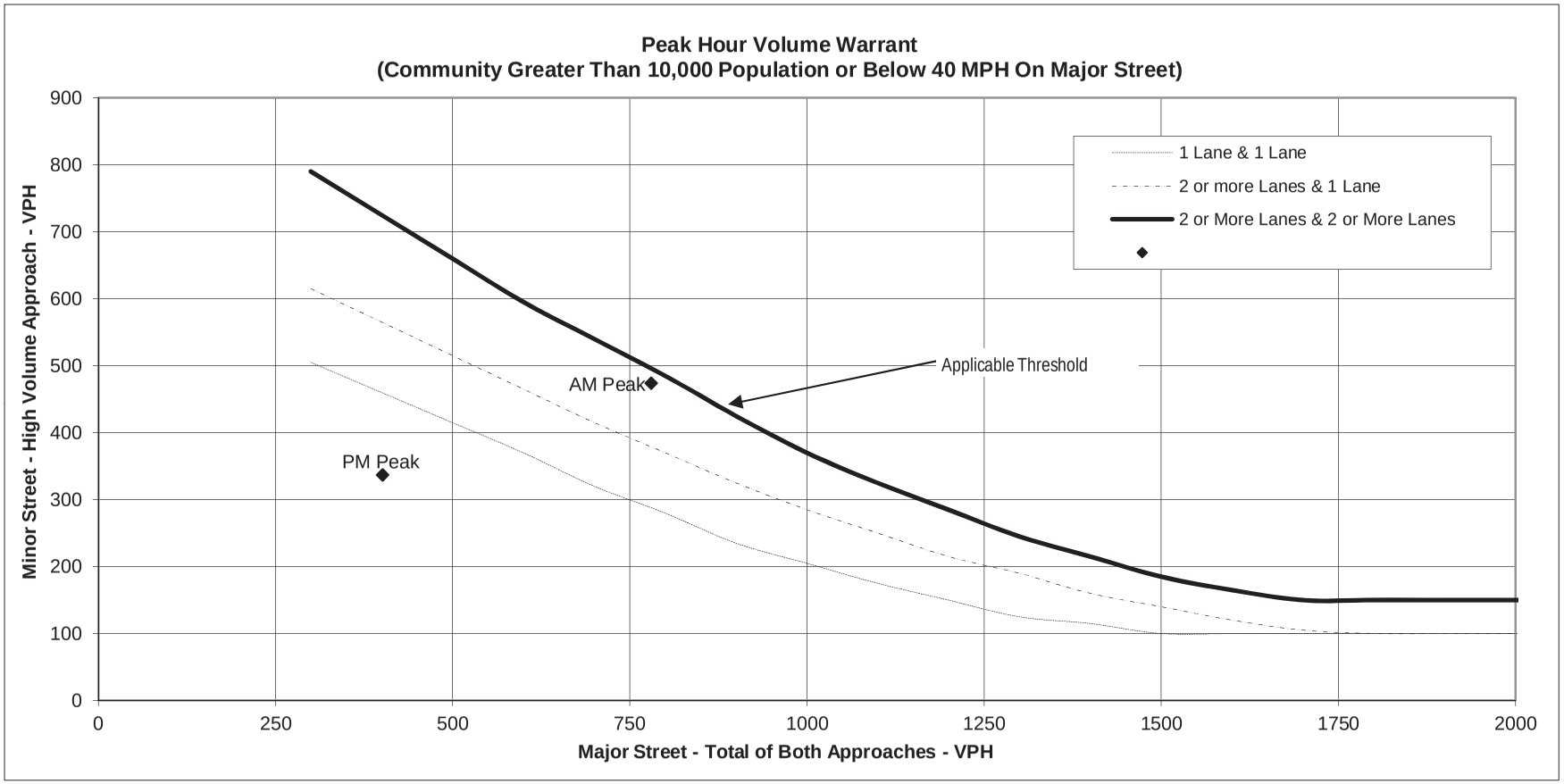



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 85 - Martin Luther King Blvd. & SR-60 WB on Ramp
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Martin Luther King (EB)
Minor Street (Orientation): SR-60. (NB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (MLK) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 474 | 0 | 474 | 780 | 0 | 780 | No |
| PM Peak | 337 | 0 | 337 | 401 | 0 | 401 | No |

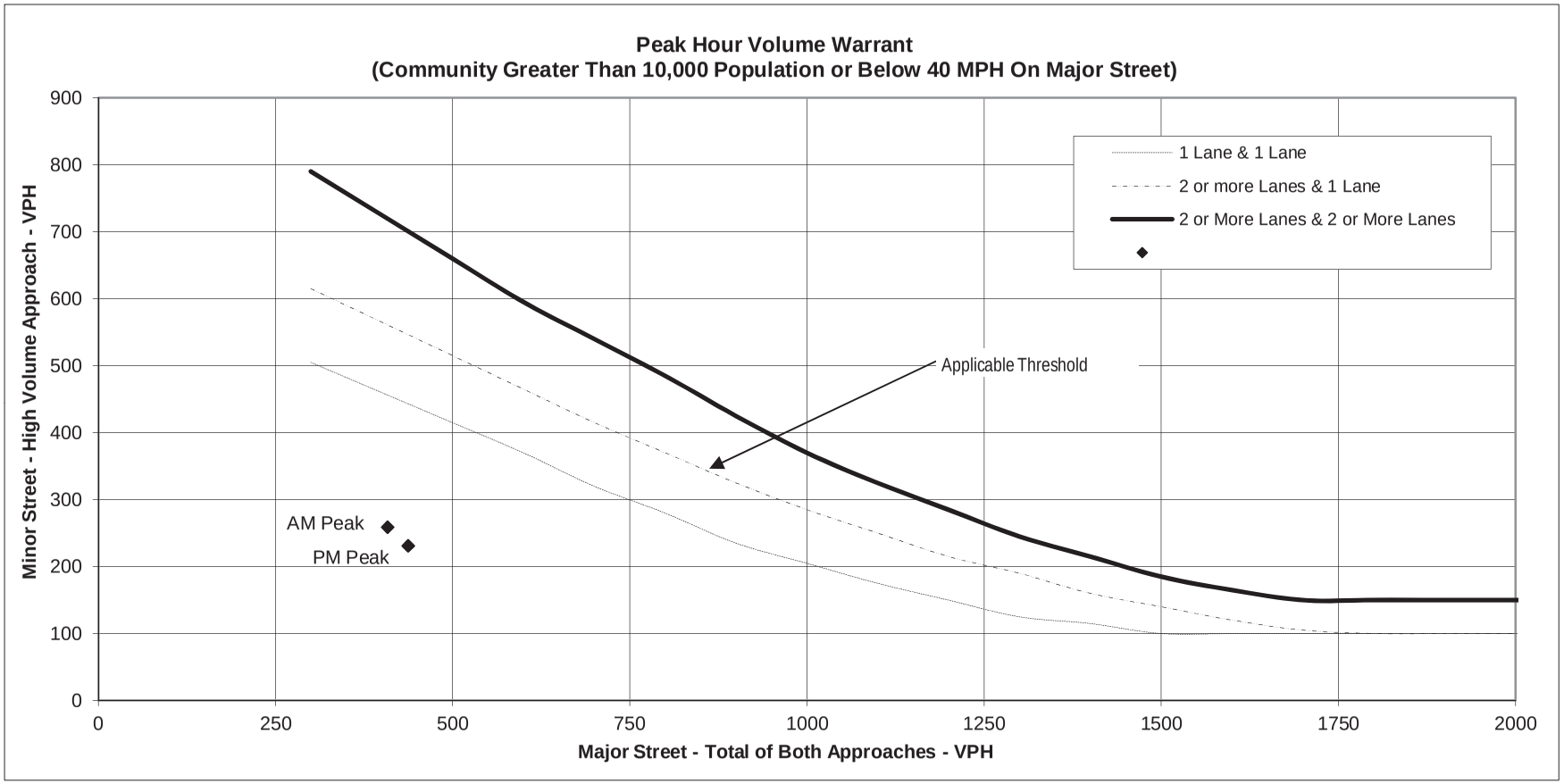



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 114 - Orange Ave. & Evans Rd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Evans Rd. (NB-SB)
Minor Street (Orientation): Orange Ave. (EB-WB)

| | Minor Street Approach Volume (Orange) | | | Major Street Approach Volume (Evans) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 259 | 254 | 259 | 223 | 185 | 408 | No |
| PM Peak | 231 | 106 | 231 | 211 | 226 | 437 | No |

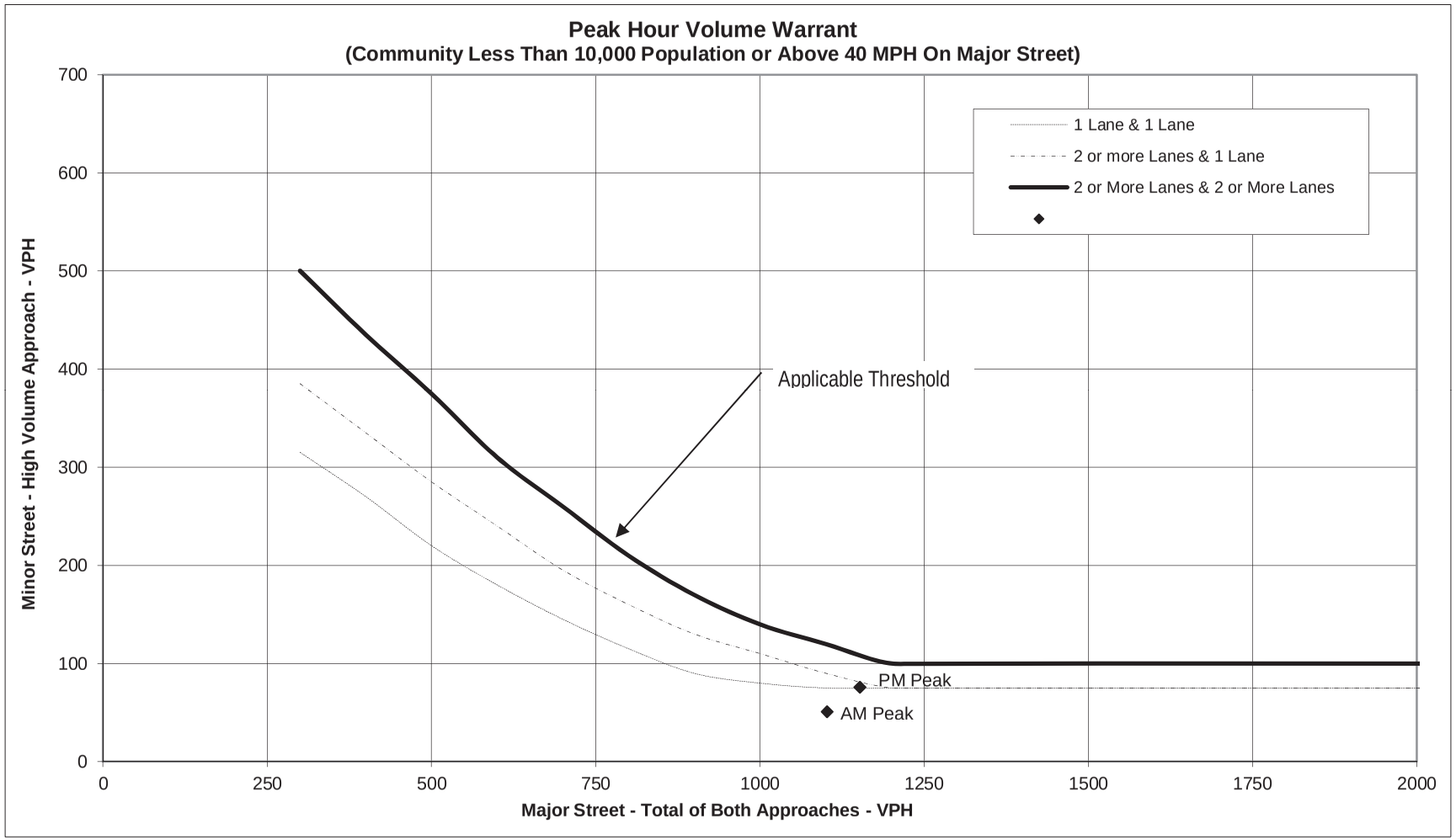



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 122 - Ramona Expy & Bridge St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Ramona Expy (EB-WB)
Minor Street (Orientation): Bridge St. (SB)

| | Minor Street Approach Volume (Bridge) | | | Major Street Approach Volume (Ramona) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 0 | 51 | 51 | 465 | 637 | 1,102 | No |
| PM Peak | 0 | 76 | 76 | 688 | 464 | 1,152 | No |

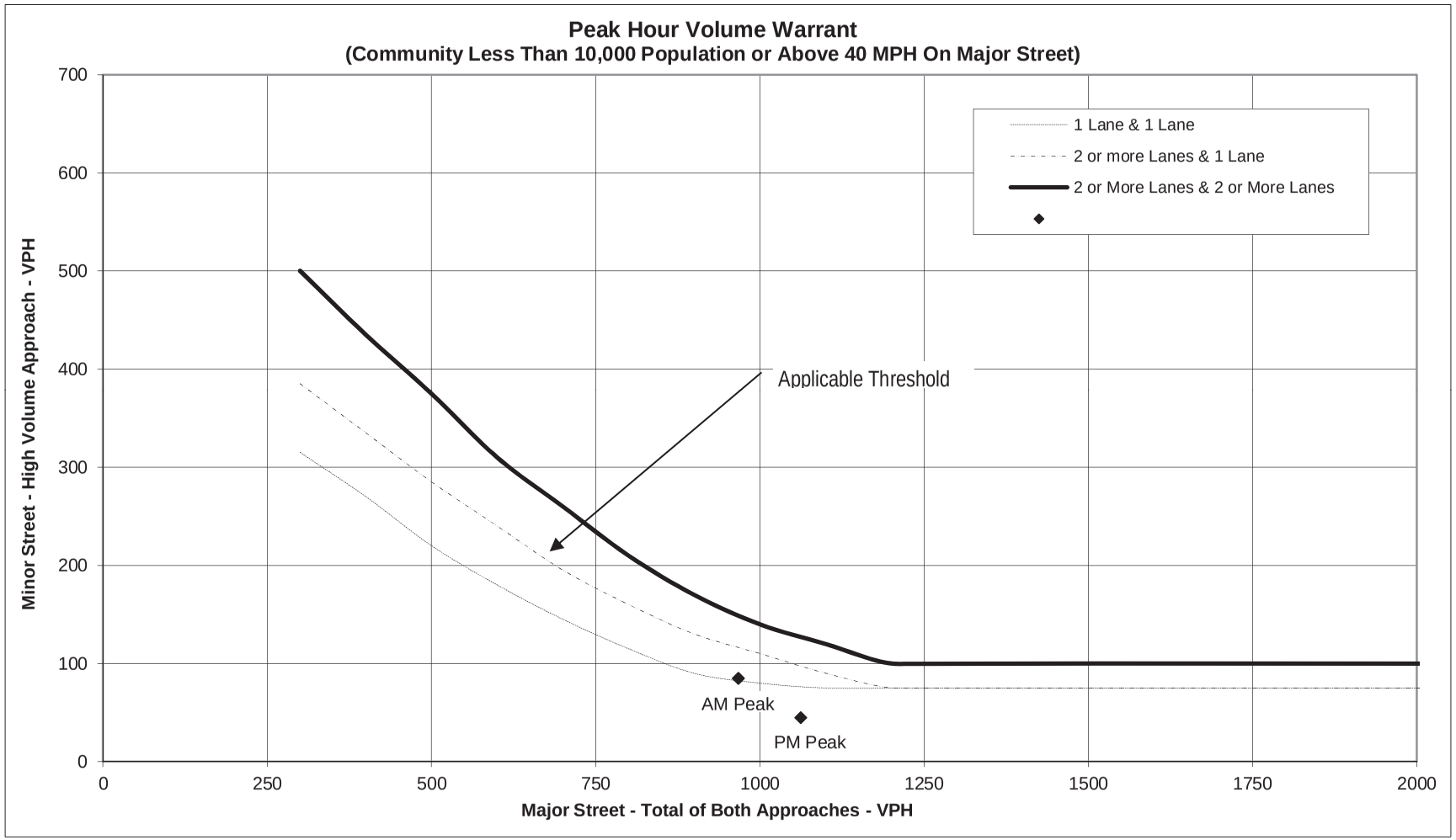



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 123 - Bridge St. & Gilman Springs Rd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Gilman Springs (NB-SB)
Minor Street (Orientation): Bridge St. (EB)

| | Minor Street Approach Volume (Bridge) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 85 | 0 | 85 | 623 | 344 | 967 | No |
| PM Peak | 45 | 0 | 45 | 356 | 706 | 1,062 | No |

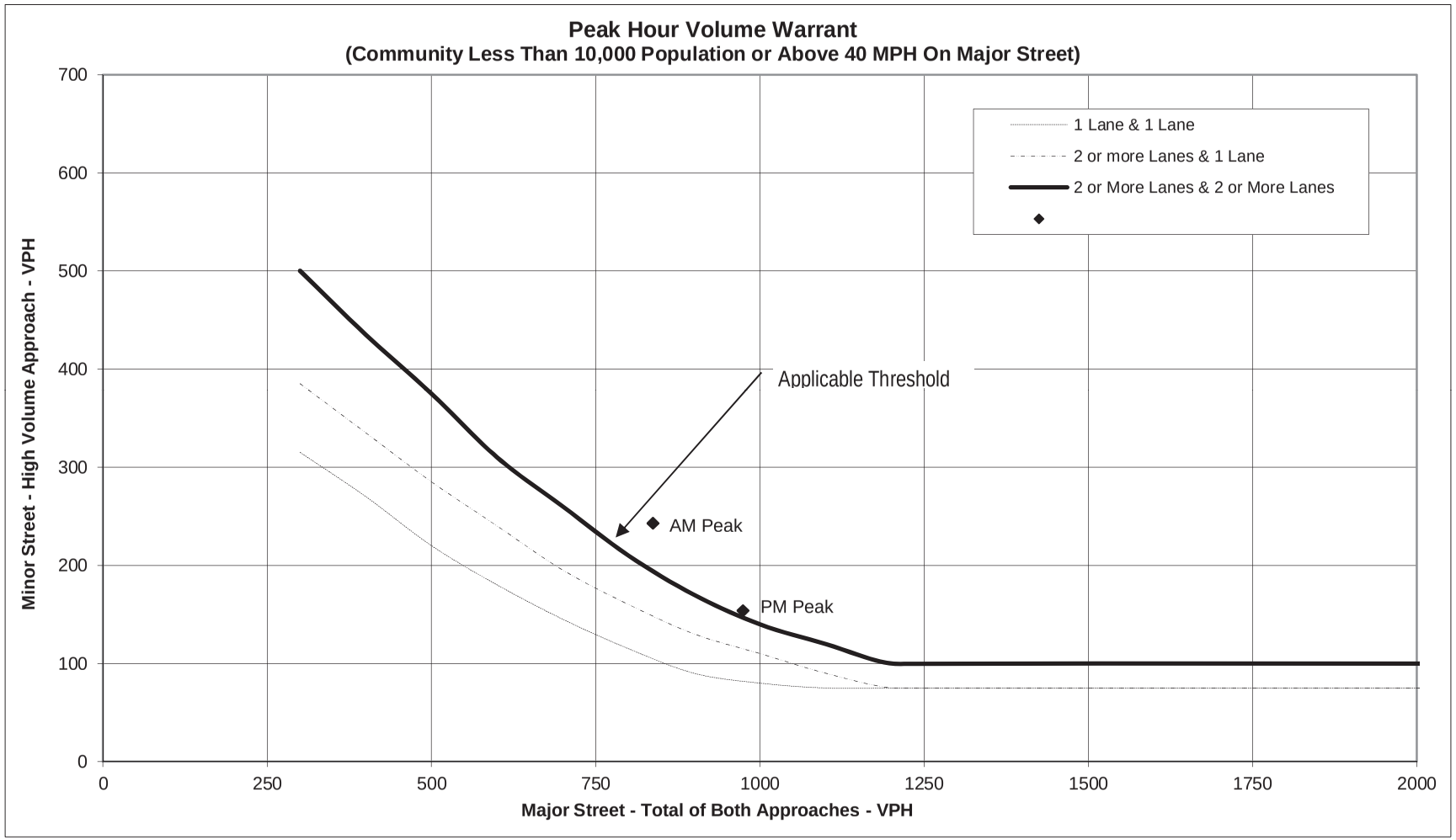



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 124 - Gilman Springs Rd. & SR-79 NB Ramps
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Gilman Springs (EB-WB)
Minor Street (Orientation): SR-79 Ramps (NB)

| | Minor Street Approach Volume (SR-79) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 243 | 0 | 243 | 284 | 553 | 837 | Yes |
| PM Peak | 154 | 0 | 154 | 590 | 384 | 974 | Yes |

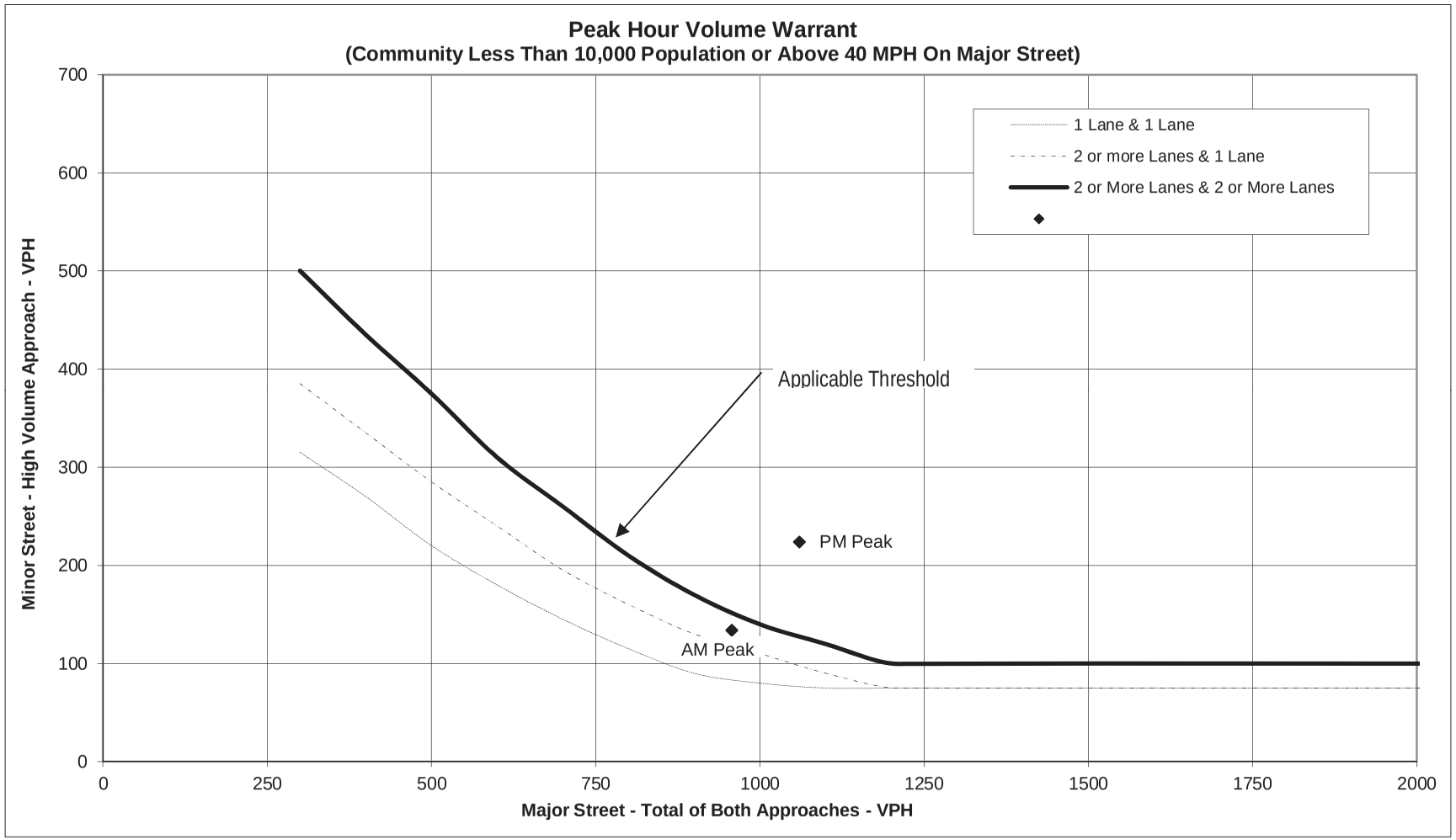



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 125 - Gilman Springs Rd. & SR-79 SB Ramps
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Gilman Springs (EB-WB)
Minor Street (Orientation): SR-79 Ramps (SB)

| | Minor Street Approach Volume (SR-79) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 0 | 134 | 134 | 349 | 608 | 957 | No |
| PM Peak | 0 | 224 | 224 | 698 | 362 | 1,060 | Yes |

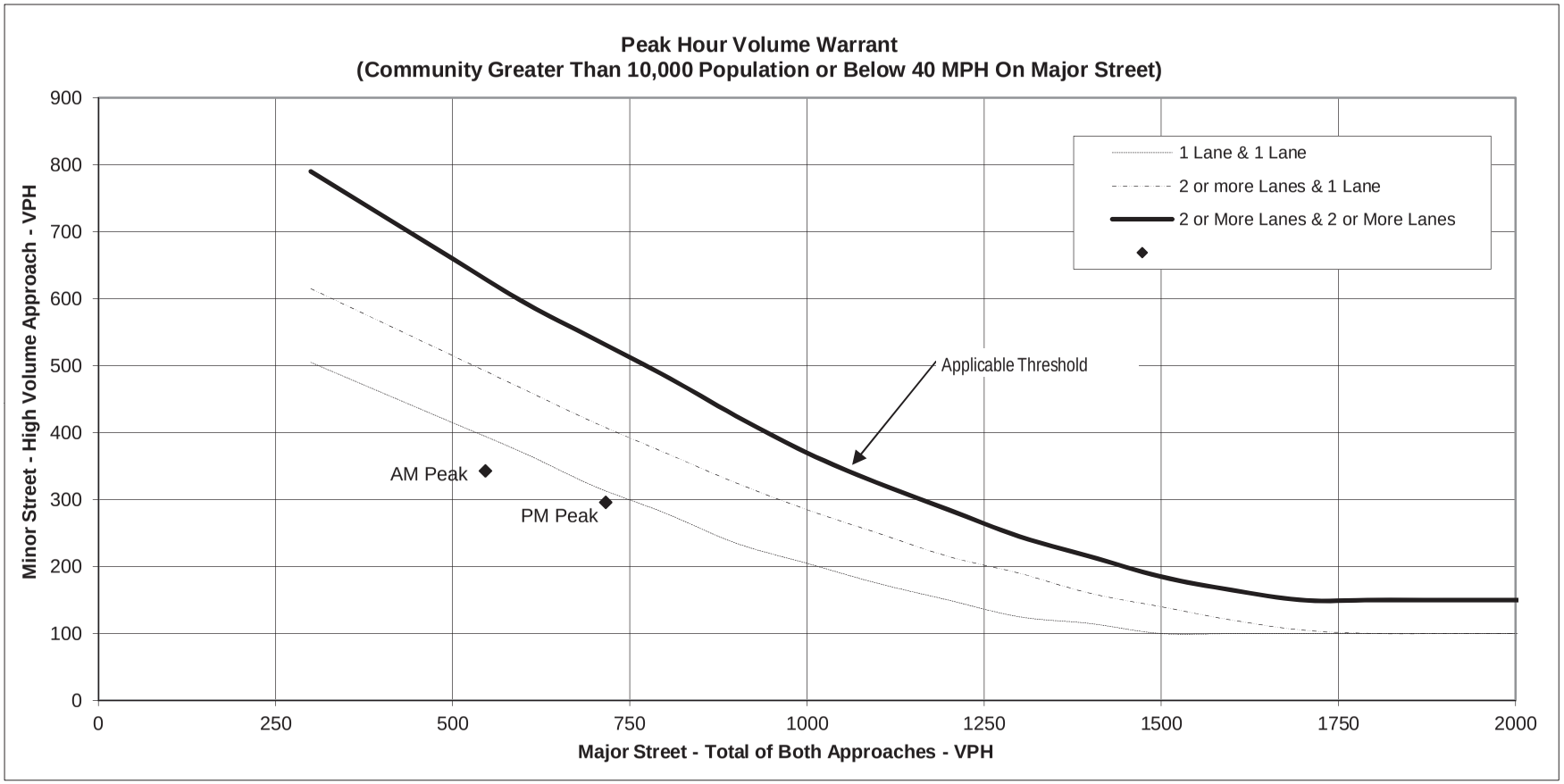



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 129 - 6th st & California Ave.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): 6th St. (EB-WB)
Minor Street (Orientation): California Ave. (NB-SB)

| | Minor Street Approach Volume (California) | | | Major Street Approach Volume (6th St) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 343 | 73 | 343 | 290 | 256 | 546 | No |
| PM Peak | 296 | 44 | 296 | 452 | 264 | 716 | No |

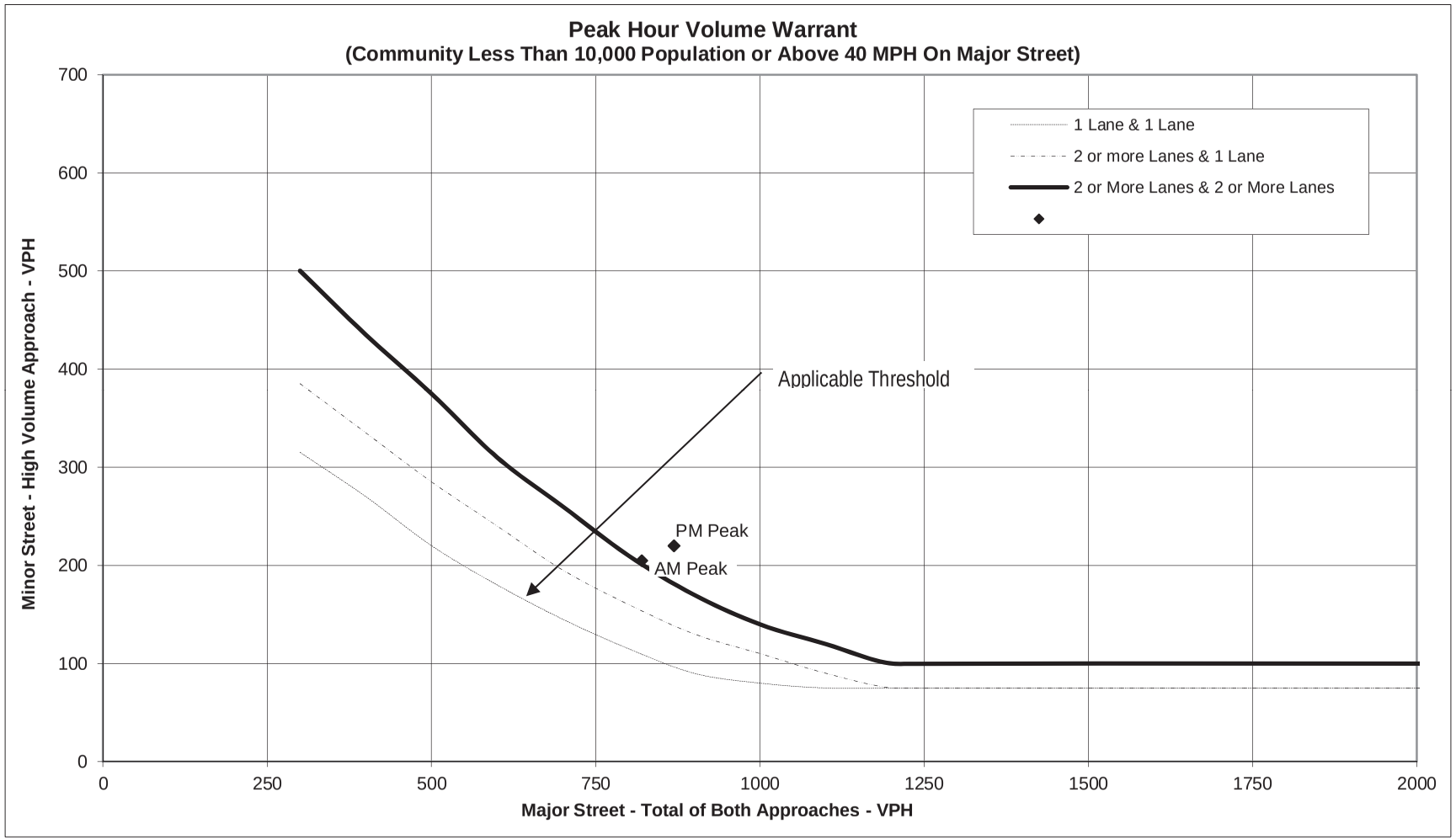



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 132 - San Timoteo Canyon Rd. Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): San Timoteo (EB-WB)
Minor Street (Orientation): Alessandro Rd. (NB-SB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (San Timoteo) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 22 | 205 | 205 | 147 | 673 | 820 | Yes |
| PM Peak | 29 | 220 | 220 | 501 | 368 | 869 | Yes |

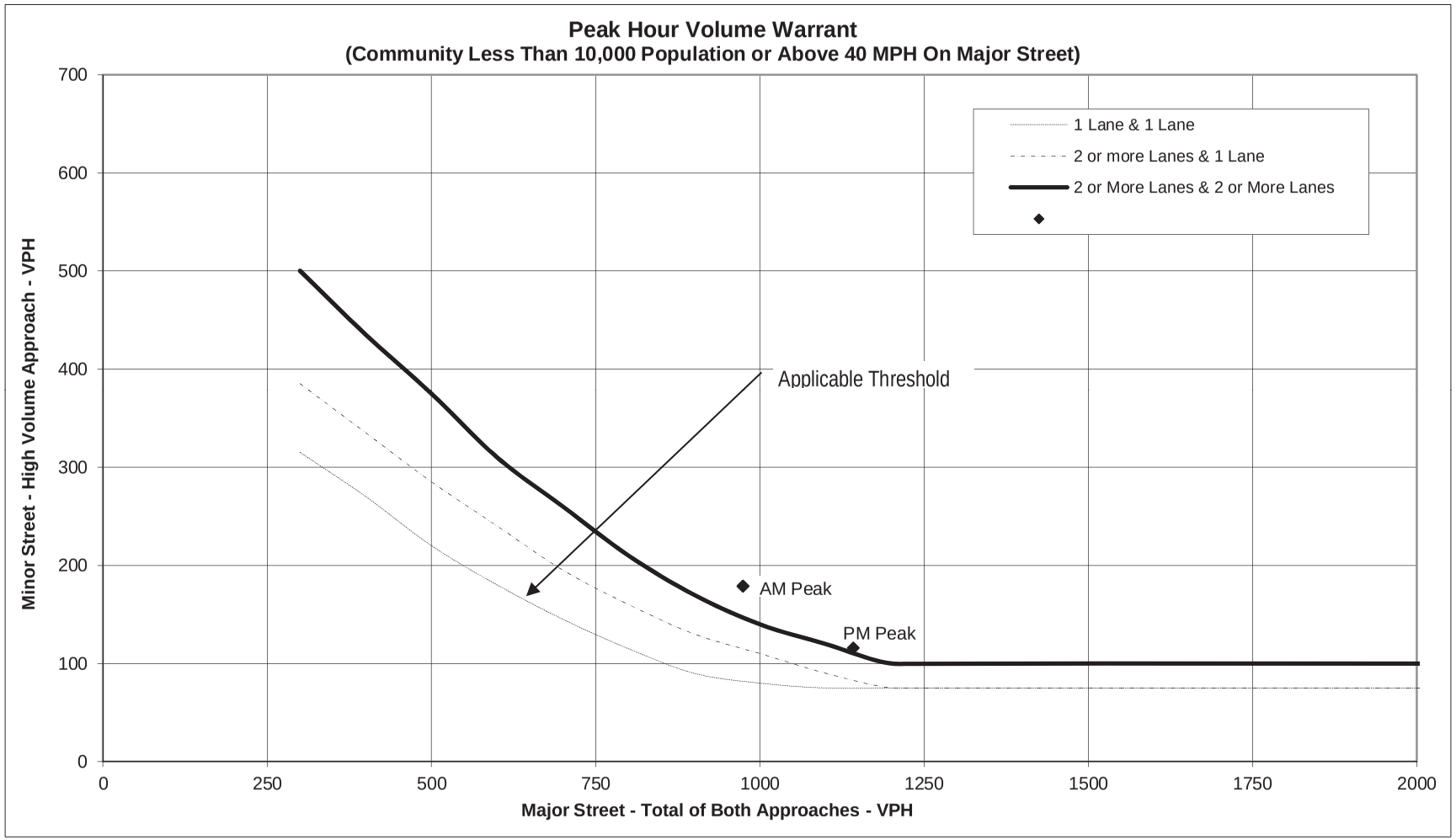



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 133 - Live Oak Canyon & San Timoteo Canyon Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Live Oak (EB-WB)
Minor Street (Orientation): San Timoteo (NB-SB)

| | Minor Street Approach Volume (San Timoteo) | | | Major Street Approach Volume (Live Oak) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 12 | 179 | 179 | 262 | 712 | 974 | Yes |
| PM Peak | 11 | 116 | 116 | 628 | 514 | 1,142 | Yes |

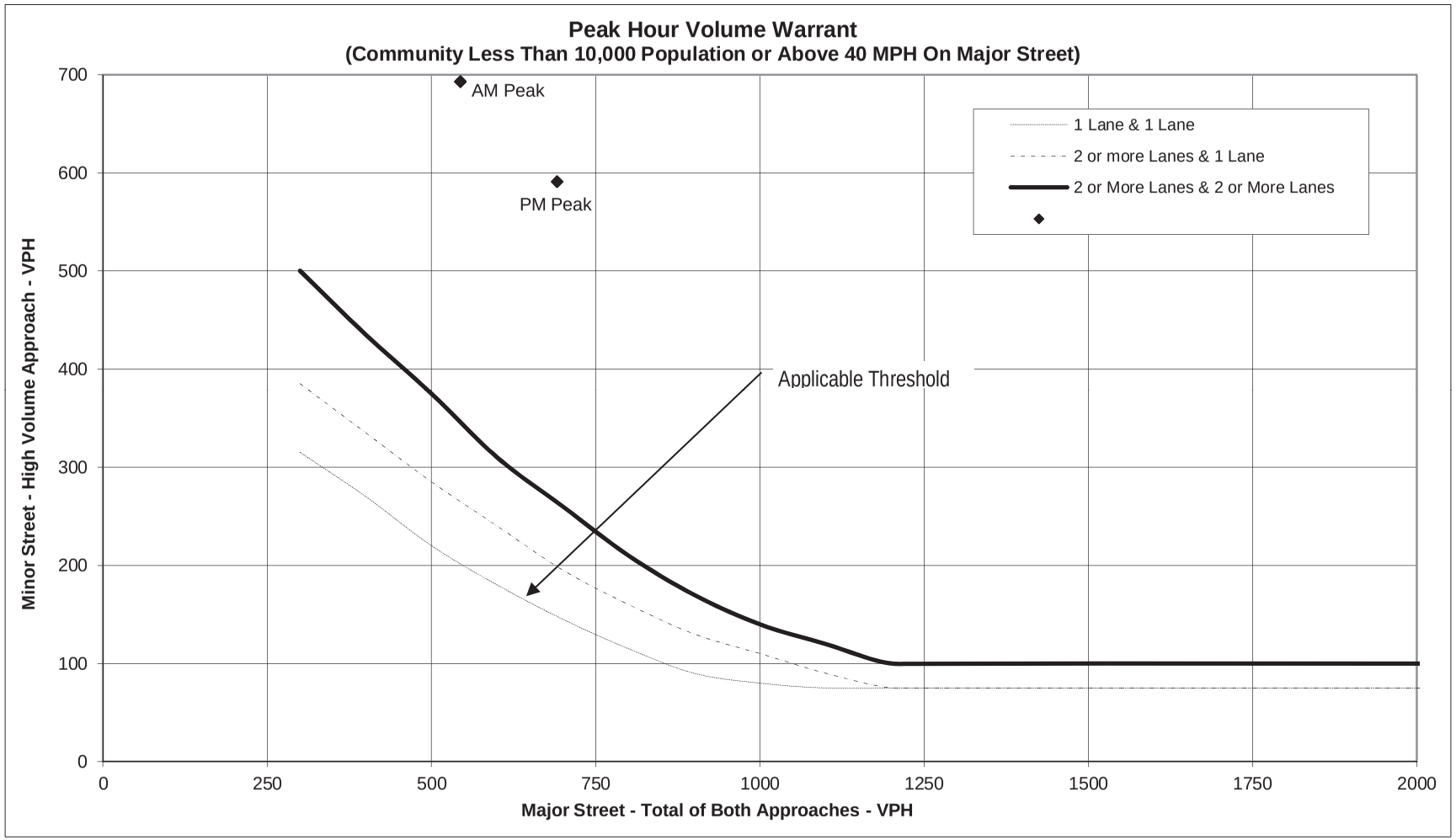



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 134 - San Timoteo Canyon Rd. & Redlands Blvd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): San Timoteo (EB-WB)
Minor Street (Orientation): Redlands Blvd. (NB)

| | Minor Street Approach Volume (Redlands) | | | Major Street Approach Volume (San Timoteo) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 693 | 0 | 693 | 400 | 144 | 544 | Yes |
| PM Peak | 591 | 0 | 591 | 649 | 42 | 691 | Yes |

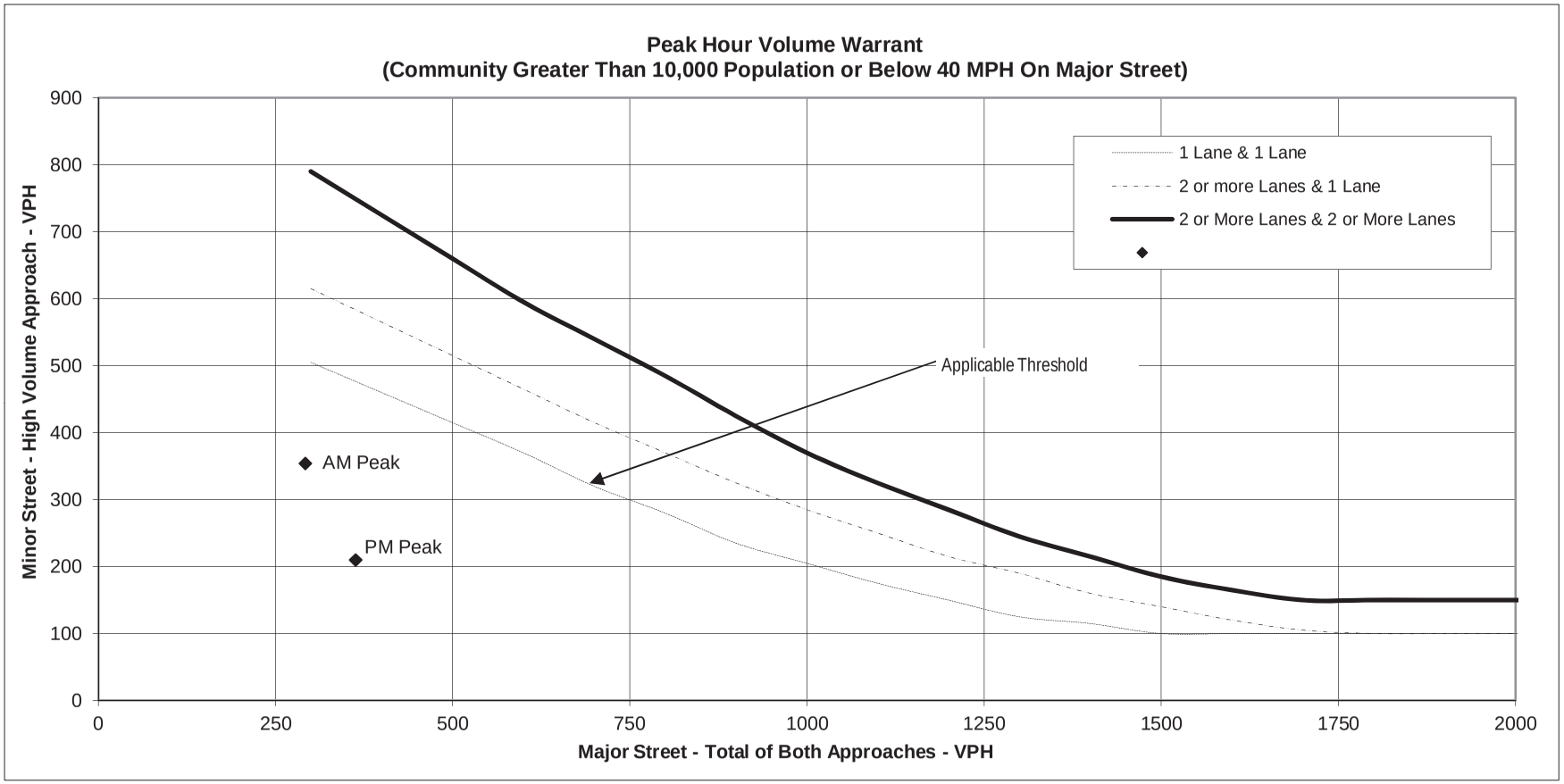



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 135 - Crescent Ave. & Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Crescent Ave. (EB-WB)
Minor Street (Orientation): Alessandro Rd. (NB-SB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Crescent) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 354 | 0 | 354 | 45 | 247 | 292 | No |
| PM Peak | 210 | 0 | 210 | 83 | 280 | 363 | No |

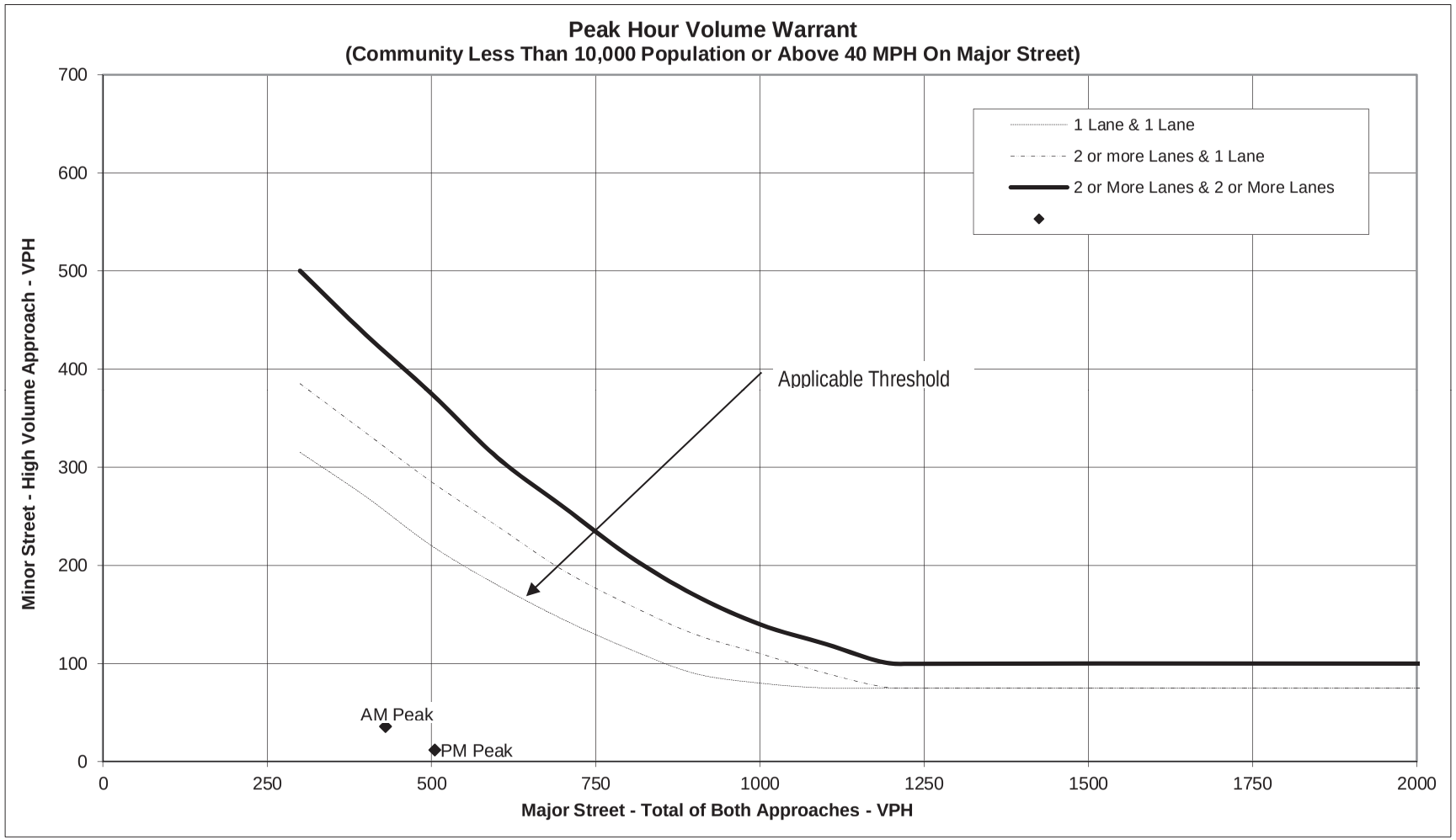



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing
Intersection: 136 - Sunset Dr. & Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Alessandro (NB-SB)
Minor Street (Orientation): Sunset Dr. (EB-WB)

| | Minor Street Approach Volume (Sunset) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 18 | 36 | 36 | 260 | 170 | 430 | No |
| PM Peak | 9 | 12 | 12 | 212 | 293 | 505 | No |

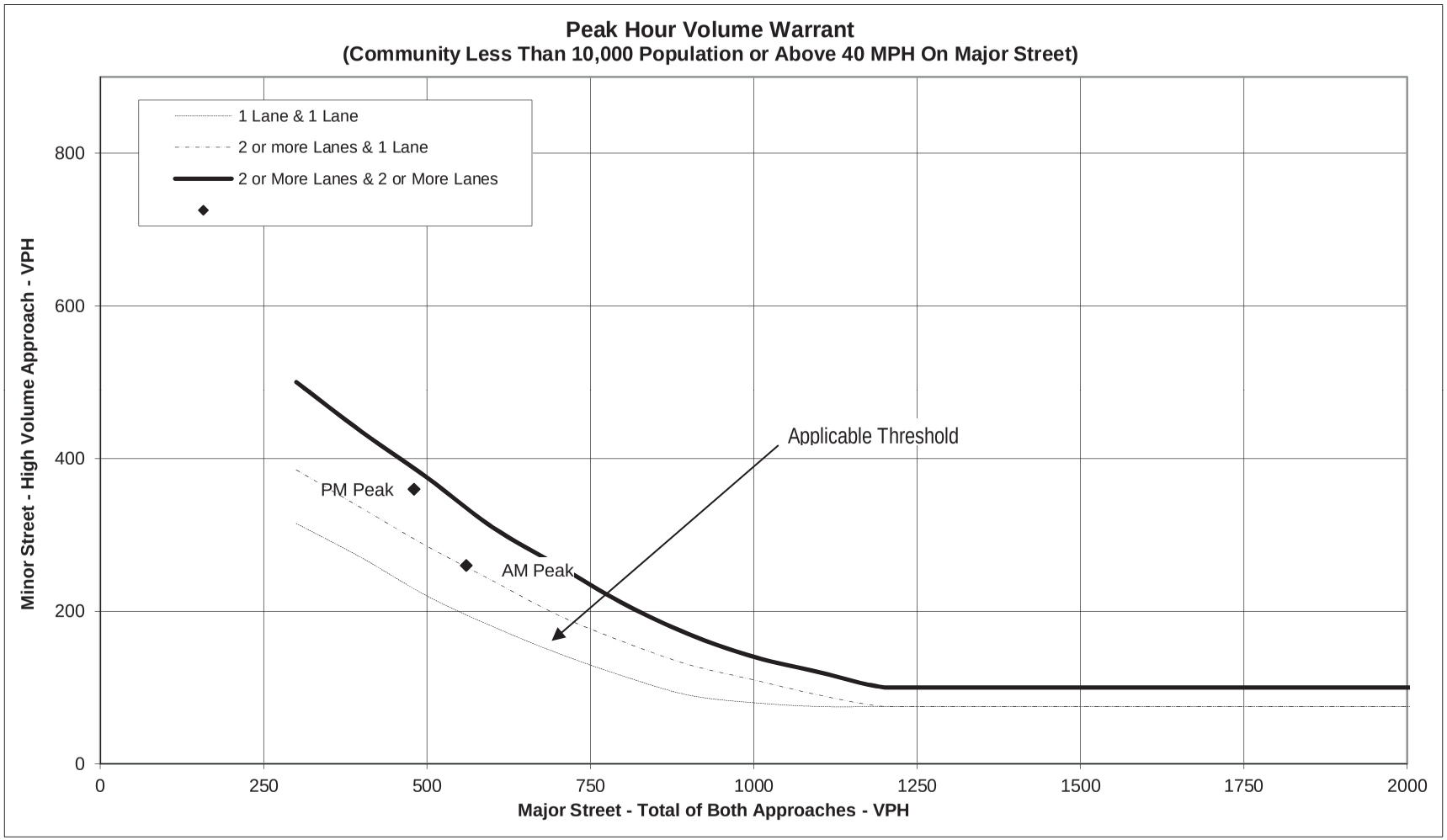



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 3 - Alessandro Blvd & Theodore St
Type: 1 Lane & 1 Lane
Major Street (Orientation): Alessandro Blvd (EB-WB)
Minor Street (Orientation): Theodore St (NB-SB)

| | Minor Street Approach Volume (Theodore) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 0 | 260 | 260 | 300 | 260 | 560 | Yes |
| PM Peak | 0 | 360 | 360 | 360 | 120 | 480 | Yes |

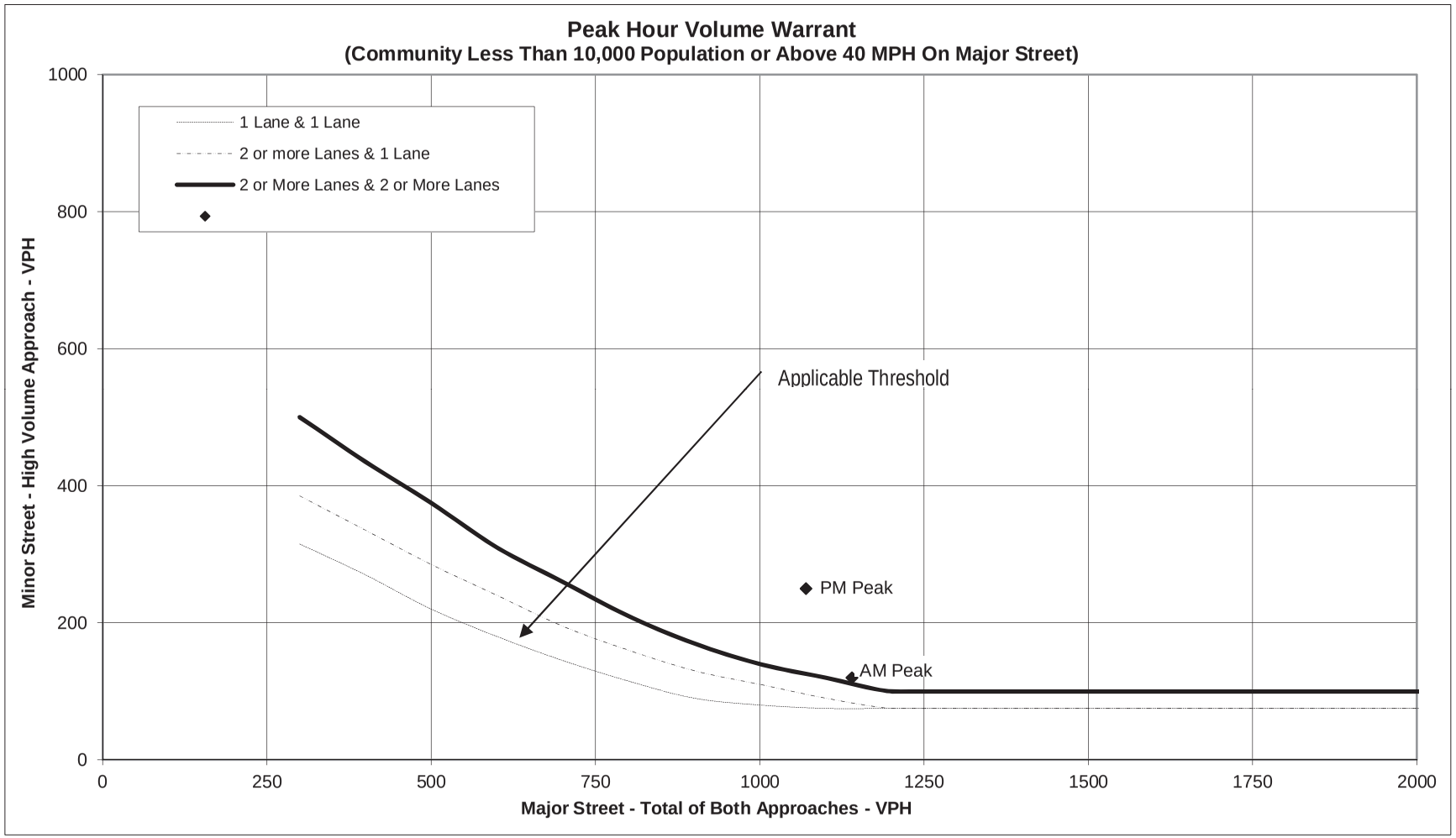



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 6 - Alessandro Blvd & Gilman Springs Rd
Type: 1 Lane & 1 Lane
Major Street (Orientation): Gilman Springs Rd (NB-SB)
Minor Street (Orientation): Alessandro Blvd (EB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Gilman Springs) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 120 | 0 | 120 | 830 | 310 | 1,140 | Yes |
| PM Peak | 250 | 0 | 250 | 410 | 660 | 1,070 | Yes |

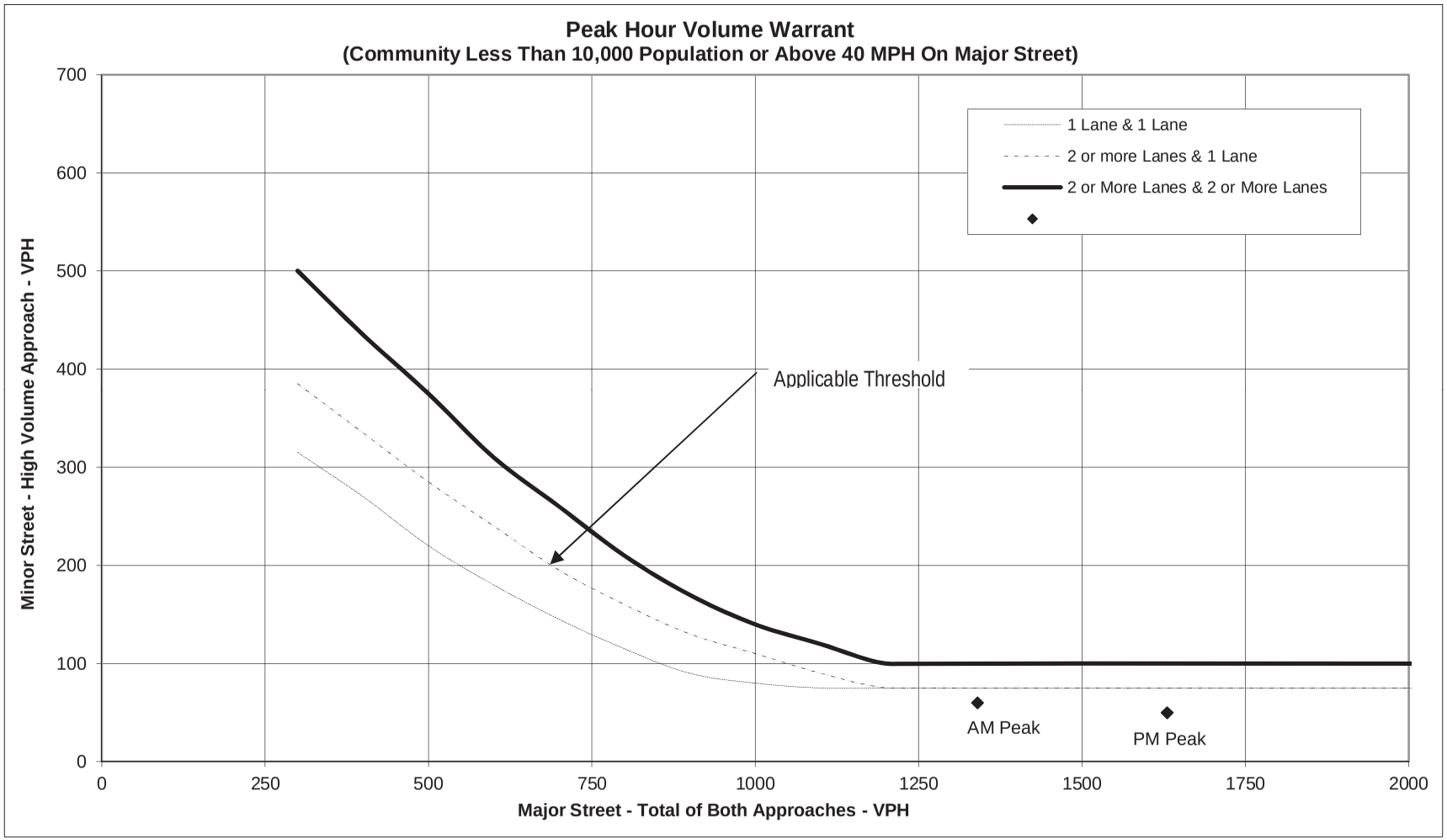



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 10 - Locust Ave & Rredlands Blvd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Redlands Blvd (NB-SB)
Minor Street (Orientation): Locust (EB-WB)

| | Minor Street Approach Volume (Locust) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 60 | 10 | 60 | 770 | 570 | 1,340 | No |
| PM Peak | 50 | 15 | 50 | 700 | 930 | 1,630 | No |

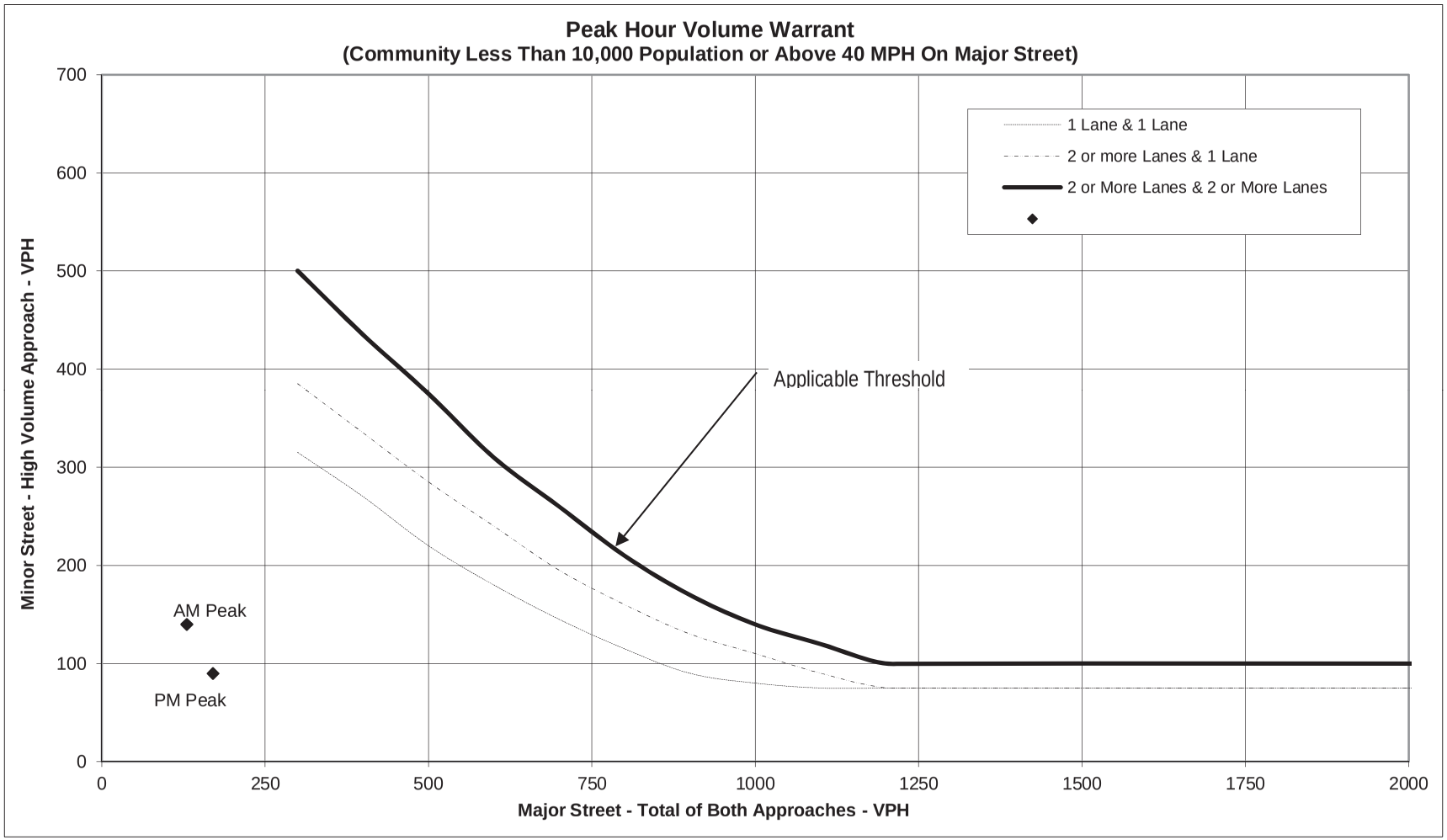



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 12 - Ironwood Ave. & Theodore St
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB)
Minor Street (Orientation): Ironwood Ave (EB-WB)

| | Minor Street Approach Volume (Ironwood) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 140 | 40 | 140 | 130 | 0 | 130 | No |
| PM Peak | 90 | 50 | 90 | 170 | 0 | 170 | No |

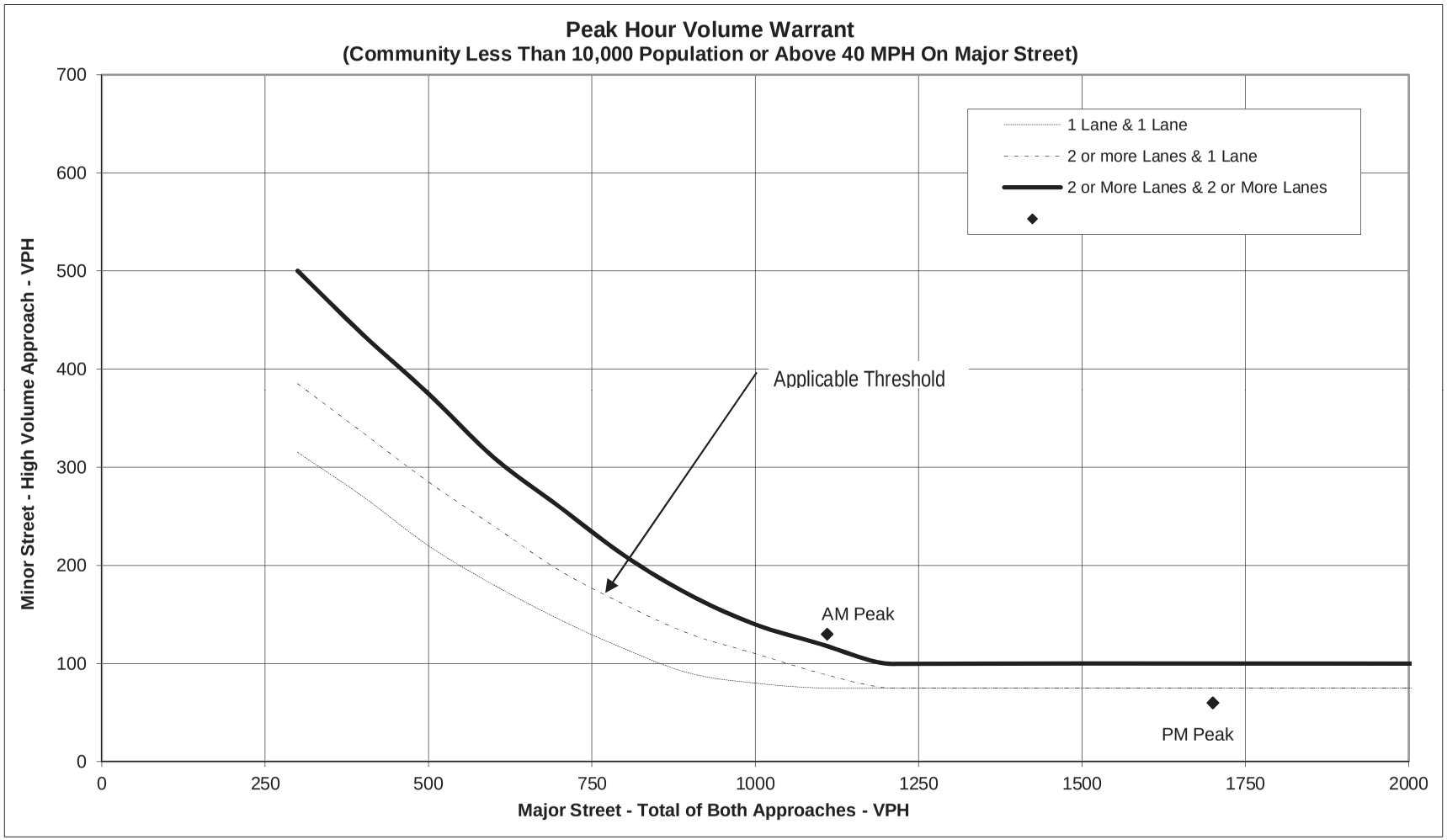



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 13 - SR-60 WB Ramps & Redlands Blvd
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Redlands Blvd (NB-SB)
Minor Street (Orientation): SR-60 WB Ramps (EB-WB)

| | Minor Street Approach Volume (SR-60 WB Ramp | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 20 | 130 | 130 | 640 | 470 | 1,110 | Yes |
| PM Peak | 30 | 60 | 60 | 1,000 | 700 | 1,700 | No |

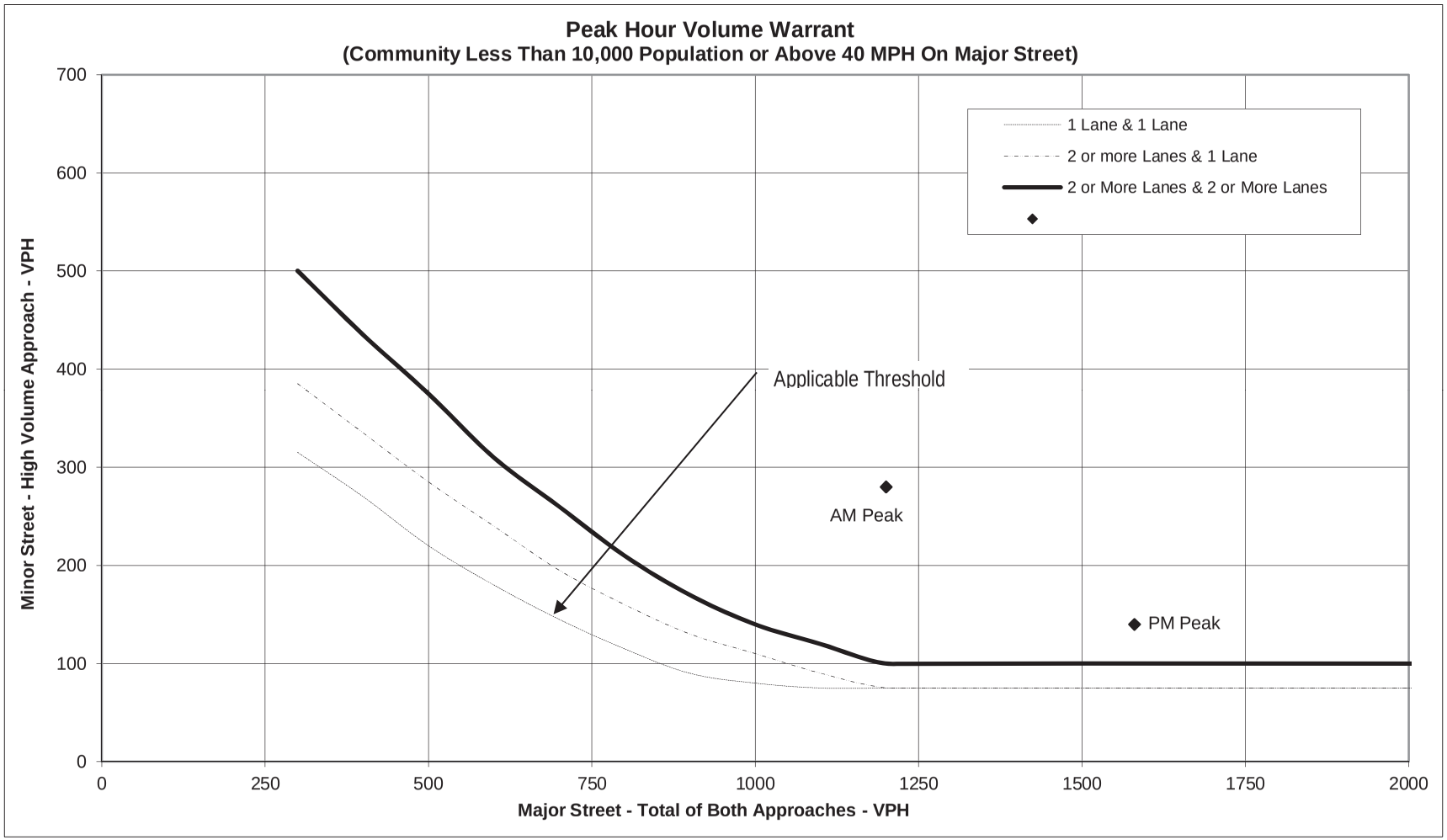



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 15 - SR-60 WB Ramps & Theodore St.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): SR-60 WB Ramps (WB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 280 | 0 | 280 | 1,020 | 180 | 1,200 | Yes |
| PM Peak | 140 | 0 | 140 | 1,470 | 110 | 1,580 | Yes |

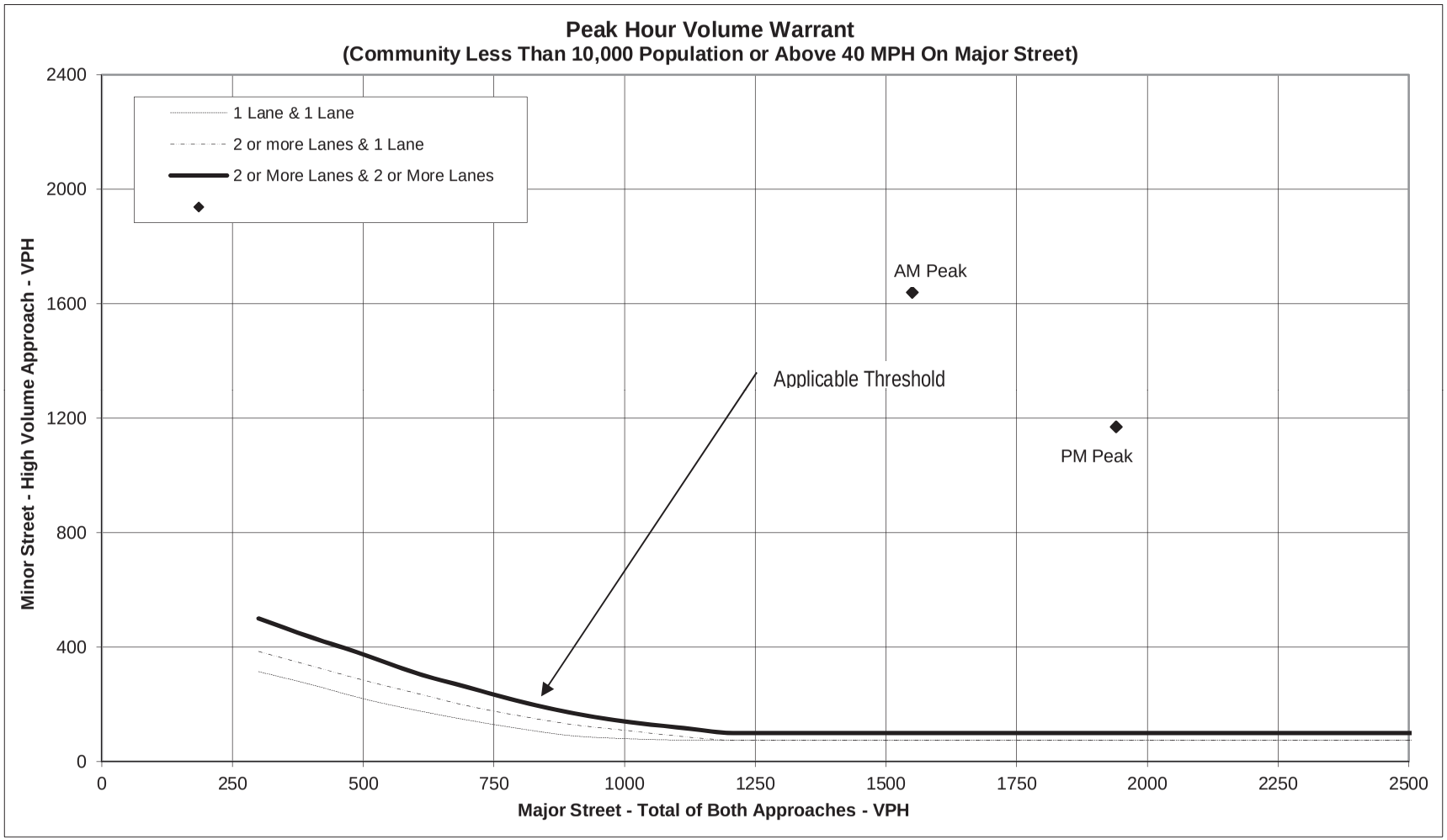



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 16 - SR-60 EB Ramps & Theodore St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): SR-60 EB Ramps (EB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 1,640 | 0 | 1,640 | 1,170 | 380 | 1,550 | Yes |
| PM Peak | 1,170 | 0 | 1,170 | 1,720 | 220 | 1,940 | Yes |

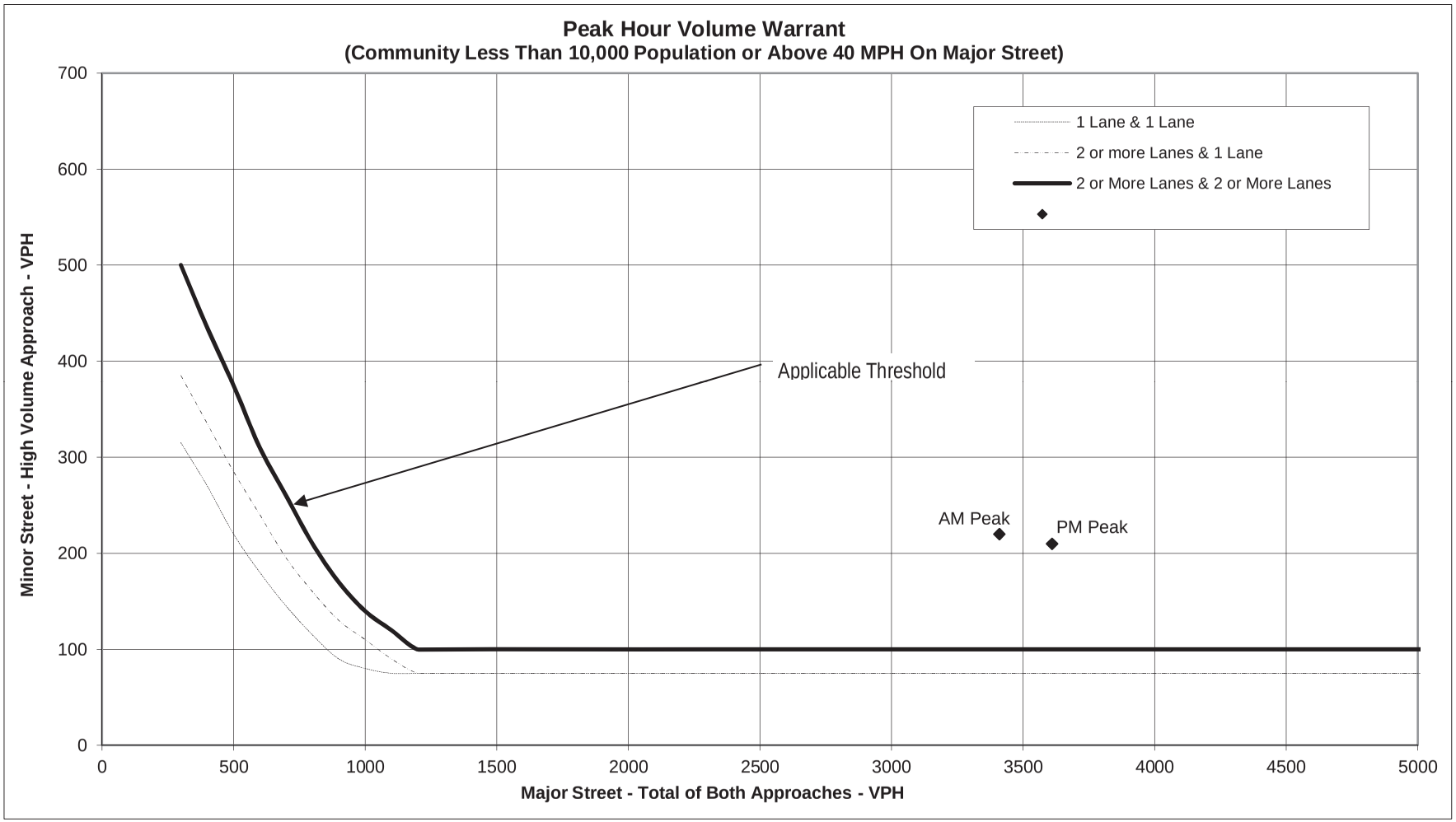



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 19 - Eucalyptus Ave & Theodore St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): Eucalyptus Ave (EB)

| | Minor Street Approach Volume (Eucalyptus Ave) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 220 | 0 | 220 | 1,340 | 2,070 | 3,410 | Yes |
| PM Peak | 210 | 0 | 210 | 2,260 | 1,350 | 3,610 | Yes |

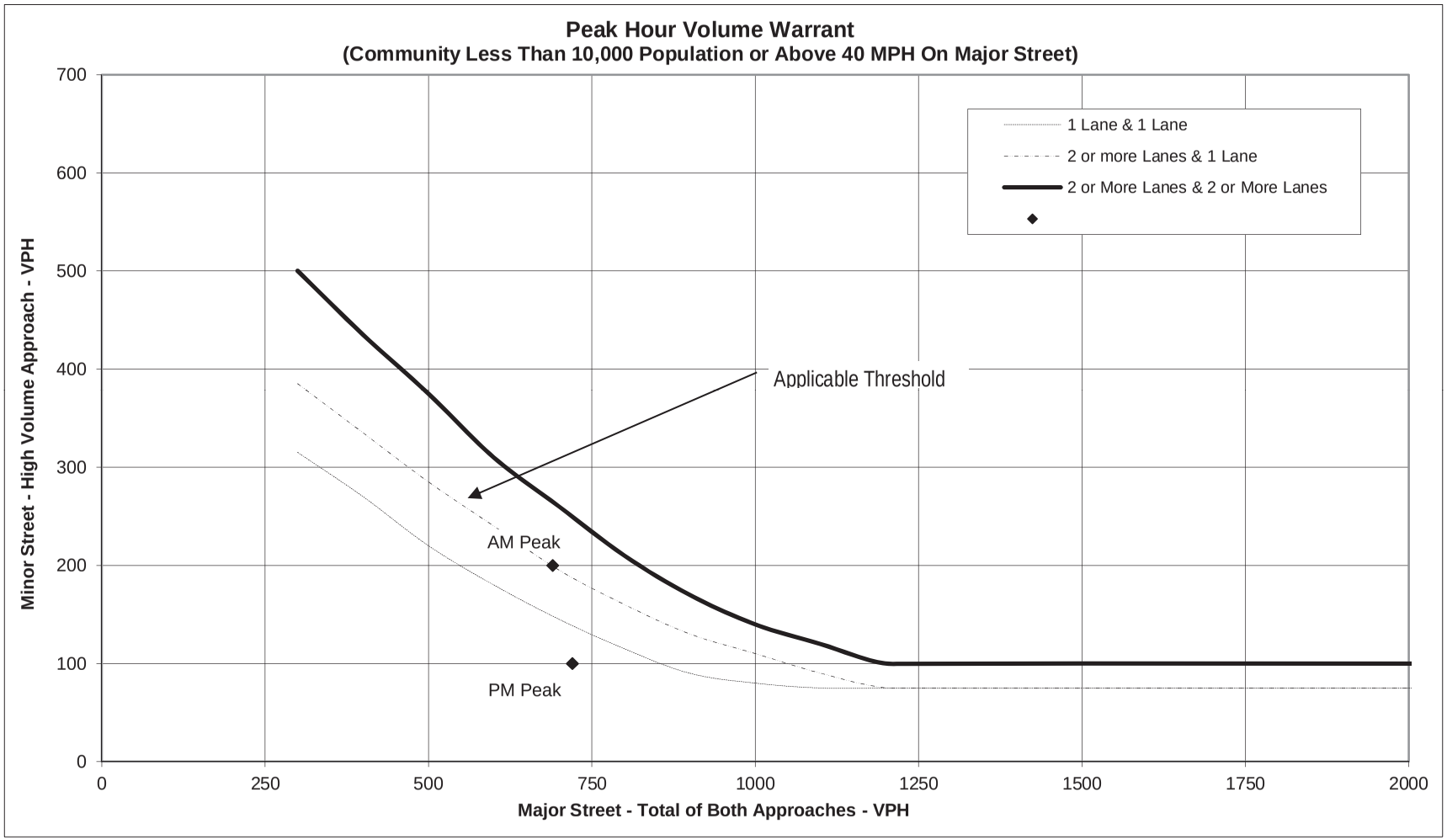



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 20 - Alessandro Blvd. & Oliver St.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Alessandro Blvd (EB-WB)
Minor Street (Orientation): Oliver St (NB-SB)

| | Minor Street Approach Volume (Oliver St) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 200 | 0 | 200 | 260 | 430 | 690 | No |
| PM Peak | 100 | 0 | 100 | 400 | 320 | 720 | |

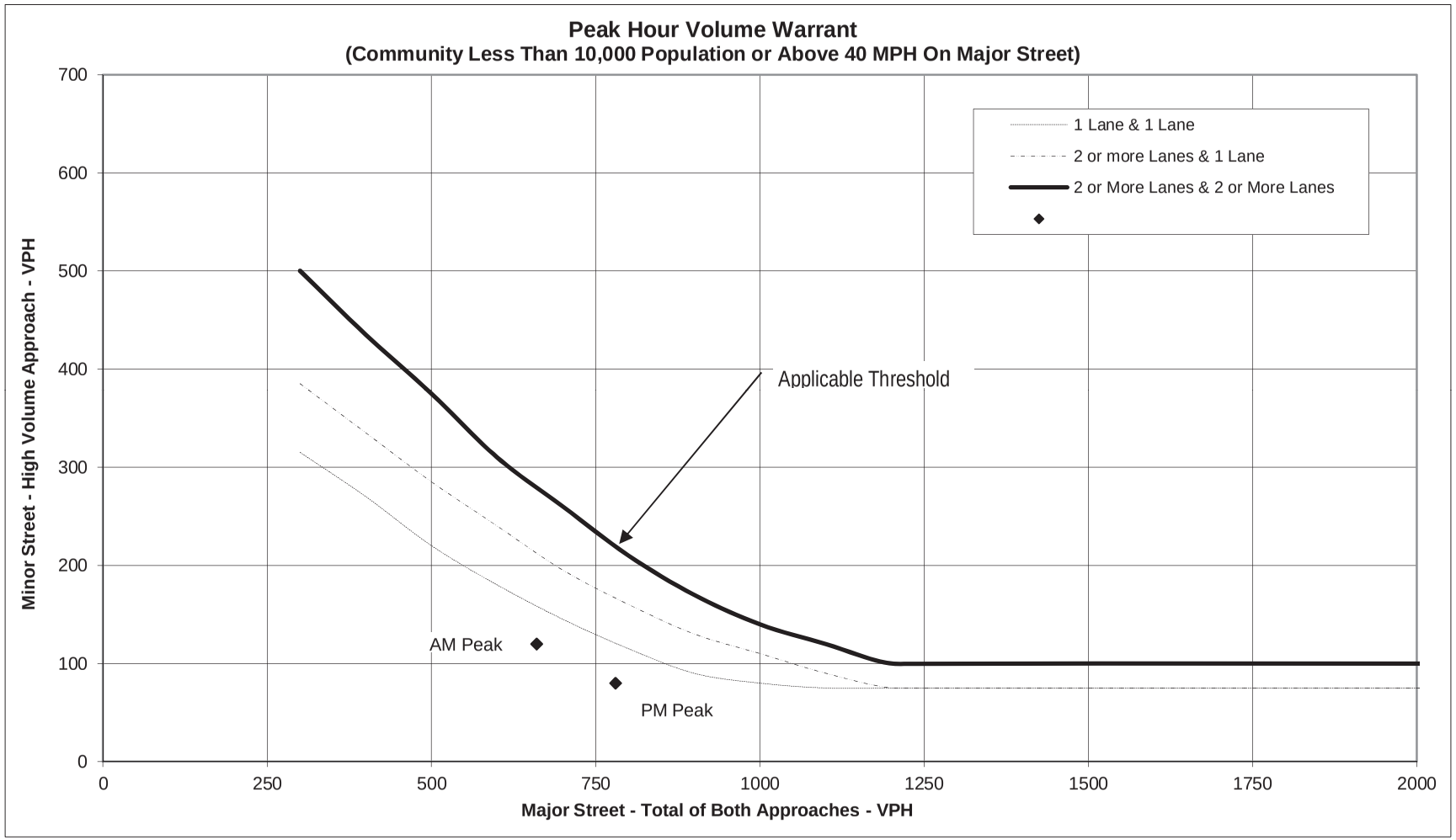



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 23 - Alessandro Blvd. & Redlands Blvd
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Redlands (NB-SB)
Minor Street (Orientation): Alessandro Blvd (EB-WB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 120 | 30 | 120 | 400 | 260 | 660 | No |
| PM Peak | 80 | 30 | 80 | 440 | 340 | 780 | No |

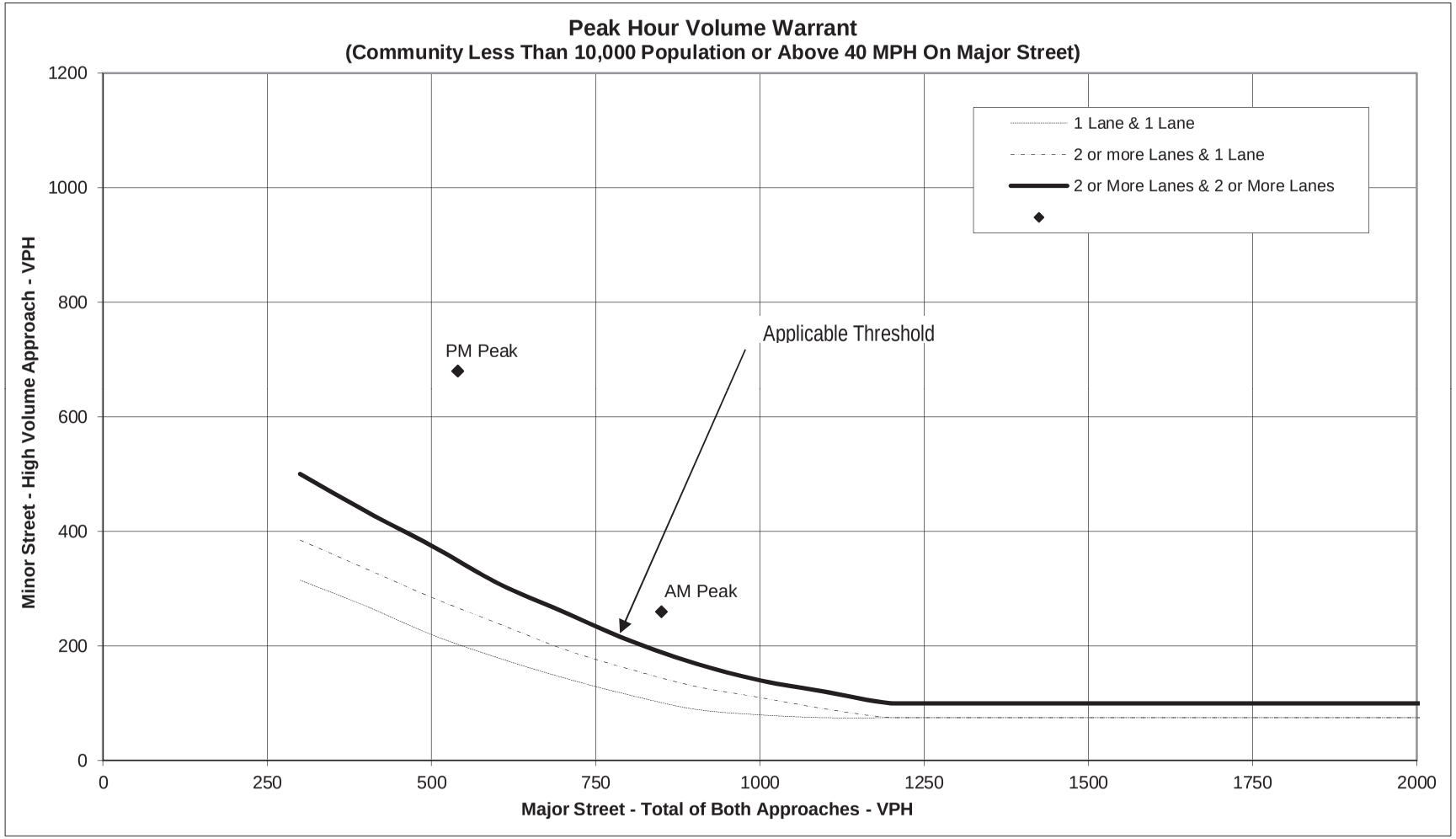



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 27 - Cactus Ave. & Redlands Blvd
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Redlands Blvd. (NB-SB)
Minor Street (Orientation): Cactus Ave. (EB-WB)

| | Minor Street Approach Volume (Cactus) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 260 | 160 | 260 | 520 | 330 | 850 | Yes |
| PM Peak | 210 | 680 | 680 | 230 | 310 | 540 | Yes |

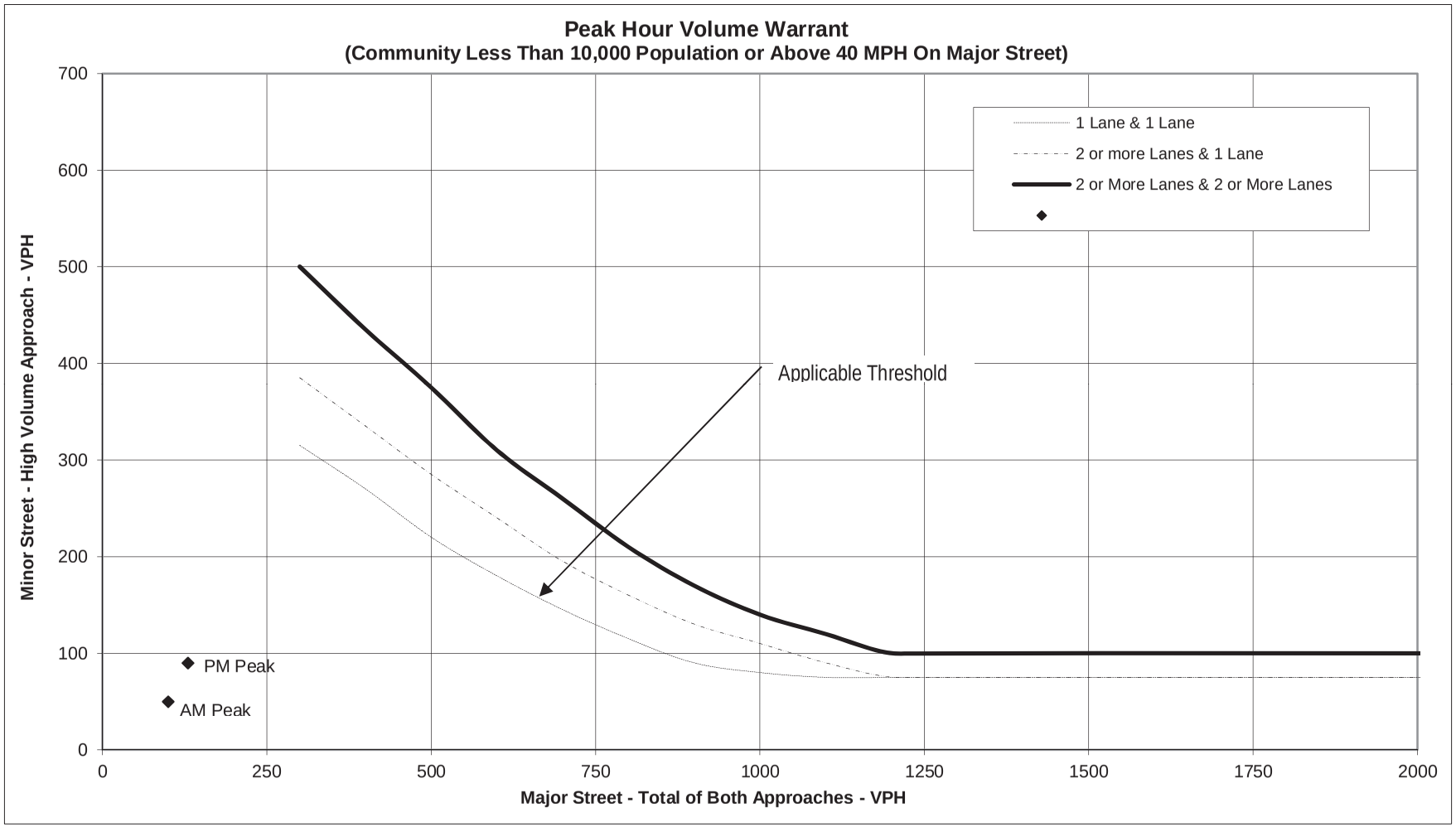



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 35 - Locust Ave & Moreno Beach Dr
Type: 1 Lane & 1 Lane
Major Street (Orientation): Locust Ave (EB-WB)
Minor Street (Orientation): Moreno Beach Dr. (NB)

| | Minor Street Approach Volume (Moreno Beach) | | | Major Street Approach Volume (Locust) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 50 | 0 | 50 | 20 | 80 | 100 | No |
| PM Peak | 90 | 0 | 90 | 20 | 110 | 130 | No |

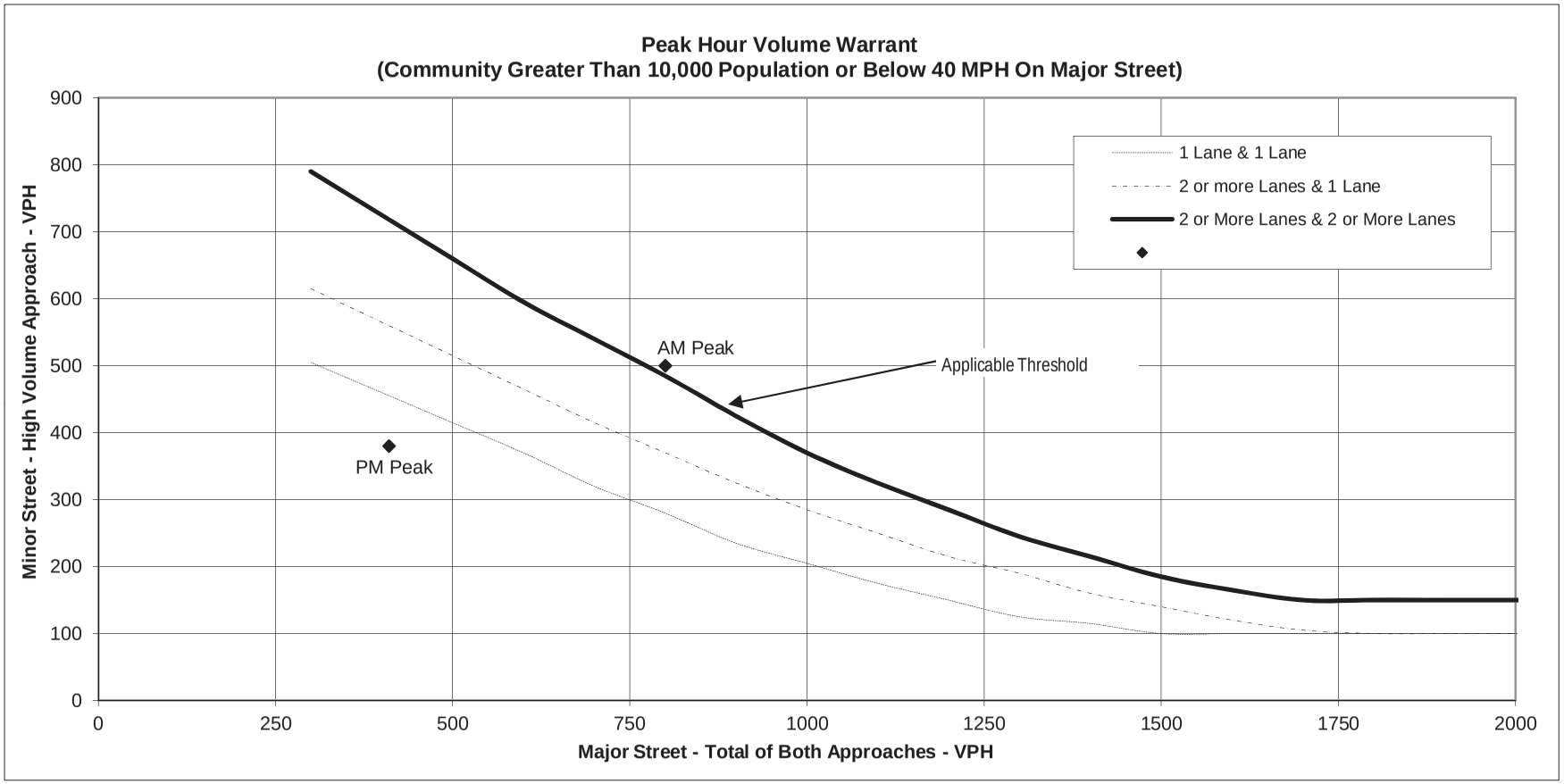



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 85 - Martin Luther King Blvd. & SR-60 WB on Ramp
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Martin Luther King (EB)
Minor Street (Orientation): SR-60. (NB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (MLK) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 500 | 0 | 500 | 800 | 0 | 800 | Yes |
| PM Peak | 380 | 0 | 380 | 410 | 0 | 410 | No |

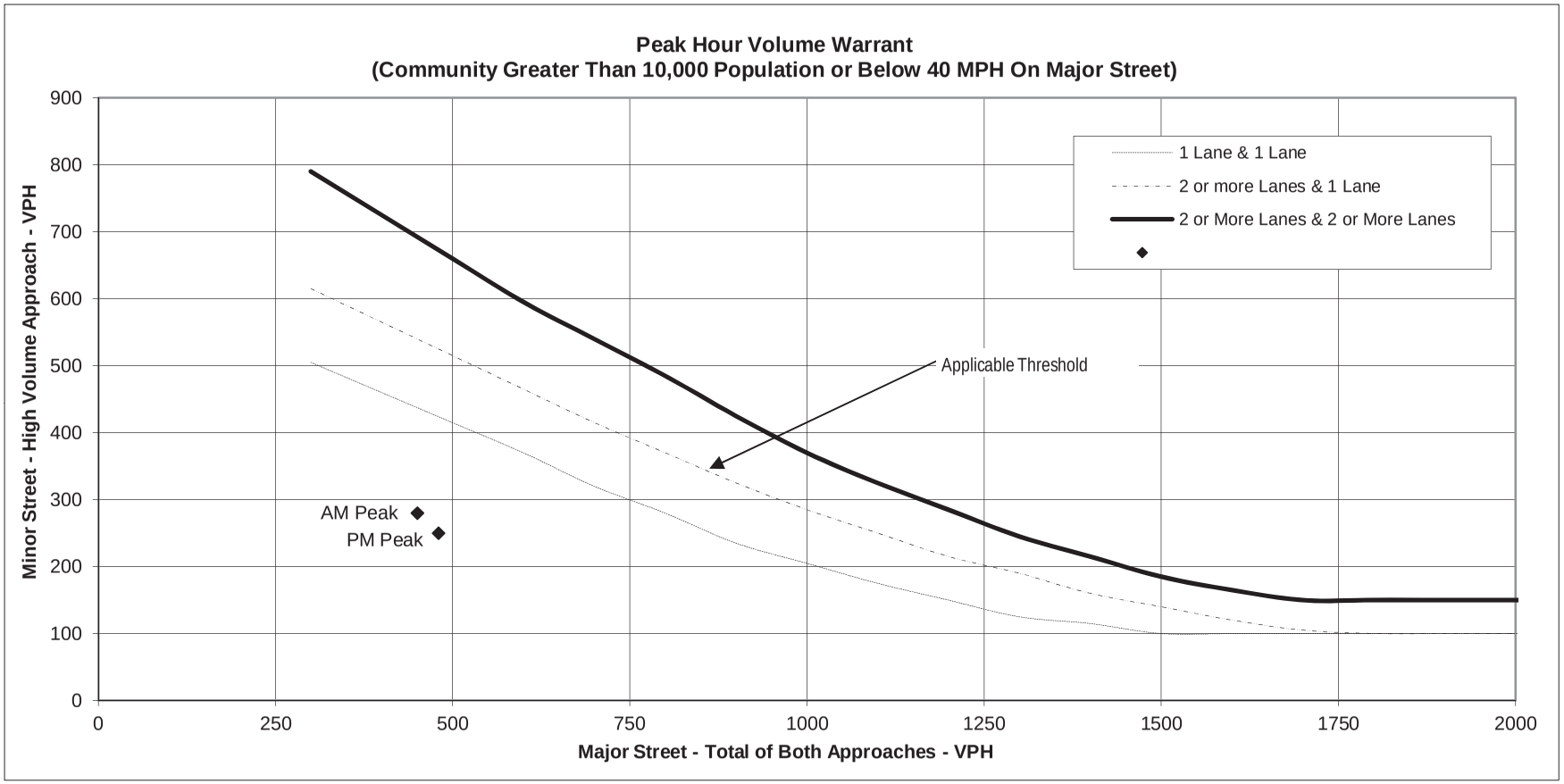



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 114 - Orange Ave. & Evans Rd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Evans Rd. (NB-SB)
Minor Street (Orientation): Orange Ave. (EB-WB)

| | Minor Street Approach Volume (Orange) | | | Major Street Approach Volume (Evans) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 280 | 270 | 280 | 240 | 210 | 450 | No |
| PM Peak | 250 | 130 | 250 | 230 | 250 | 480 | No |

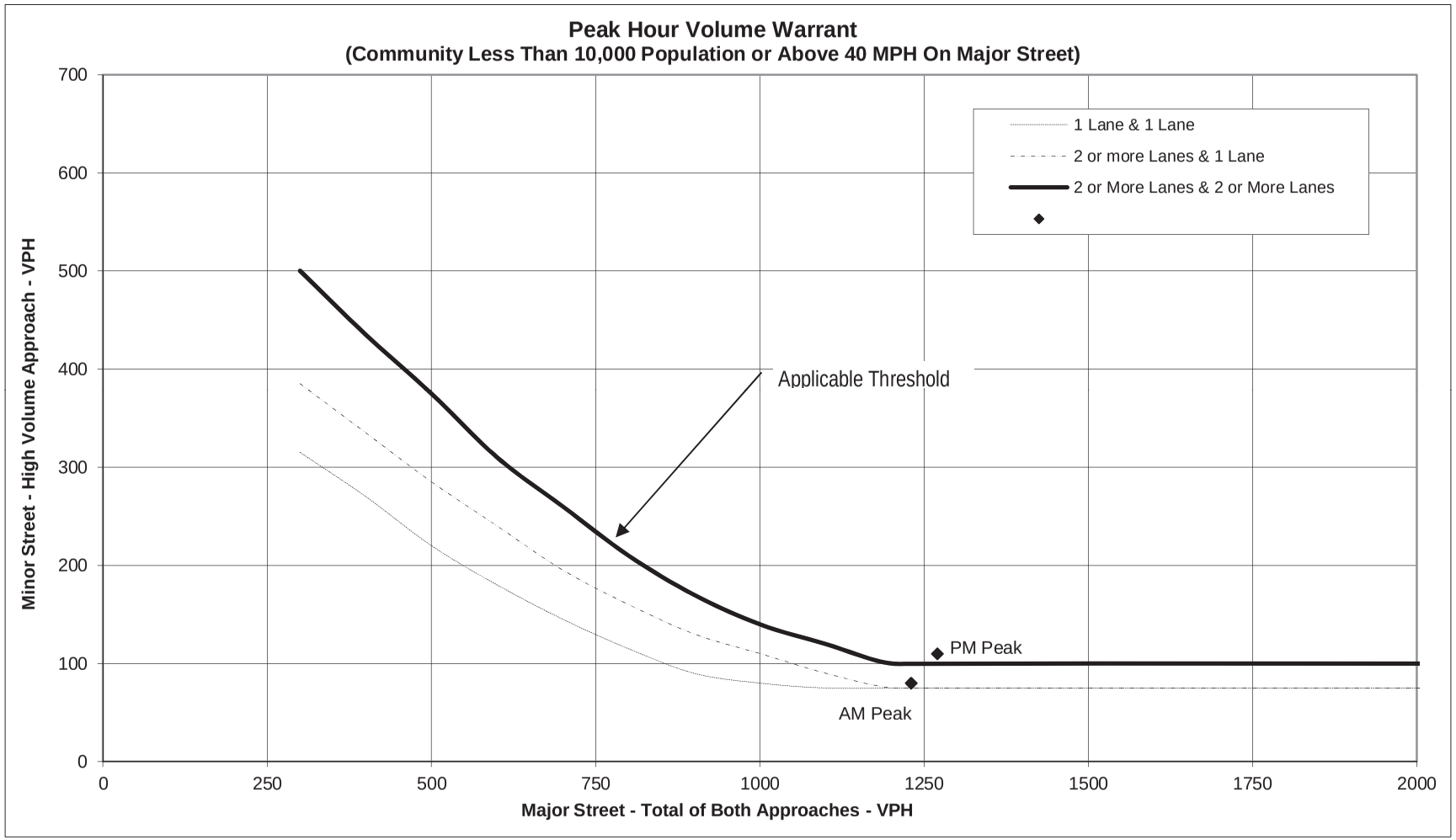



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 122 - Ramona Expy & Bridge St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Ramona Expy (EB-WB)
Minor Street (Orientation): Bridge St. (SB)

| | Minor Street Approach Volume (Bridge) | | | Major Street Approach Volume (Ramona) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 0 | 80 | 80 | 520 | 710 | 1,230 | No |
| PM Peak | 0 | 110 | 110 | 750 | 520 | 1,270 | Yes |

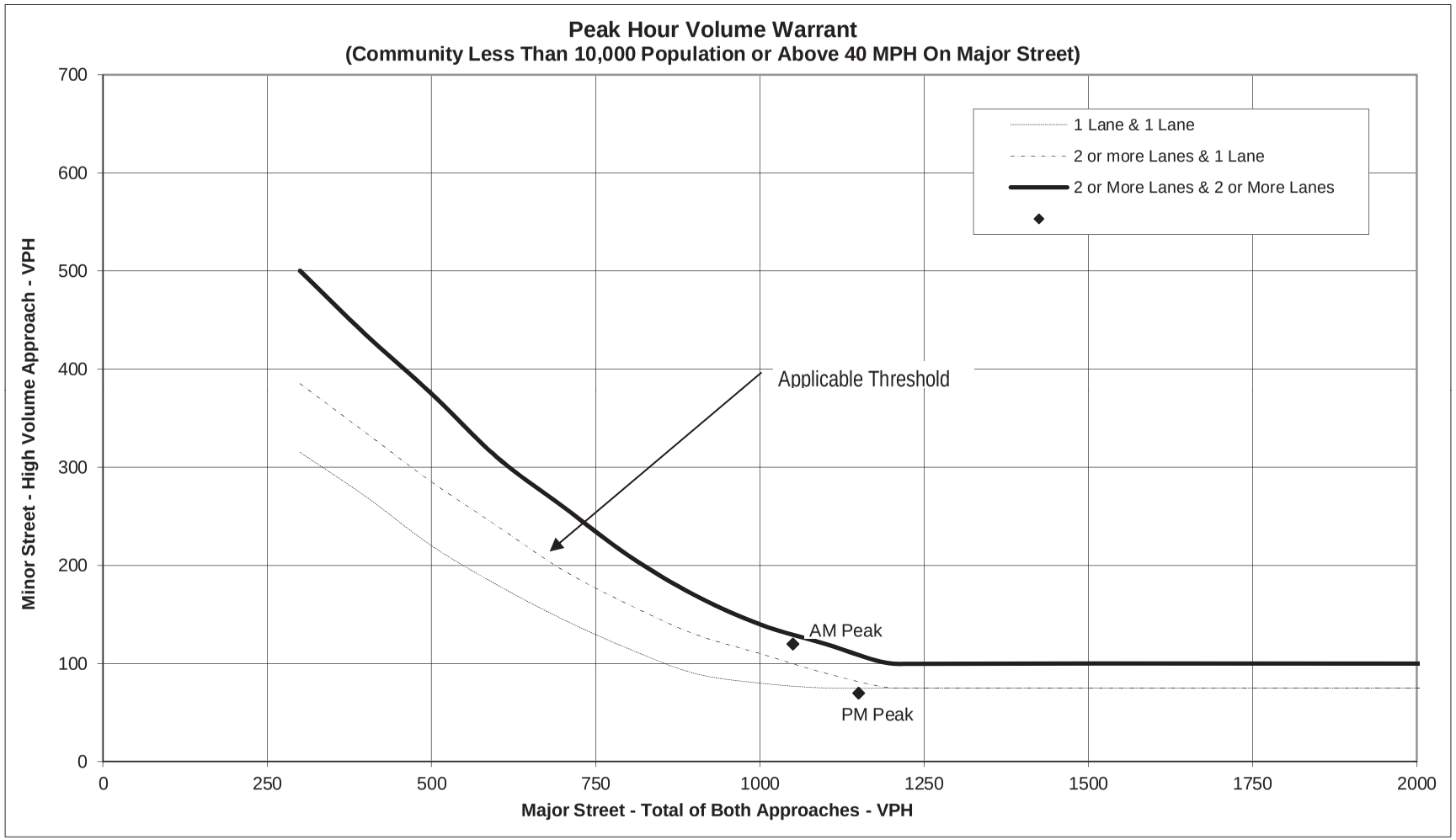



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 123 - Bridge St. & Gilman Springs Rd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Gilman Springs (NB-SB)
Minor Street (Orientation): Bridge St. (EB)

| | Minor Street Approach Volume (Bridge) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 120 | 0 | 120 | 660 | 390 | 1,050 | Yes |
| PM Peak | 70 | 0 | 70 | 390 | 760 | 1,150 | No |

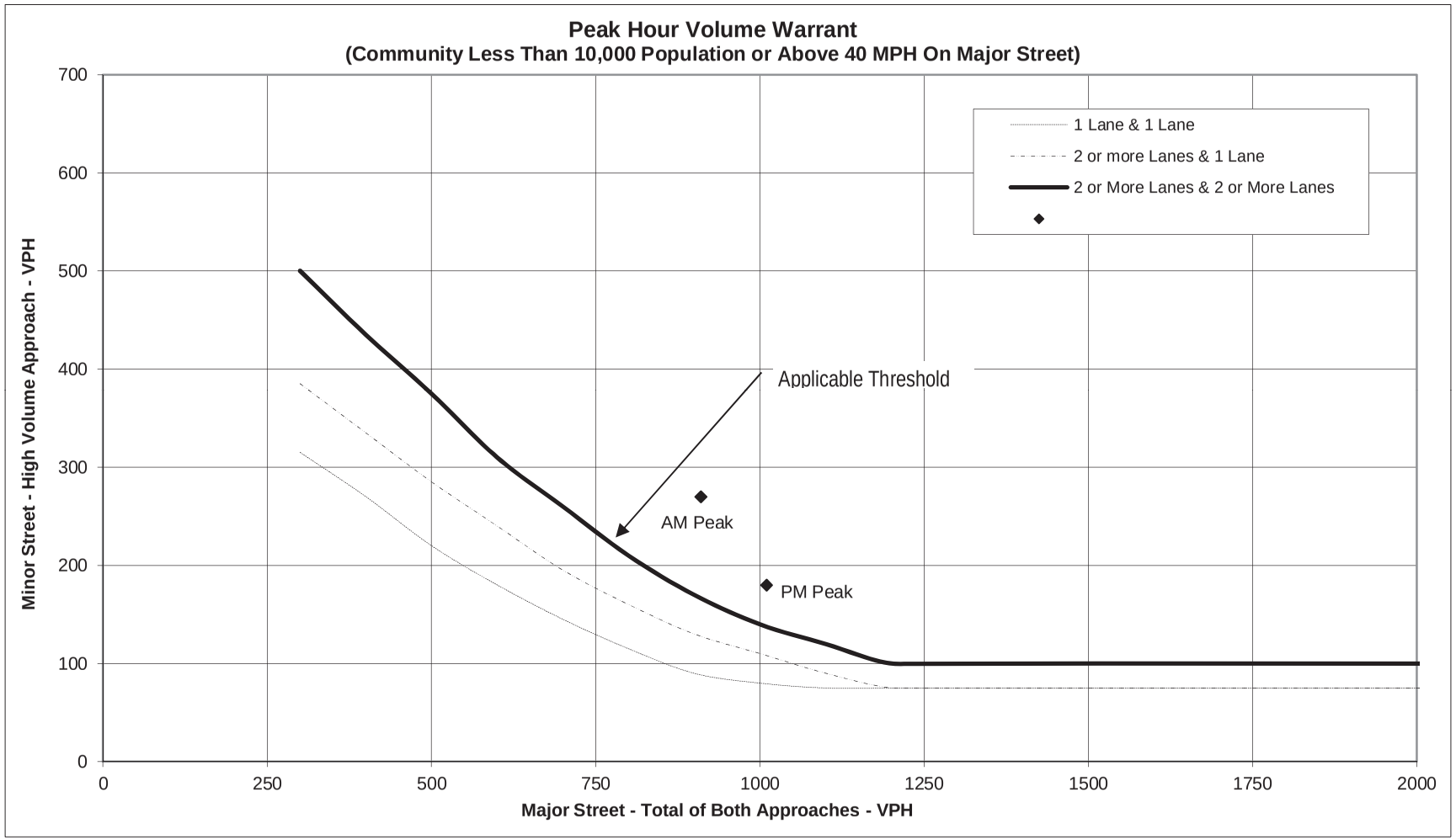



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 124 - Gilman Springs Rd. & SR-79 NB Ramps
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Gilman Springs (EB-WB)
Minor Street (Orientation): SR-79 Ramps (NB)

| | Minor Street Approach Volume (SR-79) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 270 | 0 | 270 | 330 | 580 | 910 | Yes |
| PM Peak | 180 | 0 | 180 | 610 | 400 | 1,010 | Yes |

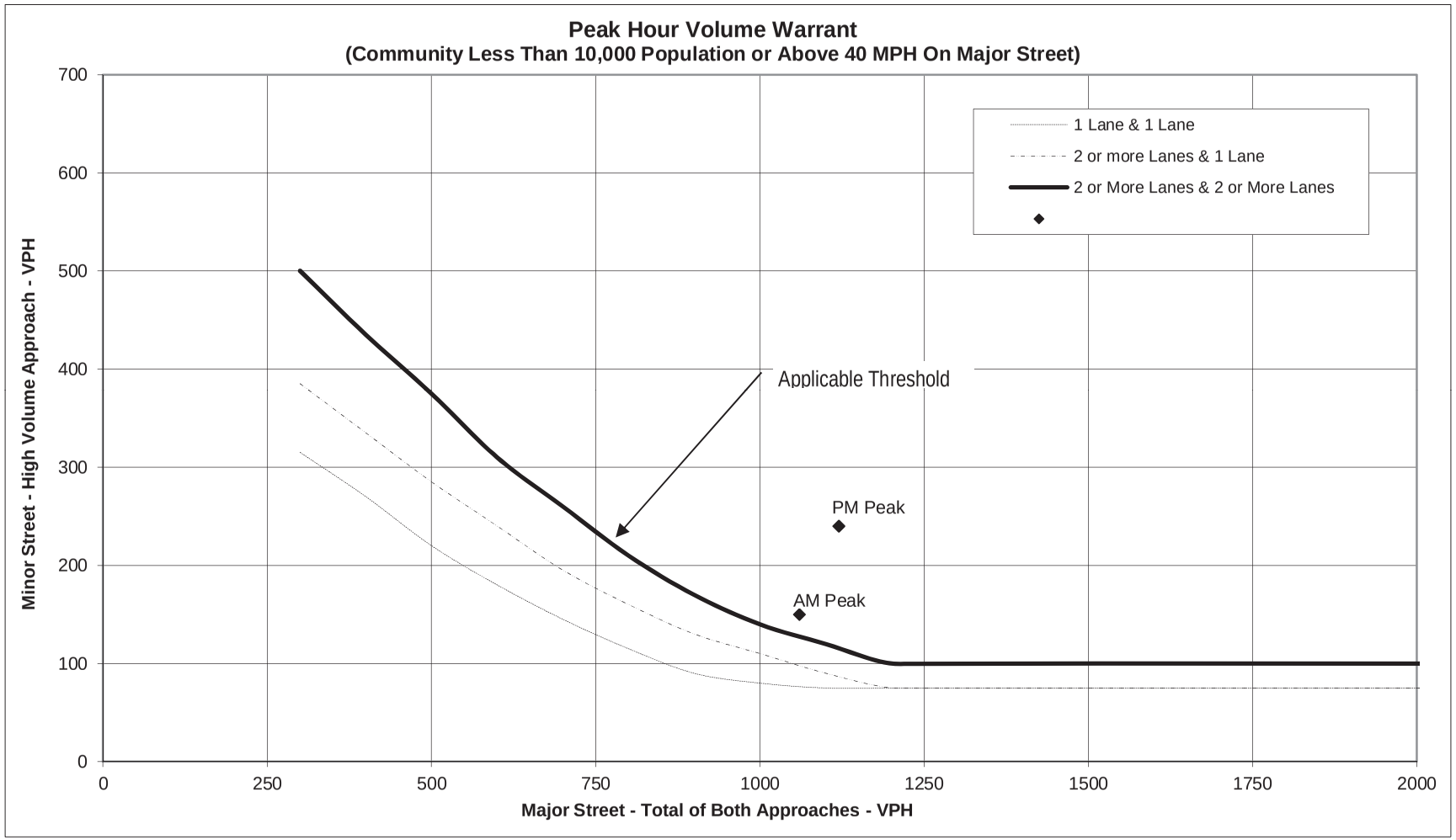



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 125 - Gilman Springs Rd. & SR-79 SB Ramps
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Gilman Springs (EB-WB)
Minor Street (Orientation): SR-79 Ramps (SB)

| | Minor Street Approach Volume (SR-79) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 0 | 150 | 150 | 400 | 660 | 1,060 | Yes |
| PM Peak | 0 | 240 | 240 | 730 | 390 | 1,120 | Yes |

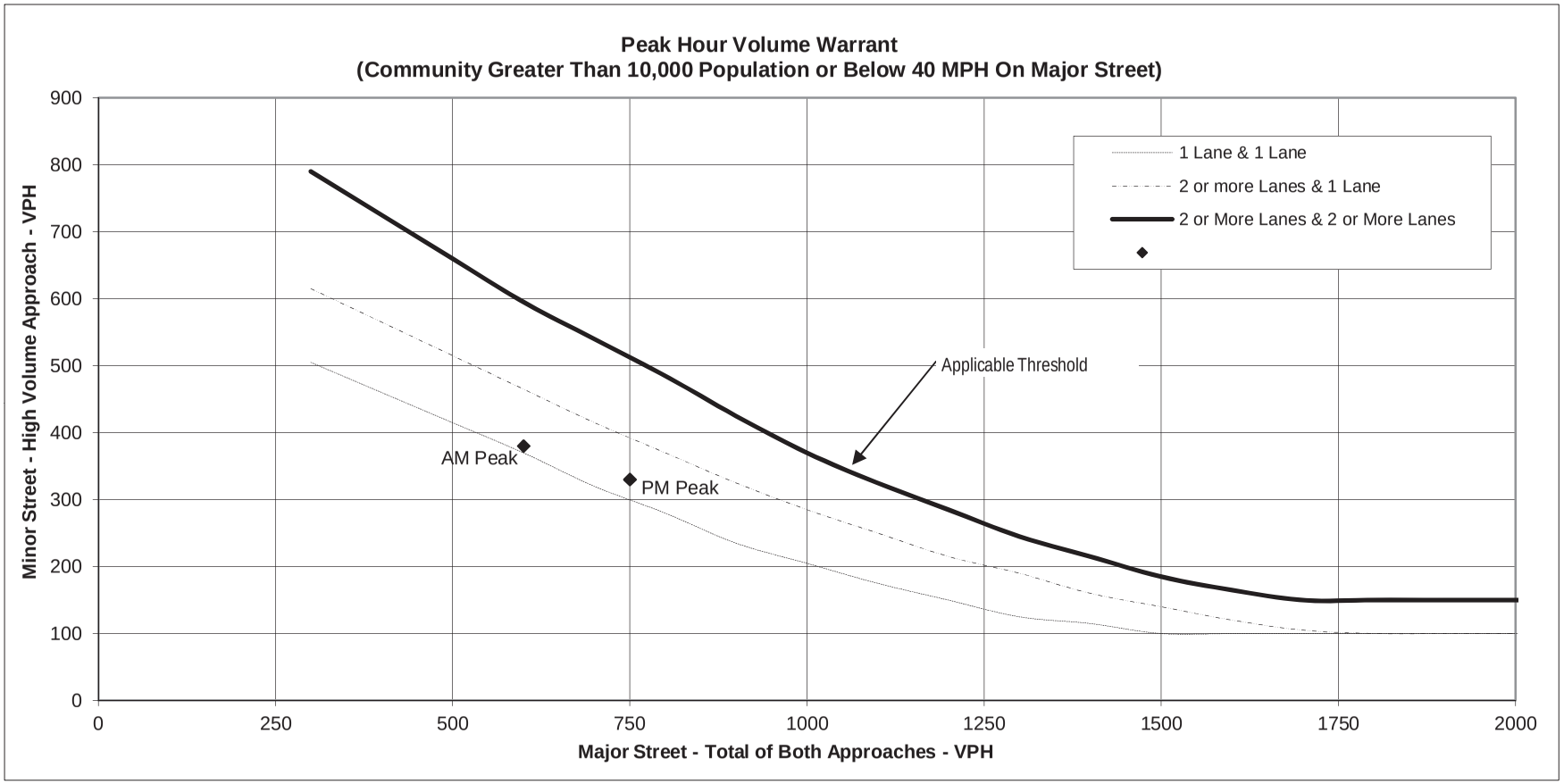



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 129 - 6th st & California Ave.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): 6th St. (EB-WB)
Minor Street (Orientation): California Ave. (NB-SB)

| | Minor Street Approach Volume (California) | | | Major Street Approach Volume (6th St) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 380 | 90 | 380 | 330 | 270 | 600 | No |
| PM Peak | 330 | 60 | 330 | 470 | 280 | 750 | No |

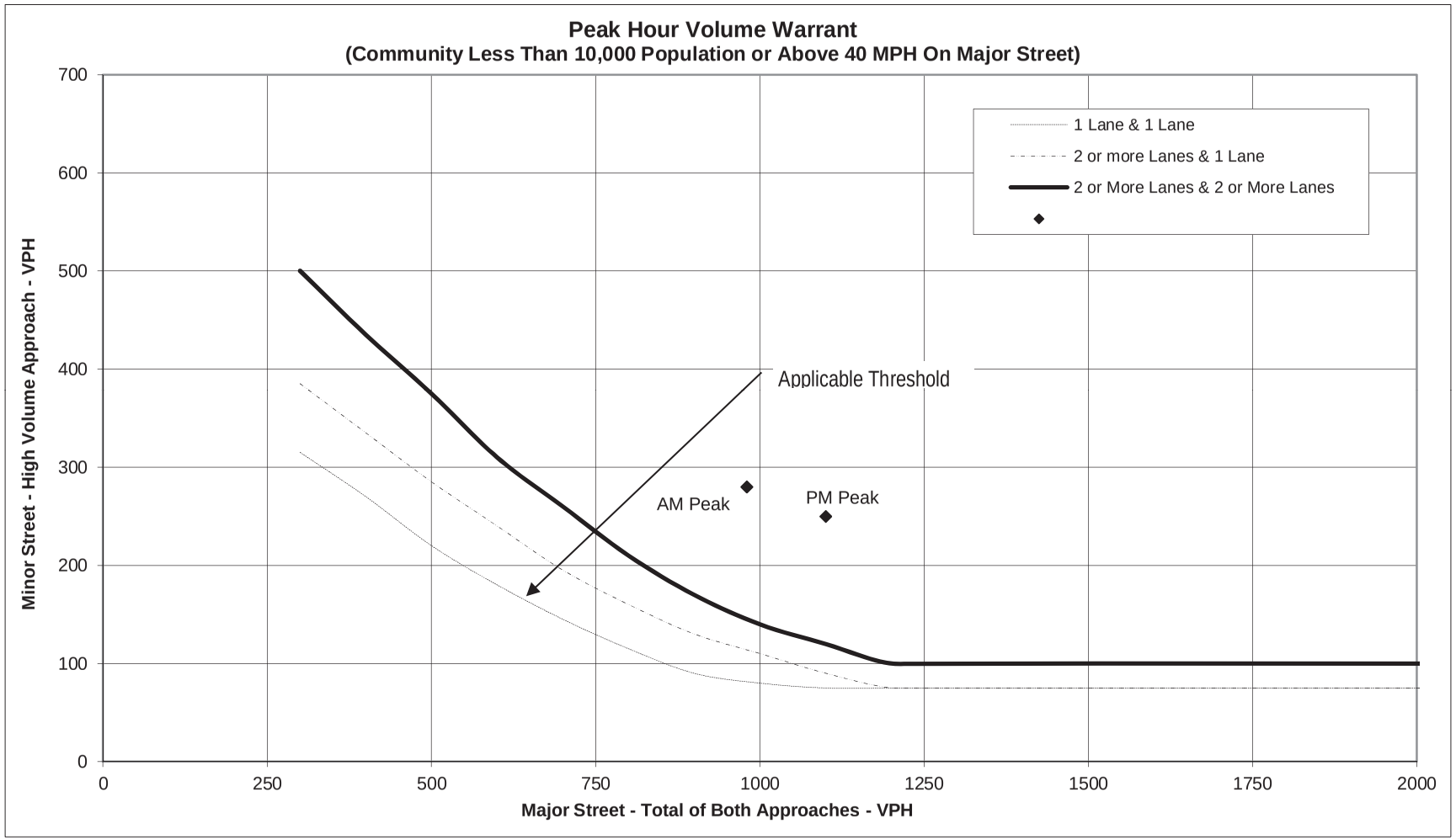



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 132 - San Timoteo Canyon Rd. Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): San Timoteo (EB-WB)
Minor Street (Orientation): Alessandro Rd. (NB-SB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (San Timoteo) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 30 | 280 | 280 | 240 | 740 | 980 | Yes |
| PM Peak | 50 | 250 | 250 | 590 | 510 | 1,100 | Yes |

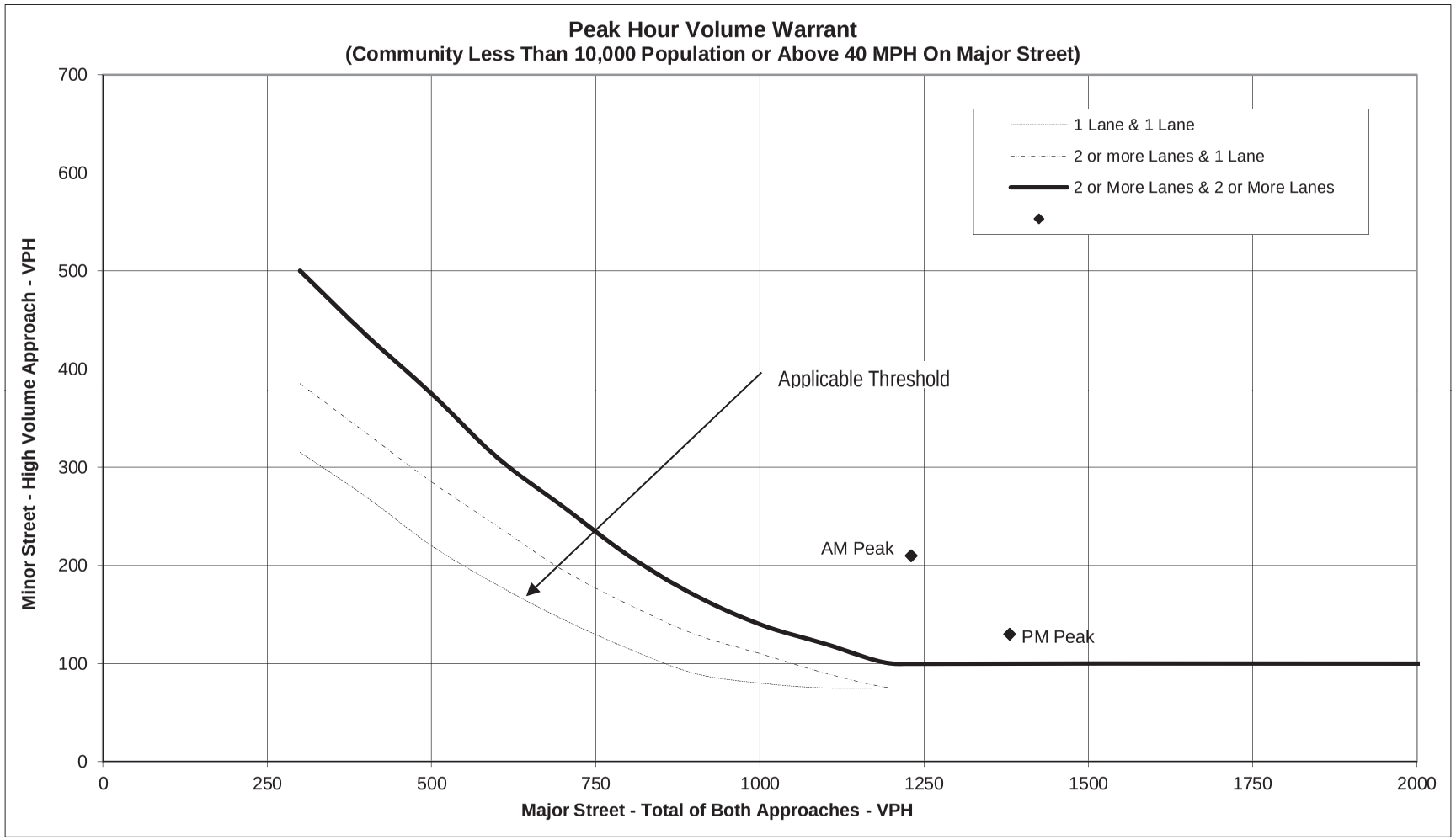



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 133 - Live Oak Canyon & San Timoteo Canyon Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Live Oak (EB-WB)
Minor Street (Orientation): San Timoteo (NB-SB)

| | Minor Street Approach Volume (San Timoteo) | | | Major Street Approach Volume (Live Oak) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 30 | 210 | 210 | 420 | 810 | 1,230 | Yes |
| PM Peak | 30 | 130 | 130 | 730 | 650 | 1,380 | Yes |

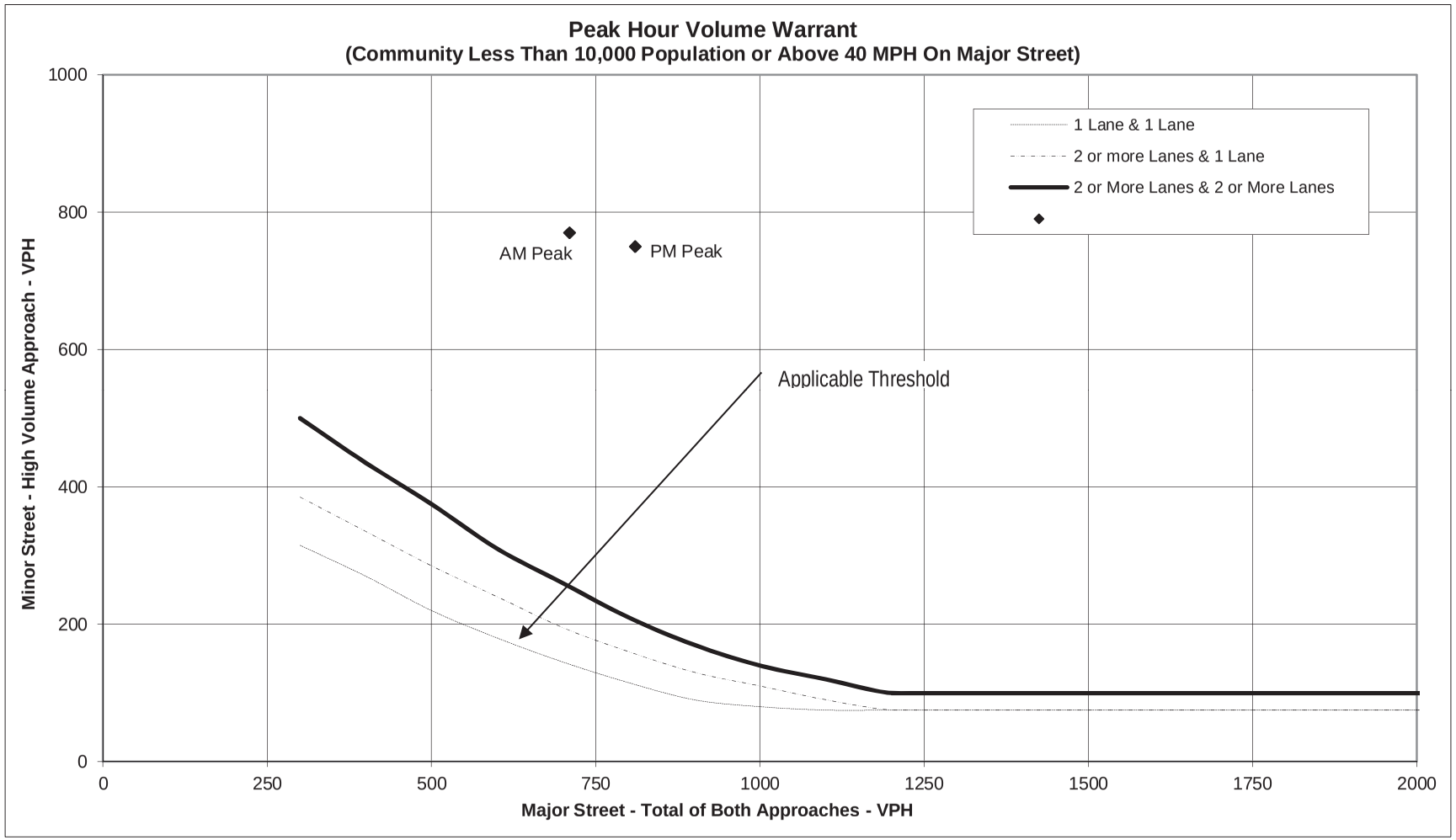



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 134 - San Timoteo Canyon Rd. & Redlands Blvd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): San Timoteo (EB-WB)
Minor Street (Orientation): Redlands Blvd. (NB)

| | Minor Street Approach Volume (Redlands) | | | Major Street Approach Volume (San Timoteo) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 770 | 0 | 770 | 560 | 150 | 710 | Yes |
| PM Peak | 750 | 0 | 750 | 760 | 50 | 810 | Yes |

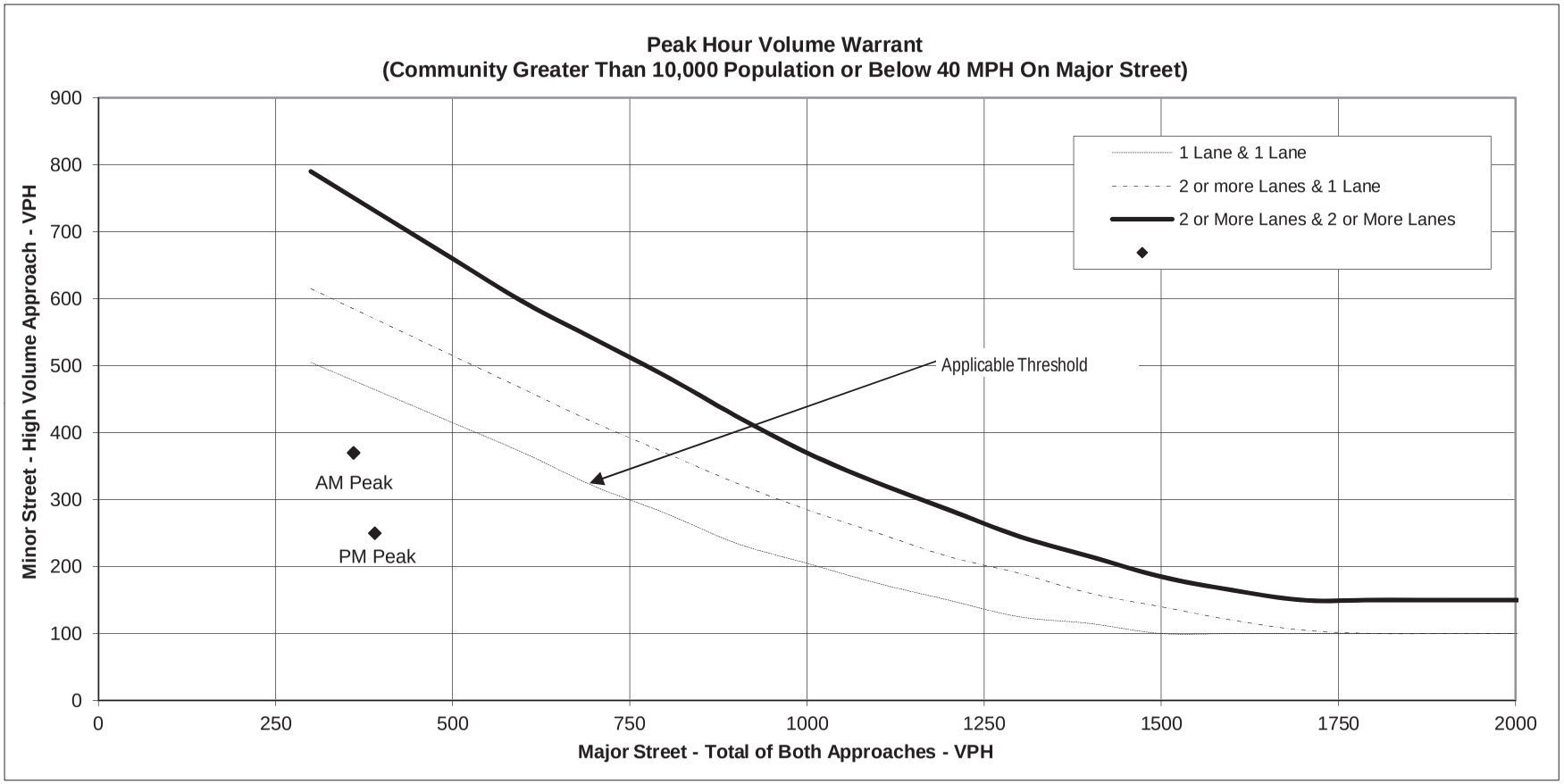



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 135 - Crescent Ave. & Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Crescent Ave. (EB-WB)
Minor Street (Orientation): Alessandro Rd. (NB-SB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Crescent) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 370 | 0 | 370 | 70 | 290 | 360 | No |
| PM Peak | 250 | 0 | 250 | 100 | 290 | 390 | No |

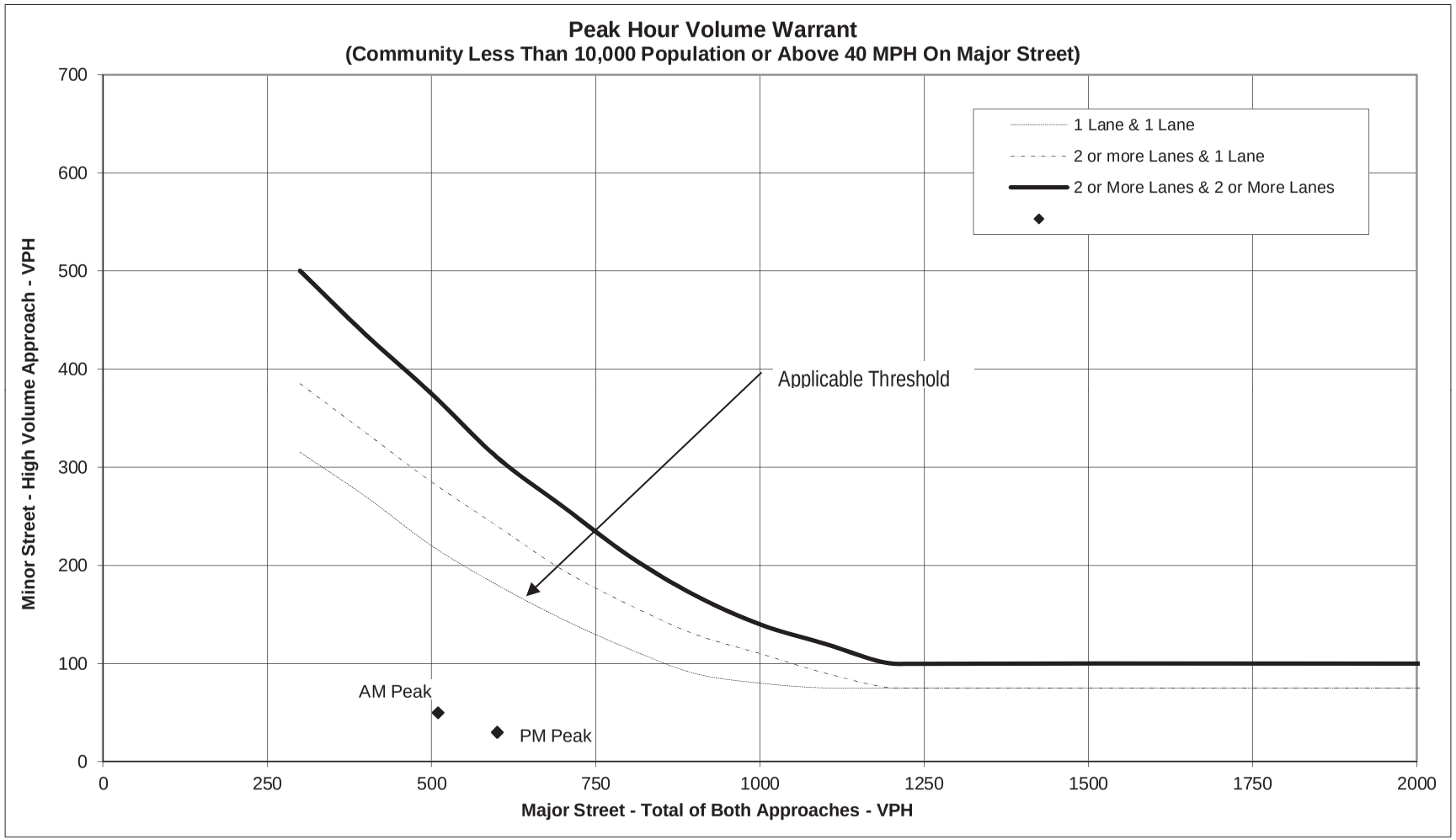



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Phase 1
Intersection: 136 - Sunset Dr. & Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Alessandro (NB-SB)
Minor Street (Orientation): Sunset Dr. (EB-WB)

| | Minor Street Approach Volume (Sunset) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 40 | 50 | 50 | 280 | 230 | 510 | No |
| PM Peak | 30 | 30 | 30 | 270 | 330 | 600 | No |

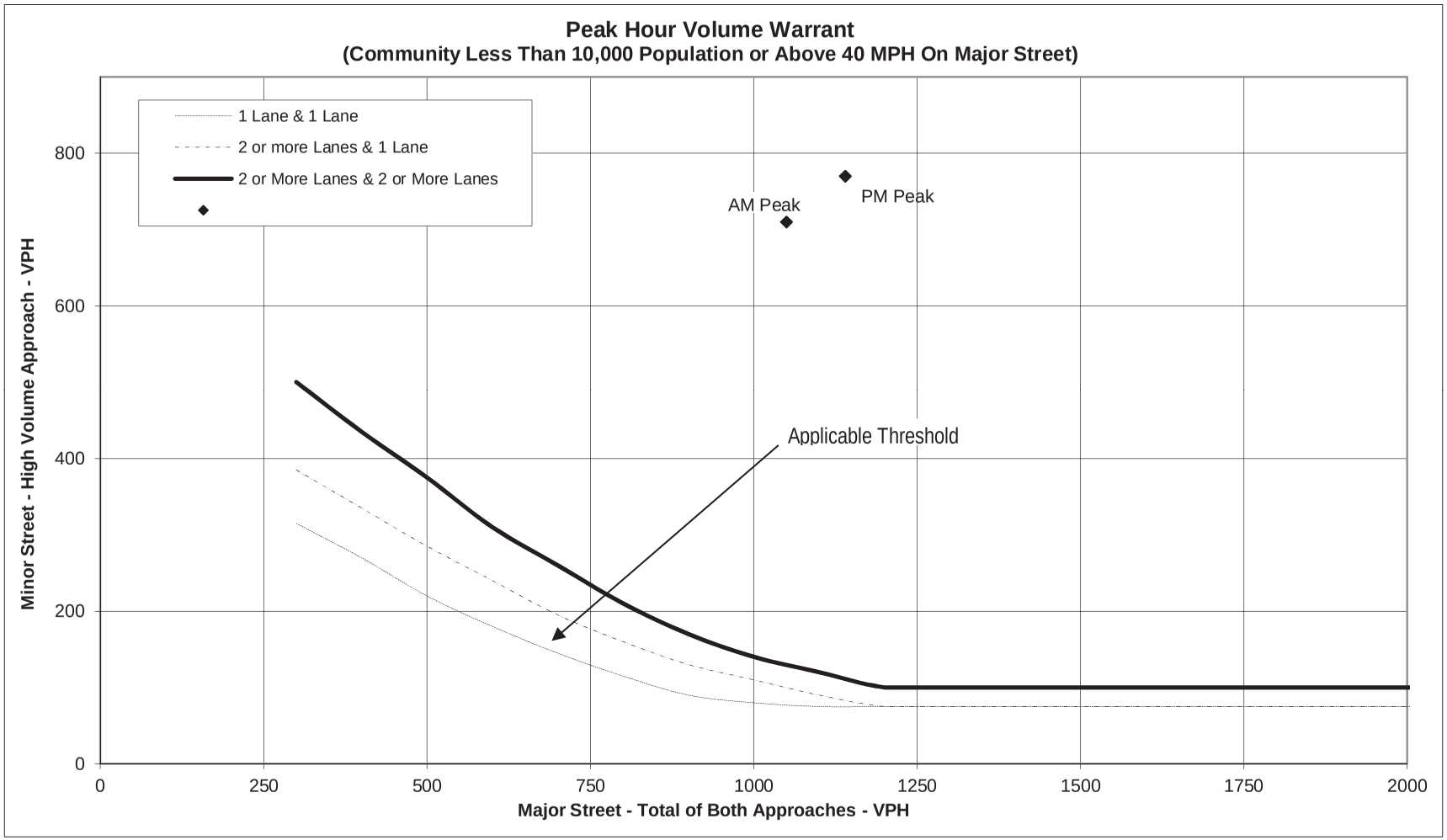



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 3 - Alessandro Blvd & Theodore St
Type: 1 Lane & 1 Lane
Major Street (Orientation): Alessandro Blvd (EB-WB)
Minor Street (Orientation): Theodore St (NB-SB)

| | Minor Street Approach Volume (Theodore) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 0 | 710 | 710 | 540 | 510 | 1,050 | Yes |
| PM Peak | 0 | 770 | 770 | 340 | 800 | 1,140 | Yes |

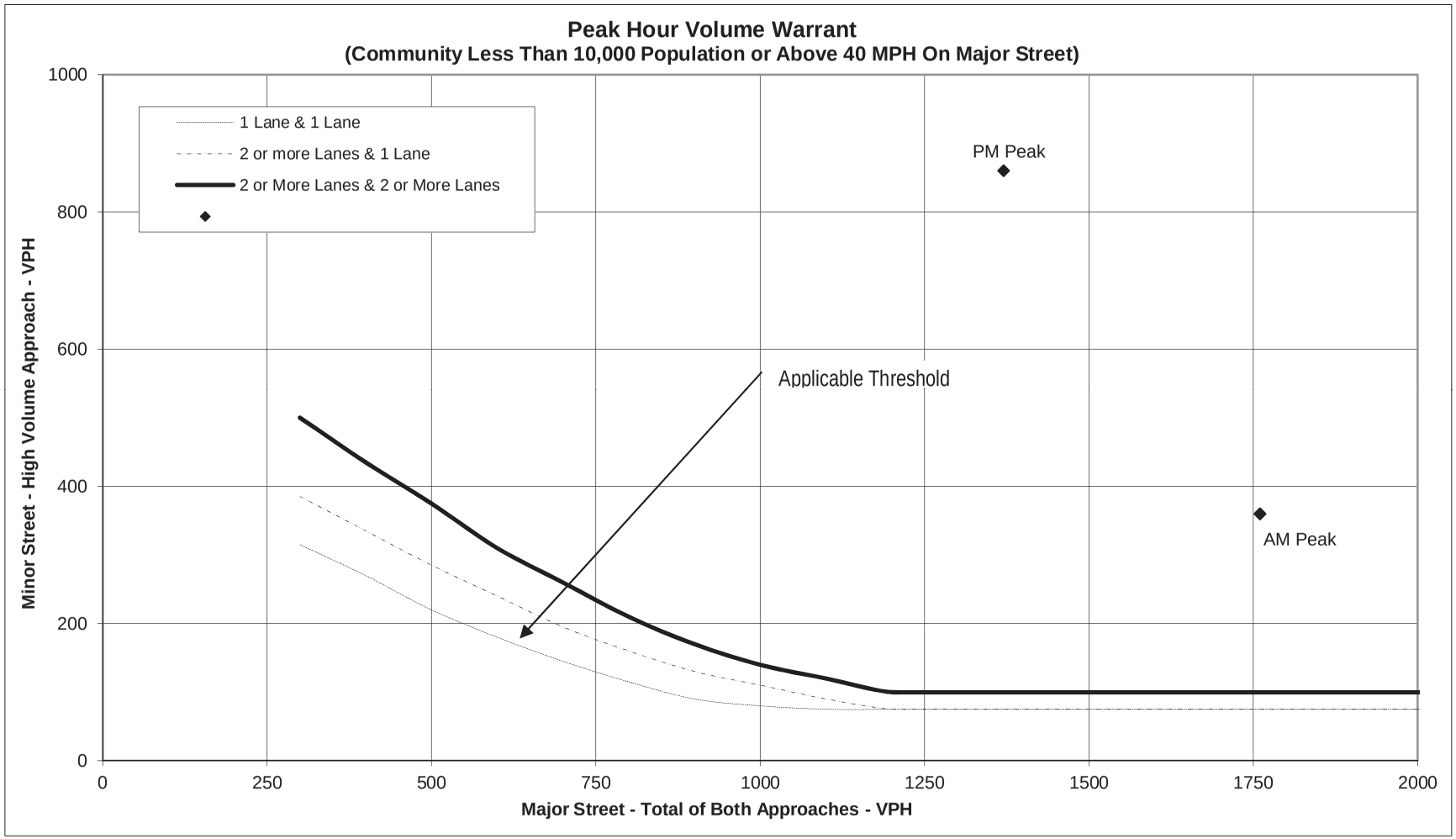



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 6 - Alessandro Blvd & Gilman Springs Rd
Type: 1 Lane & 1 Lane
Major Street (Orientation): Gilman Springs Rd (NB-SB)
Minor Street (Orientation): Alessandro Blvd (EB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Gilman Springs) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 360 | 0 | 360 | 940 | 820 | 1,760 | Yes |
| PM Peak | 860 | 0 | 860 | 470 | 900 | 1,370 | Yes |

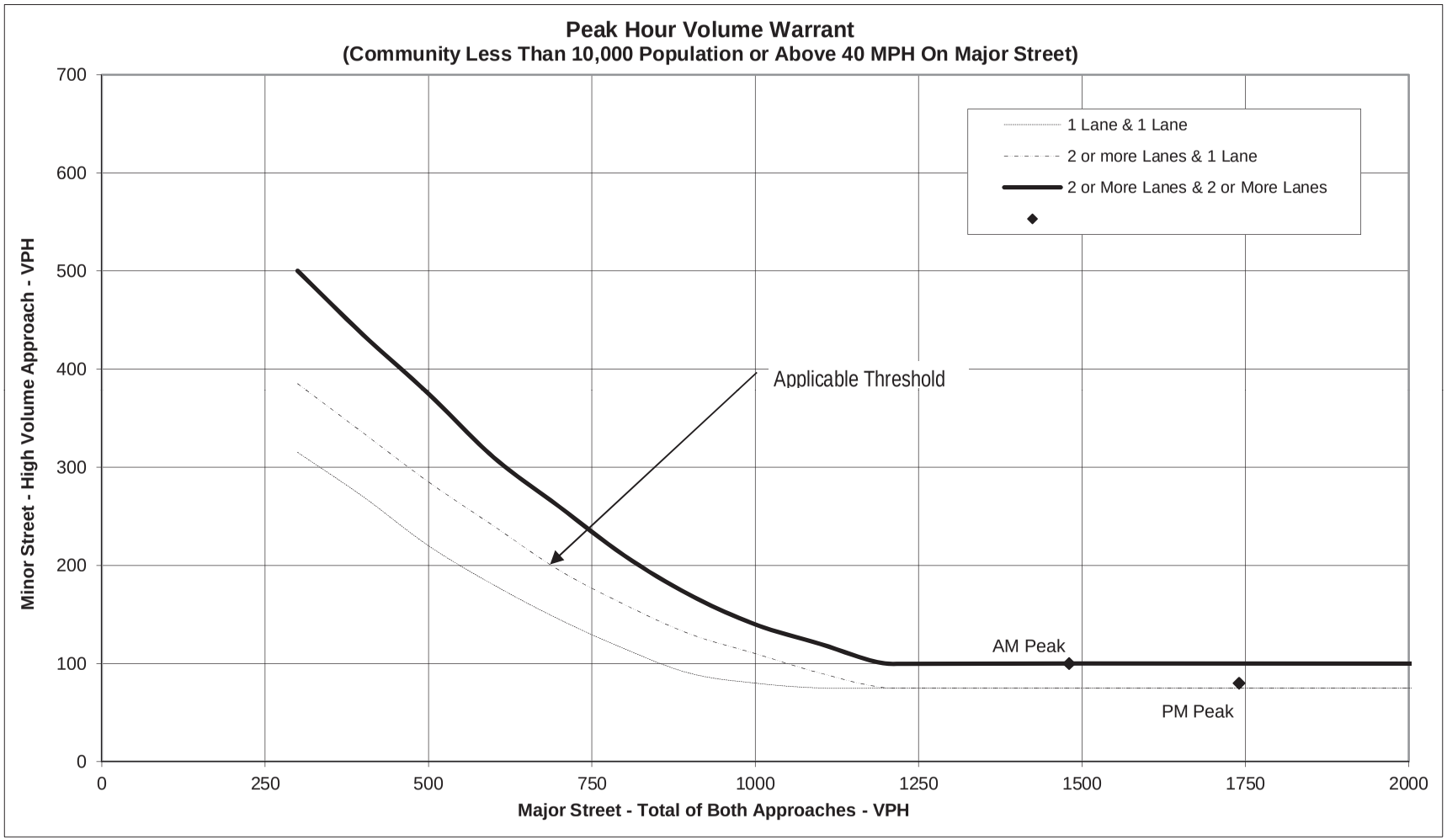



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 10 - Locust Ave & Rredlands Blvd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Redlands Blvd (NB-SB)
Minor Street (Orientation): Locust (EB-WB)

| | Minor Street Approach Volume (Locust) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 100 | 10 | 100 | 850 | 630 | 1,480 | Yes |
| PM Peak | 80 | 15 | 80 | 740 | 1,000 | 1,740 | Yes |

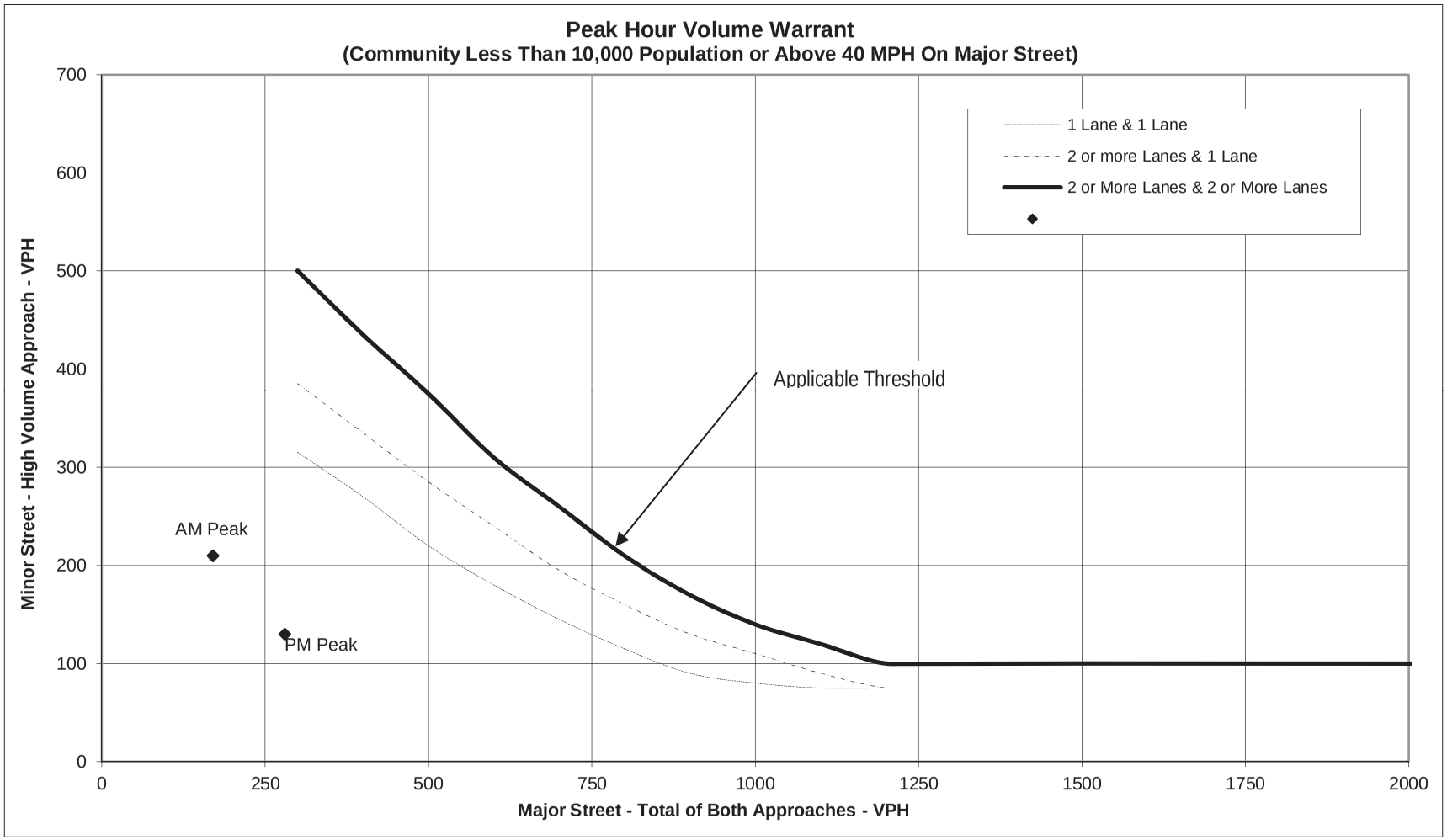



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 12 - Ironwood Ave. & Theodore St
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB)
Minor Street (Orientation): Ironwood Ave (EB-WB)

| | Minor Street Approach Volume (Ironwood) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 210 | 40 | 210 | 170 | 0 | 170 | No |
| PM Peak | 130 | 50 | 130 | 280 | 0 | 280 | No |

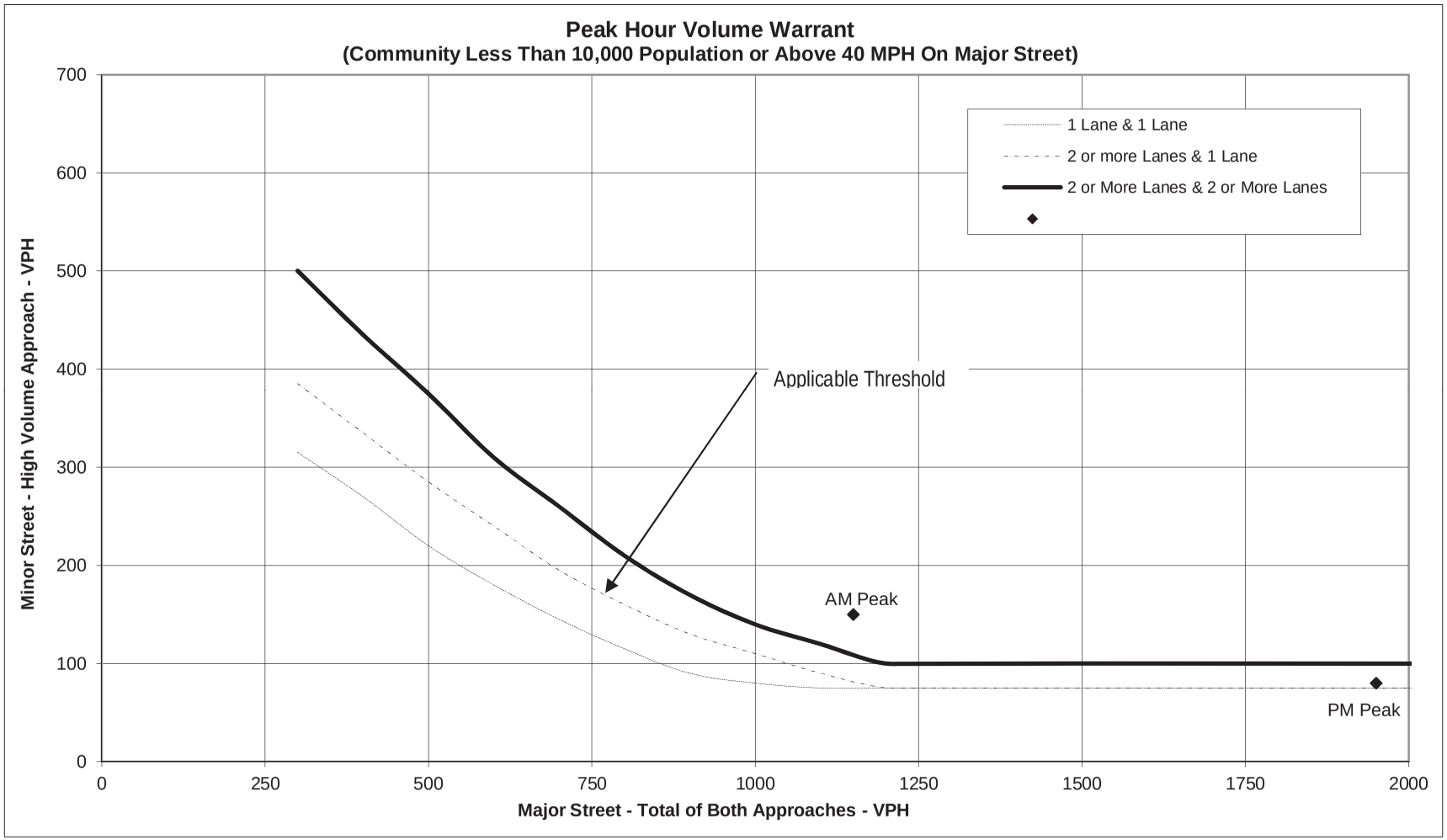



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 13 - SR-60 WB Ramps & Redlands Blvd
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Redlands Blvd (NB-SB)
Minor Street (Orientation): SR-60 WB Ramps (EB-WB)

| | Minor Street Approach Volume (SR-60 WB Ramp | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 20 | 150 | 150 | 640 | 510 | 1,150 | Yes |
| PM Peak | 30 | 80 | 80 | 1,220 | 730 | 1,950 | Yes |

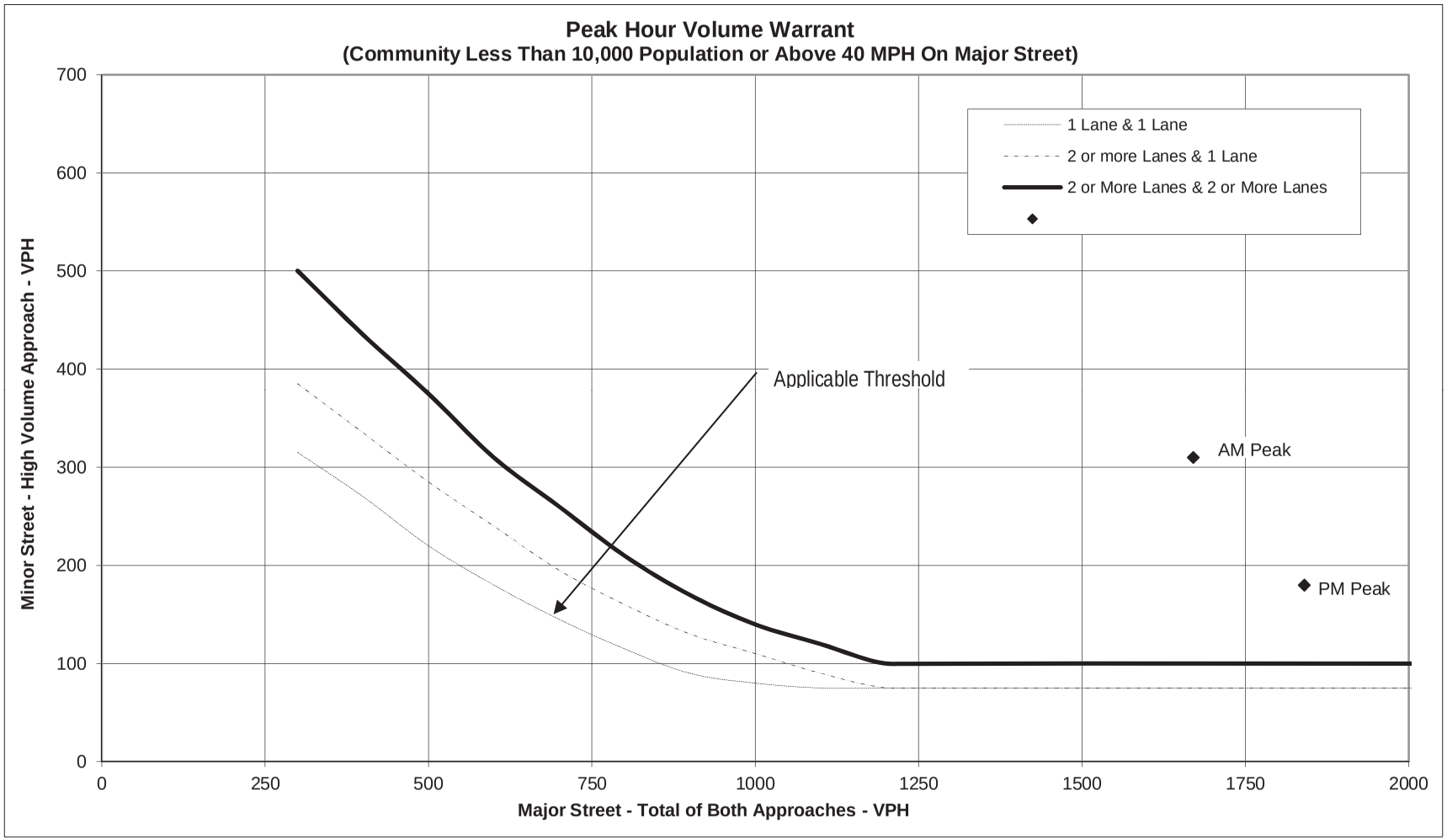



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 15 - SR-60 WB Ramps & Theodore St.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): SR-60 WB Ramps (WB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 310 | 0 | 310 | 1,400 | 270 | 1,670 | Yes |
| PM Peak | 180 | 0 | 180 | 1,670 | 170 | 1,840 | Yes |

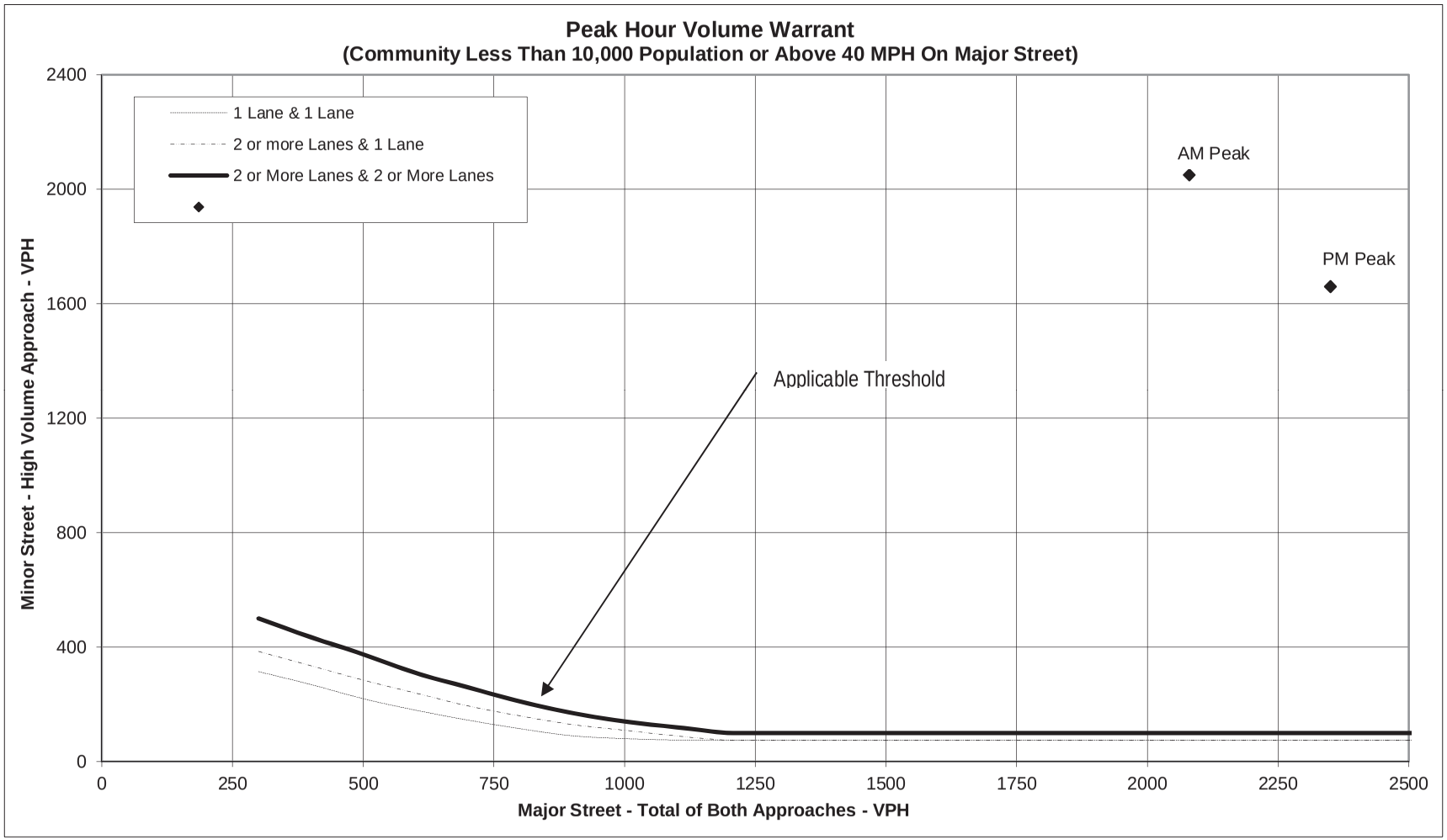



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 16 - SR-60 EB Ramps & Theodore St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): SR-60 EB Ramps (EB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 2,050 | 0 | 2,050 | 1,590 | 490 | 2,080 | Yes |
| PM Peak | 1,660 | 0 | 1,660 | 2,030 | 320 | 2,350 | Yes |

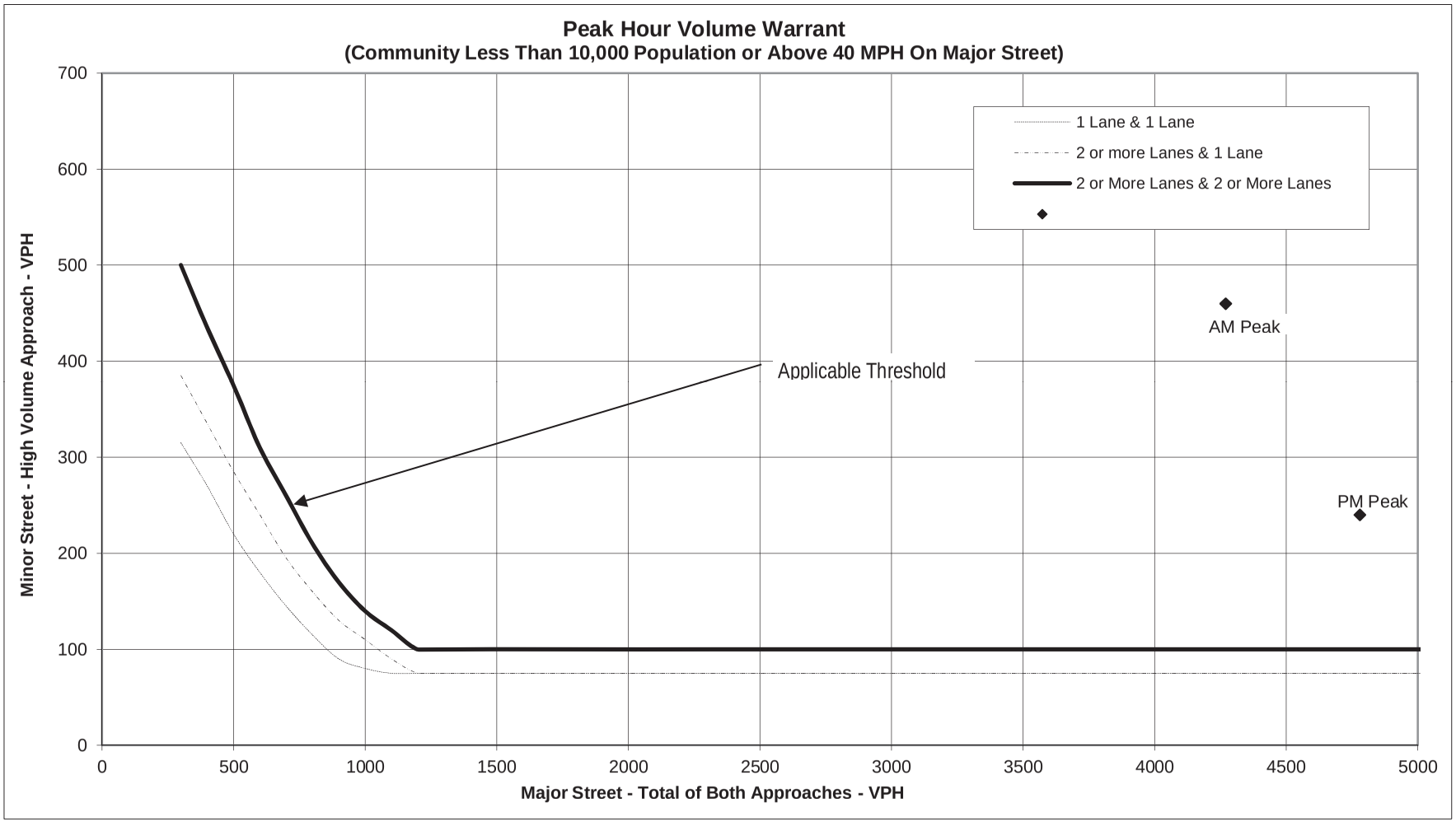



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 19 - Eucalyptus Ave & Theodore St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): Eucalyptus Ave (EB)

| | Minor Street Approach Volume (Eucalyptus Ave) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 460 | 100 | 460 | 1,700 | 2,570 | 4,270 | Yes |
| PM Peak | 240 | 150 | 240 | 2,830 | 1,950 | 4,780 | Yes |

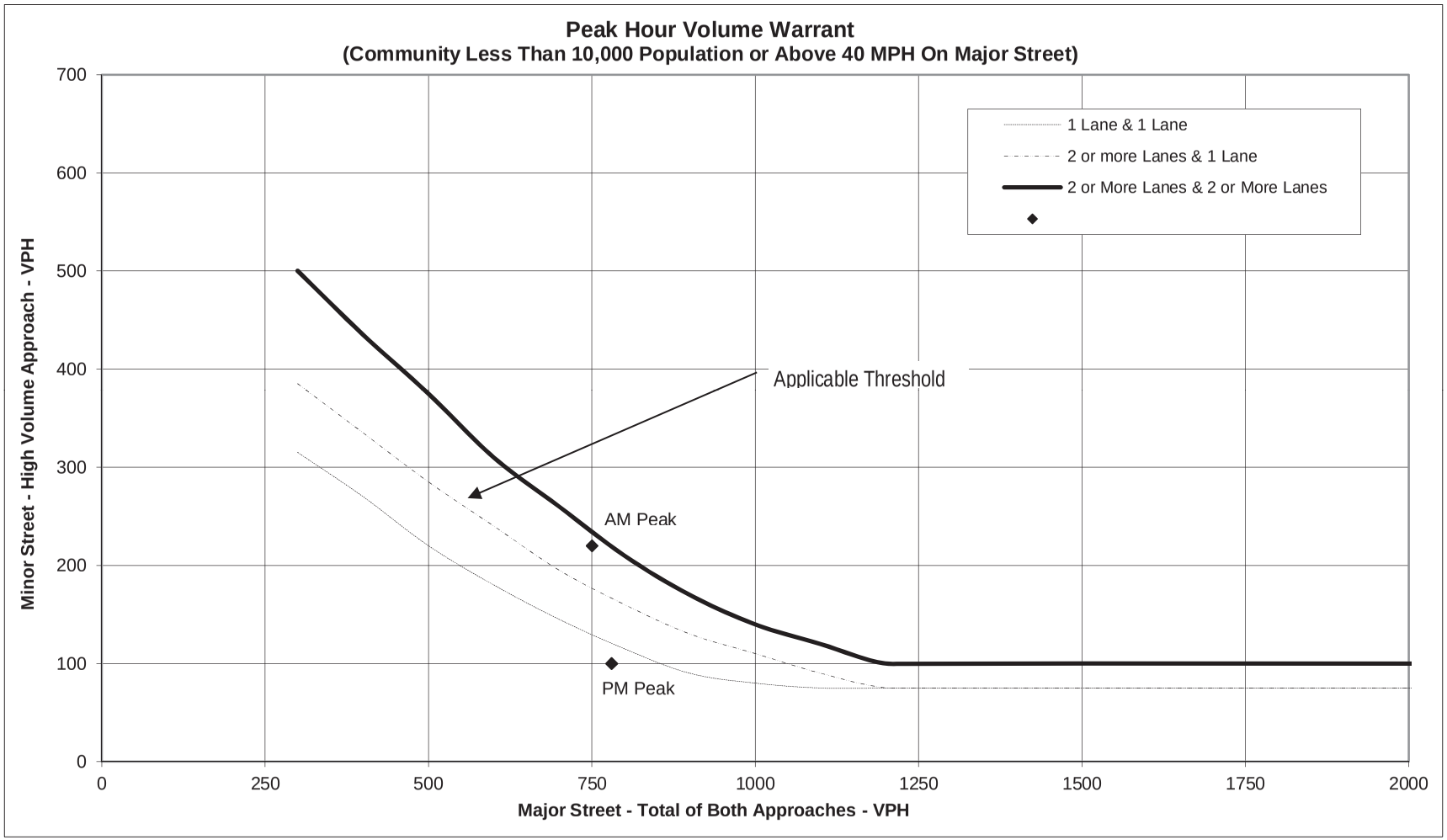



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 20 - Alessandro Blvd. & Oliver St.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Alessandro Blvd (EB-WB)
Minor Street (Orientation): Oliver St (NB-SB)

| | Minor Street Approach Volume (Oliver St) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 220 | 0 | 220 | 310 | 440 | 750 | Yes |
| PM Peak | 100 | 0 | 100 | 400 | 380 | 780 | No |

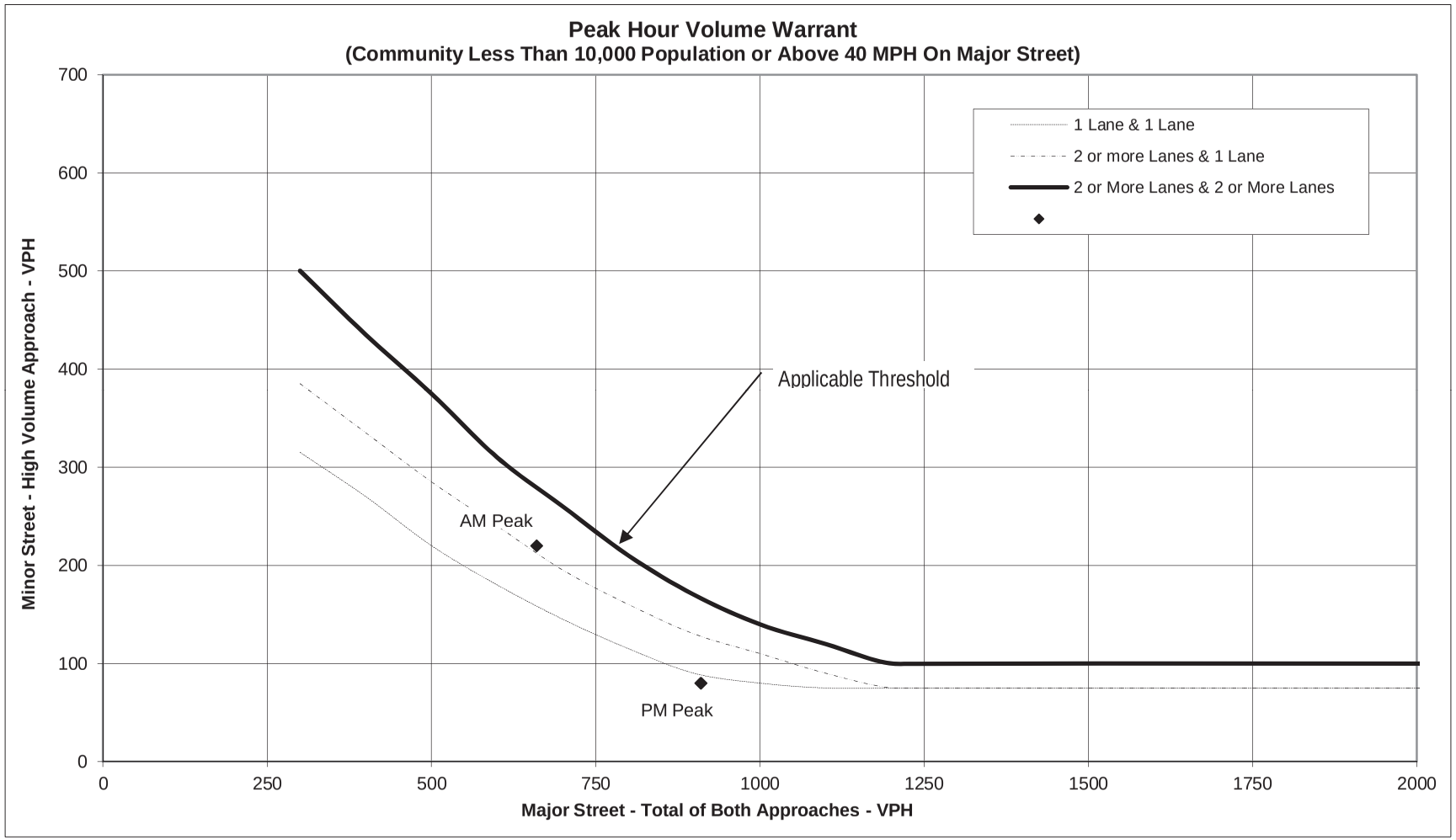



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 23 - Alessandro Blvd. & Redlands Blvd
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Redlands (NB-SB)
Minor Street (Orientation): Alessandro Blvd (EB-WB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 220 | 30 | 220 | 400 | 260 | 660 | No |
| PM Peak | 80 | 30 | 80 | 490 | 420 | 910 | No |

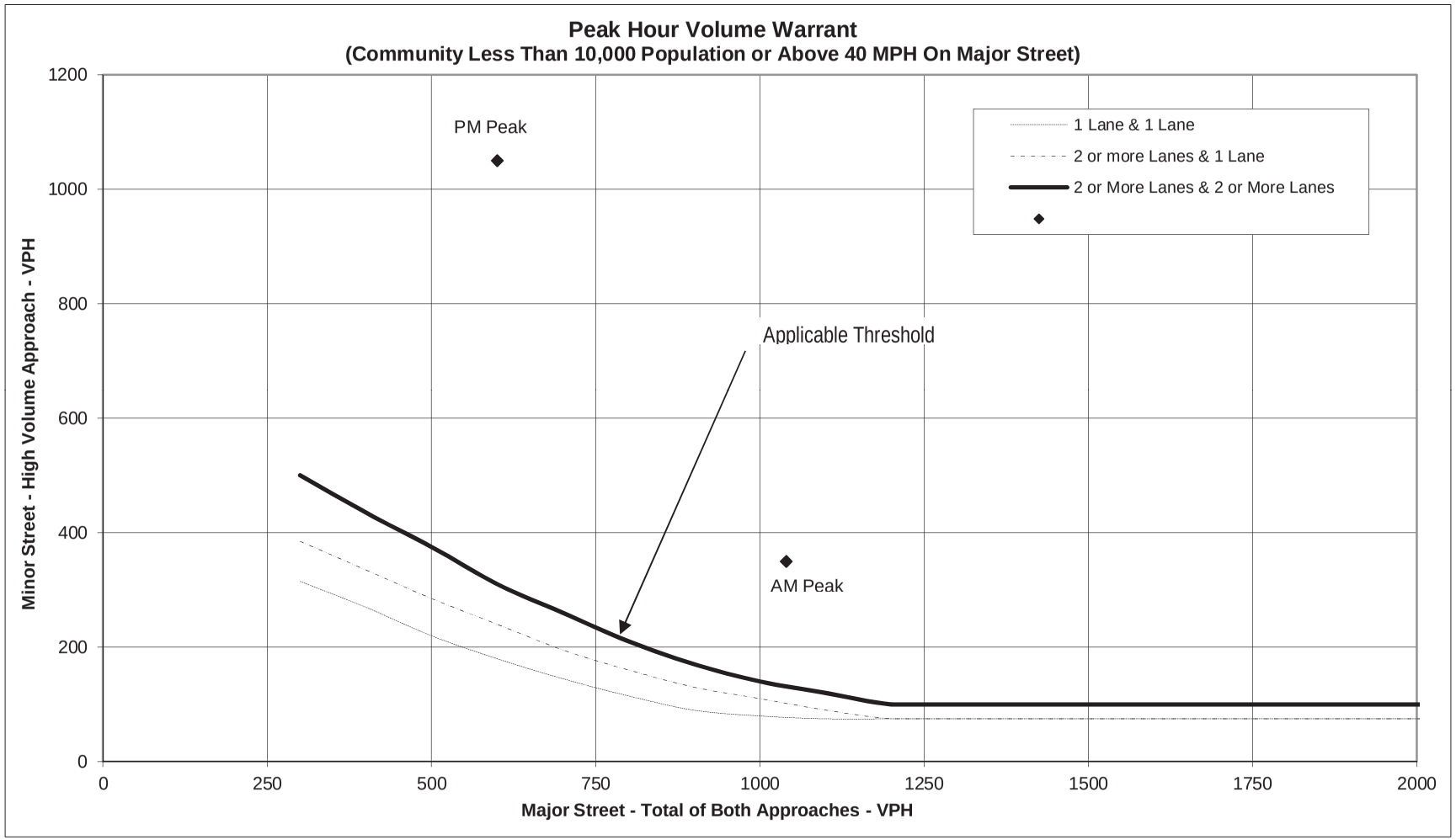



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 27 - Cactus Ave. & Redlands Blvd
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Redlands Blvd. (NB-SB)
Minor Street (Orientation): Cactus Ave. (EB-WB)

| | Minor Street Approach Volume (Cactus) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 350 | 250 | 350 | 640 | 400 | 1,040 | Yes |
| PM Peak | 230 | 1,050 | 1,050 | 300 | 300 | 600 | Yes |

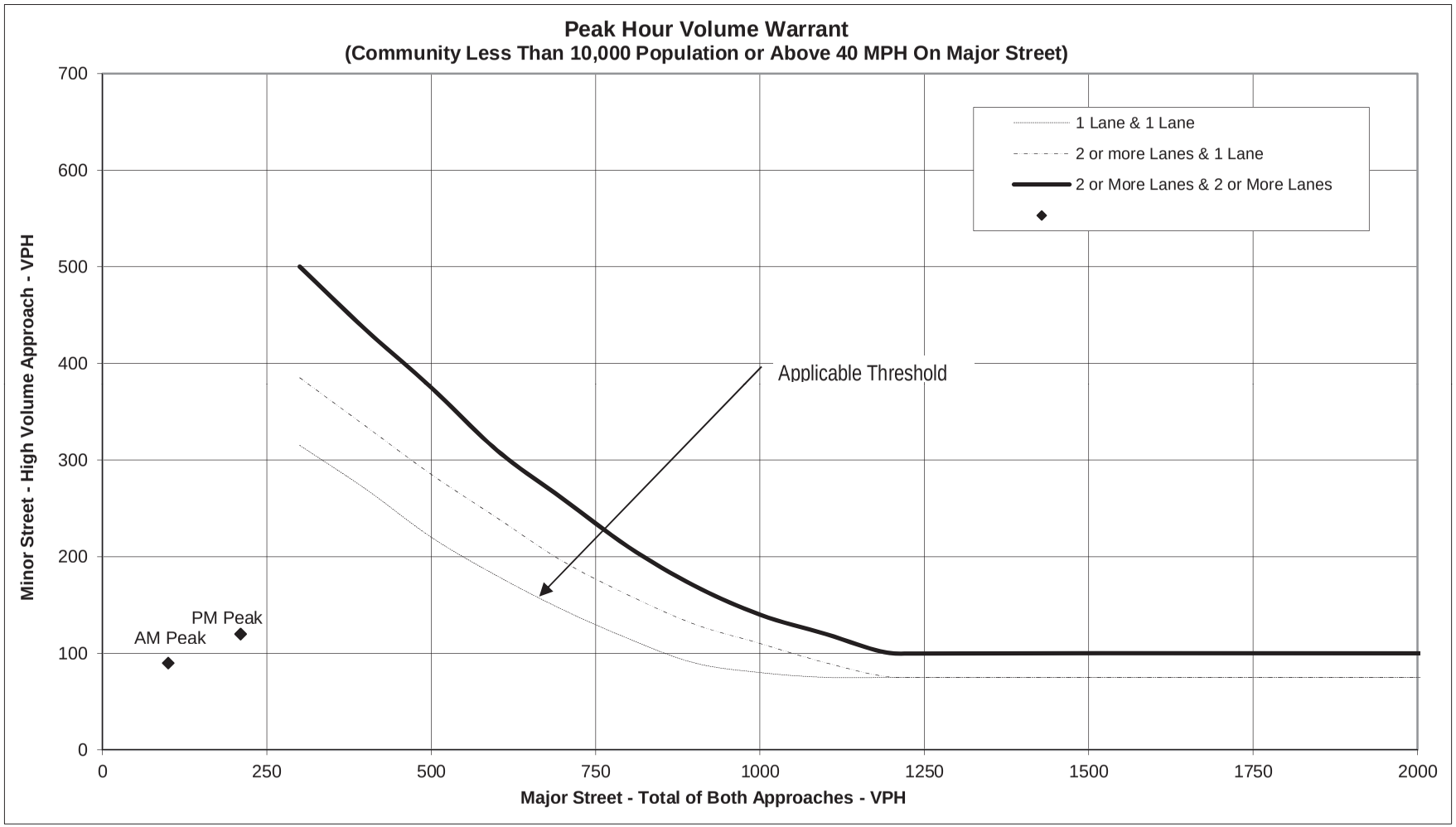



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 35 - Locust Ave & Moreno Beach Dr
Type: 1 Lane & 1 Lane
Major Street (Orientation): Locust Ave (EB-WB)
Minor Street (Orientation): Moreno Beach Dr. (NB)

| | Minor Street Approach Volume (Moreno Beach) | | | Major Street Approach Volume (Locust) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 90 | 0 | 90 | 20 | 80 | 100 | No |
| PM Peak | 120 | 0 | 120 | 20 | 190 | 210 | No |

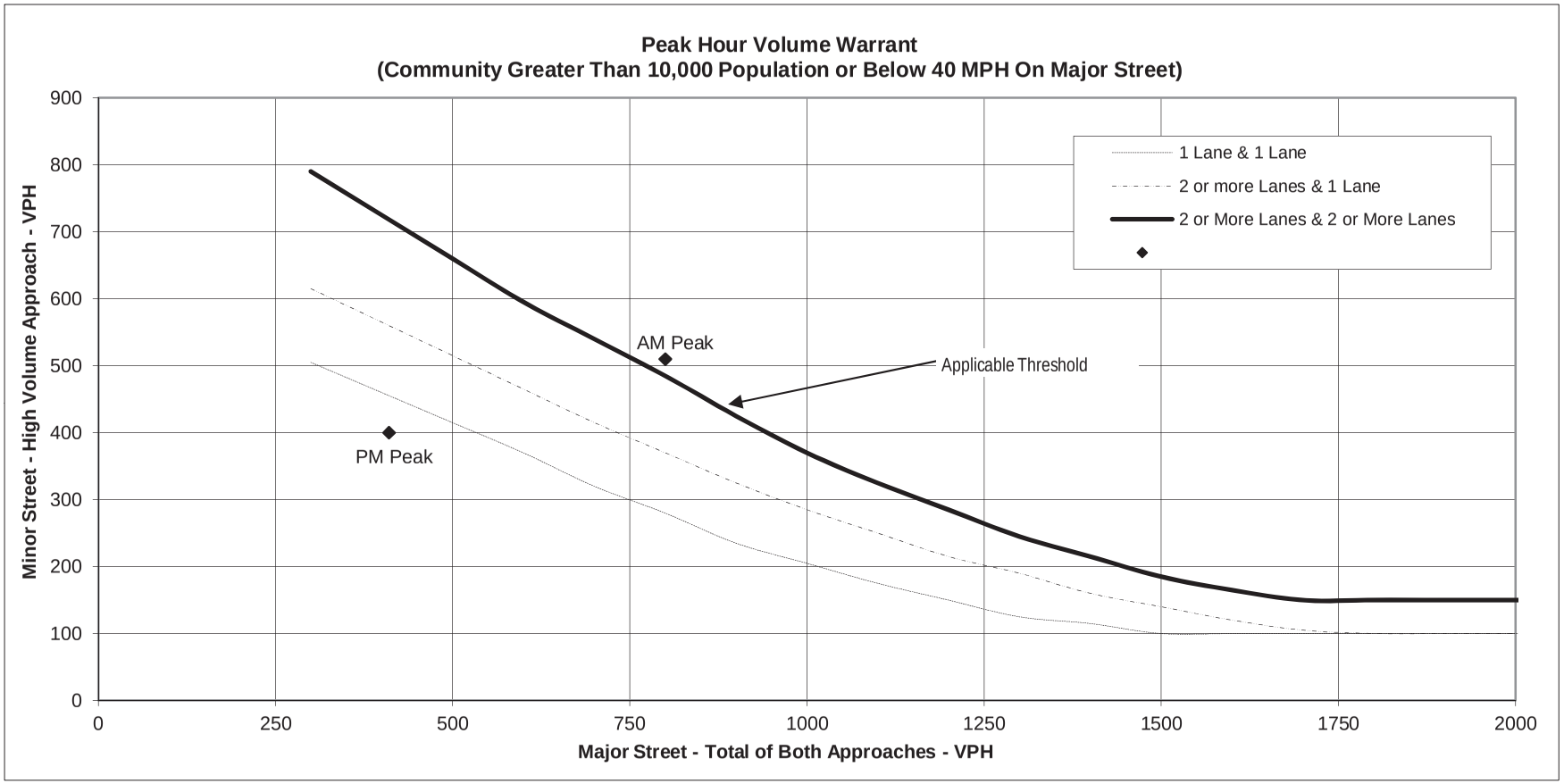



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 85 - Martin Luther King Blvd. & SR-60 WB on Ramp
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Martin Luther King (EB)
Minor Street (Orientation): SR-60. (NB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (MLK) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 510 | 0 | 510 | 800 | 0 | 800 | Yes |
| PM Peak | 400 | 0 | 400 | 410 | 0 | 410 | No |

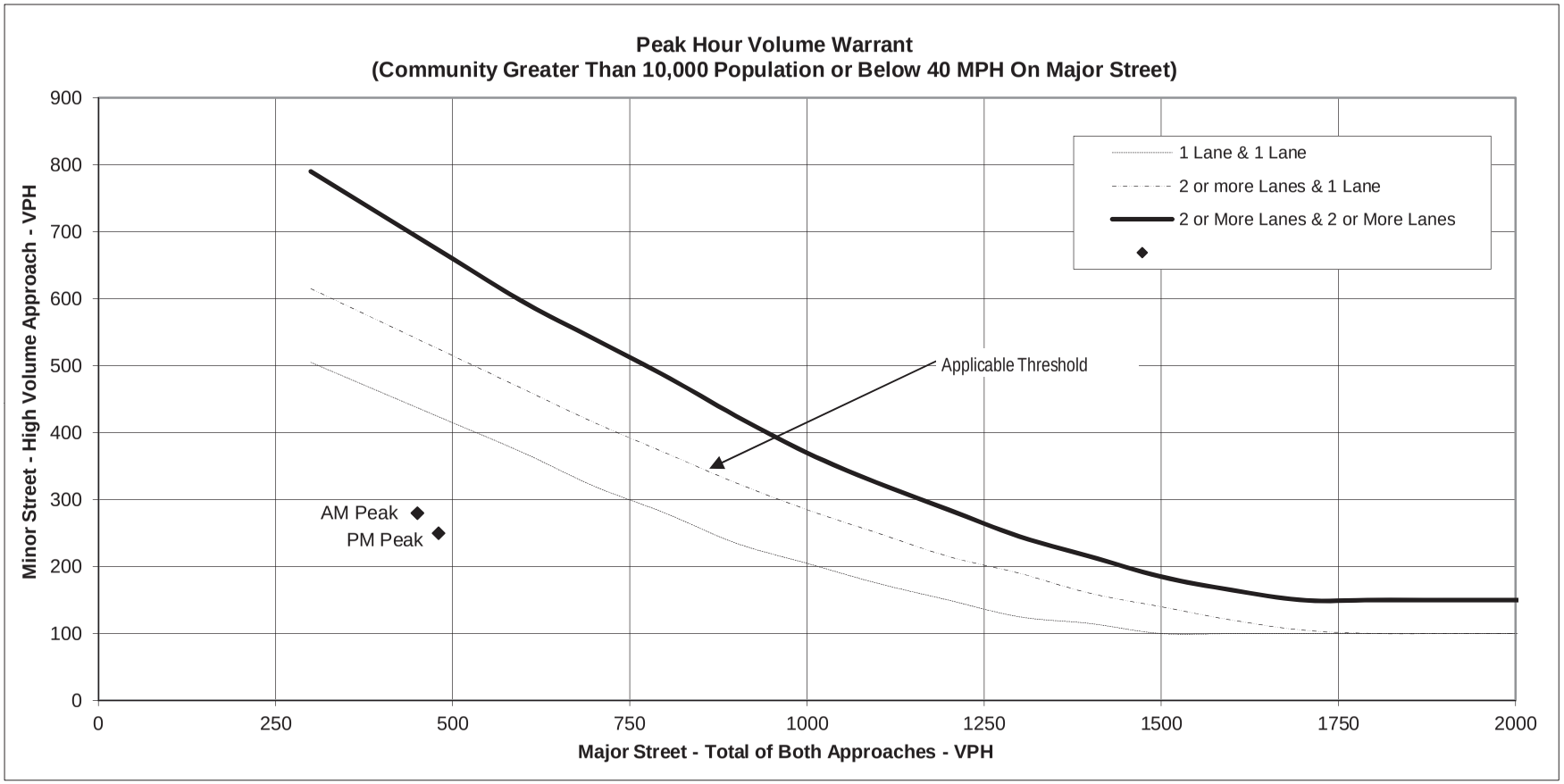



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 114 - Orange Ave. & Evans Rd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Evans Rd. (NB-SB)
Minor Street (Orientation): Orange Ave. (EB-WB)

| | Minor Street Approach Volume (Orange) | | | Major Street Approach Volume (Evans) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 280 | 270 | 280 | 240 | 210 | 450 | No |
| PM Peak | 250 | 130 | 250 | 230 | 250 | 480 | No |

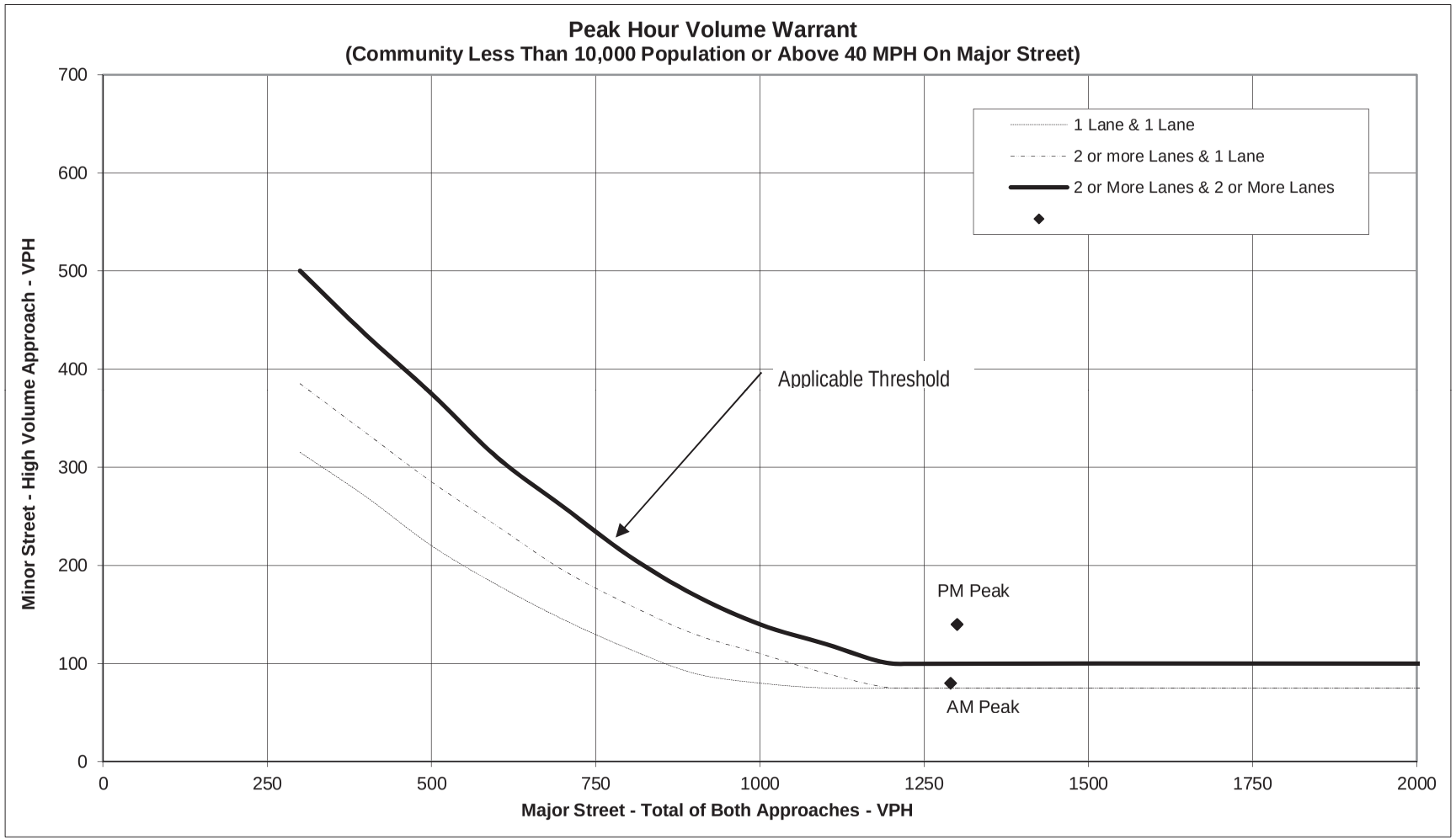



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 122 - Ramona Expy & Bridge St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Ramona Expy (EB-WB)
Minor Street (Orientation): Bridge St. (SB)

| | Minor Street Approach Volume (Bridge) | | | Major Street Approach Volume (Ramona) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 0 | 80 | 80 | 530 | 760 | 1,290 | No |
| PM Peak | 0 | 140 | 140 | 770 | 530 | 1,300 | Yes |

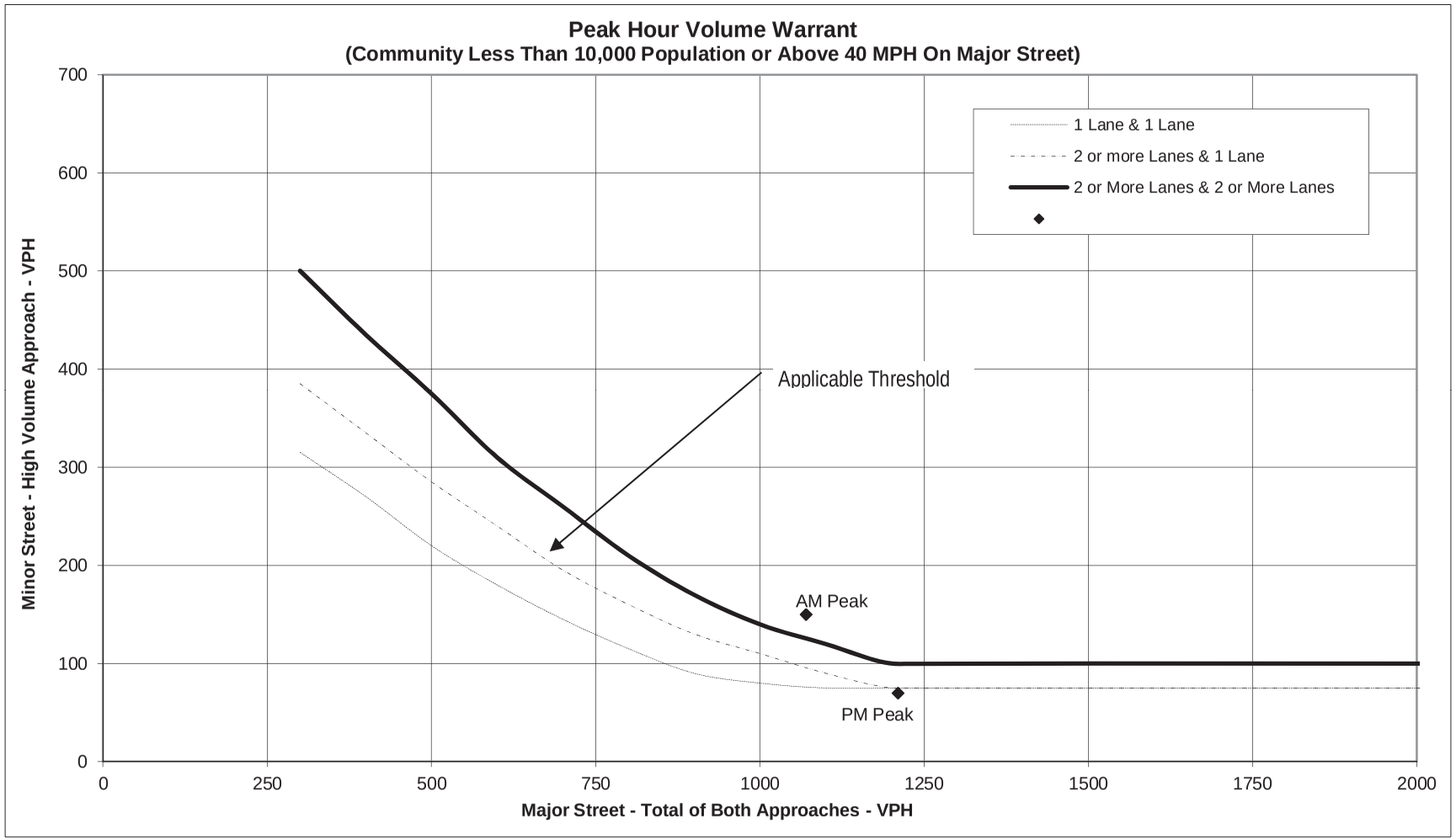



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 123 - Bridge St. & Gilman Springs Rd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Gilman Springs (NB-SB)
Minor Street (Orientation): Bridge St. (EB)

| | Minor Street Approach Volume (Bridge) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 150 | 0 | 150 | 680 | 390 | 1,070 | Yes |
| PM Peak | 70 | 0 | 70 | 400 | 810 | 1,210 | No |

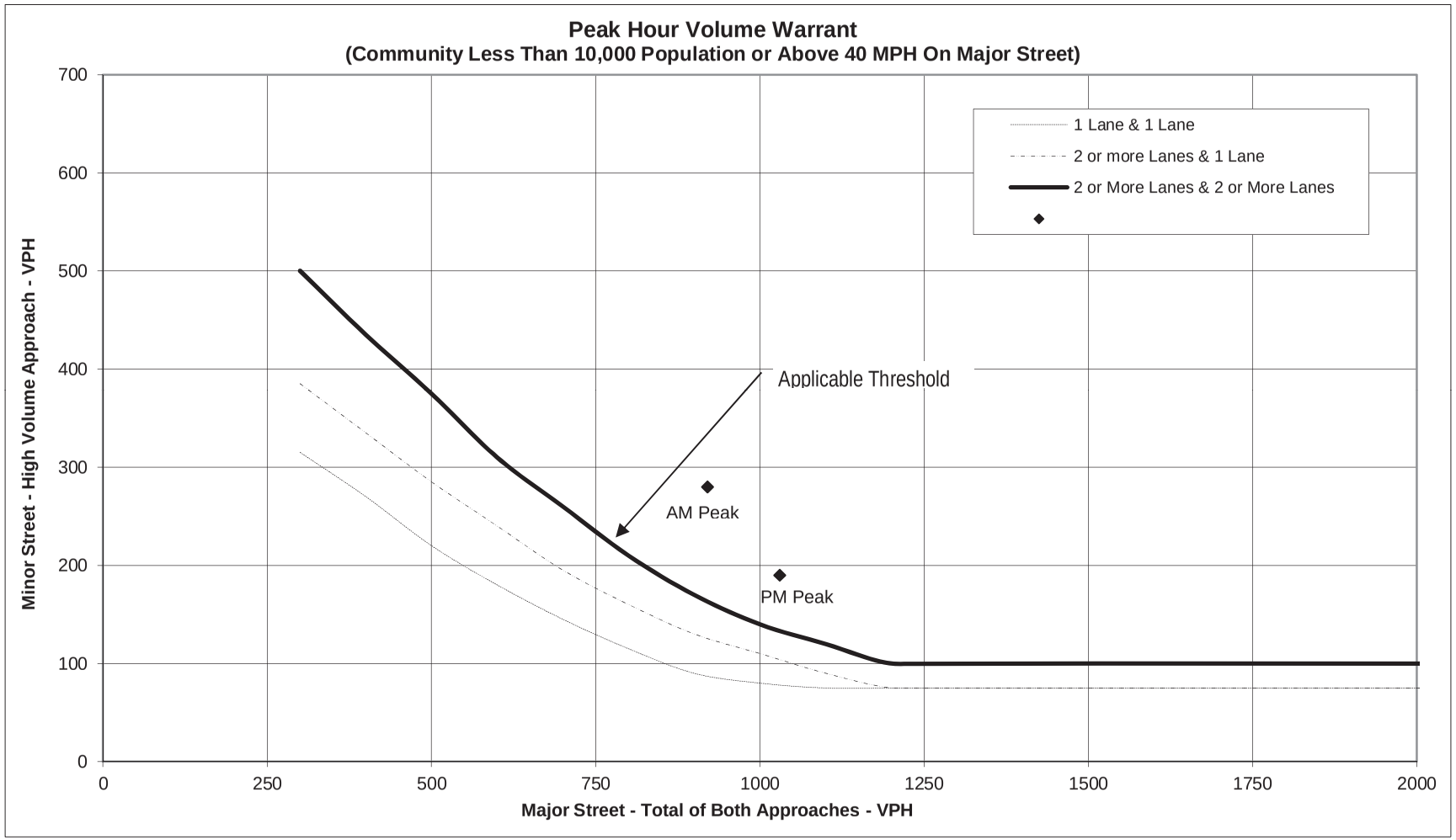



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 124 - Gilman Springs Rd. & SR-79 NB Ramps
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Gilman Springs (EB-WB)
Minor Street (Orientation): SR-79 Ramps (NB)

| | Minor Street Approach Volume (SR-79) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 280 | 0 | 280 | 330 | 590 | 920 | Yes |
| PM Peak | 190 | 0 | 190 | 620 | 410 | 1,030 | Yes |

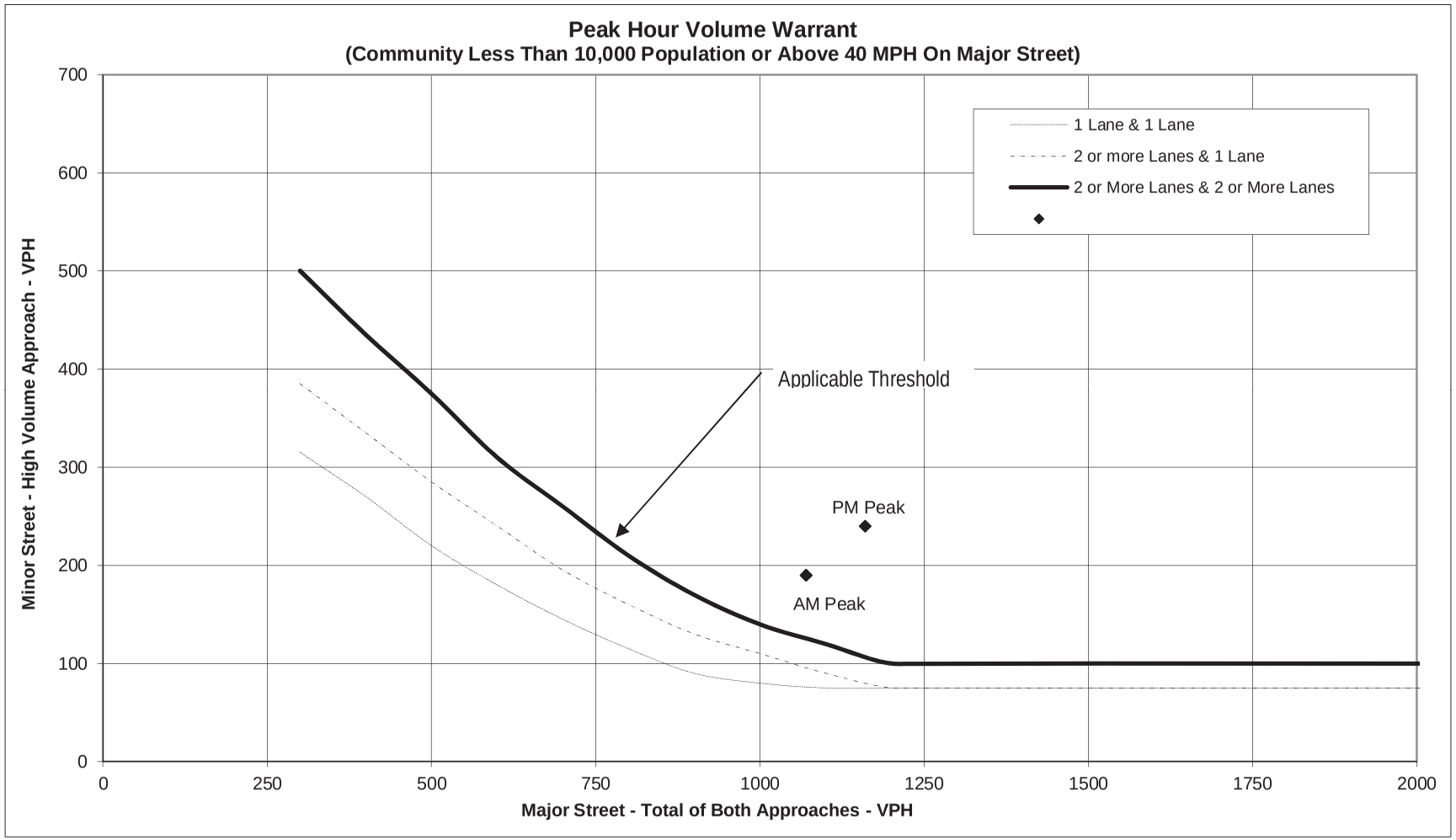



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 125 - Gilman Springs Rd. & SR-79 SB Ramps
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Gilman Springs (EB-WB)
Minor Street (Orientation): SR-79 Ramps (SB)

| | Minor Street Approach Volume (SR-79) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 0 | 190 | 190 | 400 | 670 | 1,070 | Yes |
| PM Peak | 0 | 240 | 240 | 760 | 400 | 1,160 | Yes |

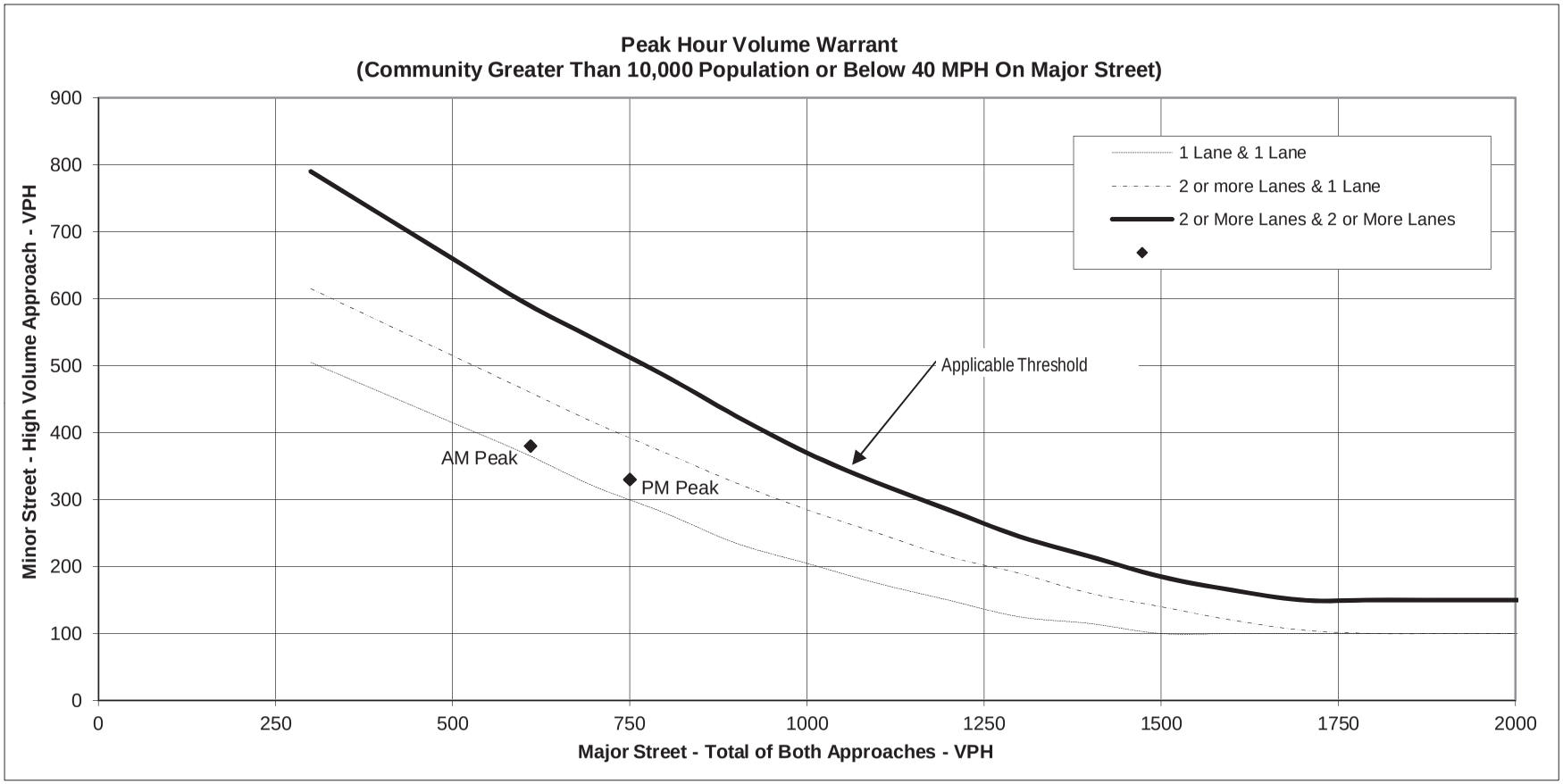



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 129 - 6th st & California Ave.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): 6th St. (EB-WB)
Minor Street (Orientation): California Ave. (NB-SB)

| | Minor Street Approach Volume (California) | | | Major Street Approach Volume (6th St) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 380 | 90 | 380 | 340 | 270 | 610 | No |
| PM Peak | 330 | 60 | 330 | 470 | 280 | 750 | No |

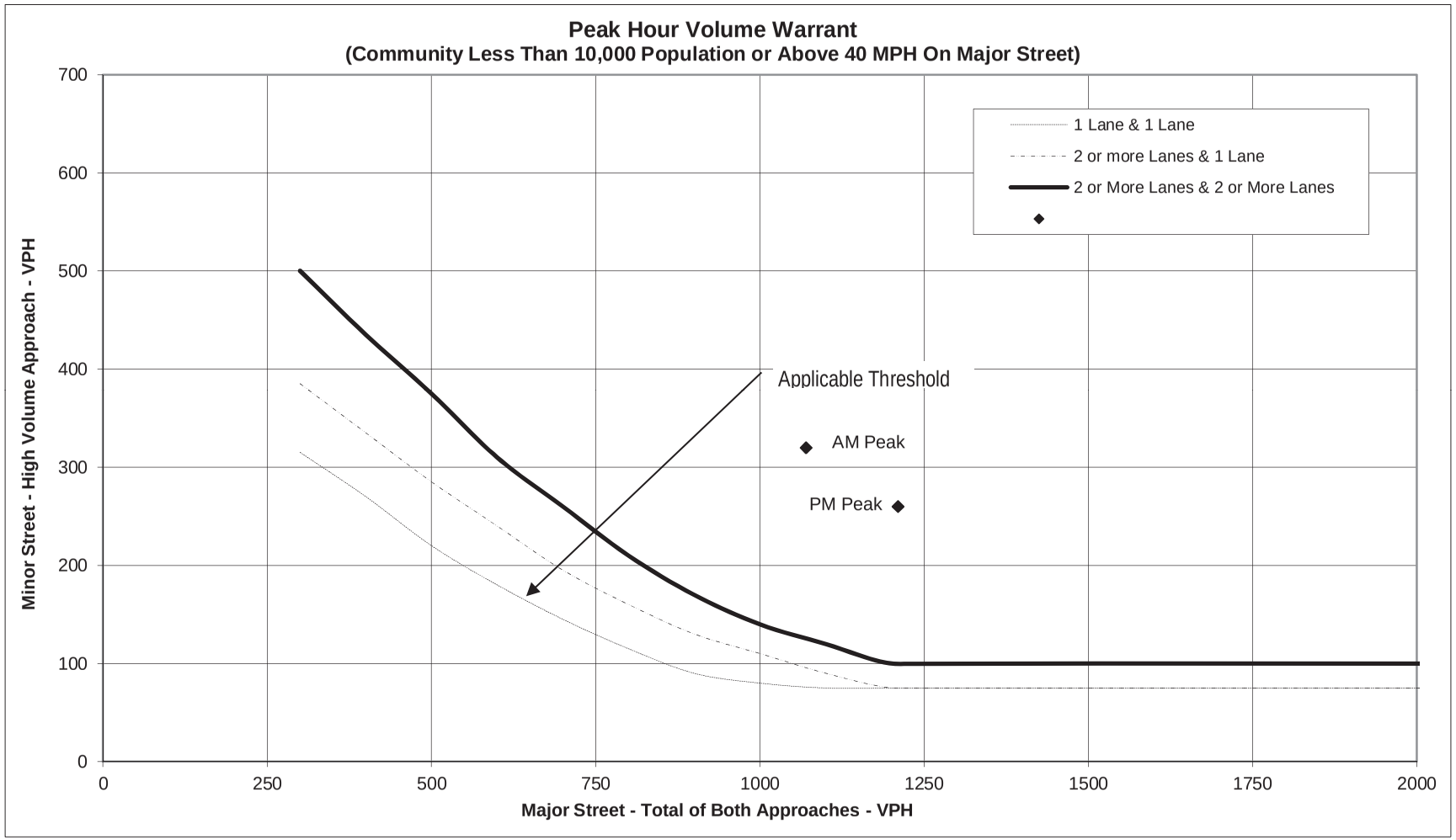



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 132 - San Timoteo Canyon Rd. Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): San Timoteo (EB-WB)
Minor Street (Orientation): Alessandro Rd. (NB-SB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (San Timoteo) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 30 | 320 | 320 | 290 | 780 | 1,070 | Yes |
| PM Peak | 50 | 260 | 260 | 630 | 580 | 1,210 | Yes |

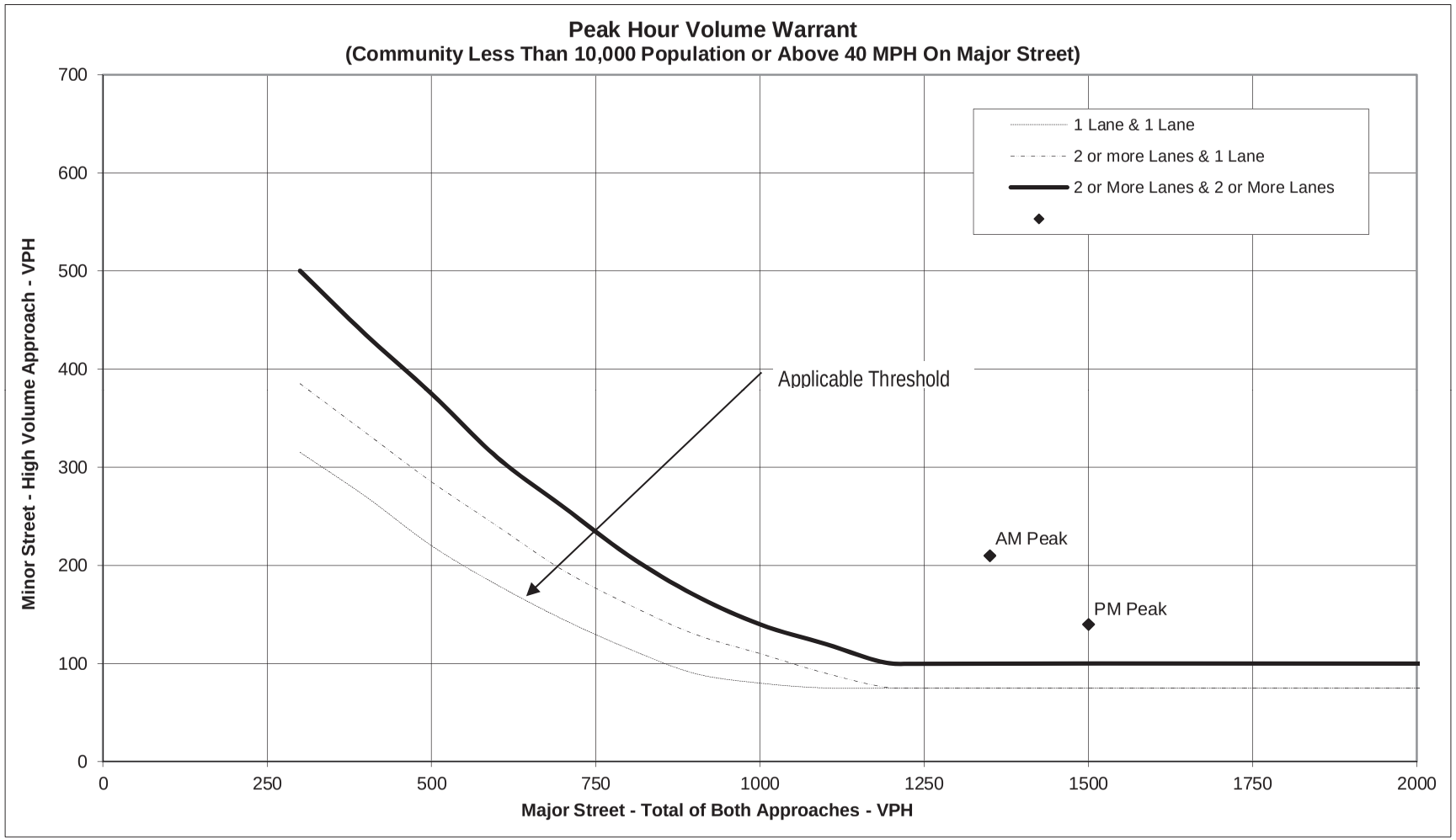



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 133 - Live Oak Canyon & San Timoteo Canyon Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Live Oak (EB-WB)
Minor Street (Orientation): San Timoteo (NB-SB)

| | Minor Street Approach Volume (San Timoteo) | | | Major Street Approach Volume (Live Oak) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 30 | 210 | 210 | 510 | 840 | 1,350 | Yes |
| PM Peak | 30 | 140 | 140 | 780 | 720 | 1,500 | Yes |

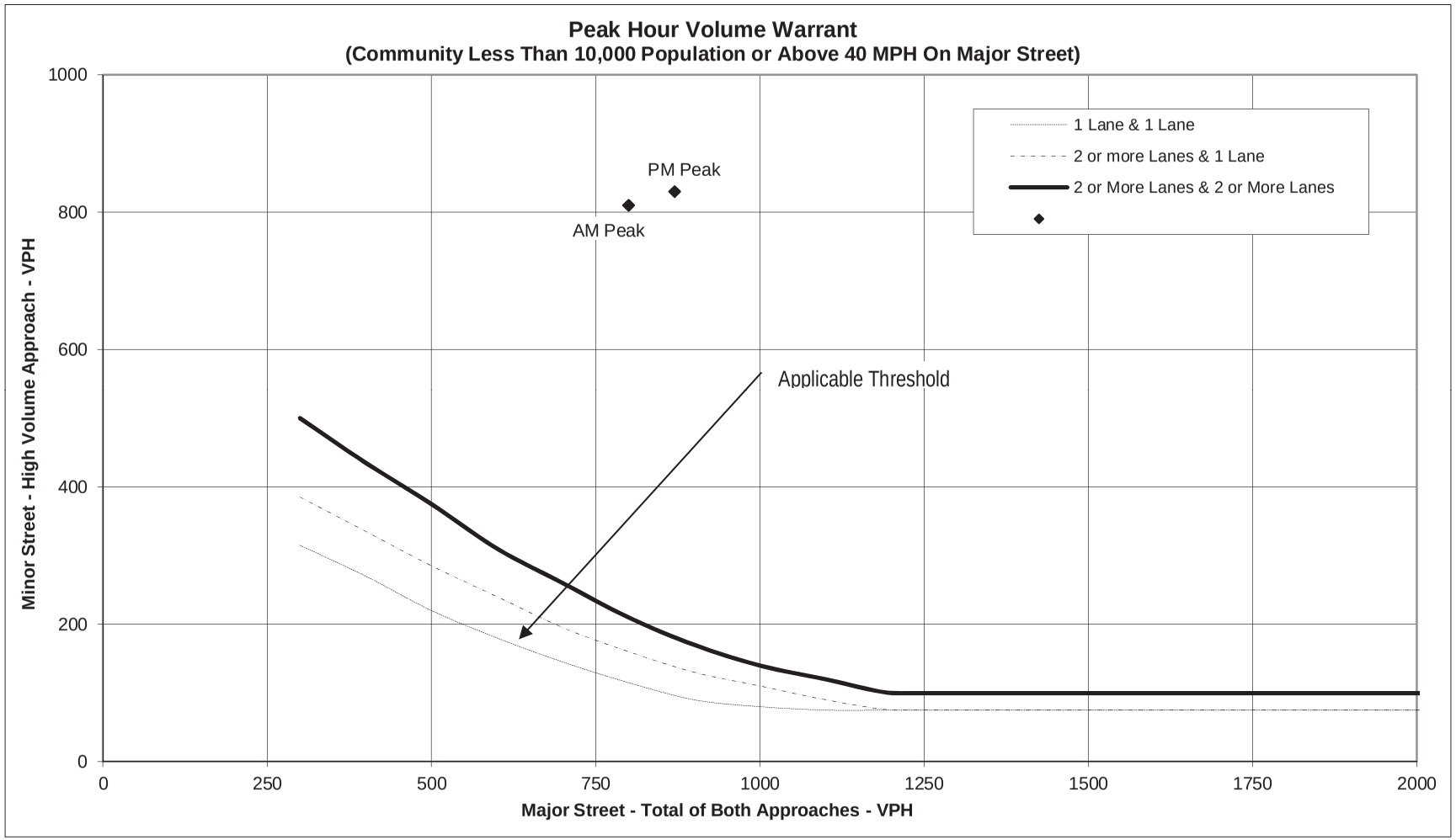



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 134 - San Timoteo Canyon Rd. & Redlands Blvd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): San Timoteo (EB-WB)
Minor Street (Orientation): Redlands Blvd. (NB)

| | Minor Street Approach Volume (Redlands) | | | Major Street Approach Volume (San Timoteo) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 810 | 0 | 810 | 650 | 150 | 800 | Yes |
| PM Peak | 830 | 0 | 830 | 820 | 50 | 870 | Yes |

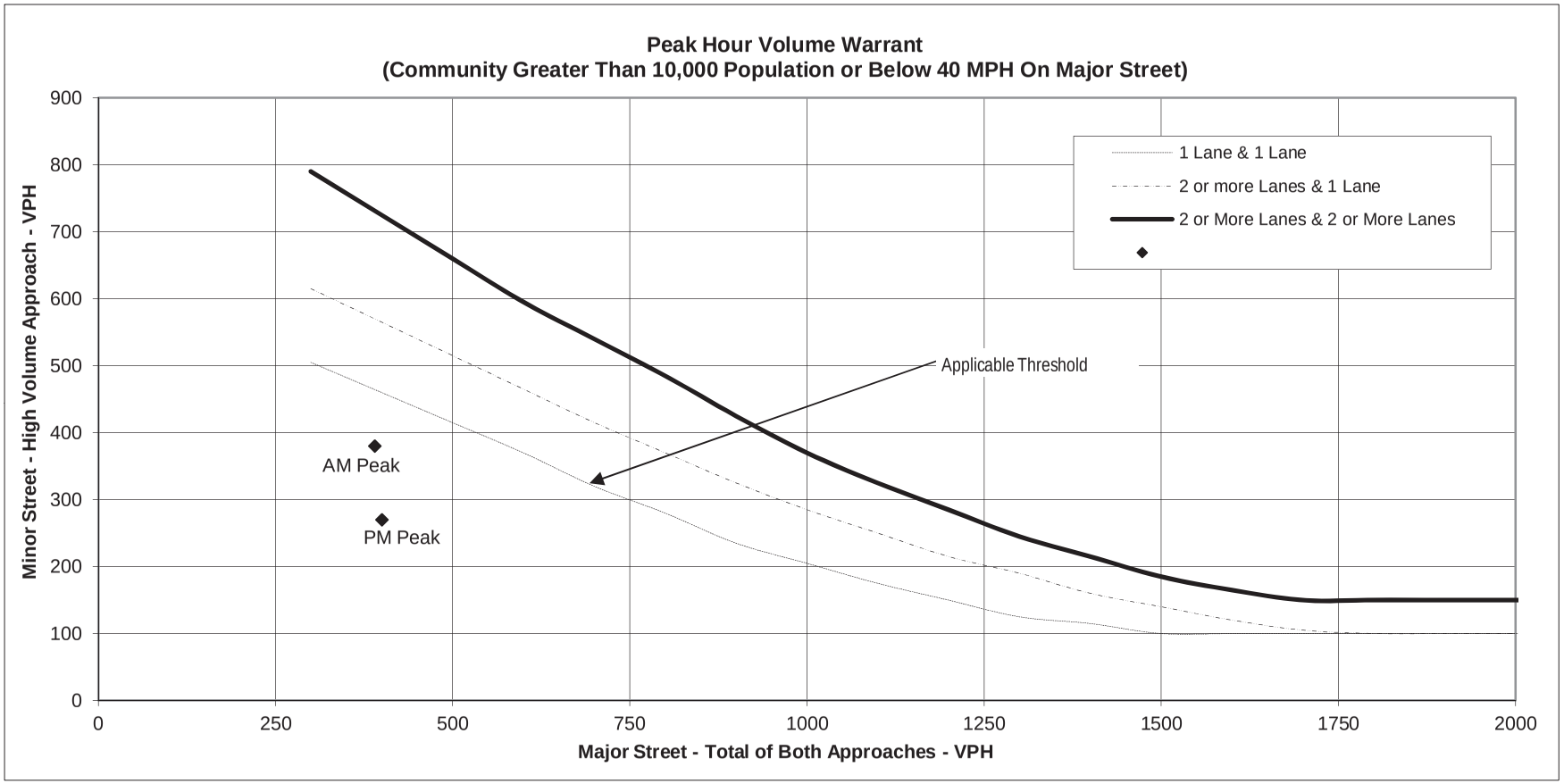



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 135 - Crescent Ave. & Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Crescent Ave. (EB-WB)
Minor Street (Orientation): Alessandro Rd. (NB-SB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Crescent) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 380 | 0 | 380 | 80 | 310 | 390 | No |
| PM Peak | 270 | 0 | 270 | 100 | 300 | 400 | No |

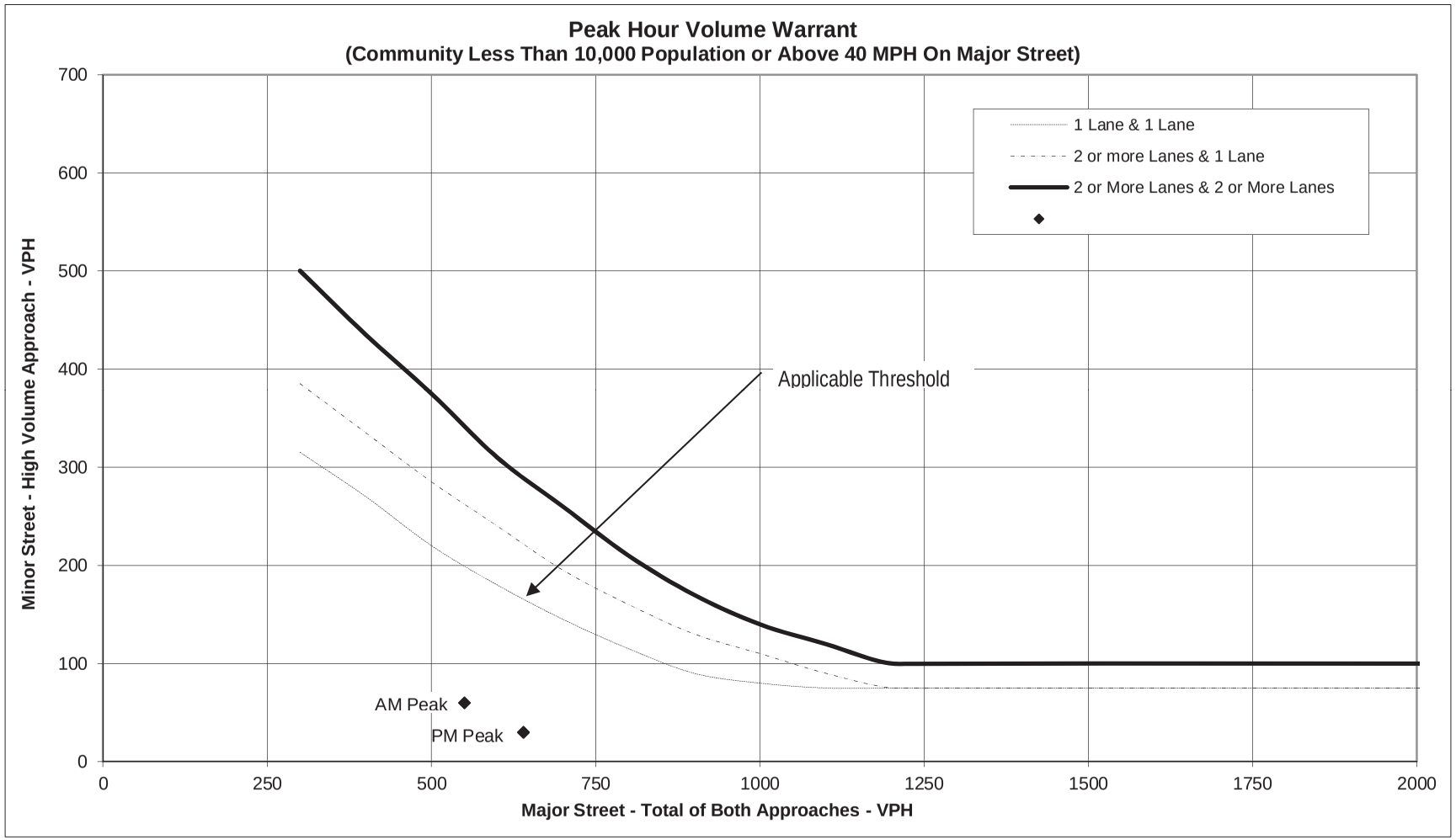



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: Existing Plus Build-out
Intersection: 136 - Sunset Dr. & Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Alessandro (NB-SB)
Minor Street (Orientation): Sunset Dr. (EB-WB)

| | Minor Street Approach Volume (Sunset) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 40 | 60 | 60 | 290 | 260 | 550 | No |
| PM Peak | 30 | 30 | 30 | 300 | 340 | 640 | No |

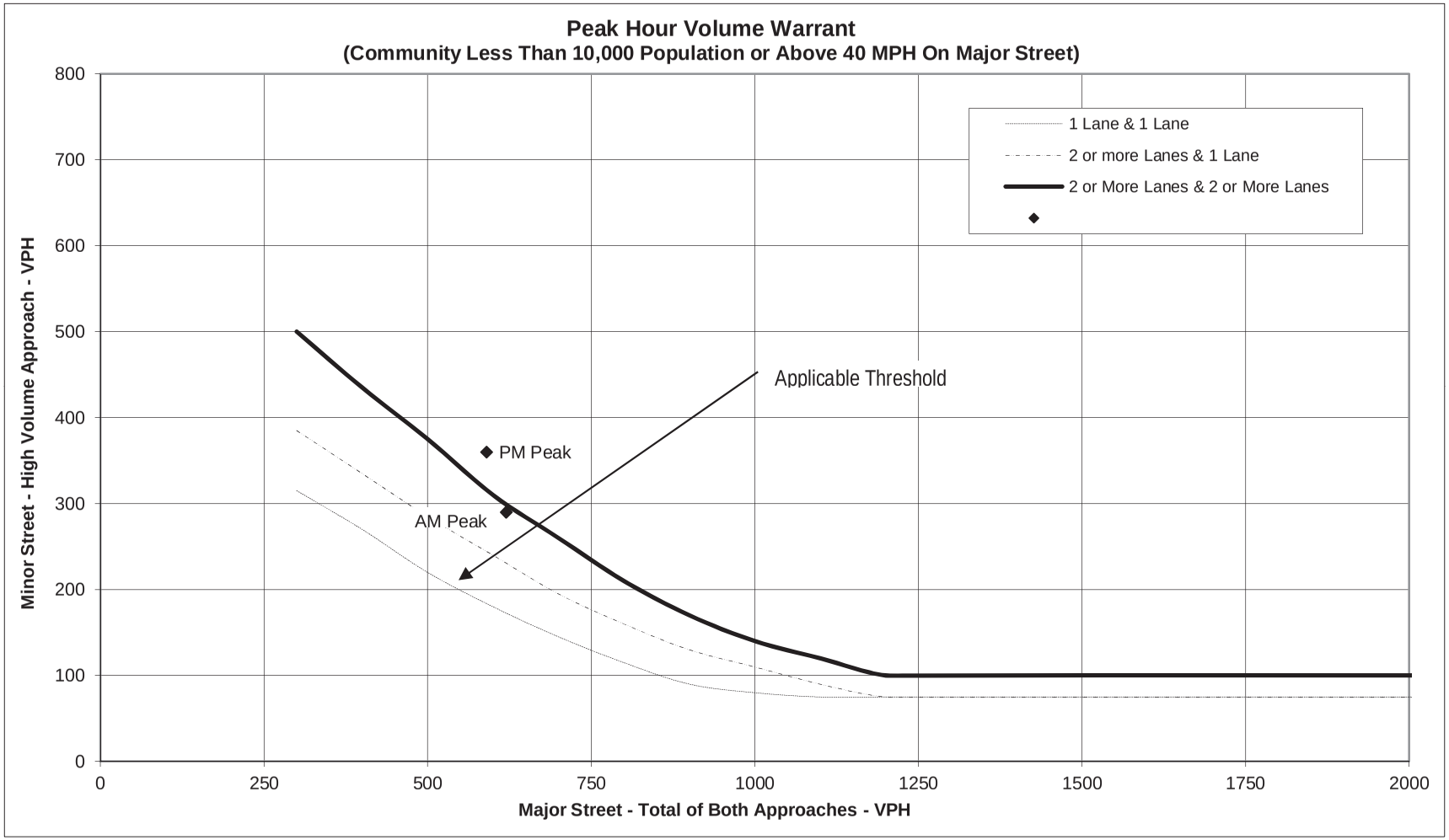



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 3 - Alessandro Blvd & Theodore St
Type: 1 Lane & 1 Lane
Major Street (Orientation): Alessandro Blvd (WB)
Minor Street (Orientation): Theodore St (NB-SB)

| | Minor Street Approach Volume (Theodore) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 0 | 290 | 290 | 310 | 310 | 620 | Yes |
| PM Peak | 0 | 360 | 360 | 460 | 130 | 590 | Yes |

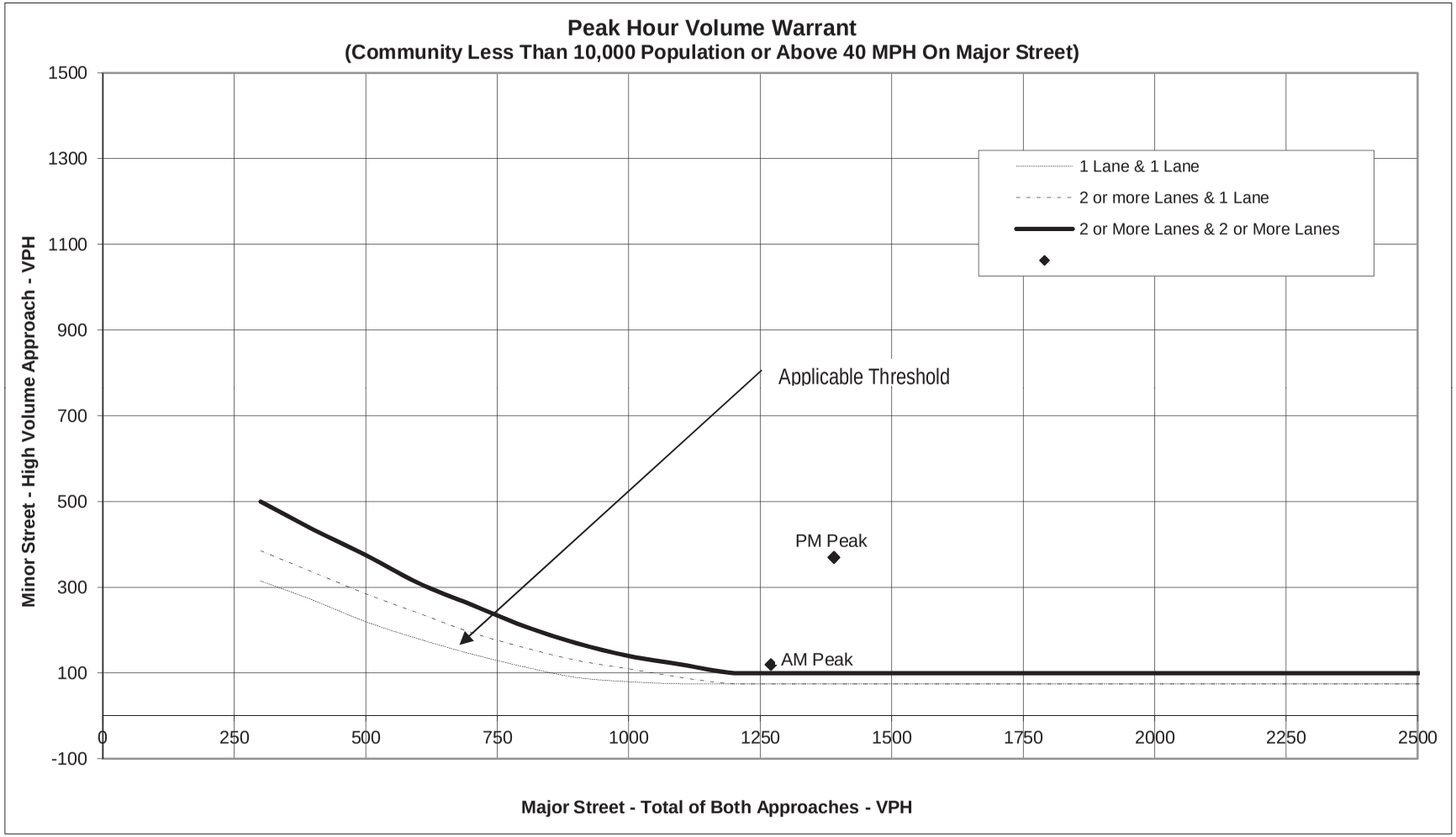



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 6 - Alessandro Blvd & Gilman Springs Rd
Type: 1 Lane & 1 Lane
Major Street (Orientation): Gilman Springs Rd (NB-SB)
Minor Street (Orientation): Alessandro Blvd (EB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Gilman Springs) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 120 | 0 | 120 | 960 | 310 | 1,270 | Yes |
| PM Peak | 370 | 0 | 370 | 430 | 960 | 1,390 | Yes |

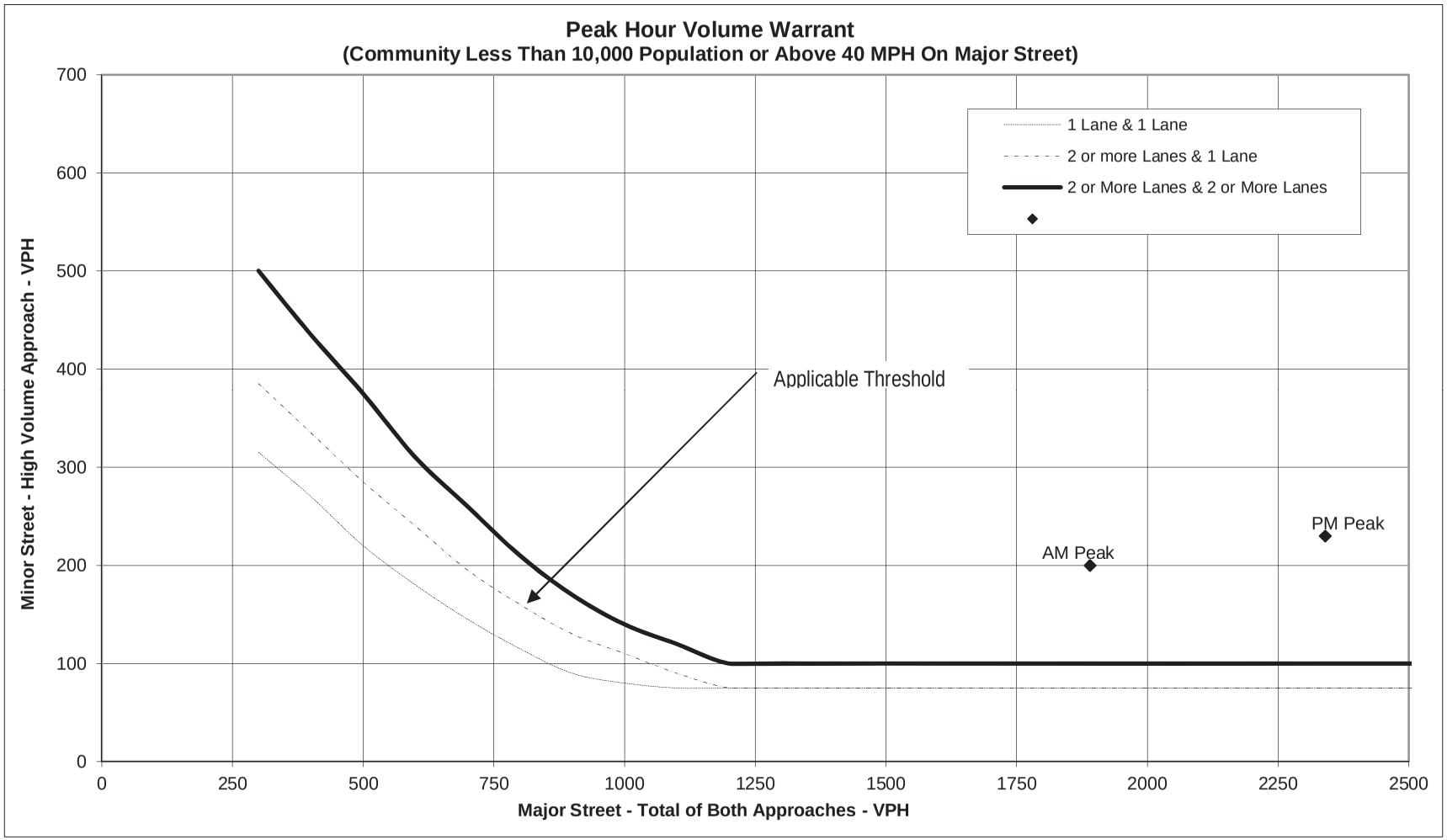



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 10 - Locust Ave & Rredlands Blvd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Redlands Blvd (NB-SB)
Minor Street (Orientation): Locust (EB-WB)

| | Minor Street Approach Volume (Locust) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 200 | 10 | 200 | 1,040 | 850 | 1,890 | Yes |
| PM Peak | 230 | 15 | 230 | 980 | 1,360 | 2,340 | Yes |

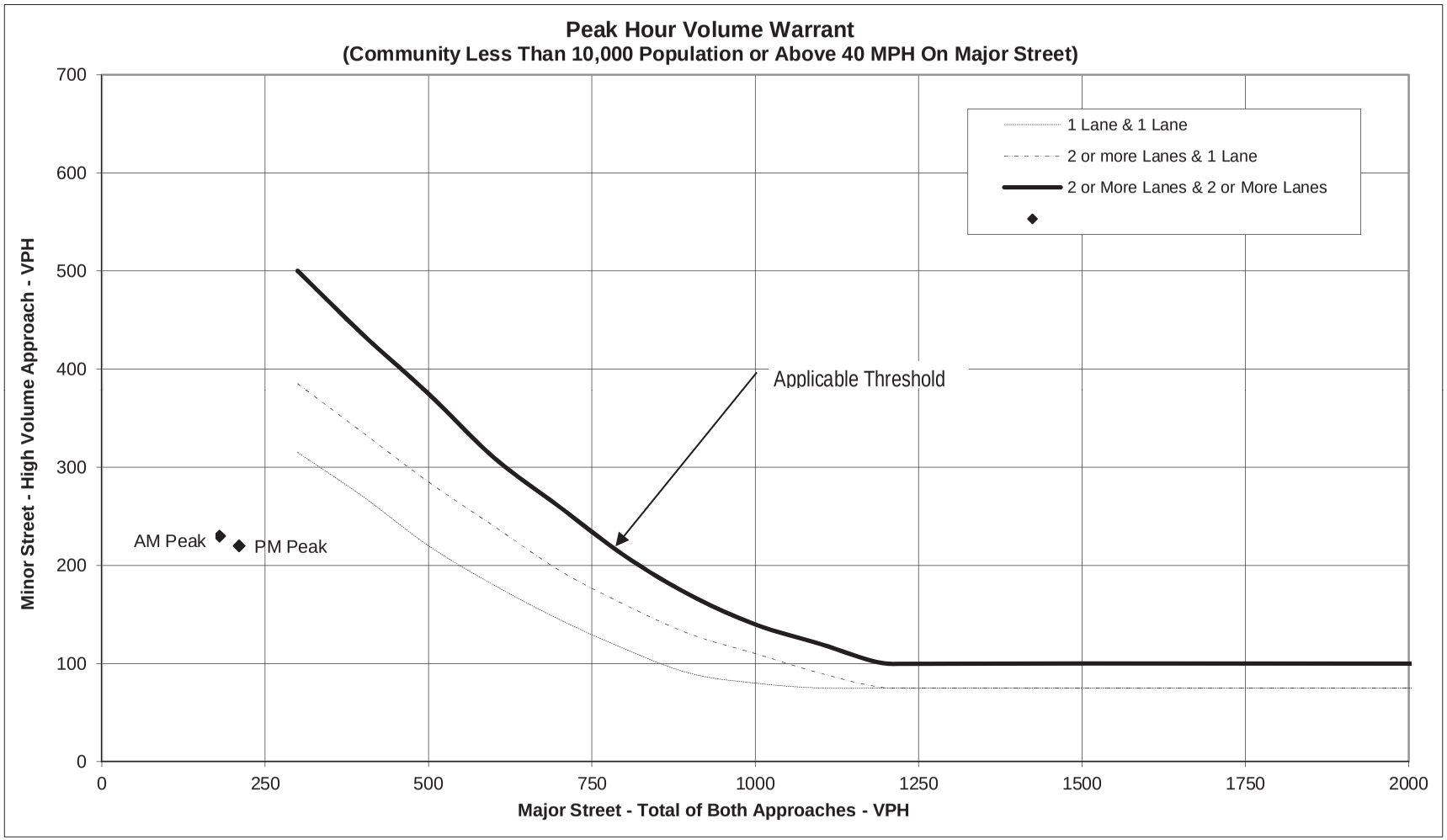



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 12 - Ironwood Ave. & Theodore St
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB)
Minor Street (Orientation): Ironwood Ave (EB-WB)

| | Minor Street Approach Volume (Ironwood) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 230 | 40 | 230 | 180 | 0 | 180 | No |
| PM Peak | 220 | 60 | 220 | 210 | 0 | 210 | No |

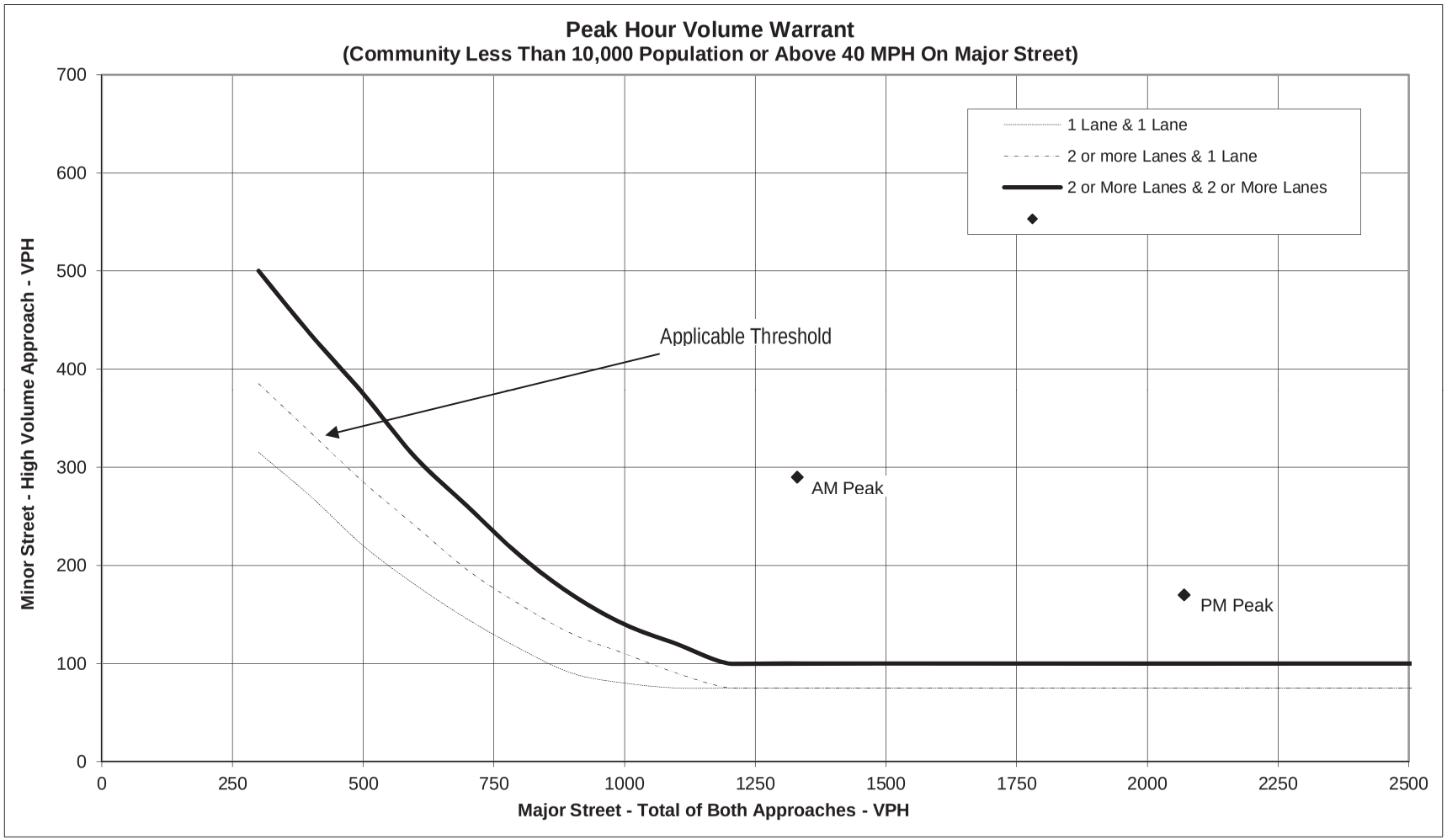



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 13 - SR-60 WB Ramps & Redlands Blvd
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Redlands Blvd (NB-SB)
Minor Street (Orientation): SR-60 WB Ramps (EB-WB)

| | Minor Street Approach Volume (SR-60 WB Ramp | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 20 | 290 | 290 | 660 | 670 | 1,330 | Yes |
| PM Peak | 30 | 170 | 170 | 1,340 | 730 | 2,070 | Yes |

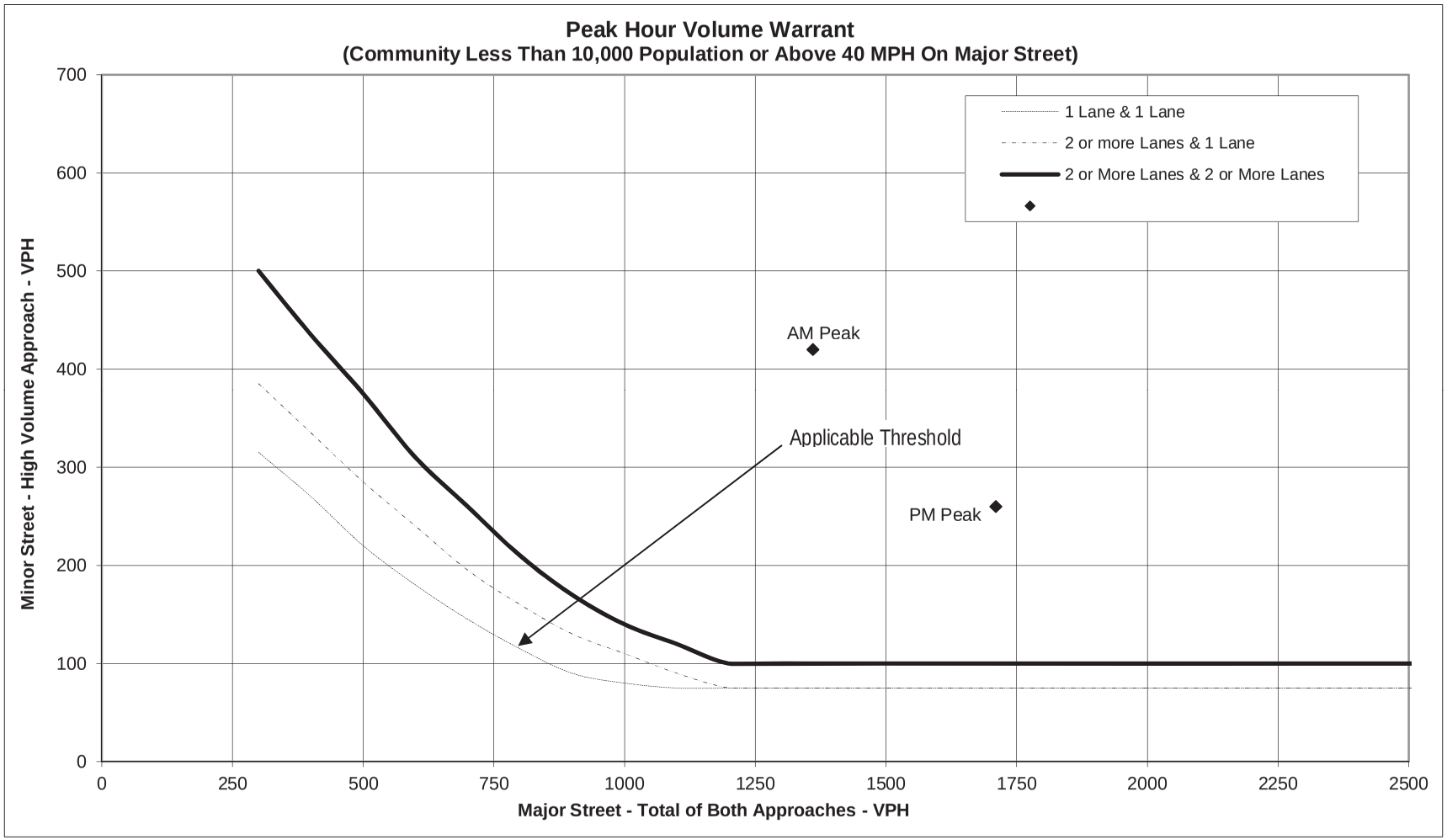



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 15 - SR-60 WB Ramps & Theodore St.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): SR-60 WB Ramps (WB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 420 | 0 | 420 | 1,090 | 270 | 1,360 | Yes |
| PM Peak | 260 | 0 | 260 | 1,470 | 240 | 1,710 | Yes |

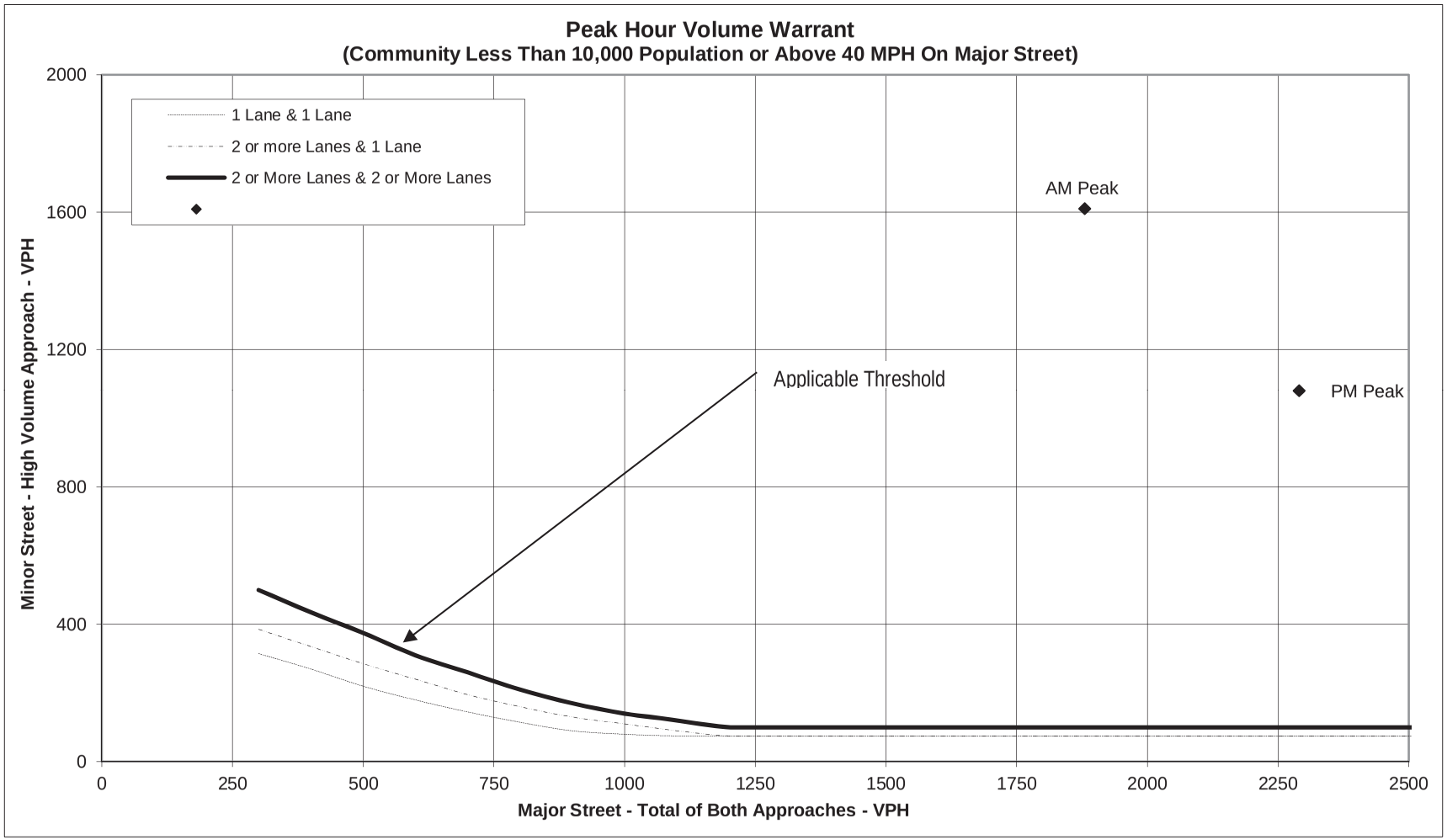



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 16 - SR-60 EB Ramps & Theodore St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): SR-60 EB Ramps (EB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 1,610 | 0 | 1,610 | 1,280 | 600 | 1,880 | Yes |
| PM Peak | 1,080 | 0 | 1,080 | 1,880 | 410 | 2,290 | Yes |

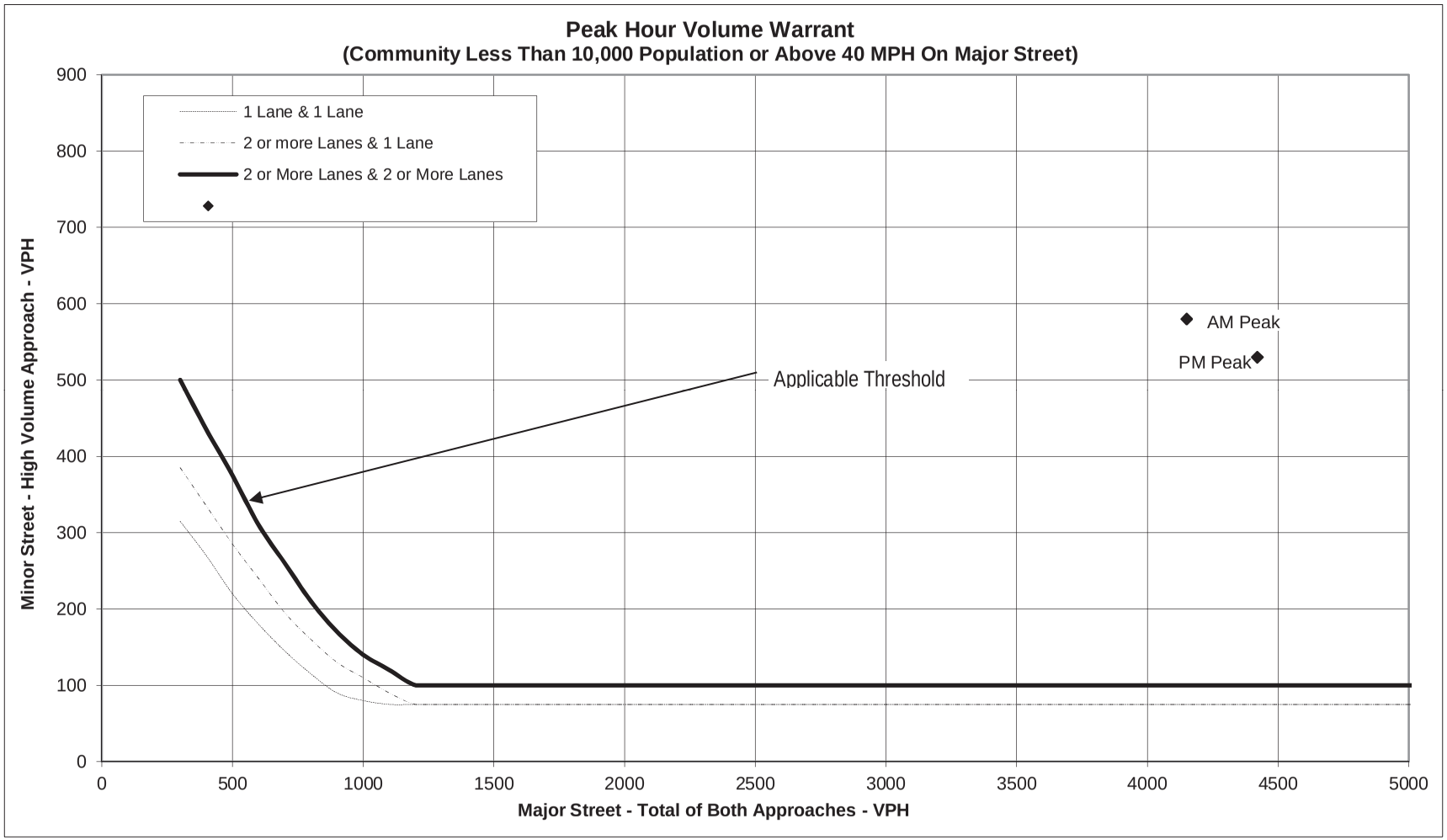



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 19 - Eucalyptus Ave & Theodore St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): Eucalyptus Ave (EB)

| | Minor Street Approach Volume (Eucalyptus Ave | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 530 | 0 | 530 | 2,350 | 2,070 | 4,420 | Yes |
| PM Peak | 580 | 0 | 580 | 2,330 | 1,820 | 4,150 | Yes |

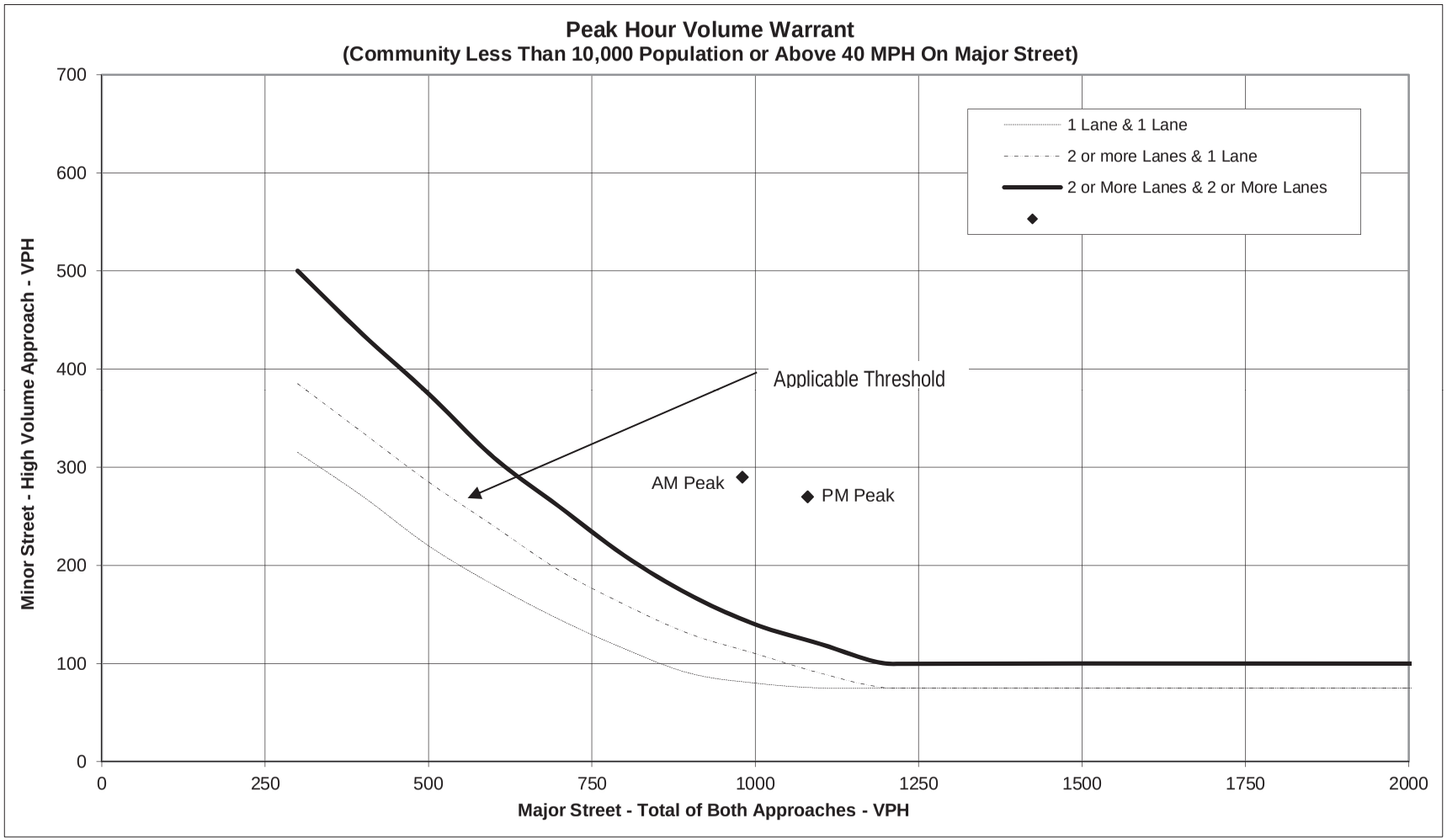



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 20 - Alessandro Blvd. & Oliver St.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Alessandro Blvd (EB-WB)
Minor Street (Orientation): Oliver St (NB-SB)

| | Minor Street Approach Volume (Oliver St) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 290 | 0 | 290 | 420 | 560 | 980 | Yes |
| PM Peak | 270 | 0 | 270 | 640 | 440 | 1,080 | Yes |

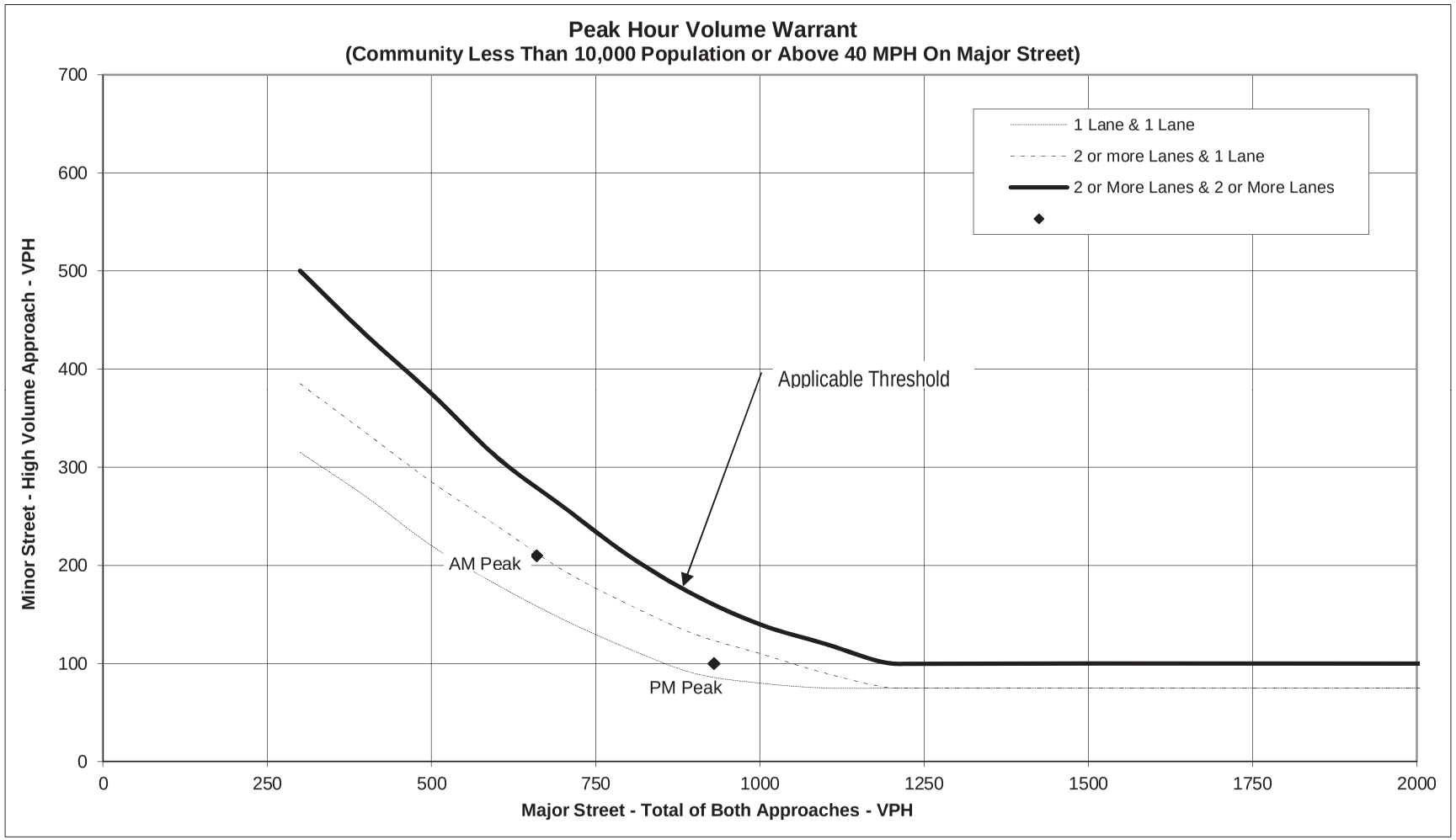



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 23 - Alessandro Blvd. & Redlands Blvd
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Redlands (NB-SB)
Minor Street (Orientation): Alessandro Blvd (EB-WB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 210 | 30 | 210 | 400 | 260 | 660 | No |
| PM Peak | 100 | 30 | 100 | 470 | 460 | 930 | No |

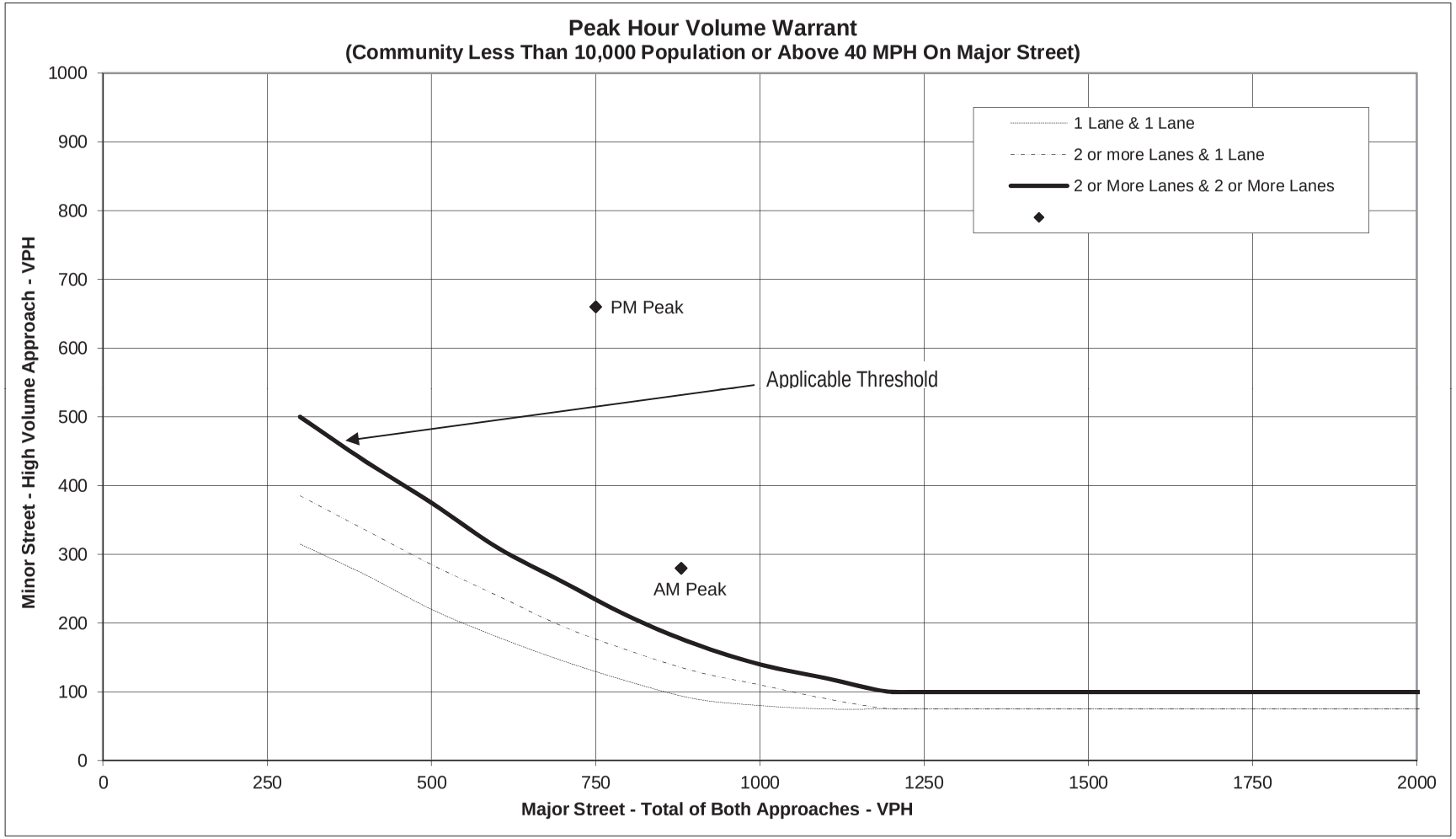



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 27 - Cactus Ave. & Redlands Blvd
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Redlands Blvd. (NB-SB)
Minor Street (Orientation): Cactus Ave. (EB-WB)

| | Minor Street Approach Volume (Cactus) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 260 | 280 | 280 | 520 | 360 | 880 | Yes |
| PM Peak | 240 | 660 | 660 | 410 | 340 | 750 | Yes |

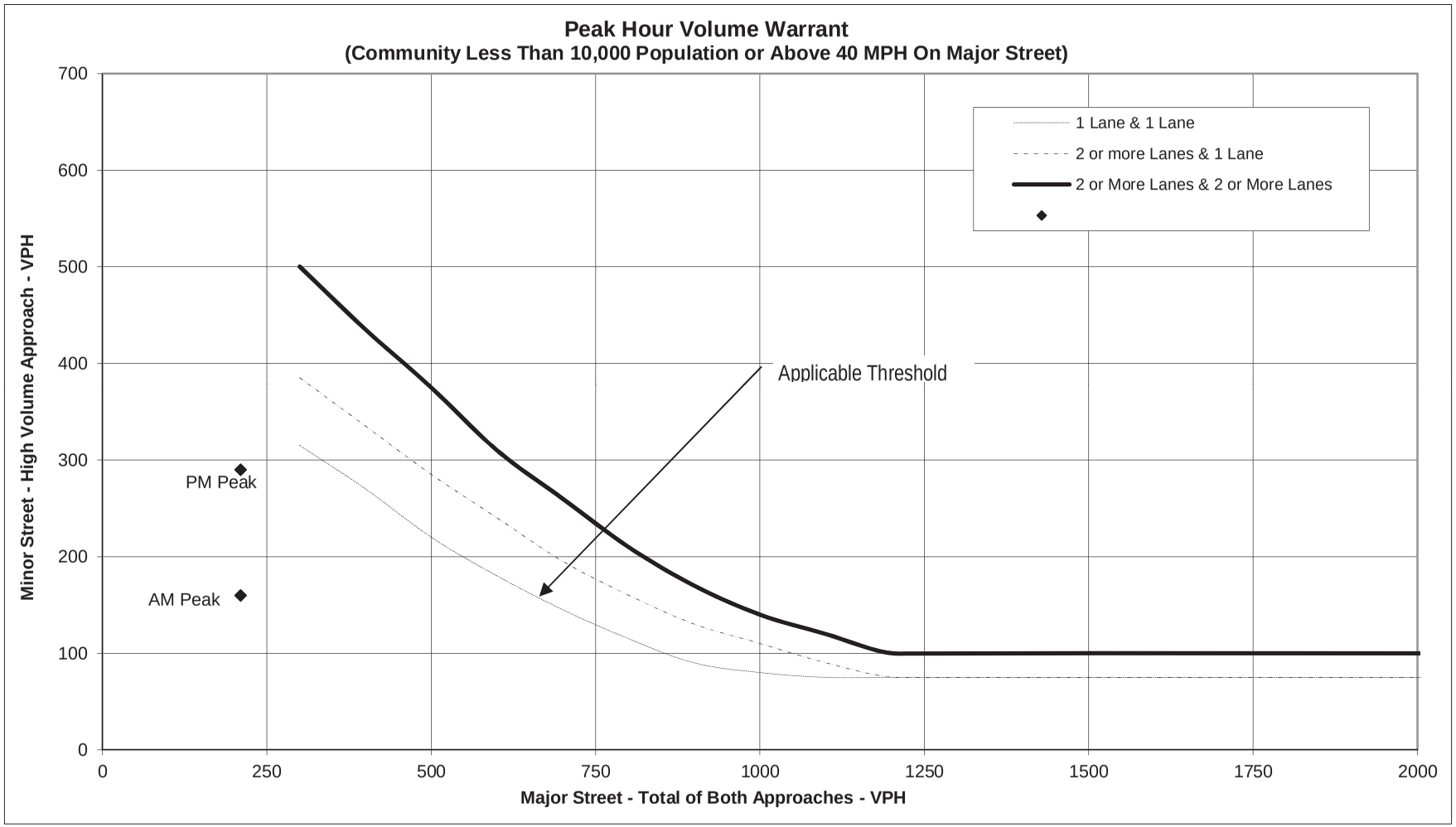



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 35 - Locust Ave & Moreno Beach Dr
Type: 1 Lane & 1 Lane
Major Street (Orientation): Locust Ave (EB-WB)
Minor Street (Orientation): Moreno Beach Dr. (NB)

| | Minor Street Approach Volume (Moreno Beach) | | | Major Street Approach Volume (Locust) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 160 | 0 | 160 | 20 | 190 | 210 | No |
| PM Peak | 290 | 0 | 290 | 20 | 190 | 210 | No |

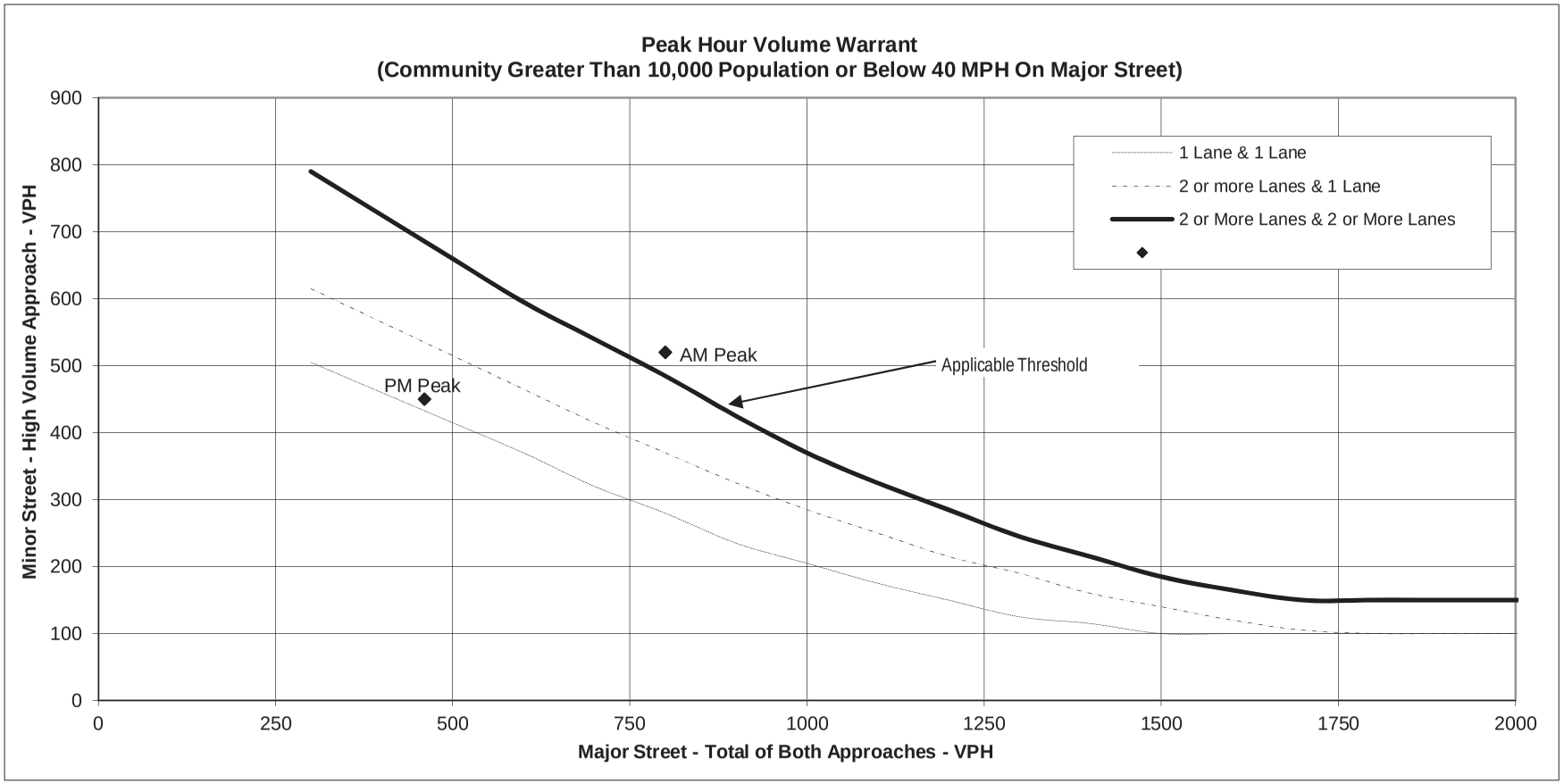



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 85 - Martin Luther King Blvd. & SR-60 WB on Ramp
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Martin Luther King (EB)
Minor Street (Orientation): SR-60. (NB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (MLK) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 520 | 0 | 520 | 800 | 0 | 800 | Yes |
| PM Peak | 450 | 0 | 450 | 460 | 0 | 460 | No |

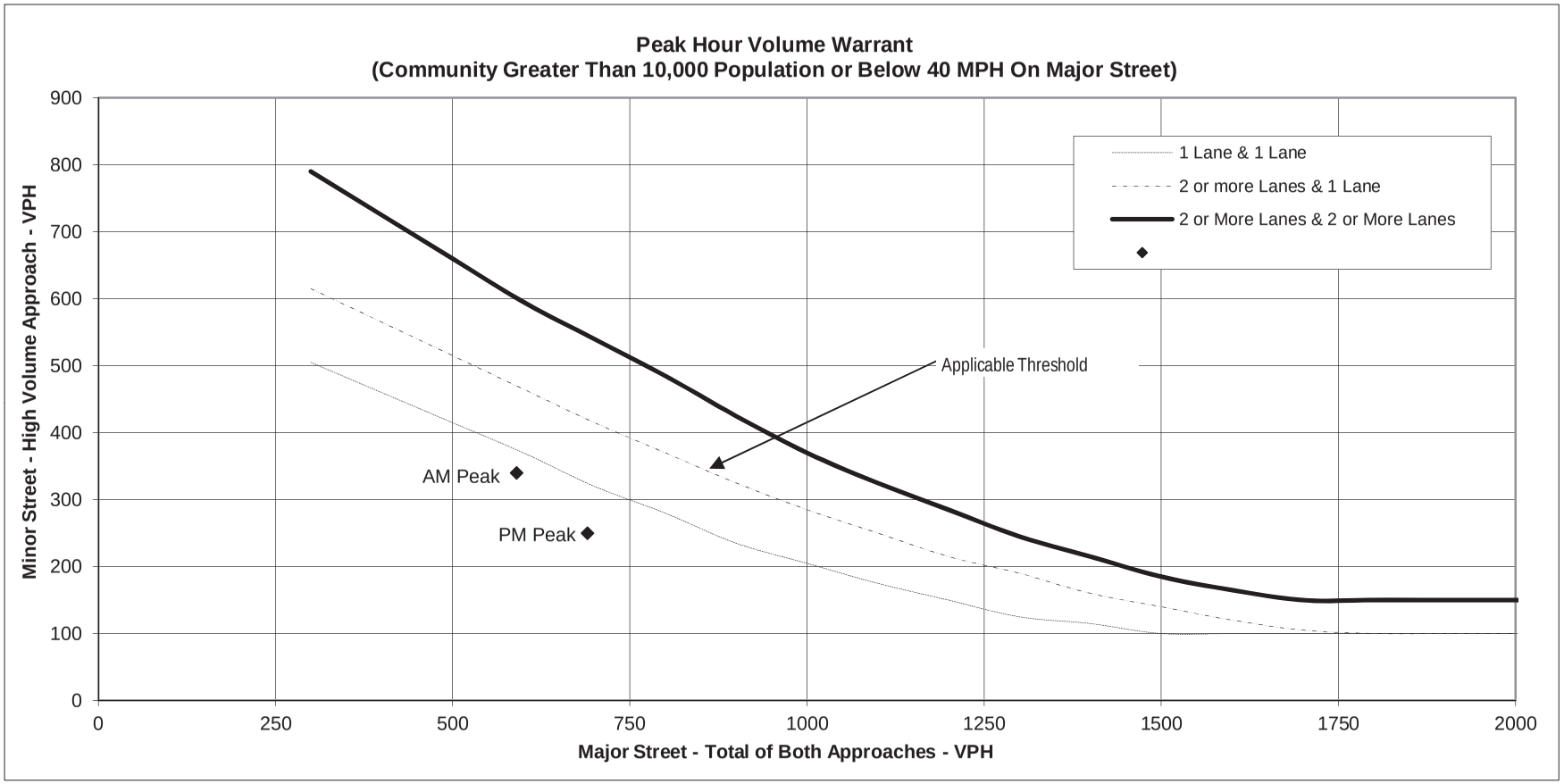



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 114 - Orange Ave. & Evans Rd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Evans Rd. (NB-SB)
Minor Street (Orientation): Orange Ave. (EB-WB)

| | Minor Street Approach Volume (Orange) | | | Major Street Approach Volume (Evans) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 340 | 280 | 340 | 360 | 230 | 590 | No |
| PM Peak | 250 | 160 | 250 | 300 | 390 | 690 | No |

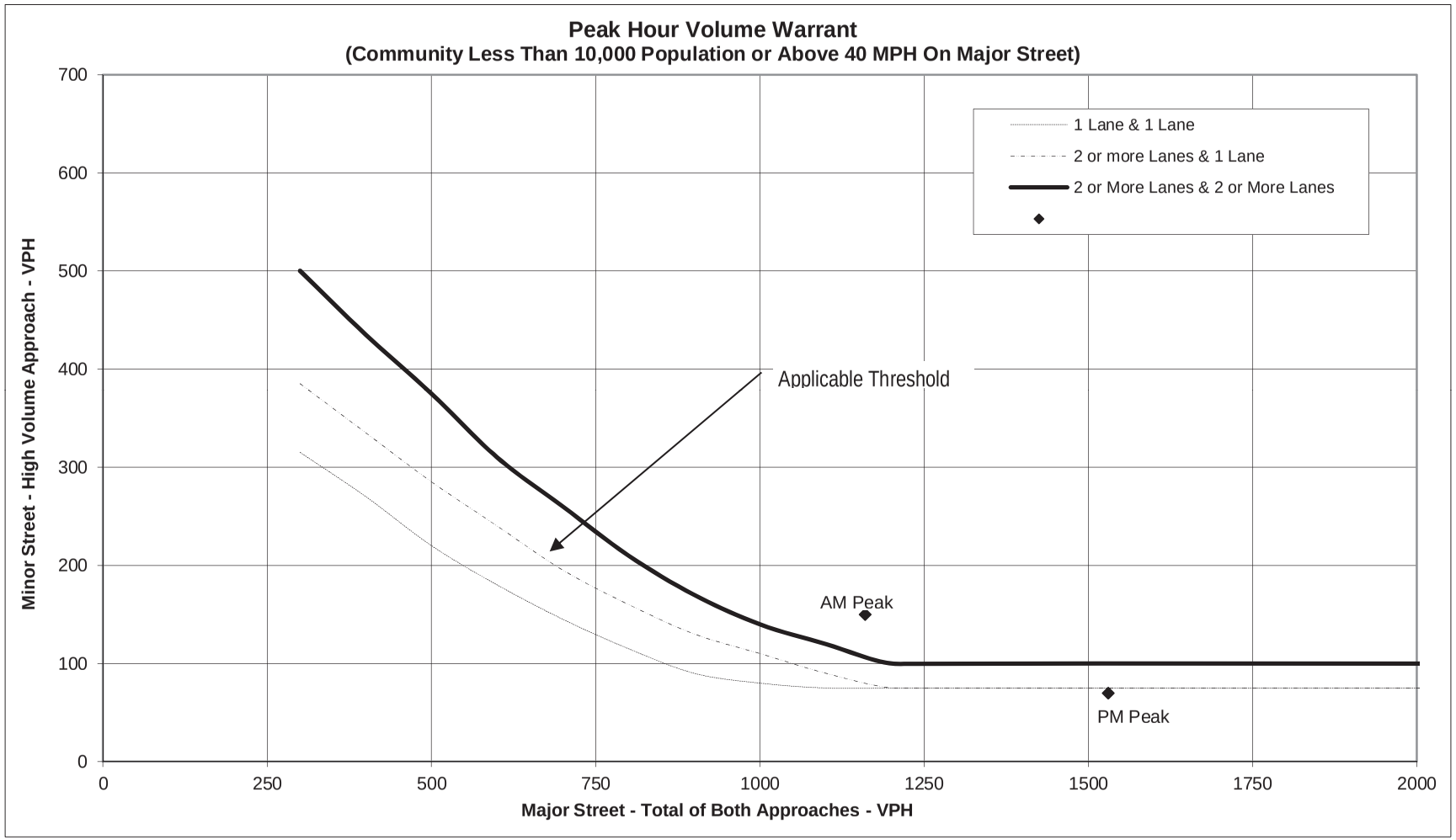



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 123 - Bridge St. & Gilman Springs Rd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Gilman Springs (NB-SB)
Minor Street (Orientation): Bridge St. (EB)

| | Minor Street Approach Volume (Bridge) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 150 | 0 | 150 | 760 | 400 | 1,160 | Yes |
| PM Peak | 70 | 0 | 70 | 400 | 1,130 | 1,530 | No |

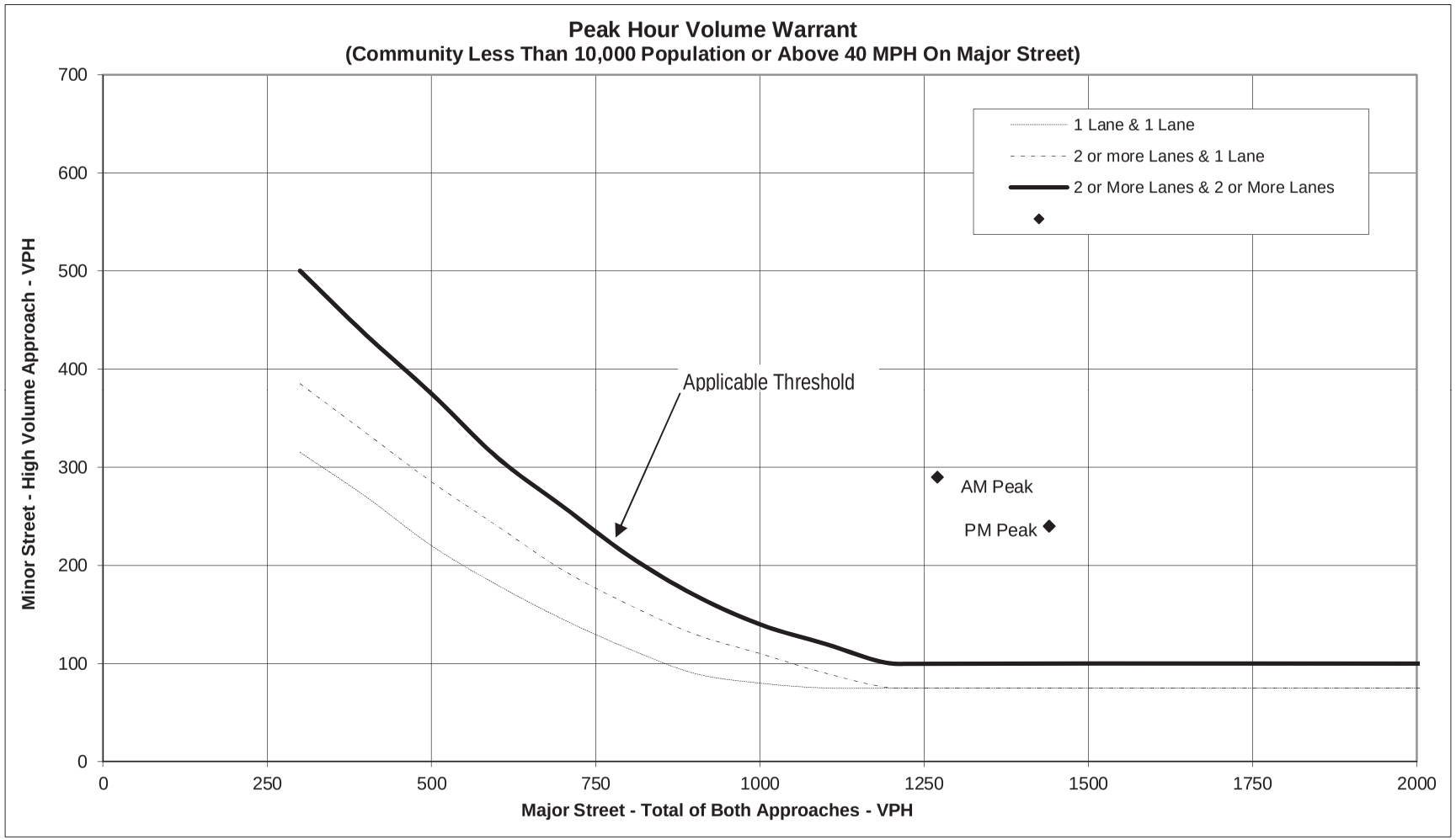



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 124 - Gilman Springs Rd. & SR-79 NB Ramps
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Gilman Springs (EB-WB)
Minor Street (Orientation): SR-79 Ramps (NB)

| | Minor Street Approach Volume (SR-79) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 290 | 0 | 290 | 580 | 690 | 1,270 | Yes |
| PM Peak | 240 | 0 | 240 | 780 | 660 | 1,440 | Yes |

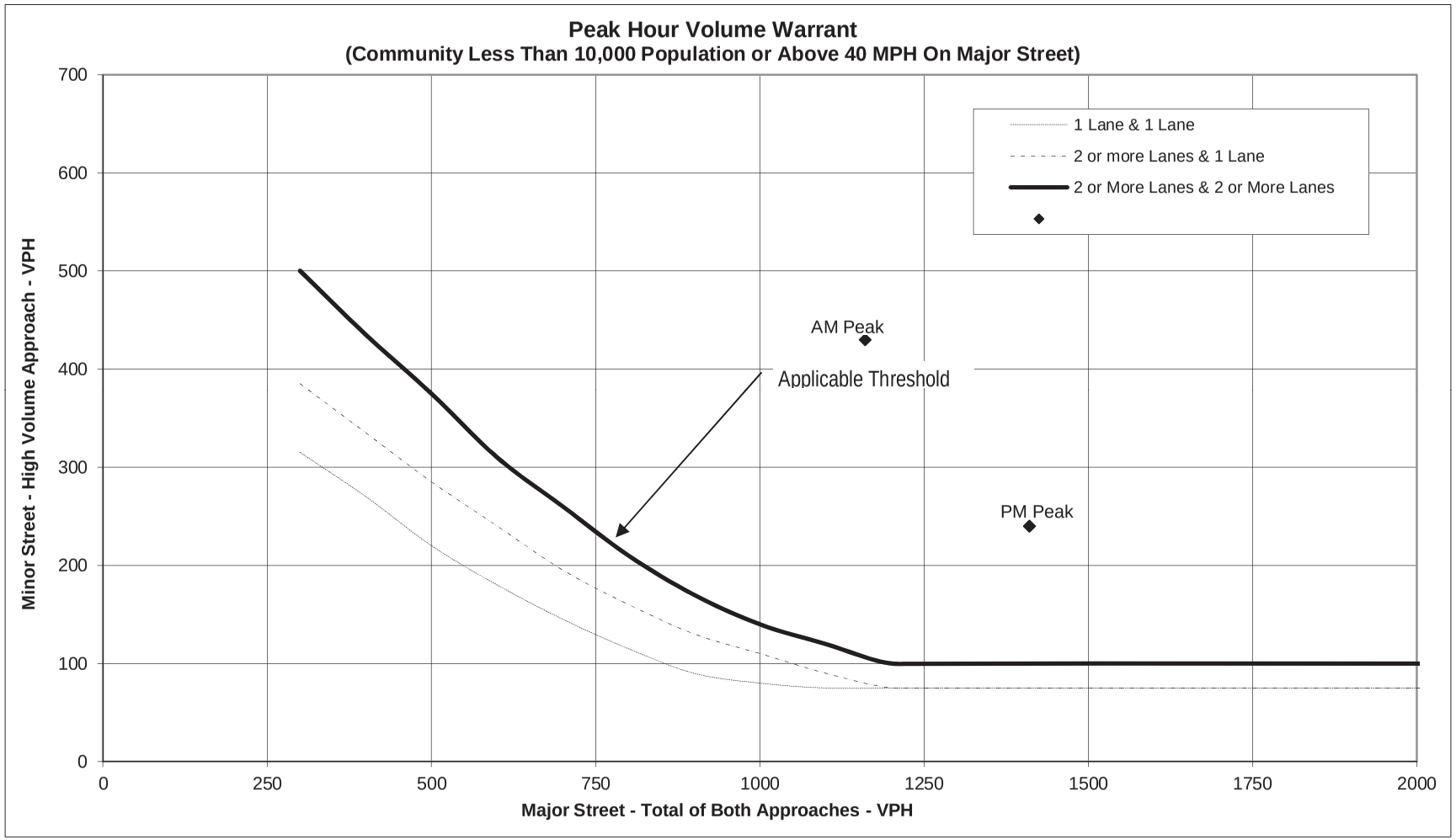



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 125 - Gilman Springs Rd. & SR-79 SB Ramps
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Gilman Springs (EB-WB)
Minor Street (Orientation): SR-79 Ramps (SB)

| | Minor Street Approach Volume (SR-79) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 0 | 430 | 430 | 410 | 750 | 1,160 | Yes |
| PM Peak | 0 | 240 | 240 | 1,010 | 400 | 1,410 | Yes |

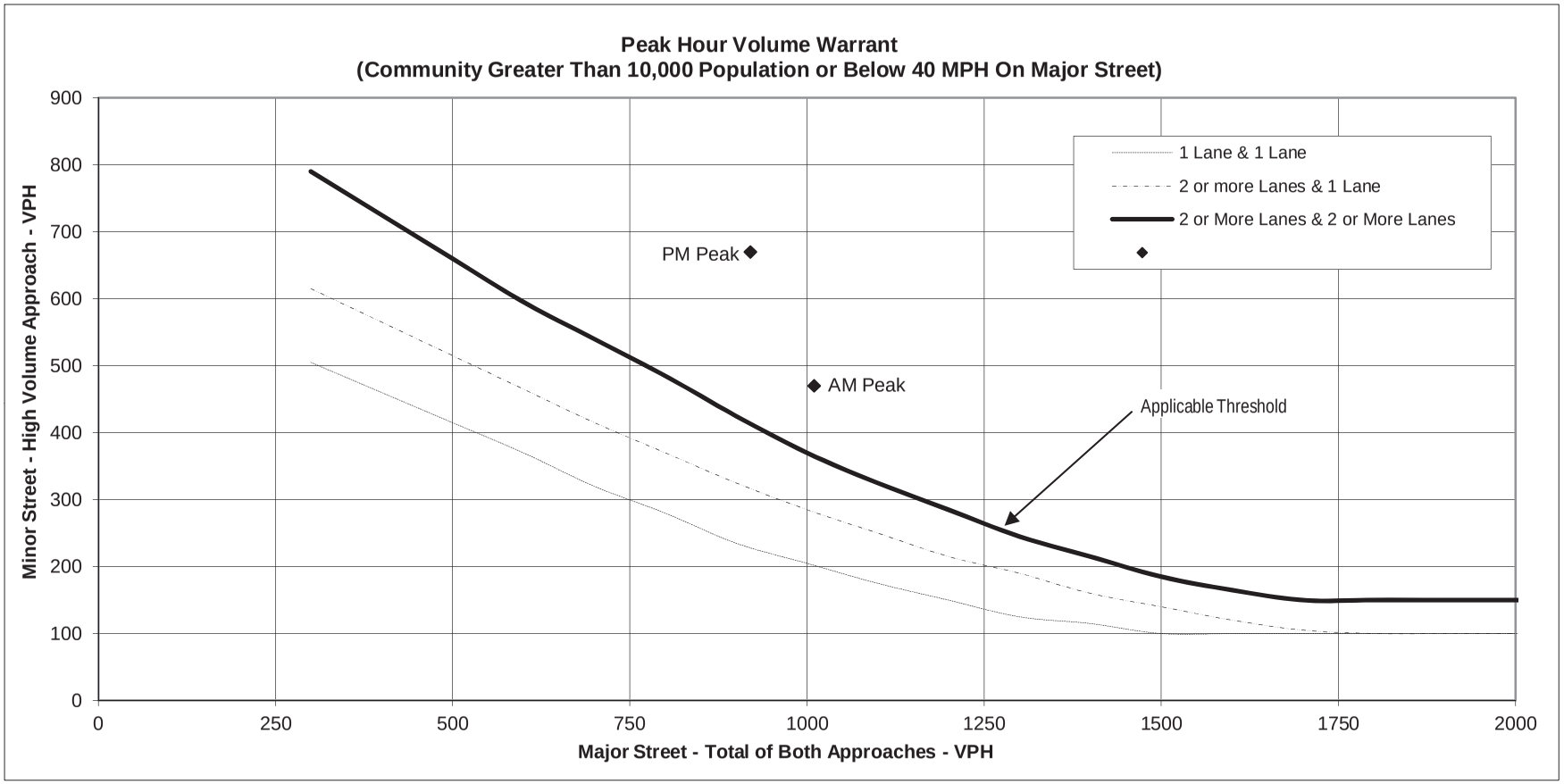



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 129 - 6th st & California Ave.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): 6th St. (EB-WB)
Minor Street (Orientation): California Ave. (NB-SB)

| | Minor Street Approach Volume (California) | | | Major Street Approach Volume (6th St) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 470 | 250 | 470 | 640 | 370 | 1,010 | Yes |
| PM Peak | 670 | 210 | 670 | 470 | 450 | 920 | Yes |

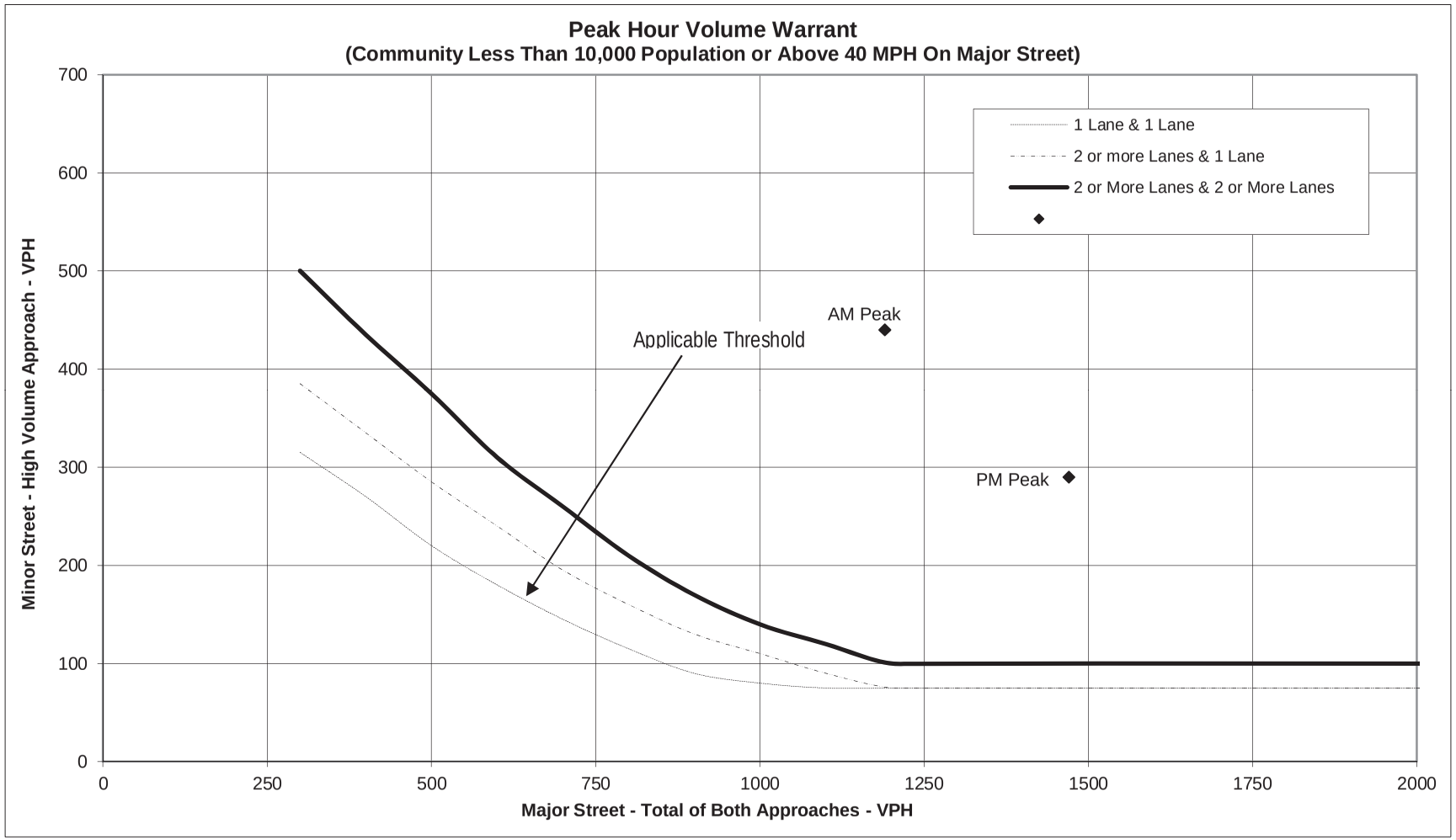



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 132 - San Timoteo Canyon Rd. Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): San Timoteo (EB-WB)
Minor Street (Orientation): Alessandro Rd. (NB-SB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (San Timoteo) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 30 | 440 | 440 | 320 | 870 | 1,190 | Yes |
| PM Peak | 50 | 290 | 290 | 730 | 740 | 1,470 | Yes |

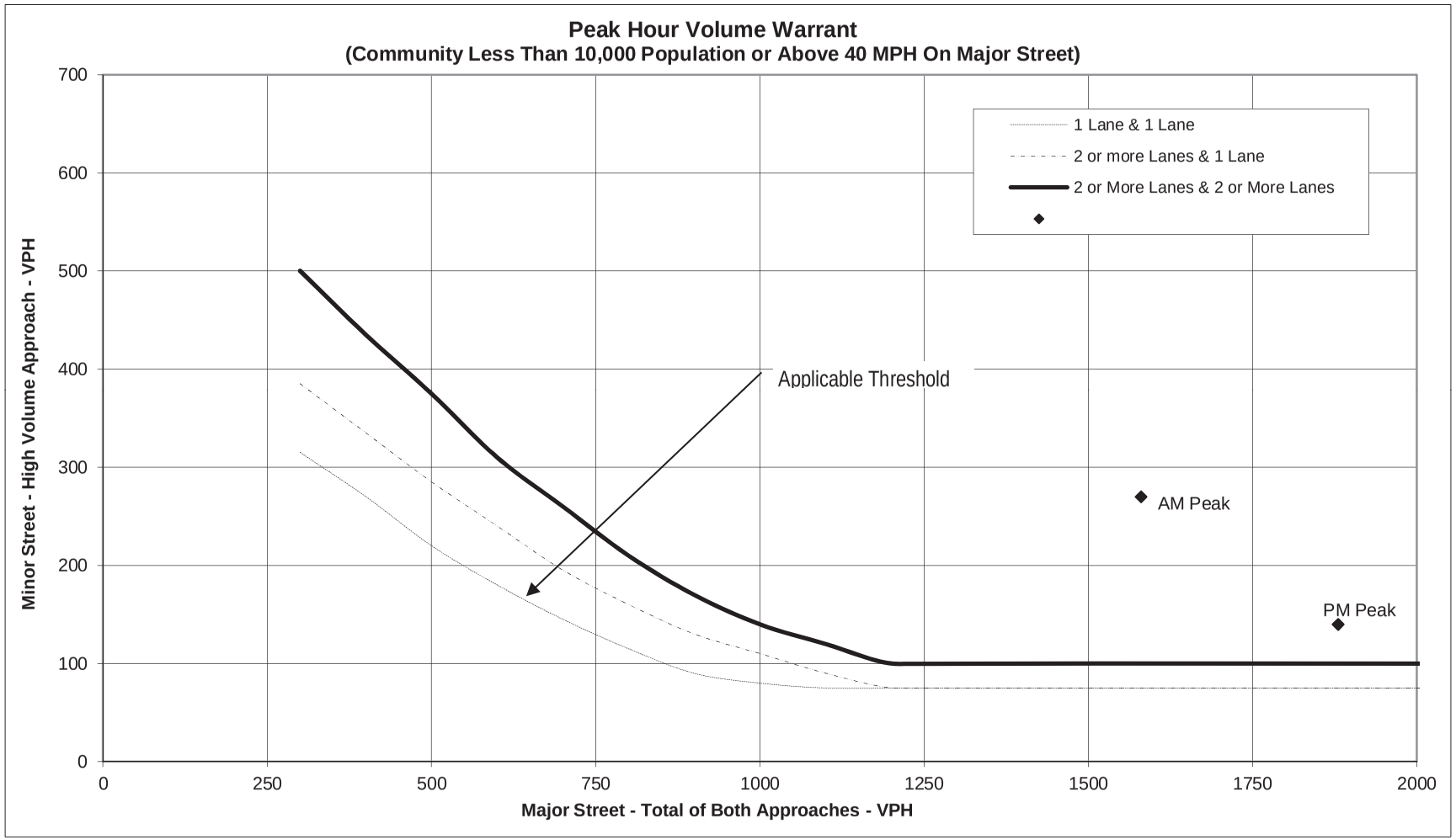



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 133 - Live Oak Canyon & San Timoteo Canyon Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Live Oak (EB-WB)
Minor Street (Orientation): San Timoteo (NB-SB)

| | Minor Street Approach Volume (San Timoteo) | | | Major Street Approach Volume (Live Oak) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 40 | 270 | 270 | 650 | 930 | 1,580 | Yes |
| PM Peak | 30 | 140 | 140 | 900 | 980 | 1,880 | Yes |

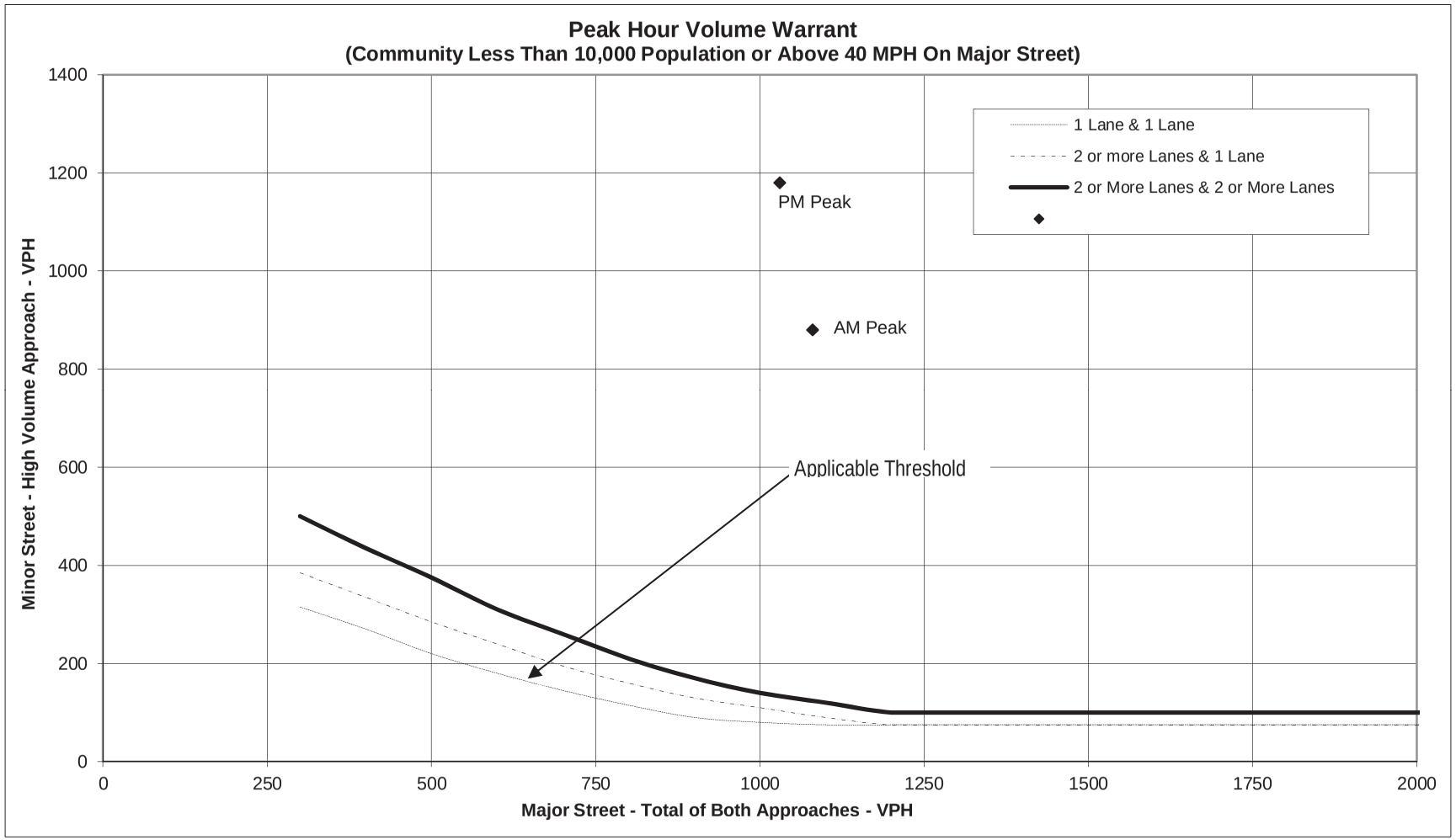



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 134 - San Timoteo Canyon Rd. & Redlands Blvd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): San Timoteo (EB-WB)
Minor Street (Orientation): Redlands Blvd. (NB)

| | Minor Street Approach Volume (Redlands) | | | Major Street Approach Volume (San Timoteo) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 880 | 0 | 880 | 850 | 230 | 1,080 | Yes |
| PM Peak | 1,180 | 0 | 1,180 | 930 | 100 | 1,030 | Yes |

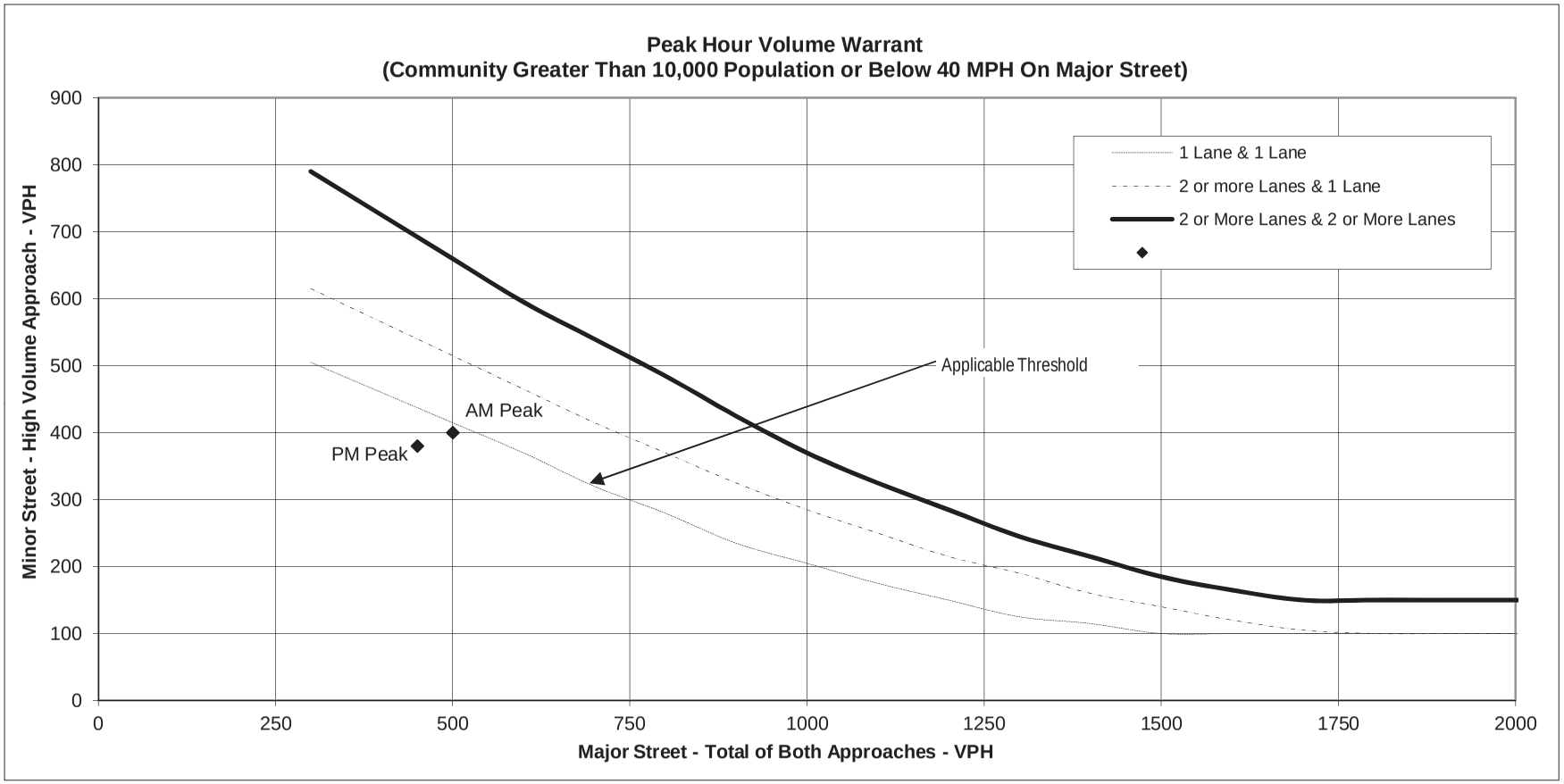



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 135 - Crescent Ave. & Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Crescent Ave. (EB-WB)
Minor Street (Orientation): Alessandro Rd. (NB-SB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Crescent) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 400 | 0 | 400 | 100 | 400 | 500 | No |
| PM Peak | 380 | 0 | 380 | 140 | 310 | 450 | No |

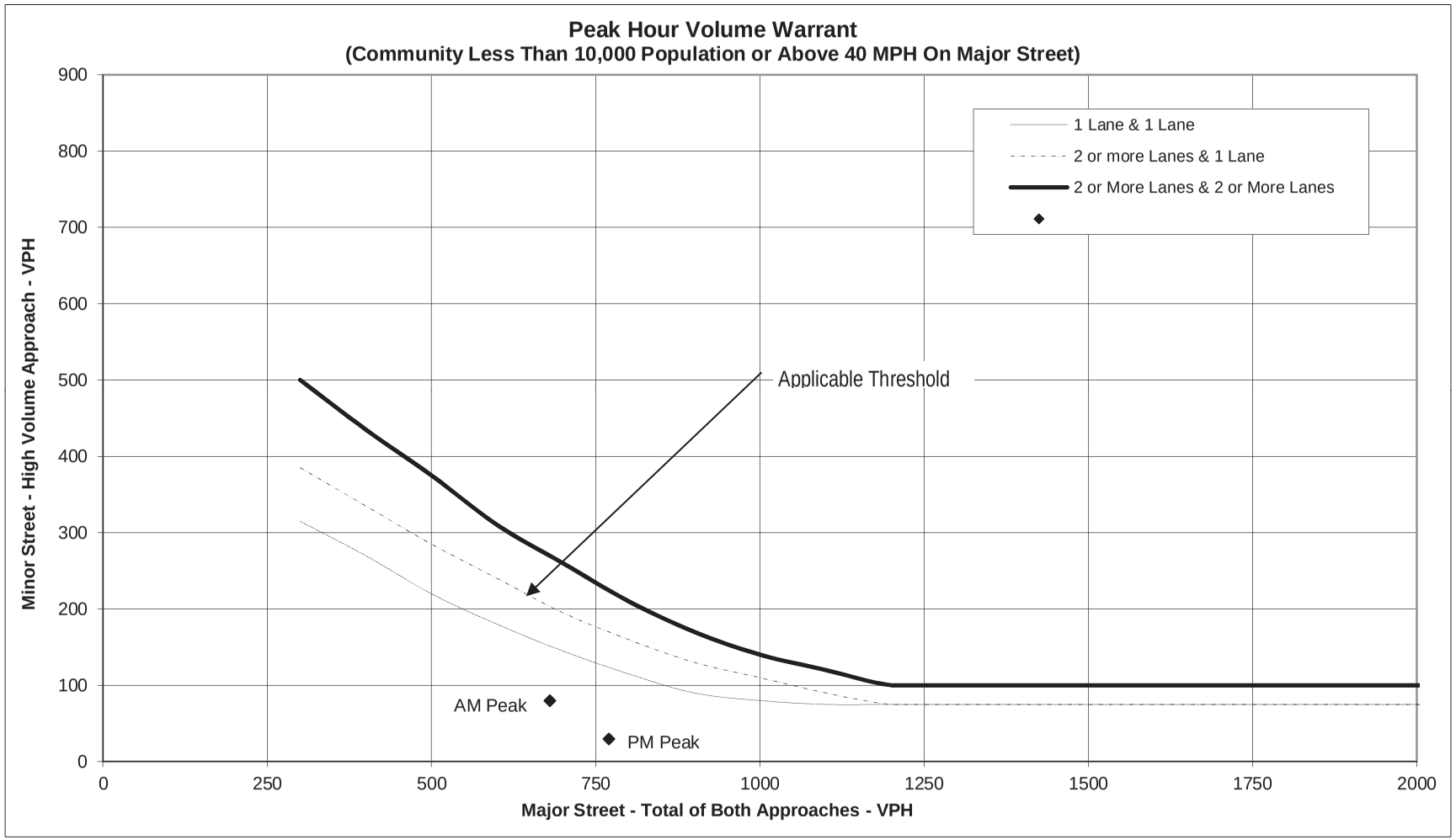



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2022 Plus Phase 1
Intersection: 136 - Sunset Dr. & Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Alessandro (NB-SB)
Minor Street (Orientation): Sunset Dr. (EB-WB)

| | Minor Street Approach Volume (Sunset) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 40 | 880 | 80 | 310 | 370 | 680 | No |
| PM Peak | 30 | 30 | 30 | 420 | 350 | 770 | No |

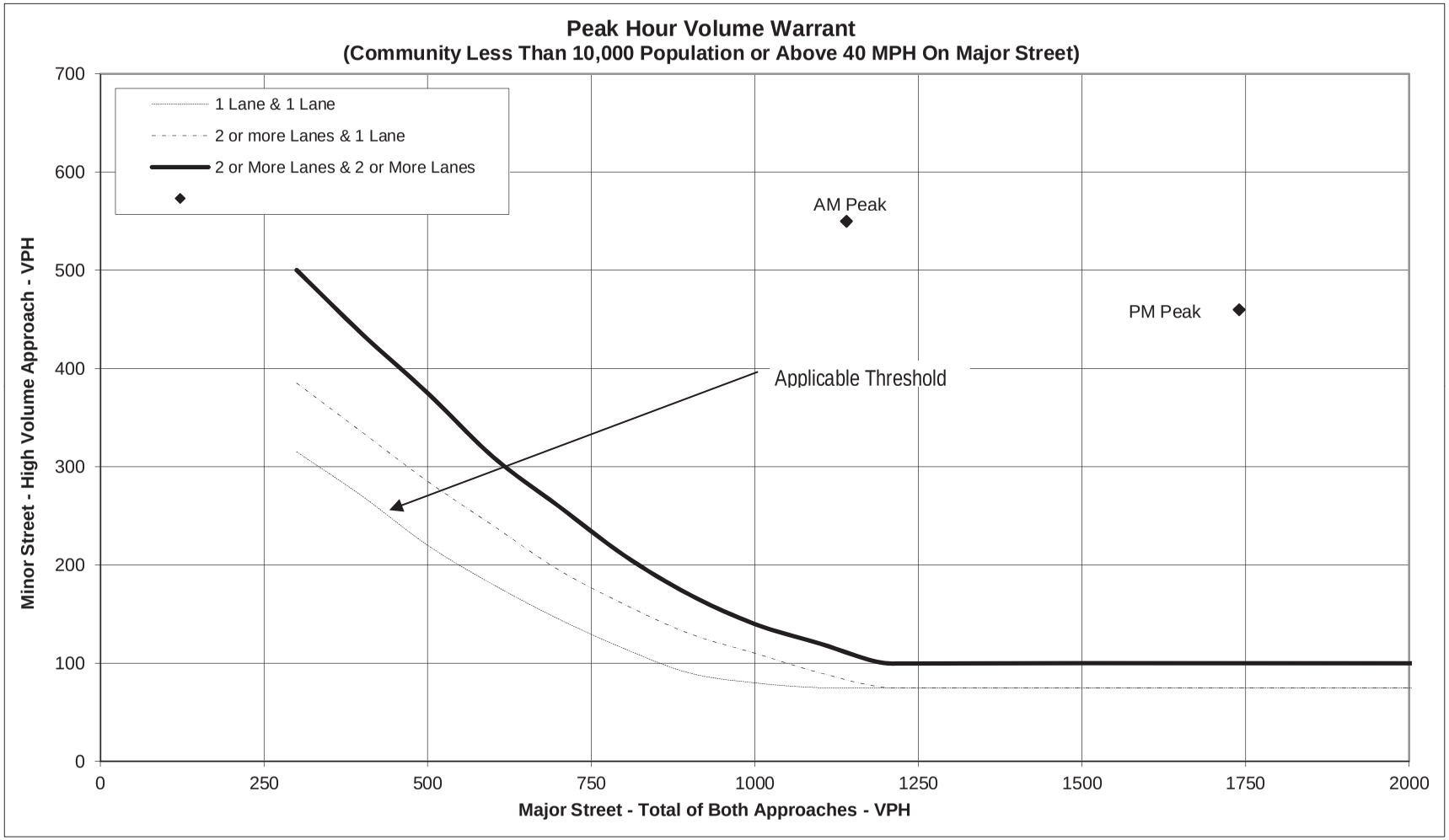



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 3 - Alessandro Blvd & Theodore St
Type: 1 Lane & 1 Lane
Major Street (Orientation): Alessandro Blvd (WB)
Minor Street (Orientation): Theodore St (NB-SB)

| | Minor Street Approach Volume (Theodore) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 0 | 550 | 550 | 510 | 630 | 1,140 | Yes |
| PM Peak | 0 | 460 | 460 | 1,030 | 710 | 1,740 | Yes |

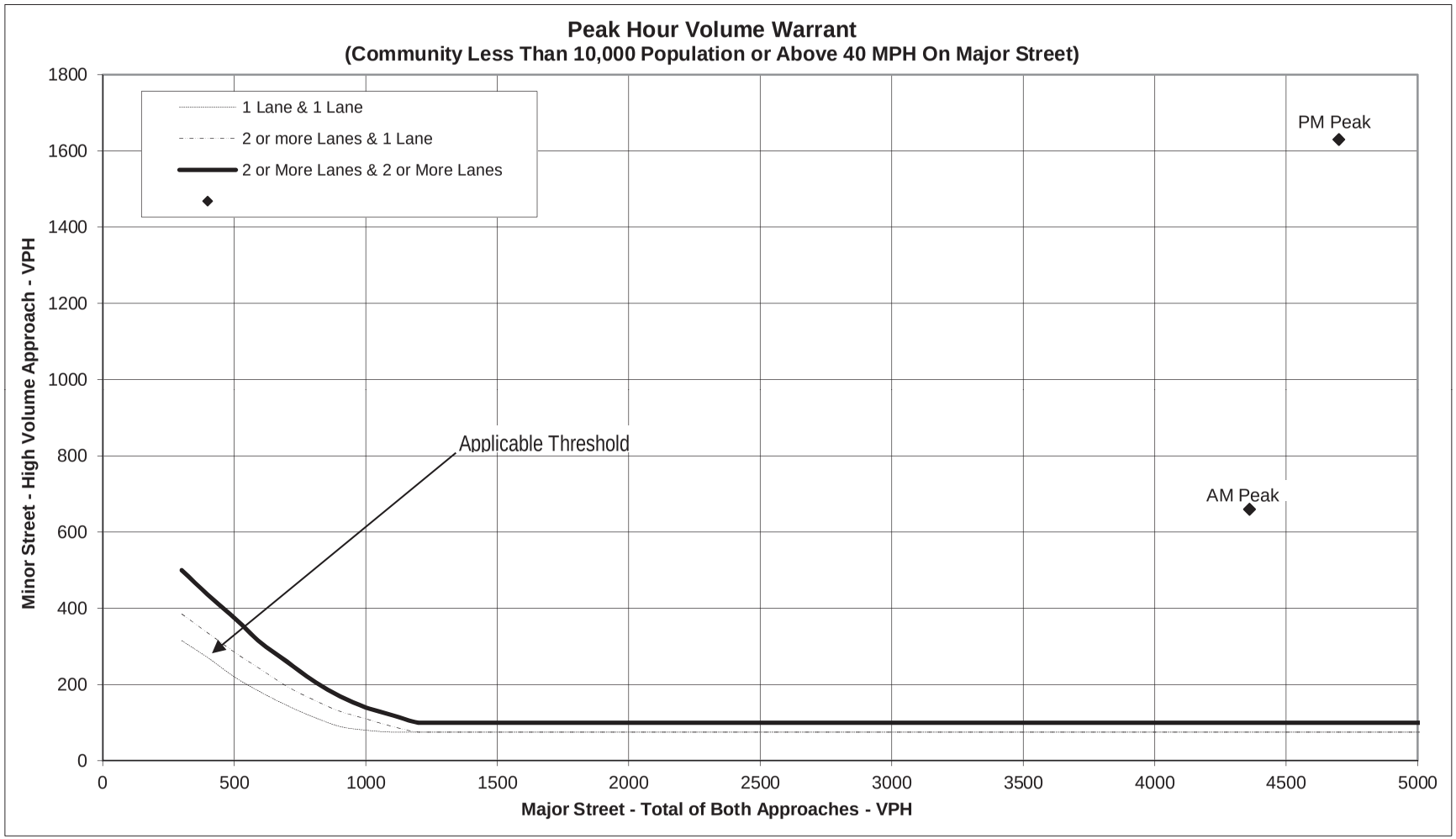



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 6 - Alessandro Blvd & Gilman Springs Rd
Type: 1 Lane & 1 Lane
Major Street (Orientation): Gilman Springs Rd (NB-SB)
Minor Street (Orientation): Alessandro Blvd (EB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Gilman Springs) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 660 | 0 | 660 | 2,620 | 1,740 | 4,360 | Yes |
| PM Peak | 1,630 | 0 | 1,630 | 2,090 | 2,610 | 4,700 | Yes |

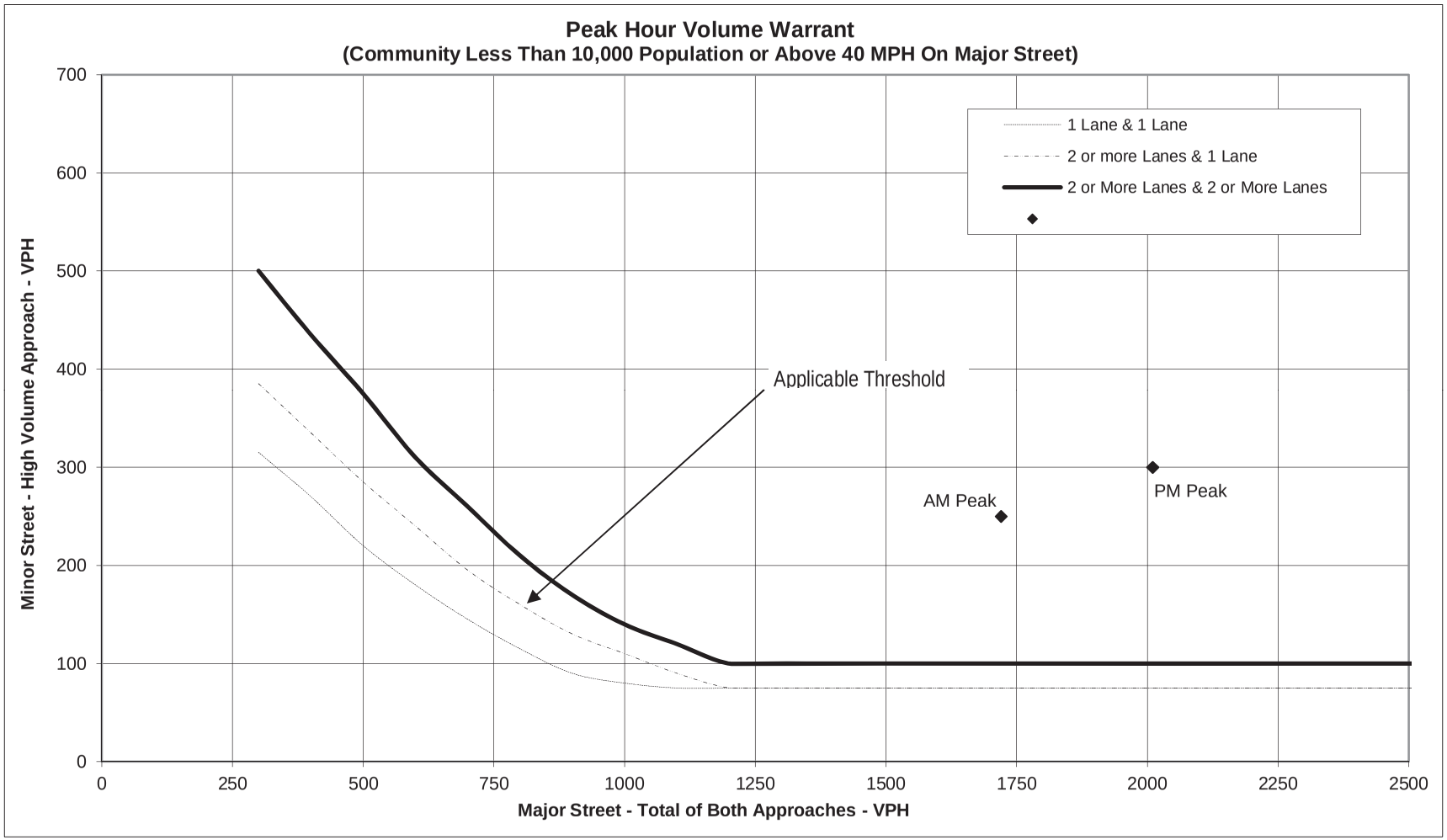



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 10 - Locust Ave & Rredlands Blvd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Redlands Blvd (NB-SB)
Minor Street (Orientation): Locust (EB-WB)

| | Minor Street Approach Volume (Locust) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 250 | 10 | 250 | 960 | 760 | 1,720 | Yes |
| PM Peak | 300 | 15 | 300 | 780 | 1,230 | 2,010 | Yes |

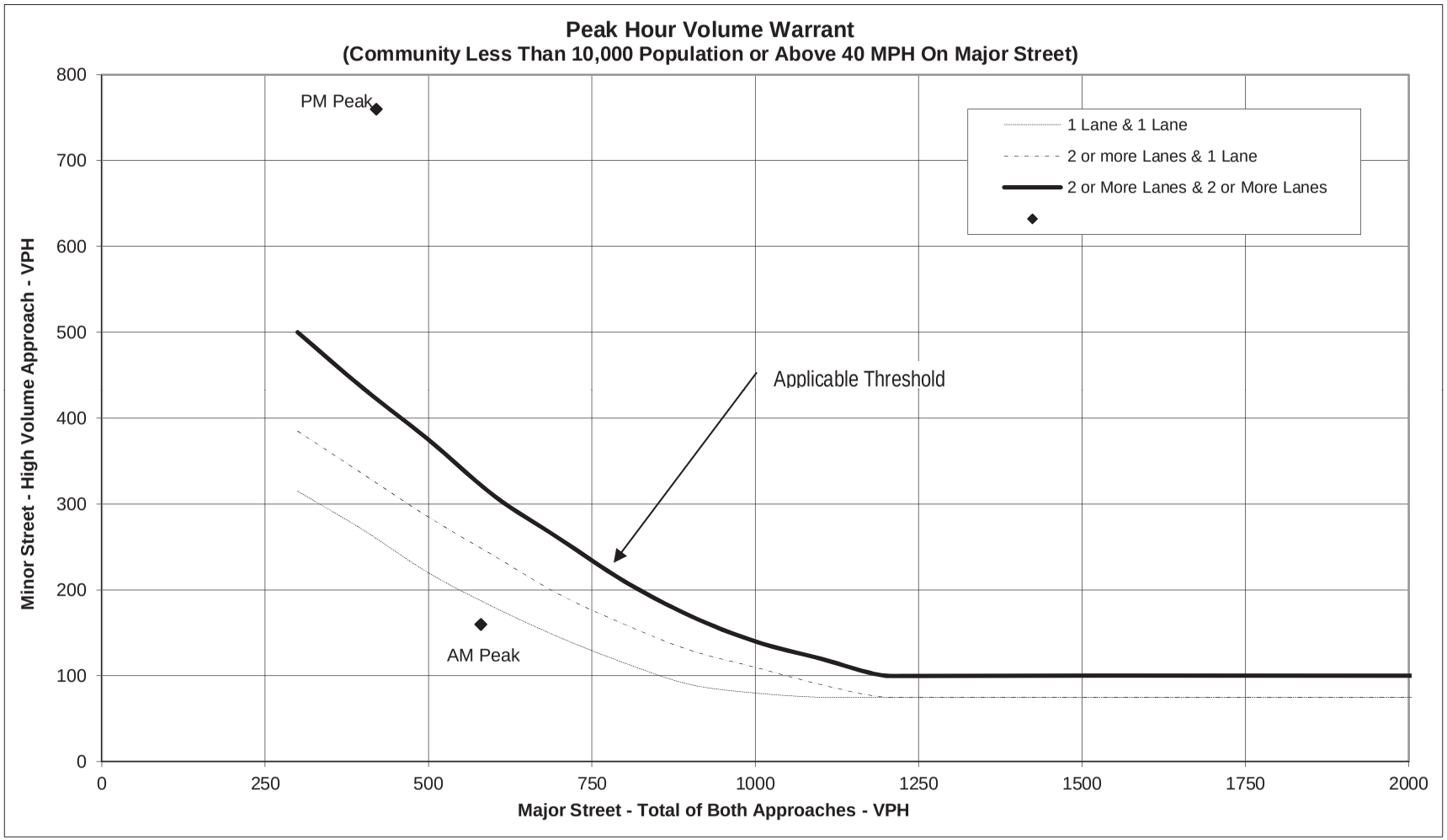



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 12 - Ironwood Ave. & Theodore St
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB)
Minor Street (Orientation): Ironwood Ave (EB-WB)

| | Minor Street Approach Volume (Ironwood) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 160 | 160 | 160 | 580 | 0 | 580 | No |
| PM Peak | 760 | 190 | 760 | 420 | 0 | 420 | Yes |

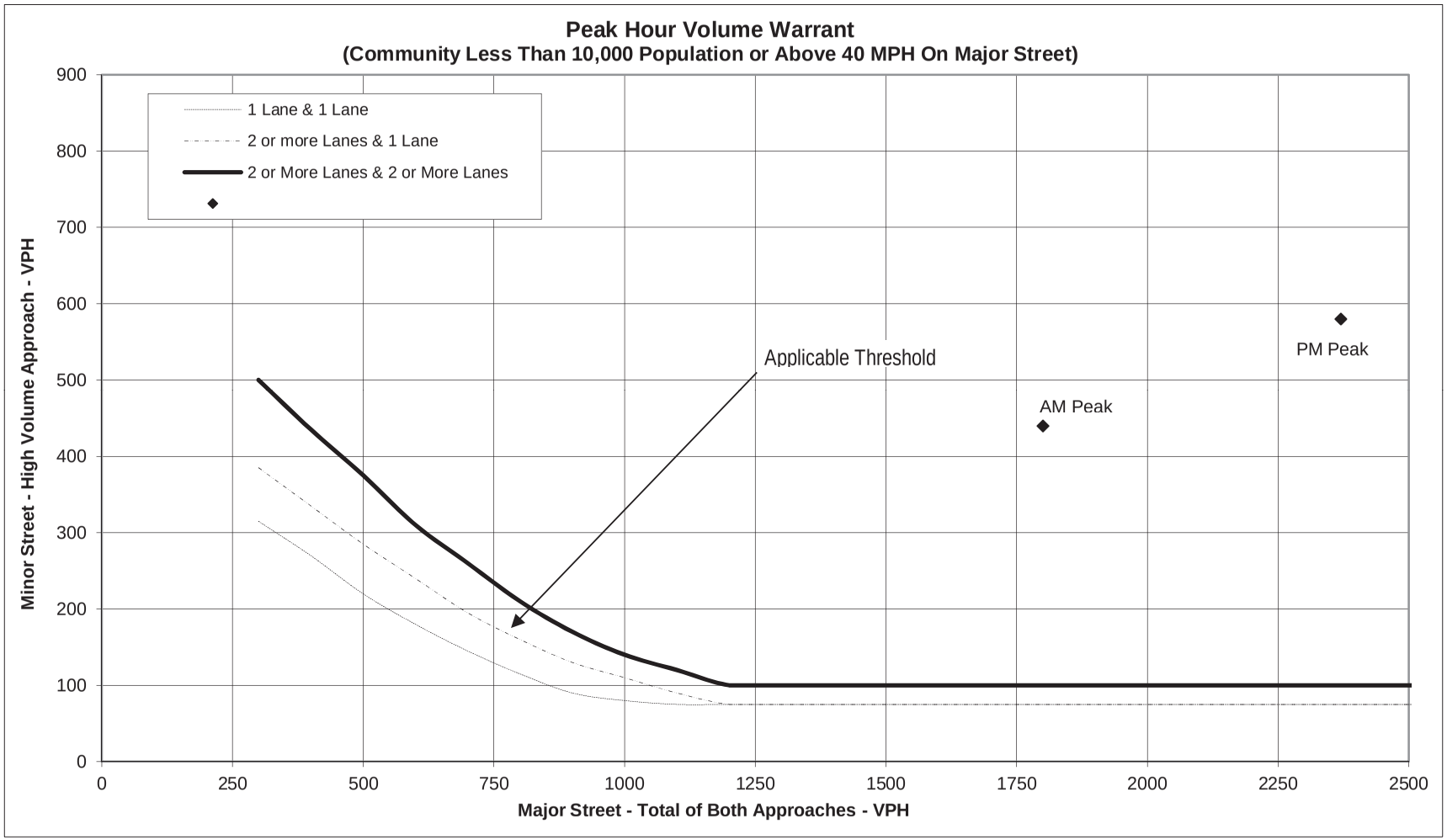



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 13 - SR-60 WB Ramps & Redlands Blvd
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Redlands Blvd (NB-SB)
Minor Street (Orientation): SR-60 WB Ramps (EB-WB)

| | Minor Street Approach Volume (SR-60 WB Ramp | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 0 | 440 | 440 | 870 | 930 | 1,800 | Yes |
| PM Peak | 0 | 580 | 580 | 1,020 | 1,350 | 2,370 | Yes |

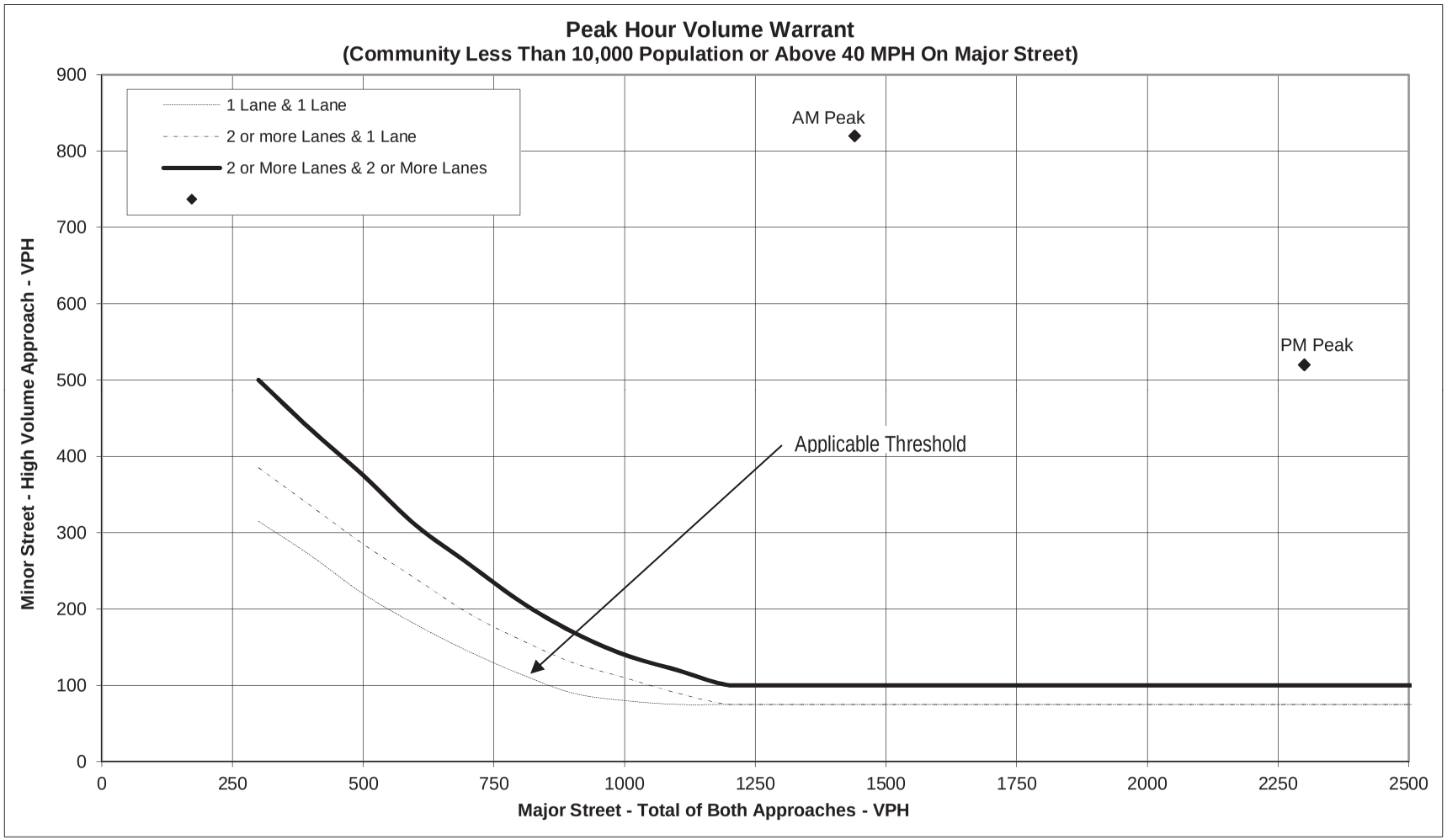



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 15 - SR-60 WB Ramps & Theodore St.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): SR-60 WB Ramps (WB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 820 | 0 | 820 | 1,130 | 310 | 1,440 | Yes |
| PM Peak | 520 | 0 | 520 | 1,380 | 920 | 2,300 | Yes |

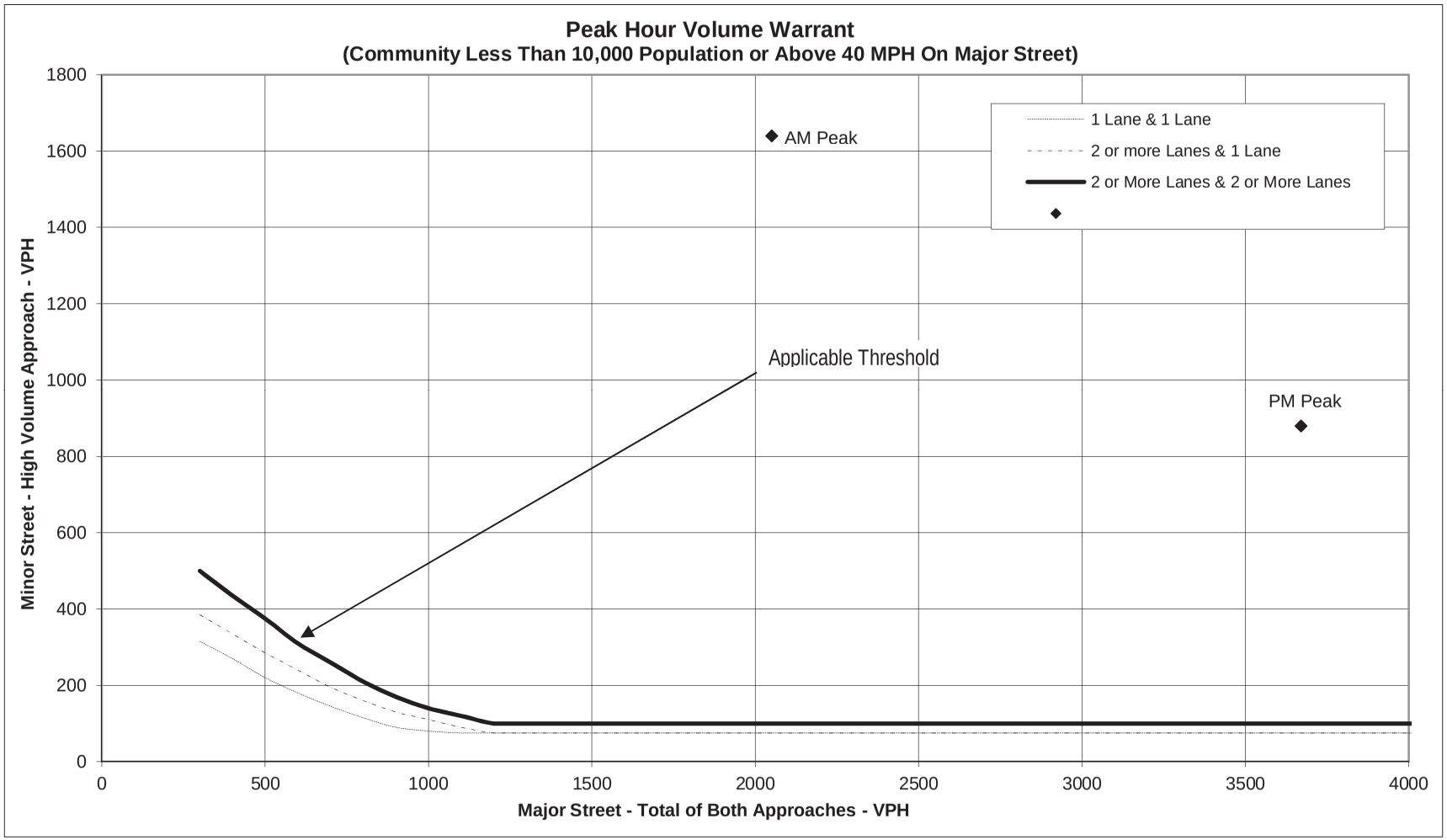



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 16 - SR-60 EB Ramps & Theodore St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): SR-60 EB Ramps (EB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 1,640 | 0 | 1,640 | 1,330 | 720 | 2,050 | Yes |
| PM Peak | 880 | 0 | 880 | 2,500 | 1,170 | 3,670 | Yes |

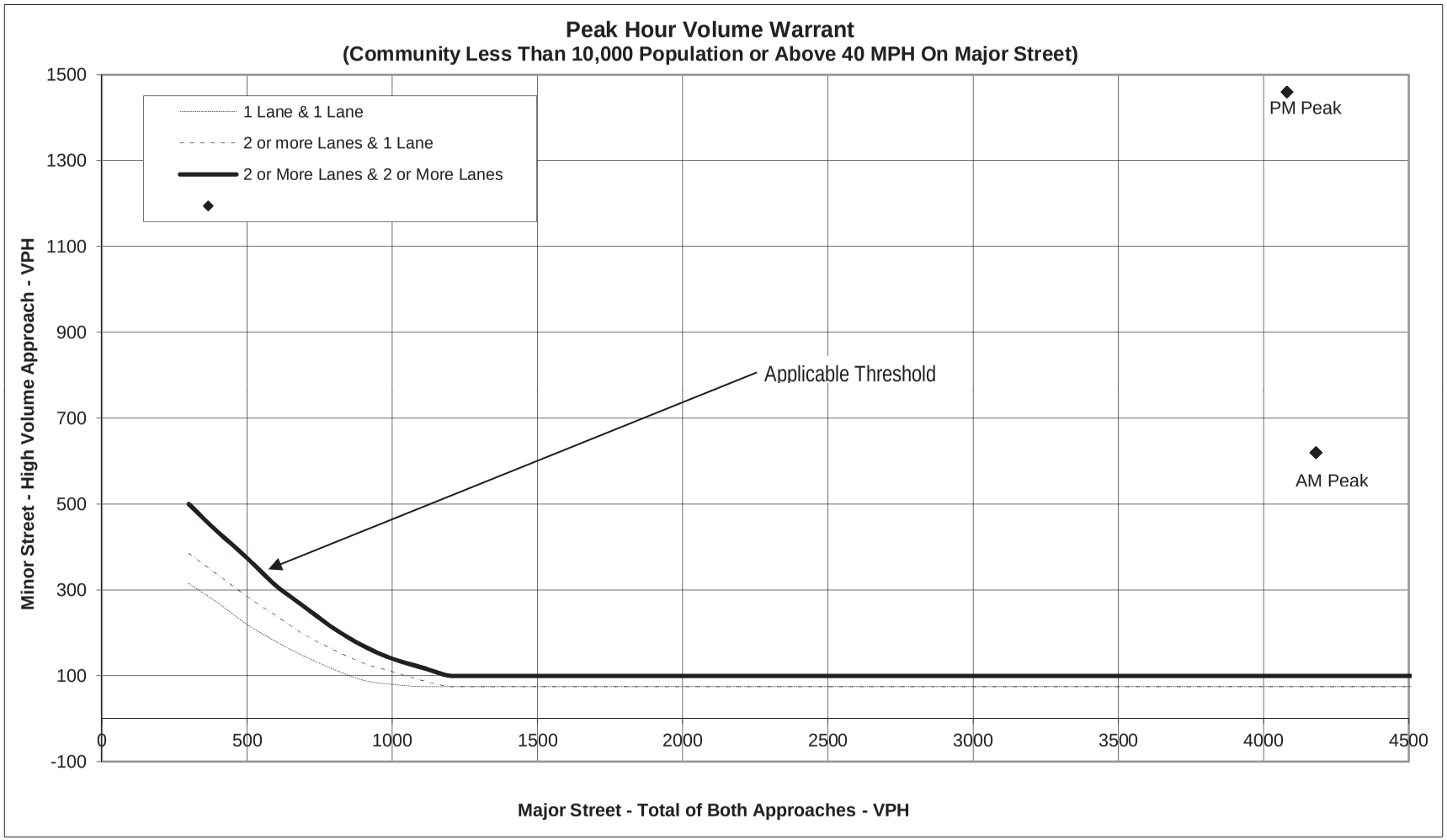



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 19 - Eucalyptus Ave & Theodore St.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Theodore St (NB-SB)
Minor Street (Orientation): Eucalyptus Ave (EB)

| | Minor Street Approach Volume (Eucalyptus Ave | | | Major Street Approach Volume (Theodore) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 620 | 240 | 620 | 1,780 | 2,400 | 4,180 | Yes |
| PM Peak | 1,460 | 450 | 1,460 | 2,780 | 1,300 | 4,080 | Yes |

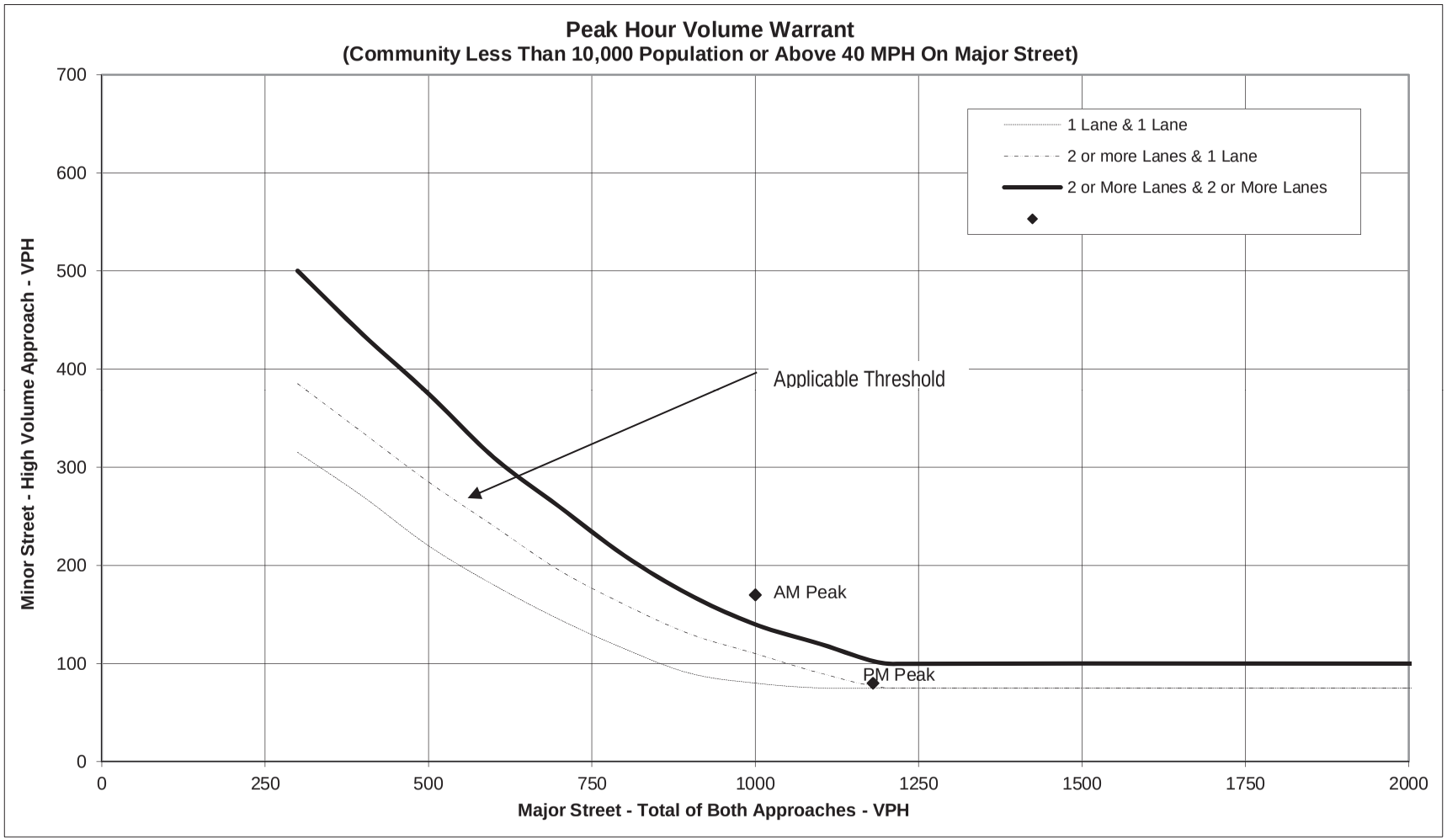



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 20 - Alessandro Blvd. & Oliver St.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Alessandro Blvd (EB-WB)
Minor Street (Orientation): Oliver St (NB-SB)

| | Minor Street Approach Volume (Oliver St) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 170 | 0 | 170 | 320 | 680 | 1,000 | Yes |
| PM Peak | 80 | 0 | 80 | 710 | 470 | 1,180 | Yes |

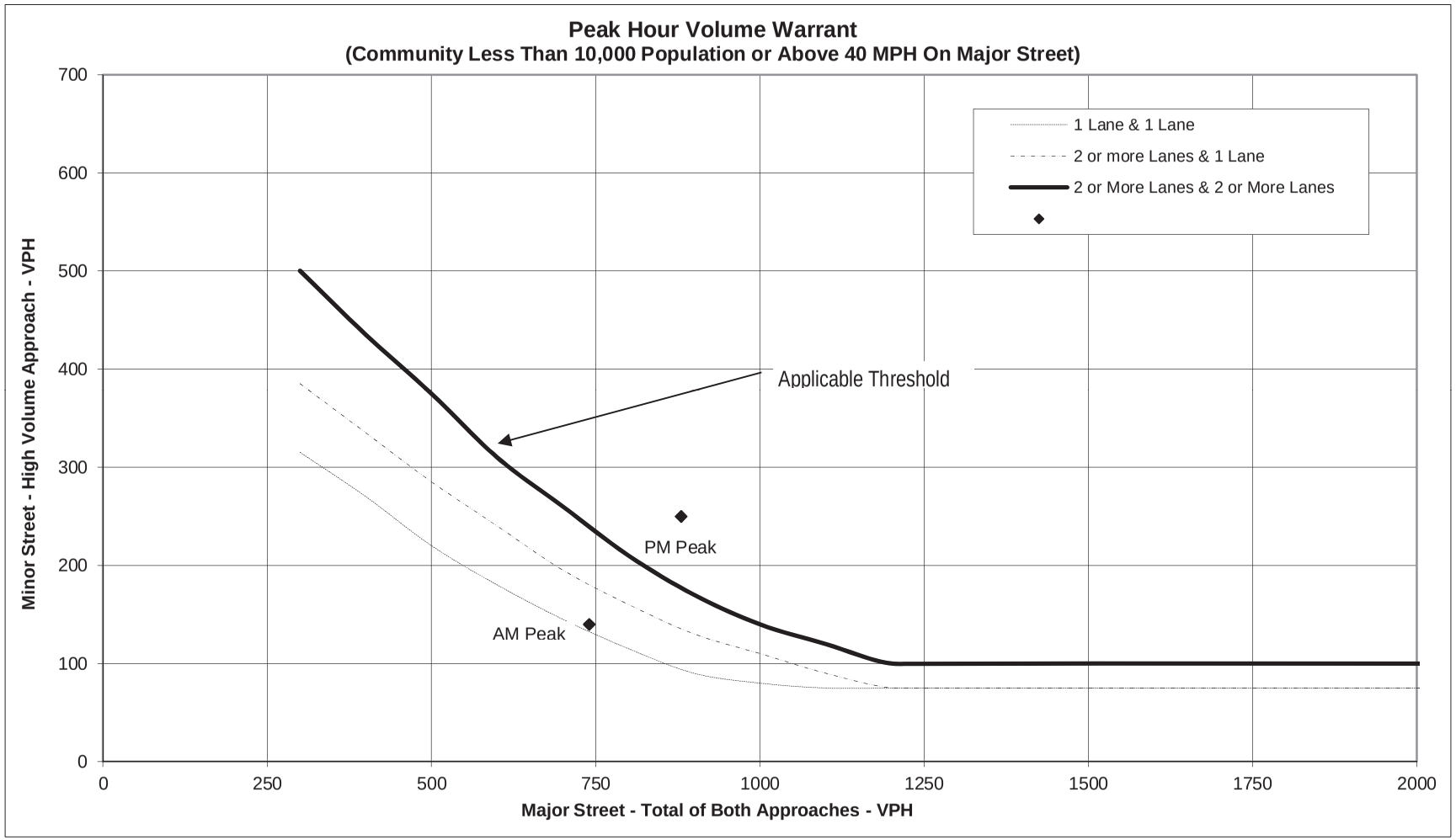



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 23 - Alessandro Blvd. & Redlands Blvd
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Redlands (NB-SB)
Minor Street (Orientation): Alessandro Blvd (EB-WB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 140 | 30 | 140 | 470 | 270 | 740 | No |
| PM Peak | 250 | 30 | 250 | 550 | 330 | 880 | Yes |

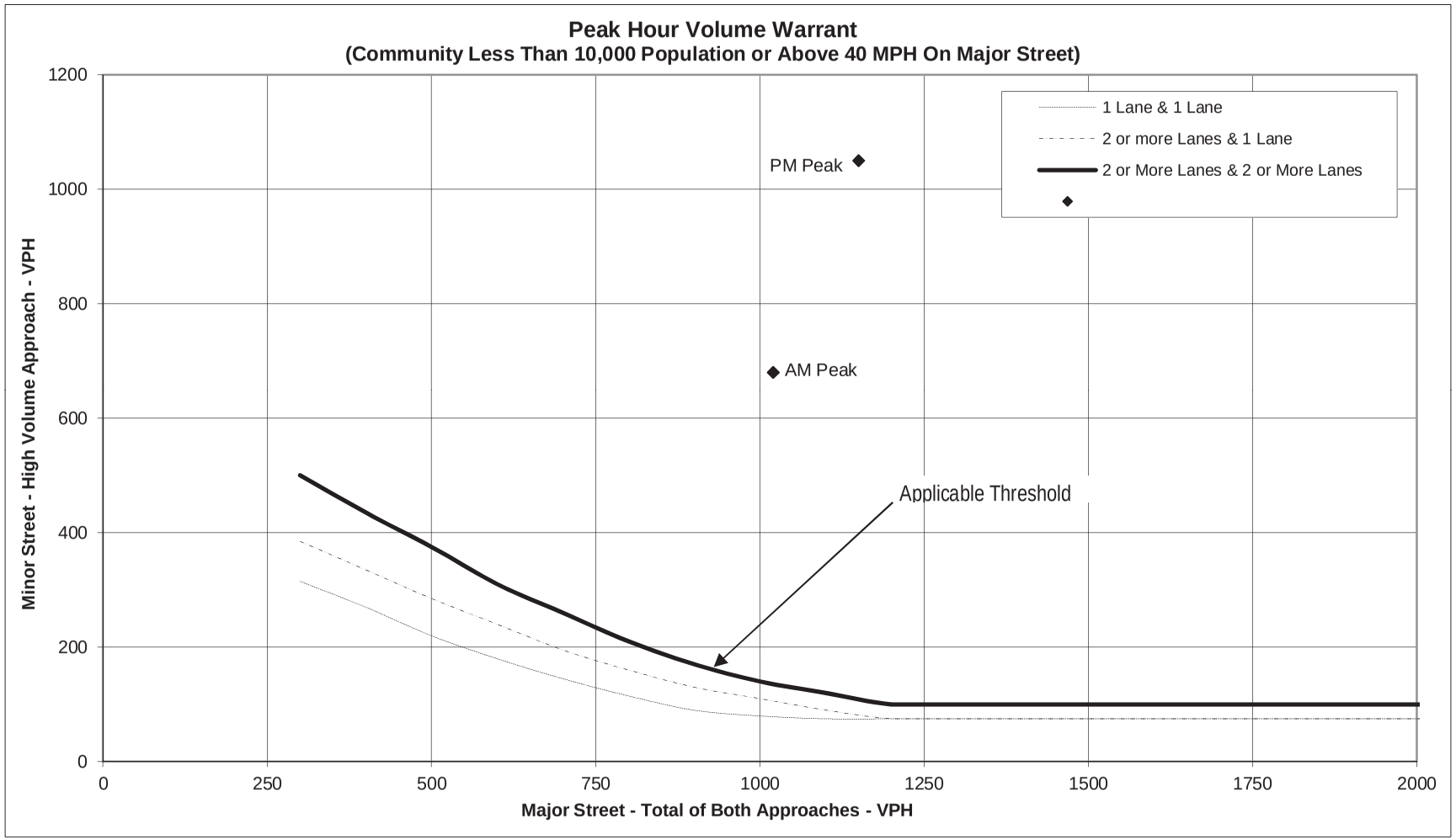



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 27 - Cactus Ave. & Redlands Blvd
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Redlands Blvd. (NB-SB)
Minor Street (Orientation): Cactus Ave. (EB-WB)

| | Minor Street Approach Volume (Cactus) | | | Major Street Approach Volume (Redlands) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 450 | 680 | 680 | 530 | 490 | 1,020 | Yes |
| PM Peak | 400 | 1,050 | 1,050 | 730 | 420 | 1,150 | Yes |

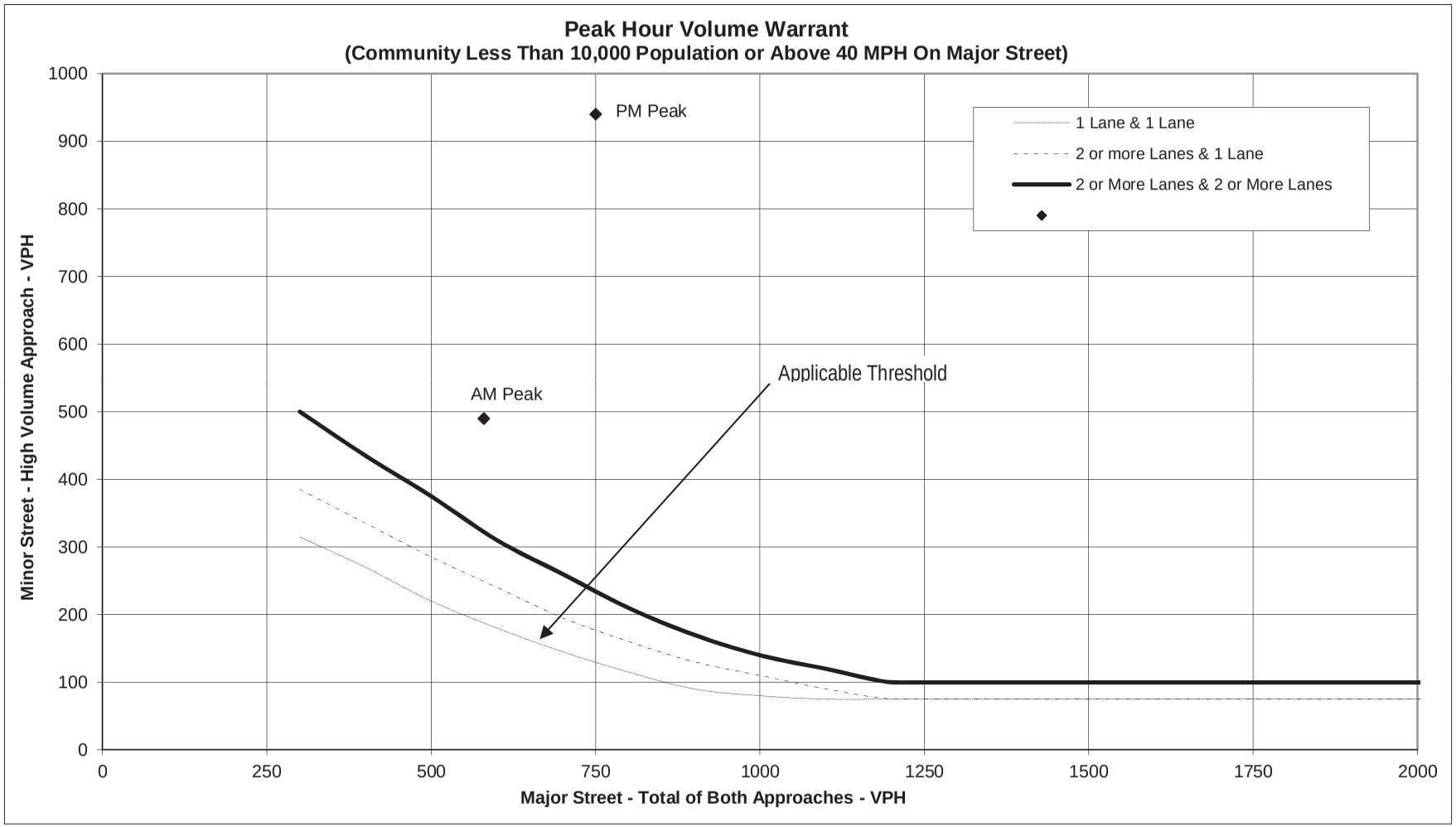



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 35 - Locust Ave & Moreno Beach Dr
Type: 1 Lane & 1 Lane
Major Street (Orientation): Locust Ave (EB-WB)
Minor Street (Orientation): Moreno Beach Dr. (NB)

| | Minor Street Approach Volume (Moreno Beach) | | | Major Street Approach Volume (Locust) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 490 | 0 | 490 | 360 | 220 | 580 | Yes |
| PM Peak | 940 | 0 | 940 | 590 | 160 | 750 | Yes |

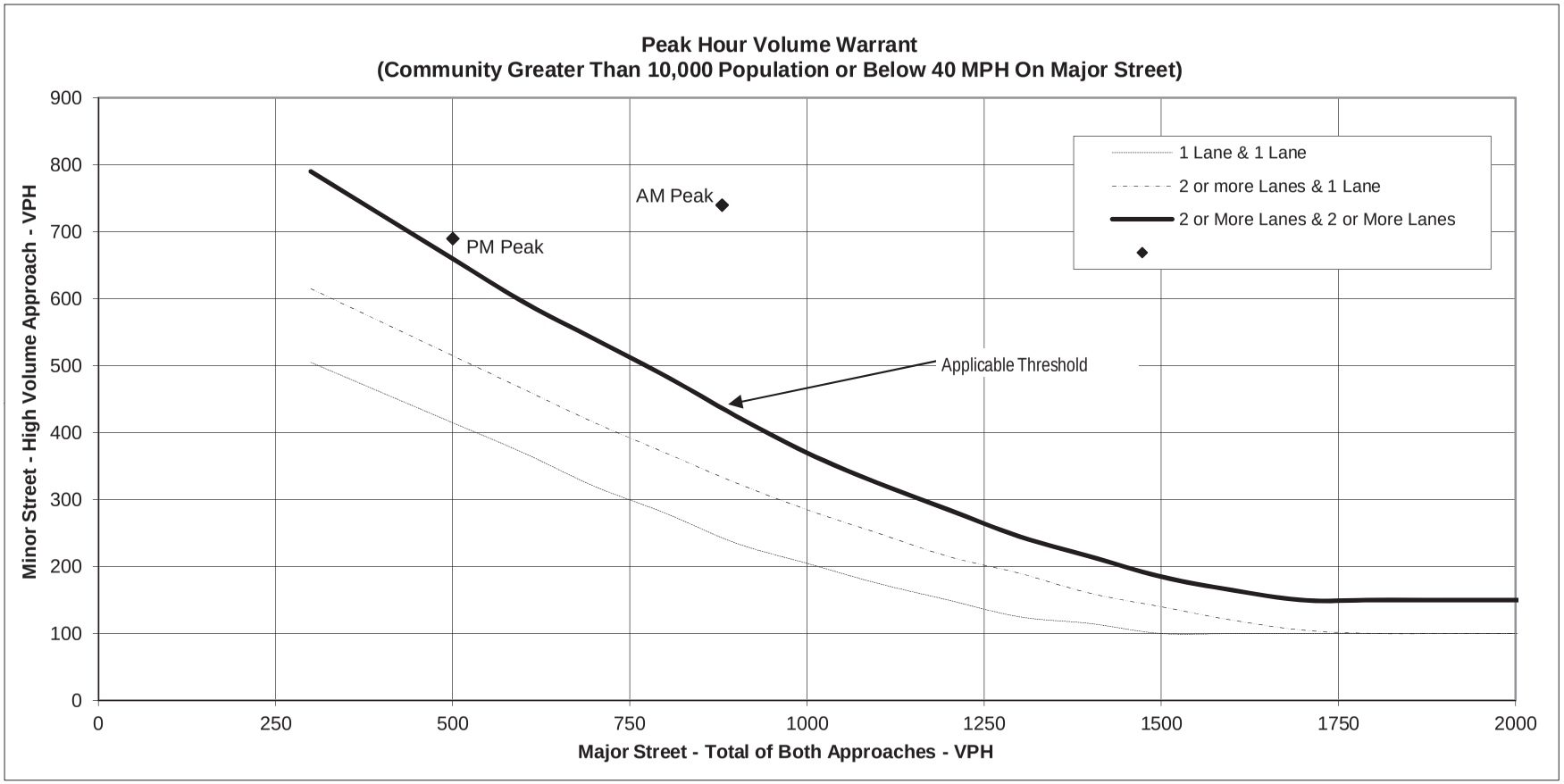



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 85 - Martin Luther King Blvd. & SR-60 WB on Ramp
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Martin Luther King (EB)
Minor Street (Orientation): SR-60. (NB)

| | Minor Street Approach Volume (SR-60) | | | Major Street Approach Volume (MLK) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 740 | 0 | 740 | 880 | 0 | 880 | Yes |
| PM Peak | 690 | 0 | 690 | 500 | 0 | 500 | Yes |

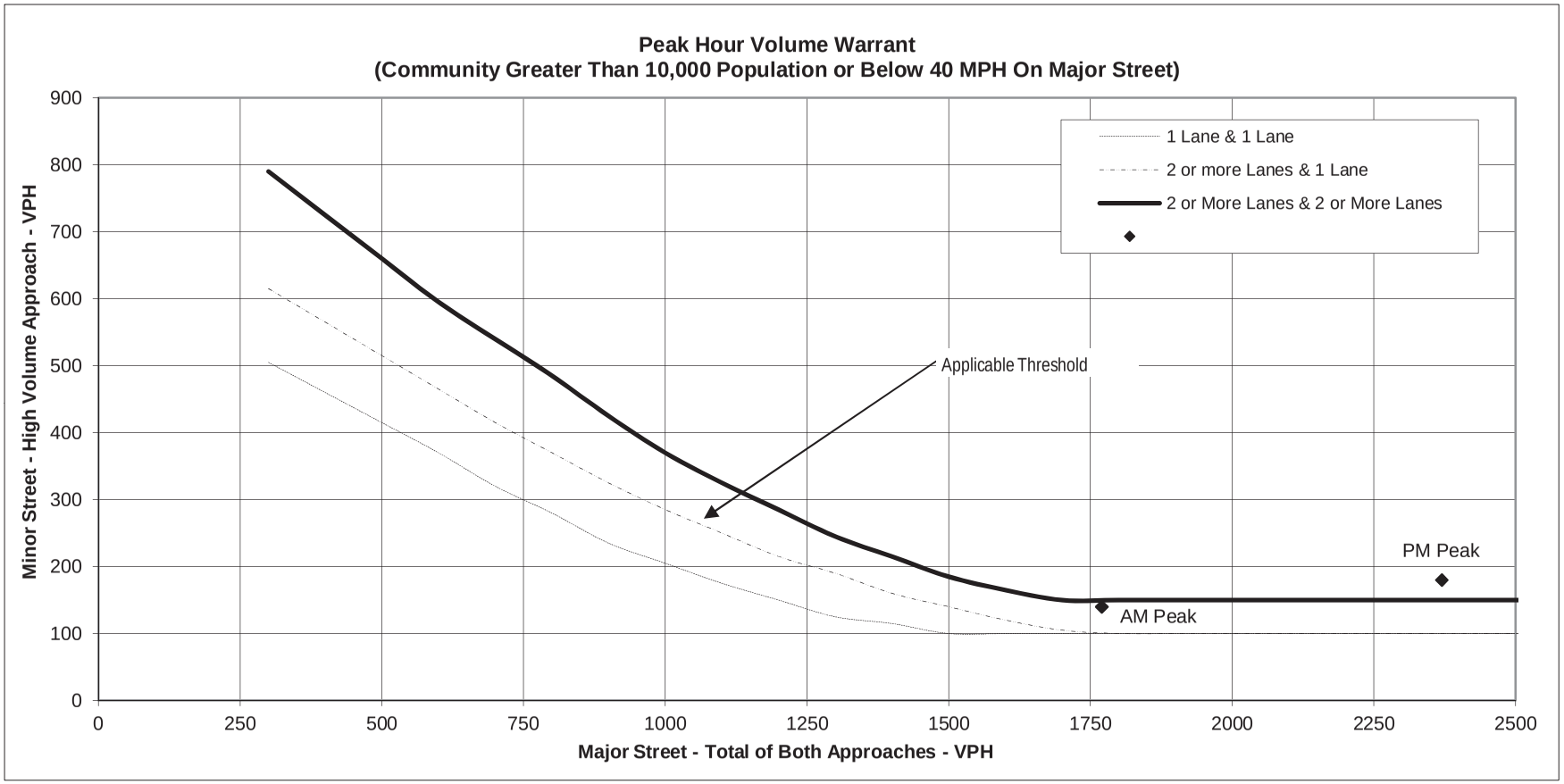



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 113 - Placentia Ave. & Evans Rd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Evans Rd (NB-SB)
Minor Street (Orientation): Placentia Ave. (EB-WB)

| | Minor Street Approach Volume (Placentia) | | | Major Street Approach Volume (Evans) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB+SB | Warrant 3? |
| AM Peak | 140 | 70 | 140 | 980 | 790 | 1,770 | Yes |
| PM Peak | 180 | 50 | 180 | 810 | 1,560 | 2,370 | Yes |

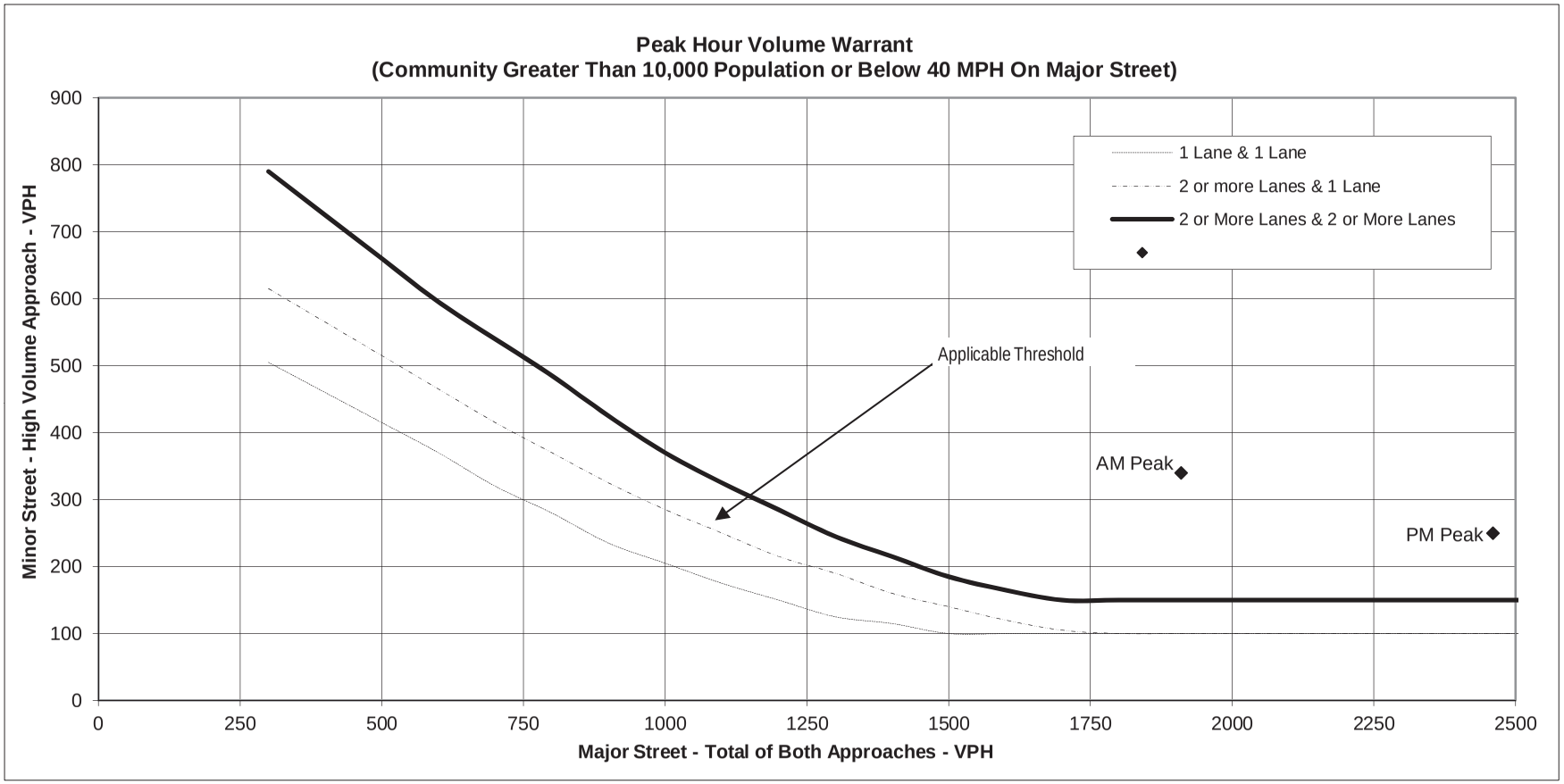



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 114 - Orange Ave. & Evans Rd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Evans Rd. (NB-SB)
Minor Street (Orientation): Orange Ave. (EB-WB)

| | Minor Street Approach Volume (Orange) | | | Major Street Approach Volume (Evans) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 290 | 340 | 340 | 1,040 | 870 | 1,910 | Yes |
| PM Peak | 250 | 190 | 250 | 950 | 1,510 | 2,460 | Yes |

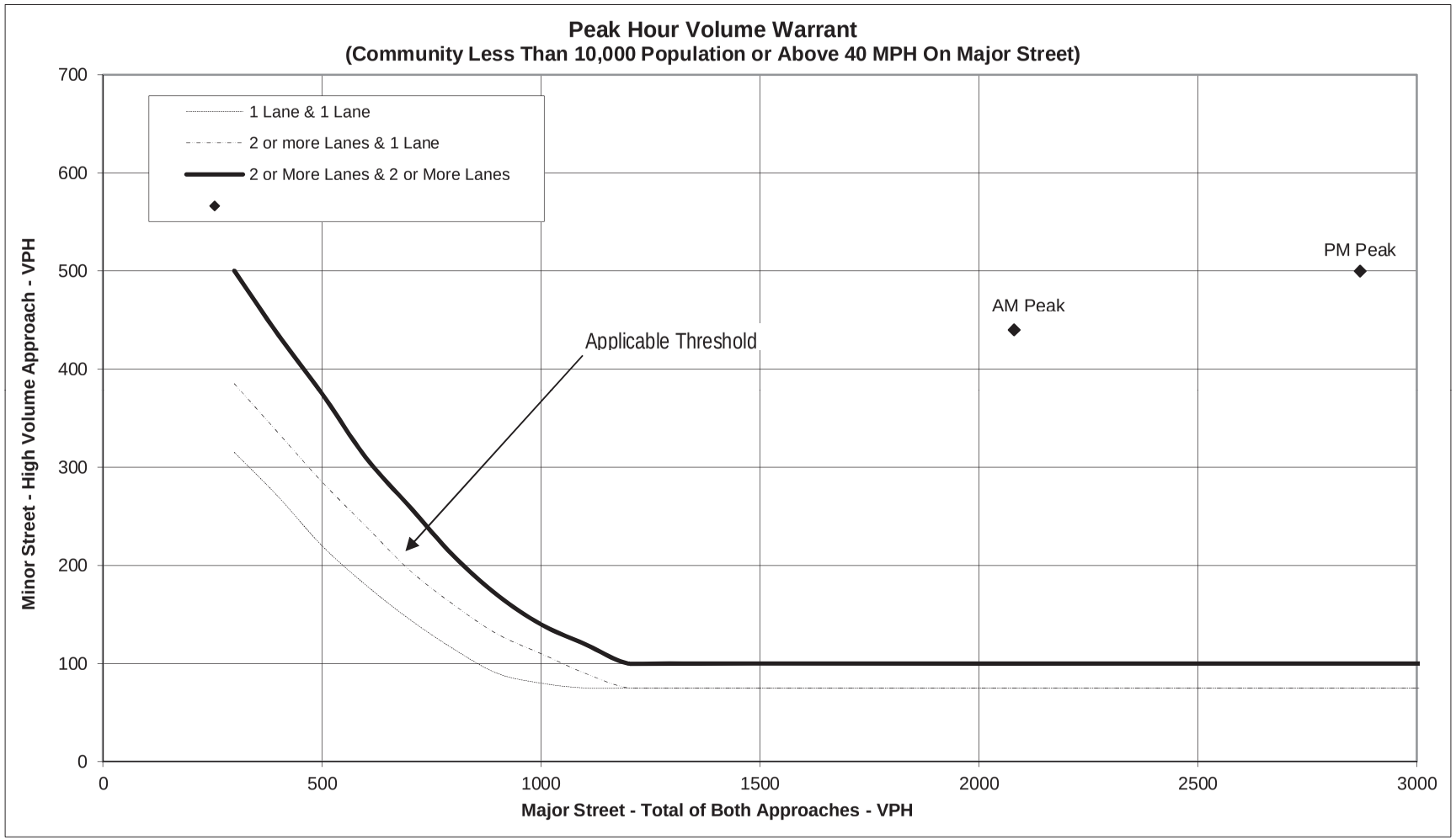



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 123 - Bridge St. & Gilman Springs Rd.
Type: 2 or more Lanes & 1 Lane
Major Street (Orientation): Gilman Springs (NB-SB)
Minor Street (Orientation): Bridge St. (EB)

| | Minor Street Approach Volume (Bridge) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 440 | 0 | 440 | 1,050 | 1,030 | 2,080 | Yes |
| PM Peak | 500 | 0 | 500 | 1,000 | 1,870 | 2,870 | Yes |

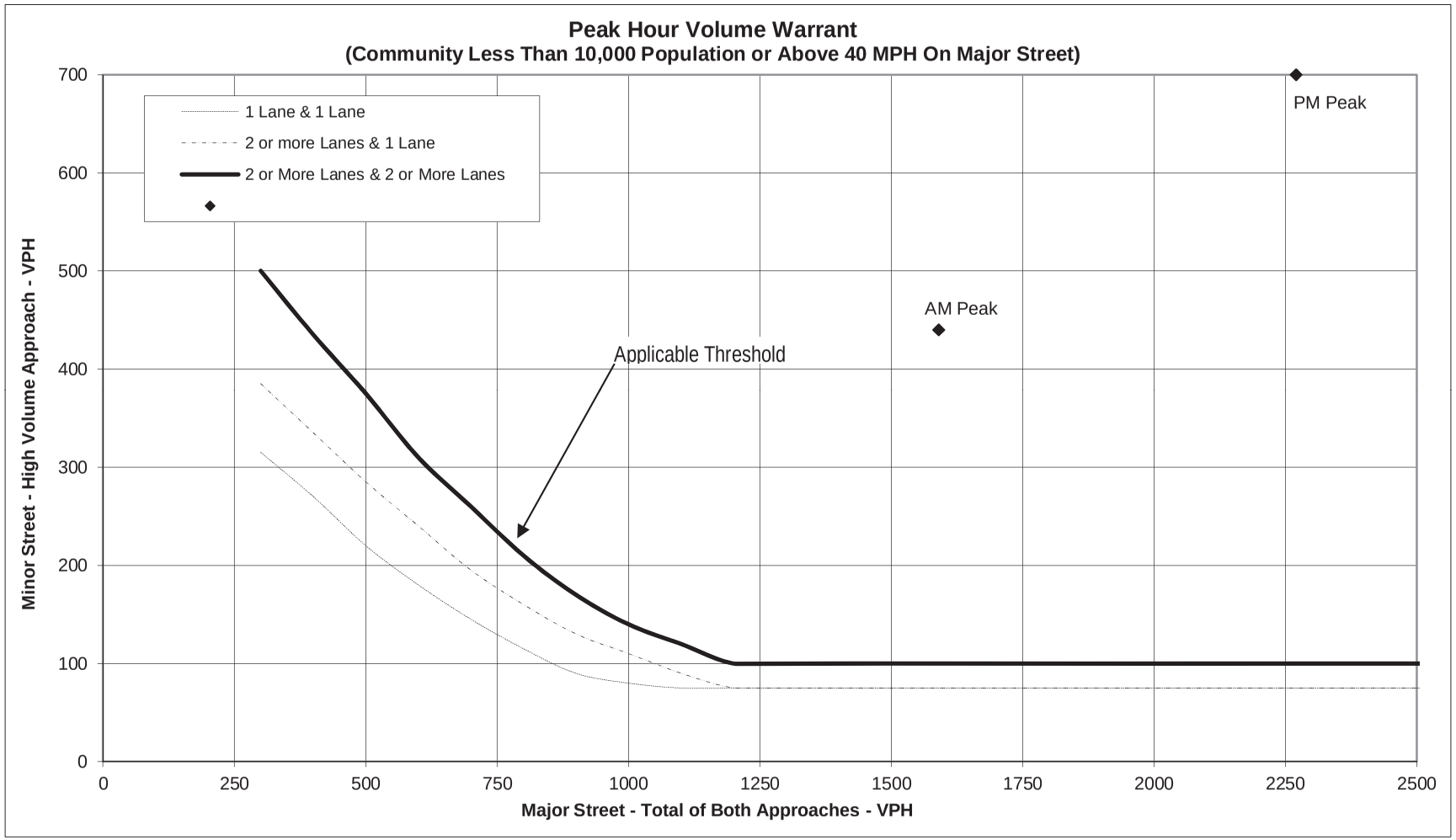



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 124 - Gilman Springs Rd. & SR-79 NB Ramps
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Gilman Springs (EB-WB)
Minor Street (Orientation): SR-79 Ramps (NB)

| | Minor Street Approach Volume (SR-79) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 440 | 0 | 440 | 680 | 910 | 1,590 | Yes |
| PM Peak | 700 | 0 | 700 | 1,000 | 1,270 | 2,270 | Yes |

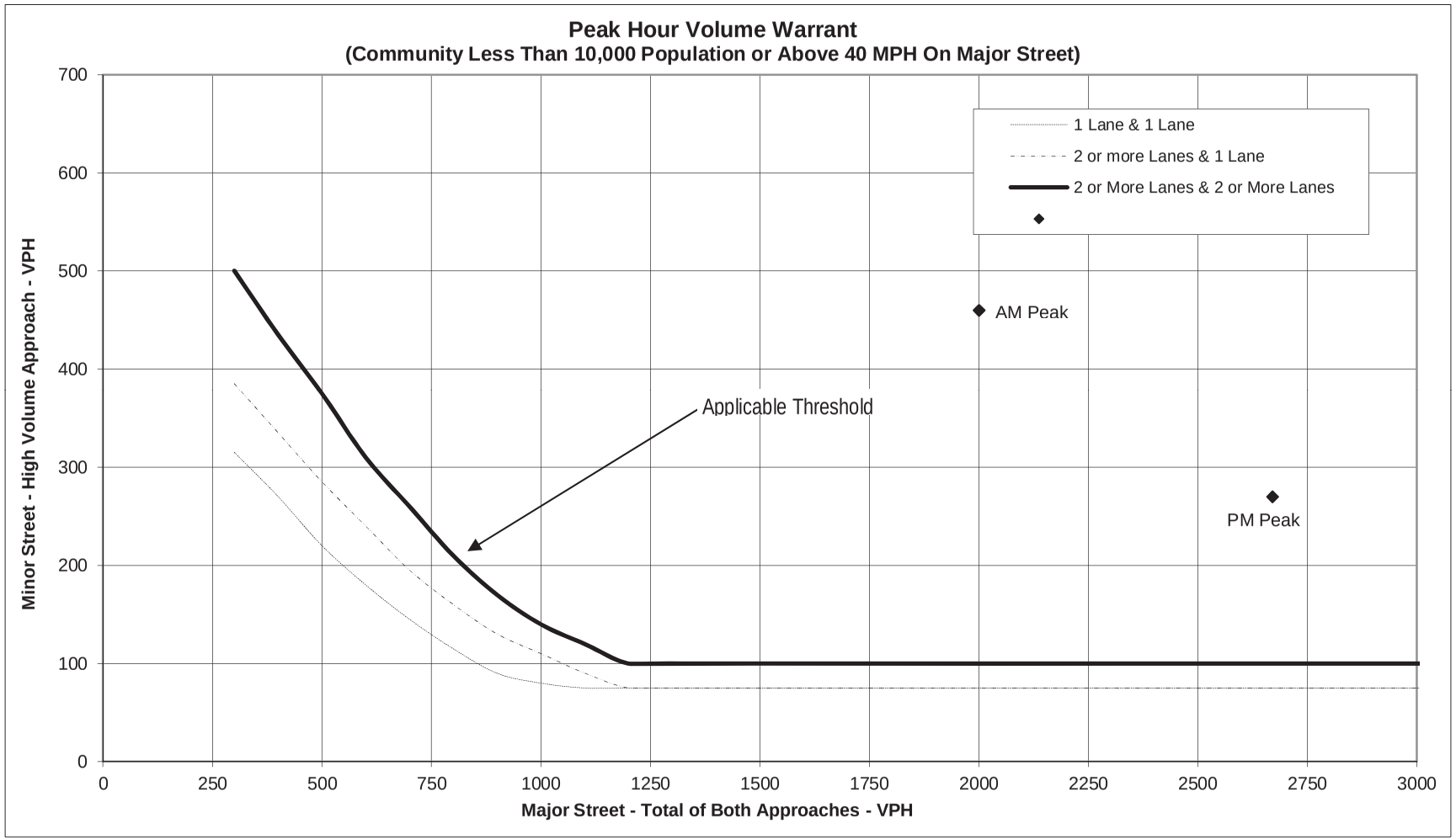



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 125 - Gilman Springs Rd. & SR-79 SB Ramps
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): Gilman Springs (EB-WB)
Minor Street (Orientation): SR-79 Ramps (SB)

| | Minor Street Approach Volume (SR-79) | | | Major Street Approach Volume (Gilman) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 0 | 460 | 460 | 1,030 | 970 | 2,000 | Yes |
| PM Peak | 0 | 270 | 270 | 1,490 | 1,180 | 2,670 | Yes |

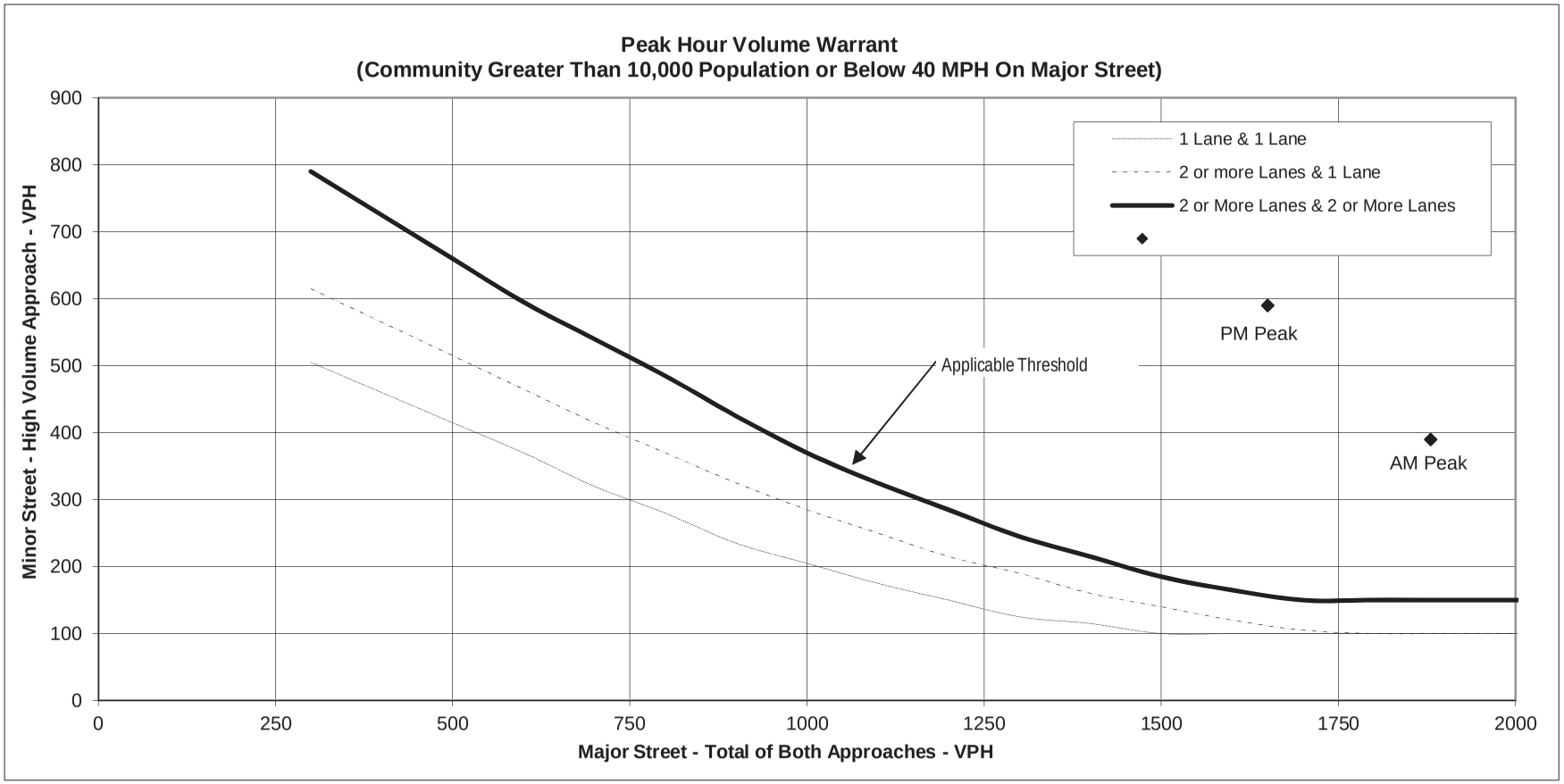



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 129 - 6th st & California Ave.
Type: 2 or more Lanes & 2 or more Lanes
Major Street (Orientation): 6th St. (EB-WB)
Minor Street (Orientation): California Ave. (NB-SB)

| | Minor Street Approach Volume (California) | | | Major Street Approach Volume (6th St) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 390 | 90 | 390 | 890 | 990 | 1,880 | Yes |
| PM Peak | 590 | 70 | 590 | 840 | 810 | 1,650 | Yes |

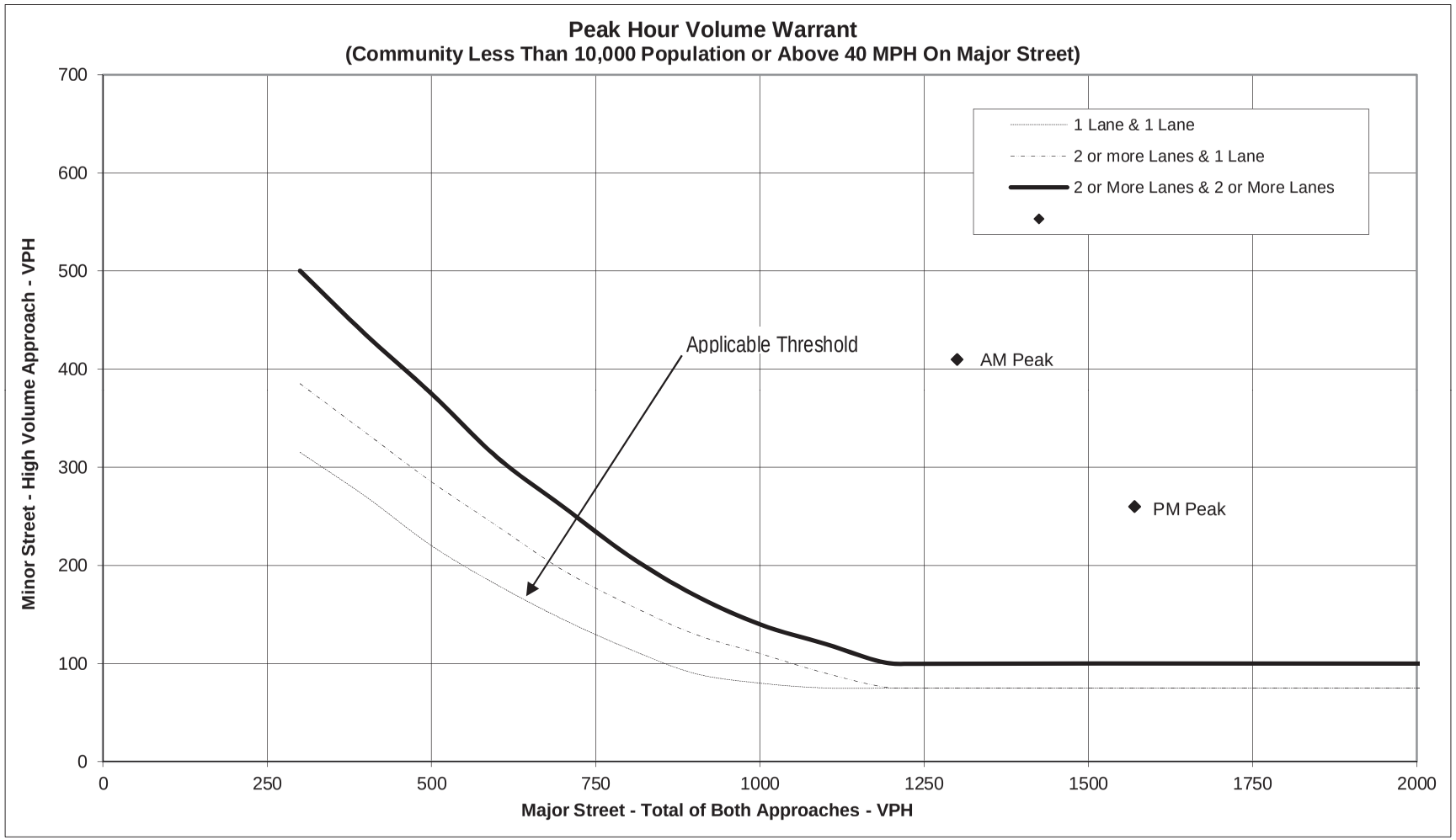



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 132 - San Timoteo Canyon Rd. Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): San Timoteo (EB-WB)
Minor Street (Orientation): Alessandro Rd. (NB-SB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (San Timoteo) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 30 | 410 | 410 | 380 | 920 | 1,300 | Yes |
| PM Peak | 50 | 260 | 260 | 810 | 760 | 1,570 | Yes |

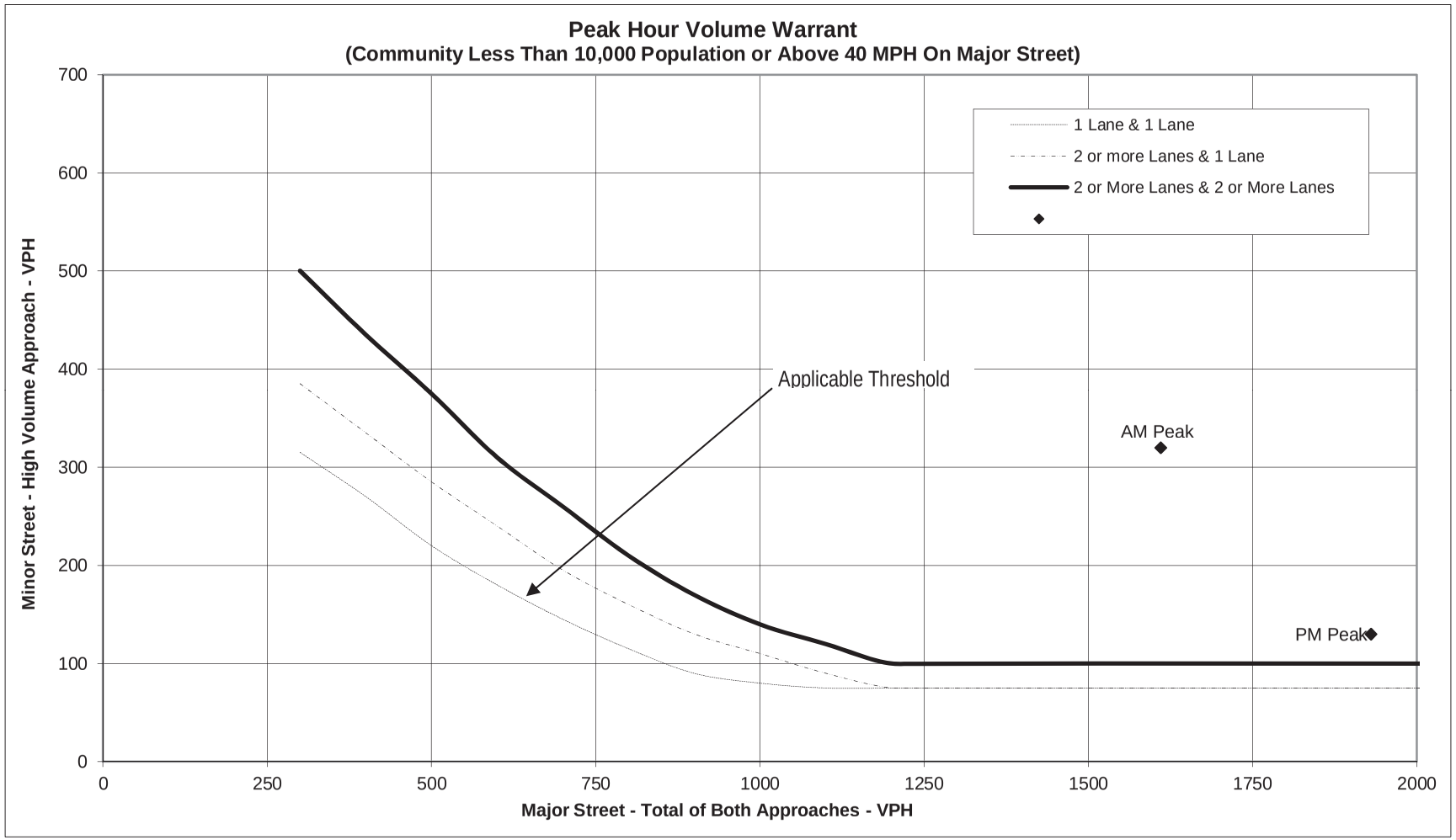



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 133 - Live Oak Canyon & San Timoteo Canyon Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Live Oak (EB-WB)
Minor Street (Orientation): San Timoteo (NB-SB)

| | Minor Street Approach Volume (San Timoteo) | | | Major Street Approach Volume (Live Oak) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 40 | 320 | 320 | 680 | 930 | 1,610 | Yes |
| PM Peak | 30 | 130 | 130 | 930 | 1,000 | 1,930 | Yes |

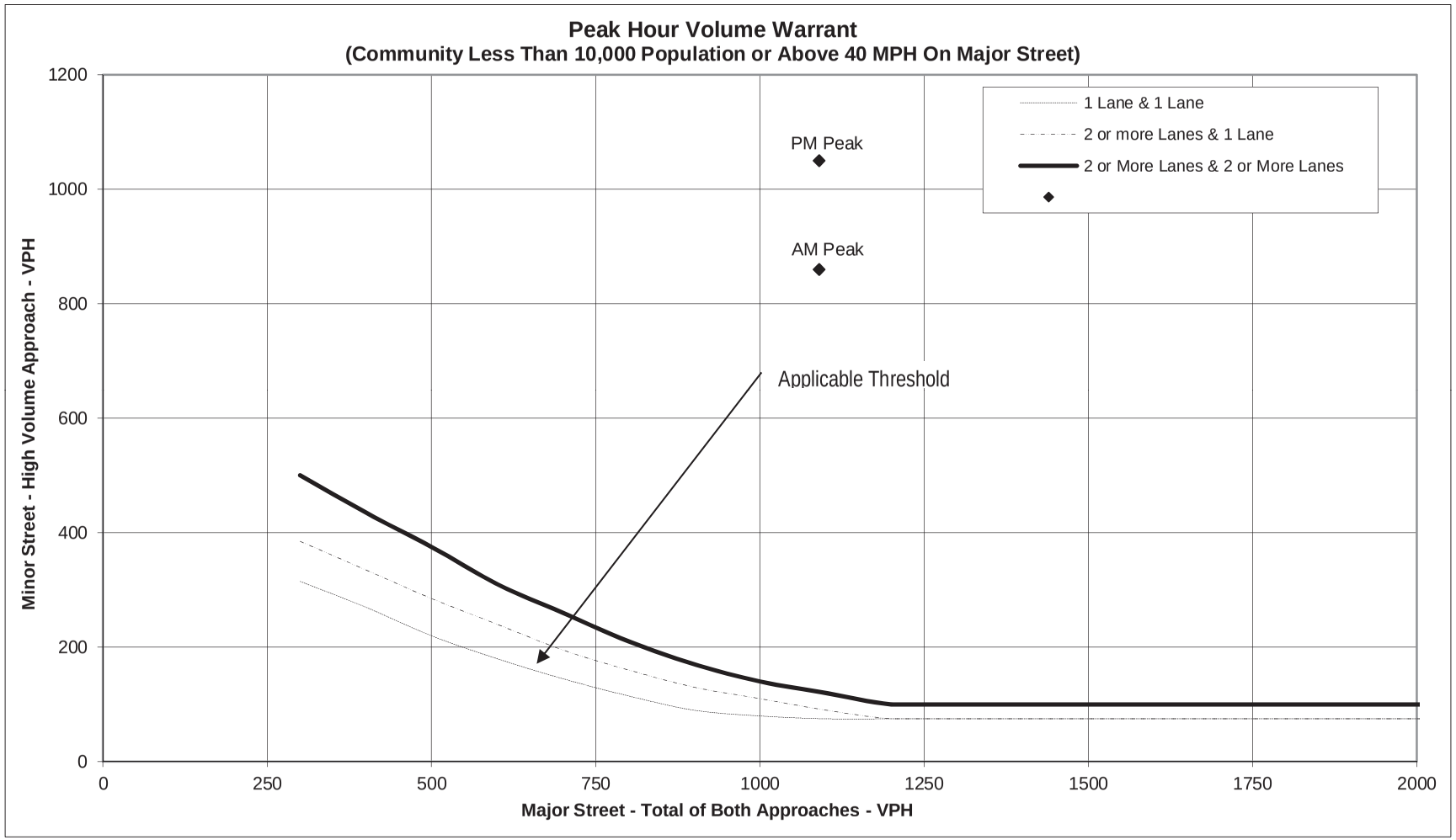



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 134 - San Timoteo Canyon Rd. & Redlands Blvd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): San Timoteo (EB-WB)
Minor Street (Orientation): Redlands Blvd. (NB)

| | Minor Street Approach Volume (Redlands) | | | Major Street Approach Volume (San Timoteo) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB + WB | Warrant 3? |
| AM Peak | 860 | 0 | 860 | 910 | 180 | 1,090 | Yes |
| PM Peak | 1,050 | 0 | 1,050 | 930 | 160 | 1,090 | Yes |

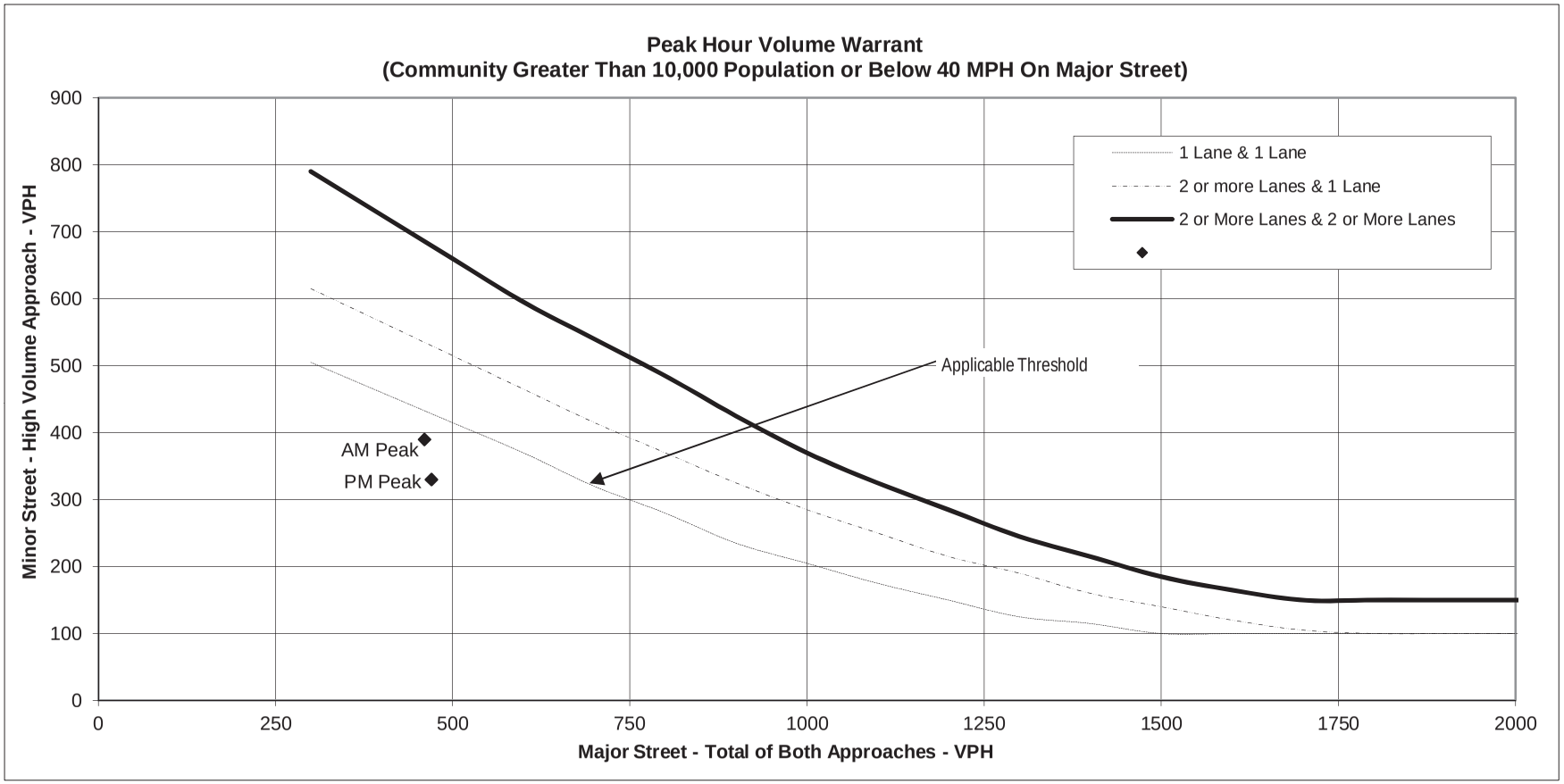



Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 135 - Crescent Ave. & Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Crescent Ave. (EB-WB)
Minor Street (Orientation): Alessandro Rd. (NB-SB)

| | Minor Street Approach Volume (Alessandro) | | | Major Street Approach Volume (Crescent) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | NB | SB | High Vol Approach | EB | WB | EB+WB | Warrant 3? |
| AM Peak | 390 | 0 | 390 | 80 | 380 | 460 | No |
| PM Peak | 330 | 0 | 330 | 160 | 310 | 470 | No |

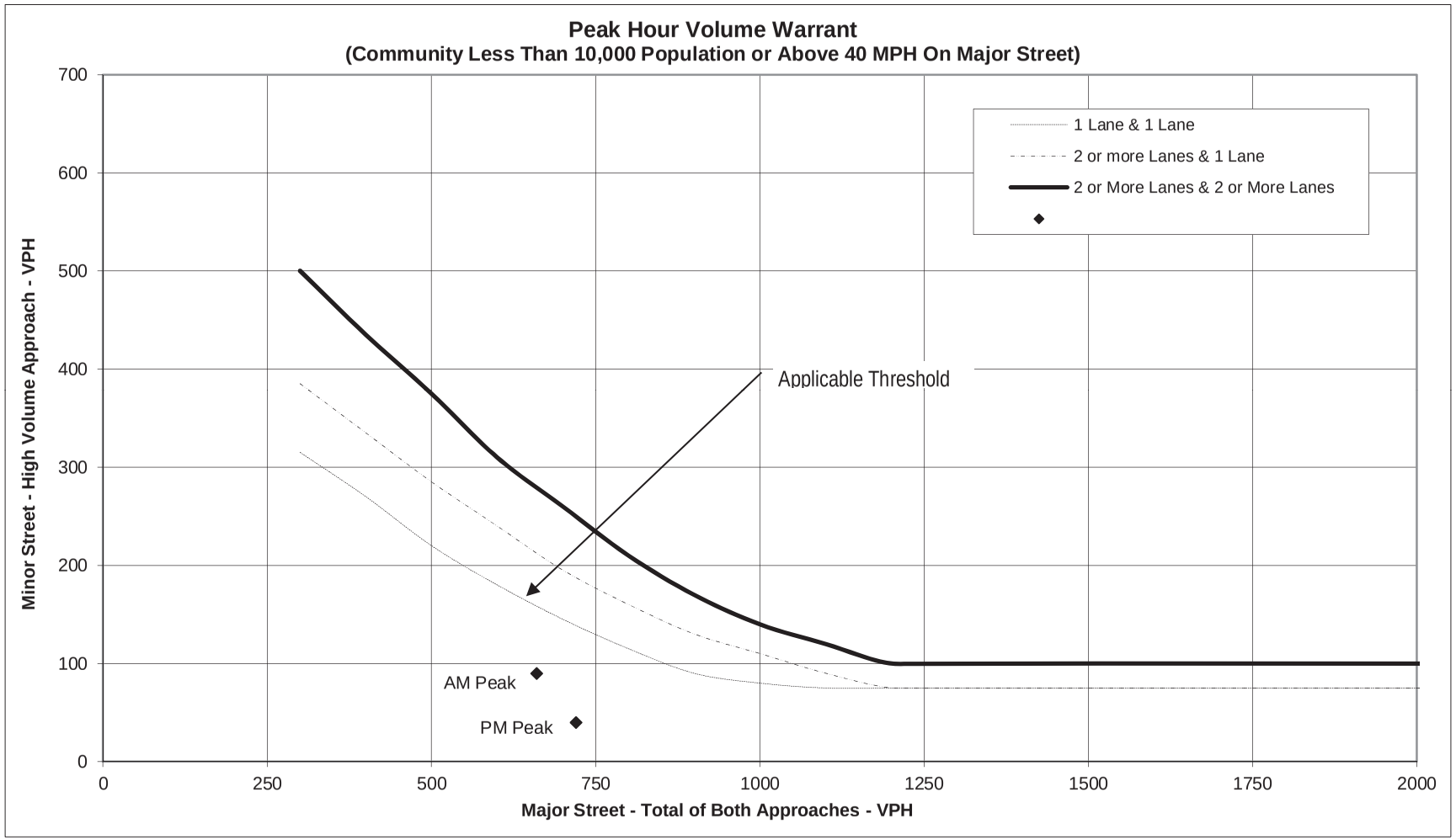



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane

# PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2035 Plus Build-out
Intersection: 136 - Sunset Dr. & Alessandro Rd.
Type: 1 Lane & 1 Lane
Major Street (Orientation): Alessandro (NB-SB)
Minor Street (Orientation): Sunset Dr. (EB-WB)

| | Minor Street Approach Volume (Sunset) | | | Major Street Approach Volume (Alessandro) | | | Satisfies |
|---|---|---|---|---|---|---|---|
| Time | EB | WB | High Vol Approach | NB | SB | NB + SB | Warrant 3? |
| AM Peak | 40 | 90 | 90 | 340 | 320 | 660 | No |
| PM Peak | 30 | 40 | 40 | 400 | 320 | 720 | No |




Note: 100 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 75 VPH as the threshold for a minor street approach with one lane

PARSONS BRINCKERHOFF

# Memorandum

## World Logistics Center Specific Plan & EIR

TO: Thomas Jelenić, Highland Fairview

FROM: Don Hubbard, TE, AICP

DATE: July 15, 2014

SUBJECT: **High School #5 and the WLC**

Recent discussion of the Draft EIR for High School #5[1] has raised concerns about whether there may be unforeseen traffic problems if both the high school and the WLC are approved. These concerns arise from the fact that the EIR for the high school did not assume construction of the WLC and that the traffic analysis for the WLC did not assume a school at this location. In each case the traffic study correctly followed City-approved assumptions, as will be explained below, but the combination of the two projects has not been analyzed up to now.

We therefore performed an analysis intended to find out what cumulative traffic conditions would be like if both the high school and the World Logistics Center (WLC) were constructed as planned. This analysis builds on the previous work done for the WLC and on Appendix I (Traffic Impact Analysis) of the Draft EIR for the high school. Our analysis is based on the assumption that the high school will be built at School Site 2, which is on the north side of Ironwood Avenue between Redland Boulevard and Quincy Street (see Exhibit 1).

*Traffic Impact Study for the High School*

The traffic impact analysis for High School No. 5 was done somewhat differently than the one for the WLC. Key differences include:

- The two studies used different methodologies to forecast future ambient traffic. The high school study added the effect of a number of proposed projects within a mile of the school site 2 (see Table 2 of their TIA) plus an assumed background growth of 2% per year. The WLC analysis also assumed the known projects, but modeled full build-out of the city's general plan rather than an assumed uniform growth rate. The results were nevertheless similar in terms overall traffic volumes in the cumulative condition. For example, the high school study assumed that 605 vehicles would pass in front of the school in the AM peak hour while the WLC assumed that 610 would use this section of Ironwood Avenue.
- The WLC studies assumed that School Site No. 2 would be built as single-family dwellings, in accordance with the zoning in the General Plan.
- The analysis for the high school only covered the AM peak hour when traffic to and from the school occurs at the same time as peak commute hours for other traffic. The preparers reasoned that traffic leaving the school would occur between 2:30 and 3:30 in the afternoon when ambient traffic is light, and that the school would have a minimal impact during the PM peak hour. We concur with this reasoning.

It is not clear from the high school study whether they assumed that some students and teachers would live in the Moreno Highlands Specific Plan area; i.e. the site of the WLC. The project trip distribution figure appears to show 35%-to-40% of trips to the school would come from areas east of Redlands Boulevard (see Exhibit 1) and the school district's facilities master plan appears to show potential new students living with the WLC site. So it seems possible that at least some of the school traffic shown in the school's traffic analysis will not materialize if the residential development in the Moreno Highland Specific Plan is replaced with warehouse development in the WLC Specific Plan.

[1] *High School No. 5 Alternate Sites Environmental Impact Report*, prepared for the Moreno Valley Unified School District by The Planning Center, November 2009.

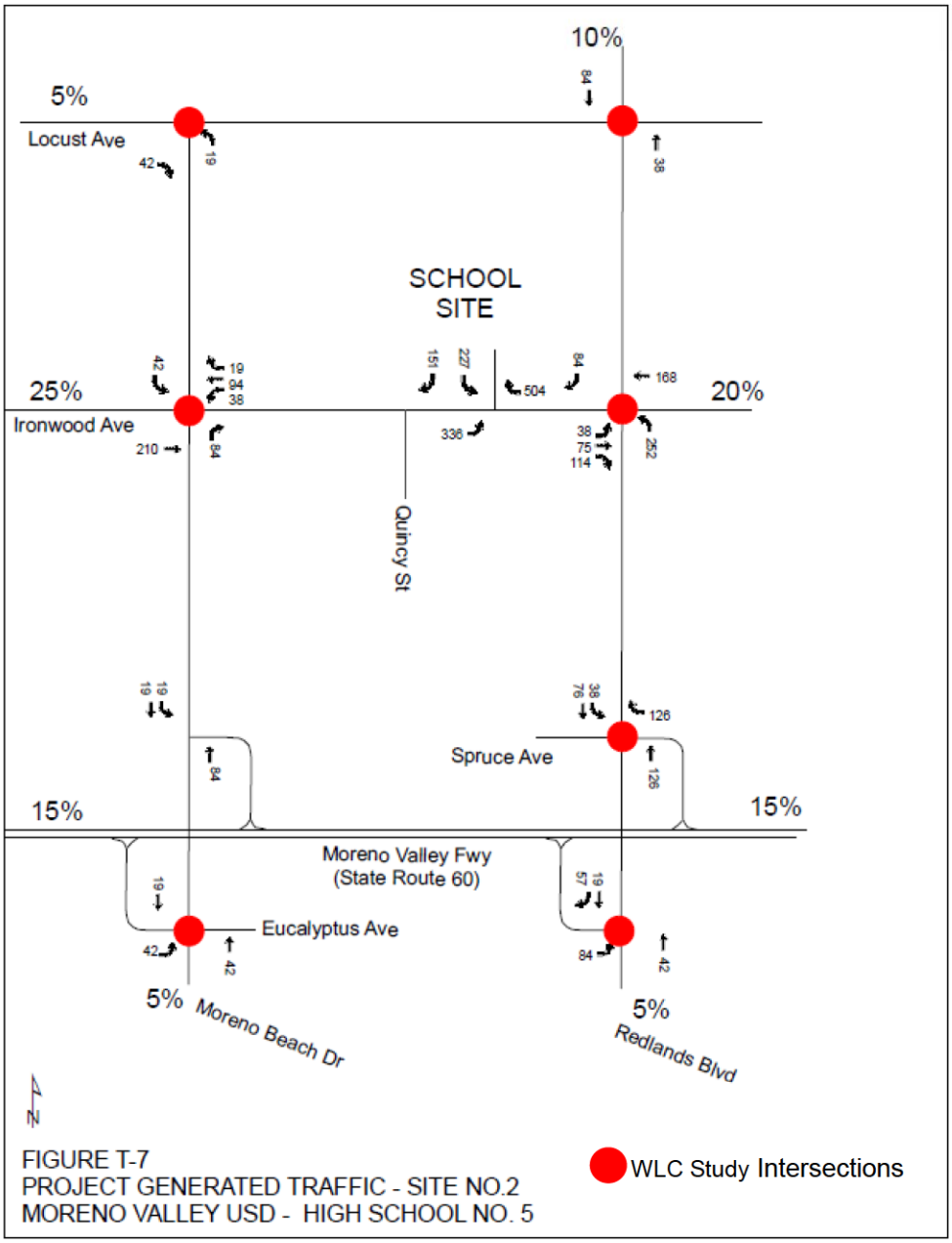



**Exhibit 1: Distribution of Traffic to and from High School No. 5**

(source: *High School No. 5 Alternate Sites Environmental Impact Report, Appendix I)*

The traffic study for the high school found that it would have significant impacts at two intersections and recommended improvements to those, with the main impacts and improvements occurring at the intersection of Redlands Blvd. and Ironwood Ave (see Exhibit 3[3]).

[3] Note that Exhibit 3 includes some improvements that are not considered mitigation measures

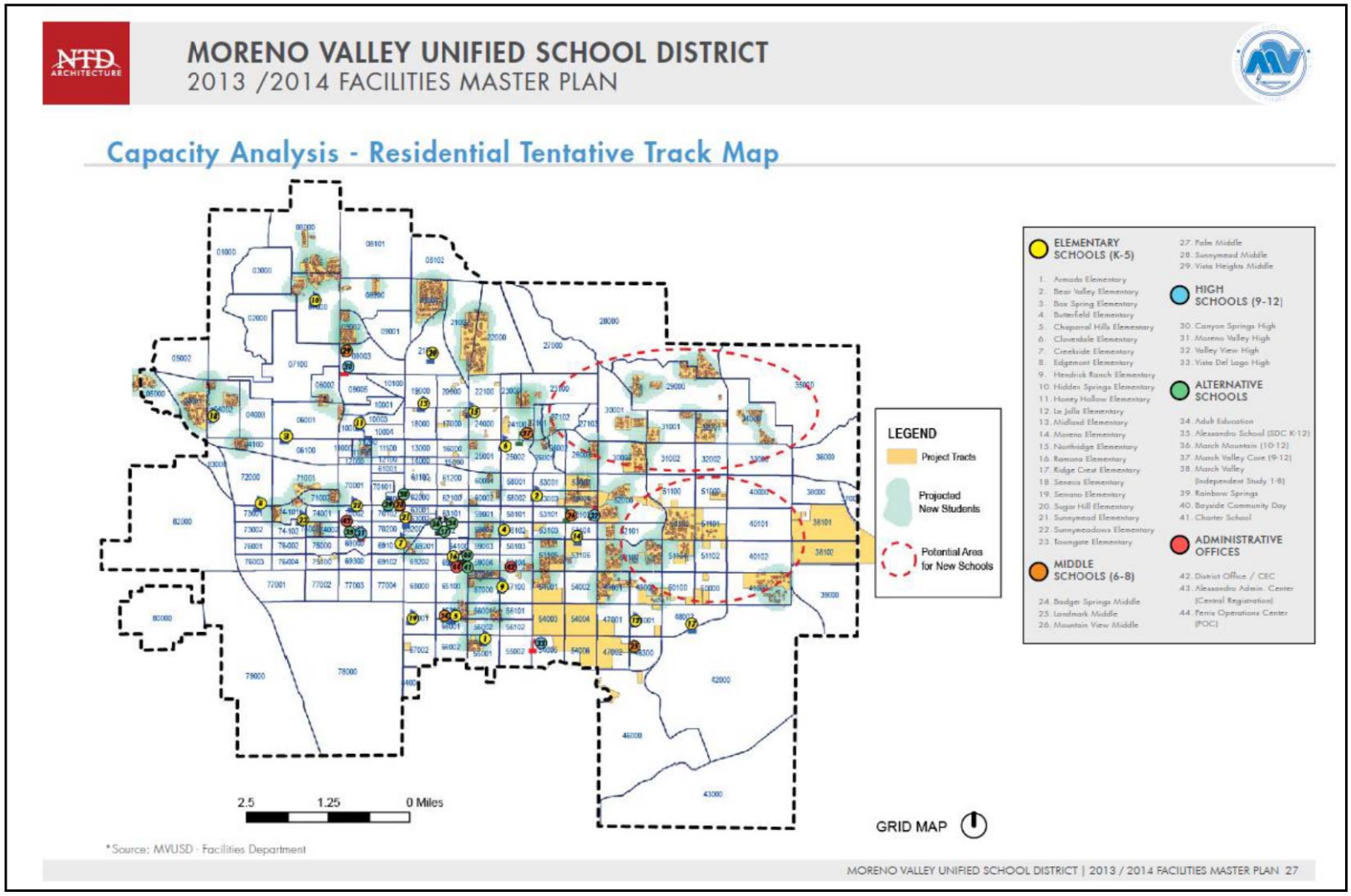



**Exhibit 2: Residential Tentative Tract Map for Moreno Valley Unified School District**

(Source: Moreno Valley Unified School District 2013/2014 Facilities Master Plan)

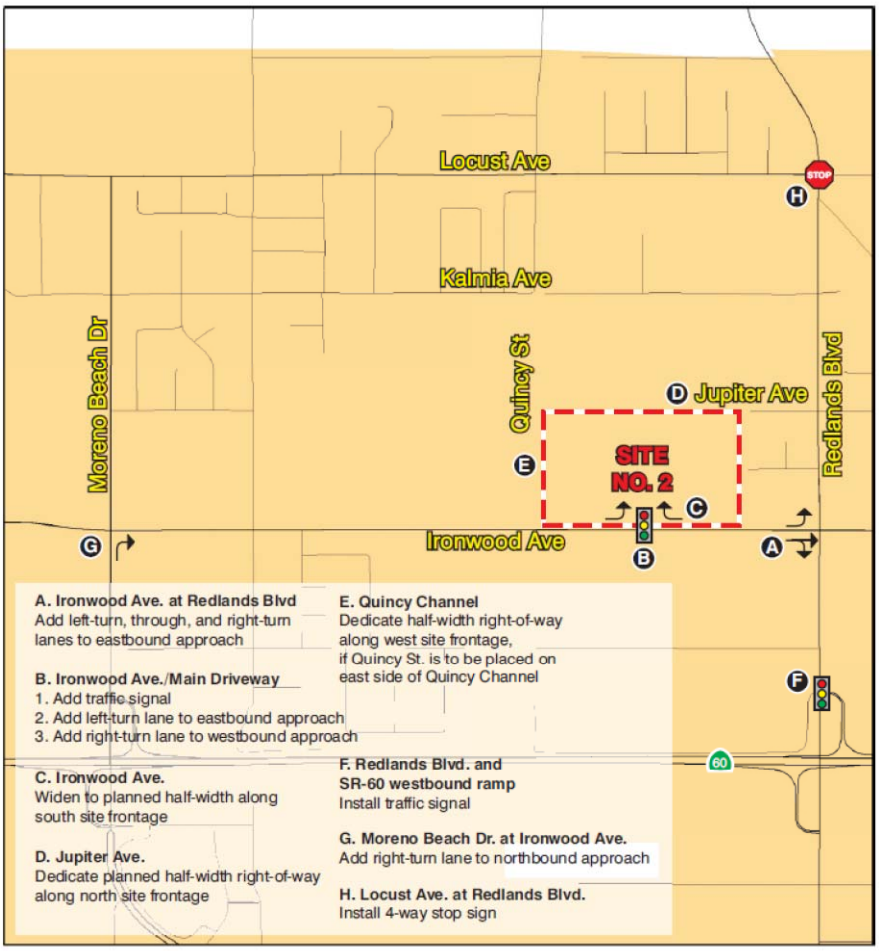



**Exhibit 3: Roadway Improvements Proposed for High School No. 5**

(Source: *High School No. 5 Alternate Sites Environmental Impact Report)*

*Cumulative Traffic Conditions with both High School No. 5 and WLC*

Traffic conditions in 2035 with both the WLC and High School No. 5 were analyzed by manually adding the school-related traffic shown in Exhibit 1 to the Cumulative Plus Project traffic in the WLC traffic analysis. The key results from this analysis were:

- Exhibit 4 shows that the addition of High School #5 to would result in new cumulatively significant impacts in the AM peak hour at two locations, namely the Redlands Blvd/Ironwood Intersection and the Moreno Beach Drive/Ironwood Avenue intersection (see Column K in Exhibit 4). These are the approaches to the school from the east and the west, respectively. However, if the mitigation measures identified in the high school's EIR are implemented in conjunction with the high school then the impacts of both the school and the WLC at these two locations in the AM peak hour would be fully mitigated (see Column N).
- Exhibit 5 shows the analysis from the WLC traffic study for the same intersections but for the PM peak hour. Note that both the Redlands/Ironwood and Moreno Beach/Ironwood intersections, which were identified in Exhibit 4 as having new impacts in the AM peak hour, were going to be impacted by the WLC in the PM peak hour in any case (Column K). Mitigation measures were identified in the WLC study (Column M) that would bring about an acceptable LOS in the PM peak hour (Column N).

| ID in WLC TIA | Study Intersection | TUMF or DIF Facility? | LOS Standard | Traffic Control | Background Traffic Only (no HS or WLC) | | Background Plus WLC Build-out | | Background Plus WLC Build-out Plus HS #5 | | Mitigation Measure Identified in HS's EIR | LOS After HS's Mitigations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay | LOS | Delay | LOS | Delay | LOS | | |
| A | B | C | D | E | F | G | H | I | J | K | L | N |
| IN-10 | Redlands Blvd/Locust Ave | DIF | C | SIGNAL | 5.4 | A | 10.7 | B | 11.3 | B | | B |
| IN-11 | Redlands Blvd/Ironwood Ave | TUMF,DIF | D | SIGNAL | 45.0 | D | 46.4 | D | 79.5 | **E** | Widen EB Approach and Provide Left-Turn, Through, and Right-Turn Lanes. | D |
| IN-13 | Redlands Blvd/SR-60 WB ramps | TUMF | D | SIGNAL | 5.7 | A | 6.7 | A | 7.4 | A | | A |
| IN-14 | Redlands Blvd/SR-60 EB | TUMF | D | SIGNAL | 5.1 | A | 5.4 | A | 6.9 | A | | A |
| IN-35 | Moreno Beach Dr/Locust Ave | TUMF,DIF | C | CSS | 29.4 | **D** | 31.0 | **D** | 39.4 | **E** | | **E** |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | TUMF,DIF | D | SIGNAL | 46.6 | D | 52.9 | D | 63.9 | **E** | Provide Right-Turn Lane on NB Approach. | D |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | TUMF,DIF | D | SIGNAL | 113.9 | **F** | 147.6 | **F** | 155.1 | **F** | | **F** |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

"CSS" means cross-street is stop-controlled

Indicates LOS exceeds the target level

Indicates Significant Impact Not Found in WLC Traffic Impact Analysis

**Exhibit 4: Intersection LOS in 2035 AM Peak Hour with High School #5's Mitigations**

| ID in WLC TIA | Study Intersection | TUMF or DIF Facility? | LOS Standard | Traffic Control in 2035 | Background Traffic Only (no HS or WLC) | | Background Plus WLC Build-out | | Background Plus WLC Build-out Plus HS #5 | | Mitigation Measure Identified in WLC's EIR | LOS After WLC's Mitigations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay | LOS | Delay | LOS | Delay | LOS | | |
| A | B | C | D | E | F | G | H | I | J | K | M | N |
| IN-10 | Redlands Blvd/Locust Ave | DIF | C | SIGNAL | 16.6 | B | 20.3 | C | 20.3 | C | | C |
| IN-11 | Redlands Blvd/Ironwood Ave | TUMF,DIF | D | SIGNAL | 48.2 | D | 72.3 | **E** | 72.3 | **E** | Add 1 SB LT lane. | D |
| IN-13 | Redlands Blvd/SR-60 WB ramps | TUMF | D | SIGNAL | 7.5 | A | 10.9 | B | 10.9 | B | | B |
| IN-14 | Redlands Blvd/SR-60 EB | TUMF | D | SIGNAL | 7.3 | A | 10.0 | A | 10.0 | A | | A |
| IN-35 | Moreno Beach Dr/Locust Ave | TUMF,DIF | C | CSS | 37.9 | **E** | > 180.0 | **F** | > 180.0 | **F** | Signalize. Add 1 WB LT lane. | B |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | TUMF,DIF | D | SIGNAL | 50.4 | D | 61.9 | **E** | 61.9 | **E** | Change N/S from split to protected LT phase. Add NB and SB LT lanes. | D |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | TUMF,DIF | D | SIGNAL | 155.8 | **F** | > 180.0 | **F** | > 180.0 | **F** | Change EB from 1 shared LT/TH to 1 LT and 1 TH. Add 1 SB LT lane. Change split phasing on E/W movement to protected LT phasing. | D |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

"CSS" means cross-street is stop-controlled

Indicates LOS exceeds the target level

Indicates Significant Impact Not Found in WLC Traffic Impact Analysis

**Exhibit 5: Intersection LOS in 2035 PM Peak Hour with WLC Mitigations**

- The traffic conditions forecast for 2035 for the PM peak hour are significantly worse than the conditions forecast for the AM peak hour (compared Column J in Exhibit 4 with Column H in Exhibit 5). As a result, the mitigation measures identified in the WLC traffic study for the PM peak hour (Column M in Exhibit 5) would also suffice to mitigate the AM peak hour impacts of both the WLC and High School #5 combined even in the absence of the school's mitigation measures (see Column M in Exhibit 6).

*Conclusions*

Our analysis found that if High School No. 5 and the WLC were both built there would be cumulatively significant impacts in the AM peak hour at the Redlands/Ironwood and Moreno Beach/Ironwood intersections where such impacts were not found in the traffic analysis for the WLC. In each case the impacts of both the school and the WLC would be fully mitigated if the school district to implement the measures identified in the high school's EIR in conjunction with the development of the school.

Our analysis also found that even if the mitigation measures identified in the high school's EIR were not implemented the mitigation measures already identified in WLC traffic study would suffice to mitigate the impacts of both the WLC and High School No. 5.

Our conclusion therefore is that as long as the mitigation measures identified in the WLC EIR are implemented then the traffic impacts arising from the combination of the two projects would be fully mitigated without any further measures being required.

| ID in WLC TIA | Study Intersection | TUMF or DIF Facility? | LOS Standard | Traffic Control | Background Traffic Only (no HS or WLC) | | Background Plus WLC Build-out | | Background Plus WLC Build-out Plus HS #5 | | Mitigation Measure Identified in WLC's EIR | LOS After WLC's Mitigations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay | LOS | Delay | LOS | Delay | LOS | | |
| A | B | C | D | E | F | G | H | I | J | K | L | M |
| IN-10 | Redlands Blvd/Locust Ave | DIF | C | SIGNAL | 5.4 | A | 10.7 | B | 11.3 | B | | B |
| IN-11 | Redlands Blvd/Ironwood Ave | TUMF, DIF | D | SIGNAL | 45.0 | D | 46.4 | D | 79.5 | **E** | Add 1 SB LT lane. | D |
| IN-13 | Redlands Blvd/SR-60 WB ramps | TUMF | D | SIGNAL | 5.7 | A | 6.7 | A | 7.4 | A | | A |
| IN-14 | Redlands Blvd/SR-60 EB | TUMF | D | SIGNAL | 5.1 | A | 5.4 | A | 6.9 | A | | A |
| IN-35 | Moreno Beach Dr/Locust Ave | TUMF, DIF | C | CSS | 29.4 | **D** | 31.0 | **D** | 39.4 | **E** | Signalize. Add 1 WB LT lane. | A |
| IN-36 | Moreno Beach Drive & Ironwood Avenue | TUMF, DIF | D | SIGNAL | 46.6 | D | 52.9 | D | 63.9 | **E** | Change N/S from split to protected LT phase. Add NB and SB LT lanes. | D |
| IN-37 | Moreno Beach Dr/SR-60 EB Ramps | TUMF, DIF | D | SIGNAL | 113.9 | **F** | 147.6 | **F** | 155.1 | **F** | Change EB from 1 shared LT/TH to 1 LT and 1 TH. Add 1 SB LT lane. Change split phasing on E/W movement to protected LT phasing. | D |

Notes:

"NB" and "SB" denote northbound and southbound respectively

"EB" and "WB" denote eastbound and westbound respectively

"CSS" means cross-street is stop-controlled

Indicates LOS exceeds the target level

Indicates Significant Impact Not Found in WLC Traffic Impact Analysis

**Exhibit 6: Intersection LOS in 2035 AM Peak Hour with WLC Mitigations**

VI.A.

EASTERN MUNICIPAL WATER DISTRICT
SINCE 1950

*Board of Directors*

*President and Treasurer*
Joseph J. Kuebler, CPA

*Vice President*
Philip E. Paule

Ronald W. Sullivan
Randy A. Record
David J. Slawson

*General Manager*
Paul D. Jones II, P.E.

*Director of The Metropolitan Water District of So. Calif.*
Randy A. Record

*Board Secretary and Assistant to the General Manager*
Rosemarie V. Howard

*Legal Counsel*
Redwine and Sherrill

March 21, 2012

TO: Board of Directors

FROM: General Manager

SUBJECT: Approve and Authorize a Water Supply Assessment for the World Logistics Center Specific Plan in Moreno Valley

**RECOMMENDATION**

It is recommended that the Board, by Minute Order, approve and authorize the attached Water Supply Assessment for the World Logistics Center Specific Plan in Moreno Valley, in accordance with the provisions of Senate Bill 221 (SB 221) and Senate Bill 610 (SB 610). The following Water Supply Assessment Proposal was presented to the Board Planning Committee on February 21, 2012, and received its full concurrence.

Coneur:

Paul D. Jones II, P.E.
General Manager

Submitted by:

Behrooz Mortazavi
Assistant General Manager
Resource Development

Director: Slawson
Division: 5

*Mailing Address:* Post Office Box 8300 Perris, CA 92572-8300 Telephone: (951) 928-3777 Fax: (951) 928-6177
*Location:* 2270 Trumble Road Perris, CA 92570 Internet : www.emwd.org

## BACKGROUND

Senate Bills 221 and 610 require the District respond to requests for a statement that adequate water supplies are or will be available to meet the water demands associated with proposed land development. Senate Bill 610 focuses on the content of a water supply agency's Urban Water Management Plan and stipulates that, when an Environmental Impact Report is required in connection with a project, the appropriate water supply agency must provide an assessment of whether its total projected water supplies will meet the projected water demands associated with the proposed project. Senate Bill 221 also requires water supply verification when a tentative map, parcel map or development agreement for a project is submitted to a land-use agency for approval. Senate Bill 221 applies to proposed residential development of more than 500 dwelling units with some exceptions. Senate Bill 610 applies to a proposed residential development of more than 500 dwelling units, or large commercial, industrial or mixed-use development.

This assessment is prepared for the World Logistics Center Specific Plan in Moreno Valley proposed by Highland Fairview. The project proposes 41.6 million square-feet of logistics facilities on 2,655 acres of light industrial development. The project is located in the eastern part of the City of Moreno Valley and is generally bounded by Gilman Spring Road, Redlands Boulevard and the Moreno Valley freeway. The projected demand for the project is estimated to be 1,991.25 AFY. Exhibit "A" shows the location of this project.

Providing an accurate and timely response to a request for a water supply assessment supports the Strategic Plan Objective I (Community Relations) to, "Promote and sustain effective communication between the District and its stakeholders."

Attachments: Exhibit "A" Vicinity Map
Exhibit "B" WSA
Available upon request:
Appendix A – EMWD 2010 Urban Water Management Plan
Appendix B – MWD 2010 Regional Urban Water Management Plan

Finance n/a

Purchasing/Contracts n/a

Author: Elizabeth Lovsted

EL:tm

World Logistics Ctr_WSA Brd Ltr_032112

# Exhibit "A"
# World Logistics Center Specific Plan Location

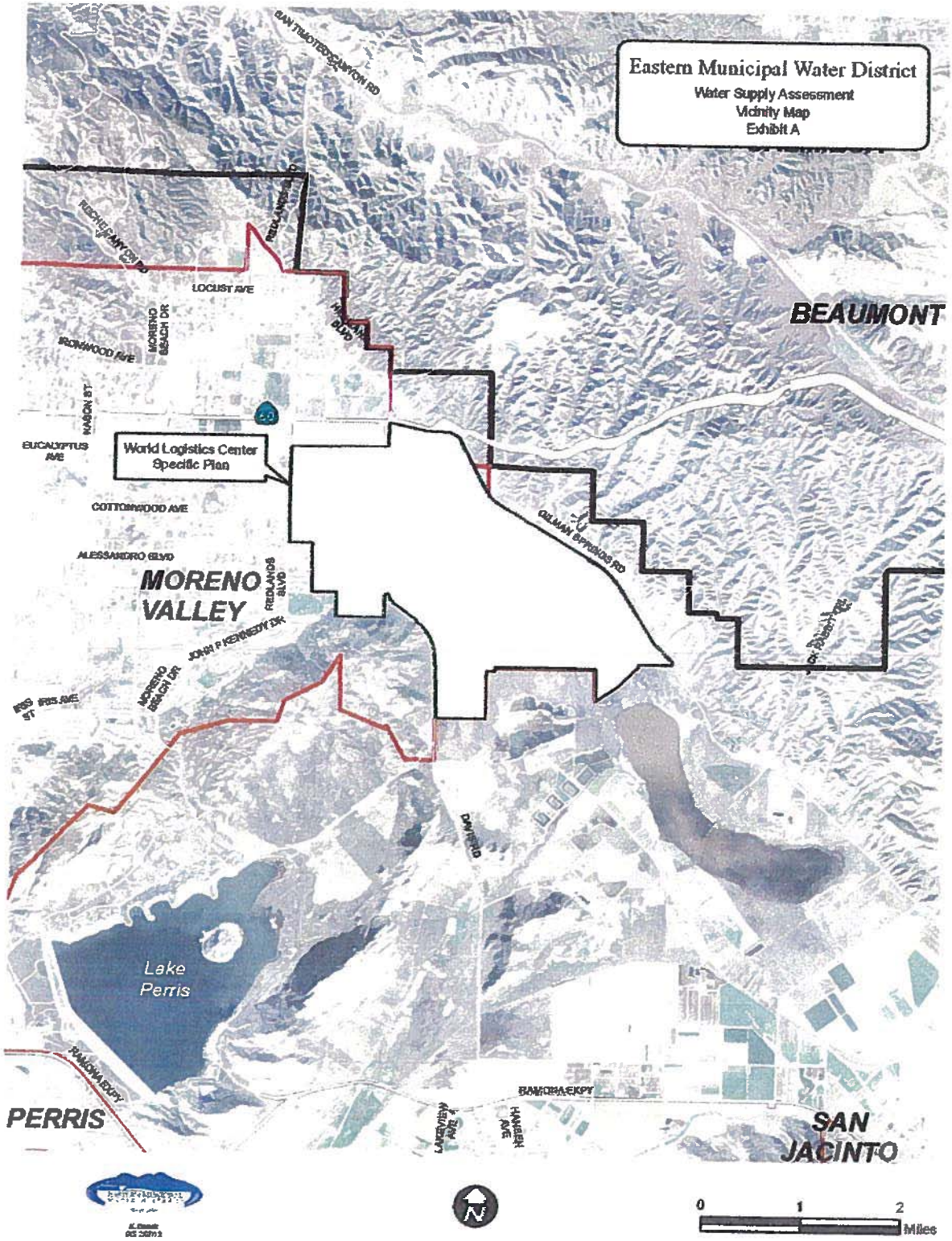


Exhibit "B"

EASTERN MUNICIPAL
WATER DISTRICT
SINCE 1950

# Water Supply Assessment Report for the World Logistics Center Specific Plan in Moreno Valley

March 21, 2012

## Section I - Introduction

### *1.1 Purpose*

*Water Code 10910 (a)(b)(c)*

The purpose of the "Water Supply Assessment Report" is to satisfy the requirements under Senate Bill 610 (SB 610), Water Code Section 10910 et seq., and Senate Bill 221 (SB 221), Government Code Section 66473.7, that adequate water supplies are or will be available to meet the water demand associated with the proposed development. SB 610 focuses on the content of a water supply agency's Urban Water Management Plan (UWMP). It also stipulates that, when an environmental impact report is required in connection with a project, the appropriate water supply agency must provide an assessment of whether its total projected water supplies will meet the projected water demand associated with the proposed project. SB 221 requires water supply verification when a tentative map, parcel map, or development agreement for a project is submitted to a land use agency for approval. Senate Bill 221 applies to proposed residential development of more than 500 dwelling units with some exceptions. Senate Bill 610 applies to a proposed residential development of more than 500 dwelling units, or large commercial, industrial, or mixed-use development. The need for an assessment or verification is determined by the lead agency for the project.

### *1.2 Project Description*

This assessment is prepared for the World Logistics Center Specific Plan in Moreno Valley proposed by Highland Fairview. The project proposes 41.6 million square-feet of logistics facilities on 2,655 acres of light industrial development. The project is located in the eastern part of the City of Moreno Valley and is generally bounded by Gilman Spring Road, Redlands Boulevard and the Moreno Valley freeway. The projected demand for the project is estimated to be 1,991.25 AFY. Exhibit "A" shows the location of this project.

### *1.3 Requirements*

The City of Moreno Valley requested that Eastern Municipal Water District (EMWD) prepare this Water Supply Assessment Report. EMWD has confirmed that the demand from the proposed project is within the limits of demand accounted for in the EMWD 2010 UWMP adopted in June of 2011. Accordingly, the District has elected to incorporate information from the 2010 UWMP in the preparation of this Water Supply Assessment Report as authorized by Water Code Section 10910 (c)(2). The 2010 UWMP is attached as Appendix A.

In accordance with Water Code Section 10910(d) – (f), the Water Supply Assessment shall:

1. Identify any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and provide a description of the quantities of water received in prior years by the public water system, under existing water supply entitlements, water rights, or water service contracts;

2. If no water has been received in prior years by the public water system, identify other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts to the same source of water as the public water system.

3. If groundwater is included in the proposed supply, identify the groundwater basin or basins from which the proposed project will be supplied; and include any applicable documentation of adjudicated rights to pump. If the basin is not adjudicated, regardless of whether the basin has been identified as over-drafted; provide a detailed description and analysis of the amount and location of groundwater pumped by the public water system for the past five (5) years from any groundwater basin from which the proposed project will be supplied; and provide a detailed description and analysis of the amount and location of groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project.

If the proposed project includes a "subdivision" of more than 500 residential dwelling units as defined by Government Code Section 66473.7(a)(1), the public water system shall also provide verification as to whether the public water system is able or unable to provide a sufficient water supply based upon an analysis of whether water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection, will meet the projected demand associated with the proposed subdivision which considers:

1. The historical record for at least 20 years;
2. The applicability of any urban water shortage contingency analysis;
3. The reduction in water supply for "specific water use sector" per an adopted resolution, ordinance or contract; and
4. The amount of water that can be reasonably relied upon from specified supply projects.

This assessment is a technical, informational, advisory opinion only. It is a supporting document for an environmental impact report and is not a commitment by EMWD to supply water for the proposed project. The information included is based on information available at the time of the report and changing circumstances could affect EMWD's water supply evaluation presented in this document.

This assessment does not specifically address funding of new or existing supplies. The cost of water supplies will increase over time. The developer of this project will be required to fund the acquisition of new supplemental supplies, treatment or recycled water facilities and water efficiency measures for existing customers. The extent of additional funding will be determined by EMWD and may take the form of a new component of connection fees or a separate charge. New customers may also be required to pay a higher commodity rate for water used than existing customers. This would offset the rising costs of new supplies.

Prior to project construction, the developer of this project is required to meet with EMWD staff to develop a plan of service. The plan of service will detail water, wastewater and recycled water requirements to serve the projects. If there is a change in the circumstances detailed in this assessment, EMWD will address the changes in the plan of service for the project. Modifications at the plan of service stage could reduce the amount of water available to serve this project.

## 1.4 *Background*

Eastern Municipal Water District was formed in 1950 and annexed into The Metropolitan Water District of Southern California (MWD) in 1951 to deliver imported water. With the acquisition of the Fruitvale Mutual Water Company in 1971, EMWD assumed the role of a groundwater producer. Presently, EMWD's supply portfolio includes desalted groundwater and recycled water in addition to imported water and potable groundwater.

EMWD's service area encompasses 540 square miles with an estimated population of over 755,000. The service area includes areas where EMWD provides retail water directly or indirectly through the following agencies:

City of Hemet Water Department
City of Perris Water System
City of San Jacinto Water Department
Lake Hemet Municipal Water District (LHMWD)
North Perris Water System
Nuevo Water Company
Rancho California Water District (RCWD)

## 1.5 *Urban Water Management Plan*

*Water Code 10910 (c) (1)*

In June of 2011, the EMWD Board of Directors adopted the 2010 UWMP. This plan details EMWD's demand projections and provides information regarding EMWD's supply. The majority of EMWD's existing and future planned demand is met through imported water delivered by MWD. EMWD's 2010 UWMP relies heavily on information and assurances included in the 2010 MWD Regional Urban Water Management Plan (2010 RUWMP) when determining supply reliability. Demand for EMWD included in the 2010 UWMP is calculated across the District and is not project-specific. The 2010 RUWMP is attached as Appendix B.

## 1.6 *Population Projection*

EMWD used the Riverside County Center for Demographic Research (RCCDR) 2010 Projection to estimate the future population. RCCDR considers land use and land agency information to develop projections. The RCCDR projection has been adopted by the Western Riverside Council of Governments.

As evidenced by the population projection, EMWD is located in a developing area. Approximately 40 percent of EMWD's service area remains undeveloped. As population and the associated water demand increase, EMWD will increase the amount of water imported through MWD to meet demands.

**Table 1 - Projected Population – 2015 – 2035**

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| EMWD Retail Service Area | 548,718 | 628,918 | 709,729 | 785,810 | 849,059 |
| City Of Perris Water Department | 9,151 | 9,464 | 9,906 | 10,312 | 10,699 |
| North Perris Water Company | 4,977 | 4,977 | 4,977 | 4,977 | 4,977 |
| Nuevo Water Company | 7,781 | 8,580 | 6,903 | 5,902 | 5,346 |
| City of San Jacinto Water Department | 19,706 | 21,467 | 22,738 | 23,635 | 24,341 |
| City of Hemet Water Department | 27,474 | 29,363 | 31,273 | 33,181 | 35,217 |
| Lake Hemet Municipal Water District | 47,446 | 50,865 | 54,296 | 57,742 | 59,167 |
| Rancho California Water District | 114,604 | 116,969 | 120,231 | 122,259 | 122,923 |
| **Total** | **779,857** | **870,603** | **960,053** | **1,043,818** | **1,111,729** |

Source: Riverside County Center for Demographic Research

## Section 2 - Identification of Supply and Quantity

*Water Code 10910 (d) (1)*

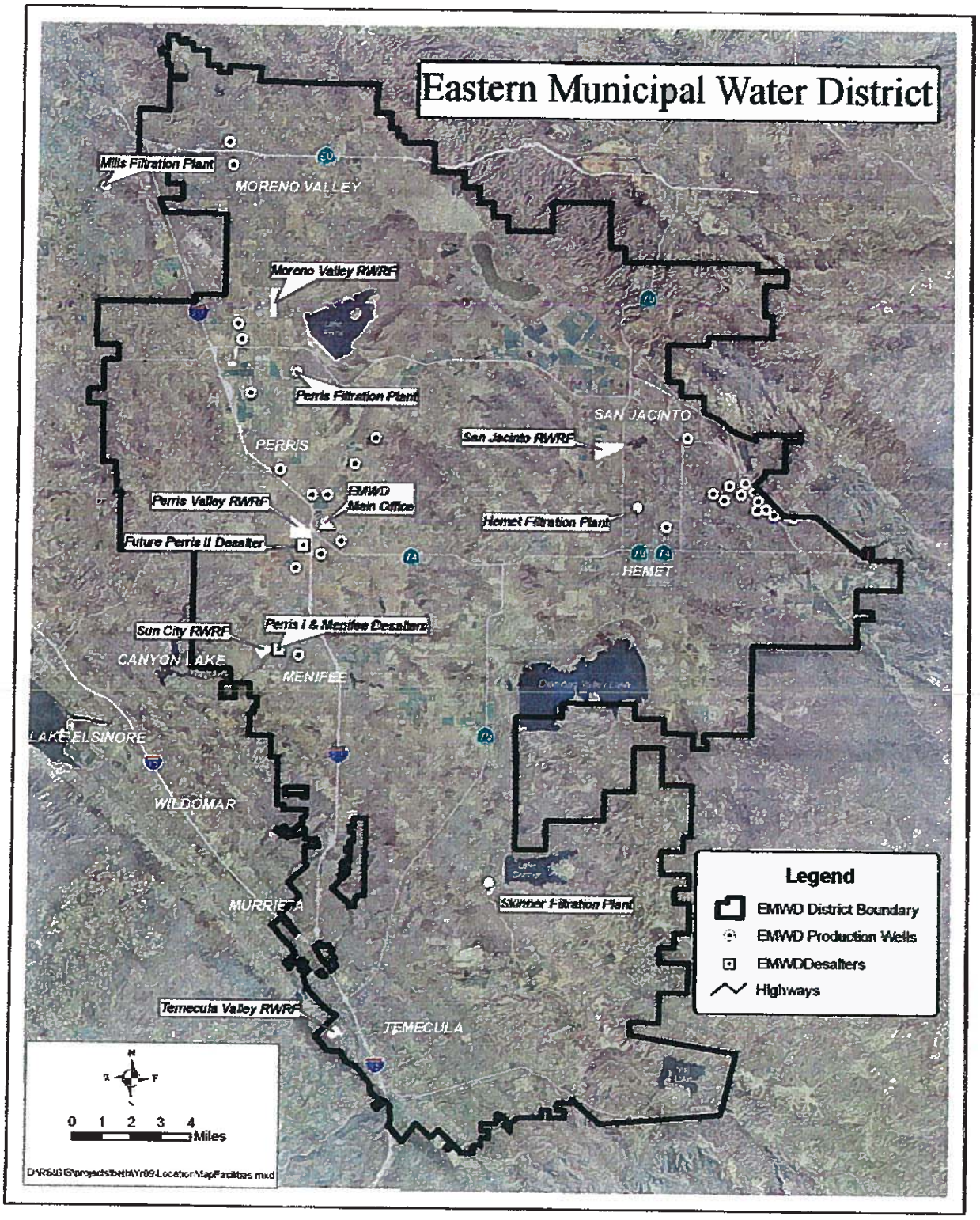
### *2.1 Overview of Supplies*

EMWD has four (4) sources of water supply: imported water purchased from MWD, local potable groundwater, local desalted groundwater and recycled water. Imported water accounts for approximately 65 percent, local potable groundwater is approximately 11 percent, desalted groundwater is 3 percent, and recycled water is 21 percent of supply. Table 2, with information taken from the 2010 UWMP, lists the past supply quantities by source. Figure 1 shows the location of EMWD supplies.

**Table 2 - Water Supply (AFY) – 2006 – 2010**

| Type | Source | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| Imported | Metropolitan Water District | 110,400 | 109,900 | 94,400 | 84,200 | 75,000 |
| Imported – Locally Treated | Metropolitan Water District | 8,400 | 17,300 | 16,600 | 17,000 | 16,600 |
| Groundwater | West San Jacinto Management Area | 19,600 | 19,500 | 20,000 | 18,100 | 15,800 |
| Desalination | West San Jacinto Management Area | 4,800 | 4,800 | 3,000 | 4,800 | 5,800 |
| Recycled Water | EMWD Regional Water Reclamation Facilities | 28,800 | 38,600 | 35,100 | 39,200 | 41,500 |
| **Total** | | **172,000** | **190,100** | **169,100** | **163,300** | **154,700** |

**Figure 1 - Location of Supply Sources**



It is anticipated that the majority of the water demands within EMWD's jurisdiction caused by future development will be met through additional water imports from MWD recognizing the conditions described in this document. Imported sources will be supplemented by an increase in desalination of brackish groundwater, recycled water use and water use efficiency. In the 2010 RUWMP, MWD analyzed the reliability of water delivery through the State Water Project (SWP) and the Colorado River Aqueduct (CRA) and concluded that with the storage and transfer programs developed by MWD, MWD will have a reliable source of water to serve its member agencies' needs through 2030 during normal, historic single-dry and historic multiple-dry years within a 20-year projection. Unprecedented shortage will be addressed through the principles of the Water Surplus and Drought Management Plan as described in the MWD RUWMP.

**Table 3 - Existing Water Supply Resources – Average Year Hydrology – 2015 – 2035**

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Metropolitan Water District | 149,300 | 170,700 | 190,700 | 210,000 | 226,200 |
| Recycled Water | 43,900 | 50,000 | 53,900 | 54,900 | 55,300 |
| Groundwater | 13,200 | 13,200 | 13,200 | 13,200 | 13,200 |
| Existing Desalter | 7,500 | 7,500 | 7,500 | 7,500 | 7,500 |
| **Total Existing Supplies** | **213,900** | **241,400** | **265,300** | **285,600** | **302,200** |

Based on a average of 2004- 2009 conditions

To supplement existing water supplies, EMWD has identified several projects that would supplement imported supplies, retrofit of potable water landscape customers, indirect potable recharge and additional water use efficiency. These projects will offset the demand of existing water and free up resources for new development. Table 4 provides a summary of additional potential local supplies.

**Table 4 - Potential Water Supply – 2015 - 2035**

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Additional Recycled Water | 6,100 | 13,500 | 16,400 | 22,200 | 28,200 |
| Desalination | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 |
| Planned Additional Conservation | 0 | 0 | 1,300 | 4,300 | 6,400 |
| Water Transfers/Exchanges | 0 | 0 | 0 | 0 | 0 |
| **Total** | **10,600** | **18,000** | **22,200** | **31,000** | **39,100** |

These projects are in the planning stage of development and costs and implementation timelines are subject to change. New development will be required to help fund new water supply sources. The extent of additional funding will be determined by the EMWD and may take the form of a new component of connection fees or a separate charge. Details about funding will be developed with the plan of service

## 2.2 *Wholesale Water Supplies*

### 2.2a *Written Contracts or Other Proof of Entitlement*
*Water Code Section 10910 (d) (2) (A)*

EMWD is one of the 26 member agencies that make up MWD. The statutory relationship between MWD and its member agencies establishes the scope of EMWD's entitlements from MWD. Typically there are no set limits on supply quantities to member agencies and MWD has provided evidence in the 2010 RUWMP that its supplies will meet member agency demands during normal, historic single-dry and historic multiple-dry years within a 20-year projection.

During unprecedented shortage events, the MWD Water Supply Plan (WSAP) is implemented, requiring a reduction in demand by member agencies. The allocation plan takes into account member agency population growth and investments in local resources. Member agencies are allocated a portion of their anticipated demand with the assurance that a member agency will not see a retail shortage greater than the regional shortage. Water supply is not limited under the allocation plan but water use above a member agency's allocation is charged at a much higher rate. Several years of dry conditions and limitations on State Water Project operations required MWD to implement the allocation plan at a 10 percent regional shortage level from July of 2009 through April of 2011. This action follows the principles in the Water Surplus and Drought Management Plan as described in the 2010 RUWMP. During the allocation from MWD, EMWD implemented demand reduction strategies as outlined in its Water Shortage Contingency Plan and reduced imported demand below the allocation level.

### 2.2b *Metropolitan Water District of Southern California Supply*

EMWD relies on MWD to provide the majority of its potable water supply and a small percent of its non-potable water supply. The majority of EMWD's potable water is supplied in the northern part of EMWD by the Mills MWD Water Treatment Facility and in the southeastern portion of EMWD by the MWD Lake Skinner Water Treatment Facility. Untreated water from MWD is treated at EMWD's Perris and Hemet Microfiltration Plants for use as a potable source of water.

It is anticipated that the majority of the water demands within EMWD's jurisdiction caused by future development, will be met through additional water imports from MWD recognizing the conditions described in this document. Imported sources will be supplemented by an increase in desalination of brackish groundwater, recycled water use and water use efficiency. In the 2010 RUWMP, MWD analyzed the reliability of water delivery through the State Water Project (SWP) and the Colorado River Aqueduct. The RUWMP concluded that with programs developed, MWD will have a reliable source of water to serve its member agencies' needs through 2035. The analysis included in the UWMP included reliability data for historic single-dry and historic multiple-dry years. Unprecedented shortage will be addressed through the Water Supply Allocation Plan as described in the MWD RUWMP.

### 2.2c *MWD Regional Urban Water Management Plan*

The 2010 RUWMP provides information about MWD supply reliability and demand. MWD does not provide supply projections for each member agency; instead MWD uses a regional approach to developing projections. MWD calculates the demand for the entire region, as discussed in Appendix A.1 of the 2010 RUWMP, and then, using information about existing and proposed local projects, determines the amount of imported water that will be needed in the future. EMWD staff worked with MWD on the 2010 RUWMP, exchanging information about demand, local supply and projects, and clarification on boundary information and population

projections. Based on this information and additional data provided by other member agencies, MWD states it is able to meet the projected demands of all member agencies through 2035. The information supplied in the 2010 RUWMP provides assurance that MWD will have a reliable water supply available to deliver the demand required by all the member agencies including EMWD through 2035, even during dry periods. Under extreme conditions, water supply could be allocated to member agencies using the WSAP to preserve storage. The 2010 RUWMP is included as Attachment B of this assessment.

### *2.3 Local Resources*
*Water Code 10910 (d) (1)*

In an effort to reduce dependency on imported water from MWD, EMWD has developed several programs designed to take advantage of local resources. High-quality groundwater is a source of water for local customers in the Hemet/San Jacinto Area. In the West San Jacinto Basin, groundwater is blended with imported water for use in the western portion of EMWD. EMWD has also constructed two (2) desalination facilities to recover poor quality groundwater with high total dissolved solids (TDS) levels in the West San Jacinto groundwater basin areas. The product water from the desalters enters EMWD's potable distribution system. A third desalter is now in the final stages of design.

### *2.4 Groundwater*
*Water Code Section 10910 (f)*

Groundwater information is included in this assessment to assist the lead agency in determining the adequacy of EMWD's total supply. Groundwater is not being proposed to serve this project. New developments, including this project, will be supplied with imported water – (1) treated imported water directly from The Metropolitan Water District of Southern California (MWD); (2) untreated imported water from MWD subsequently treated by EMWD; or (3) untreated imported water treated by EMWD and recharged into the basin for later withdrawal.

### *2.4a Urban Water Management Plan Review*
*Water Code Section 10910 (f) (1)*

The 2010 UWMP discusses projected groundwater use in EMWD and explains assumptions made about groundwater. In the following sections, portions of the 2010 UWMP are included with information about groundwater resources. The water supply for the proposed project will not include groundwater. The following information regarding EMWD's groundwater supply is for informational purposes only.

### 2.4b San Jacinto Watershed - Groundwater Management Zones in EMWD's Service *Area*
*Water Code Section 10910 (f) (2)*

The San Jacinto Watershed covers an area of approximately 728 square miles, measured above a point just downstream from Railroad Canyon Dam. The groundwater management zones of the San Jacinto Watershed lie within alluvium-filled valleys carved into the elevated bedrock plateau of the Perris Block. Collectively, the groundwater management zones are nearly surrounded by impermeable bedrock mountains and hills. Internally, island-like masses of granite and metamorphic bedrock rise above the valley floor.

The San Jacinto Fault Zone, which contains the Claremont and Casa Loma faults, is the major geologic feature that bounds and/or crosscuts many of the groundwater management zones, and

typically provides effective barriers to groundwater flow. The area between the Claremont and Casa Loma faults is a deep, alluvium-filled graben of tectonic origin, commonly referred to as the San Jacinto Graben. The effective base of freshwater in the graben is known to be quite deep but has not been precisely determined. The San Jacinto Graben consists of a forebay area in the southeast where surface water recharge primarily occurs, and a pressure area in the northwest where deep aquifers exist under confined conditions. To the east, the San Jacinto mountain range is the dominant geographic feature of the region, rising to a height of 10,805 feet.

Groundwater management zones were delineated based on major impermeable boundaries, constrictions in impermeable bedrock, groundwater divides, and internal flow systems. The eight groundwater management zones in the San Jacinto Watershed within EMWD's service area include the Canyon, San Jacinto Upper Pressure, San Jacinto Lower Pressure, Lakeview/Hemet North, Hemet South, Perris South, Perris North, and Menifee Management Zones.

Detailed descriptions of each Management Zone are included in the 2010 UWMP under Section 3 attached as Appendix A of this report.

### *2.4c Groundwater Management*

*Water Code 10910 (f) (2)*

In the Hemet/San Jacinto Water Management Plan area, EMWD's groundwater production is currently constrained by the 1954 Fruitvale Judgment and Decree. Under that Judgment and Decree, EMWD, as successor-in-interest to the Fruitvale Mutual Water Company, may extract the subsurface waters of the Canyon Basin for use over or outside the entire basin without restriction, as long as the static water level in a specific well is not over 25 feet below a specific elevation. If the water level in the well is more than 25 feet below the specified elevation, EMWD's extraction is limited to 4,500 AFY. The District may extract from the Entire Basin, a total of not more than 12,000 AFY from the Entire Basin for use outside the basin, subject to the 4,500 AFY Canyon Basin extraction limit. The perimeters of the Canyon Basin and Entire Basin are defined in the Judgment and Decree. The Hemet/San Jacinto area contains good quality water and is a major source of municipal as well as private production, although water levels are in serious decline.

Since 2001, the Cities of Hemet and San Jacinto, Lake Hemet Municipal Water District (LHMWD), EMWD, and representatives of the private groundwater producers, with DWR acting as an impartial mediator, have been working on a groundwater management plan for the Hemet/San Jacinto Water Management Plan area. Over the past several years, the group has discussed and resolved several controversial issues, including San Jacinto Tunnel seepage water, the Fruitvale Judgment and Decree, export of groundwater from the basins, and how to maximize the use of recycled water. As a result of their efforts, a final Hemet/San Jacinto Water Management Plan (HSJWMP) was completed in 2007 and a Stipulated Judgment is scheduled to be final in 2012. Once the Stipulated Judgment for the Hemet/San Jacinto Water Management Plan is in effect, it will supersede the Fruitvale Judgment and Decree.

The Hemet/San Jacinto Water Management Plan:

- Limits the amount of water being extracted from the basin to a sustainable yield.
- Implements continued recharge of the basin using imported water through the Integrated Recharge and Recovery Project (IRRP).
- Insures settlement claims by the Soboba Band of Luiseño Indians are facilitated and accommodated.

- Expands existing water production and water services system to meet future urban growth through the use of imported water recharged into the basin.
- Protects and/or enhances water quality in the management plan area.
- Supports cost-effective water supplies and treatment by the public agencies.
- Eliminates groundwater overdraft and enhances basin yield.
- Continues the monitoring program to promote and provide for best management and engineering principles to protect water resources.

Long term groundwater management includes plans for artificial recharge using MWD replenishment water via permanent facilities through the IRRP. An agreement with the Soboba Band of Luiseño Indians requires that, on average, an annual delivery of 7,500 acre-feet of water from MWD for the next 30 years to EMWD, LHMWD, and the Cities of Hemet and San Jacinto as part of an effort to recharge groundwater in the Hemet/San Jacinto area, fulfilling the Soboba Tribe's water rights and addressing chronic groundwater overdrafts.

EMWD's rights under the Hemet/San Jacinto Water Management Plan will be a base groundwater production right of 10,869 AFY. Any pumping above that amount is subject to replenishment fees.

In the West San Jacinto area, a cooperative groundwater management plan is already in place to insure the reliability and quality of the water supply. In June 1995, EMWD adopted the West San Jacinto Groundwater Basin Management Plan (WSJGBMP) in accordance with the statutes in the State Water Code Sections 10750 through 10755 resulting from the passage of Assembly Bill 3030 (AB 3030). The plan was adopted after extensive public outreach and meetings with interested individuals and agencies.

Implementation of the WSJGBMP began directly after its adoption. Initial efforts to implement the WSJGBMP included establishing an advisory committee; prioritizing the management zones; evaluating groundwater resources including establishing groundwater quality, level, and extraction monitoring programs; and conducting hydro-geophysical investigations. The West San Jacinto Groundwater Basin Management Plan Annual Report, documenting the implementation of the plan and activities in the groundwater management zones, has been published annually since 1996.

### *2.4d Groundwater Recharge*

Through pilot programs and using temporary facilities, EMWD has recharged groundwater in the Hemet/San Jacinto area with imported surplus water from MWD since 1990. In April of 2004, EMWD, LHMWD, and the Cities of Hemet and San Jacinto executed a Memorandum of Understanding (MOU) for an Interim Water Supply Plan. The purpose of the plan was to address the deteriorating situation in the Hemet/San Jacinto area by providing recharge of imported water from the SWP into the aquifer at two sites – the Conjunctive Use Ponds in the Intake portion of the San Jacinto Upper Pressure Management Zone, and the Grant Avenue Ponds in the Canyon Management Zone. From 2004 through 2007, 20,819 AF of imported water from the SWP was recharged into the aquifer. Due to dry conditions, environmental restriction, and the level of demands in its service area, MWD curtailed Replenishment Service effective as of May 1, 2007. Since then, permits to recharge water at the two sites have expired. To replace the temporary recharge facilities, long term facilities are being designed and built as part of the IRRP, an integral piece of the water management plan and the Soboba settlement. The IRRP initially consists of 35 acres of basins or ponds for recharging State Project Water; three extraction wells; three monitoring wells; modification to two existing pump stations; and pipelines within, and adjacent to, the San Jacinto River.

EMWD is also contributing to the replenishment of the basin by providing recycled water in lieu of groundwater production. The Recycled In-Lieu Program supplies recycled water for agricultural irrigation in-lieu of pumping native groundwater. The project can deliver up to 8,540 acre-feet per year to local agricultural water producers. The project costs are jointly funded by EMWD, LHMWD, and the Cities of Hemet and San Jacinto. Agreements that set limits on groundwater production, and provide for a payment of a portion of the operation and maintenance costs have been in place since 2008.

### *2.4e Groundwater Pumping Rights*
*Water Code 10910 (f)*

In the eastern portion of EMWD's service area or Hemet/San Jacinto area, EMWD's groundwater production is currently constrained by the 1954 Fruitvale Judgment and Decree. Under that Judgment and Decree, EMWD, as successor-in-interest to the Fruitvale Mutual Water Company, may extract the subsurface waters of the Canyon Basin for use over or outside the Entire Basin without restriction as long as the static groundwater level in a specific well is not over 25 feet below a specific elevation. If the groundwater level in the well is more than 25 feet below the specified elevation, EMWD's extraction is limited to 4,500 AFY. EMWD may extract a total of not more than 12,000 AFY from the Entire Basin for use outside the basin, subject to the 4,500 AFY Canyon Basin extraction limit. The perimeters of the Canyon Basin and Entire Basin are defined in the Judgment and Decree but they basically cover the east side of the Hemet/San Jacinto Valley, from Bridge Street on the northwest to the Park Hill area on the southeast. The Hemet/San Jacinto area contains good quality groundwater and is a major source of municipal as well as private production, although groundwater levels are in serious decline. Once the Stipulated Judgment for the HSJWMP is in effect, it will supersede the Fruitvale Judgment and Decree. EMWD's rights under the HSJWMP will be a base groundwater production right of 10,869 AFY. Any pumping above that amount is subject to replenishment fees.

### *2.4f Surface Water Diversion Rights*
*License No. 10667*

EMWD holds a right to divert up to 5,760 AFY of San Jacinto River flows for recharge and subsequent use from November 1 through June 30 each year. EMWD's diversion and recharge of San Jacinto River surface water to the Canyon Management Zone takes place at EMWD's Grant Avenue Ponds in the Valle Vista area. EMWD's diverted water is recharged into the groundwater aquifer of the Canyon Management Zone and is not used for direct use or sale. The San Jacinto River is an ephemeral river and, consequently, river flows may be insufficient for any diversion at all. In 2010, river flows were sufficient to divert 4,423 AF of surface water. Additional information about surface water diversion is available in Chapter 3 of the Annual Report.

### *2.4g Past Groundwater Extraction*
*Water Code 10910 (f) (3)*

Table 2 depicts the total potable groundwater extracted by EMWD from 2006 through 2010. The majority of EMWD's groundwater is extracted from the Hemet/San Jacinto area. The remaining groundwater is extracted from the area covered by the WSJGBMP, including brackish groundwater extraction for the desalters. The location of wells used to pump groundwater and the desalters can be seen on Map 1.

### *2.4h Projected Groundwater Extraction*
*Water Code 10910 (f) (4)*

Table 3 lists the amount of potable groundwater that EMWD is projecting will be supplied. Groundwater extraction in the Hemet/San Jacinto area, currently covered by the Fruitvale Agreement, will decrease as the HSJWMP is implemented. The Perris/Moreno Valley wells in the WSJGBMP area are projected to continue to produce 6,000 AFY. The desalters are part of managing the WSJGBMP area and will reduce salinity in the groundwater management zones with the added benefit of providing a source of potable water. The well locations shown on Map 1 should remain consistent in the future.

### *2.4i Analysis of the Sufficiency of Groundwater*
*Water Code 10910 (f) (5)*

Protecting the available groundwater supply is an important part of EMWD's planning efforts. EMWD is actively working with other agencies and groups to insure that groundwater will be a reliable resource far into the future. Part of managing groundwater responsibly requires the replacement of groundwater extracted beyond the safe yield. Groundwater extraction in Hemet/San Jacinto area will be replaced with imported water as the HSJWMP is implemented, and groundwater extraction in the WSJGBMP area will remain static. Although the desalters will provide an additional supply of water, the amount of water produced is not sufficient to accommodate the proposed growth within EMWD. The majority of the increased water demand caused by this project will be met by increasing the use of imported water from MWD recognizing the conditions of approval outlined in this document.

### *2.5 Recycled Water*
*Water Code 10910 (d) (1)*

Recycled water is extensively used in EMWD's service area in place of potable water. To offset municipal demand, recycled water is used to irrigate landscape and for industrial purposes. The majority of EMWD's agricultural customers also use recycled water. In some cases, recycled water is used by agricultural customers in lieu of groundwater production, increasing the amount of groundwater available for municipal use without increased recharge.

The supply of recycled water will continue to grow with EMWD's population growth. The four (4) regional water reclamation facilities that EMWD is currently operating are all either in the process of expansion or have an expansion planned in the near future. Recycled water is currently used for both municipal and agricultural purposes. Municipal customers use recycled water for landscape irrigation and industrial process water. Agricultural customers use recycled water for irrigation of crops. A portion of agricultural demand of recycled water is in lieu of using groundwater. Currently, the use of recycled water is limited by the amount available to serve during peak demands and with livestream discharge occurring in off peak periods. EMWD has developed plans to eliminate discharge and use all of the recycled water available within the District, and to offset demand of existing potable customers, including retrofit of potable water landscape customers and indirect potable recharge.

### *2.6 Water Use Efficiency Measures*

The Water Conservation Act of 2009, Senate Bill 7x-7, set a requirement for water agencies to reduce their per capita water use by the year 2020. The overall goal is to reach a state wide reduction of per capita urban water use of 20 percent by December 31, 2020, with an intermediate 10 percent reduction by December 31, 2015. Demand reduction can be achieved

through both conservation and the use of recycled water as a potable demand offset. EMWD will reduce potable water demand to meet the goals of SB7x-7 two ways; using recycled water to offset potable water demand and reducing demand for water through conservation. Three methods have been identified for conserving water: 1) a budget based tiered rate, 2) requirements for water efficiency in new construction, and 3) an active conservation program. Water use reduction will be focused on outdoor demand reduction by all customer types. Table 5 summarizes water savings by type.

**Table 5 - Water Efficiency Savings (AFY) – 2005 - 2035**

| Saving Type | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|
| Recycled Water Potable Offset | 3,601 | 4,041 | 5,000 | 6,300 | 11,500 | 13,900 | 14,300 |
| Tiered Rate | 0 | 8,700 | 8,700 | 8,700 | 8,700 | 8,700 | 8,700 |
| New Construction | 0 | 200 | 2,000 | 4,100 | 6,100 | 8,000 | 9,600 |
| Active Conservation | 1,500 | 3,400 | 6,500 | 9,500 | 10,700 | 11,700 | 12,600 |
| **Total** | **5,101** | **16,341** | **22,200** | **28,600** | **37,000** | **42,300** | **45,200** |

Recycled water will be used to offset potable demand through the expansion of the existing recycled water system.

Tiered Rate savings are an estimate of water saved by customers, after the implementation of a budget based tiered rate. In April 2009, EMWD implemented a tiered rate billing structure for its residential and landscape customers. Customers are provided an allocation for reasonable water use and are required to pay a higher rate for water use over their allocated limit. Water savings by existing customers has been estimated. Actual water demand since the implementation of the tiered rate has been lower than the estimated amounts, likely as a result of several factors and not the tiered rate implementation alone.

Water Use Efficiency Requirements in New Development includes installing lower water use landscape and interior fixtures. Water use efficiency is mandated statewide through existing ordinances, plumbing codes and legislation. To enforce water use efficiency in new development EMWD has lowered the water budget allocations for new development. Any residential or dedicated landscape account installed after January 1, 2011 has an outdoor budget allocation based on only 70 percent of ET, compared to up to 100 percent of ET for older accounts. Water use savings shown in Table 5 are calculated assuming lower budgets allocation will result in a reduction in a proportionate reduction in water use. Actual savings will be measured based on average use by new meters.

Active Conservation savings are the result of water use efficiency programs implemented by EMWD. EMWD encourages the replacement of inefficient devices and includes monetary rebate, distribution and direct installation programs. Water savings are based on estimated water savings for each device and takes into account the lifetime of each device.

Through the above three methods of reducing water use, and recycled water use, EMWD anticipates the reduction of potable water demand to meet the requirements of SB7x-7.

## 2.7 *Local Resources Documentation*

### 2.7a *Written Contracts or Other Proof*
*Water Code 10910 (d) (2) (A)*

Below is a list of documents related to EMWD's local water supply:

- **EMWD 2010 Urban Water Management Plan (June 2010)** - EMWD's 2010 Urban Water Management Plan is attached as Appendix A. This plan supplies additional information on EMWD, its service area, and water management and supply capabilities.
- **West San Jacinto Groundwater Basin Management Plan 2010 Annual Report on the Status of the Groundwater Subbasins (June 2011)** - Detailed information on the history and progress of groundwater basin management and the Groundwater Monitoring Program can be found in the 2008 Annual Report on the Status of the Groundwater Subbasins, located on EMWD's Website (www.emwd.org).
- **The Fruitvale Agreement (June 1954)** – A Judgment and Decree (No. 54546) filed in Riverside County which quantifies EMWD's groundwater extraction in the Hemet/San Jacinto area.
- **Hemet/San Jacinto Water Management Area 2010 Annual Report (June 2011)** - Detailed information on the history and progress of the Water Management Plan and Groundwater Monitoring Program can be found in the 2008 Annual Report on the Status of the Groundwater Subbasins, located on EMWD's Website (www.emwd.org).
- **Hemet/San Jacinto Groundwater Management Area Water Management Plan** – This plan was developed by the stakeholders in the Hemet/San Jacinto area to provide a foundation to guide and support responsible water management into the future. The plan was finalized in 2007 and an EIR was approved for the project on November 21, 2007 by EMWD's Board of Directors.

With regard to EMWD's ownership and use of reclaimed/recycled water, California Water Code Section 1210 states:

The owner of a waste water treatment plant operated for the purpose of treating wastes from a sanitary sewer system shall hold the exclusive right to the treated waste water as against anyone who has supplied the water discharged into the waste water collection and treatment system, including a person using water under a water service contract, unless otherwise provided by agreement.

With regard to the Water Use Efficiency Ordinance that will result in additional supplies through conservation:

The County of Riverside Board of Supervisors approved an update to Ordinance No. 859 on October 20, 2009, requiring water efficient landscaping in any new development requiring a permit.

EMWD's Board of Directors approved Ordinance 72.25 for implementation on January 1, 2011, requiring water efficient landscaping in new developments and requiring water efficiency enforced through tiered rates. Ordinance 72.25 can be found on EMWD's website www.emwd.org.

### *2.7b EMWD's Capital Improvement Plan*
*Water Code 10910 (d) (2) (B)*

EMWD maintains and periodically updates a comprehensive Water Facilities Master Plan (WFMP). This working plan defines water supply, transmission mains, and storage facilities required for the accommodation of projected growth within EMWD. On a yearly basis, a five-year Capital Improvement Plan (CIP) is prepared, which is based on a further refinement of the WFMP. The CIP outlines specific projects and their funding source. Each project is also submitted individually to the Board for authorization and approval. This allows EMWD to accurately match facilities' needs with development trends. Financing information for the desalter plant construction, regional water reclamation facilities expansion, and well replacement can also be found in the CIP.

### *2.7c Federal, State and Local Permits Needed for Construction*
*Water Code 10910 (d) (2) (C)*

As part of EMWD's CIP, an Environmental Review Committee has been established. This Committee, made up of representatives from the Engineering, Planning, and Environmental and Regulatory Compliance Departments, discuss each project and the steps needed to comply with regulatory requirements. EMWD works with various government agencies, including the U.S. Department of Fish and Wildlife, the U.S. Army Corps of Engineers, the California Department of Public Health, the California State Water Resources Board, the California Air Quality Management District, and the California Department of Fish & Game to obtain permits when necessary. The Engineering Department procures additional construction permits on a case-by-case basis. EMWD has already, or is in the process of, obtaining Environmental Impact Reports or other environmental documents necessary for desalter construction, regional water reclamation facilities expansion, and well replacements. Any necessary permits secured by EMWD are kept on file at the District office.

### *2.7d Regulatory Approvals*
*Water Code 10910 (d) (2) (D)*

The Department of Public Health (DPH) has issued a system-wide permit for EMWD's water supply system. EMWD's Environmental and Regulatory Compliance Department conforms to specific regulations and obtains any additional necessary approvals. As new facilities are constructed by EMWD, they are subject to inspection and testing by regulatory agencies and the DPH permit is amended.

## Section 3 - Demand

### *3.1 Demand Projections*
*Water Code 10910 (c) (2), 10631 (e) (1)*

EMWD's primary retail customers can be divided into residential, commercial, industrial, institutional and landscape sectors. Although the residential section is by far EMWD's largest customer segment, each market segment plays a role in the growth and development of EMWD's service area. See Table 6 for water use by various customer types.

## Table 6 - Retail Water Deliveries by Customer Type – 2005 - 2035

| Year /Type | Units | Single family Res. | Multi-family Res. | Comm-ercial | Indus-trial | Inst/ gov. | Land-scape | Agri-culture | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2005 | No. of accounts | 114,100 | 1,000 | 1,500 | 100 | 40 | 1,500 | 200 | **118,440** |
| Actual | Volume (AF) | 62,300 | 5,500 | 3,900 | 400 | 2,900 | 7,500 | 2,400 | **84,900** |
| 2010 | No. of accounts | 129,400 | 4,300 | 2,100 | 100 | 500 | 2,200 | 100 | **138,700** |
| Actual | Volume (AF) | 54,000 | 6,100 | 4,200 | 400 | 2,300 | 8,900 | 1,800 | **77,700** |
| 2015 | No. of accounts | 140,600 | 5,700 | 2,300 | 1,200 | 100 | 3,300 | 100 | **153,300** |
| Projected | Volume (AF) | 74,400 | 8,300 | 5,600 | 600 | 3,600 | 18,500 | 2,800 | **113,800** |
| 2020 | No. of accounts | 150,200 | 6,100 | 2,400 | 1,300 | 100 | 3,500 | 85 | **163,685** |
| Projected | Volume (AF) | 79,600 | 8,800 | 5,900 | 600 | 3,800 | 19,600 | 2,400 | **120,700** |
| 2025 | No. of accounts | 169,600 | 6,900 | 2,700 | 1,400 | 100 | 4,000 | 85 | **184,785** |
| Projected | Volume (AF) | 89,800 | 10,000 | 6,700 | 700 | 4,300 | 22,200 | 2,400 | **136,100** |
| 2030 | No. of accounts | 187,700 | 7,700 | 3,000 | 1,500 | 100 | 4,400 | 85 | **204,485** |
| Projected | Volume (AF) | 99,400 | 11,000 | 7,400 | 800 | 4,800 | 24,500 | 2,400 | **150,300** |
| 2035 | No. of accounts | 202,800 | 8,200 | 3,300 | 1,700 | 100 | 4,700 | 85 | **220,885** |
| Projected | Volume (AF) | 107,400 | 11,900 | 8,000 | 800 | 5,200 | 26,500 | 2,400 | **162,200** |

Note: Water Quantities include raw water to agricultural customers but does not include recycled water deliveries.

Table 7 shows sub-agency water use and Table 8 shows other water uses. Total water use is shown in Table 9.

## Table 7 - Wholesale to Other Agencies – 2005 - 2035

| | Actual Sales (AF) | | Projected Sales (AF) | | | | |
|---|---|---|---|---|---|---|---|
| Water distributed | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
| City of Hemet | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| City of Perris | 1,900 | 1,700 | 1,700 | 1,800 | 1,900 | 2,000 | 2,100 |
| City of San Jacinto | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lake Hemet MWD[1] | 100 | 1,300 | 1,100 | 1,100 | 1,000 | 1,100 | 1,100 |
| North Perris Water Company | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nuevo Water Company | 800 | 600 | 800 | 1,600 | 1,700 | 1,700 | 1,700 |
| Murrieta Water Company | 100 | 1,600 | 0 | 0 | 0 | 0 | 0 |
| Rancho California Water District | 26,300 | 21,900 | 36,500 | 48,600 | 50,800 | 53,000 | 55,200 |
| Hemet/San Jacinto Basin Plan Water Master | 0 | 0 | 7,500 | 8,500 | 9,600 | 11,200 | 12,300 |
| Total | 29,300 | 27,100 | 47,600 | 61,600 | 65,000 | 69,000 | 72,400 |

1. Sales of water to Lake Hemet are for non-potable supplies used to meet agricultural demand.

## Table 8 - Other Water Uses – 2005 – 2035

| | Actual Use (AF) | | Projected Use (AF) | | | | |
|---|---|---|---|---|---|---|---|
| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
| Recycled Water | 32,600 | 41,500 | 43,900 | 50,000 | 53,900 | 54,900 | 55,300 |
| Recharge Water [1] | 7,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Distribution System Water Loses | 7,600 | 8,200 | 8,400 | 8,900 | 10,100 | 11,200 | 12,100 |
| Treatment Water Losses | 100 | 200 | 200 | 200 | 200 | 200 | 200 |
| Total | 47,300 | 49,900 | 52,500 | 59,100 | 64,200 | 66,300 | 67,600 |

1. Future recharge will be through the Hemet/San Jacinto Basin Plan Water Master as seen in Table 8.

## Table 9 - Water Demand (AFY) – 2005 - 2035

| | Actual | | Projected | | | | |
|---|---|---|---|---|---|---|---|
| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
| Retail Potable Water Sales | 84,900 | 77,700 | 113,800 | 120,700 | 136,100 | 150,300 | 162,200 |
| Water Sales to Other Agencies | 29,400 | 27,100 | 47,600 | 61,600 | 65,000 | 69,000 | 72,400 |
| Other Water Uses/Losses | 47,300 | 49,900 | 52,500 | 59,100 | 64,200 | 66,300 | 67,600 |
| Total | 161,600 | 154,700 | 213,900 | 241,400 | 265,300 | 285,600 | 302,200 |

### *3.2 Project Demand*

This assessment is prepared for the World Logistics Center Specific Plan in Moreno Valley proposed by Highland Fairview. The project proposes 41.6 million square-feet of logistics facilities on 2,655 acres of light industrial development. The project is located in the eastern part of the City of Moreno Valley and is generally bounded by Gilman Spring Road, Redlands Boulevard and the Moreno Valley freeway. The projected demand for the project is estimated to be 1,991.25 AFY. Exhibit "A" shows the location of this project.

**Table 10 – Project Demand**

| Type | Acres | AF Demand per Acre | AFY |
|---|---|---|---|
| Light Industrial [1] | 2,655 | 0.75 | 1,991.25 |

(1) Per project description

The demand for this project is estimated based demand from similar landuse. A majority of the estimated demand would be for landscape irrigation. The developers of this project are proposing very low water use landscaping which would reduce the projected project demand significantly. The demand for this project is within the limits of projected demand accounted for in the 2010 UWMP and would be included in the projected demand shown in Table 9 of this water supply assessment report.

### *3.3 Database of Proposed Projects*

*Water Code 10910 (c) (3)*

To develop the projections used in this Water Supply Assessment, EMWD uses a development-tracking database that assesses future water demands for specific projects. EMWD uses this database to help plan for future water supply and infrastructure needs by monitoring new projects through various stages of development. Subject to the Board of Director's approval of this assessment, information associated with this project will be included in the supply and demand projections EMWD uses for planning. Changes in density and land use are also tracked in this database for planning purposes. The developer is required to notify EMWD if any changes to project density or land use occur.

## *Section 4 Evaluation of Supply and Demand*

*Water Code 10910 (c) (2)*

### *4.1 Supply and Demand Evaluation under Historic Conditions*

Tables 11, 12 and 13, taken from the 2010 UWMP, are an estimate of EMWD's demand during average, single and multiple dry years.

**Table 11 - Existing Water Supply Resources – Average Year Hydrology – 2015 - 2035**

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Metropolitan Water District | 149,300 | 170,700 | 190,700 | 210,000 | 226,200 |
| Recycled | 43,900 | 50,000 | 53,900 | 54,900 | 55,300 |
| Groundwater | 13,200 | 13,200 | 13,200 | 13,200 | 13,200 |
| Existing Desalter | 7,500 | 7,500 | 7,500 | 7,500 | 7,500 |
| **Total Existing Supplies** | **213,900** | **241,400** | **265,300** | **285,600** | **302,200** |
| **Total Projected Demands** | **213,900** | **241,400** | **265,300** | **285,600** | **302,200** |
| **Shortfall/Surplus** | **0** | **0** | **0** | **0** | **0** |

Based on a repeat of 2004- 2009 conditions

**Table 12 - Existing Water Supply Resources – Dry Year Hydrology – 2015 – 2035**

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Metropolitan Water District | 155,300 | 177,600 | 198,300 | 218,300 | 235,100 |
| Recycled | 45,500 | 51,800 | 55,800 | 56,900 | 57,300 |
| Groundwater | 13,200 | 13,200 | 13,200 | 13,200 | 13,200 |
| Existing Desalter | 7,500 | 7,500 | 7,500 | 7,500 | 7,500 |
| **Total Existing Supplies** | **221,500** | **250,100** | **274,800** | **295,900** | **313,100** |
| **Total Projected Demands** | **221,500** | **250,100** | **274,800** | **295,900** | **313,100** |
| **Shortfall/Surplus** | **0** | **0** | **0** | **0** | **0** |

Note: Based on a repeat of 1977 conditions

**Table 13 - Existing Water Supply Resources – Multi - Dry Year – 2015 - 2035**

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Metropolitan Water District | 156,600 | 179,000 | 199,800 | 219,900 | 236,900 |
| Recycled | 45,800 | 52,200 | 56,200 | 57,300 | 57,700 |
| Groundwater | 13,200 | 13,200 | 13,200 | 13,200 | 13,200 |
| Existing Desalter | 7,500 | 7,500 | 7,500 | 7,500 | 7,500 |
| **Total Existing Supplies** | **223,100** | **251,900** | **276,700** | **297,900** | **315,300** |
| **Total Projected Demands** | **223,100** | **251,900** | **276,700** | **297,900** | **315,300** |
| **Shortfall/Surplus** | **0** | **0** | **0** | **0** | **0** |

Note: Based on a repeat of 1990-1992 conditions

EMWD's 2010 UWMP discusses the supply reliability for EMWD during dry years. It is anticipated that the majority of water for future development will be supplied by imported water from MWD during single dry years. Typically, MWD does not place imported water limits on a member agency, but predicts the future water demand based on regional growth information. MWD stated in its 2010 RUWMP that with the addition of all water supplies, existing and planned, MWD would have the ability to meet all of its member agencies' projected supplemental demand through 2035, even under a repeat of historic drought scenarios.

### *4.2 Contingency Planning*

Included in the 2010 UWMP is a copy of EMWD's Water Shortage Contingency Plan (WSCP). In the case of unprecedented shortage EMWD will reduce demand using significant penalties for wasteful water use. EMWD's WSCP details the plan for demand reduction for several stages of shortage up to 50 percent. Additional information about contingency planning is included in Section 5 of EMWD's 2010 UWMP.

## Section 5 - Water Supply Assessment

### *5.1 Potable Water*

From a facilities perspective, the proposed project would be conditioned to construct off-site and on-site water facilities needed to distribute water throughout the project area. A plan of service for the proposed project should be created, and after approval by EMWD, be consulted for specific improvements. See Exhibit "B" for existing water facilities in relation to the project.

With respect to water supply, as discussed above, the project will be served using imported water from MWD supplemented with new local supply projects during multi-dry years, if needed. However, if the City of Perris succeeds in obtaining a permit from the State Water Resources Control Board to develop the available local resources, EMWD may be unable to supplement MWD supplies in times of shortage. Allocation from MWD may result in water supplies being made available at a significantly higher cost depending on circumstances.

### *5.2 Recycled Water*

EMWD policy recognizes recycled water as the preferred source of supply for all non-potable water demands, including irrigation of recreation areas, green-belts, open space common areas, commercial landscaping, and supply for aesthetic impoundment or other water features. The proposed project is near an existing recycled water line and in the future recycled water may be available for the project.

According to EMWD policy, the project may be conditioned to construct a recycled water system physically separated from the potable water system. The system will need to be constructed to recycled water standards. The project may also be conditioned to construct off-site recycled water facilities. EMWD will make a final determination on requirements for recycled water use and facilities during the plan of service phase of the project.

### *5.3 Duration of Approval – 3 Year Maximum*

This assessment will be reviewed every three years until the project begins construction. The project applicant shall notify EMWD when construction has begun. The review will insure that the information included in this assessment remains accurate and no significant changes to either the project or EMWD's water supply have occurred. If neither the project applicant nor the lead agency contacts EMWD within three years of approval of this WSA, it will be assumed that the proposed project no longer requires the estimated water demand calculated, the demand for this project will not be considered in assessments for future projects, and the assessment provided by this document will become invalid.

### 5.4 Conclusion

EMWD relies on MWD to meet the needs of its growing population. MWD stated in its 2010 RUWMP that with the addition of all water supplies, existing and planned, MWD would have the ability to meet all of its member agencies' projected supplemental demand through 2035, even under a repeat of historic multi-year drought scenarios.

Based on present information and the assurance that MWD is engaged in identifying solutions that, when combined with the rest of its supply portfolio, will ensure a reliable long-term water supply for its member agencies, EMWD has determined that it will be able to provide adequate water supply to meet the potable water demand for this project as part of its existing and future demands.

In the event the lead agency determines adequate water supply exists for this project, the developer of this project is required to meet with EMWD staff to develop a plan of service. The plan of service will detail water, wastewater and recycled water requirements to serve the projects. An agreement developed prior to construction will determine additional funding required to reduce existing customer demand on imported supplies through the expansion of local resources. The reduction of existing customer demand on imported water supplies will free up allocated imported water to be used to serve this project under multiple dry year conditions. The amount of funding will be determined by the EMWD and may take the form of a new component of connection fees or a separate charge. The estimated cost of desalinated water is between $1,400 and $1,700 per AF. These costs are expected to increase over time.

If there is a change in the circumstances detailed in this assessment, EMWD will address the changes in the plan of service for the project. Modifications at the plan of service stage could reduce the amount of water available to serve this project.

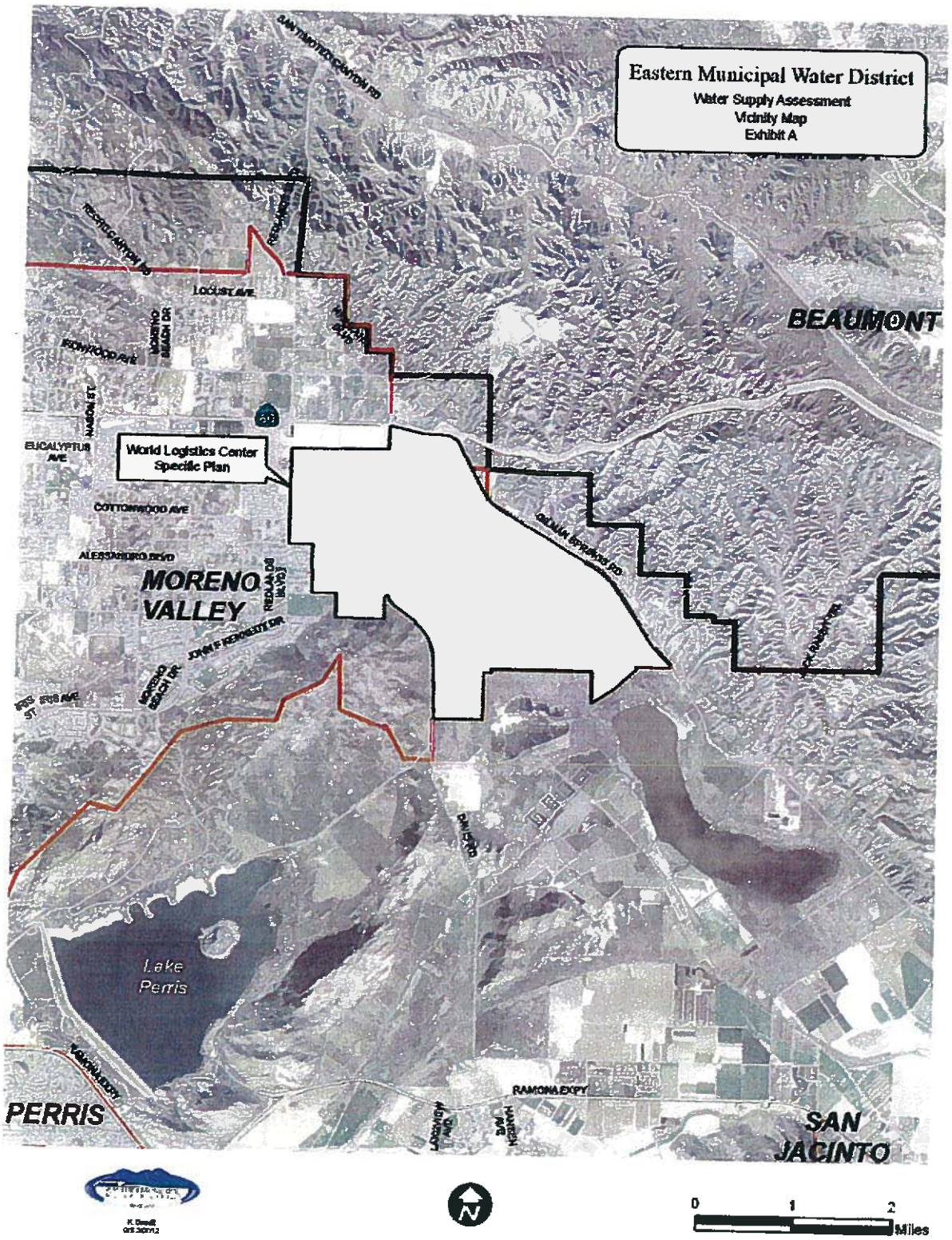
## Section 6 - Conditions of Approval

This assessment is not a commitment to serve the project, but a review of EMWD supplies based on present information available. This assessment is conditioned on MWD's ability to continue to supply imported water to meet EMWD's requirements, including the requirements for this project. This project is subject to any special or additional requirements imposed by MWD or EMWD on such deliveries, including increased pricing or a different pricing structure.

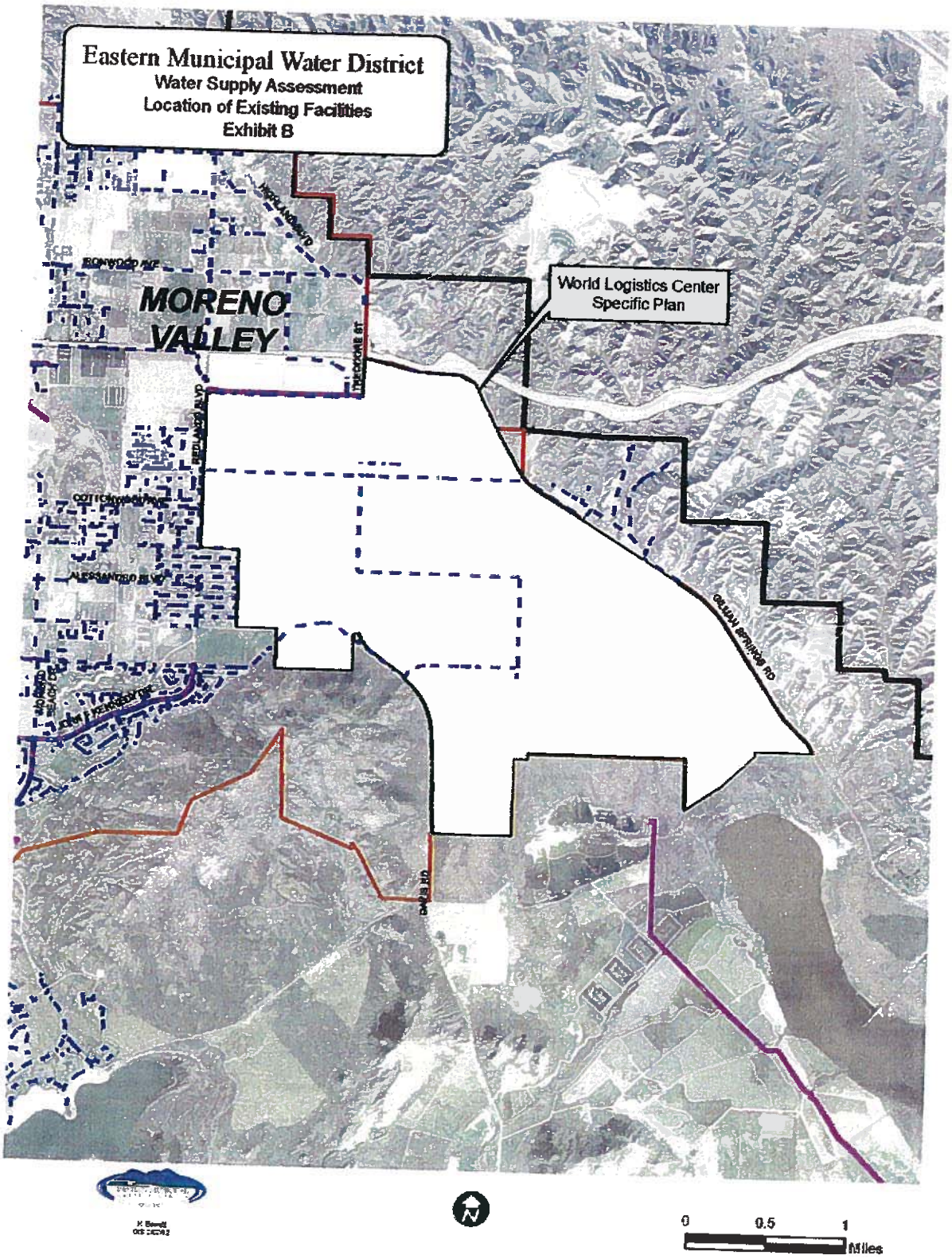
The lead agency for the project is responsible to evaluate the adequacy of the water supply assessment and make the ultimate decision of the sufficiency of the water supply. The developer for the project is responsible for keeping EMWD informed about progress in the planning and development of the project so that a review can be completed. If the lead agency determines adequate water supply exists for this project, the project applicant shall notify EMWD on the status of this project, and the lead agency shall request a review and update of this WSA every three (3) years until the project starts construction.

If the lead agency determines adequate water supply exists for this project, to the greatest extent possible, recycled water shall be used on the proposed project. Details about the feasibility of recycled water use shall be included in the plan of service for the project.

## Exhibit "A" Project Location



## Exhibit "B" Project Location in Relation to Existing Waterlines



# WATER SUPPLY ASSESSMENT REPORT

## Supplemental Information

**Appendix A**
2010 Urban Water Management Plan

**Appendix B**
2010 MWD's RUWMP

**Appendix C**
EMWD's CIP Budget

# World Logistics Center Specific Plan Water System Analysis

PREPARED FOR: Highland Fairview

PREPARED BY: CH2M HILL

DATE: September 2014

## Summary of Modifications

Modifications to the water system analysis have been made to reflect changes in the Project Description. These modifications are reflected throughout the memo and in Figures 4 and 5.

## Introduction

The proposed World Logistics Center Specific Plan (WLC) is a master plan for the development of logistics warehouse distribution facilities on approximately 2,610 acres of land in the Rancho Belago area of eastern Moreno Valley. The Specific Plan proposes the development of 40.4 million square feet of high-cube logistics facilities on 2,382.8 acres, 200,000 square feet of light logistics facilities on 37.1 acres, an in-project fueling station, 115.8 acres of street right-of-way and 74.3 acres of permanent open space.

The Specific Plan area is situated southerly of State Route 60, generally between Redlands Boulevard and Gilman Springs Road (the easterly City limit). The Specific Plan extends to, but does not include, the San Jacinto Wildlife Area (SJWA). The General Plan Amendment and Zone Change which accompany the Specific Plan includes a portion of the SJWA property in order to designate that land for open space use.

The World Logistics Center is located within the water service area of Eastern Municipal Water District (EMWD). The purpose of this analysis is to determine the hydraulic infrastructure necessary to provide water supply to the development.

## Analysis Criteria

The criterion used to evaluate system performance was adopted from EMWD Water Facilities Master Plan (WFMP) document (CH2M HILL, 2009). The criterion is summarized below.

### Pressure Requirements

System pressure is an indication of system performance. Minimum and maximum pressure requirements help determine if the system is functioning optimally. Table 1 details the pressure requirements used for hydraulic analysis.

TABLE 1
Pressure Requirements
*Adopted from EMWD WFMP Appendix A - Water Facilities Master Plan Design Criteria Evaluation*

| Condition | Pressure Required (psi) |
|---|---|
| Minimum Dynamic Pressure at downstream of RPDA[a] | 40 |
| Minimum Dynamic Pressure from tank low water level to upstream of meter | 50 |
| Minimum Static Pressure from tank low water level to upstream of meter[b] | 60 |
| Minimum Static Pressure from tank high water level to upstream of meter | 75 |
| Maximum Static Pressure from tank high water level to upstream of meter[c] | 110 |
| Minimum Pressure anywhere in the system during MDD+FF | 20 |

psi = pounds per square inch
[a] If no Reduced-Pressure Principle Detector Assembly (RPDA), then downstream of meter.
[b] Tank low water level is based on 5 feet above tank bottom.
[c] Assumes a full tank and a pressure limit that accounts for pressure surging that may occur to prevent pressures exceeding 125 psi.

## Piping Requirements

Excessive velocities and head losses are indicators of inefficient operations. The head loss requirements presented in Table 2 and the velocity requirements presented in Table 3 were used as guidelines for analysis of the World Logistics Center.

TABLE 2
Head-Loss Requirements
*Adopted from EMWD WFMP Appendix A - Water Facilities Master Plan Design Criteria Evaluation*

| Design Criteria | Allowable Head Loss |
|---|---|
| Flows less than 20 cfs | 3.0 feet/1,000 feet |
| Flows 20 to 50 cfs | 2.0 feet/1,000 feet |
| Flows greater than 50 cfs | 1.0 foot/1,000 feet |

cfs = cubic feet per second

TABLE 3
Velocity Requirements
*Adopted from EMWD WFMP Appendix A - Water Facilities Master Plan Design Criteria Evaluation*

| Design Criteria | Allowable Velocity (fps) |
|---|---|
| MDD | <5 |
| PHD | <10 |
| FF | <15 |

MDD = Maximum-Day Demand
PHD = Peak-Hour Demand
FF = fire flow
fps – feet per second

## Source Capacity

Source capacity is considered to be any source of water supply to a pressure zone via direct connections, pump stations, regulators, or wells. Source capacity for the World Logistics Center was measured against the criteria presented in Table 4.

TABLE 4
Source Capacity Requirements
*Adopted from EMWD WFMP Appendix A - Water Facilities Master Plan Design Criteria Evaluation*

| Design Criteria | Required Capacity |
|---|---|
| Minimum Capacity | MDD + maximum fire flow in each pressure zone |

MDD = Maximum-Day Demand

## Pumping Capacity

The pump stations involved in the World Logistics Center analysis were analyzed against the criteria presented in Table 5.

TABLE 5
Pumping Capacity Requirements
*Adopted from EMWD WFMP Appendix A - Water Facilities Master Plan Design Criteria Evaluation*

| Pump Station/Zone Type | Required Capacity |
|---|---|
| All pump stations | 1 Stand-by pump |
| No time of use | MDD |
| Time of use | 1.33 x MDD |
| No equalization storage available | Peak-hour demands |
| No fire storage available | FF capacity |

MDD = Maximum-Day Demand
FF = fire flow

## Storage Capacity

Distribution and storage systems are designed to provide adequate water supply for customers as well as to help equalize fluctuations between supply and demand, provide water for firefighting and to meet demands during emergencies or unplanned outages of major supply sources. Three types of storage were considered in the World Logistics Center analysis: operational storage, fire storage, and emergency storage.

Operational storage consists of equalization storage, time-of-use, and pump-through storage. The criterion for each operational storage category is presented in Table 6.

TABLE 6
Operational Storage Requirements
*Adopted from EMWD WFMP Appendix A - Water Facilities Master Plan Design Criteria Evaluation*

| Storage Type | Design Criteria |
|---|---|
| Equalization | 0.25 x MDD |
| Time of Use | 0.25 x MDD |
| Pump Through | 0.10 x flow pumped to higher pressure zone |

MDD = Maximum-Day Demand

Fire Storage is dependent on the instantaneous flow rate required to fight the fire, the duration of the fire flow, and the number of fire flows that occur before the volume can be replenished. The World Logistic Center analysis required a fire flow of 4,000 gpm for 4 hours. The required storage volumes are listed in Table 7.

TABLE 7
Fire Storage Requirements
*Adopted from EMWD WFMP Appendix A - Water Facilities Master Plan Design Criteria Evaluation*

| Land Use Category | Minimum Fire Flow Required (gpm) | Duration (Hours) | Number of Fire Hydrants | Required Fire Storage Volume (MG) |
|---|---|---|---|---|
| Single Family (Residential) | 1,500 | 2 | 1 | 0.18 |
| Multifamily – five or more units per acre (Residential) | 3,000 | 3 | 3 | 0.36 |
| Light Commercial/Industrial (including schools) | 3,000 | 3 | 3 | 0.54 |
| World Logistics Center | 4,000 | 4 | 3 | .96 |
| Heavy Commercial/Industrial | 5,000 | 4 | 4 | 1.20 |

gpm = gallons per minute
MG = million gallons

Emergency storage is a dedicated source of water that can be used as backup supply in the event a major supply source is interrupted. The emergency storage criteria are presented in Table 8.

TABLE 8
Emergency Storage Requirements
*Adopted from EMWD WFMP Appendix A - Water Facilities Master Plan Design Criteria Evaluation*

| Zone Type | Storage Volume Requirement |
|---|---|
| Zone with multiple pump stations | 0.5 x (MDD minus flow from remaining pump stations) |
| Minimum volume for zone with multiple pump stations | 0.25 x MDD |
| Zone with single pump station | 0.50 x MDD |

MDD = Maximum-Day Demand

For the hydraulic analysis portion of this study, an extended-period simulation of max-day-demand was used.

# Water Demand Factors

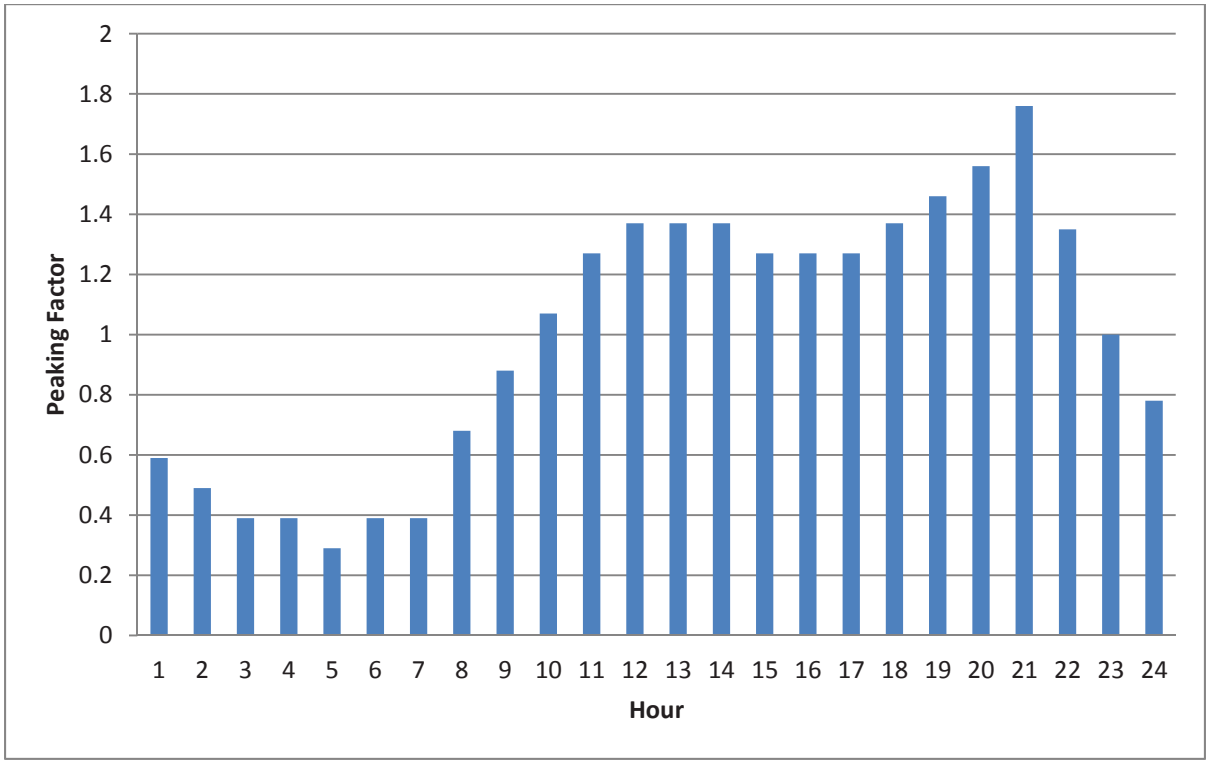
A Water Supply Assessment was prepared by EMWD that evaluated metered data from similar logistics facilities within the District. The water supply assessment includes the entire water use for these facilities including building and irrigation demand. Based on this analysis, EMWD concluded that 670 gallons per day per acre is an appropriate water demand for these types of logistics facilities.

The WLC is proposing a plant palette that relies on native landscaping and virtually zero irrigation. Because of this a building water demand analysis and benchmarking study was conducted as outlined in the Technical Memorandum entitled *World Logistics Center Water Demands and Waste Water Generation for Buildings* dated September 10, 2013. Based on this analysis, it was determined that an appropriate water demand factor for Logistics Developments is equivalent to 0.01 gpd/sf of building or 436 gpd/acre. Since this study is at a preliminary stage and is for programmatic planning purposes and because there is a potential that building and/or irrigation demands could change in the future, it was decided to use the 670 gpd/acre for this analysis. At the time a plan of service is prepared for the project the water demand factors will be refined and developed for the specific buildings being built and will be based on the 0.01 gpd/sf of building or other appropriate factors, including irrigation, if any.

## Extended Period Simulation Diurnal Curve

In an extended period model simulation run, a diurnal curve is applied to the demand to simulate water usage over a 24 hour period. The peaking factor dictated in the diurnal curve is multiplied by the demand at each node in the model to generate the estimated demand for each hour during the extended period simulation model run. The diurnal curve used in the EMWD WFMP has been used for the World Logistics Center Analysis. This diurnal curve is presented below in Figure 1.

FIGURE 1
*Model Diurnal Curve*



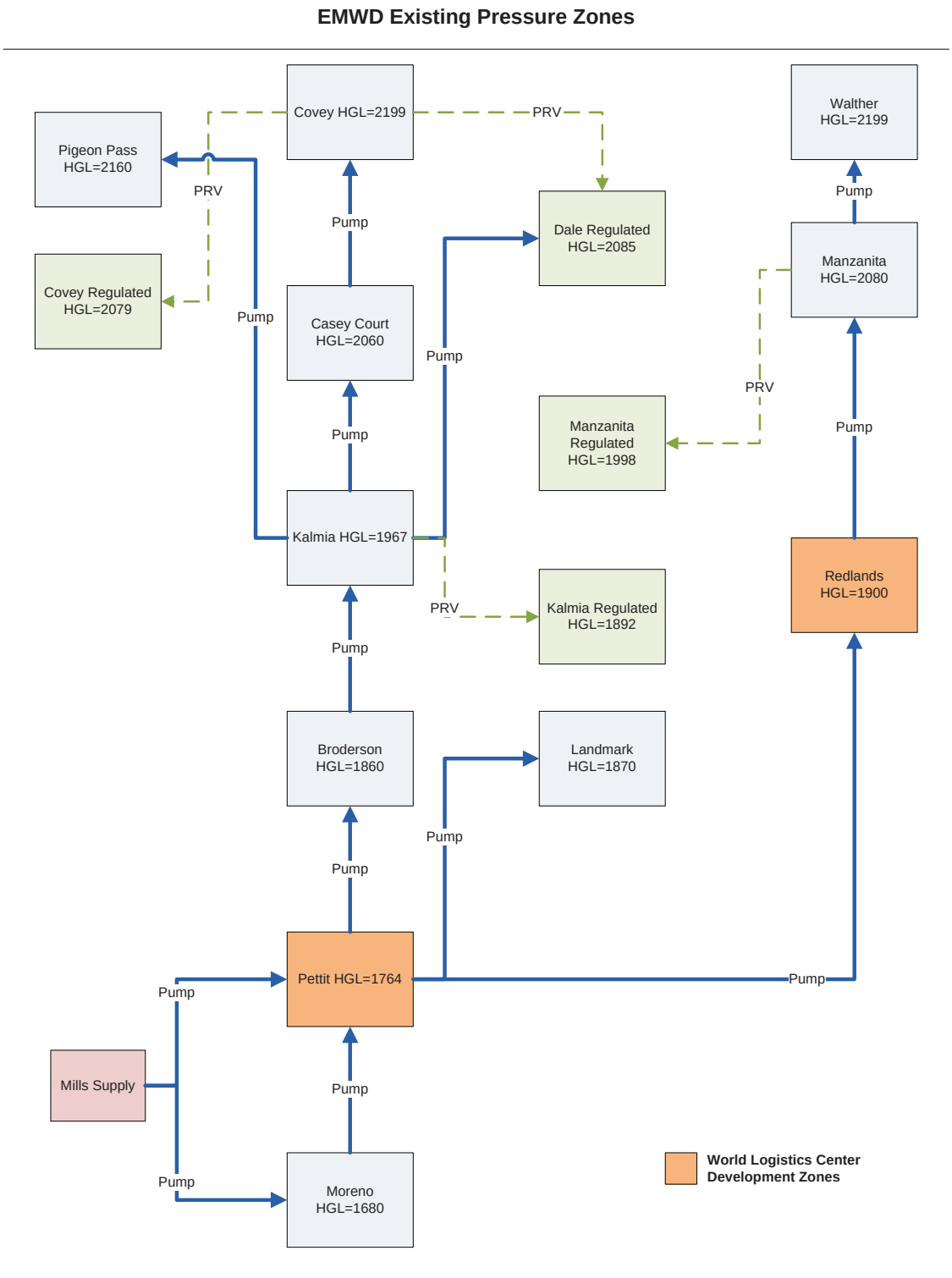

# Existing Water System

The existing water system in Moreno Valley consists of an intricate network of pipe, pumps, valves, wells, and storage tanks. There are approximately 625 miles of pipeline ranging in diameter from 6 to 54 inches. Water is provided to the Moreno Valley area through the 54-inch Mills pipeline and 48-inch Cactus Transmission Main. A total of 25 pumping stations, 20 regulating stations, and 25 in-zone storage tanks work together to facilitate movement of water throughout the system.

The topography of the area varies greatly with the lowest service elevation at approximately 1,465 feet above mean sea level (msl) and the highest service elevation at approximately 2,138 feet msl. To handle varying elevations and maintain adequate pressures throughout the distribution system, the Moreno Valley area is divided into 15 hydraulic regions or pressure zones. Figure 2 is a schematic diagram of the existing system pressure zones.

The proposed location of the World Logistics Center falls within the existing Pettit (1764) and Redlands (1900) Zones. Water supply provided from the Moreno (1680) Zone and Pettit (1764) Zone travels through the existing pipeline infrastructure to supply the Redlands (1900) area.

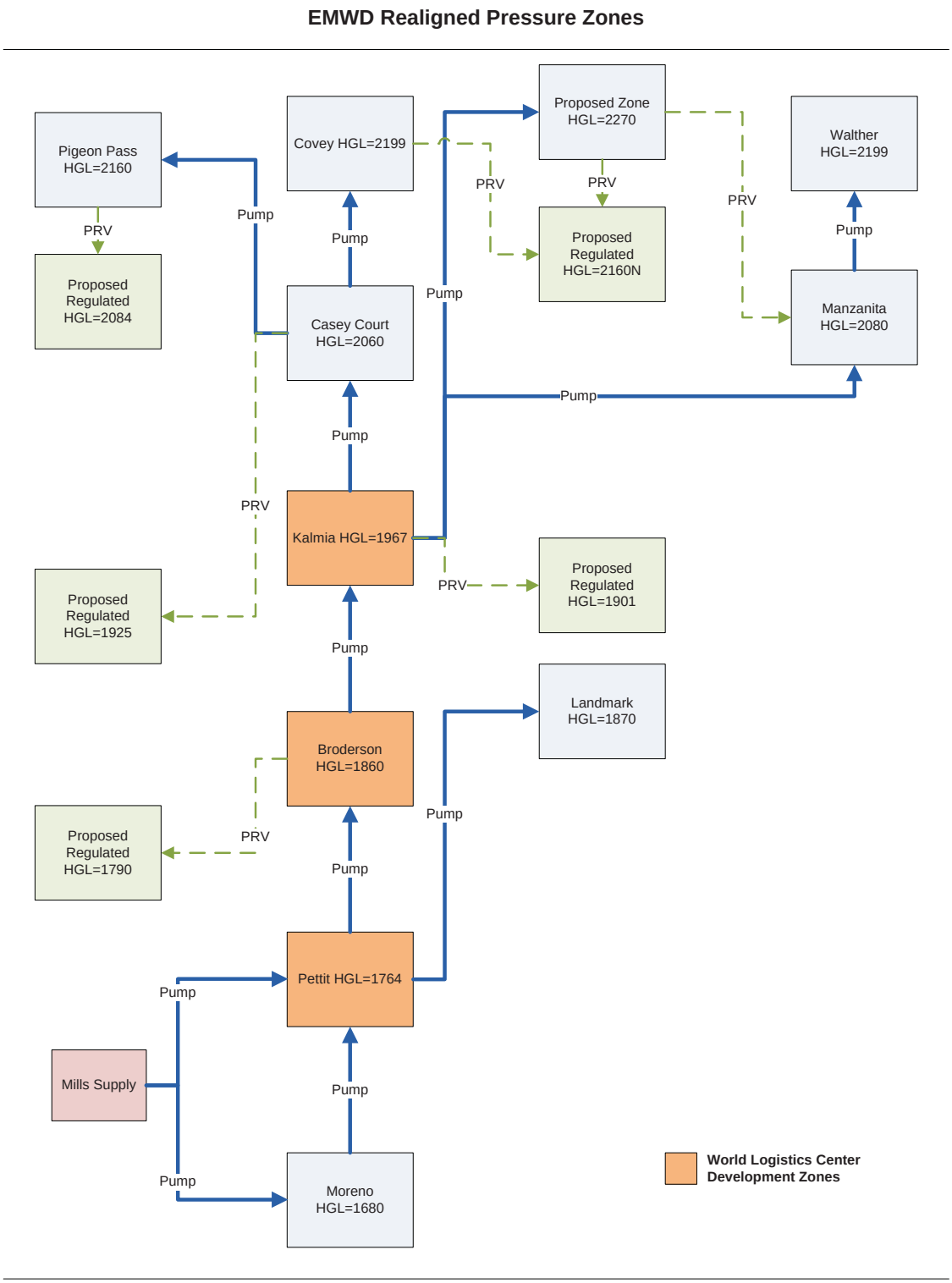
Figure 2
*Existing System Diagram*



The current pressure zone configuration in the Moreno Valley System creates low static pressures ranging from approximately 26 pounds per square inch (psi) to 57 psi and high static pressures ranging from approximately 68 psi to 154 psi. These pressures do not reflect EMWD pressure design criteria of 40 psi to 110 psi. This is due to high and low elevation areas at zone boundaries. EMWD is aware of this issue and has explored options to remedy the situation. One of EMWD's options is documented in The Moreno Valley Zone Realignment (MVZR) (CH2M HILL, 2009). This document explores options for improving pressures in low and high elevation areas by realigning zone boundaries.

The World Logistics Center is located within the area planned for zone boundary realignment. The realigned zone boundaries recommended in the MVZR were taken into consideration when planning the build out scenario for the World Logistics Center. The proposed location of the World Logistics Center will fall in the Pettit (1764), Broderson (1860), and Kalmia (1967) Pressure Zones. Figure 3 presents EMWD's realigned pressure zone schematic diagram along with World Logistics Center development zones.

Figure 3
*Realigned System Diagram*



# Analysis

In order to analyze the impact of the World Logistics Center Development on the existing Moreno Valley System, the existing system hydraulic model was obtained from EMWD. The 2008 scenario within the model was considered existing and was the scenario used for hydraulic analysis. The storage analysis was completed utilizing EMWD's supply and storage spreadsheets, which were developed as part of the WFMP.

## Hydraulic Analysis

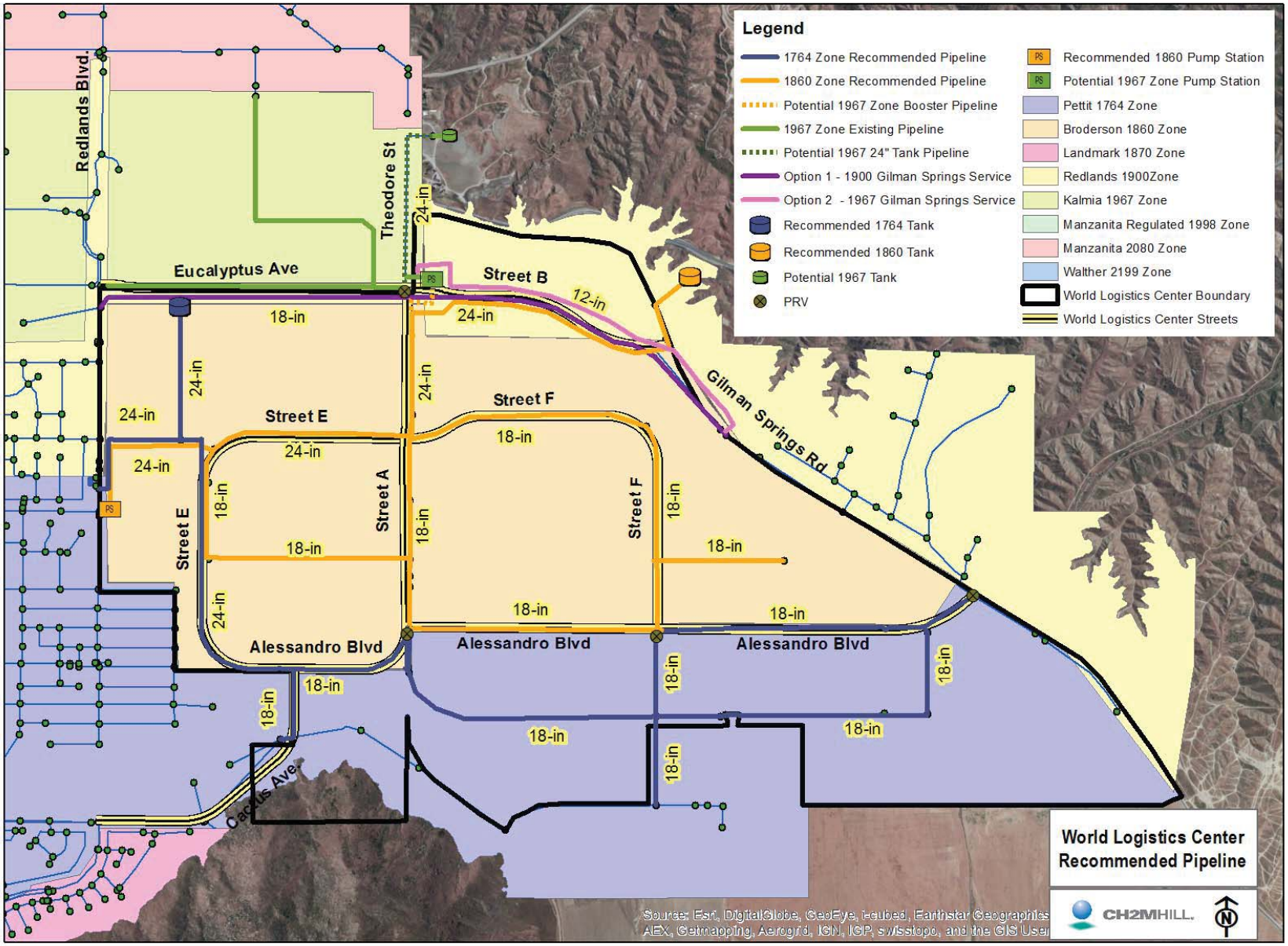
The first step in the World Logistics Center Hydraulic Analysis was to determine the pipeline network which would connect the proposed system to the existing Moreno Valley distribution system. Estimated World Logistic Center demands were distributed to junction nodes within the model using a demand factor of 670 gallons per day (gpd) per acre. Plans for the World Logistics Center span three pressure zones. The majority of the development will be serviced from the 1860 zone. Service for the south side of the development will be from the 1764 zone, and the small portion of the development north and south of Street B will be served from the existing Redlands (1900) Zone or the future Kalmia (1967) Zone. Table 9 provides the summary of demand by pressure zone.

Table 9
*Demands by Pressure Zone*

| Pressure Zone (Realigned Zones after Grading) | ADD (gpm) | MDD (gpm) |
|---|---|---|
| 1764 (30%) | 403 | 806 |
| 1860 (65%) | 690 | 1,380 |
| 1967 (5%) | 57 | 114 |
| **Totals** | **1,150** | **2,300** |

Utilizing the proposed street layout and the existing pressure zone alignment, pipelines were added to connect the junction demand nodes. The pipeline was sized to meet EMWD criteria, during a fire flow situation of 4,000 gpm at max day demand, peak hour. For purposes of this analysis, the Redlands (1900) zone was assumed to remain in place, with a new alignment, to provide service to existing customers. Two options for providing service to the existing Redlands (1900) Zone are presented below. Figure 4 shows the recommended pipeline by pressure zone for the World Logistics Center development.

Figure 4
*World Logistics Center Recommended Pipeline*



## Analysis Recommendations and Results

The majority of the World Logistics Center development will be served from the Broderson (1860) Zone. The low elevation area of the development on the south side of the system will be served by the Pettit (1764) Zone. The area directly north and south of Street B will be served by the existing Redlands (1900) Zone or the Future Kalmia (1967) Zone. The existing Redlands Booster Station is planned to remain in service, to provide flow to adjacent customers currently in the Redlands (1900) Zone. Options for providing service to Gilman Springs Road customers who are also currently served by the Redlands (1900) Zone are presented below.

### Gilman Springs Road Service Options

The existing Redlands Booster Station is planned to remain in service to provide flow to adjacent customers. As suggested in the MVZR, EMWD may retire this station at some time in the future, and service to these customers will be provided from the Broderson (1860) Zone. Existing customers along Gilman Springs Road also receive service from the existing Redlands (1900) Zone. The MVZR suggests that at some point in the future EMWD may realign these customers to the Kalmia (1967) Zone. The 12-inch pipeline currently serving the customers on Gilman Springs Road runs under the planned World Logistics Center Development area. For ease of construction of the World Logistic Center Development, the existing 12-inch pipeline is planned to be removed. The following two options are presented as alternatives to maintain service to the existing customers on Gilman Springs Road. These options are shown on Figure 4, and Option 1 was utilized for the analysis results presented in this report.

**Option 1 –**This option keeps Gilman Springs on the existing Redlands (1900) Zone. A new 18-inch pipeline would be installed parallel to the existing pipe in Eucalyptus Ave, and a 12-inch pipeline would be constructed along Street B, connecting to the existing 8-inch pipeline on Gilman Springs. Flow would be provided by the existing Redlands booster station. With this option in place, the planned World Logistics Center Development north and south of Street B would be served from the Redlands (1900) Zone. A 12-inch pipeline is adequate to serve the existing development along Gilman Springs Road, however an 18-inch pipeline along Eucalyptus Avenue would be needed to provided fire flow to the potential World Logistics Center development north and south of Street B. Fire flow cannot be provided through a PRV from the Kalmia (1967) Zone because there is not adequate capacity in the Kalmia (1967) Zone unless a new storage tank is constructed.

**Option 2 –** This option provides flow to the Gilman Springs area by connecting to the existing Kalmia (1967) Zone. This option aligns with the MVZR plan; however the existing Kalmia Zone cannot support additional demand at this time. A new Kalmia (1967) Zone tank and booster station would need to be constructed in order for this option to be feasible. With this option in place, the planned World Logistics Center Development north and south of Street B would be served from the Kalmia (1967) Zone.

### Results

The minimum fire flow available to the World Logistics Center, with the recommended pipe alignment, is approximately 10,800 gpm with a residual system pressure of 20 psi. Within

the Specific Plan area pressures in the Pettit (1764) Zone range from a low of 65 psi to a high of 110 psi and pressures in the Broderson (1860) Zone range from a low of 45 psi to a high of 110 psi. The recommended pipeline aligns with EMWD future zone realignment plans; therefore, no special considerations will need to be taken regarding future zone realignment.

## Specific Plan Infrastructure Planning

Two types of infrastructure need to be constructed as part of the World Logistics Center build-out: the backbone infrastructure and the distribution infrastructure.

- Backbone infrastructure consists of tanks, booster stations and transmission pipeline to expand supply capability within service areas.
- Distribution infrastructure consists of pipeline needed to supply customers within service areas.

EMWD has existing backbone infrastructure, as discussed above and shown in Figure 2, *Existing System Diagram*. The backbone infrastructure recommended as part of this memorandum was designed to provide adequate water supply service to the World Logistics Center development at build-out. It is unrealistic to assume all recommended backbone infrastructure will be in place before any development takes place within the World Logistics Center. In order to provide service to building sites before all backbone infrastructure is in place, a water supply analysis will need to be conducted to determine if service is feasible with existing infrastructure. As each building in the World Logistics Center is planned for development, the water supply analysis will be conducted to identify the plan of service for that individual building. The analysis will take into consideration both the existing EMWD backbone infrastructure and newly developed backbone infrastructure, to determine the best plan of water supply service for the building site. These water supply analysis studies will be needed until all recommended backbone infrastructure is in place. Therefore, when the backbone infrastructure recommended below is complete, water supply service plans for individual buildings will no longer be needed and the distribution infrastructure can be built out as planned.

### Backbone

The backbone infrastructure consists of tanks, booster stations, and transmission pipeline to provide additional capacity in the Pettit (1764) Zone, Broderson (1860) Zone, and Kalmia (1967) Zone. The majority of the World Logistics Center development will be supplied from the Broderson (1860) Zone. In order for supply to be provided by the Broderson (1860) Zone, a tank and booster pump station will need to be constructed. To supply water to the recommended Broderson pump station and tank, improvements will need to be made to EMWD facilities in lower pressure zones to support providing flow to the Broderson (1860) Zone. One recommended improvement is the addition of a Pettit (1764) Tank. The recommended Pettit Tank supports World Logistics Center Development build out by providing support for the Broderson (1860) Zone, and will also support the area of the World Logistics Center Development served from the Pettit (1764) Zone by being an in-zone supply source. The Pettit (1764) tank will be supplied from existing pipeline within the zone, so no booster station is needed. These two tanks, along with a booster station supply for the Broderson (1860) Tank and connecting pipeline are part of the recommended backbone improvements. Backbone improvements will also consist of one of the options to keep the

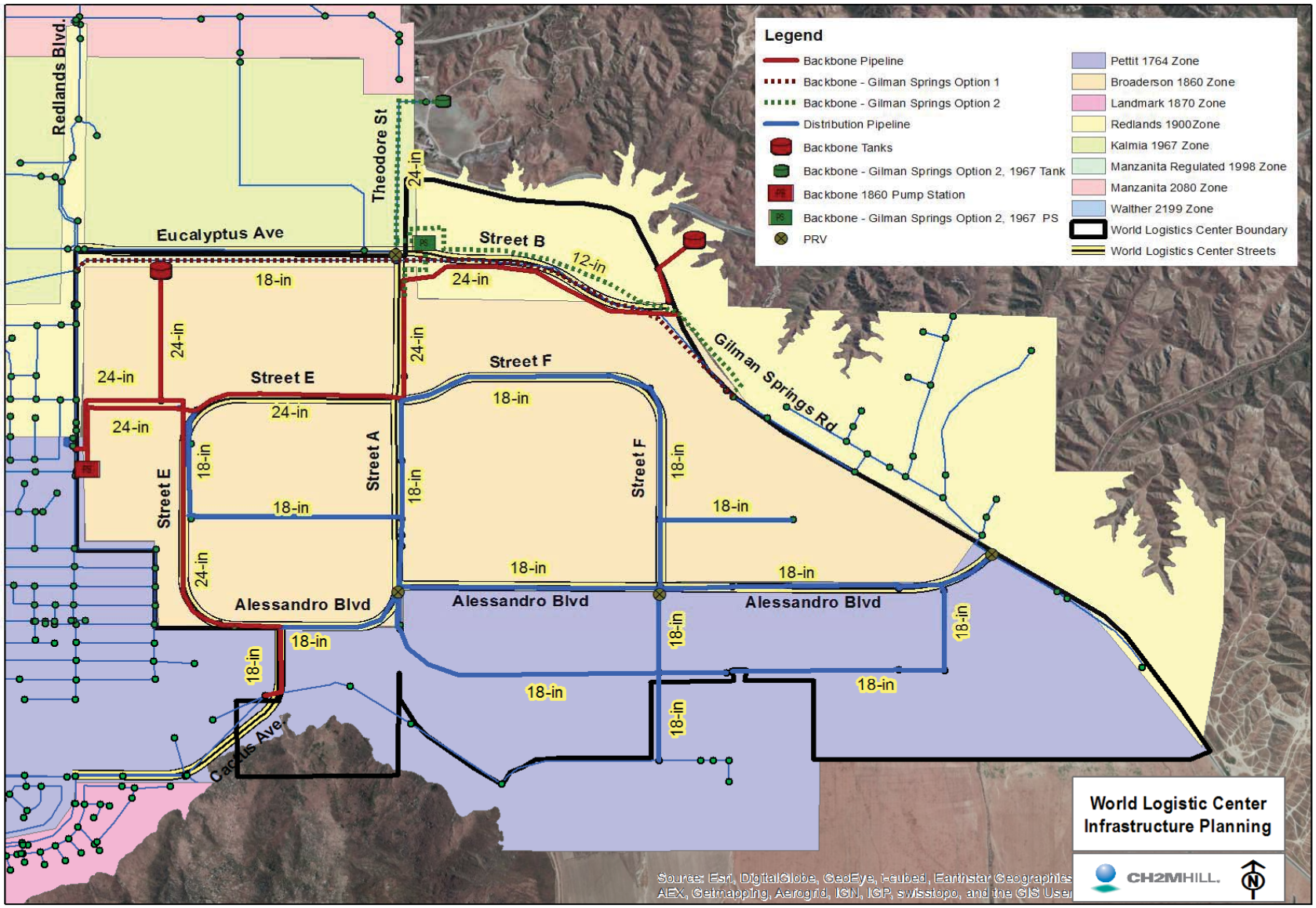
existing Gilman Springs customers online. Once these improvements are in place, World Logistics Center Development distribution pipeline can be added as needed to meet customer demands. As mentioned above, buildings within the World Logistics Center development that go online before the backbone infrastructure is complete will need a plan of service analysis to determine the optimal service and infrastructure needs for the individual site.

### Distribution

Distribution improvements are all the pipeline recommendations to support projected development. Once the backbone infrastructure is in place, pipelines can be built out as needed to support customer demand. A water supply plan of service analysis will be needed for buildings that go online before the backbone infrastructure is complete.

Backbone and distribution improvements are shown in Figure 5.

Figure 5
*World Logistics Center Infrastructure Planning*



## Storage Analysis

The storage analysis was completed using a spreadsheet model based on EMWD's storage criteria, presented above. The total storage requirements for the World Logistics Center were determined based on a demand of 670 gpd per acre as discussed previously. Because the World Logistics Center spans over three zones (1764, 1860, and 1967) storage analysis was performed for each zone. For each zone analysis, storage was calculated as follows:

- Operational storage (equalization) = 25% of MDD
- Fire flow storage = 0.96 MG (4,000 gpm for 4 hours)
- Emergency storage = Time of Use (25% of MDD)[a] + Emergency (25% of MDD)

[a] Per EMWD, Time of Use is not included in the Pettit (1764) zone

From this analysis the storage requirements for the World Logistics Center will be 1.6 MG in the Pettit (1764) Zone, and 2.4 MG in the Broderson (1860) Zone. Kalmia (1967) Zone has a storage requirement of 1.1 MG, which is mainly for fire flow purposes. The results from the storage analysis for each zone are presented in Table 10.

TABLE 10
*Storage Analysis by Zone*

| | | Zone | | |
|---|---|---|---|---|
| **Description** | **Unit** | **Pettit (1764)** | **Broderson (1860)** | **Kalmia (1967)** |
| ADD | gpm | 403 | 690 | 57 |
| MDD | gpm | 806 | 1380 | 114 |
| Total Storage Required | MG | 1.5 | 2.5 | 1.1 |

gpm = gallons per minute
MG = million gallons

## Storage Tank Locations

The 1.5 MG recommended Pettit (1764) Zone tank is currently being proposed for construction southeast of the intersection of Redlands Blvd and Eucalyptus Ave. Service to the tank is provided by the existing 24-inch pipeline in Cactus Ave and existing pipeline in the 1764 zone.

The 2.5 MG proposed Broderson (1860) Zone storage tank is located on the east side of the World Logistics Center development. A pump station near the existing Redlands Booster Station is needed to fill the proposed tank. A 24-inch pipeline along Street E is recommended to connect the pump station to the World Logistics Center pipe network.

Storage for the Kalmia (1967) Zone is needed for Gilman Springs Road service option 2 (if chosen). Based on the World Logistics Center demands serviced from this zone, the potential tank would be 1.1 MG. Water would be pumped from the Broderson (1860) Zone to fill this tank. A transmission main from the booster station to the tank would be built along Theodore Street. Table 11 summarizes the recommended tanks.

Table 11
*Storage Tank Summary*

| Tank Description | Tank Size | Pump Station Required | Estimated Pipeline (ft) | Location |
|---|---|---|---|---|
| 1764 Zone | 1.6 MG | No | 2,300(1) | Southeast of Intersection of Redlands Blvd and Eucalyptus Ave |
| 1860 Zone | 2.4 MG | Yes | 7,100(2) | East of WLC Development, North of Gilman Springs Rd |
| 1967 Zone | 1.1 MG | Yes | 3,050 | East of Theodore, South of Ironwood |

(1) Estimated pipeline is only the mainline from Street E to the tank location. The remaining pipeline needed to connect the tank to the system is listed below in Table 12.

(2) Estimated pipeline is only the mainline from Street F to the tank location. The remaining pipeline needed to connect the tank to the system is listed below in Table 12.

## Pumping Analysis

Two pump stations are recommended for the World Logistics Center Development. One station is required to supply the recommended Broderson (1860) Zone tank, and the other pump station is needed to support the Kalmia (1967) Zone with additional storage. Both will fill the recommended/proposed tanks and supply demands. The results below are based on initial analysis and may need to be updated if the pump station location or tank size is changed.

For this analysis, the 1860 Zone Pump Station was placed near the existing Redlands Booster Station. The flow requirement is based on the criteria outlined in Table 5 for a "time of use" pump station. The recommended 2.5 MG 1860 Zone Tank will require one active pump with a flow of 1,742 gpm with a head gain of 105 feet. An additional pump with the same flow and head is recommended to be placed at the station as a backup pump.

The 1.1 MG potential 1967 Zone Tank will require one active pump with a flow of 230 gpm and a head gain of 107 feet. Due to the small size of this zone, using peak hour (2 x MDD) as the flow criteria from Table 5 was more appropriate for this station to fill the tank in a timely manner. An additional pump with the same flow and head is recommended to be placed at the station as a backup pump. For purposes of this study, the 1967 Zone Pump Station was located at the intersection of Theodore Street and Street B. This station would suction from the Broderson (1860) Zone. This pump station is only required if the 1967 tank is constructed.

The planned 1764 Tank receives flow from the existing Cactus Pump Station, therefore, no additional pump station was recommended for this tank.

## Analysis Summary

Table 12 details the approximate length of the recommended pipeline along with the diameter and location within the system. Improvements are labeled as backbone infrastructure or distribution infrastructure.

Table 12
*Proposed Specific Plan Pipeline*

| Length (ft) | Diameter (inch) | Backbone, or Distribution | Pressure Zone | Location |
|---|---|---|---|---|
| 2,300(1) | 24 | Backbone | 1764 | 1764 Tank Pipeline |
| 4,850 | 24 | Backbone | 1764 | South of 1764 Tank along Street E |
| 2,250 | 24 | Backbone | 1764 | Supply pipeline to 1764 Tank |
| 1,850 | 18 | Backbone | 1764 | Connection to existing system south of Alessandro Blvd on Cactus Ave |
| 5,000 | 18 | Backbone | 1900 | Option 1 – Gilman Springs, south of Eucalyptus |
| 7,000 | 12 | Backbone | 1900 | Option 1 – Gilman Springs Street B |
| 7,000 | 12 | Backbone | 1967 | Option 2 – Gilman Springs |
| 3,050(1) | 24 | Backbone | 1967 | Option 2 – Gilman Springs 1967 Tank Pipeline |
| 1,450 | 24 | Backbone | 1860/1967 | Option 2 – Gilman Springs 1967 Booster Pipeline |
| 7,100(1) | 24 | Backbone | 1860 | 1860 Tank Pipeline |
| 2,900 | 24 | Backbone | 1860 | Booster station supply pipeline to Street E |
| 3,550 | 24 | Backbone | 1860 | Street E |
| 3,500 | 18 | Distribution | 1860 | Street A, Between the Intersections of Street E and the loop pipeline |
| 5,700 | 18 | Distribution | 1860 | Street E loop pipeline |
| 12,000 | 18 | Distribution | 1860 | Street F loop pipeline, to dead-end east of Street F |
| 2,000 | 18 | Distribution | 1860 | Dead – end east of Street F |
| 8,600 | 18 | Distribution | 1860 | Along Alessandro Blvd, connecting at Street A loop and Street F dead-end |
| 3,500 | 18 | Distribution | 1764 | Alessandro Blvd, east of Cactus Ave to Street A intersection |
| 10,000 | 18 | Distribution | 1764 | South of Alessandro Blvd |
| 7,000 | 18 | Distribution | 1764 | Alessandro Blvd, east of Street F, to Gilman Springs and south to loop intersection |
| 3,000 | 18 | Distribution | 1764 | Street F, from Alessandro Blvd south to existing pipeline connection |

(1) This pipeline length was included as the tank pipeline on Table 11.

# World Logistics Center Recycled Water Analysis

PREPARED FOR: Highland Fairview

PREPARED BY: CH2M HILL

DATE: September 2014

## Summary of Modifications

Modifications to the Recycled Water Analysis have been made to reflect changes in the Project Description. These modifications are reflected in the memo and shown in Exhibits 6 through 9.

## Introduction

The proposed World Logistics Center Specific Plan (WLC) is a master plan for the development of logistics warehouse distribution facilities on approximately 2,610 acres of land in the Rancho Belago area of eastern Moreno Valley. The Specific Plan proposes the development of 40.4 million square feet of high-cube logistics facilities on 2,382.8 acres, 200,000 square feet of light logistics facilities on 37.1 acres, an in-project fueling station, 115.8 acres of street right-of-way and 74.3 acres of permanent open space.

The Specific Plan area is situated southerly of State Route 60, generally between Redlands Boulevard and Gilman Springs Road (the easterly City limit). The Specific Plan extends to, but does not include, the San Jacinto Wildlife Area (SJWA). The General Plan Amendment and Zone Change which accompany the Specific Plan includes a portion of the SJWA property in order to designate that land for open space use.

The World Logistics Center is located within the recycled water service area of Eastern Municipal Water District (EMWD). The purpose of this technical memorandum is to identify recycled water system requirements for the WLC. EMWD currently plans to provide recycled water for site irrigation.

## Analysis Criteria

### Assumptions

The recycled water distribution system analysis for the WLC was performed using the InfoWater model provided by Eastern Municipal Water District (EMWD). Recycled water distribution piping, a booster pump station, and a recycled water storage tank were added to the 2012 distribution system for this analysis.

The standard EMWD demand used for industrial land uses is 2,000 gpd/gross acre (2.2 acre-ft/year (afy) per gross acre). The developable project area (excluding open space) is 2,536 acres which equates to a water demand of 5,580 afy. The WLC has a land use generally consisting of high cube logistics which has a lower water use than typical industrial development. In addition, the project is programmed to utilize native and drought tolerant plants along with sustainable methods to direct rainfall runoff to landscaped areas, potentially reducing the total irrigation demand. Recognizing the potential reduction in water demand, EMWD issued a Water Supply Assessment (WSA) with an estimated total water demand of 1,991 afy. The estimated potable water demand for building use is 460 afy. The balance remaining for potential irrigation use is

1,521 afy. For purposes of sizing facilities, this analysis assumes the full potential irrigation demand of 1,521 afy or 1,358,000 gallons per day (gpd) for the average day demand (ADD). Irrigation demands are distributed evenly throughout the WLC site based on the piping layout.

Peaking factors were applied to ADD to obtain maximum day demands (MDD) and peak hour demands (PHD). For irrigation demands, the peaking factor from ADD to MDD is 2.5 and from MDD to PHD is 3[1].

Highland Fairview Corporate Park (HFCP), which includes the existing Skechers building and adjacent parcels, has an associated irrigation demand as shown in Exhibit 1. The existing irrigation demands are being served by a recycled water pipeline that is connected to the domestic water system. It is assumed this pipeline will be converted to recycled water service in the future.

EXHIBIT 1
**Highland Fairview Corporate Park Irrigation Demands**
*WLC Recycled Water Analysis*

| Site | ADD (gpd)[a] | MDD (gpd)[a] | PHD (gpd)[a] |
|---|---|---|---|
| Skechers | 41,811 | 104,527 | 313,581 |
| Parcel 2 | 11,288 | 28,220 | 84,660 |
| Parcel 3 | 6,682 | 16,704 | 50,112 |
| Parcel 4 | 3,645 | 9,111 | 27,333 |
| **Total** | **63,000** | **159,000** | **476,000** |

[a] Reference: Final Environmental Impact Report for Highland Fairview Corporate Park, Appendix K, Attachment D (Michael Brandman Assoc., 2008).

The total demands for the WLC and HFCP are tabulated in Exhibit 2. The storage tank for the WLC site is sized for 75 percent of MDD storage. The placement of the recycled water storage tank is adjacent to the proposed location of the new domestic water tank east of the intersection of Gilman Springs Road and Street B. At elevation 1850, the recycled water storage tank provides sufficient pressure within the WLC and HFCP sites to require no additional operational storage.

EXHIBIT 2
**Total Demands for WLC and Highland Fairview Corporate Park**
*WLC Recycled Water Analysis*

| Site | ADD (gpd) | MDD (gpd) | PHD (gpd) |
|---|---|---|---|
| WLC irrigation | 1,358,000 | 3,395,000 | 10,185,000 |
| HFCP irrigation | 63,000 | 159,000 | 476,000 |
| **Total** | **1,421,000** | **3,554,000** | **10,661,000** |

[1] Peaking factors are based on the Final Environmental Report for the Highland Fairview Corporate Park (Michael Brandman Assoc., 2008) for irrigation.

EXHIBIT 2
**Total Demands for WLC and Highland Fairview Corporate Park**
*WLC Recycled Water Analysis*

| Site | ADD (gpd) | MDD (gpd) | PHD (gpd) |
|---|---|---|---|

## Design Criteria

The criteria used to evaluate system performance were adopted from the 2010 EMWD Recycled Water Facilities Master Plan. The criteria are summarized below.

- Operating pressure range at MDD = 40 to 110 psi
- Maximum MDD flow velocity of 5 feet per second (fps)
- Maximum PHD flow velocity of 10 fps
- Maximum headloss:

| Flow Condition [a] | | Headloss |
|---|---|---|
| < 20 cfs | < 9000 gpm | 3.0 feet/1000 feet |
| 20 – 50 cfs | 9000 – 22,500 gpm | 2.0 feet/1000 feet |
| > 50 cfs | > 22,500 gpm | 1.0 feet/1000 feet |

[a] cubic feet per second (cfs), gallons per minute (gpm)

- The generation of recycled water is assumed to be able to match MDD for the system with the largest Regional Water Reclamation Facility out of service.
- Service level storage capacity is 75 percent of MDD based on the criterion from the 2010 Master Plan for 100 percent landscape demand:

| Percent of Non-Landscape Demand | Percent of Landscape Demand | Recommended Service-Level Percent of Storage (Percent of MDD) |
|---|---|---|
| 100 | 0 | 20 |
| 75 | 25 | 30 |
| 50 | 50 | 50 |
| 25 | 75 | 60 |
| **0** | **100** | **75** |

[a] cubic feet per second (cfs), gallons per minute (gpm)

## Existing System

The existing distribution system consists of:

- Four Regional Water Reclamation Facilities (RWRFs) and associated Effluent Pump Stations

- Seventeen RWRF Onsite Distribution Storage Ponds
- Four RWRF Onsite Storage Pond Recycled Water Pump Stations (RWPSs)
- Six Offsite Distribution Storage Ponds
- Five Offsite Storage Pond RWPSs
- Six Recycled Water Booster Stations (RWBSs)
- Two Service Level Storage Tanks and One Service Level Reservoir
- Reach 4 Energy Dissipator
- Eight Pressure Zones
- Transmission and Distribution Piping

The Landmark Reservoir currently serves the 1710 Pressure Zone of the existing distribution system and is located nearest to the WLC site. A pump station will be required to provide recycled water from the Landmark Reservoir and 1710 Pressure Zone to the WLC site and the new recycled water storage tank.

The 2010 EMWD Recycled Water Facilities Master Plan determined the existing recycled water demands and projected future system requirements. The 2010 recycled water supply exceeded the 2010 ADD, and additional supply will be required to meet projected future demands as shown in Exhibit 3. For the 2012 scenario, the supply slightly exceeds the demand based on the extrapolated demand information in the InfoWater model supplied by EMWD and the additional recycled water demands for the WLC and HFCP sites.

EXHIBIT 3
**Existing and Projected Recycled Water Supply and Demand per 2010 EMWD Recycled Water Facilities Mater Plan**
*WLC Recycled Water Analysis*

| Year | Supply | | Demand | |
|---|---|---|---|---|
| | (afy) | (MGD)[a] | (afy) | (MGD)[a] |
| Existing (2010) | 47,700 | 42.6 | 39,600 | 35.3 |
| 2015 | 57,100 | 50.9 | 57,100 | 50.9 |
| 2020 | 65,000 | 58.0 | 65,000 | 58.0 |
| 2025 | 73,900 | 65.9 | 73,900 | 65.9 |
| 2030 | 82,900 | 74.0 | 82,900 | 74.0 |

[a] MGD = million gallons per day

The existing recycled water distribution model obtained from EMWD includes information for the existing facilities described in the 2010 EMWD Recycled Water Facilities Master Plan. In addition, the InfoWater model is assumed to accurately represent the existing system. The Landmark Reservoir and associated piping for the 1710 Pressure Zone will supply recycled water to the WLC site via the WLC booster pump station. They are included in the WLC site recycled water analysis in order to determine the impacts of the WLC and HFCP demands on the existing

system. Potential impacts to the existing system are discussed on page 7. This analysis assumes that the existing recycled water system has sufficient pump capacity at the various pump stations to provide the additional volume required to the Landmark Reservoir under MDD conditions.

A 12-inch recycled water pipe was installed in 2010 along Eucalyptus Ave. between Redlands Blvd. and Theodore St. It is currently connected to the drinking water system. It is assumed that the 12-inch pipe will be connected to the recycled water system from the WLC site and disconnected from the drinking water distribution system in the future to provide irrigation water to the HFCP.

# Analysis

Two scenarios were developed from the EMWD existing model for the WLC project area:

- Full WLC project area and demands from the EMWD existing system
- Full WLC and HFCP project areas and demands from the EMWD existing system

For each scenario, the average day, maximum day and peak hour demands developed in Exhibit 2 were distributed to nodes in the recycled water model. WLC irrigation demands are distributed to all nodes within the WLC site, except for the nodes on the piping connection between Pressure Zone 1710 and the WLC booster pump station. The scenarios and results are described below.

1. **Full WLC project area and demands from the EMWD existing system**. Pipe sizing for this scenario assumes that the entire site will be constructed without adjustments to demands from phased development. Pipe size was determined based on the pipe velocity and headloss criteria under PHD flows. On-site pipe sizes range from 8 to 18 inches as shown in Exhibit 6. There is potential for some stagnation issues with the piping in the 1730 Pressure Zone due to non-looped piping along Alessandro Blvd.. This will be evaluated further during final design. Potential solutions include routine pipe maintenance to clean out debris in the pipe. The WLC pump station will be located at the boundary of the 1710 Pressure Zone, approximately at the intersection of Merwin Street and Bay Avenue, to pump to the WLC site. The WLC booster pump station is rated at approximately 2,500 gpm and 230 feet of total dynamic head (TDH).

   An 18-inch pipeline from the WLC booster pump station conveys water approximately 20,000 lineal feet (LF) through the 1860 Pressure Zone to the 2.7 million gallon recycled water storage tank, which will be located east of Gilman Springs Road. Recycled water is supplied from the 1710 Pressure Zone; flow return to the 1710 Pressure Zone from the 1730 Pressure Zone will be limited by an emergency pressure reducing valve to eliminate unnecessary pumping of recycled water to HFCP. There will also be a backup supply from the drinking water system into the recycled water storage tank to provide an added level of redundancy to the system. The backup supply will include an air gap to prevent contamination of the drinking water system.

   Preliminary results show pressures in the 18-inch suction piping to the WLC booster pump station that are just below the design criterion of 40 psi. Since none of the controls of the existing system are modified for the WLC and HPCP analysis, further distribution system analysis will be required to determine if improvements are required to eliminate insufficient pressures.

Due to the head required to fill the storage tank in Zone 1850, pressures in the 18-inch transmission pipeline exceed the maximum operating pressure criterion of 110 psi in Zone 1790 near the pump station. These, in turn, will require pressure reducing valves to service connections. The transmission pipeline MDD pressure through the 1790 Pressure Zone ranges between 90 and 117 psi. In the 1860 Pressure Zone, pressures between 65 and 90 psi during MDD fall within the acceptable pressure criteria. Operating pressures are influenced by piping headlosses and static pressure between the tank and pump. To decrease operating pressures in the 1790 Pressure Zone, the transmission pipe size would need to be increased. However, this is not possible since the minimum static pressure due to the elevation difference between the pump and the recycled water storage tank is 110 psi.

Grade and building elevation across the WLC and HFCP sites range from 1540 to 1770. To accommodate the operating pressures associated with the WLC and HFCP sites, three pressure zones are identified to minimize excursions from the design criterion: 1860, 1790, and 1730. Pressure reducing valves are located to reduce pressure from the 1860 Pressure Zone to the 1790 Pressure Zone and from the 1790 Pressure Zone to the 1730 Pressure Zone. The pressure reducing valve to the 1790 Pressure Zone is set to 75 psi. Pressure reducing valves to the 1730 Pressure Zone are set at 65 and 55 psi to allow flow through the looped sections of piping. Exhibit 4 shows the pressure range for each pressure zone of the WLC site; Exhibit 7 shows the map of the WLC site with the pressures displayed for MDD.

EXHIBIT 4
**Pressure Range Results of WLC Scenarios**
*WLC Recycled Water Analysis*

| Pressure Zone | Pressure Range | | |
|---|---|---|---|
| | ADD | MDD | PHD |
| 1730 | 72 – 94 | 62 – 89 | 40 – 68 |
| 1790 (not including transmission pipe) | 75 – 96 | 75 – 92 | 32 – 75 |
| 1790 (transmission pipe) | 98 – 119 | 95 – 116 | 86 – 107 |
| 1860 | 65 – 95 | 63 – 92 | 67 – 78 |

The WLC booster pump station is sized for 2,500 gpm at 230 feet of total dynamic discharge head (TDH). The recycled water storage tank is sized at 2.7 million gallons, with an operational depth of 40 feet. The WLC booster pump station is slightly oversized for the WLC MDD condition of 2,360 gpm.

The estimated pipe lengths required to supply the WLC site from the 1710 Pressure Zone are:

- 8-inch PVC: 14,000 LF
- 12-inch PVC: 16,000 LF

- 18-inch PVC: 20,000 LF

The WLC site will be developed in two phases. Phase 1 development is approximately 50 percent of the entire WLC site and consists of development on the west side of the site. The 18-inch transmission pipe and the 2.7MG Tank will need to be built as part of Phase 1 and the Phase 1 demands will also require the booster pumps for 1,400 gpm at 230 feet TDH to be constructed.

2. **Full WLC and HFCP project area and demands from the EMWD existing system.** The impacts of the adding the HFCP demands to the WLC distribution system do not significantly impact pressures and pipe velocities in the WLC system since the allocation for HFCP is approximately 3, 4, and 4 percent of the total WLC system demand for ADD, MDD, and PHD, respectively. The 12-inch pipe connecting to the existing 12-inch recycled water pipe at the HFCP site is located off the 18-inch transmission pipe to the recycled water storage tank as shown in Exhibit 8. Resultant pressures in the system for the WLC and HFCP sites during MDD are displayed in Exhibit 9.

EXHIBIT 5
**Pressure Range Results of WLC and HFCP Scenarios**
*WLC Recycled Water Analysis*

| Pressure Zone | Pressure Range | | |
|---|---|---|---|
| | ADD | MDD | PHD |
| 1730 | 68 – 87 | 62 – 89 | 40 – 68 |
| 1790 (not including transmission pipe) | 75 – 96 | 75 – 924 | 32 – 75 |
| 1790 (transmission pipe) | 98 – 119 | 95 – 116 | 83 – 105 |
| 1860 | 66 – 95 | 65 – 92 | 52 – 80 |
| HFCP site | 63 – 65 | 62 – 63 | 50 – 51 |

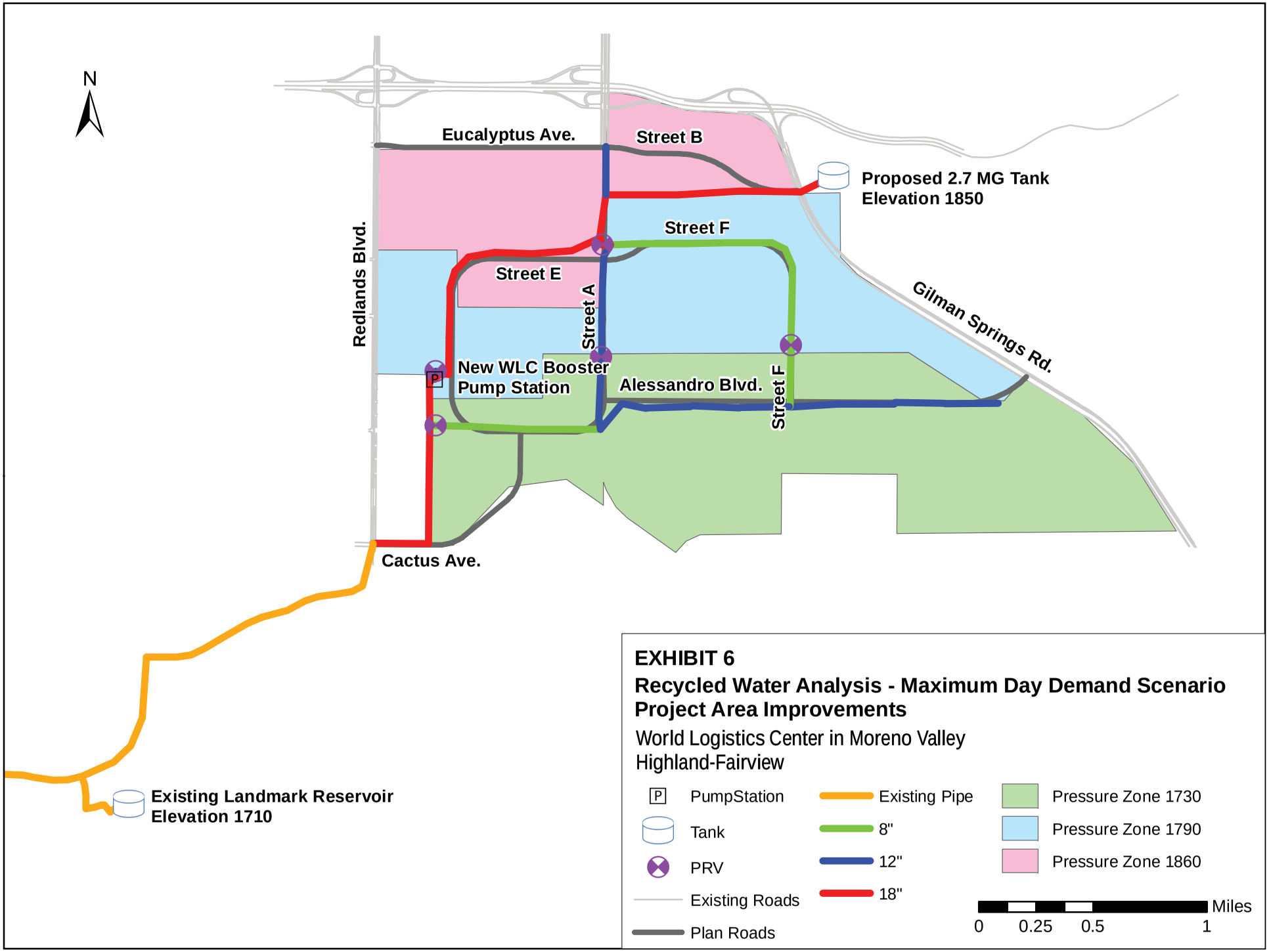
The WLC booster pump station and recycled water storage tank are sized to provide sufficient capacity at the full WLC and HFCP demands due to the minimal increase in pump station capacity and tank size. The HFCP demands increase the required pump station capacity by only 110 gpm and the required tank storage capacity by 200,000 gallons.

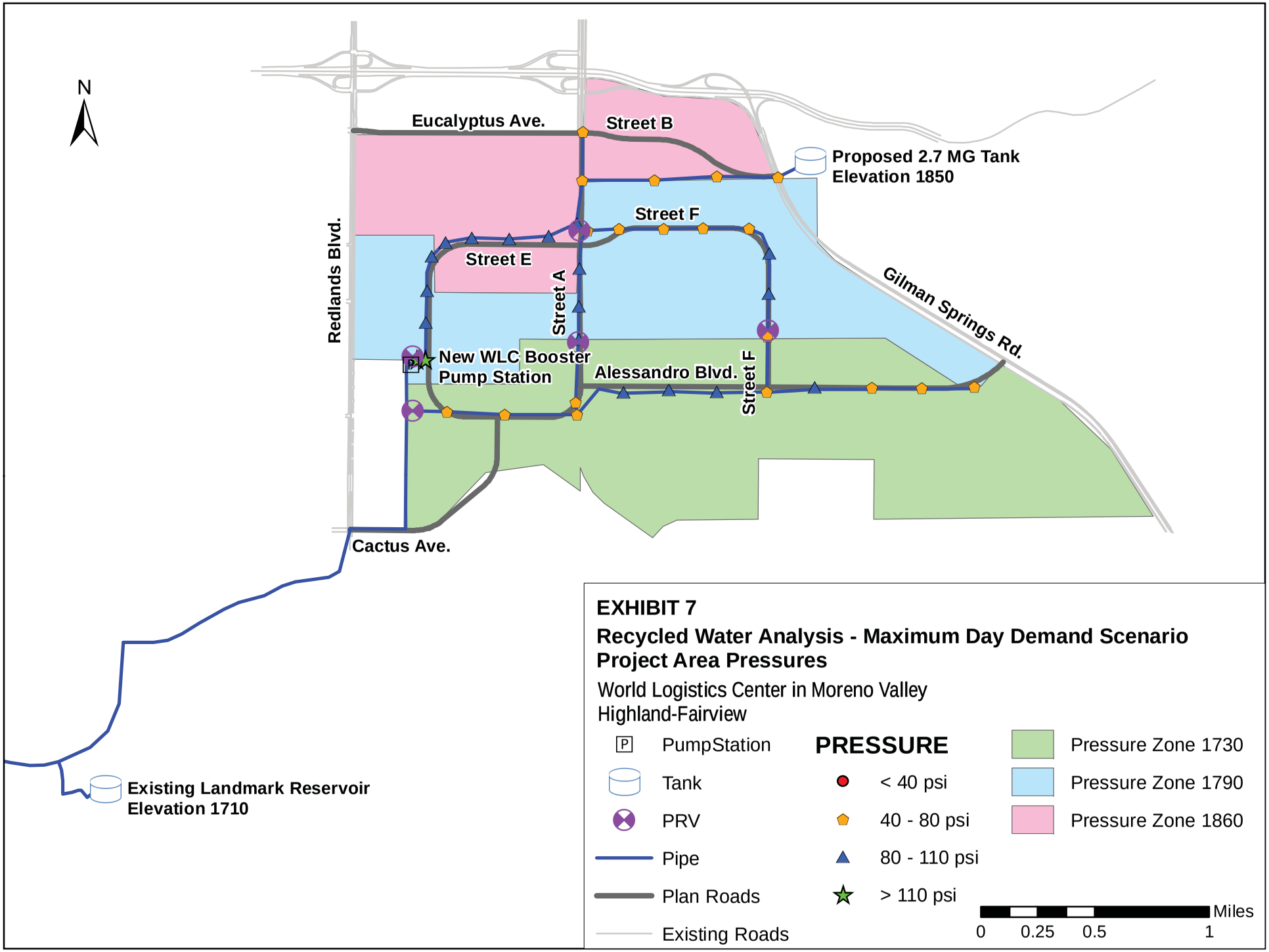
Changes to the street layout were made after the modeling and analysis was completed. The figures were updated to show the pipe in Alessandro Blvd in its current location. At the time of final design the analysis will need to be updated to reflect the current street location.

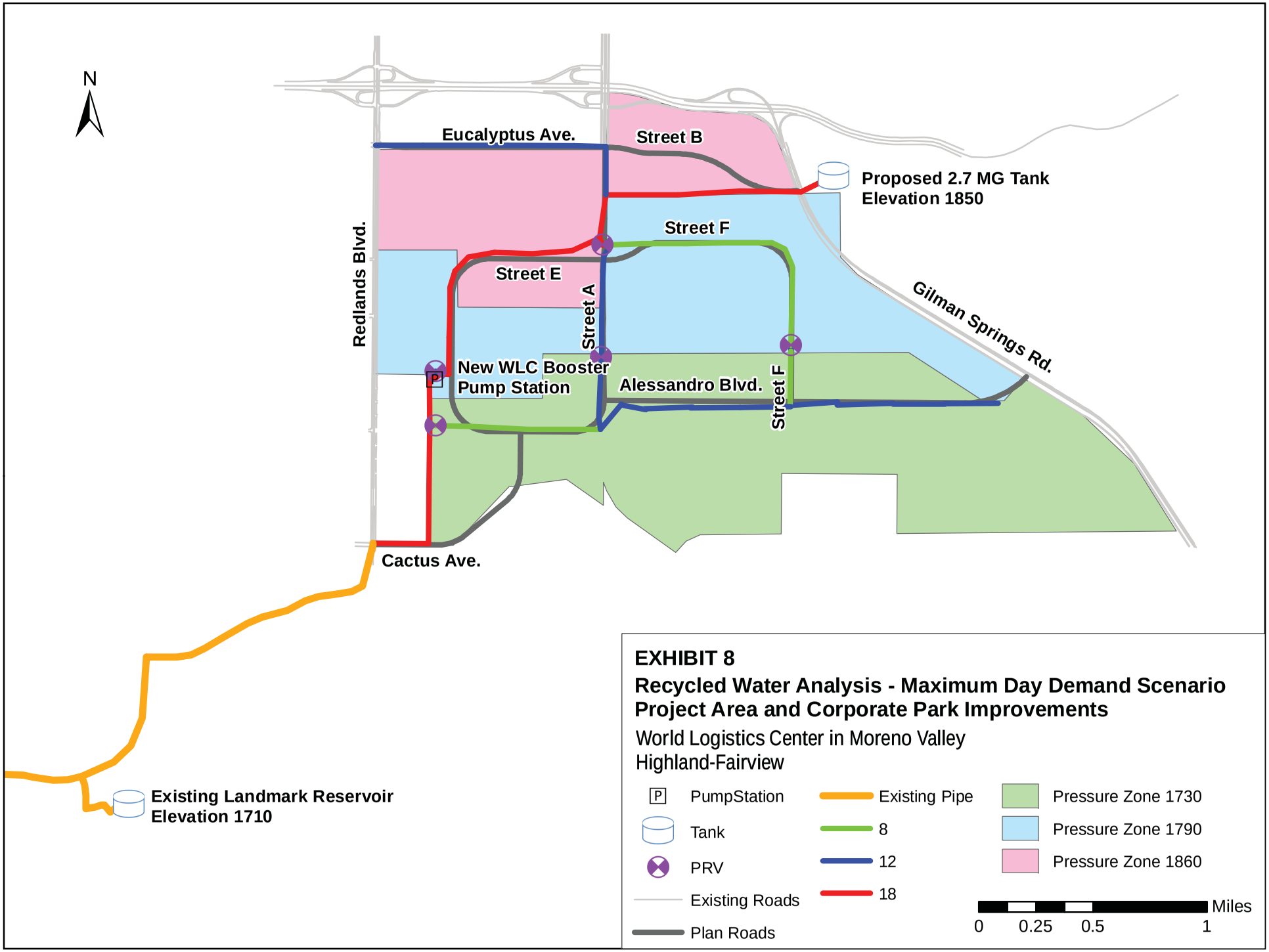
## Potential Existing System Impacts

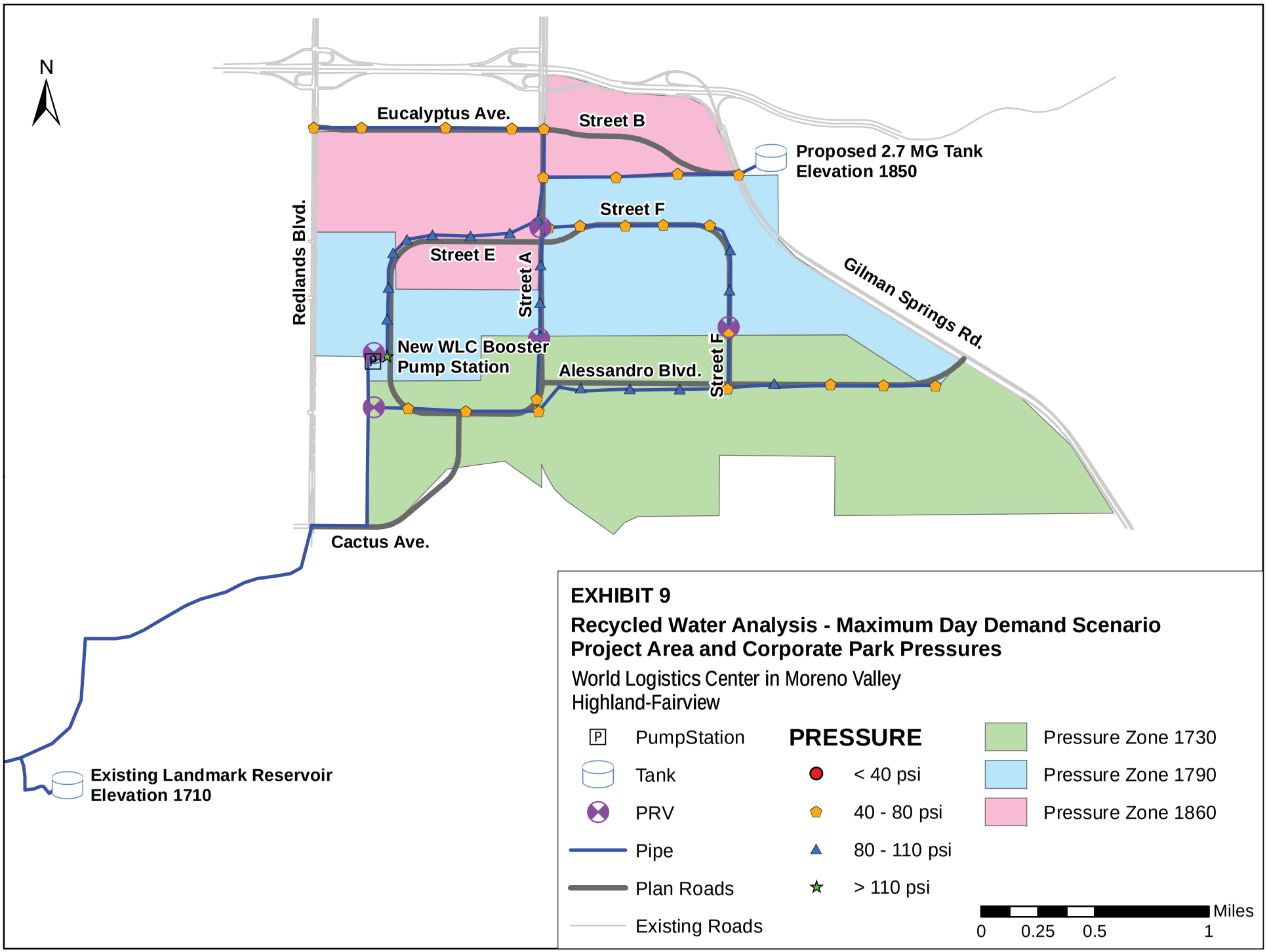
Based on the projected demands and the existing supply capacity of the RWRFs, the existing system is capable of producing sufficient recycled water to the existing distribution system and meeting the demands of the WLC and HFCP sites for the near-term. The supply capacity may require augmentation depending on increased demands throughout the existing system as well as phasing of the WLC and HFCP development.

The existing system will need to provide an additional 3,100 gpm through the system and up to the Landmark Reservoir. The existing system will need to be analyzed at a later date to determine adequacy of the existing pump stations to maintain existing operating levels in the Landmark Reservoir and to prevent lowering of the operating pressures below the 40 psi criteria. This analysis should include the determination of the pump stations' existing capacity to provide sufficient flow to the distribution system demands and to the Landmark Reservoir; identification of modifications to the pump stations' operations to accomplish filling and draining of the Landmark Reservoir; and identification of improvements to the existing pump stations to fix existing capacity deficiencies.


N
Eucalyptus Ave.
Street B
Proposed 2.7 MG Tank
Elevation 1850
Street F
Redlands Blvd.
Street E
Street A
Gilman Springs Rd.
New WLC Booster
Pump Station
Alessandro Blvd.
Street F
Cactus Ave.
Existing Landmark Reservoir
Elevation 1710
EXHIBIT 6
Recycled Water Analysis - Maximum Day Demand Scenario
Project Area Improvements
World Logistics Center in Moreno Valley
Highland-Fairview
PumpStation
Tank
PRV
Existing Roads
Plan Roads
Existing Pipe
8"
12"
18"
Pressure Zone 1730
Pressure Zone 1790
Pressure Zone 1860
Miles
0
0.25
0.5
1


N
Eucalyptus Ave.
Street B
Proposed 2.7 MG Tank
Elevation 1850
Street F
Street E
Redlands Blvd.
Street A
Gilman Springs Rd.
New WLC Booster
Pump Station
Alessandro Blvd.
Street F
Cactus Ave.
Existing Landmark Reservoir
Elevation 1710
EXHIBIT 7
Recycled Water Analysis - Maximum Day Demand Scenario
Project Area Pressures
World Logistics Center in Moreno Valley
Highland-Fairview
PumpStation
Tank
PRV
Pipe
Plan Roads
Existing Roads
PRESSURE
< 40 psi
40 - 80 psi
80 - 110 psi
> 110 psi
Pressure Zone 1730
Pressure Zone 1790
Pressure Zone 1860
Miles
0
0.25
0.5
1


N
Eucalyptus Ave.
Street B
Proposed 2.7 MG Tank
Elevation 1850
Street F
Redlands Blvd.
Street E
Street A
Gilman Springs Rd.
New WLC Booster
Pump Station
Alessandro Blvd.
Street F
Cactus Ave.
Existing Landmark Reservoir
Elevation 1710
EXHIBIT 8
Recycled Water Analysis - Maximum Day Demand Scenario
Project Area and Corporate Park Improvements
World Logistics Center in Moreno Valley
Highland-Fairview
PumpStation
Tank
PRV
Existing Roads
Plan Roads
Existing Pipe
8
12
18
Pressure Zone 1730
Pressure Zone 1790
Pressure Zone 1860
Miles
0
0.25
0.5
1


N
Eucalyptus Ave.
Street B
Proposed 2.7 MG Tank
Elevation 1850
Street F
Redlands Blvd.
Street E
Street A
Gilman Springs Rd.
New WLC Booster
Pump Station
Alessandro Blvd.
Street F
Cactus Ave.
Existing Landmark Reservoir
Elevation 1710
EXHIBIT 9
Recycled Water Analysis - Maximum Day Demand Scenario
Project Area and Corporate Park Pressures
World Logistics Center in Moreno Valley
Highland-Fairview
PumpStation
Tank
PRV
Pipe
Plan Roads
Existing Roads
PRESSURE
< 40 psi
40 - 80 psi
80 - 110 psi
> 110 psi
Pressure Zone 1730
Pressure Zone 1790
Pressure Zone 1860
Miles
0
0.25
0.5
1

The proposed World Logistics Center Specific Plan (WLC) is a master plan for the development of logistics warehouse distribution facilities on approximately 2,610 acres of land in the Rancho Belago area of eastern Moreno Valley. The Specific Plan proposes the development of 40.4 million square feet of high-cube logistics facilities on 2,382.8 acres, 200,000 square feet of light logistics facilities on 37.1 acres, an in-project fueling station, 115.8 acres of street right-of-way and 74.3 acres of permanent open space.

The Specific Plan area is situated southerly of State Route 60, generally between Redlands Boulevard and Gilman Springs Road (the easterly City limit). The Specific Plan extends to, but does not include, the San Jacinto Wildlife Area (SJWA). The General Plan Amendment and Zone Change which accompany the Specific Plan includes a portion of the SJWA property in order to designate that land for as open space use.

There are a number of existing dry utility systems owned and operated by Moreno Valley Utility (electric), Southern California Edison (electric), Southern California Gas (natural gas) Questar (petroleum products pipelines) Verizon Communications and Time Warner Communications. The following technical report is a broad global dry utility planning summary identifying the issues to be dealt with as part of the project development.

## Existing Electric Service Facilities

### Electricity – Southern California Edison (SCE)

1. A 115kV transmission pole line along Theodore Street, Eucalyptus Avenue and Gilman Springs Road.
2. A second 115kV transmission pole line along Broadiaea Avenue and Davis Road.
3. Local 12kV distribution facilities are present serving existing residential and commercial development westerly of the World Logistics Center.

### Electricity – Moreno Valley Utility (MVU)

1. Serving the existing Skechers facility is a 12kV underground system along Eucalyptus Avenue between Redlands and Theodore Street.
2. The source for all Moreno Valley Electric Utility (MVEU) electric facilities is an SCE served115kV to12kV MVU substation known as MOVAL, west of the project on Moreno Beach Drive south of Cottonwood Avenue.

## New Electric Distribution Voltage Services for the World Logistics Center (WLC)

The City of Moreno Valley Public Works Department, Electric Utility Division (MVU) is the electric service provider for the project. New electric distribution voltage infrastructure will be underground, engineered and designed by MVU. Construction of new underground electric infrastructure is the joint responsibility of the developer and MVU. The Developer may provide conduit, equipment pads, sub-grade enclosures, protective equipment and retaining walls. MVU is typically responsible for installation of all distribution electric cable, connections, and related electrical equipment.

**New Electric Transmission Voltage Services for the WLC**

It is expected that during the development of the WLC additional electric distribution capacity will be necessary. This additional distribution capacity will come from the expansion of MVU's existing MOVAL substation and the construction of a new SCE electric transmission line and switchyard and MVU distribution voltage substation within the WLC project boundaries.

Currently two (2) potential electric substation sites within the WLC have been identified; Site A adjacent to SCE transmission lines along Gilman Springs Road and Site B adjacent to SCE transmission lines along Brodiaea Avenue. A typical SCE/MVU substation and related switchyard will require approximately 4.5 acres. SCE is also required to secure California Public Utilities Commission permission (Certificate of Public Necessity and Convenience) and related environmental permits for transmission line extensions and switchyard facilities. Any new electric transmission construction of more than 2000 feet of overhead pole line construction must comply with CPUC General Order 131D. (Copy attached)

**Estimated Project Electric Demand**

In order to determine a typical electric profile for the types of uses that are expected within the project area, we analyzed data provided by MVU on twelve similar operations within the utility's service territory. The sample included retail, medical, paint, home improvement, mail distribution centers and a mattress manufacturing facility. We were able to insert actual data for one of the Retail Distribution Centers. To enhance the reliability of the data analysis, we deleted the highest and lowest demand samples. Based on this analysis the average demand is 1.68 watts per square foot of developed space.

The WLC planning area is proposed to support 40,600,000 square feet of Distribution Center/Warehousing space. The potential electrical demand for this area would be approximately 68 MW summarized as follows:

| Land Use Type | Potential Building Sq. Ft. | Demand Factor (w/sq ft) | Expected Demand (kW) | Load Factor | Expected Annual kWH Used |
|---|---|---|---|---|---|
| **Logistics Warehouse (LD/LL)** | **40,600,000** | **1.68** | **68,208** | **0.63** | **376,426,310** |

**Electric Service Capacity**

The existing MOVAL Substation is a 28 MW facility with a remaining capacity of 4.5MW. This location also accommodates a 28 MW Back Up system. This capacity will be committed by MVU to new service customers on a first come basis. MVU reports the ability to add 28mW of additional capacity to the existing MOVAL substation equipment and land configuration. We also understand that MVU has enough land adjacent to MOVAL for another 28MW of capacity completing the build out of the MOVAL facility at of 112MW.

However, even with a commitment of all the new MVU electric service capacity (56mW) the estimated WLC project demand of 68MW would exceed all the existing and planned MVU capacity in the area. Furthermore, a commitment of all new capacity to WLC would leave no capability to serve other new customers in the area and would not provide the advantage of reliability with a single source of electric

service and an expensive congested distribution route corridor to the WLC project.

Because expansion of the existing MVU electric substation cannot completely or perhaps even substantially meet the needs of the WLC project, additional substation capacity will need to be constructed to meet WLC's electric needs.

**Underground Electric Distribution System**

The current 12kV circuit serving Skechers could possibly handle up to 3,250,000 square feet of WLC development before a new circuit would be required. A second circuit could possibly service an additional 4,750,000 square feet provided MVU had upgraded the existing MOVAL facility and the capacity was available to WLC. The addition of more circuits from MOVAL would also provide more reliability for the WLC and surrounding area when coordinated with circuitry from a new WLC electric substation.

Since expansion of MOVAL cannot meet all of the estimated project electric needs and the premium cost for additional circuits from MOVAL it may be useful to consider the construction of a new substation early in the development process.

**WLC Electric Substation**

As identified above in the Electric Transmission section two potential sites for the new MVU substation and SCE switchyard maybe considered. Site "A" adjacent to SCE transmission lines along Gilman Springs Road and Site "B" adjacent to SCE transmission lines along Brodiaea Avenue.

Site A is best situated to accommodate the existing MOVAL Eucalyptus circuits because of a more direct west to east route than Site B. More central proximity to new development and radiation of distribution circuits away for Site A along proposed "F" street, Gilman Springs Road and relatively short route to additional west and east capability of proposed "C" street are an advantage to this site.

Site B is somewhat landlocked with only north south direct access to proposed "C" street and existing Cactus Avenue only goes west into existing developed areas. The close proximity of the existing 20" SCG gas pipeline to the south and east of the site may also limit all new circuits into Street D because of construction of a number of large underground electric facilities and depth constraints crossing the existing gas transmission main.

**Natural Gas – Southern California Gas Company (SCG)**

Large natural gas transmission mains cross much of the WLC from Redlands Boulevard to and along Alessandro Street which will present development grading and infrastructure improvement challenges. Unlike electric transmission facilities we are not aware of specific CEQA requirements like GO 131D, but these facilities are covered by stringent State of California, CPUC and operating company safety standards. In addition a substantial portion of these systems crossing the WLC are covered by easements that may add more restrictions to developing in and around these lines.

Because of the size and character of these natural gas and fuel products transmission lines, construction of project improvements above, below and adjacent to these lines will be limited. The following is a summary of line sizes and general locations:

- A 30" high pressure transmission pipeline in private property along the north side of Cottonwood Avenue from Redlands to Theodore Street, crossing private property from Theodore to Alessandro at Virginia Street, then easterly in Alessandro exiting the street position at a point approximately 2500 feet west of Gilman Springs Road and crossing private property to Gilman Springs Road.

- A 30" high pressure transmission pipeline in private property along the south side of Broadiaea Avenue then in private property to proposed Street C.

- A 36" high pressure transmission pipeline in private property parallel to and south of the 30" transmission pipeline along proposed Street C from Virginia Street to Gilman Springs Road.

- 16", 24" and 30" parallel high pressure transmission pipelines in private property along Virginia Street from the project boundary to a location north of proposed Street C.

- A "Blow down/Pipe Cleaning facility" on the south east corner of Virginia and proposed Street C.

- A Flow Metering Station at the southeast corner of Alessandro Boulevard and Virginia Street.

- Distribution systems at Eucalyptus and Redlands (4 inch) and Gilman Springs Road (8 inch) south of Alessandro.

**Natural Gas – San Diego Gas & Electric (SDG&E)**

- SDG&E owns and operates the "Moreno Compressor Station" south of project boundary on the west side of Virginia Street. It is our understanding that consideration of these facilities in the project EIR has taken place.

**Fuel Products – Questar**

- A 16" gas pipeline in private property along south side of Alessandro Boulevard between Gilman Springs Road and Theodore Street, continuing south along the east side of Theodore turning west along Maltby Avenue.

**New Natural Gas Distribution Systems**

It is expected that natural gas distribution systems will need to be installed to accommodate gas usage within the project. Currently it is assumed that gas usage will be limited to the office space only. Office space is assumed to be 3% of the total building sf or 0.03 x 40,600,000 sf 1,218,000 sf.

| Land Use Type | Potential Building Sq. Ft. | | Natural Gas Consumption Factor (CF/YR/SF) | | Natural Gas Consumption (CF/YR) |
|---|---|---|---|---|---|
| **Office Space** | **1,218,000** | | **12.00** | | **14,616,000** |

**Voice, Video, and Data**

The existing facilities identified as associated with this project as potential sources of future services and or potential construction conflicts are:

1. A Verizon underground system along the north side of Alessandro Boulevard between Gilman Springs Road and Theodore.
2. A Verizon overhead system on the SCE pole line in Theodore Street from Alessandro to Eucalyptus.
3. A Verizon overhead system on the SCE pole line on the east side of Redlands between SR 60 and Broadiaea.
4. A Verizon underground system in a joint trench with MVU on the north side of Eucalyptus between Redlands and Theodore Street.
5. Time Warner Communications overhead and underground systems in Redlands Boulevard and existing adjacent residential development.

**Joint Dry Utilities Distribution System Trenches**

Configurations of joint dry utility trenches (gas, electric, utility communications systems) are subject to standards developed by each individual utility company. Accordingly, SCG (gas) may not allow installation of gas distribution systems in the same trench with electric and communications dry utilities. The numbers of conduits required by electric, telephone and cable TV companies may not be practical for joint installations in a single trench in some locations.

**Gas and petroleum fuel transmission lines are not permitted by State of California safety orders** and other practicalities such as large pipe sizes to be in multiple use dry utility trenches.

**EXHIBITS**

GO 131 D

WLC electric substation locations

GENERAL ORDER NO. 131-D
(Supersedes General Order No. 131-C)

# PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

RULES RELATING TO THE PLANNING AND CONSTRUCTION OF ELECTRIC GENERATION, TRANSMISSION/POWER/DISTRIBUTION LINE FACILITIES AND SUBSTATIONS LOCATED IN CALIFORNIA.

Adopted June 8, 1994. Effective July 8, 1994
Decision 94-06-014
Modified August 11, 1995. Effective September 10, 1995.
Decision 95-08-038

## SECTION I. GENERAL

Pursuant to the provisions of Sections 451, 701, 702, 761, 762, 768, 770, and 1001 of the Public Utilities Code:

IT IS HEREBY ORDERED that except as specifically provided herein, no electric public utility, now subject, or which hereafter may become subject, to the jurisdiction of this Commission, shall begin construction in this state of any new electric generating plant, or of the modification, alteration, or addition to an existing electric generating plant, or of electric transmission/power/distribution line facilities, or of new, upgraded or modified substations without first complying with the provisions of this General Order.

For purposes of this General Order, a transmission line is a line designed to operate at or above 200 kilovolts (kV). A power line is a line designed to operate between 50 and 200 kV. A distribution line is a line designed to operate under 50 kV.

## SECTION II. PURPOSE OF THIS GENERAL ORDER

The Commission has adopted these revisions to this General Order to be responsive to:

- the requirements of the California Environmental Quality Act (CEQA) (Public Resources (Pub. Res.) Code § 21000 et seq.);
- the need for public notice and the opportunity for affected parties to be heard by the Commission
- the obligations of the utilities to serve their customers in a timely and efficient manner; and
- the need to replace the present complaint treatment of under-200-kV projects with a new streamlined review mechanism.

## SECTION III. NEED FOR COMMISSION AUTHORIZATION

For purposes of this General Order, construction does not include any installation of environmental monitoring equipment, or any soil or geological investigation, or work to determine feasibility of the use of the particular site for the proposed facilities, which do not result in a serious or major disturbance to an environmental resource.

A. Certificate of Public Convenience and Necessity (CPCN)

No electric public utility shall begin construction in this state of any new electric generating plant having in aggregate a net capacity available at the busbar in excess of 50 megawatts (MW), or of the modification, alteration, or addition to an existing electric generating plant that results in a 50 MW or more net increase in the electric generating capacity available at the busbar of the existing plant, or of major electric transmission line facilities which are designed for immediate or eventual operation at 200 kV or more (except for the replacement of existing power line facilities or supporting structures with equivalent facilities or structures, the minor relocation of existing power line facilities, the conversion of existing overhead lines to underground, or the placing of new or additional conductors, insulators, or their accessories on or replacement of supporting structures already built) without this Commission's having first found that said facilities are necessary to promote the safety, health, comfort, and convenience of the public, and that they are required by the public convenience and necessity.

B. Permit to Construct

No electric public utility shall begin construction in this state of any electric power line facilities or substations which are designed for immediate or eventual operation at any voltage between 50 kV or 200 kV or new or upgraded substations with high side voltage exceeding 50 kV without this Commission's having first authorized the construction of said facilities by issuance of a permit to construct in accordance with the provisions of Sections IX.B, X, and XI.B of this General Order. An upgraded substation is one in which there is an increase in substation land area beyond the existing utility-owned property or an increase in the voltage rating of the substation above 50 kV. Activities which increase the voltage of a substation to the voltage for which the substation has been previously rated are deemed to be substation modification projects and not substation upgrade projects.

1. Compliance with Section IX.B is not required for:
   a. power line facilities or substations with an in-service date occurring before January 1, 1996, which have been reported to the Commission in accordance with the Commission's decision adopting GO 131-D.
   b. the replacement of existing power line facilities or supporting structures with equivalent facilities or structures.
   c. the minor relocation of existing power line facilities up to 2,000 feet in length, or the intersetting of additional support structures between existing support structures.
   d. the conversion of existing overhead lines to underground.
   e. the placing of new or additional conductors, insulators, or their accessories on supporting structures already built.
   f. power lines or substations to be relocated or constructed which have undergone environmental review pursuant to CEQA as part of a larger project, and for which the final CEQA document (Environmental Impact Report (EIR) or Negative Declaration) finds no significant unavoidable environmental impacts caused by the proposed line or substation.

g. power line facilities or substations to be located in an existing franchise, road-widening setback easement, or public utility easement; or in a utility corridor designated, precisely mapped and officially adopted pursuant to law by federal, state, or local agencies for which a final Negative Declaration or EIR finds no significant unavoidable environmental impacts.
h. the construction of projects that are statutorily or categorically exempt pursuant to § 15260 et seq. of the Guidelines adopted to implement the CEQA, 14 Code of California Regulations § 15000 et seq. (CEQA Guidelines).

However, notice of the proposed construction of such facilities must be made in compliance with Section XI.B herein, except that such notice is not required for the construction of projects that are statutorily or categorically exempt pursuant to CEQA Guidelines. If a protest of the construction of facilities claimed by the utility to be exempt from compliance with Section IX.B is timely filed pursuant to Section XIII, construction may not commence until the Executive Director or Commission has issued a final determination.

2. The foregoing exemptions shall not apply when any of the conditions specified in CEQA Guidelines § 15300.2 exist:
   a. there is reasonable possibility that the activity may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped and officially adopted pursuant to law by federal, state, or local agencies; or
   b. the cumulative impact of successive projects of the same type in the same place, over time, is significant; or
   c. there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.

C. Electric Distribution Lines and Other Substations

The construction of electric distribution (under 50 kV) line facilities, or substations with a high side voltage under 50 kV, or substation modification projects which increase the voltage of an existing substation to the voltage for which the substation has been previously rated within the existing substation boundaries, does not require the issuance of a CPCN or permit by this Commission nor discretionary permits or approvals by local governments. However, to ensure safety and compliance with local building standards, the utility must first communicate with, and obtain the input of, local authorities regarding land use matters and obtain any non-discretionary local permits required for the construction and operation of these projects.

## SECTION IV. UTILITY REPORT OF LOADS AND RESOURCES

Every electric public utility required to submit a report of loads and resources to the California Energy Commission (CEC) in accordance with Section 25300 et seq. of the Public Resources Code shall also furnish six copies of its report to the Public Utilities Commission.

## SECTION V. UTILITY REPORT OF PLANNED TRANSMISSION/ POWER LINE, AND SUBSTATION FACILITIES

Every electric public utility shall annually, on or before March 1, furnish to the Commission Advisory and Compliance Division (CACD) for its review three (3) copies[1] of a fifteen-year 15 forecast of planned transmission facilities of 200 kV or greater and a five-year (5) forecast of planned power line facilities and substations of between 50 kV and 200 kV.

A. The report shall include:

1. A list of transmission, power lines, and substations, arranged in chronological order by the planned service date, for which a CPCN or a permit to construct has been received, but which have not yet been placed in service.
2. A list of planned transmission, power lines, and substations of 50 kV or greater or planning corridors, arranged in chronological order by the planned service date, on which proposed route or corridor reviews are being undertaken with governmental agencies or for which applications have already been filed.
3. A list of planned transmission, power lines, and substations of 50 kV or greater or planning corridors, arranged in chronological order by the planned service date, on which planning corridor or route reviews have not started, which will be needed during the forecast periods.

B. For each transmission or power line route, substation, or planning corridor included in the above lists, the following information, if available, shall be included in the report:

1. Planned operating date.
2. Transmission or power line name.
3. The terminal points (substation name and location).
4. Number of circuits.
5. Voltage — kV.
6. Normal and emergency continuous operating ratings — MVA.
7. Length in feet or miles.
8. Estimated cost in dollars as of the year the report is filed.
9. Cities and counties involved.
10. Other comments.

## SECTION VI. UTILITY REPORT OF INFORMATION REGARDING FINANCING OF NEW ELECTRIC GENERATING AND TRANSMISSION CAPACITY

Every electric public utility shall biennially, on or before June 1 of every odd numbered year, furnish a report to the Commission of the financial information designated in Appendix A hereto; provided however, that no public utility shall be required to submit such financial information if such utility does not plan for a fifteen-year (15) period commencing with the year in which the financial information is to be filed to (1) construct within the State of California any new electric



[1]One copy to be stored in the CACD Annual Reports Section.

generating plant having in the aggregate a net capacity in excess of 50 MW, or (2) modify, alter, or add to any existing electric generating plant that results in a 50 MW, or more, net increase in the electric generating capacity of an existing plant within the State of California, or (3) construct in California any electric transmission line facilities which are designed for immediate or eventual operation at any voltage in excess of 200 kV (except for the replacement or minor relocation of existing transmission line facilities, or the placing of additional conductors, insulators or their accessories on, or replacement of, supporting structures already built).

## SECTION VII. ELECTRIC GENERATING AND RELATED TRANSMISSION FACILITIES SUBJECT TO THE WARREN-ALQUIST ENERGY RESOURCES CONSERVATION AND DEVELOPMENT ACT

If an electric public utility proposes to construct electric generating and related transmission facilities which are subject to the power plant siting jurisdiction of the CEC as set forth in Section 25500 et seq. of the Public Resources Code, it shall comply with the following procedure:

A. In accordance with Public Resources Code Section 25519(c) and Public Utilities Code Section 1001, the CEQA, and this Commission's Rules of Procedure No. 17.1 do not apply to any application filed pursuant to this section.
B. Upon acceptance of an electric utility's Notice of Intent (NOI) filing by the CEC, the utility shall mail six copies of the NOI to the Executive Director of this Commission.
C. When an electric utility files with the CEC an application for a certificate to construct (AFC) an electric generating facility pursuant to Section 25519 of the Public Resources Code and any AFC regulations of the CEC, it shall mail six copies of the AFC, including six copies of the CEC's Final Report in the NOI proceeding for the facility, to the Executive Director of this Commission.
D. No later than 30 days after acceptance for filing of the AFC referred to above in Subsection C, the utility shall file with this Commission an application for a CPCN. The application shall comply with this Commission's Rules of Practice and Procedure, specifically Rules 2 through 8, 15, and 16, and shall include the data and information set forth in Appendix B hereto. In complying with this provision, the utility may include portions of the CEC's Final Report in its NOI proceeding by attaching such portions as an appendix to its application filed with this Commission. The utility may also include portions of the AFC filed with the CEC by reference. A copy of the application shall be mailed to the CEC and to every person, corporation, organization, or public agency that has intervened in the CEC's AFC proceeding.
E. No later than 30 days after the filing of the application, the Commission staff shall review it and notify the utility in writing of any deficiencies in the information and data submitted in the application. The utility shall correct any deficiencies within 60 days thereafter, or explain in writing to the Commission staff why it is unable to do so. It shall include in any such letter an estimate of when it will be able to correct the deficiencies. Upon correction of any deficiencies in the application, any public hearings which are necessary may be held on the application while the utility's AFC application is under process

before the CEC. The Commission may issue an interim decision on the application before the issuance by the CEC of a final decision in the AFC proceeding. However, any such interim decision shall not be final and shall be subject to review after the CEC issues its final decision in the AFC proceeding as prescribed in Public Resources Code Sections 25522 and 25530.

F. No later than 30 days after issuance of a certificate by the CEC in a final decision in the utility's AFC proceeding in accordance with Public Resources Code Sections 25209, 25522, and 25530 the Commission shall issue a decision on the application for a CPCN from this Commission, unless a later date for issuance of the decision is mutually agreed to by the Commission and the applicant, or is necessitated by conditions under Paragraph G.

G. In the event that the CEC's certificate in the AFC proceedings sets forth requirements or conditions for the construction of the proposed electric generating facility which were not adequately considered in the proceeding before the Commission, and which will have a significant impact on the economic and financial feasibility of the project, or the rates of the utility, or on utility system reliability, the utility, or Commission staff, or any party, may request that the Commission hold a public hearing on such implications. Any such hearing, if granted, shall be initiated no later than 30 days after the filing of any such request. It is the intent of this Commission that a final decision shall be issued within 90 days after conclusion of the hearing, if held.

H. In the event that judicial review of the CEC's issuance of a certificate in the AFC proceeding is sought in any court, the utility shall immediately notify this Commission and include a copy of the court filing.

## SECTION VIII. ELECTRIC GENERATING FACILITIES NOT SUBJECT TO THE WARREN-ALQUIST ENERGY RESOURCES CONSERVATION AND DEVELOPMENT ACT

An electric public utility proposing to construct in this state new generation facilities in excess of 50 MW net capacity, available at the busbar or proposing to modify an existing generation facility in this state in order to increase the total generating capacity of the facility by 50 MW or more net capacity available at the busbar, shall file for a CPCN not less than 12 months prior to the date of a required decision by the Commission unless the Commission authorizes a shorter period for exceptional circumstances.

A. An application for a CPCN shall comply with this Commission's Rules of Practice and Procedure, specifically Rules 2 through 8, 15, and 16. In addition, it shall include or have attached to it the following:

1. The information and data set forth in Appendix B.
2. A statement of the reasons why and facts showing that the completion and operation of the proposed facility is necessary to promote the safety, health, comfort, and convenience of the public.
3. Safety and reliability information, including planned provisions for emergency operations and shutdowns.
4. A schedule showing the program for design, material acquisition, construction, and testing and operating dates.

5. Available site information, including maps and description, present, proposed, and ultimate development; and, as appropriate, geological, aesthetic, ecological, tsunami, seismic, water supply, population, and load center data, locations and comparative availability of alternate sites, and justification for adoption of the site selected.
6. Design information, including description of facilities, plan efficiencies, electrical connections to system, and description of control systems, including air quality control systems.
7. A Proponent's Environment Assessment (PEA) on the environmental impact of the proposed facility and its operation so as to permit compliance with the requirements of CEQA and this Commission's Rule of Practice and Procedure 17.1 and 17.3. If a PEA is filed, it may include the data described in Items 1 through 6, above.

B. No later than 30 days after the filing of the application, the Commission staff shall review it and notify the utility of any deficiencies in the information and data submitted in the application. The utility shall correct any deficiencies within 60 days thereafter or explain in writing to the Commission staff why it is unable to do so. It shall include in any such letter an estimate of when it will be able to correct the deficiencies. Upon correction of any deficiencies in the application, the commission staff shall determine whether CEQA applies, and if so, whether a Negative Declaration or an EIR has been or will be prepared, and the process required by CEQA and Commission Rule 17.1 will be followed in addition to the Commission's standard decision-making process for applications. The Commission shall issue a decision within the time limits prescribed by Government Code Section 65920 et seq. (the Permit Streamlining Act).

## SECTION IX. TRANSMISSION LINE, POWER LINE, AND SUBSTATION FACILITIES

A. Transmission Line Facilities of 200 kV and Over

An electric public utility desiring to build transmission line facilities in this state for immediate or eventual operation in excess of 200 kV shall file for a CPCN not less than 12 months prior to the date of a required decision by the Commission unless the Commission authorizes a shorter period because of exceptional circumstances

1. An application for a CPCN shall comply with this Commission's Rules of Practice and Procedure 2 through 8, 15, and 16 and shall also include the following:

   a. A detailed description of the proposed transmission facilities, including the proposed transmission line route and alternative routes, if any; proposed transmission equipment; such as tower design and appearance, heights, conductor sizes, voltages, capacities, substations, switchyards, etc.; and a proposed schedule for certification, construction, and commencement of operation of the facilities.

b. A map of suitable scale of the proposed routing showing details of the right-of-way in the vicinity of settled areas, parks, recreational areas, scenic areas, and existing electrical transmission lines within one mile of the proposed route.
c. A statement of facts and reasons why the public convenience and necessity require the construction and operation of the proposed transmission facilities.
d. A detailed statement of the estimated cost of the proposed facilities.
e. Reasons for adoption of the route selected, including comparison with alternative routes, including the advantages and disadvantages of each.
f. A schedule showing the program of right-of-way acquisition and construction.
g. A listing of the governmental agencies with which proposed route reviews have been undertaken, including a written agency response to applicant's written request for a brief position statement by that agency. (Such listing shall include The Native American Heritage Commission, which shall constitute notice on California Indian Reservation Tribal governments.) In the absence of a written agency position statement, the utility may submit a statement of its understanding of the position of such agencies.
h. A PEA or equivalent information on the environmental impact of the project in accordance with the provisions of CEQA and this Commission's Rule of Practice and Procedure, Rules 17.1 and 17.3. If a PEA is filed, it may include the data described in Items a through g above.

2. No later than 30 days after the filing of the application the Commission staff shall review it and notify the utility in writing of any deficiencies in the information and data submitted in the application. The utility shall correct any deficiencies within 60 days thereafter, or explain in writing to the Commission staff why it is unable to do so. It shall include in any such letter an estimate of when it will be able to correct the deficiencies. Upon correction of any deficiencies in the application, the Commission staff shall determine whether CEQA applies, and if so, whether a Negative Declaration or an EIR has been or will be prepared, and the process required by CEQA and Commission Rules of Practice and Procedure 17.1 will be followed in addition to the Commission's standard decision-making process for applications. The Commission shall issue a decision within the time limits prescribed by Government Code Sections 65920 et seq. (the Permit Streamlining Act).

B. Power Line Facilities Between 50 kV and 200 kV and Substations Designed to Operate Over 50 kV Which Are Not Included in Subsection A of this Section.

Unless exempt as specified in Section III herein, or already included in an application before this Commission for a CPCN, an electric public utility desiring to build power line or substation facilities in this state for immediate or eventual operation between 50 kV and 200 kV or substations for immediate or

eventual operation over 50 kV, shall file for a permit to construct not less than nine (9) months prior to the date of a required decision by the Commission unless the Commission authorizes a shorter period because of exceptional circumstances. An application for a permit to construct shall comply with the Commission's Rules of Practice and Procedure No. 2 through 8 and 15 through 17.

1. The application for a permit to construct shall also include the following:

   a. A description of the proposed power line or substation facilities, including the proposed power line route; proposed power line equipment, such as tower design and appearance, heights, conductor sizes, voltages, capacities, substations, switchyards, etc., and a proposed schedule for authorization, construction, and commencement of operation of the facilities.
   b. A map of the proposed power line routing or substation location showing populated areas, parks, recreational areas, scenic areas, and existing electrical transmission or power lines within 300 feet of the proposed route or substation.
   c. Reasons for adoption of the power line route or substation location selected, including comparison with alternative routes or locations, including the advantages and disadvantages of each.
   d. A listing of the governmental agencies with which proposed power line route or substation location reviews have been undertaken, including a written agency response to applicant's written request for a brief position statement by that agency. (Such listing shall include The Native American Heritage Commission, which shall constitute notice on California Indian Reservation Tribal governments.) In the absence of a written agency position statement, the utility may submit a statement of its understanding of the position of such agencies.
   e. A PEA or equivalent information on the environmental impact of the project in accordance with the provisions of CEQA and this Commission's Rules of Practice and Procedure 17.1 and 17.3. If a PEA is filed, it may include the data described in Items a through d above.
   f. The above information requirements notwithstanding, an application for a permit to construct need not include either a detailed analysis of purpose and necessity, a detailed estimate of cost and economic analysis, a detailed schedule, or a detailed description of construction methods beyond that required for CEQA compliance.

2. No later than 30 days after the filing of the application for a permit to construct, the CACD shall review it and notify the utility in writing of any deficiencies in the information and data submitted in the application. Thereafter, within 30 days, the utility shall correct any deficiencies or explain in writing to the CACD when it will be able to correct the deficiencies or why it is unable to do so. Upon correction of any deficiencies in the application, the CACD shall determine whether CEQA applies, and if so, whether a Negative Declaration or an EIR must be prepared, and the process required by CEQA and the Commission's Rules of Practice and Procedure 17.1 will be followed.

3. If the Commission finds that a project properly qualifies for an exemption from CEQA, the Commission will grant the permit to construct.
4. If the CACD determines, after completing its initial study, that the project would not have a significant adverse impact on the environment, the CACD will prepare a Negative Declaration. If the initial study identifies potential significant effects, but the utility revises its proposal to avoid those effects, then the Commission could adopt a Mitigated Negative Declaration. In either case, the Commission will grant the permit to construct.
5. If the initial study identifies potentially significant environmental effects, the CACD will prepare an EIR. The severity and nature of the effects, the feasibility of mitigation, the existence and feasibility of alternatives to the project, and the benefits of the project would all be considered by the Commission in deciding whether to grant or deny the permit to construct. The Commission intends to issue a permit to construct or disapprove the project within eight months of accepting the application as complete. This time limit may be extended if necessary to comply with the requirements of CEQA, but may not exceed the time limits specified in CEQA (for the preparation of an EIR).
6. If no protests or requests for hearing are received (pursuant to Section XII), a CACD Examiner shall be assigned and the Commission shall issue an ex parte decision on the application within the time limits prescribed by Government Code Section 65920 et seq. (the Permit Streamlining Act). If a protest or request for hearing is received, the matter shall be assigned to an administrative law judge, and the Commission shall issue a decision on the application within the time limits prescribed by the Permit Streamlining Act.

## SECTION X. POTENTIAL EXPOSURE TO ELECTRIC AND MAGNETIC FIELDS (EMF)

A. Application for CPCN or Permit to Construct

Applications for a CPCN or Permit to Construct shall describe the measures taken or proposed by the utility to reduce the potential exposure to electric and magnetic fields generated by the proposed facilities, in compliance with Commission order. This information may be included in the PEA required by Rules of Practice and Procedure 17.1.

B. EMF Technical Assistance

The EMF education program administered by the California Department of Health Services for regulated electric utility facilities, established in Investigation (I.) 91-01-012, is available to provide independent information about EMF to local government, other state agencies, and the public to assist in their consideration of the potential impacts of facilities proposed by electric utilities hereunder. Local government and the public should first contact their public health department.

## SECTION XI. NOTICE

A. Applications for a CPCN or Permit to Construct

Notice of the filing of each application for a CPCN for facilities subject to the provisions of Sections VII, VIII, and IX.A of this General Order and of the filing of each application for a permit to construct for facilities subject to Section IX.B of this General Order, shall be given by the electric public utility within ten days of filing the application:

1. By direct mail to:

   a. The planning commission and the legislative body for each county or city in which the proposed facility would be located, the CEC, the State Department of Transportation and its Division of Aeronautics, the Secretary of the Resources Agency, the Department of Fish and Game, the Department of Health Services, the State Water Resources Control Board, the Air Resources Board, and other interested parties having requested such notification. The utility shall also give notice to the following agencies and subdivisions in whose jurisdiction the proposed facility would be located: the Air Pollution Control District, the California Regional Water Quality Control Board, the State Department of Transportation's District Office, and any other State or Federal agency which would have jurisdiction over the proposed construction; and
   b. All owners of land on which the proposed facility would be located and owners of property within 300 feet of the right-of-way as determined by the most recent local assessor's parcel roll available to the utility at the time notice is sent; and

2. By advertisement, not less than once a week, two weeks successively, in a newspaper or newspapers of general circulation in the county or counties in which the proposed facilities will be located, the first publication to be not later than ten days after filing of the application; and

3. By posting a notice on-site and off-site where the project would be located.

A copy of the notice shall be delivered to the CPUC Public Advisor and the CACD on the same day it is mailed. A declaration of mailing and posting as required by this subsection shall be filed with the Commission within five (5) days of completion.

Three copies of each application for electric generation facilities shall be served on the Executive Director of the Energy Commission. If applicable, three copies shall be served on the Executive Director of the Coastal Commission. If applicable, three copies shall be served on the Executive Director of the S.F. Bay Conservation and Development Commission. Upon request by any public agency, the applicant shall provide at least one copy of its application to said public agency. A copy of the application shall be kept available for public inspection at the utility's office(s) in the county or counties in which the proposed facility would be located.

B. Power Line Facilities Between 50 kV and 200 kV and Substations Designed to Operate Over 50 kV Which Are Not Included in Subsection A of this Section

The utility shall give notice of the construction of any power line facilities or substations between 50 kV and 200 kV deemed exempt pursuant to Section III herein, not less than 30 days before the date when construction is intended to begin by:

1. Direct mail to the planning director for each county or city in which the proposed facility would be located and the Executive Director of the Energy Commission; and
2. Advertisement, not less than once a week, two weeks successively, in a newspaper or newspapers of general circulation in the county or counties in which the proposed facility would be located, the first publication to be not later than 45 days before the date when construction is intended to begin; and
3. By posting a notice on-site and off-site where the project would be located.
4. Filing an informational advice letter with the CACD in accordance with General Order 96-A, which includes a copy and distribution list of the notices required by items 1-3 herein. On the same day, a copy of the advice letter must be delivered to the CPUC Public Advisor.

C. Contents of Notices

Each utility shall consult with the CACD and CPUC Public Advisor to develop and approve a standard for the notice required by subsections A and B, which shall contain, at a minimum, the following information:

1. The Application Number assigned by the CPUC or the Advice Letter Number assigned by the utility; and
2. A concise description of the proposed construction and facilities, its purpose and its location in terms clearly understandable to the average reader; and
3. A summary of the measures taken or proposed by the utility to reduce the potential exposure to electric and magnetic fields generated by the proposed facilities, in compliance with Commission order; and
4. Instructions on obtaining or reviewing a copy of the application, including the Proponent's Environmental Assessment or available equivalent, from the utility; and
5. The applicable procedure for protesting the application or advice letter, as defined in Sections XII and XIII, including the grounds for protest, when the protest period expires, delivery addresses for the CPUC Docket Office, CACD, and the applicant and how to contact the CPUC Public Advisor for assistance in filing a protest.

## SECTION XII. PROTEST AND REQUEST FOR PUBLIC HEARINGS

Pursuant to the Commission Rules of Practice and Procedure, Article 2.5, those to whom notice has been sent under Section XI.A hereof and any other person

entitled under the Commission's Rules of Procedure to participate in a proceeding for a CPCN or a permit to construct may, within 30 days after the notice was mailed or published, object to the granting in whole or in part of the authority sought by the utility and request that the Commission hold hearings on the application. Any such protest shall be filed in accordance with Article 2.5. If the Commission, as a result of its preliminary investigation after such requests, determines that public hearings should be held, notice shall be sent to each person who is entitled to notice or who has requested a hearing.

The Commission's Public Advisor shall provide information to assist the public in submitting such protests.

## SECTION XIII. PROTEST TO REQUIRE THE UTILITY TO FILE FOR PERMIT TO CONSTRUCT

Those to whom notice has been given under Section XI.B hereof and any other person or entity entitled to participate in a proceeding for a permit to construct may, within 20 days after the notice was mailed and published, contest any intended construction for which exemption is claimed by the utility from the requirements of Section III.B if such persons or entities have valid reason to believe that any of the conditions described in Section III.B.2 exist or the utility has incorrectly applied an exemption as defined in Section III herein. The protest shall be filed with the CACD, specifying the relevant utility advice letter number, in accordance with General Order 96-A, Section III.H. On the same date a protest is filed with the Commission, the protestant shall serve a copy on the subject utility by mail. The utility shall respond within five business days of receipt and serve copies of its response on each protestant and the CACD. Construction shall not commence until the Executive Director has issued an Executive Resolution.

Within 30 days after the utility has submitted its response, the Executive Director, after consulting with CACD, shall issue an Executive Resolution on whether: the utility is to file an application for a permit to construct, or the protest is dismissed for failure to state a valid reason. Also, the Executive Director shall state the reasons for granting or denying the protest and provide a copy of each Executive Resolution to the Commission's Public Advisor.

The Commission's Public Advisor shall provide information to assist the public in submitting such protests.

## SECTION XIV. COMPLAINTS AND PREEMPTION OF LOCAL AUTHORITY

A. Complaints may be filed with the Commission for resolution of any alleged violations of this General Order pursuant to the Commission's Rules of Practice and Procedure 9 through 13.1. A complaint which does not allege that the matter has first been brought to the staff for informal resolution may be referred to the staff to attempt to resolve the matter informally (Rules of Practice and Procedure No. 10).

B. This General Order clarifies that local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject

to the Commission's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters. In instances where the public utilities and local agencies are unable to resolve their differences, the Commission shall set a hearing no later than 30 days after the utility or local agency has notified the Commission of the inability to reach agreement on land use matters.

C. Public agencies and other interested parties may contest the construction of under-50-kV distribution lines and electric facilities by filing a complaint with the Commission pursuant to the Commission's Rules of Practice and Procedure 9 through 13.1.

## SECTION XV. STATE AGENCY REVIEW OF ELECTRIC GENERATING AND RELATED TRANSMISSION FACILITIES NOT SUBJECT TO THE WARREN-ALQUIST ENERGY RESOURCES CONSERVATION AND DEVELOPMENT ACT

Nothing in this order shall be construed to preempt or otherwise limit the jurisdiction of state agencies other than this Commission to exercise the full range of their jurisdiction under state or federal law over facilities subject to this order.

A coastal development permit shall be obtained from the Coastal Commission for development of facilities subject to this order in the coastal zone.

## SECTION IXV. CEQA COMPLIANCE

Construction of facilities for which a CPCN or permit to construct is required pursuant to this General Order shall not commence without either a finding that it can be seen with certainty that there is no possibility that the construction of those facilities may have a significant effect on the environment or that the project is otherwise exempt from CEQA, or the adoption of a final EIR or Negative Declaration. Where authority must be granted for a project by this Commission, applicant shall comply with Rule 17.1 of our Rules of Practice and Procedure:

Special Procedure for Implementation of the CEQA of 1970 (Preparation of EIRs). This latter requirement does not apply to applications covering generating and related transmission facilities for which a certificate authorizing construction of the facilities has been or will also be issued by the CEC. For all issues relating to the siting, design, and construction of electric generating plant or transmission lines as defined in Sections VIII and IX.A herein or electric power lines or substations as defined in Section IX.B herein, the Commission will be the Lead Agency under CEQA, unless a different designation has been negotiated between the Commission and another state agency consistent with CEQA Guidelines § 15051(d).

PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

By WESLEY M. FRANKLIN
Acting
Executive Director

August 11, 1995

INFORMATION TO BE INCLUDED IN THE UTILITY
REPORT REGARDING FINANCING OF NEW ELECTRIC
GENERATING CAPACITY AND TRANSMISSION LINE PROJECTS

I. A statement, detailing the economic assumptions used to project all construction expenditures and annual operating costs, including the methodology, assumptions, and sources and authorities associated therewith for a fifteen-year (15) period commencing with the year in which the report is filed, for each of the following:

A. Operating Revenues
   1. Electric
   2. Gas, if applicable
   3. Miscellaneous
   4. Total

B. Operating Expenses
   1. Cost of Electric Energy
   2. Cost of Gas sold, if applicable
   3. Transmission and Distribution
   4. Maintenance
   5. Depreciation
   6. Taxes on Income
   7. Property and Other Taxes
   8. Other
   9. Total

C. Operating Income

D. Other Income and Deductions
   1. Allowance for Equity Funds Used During Construction
   2. Gains on Bonds Purchased for Sinking Fund
   3. Subsidiary Income
   4. Other — Net
   5. Total

E. Income Before Interest Charges

F. Interest Charges
   1. Short-term
   2. Long-term
   3. Less Allowance for Borrowed Funds Used During Construction
   4. Total

G. Net Income

H. Preferred Dividend Requirement

I. Earnings Available for Common Stock

J. Average Number of Shares of Common Stock Outstanding (Thousands)

K. Earnings Per Share of Common Stock

L. Dividends Per Share of Common Stock
   1. Declared Basis
   2. Paid Basis

II. An estimate for each of the following capital requirements items for each year for a fifteen-year period commencing with the year in which the report is filed:

A. Construction expenditures by year broken down by:
   1. Generation projects over $100 million, including those, if any, located out-of-state
      a. Busbar, including switchyard, expenditures
   2. All other generation projects, including those, if any, located out-of-state
      a. Busbar, including switchyard, expenditures
      b. Associated transmission expenditures
   3. Non-generation transmission expenditures
   4. Distribution expenditures
   5. Other expenditures

Breakdown of each item in 1 above into the following elements:

| Directs | (M&S + Labor) | Indirects | AFDC | Total |
|---|---|---|---|---|
| | $ | $ | $ | $ |

B. Bond retirements, sinking fund retirements, etc.

C. Investments in subsidiary companies

III. An estimate for each of the following items for each year for a fifteen-year period commencing with the year in which the report is filed:

A. Capital balances as of January 1

B. Capital ratios as of January 1

C. Imbedded costs of debt and preferred stock

D. Debt, preferred and common stock issues:
   1. Amount ($ and shares)
   2. Yield and cost of each issue

E. Income tax information
   1. Tax operating expense
   2. State tax depreciation
   3. Federal tax depreciation
   4. ITC or other credits available and used

F. Short-term debt balances

G. Annual equivalent rate used to compute the Allowance for Funds Used During Construction

IV. Data showing the estimated Results of Operation for electric utility operations for each year for a fifteen-year (15) period, commencing with the year in which the report is filed, in the formal set forth below:

A. Kilowatt-hour Sales
   1. Total
   2. Residential

B. Average Price (¢/kWh)

C. Number of Residential Customers

D. Gross Revenue – Total
   1. Base Rates
   2. ECAC Rates
   3. ECAC Rate Increases
   4. Non-ECAC Rate Increases
   5. Misc. Operating Revenues

E. Operating Expenses – Total
   1. Production – Fuel and Purchased Power – Total
      a. Oil
      b. Gas
      c. Nuclear
      d. Coal
      e. Geothermal
      f. Combined Cycle
      g. Purchased Power
      h. Other (explain)
   2. Production O&M (non-fuel)
   3. Transmission
   4. Distribution
   5. Customer Accounts
   6. A&G
   7. Depreciation & Amortization

8. Taxes – Total

   a. State Income
   b. Federal Income
   c. Ad Valorem
   d. Other

9. Other (explain)

F. Net Operating Income

G. Rate Base (Weighted Average)

H. Rate of Return

I. Net-to-Gross Multiplier

V. For those electric utilities which also operate other public utility departments, such as natural gas, steam, and water service, an estimate of the following financial information by department for each year for a fifteen-year (15) period, commencing with the year in which the report is filed. Any separate utility operation that contributes to less than one (1) percent of the utility's total gross operating revenues may be excluded.

   A. Gross Revenue
   B. Operating Expenses
   C. Net Operating Income
   D. Rate Base (Weighted Average)
   E. Rate of Return

VI. The following variable will be provided by the staff of the Public Utilities Commission for use by the utility in generating certain financial information required by Appendix A:

   A. Return on Common Equity
   B. Dividend Yield
   C. Market to Book Ratio
   D. Cost of Long-Term Debt (including incremental cost)
   E. Cost of Preferred Stock (including incremental cost)
   F. Common Stock Price
   G. Annual equivalent rate used to compute the Allowance for Funds Used During Construction

These variable will be furnished 60 days before the annual utility report is due and will be developed by the staff based on its independent expertise.

Appendix B - General Order No. 131-D

## INFORMATION TO BE INCLUDED IN AN APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR ELECTRIC GENERATING FACILITIES

I. A detailed description of the proposed generating facility and related facilities and the manner in which the same will be constructed, including the type, size, fuel capabilities, and capacity of the generating facilities.

II. A map of suitable scale showing the location of the proposed power plant and related facilities, and a description of the location of the proposed power plant and related facilities.

III. A listing of federal, state, regional, county, district, or municipal agencies from which approvals either have been obtained or will be required covering various aspects of the proposed facility, including any franchises and health and safety permits and the planned schedule for obtaining those approvals not yet received.

IV. Load and resource data setting forth recorded and estimated loads (energy and demands), available capacity and energy, and margins for 5 years actual and 20 years estimated on the same basis, as reported to the CEC including a statement of the compatibility of the proposed generating facility with the most recent biennial report issued by the CEC pursuant to Section 25309 of the Public Resources Code.

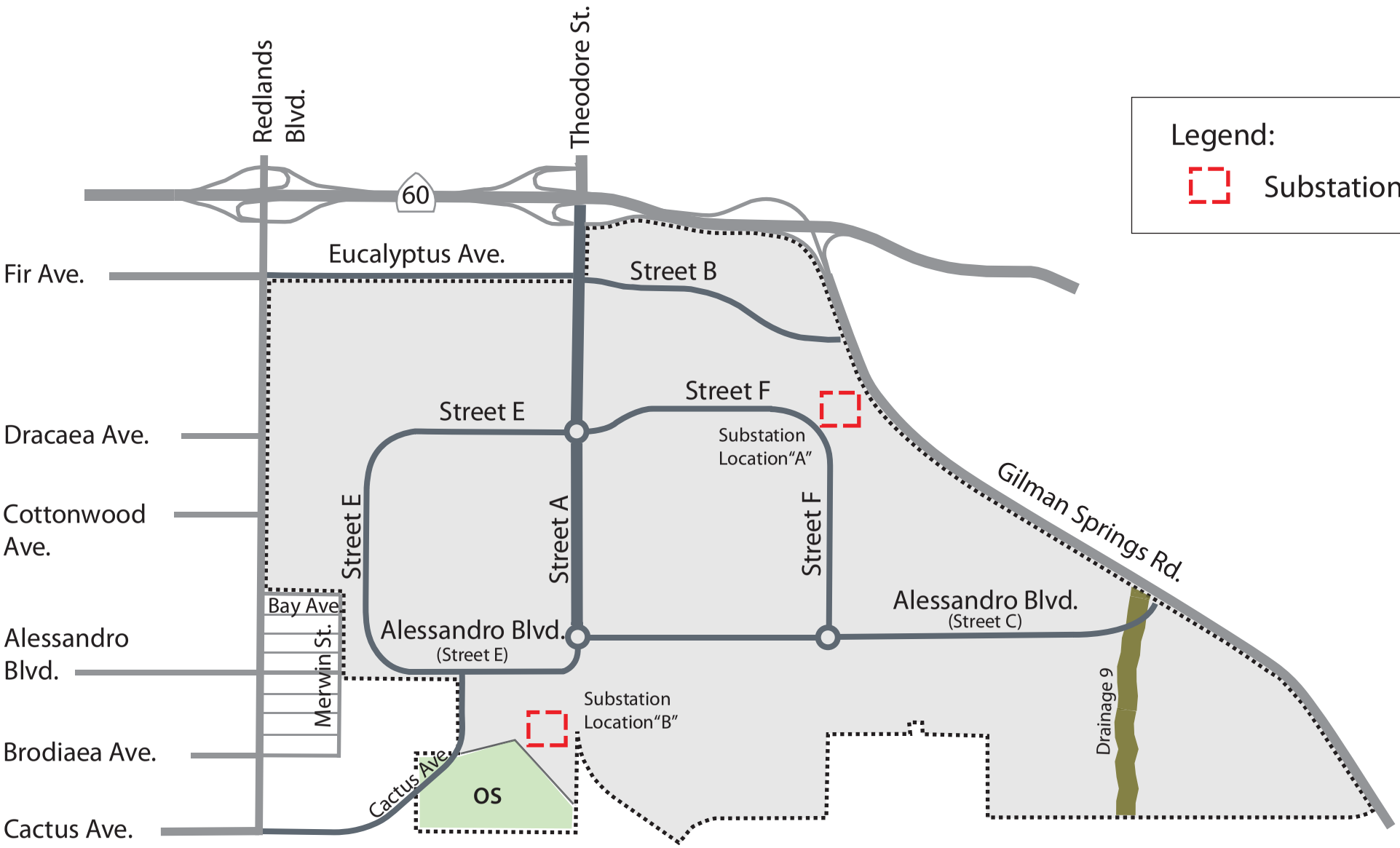
V. Existing rated and effective operating capacity of generating plants and the planned additions for a ten-year (10) period.

VI. Estimated cost information, including plant costs by accounts, all expenses by categories, including fuel costs, plant service life, capacity factor, total generating cost per kWh (1) at plant, and (2) including related transmission, levelized for the economic life of the plant, year by year for the 12 years commencing with the date of commercial operation of the plant, and comparative costs of other alternatives considered on a levelized or year-by-year basis depending upon availability of data. Estimated capital and operating costs of power to be generated by the proposed plant for all competitive fuels which may be lawfully used in the proposed plant. When substantially the same data are prepared for utility planning purposes they may be used to satisfy all or any portion of these requirements.

VII. For any nuclear plant a statement indicating that the requisite safety and other license approvals have been obtained or will be applied for.

VIII. Such additional information and data as may be necessary for a full understanding and evaluation of the proposal.

(End of Appendix)


Redlands Blvd.
Theodore St.
60
Legend:
Substation
Eucalyptus Ave.
Fir Ave.
Street B
Street F
Street E
Dracaea Ave.
Substation Location"A"
Gilman Springs Rd.
Cottonwood Ave.
Street E
Street A
Street F
Bay Ave.
Alessandro Blvd.
(Street C)
Alessandro Blvd.
(Street E)
Merwin St.
Alessandro Blvd.
Substation Location"B"
Drainage 9
Brodiaea Ave.
Cactus Ave.
OS
Cactus Ave.

**SOLAR POWER OPTIONS**

In today's world, a discussion of the merits and actual capabilities of using photovoltaic (PV) systems to offset electric power requirements is warranted. In some smaller venues such as residential use, PV arrays can produce sufficient power during peak generating conditions to totally offset power required from the utility company. As long as the utility company can sell additional generated power to other users, this can create a situation where no payment to the electric utility provider is required.

To understand how that would work or benefit the end users within the World Logistics Center planning area, we must consider (a) the generating characteristics of a PV array; (b) how that relates to actual power consumption and power demands; and (c) what ability exists to sell excess power capacity back to MVU during periods of excess production.

**PV Generating Characteristics & Power Consumption and Demand**

PV arrays can produce power for approximately 12 hours each day. Actual peak production, however, only occurs for approximately two hours between 1:00pm and 3:00pm. During the other 10 hours power generation is ramping up and tapering down as the sun rises and falls in the daylight sky. (See Figure 1.) This characteristic cannot be altered significantly and is important as it relates to normal electrical operation in the building and the utility company's service territory.

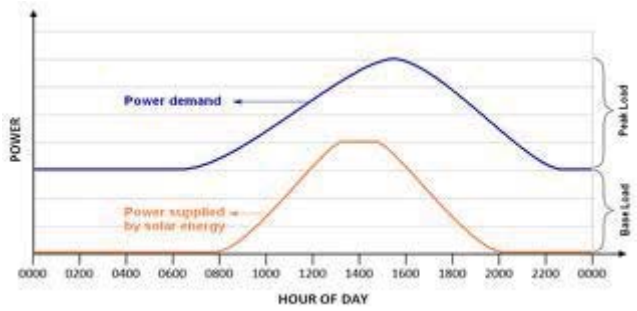



Figure 1 also shows a typical utility demand cycle superimposed over the normal PV generation cycle. The comparison shows that the normal peak electrical requirement is not coincident with the PV array's peak output capabilities.

**Figure 1: Typical power production and usage curves not necessarily WLC specifically related to.**

The total planning area will have approximately 40,600,000 square feet of rooftop. Of that total it is anticipated that approximately 55% or 22,330,000 square feet can be available for PV installation. Depending on the type of PV cells that are used, 201 MW/AC of peak output could be produced during the optimum production period. It is anticipated that the entire project could have a peak electrical demand requirement of 68 MW. The available rooftop space could, therefore meet the electrical cycle demand under optimum conditions.

**Utility Buy/Sell Agreements**

The raw numbers presented in the previous section may look appealing, but several technical issues prevent full utilization of a PV system within the planning area. To reach those optimum numbers, it is

necessary to be able to get excess production to other customers who would be willing to purchase it, and that requires using the MVU distribution grid. To clarify this statement, PV cells act much like the batteries in a flashlight. The electrical potential is present but no power flows to the light bulb until the switch is turned on. Electric companies do not provide credit for electrical potential, but only on power consumed by a paying customer.

Additionally, it is proposed that all customers of the planning area include their own solar arrays. Since each building will be able to generate more power than they could use, they would, therefore, not be in the market for any additional capacity during peak production periods. Simply stated, there will be no market on the MVU system through their substation to utilize the excess power. The solar arrays would sit idle beyond the immediate needs of each specific building and be unused investment.

MVU has determined that twelve new 12kV distribution circuits will be needed to meet the peak electrical demand. The excess generation capacity of the PV arrays would require at least 8 additional circuits or a total of 20 to get that power output back into the electrical distribution grid. That single issue alone makes full utilization of the PV potential economically unfeasible for both the utility and the project developer.

MVU is prohibited by their operating agreement with Southern California Edison (SCE) from producing excess power and transmitting it into the SCE transmission grid. Changing that agreement would be a long and complicated issue involving the two utilities, the California Independent System Operator, the California Public Utilities Commission, and possibly others.

In conclusion when all project occupants have PV capacity to meet their core electric power needs where does surplus PV generation go when constrained by the need for additional distribution infrastructure support and or prohibited beyond the MVU system? Accordingly PV capability beyond the needs of the building occupant does not seem practical or beneficial.

**Actual Benefits of the PV Proposal**

Even though the full capabilities of the total project cannot be achieved, there are benefits that could and should be implemented:

- To the extent that the PV arrays can meet the electrical demands during optimum production times, the building's user will not need to utilize utility company provided power. This may not yield an actual financial savings, but would reduce the need to utilize power from non-renewable sources.
- Coordinating the design of the solar arrays with the actual buildings electrical demands would reduce the size of the solar field and rooftop space required and would eliminate construction of superfluous arrays.

Use of remainder available rooftop space for other uses such as solar water heating, solar assisted space heating/cooling could also be environmentally beneficial and might even further reduce project peak electric demands.

**SOLAR POWER OPTIONS**

In today's world, a discussion of the merits and actual capabilities of using photovoltaic (PV) systems to offset electric power requirements is warranted. In some smaller venues such as residential use, PV arrays can produce sufficient power during peak generating conditions to totally offset power required from the utility company. As long as the utility company can sell additional generated power to other users, this can create a situation where no payment to the electric utility provider is required.

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**PV Generating Characteristics & Power Consumption and Demand**

PV arrays can produce power for approximately 12 hours each day. Actual peak production, however, only occurs for approximately two hours between 1:00pm and 3:00pm. During the other 10 hours power generation is ramping up and tapering down as the sun rises and falls in the daylight sky. (See Figure 1.) This characteristic cannot be altered significantly and is important as it relates to normal electrical operation in the building and the utility company's service territory.

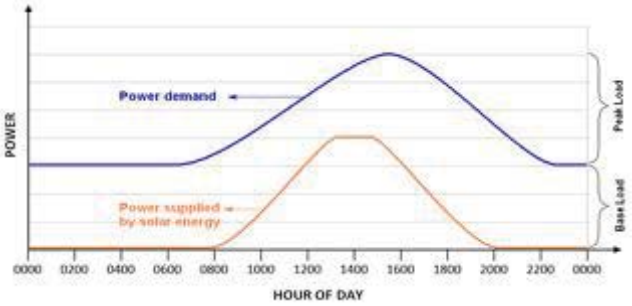



Figure 1 also shows a typical utility demand cycle superimposed over the normal PV generation cycle. The comparison shows that the normal peak electrical requirement is not coincident with the PV array's peak output capabilities.

**Figure 1: Typical power production and usage curves not necessarily WLC specifically related to.**

The total planning area will have approximately 40,600,000 square feet of rooftop. Of that total it is anticipated that approximately 34% or 13,641,600 square feet can be available for PV installation. Depending on the type of PV cells that are used, 68.2 megawatts (AC) of peak output could be produced during the optimum production period. It is anticipated that the entire project could have a peak electrical demand requirement of 68 MW (AC). The available rooftop space could, therefore meet the electrical cycle demand under optimum conditions.

**Utility Buy/Sell Agreements**

The raw numbers presented in the previous section may look appealing, but several technical issues prevent full utilization of a PV system within the planning area. To reach those optimum numbers, it is

necessary to be able to get excess production to other customers who would be willing to purchase it, and that requires using the MVU distribution grid. To clarify this statement, PV cells act much like the batteries in a flashlight. The electrical potential is present but no power flows to the light bulb until the switch is turned on. Electric companies do not provide credit for electrical potential, but only on power consumed by a paying customer.

Additionally, it is proposed that all customers of the planning area include their own solar arrays. Since each building will be able to generate more power than they could use, they would, therefore, not be in the market for any additional capacity during peak production periods. Simply stated, there will be no market on the MVU system through their substation to utilize the excess power. The solar arrays would sit idle beyond the immediate needs of each specific building and be unused investment.

MVU has determined that twelve new 12kV distribution circuits will be needed to meet the peak electrical demand. The excess generation capacity of the PV arrays would require at least 8 additional circuits or a total of 20 to get that power output back into the electrical distribution grid. That single issue alone makes full utilization of the PV potential economically unfeasible for both the utility and the project developer.

MVU is prohibited by their operating agreement with Southern California Edison (SCE) from producing excess power and transmitting it into the SCE transmission grid. Changing that agreement would be a long and complicated issue involving the two utilities, the California Independent System Operator, the California Public Utilities Commission, and possibly others.

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- To the extent that the PV arrays can meet the electrical demands during optimum production times, the building's user will not need to utilize utility company provided power. This may not yield an actual financial savings, but would reduce the need to utilize power from non-renewable sources.
- Coordinating the design of the solar arrays with the actual buildings electrical demands would reduce the size of the solar field and rooftop space required and would eliminate construction of superfluous arrays.

Use of remainder available rooftop space for other uses such as solar water heating, solar assisted space heating/cooling could also be environmentally beneficial and might even further reduce project peak electric demands.

# WLC Solar Overview

| | | |
|---|---|---|
| **Building Area** | | |
| Total Building Area | Square feet | 40,600,000 |
| | | |
| **Peak Electricity Demand** | | |
| Peak Demand, at 1.68 Watts (AC) per SF | MW (AC) | 68.2 |
| | | |
| **Annual Electricity Consumption** | | |
| Peak Demand | MW (AC) | 68.2 |
| Total Hours in Year | hours / year | 8,760 |
| Consumption Hours as a % of Total Hours | % | 63% |
| **Total Annual Electricity Consumption (AC)** | **MWh / year (AC)** | **376,426** |
| | | |
| **Annual Electricity Production** | | |
| Installed Solar Capacity - Total DC | MW (DC) | 81.8 |
| *Highland Fairview's 90% Share* | *MW (DC)* | *74.0* |
| Conversion Factor from DC Power to AC Power | DC to AC | 0.83 |
| Installed Solar Capacity - Total AC | MW (AC) | *68.2* |
| Annual Solar Facility Operating Hours | hours / year | 1,860 |
| **Annual Solar Electricity Production (AC)** | **MWh / year (AC)** | **126,867** |
| *Annual Solar Electricity Production as a % of Annual Electricity Consumption* | | *34%* |
| | | |
| **Equivalent # of Households Supplied by WLC Solar Facility** | | |
| Annual Solar Electricity Production (AC) | MWh / year (AC) | 126,867 |
| Average Annual Household Electricity Consumption | MWh / year / household (AC) | 11.28 |
| Average Number of Households Supplied by WLC Solar Facility | Households | 11,247 |

*Notes*
*AC = Alternating Current*
*DC = Direct Current*

# WLC Solar Overview

| Assumptions and Supporting Calculations | |
|---|---|
| Basis for Sizing the Solar Facility | Peak Demand |
| **Total Building Area** | |
| Total Building Area | 40,600,000 |
| **Peak Demand** | |
| Peak Demand Factor - Watts (AC) /SF [1] | 1.68 |
| Total Peak Demand, MW (AC) | 68.2 |
| **Tenants' Annual Electricity Consumption** | |
| Peak Demand, MW (AC) | 68.2 |
| Total Hours in Year | 8,760 |
| Ratio of Consumption Hours to Total Hours [1] | 63% |
| Total Annual Electricity Consumption, MWh | 376,426 |
| **Rooftop Space Required to Satisfy WLC Annual Electricity Consumption** | |
| Watts Produced per Square Foot of Solar Panels (DC) [2] | 12 |
| Conversion Factor from DC to AC [2] | 0.83 |
| Watts Produced per Square Foot of Solar Panels (AC) | 10.0 |
| Average Solar Capacity Factor [2] | 21% |
| Annual Electricity Production per 1 Million SF of Solar Panels, MWh (AC) | 18,600 |
| Square Feet of Solar Panels Required to Meet WLC Electricity Consumption | 6,820,800 |
| Unusable Rooftop Space, % of Total [2] | 50% |
| Square Feet of Rooftop Required to Meet WLC Electricity Consumption | 13,641,600 |
| **Required Size of Solar Facility** | |
| If Based on MWh Consumption | |
| Tenants' Total Annual Electricity Consumption, MWh | N/A |
| Annual AC Production per 1MW (DC) of Solar Panels, MWh | N/A |
| If Based on Peak Demand | |
| Peak Demand (AC) | 68.2 |
| Conversion Factor (DC to AC) | 0.83 |
| Required Size of Solar Facility, MW (DC) | 81.8 |
| *Check: Total MWh (AC) of Electricity Produced by a 81.8MW Solar Facility* | *126,867* |
| **Maximum WLC Annual Electricity Consumption** | |
| Maximum Rooftop Space Available to Produce Solar | 20,300,000 |
| Annual Electricity Production per 1 Million SF of Solar Panels, MWh (AC) | 18,600 |
| Maximum WLC Annual Electricity Consumption | 377,580 |

**Notes**

[1] Per Dry Utility Memo -Final.pdf

[2] Estimates provided by a leading developer of commercial/industrial rooftop solar PV projects

# World Logistics Center Specific Plan Sanitary Sewer Analysis

PREPARED FOR: Highland Fairview

PREPARED BY: CH2M HILL

DATE: September 2014

## Summary of Modifications

Modifications to the Sanitary Sewer Analysis have been made to reflect changes in the Project Description. These modifications are reflected in the memo and shown in Exhibits 2 through 6.

## Introduction

The proposed World Logistics Center Specific Plan (WLC) is a master plan for the development of logistics warehouse distribution facilities on approximately 2,610 acres of land in the Rancho Belago area of eastern Moreno Valley. The Specific Plan proposes the development of 40.4 million square feet of high-cube logistics facilities on 2,382.8 acres, 200,000 square feet of light logistics facilities on 37.1 acres, an in-project fueling station, 115.8 acres of street right-of-way and 74.3 acres of permanent open space.

The Specific Plan area is situated southerly of State Route 60, generally between Redlands Boulevard and Gilman Springs Road (the easterly City limit). The Specific Plan extends to, but does not include, the San Jacinto Wildlife Area (SJWA). The General Plan Amendment and Zone Change which accompany the Specific Plan includes a portion of the SJWA property in order to designate that land for open space use.

The World Logistics Center is located within the wastewater service area of Eastern Municipal Water District (EMWD). The purpose of this technical memorandum is to identify sewer system requirements for the WLC.

## Moreno Valley Sewer System

Eastern Municipal Water District (EMWD) and the Edgemont Community Services District (ECSD) provide wastewater (sewer) services in the City of Moreno Valley. EMWD provides wastewater treatment, collection, and disposal service to most of the City while ECSD provides sewer service to a small area in the southwestern portion of the City. Wastewater generated within the WLC area is treated at EMWD's Moreno Valley Regional Water Reclamation Facility (MVRWRF). The MVRWRF facility is located east of Perris Boulevard, just south of Mariposa Avenue. The MVRWRF treats domestic, commercial, and industrial wastewater, and currently accepts an average daily flow of approximately 11.21 million gallons per day (mgd), with an existing capacity of approximately 16 mgd. The existing development on the site (seven residences and associated farming facilities) is served by private septic tank systems. The area adjacent to the project is currently served by a 15-inch

sewer pipeline located within Redlands Boulevard along the western perimeter of the project and an 8- to 15-inch sewer located within Eucalyptus Avenue along the northern perimeter of the project.

# Wastewater Generation Factors

Estimated wastewater flows from the WLC project are based on a factor of water use equivalent to 0.01 gallons per day (gpd)/square foot (sqft). This factor was determined based on a water demand analysis and benchmarking study conducted to determine water generation factors for similar facilities as outlined in the Technical Memorandum entitled *World Logistics Center Water Demands and Waste Water Generation for Buildings* dated September 10, 2013. This study addresses the overall project demands and uses wastewater generation factors which are lower than EMWD's rates used to cover the broad spectrum of light industrial uses. Therefore a facility sizing factor of 2.0 times was applied to the 0.01 gpd/sqft base wastewater rate resulting in a wastewater generation factor of 0.02 gpd/sqft. Based on a maximum building area of 40.6 million square feet, the estimated wastewater generated from the WLC project is 812,000 gpd. An additional 5,100 gpd of flow was added to account for wastewater generated by the in-project fueling station. Thus, the total estimated wastewater generated from the project is 817,100 gpd.

# Analysis Criteria

## Assumptions

The analysis of the sanitary sewer system for the World Logistics Center (WLC) was performed using the InfoSewer model provided by the Eastern Municipal Water District (EMWD). Two scenarios were utilized from the EMWD model:

- Existing piping with 2012 dry weather loading
- Buildout piping with buildout dry weather loading

Sanitary sewer piping and pump station components were added to each model scenario for the WLC project area. WLC project area loading was applied at 0.02 gpd/sqft. For parcels 2, 3 and 4 adjacent to Skechers, 0.02 gpd/sqft, 0.176 gpd/sqft and 0.144 gpd/sqft were used respectively. The total average day loading for the project area was 868,000 gpd which included 40,600,000 sqft for the WLC site, the in-project fueling station and 2,545,000 sqft for the Skechers building and adjacent parcels.

A dry weather diurnal curve was applied to the WLC project area with a peaking factor of 2.8. Wet weather loading components (infiltration and inflow) were not fully implemented in the District model and were not considered in the 2008 EMWCD Master Plan. Based on discussions with the District, wet weather analysis was not included as part of the WLC sanitary sewer analysis.

## Design Criteria

The general planning standards used in the WLC sanitary sewer analysis are as follows. These were taken from the 2008 EMWD Master Plan document.

- Manning's "n" = 0.015.
- Minimum scouring velocity = 2 fps

- Maximum flow velocity = 10 fps for gravity sewers
- Minimum gravity sewer pipe size is 8-inch
- Maximum flow-depth-to-diameter ratio (d/D) as follows:
  - 8- to 12-inch pipelines is 50 percent
  - 15-inch and larger pipelines is 75 percent
- Minimum cover of sewer pipes is 7.5 feet
- Maximum cover of sewer pipes is 20 feet
- The minimum slope as shown in **Exhibit 1**

EXHIBIT 1
Pipe Diameter Minimum Design Slope

| Pipe Diameter | Minimum Slope |
|---|---|
| 8-inch | 0.0040 |
| 10-inch | 0.0032 |
| 12-inch | 0.0024 |
| 15-inch | 0.0016 |
| 18-inch | 0.0014 |
| 21-inch | 0.0012 |
| 24-inch | 0.0010 |
| 27-inch | 0.0008 |
| 30-inch | 0.0007 |
| 36-inch | 0.0007 |
| 42-inch | 0.0007 |
| 48-inch | 0.0007 |
| 54-inch | 0.0007 |

Profiles for on-site piping were established based on the minimum cover, maximum cover, and minimum slope criteria. For each scenario, the on-site piping was sized to satisfy the maximum d/D ratio and minimum scouring velocity criteria. In some areas of limited loading, the minimum scouring velocity cannot be achieved without a pipe size smaller than 8 inches. Given that the minimum sewer pipe size allowable by EMWD is 8 inches, in these areas 8-inch pipes were selected which overrides the minimum scouring velocity criteria. Pump stations and force mains were sized to satisfy peak dry weather flows while satisfying the maximum and minimum velocity criteria.

## Existing System Connection

The WLC sanitary sewer discharges into an existing system at the intersection of Brodiaea Avenue and Redlands Blvd into an existing 15-, 18- and 21-inch sewer pipeline, with a proposed upgrade to 33-inch on Brodiaea Avenue and 36-inch on Wilmot St. . The sewage is then conveyed to the MVWRF through a trunk sewer with existing diameter piping between 24-inches and 54-inches. For each model scenario, the existing trunk sewer between the WLC and the MVWRF was evaluated for the design criteria. Improvements were considered where the d/D ratio criterion was not satisfied.

# Analysis

## Existing System

Three scenarios were developed from the EMWD model for the WLC project area. The scenarios and results are described below.

1. **Phase 1-WLC project area and loading into the EMWD existing system (Exhibits 2 and 3).**

   This scenario analyzes the system for phase 1 of the site development, which does not include the undeveloped parcels in the Skechers area. The northwest gravity line will serve all of the phase 1 development. The regional pump station will not be constructed. Prior to phase 2 development, several parcels in the east section of phase 1 may require building specific pumps to convey sewage to the nearest gravity pipeline. On-site gravity pipe sizes range from 8 to 15 inches. As part of phase 1, existing pipeline replacement is required for 2700 feet of existing 15-inch and 18-inch piping immediately downstream of the connection with the WLC sanitary sewer. The replacement piping is sized at 33-inch and 36-inch for buildout conditions. Exhibits 2 and 3 show the approximate timing for the sewer improvements.

2. **Phase 1 + Phase 2-WLC project area and loading into the EMWD existing system (Exhibit 4).**

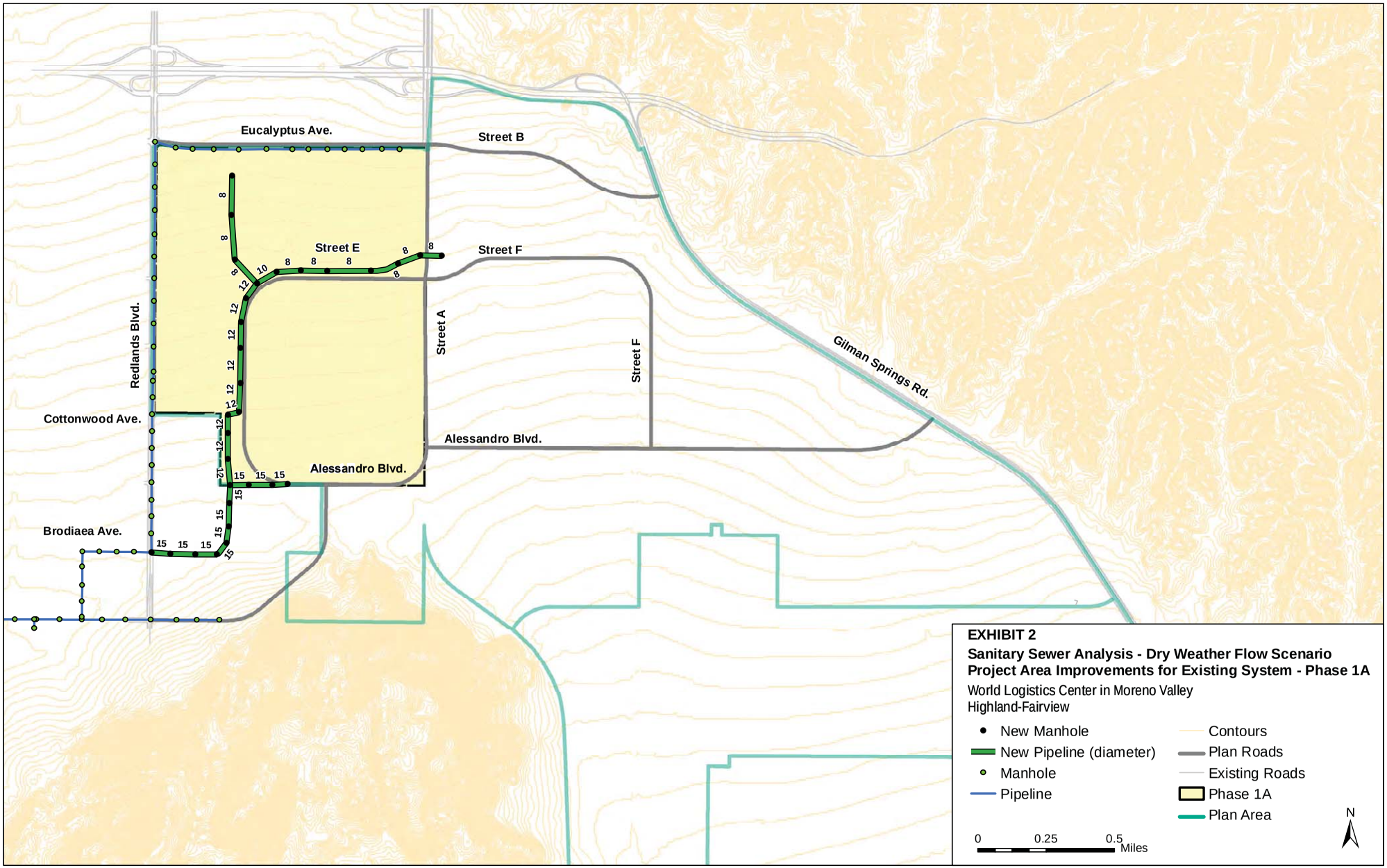
   This scenario analyzes the system for phase 1 and phase 2 of the site development and includes the undeveloped parcels in the Skechers area. The northwest gravity line is sized based on the phase 1 construction. As part of phase 2, the remaining gravity lines and the regional pump station are constructed. Some parcels in the east section of phase 1 will be re-routed to the phase 2 gravity lines and building specific pump stations for these parcels can be eliminated. On-site gravity pipe sizes range from 8 to 15 inches. The parcels in the southeast section of the site may require building specific pumps to convey sewage to the nearest gravity pipeline. The regional pump station is rated at approximately 970 gpm and 85 feet of total dynamic head (TDH). The forcemain is sized at 12 inches.

## Buildout System

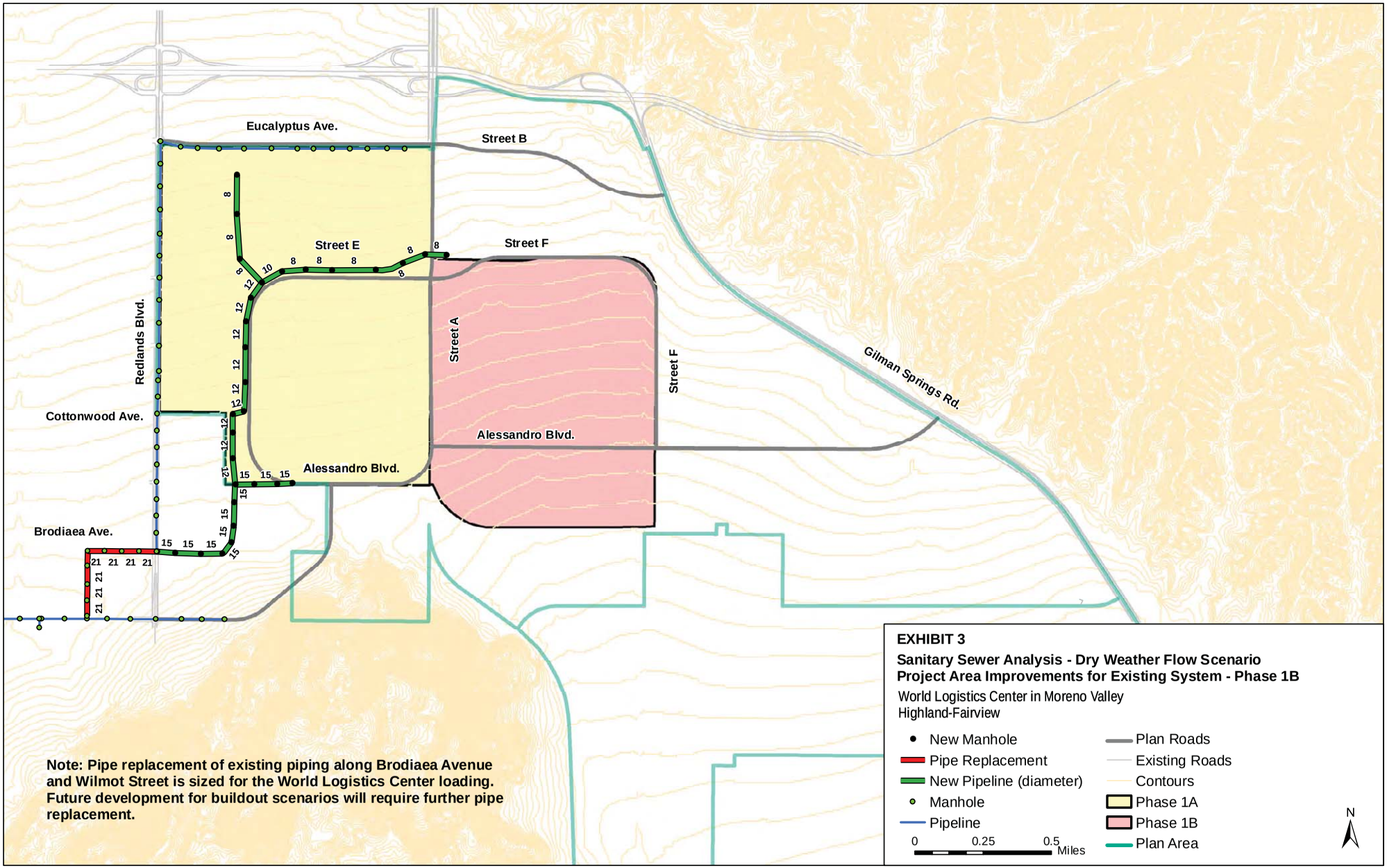
Two scenarios were developed from the EMWD buildout model for the WLC project area. EMWD buildout models cover two additional major developments expected in the Moreno Valley service area: (1) Aquabella, and (2) Quail Ranch. The Aquabella development covers 670 acres of land east of Lasselle Street, west of Oliver Street, and north of Iris Avenue and proposes the development of a 2,722-unit senior housing community. Quail Ranch is located east of the Gilman Springs Road, three miles south of SR60 and covers approximately 720 acres. The development proposes 1,159 residential units, a park, golf course, and a clubhouse. The portion of the San Jacinto Wildlife Area that was part of the original Moreno Highlands Specific Plan is covered by EMWD's existing build-out model. In the model, this area is categorized as single family residential but it is going to be designated as permanent open space as part of a General Plan Amendment and Zone Change which accompany the WLC Specific Plan.

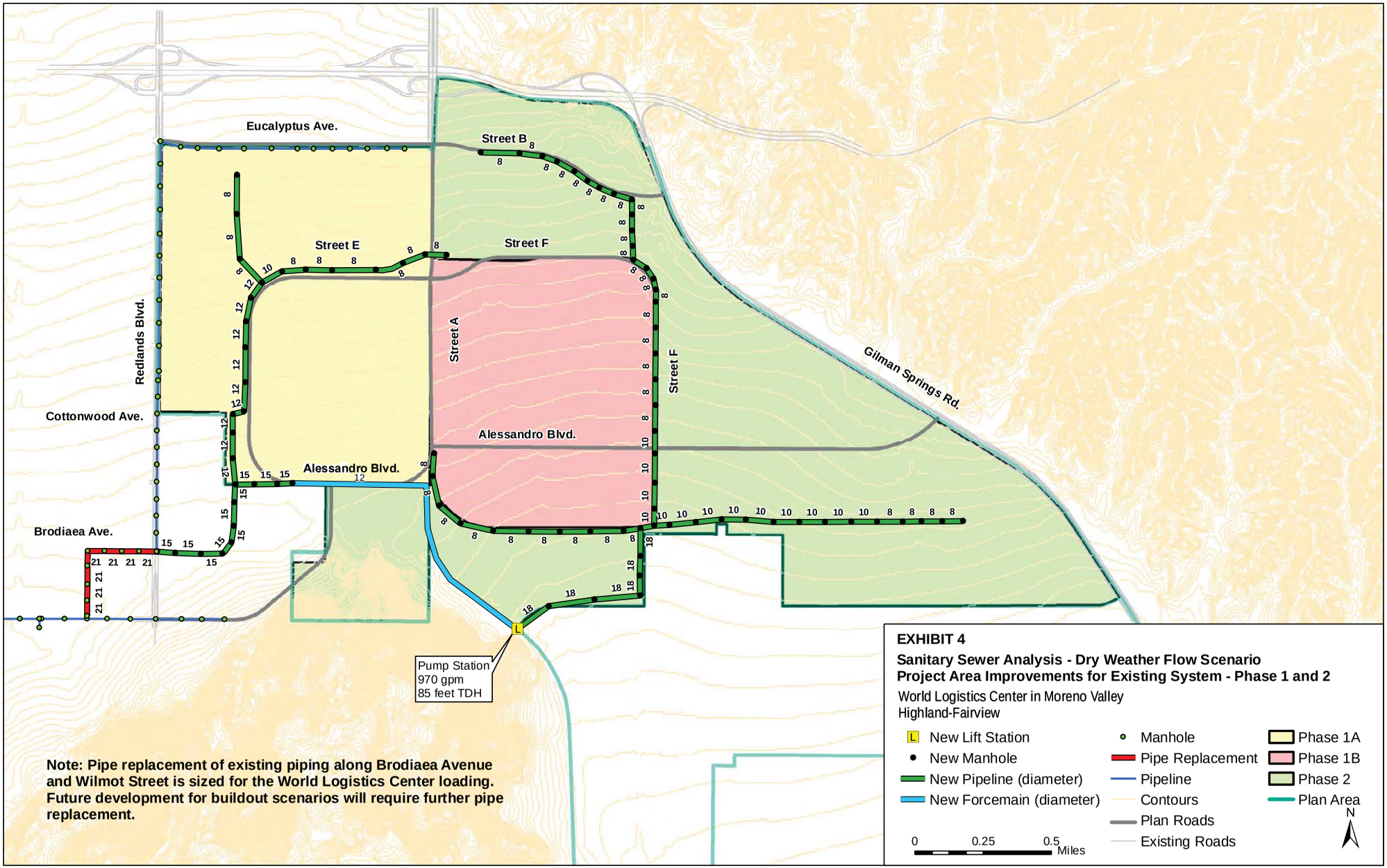
The scenarios and results are described below.

1. **Full WLC project area and loading into the EMWD buildout system with 2008 master plan buildout pipe sizes (Exhibit 5).** On-site pipe and regional pump station sizing for this scenario consider increased buildout loading from areas immediately south of the WLC project area, including Quail Ranch to the southeast and other areas immediately south. On-site gravity pipe sizes range from 8 to 24 inches. The regional pump station is rated at approximately 3,900 gpm and 82 feet of total dynamic head (TDH). The forcemain is sized at 21inches. Buildout pipe sizes in the existing system are also identified in Exhibit 5 for the trunk sewer between the WLC project area and the Wastewater Treatment Plant. The buildout pipe sizes come from the EMWD buildout model based on the 2008 master plan.
2. **Full WLC project area and loading into the EMWD buildout system with reduced buildout pipe sizes (Exhibit 6).** The loading in the WLC project area is less than the loading planned for the project area in the buildout model and 2008 master plan. For this scenario, the buildout pipeline improvements were downsized in the trunk sewer between the WLC project area and the WWTP to accommodate the reduced loading. On-site piping and pump station sizing is the same as buildout scenario 1.

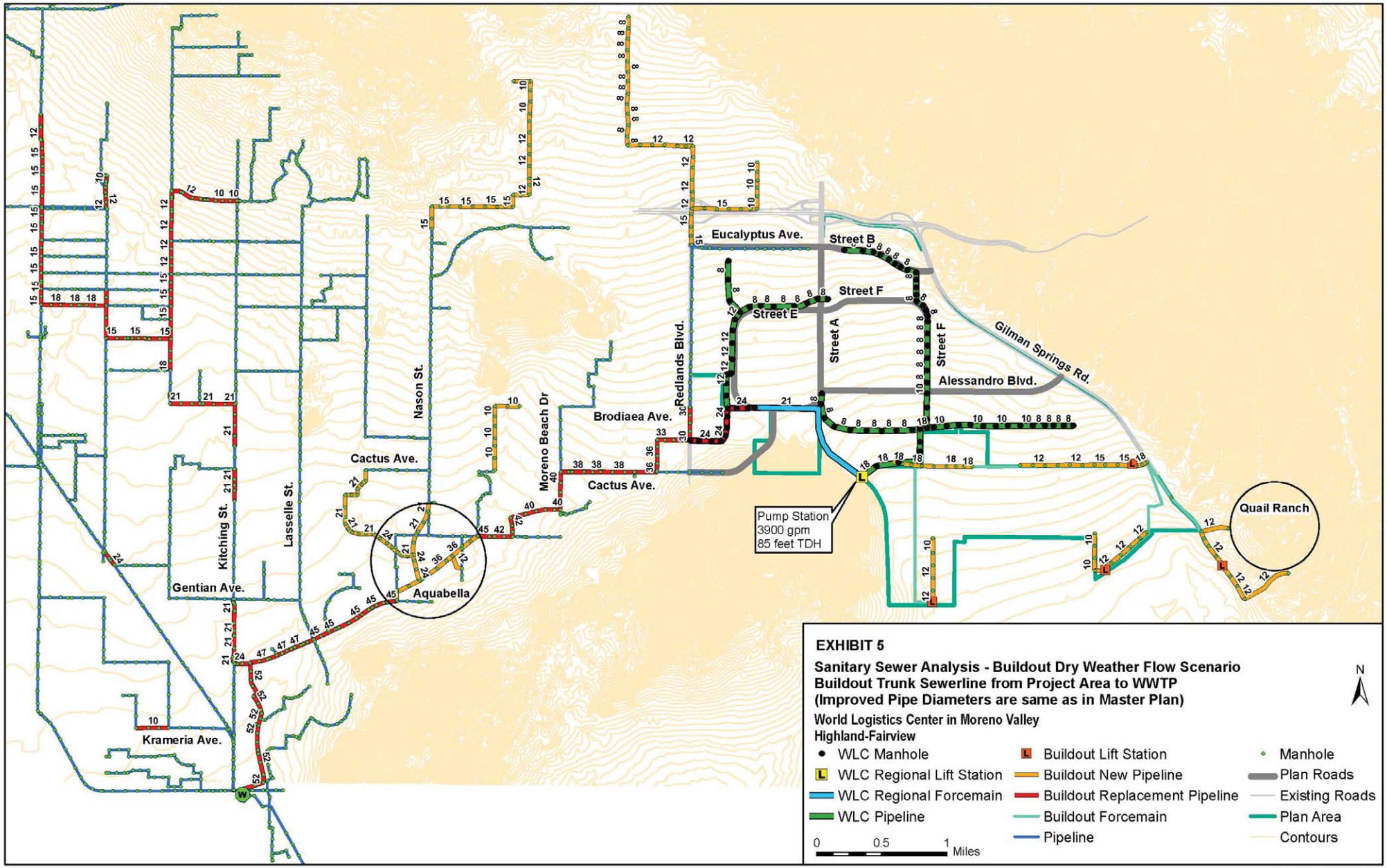

Eucalyptus Ave.
Street B
Street E
Street F
Redlands Blvd.
Street A
Street F
Gilman Springs Rd.
Cottonwood Ave.
Alessandro Blvd.
Alessandro Blvd.
Brodiaea Ave.
EXHIBIT 2
Sanitary Sewer Analysis - Dry Weather Flow Scenario
Project Area Improvements for Existing System - Phase 1A
World Logistics Center in Moreno Valley
Highland-Fairview
New Manhole
New Pipeline (diameter)
Manhole
Pipeline
Contours
Plan Roads
Existing Roads
Phase 1A
Plan Area
0
0.25
0.5
Miles
N

CH2MHILL

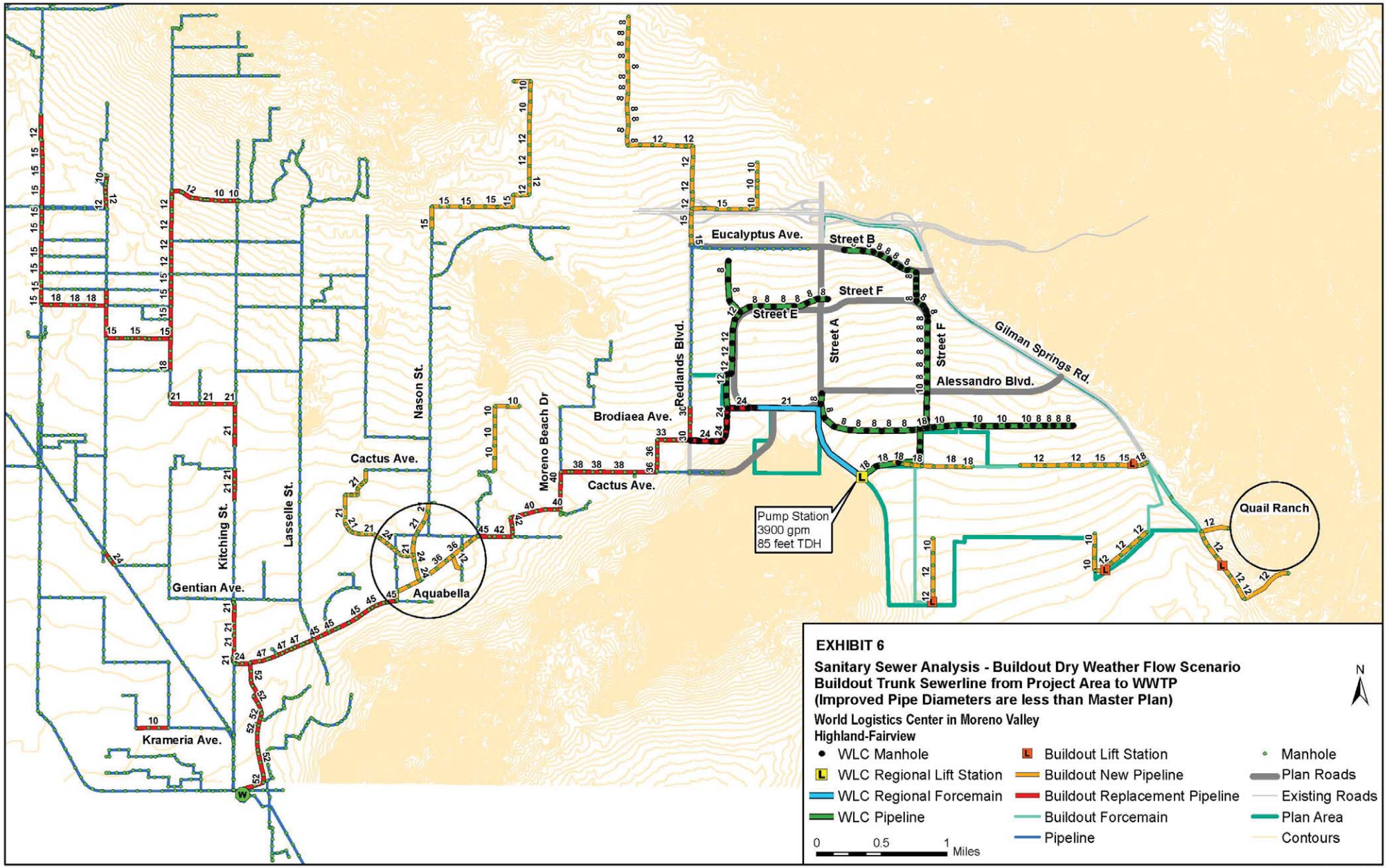

Eucalyptus Ave.
Street B
Street E
Street F
Street A
Redlands Blvd.
Cottonwood Ave.
Alessandro Blvd.
Alessandro Blvd.
Brodiaea Ave.
Gilman Springs Rd.
Note: Pipe replacement of existing piping along Brodiaea Avenue and Wilmot Street is sized for the World Logistics Center loading. Future development for buildout scenarios will require further pipe replacement.
EXHIBIT 3
Sanitary Sewer Analysis - Dry Weather Flow Scenario
Project Area Improvements for Existing System - Phase 1B
World Logistics Center in Moreno Valley
Highland-Fairview
New Manhole
Pipe Replacement
New Pipeline (diameter)
Manhole
Pipeline
Plan Roads
Existing Roads
Contours
Phase 1A
Phase 1B
Plan Area
0
0.25
0.5
Miles
N
CH2MHILL


Eucalyptus Ave.
Street B
Street E
Street F
Street A
Redlands Blvd.
Cottonwood Ave.
Alessandro Blvd.
Alessandro Blvd.
Brodiaea Ave.
Gilman Springs Rd.
Pump Station
970 gpm
85 feet TDH
EXHIBIT 4
Sanitary Sewer Analysis - Dry Weather Flow Scenario
Project Area Improvements for Existing System - Phase 1 and 2
World Logistics Center in Moreno Valley
Highland-Fairview
New Lift Station
New Manhole
New Pipeline (diameter)
New Forcemain (diameter)
Manhole
Pipe Replacement
Pipeline
Contours
Plan Roads
Existing Roads
Phase 1A
Phase 1B
Phase 2
Plan Area
0
0.25
0.5
Miles
N
Note: Pipe replacement of existing piping along Brodiaea Avenue and Wilmot Street is sized for the World Logistics Center loading. Future development for buildout scenarios will require further pipe replacement.

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Eucalyptus Ave.
Street B
Street F
Street E
Street A
Street F
Gilman Springs Rd.
Alessandro Blvd.
Redlands Blvd.
Brodiaea Ave.
Cactus Ave.
Cactus Ave.
Nason St.
Moreno Beach Dr
Kitching St.
Lasselle St.
Gentian Ave.
Aquabella
Krameria Ave.
Quail Ranch
Pump Station
3900 gpm
85 feet TDH
EXHIBIT 5
Sanitary Sewer Analysis - Buildout Dry Weather Flow Scenario
Buildout Trunk Sewerline from Project Area to WWTP
(Improved Pipe Diameters are same as in Master Plan)
World Logistics Center in Moreno Valley
Highland-Fairview
WLC Manhole
WLC Regional Lift Station
WLC Regional Forcemain
WLC Pipeline
Buildout Lift Station
Buildout New Pipeline
Buildout Replacement Pipeline
Buildout Forcemain
Pipeline
Manhole
Plan Roads
Existing Roads
Plan Area
Contours
0
0.5
1
Miles
N

CH2MHILL


Eucalyptus Ave.
Street B
Street F
Street E
Street A
Street F
Gilman Springs Rd.
Alessandro Blvd.
Redlands Blvd.
Brodiaea Ave.
Cactus Ave.
Cactus Ave.
Nason St.
Moreno Beach Dr
Kitching St.
Lasselle St.
Gentian Ave.
Aquabella
Krameria Ave.
Pump Station
3900 gpm
85 feet TDH
Quail Ranch
EXHIBIT 6
Sanitary Sewer Analysis - Buildout Dry Weather Flow Scenario
Buildout Trunk Sewerline from Project Area to WWTP
(Improved Pipe Diameters are less than Master Plan)
World Logistics Center in Moreno Valley
Highland-Fairview
WLC Manhole
WLC Regional Lift Station
WLC Regional Forcemain
WLC Pipeline
Buildout Lift Station
Buildout New Pipeline
Buildout Replacement Pipeline
Buildout Forcemain
Pipeline
Manhole
Plan Roads
Existing Roads
Plan Area
Contours
0
0.5
1
Miles
N

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# World Logistics Center Water Demands and Waste Water Generation for Buildings

PREPARED FOR: Highland Fairview

PREPARED BY: CH2M HILL

DATE: September 10, 2013

## Summary of Modifications

Modifications to the Water Demands and Waste Water Generation for Buildings analysis have been made to reflect changes in the Project Description. These modifications are reflected in the memo in the last section, Building Water Demands.

## Water System Demands

The purpose of this technical memorandum is to evaluate water and waste water building demands for the proposed World Logistics Center (WLC) development in Moreno Valley. A review of the Logistics water demand factor identified in *TPM 35629 EIR- Water and Sewer Evaluation (TPM Memorandum)*, by RBF Consulting dated April 11, 2008 and a benchmarking study of regional water demand use factors was performed to develop the appropriate water demand factor for the WLC Development. TPM 35629 refers to the Highland Fairview Corporate Park (HFCP) at Eucalyptus Avenue and Theodore Street which is immediately adjacent to the WLC project.

### Water Demands from TPM Memorandum

In April 2008, the TPM Memorandum evaluated the impacts to the existing EMWD water system resulting from the following developments:

1. TPM No. 35629 (Highland Fairview Corporate Park)
2. Related Projects in the vicinity of TPM No. 35629
3. The Highlands Area referred to as *the former Moreno Highlands Specific Plan* consisting of the Highland Fairview properties and the Lee property.

The TPM Memorandum calculated demands for the above areas based upon February 2008 Eastern Municipal Water District (EMWD) usage factors, in accordance with the land uses designated in the *Moreno Highlands Specific Plan 212-1*. The TPM Memorandum also conducted a demand analysis based on water demands utilizing the *Logistics – Modified General Plan* land use map combined in the EIR for the HFCP project. (See Appendix A for both demand analyses.) The Logistics water demands were based on low water consumption rates associated with warehouse-type buildings and "per employee" water factors rather than "per dwelling unit" water demand factors.

The water demand usage factor utilized in the Logistics – Modified General Plan analysis was 20 gallons per day (gpd)/employee, based upon "common industry duty factors," identified at the time the memorandum was written. As shown in Table B-5 of Appendix A, this analysis assumed that logistics development would consist of 33,343,929 square feet (sf) of warehouse building area on 1,525 acres. This resulted in an average day demand of approximately 400,000 gpd based upon an assumption that the warehouses would be occupied by .6 employees per 1,000 sf of building area. This translates to a water demand usage factor of 0.012 gpd/sf for logistics developments.

## Benchmarking Study

A regional benchmarking study was performed to determine whether the 0.012 gpd/sf water demand factor utilized in the Memorandum is appropriate for present day.

CH2M HILL contacted 19 water agencies within the region to determine the means and methods used by such agencies to determine the total potable water demand for planned warehouse distribution facilities (see complete list in Appendix B).

Most agencies indicated that they would apply standard water demand factors from the most recent water master plan, based upon the most appropriate land use listed. These agencies indicated that they would utilize the standard commercial, light industrial or business park land use water demand factors specified in the master plan, for a warehouse distribution facility.

These typical land use categories are applied per acre of land and are intended to account for irrigation water to be used onsite. In the case of the WLC, with the use of drought tolerant and native landscaping, the irrigation water demand will be much less than for a typical industrial project. Therefore, a water use demand factor that is applied per square foot of building area is better reflective of actual water use to be used onsite in the WLC. Table 1 lists typical agency water use demand factors.

TABLE 1
Typical Master Plan Water Use Demand Factors

| Land Use Category | Total Water Demand (gpd/acre)[a] | Total Water Demand (gpm/acre) |
|---|---|---|
| **Commercial** | | |
| Regional Commercial | 3,500 | 2.43 |
| Neighborhood Commercial | 3,000 | 2.08 |
| **Industrial** | | |
| Light Industrial | 1,250 | 0.87 |

Data from *Comprehensive Water Distribution Systems Analysis Handbook, Second Edition*

[a]Note that these water demand factors apply on a per acre of land basis, which accounts for irrigation demand to be used onsite.

Most agencies that deviate from this process allow the developer's architect or engineer to recommend a more customized water demand factor, based upon similar facilities. The agency would then review and approve the modified demand factors. The City of Ontario for instance, indicated that they would normally use a standard Industrial/Business Park

water demand factor of 0.032 gpd/sf, but noted that water demands for warehouses may vary significantly, especially where recycled water and other water conservation measures are implemented. The City indicated that they would advise the developer's engineer to calculate water demands based on the site specific development, considering recycled water use, Xeriscape implementation, and water use records from similar facilities previously constructed by the developer.

### Site Specific Benchmark Water Studies

Two of the agencies contacted indicated that they prepare customer specific water studies for warehouse type facilities because the water use at such facilities is far less than standard light industry and/or commercial land use facilities. The Beaumont Cherry Valley Water District is one such agency. It is bounded on the west and north by the Yucaipa Valley Water District, on the east by the City of Banning and is situated one-mile north of the northerly boundary of Eastern Municipal Water District,

The agricultural-based industries within the Beaumont Cherry Valley Water District are giving way to major warehouse distribution centers, e.g., Lowes, Cross Roads Logistics, Prologics, etc. Several major development projects have been constructed, are in construction, or are in the planning phase. For warehouse distribution facilities planned to accommodate .39 to .6 employees per 1,000 sf of building space, the Beaumont Cherry Valley water District utilizes a potable water demand factor of 0.009 gpd/sf. This factor is less than the logistics factor of 0.012 gpd/sf used in the TPM Memorandum and is for a similar type facility, in a water district adjacent to EMWD. The City of Riverside uses a similar type of evaluation.

East Valley Water District, also a neighboring water district, uses a potable water demand factor of 0.01 gpd/sf, for all warehouse type facilities. This factor is slightly less than the logistics water demand factor of 0.012 gpd/sf determined in the TPM Memorandum.

### Recommendations

Table 2 below summarizes the information. As shown in Table 2, values used by nearby agencies for logistics water demand factors range from 0.009 to 0.012 gpd/sf. Based on this benchmarking study, it is recommended that a water demand factor of 0.010 gpd/sf be used for the WLC development.

TABLE 2
Water Demand Factors for Logistics Uses by Agency

| Agency | Water Demand Factor (gpd/sf) |
|---|---|
| Highland Fairview Corporate Park | 0.012 |
| Beaumont/Cherry Valley | 0.009 |
| City of Chino | 0.011 |
| City of Riverside | 0.009 |
| East Valley Water District | 0.010 |

## Comparison to Metered Data

In order to validate the recommendation above the water demand factor of 0.010 gpd/sf was compared to actual metered data obtained from several water districts.

### EMWD Similar Facilities

EMWD provided water use consumption data for ten existing warehouse distribution facilities currently served by the District. The water usage at the facilities is shown in Appendix C. The estimated maximum day water use ranges from 0.001 to 0.017 gpd/sf with the majority of them less than 0.01 gpd/sf.

### Other Agency's Similar Facilities

Several agencies were contacted to obtain actual metered data from warehousing facilities. Summaries of water use for various types of warehouse facilities known to exist within the Cities of Chino, Fontana, and Redlands as well as the Beaumont Cherry Water District were obtained. When contacting the agencies we were routed to the utility billing department which provided the verbal summaries of water use records for the various warehouse facilities ranging in size from 275,000 square feet to 971,640 square feet. Water usage varied from 0.0004 gpd/sf to 0.33 gpd/sf as shown in Table 3. See Appendix C for water use information collected.

In addition, information was received for a Lowes facility in the Beaumont Cherry Water District. The Lowes facility is a 193,000 sf facility with 0.08 employees/1,000 sf. The Lowes facility had an average 2010 water use of 141 gpd, which works out to 0.0007 gpd/sf as shown in Table 3. The Beaumont data proves the point that occupant density is the primary factor to be considered in projecting water use based on previous water use data.

TABLE 3
Actual Water Usage of Similar Facilities

| Agency | Water Usage (gpd/sf) |
|---|---|
| Eastern Municipal Water District | 0.004 to 0.017 |
| City of Chino | 0.002 to 0.003 |
| City of Fontana | 0.033 |
| City of Redlands | 0.0004 to 0.001 |
| Beaumont Cherry Valley Water District | 0.0007 |

In collecting the data the utility billing departments, other than Beaumont Cherry, had no record of the square footage of each facility account or the number of employees per SF of building. When obtaining the square footage from the planning department, a different database was used to pull up the square footage of the entire building where the account holder was located. In multiple cases it was later determined that the account holder shares the building with another occupant, which substantially increases the actual gpd/sf water usage for each such tenant from the quantities calculated above. These means the actual values would be less.

### LEED Calculations

An analysis was also made to estimate the water demand based on standard uses for each employee. The Leadership in Energy and Environmental Design (LEED) program has methodologies for estimating demand based per person or employee. Using this methodology and their calculation worksheet the estimated demand for toilet flushing is 5 gpd per person and for the lavatory is 2.2 gpd per person. Miscellaneous water uses including kitchen and shower was estimated at an equivalent of 2.5 gpd per person. The total gpd per person is 9.7 gpd. Additional water demand for other miscellaneous uses are estimated at 25 percent and would be equivalent to approximately 2.4 gpd per person bringing the total warehouse demand to 12.1 gpd per person or 0.007 gpd/sf using a factor of 0.6 employees/1000 sq ft for the WLC project. This value is less than the recommended value of 0.010 gpd/sf.

## Building Water Demand

Based on the analysis outlined above, a water demand factor of 0.010gpd/sf is proposed for the WLC development building demand. The water demand for irrigation is not included in this analysis. The development proposes 40.6 million square feet of logistics uses. Thus, the water demand for the buildings is 406,000 gpd or 460 acre-feet per year (acft/yr).

# Appendix A

**Table B-4**
**Highlands - Existing City General Plan**
**Domestic Water Demand Estimate**

| Land Use [1] | Area (ac) | Units | Duty Factor [2] | ADD (GPD) | MDD [3] (MGD) | PHD [3] (GPM) |
|---|---|---|---|---|---|---|
| Very Low Density | 51.0 | 102 | 645 gpd/ du | 65,751 | 0.13 | 160 |
| Low Density | 1,100.5 | 4,985 | 500 gpd/ du | 2,492,682 | 4.99 | 6,059 |
| Medium Density | 150.0 | 1,199 | 500 gpd/ du | 599,719 | 1.20 | 1,458 |
| R5 | 149.0 | 745 | 500 gpd/ du | 372,332 | 0.74 | 905 |
| High Density | 52.2 | 1,005 | 240 gpd/ du | 241,085 | 0.36 | 419 |
| RR | 0.1 | | 1,600 gpd/ gross acre | 150 | 0.00 | 0 |
| Neighborhood Commercial | 10.0 | | 1,600 gpd/ gross acre | 15,956 | 0.02 | 22 |
| Community Commercial | 16.0 | | 1,600 gpd/ gross acre | 25,614 | 0.04 | 36 |
| Business Park | 575.0 | | 1,600 gpd/ gross acre | 919,960 | 1.38 | 1,278 |
| Mixed Use [6] | 80.6 | | 305 gpd/ du | 491,564 | 0.74 | 683 |
| Mixed Use [7] | | | 1,600 gpd/ gross acre | 128,935 | 0.19 | 179 |
| Community Facility | 1.5 | | 2,400 gpd/ gross acre | 3,631 | 0.01 | 5 |
| Elementary School | 70.0 | | 2,400 gpd/ gross acre | 168,104 | 0.25 | 233 |
| Middle School | 43.1 | | 2,400 gpd/ gross acre | 103,348 | 0.16 | 144 |
| High School | 40.7 | | 2,400 gpd/ gross acre | 97,683 | 0.15 | 136 |
| Fire/ Police Station | 1.5 | | 2,400 gpd/ gross acre | 3,585 | 0.01 | 5 |
| Church | 10.1 | | 2,400 gpd/ gross acre | 24,135 | 0.04 | 34 |
| Public | 0.2 | | 2,400 gpd/ gross acre | 410 | 0.00 | 1 |
| Cemetery | 16.5 | | 0.378 acre-ft/yr/acre [4] | 5,580 | 0.01 | 10 |
| Golf Course | 377.4 | | 0.378 acre-ft/yr/acre [4] | 127,362 | 0.32 | 221 |
| Neighborhood Park | 57.0 | | 0.378 acre-ft/yr/acre [4] | 19,241 | 0.05 | 33 |
| Community Park | 68.0 | | 0.378 acre-ft/yr/acre [4] | 22,962 | 0.06 | 40 |
| Green Belt | 59.9 | | 0.000 acre-ft/yr/acre [5] | 0 | 0.00 | 0 |
| Open Space | 191.6 | | 0.000 acre-ft/yr/acre [5] | 0 | 0.00 | 0 |
| Scenic Highway | 25.3 | | 0.000 acre-ft/yr/acre [5] | 0 | 0.00 | 0 |
| Roads | 317.0 | | | | | |
| | **3,464.1** | **8,036** | | **5,929,787** | **10.84** | **12,058** |

[1] Based on Existing City General Plan (See attached exhibit)
[2] Based on EMWD standards
[3] Peaking factors are based on large pressure zone service.
[4] Assume 10-percent of Park, Golf Course, and Cemetery Area will require potable water demands
[5] Assume Open Space to be served by recycled water system
[6] Assume a maximum density of 20 DUs/acres for Mixed Use land use designations
[7] Assume mixed use to consist of Commercial and High Density land use designations

**Table B-5**
**Highlands - Proposed Logistics Modified General Plan**
**Potable Water Demand Estimate**

| Land Use [1] | Area (ac) | Units | Building Square Footage | Estimated Employees [3] | Duty Factors | ADD (GPD) | MDD (MGD) | PHD (GPM) |
|---|---|---|---|---|---|---|---|---|
| **Distribution/ Logistics** | 1,525.1 | | 33,343,929 | 20,006 | 20 gpd/ employee [6] | 400,127 | 0.60 | 556 |
| **Roads** | 86.2 | | | | | | | |
| **R5** | 10.6 | 53 | | | 500 gpd/ du [7] | 26,461 | 0.05 | 64 |
| **Roads** | 1.4 | | | | | | | |
| **Park** | 141.0 | | | | 0.378 acre-ft/yr/acre [4] | 47,599 | 0.12 | 83 |
| **Roads** | 0.7 | | | | | | | |
| **Open Space** | 1,077.9 | | | | 0.0 acre-ft/yr/acre [5] | 0 | 0.00 | 0 |
| **Roads** | 1.3 | | | | | | | |
| ***Lee Property* [2]** | | | | | | | | |
| **Low Density Residential** | 87.0 | 435 | | | 500 gpd/ du [7] | 217,500 | 0.44 | 529 |
| **Medium Density Residential** | 64.1 | 513 | | | 500 gpd/ du [7] | 256,500 | 0.51 | 623 |
| **High Density Residential** | 11.0 | 220 | | | 240 gpd/ du [7] | 52,800 | 0.08 | 92 |
| **Business Park** | 203.3 | | | | 1,600 gpd/ acre [7] | 325,256 | 0.49 | 452 |
| **Mixed Use [8]** | 14.0 | | | | 305 gpd/ du [7][8] | 85,378 | 0.13 | 119 |
| **Mixed Use [8]** | | | | | 1,600 gpd/ gross acre [9] | 22,394 | 0.03 | 31 |
| **School:** | | | | | | | | |
| Elementary School | 10.0 | | | | 2,400 gpd/ gross acre [7] | 24,012 | 0.04 | 33 |
| High School | 13.6 | | | | 2,400 gpd/ gross acre [7] | 32,572 | 0.05 | 45 |
| **Open Space:** | | | | | | | | |
| Golf Course | 101.7 | | | | 0.378 acre-ft/yr/acre [4] | 34,327 | 0.09 | 60 |
| Cemetery | 16.3 | | | | 0.378 acre-ft/yr/acre [4] | 5,506 | 0.01 | 10 |
| Open Space | 4.8 | | | | 0.0 acre-ft/yr/acre [5] | 0 | 0.00 | 0 |
| Green Belt | 10.7 | | | | 0.0 acre-ft/yr/acre [5] | 0 | 0.00 | 0 |
| Scenic Highway | 10.5 | | | | 0.0 acre-ft/yr/acre [5] | 0 | 0.00 | 0 |
| **Roads** | 73.0 | | | | | | | |
| **PA 7 Subtotal** | 619.82 | 1,168 | | | | 1,056,246 | 1.86 | 1,993 |
| | **3,464.1** | **1,220.9** | **33,343,929** | **20,006.4** | | **1,530,433** | **2.63** | **2,696** |

[1] Based on Alternative Land Use Plan (See attached Exhibit)
[2] The "Lee Property" is based on the 1991 Moreno Highlands Specific Plan, and current City of Moreno Valley General Plan
[3] Assume 0.6 employee per 1,000 square feet of the Distribution/ Logistics buildings
[4] Assume 10-percent of Park, Golf Course, and Cemetery Area will require potable water demands
[5] Assume Open Space, Green Belt, and Scenic Highway irrigation areas to be served by recycled water system
[6] Based on common industry duty factors
[7] Based on revised EMWD duty factors, February 2008
[8] Assume a maximum density of 20 DUs/acres for Mixed Use land use designations
[9] Assume mixed use to consist of Commercial and High Density land use designations

# Appendix B

| Highlands "Logistics" Water Demand Benchmarking Study | | | | | |
|---|---|---|---|---|---|
| **RBF water demand = 20 gpd/employee, assuming .6 employees/1,000 sf of bldgs. = .012 gpd/sf = 523 gpd/acre** | | | | | |
| **Water Agency** | **Contact Name** | **Phone Number** | **Email** | **Water Demand Factor** | **GPD/SF** |
| City of Ontario | Sheldon Yu | (909) 395-2687 | syu@ci.ontario.ca.us | 1,400 gpd/acre | 0.032 |
| City of Riverside | Clay Monroe | (951) 826-5285 | cmonroe@riversideca.gov | 15- 20 gpd/acre | 0.011 |
| East Valley Water District | Lida | (909) 889-9501 | | .01/gpd/sf | 0.01 |
| Beaumont Cherry Valley Water District | Joe Riechenberger/Julie Salinas | (951) 845-9581/(626)437-2571 | julie.salinas@bcvwd.org | 15 gpd/employee for like facilities. | 0.009 |
| Palmdale Water District | Chris | 661-947-4111 | | 2,100 gpd/acre | 0.048 |
| West Valley Water District | Long Tsai | (909) 875-1322 | | 3,500 gpd/acre - light industrial | 0.08 |
| City of Chino | Jesus Placentia | (909) 464-0781 | | 500 gpd/acre for warehouses | 0.011 |
| City of Redlands | Tracy Harris | (909) 798-7698 | tharris@cityofredlands.org | .01/gpd/sf | 0.01 |
| Yucaipa Valley Water District | Jeremy | (909) 797-5117 | | | |
| City of Hesperia | John Leveille | (760) 947-1451 | | | |
| Cucamonga Valley Water District | multiple people | (909) 987-2591 | | | |
| City of La Verne | Janet Mangoosi | (909) 596-8744 | | | |
| San Bernardino City Water Dept. | Robert Lindberg | (909) 384-7222 | 'lindberg_ro@sbcitywater.org' | | |
| City of Fontana | Brenda Fowler | (909) 822-2201 | | | |
| Fontana Water Company | Eric | 909 201-7348 | | | |
| Rubidoux Water Dept | Ron Young | (951) 684-7321 | | | |
| Norco Water Dept | Laurie Asque | (951) 270-5654 | | | |
| San Bernardino Valley Municipal Water District | Mike | | | | |
| Santa Margarita Water District | Clay Header | (949) 459-6581 | | | |

# Appendix C

| City of Chino | | | |
|---|---|---|---|
| **Water Demand Data for Similar Warehouse Distribution Type Facilities** | | | |
| | | | |
| **DISTRIBUTION CENTERS** | **SQUARE FOOTAGE** | **USAGE 2011** | |
| | (sf) | (gpd) | **(gpd/sf)** |
| Warehouse Distribution Technologies | 302,750 | 855 | **0.0028** |
| National Distribution Center 1 | 430,000 | 897 | **0.0021** |
| National Distribution Center 2 | 400,000 | 810 | **0.0020** |
| Taylored Services | 400,000 | 1,153 | **0.0029** |
| Geno Pacific 1 | 275,000 | 926 | **0.0034** |
| Geno Pacific 2 | 275,000 | 934 | **0.0034** |

| City of Fontana | | | |
|---|---|---|---|
| **Water Demand Data for Similar Warehouse Distribution Type Facilities** | | | |
| | | | |
| **DISTRIBUTION CENTERS** | **SQUARE FOOTAGE** | **USAGE 2011** | |
| | (sf) | | |
| Walmart Distribution Warehouse | **600,000** | 5,984,000 | |
| | | 5,984,000 | gal/month |
| | | 199,467 | gpd |
| | | **0.3324** | **gpd/sf** |
| | | | |

| City of Redlands | | | | |
|---|---|---|---|---|
| **Water Demand Data for Similar Warehouse Distribution Type Facilities** | | | | |
| | | | | |
| **DISTRIBUTION CENTERS** | | **SQUARE FOOTAGE** | **USAGE 2011** | |
| | | (sf) | | |
| **BLDG A** | **WAREHOUSE & OFFICE** | **971,640** | 2,244 | gal/6 months |
| | METER 1 | | 71,060 | gal/6 months |
| | METER 2 | | 1,496 | gal/6 months |
| | METER 3 | | 0 | gal/6 months |
| | METER 4 | | 1,496 | gal/6 months |
| | METER 5 | | 76,296 | gal/6 months |
| | | | 422 | gpd |
| | | | **0.0004** | **gpd/sf** |
| | | | | |
| | | | | |
| **BLDG B** | **WAREHOUSE & OFFICE** | **500,000** | 0 | gal/6 months |
| | METER 1 | | 19448 | gal/6 months |
| | METER 2 | | 10472 | gal/6 months |
| | METER 3 | | 13464 | gal/6 months |
| | METER 4 | | 32912 | gal/6 months |
| | METER 5 | | 76296 | gal/6 months |
| | | | 422 | gpd |
| | | | **0.001** | **gpd/sf** |

# Moreno Valley Fire Department Strategic Plan 2012-2022



## December 2011

MORENO VALLEY
FIRE DEPARTMENT

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## CHIEF'S MESSAGE



***Steve Curley***
***Fire Chief***

As the City's former Fire Chief and current Western Operations Deputy Chief for Riverside County Fire, I am pleased to present the Moreno Valley Fire Department's Strategic Plan 2012-2022. This plan clearly defines the mission and goals of the Moreno Valley Fire Department while providing a guide for continuing the excellent services that we provide to the community for the next ten years.

The Moreno Valley Fire Department has seen an 11.1% increase in emergency calls for service over the last five years and it is anticipated that the total calls for service for 2011 will exceed 14,000 calls. We are expecting to open our seventh fire station, the Morrison Park Fire Station, in the Fall of 2012 to help meet the growing needs of the community. This will also help us continue to meet one of our goals for Fire Operations which is to arrive on scene within 5 minutes of dispatch 90% of the time. The funding for this station was made possible through the issuance of redevelopment agency bonds.

Furthermore, I am excited to announce that in October 2011 we hired four part time Fire Prevention Technicians for the Fire Prevention Bureau for the new Multi-Family Residential Inspection Program. This program will enhance our ability to safe guard the community from fire and environmental hazards by ensuring that each multi-family residential unit is inspected on an annual basis. We are also looking forward to hiring two additional part time Fire Prevention Technicians in 2012 to help ensure that all vacant lots in the City receive an annual hazard abatement inspection. By hiring these six Fire Prevention Technicians, the City's Fire Prevention Bureau will be better able to achieve one of their goals, which is to ensure all business and commercial occupancies receive annual fire and life safety inspections. It also provides the beginning steps to ensuring a second goal is met within the next ten years which is to perform hazard abatement inspections biannually.

Additionally, our Office of Emergency Management (OEM) Program coordinates the City's prevention, preparedness, response, recovery, and mitigation efforts for all natural and man-made disasters. Most recently the City Council adopted a local hazard mitigation plan written by the OEM Program Manager. The goals of the plan are to protect life, property and the environment; provide public awareness; protect the continuity of government; and to improve emergency management, preparedness, collaboration and outreach. The plan contains a profile of the City, a detailed assessment of disasters that could occur in Moreno Valley and the mitigation goals of the City to reduce long-term vulnerabilities. The plan can be found on our City website at www.moval.org.

Finally, once the strategic plan is implemented it will be modified periodically for priority changes, budgetary constraints, and planning refinements. This plan provides an overview of anticipated Fire Department activities as related to the goals contained within this plan. General economic conditions and the capability to fund projects will play a crucial role in determining the actual time that resources are secured and projects completed, however, I strongly feel that the goals, and the strategies to reach those goals, are well within our reach.

# EXECUTIVE SUMMARY

The Moreno Valley Fire Department is the primary response agency for fires, emergency medical service, hazardous materials incidents, traffic accidents, terrorist acts, catastrophic weather events, and technical rescues for the City of Moreno Valley. The Fire Department also provides a full range of fire prevention services including public education, code enforcement, plan check and inspection services for new and existing construction, and fire investigation. Additionally, the City's Office of Emergency Management is located within the Fire Department allowing for a well-coordinated response to both natural and man-made disasters.

Anticipating the future, in terms of building a flexible organization, is an important facet of this strategic plan. The Fire Department must be able to react to change, resolve problems, and work together with other departments and agencies on issues that might arise. It must assess the needs of the community and develop resources to meet those needs. As such, any strategic plan must be adaptable enough to accommodate the needs of the community as they arise.

This plan identifies five goals for Fire Operations, Fire Prevention, and the Office of Emergency Management for a total of fifteen goals which are listed below. The strategies for accomplishing these goals can be found on pages 14-22.

## FIRE OPERATION GOALS

- ***Goal 1:*** Financial Management and Accountability
- ***Goal 2:*** Arrive On Scene within 5 Minutes of Dispatch 90% of the Time
- ***Goal 3:*** Reduce the Risk of Fire to Residents through Prevention Campaigns and Mitigation Efforts
- ***Goal 4:*** Maintain a Strong Partnership with Riverside County Fire Department
- ***Goal 5:*** Ensure Fire Administration Staffing is Sufficient for the Needs of the Department

## FIRE PREVENTION GOALS

- ***Goal 1:*** Fiscal Sustainability
- ***Goal 2:*** Ensure All Business and Commercial Occupancies Receive Annual Fire and Life Safety Inspections
- ***Goal 3:*** Perform Hazard Abatement Inspections Bi-Annually
- ***Goal 4:*** Provide Efficient Plan Review
- ***Goal 5:*** Evaluate Management Structure and Career Advancement within the Bureau

## OFFICE OF EMERGENCY MANAGEMENT

- ***Goal 1:*** Provide Training to Employees and Citizens
- ***Goal 2:*** Incorporate Federal and State Legal Mandates and Standards into City Emergency Management Strategies
- ***Goal 3:*** Continually Improve Emergency Operations Center Functions and

Capabilities Based on a Comprehensive Assessment
- ***Goal 4:*** Manage FEMA and State Disaster Recovery Projects to Ensure Timely Completion of Required Documentation
- ***Goal 5:*** Maintain Effective Coordination and Partnerships with Local, Regional, and State Agencies

This strategic plan is a living document and will be a continuous work in progress. The plan will guide the Fire Department's development over the next ten years and will inform the public and its Fire Department members of the goals and strategies that the Fire Department has for the future. It will also serve as the foundation document for informing City Council as to the direction the Fire Department is headed in order to ensure the community receives outstanding fire protection services. The Fire Department will review this plan biennially to ensure the goals outlined in this plan are being met.

## MISSION STATEMENT AND VALUES

The mission of the Moreno Valley Fire Department is:

> *The Moreno Valley Fire Department serves the community with pride, integrity, and professionalism while providing quality emergency services to protect and preserve life and property of its citizens when exposed to fires, medical emergencies, natural or man-made disasters, hazardous materials incidents, and rescue emergencies in a safe, efficient and cost effective manner as a result of a cooperative, regionalized fire and rescue delivery system with the Riverside County Fire Department. To minimize the impact of natural or man-made disasters by identifying and mitigating known hazards and to enhance our response to these disasters by providing quality training to the community on disaster preparedness, response, and recovery.*

The core values for the Moreno Valley Fire Department are:

*Safety – Leadership – Integrity – Competence – Customer Service*

## ORGANIZATIONAL HISTORY

On December 3, 1984, the City of Moreno Valley officially incorporated as a California general law municipality. The residents of Edgemont, Sunnymead, and Moreno recognized there was a need for managed growth as the population in Moreno Valley had more than doubled from 18,871 residents in 1970 to 49,702 in 1984 and therefore approved the measure to incorporate.

Prior to incorporation, the areas of Edgemont, Sunnymead, and Moreno were serviced by the Riverside County Fire Department which has contracted with the California Department of Forestry and Fire Protection (CAL Fire) since 1921. The initial contracts with CAL Fire augmented the level of wild land fire protection to Riverside County and then evolved as the area grew in population.

Since its incorporation in 1984, the City of Moreno Valley has contracted for fire protection services with the Riverside County Fire Department which contracts with CAL Fire. CAL Fire provides full-service fire protection to many jurisdictions in California through the administration of 145 cooperative fire protection agreements in over 30 counties, including cities, fire districts as well as special districts and service areas. As a full-service fire department CAL Fire responds to wildland fires, structure fires, floods, hazardous material spills, swift water rescues, civil disturbances, earthquakes, and medical emergencies. Local governments, such as Riverside County, are able to utilize this diversity through their agreements with CAL Fire.

The City's Fire Department has grown significantly since 1984, expanding from three fire stations in 1984 to six fire stations in 2002 with a seventh fire station slated to open in the Fall of 2012. The six fire stations currently house a total of six fire engines, two aerial ladder trucks, one brush engine, three reserve fire engines, one reserve fire truck, and two fire rescue squads. The primary fire engines are staffed with one Fire Captain, one Fire Apparatus Engineer, and one Firefighter II Paramedic. The two aerial ladder trucks are staffed with one Fire Captain, one Fire Apparatus Engineer, and two Firefighter II's. Staffing for both the fire engines and trucks is continuous, 24 hours a day, seven days a week. Two Battalion Chiefs supervise 69 firefighting personnel with a Riverside County Fire/CAL Fire Division Chief supervising the two Battalion Chiefs. These two Battalion Chiefs also supervise a reserve firefighters program of up to 50 Reserves and a Fire Explorer Program of up to 25 Explorers.

The Riverside County Fire/CAL Fire Division Chief is also appointed as the City's Fire Chief and oversees the City's Fire Prevention Bureau and Office of Emergency Management. The City's Fire Prevention Bureau provides planning and engineering services to the City; conducts fire and life safety inspections, and oversees the City's hazard abatement program. The Office of Emergency Management program provides a wide variety of training, such as Community Emergency Response Team training and Terrorism Awareness, to both employees and residents. Additionally, this program is tasked with preparing the City for any emergency situation through prevention, mitigation, preparedness, response, and recovery for a variety of natural or man made disasters that may occur in the community.

## COOPERATIVE FIRE PROTECTION AGREEMENT

CAL Fire's mission, as directed and authorized by the State Legislature and statutes, is to provide contractual emergency service to local governments throughout California when requested. CAL Fire has provided cooperative fire protection services for over 100 years to various jurisdictions throughout the state including contracts with more than 140 cities, special districts, and counties. Locally CAL Fire, through Riverside County Fire, provides cooperative fire protection services to 21 of the 28 cities in Riverside County as well as to the Rubidoux Community Services District.

Riverside County Fire is a modern, full-service fire protection and emergency management agency that provides comprehensive fire protection services to its contract city partners. As part

of the contract with Riverside County Fire, the City receives the benefit of a cost effective regionalized cooperative fire protection system which includes:

- Consolidated dispatch center for emergency medical and fire dispatch
- Regionalized training program
- Hazardous materials response team
- Fire arson investigation
- Immediate use of fire hand crews, bulldozers, and aircraft
- Public information and education
- Assistance from the Riverside County Fire Office of Emergency Services

Riverside County Fire is committed to quality fire protection services to its contract partners. The County Fire Department strives to make the most effective use of limited emergency protection resources by efficiently sharing valuable personnel and equipment as part of the Riverside County Fire Department cooperative, integrated, regional fire protection system which includes all the resources from the 21 contract cities and Riverside County.

Through the City's cooperative agreement with Riverside County Fire, the City's Fire Chief is appointed by the Riverside County Fire Chief, John Hawkins. The Fire Chief acts as the City's liaison to Riverside County Fire, relaying information from City Council or the City Manager's Office directly to the Riverside County Fire/CAL Fire Western Deputy Chief who in turn reports to the Riverside County Fire Chief. Furthermore, the City's Fire Chief oversees the City's Fire Prevention Bureau, Office of Emergency Management, and handles all Fire Department related administrative issues.

The City of Moreno Valley is able to determine its staffing levels for various fire apparatus as long as those levels meet the minimum safe and acceptable levels for the Riverside County Fire Department. For example, the City could increase the daily staffing on fire engines from three firefighters to four, however, the City is unable to decrease from three personnel to two due to the minimum standard staffing level that has been established by the Riverside County Fire Department. The City ultimately retains control of the budget for the Fire Department as well as determining fire station locations. The City has worked in conjunction with the Riverside County Fire Strategic Planning Bureau in order to determine fire station locations. A discussion of the methodology for determining fire station locations is located on page 9.

## CLIMATE AND TOPOGRAPHY

The City of Moreno Valley encompasses 51.5 square miles and is located in the northwestern portion of Riverside County with a population of 193,365. Moreno Valley is a mixture of residential, commercial, industrial properties with wildland urban interface areas on the north, east, and south sides of the City which includes Box Springs Mountain and San Timoteo Canyon to the north, the "Badlands" to the east, and Lake Perris State Park to the south.

The elevation in Moreno Valley ranges from 1,450 feet in the south to over 2,700 feet in the north. The slopes of the Box Spring Mountain, Reche Canyon, San Timoteo Canyon, the

"Badlands", and Lake Perris State Park are covered with volatile chaparral fuels and grass ground cover which are susceptible to fires and rapid growth. Once a fire starts, it can spread quickly to the surrounding vegetation and threaten homes located in the wildland urban interface.

Moreno Valley has a semi-arid climate that is similar to the climate found in many Mediterranean regions. The City experiences an average of 10 inches of rainfall a year with minimal threats of frost in the winter months. A majority of the rainfall in Moreno Valley occurs from December to March.

Moreno Valley can also experience strong wind conditions, known as the Santa Ana Winds, from late October through March. These winds can be extremely strong and blow from the north and northeast. These winds will greatly increase the intensity of any wildland fire should a fire occur during Santa Ana Wind conditions.

Summers in Moreno Valley are generally sunny with very warm to hot days. While average temperatures in July and August are in the mid 90's, it is not unusual to experience numerous days of 100 degree heat prior to a slight cooling off period. Monsoonal moisture can occur during the summer when moist air from the tropical regions of the Pacific and Gulf of Mexico bring higher humidity to the area, causing afternoon and evening thunderstorms.




## BUDGET

The City of Moreno Valley continues to reel from the impacts of the Great Recession which is the worst economic crisis faced by this nation since the Great Depression of the 1930's. City operations rely heavily on revenue that is generated through economic stability, activity, and

growth. During this recession, Moreno Valley's General Fund revenue base has declined from a high of $97.8 million in Fiscal Year (FY) 2007-08 to a low of $68.0 million in FY 2010-11. This represents a reduction of $29.8 million or 30.4% in just three years.

Furthermore, the number of General Fund employees in Moreno Valley has declined from 283 employees in Fiscal Year 2007-08 to a low of 147 in FY 2011-12. Additional staffing reductions are planned for the next two fiscal years which will result in a workforce of 138 employees by FY 2013-14. This represents a 51.2% reduction in general fund employees over the course of five years.

To further exasperate the financial situation in Moreno Valley, the unemployment rate has ranged from 16.3% to a high of 17.6% over the last three years. Most recently, the unemployment rate decreased from 16.9% in August 2011 to 16.1% in September 2011. While the unemployment rate is improving, it is still well above the current nation unemployment average of 9% as reported in October 2011. This means that City residents have less discretionary income available to spend which results in less sales tax revenue for Moreno Valley. As sales tax revenue is second only to property tax revenue for the City's General Fund, any decrease in spending by consumers greatly affects the revenue for Moreno Valley.

Property values have also declined sharply since the beginning of the recession. Home values peaked at an average price of $400,678 in 2006 and sharply declined to a low of $137,748, a decrease of 65%. Property values are beginning to recover and as of the second quarter of 2011 the median home price in Moreno Valley was $266,000.

Similarly, property tax revenue for the City has declined over this period of time causing a major decrease in general fund revenue. A portion of the property tax revenue is designated as a structural fire tax and is utilized to help offset the cost for the City's fire protection services, however, these services have never been fully funded by the structural fire tax revenue. In FY 2007-06 the City collected a high of $6,858,622 in structural fire tax revenue which funded 54.8% of the fire services contract cost. By FY 2009-10, the revenue had declined to a low of $4,701,647 and only funded 36.3% of the contract costs. The City has had to cover this decline in revenue with other general fund revenue which has impacted the availability of funds to other City Departments.

While the City Council has tried to keep staffing levels in public safety at the same levels as FY 2007-08, the deep fiscal crisis facing Moreno Valley has forced City Council to decrease the number of public safety employees. As part of a 3-year deficit elimination plan, police department staffing levels are scheduled to be reduced by 12.7% by FY 2013-14 and the fire department was scheduled for a 15.5% reduction in staffing, which included the defunding of a truck company. However, this reduction will only be 8.2% when the Morrison Park Fire Station opens in the Fall of 2012 as the Fire Department will minimally increase staffing by seven firefighter personnel.

There are some signs that the economy in the Inland Empire, including Moreno Valley, is stabilizing. According to the November 2011 Beacon Economics report the combined Riverside and San Bernardino counties are stabilizing and can expect slow growth in employment for at

least the next five years. This strategic plan is formulated with the idea that the economic recovery for Moreno Valley will occur over the course of five to ten years.

## ORGANIZATION OF THE MORENO VALLEY FIRE DEPARTMENT

The Moreno Valley Fire Chief oversees the City's Fire Operations, Fire Prevention, and the Office of Emergency Management programs. The structure of the City of Moreno Valley Fire Department can be seen below.

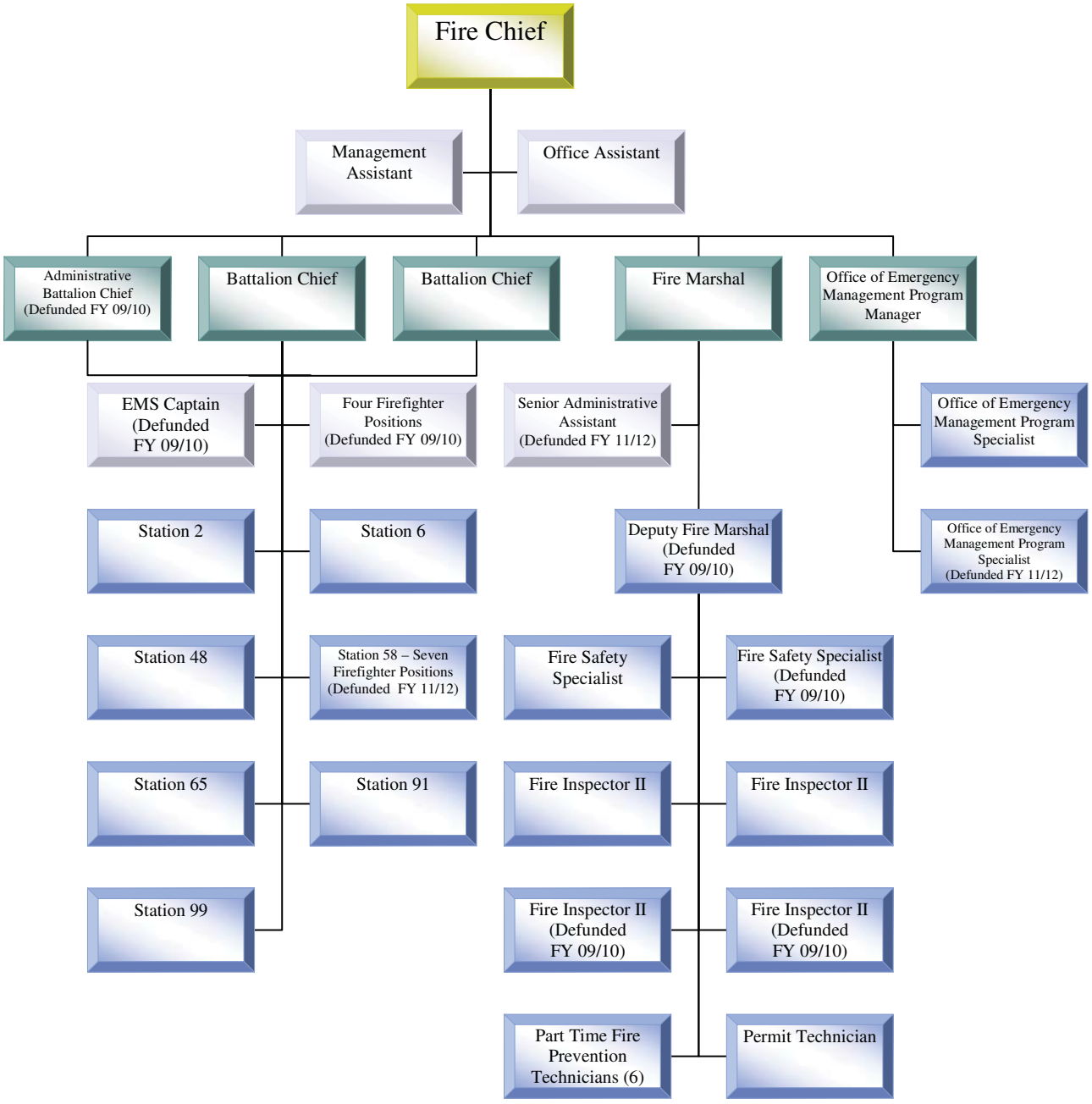



Chart 1: Moreno Valley Fire Department Organizational Chart

The Fire Chief for the Moreno Valley Fire Department is a Division Chief within Riverside County Fire/CAL Fire. Below is an overview of the Riverside County Fire Department organizational chart for Western Operations.

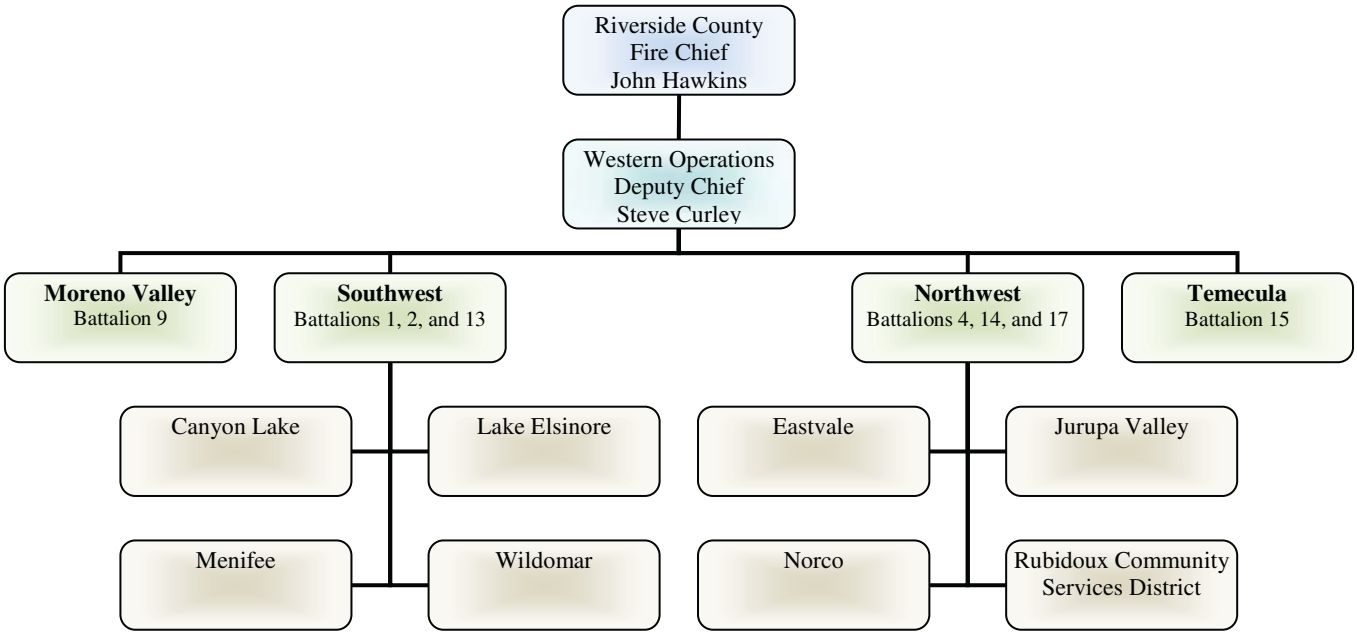



Chart 2: Riverside County Fire Department Organizational Chart Western Operations

## FIRE STATION LOCATION METHODOLOGY

The Moreno Valley Fire Department, through their contract with Riverside County Fire, works with the Riverside County Fire Strategic Planning Bureau to determine fire station locations utilizing an established fire station location methodology. The purpose of having an objective fire station location methodology is to ensure that emergency services are delivered efficiently and effectively throughout the City.

The guiding principles for fire station locations are found in the National Fire Protection Association (NFPA) Fire Protection Handbook, Volume II, 20th edition. They include:

- Consideration of the criteria established by the Insurance Services Offices, Inc. (ISO) regarding the distribution of fire companies within a community
- Consideration of the NFPA Standard 1710 which calls for an engine company to arrive on scene within 4 minutes of travel time to fire incident and emergency medical aid calls 90% of the time. Additionally, this standard calls for a full first alarm assignment within 8 minutes of travel time 90% of the time
- Consideration of the proximity of travel time to other fire station protection zones for timely inclusion in the full first alarm assignment
- Consideration of rapid and safe access to multi-directional major response routes
- Consideration of appropriate locations, given the land use issues in the surrounding environment

- Consideration of utility availability, plot size, land availability, and surrounding traffic control issues
- Consideration of historical and projected call volume (response workload) in the area under consideration using risk versus cost analysis

The process that the City of Moreno Valley utilizes when working with the Riverside County Fire Strategic Planning Bureau for determining future fire station locations include:

1. Identifying the geographic area of concern on a regional map
2. Utilizing computer response mapping software, locate a hypothetical station at or near the center of the geographic area of concern or near a major response route
3. Utilizing a realistic, safe response speed or appropriately varied response speeds, plot color-coded two-minute timed distances on all street and roads emanating from the hypothetical station spreading out from two minutes to ten minutes
4. Determine the number of responders and types of apparatus that would respond from that station for various types of calls and compare with department standards of cover for that type of area and its hazards
5. Evaluate the response time and resources that would be dispatched to fire and emergency medical aid calls for services from other stations to make-up the first alarm assignment standards of cover set by policy for that area
6. Adjust hypothetical station location, if necessary, while maintaining the station location as close to the center of that geographical area as possible to maintain equity of response times
7. Utilization of existing specific plan agreements that identify when a fire station will be built based on the development of a specific area reaching a set number of residential units or commercial/industrial square footage.

## FIRE STATION LOCATIONS

The City of Moreno Valley has six fire stations with a seventh currently under construction. The locations for all seven fire stations are listed below. A map is located on the next page that indentifies their locations. Additionally, a second map has been included that shows the locations where the City is in the process of acquiring land or has completed land acquisitions for future fire station locations.

**Fire Station 2**
**(Sunnymead)**
24935 Hemlock Street

**Fire Station 6**
**(Towngate)**
22250 Eucalyptus Avenue

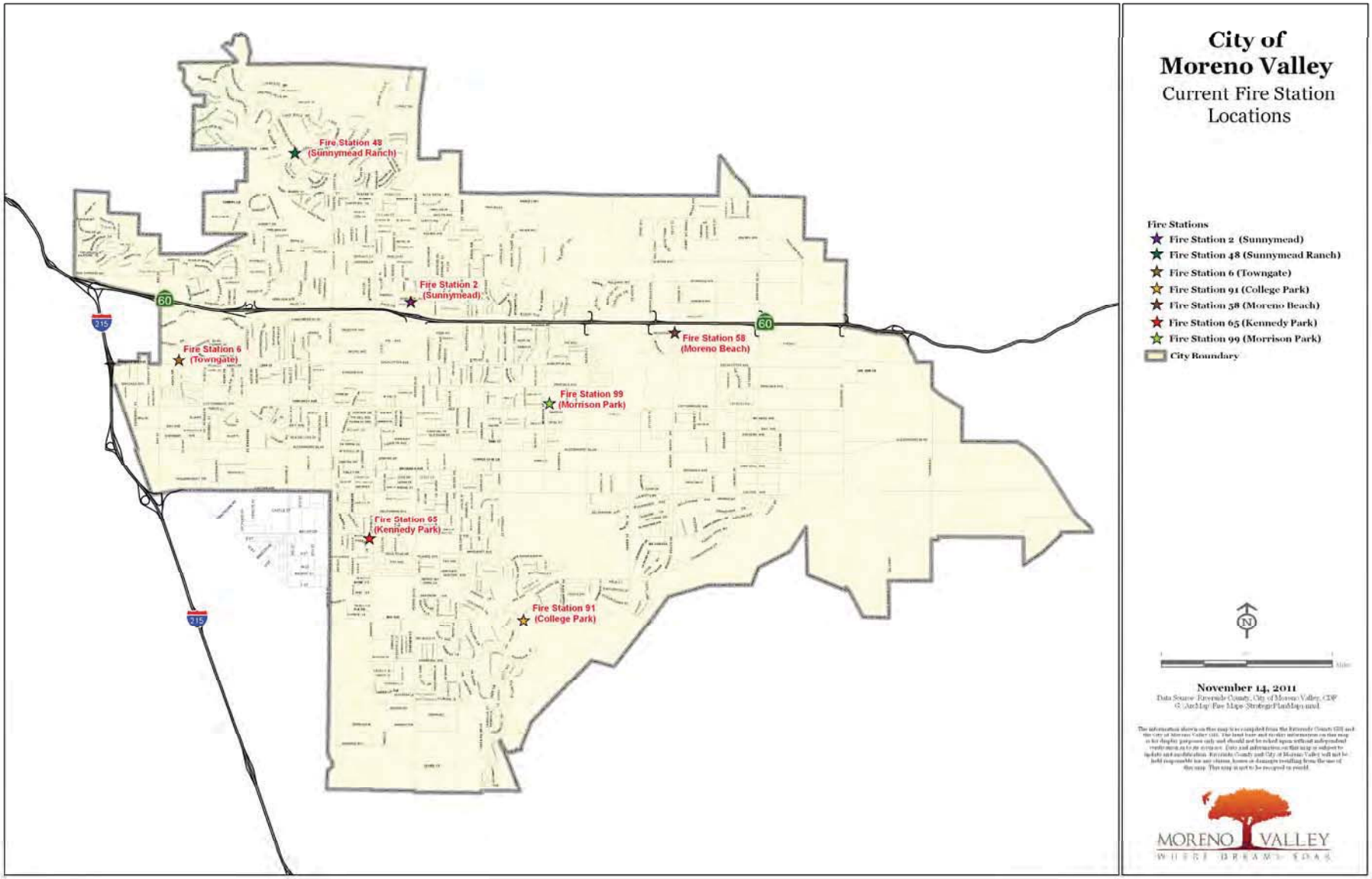
**Fire Station 48**
**(Sunnymead Ranch)**
10511 Village Road

**Fire Station 58**
**(Moreno Beach)**
28040 Eucalyptus Avenue

**Fire Station 65**
**(Kennedy Park)**
15111 Indian Avenue

**Fire Station 91**
**(College Park)**
16110 Laselle Street

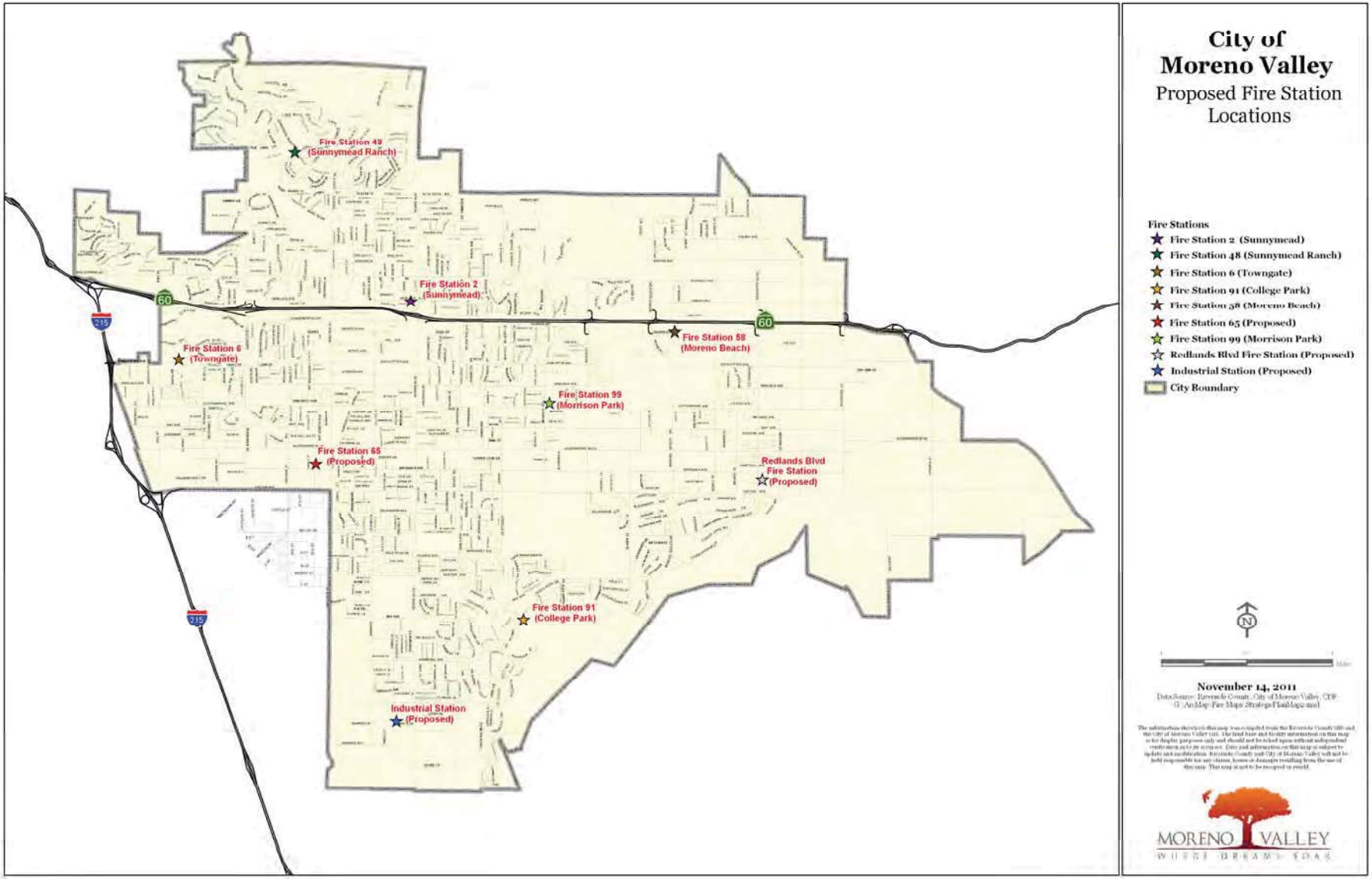
**Fire Station 99 – Fall of 2012**
**(Morrison Park)**
13400 Morrison Street




Map 1: Current Fire Station Locations



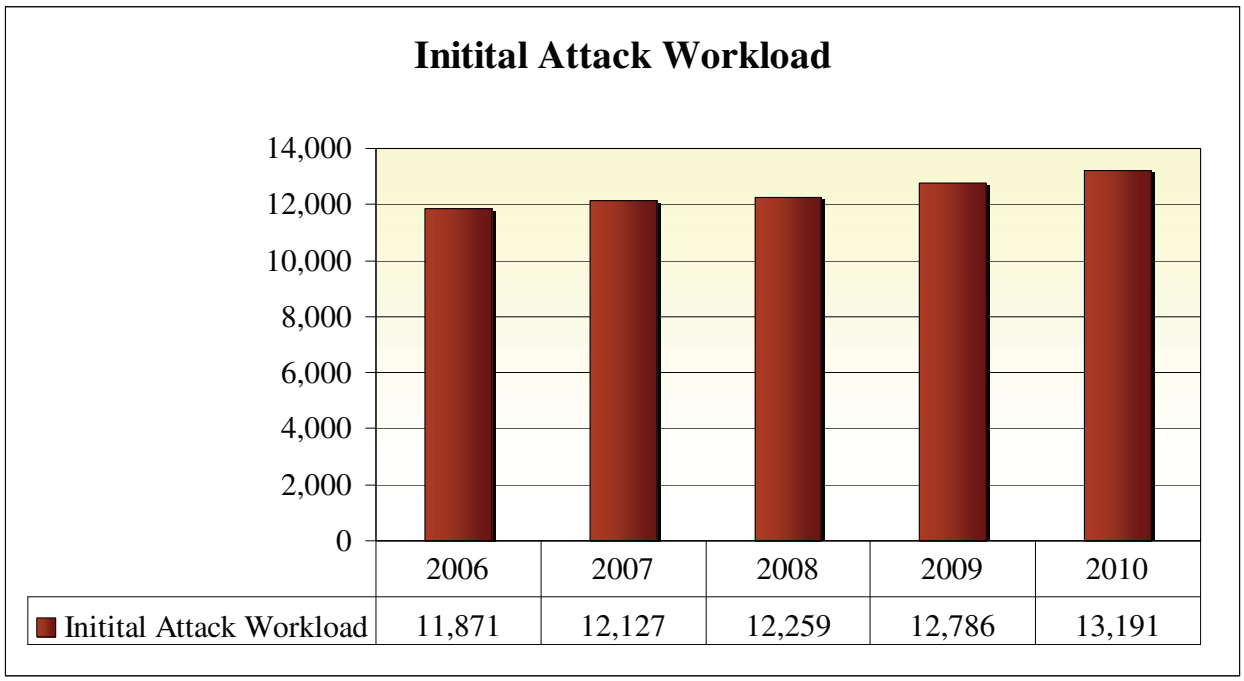
MORENO VALLEY
FIRE DEPARTMENT




Map 2: Proposed Fire Station Locations with Land Acquisition in Progress or Completed

## ANNUAL CALLS FOR SERVICE

Over the last five years the Moreno Valley Fire Department has seen an 11.1% increase in calls for service (Table 1). Through October of 2011, the City has seen a 6% increase over the same period of time for 2010 and it is anticipated that the total calls for service in 2011 will exceed 14,000.




| | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| Initital Attack Workload | 11,871 | 12,127 | 12,259 | 12,786 | 13,191 |

Table 1: Five Year History of Initial Attack Workload

## ORGANIZATIONAL GOALS AND OBJECTIVES

The strategic plan for the Moreno Valley Fire Department establishes goals and objectives for Fire Operations, Fire Prevention, and the Office of Emergency Management. The Fire Chief directly oversees each division and these divisions have their own set of goals and objectives outlined below.

### FIRE OPERATIONS

Fire Operations is the largest division within the Moreno Valley Fire Department, consisting of 72 sworn staff and 2 non sworn staff as of December 2011. The main mission of Fire Operations is to respond to emergency calls for service from the community and provide quality emergency services while protecting the life and property of the citizens of Moreno Valley. Although responding to emergencies is the primary mission of Fire Operations, there are several support activities conducted by both the sworn and non sworn staff that are vital to the operation of the division including:

- Fire company annual business/commercial fire inspections
- Development and management of the Department budget
- Coordinating and responding to non emergency requests for Fire Department services from both the City Council Office as well as the public
- Long range planning for the Fire Department
- Applying for Assistance to Firefighters grant and other grant opportunities




## Goal 1: Financial Management and Accountability

Over the last several fiscal years the City of Moreno Valley has seen a reduction of $29.8 million in General Fund revenue. As public safety is funded out of the City's General Fund, staffing reductions have been made to both the Police Department and Fire Department by City Council. As the economy slowly begins to recover in Moreno Valley it is critical that the Fire Department continues to provide the best possible service to the community while maintaining a fiscally conservative mindset.

### *Strategies*

1. Annually review the Fire Department false alarm fee to ensure all costs are being recovered for responses to commercial and residential fire alarm calls

   a. This fee has not increased since the ordinance was initially established in 1997. Currently the fee is set at $100 per residential fire false alarm and $200 for a commercial fire false alarm
   b. Propose a fee increase in FY 2012-13 to cover actual costs utilizing the Riverside County Fire model
2. Provide a five year forecast for expenditures and revenues for the Fire Department based on the current economic climate
3. Be an active, cooperative partner with Riverside County Fire/CAL Fire Cost Recovery Unit for recovering the costs associated with hazardous materials spills, negligent fire starts, and traffic accidents with an identified negligent driver
4. Review and revise staffing assumptions to provide the maximum coverage for all fire apparatus while minimizing the overall contract costs to the City
5. Apply for Assistance to Firefighters Grants for staffing, equipment, and fire safety items

## Goal 2: Arrive On Scene within 5 Minutes of Dispatch 90% of the Time

The Moreno Valley Fire Department strives to meet the National Fire Protection Association (NFPA) 1710 guideline for fire department responses which allows firefighters one minute to don their turnouts once an emergency call for service is received from dispatch and four minutes of drive time. A fire department is to meet this 5 minute response standard 90% of the time (see Figure 1 on page 16). By maintaining this standard response time, the Moreno Valley Fire Department can minimize deaths and injuries associated with fires; minimize the direct and indirect losses due to fires; and minimize deaths for people experiencing sudden illness, accidents, or injuries.

Response times in Moreno Valley, until January of 2008, were tracked manually by fire station personnel and were reported to fire administration. Overall, response time statistics varied from 85% to 99% compliance with this goal depending on the time of year and the fire station. The manual process of tracking response times was discontinued when Riverside County Fire began a transition process in 2008 to track response times utilizing mobile data computers. This has been part of the Public Safety Enterprise Communication Project, also known as PSEC, which should be completed in early 2012. PSEC will enhance communication capabilities, data transmissions, and radio interoperability for both Riverside County Fire and the Riverside County Sheriff's Department. Information on response times will once again be available to the City when the system becomes fully operational.

### *Strategies*

1. Review response times on a monthly basis beginning in 2012 to ensure this goal is being met
2. Evaluate current and future fire station locations with Riverside County Strategic Planning to ensure proper locations are selected for new fire stations so the NFPA 1710 response time standard can be met

3. Review staffing assumptions to ensure the appropriate amount of equipment is adequately staffed to respond to emergency calls for service, including a potential shift to paramedic rescue squads as discussed on page 29.
4. Support Riverside County Fire's efforts as they perform system upgrades to an emergency fire dispatch system that will allow them to dispatch and/or reroute the closest available unit for an emergency call for service
5. Support the City's Public Works Department with traffic mitigation efforts during peak hours of travel




Figure 1: NFPA Response Timeline Recommendations for Career Firefighters

## Goal 3: Reduce the Risk of Fire to Residents through Prevention Campaigns and Mitigation Efforts

The best method for reducing fire fatalities and property loss is through fire prevention and public education initiatives. Public fire safety education initiatives play a major role in the prevention of fires. Public fire safety education through educational programs for schools, businesses, and civic associations have significantly reduced the numbers of fires in the community and have reduced the number of deaths and injuries associated with home fires.

***Strategies***

1. Coordinate with Riverside County Fire Department's Public Information Officers to:
    a. Continue to provide educational programs, such as the 9-1-1 for Kids program, to the community
    b. Submit articles on fire safety, flood safety, and disaster preparedness for inclusion in the City's monthly "e-newsletter" *City Link*
    c. Coordinate with the City's Media and Communication Division to post press releases from Riverside County Fire on the City's website when they contain information pertinent to City residents
2. Coordinate with Riverside County Fire Department's Public Information Officers and the City's Media and Communication Division to have public service announcements air on the City's government access channel MVTV-3 and develop new program content to address specific fire safety and disaster preparedness needs in the community
3. Continue to support fire personnel participation in fire safety education for school age children
4. Enhance the Moreno Valley Fire Department website with more fire safety and disaster preparedness information

## Goal 4: Maintain a Strong Partnership with Riverside County Fire Department

The City of Moreno Valley has contracted with Riverside County Fire for fire protection services since 1984. Through open dialogue with the County, the City has expanded its services since incorporation to include municipal staffing and the addition of paramedic firefighters to all fire engine companies. It is important that the City maintains an open relationship to ensure that the City is receiving cost effective, quality fire protection services. The contract the City maintains with the County allows the City to provide excellent fire protection services and advance life support care at a cost savings to the City.

***Strategies***

1. Actively participate in all quarterly Contract Partners meetings with Riverside County Fire
2. Participate in subcommittees associated with cost allocation planning for fire protection services
3. Provide feedback on services, costs and other issues of concerns to the Riverside County Fire Chief and his staff
4. Review cost allocation plan and quarterly billing statements for transparency

## Goal 5: Ensure Fire Administration Staffing is Sufficient for the Needs of the Department

To properly oversee Fire Operations it is important to both increase and enhance staffing in Fire Administration to ensure there is quality assurance oversight for the paramedic program as well as sufficient administrative staff to support the Fire Chief, two Battalion Chiefs, and in the future an Administrative Battalion Chief. The Fire Department, which consists of Fire Operations, Fire

Prevention, and the Office of Emergency Management, consists of 69 firefighter personnel, three chief officers, and nine City personnel for a total of 81 employees. The increase and enhancement of administrative staffing is necessary in order to ensure appropriate span of control is maintained, workloads are manageable, and job titles/descriptions are in line with the type of work being performed.

***Strategies***

1. Reestablish the Administrative Battalion Chief position to oversee personnel issues, schedule training, and provide leadership when the Fire Chief is unavailable
2. Reestablish the Emergency Medical Services (EMS) Captain to directly oversee the QA/QI of the City's paramedic program
3. Reclassify the Office Assistant position in Fire Administration to a Senior Administrative Assistant to provide improved administrative support for the Fire Chief, Battalion Chiefs, and EMS Captain
4. Reclassify the Management Assistant position to a Management Analyst position due to the type of work being performed in support of the Fire Chief
5. Consider adding two Battalion Chiefs when the City begins construction on an 8th fire station

## FIRE PREVENTION

The Fire Marshal, under direction of the Fire Chief, manages the Fire Prevention Bureau. The Fire Prevention Bureau conducts fire and life safety inspections as well as plan reviews for new construction, existing buildings, and special events. The Bureau also oversees the City's Hazard Abatement Program and Multi-Family Residential Inspection Program to ensure multi-housing units receive state mandated annual inspections.

Fire Prevention is the second largest division of the Fire Department consisting of five non-sworn full time personnel and six non-sworn part time personnel. The division also has five defunded positions due to budget constraints.

### Goal 1: Fiscal Sustainability

A brief overview of the fees charged for plan review and inspection of new development, existing construction, and hazard abatement shows that the City does not recover 100% of the costs associated with providing the staff and materials for these programs. As state legislation allows the City to recover all costs associated with providing these services, the Fire Department will continue to review the costs associated with performing these services and increase fees where appropriate.

***Strategies***

1. Examine cost recovery options that would lead to a cost neutral business model
2. Review fire fees to ensure appropriate cost recovery for services provided

3. Establish an appropriate fee schedule for the Multi-Family Residential Inspection Program

## Goal 2: Ensure All Business and Commercial Occupancies Receive Annual Fire and Life Safety Inspections

Both Fire Prevention and Fire Operations perform annual fire and life safety inspections on business and commercial occupancies in Moreno Valley, however, not all of these occupancies receive an annual inspection. Currently, Fire Prevention is conducting a windshield survey to capture 100% of the businesses in Moreno Valley that are required to have annual fire and life safety inspections, including multi-family residential complexes.

### *Strategies*

1. Complete the windshield survey to create a database that captures every business and commercial occupancy in the City
2. Ensure each occupancy that is required to have an annual fire and life safety inspection is assigned to a Fire Prevention Technician, Fire Prevention Inspector, or Fire Engine Company each year
3. Examine the use of new technology applications, such as iPad based inspection software, in order to automate inspection process, scheduling, and data entry

## Goal 3: Perform Hazard Abatement Inspections Bi-Annually

The Fire Prevention Bureau conducts a hazard abatement inspection program on all vacant parcels of land in Moreno Valley on an annual basis. This process begins in the spring and concludes in the early summer. Typically, due to the climate conditions that exist in Moreno Valley, regrowth of grasses and tumbleweeds occur in early fall. Due to budget constraints, the Fire Prevention Bureau addresses the fall hazard abatement program on a case by case basis rather than performing a comprehensive, proactive city wide inspection program.

### *Strategies*

1. Establish a Fall season hazard abatement program to address the accumulation of tumbleweeds and regrowth of vegetation from the Spring hazard mitigation efforts

## Goal 4: Provide Efficient Plan Review

The Fire Prevention Bureau currently utilizes a 3rd party consultant to review all technical plans submitted to the City. All non-technical site review plans are reviewed by the City's Fire Safety Specialist. The Fire Prevention Bureau is examining a variety of measures to improve customer service including decreasing the turn-around times for initial review as well as evaluating the current fee schedule. The Fire Prevention Bureau is also investigating the utilization of electronic plan check submittal as an avenue for improving customer service.

***Strategies***

1. Examine methods for improving the Bureau's efficiency in reviewing building plans, such as electronic plan review and web based plan submittals
2. Develop an "Over the Counter" plan review pilot program for reviewing non-technical plans in order to reduce plan check turnaround times and decrease the cost to the customer

## Goal 5: Evaluate Management Structure and Career Advancement within the Bureau

The Fire Marshal oversees five full time staff members and six part time staff. Over the last three years the Fire Prevention Bureau has been assigned the City's Hazard Abatement program and has recently implemented an inspection program to ensure every multi-family residential housing unit is inspected annually in accordance with state law. In order to improve supervision of field staff, the Fire Prevention Bureau has identified the need to re-establish the Deputy Fire Marshal position. Additionally, in order to promote staff from within the Bureau, the Fire Marshal will identify training opportunities for staff to improve their qualifications for career advancement.

***Strategies***

1. Identify a revenue stream to re-establish funding for the Deputy Fire Marshal position
2. Develop a level of succession to meet the needs of the Bureau

# OFFICE OF EMERGENCY MANAGEMENT

The Fire Department's Office of Emergency Management is responsible for minimizing the impact of natural and man-made disasters by establishing readiness through city-wide prevention, preparedness, response, recovery and mitigation. This includes coordinating and conducting drills for the City's Emergency Operations Center (EOC) as well as providing a wide variety of training to both employees including Community Emergency Response Team (CERT) training, Terrorism Awareness training, and emergency preparedness training.

As part of the Moreno Valley Fire Department, and hence the Riverside County Fire Department, it is critical that the City's Office of Emergency Management collaborates projects, emergency management grants, emergency management exercises, and the management of declared local disasters with the Riverside County Fire Department Office of Emergency Services. Having an integrated, cooperative approach for addressing regional disasters benefits the community as resources can be allocated to areas where they are most critically needed during a major incident.

## Goal 1: Provide Training to Employees and Citizens

Unfortunately, disasters take place all the time around the United States and the world. These can be naturally occurring disasters such as hurricanes, floods, wildfires, and tornados, or they can be man-made events such as terrorism attacks. It is very important that all City employees are

trained in their roles and responsibilities as disaster service workers and, even more importantly, that the citizens of Moreno Valley are trained so they are better able to provide for themselves and their families after a major event.

***Strategies***

1. Continue to conduct 2 ½ day Federal Emergency Management Agency (FEMA) CERT training a minimum of four times a year
2. Continue to provide emergency preparedness outreach activities to the community and utilize Riverside County Fire Office of Emergency Services as an additional training resource
3. Evaluate reinstating the City's CPR and First Aid program as cost neutral, alternative funding sources are identified
4. Work with the Riverside County Fire Public Information Officer and the City's Media & Community Division to have Earthquake Preparedness videos presented on the City's Government Access Channel, MVTV-3, as well as to place relevant emergency preparedness information on the City's website
5. Define priorities, develop and implement a five year emergency management exercise program
6. Utilize resources from the Riverside County Fire Office of Emergency Services to provide National Incident Management System (NIMS) training requirements
7. Continue NIMS training of City employees
8. Coordinate and manage citizen sworn disaster servicer workers

## Goal 2: Incorporate Federal and State Legal Mandates and Standards into City Emergency Management Strategies

The Robert T. Stafford Disaster Relief and Emergency Assistance Act is a federal law designed to bring an orderly and systemic means of federal disaster assistance to state and local governments to assist them in carrying out their responsibilities to aid citizens. Congress' intention was to encourage states and local governments to develop comprehensive disaster preparedness plans, prepare for better intergovernmental coordination, and provide federal assistance programs for losses due to a disaster. There are several other pieces of legislation, such as the Emergency Services Act of 2006, that place mandates on local governments to ensure that local areas are prepared to respond to an emergency effectively and proficiently.

***Strategies***

1. Utilize the NIMS Capability Assessment Tool (NIMSCAST) process in developing NIMS compliancy
2. In coordination with the Riverside County Fire Office of Emergency Services and the California Emergency Management Agency (Cal EMA), complete NIMS resource typing and credentialing requirements
3. Update the City's Emergency Action Plan
4. Update the City's Local Hazard Mitigation Plan for submittal to FEMA by October 2016

5. Maintain an effective Emergency Operations Plan (EOP) consistent with local needs as well as state and national requirements

## Goal 3: Continually Improve Emergency Operations Center (EOC) Functions and Capabilities Based on a Comprehensive Assessment

In order for the City to quickly and effectively manage any disaster it is essential to continually evaluate and improve the EOC to ensure it is in a constant state of readiness and to provide appropriate training to City staff.

### *Strategies*

1. Improve and test EOC Standard Operating Procedures
2. Train EOC staff on updated protocols
3. Build personnel depth in EOC functional areas
4. Maintain and test City emergency management equipment and supplies to ensure the City remains in a constant state of readiness

## Goal 4: Manage FEMA and State Disaster Recovery Projects to Ensure Timely Completion of Required Documentation

Large disasters such as Hurricane Katrina, the Loma Prieta Earthquake and the Northridge Earthquake have a major impact on local residents, the government, and the impacted areas' economic activity and base. The City of Moreno Valley expends resources in preparing for, responding to, and recovering from a disaster event. As an event progresses from preparatory activities to response activities to post event recovery, it is critical that the City maintains appropriate records to ensure that Moreno Valley can successfully recover costs associated with the disaster from federal and state disaster assistance programs. Appropriate documentation will also prepare the City to apply for future Hazard Mitigation Grants from the federal government.

### *Strategies*

1. Coordinate with departments to provide accurate information for Preliminary Damage Assessment and appropriate documentation for Project Worksheets
2. Complete close out documentation and coordinate a FEMA review of completed projects

## Goal 5: Maintain Effective Coordination and Partnerships with Local, Regional, and State Agencies

Maintaining and strengthening the City's relationships with various local, regional, and state agencies is vital to effectively coordinating emergency responses during disasters. The ability to interact with other jurisdictions, jointly perform emergency management exercises, and discuss regional response scenarios is vital to ensuring that not only do the citizens of Moreno Valley

receive assistance during a major disaster but also that the region receives assistance where it is most critically needed. More importantly, the City's Office of Emergency Management will need to work closely with the Riverside County Fire Office of Emergency Services to ensure preparedness activities as well as disaster responses are more regional in concept and in application.

***Strategies***

1. Participate in operational area, regional, and strategic planning activities
2. Provide feedback and participate in coordinated multi-jurisdictional/multi-agency exercises
3. Coordinate emergency response preparedness, exercises, and other activities with Riverside County Fire Office of Emergency Services, Riverside County operational area agencies, Cal EMA, and other local and regional stakeholders such as the school districts, hospitals, and March Air Reserve Base

## FIRE FACILITY AND EQUIPMENT MASTER PLAN

Evaluating the existing and future infrastructure requirements for the Moreno Valley Fire Department is vital to ensuring the safety and protection of lives and property for the citizens of Moreno Valley. Having the appropriate facilities and equipment available are critical to the effective operation of the Moreno Valley Fire Department. As part of this strategic plan, the Fire Department is providing a ten year master plan for fire department facilities, equipment needs, and the importance of traffic mitigation.

### FIRE FACILITIES

The Moreno Valley Fire Department participates in the City's Capital Improvement Project (CIP) budget each fiscal year. This budget identifies the fire facilities that are to be constructed in the next five fiscal years as well as future fire station locations and CIP needs (see Table 2 on page 24). Due to the size of Moreno Valley and the projected population at build out it is estimated that the City will need to plan for the construction of a total of 12-13 fire stations with a possible 14$^{th}$ fire station as an in fill fire station. The exact locations for all the necessary fire stations to provide adequate fire and medical aid responses to Moreno Valley residents and businesses will be determined utilizing the fire station methodology on page 8. The Fire Department has already identified the exact locations for the eighth and ninth fire stations which are located on the map on page 11.

In addition to building new facilities in accordance with the fire station methodology illustrated on page 8, the Fire Department needs to maintain its existing facilities as each fire station is expected to have a 50 year life span. This requires fire station personnel to continue to maintain these facilities at their current levels and to work with the Facilities & Maintenance Division to ensure the appropriate preventive maintenance work is being performed on the buildings.

The two oldest fire stations in Moreno Valley, Fire Station 48 and Fire Station 65, were built in the mid 1980's. Fire Station 65 is slated to be relocated in the next five to ten years as the southern area of the City continues to grow. Due to the construction of warehousing and distribution centers in that region of Moreno Valley, the Fire Department will need to build the Industrial Fire Station to provide adequate fire and emergency medical response coverage to that area. In order to maintain appropriate response times and emergency response coverage in the City, Fire Station 65 will need to be relocated northwest from its current location to accommodate the emergency response area of the Industrial Fire Station.

| Description of Project | Projected Fiscal Year to Begin | Estimated Cost |
|---|---|---|
| Morrison Park Fire Station, Fire Station #99 | FY 2010-11 | $5,925,460 |
| Remodel Fire Station 48 | FY 2013-14 | $4,173,000* |
| Relocation of Fire Station 65 (Note land acquisition occurred in FY 2011-12) | FY 2015-16 and Beyond | $7,540,000 |
| Redlands Boulevard Fire Station (Note land acquisition occurred in FY 2011-12) | FY 2015-16 and Beyond | $7,640,000 |
| Industrial Fire Station with Training Tower (Note land acquisition occurred in FY 2011-12) | FY 2015-16 and Beyond | $8,350,000 |
| Public Safety Conversion – Includes Expansion of Fire Administration | FY 2015-16 and Beyond | $107,639,939 |
| Cottonwood Park Fire Station – Infill Fire Station | FY 2015-16 and Beyond | $6,760,000 |
| Fire Station (Future) Land Acquisition | FY 2015-16 and Beyond | $739,000 |
| Gilman Station (Future) | FY 2015-16 and Beyond | $6,500,000 |
| Northeast Station (Future) | FY 2015-16 and Beyond | $6,500,000 |
| Fire Station 6 Storage Shed | FY 2015-16 and Beyond | $150,000 |
| **Total Estimated CIP Costs** | | **$161,917,399** |

Table 2: Fire Department Capital Improvement Projects as Listed in the FY 2011-12 CIP Book
*Cost for the Fire Station 48 remodel is being reevaluated for the FY 2012-13 CIP

The current CIP proposes a major remodel/renovation of Fire Station 48 in FY 2013-2014 to extend the life span of the current facility. This remodel would include bathroom renovations to comply with ADA requirements; semi-privatization of sleeping quarters for privacy and modesty; kitchen renovations; and construction of an exercise room. A funding source for this project has yet to be identified.

## FIRE APPARATUS

The Moreno Valley Fire Department currently has six fire stations staffed by six fire engines and two aerial apparatus (also known as truck companies) that respond to emergency calls for service

such as fires, medical emergencies, traffic accidents natural and manmade disasters, hazardous materials incidents, and rescue emergencies. A seventh fire station is slated to open in October of 2012 and will minimally be staffed with a fire engine.

Fire engines provide the initial response to any request for emergency service. These fire apparatus are staffed with paramedic firefighters to provide advance life support care for any medical emergency. Additionally, when responding to a fire, their primary responsibilities include laying water supply lines; locating, accessing, and extinguishing the fire; search and rescue if no truck company is available; and assisting in the overhaul and salvage. Truck companies provide search and rescue; forcible entry; a rapid intervention crew (RIC) in case of a building collapse; ventilation of smoke and hot gases; aerial water application; staffing to augment the engine company compliment; and provide backup response to emergency calls for service when engine companies are committed elsewhere.

Truck company personnel are trained to a higher level than fire engine personnel due to the nature of the calls they respond to. These incidents include swift water rescue, low angle rescue, high rise incidents, wide rise incidents, confined space rescue, and trench rescues. Truck companies also carry equipment not normally located on a fire engine. This equipment includes heavy rescue equipment, confined space rescue equipment, low angle rescue equipment, auto extrication equipment (Jaws of Life), a variety of ground ladders, smoke removal fans, and large water delivery appliances.

On an initial report of a fire there is an automatic dispatch of three fire engines, one truck company, and one Battalion Chief for a total of 13 personnel. When the fire is confirmed to be a working fire, there are two additional units dispatched providing a minimum of 19 fire personnel on scene per Riverside County Fire Department Policy which results in a total of 6 fire apparatus and one Chief Officer committed to the incident. This leaves a total of two fire apparatus available for dispatch in the City until Riverside County Fire is able to move up additional fire apparatus from neighboring jurisdictions to cover the City's vacant stations. This process could take up to 30 minutes, and not every vacant station in the City would be covered by the County or other local agencies.

The City participates in a cooperative, regionalized fire and rescue delivery system with the Riverside County Fire Department through the fire services contract the City has with the County. As part of this regionalized system, additional resources are available from the County and surrounding jurisdictions to Moreno Valley when there is an emergency in the City that is utilizing a majority of the City's resources. This allows some of the City's vacant fire stations to be staffed with fire apparatus from surrounding cities or from the County. Conversely, the City provides fire apparatus to local jurisdictions when they are experiencing either a major incident, or a series of incidents, that has left very few, if any, fire resources available for dispatch in that area. Through the Master Mutual Aid Agreement, the City is obligated to provide fire apparatus to other jurisdictions to assist in handling emergency calls for service, just as those jurisdictions are obligated to provide resources to the City.

As future fire stations are constructed to address new residential, commercial, and industrial development the Fire Chief will need to evaluate what existing fire stations and apparatus can

service the newly developed areas. This includes considering the ability to provide an emergency response into the new planning area within 5 minutes of receiving a dispatch from the Emergency Command Center and the ability to have an aerial apparatus on scene within 8 minutes of dispatch for any reported fires.

As new specific plans are submitted for the developing areas on the east end of Moreno Valley the Fire Department will need to consider what types of occupancies will be built; square footage of any commercial or industrial complexes, the number of new residential complexes that will be built; development of the roads servicing the area; and population increases in that area in order to appropriately staff any existing fire station or new fire station. This information will be utilized to determine what type(s) of fire apparatus will need to be purchased in order to provide adequate fire protection and emergency medical services to the new development area. The table below shows recommended first alarm responses for fires at high-hazard, medium-hazard, and low-hazard occupancies.

### TRAFFIC MITIGATION

Traffic is, and will continue to be, an issue in the City of Moreno Valley. Traffic affects the safety of both firefighters and citizens in the community as well as response times to emergency calls for service and increases equipment wear. A recently published study by the United States Fire Administration, and the Department of Homeland Security, reported that since 1984 the percent of firefighter fatalities attributable to vehicle accidents has ranged annually from 20% to 25%. The same study discussed the importance of controlling traffic flow through an intersection to ensure the safety of the emergency responders as this is when emergency vehicles are most likely to be involved in an accident.

The City currently has 172 active traffic signals. Forty-two of these traffic signals have an emergency vehicle preemption system installed on them so that when an emergency vehicle equipped with a transponder can trigger a traffic signal to either remain green or turn a red light to green so that an emergency vehicle can traverse a signalized intersection with the right of way.

On December 6, 2011 the City's Public Works Department began the process to retrofit 115 intersections with an emergency vehicle preemption system, known as Opticom. It is estimated that this project will be completed in June 2012. Once the installation is complete, the Public Works Department will then budget funding to install Opticom at the remaining 15 intersections. At the direction of City Council, all new signalized intersections will have Opticom installed so that the City will have 100% of its signalized intersections covered by an emergency vehicle preemption system. This will vastly increase the safety to firefighters, the community, and reduce response times.

## EMERGENCY MEDICAL DISPATCH

Emergency medical dispatch (EMD) is a recognized structured system used to determine the nature and severity of a medical problem, prioritize it so the appropriate level of Emergency Medical Services is dispatched safely, and provides the caller with instructions on how to assist

the patient until emergency medical services arrive. The system also allows dispatchers, based on a set of protocol and answers obtained from the caller, to triage emergency calls for service and dispatch a tiered level of emergency response. This reduces the risk to firefighters when responding to emergencies and also keeps units available for more urgent calls for service.

Dispatchers are the primary link between the public, who are in need of emergency medical care, and firefighters/ambulance personnel who can provide the required level of medical care. Dispatchers who utilize emergency medical dispatch protocols can assist with the immediate implementation of CPR, airway maintenance, hemorrhage control, emergency birthing instructions for women in labor, c-spine precautions, treatments for heat related or cold related emergencies, and auto injectors (Epi-pens) for allergic reactions.

Not all Public Safety Answering Points (PSAP) provide this service. In Riverside County only the cities of Riverside and Corona provide this service. In 2012, the Riverside County Fire Department Emergency Command Center will begin instituting several of the protocols associated with EMD. Riverside County will then look at utilizing EMD as a way to triage calls for service in order to dispatch the appropriate level of medical care, allowing fire apparatus to remain ready for emergency calls that may be more serious in nature. This system may also be used for coordinating a tiered level of response to fires.

## FUTURE CONSIDERATIONS

The goal of any strategic plan is to map out the future direction for the Fire Department. Over the next ten years there will be items that will need to be discussed with the Riverside County Fire Department and with City Council in order to better serve the needs of the community and the needs of firefighting personnel. These items include:

- Construction of a training/drill tower
- Four person staffing
- Paramedic squads
- Dividing the City into two battalions
- Riverside County Fire Department fire apparatus lease program

### CONSTRUCTION OF A TRAINING/DRILL TOWER

The Ben Clark Training Center, located at 16791 Davis Avenue in Riverside, is a regional training center for both law enforcement agencies and fire departments. The drill tower at this location is a regional training tower serving not only the Riverside County Fire Department but also the students at Moreno Valley College.

When utilizing the training tower, three fire apparatus are out of service in the City due to the distance they would need to travel from the Ben Clark Training Center back to Moreno Valley to respond to an emergency call for service. A local training tower would allow fire apparatus to stay within the city limits of Moreno Valley for multi-company training and be available to respond to emergencies.

Furthermore, training could be scheduled more frequently for City personnel. Being able to drill on a daily or weekly basis is an important component of building an effective and efficient fire ground operation for when a fire emergency occurs. The main benefit to being able to train more frequently for high rise emergencies is that it raises the level of safety for fire personnel. Additionally, they are able to provide a more organized response to high hazard incidents which can ultimately affect the outcome of the emergency situation.

Having a training tower located in Moreno Valley has been recognized in the City's Capital Improvement Project (CIP) budget since 1992 when the Fire Chief at the time requested its construction as part of the ten year CIP with construction to begin in Fiscal Year 1998–99. Due to financial considerations, and the size of property that would need to be purchased to accommodate a joint fire station and drill tower, the fire department has continuously deferred this project. However, with the pending land acquisition in the south end of the City of 4.78 acres, there is now not only the appropriate land size available but also the location is ideal as it is not near a residential development. The fire station and drill tower will be constructed shortly after Fiscal Year 2015-16.

## FOUR PERSON STAFFING

A landmark study released by the National Institute of Standards and Technology (NIST) released in 2010 confirms that the size of fire fighting crews has a substantial effect on the fire service's ability to protect lives and property in residential fires. Conducted by a broad coalition in the scientific, fire fighting and public safety communities, the study results found that four person fire fighting crews were able to complete 22 essential fire fighting and rescue tasks in a typical residential structure 30% faster than two person crews and 25% faster than three person crews. This study was the first to quantify the effects of crew sizes and arrival times on the fire service's lifesaving and fire fighting operations.

Additionally, the Fire Department is subject to the Federal Regulation 1910.134 issued by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) which requires two firefighters to enter a burning building together and two firefighters to be outside the building who are able to render immediate assistance should a rescue need to be made. This is commonly called the "two in/two out" rule. As the City staffs all fire engines with three fire personnel and the truck companies with four fire personnel, the engine is oftentimes waiting for the arrival of another fire apparatus in order to safely enter a burning building. The impact of not having essential equipment on scene in a timely manner could lead to an increase in the amount of property loss due to fires and potentially increase the loss of life should anyone be trapped inside. There is also an inherent risk to the firefighters the longer it takes to initiate an interior fire attack due to flashover conditions typically developing within 8 minutes of the start of a fire.

While the Fire Department desires to have four person staffing on all fire apparatus to increase the effectiveness of fire fighting operations it is unlikely that this will occur in the next five to ten years due to the economic situation in Moreno Valley and the cost associated with increasing staffing from three fire personnel on a fire engine to four. Utilizing information from the City's

contract with Riverside County Fire for Fiscal Year 2011-12, the cost per engine company per year would be $419,972 to add an additional firefighter or a total of $2,939,804 when accounting for the six fire engines the City currently staffs and the seventh fire engine that will be staffed when the Morrison Park Fire Station opens in 2012.

The City will need to consider the importance of increasing staffing to four person fire engine crews versus the importance of opening additional fire stations as calls for service increase due commercial and industrial buildings being constructed and population growth. With the approximate operating costs for a three person staffed engine company at $1.1 million a year, in theory, the City could staff two fire engines at two new fire stations with the savings from having three person staffed engine companies versus four person staffed engine companies. The Fire Chief is estimating the City will need to build its next two fire stations within the next eight years given the projected population growth and increase in commercial development for Moreno Valley.

The Fire Chief does recommend that the City, and specifically City Council, be aware of the importance of staffing fire engines with four fire personnel versus three and consider upgrading to four person staffing as economic conditions permit. The Fire Chief will work with the City to determine a way to balance the need to increase staffing to four person fire engine companies with the need to open new fire stations. One possibility for meeting the need to increase staffing for safer fire ground operations is presented in the Paramedic Squad section below.

## PARAMEDIC SQUADS

The City's six fire engines are staffed with firefighter paramedics who provide advance medical care for medical emergencies and trauma. As calls for service continue to increase in the City of Moreno Valley, the Fire Chief will need to consider adding additional fire emergency response units to the existing fire stations in order to provide adequate personnel and equipment for emergency responses. As 84.4% of the Fire Department's emergency calls for service are for medical emergencies it is possible that the additional equipment would consist of a paramedic squad in lieu of a fire engine or fire truck.

One advantage to a paramedic squad is that it will allow for a tiered level of response for both medical and fire emergencies as discussed in the Emergency Medical Dispatch section of this strategic plan. The paramedic squads will also provide additional coverage at the busier fire stations for medical responses requiring advance life support and will provide more staffing for fire ground operations. Finally, there is a cost savings to both purchasing and staffing a paramedic squad. The cost for a paramedic rescue squad and its equipment is $92,907, which is over $400,000 less than the cost of a paramedic fire engine. Additionally, a squad is staffed with two Firefighter Paramedic personnel versus a fire engine that is staffed with one Fire Captain, one Fire Apparatus Engineer, and one Firefighter Paramedic. The cost for two Firefighter Paramedic personnel to cover the paramedic rescue squad seven days a week is estimated at $625,000, which is a 52% savings in personnel costs versus a paramedic fire engine which is approximately $1.2 million a year.

## DIVIDING THE CITY INTO TWO BATTALIONS

The Moreno Valley Fire Department's Battalion Chiefs are responsible for the management of the City's six fire stations and 69 firefighting personnel, with one Battalion Chief on duty at all times. With the level of emergency activity in a city as large and complex as Moreno Valley, when the Morrison Park Fire Station opens in October 2012, the Fire Department will be at its upper most limit for reasonable efficiency expectations for a single battalion with only two Battalion Chiefs supervising field staff.

In order to provide appropriate supervision to field staff, accomplish administrative tasks, and respond to emergency calls for service, the Fire Chief will need to consider splitting the City into two battalions and adding two additional Battalion Chiefs when construction begins on an 8th fire station as the span of control for two Battalion Chiefs will be exceeded when the fire station opens and additional personnel are added. Battalion Chiefs ensure that fire stations are maintained, schedule personnel for training, investigate complaints from the public, and a variety of other administrative tasks in addition to providing operational expertise on the fire grounds. As the number of personnel and fire stations are expanded, the Fire Department need to hire additional Battalion Chiefs to ensure that the myriad of administrative tasks assigned to Battalion Chiefs as well as supervision of employees can be accomplished in an efficient and effective manner.

## RIVERSIDE COUNTY FIRE APPARATUS LEASE PROGRAM

The City of Moreno Valley currently owns three of the six fire engines present in the City as well as the two 100' aerial ladder companies and one 75' quint that is a reserve ladder truck. The cost to purchase and equip a fire engine is estimated at $545,000 and is depreciated over 10 years. In order to cover the replacement cost of the fire engine, the City's Finance department charges the Fire Department an amount equal to the purchase price of the fire engine and its equipment divided by ten each fiscal year. Currently, this would be $54,500 per year for a new fire engine. The vehicle equipment replacement account allows the Fire Department to replace vehicles as needed once they have reached the end of their useful life span.

Three of the City's fire engines are leased from the County of Riverside at a cost of $19,200 per year per vehicle and includes preventive maintenance as well as the cost of both minor and major vehicle repairs. If the City was to transfer the title of the City owned fire engines to the County, the City would save $35,300 each year in vehicle replacement costs. Additionally, the City would save money on the repair of City owned fire engines as the City currently budgets money for any repair that exceeds $5,000. Should an expensive item such as a transmission or axle break on a fire engine the City would need to pay for the cost of the repair. For any leased fire engine the County is responsible for the maintenance of the vehicle and all vehicle repair work. This is a major benefit to the City as the Fire Department would no longer need to budget for expensive vehicle repairs. Furthermore, while it would be a minor savings, the City would no longer need to insure the City owned fire engines. The total insurance cost savings to the City would be $4,960 annually.

Under this program, the City would still need to make the initial purchase of the fire engine, and then transfer the title to the County. Once the title is transferred to the County it is then becomes the responsibility of the County to allocate the appropriate funding to replace the fire engines in the future and to budget for all vehicle repair costs. The County depreciates their vehicles over 20 years, however, when the fire engines reach a certain age, mileage, or condition it is placed into reserve status to extend its useful life to reach the full 20 years

Vehicles that are not covered by this program include the City's two 100' aerial ladder trucks and the 75' quint. The City will still be required to budget for any repair exceeding $5,000 on these two vehicles as well as budget for their replacement.

## SUMMARY

This strategic plan lays the foundation for the development of the Moreno Valley Fire Department over the next ten years by identifying five goals for Fire Operations as well as five goals each for Fire Prevention and Fire Operations. These goals are:

### FIRE OPERATION GOALS

- ***Goal 1:*** Financial Management and Accountability
- ***Goal 2:*** Arrive On Scene within 5 Minutes of Dispatch 90% of the Time
- ***Goal 3:*** Reduce the Risk of Fire to Residents through Prevention Campaigns and Mitigation Efforts
- ***Goal 4:*** Maintain a Strong Partnership with Riverside County Fire Department
- ***Goal 5:*** Ensure Fire Administration Staffing is Sufficient for the Needs of the Department

### FIRE PREVENTION GOALS

- ***Goal 1:*** Fiscal Sustainability
- ***Goal 2:*** Ensure All Business and Commercial Occupancies Receive Annual Fire and Life Safety Inspections
- ***Goal 3:*** Perform Hazard Abatement Inspections Bi-Annually
- ***Goal 4:*** Provide Efficient Plan Review
- ***Goal 5:*** Evaluate Management Structure and Career Advancement within the Bureau

### OFFICE OF EMERGENCY MANAGEMENT

- ***Goal 1:*** Provide Training to Employees and Citizens
- ***Goal 2:*** Incorporate Federal and State Legal Mandates and Standards into City Emergency Management Strategies
- ***Goal 3:*** Continually Improve Emergency Operations Center Functions and Capabilities Based on a Comprehensive Assessment
- ***Goal 4:*** Manage FEMA and State Disaster Recovery Projects to Ensure Timely Completion of Required Documentation

- ***Goal 5:*** Maintain Effective Coordination and Partnerships with Local, Regional, and State Agencies

This plan also identifies five key areas that need to be considered as the City continues to grow. These items will need to be assessed over the next decade and potentially implemented in order to provide quality services to Moreno Valley. These areas are:

- Construction of a training/drill tower
- Four person staffing
- Paramedic squads
- Dividing the City into two battalions
- Riverside County Fire Department fire apparatus lease program

Finally, the Moreno Valley Fire Department is a dynamic organization that must be able to react to change, resolve problems, and work together with other departments and agencies on issues that might arise. The intent of this plan is to serve as a guide for the Fire Department's development over the next ten year. It also serves as the foundation document for informing City Council as to the direction the Fire Department is headed in order to ensure the community continues to receive outstanding fire protection services. The Fire Department will review this plan biennially to ensure the goals outlined in this plan are being met.



DAVID TAUSSIG & Associates, Inc.

# FISCAL AND ECONOMIC IMPACT STUDY

## WORLD LOGISTICS CENTER
## MORENO VALLEY, CALIFORNIA

September 2014

Public Finance
Urban Economics
Public Private Partnerships

Newport Beach
San Francisco
Fresno
Riverside
Chicago
Dallas

# FISCAL AND ECONOMIC IMPACT STUDY

## WORLD LOGISTICS CENTER
## MORENO VALLEY, CALIFORNIA

**Prepared By**

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Appendix A: Fiscal Impact Model

Appendix B: Economic Impact Model

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# EXECUTIVE SUMMARY

## I. PURPOSE OF STUDY

The objective of this Fiscal and Economic Impact Study (the "Study") is to analyze the fiscal and economic impacts of the proposed development of the World Logistics Center (the "Center" or the "Project") on the City of Moreno Valley ("City") and the County of Riverside ("County"). The Center is comprised of 40.4 million building square feet of high-cube industrial land use, 200,000 building square feet of general warehouse space, and 3,000 building square feet of light retail space providing basic fuel, food, and vehicle maintenance services for trucks. The Study analyzes the recurring fiscal impacts of the Center's development on the City General Fund, and also identifies the general economic impacts on the City in terms of employment, gross receipts, and earnings creation for City residents and workers.

## II. TYPES OF FISCAL AND ECONOMIC IMPACTS TO CITY OF MORENO VALLEY EVALUATED IN THE STUDY

### A. FISCAL IMPACTS ON CITY OF MORENO VALLEY GENERAL FUND

The purpose of the fiscal analysis component of this Study is to estimate the net fiscal impacts of the Center's proposed development and construction on the City General Fund. The fiscal impacts identified in this Study include recurring municipal revenues and costs to the City General Fund that result from the land use scenario analyzed. City General Fund revenues are generated from a variety of revenue sources, including property taxes, sales taxes, fees, and fines. Costs to the City General Fund are associated with a variety of services, such as police protection, fire protection, public works maintenance, and general government services. While the City also expends revenues from a series of other special funds outside of the General Fund, these revenues include a Moreno Valley Library property tax, Community Services District and Community Facilities District assessments and special taxes, and various enterprise funds related to water and sewer services. As these revenues are generally equal to the cost of the services that they finance, they are essentially break-even and are not typically included in a fiscal analysis for a municipality. As a result, most fiscal analyses focus on the General Fund, where any shortfalls or surpluses can be easily identified, and such is the case for this Study.

However, in preparing the Center's fiscal analysis, DTA did notice certain anomalies occurring related to the Moreno Valley Fire property tax, in that the revenues generated by this special fund appear to be significantly greater than the fund's expenditures on fire services to be provided by the City to the Center. While the projected fiscal surplus generated by the Moreno Valley Fire property tax fund was not included in the General Fund analysis, DTA felt that a brief discussion of this revenue source within the text of the Study would better inform the public regarding the entire fiscal impact of The Center on the City.

The fiscal analysis focuses on the impacts of the Center on the General Fund if it were built during fiscal year 2012-13, based on cost and revenue criteria and assumptions existing during that fiscal year. As is the case for most General Fund fiscal analyses, it would be speculative to

project future cost and revenue factors because there is no certainty regarding what those factors will be. For example, while the City will be increasing its annual costs as it eliminates a furlough program that it established during the Great Recession, the Center itself is expected to generate additional revenues in future fiscal years due to increases in logistics facilities property values above the $90 per square foot assumed in the Study. Based on a recent appraisal prepared by Coldwell Banker, the Center site's property valuation has already increased by more than 10%. Assumptions made regarding the relative levels of cost and revenue increases for factors such as these in future years would typically create a bias in the fiscal analysis that could in itself invalidate the results of the Study.

### B. ECONOMIC IMPACTS ON CITY OF MORENO VALLEY

The Study also identifies the general economic impacts on the City that would occur and quantifies these impacts wherever possible. General economic impacts include additions to the City's employment (number of average annual full- & part-time jobs), economic output (e.g., gross receipts), and earnings (the sum of wages, salaries and benefits, other labor income, and employer and employee contributions to social security). The Study also distinguishes between one-time impacts and permanent impacts. One-time impacts include benefits to the City that occur on a non-recurring basis as a result of construction activity, while permanent impacts refer to benefits that occur on a continuing basis, year after year.

## III. DESCRIPTION OF WORLD LOGISTICS CENTER

The Center is located in the City and is comprised of approximately 40.6 million building square feet of industrial land use. The specific land uses are broken down into two categories: Logistics Development ("LD"), and Light Logistics ("LL"). The LD category covers 2,383 acres and is designated for high-cube logistics uses. Traffic analyses presume that buildings in this area will be a minimum of 500,000 square feet in size. The Center includes up to 40.4 million square feet of logistics uses in the LD category. Correspondingly, the LL category covers 37.1 acres and is designated for general warehouse uses. There is no minimum building size in this category. The Center's Specific Plan ("Specific Plan") permits up to 200,000 square feet of general warehouse space in the LL category. Within the LD category, a Logistics Support ("LS") site will be allocated 3,000 square feet of building area and will be a "floating site" in the Specific Plan; the final site will be determined when development plans/tentative maps are designed. The LS site will accommodate fueling facilities, and fast food.

The Center is located in Rancho Belago, California, at the eastern edge of the City. The Center will require the construction of significant new infrastructure, financed through public and/or private funds, to be ultimately owned by the City and maintained by the City's General Fund. At this time, it is estimated that these public infrastructure improvements will consist of 54 lane miles of roadways, 75 acres of landscaped parkways and medians, 4 signalized intersections, and 18.1 linear miles of storm drains. Please refer to **Table 2E** for further information on these public improvements.

# IV. CONCLUSIONS OF ANALYSIS RELATED TO CENTER

Following are the major conclusions related to the fiscal and economic impacts of the Center:

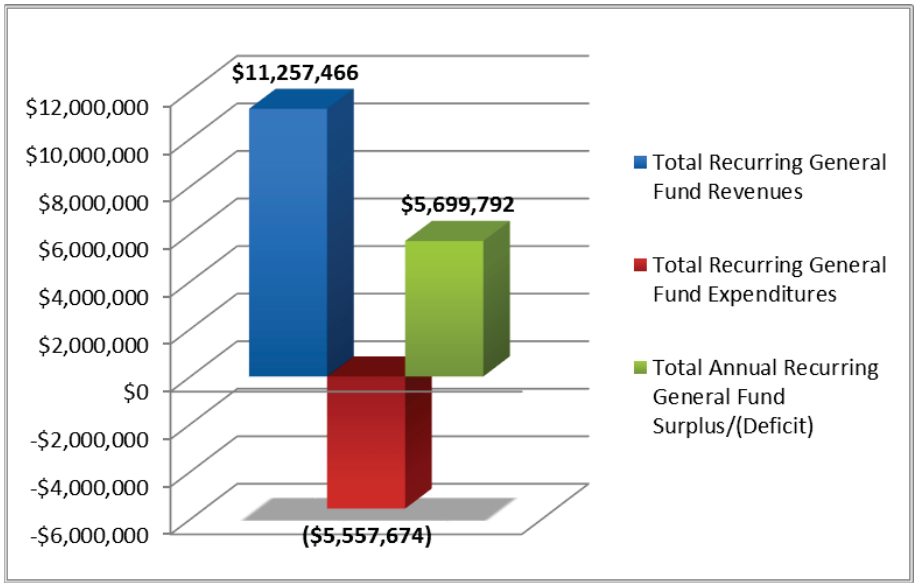
## A. FISCAL IMPACTS

As reflected in **Table A** and **Figure A** below, the positive Net Fiscal Impact is estimated to be $5,699,792 annually, based on $11,257,466 in fiscal revenues and $5,557,674 in fiscal costs. This fiscal surplus results primarily from property tax in lieu of VLF revenues (40.2% of total) and property tax revenues (secured and unsecured) (32.0%), together constituting approximately 72.2% of total recurring revenues to the City General Fund. The Annual Revenue/Cost Ratio of 2.03 is especially impressive, and demonstrates, inter alia, that the Center will have a very positive impact on the City's General Fund. In comparison, the City's General Fund currently runs a Revenue/Cost Ratio of ~0.94. Notably, the City's costs are limited due to the fact that the Center will not create any new residents, i.e., it is a purely industrial development.

**TABLE A**
**NET FISCAL IMPACT (CITY GENERAL FUND)**

| Category | Amount |
|---|---|
| Total Recurring Revenues | $11,257,466 |
| Total Recurring Costs | ($5,557,674) |
| **Annual Recurring Surplus/(Deficit)** | **$5,699,792** |
| *Total Annual Revenue/Cost Ratio* | *2.03* |

**FIGURE A**
**NET FISCAL IMPACT (CITY GENERAL FUND)**



However, the picture of the fiscal impacts of the Center on the City is incomplete if one just analyzes the General Fund, because in the case of the Center, a Moreno Valley Fire property tax will be collected by the City that greatly exceeds the cost of fire services provided by the City to the Center. While the average fire services costs City-wide for a project of the magnitude of the Center would be $94.50 per Persons Served (including both General Fund and Moreno Valley Fire property tax revenues), the actual funding for fire services from these two sources for the Center totals $272.11 per Persons Served. **This means there will be an excess of $177.61 per Persons Served generated by the Center, or $1,803,274 recurring annually that can be spent on fire services in other parts of the City. Adding this $1.80 million Moreno Valley Fire property tax surplus to the $5.70 General Fund surplus yields a total annual recurring surplus of $7.5 million generated by the Center.**

## B. ECONOMIC IMPACTS

The Study distinguishes between one-time economic impacts – i.e. impacts related to one-time construction jobs ("One-time Construction Jobs") and permanent economic impacts – i.e. impacts related to the creation of permanent jobs ("Permanent Jobs"). One-time Construction Job impacts include benefits to the community that occur on a non-permanent basis as a result of construction and development activity, while Permanent Job impacts refer to benefits that occur on a continuing basis, year after year.

The economic impacts of the Center that are analyzed within the Study are (1) Permanent Jobs – direct-on-site and indirect/induced (which supplies or supports direct employment); (2) Permanent Job Output (Gross Receipts) – total direct output *plus* output produced by suppliers and employee spending; and (3) One-Time Construction Job impacts. As reflected in **Tables B** and **C** below, the City's Permanent Jobs and Permanent Job impacts, as well as its One-Time Construction Jobs and its One-time Construction Job impacts are all substantially higher following Center development.

### 1. PERMANENT JOBS, WAGES, AND GROSS RECEIPTS

**TABLE B**
***(ALL NUMBERS SUBJECT TO ROUNDING)***

| Permanent Job Impacts | Direct | Indirect/Induced | Total |
|---|---|---|---|
| Employees | | | |
| Countywide | 20,307 | 7,386 | 27,693 |
| Within City | 20,307 | 3,693 | 24,000 |
| Employee Wages | | | |
| Countywide | $831 Million | $300 Million | $1.13 Billion |
| Within City | $831 Million | $150 Million | $981 Million |
| Overall Output | | | |
| Countywide | $1.50 Billion | $870 Million | $2.37 Billion |
| Within City | $1.50 Billion | $435 Million | $1.94 Billion |

## 2. ONE-TIME CONSTRUCTION JOBS, WAGES, AND GROSS RECEIPTS

**TABLE C**
***(ALL NUMBERS SUBJECT TO ROUNDING)***

| One-Time Construction Job Impacts | Direct | Indirect/Induced | Total |
|---|---|---|---|
| Construction Employees | | | |
| Countywide | 12,807 | 7,427 | 20,233 |
| Within City | 12,807 | 3,714 | 16,521 |
| Construction Wages | | | |
| Countywide | $625 Million | $302 Million | $927 Million |
| Within City | $625 Million | $151 Million | $776 Million |
| Construction Output | | | |
| Countywide | $1.67 Billion | $932 Million | $2.60 Billion |
| Within City | $1.67 Billion | $466 Million | $2.14 Billion |

Given a build out period of approximately 15 years, with projected equal absorption every year, the construction of the Center will create approximately 854 full-time equivalent ("FTE") *direct* One-time Construction Jobs in the City in each of those years.

## 3. OTHER IMPACT CONCLUSIONS

**TABLE D**

| Jobs-Housing Balance | Balance with Center | % Increase Increase/(Decrease) |
|---|---|---|
| Countywide | 0.74 | 5.02% |
| Within City | 0.91 | 95.54% |

Although the Center is expected to require a considerable amount of public infrastructure, the Center is also expected to generate significant new revenues for the City of Moreno Valley. As **Tables A, B, C,** and **D** illustrate, the Center's logistics component is expected to generate sizeable, substantial, and lasting employment, wage, output, and revenue impacts. To ensure that these high property and sales tax revenues are available to the City, it is crucial that all of the Center's logistics uses that generate these revenues be entirely built out.

# SECTION 1 INTRODUCTION

David Taussig and Associates, Inc. ("DTA") has been engaged by Highland Fairview (the "Applicant") to prepare a Fiscal and Economic Impact Study (the "Study") that evaluates the likely fiscal and economic impacts of the proposed development and construction of the World Logistics Center (the "Center") on the City of Moreno Valley (the "City"). The impact of the Center on the City's General Fund was thoroughly analyzed, although City enterprise and special funds were not explicitly considered within the Study.

## I. SCOPE AND METHODOLOGY

### A. RECURRING FISCAL IMPACTS

Fiscal impacts arising from a land development plan can be broadly categorized as one of two types: one-time impacts or recurring impacts. Each of these broad types may, in turn, be divided into a revenue component and a cost component. For purposes of this Study, it has been assumed that one-time revenues would directly offset one-time costs; thus, the fiscal impacts considered in this Study focus on ongoing, or recurring, fiscal impacts of the Center on the City General Fund. To the extent that revenues are generated outside of the City's General Fund (e.g., special district revenues) or costs are incurred by the City outside of the General Fund (e.g., costs financed through a special district), they are not included within this fiscal analysis.

As previously mentioned, the fiscal impacts projected for the Study are based generally on the *Multiplier Methodology*. The primary *Multiplier Methodology* used to project the fiscal impacts in this Study was the *Per Capita-Employee ("Persons Served") Methodology*. The Persons Served Methodology considers the fact that the exact relationship of service demands and revenue-generating potential between residents and employees is difficult to measure. Thus, utilizing a service population, or Persons Served population, comprised of all residents and 50% of employees is common fiscal practice, and suggests that a resident generally has twice the fiscal impact of an employee. This methodology involves calculating the *average City-wide* revenues/costs per Persons Served, utilizing the fiscal year 2012-2013 City budget, and applying these revenue/cost factors to the specific number of Persons Served projected for the Center.

DTA also used a *Per Employee Methodology* in the Study to project recurring fiscal factors based on employment only, such as business license tax revenues. Similar to the Persons Served Methodology discussed above, the Per Employee Methodology involves calculating the *average City-wide* revenues/costs per employee, utilizing the fiscal year 2012-2013 City budget, and applying these factors to the specific number of employees projected under the given scenario.

While most recurring revenues analyzed in the Study are projected using the *Multiplier Methodology*, some major revenue sources, including property taxes and sales taxes, are calculated using a *Case Study Methodology* that involves calculating the *marginal revenues* to be specifically generated by a particular land use, instead of applying an *average City-wide* revenue factor. For purposes of the Study, all recurring revenues and costs are stated in constant (un-inflated) 2012 dollars, based on the assumption that the relative impacts of inflation in future years will be the same for both of these fiscal impact categories.

Notably, the City also expends revenues from a series of other special funds outside of the General Fund. These revenues include a Moreno Valley Library property tax, Community Services District and Community Facilities District assessments and special taxes, and various enterprise funds related to water and sewer services. As these revenues are generally equal to the cost of the services that they finance, they are essentially break-even and are not typically included in a fiscal analysis for a municipality. As a result, most fiscal analyses focus on the General Fund, where any shortfalls or surpluses can be easily identified, and such is the case for this Study.

However, in preparing the Center's fiscal analysis, DTA did notice certain anomalies occurring related to the Moreno Valley Fire property tax, in that the revenues generated by this special fund appears to be significantly greater than the fund's expenditures on fire services to be provided by the City to the Center. While the projected fiscal surplus generated by the Moreno Valley Fire property tax fund was not included in the General Fund analysis, DTA felt that a brief discussion of this revenue source within the text of the Study would better inform the public regarding the entire fiscal impact of The Center on the City.

## B. GENERAL ECONOMIC IMPACTS

The Study also identifies the general economic impacts on the City that would occur due to the Center, and quantifies these impacts wherever possible. General economic impacts include additions to the City's employment (number of average annual full- & part-time jobs), economic output (e.g., gross receipts), and earnings (the sum of wages, salaries and benefits, other labor income, and employer and employee contributions to social security). The Study also distinguishes between one-time economic impacts and permanent economic impacts. One-time impacts include benefits to the community that occur on a non-recurring basis as a result of construction and development activity, while permanent, recurring impacts refer to benefits that occur on a continuing basis, year after year. Additionally, for purposes of the Study, all economic impacts are stated in constant (un-inflated) 2012 dollars, based on the assumption that the relative impacts of inflation in future years may be difficult to gauge.

In evaluating economic impacts, the Study quantifies both direct and indirect/induced economic impacts on the City. Direct economic impacts reflect the initial or first-round increases in jobs, earnings, and output, all of which occur directly on-site at WLC. Indirect/induced economic impacts are the secondary and other additional rounds of economic activity that occur as a consequence of the direct impacts, and can occur elsewhere within the City. The **indirect** impacts represent the economic activity – buying and selling of goods and services – of *suppliers* to the land use types analyzed. In this Study, suppliers to WLC consist of maintenance and repair professionals, utilities' providers, wholesale trade companies, and business support services; while suppliers to retail/office developments consist mainly of real estate firms, computer and other technology firms, accounting and bookkeeping professionals, and utilities' providers. Furthermore, the suppliers representing the indirect one-time impacts are mainly heavy industrial and construction suppliers for the actual development of buildings and facilities. The **induced** impacts represent the economic activity that results from household spending by *employees* of all companies directly and indirectly affected by the construction and operation of the land uses analyzed in this Study. Induced impacts created by the expenditures of employees at WLC

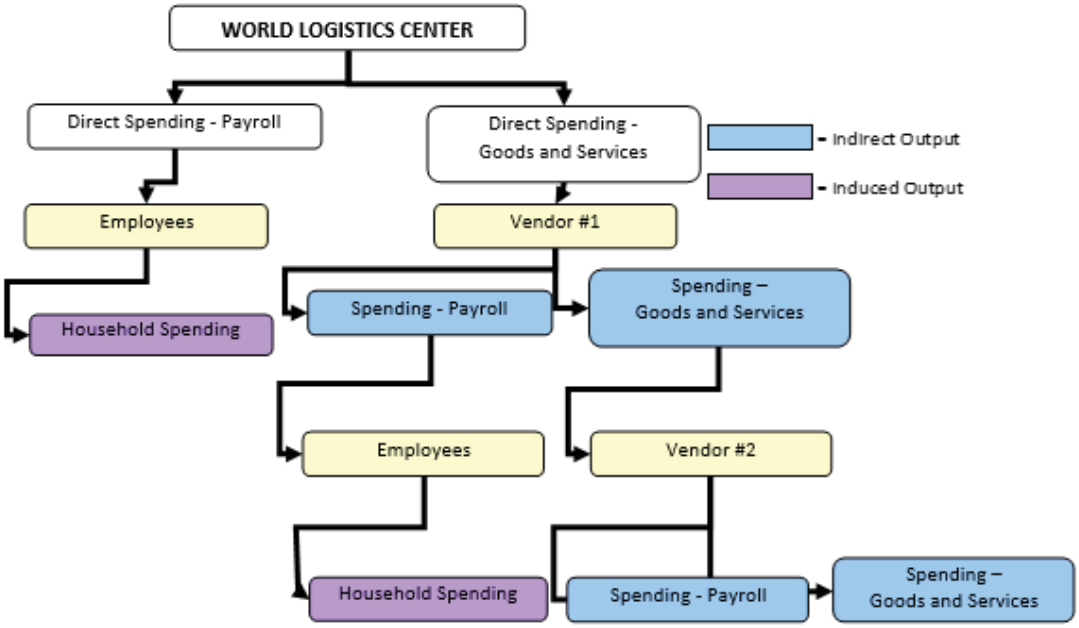
would include local housing, retail outlets, gas stations, recreation venues and restaurants, child care facilities, etc. Indirect and induced impacts can occur throughout all industries of the economy, and have been categorized using the North American Industry Classification System (NAICS). Adopted by the Office of Management and Budget (OMB) in 1997 to replace the Standard Industrial Classification System (SIC), NAICS is a widely-used system to classify business establishments for the collection, analysis, and publication of statistical data in Canada, Mexico, and the United States. NAICS industries are identified using a six-digit coding system to classify all economic activity into twenty broad sectors, five of which are mainly goods-producing sectors and fifteen of which are services-producing sectors. This six-digit hierarchical structure allows for the identification of nearly 1,170 industries. The broad NAICS sectors include the Construction, Retail Trade, and Administrative and Support Services classifications, which are the focal NAICS categories analyzed within this Study to determine the indirect and induced economic impacts generated under the analysis.

### (i) IMPLAN MULTIPLIER METHOD

Although most economists agree that indirect and induced, or "multiplier" effects exist, most economists also agree that such effects are difficult to measure. Patterns on spending and employment among suppliers and employee households often vary over time and from one region to another. Nevertheless, there are certain input-output models that can be used to estimate indirect and induced effects.

In quantifying the indirect and induced economic impacts for the Study, DTA utilized the Impact Analysis for Planning ("IMPLAN") Input/Output Modeling System, a type of quantitative economic model that provides an approximate measure of the "multiplier effect" of a firm's spending on payroll and the purchasing of goods and services. Like similar econometric models, IMPLAN helps to calculate the flow of payments for goods and services across different industry sectors, and between households and industries. The IMPLAN model can be envisioned simply as a large spreadsheet with hundreds of industries (plus the household sector) arrayed across the top as producers, and the same industries and households listed down the side as consumers. Each million dollars (output) in spending by any one consumer (i.e. the Center) is allocated across the producing industries from which it buys goods and services. These producing industries, in turn, spend money buying goods and services from their own distinct sets of suppliers. Thus, the IMPLAN multiplier model allows one to gauge the effect on each dollar an industry spends as it diffuses through a regional economy. Furthermore, it allows one to translate the overall regional impact of spending into jobs and employee compensation. Please refer to **Table 1** for a diagram of the multiplier effect.

**TABLE 1**
**EXAMPLE OF THE MULTIPLIER EFFECT (INDIRECT AND INDUCED OUTPUT)**




The multiplier factors available to determine indirect/induced impacts are intended to reflect impacts for entire areas within a zip code. Therefore, the indirect/induced impacts identified in this Study to occur within the City boundaries are based on assumptions established by DTA and are subject to change. Please refer to **Appendix B** for further information.

## II. LIMITATIONS

### A. ACCURACY OF INFORMATION

The fiscal and economic models in the Study contain an analysis of revenues, costs, and impacts to the City resulting from the Center. These models are based on both (i) information provided to DTA by the Applicant staff and (ii) certain DTA assumptions taken from DTA's municipal cost database, as compiled by DTA from previous fiscal impact studies prepared by the firm. The sources of information and basis of the estimates calculated in the Study are stated herein. While DTA is confident that the sources of information are reliable, DTA does not express an opinion or any other form of assurance on the accuracy of such information. The analysis of fiscal impacts contained in this report is not considered to be a "financial forecast" or a "financial projection" as technically defined by the American Institute of Certified Public Accountants. The word "projection" used within this report relates to broad expectations of future events or market conditions. Since the analyses contained herein are based on estimates and assumptions that are inherently subject to uncertainty and variation depending on evolving events, DTA cannot represent that such estimates will definitely be achieved. Some assumptions inevitably will not materialize, and unanticipated events and circumstances may occur; therefore, the actual results achieved may vary from these projections stated throughout the Study.

In addition, the fiscal analysis included herein focuses on the impacts of the Center if it were built during fiscal year 2012-13, based on cost and revenue criteria and assumptions existing during that fiscal year. As is the case for most General Fund fiscal analyses, it would be speculative to project future cost and revenue factors because there is no certainty regarding what those factors will be. For example, while the City will be increasing its annual costs when it eliminates a furlough program that it established during the Great Recession, the Center itself is expected to generate additional revenues in future fiscal years due to increases in logistics facilities property values above the $90 per square foot assumed in the Study. Based on a recent appraisal prepared by Coldwell Banker, the Center site's property valuation has already increased by more than 10%. Assumptions made regarding the relative levels of cost and revenue increases for factors such as these in future years would typically create a bias in the fiscal analysis that could in itself invalidate the results of the Study.

# SECTION 2 DESCRIPTION OF RECURRING FISCAL REVENUES/COSTS

The following section presents the recurring revenue and cost impacts to the City General Fund and the methodology and assumptions utilized in the Study to project these impacts. Detailed numerical analyses of the revenue and cost impacts subsequently discussed in this section are contained in **Appendix A**.

## I. ANALYSIS OF RECURRING REVENUES

### CASE STUDY METHOD:

#### A. PROPERTY TAXES – SECURED AND UNSECURED

Property tax revenues are conservatively projected based on the City's estimated share of the general 1% property tax levy. Total secured property tax revenues received by the City from the land uses will equal approximately 8.97% of the basic 1% property tax levy from the Tax Rate Areas ("TRAs") encompassing the Center. Please note that the gross tax increment, as calculated by the Riverside County (the "County") Auditor-Controller, has been reduced to account for the projected Education Revenue Augmentation Fund ("ERAF") property tax shifts. Please refer to **Table 2A** below and **Exhibit 4** of **Appendix A** for details regarding the secured and unsecured property tax assumptions utilized in the fiscal impact analysis.

Unsecured property taxes are levied on tangible personal property that is not secured by real estate. Examples of unsecured property includes trade fixtures (e.g., manufacturing equipment and computers), as well as airplanes, boats, and mobile homes on leased land. In generating the fiscal impact models for this Study, DTA has assumed that unsecured property values average 10.00% of the secured value for non-residential land uses.

##### (1). ANNEXATION

According to the Riverside County Local Agency Formation Commission ("Riverside County LAFCO"), the Master Property Tax Transfer Agreement for the County of Riverside and the City of Moreno Valley (the "Property Tax Agreement") will determine the tax apportionment factors for the proposed annexation of elements of the Center to the City. Only one (1) parcel is to be annexed per the Specific Plan, however, this analysis still assumes that the annexation of this parcel will be carried out according to the terms of that agreement. Please refer to **Appendix C** for further information regarding that parcel. As the vast majority of elements of the Center are currently within the City, the overall TRA breakdown described above is weighted both by TRA, subject to the Property Tax Agreement, and acreage.

Of the property tax apportionment that is currently dedicated to the County's General Fund, 25% will be allocated to the City's General Fund upon annexation of the Center to the City, while the remaining 75% will be remitted to the County to pay for services that the County provides to City residents. For a detailed breakdown of the tax sharing assumptions, please refer to **Exhibit 4** of **Appendix A**.

## B. PROPERTY TRANSFER TAX

Per California Revenue & Taxation Code §11901, *et seq*. and the Moreno Valley Municipal Code §3.22.020, sales of real property are taxed by the County at a rate of $1.10 per $1,000 of property value, whereas for property located in the City, the property transfer tax is divided equally between the City and the County, with the City receiving $0.55 per $1,000 of transferred property sale or resale value, excluding assumed liens or encumbrances. Per typical baseline assumptions, DTA assumes that non-residential development changes ownership at an average rate of 5% per year, and that continuing liens and encumbrances are insignificant.

## C. PROPERTY TAX IN-LIEU OF VEHICLE LICENSE FEE

The passage of Proposition 1A in California in 2004 enacted a constitutional amendment that introduced a new methodology to calculate property taxes in-lieu of VLF. Per California Revenue and Taxation Code §97.70, the property tax in-lieu of VLF amount now grows in proportion to the growth rate of gross assessed valuation in a city or county. Property taxes in-lieu of VLF revenues are projected to grow with the change in the City-wide gross assessed valuation of taxable property from the prior fiscal year. Property tax in-lieu of VLF revenues constitute an addition to other property tax apportionments and were calculated for purposes of this Study at $1.26 per $1,000 increase in assessed valuation on a City-wide basis. Please refer to **Table 2A** below and **Exhibit 4** of **Appendix A** for details regarding the property tax assumptions utilized in the fiscal impact analysis.

**TABLE 2A – PROPERTY TAX ASSUMPTIONS**

| Property Tax Assumptions | |
|---|---|
| **Property Tax** | |
| **Industrial Sales Price / Square Foot** | $90.00 |
| **Retail Sales Price / Square Foot** | $200.00 |
| **Secured Property Tax –** Net Apportionment Factor to the City of Moreno Valley as a Fraction of 1.0% Property Tax Rate (Net of ERAF) | 8.97% |
| **Unsecured Property Tax** – Unsecured Taxes as a % of Secured Property Value | 10.00% |
| **Property Transfer Tax** | |
| Non-Residential Property Turnover Rate | 5.00% |
| Transfer Tax as a % of Price | 0.11% |
| Property Transfer Tax Passed Through to City | 50.00% |
| **Property Tax In-Lieu of VLF** | |
| City of MV – Total Assessed Value (FY 2011-2012) | $10,445,118,397 |
| City of MV – VLF Prop. Tax In-Lieu Revenues (FY 2012-2013) | $13,195,000 |
| VLF Property Tax In-Lieu per $1,000 Assessed Value | $1.26 |

## D. MOTOR VEHICLE LICENSE FEES

### (I). BACKGROUND

Prior to June 1, 2004, the Motor Vehicle License Fee ("VLF") tax rate was equal to 2.00% of the value of a vehicle, with 0.65% paid by the vehicle owner and an additional 1.35% supplemented with a backfill from the State General Fund. A large portion of those funds was allocated to cities (42.50%) and counties (42.50%) based on population, while newly-incorporated cities received an additional population subvention based on three (3) times the number of registered voters for the first seven (7) years after incorporation.

As discussed earlier, in 2004, the VLF allocation was altered. The California Legislature implemented the "VLF Swap" in which the VLF was lowered to 0.65%. The resultant loss of city revenue was swapped with an augmentation of property tax, termed property tax in-lieu of VLF. These amounts grow annually based on the annual increase in assessed value within each respective jurisdiction (see above).

### (II). SUPPLEMENTAL LAW ENFORCEMENT FUNDING ("SLESF") AND OTHER STATE LAW ENFORCEMENT GRANTS

As a part of the 2009 state budget agreement, a number of law enforcement grant programs previously funded by the state general fund were instead funded in fiscal year ("FY") 2009-10 and FY 2010-11 by a temporary 0.15% state VLF increase, which ended on June 30, 2011. The additional 0.15% VLF rate was intended to generate around $500 million annually – the tax generated $414 million in FY 2009-10 and $442 million in FY 2010-11.

### (III). SENATE BILL (SB) 89 - FEES SHIFTED TO FUND STATE LAW ENFORCEMENT GRANTS

SB89, signed in 2010 by Governor Brown, effectively eliminates the 0.65% VLF revenue that was being allocated as a general fund revenue source to California cities. Provisions in SB89 shift hundreds of millions of VLF revenues to fund the state law enforcement grants beginning FY 2011-12. The SB89 plan operates as follows:

- The "Vehicle License Registration Fee" is increased by $12 to produce approximately $300 million in FY 2011-12. This fee will fund state DMV vehicle license registration operations, thereby "freeing up" $300 million of VLF revenue that had been used to fund DMV operations. This money will be transferred to a new Local Law Enforcement Services Account ("LLESA)" to fund the law enforcement grants.

- In addition, beginning July 1, 2011, SB89 transfers the remaining VLF revenue (after the Local Revenue Fund allocation for county health and welfare programs) previously allocated to cities and the County of Riverside to the LLESA.

SB89 takes $130 million of city general revenue and shifts it to save state law enforcement grant programs. Less than $100 million of these grant funds will come back to cities, earmarked for police services. But these funds will likely be offset by the loss of city VLF. Therefore, VLF (as

opposed to property tax in-lieu of VLF) revenue was not analyzed as a Center revenue source in this Study.

## E. SALES AND USE TAXES

Direct sales tax revenues are generated by retail sales from businesses within City limits, with 1% of taxable sales receipts passed through to the City. **Exhibit 5** of **Appendix A** reflects taxable sales receipts per square foot for each on-site non-residential land use type, based on data from the *Urban Land Institute's Dollars & Cents of Shopping Centers (2008)* publication and total taxable sales receipts for the Center, based on information provided by the Applicant and the City.

Indirect sales tax revenues, as summarized in **Exhibit 5** of **Appendix A**, are generated by the purchases made by the Center's employees within the City. Based on studies outlined in the *International Council of Shopping Centers' Office Worker Local Retail Spending Patterns,* DTA assumed that each on-site employee spends nearly $4,168 annually within the City.

**TABLE 2B – SALES TAX ASSUMPTIONS**

| Sales Tax Assumptions | |
|---|---|
| % Sales Tax Passed Through to City of MV | 1% |
| Local Employee Spending (Annual) | $4,168 |
| *Capture Rate of Employee Spending (within City)* | *50%* |
| *Displacement Rate (of existing taxable sales within City)* | *20%* |
| Taxable Sales per Square Foot – Retail | $250 |

## F. INVESTMENT INCOME REVENUES

Investment Income revenues are generated by the increase in General Fund Revenues resulting from the Center. This increase reflects growth in the following revenue categories: property taxes, sales taxes, and multiplier revenues (as discussed below).

Importantly, the City expects to incur borrowing costs throughout each fiscal year on its investment account that will offset investment returns on its General Fund Revenues prior to the funds being expended. As a result, this Study conservatively assumes that any Investment Income revenues would be fully offset by the borrowing costs, and that Investment Income will not provide any additional revenues to the City General Fund.

## MULTIPLIER METHOD:

### G. OTHER TAX REVENUES

The Utility Users Tax ("UUT") and the Transient Occupancy Tax ("TOT") were forecasted at $59.85 per Persons Served using the *Per Capita-Employee Multiplier Method.* Please note that this revenue multiplier has been reduced by 25% to account for only the portion of the UUT and TOT revenues that are expected to be variable with population and employee growth in the City. Historically, UUT is one of the General Fund's largest revenue sources, as well as one of the most stable due to trends in the natural gas, wireless telephone, and cable industries.

### H. BUSINESS RECEIPTS TAX & LICENSES

Business Receipts Tax and Business Licenses revenues to the City General Fund are anticipated to grow due to employment growth only. Therefore, Business Receipts Tax and Business Licenses revenues were projected at $59.63 per Employee using the *Per Employee Multiplier Method.* However, the future addition of new retail businesses will have a particularly positive effect on the Business Receipts Tax.

### I. FRANCHISE TAXES

Franchise Taxes, including Cable TV, Sewer, etc., were forecasted at $24.81 per Persons Served using the *Per Capita-Employee Multiplier Method*.

### J. LICENSES AND PERMITS

Licenses and Permits are based on the City's collection of fees for various types of permits and community programs. Revenues are forecasted using a *Per Capita-Employee Multiplier Method* that results in a total multiplier of $5.69 per Persons Served.

### K. INTERGOVERNMENTAL REVENUES

Intergovernmental Revenues are forecasted using a *Per Capita-Employee Multiplier Method* that results in a total multiplier of $6.00 per Persons Served.

### L. CHARGES FOR CURRENT SERVICES

Current Services, including parking control fees, plan check fees, and inspections fees, were projected at $38.12 per Persons Served, based on the *Per Capita-Employee Multiplier Method*.

### M. USE OF MONEY AND PROPERTY (NON-INTEREST REVENUES)

Use of Money and Property Revenues, including Park and Community Building Rentals, were forecasted at $0.25 per Persons Served using the *Per Capita-Employee Multiplier Method*.

## N. FINES AND FORFEITURES

This revenue category represents fines and penalties collected by the City for various infractions, including Vehicle, Code, and certain Parking Fines. Fines and Forfeitures were forecasted at $0.64 per Persons Served using the *Per Capita-Employee Multiplier Method.*

## O. TRANSFERS IN

Direct cost of development related services and all development services revenue are budgeted in special funds, and the portion of the fee revenues that are attributable to overhead costs are shown as a transfer into the General Fund to reimburse the City for general support. Transfers In revenue is forecasted at $0.37 per Persons Served, using the *Per Capita-Employee Multiplier Method.*

## P. OTHER REVENUE

Other Revenues, including Miscellaneous Revenues, Donations, and Mandated Cost Reimbursements, were projected at $1.21 per Persons Served utilizing the *Per Capita-Employee Multiplier Method.*

**TABLE 2D – OTHER GENERAL FUND REVENUES (MULTIPLIER METHOD)**

| Category | Amount | Methodology |
|---|---|---|
| Other Tax Revenues | **$59.85** | Persons Served plus 25% Discount |
| Business Receipts Tax & Licenses | **$59.63** | Per Employee |
| Franchise Taxes | **$24.81** | Persons Served |
| Licenses and Permits | **$5.69** | Persons Served |
| Intergovernmental Revenues | **$6.00** | Persons Served |
| Charges for Current Services | **$38.12** | Persons Served |
| Use of Money and Property (Non-Interest Revenues) | **$0.25** | Persons Served |
| Fines and Forfeitures | **$0.64** | Persons Served |
| Transfers In | **$0.37** | Persons Served |
| Other Revenues | **$1.21** | Persons Served |

Please refer to **Exhibit 7** of **Appendix A** for more details on the case study assumptions and revenue multipliers utilized in the Study.

# II. ANALYSIS OF RECURRING COSTS

## CASE STUDY METHOD:

### A. INFRASTRUCTURE AND PARKS MAINTENANCE

The Center will require the construction of new infrastructure to be ultimately owned by the City and maintained by the City's General Fund. At this time, it is estimated that these public infrastructure improvements will consist of 54 lane miles of roadways, 75 acres of landscaped parkways and medians, 4 signalized intersections, 699 streetlights, and 18.1 linear miles of storm drains, Notably, other improvements such as street lights and trails, to be maintained by other City Funds, i.e., Community Services District funding, Enterprise Funds, Special Funds, etc., but not the General Fund, were disregarded for purposes of this Study.

These improvements were multiplied by estimated annual cost figures for each category derived from the DTA Public Works Database, resulting in annual Infrastructure and Parks Maintenance costs of $1,916,941.

Finally, Measure A funding – a half-cent sales tax for roadway funding administered by the Riverside County Transportation Commission – was incorporated, based on the percentage of total Measure A funds allocated to the City of Moreno Valley. Following a $21,467 Measure A set-off, the annual Infrastructure and Parks Maintenance forecast is $1,895,474

**TABLE 2E – INFRASTRUCTURE/PARKS REQUIREMENTS (CASE STUDY METHOD)**

| Infrastructure/Parks to be Maintained by City General Fund | Quantity | Cost/Unit |
|---|---|---|
| Roadways (Lane Miles) | 54 | $12,000 |
| Signalized Intersections | 4 | $4,938 |
| Parkways/Medians (Acres) | 75 | $14,953 |
| Open Space | 206 | $517 |
| Storm Drains (Lineal Miles) | 18.1 | $1,177 |

### B. GENERAL GOVERNMENT COSTS

General Government costs are projected at a marginal rate of 7.58% of the City General Fund recurring costs, based on the assumption that the FY 2012-2013 General Government expenditures, equaling $7.1 million, will remain at the same relative proportion of the FY 2012-2013 City General Fund non-governmental expenditures of approximately $70.1 million in future years. The current percentage of General Government expenditures to City General Fund non-governmental expenditures is approximately 10.1%; however, these General Government costs are not expected to increase on a one-for-one basis as a result of the land use development depicted in this Study. Therefore, this Study assumes that General Government costs increase at

an estimated marginal rate of 75%, or 7.58%, of the existing General Government cost overhead rate. This approach results in annual General Government costs of $385,871.

Importantly, as discussed above, the fiscal analysis included herein focuses on the impacts of the Project as if it were built during fiscal year 2012-13, based on cost criteria and assumptions existing during that fiscal year. As is the case for most General Fund fiscal analyses, it would be speculative to project future cost factors because there is no certainty regarding what those factors will be. For example, in the case of general government costs specifically, the City is expected to increase its annual expenditure by eliminating a furlough program that it established during the Great Recession. However, the Project is expected to generate additional revenues in future fiscal years, above and beyond the revenues discussed in the Study, due to increases in logistics facilities property values above the $90 per square foot assumed in the Study. Therefore, any assumptions made regarding the relative levels of cost and revenue increases in future years would likely to create bias in the analysis that could lead to the invalidation of the results of the Study.

**MULTIPLIER METHOD:**

## C. POLICE AND FIRE PROTECTION

Police services include those costs associated with Law Enforcement and Patrol, Administration, Traffic Enforcement, Crime Prevention, Volunteer Programs, and Community-Based Policing. Police Services costs are forecasted at $196.20 per Persons Served using the *Per Capita-Employee Multiplier Method.* Fire services include those costs associated with Fire Suppression, Fire Prevention, Equipment and Vehicles, Outreach, and Training. Fire services costs financed through the General Fund are forecasted at $72.84 per Persons Served using the *Per Capita-Employee Multiplier Method.*

Notably, there is additional funding available to fund fire services through a Moreno Valley Fire property tax that is separate from General Fund revenue sources and is not included in this analysis of the General Fund. City-wide, the fire services costs funded through the Moreno Valley Fire property tax equal $21.66 per Persons Served, so total funding actually required for fire services utilizing the *Per Capital-Per Employee Multiplier Method* would be $94.50 per Persons served. However, as described below in Section III of this Study, the amount of Moreno Valley Fire property tax per Persons Served generated by the Center will be $199.27. As a result, there will be a significant surplus of revenues beyond the $21.66 per Persons Served that is currently the average amount of Moreno Valley Fire property tax costs City-wide. The City will be able to expend these excess revenues on fire services provided throughout other parts of the City outside of the Center.

## D. ANIMAL SERVICES

Animal Control Services costs were projected at $4.70 per Persons Served using the *Per Capita-Employee Multiplier Method*. Please note that this cost multiplier has been reduced by 50% to account for only the portion of Animal Services costs that are expected to be variable with population and employee growth in the City.

## E. DEVELOPMENT SERVICES

Development Services costs, including elements of the Planning and Building Divisions, Land Development services, and certain Public Works (non-overhead/department) services related to new growth, were forecasted at $20.87 per Employee using the *Per Capita-Employee-Multiplier Method*.

## F. OTHER USES

Other Uses costs, including Records Management, Sign Programs, and the Office of Emergency Management and Volunteers, were forecasted at $6.27 per Persons Served based on the *Per Capita-Employee Multiplier Method.* Please note that this cost multiplier has been reduced by 50% to account for only the portion of Other Uses costs that are expected to be variable with population and employee growth in the City.

## G. COMMUNITY DEVELOPMENT

Community Development costs, including certain costs associated with existing City Planning and Building Safety, were forecasted at $4.17 per Persons Served based on the *Per Capita-Employee Multiplier Method.* Please note that this cost multiplier has been reduced by 50% to account for only the portion of Community Development costs that are expected to be variable with population and employee growth in the City.

## H. PUBLIC WORKS – OVERHEAD/DEPARTMENT COSTS

Public Works costs, including Administration, Engineering, and Operations and Maintenance expenses, were projected at $10.79 per Persons Served using the *Per Capita-Employee Multiplier Method*. This category includes those Public Works costs not directly associated with Center-related roadway maintenance, signalized intersections, park rehabilitation, and other infrastructure (i.e. 54 lane miles of roadways, 75 acres of landscaped parkways and medians, 4 signalized intersections, 699 streetlights, 18.1 linear miles of storm drains, and 17.2 linear miles of sidewalks/trails).

## I. TRANSFERS OUT

Transfers Out costs were forecasted at $6.28 per Persons Served using the *Per Capita-Employee-Multiplier Method*.

**TABLE 2F – OTHER GENERAL FUND COSTS (MULTIPLIER METHOD)**

| Category | Amount | Methodology |
|---|---|---|
| Police Services | **$196.20** | Persons Served |
| Moreno Valley Fire | **$72.84** | Persons Served |
| Animal Services | **$4.70** | Persons Served plus 50% Discount |
| Development Services | **$20.87** | Persons Served |
| Other Uses | **$6.27** | Persons Served plus 50% Discount |
| Community Development | **$4.17** | Persons Served plus 50% Discount |
| Public Works | **$10.79** | Persons Served |
| Transfers Out | **$6.28** | Persons Served |

# SECTION 3 FISCAL IMPACTS

## I. TOTAL RECURRING REVENUES: CITY OF MORENO VALLEY

Total recurring revenues to the City equal approximately $11,257,466 per year. As illustrated in **Table 3A** below, the largest percentage of revenue is attributed to the property tax in lieu of VLF revenues (40.2% of total) and property tax revenues (secured and unsecured) (32.0%), together constituting 72.2% of total recurring revenues to the City General Fund. **Exhibits 1-6** of **Appendix A** provide additional details about all recurring revenues and the assumptions used in their derivation.

**TABLE 3A**
**RECURRING FISCAL REVENUES (CITY GENERAL FUND)**

| Category | Amount | Percent* |
|---|---|---|
| Property Tax In-Lieu of Vehicle License Fee | $4,522,818 | 40.2% |
| Secured Property Tax | $3,276,191 | 29.1% |
| Business Receipts Tax & Licenses | $1,210,847 | 10.8% |
| Tax Revenue | $607,657 | 5.4% |
| Indirect Sales Tax | $423,144 | 3.8% |
| Charges for Services | $387,032 | 3.4% |
| Unsecured Property Tax | $327,619 | 2.9% |
| Franchises | $251,896 | 2.2% |
| Property Transfer Tax | $100,495 | 0.9% |
| Intergovernmental Revenues | $60,918 | 0.5% |
| Licenses/Permits | $57,771 | 0.5% |
| Other Revenues | $12,285 | 0.1% |
| Fines and Forfeitures | $6,498 | 0.1% |
| Direct Sales Tax | $6,000 | 0.1% |
| Transfers In | $3,757 | 0.0% |
| Use of Money & Property | $2,538 | 0.0% |
| **Total Revenues** | **$11,257,466** | **100.0%** |

**Numbers may not sum due to rounding*

## II. TOTAL RECURRING SERVICES COSTS: CITY OF MORENO VALLEY

As illustrated in **Table 3B** below, total annual recurring costs to the City are estimated at **$5,557,674** per year. A majority of the costs are estimated to result from police services, fire services, and Center-specific infrastructure and parks maintenance costs. **Exhibits 2 and 7-10** of **Appendix A** provide additional details about all recurring costs and the assumptions used in their derivation.

**TABLE 3B**
**RECURRING FISCAL COSTS (CITY GENERAL FUND)**

| Category | Amount | Percent* |
|---|---|---|
| Police | $1,992,019 | 35.8% |
| Infrastructure & Parks Maintenance Costs | $1,895,474 | 34.1% |
| Fire Services | $739,545 | 13.3% |
| General Government | $391,715 | 7.0% |
| Development Services | $211,893 | 3.8% |
| Public Works | $109,551 | 2.0% |
| Transfers Out | $63,761 | 1.1% |
| Other Uses | $63,659 | 1.1% |
| Animal Services | $47,719 | 0.9% |
| Community Development | $42,338 | 0.8% |
| **Total Costs** | **$5,557,674** | **100.00%** |

**Numbers may not sum due to rounding*

## III. OVERALL NET FISCAL IMPACT TO THE CITY OF MORENO VALLEY

As shown in **Table 3C** below, the overall fiscal impact to the City General Fund resulting from the revenues generated by the Center is a recurring annual fiscal surplus of **$5,699,792** based on the generation of **$11,257,466** in recurring annual revenues and **$5,557,674** in recurring annual costs. Annual revenues are projected to equal **2.03** times the associated City General Fund costs. A summary of the overall fiscal **impacts to the City is provided in Exhibit 11 of Appendix A.**

**TABLE 3C**
**NET FISCAL IMPACT (CITY GENERAL FUND)**

| Category | Amount |
|---|---|
| Total Recurring Revenues | $11,257,466 |
| Total Recurring Costs | ($5,557,674) |
| **Annual Recurring Surplus/(Deficit)** | **$5,699,792** |
| *Total Annual Revenue/Cost Ratio* | *2.03* |
| Surplus per 1,000 SF Industrial | $140 |

However, the picture of the fiscal impacts of the Center on the City is incomplete if one just analyzes the General Fund, because in the case of the Center, a Moreno Valley Fire property tax will be collected by the City that greatly exceeds the cost of fire services provided by the City to the Center. As calculated in Section A-12 in the Appendix, the Moreno Valley Fire property tax

averages 5.54% of the total property taxes levied in the Center, which yields a total of $2,023,235 in annual revenues to the City. While the *Per Capita-Per Employee Multiplier Method*, utilizing the multiplier for both the General Fund and Moreno Valley Fire property tax, reflects total fire costs of $94.50 per Persons Served (see Section 2.II.c, above), the funding for fire services for the Center consists of $72.84 from the General Fund plus $199.27 from the Moreno Valley Fire property tax per Persons Served in the Center, for a total of $272.11 per Persons Served. **This means there will be an excess of $177.61 per Persons Served generated by the Center, or $1,803,274 recurring annually that can be spent on fire services in other parts of the City. Adding this $1.80 million Moreno Valley Fire property tax surplus to the $5.70 General Fund surplus yields a total annual recurring surplus to the City of $7.5 million generated by the Center.**

# SECTION 4 ECONOMIC IMPACTS

The Study also identifies the general economic impacts on the City that would occur due to the Center, and quantifies these impacts wherever possible. General economic impacts include additions to the City's employment (number of average annual full- & part-time jobs), economic output (e.g., gross receipts), and earnings (the sum of wages, salaries and benefits, other labor income, and employer and employee contributions to social security). The Study also distinguishes between one-time economic impacts – i.e. impacts related to one-time construction jobs ("One-time Construction Jobs") and permanent economic impacts – i.e. impacts related to the creation of permanent jobs ("Permanent Jobs"). One-time Construction Job impacts include benefits to the community that occur on a non-permanent basis as a result of construction and development activity, while Permanent Job impacts refer to benefits that occur on a continuing basis, year after year.

## I. PERMANENT JOB IMPACTS

### A. ASSUMPTIONS

In evaluating economic impacts, the Study quantifies both direct and indirect/induced economic impacts on the City. Direct economic impacts, as defined in Section 1 of the Introduction of this Study, reflect the initial or first-round increases in jobs, earnings, and output, all of which occur directly on-site. Indirect/induced economic impacts, as further explained in Section 1 of the Introduction, are the secondary and other additional rounds of economic activity that occur as a consequence of the direct impacts, and can occur elsewhere within the City. The **indirect** impacts represent the economic activity – buying and selling of goods and services – of *suppliers* to the land use types analyzed. In this Study, suppliers to the Center consist primarily of maintenance and repair professionals, utilities' providers, wholesale trade companies, and business support services; while suppliers to retail/office developments consist mainly of real estate firms, computer and other technology firms, accounting and bookkeeping professionals, and utilities' providers. Furthermore, the suppliers representing the indirect one-time impacts are mainly heavy industrial and construction suppliers for the actual development of buildings and facilities. The **induced** impacts represent the economic activity that results from household spending by *employees* of all companies directly and indirectly affected by the construction and operation of the land uses analyzed in this Study. Indirect and induced impacts can occur throughout all industries of the economy, and have been categorized using the North American Industry Classification System (NAICS). Adopted by the Office of Management and Budget (OMB) in 1997 to replace the Standard Industrial Classification System (SIC), NAICS is a widely-used system to classify business establishments for the collection, analysis, and publication of statistical data in Canada, Mexico, and the United States. NAICS industries are identified using a six-digit coding system to classify all economic activity into twenty broad sectors, five of which are mainly goods-producing sectors and fifteen of which are services-producing sectors. This six-digit hierarchical structure allows for the identification of nearly 1,170 industries. The broad NAICS sectors include the Construction, Retail Trade, and Administrative and Support Services classifications, which are the focal NAICS categories analyzed within this Study to determine the indirect and induced economic impacts generated under the analysis.

Based on information provided by the Applicant, the Center is comprised of 40.4 million building square feet of high-cube industrial land use, 200,000 building square feet of general warehouse space, and 3,000 building square feet of light retail space providing basic fuel, food, and vehicle maintenance services for trucks.

1. Direct Employees Assumptions

DTA's analysis is based on the assumption that the Project will directly employ 0.50 employees per 1,000 building square feet. These employees are Full Time Equivalent ("FTE") employees, meaning that part-time employees are only counted based on the percentage of forty (40) hours per week that they are working. Understandably, it takes two half-time (1/2) employees to equal one FTE employee.

DTA estimated the number of direct employees in the proposed development based upon an average employee per SF ratio for similar land uses in the region utilizing two data sources. The first source was an Employment Density Study prepared for the Southern California Council of Governments ("SCAG") for Riverside County in 2001, and the second was a study entitled "Logistics Trends and Specific Industries," which was prepared by the National Association of Industrial and Office Parks ("NAIOP") in 2012.

Tables 9A, 9B, 10A, and 10B of the SCAG Study state that the median building square footage for a logistics employee in Riverside County is 819 to 1,390 square feet, and that the average building square footage for a logistics employee in Riverside County is 581 to 953 square feet. Square footage per employee averages are stated as ranges because the SCAG Report employee density calculations are based on two separate Floor Area Ratio ("FAR") assumptions; the median building square footage (0.31) and the mean building square footage (0.50). Using average employees and the average FAR, the number of employees per 1,000 building square feet based on the SCAG Report ranges from 1.05 to 1.72. Alternatively, using median employees and the median FAR, the number of employees per 1,000 square feet ranges from 0.72 to 1.22 employees.

These SCAG estimates are significantly higher than those prepared by NAIOP. NAIOP's main website (http://www.naiop.org) includes a research section that contains detailed reports on the characteristics of industrial warehouses constructed in recent years. There are separate reports entitled "How Office, Industrial and Retail Development and Construction Contributed to the U.S. Economy" in 2010 and 2011. Table 12 in these reports reflect an average of 900 building square feet per employee for warehouses constructed in 2010 (equivalent to 1.11 employees per 1,000 building square feet) and 450 building square feet per employee for warehouse/flex buildings constructed in 2010 (equivalent to 2.22 employees per 1,000 building square feet).

To ensure that our Study is based on conservative assumptions, DTA utilized the lowest ratio presented in the SCAG and NAIOP analyses, or 0.50 employees per 1,000 square feet of floor space, thereby reflecting the minimal number of employees that will be generated by the Project. Therefore, DTA selected the 0.50 estimate, and is confident that if anything, the logistics employees density that will ultimately be generated by the Project will be higher, particularly

with the increasing use of logistics projects for fulfillment facilities, which average higher numbers of employees per 1,000 building square feet.

2. Annual Income Assumptions

The website for "U.S. Census Bureau's Longitudinal Employer-Household Dynamics Reports" includes an LED Extraction Tool that allows the user to access the average income numbers. Specifically, using the Extraction Tool, a user would choose California, Metropolitan Area, Riverside-San Bernardino-Ontario, Transportation and Warehousing, Male and Female All Ages, Full Quarter Employment Earnings, 2nd Quarter 2012. At that point, a spreadsheet appears indicating a monthly income of $3,410.50 per month over the past twelve months, or $40,926 per year.

In terms of WLC's anticipated average employee incomes, DTA is confident based on its research that the $40,926 average income assessment for employees in the Transportation and Warehousing labor category for the Riverside-San Bernardino-Ontario Metropolitan Area (the "Metropolitan Area") according to the U.S. Census Bureau, is a reasonable estimate. DTA found similar data validating this average income estimate for Riverside County and for the Metropolitan Area as published by the State Economic Development Department ("EDD") and the U.S. Bureau of Labor Statistics ("BLS"). Both of these agencies list average incomes in 2012 for both the Warehousing and Storage labor category and the Transportation and Warehousing labor category in 2012 ranging from $40,123 to $41,721, all of which are within 2.0% of the $40,926 figure. As is appropriate, this average wage was utilized to compute total gross wages generated by WLC as listed in Table 4B, below. Notably, the average incomes listed under the "Warehousing and Storage" and "Transportation and Warehousing" categories from these three government sources for Riverside County and the Inland Empire are virtually identical to the average incomes of current Moreno Valley residents, which according to the BLS is $40,124. As a result, the income levels currently paid in the logistics industry locally, which are likely to be similar to the wages to be paid at WLC, are almost identical to the average incomes currently earned by all employed City residents.

While average incomes are appropriate for use when calculating total projected WLC salaries, they are sometimes not indicative of a typical employee's salary in a logistics facility because high paid employees, such as engineers and managerial staff, can skew the average salary upwards. In these cases, a median income sometimes provides a more accurate assessment of a typical employee's earnings. Unfortunately, median income information for Riverside County and the Inland Empire are not available through the U.S. Census, EDD or BLS. However, based on national data prepared by BLS, it appears that the median income for the Warehouse and Storage labor sector on a nationwide basis equals 88.7% of average income for that sector. Assuming that this ratio could also be applied to the average income of $41,721 per year as listed by the BLS for Riverside County, the median income applicable to Riverside County, and therefore WLC, would be $37,007.

3. Build-Out and Occupancy Assumptions

A detailed review and analysis of future market conditions is not included within the scope of the Study. However, due to the cyclical nature of the real estate market and its impact on the build out period of the Project, it is important to consider how future market absorption and or occupancy might ultimately affect the results described in this analysis.

In terms of the absorption of the Project, the Applicant projects a build out of approximately fifteen (15) years with an average absorption rate of 2.4 million square feet per year (6% of the overall Project). Importantly, the economic impacts prior to build out will be proportional to the amount of the Project that has been completed at any point in time. Once build out occurs, the economic impacts are expected to be consistent with the conclusions of the Study. In the analysis below, DTA has incorporated a discussion of the economic benefits that may be achieved during the absorption period.

Furthermore, the occupancy rates during the absorption period as well as after build out will affect the economic benefits achieved. The Study analyzes the build out condition of the Project assuming full occupancy, i.e. the maximum economic benefit that may be realized by the Project. Importantly, future market cycles may have a significant impact on the occupancy rate for the Project in any given year. As a result, the analysis included in Study also incorporates a discussion of the occupancy rates and their impacts on the economic benefits to be provided by the Project. For purposes of this discussion, DTA has included additional data that reflects an occupancy rate of 90% percent (or a vacancy rate of 10%). The estimated occupancy/vacancy is based on research conducted by DTA of the current and projected market outlook for industrial space. DTA considered the "Casden Forecast – 2012 Industrial & Office Forecast Report" published by the University of Southern California that listed average vacancy rates in 2012 for industrial space significantly below 10%. More importantly, DTA considered the publication titled "Industrial Space in Southern California: Future Supply and Demand for Warehousing and Intermodal Facilities" published by the SCAG that projects increasing demand, increasing rents, and decreasing vacancies for industrial space over next few years. Based on these data sources, DTA is confident that the average vacancy rate of 10%, utilized in the discussion of the occupancy rate of the Center, is appropriate.

Other assumptions used to analyze the economic impact of the Center are summarized in **Table 4A** on the following page.

**TABLE 4A**
**ASSUMPTIONS**

| Assumptions | |
|---|---|
| Land Use Assumptions | *Sq. Ft.* |
| **Logistics Development ("LD")** | **40,397,000** |
| **Light Logistics ("LL")** | **200,000** |
| **Logistics Support ("LS") Site** | **3,000** |
| Employment Assumptions [1] | *per 1,000* |
| **Logistics (LD/LL)** | **0.50** |
| **Retail (LS)** | **2.50** |
| Wage Assumptions [2] | *Annual $* |
| **Warehousing/Transportation (Logistics) [3]** | **$40,926** |
| **Construction** | **$48,825** |
| **Retail [4]** | **$22,885** |
| **Riverside County Average (2010)** | **$40,602** |

*[1] Source: DTA Public Works Database; confirmed by "Employment Density Study," SCAG (2001), and "Logistics Trends and Specific Industries," NAIOP Research Foundation (March 2010).*

- *Identical to metric utilized in fiscal impact analysis, please see Exhibit 3 of Appendix A (0.50 Employees/KSF = 2,000 SF per Employee).*

*[2] Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics Reports (California, 2010) for Riverside-San Bernardino-Ontario Metropolitan Area and Riverside County; confirmed by Bureau of Labor Statistics for Riverside County and for Riverside-San Bernardino-Ontario Metropolitan Area (2nd Quarter, 2012) and State of California Economic Development Department for Riverside County (3rd Quarter, 2012)*

*[3] Standard Warehousing/Transportation Labor Category Average Salary (~$40,926) from U.S. Census Bureau.*

*[4] Reflects a blended average, by employee count, of local "Retail" and "Food Service/Accommodation" salary codes.*

## B. PERMANENT JOB CREATION & EMPLOYEE WAGES

Development will contribute to the creation of Permanent Jobs in the City and County. As shown below in **Table 4B**, development of the Center is projected to generate approximately 20,307 estimated new on-site Permanent Jobs within the City. Since the analyses contained herein are based on estimates and assumptions that are inherently subject to uncertainty and variation depending on evolving events, DTA cannot represent that such estimates will definitely be achieved. Some assumptions inevitably will not materialize, and unanticipated events and circumstances may occur; therefore, the actual results achieved may vary from these projections stated throughout the Study.

In addition to these employment opportunities, DTA estimates that the Center will generate new off-site Permanent Jobs in all industries of the economy, which constitute the indirect/induced Permanent Job impacts of the project. Seven thousand three hundred eighty six (7,386) indirect/induced Permanent Jobs are expected to be created in the County, of which 3,693 are projected to be within the City, as a result of the development of the Center. This estimate was derived utilizing the Impact Analysis for Planning ("IMPLAN") Input/Output Modeling System, a type of quantitative economic model that provides an approximate measure of the "multiplier effect" of a firm's spending on payroll and the purchasing of goods and services. Like similar econometric models, IMPLAN helps to calculate the flow of payments for goods and services across different industry sectors, and between households and industries. Unlike similar econometric models, e.g., the Regional Input-Output Modeling System ("RIMS II"), IMPLAN is the industry standard. RIMS II and IMPLAN both include induced effects, but RIMS II differs from IMPLAN in two ways: (i) RIMS II uses a single household type for induced personal consumption while IMPLAN uses nine (9) household types; and (ii) RIMS II uses the traditional single row/column Type II formulation whereas IMPLAN uses a more robust mapping of factor income to household consumption using several sub-matrices. RIMS II uses location quotients to regionalize the national technical coefficients, a method which underestimates inter-regional trade and overestimates regional multipliers when cross-hauling is present.

The IMPLAN model can be envisioned simply as a large spreadsheet with hundreds of industries (plus the household sector) arrayed across the top as producers, and the same industries and households listed down the side as consumers. Each million dollars (output) in spending by any one consumer (i.e. the Center) is allocated across the producing industries from which it buys goods and services. These producing industries, in turn, spend money buying goods and services from their own distinct sets of suppliers. Thus, the IMPLAN multiplier model allows one to gauge the effect on each dollar an industry spends as it diffuses through a regional economy. Furthermore, it allows one to translate the overall regional impact of spending into jobs and employee compensation.

While the specific location of the additional indirect Permanent Jobs created within the County cannot be specifically determined, experience and modeling indicate that a large percentage of these Permanent Jobs will be support service jobs, and are likely to be located close to the Center, and therefore within the City itself. For purposes of this Study, it is conservatively modeled that one-half of these indirect Permanent Jobs will be located within the City. **Table 4B** shown below, and **Exhibits 1** and **3** of **Appendix B** summarize the direct and indirect Permanent Job impacts of the Center.

**TABLE 4B**
**PERMANENT JOBS AND WAGES**
***(ALL NUMBERS SUBJECT TO ROUNDING)***

| Permanent Job Impact | Direct | Indirect | Induced | Total |
|---|---|---|---|---|
| Employees | | | | |
| Countywide | 20,307 | 3,269 | 4,118 | 27,693 |
| Within City | 20,307 | 1,634 | 2,059 | 24,000 |
| Employee Wages | | | | |
| Countywide | $831 Million | $133 Million | $167 Million | $1.13 Billion |
| Within City | $831 Million | $66 Million | $84 Million | $981 Million |

Overall, the creation of new Permanent Jobs will provide many benefits to the City. More Permanent Jobs will lead to more consumer spending by employees in existing retail establishments within the City, as well as new retail development that will be attracted to the City as a result of this spending. Permanent Job creation also results in increased tax revenues to the City through increased property taxes and sales taxes related to this new development.

However, because of the difference in timing of and/or the occupancy at the various Center developments, the number of Permanent Jobs summarized above will not be realized at the same time. It is estimated the build-out of the Center will occur over 15 years, as many individual elements have not yet begun and the demand for such elements may fluctuate. By way of example, assuming a vacancy rate of 10%, the Center will generate (i) approximately 1,440 Permanent Jobs in the City for every 2.4 million square feet occupied; and (ii) at build out, approximately 21,600 Permanent Jobs within the City.

## C. OVERALL PERMANENT JOB OUTPUT

Total Permanent Job output (i.e., total expenditures including sales or gross receipts, or other operating income) within the City will increase substantially with development. Total Permanent Job output is estimated based on the different types of development projected to occur. As stated in Section I, this Study analyzes direct and indirect/induced impacts. Regarding gross receipts, the direct impact reflects the initial or first-round increases in output (total spending/gross receipts, including payroll), all of which occur directly on the Center site. Permanent Job indirect/induced economic impacts are the secondary and other additional rounds of economic activity that occur as a consequence of the direct output impacts, and can occur outside of the Center. The indirect impacts represent the economic activity – buying and selling of goods and services – of suppliers and/or supporting businesses. The induced impacts represent the economic activity that results from household spending by employees of all companies directly and indirectly affected by the Center (please see **Table 1** on *Page 3* for a graphical representation of the indirect and induced effects). **Table 4C** shown below and **Exhibit 2 of Appendix B** summarize the Total Permanent Job output projections anticipated.

Based again on IMPLAN multipliers and other assumptions utilized in the fiscal impact model, DTA estimated that the Permanent Job direct and indirect/induced effects total $2.37 billion for the County, of which $1.94 billion is attributable to the City.

**TABLE 4C**
**PERMANENT JOB TOTAL OUTPUT**
***(ALL NUMBERS SUBJECT TO ROUNDING)***

| Permanent Job Impacts | Direct | Indirect | Induced | Total |
|---|---|---|---|---|
| Overall Output | | | | |
| Countywide | $1.50 Billion | $376 Million | $494 Million | $2.37 billion |
| Within City | $1.50 Billion | $188 Million | $247 Million | $1.94 billion |

However, similar to the effect that Center absorption and/or occupancy will have on Permanent Jobs, it will have a similar effect on the generation of total output related to the Permanent Jobs, specifically due to the difference in timing of the various Center developments and/or future occupancy rates for the Center. As a result, the overall output related to Permanent Jobs summarized above will not be realized at the same time. By way of example, assuming a vacancy rate of 10%, the Center will generate (i) approximately $116 million in Permanent Job output in the City for every 2.4 million square feet occupied; and (ii) at build out, approximately $1.75 billion in Permanent Job output within the City.

## II. ONE-TIME CONSTRUCTION JOBS, WAGES, AND OUTPUT IMPACTS

According to IMPLAN, development of the Center is also projected to create 16,521 estimated construction-related full-time equivalent ("FTE") jobs within the City. Therefore, given a build out period of approximately 15 years, with projected even absorption, the construction of the Center will create approximately 1,101 FTE annual One-time Construction Jobs in the City. Construction and development costs related to these One-time Construction Jobs will also have multiplier effects on the economy, generating one-time increases in output and wages related to One-time Construction Jobs for non-residential buildings and all related site improvements.

As with Permanent Job impacts, experience and modeling indicate that a large percentage of these One-time Construction Jobs will be support service jobs, and are likely to be located close to the Center, and therefore within the City itself. For purposes of this Study, it is conservatively modeled that one-half of these indirect One-time Construction Jobs will be located within the City. **Table 4D** and **Table 4E** below and **Exhibit 5** of **Appendix B** summarize the projected increases in employment, wages, and output that are generated directly from One-time Construction Jobs of the Center land uses, based on DTA wage and construction cost assumptions.

**TABLE 4D**
**ONE-TIME CONSTRUCTION JOB INCREASES IN EMPLOYMENT AND WAGES**
*(ALL NUMBERS SUBJECT TO ROUNDING)*

| One-Time Construction Job Impacts | Direct | Indirect | Induced | Total |
|---|---|---|---|---|
| Employees | | | | |
| Countywide | 12,807 | 3,285 | 4,141 | 20,233 |
| Within City | 12,807 | 1,643 | 2,071 | 16,521 |
| Employee Wages | | | | |
| Countywide | $625 Million | $133 Million | $168 Million | $927 Million |
| Within City | $625 Million | $67 Million | $84 Million | $776 Million |

**TABLE 4E**
**ONE-TIME CONSTRUCTION JOB TOTAL OUTPUT**
*(ALL NUMBERS SUBJECT TO ROUNDING)*

| One-Time Construction Job Impacts | Direct | Indirect | Induced | Total |
|---|---|---|---|---|
| Overall Output | | | | |
| Countywide | $1.67 billion | $436 million | $496 million | $2.60 Billion |
| Within City | $1.67 billion | $218 million | $248 million | $2.14 Billion |

By way of example, assuming an vacancy rate of 10%, the Center would generate (i) approximately 991 One-time Construction Jobs, $47 million in related wages, and $128 million in related output, in the City for every 2.4 million square feet developed; and (ii) at build out, approximately 14,867 One-time Construction Jobs, $698 million in related wages, and 1.92 billion in related output within the City.

## III. OTHER IMPACTS (JOBS-HOUSING BALANCE)

As stated earlier, the Center is estimated to create approximately 20,307 new on-site jobs, and DTA estimates that an additional 7,386 new off-site jobs will be created County-wide (of which 3,693 will be located within the City). As depicted in **Table 4F** and **Figure B** below, as well as in **Exhibit 4** of **Appendix B**, because the Center does not involve a residential component, the jobs generated by the Center do not need to support new households as a result of direct employment or indirect employment. This results in a Jobs-Housing balance calculation wherein the numerator increases (as described above), while the denominator remains constant.

The Jobs-Housing balance is an indicator of the balance between employment and housing opportunities. Defining what constitutes a balance between jobs and housing is not an easy task. Assuming a simple ratio of one job to one household is inappropriate today when so many households include more than one person in the workforce. A study prepared by the Southern California Association of Governments ("SCAG") suggests that if an area has a Jobs-Household

balance that significantly diverges from a regional standard of 1.0–1.29, it can be considered out of balance.

At build-out, the Center will significantly affect the Jobs-Housing balance. As described in **Exhibit 4** of **Appendix B**, moving forward with the Center will increase total employment in the City from 25,120 (current, per California Employment Development Department, Labor Market Information Division) to 49,120 (projected), increasing the City Jobs-Housing balance from 0.47 to 0.91, a metric now largely in line with the SCAG standard[1]. The 27,693 new County employees from the Center will increase total County employment to 579,185 (projected) from 551,492 (current), resulting in an increase in the County Jobs-Housing balance as well, up to 0.74 from 0.70. **Table 4F** and **Figure B** below, and **Exhibit 4** of **Appendix B** summarize the pre- and post-Center Jobs-Housing Balance.

**TABLE 4F**

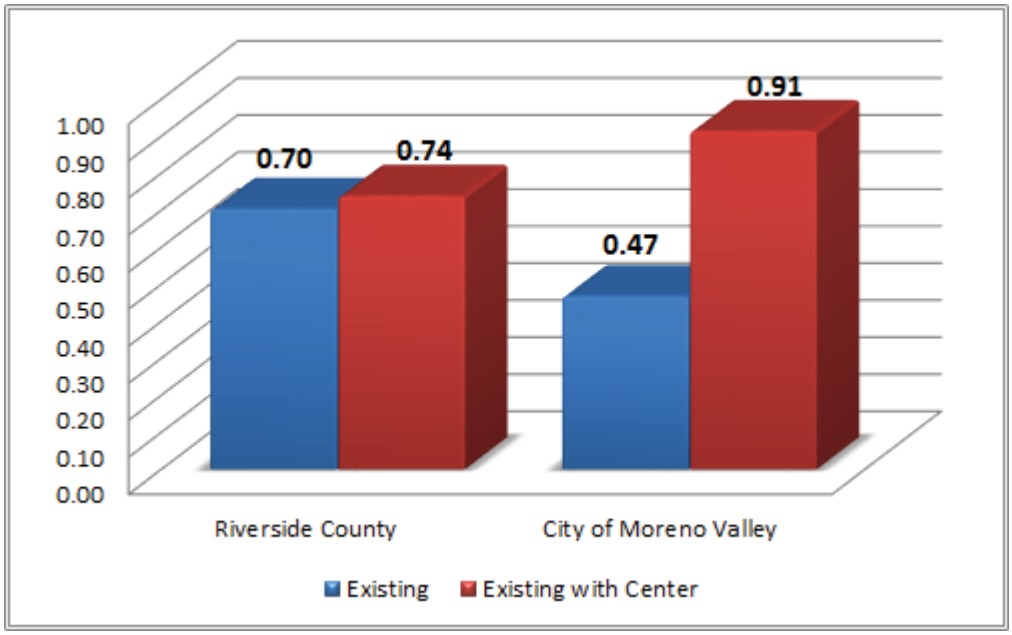
| Jobs-Housing Balance | Balance without Center | Balance with Center | % Increase /(Decrease) |
|---|---|---|---|
| Countywide | 0.70 | 0.74 | 5.02% |
| Within City | 0.47 | 0.91 | 95.54% |

However, as development of the Center is expected to occur over many years, the Jobs-Housing balance will not be significantly changed in the earlier years due to the Center. As the City's current Jobs-Housing balance is exceptionally low according to SCAG standards, the need for employment is immediate. By way of example, assuming a vacancy rate of 10%, the Center will result in a jobs housing balance of (i) approximately 0.49 in the City for the first 2.4 million square feet occupied (increasing by approximately 0.03 for every additional 2.4 million occupied); and (ii) at build out, approximately 0.87 within the City.

A balance between jobs and housing has a positive impact on the City by decreasing costs associated with commuting and traffic congestion. A balanced Jobs-Housing ratio provides, inter alia, reduced commute times, improved social and cultural involvement, a more attractive work/life balance to residents, and savings to local public agencies in terms of the need to construct and maintain new road improvements and other facilities. For example, the lower transportation facility costs experienced by local public agencies will enable these agencies to invest their tax proceeds in other facilities that can improve the quality of life within the City, such as libraries, recreational centers, and other community amenities.

[1] The jobs/housing balance ratio does not account for projected population growth or employment growth resulting from other future development that may occur in the City.

**FIGURE B**
**JOBS-HOUSING BALANCE**



# APPENDIX A

# FISCAL IMPACT MODEL

EXHIBIT A-1
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
CITY GENERAL FUND REVENUES (BY TYPE)

I. **Demographics and Other Data**

| | |
|---|---|
| **2012 Estimated City Population [1]** | 195,216 |
| **2012 Estimated City Employees [2]** | 25,120 |
| **2012 Persons Served Population [3]** | 207,776 |

**Notes:**

[1] California Department of Finance, Price and Population Information, January 1, 2011.

[2] California Employment Development Department ("EDD") - Labor Market Information Division, 2010 Annual Average NAICS Sector Data.

[3] Assumes City population plus 50% of employees.

[4] Certain revenues are not expected to increase one-to-one with the new development. A discount of 25% was applied to reflect the estimated ratio of fixed revenues to variable revenues and/or one-time to recurring revenues.

II. **City Revenue Sources (by Type)**

| Revenue Type | Total Revenues | Revenue Type | Fiscal Impact Basis | Discount [4] | Fiscal Impact Revenue Factor |
|---|---|---|---|---|---|
| **Tax Revenue** | **$50,894,540** | | **Persons Served** | | **$59.85** |
| Property Tax | $5,756,540 | Recurring | Case Study | 0% | NA |
| Sales Tax | $11,444,000 | Recurring | Case Study | 0% | NA |
| Property Tax in Lieu-VLF | $13,195,000 | Recurring | Case Study | 0% | NA |
| Property Tax in Lieu-Sales Tax | $3,449,000 | Recurring | Case Study | 0% | NA |
| Documentary Transfer Tax | $470,000 | Recurring | Case Study | 0% | NA |
| Utility Users Tax | $15,980,000 | Recurring | Persons Served | 25% | $57.68 |
| Transient Occupancy Tax | $600,000 | Recurring | Persons Served | 25% | $2.17 |
| **Business Receipts Tax & Licenses** | **$1,498,000** | **Recurring** | **Per Employee** | **0%** | **$59.63** |
| **Franchises** | **$5,154,208** | **Recurring** | **Persons Served** | **0%** | **$24.81** |
| **Licenses/Permits** | **$1,182,200** | **Recurring** | **Persons Served** | **0%** | **$5.69** |
| **Intergovernmental Revenues** | **$1,247,000** | **Recurring** | **Persons Served** | **0%** | **$6.00** |
| **Charges for Services** | **$7,920,254** | **Recurring** | **Persons Served** | **0%** | **$38.12** |
| **Use of Money & Property** | **$52,800** | **Recurring** | **Persons Served** | **0%** | **$0.25** |
| **Interest Income** | **$4,018,000** | **Recurring** | **Case Study** | **0%** | **NA** |
| **Fines and Forfeitures** | **$132,000** | **Recurring** | **Persons Served** | **0%** | **$0.64** |
| **Transfers In** | **$77,513** | **Recurring** | **Persons Served** | **0%** | **$0.37** |
| **Motor Vehicle License Fee** | **$400,000** | **Recurring** | **Case Study** | **0%** | **NA** |
| **Other Revenues** | **$251,550** | **Recurring** | **Persons Served** | **0%** | **$1.21** |
| **Total Recurring Revenues** | **$72,828,065** | | | | |

EXHIBIT A-2
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
CITY GENERAL FUND EXPENDITURES (BY TYPE)

I. **Demographics and Other Data**

| | |
|---|---|
| **2012 Estimated City Population [1]** | 195,216 |
| **2012 Estimated City Employees [2]** | 25,120 |
| **2012 Persons Served [3]** | 207,776 |

**Notes:**

[1] California Department of Finance, Price and Population Information, January 1, 2011.

[2] California Employment Development Department ("EDD") - Labor Market Information Division, 2010 Annual Average NAICS Sector Data.

[3] Assumes City population plus 50% of employees.

[4] Certain expenditures are not expected to increase one-to-one with the new development. A discount of 50% was applied to reflect the estimated ratio of fixed expenditures to variable expenditures and/or one-time to recurring expenditures.

II. **City Expenditures (by Type)**

| Expenditure Type | Total Expenditures | Revenue Type | Fiscal Impact Basis | Discount [4] | Fiscal Impact Revenue Factor |
|---|---|---|---|---|---|
| **GENERAL GOVERNMENT** | | | | | |
| City Council - Administration | $577,099 | Recurring | Case Study | 0% | NA |
| City Manager | $844,795 | Recurring | Case Study | 0% | NA |
| City Clerk - Administration | $490,205 | Recurring | Case Study | 0% | NA |
| Economic Dev. - Administration | $312,518 | Recurring | Case Study | 0% | NA |
| City Attorney - Admin. | $930,802 | Recurring | Case Study | 0% | NA |
| Communications - Admin. | $66,233 | Recurring | Case Study | 0% | NA |
| Human Resources - Admin. | $709,395 | Recurring | Case Study | 0% | NA |
| Graphics Support | $190,104 | Recurring | Case Study | 0% | NA |
| FASD - Administration | $292,275 | Recurring | Case Study | 0% | NA |
| Financial Operations | $1,192,981 | Recurring | Case Study | 0% | NA |
| Treasury Operations | $1,003,866 | Recurring | Case Study | 0% | NA |
| Purchasing | $474,506 | Recurring | Case Study | 0% | NA |
| **NON-GENERAL GOVERNMENT** | | | | | |
| Community Development | $1,734,906 | Recurring | Persons Served | 50% | $4.17 |
| Public Works | $2,242,854 | Recurring | Persons Served | 0% | $10.79 |
| Police | $40,764,819 | Recurring | Persons Served | 0% | $196.20 |
| Animal Services | $1,952,210 | Recurring | Persons Served | 50% | $4.70 |
| Other Uses | $2,605,735 | Recurring | Persons Served | 50% | $6.27 |
| Development Services | $4,336,491 | Recurring | Persons Served | 0% | $20.87 |
| Fire Services | $15,134,968 | Recurring | Persons Served | 0% | $72.84 |
| Transfers Out | $1,303,900 | Recurring | Persons Served | 0% | $6.28 |
| **Total Recurring Expenditures** | **$77,160,662** | | | | |

EXHIBIT A-3
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
LAND USE AND DEMOGRAPHICS SUMMARY

## FUTURE LAND USE DATA

I. World Logistics Center Developable Land Use Description

| A. Residential Land Uses | Number of Units [1] |
|---|---|
| Single-Family Detached | 0 |
| Multi-family (Affordable) | 0 |

| B. Commercial Land Uses | Sq. Ft. [1] |
|---|---|
| Retail | 3,000 |
| Non-Retail (Logistics Development and Light Logistics) | 40,597,000 |

## DEMOGRAPHIC DATA

II. Demographics

| A. Residential Land Use Population | Persons per Household [2] |
|---|---|
| Persons per Household | 3.74 |

| B. Non-Residential Land Use Employee Generation<br>Commercial Land Uses | Sq. Ft. per Employee [3] |
|---|---|
| Retail | 400 |
| Non-Retail (Logistics Development and Light Logistics) | 2,000 |

---

## POPULATION AND EMPLOYEES (CALCULATIONS)

| III. Residential Land Use Type | Number of Units | Residential Population |
|---|---|---|
| Single-Family Detached | 0 | 0 |
| Multi-family (Affordable) | 0 | 0 |

| IV. Non-Residential Land Use Type | Sq. Ft. | Total Direct Employees |
|---|---|---|
| Retail | 3,000 | 8 |
| Non-Retail (Logistics Development and Light Logistics) | 40,597,000 | 20,299 |

---

## SOI POPULATION AND EMPLOYEES (TOTALS)

| | |
|---|---|
| V. Total Projected Residential Population | 0 |
| VI. Total Projected Direct Employees | 20,306 |
| VII. Total Persons Served Population | 10,153 |

NOTES:

[1] Source: Highland Fairview, City of Moreno Valley.

[2] California Department of Finance - Demographic Research Unit, Census 2010 Demographic Profile Summary File, generated May 12, 2011.

[3] Source: DTA Public Works Database; confirmed by "Employment Density Study," SCAG (2001), and "Logistics Trends and Specific Industries," NAIOP Research Foundation (March 2010). Identical to metrics utilized in economic impact analysis, please see Exhibit B-1.

* *All figures subject to rounding*

EXHIBIT A-4
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
PROPERTY TAX REVENUE ANALYSIS

## GENERAL PROPERTY TAX ASSUMPTIONS

**I. Property Tax Allocation (as a Portion of the 1% General Property Tax Levy)**

| Category | Upon Full Annexation to City of Moreno Valley [1]<br>City of Moreno Valley |
|---|---|
| General Fund [2] | 0.08965230 |
| | **8.97%** |

**II. Homeowner's Exemption**

| | |
|---|---|
| Homeowner's Exemption (Annually) | $7,000 |
| Percent of Sale Units Taking Homeowner's Exemption [3] | 90% |

## ASSESSED VALUATION ASSUMPTIONS

**III. Assessed Valuation - Projected Land Uses**

**Residential Land Uses**

**A. Single-Family Detached Units**

| | |
|---|---|
| Number of Units [4] | 0 |
| Estimated Blended Sales Price per Unit [5] | $0 |
| Total Estimated Net Taxable Value (Includes Estimated Takedown from Homeowner's Exemptions) | $0 |

**B. Multi-family (Affordable)**

| | |
|---|---|
| Number of Units [4] | 0 |
| Estimated Sales Price per Unit [5] | $0 |
| Total Estimated Net Taxable Value | $0 |

**Non-Residential Land Uses**

**C. Retail**

| | |
|---|---|
| Estimated Number of Sq. Ft. [4] | 3,000 |
| Estimated Valuation per Sq. Ft. [6] | $200 |
| Total Estimated Net Taxable Value | $600,000 |

**D. Non-Retail (Logistics Development and Light Logistics)**

| | |
|---|---|
| Estimated Number of Sq. Ft. [4] | 40,597,000 |
| Estimated Valuation per Sq. Ft. [6] | $90 |
| Total Estimated Net Taxable Value | $3,653,730,000 |

**E. Total Land Use Net Taxable Value (Includes Takeout from Homeowner's Exemption)** $3,654,330,000

## OTHER PROPERTY TAX REVENUE ASSUMPTIONS

**IV. Unsecured Property Taxes - Assumptions [7]**

**Residential**

| | |
|---|---|
| Unsecured Taxes as a % of Secured | 2.75% |

**Non-Residential**

| | |
|---|---|
| Unsecured Taxes as a % of Secured | 10.00% |

**V. Property Tax Transfer - Assumptions [8]**

| | |
|---|---|
| Residential Property Turnover Rate | 10.00% |
| Non-Residential Property Turnover Rate | 5.00% |
| Transfer Tax as a % of Assessed Value | 0.11% |
| Property Transfer Tax Passed Through to City of Moreno Valley | 50.00% |

**VI. Motor Vehicle Licensing Fees - Assumptions**

| | |
|---|---|
| Vehicle Licensing Fees per Capita | $2.05 |

**VII. Property Tax In-Lieu of Vehicle License Fee - Assumptions**

| | |
|---|---|
| Total City of Moreno Valley Gross Assessed Value [9] | $10,445,118,397 |
| City of Moreno Valley Property Tax In-Lieu of Vehicle License Fee [10] | $13,195,000 |
| Property Tax In-Lieu of Vehicle License Fee Increase per $1,000 Assessed Value | $1.26 |

EXHIBIT A-4
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
PROPERTY TAX REVENUE ANALYSIS

## Fiscal Impact Calculation

| VIII. | Fiscal Impact Category | Fiscal Impact Amount |
|---|---|---|
| A. | **Secured Property Tax** | |
| | **Residential Land Uses** | |
| | Single-Family Detached | $0 |
| | Multi-family (Affordable) | $0 |
| | **Non-Residential Land Uses** | |
| | **Commercial Land Uses** | |
| | Retail | $538 |
| | Non-Retail (Logistics Development and Light Logistics) | $3,275,653 |
| B. | **Unsecured Property Tax** | |
| | **Residential Land Uses** | |
| | Single-Family Detached | $0 |
| | Multi-family (Affordable) | $0 |
| | **Non-Residential Land Uses** | |
| | **Commercial Land Uses** | |
| | Retail | $54 |
| | Non-Retail (Logistics Development and Light Logistics) | $327,565 |
| C. | **Property Transfer Tax** | |
| | **Residential Land Uses** | |
| | Single-Family Detached | $0 |
| | Multi-family (Affordable) | $0 |
| | **Non-Residential Land Uses** | |
| | **Commercial Land Uses** | |
| | Retail | $17 |
| | Non-Retail (Logistics Development and Light Logistics) | $100,478 |
| D. | **Motor Vehicle Licensing Fees [11]** | $0 |
| E. | **Property Tax In-Lieu of Vehicle License Fee [12]** | |
| | Projected Residential and Non-Residential Land Uses | $4,522,818 |
| | **Total Property Tax Revenues** | **$8,227,123** |

**NOTES:**

[1] Based on "General Fund" levy for Tax Rate Areas (TRAs). Data provided by the County of Riverside Auditor-Controller's Office. TRA allocations adjusted for ERAF. Figure reflects multiple TRAs ranging from 3%-21%, weighted by assessed value. As agreed, figure does not include non-General Funds.

[2] Regarding those TRAs in unincorporated Riverside County, the City of Moreno Valley will receive 25% of the incremental ERAF-adjusted tax allocation post annexation. Source: Resolution No. 85-551 - *Master Property Tax Transfer Agreement Between the County of Riverside and the City of Moreno Valley Relating to Annexations,* dated September 10, 1985.

[3] Estimate, subject to change.

[4] Please see Exhibit A-3. Subject to change.

[5] Please see Exhibit A-3. Subject to change.

[6] Estimated valuation per square foot based on recently conducted fiscal impact studies by DTA and research conducted by DTA for recently constructed comparable buildings in the Inland Empire. Estimate, subject to change

[7] Based on typical DTA baseline assumptions.

[8] Source: California Revenue & Taxation Code §11901, et seq. ; Moreno Valley Municipal Code §3.22.020.

[9] Source: *Riverside County Assessor Annual Report;* Fiscal Year 2011-12, City of Moreno Valley total assessed value.

[10] Source: City of Moreno Valley Operating Budget, Fiscal Year 2012-2013.

[11] City of Moreno Valley no longer receiving motor vehicle licensing fees. Please see page 7 of Study for explanation.

[12] Property Tax in-lieu of Vehicle Licensing Fees applies to incremental property value post-annexation. Current estimated land value of Center site of $74,082,308 excluded from calculation.

* ***All figures subject to rounding***

EXHIBIT A-5
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
SALES TAX REVENUE ANALYSIS

## INDIRECT SALES TAX ASSUMPTIONS

**I. Residential Indirect Sales Tax Assumptions**

**A. Mortgage Assumptions**

| | |
|---|---|
| **Projected Residential Units** | |
| **Single-Family Residential and Multi-family (Affordable)** | |
| Projected Sales Price per Unit (Blended) | $0 |
| Average Mortgage (20% Down Payment) [1] | $0 |
| Annual Mortgage Payment (8% for 30 Years) [2] | $0 |
| Additional Annual Taxes & Insurance (2.00%) | $0 |

**B. Disposable Income Assumptions**

| | |
|---|---|
| **Projected Residential Units** | |
| **Single-Family Residential and Multi-family (Affordable)** | |
| Average Household Income (3:1 Income to Household Payment Ratio) [1] | $0.00 |
| Retail Taxable Expenditures (as a % of Disposable Income) [3] | 0.00% |

**C. Other Indirect Sales Tax Assumptions**

| | |
|---|---|
| **Employees (annual spending per employee) [4]** | $4,168 |
| **Retail Taxable Sales Capture** | |
| City of Moreno Valley Retail Taxable Purchase Capture [5] | 50% |
| **Other Sales Tax Assumptions** | |
| % to the City of Moreno Valley [6] | 1.00% |

## DIRECT SALES TAX ASSUMPTIONS

**II. Non-Residential Direct Sales Tax Assumptions**

**A. Taxable Sales per Sq. Ft. [7]**

| | |
|---|---|
| **Non-Residential** | |
| Retail | $250 |
| Non-Retail | $0 |

**B. Displaced Taxable Sales**

| | |
|---|---|
| Displaced Existing Taxable Sales within the City of Moreno Valley [8] | 20% |

## FISCAL IMPACT CALCULATION

| III. Fiscal Impact Category | Fiscal Impact Amount |
|---|---|
| **A. Indirect Sales Tax** | |
| **Projected Residential Land Uses** | |
| Single-Family Residential and Multi-family (Affordable) | $0 |
| **Employee Taxable Sales** | $423,144 |
| **B. Direct Sales Tax [7]** | |
| **Projected Non-Residential Land Uses** | |
| **Commercial Land Uses** | |
| Retail | $6,000 |
| Non-Retail | $0 |
| **Total Sales Tax Revenues** | **$429,144** |

**NOTES:**

[1] DTA estimates. Subject to change.

[2] DTA estimate. Annual payment includes principal, interest, property taxes, and homeowner's insurance.

[3] Source: BOE *2008 Consumer Expenditure Survey.*

[4] Source: "Office Worker Retail Spending Patterns: A Downtown and Suburban Area Study," ICSC (2004). Adjusted for inflation assuming 3% annual inflation rate.

[5] Estimate, subject to change.

[6] Source: Moreno Valley Municipal Code §3.36.020.

[7] Based on the median sales per sq. ft. figure for retail centers as outlined in "Dollars and Cents of Shopping Centers" (2008) published by the Urban Land Institute. However, no retail activity expected on Center site, only logistics warehousing. Source: Highland Fairview.

[8] Estimate, subject to change.

* ***All figures subject to rounding***

EXHIBIT A-6
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
INVESTMENT INCOME REVENUES ANALYSIS

## ASSUMPTIONS

**I. Investment Income Assumptions**

| | |
|---|---|
| Investment Period for Recurring Non-Interest General Fund Revenues | 12 Months |
| Local Agency Investment Fund (LAIF) Rate of Return [1] | 0.40% |
| Local Agency Investment Fund (LAIF) Percentage of Earnings Cost [2] | 100.00% |

## FISCAL IMPACT CALCULATION

| II. Fiscal Impact Category | Fiscal Impact Amount |
|---|---|
| Total Property Tax Revenues (Exhibit 4) | $8,227,123 |
| Total Sales Tax Revenues (Exhibit 5) | $429,144 |
| Total Multiplier Revenues (Exhibit 7) | $2,601,199 |
| **Projected Recurring General Fund Revenues Available for Investment** | **$11,257,466** |
| Plus: Investment Income (Less Earnings Cost) | $0 |
| **Total Recurring General Fund Revenues** | **$11,257,466** |

**NOTES:**

[1] 47-Quarter Average (March Beginning 2000 to September Ending 2011) is 3.0%, yet current rate is ~0.50%, LAIF Apportionment Rates as provided by the California State Treasurer.

[2] Per the direction of the City, DTA conservatively assumed that earnings costs would fully absorb any returns over a 12-month period.

* ***All figures subject to rounding***

EXHIBIT A-7
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
MULTIPLIER REVENUE SOURCES ANALYSIS

## ASSUMPTIONS

### I. Multiplier Revenues

| Revenue Category | Multiplier Factor [1] | Revenue Projection Basis |
|---|---|---|
| Tax Revenue | $59.85 | Persons Served |
| Business Receipts Tax & Licenses | $59.63 | Per Employee |
| Franchises | $24.81 | Persons Served |
| Licenses/Permits | $5.69 | Persons Served |
| Intergovernmental Revenues | $6.00 | Persons Served |
| Charges for Services | $38.12 | Persons Served |
| Use of Money & Property | $0.25 | Persons Served |
| Fines and Forfeitures | $0.64 | Persons Served |
| Transfers In | $0.37 | Persons Served |
| Other Revenues | $1.21 | Persons Served |

## FISCAL IMPACT CALCULATION

| II. Fiscal Impact Category | Fiscal Impact Amount |
|---|---|
| Tax Revenue | $607,657 |
| Business Receipts Tax & Licenses | $1,210,847 |
| Franchises | $251,896 |
| Licenses/Permits | $57,771 |
| Intergovernmental Revenues | $60,918 |
| Charges for Services | $387,032 |
| Use of Money & Property | $2,538 |
| Fines and Forfeitures | $6,498 |
| Transfers In | $3,757 |
| Other Revenues | $12,285 |
| **Total Multiplier Revenues** | **$2,601,199** |

**NOTES:**

[1] Based on City of Moreno Valley Operating Budget, Fiscal Year 2012-2013.

* ***All figures subject to rounding***

EXHIBIT A-8
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
MULTIPLIER EXPENDITURES ANALYSIS

## ASSUMPTIONS

I. **Multiplier Expenditures**

| Expenditure Category | Multiplier Factor [1] | Expenditure Projection Basis [1] |
|---|---|---|
| Community Development | $4.17 | Persons Served |
| Public Works | $10.79 | Persons Served |
| Police | $196.20 | Persons Served |
| Animal Services | $4.70 | Persons Served |
| Other Uses | $6.27 | Persons Served |
| Development Services | $20.87 | Persons Served |
| Fire Services | $72.84 | Persons Served |
| Transfers Out | $6.28 | Persons Served |

## FISCAL IMPACT CALCULATION

| II. Fiscal Impact Category | Fiscal Impact Amount |
|---|---|
| Community Development | $42,338 |
| Public Works | $109,551 |
| **Police** | **$1,992,019** |
| Animal Services | $47,719 |
| Other Uses | $63,659 |
| Development Services | $211,893 |
| **Fire Services** | **$739,545** |
| Transfers Out | $63,761 |
| **Total Multiplier Expenditures** | **$3,270,485** |

**NOTES:**

[1] Based on City of Moreno Valley Operating Budget, Fiscal Year 2012-2013.

* ***All figures subject to rounding***

EXHIBIT A-9
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
CASE STUDY EXPENDITURES ANALYSIS

## Infrastructure & Parks Maintenance Costs

| | | |
|---|---|---|
| **I.** | **Estimated Additional Infrastructure Requirements [1]** | |
| | Estimated Lane Miles of Roadway | 54.0 |
| | Estimated Number of Signalized Intersections | 4.0 |
| | Estimated Number of Streetlights | 0.0 |
| | Estimated Acres of Parkways and Medians | 75.0 |
| | Estimated Acres of Open Space/Slopes | 206.0 |
| | Estimated Acres of Basin | 0.0 |
| | Estimated Mileage of Storm Drains | 18.1 |
| | Estimated Mileage of Sidewalks/Trails | 0.0 |
| **II.** | **Estimated Annual Costs [2]** | |
| | Roadway Maintenance Costs per Lane Mile | $12,000 |
| | Traffic Signal Maintenance per Intersection | $4,938 |
| | Street Light Maintenance per Light | $126 |
| | Parkway/Median Maintenance Costs per Acre | $14,953 |
| | Open Space/Slope Maintenance per Acre | $517 |
| | Basin/Lake Maintenance per Acre | $5,164 |
| | Storm Drain Maintenance Per Mile | $1,177 |
| | Sidewalk/Trail Mileage per Lineal Mile | $3,497 |
| **III.** | **Estimated Annual Infrastructure & Parks Maintenance Calculation** | |
| | Roadways | $648,000 |
| | Signalized Intersections | $19,752 |
| | Street Lights | $0 |
| | Parkway/Median | $1,121,505 |
| | Open Space | $106,399 |
| | Basin | $0 |
| | Storm Drains | $21,285 |
| | Sidewalks/Trails | $0 |
| **IV.** | **Measure A Set-Off [3]** | |
| | Measure A Sales Tax | 0.50% |
| | Measure A Sales Tax Passed Through to the City | 10.15% |
| | (Measure A Set-Off resulting from World Logistics Center) | ($21,467) |
| | **Total Infrastructure & Parks Maintenance Costs** | **$1,895,474** |

**NOTES:**

[1] Source: Highland Fairview; reflects only those improvements to be operated and maintained by the City's General Fund. Per the direction of the City, maintenance of streetlights and trails will be funded outside the General Fund. Subject to change.

[2] Based on data obtained from the DTA Public Works database, in concert with research from the Engineering News-Record.

[3] Half cent sales tax of which ~10% goes to the City of Moreno Valley based on percentage of total Measure A funds allocated to Moreno Valley with respect to the County total. Subject to change. Source: Riverside County Transportation Commission (RCTC) Annual Budget, Fiscal Year 2011-2012.

* ***All figures subject to rounding***

EXHIBIT A-10
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
GENERAL GOVERNMENT EXPENDITURES ANALYSIS

## ASSUMPTIONS

| | |
|---|---|
| Total Recurring General Fund Expenditures (excluding General Government Overhead) [1] | $70,075,883 |
| Recurring General Government Overhead Expenditures (as a % of Total Recurring General Fund Expenditures) [2] | 10.11% |
| Marginal Increase in General Government Costs [3] | 75% |

## FISCAL IMPACT CALCULATION

| I. Fiscal Impact Category | Fiscal Impact Amount |
|---|---|
| Total Multiplier Expenditures (Exhibit 8) | $3,270,485 |
| Total Case Study Expenditures (Exhibit 9) | $1,895,474 |
| **Projected Recurring General Fund Expenditures** | **$5,165,959** |
| Plus: General Government Costs | $391,715 |
| **Total Recurring Expenditures** | **$5,557,674** |

**NOTES:**

[1] Based on City of Moreno Valley Operating Budget, Fiscal Year 2012-2013.

[2] General Government Overhead Expenditures defined as costs for City Council, City Manager, City Clerk, Administrative Services, City Treasurer, etc.

[3] Estimate, subject to change. Current City staffing numbers are likely artificially low and are thus not suitable for serving new development.

* ***All figures subject to rounding***

EXHIBIT A-11
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
NET FISCAL IMPACT SUMMARY

| RECURRING GENERAL FUND REVENUES [1] | AMOUNT | PERCENT OF TOTAL |
|---|---|---|
| Secured Property Tax | $3,276,191 | 29.1% |
| Unsecured Property Tax | $327,619 | 2.9% |
| Property Transfer Tax | $100,495 | 0.9% |
| Motor Vehicle Licensing Fees | $0 | 0.0% |
| Property Tax In-Lieu of Vehicle License Fee | $4,522,818 | 40.2% |
| Direct Sales Tax | $6,000 | 0.1% |
| Indirect Sales Tax | $423,144 | 3.8% |
| Tax Revenue | $607,657 | 5.4% |
| Business Receipts Tax & Licenses | $1,210,847 | 10.8% |
| Franchises | $251,896 | 2.2% |
| Licenses/Permits | $57,771 | 0.5% |
| Intergovernmental Revenues | $60,918 | 0.5% |
| Charges for Services | $387,032 | 3.4% |
| Use of Money & Property | $2,538 | 0.0% |
| Fines and Forfeitures | $6,498 | 0.1% |
| Transfers In | $3,757 | 0.0% |
| Other Revenues | $12,285 | 0.1% |
| Investment Income | $0 | 0.0% |
| **Total Recurring General Fund Revenues** | **$11,257,466** | **100.0%** |

| RECURRING GENERAL FUND EXPENDITURES [2] | AMOUNT | PERCENT OF TOTAL |
|---|---|---|
| Community Development | $42,338 | 0.8% |
| Public Works | $109,551 | 2.0% |
| Police | $1,992,019 | 35.8% |
| Animal Services | $47,719 | 0.9% |
| Other Uses | $63,659 | 1.1% |
| Development Services | $211,893 | 3.8% |
| Fire Services | $739,545 | 13.3% |
| Transfers Out | $63,761 | 1.1% |
| General Government | $391,715 | 7.0% |
| Infrastructure & Parks Maintenance Costs | $1,895,474 | 34.1% |
| **Total Recurring General Fund Expenditures** | **$5,557,674** | **100.0%** |

| NET FISCAL IMPACT | |
|---|---|
| Total Annual Recurring General Fund Surplus/(Deficit) | **$5,699,792** |
| Total Annual Revenue/Expenditure Ratio | **2.03** |
| Total Fiscal Surplus/(Deficit) per 1,000 SF Logistics | **$140** |

NOTES:

[1] Please see Exhibits 4-7 for the derivation of these calculations.

[2] Please see Exhibits 8-10 for the derivation of these calculations.

* ***All figures subject to rounding***

EXHIBIT A-12
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
MORENO VALLEY FIRE PROPERTY TAX CASE STUDY

## GENERAL PROPERTY TAX ASSUMPTIONS

**I. Property Tax Allocation (as a Portion of the 1% General Property Tax Levy)**

| Category | Upon Full Annexation to City of Moreno Valley [1] |
|---|---|
| | City of Moreno Valley |
| Moreno Valley Fire Property Tax | 0.05536541 |
| | **5.54%** |

**II. Homeowner's Exemption**

| | |
|---|---|
| Homeowner's Exemption (Annually) | $7,000 |
| Percent of Sale Units Taking Homeowner's Exemption [2] | 90% |

## ASSESSED VALUATION ASSUMPTIONS

**III. Assessed Valuation - Projected Land Uses**

**Non-Residential Land Uses**

**A. Retail**

| | |
|---|---|
| Estimated Number of Sq. Ft. [3] | 3,000 |
| Estimated Valuation per Sq. Ft. [4] | $200 |
| Total Estimated Net Taxable Value | $600,000 |

**B. Non-Retail (Logistics Development and Light Logistics)**

| | |
|---|---|
| Estimated Number of Sq. Ft. [3] | 40,597,000 |
| Estimated Valuation per Sq. Ft. [4] | $90 |
| Total Estimated Net Taxable Value | $3,653,730,000 |

**C. Total Land Use Net Taxable Value (Includes Takeout from Homeowner's Exemption)** $3,654,330,000

## Fiscal Impact Calculation

| IV. Fiscal Impact Category | Fiscal Impact Amount |
|---|---|
| **A. Secured Property Tax** | |
| **Residential Land Uses** | |
| Single-Family Detached | $0 |
| Multi-family (Affordable) | $0 |
| **Non-Residential Land Uses** | |
| **Commercial Land Uses** | |
| Retail | $332 |
| Non-Retail (Logistics Development and Light Logistics) | $2,022,903 |

| | |
|---|---|
| **Total Property Tax Revenues** | **$2,023,235** |
| **Fire Tax Per Person Served** | **$199.27** |

NOTES:

[1] Based on "Fire Property Tax" levy for Tax Rate Areas (TRAs). Data provided by the County of Riverside Auditor-Controller's Office. TRA allocations adjusted for ERAF.

[2] Estimate, subject to change.

[3] Please see Exhibit A-3. Subject to change.

[4] Estimated valuation per square foot based on recently conducted fiscal impact studies by DTA and research conducted by DTA for recently constructed comparable buildings in the Inland Empire. Estimate, subject to change

* ***All figures subject to rounding***

# APPENDIX B

# ECONOMIC IMPACT MODEL

# EXHIBIT B-1
# RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
# JOB CREATION

## ASSUMPTIONS

**I. Non-Residential Land Use Assumptions**

| **A. Commercial Land Uses** | **Sq. Ft. [1]** |
|---|---|
| Office | 0 |
| Retail | 3,000 |
| Logistics Development / Light Logistics | 40,597,000 |

| **B. Employees/KSF [2]** | |
|---|---|
| Office | 2.00 |
| Retail | 2.50 |
| Logistics Development / Light Logistics | 0.50 |

## JOB CREATION CALCULATION

**II. COUNTY**

| **Non-Residential Land Use** | **Direct Employees [3]** | **Indirect Employees [4]** | **Induced Employees [5]** | **Total Employees** |
|---|---|---|---|---|
| Office | 0 | 0 | 0 | 0 |
| Retail | 8 | 1 | 1 | 11 |
| Logistics Development / Light Logistics | 20,299 | 3,268 | 4,116 | 27,683 |
| **TOTAL, NON-RESIDENTIAL** | 20,307 | 3,269 | 4,118 | **27,693** |

**III. CITY [6]**

| **Non-Residential Land Use** | **Direct Employees [3]** | **Indirect Employees [4]** | **Induced Employees [5]** | **Total Employees** |
|---|---|---|---|---|
| Office | 0 | 0 | 0 | 0 |
| Retail | 8 | 1 | 1 | 10 |
| Logistics Development / Light Logistics | 20,299 | 1,634 | 2,058 | 23,991 |
| **TOTAL, NON-RESIDENTIAL** | 20,307 | 1,634 | 2,059 | **24,000** |

**NOTES:**

[1] Source: Highland Fairview. Land-use table dated September 25, 2013.

[2] Source: DTA Public Works Database; confirmed by "Employment Density Study," SCAG (2001), "Logistics Trends and Specific Industries," NAIOP Research Foundation (March 2010), and World Logistics Center EIR. Identical to metrics utilized in fiscal impact analysis, please see Exhibit A-3.

[3] Based on multiplying SF by Employees/1,000 SF metric.

[4] Based on indirect-effect employment multiplier multiplied by Direct Output (see Exhibit B-2). Indirect Employment metric is based on Direct Output metric. Source: Riverside County IMPLAN multipliers.

[5] Based on induced-effect employment multiplier multiplied by Direct Output (see Exhibit B-2). Induced Employment metric is based on Direct Output metric. Source: Riverside County IMPLAN multipliers.

[6] An estimated 50% of the Center impacts occurring in Riverside County will take place in the City of Moreno Valley. Typical DTA baseline assumption. Subject to change.

* ***All figures subject to rounding***

EXHIBIT B-2
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
TOTAL OUTPUT

TOTAL OUTPUT CALCULATION

| I. COUNTY | Total Square Footage [1] | Direct Output [2] | Indirect Output [3] | Induced Output [4] | Total Output |
|---|---|---|---|---|---|
| Office | 0 | $0 | $0 | $0 | $0 |
| Retail | 3,000 | $637,500 | $152,275 | $175,599 | $965,374 |
| Logistics Development / Light Logistics | 40,597,000 | $1,503,650,130 | $376,334,664 | $493,325,778 | $2,373,310,573 |
| **TOTAL, NON-RESIDENTIAL** | **40,600,000** | **$1,504,287,630** | **$376,486,939** | **$493,501,377** | **$2,374,275,946** |

| II. CITY [5] | Total Square Footage [1] | Direct Output [2] | Indirect Output [3] | Induced Output [4] | Total Output |
|---|---|---|---|---|---|
| Office | 0 | $0 | $0 | $0 | $0 |
| Retail | 3,000 | $637,500 | $76,137 | $87,800 | $801,437 |
| Logistics Development / Light Logistics | 40,597,000 | $1,503,650,130 | $188,167,332 | $246,662,889 | $1,938,480,351 |
| **TOTAL, NON-RESIDENTIAL** | **40,600,000** | **$1,504,287,630** | **$188,243,469** | **$246,750,689** | **$1,939,281,788** |

**NOTES:**

[1] Source: Highland Fairview.

[2] Source: Riverside County IMPLAN multipliers.
Logistics Direct Output based on direct-effect employment multiplier divided into Direct Logistics Jobs (see Exhibit A-1), i.e., Direct Output metric is based on projected Direct Employment for this category.

[3] Source: Riverside County IMPLAN multipliers. Indirect Output metric is based on Direct Output metric.

[4] Source: Riverside County IMPLAN multipliers. Induced Output metric is based on Direct Output metric.

[5] An estimated 50% of the Center impacts occurring in Riverside County will take place in the City of Moreno Valley. Typical DTA baseline assumption. Subject to change.

* ***All figures subject to rounding***

EXHIBIT B-3
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
TOTAL WAGES

I. COUNTY

| Non-Residential Land Use | Direct Wages [1] | Indirect Wages [2] | Induced Wages [3] | Total Wages |
|---|---|---|---|---|
| Office | $0 | $0 | $0 | $0 |
| Retail | $183,082 | $46,153 | $59,899 | $289,134 |
| Logistics Development / Light Logistics | $830,756,874 | $132,668,825 | $167,122,424 | $1,130,548,123 |
| **TOTAL, NON-RESIDENTIAL** | **$830,939,956** | **$132,714,978** | **$167,182,323** | **$1,130,837,258** |

II. CITY [4]

| Non-Residential Land Use | Direct Wages [1] | Indirect Wages [2] | Induced Wages [3] | Total Wages |
|---|---|---|---|---|
| Office | $0 | $0 | $0 | $0 |
| Retail | $183,082 | $23,076 | $29,950 | $236,108 |
| Logistics Development / Light Logistics | $830,756,874 | $66,334,413 | $83,561,212 | $980,652,499 |
| **TOTAL, NON-RESIDENTIAL** | **$830,939,956** | **$66,357,489** | **$83,591,162** | **$980,888,607** |

NOTES:

[1] Based on Direct Employees multiplied by Logistics annual salary of $40,926.
Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics Reports (California, 2012) for Riverside County.

[2] Based on indirect employees multiplied by County average annual salary of $40,602.
Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics Reports (California, 2010) for Riverside-San Bernardino-Ontario Metropolitan Area and Riverside County; confirmed by Bureau of Labor Statistics (May 2010).

[3] Based on indirect employees multiplied by County average annual salary of $40,602.
Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics Reports (California, 2010) for Riverside-San Bernardino-Ontario Metropolitan Area and Riverside County; confirmed by Bureau of Labor Statistics (May 2010).

[4] An estimated 50% of the Center impacts occurring in Riverside County will take place in the City of Moreno Valley. Typical DTA baseline assumption. Subject to change.

* ***All figures subject to rounding***

EXHIBIT B-4
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
JOBS-HOUSING BALANCE

## ASSUMPTIONS

### I. Existing Demographics

| | Amount |
|---|---|
| **A. Riverside County** | |
| Housing Units [1] | 784,357 |
| Employees [2] | 551,492 |
| **B. City of Moreno Valley** | |
| Housing Units [1] | 53,772 |
| Employees [2] | 25,120 |

### II. Job Impacts [3]

| | |
|---|---|
| **A. Riverside County** | |
| Direct Impact | 20,307 |
| Additional Indirect, County | 3,269 |
| Additional Induced, County | 4,118 |
| **Total Center, County** | **27,693** |
| **B. City of Moreno Valley** | |
| Direct Impact | 20,307 |
| Additional Indirect, City | 1,634 |
| Additional Induced, City | 2,059 |
| **Total Center, City** | **24,000** |

### III. Cumulative Center Demographics

| | |
|---|---|
| **A. Existing plus Center - Riverside County** | **579,185** |
| *Percentage Increase* | *5.02%* |
| **B. Existing plus Center - City** | **49,120** |
| *Percentage Increase* | *95.54%* |

## JOBS-HOUSING BALANCE CALCULATION

### IV. Jobs-Housing Balance

| | |
|---|---|
| **A. Riverside County** | |
| Existing | 0.70 |
| Existing with Center | 0.74 |
| *Percentage Increase* | ***5.02%*** |
| **B. City of Moreno Valley** | |
| Existing | 0.47 |
| Existing with Center | 0.91 |
| *Percentage Increase* | ***95.54%*** |

**NOTES:**

[1] Source: State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State, 2001-2010.

[2] Source: California Employment Development Department ("EDD") - Labor Market Information Division, 2010 Annual Average NAICS Sector Data. Selected zip codes in Riverside County and City of Moreno Valley, special request by DTA.

[3] Please see Exhibit B-1.

* ***All figures subject to rounding***

EXHIBIT B-5
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
ONE-TIME IMPACTS

JOB CREATION CALCULATION - FULL-TIME EQUIVALENTS ("FTE")

I. COUNTY

| Non-Residential Land Use | Direct Employees [1] | Indirect Employees [2] | Induced Employees [3] | Total Employees |
|---|---|---|---|---|
| Office | 0 | 0 | 0 | 0 |
| Retail | 1 | 0 | 0 | 1 |
| Logistics Development / Light Logistics | 12,806 | 3,285 | 4,141 | 20,232 |
| **TOTAL, NON-RESIDENTIAL** | 12,807 | 3,285 | 4,141 | **20,233** |

II. CITY [4]

| Non-Residential Land Use | Direct Employees [1] | Indirect Employees [2] | Induced Employees [3] | Total Employees |
|---|---|---|---|---|
| Office | 0 | 0 | 0 | 0 |
| Retail | 1 | 0 | 0 | 1 |
| Logistics Development / Light Logistics | 12,806 | 1,643 | 2,070 | 16,519 |
| **TOTAL, NON-RESIDENTIAL** | 12,807 | 1,643 | 2,071 | **16,521** |

NOTES:
[1] Based on direct-effect employment multiplier multiplied by one-time output (see below). As this is an analysis of just one industry (construction), Direct Employment metric is based on Direct Output Source: Riverside County IMPLAN multipliers.
[2] Based on indirect-effect employment multiplier multiplied by one-time output (see below). Indirect Employment metric is based on Direct Output Source: Riverside County IMPLAN multipliers.
[3] Based on induced-effect employment multiplier multiplied by one-time output (see below). Induced Employment metric is based on Direct Output Source: Riverside County IMPLAN multipliers.
[4] An estimated 50% of the Center impacts occurring in Riverside County will take place in the City of Moreno Valley. Typical DTA baseline assumption. Subject to change.
* *All figures subject to rounding*

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TOTAL WAGE CALCULATION

III. COUNTY

| Non-Residential Land Use | Direct Wages [1] | Indirect Wages [2] | Induced Wages [3] | Total Wages |
|---|---|---|---|---|
| Office | $0 | $0 | $0 | $0 |
| Retail | $46,203 | $9,857 | $12,424 | $68,484 |
| Logistics Development / Light Logistics | $625,233,944 | $133,386,007 | $168,122,800 | $926,742,751 |
| **TOTAL, NON-RESIDENTIAL** | **$625,280,147** | **$133,395,864** | **$168,135,224** | **$926,811,235** |

IV. CITY [4]

| Non-Residential Land Use | Direct Wages [1] | Indirect Wages [2] | Induced Wages [3] | Total Wages |
|---|---|---|---|---|
| Office | $0 | $0 | $0 | $0 |
| Retail | $46,203 | $4,928 | $6,212 | $57,343 |
| Logistics Development / Light Logistics | $625,233,944 | $66,693,003 | $84,061,400 | $775,988,348 |
| **TOTAL, NON-RESIDENTIAL** | **$625,280,147** | **$66,697,932** | **$84,067,612** | **$776,045,691** |

NOTES:
[1] Based on direct employees multiplied by Construction annual salary of $48,825.
Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics Reports (California, 2010) for Riverside-San Bernardino-Ontario Metropolitan Area and Riverside County; confirmed by Bureau of Labor Statistics (May 2010).
[2] Based on indirect employees multiplied by County average annual salary of $40,602.
Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics Reports (California, 2010) for Riverside-San Bernardino-Ontario Metropolitan Area and Riverside County; confirmed by Bureau of Labor Statistics (May 2010).
[3] Based on induced employees multiplied by County average annual salary of $40,602.
Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics Reports (California, 2010) for Riverside-San Bernardino-Ontario Metropolitan Area and Riverside County; confirmed by Bureau of Labor Statistics (May 2010).
[4] An estimated 50% of the Center impacts occurring in Riverside County will take place in the City of Moreno Valley. Typical DTA baseline assumption. Subject to change.
* *All figures subject to rounding*

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TOTAL OUTPUT CALCULATION

V. COUNTY

| | Total Square Footage [1] | Direct Output [2] | Indirect Output [3] | Induced Output [4] | Total Output |
|---|---|---|---|---|---|
| Office | 0 | $0 | $0 | $0 | $0 |
| Retail | 3,000 | $123,386 | $32,181 | $36,673 | $192,240 |
| Logistics Development / Light Logistics | 40,597,000 | $1,669,702,551 | $435,481,521 | $496,273,208 | $2,601,457,280 |
| **TOTAL, NON-RESIDENTIAL** | **40,600,000** | **$1,669,825,937** | **$435,513,702** | **$496,309,881** | **$2,601,649,520** |

VI. CITY [5]

| | Total Square Footage [1] | Direct Output [2] | Indirect Output [3] | Induced Output [4] | Total Output |
|---|---|---|---|---|---|
| Office | 0 | $0 | $0 | $0 | $0 |
| Retail | 3,000 | $123,386 | $16,090 | $18,337 | $157,813 |
| Logistics Development / Light Logistics | 40,597,000 | $1,669,702,551 | $217,740,761 | $248,136,604 | $2,135,579,915 |
| **TOTAL, NON-RESIDENTIAL** | **40,600,000** | **$1,669,825,937** | **$217,756,851** | **$248,154,941** | **$2,135,737,729** |

NOTES:
[1] Source: Highland Fairview.
[2] Construction costs reflect amount estimated to be spent within the County, which is assumed to be 85% of the total construction expenditure.
Total construction expenditures equal approximately 40.6 million SF at an estimated cost of $41 per SF. Source: Highland Fairview; confirmed by RSMeans data.
[3] Based on indirect-effect output multiplier of per $ of Direct Output. Indirect Output metric is based on Direct Output Metric. Source: Riverside County IMPLAN multipliers.
[4] Based on induced-effect output multiplier of per $ of Direct Output. Induced Output metric is based on Direct Output Metric. Source: Riverside County IMPLAN multipliers.
[5] An estimated 50% of the Center impacts occurring in Riverside County will take place in the City of Moreno Valley. Typical DTA baseline assumption. Subject to change.
* *All figures subject to rounding*

EXHIBIT B-6
RANCHO BELAGO, CALIFORNIA: WORLD LOGISTICS CENTER
SUMMARY

## ASSUMPTIONS (IMPLAN)

| I. | LAND USE ASSUMPTIONS | Sq. Ft. |
|---|---|---|
| | Logistics Development / Light Logistics | 40,597,000 |
| | Office | 0 |
| | Retail | 3,000 |

| II. | EMPLOYMENT ASSUMPTIONS | per 1,000 SF |
|---|---|---|
| | Logistics Development / Light Logistics | 0.50 |
| | Office | 2.00 |
| | Retail | 2.50 |

| III. | SALES ASSUMPTIONS | per SF |
|---|---|---|
| | Logistics Development / Light Logistics | $0.00 |
| | Office | $0.00 |
| | Retail | $250.00 |

## CONCLUSIONS (IMPLAN)

### Recurring Impacts

| IV. | JOB CREATION | Direct | Indirect/Induced | Total |
|---|---|---|---|---|
| | Countywide | 20,307 | 7,386 | 27,693 |
| | Within City | 20,307 | 3,693 | 24,000 |

| V. | EMPLOYEE WAGES | Direct | Indirect/Induced | Total |
|---|---|---|---|---|
| | Countywide | $830,939,956 | $299,897,301 | $1,130,837,258 |
| | Within City | $830,939,956 | $149,948,651 | $980,888,607 |

| VI. | TOTAL OUTPUT | Direct | Indirect/Induced | Total |
|---|---|---|---|---|
| | Countywide | $1,504,287,630 | $869,988,316 | $2,374,275,946 |
| | Within City | $1,504,287,630 | $434,994,158 | $1,939,281,788 |

### One-Time Impacts

| VII. | CONSTRUCTION JOBS | Direct | Indirect/Induced | Total |
|---|---|---|---|---|
| | Countywide | 12,807 | 7,427 | 20,233 |
| | Within City | 12,807 | 3,714 | 16,521 |

| VIII. | CONSTRUCTION WAGES | Direct | Indirect/Induced | Total |
|---|---|---|---|---|
| | Countywide | $625,280,147 | $301,531,088 | $926,811,235 |
| | Within City | $625,280,147 | $150,765,544 | $776,045,691 |

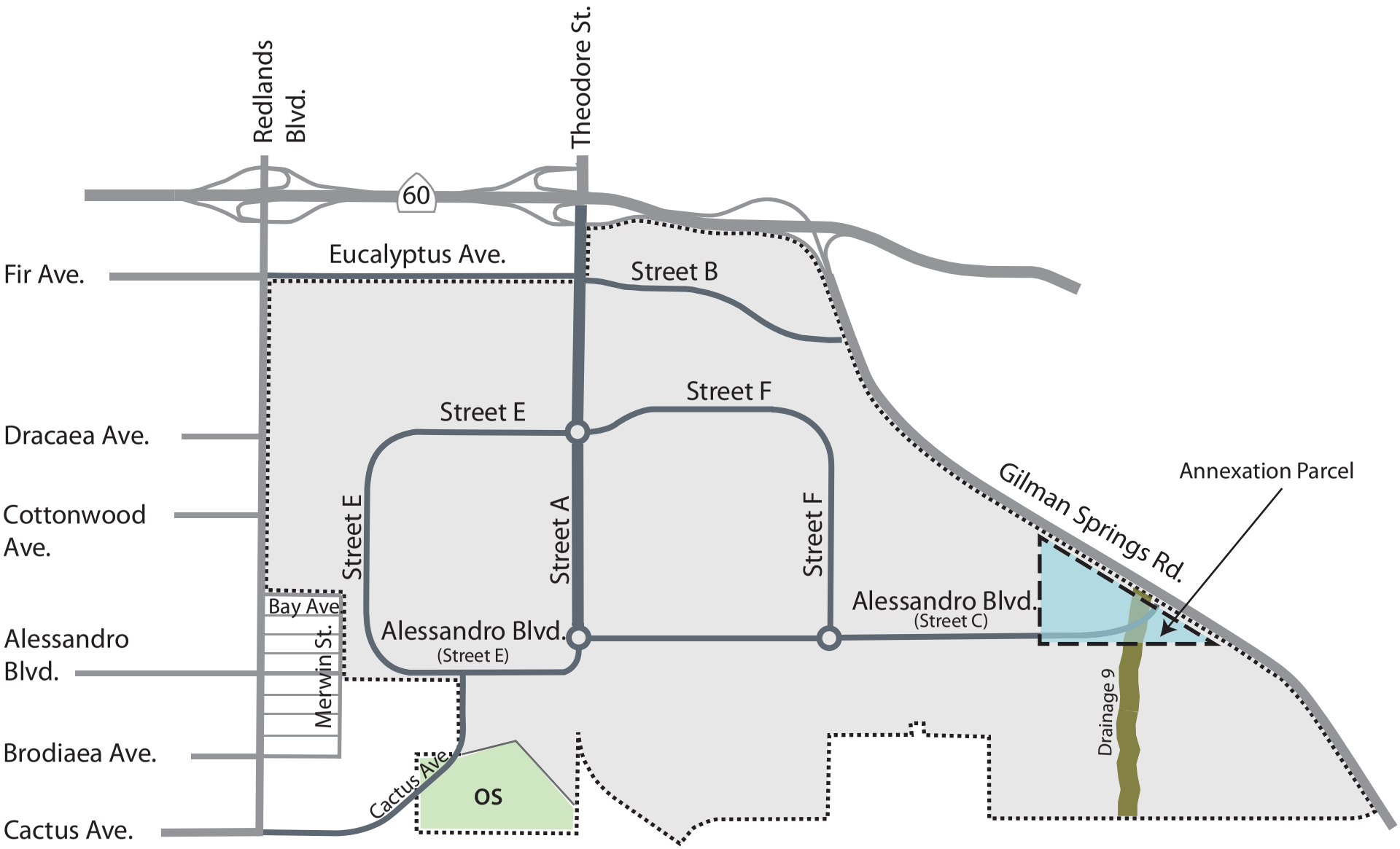
| IX. | CONSTRUCTION OUTPUT | Direct | Indirect/Induced | Total |
|---|---|---|---|---|
| | Countywide | $1,669,825,937 | $931,823,583 | $2,601,649,520 |
| | Within City | $1,669,825,937 | $465,911,792 | $2,135,737,729 |

### Other Impacts

| X. | JOBS-HOUSING BALANCE | Balance With Center | % Increase/ (Decrease) |
|---|---|---|---|
| | Countywide | 0.74 | 5.02% |
| | Citywide | 0.91 | 95.54% |

# APPENDIX C

# ANNEXATION EXHIBIT


Redlands Blvd.
Theodore St.
60
Eucalyptus Ave.
Fir Ave.
Street B
Street F
Street E
Dracaea Ave.
Cottonwood Ave.
Street E
Street A
Street F
Gilman Springs Rd.
Annexation Parcel
Bay Ave.
Alessandro Blvd.
(Street C)
Alessandro Blvd.
(Street E)
Alessandro Blvd.
Merwin St.
Drainage 9
Brodiaea Ave.
Cactus Ave.
OS
Cactus Ave.

# ECONOMIC DEVELOPMENT ACTION PLAN 2013-2016

An updated Economic Development Action Plan has been formulated to capitalize on near-term opportunities in eight geographic areas during a 3-year time frame. The focus of the updated Economic Development Action Plan includes the following goals and objectives in the nine recommended geographic areas:

## Edgemont

Pursue the revitalization of the Edgemont area through the adoption of a multi-faceted redevelopment strategy.

- Work towards the upgrading the water system to ensure sufficient water pressure to allow for new development projects in this area.
- Use Neighborhood Stabilization program funding to acquire and land bank foreclosed properties-both single-family and multi-family residential.
- Conduct quarterly Neighborhood Clean-up programs.
- Retain a planning consultant to evaluate land uses to establish the highest and best land use designations for redevelopment efforts.
- Pursue a master developer to assist with the planning for redevelopment in the Edgemont area.

## TownGate

Collaborate with the Fritz Duda Company and CW Capital towards stabilizing, upgrading and expanding retail and restaurant development opportunities in the TownGate area including the Moreno Valley Mall and the five shopping centers surrounding the regional mall including TownGate Center, TownGate Plaza, TownGate Crossing, TownGate Promenade and TownGate Square

- Continue to work with CW Capital-the owner of the Moreno Valley Mall in upgrading and attracting new users to the regional mall.
- Facilitate the planning and marketing for a 30,000 S.F. expansion project at the Moreno Valley Mall to include a new restaurant, retail and plaza area next to Harkins Theatres.
- Work with the Fritz Duda Company in the re-occupancy of vacant retail spaces and the overall stabilization of TownGate Center including new uses such as ULTA Beauty, BevMo and Planet Fitness.
- Assist in the processing of development plans for new projects in TownGate shopping centers including 24 Hour Fitness Sport, Miguel's Jr. Mexican Restaurant and Richie's Real American Diner.
- Cooperate with the Fritz Duda Company in pursuing the continued development of a 'Restaurant Row' area in TownGate Promenade.

## Festival

Cooperate with the Kodash Company and Miller Family Trust-the ownership of the Festival Center, to explore ways to redevelop or enhance the viability of the Festival Center including rehabilitation efforts and incorporating new appropriate land uses.

- Help facilitate attracting new users and the upgrade of the Festival Center.
- Explore developing a new residential component at the Festival Center.
- Explore possibilities with Moreno Valley Unified School District of developing new education facilities at Festival.
- Pursue an overlay study to consider other uses at Festival including possibly cultural & performing arts facilities, along with developing sports or recreation facilities for use by the community to create a mixed-use development concept.

## Sunnymead Boulevard

Work towards the further redevelopment of Sunnymead Boulevard, between Frederick Street to Perris Boulevard.

- Conduct a code compliance effort aimed at enhancing the image of Sunnymead Boulevard.
- Pursue new users and development projects for Sunnymead Boulevard.
- Market mixed-use development opportunities for Sunnymead Boulevard that combine new residential projects with retail and office uses.

## Centerpointe Business Park

Work with Ridge Property Trust and USAA Real Estate to expand development and business opportunities aimed at completing the Centerpointe Business Park.

- Assist Ridge Property Trust and Harbor Freight Tools (HFT) in the 507,720 S.F. expansion of HFT's Distribution Center at the NW corner of Cactus and Graham.
- Facilitate efforts for a user to occupy USAA's new 522,774 S.F. Centerpointe Logistics Center at the NW corner of Cactus and Frederick.
- Help advance the development of Ridge Property Trust's approved 607,960 S.F. industrial building at the NW corner of Brodiaea and Graham.
- Facilitate expansion plans for the Serta Mattress facility.
- Work with the owner of the Plaza Del Sol Center in stabilizing the center to provide needed shopping and restaurant opportunities in the Centerpointe Business Park area.

## South Moreno Valley Industrial Area

Work with seven developers (Alere Property Group, First Industrial Realty Trust, IDS Real Estate Group, Panattoni Development Co., Sares-REGIS Group, Trammell Crow Company & Western RealCo) on new business attraction and development projects in the South Moreno Valley Industrial Area.

- Work with IDS Real Estate Group in securing a business user for the new 769,320 S.F. Nandina Distribution Center.
- Facilitate the completion of Trammell Crow Company's 1,250,000 S.F. I-215 Logistics Center project, including securing a user.

- Cooperate with First Industrial Realty Trust and Panattoni Development Co. in pursuing the speculative development of two industrial buildings with a total of nearly 2 million S.F.
- Assist Sares-REGIS Group and Western RealCo in build-to-suit opportunities for two approved industrial building projects with a total of more than 3.6 million S.F.
- Work with Alere Property Group, First Industrial Realty Trust and Trammell Crow Co. in the planning and entitlements for several new industrial projects with a proposed 4 million S.F.

## City Center Medical/Healthcare Corridor

Cooperate with Riverside County Regional Medical Center (RCRMC), Kaiser Permanente, Moreno Valley College and Highland Fairview to help facilitate the further expansion of the City of Moreno Valley's Medical/Healthcare Corridor on Nason Street & Iris Avenue.

- Assist Riverside County with the implementation of the Master Plan for expanding the Riverside County Regional Medical Center including a new Trauma & Urgent Care, relocated & upgraded Operations Support building and facilities for the new UCR School of Medicine.
- Facilitate plans by Kaiser Permanente to expand the Moreno Valley Community Hospital with an expansion and upgrade of the Emergency Room facilities and development of a planned second tower.
- Cooperate with Moreno Valley College and Riverside Community College District in the development of a proposed 30,000 S.F. allied health sciences facility in the medical-healthcare corridor.
- Support the planning and marketing efforts of Highland Fairview to pursue the creation of a master planned 200-acre healthcare campus to be situated within the medical corridor and between the two existing hospitals-RCRMC and Kaiser's Community Hospital.
- Continue the planning and funding of capital improvement projects that will widen and construct the ultimate improvements on Nason Street from SR 60 to Iris Avenue to provide critical access to the two hospitals and the medical/healthcare corridor.
- The continued development of Medical/Healthcare corridor on Nason Street and Iris Avenue shall be the City's top priority for new medical and healthcare development.
- Undertake a study to determine highest and best land uses for the City-owned 60-acre property at the NW corner of Nason and Alessandro.

## World Logistics Center at Rancho Belago

Collaborate with Highland Fairview in the development of the World Logistics Center—a 41.6 million S.F. master planned corporate park proposed to be developed on 2,700 acres in the Rancho Belago area of eastern Moreno Valley.

- Process an Environmental Impact Report and preliminary development plans for the World Logistics Center in eastern Moreno Valley—south of SR 60 and east of Redlands Boulevard to Gilman Springs Road.
- Assist in the drafting of a Specific Plan that will guide the orderly development for of World Logistics Center.
- Cooperate with Highland Fairview in the formulation of a Development Agreement to create a public-private partnership to help facilitate the development of new public infrastructure in eastern

Moreno Valley associated with the World Logistics Center including roads, trails, utilities, storm water protection and fire protection facilities.
- Work with Highland Fairview in branding the World Logistics Center as one of the largest e-commerce focused development projects in the U.S.

## SR 60 East Corridor

Pursue new development opportunities along the SR 60 East corridor—from Nason Street to the easterly City limits.

- Prepare an Overlay Study to determine the 'highest and best' land uses along the SR 60 East Corridor.
- Assist property owners and developers in marketing development opportunities along the SR 60 East Corridor.
- Work on opportunities to expand the Moreno Valley Auto Mall.
- Facilitate the stabilization and further development of Stoneridge Towne Centre and Moreno Beach Plaza.

In addition to activities in the eight geographic areas, a series of objectives are being recommended to assist with overall economic development efforts to assist with Business Attraction, Business Retention and Business Expansion including the following:

- Continue to coordinate the Capital Program (CIP) with economic development efforts
- Expand the Development Ombudsman Program to provide a comprehensive range of business support services for developers and businesses
- Restart the Business Visitation Program, including the participation of the Mayor in 1 on 1 visits annually with the Top 50 with the major employers in the community
- Implement new software that will enable business owners, developers, contractors and residents to electronically submit and manage their plans with the City of Moreno Valley
- Utilize the Chambers of Commerce to expand participation in the Small Business Counseling Services provided by the Small Business Development Center (SBDC)
- Work with the Community Investment Corporation in a the development of a business incubator and micro-business loan program
- Pursue the reuse of vacant anchor retail spaces, including the use of the new ED-Retail Anchor Reuse Incentive Program
- Explore revising the scopes of work with the Agreements the Chamber of Commerce to better focus on business retention and expansion activities, including expansion of Shop MoVal, as well as establishing a program to promote more business to business transactions in Moreno Valley
- Utilize the Chambers of Commerce to undertake a survey of the small business community on ways to improve the business climate in Moreno Valley
- Use the Chambers of Commerce to assist with increasing high school graduation rates in the community through the development of mentor programs to link students with business leaders
- Pursue the creation of a Business Support Advisory Council comprised of major employers in Moreno Valley

- Seek ways to promote opportunities for more ties between cultural & performing arts in the community with economic development
- Explore creating an incentive program aimed at attracting development projects with e-commerce or fulfillment center users
- Continue to work with residential developers and the Building Industry Association (BIA) on ways to help facilitate new quality residential development in Moreno Valley

# ECONOMIC DEVELOPMENT ACTION PLAN

April 2011

MORENO VALLEY
WHERE DREAMS SOAR

# Recent Economic Development Actions

- Reformation of Economic Development Council Subcommittee
- Housing Element
- Developer's Workshop
- Proposed an Economic Development Plan – Areas of Opportunity
- Working to enhance development services process
- Collaborating with a number of major Developers on advancing projects
- Studying ways to make Moreno Valley a "Best Place to do Business"

# Economic Development Plan

## Areas of Opportunity

Eastern Moreno Valley-Rancho Belago
City Center
South Moreno Valley Industrial Specific Plan Area
March LifeCare
Centerpointe Business Park
Alessandro Boulevard
Sunnymead Boulevard
Festival-Ironwood
Sunnymead Ranch-Lakeshore Village Marketplace
TownGate Canyon Springs Plaza
Proposed TownGate Highlands
Edgemont Area

# Objectives for Economic Development

- Create jobs locally and address City's high unemployment rate
- Address the Community's jobs to housing imbalance
- Strengthen and broaden the local economic foundation by attracting quality businesses
- Enhance City revenue generation from sources such as sales tax, property tax, transient occupancy tax, and utility tax – all aimed at improving quality of life in Moreno Valley

# Economic Development Action Plan

Focusing on key initiatives to be provided in 2 years

TownGate

Centerpointe Business Park

South Moreno Valley Industrial Area

Eastern Moreno Valley – Rancho Belago

City Center

# Action Plan
# Areas of Opportunity



# TownGate

- Major retail area that produced $2.84 million in sales tax in 2010 (26.19% of City total)
- New owner of Moreno Valley Mall
- Recent success with Sports Authority, Burlington Coat Factory, Buffalo Wild Wings and two hotels
- Negotiations ongoing with several major retailers and restaurants for TownGate locations

# Centerpointe Business Park

- Major Business Park location primed to produce more employment opportunities – already home to six major corporations
- Several approved and entitled projects being considered for starting construction in short-term

# South Moreno Valley Industrial Area

- Significant job center in community with 10 major corporations already here.
- Prospects for short-term construction developments is excellent with 3.6 million s.f. in building plan check, 3.5 million s.f. approved/entitled, 3.1 million s.f. ongoing with EIR’s

# Eastern Moreno Valley – Rancho Belago

- Prime area of Community with large undeveloped areas.
- Skechers USA opening has generated interest by other prospective corporate users.
- Nearly 20-year old Moreno Highlands Specific Plan to expire in 2012
- Highest and Best land uses should be evaluated to address City's jobs to housing imbalance

# Survey of Inland Region Industrial/Business Park Zoning

- Ontario 25.3%
- Perris 21.7%
- San Bernardino 18.0%
- Chino 17.1%
- Fontana 17.0%
- Rancho Cucamonga 15.3%
- Riverside 15.2%
- Corona 11.4%
- Moreno Valley 9.0%

# Survey of Inland Region Industrial/Business Park Land Use

| City | Population | City Size sq. mi. | Workforce | Housing Units | Industrial Zoning Percentage | Industrial Developed |
|---|---|---|---|---|---|---|
| Riverside | 297,863 | 81.5 | 159,100 | 99,949 | 15.2% | 39.3 million |
| Moreno Valley | 188,537 | 60.0 | 32,411 | 56,845 | 9.0% | 10.1 million |
| Fontana | 188,498 | 52.4 | 61,600 | 53,725 | 17.0% | 48.3 million |
| Rancho Cucamonga | 178,904 | 40.2 | 70,275 | 56,215 | 15.3% | 36.8 million |
| Ontario | 173,690 | 50.0 | 107,069 | 47,276 | 25.3% | 97.0 million |
| Chino | 84,973 | 30.9 | 34,331 | 20,265 | 17.1% | 40.1 million |

# City Center

*Why City Center?*

- Geographic center of Moreno Valley
- Home to Moreno Valley College, Riverside County Regional Medical Center, Kaiser Community Hospital, Stoneridge Towne Center, Moreno Beach Plaza, and Moreno Valley Auto Mall
- Contains large amount of newer housing developments of major developers such as American Richmond Homes, Beazer Homes, DR Horton, Pacific Community and Young Homes

# Re-sequence CIP Projects

- Installation of new SR60 southerly ramps at Moreno Beach, including extension of Eucalyptus to connect with Moreno Beach
- Improvements on Cactus Avenue between Lasselle Street to Nason Street
- Extension of Nason Street southerly to connect Cactus Avenue with Iris Avenue

# Re-sequencing of CIP Projects
## Provides the Following Benefits:

- Builds improvements identified in City's Circulation Plan
- Improves traffic circulation in center of the City
- Enhances Economic Development efforts
- Assists major stakeholders in the community – RCRMC, Kaiser Community Hospital, Moreno Valley College, Stoneridge Towne Centre, Moreno Beach Plaza and the Moreno Valley Auto Mall.

# Stoneridge Towne Centre, Moreno Beach Plaza and the Auto Mall

- Major Sales Tax Producers for the City
- Potential for significant increased sales tax revenue
- Closing of any anchor use would be devastating
- Need to stabilize and enhance effectiveness of major anchor uses must be a priority

# Moreno Valley College, RCRMC and Kaiser Community Hospital

- Major institutions focused on Health & Medical Field
- Expansion plans in the works for all three institutions
- Allied health industry is one of the rapidly growing professions in the U.S.
- CIP projects greatly enhance the area and fully supported by three institutions

# Highland Fairview

- City & Highland Fairview working together on plan to reposition part of Aqua Bella to develop world-class medical and health related campus
- Expand City's established overlay zone for medical office corridor
- Development of more medical and health related uses would compliment two hospitals and Community College's Allied Health Services focus

# Fiscal Impact of CIP Re-sequencing

## SR/60 Moreno Beach

Estimated cost of $10.5 million funded through:

1. $2.5 million of RDA Bond proceeds
2. Savings of $7 million from SR60/Nason Project
3. Proposed $1 million Developer contribution

## Cactus and Nason Improvements

Established cost of $23.3 million funded through:

1. Estimated 10% savings by constructing projects together
2. $6 million funded by RDA pass-through targeted for Flood Control projects
3. $1 million funded from California's SLLP Grant
4. Borrowing funding from five CIP projects to generate $13.4 million

# Economic Development Strategy Next Steps

- Approve Economic Development Action Plan
- Re-sequence CIP projects
- Strive to enhance Development Services Process
- Work with major developers on advancing projects
- Make Moreno Valley a “Best Place to do Business”

| APPROVALS | |
|---|---|
| BUDGET OFFICER | |
| CITY ATTORNEY | |
| CITY MANAGER | |

# Report to City Council

**TO:** Mayor and City Council

**FROM:** Barry Foster, Community & Economic Development Director

**AGENDA DATE:** April 23, 2013

**TITLE:** 3-YEAR ECONOMIC DEVELOPMENT ACTION PLAN

## RECOMMENDED ACTION

Recommendation:

1. Approve the 3-Year Economic Development Action Plan.

## ADVISORY BOARD/COMMISSION RECOMMENDATION

The City's Economic Development Subcommittee recommends approval of the 3-Year Economic Development Action Plan as drafted.

## BACKGROUND

In April 2011, the City adopted a 2-Year Economic Development Action Plan to act as a short term (2 year) strategic plan to help guide the City's economic development efforts in five geographic areas including: 1) Towngate, 2) Centerpointe Business Park, 3) South Moreno Valley Industrial Area, 4) Rancho Belago - East Moreno Valley and 5) City Center. Additionally, the Economic Development Action Plan helped focus Capital Improvement Plan Funding on projects that can help advance Economic Development efforts. During the 2-Year period of the Economic Development Action Plan much has been accomplished in the five geographic areas including the significant project advancement and job creation.

## DISCUSSION

The new proposed 3-Year ED Action Plan has been formulated to build upon the 2-Year ED Action Plan, but continues to push many more economic development efforts including even more job creation. The proposed 3-Year ED Action Plan presents the following:

- A new 3-Year ED Action Plan would expand the focus of to nine geographic areas including 1) Edgemont, 2) TownGate, 3) Festival, 4) Sunnymead Blvd., 5) Centerpointe Business Park, 6) South Moreno Valley Industrial Area, 7) City Center & Medical/ Healthcare Corridor, 8) World Logistics Center at Rancho Belago and 9) SR 60 East Corridor.

- The ED Action Plan also includes fourteen objectives aimed at increasing overall economic development efforts with 1) Business Attraction, 2) Business retention and 3) Business Expansion.

## ATTACHMENTS

Attachment 1 _ 2013_ 3-Year Economic Development Action Plan

Prepared By:
Barry Foster
Community & Economic Development Director

| Council Action | |
|---|---|
| Approved as requested: | Referred to: |
| Approved as amended: | For: |
| Denied: | Continued until: |
| Other: | Hearing set for: |

| APPROVALS | |
|---|---|
| BUDGET OFFICER | caf |
| CITY ATTORNEY | Rut |
| CITY MANAGER | MS |

# Report to City Council

**TO:** Mayor and City Council

**FROM:** Barry Foster, Community & Economic Development Director

**AGENDA DATE:** April 26, 2011

**TITLE:** ECONOMIC DEVELOPMENT ACTION PLAN

## RECOMMENDED ACTION

Staff recommends the City Council:

1. Review and provide direction on an Economic Development Action Plan.
2. Consider the sequencing and funding of Capital Improvement Program projects.

## BACKGROUND

The City of Moreno Valley is looking at ways to best assist the future development of the community. With the economy starting to improve, now is the right time to seize the opportunity to evaluate ways that Moreno Valley can best plan for advancing economic development. On March 22, staff introduced an Economic Development Plan with established Areas of Opportunity in the community aimed at producing major employment hubs, successful retail centers and redevelopment possibilities with a goal of making Moreno Valley a major business development area in Southern California.

The focus of the Economic Development Plan-Areas of Opportunity is toward creating a well-rounded community with a strong economic foundation. Creating new jobs in the community, along with providing a positive economic stimulus to existing businesses, must be major priority for the City. Furthermore, Moreno Valley should seek ways to enhance its commercial retail/restaurant make-up and move to improve the City's per capita sales tax revenue stream. Making Moreno Valley a great place to live, work, do business, shop, eat and visit is the ultimate economic development objective. The twelve recommended Areas of Opportunity include the following locations:

- Eastern Moreno Valley-Rancho Belago (including Highland Fairview Corporate Park-Skechers USA, WestRidge Commerce Center, Prologis, and Moreno Highlands)
- City Center (including a Nason, Moreno Beach and Lasselle loop--with Stoneridge Towne Centre, Moreno Beach Plaza, Moreno Valley Auto Mall, proposed Moreno Beach Marketplace-Lowes Center, Moreno Marketplace-Stater Bros. Center, Moreno Valley Ranch Golf Club, Riverside County Regional Medical Center, Aqua Bella, Kaiser-Moreno Valley Community Hospital, Lakeside Plaza & Terrace, Moreno Valley College, the proposed Winco Center and the City's 60-acre property at NWC of Alessandro/Nason)
- South Moreno Valley Industrial Specific Plan Area
- March LifeCare
- Centerpointe Business Park
- Alessandro Boulevard
- Sunnymead Boulevard
- Festival-Ironwood
- Sunnymead Ranch-Lakeshore Village Marketplace
- TownGate (including the Moreno Valley Mall and five surrounding commercial centers-TownGate Center, TownGate Plaza, TownGate Crossing, TownGate Promenade, and TownGate Square)
- Canyon Springs Plaza and proposed TownGate Highlands
- Edgemont Area

## DISCUSSION

The formulation of the Economic Development Plan-Areas of Opportunity establishes a broad framework with a diverse number of economic development opportunities, including both short term and longer term possibilities. To fully capitalize on near-term opportunities, staff is recommending the implementation of an Economic Development Action Plan focusing on several key initiatives within five of the Areas of Opportunity--to be pursued within a short-term, 2-year time frame. The focus of this Action Plan would be to:

- Collaborate with the Fritz Duda Company and CW Capital towards enhancing retail and restaurant development in the TownGate area, including pursuing new users for vacant big-box retail space in TownGate Center and the Moreno Valley Mall.
- Advance the development on several projects in the Centerpointe Business Park area.
- Facilitate the development of a number of approved and entitled projects in the South Moreno Valley Industrial Specific Plan Area.
- Capitalize on the opening of Skechers USA and begin to re-evaluate land uses in eastern Moreno Valley, in conjunction with the expiration of the Moreno Highlands Specific Plan and supporting Development Agreement.

- Re-sequence and fast-track three Capital Improvement Projects in the City Center area—1) SR60 south ramps and extension of Eucalyptus to connect with Moreno Beach, 2) installation of ultimate improvements on Cactus Avenue, between Lasselle and Nason and 3) the extension of Nason Street southerly to connect Cactus Avenue with Iris Avenue, along with pursuing the idea of repositioning part of the Aqua Bella area to expand the City's established medical office overlay zone.

Moreno Valley has a strategic location in the Inland Region and is clearly in the path of growth. Since incorporation as a city, Moreno Valley has experienced strong residential development from many quality home builders. Now is an important time for the City to broaden its economic base by pursuing ways for new commercial retail, office and industrial development to happen in the community. The five specified areas of opportunity focused within the proposed Economic Development Action Plan were selected because of location and potential for realizing success in the near-term development marketplace, along with adherence with the following economic development objectives:

- Create jobs locally and address the City's high unemployment rate.
- Address the community's jobs to housing imbalance.
- Strengthen and broaden the local economic foundation by attracting quality businesses.
- Enhance City revenue generation from sources such as Sales Tax, Property Tax, Transient Occupancy Tax, and Utility Tax, with an overall goal of improving the quality of life in Moreno Valley.

***TownGate***

The master planned 590-acre TownGate area, including the Moreno Valley Mall along with five popular community shopping centers is a major component of Moreno Valley's retail environment. In 2010, the retail areas of TownGate produced more than $2.84 million in sales tax revenue for the City of Moreno Valley, which represented 26% of all the sales tax revenue generated for the City. The ownership of the Moreno Valley Mall at TownGate, a 1.25 million square foot regional mall, was recently assumed by CW Capital. City staff is working closely with CW Capital and their development partners (Cushman & Wakefield and Spinoso Real Estate Group) on plans to upgrade, expand and reposition the Mall property, which anchors the TownGate area. Additionally, City staff is working in collaborative partnership with the Fritz Duda Company in pursuing national retailers and restaurants to occupy vacant spaces in TownGate properties. Recent success in attracting Burlington Coat Factory, Buffalo Wild Wings, Five Guys Burgers and Panera Bread have lead to furthering negotiations with several other major retailers and restaurants for TownGate locations. The use of the CDBG Business Incentive program and purchasing operating covenants will be important tools in finalizing these potential users. The relocation of the Robertson's Ready-Mix operation out of TownGate will also present additional development opportunities in TownGate Square.

***Centerpointe Business Park***

The Centerpointe Business Park area has attracted a number of quality businesses that have produced many employment opportunities in the community. Frazee Paint, Minka Group, ResMed, Serta Mattress, United Natural Foods Inc., and the U.S. Postal Service all have opened major facilities in the Centerpointe Business Park. By this August, Harbor Freight Tools will be fully operational in a new Distribution Center (DC) at the NW corner of Cactus Avenue and Graham Street that will eventually employ up to 400 people. Both Ridge Property Trust and Overton Moore Properties (OMP) are pursuing additional development opportunities in the short term for the Centerpointe Business Park. Recently OMP re-started the plan check process for a new 519,760 S.F. industrial building to be situated at the NW corner of Cactus Avenue and Frederick Street. All of these projects are aimed at attracting new logistic and distribution users that will create new jobs in the community.

***South Moreno Valley Industrial Specific Plan Area***

During the last development cycle, the South Moreno Valley Industrial Specific Plan Area was a catalyst for producing development opportunities for a number of major employers including Cardinal International Inc., El Dorado Stone Corporation, Harmon Kardon International Industries, iHerb Inc., Lowe's Company Inc., Masonite International Corporation, O'Reilly Automotive Inc., Philips Electronics Corporation, Ross Stores Inc. and Walgreens Company. Recently, a number of leading industrial developers have reinstituted the processing of construction plans for approved and entitled projects in the South Industrial Area. Assisting in the development of new speculative industrial development projects in this area of Moreno Valley will be an important tool for the City in creating new employment opportunities in logistics/distribution. With a vacancy rate of just 3.4% for industrial buildings, Moreno Valley needs developers to initiate new construction projects. Presently five buildings with a total of 3.6 million square feet are in plan check with construction drawings. Four other projects with 3.5 million square feet are approved and entitled, but at this time do not have active development plans being processed. One of these large projects is in escrow to be purchased by a major-national developer who desires to move forward with development of the project. Another two sizeable projects with a total of 3.1 million square feet have Environmental Impact Reviews in progress.

***Eastern Moreno Valley-Rancho Belago Area***

The eastern area of Moreno Valley, including the Ranch Belago area, has a significant amount of undeveloped property. Much of this area is included in the Moreno Highlands Specific Plan, which is set to expire in 2012. Considering that the Specific Plan will soon expire, the idea of evaluating the highest and best land uses in the eastern area of the community makes great sense. With the opening of the Skechers USA facility coming soon many other potential users have expressed interest in development opportunities in the eastern Moreno Valley-Rancho Belago area. The existing Moreno Highlands Specific Plan actually includes established land uses that could support approximately 8 million square feet of new industrial and business park development—the question is proper location and product type, consistent with the ongoing development marketplace.

With the Moreno Highlands Specific Plan expiring all of this can and should be re-evaluated.

With a goal of producing more jobs in Moreno Valley, the City should consider the appropriate percentage of land area in the community to be zoned for industrial and business park development. Presently, Moreno Valley has a low percentage of land area zoned for industrial and business park uses, as compared to other nearby cities. The following represents a survey of other Inland Region cities and the percentage of property they have zoned for industrial and business park use:

Chino 17.1%
Corona 11.4%
Fontana 17.0%
Ontario 25.3%
Perris 21.7%
Rancho Cucamonga 15.3%
Riverside 15.2%
San Bernardino 18.0%
Moreno Valley 9.0%

The logistics and distribution industry is rapidly evolving to better react to the global marketplace. Large sale projects such as Skechers, are the future of logistics and distribution. The workforce to operate and maintain sophisticated and costly material handling systems demands a better trained and highly skilled worker. With significant undeveloped land holdings and easy access to SR60, the eastern Moreno Valley area is primed for more logistic and distribution development.

***City Center***

The City Center area is strategically situated at the geographic center of Moreno Valley. The City Center area includes major medical facilities, the community college, the Auto Mall, several shopping centers and a large amount of the newer housing developments in the community.

To improve traffic circulation in the area, and strengthen economic development efforts, City staff is recommending the re-sequencing of several projects from the Capital Improvement Program (CIP), including the following three projects:

- Installation of the new SR60 southerly ramps, along with the extension of Eucalyptus Avenue to connect with Moreno Beach Drive.
- Installation of the ultimate improvements on Cactus Avenue between Lasselle Street and Nason Street.
- Provide for the extension of Nason Street southerly to connect Cactus Avenue with Iris Avenue.

All of these improvements are part of the City's approved Circulation Plan and contained in the City's 2010/11 Capital Improvement Program. However, the projects

are presently either unfunded or only partially funded. The Economic Development Action Plan proposes to re-sequence the order of CIP projects to pursue the funding and construction of these projects in the short-term to assist economic development efforts and better leverage towards future revenue opportunities for the City by strengthening existing shopping centers (Stoneridge Towne Center, Moreno Beach Plaza, and the Auto Mall) and major employers (Riverside County Regional Medical Center, Kaiser's Community Hospital and Moreno Valley College). Additionally, the completion of these three CIP projects will significantly enhance the traffic flow in the central area of the community which will assist both the business community and residents with easier commutes.

Currently, major improvements are underway at SR60 and Nason to significantly improve this freeway interchange. The construction of the new ramps and bridge is targeted for completion by summer 2013. Pursing the installation of the southerly ramps at SR60 and Moreno Beach and the connection of Eucalyptus to Moreno Beach, in conjunction with the Nason interchange project, will significantly enhance the future traffic circulation in this area. Additionally, it will assist with the convenient ingress and egress to Stoneridge Towne Centre, Moreno Beach Plaza and the Moreno Valley Auto Mall.

The other two CIP projects will install the ultimate street improvements to connect Nason Street, from Cactus to Iris and upgrade Cactus Avenue from Lasselle to Nason. These improvement projects will greatly improve access to Moreno Valley College and the two medical centers in the community, along with enhancing the traffic flow in the central area of the community. Traffic modeling by the City's transportation professionals illustrates that undertaking these improvements on Cactus and Nason will greatly reduce traffic loads on Iris, Moreno Beach, Lasselle and Alessandro—thereby better managing traffic flow in this area of the community. Additionally, providing the connection of Nason from Cactus to Iris creates much easier commutes from the residential areas in Moreno Valley Ranch and the southerly section of the community to shop and dine in Stoneridge Towne Centre, Moreno Beach Plaza and the Moreno Valley Auto Mall.

Sales have finally increased at the Moreno Valley Auto Mall. Work is underway for the installation of the new freeway sign, along with other improvements at the Auto Mall. Enhancing access to the Auto Mall with these three CIP projects will be a strategic investment in growing sales tax revenue at the Auto Mall.

Stoneridge Towne Centre and Moreno Beach Plaza are major retail centers. While being attractive and nicely designed retail areas, both of these centers have struggled somewhat since opening because of the economic downturn and the collapse of the new housing development market, along with inefficiencies in traffic flow in getting to and from these shopping centers. Together, both of these shopping centers produced $1,428,000 in sales tax revenue in 2010 for the City of Moreno Valley. However, the sales performance of these two shopping centers was significantly below what they should have produced if one compares them with the California or Riverside County

averages of what these types of retail centers should produce with the tenant mix and user lineups they have assembled. Together the two shopping centers sales production was 17.9% less than the statewide average and 15.9% off the Riverside County average. This represented a $582,000 loss in potential sales tax revenue for Moreno Valley in 2010 if sales performance of these two shopping centers had just achieved the State of California average. This loss in sales revenue is even greater considering that three of the anchor stores in Moreno Beach Plaza—Phase II are vacant after Circuit City went out of business two years ago and Staples and Petsmart chose not to open their new stores.

Clearly, these two shopping centers and their anchor tenants (Walmart, Super Target, Kohl's, Best Buy, and Office Max) are underperforming. Rumors have surfaced from time to time that some of these anchor stores may close because of depressed sales performance. On average, the five operating anchor stores in the two shopping centers range from 16.6% to 48.4% below the average of what these store types should produce in sales performance when compared to the statewide average. Collectively, the five anchor stores produced $43 million in sales in 2010, but this was 29.3% below what the statewide average was for these same stores. This represented a $430,000 loss in potential sales tax revenue for Moreno Valley as compared to the statewide average. Even more troubling would be the devastating effect it would be for one or more of these anchor stores to close and the subsequent negative impact it would have on the shopping centers. An objective of this Action Plan is not only keeping all the anchor stores open, but also move to enhance their sales performance.

Interest has recently materialized for the possible re-occupancy of the three closed anchor spaces in Moreno Beach Plaza II. However, any reuse of these spaces will be contingent on first connecting Eucalyptus to Moreno Beach, along with plans to enhance traffic circulation and expand daytime population—i.e. establish more businesses and create job production in the eastern area of the City.

Moreno Valley College is well underway with four construction projects totaling $88 million that will greatly expand and upgrade the City's community college. Moreno Valley College's student population exceeds 10,000. Furthermore, both Kaiser Permanente's Community Hospital (Kaiser) and Riverside County Regional Medical Center (RCRMC) are working on plans to expand these major medical facilities. In fact, Kaiser Permanente expects to bring the development of a new 75,000 S.F. building before the Planning Commission in June, with a start of construction expected by late summer. Executive management from Moreno Valley College, Kaiser, and RCRMC all fully express support for the idea of pursuing the CIP projects and the goal of improving traffic flow in the City Center area.

In 2007, the City adopted a medical overlay zone that includes area on Iris Avenue—from the Kaiser Community Hospital area and down Nason Street to the RCRMC area. Presently, Highland Fairview is evaluating the possibility of other land uses for part of the Aqua Bella area—including the idea of developing a major health and medical related campus on approximately 200 acres of the undeveloped land on the eastern

side of a newly installed Nason Street. This proposed development concept, which would include a world-class master planned health care campus would provide a link between the existing two hospitals and further advance the City's planning concept of creating a medical corridor in this section of the community. As Americans live longer (it is expected that 20% of Americans will be over the age of 65 by 2050) and the population continues to grow in the Inland Region, the need will escalate for more medical and health related services in this area. The vision of creating a medical and health services corridor in this of the community makes great sense, particularly considering that major institutions such as RCRMC, Kaiser Permanente and Moreno Valley College are already situated in this area of the community.

There is a clear need for education, training and research/development in the health and medical fields. Allied Health is one of the most rapidly growing professions in the U.S. and especially in Southern California. According to the U.S. Bureau of Labor Statistics---17 of the top 30 fastest growing occupations in the U.S. are in the health related professions. The California Wellness Foundation, estimates that by 2030, almost 1 million health care workers will be needed in California. Having Moreno Valley College, with its Allied Health Sciences programs, along with the fact that RCRMC will be the major teaching hospital for the new UC-Riverside medical school, provides even more momentum to consider repositioning part of the undeveloped land at Aqua Bella for health and medical related uses. Constructing the Nason and Cactus improvements would clearly help advance the planning and marketing efforts for an expansion of the medical overlay corridor. Producing more health and medical related facilities will create more jobs and employment opportunities in Moreno Valley, along with helping improve retail and restaurant sales in the shopping centers in the City Center area.

Staff has discussed the idea of advancing the construction of the three CIP projects in the City Center area with many of the stakeholders in this area--including Moreno Valley College, RCRMC, Kaiser Permanente, Highland Fairview, Stoneridge Towne Centre-Weingarten Realty, Moreno Beach Plaza I-Pacific Retail Partners, Moreno Beach Plaza II-Merlone Greier Partners, and the Moreno Valley Auto Mall-Moss Bros. Auto Group. All are fully supportive and enthusiastic about the idea of pursuing these three CIP projects in the short-term. Ten of the Top 20 Sales Tax Producers in the City are contained in this area and 22% of the entire City's sales tax revenue in 2010 was produced in Stoneridge Towne Centre, Moreno Beach Plaza and the Moreno Valley Auto Mall. The City Center area also includes a number of the major employers in the community--including eight of the top 50 major employers in Moreno Valley. Presently these eight major employers provide nearly 5,000 employment opportunities in Moreno Valley. Strengthening all these businesses should be an objective of the City's economic development efforts.

## ALTERNATIVES

Staff recommends that the City Council approve the Economic Development Action Plan including the following actions:

1. Adoption of the five initiatives as proposed in the Economic Development Action Plan.
2. Approve the re-sequencing as proposed for Capital Improvement Program projects.

Other alternatives the City Council may consider is rejecting the proposed Economic Development Action Plan and the re-sequencing of CIP projects or provide direction on other economic development efforts to be included in formulating a short-term Action Plan.

## FISCAL IMPACT

The funding and construction of the three projects will be accomplished through the Capital Improvement Program.

***SR60/Moreno Beach-South Ramps***

The cost for this project is estimated at $10.5 million and will be funded though a combination of sources including 1) $2.5 million of proceeds from the 2007 RDA Bond Issuance that was recently shifted to the City, 2) estimated savings in the amount of $7 million from the SR60/Nason ramps and bridge projects, and 3) a proposed Developer contribution of $1 million from the owner of the Moreno Beach Plaza-Phase II, in conjunction with a reimbursement agreement to be tied to future tenants sales tax performance.

***Cactus Avenue and Nason Street Improvements***

The total cost for these two projects is estimated at $23.3 million. To achieve an 'economies of scale' and reduce overall costs, it is suggested to construct the projects together as one large scale project or through a design build process—with a goal of saving at least 10% in construction costs. An estimated $6 million of the costs for the projects involves installing storm water infrastructure that is part of Riverside County's Master Planned Flood Control System. Moreno Valley through its Redevelopment Agency (RDA) has accumulated $5.42 million in tax increment pass through revenues that in accordance with a Cooperative Agreement (executed in 1988) between Riverside County and Moreno Valley's RDA must be used for County Flood Control master planned projects—such as the construction of Line I and Line J that should be constructed as part of the Cactus and Nason street improvement projects. By FY 2011/12 the amount of tax increment generated for this use is estimated to grow to $5,997,000 and be sufficient to construct these storm water improvements. Another potential funding source for the Cactus Avenue project is a $1 million California SLLP grant. To properly fund the remaining cost of the two projects, it is recommended that the City Council, through the CIP process, consider re-sequencing the timing of the

funding of several other CIP projects, including the delaying and/or borrowing of existing funding from several sources, including borrowing $4 million in DIF Library funds, along with pushing back the timing of several projects—Reche Vista Alignment ($3.1 million), Corporate Yard ($2.5 million), Heacock Channel improvements ($1.3 million), and Kitching Street ($2.5 million). These four projects would remain in the CIP, but would be funded at a future time if the re-sequencing of CIP projects is supported by the City Council.

## SUMMARY

Advancing economic development efforts should be a major goal for the City of Moreno Valley. Previously City staff had presented City Council with an Economic Development Plan-Areas of Opportunity. The formulation of an Economic Development Action Plan with five key initiatives is envisioned as a roadmap to guiding the City's short term economic development efforts. Included with the Action Plan is the re-sequencing of Capital Improvement Projects to better assist in economic development efforts. Investing in CIP Projects that enhance economic development through job creation and revenue generation will improve the economic condition of the City, along with enhancing the quality of life in Moreno Valley.

## ATTACHMENTS/EXHIBITS

Attachment A—Economic Development Action Plan—Opportunity Areas
Attachment B—PowerPoint – Economic Development Action Plan

Prepared By/Department Head Approval:
Barry Foster
Community & Economic Development Director

Concurred By:
Henry Garcia
City Manager

Concurred By:
Chris Vogt
Public Works Director/City Engineer

| Council Action | |
|---|---|
| Approved as requested: | Referred to: |
| Approved as amended: | For: |
| Denied: | Continued until: |
| Other: | Hearing set for: |

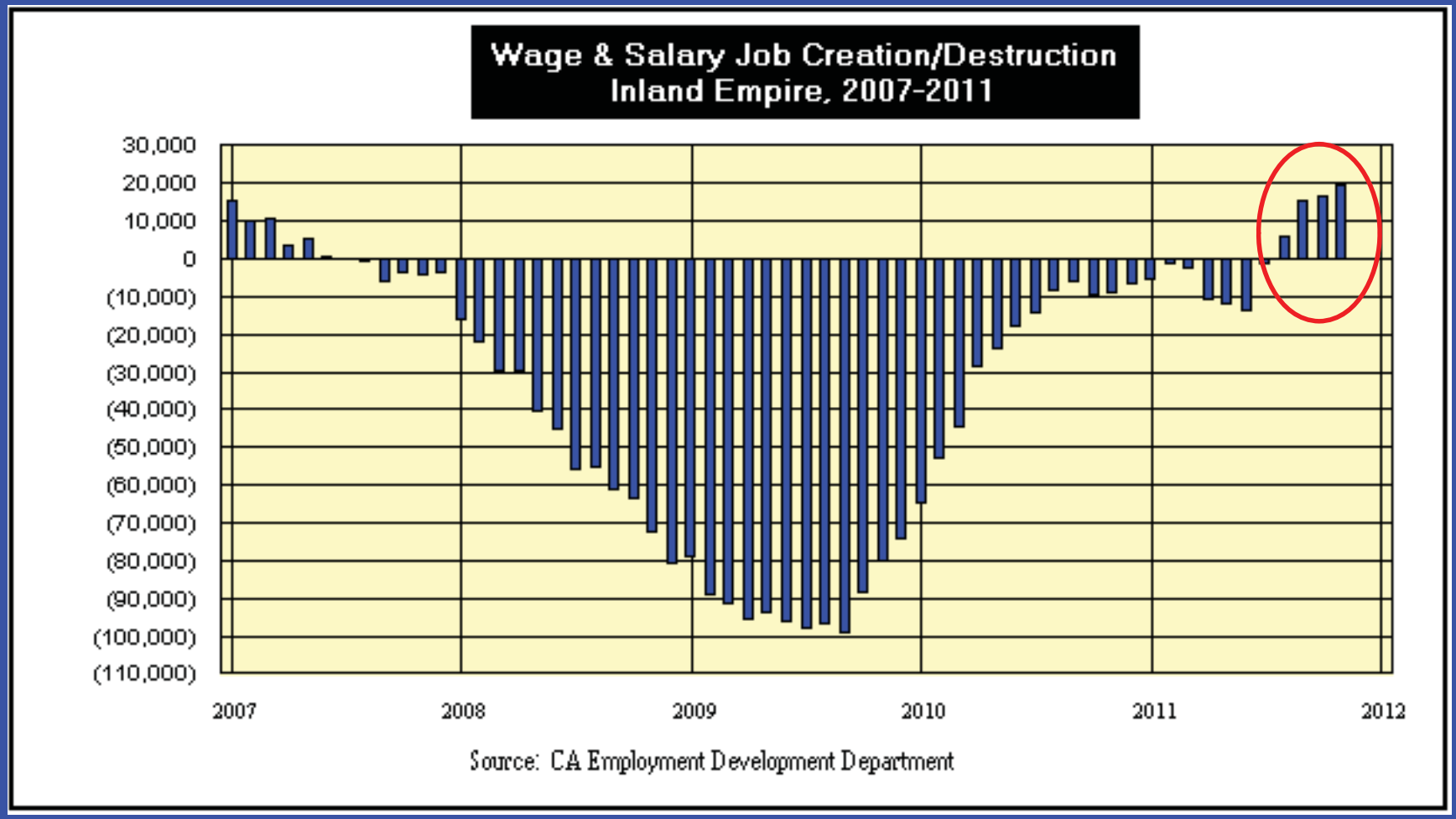
# Moreno Valley
# Economic Development Strategy




## John Husing, Ph.D.

## Economics & Politics, Inc.

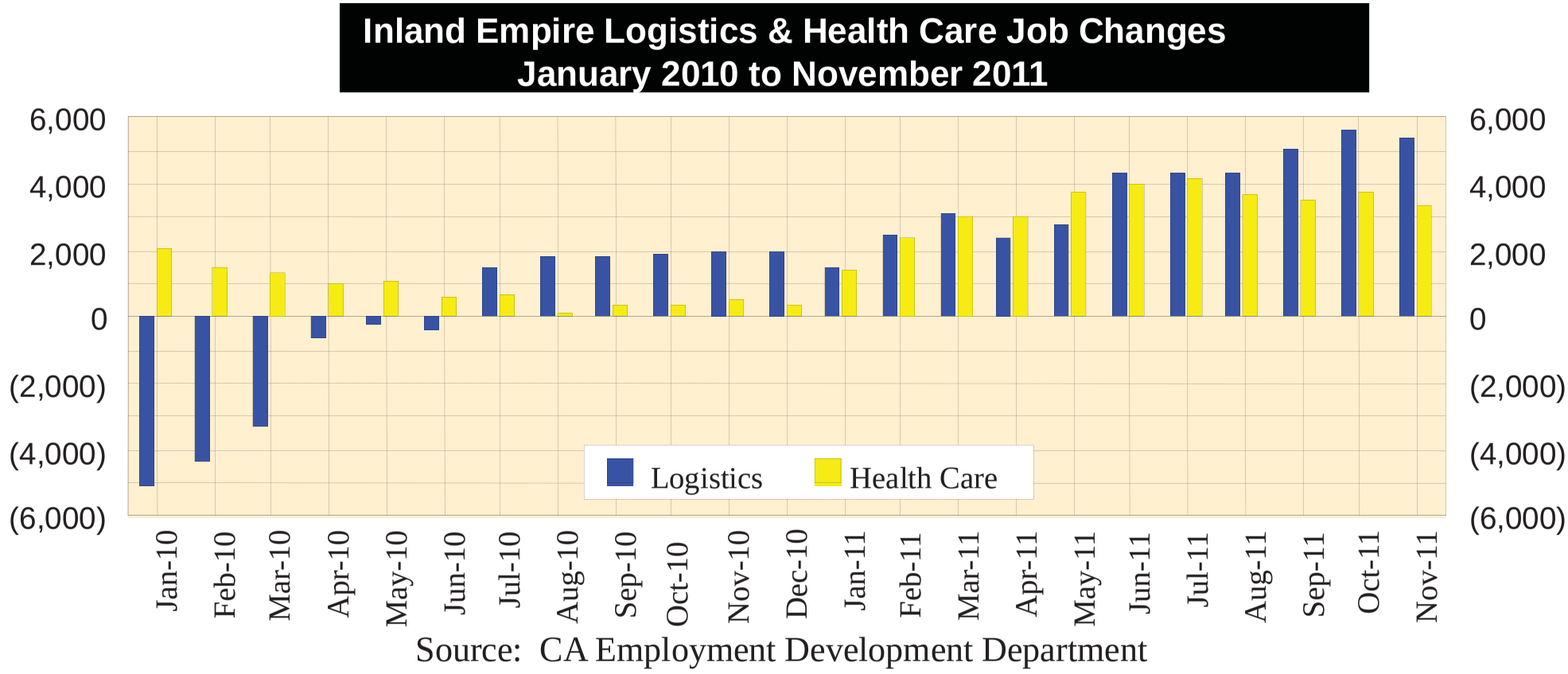
# Inland Empire Job Changes, 2007-2011



# IE Construction Still Negative in 2011

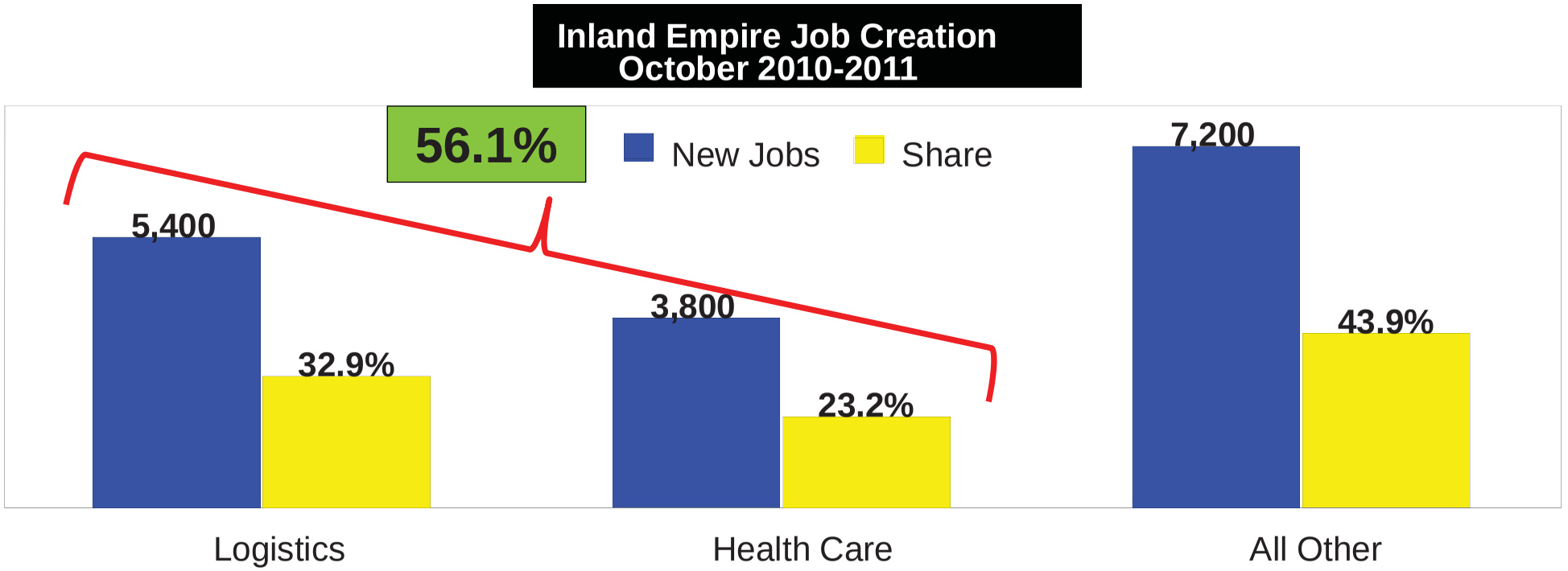


# IE Job Change: Key Economic Drivers




Source: CA Employment Development Department

# Two Sectors Are Dominating Inland Empire Job Growth




Source: CA Employment Development Department

# Gold Mine Theory



## Secondary Tier

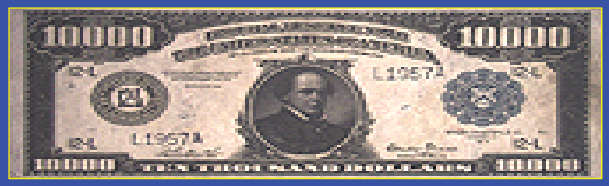
**Another**
**-$10.6 Billion**



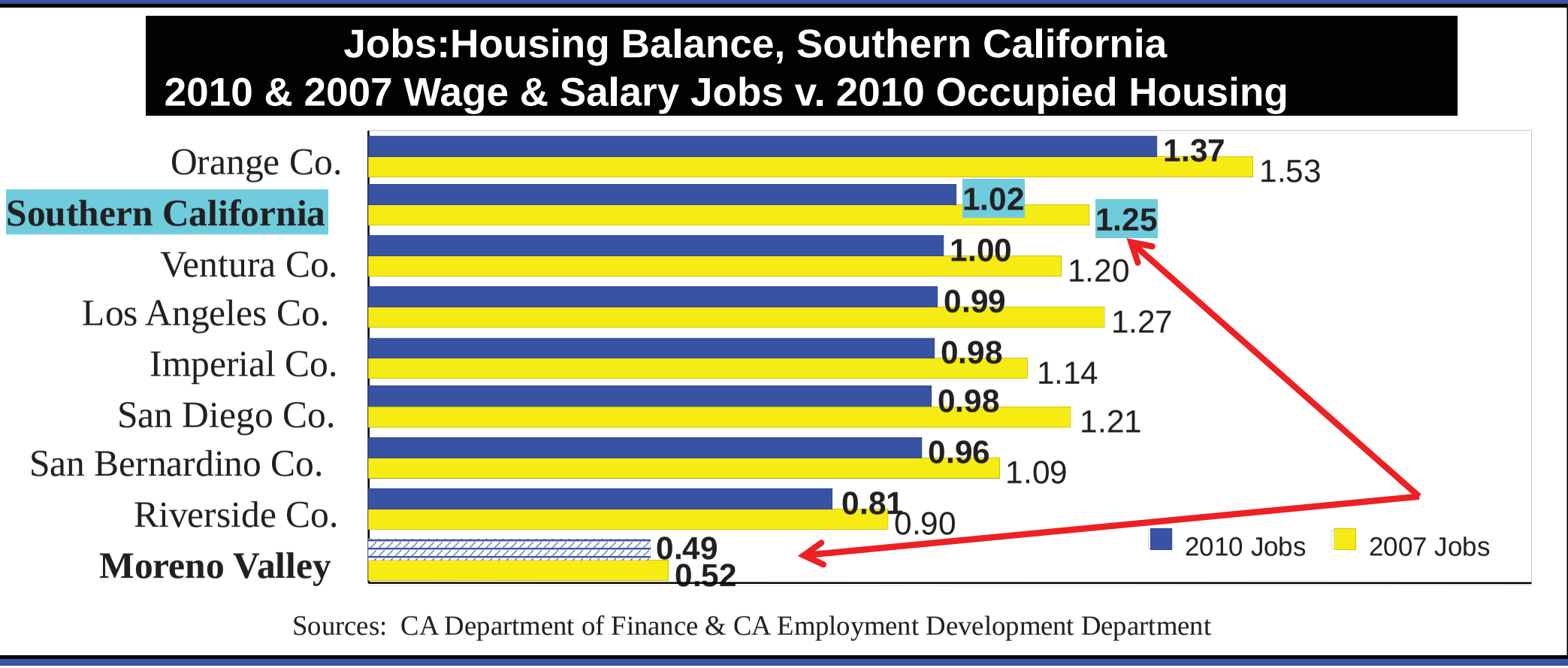
## Primary Tier





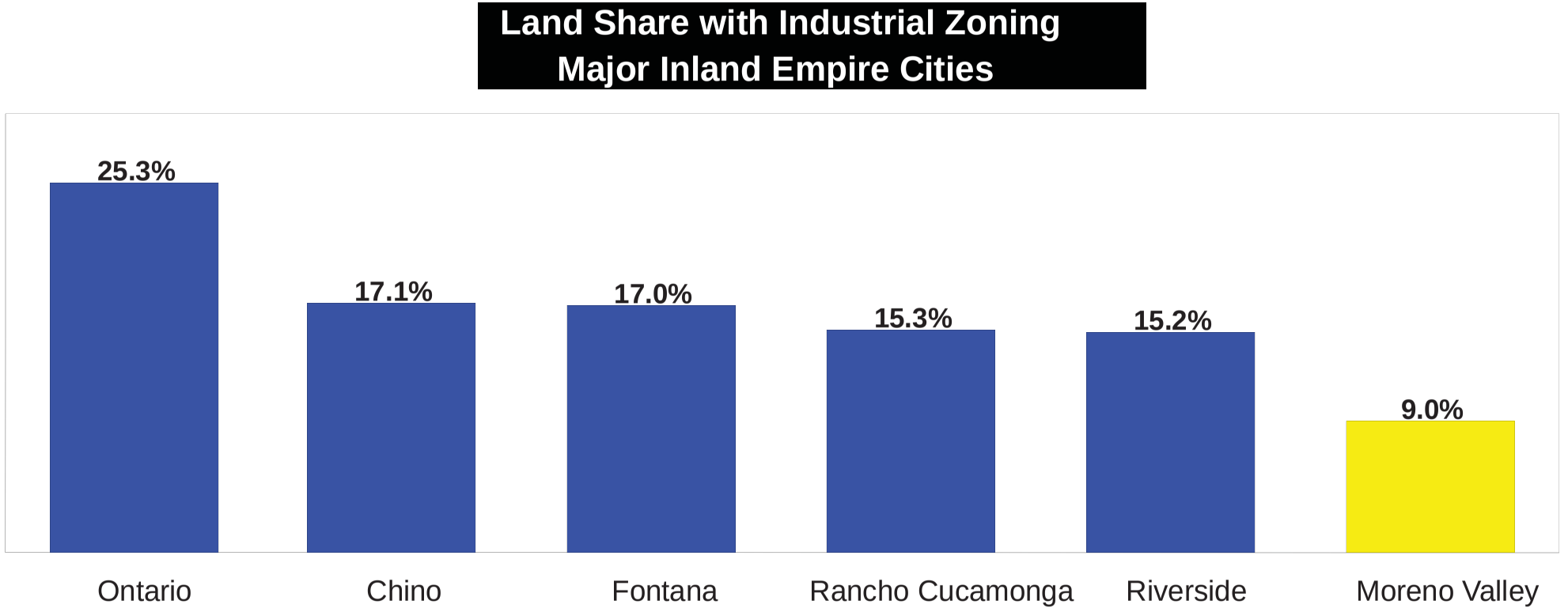


# Moreno Valley Needs Jobs
# Jobs:Housing Balance Extremely Low




Sources: CA Department of Finance & CA Employment Development Department

# Commuting Issue Is largely Self-Imposed By Zoning




Source: City of Moreno Valley

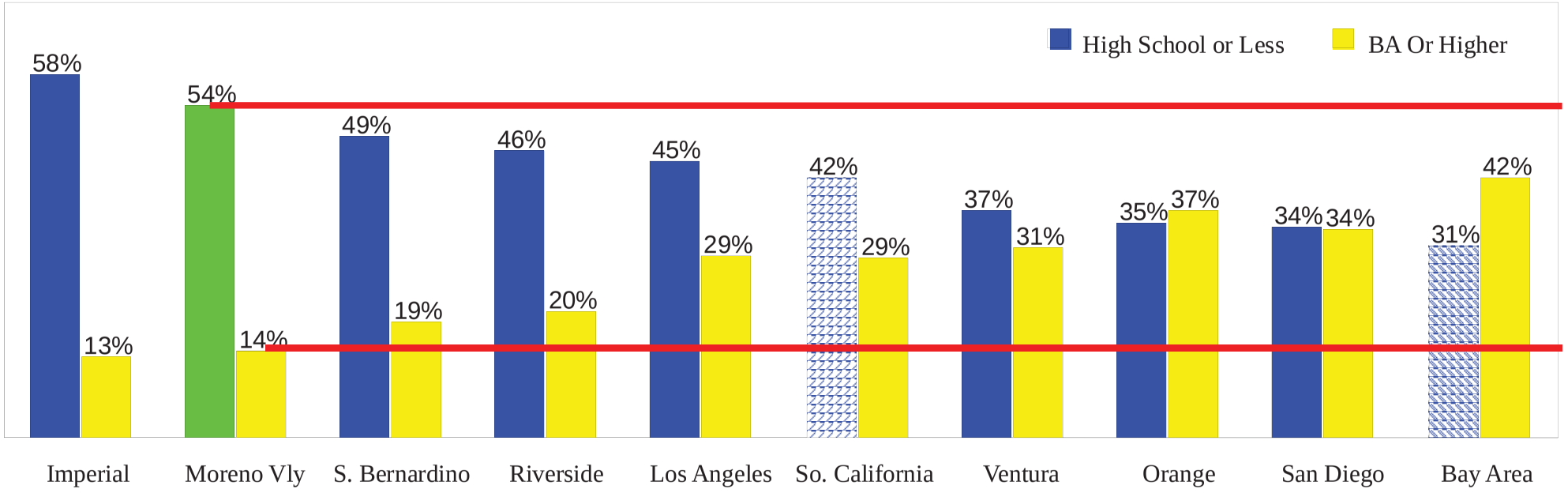
# Moreno Valley Needs An Economic Boost

## Economic Statistics

| | Moreno Valley | Riv. County |
|---|---|---|
| Unemployment Rate (*Nov.*) | 14.8% | 12.8% |
| No Health Insurance | 25.1% | 21.1% |
| People Below Poverty Line | 19.4% | 16.3% |
| Notices of Default (*Nov. 2010-11*) | 6.3% | 5.8% |
| Retail Sales *(3rd Qtr-2010-11)* | 6.9% | 10.2% |
| Assessed Valuation | +0.7% | -1.6% |

# What Types of Jobs Do Residents Need?

**Educational Attainment, Persons 25 & Over**
**Southern California Counties & Bay Area, 2010**




Source: American Community Survey, 2010

# *Few Training Barriers* To Beginning Employment

| | | |
|---|---|---|
| **Mining** | **($65,268)** | **Blue Collar** |
| **Manufacturing** | **($49,884)** | **Blue Collar** |
| **Construction** | **($48,444)** | **Blue Collar** |
| **Logistics** | **($45,868)** | **Blue Collar** |

| | |
|---|---|
| **Gaming** | **($37,827)** |
| **Retail Trade** | **($28,824)** |
| **Agriculture** | **($24,552)** |
| **Hotel/Motel** | **($16,026)** |
| **Eating & Drinking** | **($16,026)** |

**Not Reach Middle Class**

# Results Of Blue Collar Job Suppression

- Unemployment Higher Than It Needs To Be
- Underemployment A Constant Difficulty
- Lack of Access to Jobs Leading to the Middle Class

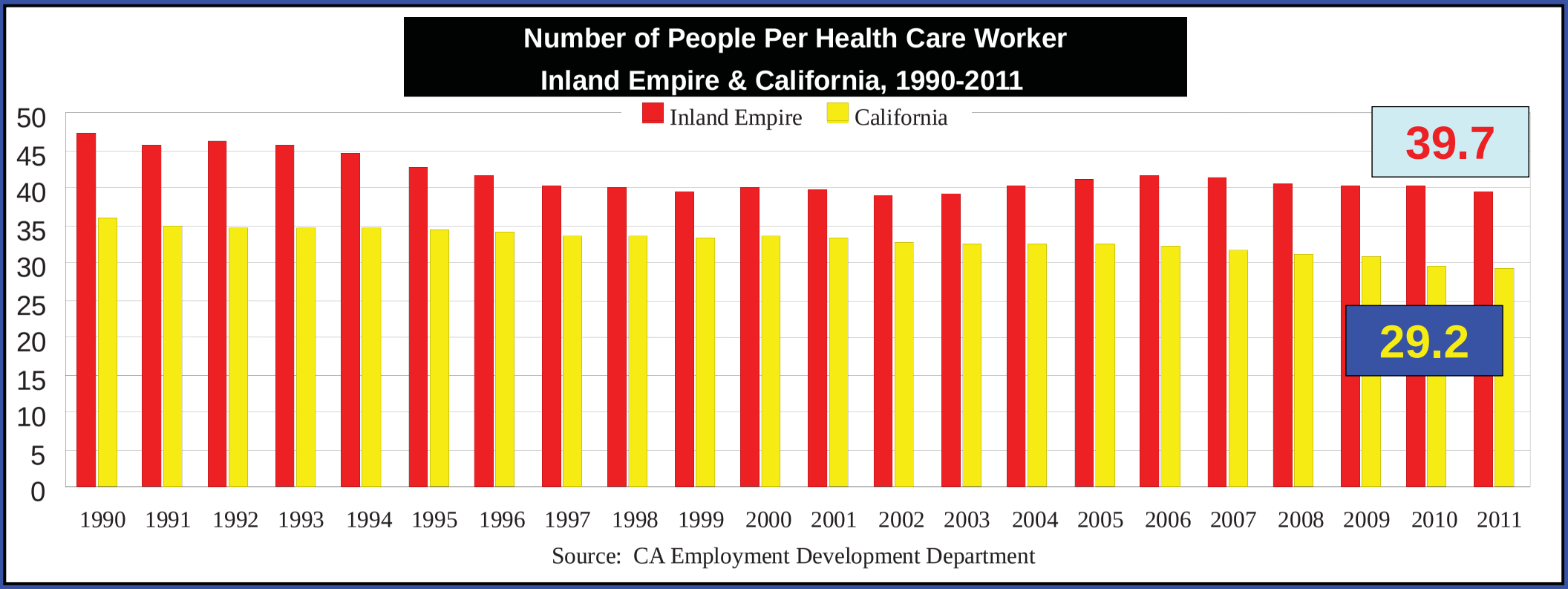
- Health Issues of Poverty
- Divorce
- Spousal Abuse
- Drug & Alcohol Abuse
- Suicide
- Lack of Timely Medical Care

**Public Health Issues!**

# Why Demand For Inland Empire Health Care Workers

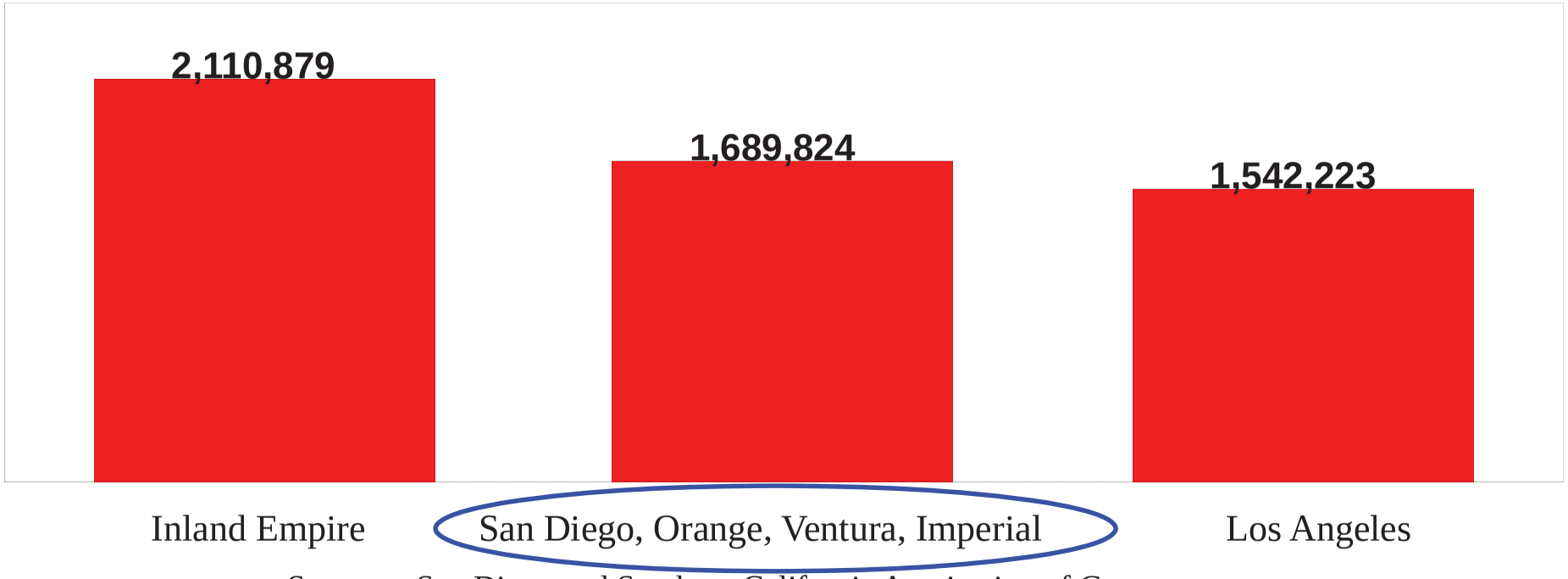


# Too Many Inland Residents Per Health Care Worker



# Demand For Health Care Will Increase

**Population Forecasts**
**Southern California Areas, 2008-2035**




Sources: San Diego and Southern California Assoication of Governments

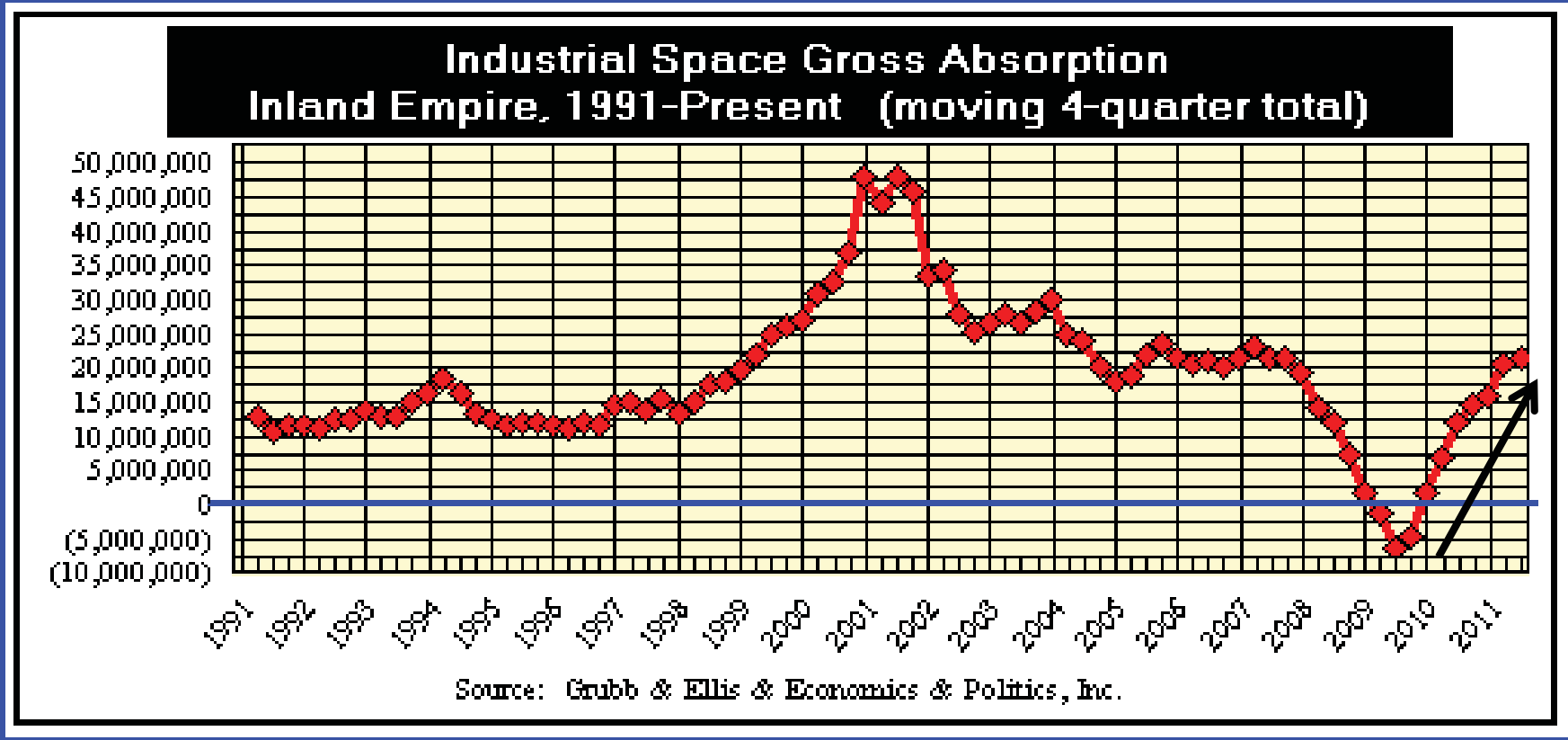
# Hospitals: A Key Source of Upward Mobility

| | | |
|---|---|---|
| Medical and Health Services Managers | $43.48 | $90,438 |
| Registered Nurses | $38.29 | $79,643 |
| Medical and Clinical Laboratory Technologists | $36.94 | $76,835 |
| Medical Scientists, Except Epidemiologists | $35.43 | $73,694 |
| Healthcare Practitioners and Technical Workers, All Other | $33.42 | $69,514 |
| Health Diagnosing and Treating Practitioners, All Other | $32.40 | $67,392 |
| Respiratory Therapists | $30.63 | $63,710 |
| Respiratory Therapy Technicians | $26.62 | $55,370 |
| Medical and Public Health Social Workers | $26.52 | $55,162 |
| Medical Appliance Technicians | $21.84 | $45,427 |
| Licensed Practical and Licensed Vocational Nurses | $21.56 | $44,845 |
| Medical Equipment Repairers | $21.24 | $44,179 |
| Medical Transcriptionists | $19.68 | $40,934 |
| Medical Records and Health Information Technicians | $18.82 | $39,146 |
| Health Technologists and Technicians, All Other | $18.53 | $38,542 |
| Medical and Clinical Laboratory Technicians | $17.57 | $36,546 |
| Healthcare Support Workers, All Other | $16.51 | $34,341 |
| Emergency Medical Technicians and Paramedics | $15.17 | $31,554 |
| Medical Equipment Preparers | $14.32 | $29,786 |
| Medical Secretaries | $14.18 | $29,494 |
| Ambulance Drivers and Attendants | $13.78 | $28,662 |
| Medical Assistants | $12.99 | $27,019 |
| Healthcare Support Occupations | $12.76 | $26,541 |
| Nursing Aides, Orderlies, and Attendants | $11.83 | $24,606 |

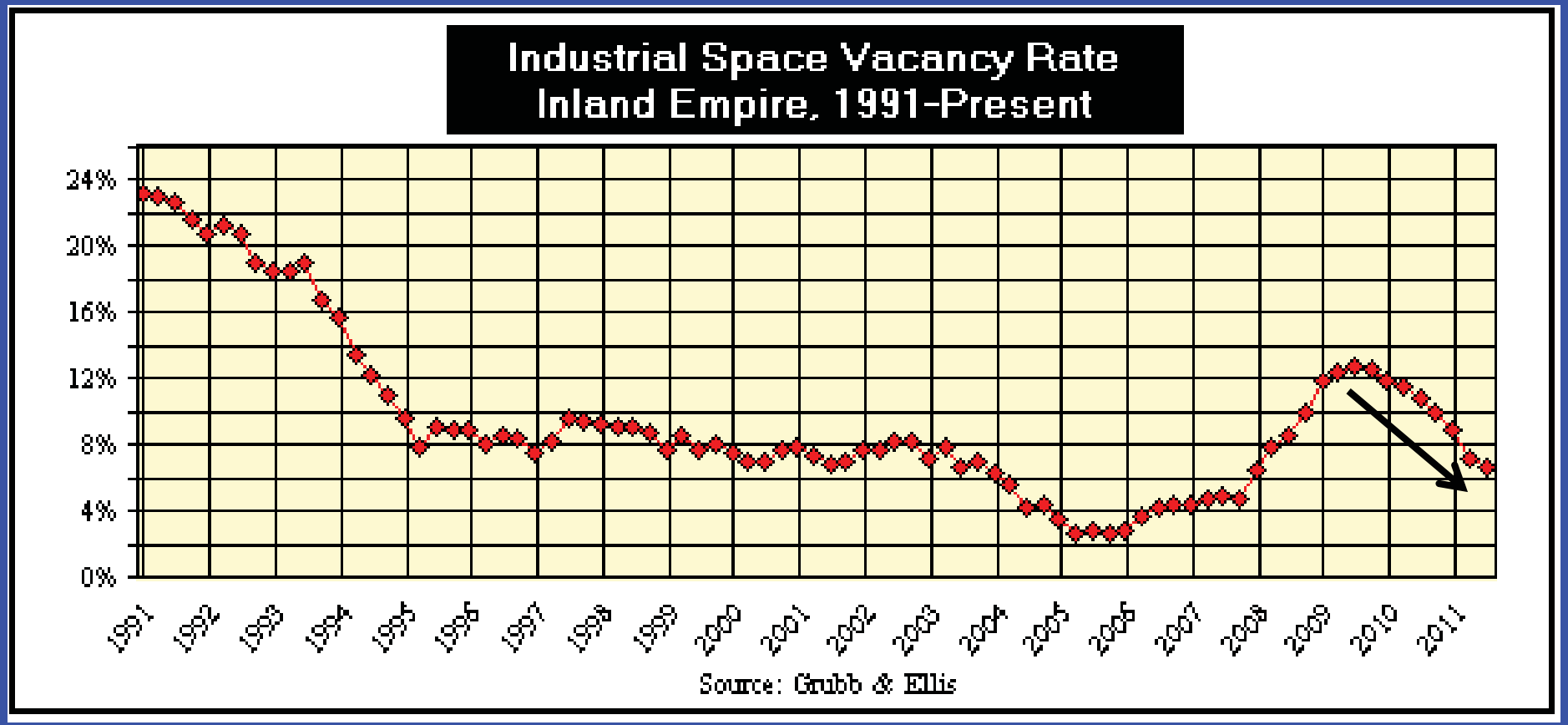
# Why Demand For Inland Empire Logistics Workers



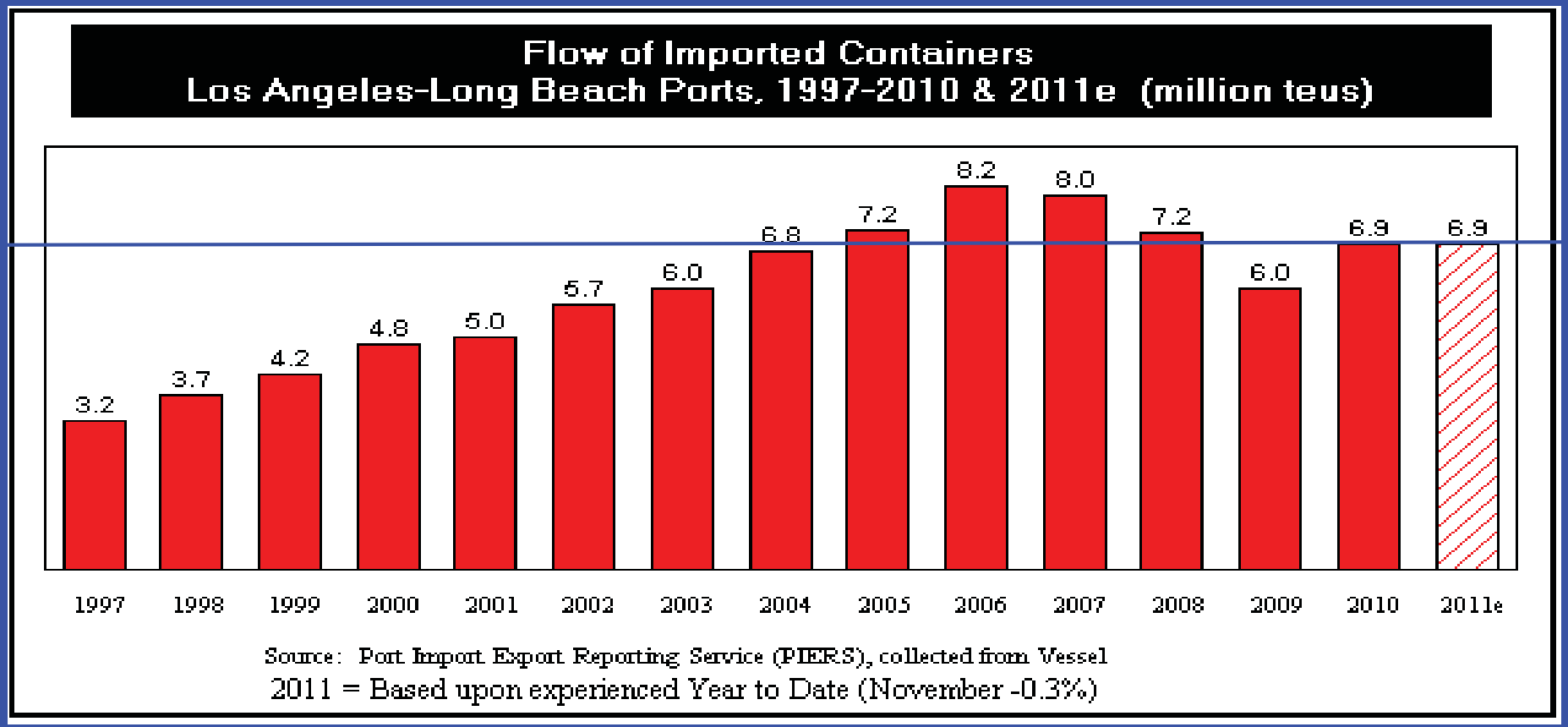
# Industrial Space Absorption Rising



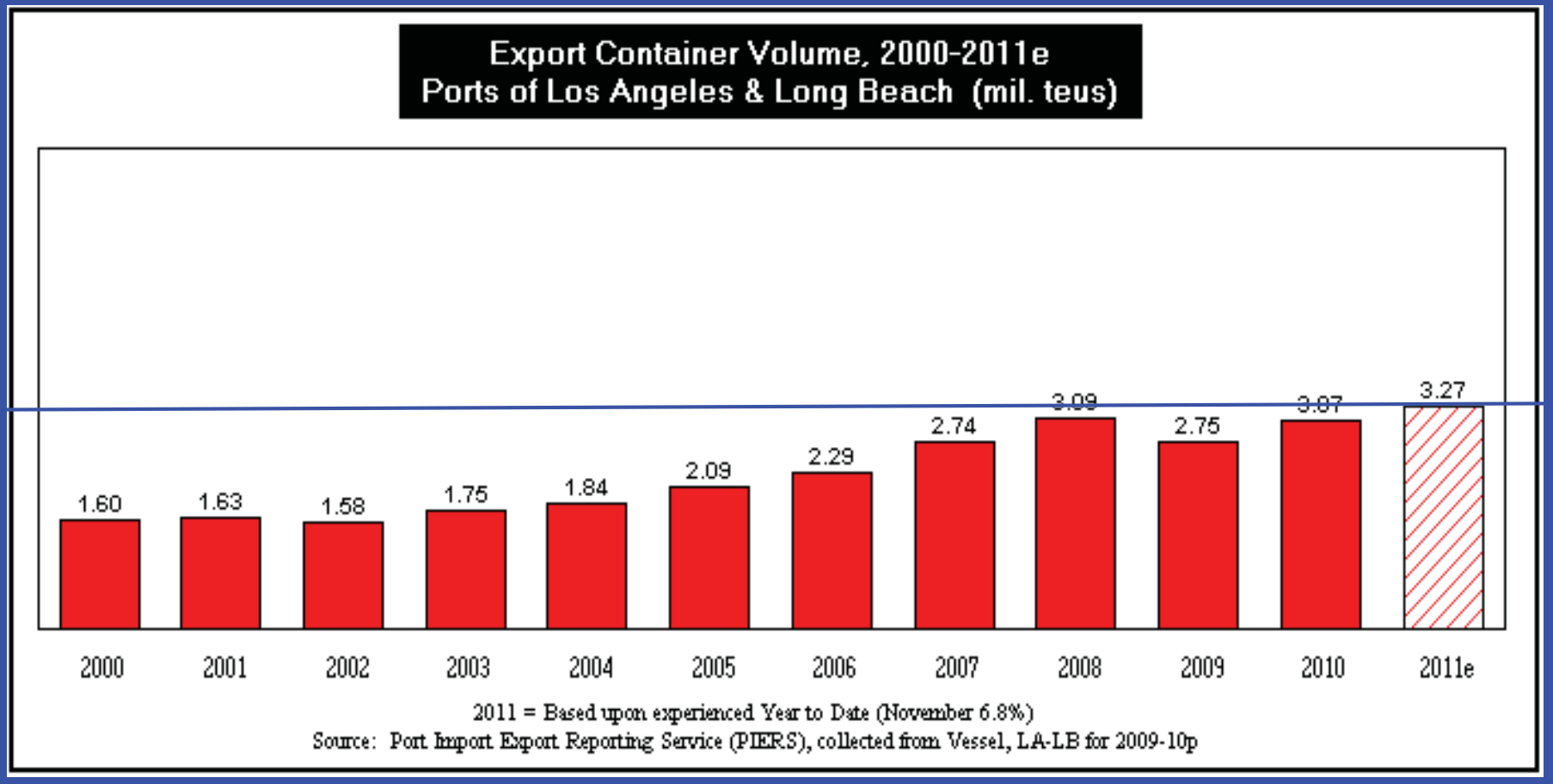
# Industrial Space Vacancy Rate Falling



# Strong Imported Container Levels



# Record Export Container Volume



# Job & Financial Impact: Logistics Alone

# Direct New Construction Jobs

**40,000,000 Square Feet**

**$93.69 Per Square Foot Of Construction**

**$3,747,600,000 Construction Activity**

**Sources: Construction Cost Per Square Foot, RSMeans September 2009 for Los Angeles Area**

# Direct & Secondary Construction Increase

| | Jobs | Payroll | Output |
|---|---|---|---|
| Direct Effect | 30,337 | $ 1,808,715,704 | $ 3,747,600,000 |
| Indirect Effect | 2,346 | $ 112,232,486 | $ 294,693,116 |
| Induced Effect | 7,634 | $ 317,490,615 | $ 958,408,543 |
| Total Effect | 40,316 | $ 2,238,438,804 | $ 5,000,701,659 |
| Years | 10 | 10 | 10 |
| Each Year | 4,032 | $ 223,843,880 | $ 500,070,166 |

# Direct New Permanent Jobs, Income

**40,000,000 Square Feet**

**2,000 Square Feet per Job**

**20,000 Direct New Jobs**

**$45,868 Income Per Logistics Job**

**$917,361,553 Annual Payroll**

**$118,438,872 Proprietorship Income**

**Sources**

**1,906 Jobs per square foot from 2003 Study By U.S. Energy Information Agency, Distribution & Shipping Centers from Table 5, increased 5% to 2,000**

**Weighted average of income per wholesale trade plus transportation & warehousing job from U.S. Census Bureau Longitudinal Employer Dynamics Reports, 2010 *(Riverside SMA)***

# Direct & Secondary Permanent Increase

| Moreno Valley | Jobs | Payroll/Proprietors | Output |
|---|---|---|---|
| Direct Effect | 20,000 | $1,035,800,425 | $2,644,763,776 |
| Indirect Effect | 3,525 | $153,904,228 | $394,918,255 |
| Induced Effect | 4,653 | $193,908,095 | $584,309,881 |
| **Total Effect @ Build-Out** | **28,178** | **$1,383,612,748** | **$3,623,991,912** |
| **2010 Base** | **25,440** | **$934,575,664** | |
| **New Base At Build-Out** | **53,618** | **$2,318,188,412** | |
| Increase from 2010 | **111%** | **148%** | |

**Sources: IMPLAN Modeling For Moreno Valley Zip Codes; EDD data for 2010 Base**

| Riverside Co. | Jobs | Payroll/Proprietors | Output |
|---|---|---|---|
| **Indirect & Induced over MV** | **+4,335** | **+$191,821,792** | **+$602,565,124** |
| **Total County Impact** | **32,513** | **$1,575,434,540** | **$4,226,557,036** |

# Taxes:
# City, Schools, County, Special Districts

**40,000,000 Square Feet of Logistics Space**

**$178.01 Assessed Value Per SF**

**$7,120,400,000 New Assessed Valuation**

**1.15% Rate (Tax Zone 021-579)**

**$82,169,416 New Annual Taxes Revenue**

# Planning: Best Practices

**Isolate Industrial**

**No Homes**
**No Schools**
**No Shopping Centers**
**Direct Freeway Access**

john@johnhusing.com

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# *Economic Impacts*

## *The World Logistics Center*



Jordan G. Levine
Director of Economic Research, Beacon Economics

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# Overview

- Motivation for study
  - Measure impact of WLC on Moreno Valley
- Economic impact
  - 3 primary sources of impact
  - Construction, Outfitting, and Operations
- Benefits
  - Jobs – jobs for Moreno Valley and region's residents
  - Output – demand for additional goods and services
  - State and local tax revenues

# World Logistics Center



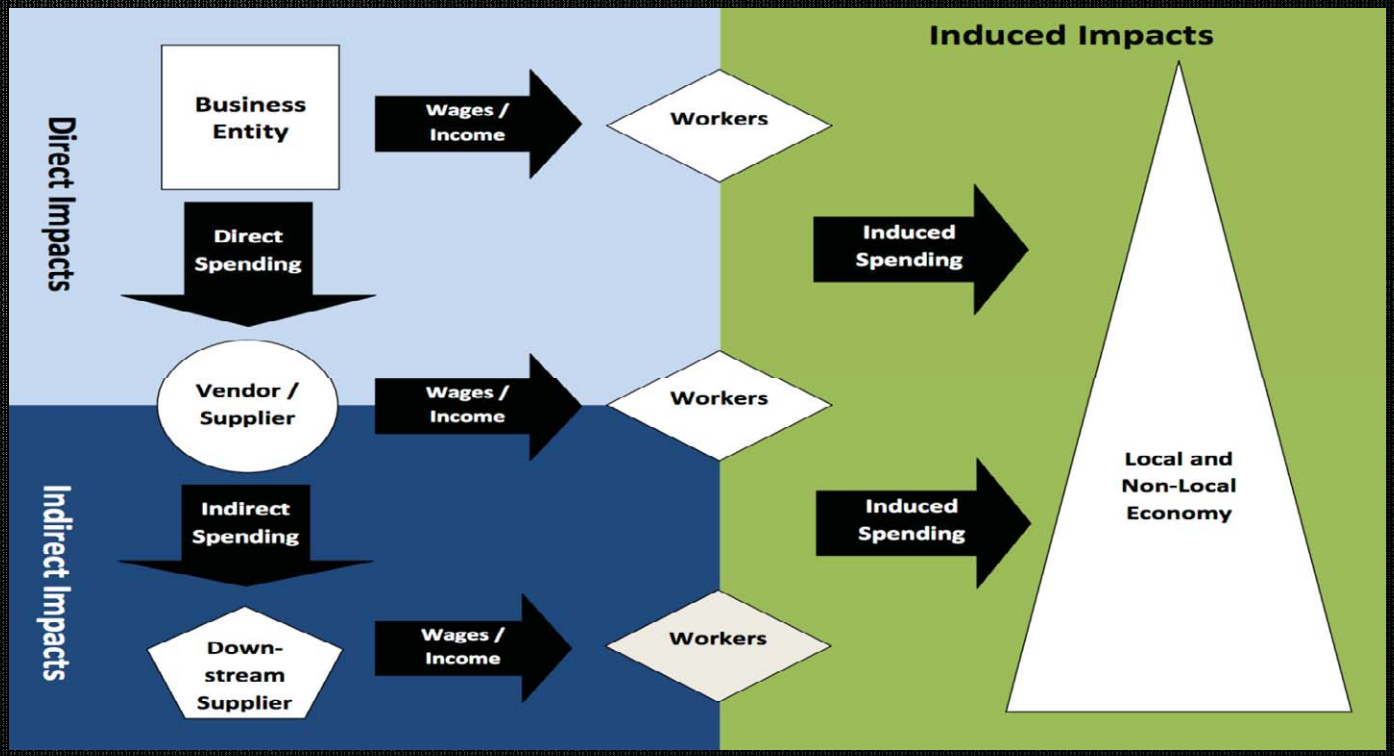
- 41.6 million sq. ft.
- 2,710 acres in East Moreno Valley
- Built with sustainable designs: solar, natural gas, efficient irrigation
- 22X larger than largest LEED-Gold building

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# Types of Economic Impact

- Three types of impacts:
  - Direct
  - Indirect
  - Induced
- Secondary Impact
  - The sum of indirect and induced impacts
- Total Impact
  - The sum of the direct and secondary impacts

# Overview of Economic Impacts




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# 1) Construction Impact

- Direct impact
  - Developer/construction company build facility
  - Provides jobs for city and county residents
- Indirect
  - Architectural and engineering services
  - Hiring of equipment
  - Purchase of building materials
- Induced
  - Spending by clientele in local economy
  - Spending by construction workers and suppliers
  - Tax revenues (Sales tax on goods purchased)
- Countywide
  - Earnings that leak out of Moreno Valley
  - Captured within Riverside County



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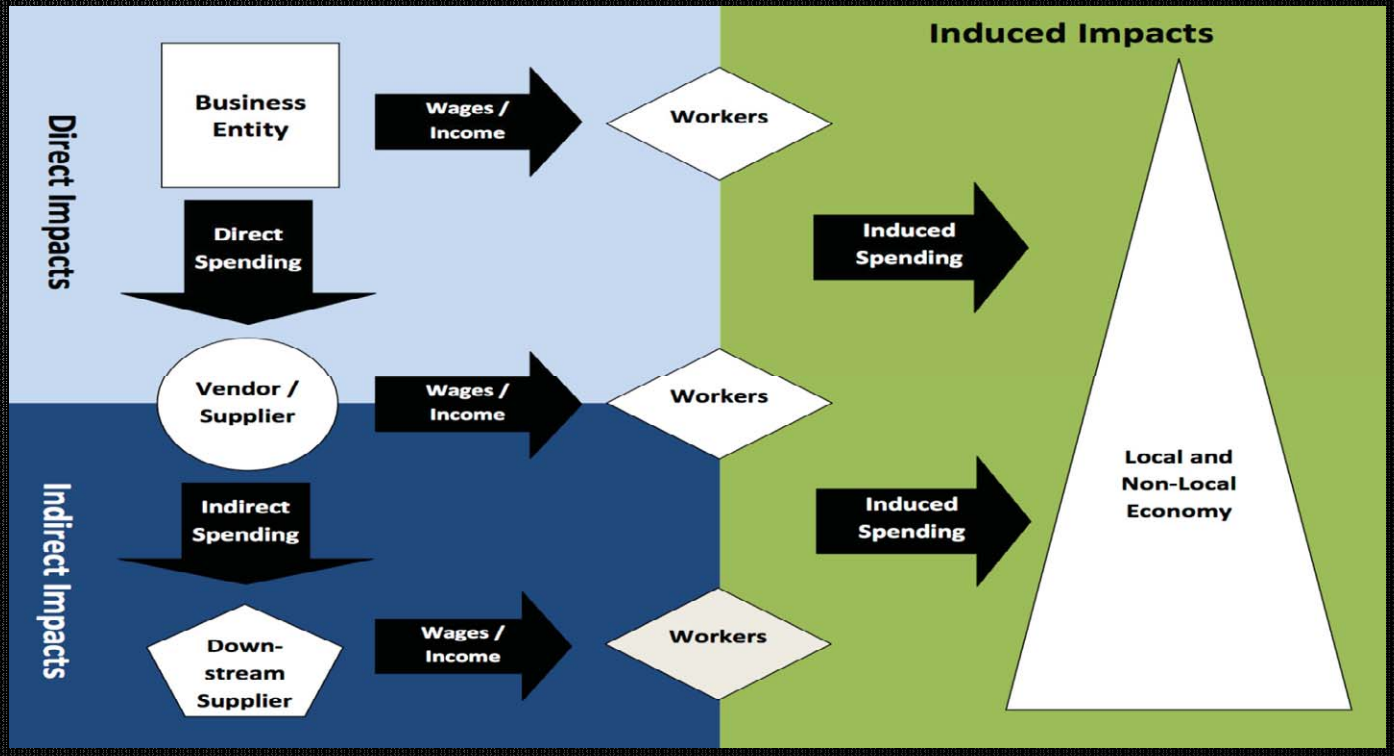
# 2) Improvements & Equipment

- Direct impact
  - Developer performs tenant improvements
  - Outfit/customize facility for operations
- Indirect
  - Additional construction and installation
  - Equipment and software vendors
  - Engineers and mechanics
- Induced
  - Spending by workers and vendors
  - Tax revenues (Sales tax on goods purchased)
- Countywide
  - Earnings that leak out of Moreno Valley
  - Captured within Riverside County

# 3) Ongoing Operations

- Direct impact
  - Tenants occupy space and hire workers
  - Provides permanent jobs for residents
- Indirect
  - Maintenance and housekeeping services
  - Accounting and payroll services
  - Legal and professional services
- Induced
  - Spending by workers and suppliers
  - Paying rent and buying cars
  - Shopping at the local retail establishments and eating out
- Countywide
  - Earnings that leak out of Moreno Valley
  - Captured within Riverside County

# Overview of Economic Impacts




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# Overview of IMPLAN

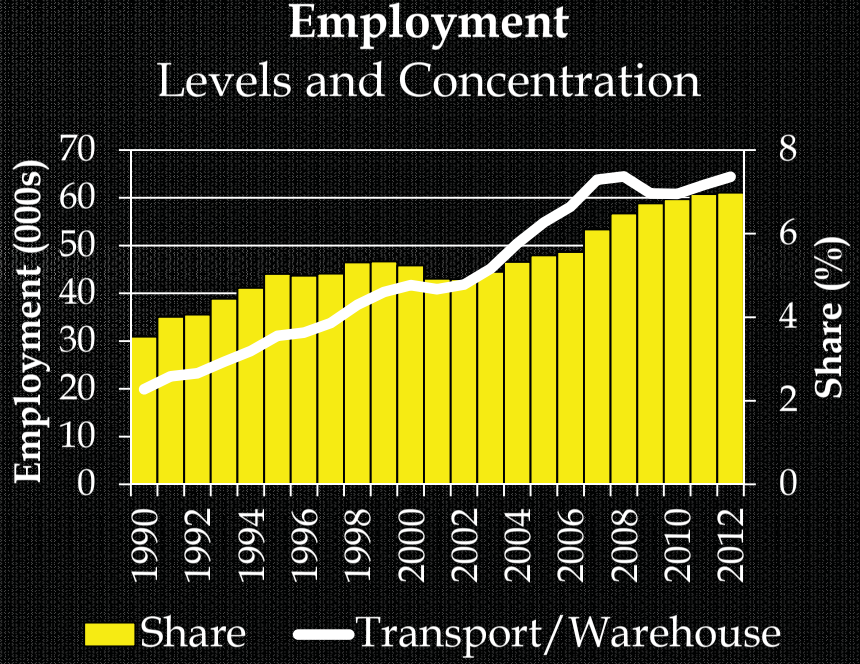
- Used to estimate economic impact on a particular geography of:
  - Business
  - Investment
- Typically constructed at the County level
  - Can also be done at zip code, state, or U.S. level
- Based on multipliers:
  - X dollars invested in the local economy
  - Generates $Y in output and Z jobs

# IMPLAN Multipliers

- California vs. Riverside County
  - California has larger multipliers. Why?
  - Leakage into other regions
- Example: Aircraft manufacturing in Riverside
  - Requires steel as major input
  - Riverside has few steel manufacturing plants
  - Aircraft manufacturer has to buy steel from another state
  - Steel purchases do not impact Riverside ("leaks out")
- General rule of thumb:
  - Larger geography will have less leakage
  - More diverse local economy will have less leakage

# Logistics: A Growing Force

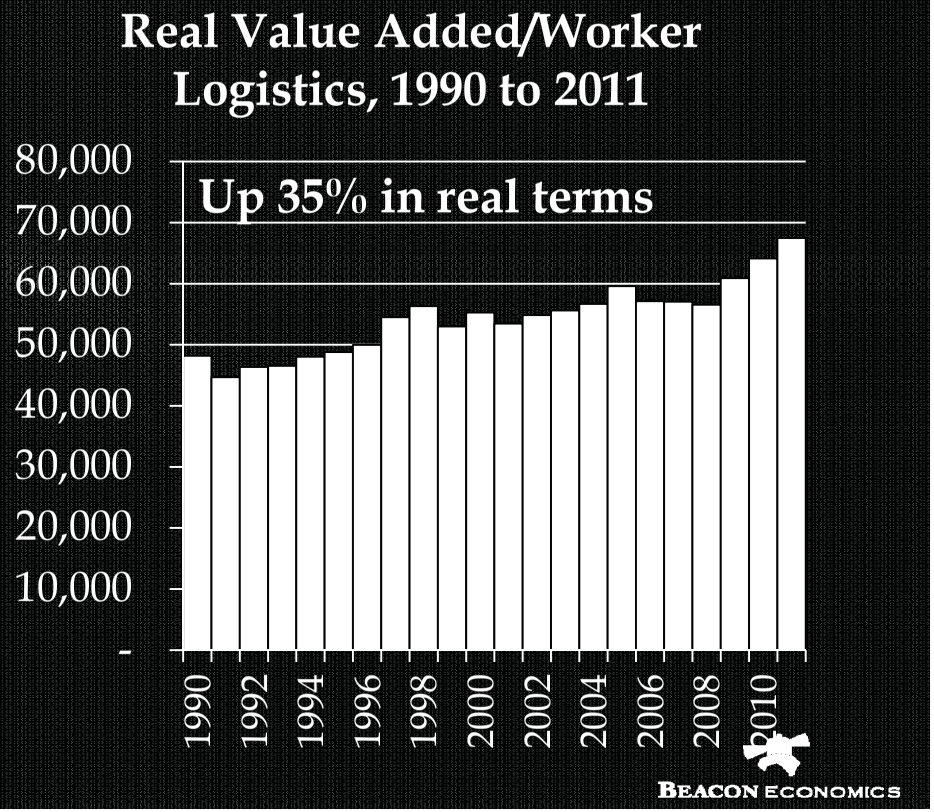
- Employment:
  - Doubled since 1990
- Almost 65,000 jobs
- Bigger share today
- Up from 3.5% to 7%
- Big part of recovery
  - Back to pre-recession peak




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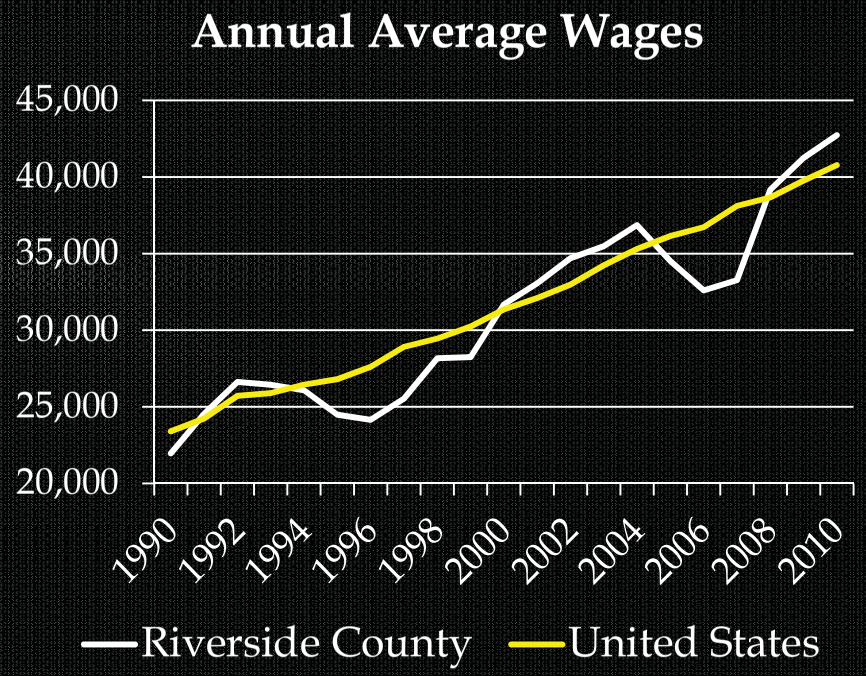
# Brief History on Logistics

- Have become much more sophisticated
- Efficiency and automation have boosted productivity
- Less labor-intensive
- Quality of logistics jobs much better today



# Brief History on Logistics

- Have become much more sophisticated
- Efficiency and automation have boosted productivity
- Less labor-intensive
- Quality of logistics jobs much better today




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# Two Scenarios for Impact

- Logistics have evolved tremendously
- Adopt two scenarios for impact
  - Provides a range of likely outcomes
- High-tech scenario
  - Closely resembles other highly automated facilities
  - Fewer direct jobs, but more overall output
- Traditional logistics operation
  - Larger number of direct jobs
  - Smaller equipment and automation budgets

# Summary of Economic Impact

| | High-Tech | | Traditional Logistics | |
|---|---|---|---|---|
| **Employment** | **One-Time** | **Ongoing** | **One-Time** | **Ongoing** |
| Direct | 43,895 | 16,000 | 34,713 | 25,488 |
| Total | 59,018 | 22,645 | 46,138 | 32,201 |
| | | | | |
| **Earnings** | | | | |
| Direct ($ Mill.) | 2,306.50 | 968.5 | 1,816.40 | 1,033.00 |
| Total ($ Mill.) | 2,871.20 | 1,205.70 | 2,240.70 | 1,272.50 |
| | | | | |
| **Output** | | | | |
| Direct ($ Mill.) | 5,824.00 | 1,596.90 | 4,368.00 | 1,515.40 |
| Total ($ Mill.) | 7,762.10 | 2,370.90 | 5,822.10 | 2,300.80 |



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# Construction



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# Costs of Construction & Improvements and Equipment

| | High-Tech | Traditional Logistics |
|---|---|---|
| **Square Footage (Mill.)** | 41.6 | 41.6 |
| **Construction** | | |
| Construction Costs per Sq. Ft. | $85 | $70 |
| Total Construction Costs ($ Bill.) | $3.54 | $2.91 |
| **Outfitting** | | |
| TI/Equipment Costs per Sq. Ft. | $55 | $35 |
| Total TI/Equipment Costs ($ Bill.) | $2.29 | $1.46 |

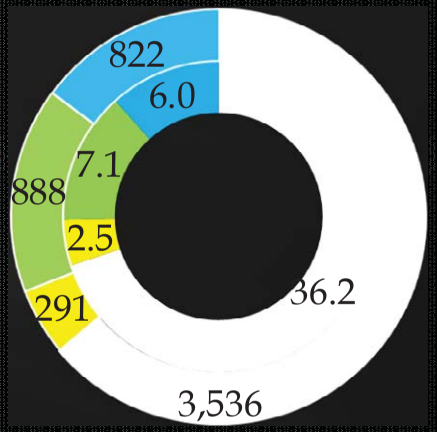


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# Construction Impact

| | Jobs (000s) | Earnings ($ Mill.) | Output ($ Mill.) |
|---|---|---|---|
| Direct Effect | 36.2 | 1,862.6 | 3,536.0 |
| Indirect Effect | 2.5 | 95.9 | 290.9 |
| Induced Effect | 7.1 | 251.0 | 887.5 |
| Total City Impacts | 45.8 | 2,209.5 | 4,714.4 |
| County Impacts | 6.0 | 231.1 | 821.6 |
| Total Impact | 51.9 | 2,440.6 | 5,536.0 |

## Employment and Output

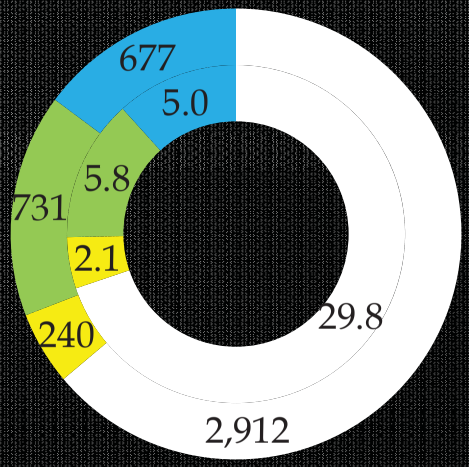



Direct Effect
Indirect Effect
Induced Effect
County Impacts

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# Traditional Logistics Alternative

## Employment and Output




Direct Effect
Indirect Effect
Induced Effect
County Impacts

| | Jobs (000s) | Earnings ($ Mill.) | Output ($ Mill.) |
|---|---|---|---|
| Direct Effect | 29.8 | 1,533.9 | 2,912.0 |
| Indirect Effect | 2.1 | 79.0 | 239.6 |
| Induced Effect | 5.8 | 206.7 | 730.9 |
| City Impacts | 37.8 | 1,819.6 | 3,882.5 |
| County Impact | 5.0 | 190.3 | 676.6 |
| Total Impact | 42.7 | 2,009.9 | 4,559.1 |

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# Tis and Equipment

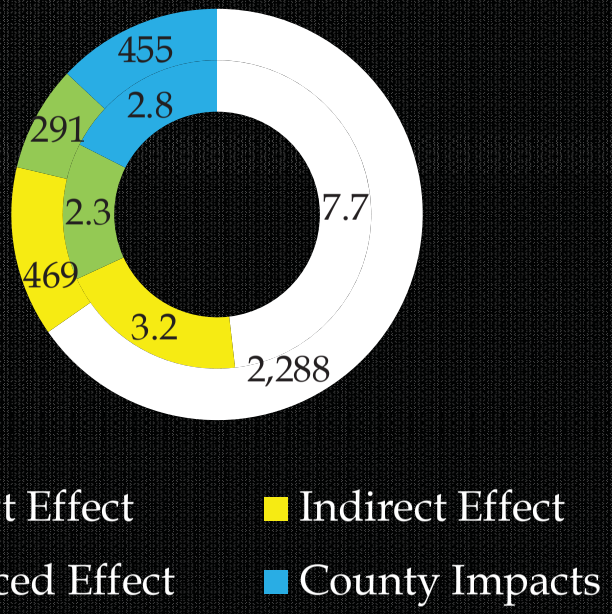


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# Impact of Improvements/Equipment

| | Jobs (000s) | Earnings ($ Mill.) | Output ($ Mill.) |
|---|---|---|---|
| Direct Effect | 7.7 | 443.9 | 2,288.0 |
| Indirect Effect | 3.2 | 135.5 | 468.6 |
| Induced Effect | 2.3 | 82.4 | 291.1 |
| City Impacts | 13.2 | 661.7 | 3,047.7 |
| County Impacts | 2.8 | 114.1 | 455.0 |
| Total Impact | 15.9 | 775.8 | 3,502.7 |

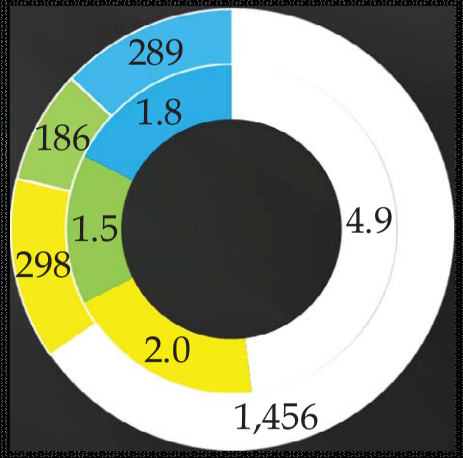
## Employment and Output




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# Traditional Logistics Alternative

## Employment and Output




Direct Effect
Indirect Effect
Induced Effect
County Impacts

| | Jobs (000s) | Earnings ($ Mill.) | Output ($ Mill.) |
|---|---|---|---|
| Direct Effect | 4.9 | 282.5 | 1,456.00 |
| Indirect Effect | 2.0 | 86.2 | 298.2 |
| Induced Effect | 1.5 | 52.5 | 185.5 |
| City Impacts | 8.4 | 421.2 | 1,939.60 |
| County Impact | 1.8 | 72.5 | 289.4 |
| Total Impact | 10.1 | 493.7 | 2,229.00 |

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# One-Time Economic Impacts

| | High-Tech | Traditional Logistics |
|---|---|---|
| **Employment** | | |
| Direct | 43,895 | 34,713 |
| Total | 59,018 | 46,138 |
| **Earnings** | | |
| Direct ($ Mill.) | 2,306.50 | 1,816.40 |
| Total ($ Mill.) | 2,871.20 | 2,240.70 |
| **Output** | | |
| Direct ($ Mill.) | 5,824.00 | 4,368.00 |
| Total ($ Mill.) | 7,762.10 | 5,822.10 |



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# Ongoing Operations



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# Costs of Operations

| | High-Tech | Traditional Logistics |
|---|---|---|
| Square Footage (Mill.) | 41.6 | 41.6 |
| Sq. Ft. per Job | 2,600 | 1,635 |
| Direct Jobs | 16,000 | 25,448 |
| Annual Wage | $60,000 | $40,274 |
| Labor Costs ($ Mill.) | 960.0 | 1,024.9 |
| External Costs per Worker | $39,803 | $19,273 |
| Operational Costs ($ Mill.) | $636.90 | $490.50 |
| Total Costs ($ Mill.) | $1,596.90 | $1,515.40 |

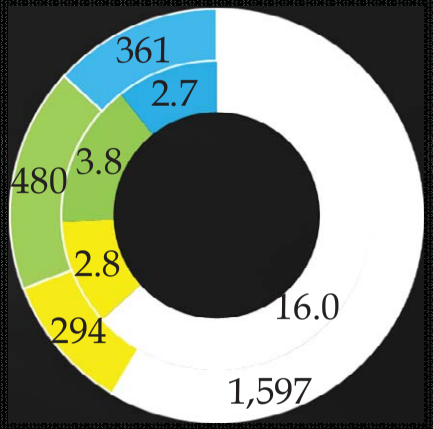


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# Impact of Ongoing Operations

| | Jobs (000s) | Earnings ($ Mill.) | Output ($ Mill.) |
|---|---|---|---|
| Direct Effect | 16.0 | 968.5 | 1,596.9 |
| Indirect Effect | 2.8 | 101.4 | 294.2 |
| Induced Effect | 3.8 | 135.8 | 479.9 |
| City Impacts | 22.6 | 1,205.7 | 2,370.9 |
| County Impact | 2.7 | 100.0 | 360.5 |
| Total Impact | 25.4 | 1,305.7 | 2,731.4 |

## Employment and Output

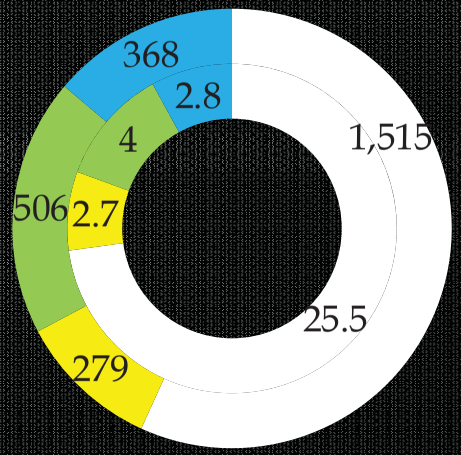



Direct Effect
Indirect Effect
Induced Effect
County Impacts

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# Traditional Logistics Alternative

## Employment and Output




Direct Effect
Indirect Effect
Induced Effect
County Impacts

| | Jobs (000s) | Earnings ($ Mill.) | Output ($ Mill.) |
|---|---|---|---|
| Direct Effect | 25.5 | 1,033.0 | 1,515.4 |
| Indirect Effect | 2.7 | 96.2 | 279.2 |
| Induced Effect | 4.0 | 143.3 | 506.2 |
| City Impacts | 32.2 | 1,272.5 | 2,300.8 |
| County Impact | 2.8 | 102.4 | 368.3 |
| Total Impact | 35.0 | 1,374.9 | 2,669.0 |

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# Total Economic Impact

| | High-Tech | | Traditional Logistics | |
|---|---|---|---|---|
| **Employment** | **One-Time** | **Ongoing** | **One-Time** | **Ongoing** |
| Direct | 43,895 | 16,000 | 34,713 | 25,488 |
| Total | 59,018 | 22,645 | 46,138 | 32,201 |
| **Earnings** | | | | |
| Direct ($ Mill.) | 2,306.50 | 968.5 | 1,816.40 | 1,033.00 |
| Total ($ Mill.) | 2,871.20 | 1,205.70 | 2,240.70 | 1,272.50 |
| **Output** | | | | |
| Direct ($ Mill.) | 5,824.00 | 1,596.90 | 4,368.00 | 1,515.40 |
| Total ($ Mill.) | 7,762.10 | 2,370.90 | 5,822.10 | 2,300.80 |



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# Summary

- World Logistics Center will have a significant economic impact on the City of Moreno Valley

- 3 Primary Sources of impacts:
  - Construction
  - Improvements and outfitting
  - Ongoing operations

# Summary (Cont'd)

- World Logistics Center will have a significant economic impact on the City of Moreno Valley

- Key Benefits:
  - Jobs for Moreno Valley and Riverside County
  - Demand for goods/services throughout economy
  - Tax revenues for state and local governments

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## Our Services

- Economic Forecasting
- Regional Intelligence Reports
- Business & Market Analysis
- Real Estate Market Analysis
- Ports & Infrastructure Analysis
- Economic Impact Analysis
- Public Policy Analysis

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**ANDREW J. CHANG**
**Managing Director**

**PROFILE:** Seventeen years of experience working with both high-level executives and operations staff on sensitive issues under tight deadlines in both the private and public sectors. Eight years strategy and operations consulting experience with emphasis on customer analysis and market entry strategies. Twelve years public policy development and implementation experience in California State government. Extensive experience working with a broad array of stakeholders to design, implement and monitor organizational initiatives.

**PROFESSIONAL EXPERIENCE:**

10/11 – present **Andrew Chang & Co, LLC** Sacramento, CA
***Managing Director***
- Provide market entry and strategy consulting to Fortune 1000 companies with an emphasis on private sector interaction with government. Private sector specialization in assessing and identifying new market opportunities and developing strategies to enter new markets. Public sector emphasis on public policy, economic and public finance analysis and operations management consulting.

07/09 – 10/11 **Chang & Adams Consulting** Sacramento, CA
***Managing Director***
- Provide market entry and strategy consulting to Fortune 1000 companies with an emphasis on private sector interaction with government. Private sector specialization in assessing and identifying new market opportunities and developing strategies to enter new markets. Public sector emphasis on public policy, economic and public finance analysis and operations management consulting.

04/07 – 07/09 **Forward Observer, Inc.** Sacramento, CA
***Vice President***
- Provide business intelligence and strategy consulting to Fortune 1000 companies to support market entry initiatives. Provide business-political risk and due diligence assessment for investment companies. Conduct fiscal, economic and public policy assessments.

08/04 – 04/07 **California Department of General Services** Sacramento, CA
***Chief Deputy Director***
- Chief Financial and Operations Officer of a state department with $1 billion annual operating budget, thirteen business units and 4,000 employees. Oversaw the state's procurement and real estate operations. Also responsible for the state's telecommunications, automobile fleet, printing, warehousing, insurance and school construction operations.
- Special assignment to the Governor's Office to serve as chief staff economist for the Governor's Council of Economic Advisors. Facilitated Council meetings, prepared written briefings for the Governor on policy issues for consideration and assisted Council members with original research to present at the Council meetings.
- Special assignment to the California Department of Corrections and Rehabilitation to assess the agencies procurement operations and develop recommendations to improve procedures and operations.

06/00 – 08/04 **A.T. Kearney, Inc.** San Francisco, CA
***Senior/Engagement Manager*** (06/02 – 08/04)
- Lead teams to develop strategies for new lines of business for a Fortune 1000 technology company, a national consumer products consortium and an international consumer products retail company.
- Lead teams to develop strategies to both acquire and sell technology services, R&D and manufacturing business units.
- Analytic and modeling methods subject matter expert. Finance and Accounting business processes subject matter expert.

***Associate Management Consultant*** (06/00 – 06/02)
- Conduct research and develop recommendations for various clients in the high technology and consumer products industries.

08/03 – 10/03 **Californians for Schwarzenegger** (Temporary leave from A.T. Kearney, Inc.) Santa Monica, CA
***Chief Economist/Deputy Policy Director***
- Principal economic, tax, energy and budget staff advisor for Arnold Schwarzenegger's gubernatorial campaign.

12/98 – 02/00 **MGT of America, Inc.** Sacramento, CA
***Senior Management Consultant***
- Implemented studies to improve finances and operations for Cleveland Unified School District, Florida State University and the California Resources Agency.

10/95 – 12/98 **California State and Consumer Services Agency** Sacramento, CA
***Assistant Secretary for Policy and Operations***
- Executive of a government agency with an annual operating budget of $1.3 billion, twelve departments and over 14,000 employees.
- Under supervision of the Secretary, guided agency and department policies, budgets and strategic plans.

05/95 – 10/95 **Personal Staff of Governor Pete Wilson** Sacramento, CA
***Chief Economist/Deputy Issues Director***
- Managed the development of national tax, trade, environment, agriculture and crime policies for Governor Pete Wilson's presidential campaign.

09/93 – 05/95 **California Office of the Governor** Sacramento, CA
***Deputy Chief Economist***
- Lead research teams to assess the economic and fiscal impact of tax, economic development, health care and immigration policies.

**EDUCATION:** **University of Michigan** Ann Arbor, MI
***Master of Business Administration Essentials*** (1 of 30 A.T. Kearney consultants selected globally to participate in a tailored executive MBA program.)

**Georgetown University** Washington, DC
***Master of Public Policy***

**University of California** Berkeley, CA
***Bachelor of Arts***

# Kathleen L Higgins

Water Resources Technical Lead

## Education

M.S., Civil Engineering, California State University at Long Beach, 1987
B.S., Civil Engineering, California State University at Long Beach, 1984

## Professional Registrations

Professional Engineer: California

## Distinguishing Qualifications

- Expert in hydraulic analysis and design of detention basins, channels, levees and other flood protection and stormwater management facilities
- Extensive experience in all aspects of water resources engineering including hydraulics/flood control, stormwater management, highway drainage, water supply studies, and watershed management

## Relevant Experience

Ms. Higgins is a senior water resources engineer for CH2M HILL's Southern California Office, responsible for water resources projects including hydraulics/flood control storm water management, highway drainage, water supply, water rights, and watershed management. Ms. Higgins has extensive experience in all aspects of water resources engineering and planning ranging from preparation of comprehensive drainage master plans to the design of major flood control and highway drainage facilities.

## Representative Projects

**Senior Consultant; Floodplain and Water Quality Analysis, for SR-79 Environmental Analysis/ Project Report, Hemet, CA.** Responsible for floodplain and water quality analysis for environmental planning for 19-mile expressway. She is also responsible for reviewing and providing technical guidance for floodplain analysis including preliminary design of BMPs and drainage structures.

**Project Manager for the Haster Basin Preliminary Design Study, County of Orange Resources and Development Management Department.** Managed the preliminary design of the 220-acre foot Haster Retarding Basin. Evaluated a number of alternatives for the inflow and outflow options for the basin including preliminary design of a pump station for outflow of the stored water volume.

**Project Manager for Arundell Barranca Deficiency Study for the Ventura County Watershed Protection District.** This project involved the analysis of 25000 lineal feet of the channel system for existing and future conditions, the existing level of protection was determined, deficiency areas identified, and alternatives were recommended to provide 100-year level of protection. The analysis included detention basin analysis benefit cost analysis, flood plain identification, preliminary cost estimates, and recommendation of a preferred alternative.

**Project Manager for Camarillo Hills Drain 30 Percent Design Study for the Ventura County Watershed Protection District.** This project involved the analysis of 25,000 lineal feet of the channel system for existing and future conditions, the existing level of protection was determined, deficiency areas identified, and alternatives were recommended to provide 100-year level of protection.

# Wilfred Hsu

Water Quality Technical Lead

## Education

M.S., Civil and Environmental Engineering, University of California, Los Angeles, 1997
B.S., Civil and Environmental Engineering, University of California, Berkeley, 1996

## Professional Registrations

Registered Professional Civil Engineer: California, 2000 (No. C61156))

## Relevant Experience

Mr. Hsu is a civil engineer with the Water Business Group in CH2M HILL's Southern California office. He has more than 15 years of experience in the environmental consulting industry and has worked on numerous projects as a project manager, task manager, and project engineer. Mr. Hsu's experience includes stormwater quality and management, BMP design, TMDL implementation, and NPDES compliance.

## Representative Projects

**Task Manager; Highland Fairview Stormwater Quality Analysis for World Logistics Center Specific Plan, Riverside County, California; 2011 to 2012.** Managed the stormwater quality analysis for the World Logistics Center Specific Plan, a development of modern high-cube logistics warehouse distribution facilities on approximately 3,814-acres of land in eastern Moreno Valley. Water quality issues were determined for the project and LID treatment BMPs were identified to meet NPDES permit requirements.

**Project Manager; Total Maximum Daily Load (TMDL) Implementation Plans for City of Los Angeles, Bureau of Sanitation Watershed Protection Division; Los Angeles County, California; 2008-2011.** Managed the development of the implementation plan for the Los Angeles River Metals TMDL for the City's Stormwater Program. The project assists the City in complying with existing and pending TMDL requirements and implementation of water quality improvement projects.

**Task Manager; California Department of Transportation (Caltrans) Corridor Stormwater Management Studies; Los Angeles County, California; 2006 to 2012.** Managed the corridor stormwater management studies for multiple corridors throughout Los Angeles County, totaling over 350 miles of Caltrans freeways and highways. The primary objectives of the studies were to evaluate potential locations for Caltrans-approved Treatment BMPs, including infiltration devices, media filters, detention devices, and biofiltration strips and swales.

**Project Manager; Caltrans TMDL Assistance; Los Angeles County, California; 2011 to 2012.** Reviewed TMDL development documents prepared by the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs). Prepared written comments on the review of documents and provided suggested courses of action to Caltrans with respect to development of TMDL implementation plans and schedules.

**Task Manager; Caltrans Storm Water Data Report, Various Counties, California; 2006 to 2012.** Managed multiple Caltrans Storm Water Data Reports (SWDRs), including the I-710 Pavement Rehabilitation Project, the US-101/SR-23 Interchange Improvement Project, the California High-Speed Train Merced-to-Fresno Corridor Project, and the SR-79 Realignment Project. The purpose of an SWDR is to assess project impacts to storm water quality and to minimize those impacts by incorporating appropriate BMPs to the project.

DAVID TAUSSIG & ASSOCIATES
Public Finance and Urban Economics
5000 Birch Street, Ste. 6000, Newport Beach, CA 92660

# PROFESSIONAL QUALIFICATIONS

**David Taussig and Associates, Inc. ("DTA")** is a public finance and urban economics consulting firm specializing in infrastructure and public services finance. Our firm, which provides public finance consulting services to both public and private sector clients, has offices in Newport Beach, San Francisco, Fresno, and Riverside, California, as well as branch offices in Chicago, Illinois, and Dallas, Texas, to service our clients in the Midwestern and Southwestern United States. Additional information on DTA is available on our website (www.taussig.com).

Since its establishment in 1985, DTA has completed consulting assignments for more than 2,500 clients in ten states. During this period, the firm has been involved in the formation of more than 1,500 public finance districts, with total bond authorizations exceeding $50 billion. Our financing programs have utilized a variety of public financing mechanisms such as Assessment Districts ("ADs"), Community Facilities Districts ("CFDs"), Certificates of Participation, Tax Allocation Bonds, Sewer and Water Revenue Bonds, Marks-Roos Bond Pools, Landscaping and Lighting Districts ("LLDs"), Integrated Financing Districts, and various types of fee programs.

While DTA is primarily known for its specialized expertise in the design and administration of Community Facilities Districts ("CFDs") and various types of 1913/1915 Act Assessment Districts ("ADs"), as well as the issuance of a variety of types of municipal debt, the firm also provides fiscal and economic impact and development impact fee consulting services, and is experienced in grant writing for federal and State grant and tax credit programs. All of these capabilities are frequently combined with our infrastructure finance consulting services to develop public infrastructure and services financing strategies and plans.

DTA's consulting services include:

- Public Infrastructure and Public Services Financing Strategies
- Special Tax and Assessment Engineering
- **Fiscal and Economic Impact Analyses**
- Proposition 218 and AB 1600 Compliance Studies
- Redevelopment (Dissolution) Finance
- Federal and State Grant and Loan Applications
- Economic Development and Revitalization Studies
- Public Improvement Construction Management Services

In addition to the planning and implementation of financing mechanisms, DTA is involved in the fiscal and economic analysis of land development impacts, project feasibility studies, and economic development studies. DTA staff has prepared over 350 fiscal impact reports ("FIRs") estimating the revenue and cost impacts of various land use decisions on cities, counties, and special districts.

DTA has also prepared approximately 275 fee justification studies and analyses throughout California, as well as in other States, involving fees for a variety of public improvements, including transportation, water, sewer and flood control facilities, fire and police stations, parks, libraries, and other types of infrastructure. DTA has recently prepared such studies for the Cities of Blythe, Brawley, Calexico, Cathedral City, Live Oak, Mammoth Lakes, Paso Robles, Perris, Red Bluff, San Francisco, San Jacinto, San Luis Obispo, and Torrance, as well as for the Counties of Colusa, Riverside, Santa Barbara and San Bernardino, among others. Additionally, DTA is currently working on a comprehensive review and update of the City of Palo Alto's Development Impact Fee Program.

# TEAM MEMBERS

**DAVID TAUSSIG**
President | dtadavid@taussig.com
*Project Role: Principal-in-Charge*

Mr. Taussig has over 35 years of experience in the fields of real estate finance and urban economics. His areas of expertise include municipal finance programs for infrastructure and public facilities development, fiscal and redevelopment impact analysis, and land development project feasibility studies.

Mr. Taussig has an extensive background in computerized financial analysis. Since founding DTA in 1985, Mr. Taussig has developed a number of state-of-the-art analytical methods and modeling approaches, as well as personally directed the formation of more than 1,000 public financing districts, and the subsequent sale of tax-exempt municipal bonds. These districts have funded public infrastructure and services for a variety of types of residential and non-residential development, and have included several hundred master planned communities built throughout California, as well as in several other western states. Mr. Taussig's work has involved both the preparation and implementation of financing plans, and his public sector clients have included virtually every major county, urban center, and city within California, as well as hundreds of special districts. He has provided similar consulting services to many of the largest land development firms in the State. The financing programs implemented by Mr. Taussig have ranged from land-secured Community Facilities Districts to redevelopment tax-increment programs and lease revenue-based Certificates of Participation. He is also responsible for DTA's successful efforts related to funding opportunities under the American Recovery and Reinvestment Act and various tax credit programs.

Mr. Taussig has also overseen the preparation of numerous feasibility and impact studies involving the computerized analysis of project cash-flows and/or impacts on public agencies and landowners. This has assumed project management responsibilities for several dozen AB 1600 Development Fee Justification Studies, including recent studies prepared on behalf of the cities of Blythe, Coachella, Live Oak, Paso Robles, Perris, Red Bluff, San Luis Obispo, Torrance, and Tustin, as well as the Counties of Riverside, Santa Barbara, and Colusa. He has also been responsible for the preparation of over 100 fiscal impact studies utilized by public agencies to determine the impact of new development or annexations on a municipality.

Prior to establishing his own firm, Mr. Taussig was Director of Finance for Gfeller Development Company, where he was responsible for all take-out and construction financing for the Company's residential projects and infrastructure. He also prepared development project proformas that were used by prospective lenders and joint venture partners to evaluate the Company's proposed projects.

Mr. Taussig was previously employed for six years by Mission Viejo Company (MVC) where, as Manager of Housing and Community Development, he was involved in the planning and financing of two planned communities encompassing over 50,000 homes. Mr. Taussig was responsible for a substantial portion of MVC's mortgage financing and infrastructure financing during that period. He also worked for five years in the public sector as the administrator of a federal housing and community development program, and as a land-use planner. Mr. Taussig's educational background includes a Masters in City Planning from the University of California at Berkeley and a B.A. in Economics from Cornell University. He has received full certification from the American Institute of Certified Planners.

**NATHAN PEREZ, ESQ.**
Vice President | nperez@taussig.com
*Project Role – Project Manager*

Mr. Perez has a background in law, economics, business administration, and statistical analysis. Since joining DTA, Mr. Perez has been involved in all aspects of the formation and implementation of numerous Mello-Roos Community Facilities Districts located throughout California, with responsibilities related to the development of tax spread proforma analyses and the preparation of rate and method of apportionments, Public Reports, and overlapping debt analyses.

Mr. Perez also has expertise in the preparation of development impact fee studies. This includes considerable work related to the preparation of facilities needs lists and the apportionment of infrastructure and services costs to a variety of land uses based on benefit criteria. He has also specialized in the apportionment of costs and the setting of service levels for the construction and maintenance of law enforcement and fire protection facilities, open space acquisition, parkland, transportation facilities, drainage facilities, government services facilities, community centers, and library facilities. Furthermore, he has also completed nearly 35 fiscal impact reports and 20 economic development analyses for a variety of residential, commercial, and mixed-use developments throughout California.

Finally, his experience as an attorney has allowed Mr. Perez to effectively and efficiently evaluate dozens of state and Federal legal, regulatory, and administrative frameworks related to public finance and infrastructure development.

Prior to joining DTA, Mr. Perez worked for the Boston office of an international law firm, where he advised sponsors, managers, and investors on the tax aspects of fund formation and investment. Mr. Perez is admitted to the bar in both Massachusetts and California. Mr. Perez received his law degree from Harvard Law School, and his B.A. in Economics and History, with highest distinction, from the University of North Carolina at Chapel Hill.

Mr. Perez is an active member of the Urban Land Institute, the California Bar Association, and the Hispanic National Bar Association.

# DAVID OATIS

Owner and CEO

David Oatis was a firefighter for 15 years before founding FPS. David has pioneered new methods and formats for Fire Master Plans and Fire Protection Plans. David's years of experience, knowledge and understanding of the complexities of fire planning have allowed him to be successful when others have failed.

## Background

David has worked on a large number of fire prevention projects over the past few years. These include:

- Fire Code Adoption committees (several adoption sequences)
- Wildland Interface working committees (Bates Bill 377 and all of the VHFHSZ implementation after that)
- Presentations to BIA, Buster's Task Force in Riverside County, Planning commissions, City Councils and other governmental organizations.
- Input to State and Local officials on WUI mapping, standards and implementation issues

David has done a great deal of Pro bono work in Orange County after the Santiago Fire (2008) and the Freeway Complex Fire (2009) helping those who lost their homes get through the process of rebuilding under the new codes.

Firesafe, through David's leadership, has taken on many unique and challenging projects, including building over old landfills, new technology projects such as the solar projects in the desert areas and many difficult projects in the wildland interface that other consultants have turned down as being too difficult or impossible with the existing restrictions on the property.

David Oatis was influential in the evolution and refinement of current Fuel Modification design in Southern California. These plans were merged into Fire Protection Master Plans and builders including Ladera Ranch, Rancho Mission Viejo, The Irvine Ranch, Shea's Tustin Airbase, Lennar's Great Park and other have relied on the expertise of FPS to design and supervise the construction of the fire protection measures for their communities.

## Professional Experience

Paid Call Firefighter - San Clemente Fire Department for 9 years (1985 – 1994)
Fire Inspector - San Clemente Fire Department for 9 years (1985 – 1994)
Fire Inspector – Orange County Fire Authority for six years (1994 – 2000)
Hazard abatement - San Clemente (1985 – 1994)
Wildland Interface Inspector San Clemente and OCFA (1985 – 2000)
Consultant (2000 to present)

**Select Project Summary**

A-Town (redevelopment of the Anaheim Platinum Triangle)
Boy Scouts of America – Outdoor Education Center
Boulevards at South Bay – shopping mall over landfill
City of Santa Paula, California
Craig Realty – Marblehead Outlet Mall
First Solar – several large solar energy project in the California desert areas
Fusco – Mountain Park
Habitat for Humanity – Multiple Locations
Hearthside Homes - Brightwater
Highland-Fairview – Aqua Bella
Irvine Apartment Communities – All Communities including housing at San Diego University
The Irvine Company – Portola Hills, East Orange, Westpark, Shady Canyon, Newport Coast
Legacy Park/Shea – Tustin Marine Corp Base Redevelopment
Lennar – Central Park West
Rancho Mission Viejo – Overall Ranch, Ladera Ranch, Coto De Caza
Shea Homes – Tonner Hills
St. Margaret's Episcopal School
Standard Pacific Homes
Suncal – All Projects
Talega Community
The Great/Park Lennar– El Toro Marine Base Redevelopment
University of California Irvine

# GENE F. BEGNELL

Fire Protection Consultant

## EDUCATION

Masters Degree in Public Administration - California State University; Long Beach, May 1985
Bachelor of Science Degree in Fire Administration - CUM LAUDE - California State University; Los Angeles, September 1981
Associate of Arts Degree in Fire Science - Antelope Valley College, Lancaster, California, January 1980
Executive Fire Officer Program - National Fire Academy, December 2004
Certified Fire Officer - State Board of Fire Services, State of California, October 1989
Master Instructor - State Board of Fire Services, State of California
Certified ICS Positions - Strike Team Leader, Group/Division Supervisor (20 years)
Extensive professional studies and experience in:

- Fire Prevention Administration (including technical aspects and Code Committee work)
- Disaster Administration and Planning (past member of Interjurisdictional Planning Committee for San Onofe Nuclear Generating Plant)
- Financial Administration and Economic Development
- Community Relations and Public Information
- Personnel Management and Labor Relations (both Union and Management side)
- Resource Deployment, Master Planning and Strategic Planning

## FIRE SERVICE CAREER

Thirty-eight years of progressive experience in fire administration, prevention and suppression. Twenty Two years as a Chief Officer:

| | | |
|---|---|---|
| Battalion Chief | 18 yrs. | Orange Co. Fire Authority |
| Fire Chief/Fire Marshal/Battalion Chief | 8 yrs. | San Clemente F.D. |
| Training Officer | 3 ½ yrs. | Newport Beach F.D. |
| Asst Fire Chief /Inspector/Training Officer | 3 yrs. | Federal Fire Service |
| Firefighter/Engineer/Crew Chief | 6 ½ yrs. | Federal Fire Service/U.S.A.F. |

**Career Achievements** (selected)

- Strategic Services Chief for Orange County Fire Authority - Strategic and advance planning, modeling, forecasting and environmental review of new projects
- Transition Coordinator for Orange County Fire Authority (Moved from County Department to Joint Powers Authority as full service organization)
- Developed and implemented a computerized records management system
- Established and codified Fire Department response standards
- Completed the rewrite of San Clemente Multi-Hazard Emergency Plan
- Contributing author to "Standards of Cover" Handbook ($4^{th}$ and $5^{th}$ editions) for CFAI and development of the teaching and instructional materials for the SOC process

- Published professional journal articles and teach seminars on deployment nationally
- Resource deployment planning for OCFA, San Clemente, El Cajon, Chula Vista, Corona, Eastside Fire and Rescue (Washington State) and San Jose Fire Departments
- Assisted in the development of deployment software (Optima Corp, University of Arizona, Deccan)

**Specialized Experience**

- Experience in all phases of firefighting including: structural, industrial, airport crash rescue, wildland, high-rise, and shipboard
- Management of several traditional and non-traditional divisions/programs:
  - Fire Prevention and Hazardous Materials Program
  - Fire Investigations (Arson/Fire Cause Determination)
  - Communications and Emergency Planning Divisions
  - Department Safety Officer, Training Officer & Paramedic Coordinator
  - Weed Abatement, City Zoning enforcement and Animal Control
- Experience in labor relations and in contract negotiations (labor and management sides)
- Instructor for California Community College System and California State Fire Marshal's Office
- As the Transition Coordinator during the establishment of the OCFA, developed departmental functions including purchasing, investment plans, employee health services contract, roles and responsibilities matrix and organizational value statements
- Fire defense planning, fuel modification, Fire Master Planning, Fire Protection Plans, EIR response/analysis, CEQA review and other fire protection issues throughout the plan planning and land use process.
- Fire/EMS deployment planning, analysis and implementation
- Statistical analysis of performance and performance measures

# HIGHLAND FAIRVIEW PROJECT TEAM

## Iddo Benzeevi - President and Chief Executive Officer

Mr. Benzeevi is the president of Highland Fairview. Mr. Benzeevi has extensive development experience with commercial, industrial and large scale mixed-use master planned developments. He is adept at developing livable and exciting places for people to live, work and enjoy. His unique vision and expertise includes the technical direction and management of large, multi-disciplined teams, including facilities planning and programming of civil infrastructure systems.

## Danette Fenstermacher - Chief Operating Officer Executive Vice President

Danette Fenstermacher has held a variety of executive real estate development positions spanning over 35 years. Prior to joining Highland Fairview, she was Senior Vice President & Executive Committee member of Mission Viejo Company, the master planner and developer of over 38,000 acres of land, 87,000 residential units and more than 32 million square feet of nonresidential property in California and Colorado. She also served as the Company's President of the Financial Services entity. Prior to joining Mission Viejo Company, she was with PricewaterhouseCoopers. Ms. Fenstermacher is a Certified Public Accountant and a California Real Estate Broker.

## Joe Anfuso - Chief Financial Officer

Prior to joining Highland Fairview, Mr. Anfuso was the CEO of Florsheim Homes, with operations in CA and NV, from 2006 - 20011. Mr. Anfuso directed all operational, financial and administrative functions for the 29 year old company. Previously, Joe was the CFO for Shea Homes San Diego from 2001-2006. Joe was responsible for the financial operations and strategic planning of San Diego's largest privately held homebuilder, with revenues in excess of $425 Million. Before Shea, Joe practiced various aspects of public accounting, ranging from forensic accounting and investigative auditing to accounting for private industry as both an internal auditor and controller. Joe is a CPA, obtaining his BBA in Accounting and MBA from the University of San Diego. Joe also possesses a California Real Estate Brokers and General Contractors License. Joe is the chairman of the Residential Real Estate Committee for Burnham-Moores Center for Real Estate. Recognized as an industry expert, Joe has been a frequent contributor on CNBC television, discussing the housing and real estate markets.

## HIGHLAND FAIRVIEW PROJECT TEAM

**Wayne Peterson - Vice President Community Planning**

Wayne Peterson has over 34 years of entitlement experience with cities and counties throughout Southern California including master community planning and site-specific high-rise residential, large-scale commercial/industrial, recreational, and mixed-use projects. Previously at Mission Viejo Company, he directed the California entitlement program for 17,000 acres, 51,000 units and 16.5 million square feet of nonresidential property, at the Mission Viejo and Aliso Viejo projects. Mr. Peterson is very adept in the CEQA process leading numerous entitlement efforts involving EIR's, mitigation measures, development agreements and Conditions of approval.

**Brian Hixson, P.E. - Vice President of Land Development**

Brian Hixson has held executive positions at top civil engineering firms for over 25 years, including RBF Consulting. He is an experienced project manager, specializing in residential and commercial development projects. He has direct design engineer experience, including grading and drainage improvements, agency coordination, tract layout, utility design and permitting requirements, for all types of land development projects. Mr. Hixson has managed and processed projects to approval with County of Riverside, City of Moreno Valley, Riverside County Flood Control, Eastern Municipal Water District and other jurisdictional and utility agencies in within the Inland Empire.

**Jack Stones - Vice President of Vertical Construction**

Jack Stones has over 40 years of construction and construction management experience. His experience as a seasoned construction manager, entailed the development of all types of commercial buildings from the pre-construction design phase, value engineering, purchasing, and construction management. Prior to joining Highland Fairview construction, Mr. Stones owned his own company where he provided Design-Build services for Restaurants and Hotels throughout the United States. In 1988 he joined R D Olson Construction for 16 years where he managed construction on numerous types of buildings; Commercial, Industrial, Commercial Office, Health Care, Retail, Education, Civic, Worship, Hospitality, Network Operating Centers, Country Clubs, Airport Terminal and Command Center, Hotel New Construction, Hotel Renovation, Residential & Multi-Unit Housing, Vacation Ownership Properties, Resort & Spa, Restaurant & Entertainment, Office & Mixed Use. Mr. Stones continued his career with Diffenbaugh Construction as a Project Executive handling Industrial Warehouse, Retail, New Hotels, Health Care & Worship facilities. Mr. Stones Joined Highland Fairview in 2008 and was instrumental in the completion of the 1.8 million square foot Skechers facility in Moreno Valley.

# ROBERT F. RIHA, PG, CEG

Senior Vice President/Senior Principal Geologist

## Education

- B.S., Geological Sciences, San Diego State University, San Diego, California, 1985

## Professional Registrations

- California Certified Engineering Geologist - 1921 Exp. 2/2014
- California Professional Geologist – 5866 Exp. 2/2014
- Nuclear Gauge Certification / 1985

## Professional Summary

For the past 15 years, Bob Riha has been the Senior Principal and the Managing Director of Leighton's Temecula office. He has over 25 years of professional experience performing and managing geotechnical assessments for planning and construction. His experience includes onsite geological investigations and services during design and construction for large tentative tracts, commercial developments, educational facilities and geotechnical investigations of distressed structures.

Mr. Riha has completed and supervised slope stability studies, landslide remediation design, site-specific geologic faulting, liquefaction, and dynamic settlement evaluations, evaluation of rock rippability and seismic hazard studies. Mr. Riha's duties also include field identification and evaluation of soil materials and bedrock, and observe, test, and document earthwork, foundation and pavement construction activities. Mr. Riha has also performed and managed staff performing field density testing (field compaction control) during rough grading and all phases of underground utility construction, foundation and pavement construction. He has been responsible for ensuring that work performed is in accordance with the project geotechnical report, recommendations of the soils engineer, improvement plans and specifications, and applicable agency ordinances.

These services have been performed at all stages of project development, from feasibility and planning of new work through construction, forensic studies, expert witness and remedial work related to failed structures. Mr. Riha's clients include private owners, residential and commercial/industrial developers, school districts, and public agencies.

## Project Experience

### Commercial

- **Skechers Logistics Facility, Moreno Valley, CA.** Principal Geologist for 85 acre, 1,820,000 square foot distribution facility. The multi-phased investigations determined active earthquake faults; evaluation of compressible soils; and provided detailed remedial earthwork evaluations. Geotechnical evaluations were also performed for the widening of adjacent SR-60 and a large RCFC box culvert which parallels one side of the building foundations. The fault investigations included over 7,000 feet of exploratory trenches reaching depths of up to 30 feet. This study allowed development planning in areas previously restricted in City EIR documents.

- **Golden Triangle, Murrieta, CA**. Principal Geologist for a proposed 64-acre, mixed-use commercial development that will include office buildings, retail/entertainment centers, hotel, parking structures, and associated underground utilities, driveways, parking lots, and off-site improvements.

- **Professional Hospital Supply Building, Temecula, CA.** Principal Geologist for geotechnical observation and testing services during rough grading and construction of onsite and off-site improvements. The project includes up to 20-foot high geogrid type retaining walls and up to 50-foot high cut slopes (1.5H:1V) which requires detailed geologic mapping to evaluate remedial grading necessary to ensure long-term stability. This is a 609,000-square-foot headquarters and distribution center located at the northwest corner of Dendy and Winchester Roads.

- **Promenade Mall Expansion, Temecula, CA.** Principal Geologist during the geological and geotechnical investigation and percolation studies for proposed onsite WQMP systems. This included extensive field work and laboratory resting to assess various foundation design options in consideration of the heavy load to be exerted by the four-story parking structure.

- **City of San Diego, CA.** Coordinated and performed extensive subsurface geotechnical evaluation of 79-acre commercial site located along potentially active La Nacion fault zone.

- **City of Vista, CA.** Project Manager during grading operations for 60-acre commercial center. Performed site-specific evaluation of deep alluvial soils with high groundwater levels and high potential for expansion to design support of multi-story buildings and realignment of major drainage channel.

- **City of Vista, CA.** Geotechnical evaluation of dynamic settlement potential before and after remedial implementation for support of 125,000-square-foot commercial building.

- **Encinitas Towne Center, Encinitas, CA.** Project Manager/Project Geologist for retail center development.

- **Jefferson Avenue Business Center, Murrieta, CA.** Project Manager/Project Geologist.

- **Marbella Golf and Country Club, San Juan Capistrano, CA.** Supervised staff geologists and performed geologic mapping and site-specific evaluation of several large landslide stabilizations during hillside grading. Involved >20 million cubic yards of remedial earthwork.

- **Promenade Mall, Temecula, CA**. Project Manager/Geologist for geotechnical evaluation and grading of the 79-acre site, on an alluvial plain less than one-half mile from the active Wildomar fault and within a defined liquefaction hazard zone.

- **RogersDale USA Entertainment Complex, Murrieta, CA**. Project Manager/Geologist for studies on a 64-acre site in the “Golden Triangle” area.

- **Silverhawk Development, Murrieta, CA**. Project Manager/Geologist providing the geotechnical evaluation of the commercial pads and residential parcels.



- **Pavement Failure – Peer Review/Expert Witness , Perris, CA.** Mr. Riha provided field and document review during geotechnical analysis and consulting during the determination of large in-tract pavement failures. Consultant reports were reviewed, independent analysis performed and clarification requests to involved design consultants prepared. Expert witness testimony provided during arbitration hearings with overall findings in favor of owner.

- **Master Planned Community (confidential client), Orange County, CA.** Performed geotechnical analysis for settlement concerns on deep sewer lines.

## Master-Planned Community

- **The Villages (Teneja), San Jacinto, CA.** Principal Geologist providing all necessary geologic and geotechnical management of personnel and technical direction during site geotechnical and geologic studies for the 475-acre residential and mixed-use development. The geologic and geotechnical engineering studies supported the project Specific Plan and EIR. The site contained a State of California Earthquake Fault Hazard Zone and Leighton's fault investigation included over 13,300 lineal feet of exploratory trenches reaching depths of up to 25 feet. This study was approved by the County of Riverside and allowed development planning in areas previously restricted by State AP Zones.

- **Geologic Constraints Study, Park Hill, Mixed Used, San Jacinto, CA.** Senior Principal Geologist coordinating and overseeing geologic constraints study on 320 acres of land with extreme topographic relief in southern San Jacinto. The property is bounded by and contains two active fault zones. The study included extensive aerial photographic analysis, field mapping, excavation and down hole logging of large-diameter boreholes and trenches for analysis of onsite fault activity. The locations of active faults were determined and a geologic report including a geologic constraints and land use restrictions was prepared. Over 12,700 lineal feet of fault trench up to 25 feet deep were excavated, logged and reported. All geologic work was performed under review by County of Riverside Geologist.

- **Moreno Highlands Bel Lago, Moreno Valley, CA.** Principal Geologist during site specific fault investigation and preliminary studies of a 2,000-acre, mixed-use development. The fault investigation included over 14,500 lineal feet of exploratory trenches reaching depths of up to 30 feet to expose the San Jacinto fault. This study allowed development planning in areas previously restricted in City EIR documents. City of Moreno Valley contracting geologic reviewing consultant accepted all work completed by Leighton.

- **Harveston, Temecula, CA**. Principal Geologist for this 550-acre residential and commercial planned development. Additional studies were performed to support the use of onsite soils to create the man-made lake liner, which prevented the need to import, impermeable clay materials. Recommendations were crafted to suit the needs of four homebuilders and one apartment boulder and various commercial builders.

- **Chardonnay Hills, Temecula, CA**. Principal Geologist for this 250-acre site. Geotechnical services during grading, street paving, and home construction; included geotechnical services and concrete inspection for a 96-inch-diameter cast-in-place storm drain pipeline.

- **Copper Canyon Development, Murrieta, CA.** Principal Geologist and Manager for geotechnical design and construction grading.

- **Geologic Constraints Study, San Joaquin Hills, CA**. Project Geologist coordinating and performing geologic constraints study on 1,800 acres of land in northern San Joaquin Hills. Study included extensive aerial photographic analysis, field mapping, excavation and downhole logging of large-diameter boreholes and trenches, seismic refraction survey for determination of bedrock rippability characteristics, and preparation of a geologic report including a geologic constraints map.

- **Proposed New Boat Launch Facility Improvements, City of Lake Elsinore, Riverside County, CA**. Principal Geologist during the preliminary geotechnical investigation, including site review of available information, site reconnaissance to observe and document the current surface conditions.

- **WatersEdge, Riverside County, CA.** Project Geologist during the preliminary geotechnical investigation, which included seismic design parameters, liquefaction analysis, settlement potential, natural slope stability and preliminary foundation design considerations were developed.

- **Murrieta Hills Specific Plan, Murrieta, CA.** Project Manager/Geologist for the Murrieta Hills Specific Plan area rock rippability update. Evaluation of rock hardness was performed to determine limits on excavation with conventional earthmoving equipment.

- **Temeku Hills Country Club, Temecula, CA**. Project Manager for geotechnical aspects of the master-planned residential and golf community.

- **Tucolata Hills and Silverhawk Specific Plan Areas, Riverside, CA**. Project Geologist for geotechnical portion of the EIR documents, tentative tract maps, and rough grading plan reviews. Site specific fault explorations were completed to define the active Murrieta Hot Springs fault and provide land use restrictions for this fault zone. Fault studies accepted by County of Riverside geologist and Planning Departments.

- **Victoria Grove, Lake Mathews Area, Riverside County, CA**. Project Geologist coordinating geologic constraint study, subsurface investigations and plan reviews for the approximately 1,000-acre development. Extensive hard rock evaluations were performed to development a strategy on excavation and placement of large volumes of oversize rock materials during the hillside grading process.

- **Whittier Fault, Yorba Linda, CA**. Project Geologist providing site-specific fault investigations on property adjacent to an active fault.

- **Winchester 1800, Inc., French Valley, Riverside County, CA.** Project Manager/Geologist for the geotechnical evaluation and plan reviews.

- **The Cove, San Jacinto, CA.** Principal Geologist during design and construction of the 250-acre, 500-lot residential subdivision. Specific studies were required to evaluate ground fissures, slope stability, storm drain and detention basin alignments, rock rippability and settlement of alluvial soil.

- **Aquabella, Moreno Valley, CA.** Principal Geologist for the 760-acre residential and commercial planned development. Additional studies were performed to evaluate the Riverside County Flood Control (RCFC) earthen berm, concrete lined, Line F Channel traversing the site along with two bridge spans. Recommendations were crafted to provide suitable grading recommendations as well as drainage provisions in areas supporting wetland habitat areas above the channel area. Provided geologic oversight and consultation during rough grading.

- **Greer Ranch and Vineyard Developments, Murrieta, CA**. Principal Geologist during the tentative map design review of proposed residential developments.

- **Line F Channel, Moreno Valley, CA.** Principal Geologist for the Moreno Highlands residential and commercial development. Provided geologic studies from EIR through current construction. Studies were performed to evaluate the Riverside County Flood Control earthen berm, concreted line, Line F Channel along with two bridge spans. Grading recommendations, as well as drainage provisions in areas supporting wetland habitat areas above the channel area were provided.

## Municipal Infrastructure

- **Moreno Valley Recreation and Conference Center, Moreno Valley, CA.** Project Geologist for geotechnical investigation. Leighton worked closely with the project architect and structural engineer to provided practical recommendations to mitigate differential settlement potential using earthwork techniques in lieu of a costly foundation system. The project included joining the city hall and police facilities with a 25-acre civic center master plan that includes a 42,000-square-foot community center.

- **City Library, Temecula, CA.** Principal Geologist during geotechnical observation and materials inspection and testing during construction. Grading of this steep hillside property required careful geologic observation to confirm a stable hillside to prepare to receive the foundation supporting fill soils. Nearly continuous observation and testing was performed to assure compliance for compacted fill soils and site grading.

- **Civic Center and Parking Structure, Temecula, CA**. Principal Geologist during the planning and design of the new Civic Center, parking structure and Mercedes and Main Street improvements. Geologic studies were provided to confirm lack of onsite faulting or liquefaction potential.

- **Proposed Water Park Peer Review, Temecula, CA**. Engineering Geologist performing peer review of development geotechnical report for a proposed water park located at the corner of Diaz Road and Dendy Parkway. The results of the review were submitted to the City of Temecula in a formal report outlining deficiencies and recommending corrective action plan. All reports were approved and project is awaiting development.

## Schools- DSA

- **Rancho Mirage High School, Palm Springs, Rancho Mirage, CA.** Principal Geologist for geotechnical investigation and construction for the 48-acre High School No. 4 site. Preliminary geotechnical report was prepared to fulfill the Geotechnical and Engineering Geology requirements of the California Building Code (CBC) Title 24 for development of the proposed high school. Principal for geotechnical and materials testing during construction.

- **Lake Elsinore Middle School, Lake Elsinore, CA.** Project Manager and Geologist during revitalization and expansion project. The project was a very complex project combining remodeling, seismic retrofit, and adding new permanent classrooms.

- **Lakeside High School, Lake Elsinore, CA.** Project Geologist during construction of new high school. Performed subgrade observations and evaluation during pool construction, pavement subgrade evaluation and provided mitigation recommendations for pavement subgrade stabilization.

- **Martin Luther King Middle School, Oceanside, CA.** Project Geologist and Manager during grading and construction for the Oceanside USD.

- **Sunnymead Elementary School, Moreno Valley, CA.** Principal Geologist for geotechnical investigation for the 6-acre elementary school site. Report was prepared to fulfill the geotechnical and Engineering Geology requirements of the California Building Code (CBC) Title 24 for development of the proposed high school. This report summarized the geotechnical findings, conclusions and geotechnical design and construction recommendations for the proposed school development.

- **Murrieta Mesa High School, Murrieta, CA.** Principal Geologist for geologic investigation for the 65-acre Murrieta Mesa high School. Reports were prepared to fulfill the Geotechnical and Engineering Geology requirements of the California Building Code (CBC) Title 24 for development of the proposed schools. The report summarized the geologic and geotechnical findings, conclusions and geotechnical design and construction recommendations for the proposed school developments. A subsurface exploration consisted of the excavation, logging and sampling of exploratory fault trenches. Trenching concluded that active faulting was determined to exist at the High School site. Land use restrictions were prepared and the campus building layout adjusted to accommodate these findings. All geologic reports accepted by CGS and DSA.

- **Great Oak High School, Temecula, CA**. Principal Geologist and Project manager during site grading/construction and all materials testing.

- **Erle Stanley Gardner Middle School, Temecula, CA.** Principal Geologist and Project manager during site grading/construction and all materials testing.

- **Sykes Elementary School, Murrieta, CA.** Principal Geologist for geotechnical investigation for the 12-acre Sykes Elementary School. Report was prepared to fulfill the Geotechnical and Engineering Geology requirements of the California Building Code (CBC) Title 24 for development of the proposed high school. This report summarized the geotechnical findings, conclusions and geotechnical design and construction recommendations for the proposed school development. A subsurface exploration consisted of the excavation, logging and sampling of 22 exploratory borings and one fault trench. Trenching concluded that faulting had not occurred onsite and allowed the planning of the school to continue.

- **Ortega High School, Lake Elsinore, CA.** Project Geologist during construction. For the fast-track construction schedule, Mr. Riha managed the geotechnical consulting and materials testing and inspections to assure that the project would be built to project specifications, ahead of schedule, and within budget. Close coordination with the district and a ground modifications contractor was necessary to meet the site development schedule.

- **Vista Murrieta High School, Murrieta, CA.** Project Manager and Project Geologist for geotechnical investigation for the 58-acre site. Report was prepared to fulfill the Geotechnical and Engineering Geology requirements of the California Building Code (CBC) Title 24 for development of the proposed school. This report summarized the geotechnical findings, conclusions and geotechnical design and construction recommendations for the proposed school development. A subsurface exploration consisted of additional geologic mapping of the site conditions and the excavation, logging and sampling of 11 exploratory backhoe pits and 14 hollow stem auger borings.

## Transportation

- **Lasselle Street Road Widening, Moreno Valley, CA.** Project Manager during the Preliminary Geotechnical Exploration for the proposed road widening of Lasselle Street; work included stability analysis of the rock slope after planned removal, and provided rock slope protection mitigations. Consultation was also provided to the project design civil engineer and City representatives during reparation of final construction design documents.

- **Newport Road Realignment, Riverside County, CA.** Project Geologist for geotechnical investigation and construction of Newport Road realignment between Winchester Road (SR79) and Menifee Road (approx. 5.9 miles) in Riverside County. Included steepened cut slopes requiring rock bolt anchors to construct a stable slope configuration.

- **Ground Motion Study, La Jolla, CA.** Project Manager. Coordinated and performed a geologic evaluation of an ongoing slope movement (due to a deep-seated landslide) on the eastern slopes of Soledad Mountain on Desert View Drive. Study included excavation and downhole logging of large-diameter boreholes to depths exceeding 160 feet in hillside terrain, and the installation of numerous slope monitoring instruments.

- **I-15 Widening, Winchester Road overpass, and SR-79 North Widening, Temecula, CA.** Project Geologist. Sampling, laboratory testing and field density testing of earthwork construction, aggregate base and asphalt materials. Testing was performed in accordance with the Caltrans and City of Temecula requirements. Materials inspection included observation and testing during construction of tie-back retaining walls.

- **La Sierra Realignment and Widening, Lake Matthews Area, Riverside County, CA.** Project Manager/Geologist during design and construction of the road widening which required rock bolt anchoring and hydro-auger construction to provide stable cut slopes.

- **SR-74/Riverside Avenue Improvement Project, Lake Elsinore, CA.** Principal Geologist and Project Manager during widening of SR-74 along the newly constructed Lakeside High School.

- **SR-79 North, Santa Gertrudis Creek Undercrossing, Temecula, CA.** Project Geologist during the design and construction of the new and widened SR-79 bike lane undercrossing.

- **French Valley Airport Hangar / Taxiway Expansion, Murrieta, CA**. Principal Geologist during the supplemental geotechnical investigation for the hangar and taxiway expansion project. Developed alternate methods to prepare soil subgrade to provide options to the developer, which would reduce construction costs.

## Water Infrastructure

- **EMWD Regional Water Reclamation Facility Expansion and Upgrade, Temecula, CA.** Principal Geologist and Senior Reviewer. Performed a detailed geotechnical investigation for the expansion and upgrade phase of this project. This project consisted of two new 80-foot-diameter digesters, one clarifier, a maintenance building, two out-of-compliance and one tertiary-effluent storage ponds, and associated pipelines.

- **EMWD Booster Pump Station and Pipelines, Scott Road, Menifee, CA.** Principal Geologist and Senior Reviewer of a subsurface geotechnical investigation for a two-mile pressurized water pipeline and a booster pump station. Provided field geotechnical testing and consulting services during grading and construction of the booster pump station and pipeline construction.

- **EMWD Perris Water Filtration Plant Phase II, Perris, CA.** Principal Geologist. Provided field geotechnical testing and consulting services during the expansion phase II- Raw Water Augmentation Pump Station and associated pipeline construction.

- **EMWD 21-inch Diameter Sewer, Jefferson Avenue, Via Montezuma and Del Rio Road, Temecula, CA.** Principal Geologist/Senior Reviewer. Performed a subsurface geotechnical investigation for the 21-inch diameter gravity sewer pipeline and investigated the feasibility for pipe jacking and bursting of existing pipe along the alignment.

- **Elsinore Valley Municipal Water District's Mission Trail Transmission Main Replacement, Lake Elsinore, CA.** Principal Geologist. Performed a geotechnical investigation for replacement of approximately 7,000 linear feet of existing 24-inch diameter polyvinyl chloride (PVC) waterline with a new 24-inch diameter ductile iron pipe (Dip Class 300).

- **Elsinore Valley Municipal Water Districts, Lake Elsinore, CA.** Project Manager and Project Geologist for design and construction of A-4 pump station and Temescal Canyon intertie pipeline. These projects consisted of excavation of below grade sewer lift station in soft ground conditions with shallow ground water requiring de-watering systems. The soft wet-well subgrade was stabilized, and the deep inlet/outlet pipeline also required de-watering during backfill. All work was performed within Caltrans right-of-way. The Intertie Pipeline project consisted of approximately two miles of 30-inch ductile iron pie crossing unexplored variable geotechnical conditions. Soft ground conditions were encountered that required specific evaluation and stabilization recommendations. Micro-tunneling and pipe jacking was performed though a hard, granitic rock hill side.

- **Irvine Ranch Water District, Orange County, CA.** Project Geologist for geotechnical feasibility studies on four 6-million-gallon water reservoirs and associated pumping facility. Six locations were independently evaluated for hillside stability including landslide evaluations. Evaluation methods included historical aerial photograph review, down-hole logging of large diameter borings was performed to evaluate the subsurface geologic conditions. Detailed geologic analysis was performed and recommendations for site selection were provided.

- **Metropolitan Water District, Riverside County, CA.** Project Geologist to determine the need for and the design of protective slabs covering two 90-inch San Diego pipelines at the Victoria Grove, Silverhawk, Temeku Hills and Chardonnay Hills residential projects. Subsurface borings and test pits were excavated to determine existing conditions and design criteria was developed in close coordination with District personnel.

- **Perris Valley Lateral "B" Stage 2, Moreno Valley, CA.** Principal Geologist during site geotechnical investigation for 2-mile long channel widening design for RCFC. Study provided remedial grading recommendations for the 13-foot-high channel embankments at two bridge crossings.

- **Temecula Valley RWRF 18-MGD Upgrade and Storage Expansion, Temecula, CA.** Principal Geologist and Senior Reviewer. Performed a detailed geotechnical investigation for the expansion and upgrade that consisted of two new 80-foot-diameter digesters, one clarifier, and maintenance building, two out-of-compliance and one tertiary-effluent storage pond, and associated pipelines.

## Honors and Associations

- Seismological Society of America - Member
- Association of Engineering Geologist, Member
- Building Industry Association, (BIA) Member, Riverside County Chapter

# M. KEVIN OSMUN
## PRINCIPAL CIVIL ENGINEER

### PROFESSIONAL HISTORY

| | |
|---|---|
| 1988 to Present | LOR Geotechnical Group, Inc.<br>Principal Civil Engineer |

### EXPERIENCE SUMMARY

Mr. M. Kevin Osmun has over 20 years experience in the environmental field. Mr. Osmun directs LOR Geotechnical Group's environmental operations and has conducted over 500 Phase I Environmental Site Assessments for the private and public sectors. The properties have ranged from agricultural to commercial/industrial. In addition to his experience with environmental assessments for property transfers, he has managed projects that require mitigation prior to and during development. Mr. Osmun is well versed in hazardous waste sampling and characterization methodologies in soil and groundwater regimes and risk assessments. Projects have ranged from leaking USTs, solid waste landfills, TSD facility closures to single spill response. LOR Geotechnical Group, Inc. is one of three firms that provides report review for underground storage tank closure for the County of San Bernardino, Fire Department Hazardous Materials Division.

### EDUCATION

B.S. Civil Engineering, Wayne State University, Northridge, 1975

### PROFESSIONAL REGISTRATIONS

California, Professional Engineer, CE 55116

### PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers

# DAVID ATWATER
ENVIRONMENTAL PLANNER



## EXPERTISE

Data Collection, Research, and Analysis

Environmental Analysis/ Community Planning

California Environmental Quality Act

National Environmental Policy Act

Geographic Information Systems (GIS)

## EDUCATION

California State Polytechnic University, Pomona; B.S. in Urban and Regional Planning with an Interdisciplinary Minor in Geographic Information Systems Applications; June 2006.

## Continuing Education

Rio Hondo College; Geographic Information Systems coursework; July 2005.

## PROFESSIONAL AFFILIATIONS

American Planning Association (APA)

Association of Environmental Professionals (AEP)

## PROFESSIONAL RESPONSIBILITIES

Mr. Atwater coordinates and conducts research and provides analysis for LSA's environmental and planning projects subject to the laws of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). He coordinates and contributes to the preparation of professionally written documents, which are submitted or publicly presented including Initial Studies, Environmental Impact Reports, Environmental Assessments, and Environmental Impact Statements through researching technical resources and providing accurate analysis, contributing to the overall production of environmental documents. Mr. Atwater has experience utilizing Geographic Information Systems (GIS) for analysis in planning-related applications. He also has experience conducting air quality modeling utilizing the Urban Emissions (URBEMIS) 2007 computer model to estimate project-related air emissions. Prior to working with LSA, Mr. Atwater had one year of professional experience working with the West Basin Municipal Water District as its GIS Project Planner for numerous water quality projects in western Los Angeles County.

## PROJECT EXPERIENCE

- Addendum to the General Plan Update Final Program EIR, City of Loma Linda, San Bernardino County, California
- Adelanto Towne Center Environmental Impact Report, City of Adelanto, San Bernardino County, California
- Amendments to the Victoria Gardens Master Plan Initial Study and Supplemental Environmental Impact Report, City of Rancho Cucamonga, San Bernardino County, California
- Circuit 1533 Feeder Load Relief Project Initial Study Mitigated Negative Declaration, City of Riverside, Riverside County, California
- High Desert Gateway Shopping Center, City of Hesperia, San Bernardino County, California
- Hospitality Mixed-Use Retail Center, City of San Bernardino, San Bernardino County, California
- Interstate 15/Railroad Canyon Road Interchange Project, City of Lake Elsinore, Riverside County, California
- Marble Canyon Quarry – High Wall Extension, County of San Bernardino, United States Forest Service
- South Perris Industrial Environmental Impact Report, City of Perris, Riverside County, California
- Tehachapi Upland Multiple Species Habitat Conservation Plan Environmental Impact Statement (EIS), United States Fish and Wildlife Service

## PROFESSIONAL EXPERIENCE

Environmental Planner, LSA Associates, Inc., Environmental Planning Consultants. September 2006–present.

GIS Project Planner, West Basin Municipal Water District, Carson, California. August 2005–August 2006.

# KELLY CZECHOWSKI
SENIOR ENVIRONMENTAL PLANNER

## EXPERTISE

CEQA and NEPA

Community Impact Assessments

Relocation Impact Reports

Water Quality Assessment Reports

## EDUCATION

University of California, Riverside, Bachelor of Science in Environmental Sciences, 2005.

University of California, Riverside, Bachelor of Arts in Economics, 2005.

## Continuing Education

University of California, Riverside, University Extension, *Urban Drainage*, January–March 2008.

University of California, Riverside, University Extension, *Geology Continuing Education Series: Groundwater and Related Issues*, March 2007.

University of California, Los Angeles, University Extension, *California Water Projects and Urban Water Supplies: Environmental Compliance for Water Resources Projects and Practical Approaches*, December 2006.

University of California, Riverside, University Extension, *Storm Water Regulations and Management*, May 2006.

University of California, Riverside, University Extension, *Watershed and Storm Water Regulations and Management*, September–November 2005.

## PROFESSIONAL RESPONSIBILITIES

Ms. Czechowski provides research, assistance, and coordination for a variety of LSA's environmental planning projects subject to review under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). She assists and coordinates with staff in the preparation of initial studies, environmental impact reports, environmental assessments, and environmental impact studies for commercial, industrial, public facility/infrastructure, and residential projects. Her duties have included the research, analysis, and identification of environmental impacts, utilizing knowledge of principles and concepts of various scientific and engineering disciplines and contributing to the overall production of environmental and planning documents. Her assignments range from preparing and coordinating the completion of initial studies, environmental impact reports, environmental assessments, and environmental impact studies based on technical documents to locating facts and findings associated with individual projects and providing assistance to staff. Her assignments also include the preparation and coordination of technical studies dealing with relocation, community, environmental justice, and water quality issues.

## PROJECT EXPERIENCE

- Atlantis Gardens Initial Study, City of Azusa, Los Angeles County, California
- Walnut Benson Residential Initial Study, City of Chino, San Bernardino County, California
- Adelanto Towne Center Environmental Impact Report, City of Adelanto, San Bernardino County, California
- High Desert Gateway Shopping Center Environmental Impact Report, City of Hesperia, San Bernardino County, California
- Yucca Valley Retail Specific Plan Environmental Impact Report, Town of Yucca Valley, San Bernardino County, California
- Perris Marketplace Environmental Impact Report, City of Perris, Riverside County, California
- Wal-Mart Supercenter at Canyon Crossings Environmental Impact Report, City of Riverside, Riverside County, California
- South Perris Industrial Environmental Impact Report, City of Perris, Riverside County, California
- UPS Freight Facility Environmental Impact Report, City of Rialto, San Bernardino County, California

## Continuing Education (Continued)

University of California, Riverside, University Extension, *Water Quality Basins and Bio-swales for the Inland Empire Region: Requirements, Design, Native Plants and Implementation*, October 2005.

## PROFESSIONAL EXPERIENCE

Senior Environmental Planner, LSA Associates, Inc., Environmental Planning Consultants, November 2010–present.

Environmental Planner, LSA Associates, Inc., Environmental Planning Consultants, October 2007–November 2010.

Assistant Environmental Planner, LSA Associates, Inc., Environmental Planning Consultants, July 2005–October 2007.

Planning Intern, City of Riverside Planning Department, Riverside, California. August 2004–July 2005.

Air Quality Administrative Intern, South Coast Air Quality Management District, Diamond Bar, California. July–September 2003.

## PROFESSIONAL AFFILIATIONS

Association of Environmental Professionals (AEP), Vice President of Programs January 2010–present.

Association of Environmental Professionals (AEP), Newsletter Editor January 2008–December 2009.

## PROJECT EXPERIENCE (CONTINUED)

- Kline Ranch Environmental Impact Report, City of Rialto, San Bernardino County, California
- Gateway South Warehouse Facility Initial Study, City of San Bernardino, San Bernardino County, California
- Gateway North Building 2 Initial Study, City of San Bernardino, San Bernardino County, California
- Arantine Hills Specific Plan Environmental Impact Report, City of Corona, Riverside County, California
- La Verne Village Mixed Use Initial Study, City of La Verne, Los Angeles County, California
- Sanderson Square Specific Plan Environmental Impact Report, City of Hemet, Riverside County, California
- Upland Crossing Specific Plan, City of Upland, San Bernardino County, California
- Colton Crossing Rail to Rail Grade Separation, City of Colton, San Bernardino County, California
- I-15/Railroad Canyon Road Interchange Project, City of Lake Elsinore, Riverside County, California
- Rancho Vista Boulevard Grade Separation Project, City of Palmdale, Los Angeles County, California
- Baseline Bridge Replacement Project, City of Highland, San Bernardino County, California
- Davis Road Bridge Replacement and Road Widening Project, Monterey County, California
- Imperial Valley Solar Project SA/DEIS and FEIS, Imperial County, California
- McCanna Ranch Water Company Pipeline Initial Study, City of Perris, Riverside County, California
- Huntington Beach Desalination Project Growth Inducement Evaluation, City of Huntington Beach, Orange County, California
- I-215/State Route 60 East Junction High Occupancy Vehicle Connector Project, Riverside County, California
- West Valley Water District Wellhead Treatment System Initial Study, City of Rialto, San Bernardino County, California
- I-10/Tippecanoe Avenue Interchange Project, City of San Bernardino and City of Loma Linda, San Bernardino County, California
- Greenspot Road Bridge at Santa Ana River, City of Highland, San Bernardino County, California

# KENT NORTON, AICP, REA

SENIOR ENVIRONMENTAL PLANNER

## EXPERTISE

CEQA and NEPA Compliance

Registered Environmental Assessor

## EDUCATION

California State University, Fullerton, California. M.S., Environmental Studies with an emphasis in Urban and Regional Planning. 1983. His thesis on "Land Use Planning for Sources of Non-Ionizing Electromagnetic Radiation" was published in 1984 by the National Technical Information Service as a handbook for planners when dealing with cellular telephone towers, high voltage power lines, microwave communication towers, radio and television broadcast towers, etc.

California State University, Fullerton, California. B.A., Biology. 1978.

## PROFESSIONAL AFFILIATIONS

American Institute of Certified Planners (AICP), #9601, 1993.

Registered Environmental Assessor (REA), Class I #06827, State of California. 1996.

Association of Environmental Professionals (AEP), State of California President 2006–2009

AEP, Inland Empire Chapter Director, 2005–2006.

AEP, Inland Empire Chapter, Board Officer, 2000–2005.

National Association of Environmental Professionals (NAEP), 2007–2009.

American Planning Association (APA), Inland Empire Section, member, 2000–present.

## PROFESSIONAL RESPONSIBILITIES

Mr. Norton has prepared and managed the preparation of hundreds of CEQA and NEPA compliance documents that include Initial Studies, Environmental Assessments, Categorical Exclusions and Exemptions, Negative Declarations, and Environmental Impact Reports (EIRs). His projects have ranged from small urban infill subdivisions to the development of over 13,000 acres of land in the high desert near Barstow, and EIRs for approximately a dozen large specific plan projects in Riverside and San Bernardino Counties. He has prepared EIRs for complex development projects on the former Kaiser Steel Mill, the Ontario Mills Mall property, and the Sierra Lakes Specific Plan project in Fontana. He has managed several award-winning projects including the Los Alamos Hills Master Plan and EIR for park and school facilities in Murrieta, the Coldwater Reservoir EIR in Beverly Hills, the Padua Park EIR in the City of Claremont, and the MacArthur Park Master Plan EIR in the City of Los Angeles. He also managed preparation of a comprehensive Environmental Impact Statement (EIS) for the closure and reuse of Griffiss Air Force Base in Rome, New York. As a Registered Environmental Assessor, Mr. Norton has prepared dozens of Phase 1 Environmental Site Assessments (ESAs) dealing with hazardous materials on vacant and developed sites.

Mr. Norton is the immediate past state president of the Association of Environmental Professionals (AEP), and has conducted numerous workshops and training sessions for students and professionals on the basics of CEQA compliance. He is still a Director-At-Large on the AEP State Board and is the chair of the AEP Emerging Issues Committee. He is also a member of the American Institute of Certified Planners (AICP) and the American Planning Association (APA).

## PROJECT EXPERIENCE

- General Plan, City of Indian Wells, Riverside County, California
- General Plan and EIR, City of Diamond Bar, Los Angeles County, California
- University Hills Specific Plan EIR, City of San Bernardino, San Bernardino County, California
- Roripaugh Ranch Specific Plan and EIR, City of Temecula, Riverside County, California
- Sierra Bella Specific Plan EIR, City of Corona, Riverside County, California
- Rancho El Rivino Residential Specific Plan EIR, City of Rialto, San Bernardino County, California

# KENT NORTON, AICP, REA

SENIOR ENVIRONMENTAL PLANNER

## PROFESSIONAL EXPERIENCE

Senior Environmental Planner, LSA Associates, Inc., Riverside, California. September 2010–present.

Director of Environmental Services, The Planning Center. November 2009–June 2010.

Director of Environmental Services, Michael Brandman Associates. October 2002–November 2009.

Director of Environmental Services, The Keith Companies. May 1995–October 2002.

Independent Consultant. August 1994–May 1995.

Environmental Planner, South Coast Air Quality Management District. June 1993–August 1994.

Senior Scientist, Tetra Tech. September 1992–June 1993.

Senior Project Manager, Cotton-Beland Associates. March 1992–September 1992.

Project Manager, Planning Network. January 1980–February 1992.

Facilities Planner, Placentia Unified School District. January 1980–January 1988.

Environmental Planner, PRC Toups Corporation. November 1977–January 1980.

## PROJECT EXPERIENCE (CONTINUED)

- P&V High Desert Development EIR, San Bernardino County, California
- Marketplace at Main Street Project EIR, City of Corona, Riverside County, California
- Renaissance Specific Plan EIR, City of Rialto, San Bernardino County, California
- Sunny Cal Specific Plan EIR, City of Beaumont, Riverside County, California
- EIS for Closure and Reuse of Griffiss Air Force Base, City of Rome, Oneida County, New York
- CEQA and NEPA Compliance for Riverside Freeway (SR-91) Auxiliary Lane, City of Riverside, Riverside County, California
- NEPA Compliance for Various Road Projects, City of Moreno Valley, Riverside County, California
- CEQA and NEPA Compliance for Improvements to Foothill Boulevard (Route 66), City of Fontana, San Bernardino County, California
- EIS/EIR for Metro Gold Line Extension to Pasadena, Los Angeles Metropolitan Transit Authority, Los Angeles County, California
- Greenspot Road Improvements, City of Highland, San Bernardino County, California
- High School #3 EIR & Elementary School, Palm Springs Unified School District, Riverside County, California
- South Ontario High School, Chaffee Joint Union High School District, San Bernardino County, California
- Desert Hot Springs Elementary School Mitigated Negative Declaration (MND), Palm Springs Unified School District, Riverside County, California
- Police and Public Works Facilities EIR, City of San Gabriel, Los Angeles County, California
- Cedar Glen Disaster Recovery EIR, City of Lake Arrowhead, San Bernardino County, California
- Los Alamos Hills Master Plan EIR for Park and School Facilities, City of Murrieta, Riverside County, California
- MacArthur Park Master Plan EIR, City of Los Angeles, Los Angeles County, California
- Padua Hills Park EIR, City of Claremont, Los Angeles County, California
- Ferraro Soccer Fields MND, City of Los Angeles, Los Angeles County, California
- Jurupa Business Park EIR, City of Fontana, San Bernardino County, California
- Calvary Chapel Initial Study/MND, City of Highland, San Bernardino County, California

# LYNN CALVERT-HAYES, AICP
PRINCIPAL



## EXPERTISE

Environmental Policy and Analysis

CEQA and NEPA

## EDUCATION

San Diego State University, B.S. in Geology, San Diego, 1979.

## PROFESSIONAL AFFILIATIONS

American Institute of Certified Planners (AICP), Certification No. 9870.

American Planning Association (APA).

Association of Environmental Professionals (AEP).

Financial Vice President/CFO 2012-present.
State Conference Committee 2002.
Executive Vice President 1994–1999.
Southern California Regional Director 1993–1995.
Inland Empire Chapter Director 1991–1993.
Inland Empire Chapter Treasurer 1990–1991.
State Legislative Committee 1992–1993.

Inland Geologic Society.

Board of Directors of Riverside Land Conservancy 1997–2006.

## PROFESSIONAL RESPONSIBILITIES

Ms. Calvert-Hayes has more than 26 years of experience in land use plans, public agency cases, general and comprehensive environmental analysis (California Environmental Quality Act [CEQA] and National Environmental Policy Act [NEPA]), geology, soils and seismicity analysis, surface mining and reclamation plans, public agency case processing, preparation of environmental documents on Habitat Conservation Plan (HCP) and Multiple Species Habitat Conservation Plan (MSHCPs), transportation projects, residential and commercial specific plans, mixed-use developments, materials recovery facilities (MRF), surface mining permits, mitigation monitoring programs, and other specialized planning documents.

Ms. Calvert-Hayes's professional history includes experience as a project manager at Chambers Group; environmental planner/project manager for J.F. Davidson Associates in Riverside, California; a planner with the City of Banning, California; and an environmental technician with the County of San Bernardino, California. Ms. Calvert-Hayes has also taught Geology for the Redlands Unified School District gifted student program and is a guest lecturer on CEQA at the University of California, Riverside. She was also on the State Board of the Association of Environmental Professionals for 12 years and is a member of the Environmental Law Section of the California State Bar.

## PROJECT EXPERIENCE

- Adelanto Towne Center Environmental Impact Report (EIR), City of Adelanto, San Bernardino County, California
- Avenue 48/Dillon Road Grade Separation, City of Coachella, Riverside County, California
- Base Line and Boulder Avenue Improvements, City of Highland, San Bernardino County, California
- Base Line and Victoria Avenue Roadway Improvements, City of Highland, San Bernardino County, California
- Base Line Bridge Replacement at City Creek, City of Highland, San Bernardino County, California
- Boulder and Baseline Avenue HCP EA, City of Highland, San Bernardino County, California
- Boulder Avenue Bridge Replacement and Roadway Improvements, City of Highland, San Bernardino County, California
- Canyon Meadows Development, City of Chino Hills, San Bernardino County, California
- City of Indio General Plan 2020 Update and EIR, City of Indio, Riverside County, California
- Citrus Village II (Wal-Mart) EIR, City of Corona, Riverside County, California

March AFB Restoration Advisory Board 1997–1998.

California State Bar, Environmental Law Section

## PROFESSIONAL EXPERIENCE

Principal, LSA Associates, Inc. Riverside, California. 1996–present.

Project Manager, Chambers Group. 1991–1996.

Environmental Planner/Project Manager, J.F. Davidson Associates, Riverside, California. 1989–1991.

Planner, City of Banning, California. 1987–1989.

Environmental Technician, County of San Bernardino, California. 1985–1987.

## PROJECT EXPERIENCE (CONTINUED)

- Colton Rail to Rail Grade Separation, San Bernardino Associated Governments (SANBAG), City of Colton, San Bernardino County, California
- Fifth Street Bridge and Roadway Improvements Environmental Documentation, City of Highland, San Bernardino County, California
- Fifth Street Bridge Biological Assessment and EA, City of Highland, San Bernardino County, California
- Gene Autry Trail and Bridge Widening, City of Palm Springs, Riverside County, California
- GPA 96-03B and 97-01 and VCPAs 96-01 and 97-01/Edison Company EIR, City of Rancho Cucamonga, San Bernardino County, California
- Greenspot Road Realignment and Bridge over the Santa Ana River, City of Highland, San Bernardino County, California
- High Desert Gateway Shopping Center, City of Hesperia, San Bernardino County, California
- I-10 Widening Between Orange Street and Ford Avenue, City of Redlands, San Bernardino County, California
- Indian Avenue/I-10 Interchange Improvements, City of Palm Springs, Riverside County, California
- Interchange Widening of Monterey Avenue and New Interchange at Cook Street and I-10, City of Palm Desert, Riverside County, California
- Iowa Avenue Grade Separation, City of Riverside, Riverside County, California
- Loma Linda Comprehensive General Plan Update, EIR, and EIR Addendum, City of Loma Linda, San Bernardino County, California
- Magic Mountain Parkway Extension EIR/Environmental Impact Statement (EIS), City of Santa Clarita, Los Angeles County, California
- Milliken Avenue and Archibald Avenue Grade Separations, City of Ontario, San Bernardino County, California
- Nutmeg Avenue Extension, City of Murrieta, Riverside County, California
- Oak Valley & SCPGA Golf Course Specific Plan EIR, County of Riverside, California
- Oak Valley Specific Plan Addendum, City of Calimesa, Riverside County, California
- Promenade EIR, City of Redlands, San Bernardino County, California
- Stratford Ranch Industrial EIR, City of Perris, Riverside County, California
- World Logistic Center EIR, City of Moreno Valley, Riverside County, California
- Victoria Gardens Mall EIR, City of Rancho Cucamonga, San Bernardino County, California
- Vogel Moreno Valley EIR, City of Moreno Valley, Riverside County, California

# MEGHAN MACIAS
PRINCIPAL/TRANSPORTATION PLANNER

## EXPERTISE

Transportation Planning and Traffic Impact Assessment

Access and Site Plan Analysis

Parking Demand and Shared Parking Studies

## EDUCATION

University of California, Irvine, Master of Urban and Regional Planning, 1998.

California State University, Fullerton, B.A., Geography, 1996.

## PROFESSIONAL MEMBERSHIPS

Institute of Transportation Engineers

Orange County Traffic Engineering Council

## PROFESSIONAL EXPERIENCE

Principal, LSA Associates, Inc., Riverside, California, 2009–present.

Senior Transportation Planner, LSA Associates, Inc., 1999–2009.

Transportation Planner, California Department of Transportation (Caltrans), District 8, 1998–1999.

Intern, Planning and Programming, Orange County Transportation Authority (OCTA), 1997–1998.

## PROFESSIONAL RESPONSIBILITIES

Ms. Macias' primary responsibilities include preparation of technical analyses of land development projects, including comprehensive traffic impact analyses, traffic operations analyses, and parking studies. Ms. Macias has prepared traffic analyses for numerous and varied projects throughout California, including regional retail centers, college campuses, mixed-use projects, and special events. In addition to her expertise in traffic engineering and operations analysis methodologies, Ms. Macias works closely with environmental staff to prepare technically sound and defensible Environmental Impact Report level analyses and traffic sections for environmental documents.

Ms. Macias' provides strategic transportation planning services to public- and private-sector clients. Her work focuses on providing mobility solutions for local agencies, developers, and campus environments. Ms. Macias has prepared transportation and parking management plans and trip reduction plans for numerous and varied projects throughout California, including master planned developments, college campuses, mixed-use projects, and special events. Ms. Macias has prepared Transportation Demand Management (TDM) plans for development project compliance with air quality regulations, and has assisted large and small employers in developing and implementing Trip Reduction Plans.

## PROJECT EXPERIENCE

- Moraga Canyon Sports Fields, Piedmont, California
- Coachella Valley Music and Arts Festival Traffic Operations Analysis, Indio, California
- Upper Santa Ana River Wash, San Bernardino County, California
- West Civic Center Parking Master Plan, Westminster, California
- San Miguel Ranch TIA, San Luis Obispo County, California
- Hoag Memorial Hospital Presbyterian TDM Plan, Newport Beach, California
- Imperial Valley Commons, El Centro, California
- Santa Barbara Cottage Hospital, Santa Barbara, California
- I-15 Baseline Road Interchange, Riverside County, California
- Laguna Canyon Road (State Route 133) Widening Project Report/Environmental Documentation, Orange County, California
- Laguna Canyon Road Widening Project Report/Project Study Report, Orange County, California
- I-5 Widening Environmental Impact Report/Environmental Impact Study On-Call Services, Caltrans District 7, Los Angeles, California
- Eastshore State Park Master Plan, Alameda and Contra Costa Counties, California

## PROJECT EXPERIENCE (CONTINUED)

- Richmond Greenway, Richmond, California
- Campus Centre, Irvine, California
- Community College Master Plan Circulation Planning and Design Services, Los Angeles and San
- Bernardino Counties, California
- City of Irvine Bicycle Transportation Plan, Irvine, California
- Seven Vines Traffic Impact Analysis, Livermore, California
- Los Medanos College Traffic Impact Analysis, Pittsburg, California
- Diablo Canyon Power Plant Parking Operations Plan, San Luis Obispo County, California
- Diablo Canyon Power Plant Trip Reduction Plan, San Luis Obispo County, California
- Our Lady Queen of Angels (OLQA) Church Construction Parking Phasing Plan and Parking Management Plan, Newport Beach, California
- Park Place Master Plan Circulation Planning, Irvine, California
- Bicycle and Pedestrian Safety Study, Santa Rosa Junior College, Santa Rosa, California
- Palm Springs Unified School District Traffic Impact Analyses, Desert Hot Springs, California
- Folsom Lake State Recreation Area (SRA) General Plan EIR/EIS, Sacramento, El Dorado, and Placer Counties, California
- Melrose Triangle Traffic Impact Analysis, West Hollywood, California
- 8759 Santa Monica Boulevard Traffic Impact Analysis, West Hollywood, California
- Beverly Place Mixed-Use Development Traffic Impact Analysis, West Hollywood, California
- De Anza College Transit Center, Santa Clara Valley Transportation Authority, Cupertino, California
- Pilarcitos Quarry (West Coast Aggregates) Trip Generation and VMT Analysis, Half Moon Bay, California
- Clayton Community Church, Clayton, California

# RON BRUGGER
SENIOR AIR QUALITY SPECIALIST



## EXPERTISE

Air Dispersion Modeling

Human Health Risk Assessment

Noise Modeling

Regulatory Analysis and Permitting

## EDUCATION

University of Wisconsin-Madison, B.S., Mechanical Engineering, 1983.

Trinity Consultants, Air Dispersion Modeling Course, 1994.

Blue Scape Environmental, Air Toxics Health Risk Assessment and HARP Course, 2004.

Blue Scape Environmental, Rule 1401 Health Risk Assessment Course, 2005.

Lakes Environmental, Air Dispersion Modeling Workshop and AERMOD Course, 2007.

## PROFESSIONAL EXPERIENCE

Senior Air Quality Specialist, LSA Associates, Inc., Irvine, California, 2003–present.

## PROFESSIONAL RESPONSIBILITIES

Mr. Brugger is a Senior Air Quality Specialist at LSA with over 19 years of experience in air emission modeling, human health risk assessment, noise modeling, regulatory analysis, and permitting and landfill gas modeling. Mr. Brugger's direct experience with all industry-standard environmental models assures a thorough analysis using the best analysis methodology.

He has recently conducted the CEQA air quality analysis, health risk assessment, and/or noise analysis for: Banning Business Park for the City of Banning, River Springs Charter School for the City of Riverside, 24th Street Widening for the City of Bakersfield, the Walmart Expansion for the City of Poway, the Valero Ethanol Transloading Project for the County of San Bernardino, Loma Bonita Residences for the City of San Dimas, and Grand Terrace Town Square in the City of Grand Terrace.

He is proficient with the use of the AERMOD, ISCST3, HARP, SCREEN3, EMFAC2007, URBEMIS 2007, CALINE4, FHWA Highway Traffic Noise Prediction Model (FHWA RD-77-108), SOUND32 noise model, and Traffic Noise Model (TNM) 2.5. He is also responsible for measuring noise levels with the Larson Davis models 720, 820, and 824 noise meters.

Mr. Brugger has contributed his energy efficiency, sustainability, and global climate change impact analysis expertise in developing the Energy, Sustainability, and Global Climate Change sections for residential, commercial, and industrial development projects as well as roadway improvement projects. Specific projects include the following:

- Banning Business Park, City of Banning
- Mountain Grove Citrus Plaza, County of San Bernardino
- Poway Walmart Expansion, City of Poway
- SR-91 Corridor Improvement Project EIR, Caltrans
- General Plan Update, City of Rancho Palos Verdes
- Vogel Industrial Park, City of Moreno Valley
- Newport Beach City Hall, City of Newport Beach
- Pedley Affordable Housing, County of Riverside
- Del Mar Fairgrounds, City of Del Mar
- Clay Street Business Park, County of Riverside

## PROFESSIONAL EXPERIENCE (continued)

Air Quality and Health Risk Specialist, TRC Companies, Inc., environmental consultants, Southern California, 1992–2003.

Senior Software Engineer, BDM International, Inc., engineering services consultants, Southern California, 1989–1992.

Missile Systems Analyst and Systems Expert, Fleet Analysis Center, Department of the Navy, Southern California, 1983–1985.

## PROJECT EXPERIENCE (CONTINUED)

- Air Dispersion Modeling, Various Clients, Various States (mostly California)
- Big Bear Disposal, San Bernardino County, California
- Hanford Municipal Airport Improvements Project, Kings County, California
- Grand Terrace Town Square, San Bernardino County, California
- Banning Business Park, Riverside County, California
- Defense Reutilization and Marketing Office, Meridian Business Park Project, Riverside, California
- Clay Street Industrial Park, Riverside County, California
- Vogel Industrial Park, Moreno Valley, California
- Central Park Master Plan Amendment, Rancho Cucamonga, California
- Caltrans Statewide On-Call Environmental Service, Throughout California
- South Orange County Transportation Infrastructure Improvement Project, Orange County, California
- Mid County Parkway, Riverside County, California
- SR-91 HOV Lanes, Riverside, California
- Vacek Project, Desert Hot Springs, California
- Jamboree & Richter Residential, Irvine, California
- Shady Creek Medical Center, Irvine, California
- Long Beach Home Depot, Long Beach, California
- Main and Iowa Traffic Signalization Project, Colton, California
- Melrose Triangle EIR, West Hollywood, California
- Western Way Recycling, Perris, California
- Teller/Campus, Irvine, California
- High Desert Gateway, Hesperia, California
- Gateway South, San Bernardino, California
- Hospitality Mixed-Use, San Bernardino, California
- La Habra Homes, La Habra, California
- Barranca/Millikan, Irvine, California

# RAYMOND V. HUSSEY, AICP
ASSOCIATE



## EXPERTISE

Environmental Analysis

Transportation Planning/Engineering

## EDUCATION

California Polytechnic State University, San Luis Obispo, Master of City and Regional Planning, 1993.

University of California, Davis, Bachelor of Science in Environmental Policy Analysis and Planning, 1982.

## PROFESSIONAL AFFILIATIONS

American Institute of Certified Planners (AICP), Certification No. 12937

American Planning Association (APA)

Association of Environmental Professionals (AEP)

Building Industry Association (BIA)

Institute of Transportation Engineers (ITE)

## PROFESSIONAL EXPERIENCE

Associate, LSA Associates, Inc., Riverside, California. 1998–present.

## PROFESSIONAL RESPONSIBILITIES

Mr. Hussey manages the Environmental and Planning groups in LSA's Riverside office. His primary duties include managing and preparing environmental documents (CEQA and NEPA) for public and private development projects throughout Southern California. His experience includes preparation of categorical exemptions/exclusions, initial studies, and environmental impact reports for roadway widening, transit centers, retail centers, commercial centers, industrial warehouses, residential subdivisions, and Specific Plans. As project manager, Mr. Hussey works directly with the agency contact persons and project applicants and manages, coordinates, and conducts all LSA work efforts, including review of technical reports to ensure CEQA and NEPA compliance. As a result of this experience, he has developed a comprehensive understanding of the environmental issues associated with the environmental review of projects and has developed and expertise in the procedures required by CEQA and NEPA.

## PROJECT EXPERIENCE

- Citrus Village II EIR, Corona, Riverside County, California
- Green River Ranch Specific Plan EIR, Corona, Riverside County, California
- Kline Ranch Industrial Warehouse EIR, Rialto, San Bernardino County, California
- ProLogis Industrial/Warehouse EIR, Rialto, San Bernardino County, California
- Rancho Vista Boulevard Widening Project IS/MND and EA, Palmdale and Caltrans District 7, Los Angeles County, California
- Rancho Vista Boulevard Widening Project IS/MND and CE, Palmdale and Caltrans District 7, Los Angeles County, California
- 20th Street West IS/MND, Palmdale, Los Angeles County, California
- Green River Road Widening Project IS/MND, Corona, Riverside County, California.
- Recycled Waterline IS/MND, Corona, Riverside County, California
- San Jacinto Retail Center EIR, San Jacinto, Riverside County, California
- Swift Transportation Facility Draft EIR, Rialto, San Bernardino County, California
- The Crossings EIR, Corona, Riverside County, California
- Upper Santa Ana River Wash Land Management and Habitat Conservation Plan EIR, San Bernardino County, California
- Valley Central Shopping Center EIR, Lancaster, Los Angeles County, California
- West Valley Water District Wellhead Treatment System IS/MND and Addendum, Rialto, San Bernardino County, California

## PROFESSIONAL EXPERIENCE

Previous Experience 1987–1998:

- Transportation Planner, Penfield & Smith Engineers, civil engineering consultants, Santa Barbara, California.
- Transportation Planner, Associated Transportation Engineers, consulting transportation engineers and planners, Santa Barbara, California.
- Transportation Planner, Willdan Associates, transportation planning and engineering consultants, Sacramento, California.
- Transportation Planner, TJKM Transportation Consultants, transportation planning and engineering consultants, Sacramento, California.
- Transportation Analyst/Engineer, Transportation Development Review Section, City of Irvine, Irvine, California.
- Intern, Transportation Planning/Traffic Engineering Division, City of Oxnard, Oxnard California.

CORPORATE
RESUME

# Cori Wilson

**Project Role: Air Quality/Climate Change Expert**

## Overview

- 7 Years Experience
- Bachelor of Science, Environmental Science - University of Washington, Bothell

**Cori Wilson** is an Air Quality and Greenhouse Gas Specialist with seven years of experience in the authorship of air quality and greenhouse gas analyses. Cori's analyses are known for their technical accuracy, thoughtful mitigation measures, and innovative approaches. Cori regularly co-authors papers on the topic of greenhouse gases for the Association of Environmental Professionals.
Cori's analyses are tailored to the type of project and the air district in which the project is located. In general, greenhouse gas analyses contain emission quantification of construction and operational impacts, consistency with California's most recent strategies to reduce State emissions pursuant to Assembly Bill 32, identification of project design features to reduce emissions, application of mitigation measures (if necessary), and a finding of significance. Cori's air quality analyses include an estimation of short-term and long-term criteria pollutant emissions. She is an expert with the URBEMIS and CalEEMod models, yet can supplement the model with her own emissions calculations. She conducts carbon monoxide hotspot analyses using the EMFAC and Caline4 models. She also prepares localized significance threshold analyses and health risk assessments utilizing the AERMOD dispersion model. She uses appropriate air district and State guidance to produce legally defensible analyses.

## Related Experience

Cori prepared greenhouse gas and/or air quality analyses for the following projects.

### Commercial Projects

- **Gosford Village Shopping Center and the Panama Lane Shopping Center, City of Bakersfield.** The Gosford Village and the Panama Lane shopping centers are two projects within a three mile radius of each other both consisting of a Walmart and related commercial shopping centers. These projects were completed in early 2007 and had among the first climate change analyses for CEQA. Cori developed the approach to address climate change, which was used by other Lead Agencies in California because at the time, there was no regulatory guidance on this issue.
- **Almond Plaza, County of San Bernardino.** The project includes the construction of approximately 59,000 square feet of commercial retail uses, a 180-room hotel, 149,000 square feet of office space, 5,000 square feet of restaurant uses, and 3,500 square feet of a fast food restaurant.
- **Standard Center, Tuolumne County.** The project consists of 40,922 square feet of retail buildings.
- **Milpitas Walmart Expansion Project, City of Milpitas.** The project is the expansion of an existing Walmart.
- **Murrieta Marketplace, City of Murrieta.** The project involved a regional shopping center, park-and-ride, and a dedicated wetlands area.
- **Creekside Marketplace, Fremont.** The project consists of 524,000 square feet of commercial uses near an existing landfill.

- **Merced Truck Stop (Tentative Parcel Map No. 11325), Kern County.** The project includes construction of a truck stop, gasoline station, oil and lube facility, truck and car wash, convenience store, restaurants, and hotel.
- **Pomona/Rincon Medical Office Center and Hospital, City of Chino Hills.** An air quality analysis was prepared for the project, which considered two options for the project site: 1) the project with a hospital (with and without an emergency room); and 2) the project with a second medical building in place of the hospital. The project site is located next to a freeway; therefore, the analysis also assessed the potential impact of the freeway on the proposed hospital.
- **Travel Plaza in Thunder Bay, Ontario, Canada.** The project consists of a truck stop, including a convenience store, restaurant, and gasoline, diesel, and propane fueling stations. Cori prepared a unique Air Quality Impact Analysis that assessed the impact of project-related and mobile emissions at sensitive receptors using the U.S. EPA dispersion model, AERMOD. GIS technology was used in combination with AERMOD to produce concentration isopleths for nitrous oxides, carbon monoxide, diesel particulate matter, and benzene. Health risks from exposure to benzene were assessed. Emissions were estimated using the U.S. EPA emission factor model, MOBILE6, and the California Air Pollution Control Officers Association's Air Toxics Hot Spots Program methodology. Canadian regulations and anti-idling technology were also discussed in the report. An Odor Impact Analysis was also prepared to determine odor impacts from the proposed development on nearby sensitive receptors. Cori was called as an expert witness in the Canadian court and testified regarding the technical accuracy of the analyses she prepared.
- **William J. Carroll Government Center, County of Solano.** The project consisted of a 35,000 square foot two-story County public health facility and clinic and associated site improvements located on 2.78 acres in the City of Vacaville. The Health facility and clinic would be operated by the Solano County Health and Social Services Department.
- **Wasco Center Walmart, City of Wasco.** The project involves the addition of square footage to a previously approved Walmart building.
- **Sheriff Station, Palm Desert, Riverside County.** The project consists of a proposed sheriff station.
- **West Hollywood Peer Review.** Cori prepared a peer review of the air quality and climate change analyses for the 8801 Sunset Boulevard project in the City of West Hollywood.
- **Newport Beach Learning Center, City of Newport Beach.** The project consists of the demolition of existing structures and construction of a three-story learning facility. Cori prepared air quality and greenhouse gas analyses for the project.
- **Fahrens Park Plaza, City of Merced.** The project consists of the development of a more intense use on an existing commercial retail site.
- **Chick-fil-A, City of Sunnyvale.** The project consists of a 4,350 square foot Chick-fil-A restaurant.
- **Mira Loma Retail Center, Riverside County.** The project consists of two alternatives with fast food restaurant and a specialty retail or convenience store.
- **Needles Fire Station No. 31, County of San Bernardino.** The project consists of the development of a fire station.

### Industrial and Warehouse Projects

- **City Creek Maintenance Project, County of San Bernardino.** The project includes maintenance activities for existing flood control facilities and completion of emergency activities.

- **Rialto Commerce Center, City of Rialto.** The project consists of the construction and operation of 3,659,000 square feet of industrial and warehouse uses on 158.9 acres.
- **Highland Fairview Corporate Park, City of Moreno Valley.** The project consists of the construction of 2.4 million square feet of logistics, 200,000 square feet of commercial, and a retail component. A comprehensive climate change analysis included an emissions inventory and an onsite and offsite (carbon offsets) mitigation measure feasibility analysis. The cumulative analysis included a description of the potential of the project to contribute to the emissions associated with international trade.
- **North Basin Groundwater Protection Project, Orange County Water District.** The Orange County Water District conducted investigations of a portion of the Orange County Groundwater Basin within the cities of Fullerton and Anaheim and found concentrations of volatile organic compounds that are in excess of drinking water standards. The project includes construction and operation of a pump-treat-recharge system to remediate the groundwater contamination. The project is being designed to extract adequate amounts of contaminants while minimizing the risk of contamination migration into portions of the Orange County Groundwater Basin that are used for potable water supplies.
- **Miraloma Recharge Basin, Orange County Water District.** The project involves the construction and operation of an approximately 13-acre groundwater recharge basin.
- **Burris and Lincoln Basins Reconfiguration and Five Coves Pipeline Project, Orange County Water District.** The project involves the reconfiguration of two groundwater recharge basins and the construction of a pipeline system. The analysis took into account the "adaptation" benefits of the project by mitigating the effects of climate change by recharging groundwater basins.
- **Mid Basin Injection Well Pilot Project, Orange County Water District.** The project is a pilot program that involves the construction and operation of a mid basin injection well and monitoring well onsite within the City of Fountain Valley and the construction and operation of a mid basin monitoring well on a site in the City of Santa Ana. The purpose of the project is to test the effectiveness of a mid basin injection well system in the Orange County Groundwater Basin. Based on the results of the pilot program, a series of additional injection wells could be constructed.
- **Linda Vista Reservoir and Pump Station Project, City of Anaheim.** The project consists of upgrading and replacing existing water storage and pumping facilities and developing new facilities to meet future water demands.
- **Public Safety Enterprise Communication Project, Riverside County.** The project involves the expansion of the County's communication system through the construction of 45 radio tower sites. The analyses took into account the fact that the project sites spanned two air districts and three air basins by expanding the background information and utilizing appropriate thresholds where necessary.
- **Pacific Rail Industries Metal Shredding Operation, Colton.** The project involves the installation and operation of a metal shredding operation as an expansion of an existing scrap metal facility and an increase in the volume of transloading (transfer of goods between rail car and truck for distribution).
- **Overton Moore Properties Distribution Center, Perris.** An Air Quality Analysis and Health Risk Assessment Report was prepared that estimated the health risk from operational related diesel particulate matter and construction emissions using the U.S. EPA dispersion model, ISCST3.
- **Jaden Warehouse/Distribution Facilities, Mead Valley.** An Air Quality Impact Analysis and Health Risk Assessment Report was prepared for the project, which included four warehouses totaling 170,228 square feet of floor space.

- **Barstow Industrial Park, City of Barstow.** The project consists of the development of a maximum of 10.9 million square feet of industrial and related development. The Climate Change Analysis included an assessment of potential greenhouse gas reductions from the use of rail on the project site.
- **Granite Mine Expansion, City of Twentynine Palms.** The project involves the expansion of an existing sand and gravel mine with accompanying concrete and asphalt facilities. Emissions associated with the concrete and cement manufacturing industries were explored in the Climate Change Analysis report. Greenhouse gas emissions from the proposed expansion were quantified.

### Residential and Mixed-Use Projects

- **Tentative Tract Map 34271, City of San Jacinto.** The project is the construction of 154 single-family residential units on 45 acres.
- **Tentative Tract Map 36243, City of San Jacinto.** The project is the construction of 43 single-family residential units on 11.55 acres.
- **Tentative Tract Map 62757, City of Lancaster.** The project is the subdivision of approximately 160 acres into 650 residential lots.
- **Edgewater Communities, City of Chino.** The project is the construction of residential units on land previously designated for open space and agriculture. The climate change analysis included a discussion on smart land use and the conversion of agriculture to sprawling communities.
- **Stonefield Tentative Tract Map 18393, Chino Hills.** The project is the development of 28 single family residential units in a location with variable terrain.
- **Sky 19 Development, Bakersfield.** The project is a residential development. The analysis assessed regional and cumulative air quality impacts. Mitigation measures and compliance with the San Joaquin Valley Air Pollution Control District's Indirect Source Review Rule 9510 reduced air quality impacts to less than significant.
- **Ashlan Locan II, City of Clovis.** The project consists of the development of 196 residential units on 17.78 acres.
- **Sierra Bella Specific Plan EIR, Corona.** The project consists of residential uses on variable terrain, which would require substantial grading near existing residential uses. An Air Quality Impact Analysis and Health Risk Assessment was prepared, which examined potential health risks associated with diesel particulate matter and fugitive dust generated during grading activities. URBEMIS was used in conjunction with AERMOD to estimate future concentrations.
- **Renaissance Specific Plan, City of Rialto.** The project accommodates 17.4 million square feet of business and commercial uses (835,200 square feet of which is existing and expected to remain), 1,746 residential units, one school, two community parks, and multiple neighborhood parks. It is located on 1,510 acres in the City of Rialto on and adjacent to the Rialto Municipal Airport.
- **Rich Haven Specific Plan, City of Ontario.** The analysis assessed the conversion of existing dairies to a mix of residential, employment centers, and an activity core. The Climate Change Analysis included a greenhouse gas emission inventory (methane and nitrous oxides) for the existing cattle and hog farming. Greenhouse gas emissions from the proposed residential and commercial uses were also estimated and the net increase of emissions with project implementation was determined. Project specific thresholds were derived to determine the level of significance in regard to the project's impact on climate change as well as the impact of climate change to the project.

- **Colinas del Oro, Riverside County.** The project consists of residential and retail uses on steep slopes that would require substantial grading. Mitigation and project alternatives were proposed to reduce localized impacts during grading to less than significant at the nearest sensitive receptor.
- **940 Main Street Project, City of Half Moon Bay.** The project consists of subdividing the existing 1.83-acre parcel into 12 lots to allow for future residential development.
- **Merrill Gardens at Lafayette, Lafayette.** The project would include 72 independent/assisted living apartments, a 17-bed memory care facility, and approximately 6,000 square feet of retail.
- **Lugonia Avenue Housing, Housing Authority of San Bernardino.** The project consisted of 39 single-family residential units and 189 multi-family residential units.
- **Rancho Summit, Tentative Tract Map 18741, Rancho Cucamonga**. The project consists of the development of 53 residential lots on 40 acres.
- **Tentative Tract Map 18122, City of Rancho Cucamonga.** The project would allow the development of 76 single-family residences on 53 acres.
- **Rubidoux Affordable Housing, Mustang Lane, Plot Plan 24395, City of Jurupa Valley.** The project consists of a 22-unit low-income apartment development on 1.12 acres.

### Recreation Projects

- **Silverlakes Recreational Complex, Norco.** The project consists of a variety of multi-use recreational facilities including soccer fields, equestrian show-grounds, and/or a community event. Cori prepared air quality and greenhouse gas analyses for the project.
- **Bakersfield State Vehicular Recreational Area, County of Kern.** The air quality section in support of a DEIR was prepared for the project, which involves the construction and operation of a state vehicular recreational park. The park would be used for all-terrain vehicles, motorcycles, and 4-wheel drive vehicles operated on maintained trails and within fenced activity areas. The air quality analysis was conducted in accordance with San Joaquin Valley Air Pollution Control District methodology that estimated air quality impacts using a combination of modeling techniques: URBEMIS; U.S. EPA AP-42 emission factors; ISCST3; VISCREEN; and NONROAD.
- **Burris Basin Recreation Area, City of Anaheim.** The project consisted of a 14-acre passive recreation/nature park within an existing 116-acre ground water percolation basin/wildlife habitat area currently referred to as the Burris Basin. Cori prepared an Air Quality and Climate Change Analysis Report for the project.

## Climate Action Plans, General Plans, and Greenhouse Gas Inventories

**City of Palm Springs Greenhouse Gas Inventory.** MBA prepared a greenhouse gas inventory for the City of Palm Springs. Community and government business as usual emissions were estimated for the years 1990, 2000, 2005, 2008, 2012, 2020, and 2035. Compliance emissions were also estimated, which take into account greenhouse gas reductions from adherence of State regulations adopted under the authority of AB 32. The inventory utilizes ICLEI's Clean Air and Climate Protection Software as well as calculations prepared specifically for the City.

**City of Hesperia Climate Action Plan.** Cori managed and prepared a Climate Action Plan for the City. The Plan outlines a course of action for the City government and the community of Hesperia to reduce per capita greenhouse gas emissions 29 percent below business as usual by 2020. The Plan includes baseline and projected business as usual inventories for 2020 and General Plan buildout. The Plan provides strategies and implementation actions to achieve target reductions compared to business as usual scenarios, quantifies emission reductions anticipated from state and City of Hesperia measures and provides a monitoring program to track

progress, and includes a thorough discussion of climate change adaptation policies and measures to minimize the potential impacts of climate change on future development. The Plan received a Merit Award from the Association of Environmental Professionals in 2011.

**City of San Ramon Climate Action Plan.** Cori assisted on the preparation of a Climate Action Plan for the City of San Ramon. The Climate Action Plan is the City's primary strategy for ensuring that the buildout of the General Plan 2030 will not conflict with the implementation of Assembly Bill (AB) 32. The Climate Action Plan is designed to reduce community related and City operations related greenhouse gas emissions to a degree that would not hinder or delay implementation of AB 32. The purpose of the Climate Action Plan is to: outline a course of action for the City government and the community of San Ramon to reduce greenhouse gas emissions 15 percent below 2008 levels by the year 2020 and adapt to effects of climate change, and provide clear guidance to City staff regarding when and how to implement key provisions of the Climate Action Plan.

**City of San Ramon General Plan Update**. Cori prepared the air quality and greenhouse gas analysis for the General Plan Update EIR.

## Awards

**2011 Merit Award from the Association of Environmental Professionals** for the City of Hesperia Climate Action Plan.

## Professional Publications

**California Community-wide Greenhouse Gas Baseline Inventory Protocol White Paper, Association of Environmental Professionals (AEP).** Cori and Dave Mitchell prepared two sections in this paper. One section provides guidance on how to estimate greenhouse gas emissions from stationary and area sources and the other section provides guidance on how to estimate greenhouse gas emissions from purchased electricity. The paper was finalized in June 2011. Website: www.califaep.org/docs/WhitePaper_June2011.pdf

**California Emissions Estimator Model (CalEEMod) Beta Tester.** The South Coast Air Quality Management District requested that Cori beta test CalEEMod prior to its release in 2011. She prepared a memorandum to the District with recommendations for the model.

Wilson, C. **Climate Change Risks and CEQA.** Association of Environmental Professionals Environmental Monitor, Fall, 2009. The article provides suggestions on how climate change risks can be addressed in the context of CEQA.

Wilson, C. **Greenhouse Gas Threshold Development.** Association of Environmental Professionals Environmental Monitor, Summer, 2009. The article presents an update on the process of greenhouse gas threshold development by air districts, cities, and counties.

**Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents.** Cori was a primary author on this paper prepared on behalf of the California Association of Environmental Professionals. The paper outlined various approaches that a Lead Agency could take to address climate change and greenhouse gases in a CEQA document. The paper also contained a summary of climate change legislation, CEQA requirements, and mitigation to reduce impacts. The paper was finalized on June 29, 2007, and incorporated comments from the environmental sector and the building sector.

## Professional Presentations

**"City of Palm Springs Greenhouse Gas Inventory."** Cori presented at the City of Palm Springs 3rd Annual Sustainability Summit in November 2010. She discussed the basics of greenhouse gases and provided a summary of the results of the City's greenhouse gas inventory.

**"Clear Skies Ahead: Clearing the Smog about Air Quality Analysis."** Cori, Dave Mitchell, and Steve Smith presented at the Association of Environmental Professionals State Conference. The presentation described step by step how to answer the air quality questions contained in Appendix G of the CEQA guidelines.

**"A Planner's Guide to Air Quality Issues in Land Use Planning."** In 2006, Cori moderated and presented at the American Planning Association, California Chapter Conference, Orange County, California. The presentation focused on the California Air Resources Board's Air Quality and Land Use Handbook.

**"Global Climate Change, CEQA, and NEPA."** In 2007, by request of the California State Lands Commission, Cori Wilson presented on various topics, including climate change legislation and litigation and a multi-step approach for assessing climate change in National Environmental Policy Act (NEPA) documents.

**"A Change in the Air."** Cori discussed how to address climate change in CEQA documents at the Building Industry Show.

**"How to Analyze Greenhouse Gas Emissions and Determine Significance in CEQA Documents."** Cori presented for the Fresno Chapter of the Association of Environmental Professionals, January 17, 2008.

## Professional Affiliations

- Association of Environmental Professionals, California, 2005-2011
- Association of Environmental Professionals, Climate Change Committee, 2009-2011

CORPORATE
RESUME

# Kenneth J. Lord, Ph.D., RPA

**Director, Natural/Cultural Resources**

## Overview

- 30 Years Experience
- Doctorate degree, Archaeology – University of Texas, Austin
- Bachelor's degree, Anthropology – University of Pittsburgh

**Kenneth Lord** possesses over 30 years of professional experience in the areas of environmental consulting, cultural resources management, and environmental assessment of major transmission and development projects. He has managed multi-disciplinary teams preparing Environmental Impact Studies (EISs) and Environmental Impact Reports (EIRs) that have been used by the Federal Energy Regulatory Commission, US Army Corps of Engineers, and State of California agencies in licensing pipeline projects in California and the western United States. He has been involved in management of the construction/ environmental compliance monitoring associated with a variety of development projects.

Dr. Lord's experience encompasses the reconnaissance, feasibility, and environmental impact aspects of a variety of project types. He is knowledgeable about California's county environmental documentation procedures and regulations, as well as other federal and state environmental laws, regulations, and guidelines. He prepared and supervised the preparation of EIRs, EISs, and Biological Assessments in accordance with NEPA and CEQA rules and regulations.

## Relevant Project Experience

### Government Land Use Planning and Community Development

**Apple Valley Re-entry Facility, California Department of Corrections and Rehabilitations.** Biology and Cultural Resources lead for the preparation of the EIR and Environmental Compliance Program. The proposed SCRF site is located on San Bernardino County property adjacent to the West Valley Juvenile Detention and Assessment Center located approximately two miles north of Victorville on the east side of Interstate- 15. The federal regulatory agencies that had jurisdiction over this project in the realm of biological, regulatory and cultural resources concerns included the U.S. Department of the Army Corps of Engineers, and U.S. Fish and Wildlife Service. Biological, regulatory, and cultural resources reports have been completed for the project. Potential issues with loss of endangered species habitat and jurisdictional issues with the CDFG have been identified. Informal discussions with U.S. Fish and Wildlife and CDFG have occurred.

### Land Development

**Burns Ranch Project, Riverside County.** Served as Project Manager for the 64-acre Burns Ranch Project located in Riverside County, CA. This project included completion of both biological and cultural resources tasks in compliance with Riverside County regulations. A biological assessment of the property was completed by the MBA team. Cultural resources were identified on the property and MBA cultural resources specialists prepared a cultural resources testing plan for the project.

**Twin Creek Development, Riverside County.** Serving as Project Manager for the Twin Creeks Development in Western Riverside County, Dr. Lord and the MBA team are providing biological and regulatory support for this 680-acre development. The primary objective of the project is to provide the client with a Riverside County Biological Assessment, Jurisdictional Delineation as well as to assist the client with the Habitat Evaluation and Acquisition Negotiation. The MBA team has successfully completed these tasks and is now in the process of obtaining US. Army Corps of Engineers, California Department of Fish and Game and Regional Water Quality

Control Board permits.

**Juniper Flats Development, Riverside County.** Serving as Project Manager for the Juniper Flats Development Project in the Nuevo Area of Riverside County, Dr. Lord and the MBA team of biologists, regulatory staff, and cultural resources personnel provided a full biological assessment and completed HANS negotiations for this 413-acre project. The MBA team also completed cultural resources surveys including documentation to determine the significance of the site. The MBA regulatory staff is currently processing all required permits for the project.

### Water Projects

**Los Osos Wastewater Project EIR, County of San Luis Obispo.** Co-managed the preparation of technical appendices for natural and cultural resources and providing sections of an EIR for the construction and operation of a wastewater facilities project in the Community of Los Osos in San Luis Obispo County. The natural resources technical studies and the EIR section included natural resources, jurisdictional delineations, consultations on endangered species, and development of appropriate mitigation. These activities were performed by MBA staff. In addition, technical studies for archaeological, historical, architectural, and Native American concerns are being completed. These studies included detailed Native American consultation on a CEQA and federal level, as well as completion of Section 106 consultation. Finally, a Native American participation plan was completed to provide Native American and archaeological monitoring for the project.

### General City/County Consulting

**Mt. Olympus and Wilderness Gardens Preserves, County of San Diego Department of Parks and Recreation.** Project Manager of multi-disciplinary study of over 1,400 acres of Preserve lands within the North County Multiple Species Conservation Plan. Four different types of reports were prepared: yearlong biodiversity reports for Mt. Olympus and Wilderness Gardens, vegetation management reports for both preserves; cultural resources inventory reports for both preserves; and a public access plan for the Mt. Olympus Preserve. All reports will be utilized as the County prepares Resource Management Plans for the Preserves.

**Santa Ana River Trail, County of Riverside Parks, City of Corona, and City of Norco.** Project manager for the preparation of a joint EA/MND for the Santa Ana River Trail segment between Hidden Valley County Park and Prado Dam at SR 71. Primary activities include determining feasible routes through MSHCP lands and areas with substantial biological resources on U.S> Army Corps of Engineers lands.

### Phase I Cultural Resources

**Kona Road III Project Cultural Resources Survey, French Valley Area.** Project Manager for a Phase I cultural resources survey and paleontological review of a 4.65-acre property project located in the French Valley Area of unincorporated Riverside County, California, for John Laing Homes.

**Merrill Avenue Project Cultural Resources Assessment, City of Chino.** Project Manager for a Phase I cultural resources assessment and paleontological records review for the Albers and Van Vliet Dairy Farms, a project located in Chino, San Bernardino County, California for Watson Land Company.

### Biological Assessment

**Parsons – SR91/SR71 Interchange Improvement Project Natural Environment Study in the City of Corona, Riverside County.** Project manager of a Biological Assessment and Assessment of Jurisdiction Waters and Wetlands for the Caltrans sponsored SR91/SR71 Interchange Improvement under the direction of Parsons. This project entailed preparation of a Biological Assessment, Habitat Assessment and MSHCP Consistency Analysis, Natural Environment Study Report and Jurisdictional Waters Delineation Report.

## Professional Affiliations

- Association of Environmental Professionals

- Riverside County Certified Archaeologist #100
- Registered Professional Archaeologist #11821

CORPORATE
RESUME

# Michael H. Dice, MA, RPA

## Senior Cultural Resource Specialist/Project Manager

## Overview

- 25 years experience in Cultural Resource Management
- Master's degree, Anthropology – Arizona State University, Tempe. 1993
- Bachelor's degree, Anthropology – Washington State University, Pullman. 1986
- Registered Professional Archaeologist (RPA 2000)
- Certified Archaeologist in Riverside County (#101), County of Orange and the County of San Diego.

**Michael H. Dice, MA, RPA**, Senior Cultural Resource Specialist and Project Manager, has more than 25 years experience performing record searches, archaeological surveys, archaeological site testing projects, and data collection projects on private and public lands in the Southwestern United States. He has authored or co-authored more than 200 Cultural Resources Inventory Reports required for CEQA and/or NEPA level documents. His management experience within CRM involves producing proposals, hiring and managing field and office cultural resource personnel, writing draft and final reports to various Clients and Lead Agencies, and managing costs effectively. Michael has extensive experience with California Native American Tribes, having provided direct consultation and coordination with the Agua Caliente Band, Gabrielino tribal officials, Juaneño tribal officials, the Morongo Band, the Serrano Band, and the Temecula Band of Luiseno Indians (Pechanga).

## Relevant Project Experience

### Prehistoric and Historic Archaeology

**Cultural Resource Assessment of The Las Montanas Marketplace Project, City of Indio, CA. M-To Management, Inc., Los Alamitos, CA. (2010-2011).** Mr. Dice performed an archaeological survey of 95 acres in the northern section of the City of Indio in support of an EIR for a new private developmental project. The project area was believed, through museum research, to contain three prehistoric archaeological sites. MBA cultural resource staff provided the proponent with an exploratory testing study that will effectively clear the project of specific mitigation measures for the sites in question. Because one of the sites was determined significant within an adjacent project area, that sites had to be cleared from the project. Work was undertaken before the City accepted the Initial Study. Consultations with local Tribal Authorities took place.

**Cultural Resource Assessment of The Salton Sea Solar Project, Riverside County, CA. Reese-Chambers Systems Consultants Inc., Somis, CA. (2009-2010).** Mr. Dice performed an archaeological survey and protohistoric ceramic scatter assessment on approximately 480 acres just north of the Salton Sea in the County of Riverside. The purpose of the study was to evaluate seemingly vacant property as part of an analysis for potential impacts during construction of a new solar panel complex. Two sites were identified and will have to be Phase III collected prior to construction. Consultations with local Tribal Authorities took place.

**Phase 1 Cultural Resource Assessment of the Badlands Landfill and Lamb Canyon Landfill Expansion Projects, Riverside County, California. Riverside County Waste Management Department (2010).** Mr. Dice performed an archaeological survey on a total of 1600 acres adjacent to the existing Badlands Landfill and the Lamb Canyon Landfill in the County of Riverside. The purpose of the study was to evaluate adjacent property as part of an analysis for potential impacts during expansion of the Landfills. Several new resources were detected and recorded during the study. While RCWMD will not construct for several decades, the sites will be avoided when land development takes place in the site areas. Consultations with local Tribal Authorities took place.

**Cultural Resource Assessment of the Van Norman Dam and Chatsworth Dam Complexes. Los Angeles Department of Water and Power (2008-9).** Mr. Dice performed an archaeological survey and historic landscape

assessment of the Van Norman Dam complex plus the Chatsworth Dam in western Los Angeles County for the Los Angeles Department of Water and Power. For the first time, the history of the complex was detailed and Program-level recommendations for historic evaluations of these significant engineering complexes were made. LADWP plans to remove the upper Van Norman Dam and replace it with a newly designed covered Dam in order to reduce water supply pollutants. Soils on the floor of the Chatsworth Dam will be used for fill. The project was written under CEQA Guidelines because LADWP will not be using federal monies. Future work will involve Section 106 because certain permits will be required when the project reaches a Project-level analysis.

**Cultural Resource Assessment, Phase II Historical evaluation and Phase IV Monitoring for the Sketchers Industrial Park Project, City of Moreno Valley, California. Highland-Fairview Operating Partners (2004-2011).** Mr. Dice undertook a Phase 1 survey of the Sketchers property in addition to other properties controlled by the Client, headed a team of cultural professionals performing historic building evaluations, then headed up a field crew of monitors during the earth-moving phase of complex construction in 2010. Wholly seen through by Mr. Dice, several historic era buildings were examined. Consultations with local Tribal Authorities took place.

**Phase 2 Testing Evaluation of Historic Site CA-SBR-11567H, the Empire-Fontana Project (ACOE #200301127), City of Fontana, California (2005).** Mr. Dice undertook an evaluation of a historic archaeological site for the City of Fontana in order to gain permits for developmental impact from the Army Corps of Engineers. Several abandoned historic foundations, trash dumps, remnant buildings and a possible prehistoric isolated within the historic property were examined and quantified. The report was submitted and accepted by Mr. Steve Dibble of the Army Corps LA District.

**Phase 2 Testing and Phase 3 Excavation of the Loring Ranch Project, Rubidoux-Jurupa Area, County of Riverside, California. Mastercraft Homes, Inc. (2004).** Mr. Dice undertook an evaluation of two historic archaeological sites on vacant land located west of the Santa Ana River and southeast of the Flabob Airport. Cultural Resource Staff determined that two mid-1800's trash deposits were located on the property and tested the sites for significance. Because the sites were felt to reflect a period in history when Chinese immigrants were forced into limited economic means, the sites were determined to represents "truck farms" developed between 1870 and 1900.

### Historic Building and Landscape Assessments

**Section 106 Cultural Resource Assessment and Technical Evaluation of the McCoy and Garibaldi Laterals, Merced Irrigation District. Fremming, Parson & Pecchenino, Consulting Civil Engineers, Merced, CA. (2010).** Mr. Dice performed an archaeological survey and historic landscape assessment of two Laterals within the Merced Irrigation District in support of the District's plans to use federal funding (Bureau of Reclamation) to repair segments of the Laterals. Mr. Dice determined that the MID should be considered a potential Historic District for listing on the National Register. Modifications to the Laterals as a result of the undertaking will have No Adverse Effect to the potential Historic District that is the MID. Consultations with local Tribal Authorities took place.

**Three Historic Assessments of the Southside Park, the Del Paso Regional Park and the Chorley Park. City of Sacramento, California (2010).** Under contract with the City of Sacramento Parks and Recreation Department, Mr. Dice produced three technical studies in order to fulfill Section 106 requirements. The Department requested these studies because the Department requires Recreation Trails and Land and Water Conservation funding programs. Each park exhibited a landscape more than 50 years old, and certain older internal structures, that allowed each Park to be considered potentially eligible for the National Register at the local level of analysis. We determined that the Southside Park and the Del Paso Park are potentially eligible for the NR but that the specific projects would have no impact on their eligibility qualities. The Chorley Park was determined not significant. Consultations with local Tribal Authorities took place.

**Historic Building Evaluation of the San Gorgonio Inn, City of Banning, CA. (2010).** Mr. Dice evaluated a historic-era structure originally built in 1884 and rebuilt in 1930 for significance at the State (CEQA) level of analysis. The

City proposed to demolish the structure and the report supported an EIR written by Ernest Perea of Romo Planning Group Inc., Covina. Mr. Dice performed a historic background assessment and developed a thematic context with which the structure could be evaluated against. The results of this research showed that the building did not qualify for listed on the National or State Register, but that the location of the Inn was considered locally significant. This was not a popular decision, especially with Steve Lech, but the research showed that the results were justified. After reading the report, the City chose to attempt to preserve Googie-styled signage off-site.

**Historic Building Evaluation of the F&M Artesia Branch Bank, City of Long Beach, CA. (2009).** Mr. Dice evaluated a structure built in 1961 for significance at the State (CEQA) and City of Long Beach Historic Property level of analysis. The City had proposed to demolish the structure complex and the technical report supports an IS/MND written in City Format for the proponent, Jeffrey Tartaglino of Palm Desert Development. Mr. Dice performed a historic background assessment and developed a thematic context with which the structure could be evaluated against. Because the structure was found significant at the local level of analysis, the City required a photographic assay of the building: this was incorporated into the finished document.

**Historic Building Evaluation of the Premiere Lanes Bowling Alley, City of Santa Fe Springs, CA. (2009).** Mr. Dice evaluated a structure built in 1960-61 for significance at the State (CEQA) level of analysis. The City had proposed to demolish the structure complex and our technical report supported an EIR written by Sandra Bauer of Bauer Consulting Inc., Irvine. Mr. Dice performed a historic background assessment and developed a thematic context with which the structure could be evaluated against. The City will allow the removal of the building through demolition but save Googie-styled signage associated with the structure.

**Historic Building Survey, Washington Boulevard and Consolidated Redevelopment Projects, City of Santa Fe Springs, CA.** Mr. Dice conducted a historic building survey for two redevelopment project areas located in the City of Santa Fe Springs, County of Los Angeles. The Washington Boulevard Redevelopment project area is located in the City of Santa Fe Springs' side of Washington Boulevard, and is bisected by Sorensen Avenue. The purpose of the study was to identify those properties more than 45 years old that may be demolished during planned Redevelopment in the next 25 years. The Consolidated Redevelopment Project Area is located near Gateway Plaza at the intersection of Telegraph Road and Painter Avenue west of Carmenita Road. A program-level historic context was developed and existing properties preliminarily assessed against that historic context. The results showed that more 140 individual properties more than 45 years old were located in and near the Redevelopment project area. The evaluation of the historic context and existing properties will allow the City, for the first time, to recommend that the significance of old buildings be considered when undertaking redevelopment in the City limits.

**Historic Resource Assessment and Phase II Recommendation for the Alfa Leisure Property, City of Chino, CA.** This study was a CEQA and NEPA-compliant assessment of the old Chino Sugar Mill, including an historic building survey and photographic assay. The Mill building housed one of the first commercial ventures in the City, opening in the 1880's. The results of the study showed that the structure was a locally significant structure but could not be saved within a reasonable monetary expenditure as the structure was completely unstable from an earthquake standpoint. Mr. Dice recommended that a photographic assay and additional historic analysis be undertaken before the structure would be allowed to be demolished.

## Professional Affiliations

- Member, California Historical Society
- Member, National Trust for Historic Preservation
- Member, Registry of Professional Archaeologists

CORPORATE
RESUME

# Scott Crawford, MA

## Section Manager of Natural Resources

## Overview

- 18 Years Experience
- Master's degree, Biological Science – California State University, Fullerton
- Bachelor's degree, Environmental Biology – California State University, Northridge

**Scott Crawford, MA**, senior biologist, has over 18 years experience conducting herpetological, mammalian and avian surveys and ten years experience preparing jurisdictional delineation for regulatory permits. Scott's expertise includes conducting focused surveys for sensitive wildlife species including fairy shrimp, California gnatcatcher, Red-Legged Frog, Arroyo Toad, Least Bell's Vireo, Western Spadefoot, Western Pond Turtle and Burrowing Owl. He is also well versed in documenting biological resources and drainage systems using Geographic Information Systems.

## Related Experience

### Trails and Recreation Projects

**San Diego County Parks.** Conducted biodiversity baseline surveys to document all the flora and fauna on two potential county parks, each of which were over 700 acres. Wildlife surveys included pitfall traps for reptiles and insects, funnel traps for snakes, small mammal trapping through the use of Sherman live traps, remotely operated cameras to detect nocturnal wildlife, scent stations to track mammals, conducting avian and botanical surveys, and installing bat detection equipment to record bat calls for specie identification analysis.

**Wildlife Movement Corridor Study, Los Angeles and Orange Counties.** Conducted a year-long study of wildlife movement within the Tonner Canyon property in the Los Angeles and Orange Counties. Surveys included spot counts for birds, scent stations for tracks, and photo stations for active wildlife movement photographs. The survey was conducted for a 5-day period once a month for an entire year.

**Quail Lake Spring Surveys Project.** Conducted spring surveys for a proposed project with SEA #58 south of Quail Lake. Prepared the final Constraints analysis for submittal to the SEATAC for review and recommendation. Coordinated project design to reduce amount of potentially significant impacts. (2002-2005)

**Southwestern Pond Turtle Trapping/Telemetry, Los Angeles County Department of Public Works.** Assisted in trapping southwestern pond turtles in the San Gabriel water shed prior to the sluicing of Morris Dam. A total of twelve turtles were captured, processed, fitted with a radio telemetry transmitter, and relocated in the upper west fork of the San Gabriel River. Turtles were then monitored bi-monthly for movement and recaptured to determine health and status of each individual.

### Commercial and Industrial Projects

**Rose Hills Cemetery Biological Resources Assessment.** Conducted a biological resources assessment to document the existing conditions within the proposed expansion and maintenance areas that required site disturbance. Suitable gnatcatcher habitat and drainage feature were documented within the Project Site.

**J. Edwards Company Biological Resources Assessment, City of Corona.** Conducted a biological resources assessment for a 120-acre parcel within the sphere of influence of the City of Corona at the base of the Cleveland

National Forest. Suitable habitat was observed for California gnatcatcher. A single red-diamond rattlesnake, a California species of special concern, was identified onsite.

**California Gnatcatcher Focused Surveys, Citrus Valley Health Partners, City of Diamond Bar.** Conducted a focused survey for California Gnatcatchers for a proposed commercial development. Suitable habitat was observed and focused surveys were conducted. No Gnatcatchers were observed during the surveys.

### Energy Projects

**Lake Elsinore Advance Pump Storage (LEAPS), Lake Elsinore and Surrounding Areas.** Conducted biological resources assessment and focused species surveys for thirty-seven miles of proposed transmission lines for the LEAPS project near Lake Elsinore and surrounding areas. Surveys included general reconnaissance-level surveys as well as focused surveys for Quino checkerspot butterfly, California gnatcatcher, least bell's vireo, arroyo toad, red-legged frog, spotted owl, and sensitive plants. Also participated in informal consultation with USFWS, USFS, and CDFG.

### General Plan Updates

**General Plan Update Biological Resources Document, City of Perris.** Prepared the biological resources section, conducted a complete survey and evaluation of all property within the City limits.

**General Plan Update Biological Resources Document, City of Rancho Santa Margarita.** Prepared the biological resources section, conducted a complete survey and evaluation of all property within the City limits.

**Subarea 2 General Plan Biological Resources Document, City of Chino.** Assisted in the preparation of the biological resources section, conducted a complete vegetation map and jurisdictional delineation over the entire General Plan area.

### Residential and Mixed Use Projects

**Green Park Ranch Wetlands Delineation, City of Simi Valley.** Conducted a wetland delineation on a 1600-acre site in the City of Simi Valley. The survey was conducted to delineate the jurisdictional limits of United States Army Corps of Engineers waters of the U.S. and California Department of Fish and Game waters of the state. Assisted in preparing the Runkle Canyon Specific Plan and reviewed the EIR prepared by Impact Sciences. Participated in public hearings and coordination with City Staff to reduce environmental impacts.

## Professional Affiliations

- Association of Environmental Professionals
- Building Industry Associate (BIA)

## Research and Publications

**Masters Thesis, Social Behavior of the Zebra-tailed Lizard, California State University, Fullerton.** Was responsible for the creation of an independent thesis study. The study was done on the zebra-tailed lizard, which lives in a desert wash community. This study will help in the conservation of this lizard in the event of massive habitat destruction due to off-road vehicles.

CORPORATE
RESUME

# Thomas F. Holm, AICP

## Director, Environmental Services

## Overview

- 30 Years Experience
- Master's degree, Urban Planning – University of California, Los Angeles
- Bachelor's degree, Political Science – University of California, Irvine

**Thomas F. Holm, MURP, AICP**, is MBA's Director of Environmental Services. Tom offers more than 30 years of diverse planning and environmental experience on a variety of environmental, natural resource, and regulatory compliance projects. Since joining MBA in 1997, he has been actively involved in broad-based NEPA and CEQA-related projects throughout Southern and Central California including large master-planned communities, major public works and infrastructure, transportation corridors, water resources, and coastal projects. He oversees operations of the firm's Air Quality/Noise discipline group and provides quality control and assurance to major CEQA and NEPA efforts.

A former City Planning Commissioner and Transportation/Traffic Commissioner, he has also served as Legislative Liaison and Board Member of the Orange County Chapter of the American Planning Association, and Board member of the Natural History Foundation of Orange County.

## Related Experience

### Master Planning

**City of Chino "The Preserve" Master Plan Program, Chino, CA.** Served as project director for the City of Chino Sub-area 2 Master Plan program for 5,400 acres currently in the Chino Valley Dairy Preserve. The project includes a General Plan Amendment, Master Plan/Policy-Level Specific Plan, Program EIR, market, fiscal and financial studies, GIS applications, and support for annexation to the City. Significant influences include the Prado Dam high water inundation line, Chino Municipal Airport and various surrounding institutional uses. Significant issues include regional transportation linkages, ties to the rural heritage of Chino, sensitive habitats and recreational opportunities within the Prado Basin, agricultural lands conversion, dairy waste management and water quality, and financing major infrastructure.

**City of Chino Sub-Area 1 Sphere of Influence/ Annexation Program, Chino, CA.** Master Environmental Baseline Report and Opportunities and Constraints Studies for the City of Chino Sub-area 1 Sphere of Influence/Annexation Program. Managed preparation of these studies which included preparation of GIS data layers, public workshops and interagency coordination. The program involved proposed multiphase annexation and GPAs for 1,800 acres of dairy lands and recreational open space influenced by the Prado Dam high water inundation area and Chino Airport.

**Rio Mesa Area Plan and Program EIR, Madera County, CA.** Served as principal-in-charge for a 15,000-acre master planned community along the San Joaquin River in Madera County, California. The Plan included approximately 30,000 residential units, over 500 acres of Commercial/Industrial and Mixed-Use Core areas, and an overlay for a future University of California campus site. Over 30 percent of the site were proposed for retention in agriculture/open space. Issues included traffic and circulation, public services and utilities, water consumption, agricultural land conversion, growth and cumulative effects, air resources and biological resources.

**Aliso Viejo Greenbelt Management Program, Orange County, CA.** Member of original design team for the Aliso Viejo Planned Community and Greenbelt Management Program, leading to establishment of the Aliso/Wood Canyon Wilderness Park in South Orange County, California. Participated in all phases of concept design, plan preparation, greenbelt management studies, Feature Plan and Program EIR preparation, local coastal program development, urban runoff management plan to preserve Aliso Creek, and community theme/design studies. The Aliso Viejo Planned Community includes over 6,600 acres and is built out at a population of 60,000.

**Salvation Army Master Plan, City of Rancho Palos Verdes, CA.** Managed a Program EIR for the proposed Salvation Army 15-year Master Plan, encompassing a campus of 42 acres and proposed education/conference center in Los Angeles County. Specific issues included height and visual impacts of the proposed education/conference center, costal resources, traffic circulation, sensitive species, and cumulative effects on water supplies, fire services and air quality.

**Gunner Ranch Area Plan and Program EIR, Madera County, CA.** Prepared a tiered EIR for a Phase I Children's Hospital and long range buildout of a surrounding 1,300-acre mixed use commercial and residential center adjacent Highway 41 and the San Joaquin River in Southeast Madera County, California. The proposed hospital relocation and expansion was in response to a critical need for the expanded pediatric care services to meet current and projected Central Valley regional needs. The comprehensive EIR addressed agricultural land conversion, vernal pools and water resources, public services and utility extensions, growth and cumulative effects issues, and included extensive alternative analysis.

**Rich Haven Specific Plan EIR, City of Ontario, CA.** Currently managing preparation of this tiered EIR for up to 4,200 residential units and regional commercial center with mixed-use overlay within the New Model Colony, Ontario, CA.

**North Shore at Millerton Lake EIR, Madera County, CA.** Project director for tiered EIR for this 2,238-acre development in the North Fork Village area of the Rio Mesa Area Plan (RMAP). The specific plan includes 1,459 acres of residential (rural to high density), 160 acres of mixed-use and non-residential, 538 acres of open space, and 81 acres for public use area (i.e., parks and preserves). Based on the proposed densities, up to 2,966 dwelling units would be built. Issues include visual and drainage impacts of hillside development upon adjacent Lake Millerton State Recreational Area, and impacts on biological resources, traffic, air quality, and public services.

**Heritage Oaks Specific Plan, City of Calimesa, CA.** Directed preparation of specific plan and IS/MND for 54-unit country and equestrian estates project within environmentally sensitive oak woodlands and arroyos.

**Liberty Groves Specific Plan EIR, Madera County, CA.** Environmental Principal/Project Director for this 1,320-acre master planned community proposing over 7,000 residential units, mixed-use core, business park and open space/park system on agricultural lands in the southeastern portion of the County. Significant issues for resolution through the environmental review include transportation/traffic, water supply, agricultural land conversion, schools and extension of other services/utilities.

### Transportation

**Los Angeles International Airport Expansion Technical Review, County of Los Angeles, CA s.** Project manager and part of the technical review team in assisting to provide assessment and analyses regarding the adequacy of the draft EIS/EIR for the proposed expansion of the Los Angeles International Airport (LAX). The issues of concern include: capacity of other airports to meet demand, is the simulation model for capacity reasonable, thoroughness of traffic assessment and environmental justice, thoroughness of air quality assessment, thoroughness of noise assessment and environmental justice, equal assessment of impacts on unincorporated vs. incorporated areas.

**Harbor Boulevard SMART STREET Feasibility and Environmental Documentation Project, Orange County, CA.** Served as environmental manager for the Harbor Boulevard SMART STREET Feasibility and Environmental

Documentation project. Environmental documentation includes a Preliminary Environmental Assessment Report (PEAR) and CEQA/NEPA clearances for 7.7 miles of urban arterial improvements in the cities of Garden Grove, Anaheim, Santa Ana, and Fountain Valley. Project includes an extensive public participation and interagency coordination program.

**State Route 91 Improvements Study Environmental Assessment, Orange and Riverside Counties, CA.** Directed preparation of the EA along a 24-mile segment of this corridor through Orange and Riverside Counties. Primary alternatives involved the addition of multiple high occupancy vehicle (HOV) lanes and support facilities, such as park-and-ride lots, ramp metering and a Transportation Management Plan (TMP).

**Cook Street at Interstate 10 Interchange Environmental Assessment, City of Palm Desert, CA.** Prepared an expanded NEPA EA that evaluated the environmental effects of a new connection to I-10 at the planned northerly extension of Cook Street in the City of Palm Desert. The study of the proposed interchange was initiated at the request if the City of Palm Desert and the County of Riverside. Coordination and consultation with these agencies, as well as Caltrans, Districts 8 and 12 FHWA and USFWS was required.

**Eastern Transportation Corridor Route Location Study Master Environmental Baseline and EIR, Orange County, CA.** Served as project director on the Eastern Transportation Corridor Route Location Study Master Environmental Baseline and EIR in Orange County, California. Supervised baseline studies within a 23-square-mile area and EIR preparation for this new state route linking SR91 with I-5 in Orange County. The EIR was prepared as a Tier I EIS for subsequent NEPA clearance. An extensive public participation and technical advisory program were key elements of this study.

**Ford Road Realignment/Extension EIR; Newport Beach and Irvine, CA.** Directed preparation of an Alternatives Analysis and EIR for the extension/realignment of the Ford Road arterial between MacArthur Boulevard and the proposed San Joaquin Hills Transportation Corridor (SJHTC) in the cities of Newport Beach and Irvine. The Ford Road Extension and Realignment Project, is itself a mitigation for noise impacts and traffic loading onto streets anticipated from implementation of the corridor. Specific issues included disruption of natural habitat and biological resources, drainage, archeology, views, noise, air quality, and traffic impacts.

**Bastanchury Road Alignment/Extension EIR; Yorba Linda, CA.** Managed EIR preparation for the Bastanchury Road Alignment/Extension in Yorba Linda, California. Environmental issues included habitat loss, conflicts with oil field operations, landform alteration /views and noise impacts to established residential areas.

**Santa Monica Neighborhood Traffic Control Plan EIRs.** Prepared two separate Focused EIRs and alternatives analyses for roadway improvements, traffic diversion/closures, parking and traffic control measures in sectors of the City of Santa Monica, encompassing Santa Monica Airport, Santa Monica City College, businesses along Lincoln and Santa Monica Boulevards, and adjacent neighborhoods. The traffic component of the EIRs included analysis of over 60 intersections within an outside the City.

**Road Widening EIRs, Cities of Anaheim and Costa Mesa, CA.** Project director for Santa Ana Canyon Road Widening EIR in the City of Anaheim, California, and for the Victoria Street Widening EIR in the City of Costa Mesa, California. Both projects involved right-of-way acquisition, noise, air quality, and visual/aesthetic impacts. The Victoria Street project involved significant residential displacements and public participation.

**California High Speed Rail Project Third Party Technical Review, Southern and Northern California.** Serving as project manager to provide third party, technical review of the DEIR/S for the California High Speed Rail Project involved the preparation of a Master EIR/EIS document for a high-speed rail line that would extend from southern to northern California. The MBA team is providing an intensive review of the Program EIR/S and supporting documents during the draft environmental document (DED) public review period. The primary objective is scrutiny of all available environmental, socioeconomic and engineering data, analysis and conclusions provided in

the DED having a bearing upon the identification of a preferred or environmentally superior alternative alignment for the train through the project area.

### Residential Development

**Vista Verde and Alderwood Residential Project EIRs, Irvine, CA.** Managed two EIRs for single-family residential developments on former school sites proposed by William Lyon Homes and the Irvine Unified School District for conversion. The Vista Verde Project in University Park (PA 20) proposes to develop the former Vista Verde Elementary School site with up to 66 detached single-family homes on approximately 8.47 gross acres. The Alderwood Project in Woodbridge (PA 15) on the site of the former Alderwood Basics Plus Elementary School seeks approvals to develop the site with up to 48 detached single-family homes on approximately 6.2 gross acres. Significant issues for resolution through the EIR process with both of these infill projects included Land Use and Planning, Aesthetics/Views, Tree Removal, Neighborhood Traffic patterns and access, Noise/Vibration and Parks and Recreation.

**Park View at Town and Country Manor, Santa Ana, CA.** Managed an EIR for an 11-story high rise with subterranean parking to support 174 independent living units. The proposed Project will add to the number of independent living units within the existing campus for Town & Country Manor. The Project will be a regulated residential care facility for the elderly. The 8.3-acre site is located near Santa Ana's downtown business district east of Main Street and across from Santiago Park. A zone change to a Specific Development zoning designation and a General Plan Amendment to the District Center land use designation will be required.

**Metropolis Residential Project, Irvine, CA.** Supervised preparation of a project EIR and subsequent Addendum to the *Irvine Business Complex Vision Plan and Mixed Use Overlay Zoning Code Program EIR* for this proposed mid-rise residential project with ground floor commercial/retail within the Irvine Business Complex. The project includes 457 high-density residences with 89 density bonus units for very low-income households in an area originally containing high-rise offices as well as industrial and support businesses. Applications for a Conditional Use Permit for Transfer of Development Rights (TDR), Tentative Tract Map, and Park Plan were also under consideration. The site consisted of two parcels of land totaling 7.34 acres, to be subdivided for residential units, ancillary retail, supporting parking and recreational areas.

**Residential Housing EIR, Lake Arrowhead, CA**. Project manager to prepare an Environmental Impact Report (EIR) for a proposed residential housing development on a prominent ridgeline and forest hillside site in the community of Lake Arrowhead. The applicant seeks approval for development of fifty-eight single-family residential lots and four lettered common lots for roads and open space on 39.8 acres, with a Conditional Use Permit application to request approval for a 20-foot high, 500,000-gallon concrete water reservoir (partially buried in the ground). County determined that the following concerns needed to be addressed in the EIR: evaluation of alternative development concepts (PD), aesthetics, biological resources, grading/landform alteration, water resources, soil erosion, land use and planning; fire safety and mandatory findings of significance. Also of concern is the federally listed Southern Rubber Boa and issues regarding the preservation of this species and its forest habitat.

**Driftwood Estates EIR, Laguna Beach, CA.** Principal-in-charge for a 228-acre hillside subdivision EIR in the City of Laguna Beach. The required approvals for the project include a master tentative tract map, indirect access variance, and a Zoning Ordinance variance from the City of Laguna Beach and a coastal development permit from the California Coastal Commission. The primary issues addressed in the EIR included geology and soils, hydrology/water, biological resources, traffic and circulation, air quality, noise, and aesthetics. The project required extensive coordination with the City of Laguna Beach, California Coastal Commission, California Department of Fish and Game, County of Orange, and the public.

**Andalucia Mission Viejo.** Supervised preparation of an expanded Initial Study/Proposed MND for the Andalucia Apartment Project on a 7.12-acre site adjacent Oso Parkway and the Mission Viejo Country Club in the City of

Mission Viejo. The environmental documentation tiers from a prior GPA/ZC MND on multiple potential affordable housing sites in the City by addressing the environmental effects at this site at a project-level of environmental review. The Project proposes a maximum of 256 units in 3- and 4-story buildings, reflecting a density bonus for affordable units of up to 25% to the base zoning yield. A Streambed Alteration Agreement (SAA) for Oso Creek bank stabilization, restoration and enhancement activities within the project is also proposed.

**Los Alisos Townhomes, Mission Viejo, CA.** Supervised preparation of an Initial Study/MND for a 275-unit infill townhome project with affordable component. Project was adjacent existing residential and retirement neighborhoods, and required GPA/rezone and demolition of existing large-box commercial retail building.

**Capistrano Hillside Residential Project, Dana Point, CA.** Managed a Mitigated Negative Declaration for the development of a vacant 2.0-acre hillside infill parcel proposed to includesingle-family dwellings, a private access road, and several retaining walls as high as 20 feet on a steeply sloping lot, in the Capistrano Beach district of the City of Dana Point.

**Oak Street and Jefferson Street Townhomes, Torrance, CA.** Prepared Initial Studies and Mitigated Negative Declarations for multiple townhome residential projects on industrial Brownfields sites. Projects included senior and market-rate condominiums and townhomes. Issues included hazardous materials/soil contamination and remediation, traffic, noise and air quality, and land use transition and compatibility.

**Pine Valley Estates at Western Hills, Chino Hills, CA.** Project director for EIR evaluating a gated community of 98 single-family homes on 192 acres of hillside property overlooking Western Hills Country Club. Significant issues included traffic and circulation, construction phase air quality, visual impact, geologic hazards, hydrology/water quality, biological resources and wetlands.

**Stonefield Residential Development, Chino Hills, CA.** Supervised an Environmental Impact Report for a gated residential development (TTM 18393) on hillside property overlooking the Western Hills Country Club, including 26 single family residential lots on approximately 35 acres surrounded by residential and commercial-recreation development. Issues for analysis and resolution through the City's EIR process included impacts to jurisdictional waters and riparian vegetation; topography/landform alteration; views: vehicular access, safety and ingress/egress via Carbon Canyon Road (SR 142).

**Multiple Tentative Tract EIRs, Lancaster, CA.** Directed preparation of two EIRs for three proposed Tentative Tracts (TTMs 62757, 062332, 062604) totaling 1,500 single family units in the City of Lancaster, in the Antelope Valley. Royal Investors Group, LLC seeks approval of GPA, zone changes, and tentative maps to allow development of three sites encompassing 328 acres west of SR-14. Significant issues included urban form, infrastructure extensions (roads, water, sewer) and adequate water supplies.

### Commercial Projects

**Hanover-Katella Office Park, Anaheim, CA.** Managed preparation of the Hanover-Katella Office Park EIR in Anaheim, California. Near Anaheim Stadium, this development proposed 2.0 million square feet of new commercial office space in multiple high-rise buildings, with supporting commercial retail integrated in the project design.

**Arena/Events Center, Santa Ana, CA.** Managed preparation of an EIR for a 20,000-seat arena/events center near State Route 55 in Santa Ana, California. The project involved extensive interagency consultation and coordination, and analysis of locally and regionally significant effects-including transportation/circulation, air quality, noise, land use, displacement/relocation, services and utilities, and population and employment.

**Home Depot Retail Center Specific Plan, Town of Yucca Valley, CA.** Supervised preparation of specific plan for 378,000 square-foot Home Depot, with satellite retail buildings. Issues involved Joshua tree displacement and relocation, drainage and water quality, traffic, signage and lighting, and provisions for infrastructure.

**South Coast Home Furnishings Center, Costa Mesa, CA.** Supervised expanded Initial Study/MND for 312,500 square-foot commercial center on 21-acre parcel adjacent I-405. Project included full service furniture stores, show rooms, specialized home furnishings and food service facilities. Project required demolition of existing State Farm Insurance Headquarters and reflects a transition from business park uses to commercial retail uses. Significant issues included traffic and air quality.

**Seaport Village Expansion EIR, Unified Port District of San Diego.** Served as principal-in-charge of EIR addressing major commercial/tourist center, specialty shops, and restaurants. Significant issues resolved or mitigated through the EIR included traffic/circulation/access, parking, views, land use, and historic resources (adaptive reuse).

### Community Planning

**Kings County General Plan Elements.** Managed preparation of the Air Quality, Resource Conservation and Open Space Elements. To support the General Plan update, also prepared an *Agricultural Land Conversion study*. This study involved inventorying and mapping agricultural properties Countywide that are sensitive to growth effects or growth-inducing effects by virtue of proximity to pending or probable future development. The study establishes an economic framework for estimating potential agricultural value losses resulting from conversions, and recommends mitigation strategies to assure a sustainable agricultural base for the County.

**City of Fountain Valley General Plan Update.** Served as principal-in-charge for the City of Fountain Valley General Plan Update, including finalization of the General Plan and Master EIR. The process included extensive community participation in development of the seven mandated Plan Elements, plus optional Air Quality and Growth Management elements.

**City of Stanton General Plan Update.** Served as a group leader/facilitator in the innovative Community Policy Conference leading up to General Plan preparation. Assisted with preparation of the City of Stanton General Plan Update, including responsibility for the Economic Development, Redevelopment, Community Design, and Conservation and Parks, Recreation and Open Space elements, and Master EIR.

### Industrial Projects

**Highland Fairview Corporate Park, Moreno Valley, CA.** Managed preparation of a full scope project EIR for the multiphase buildout of a new 2.6 million square foot transportation logistics center ('Skechers') located along State Route 60 at Redlands Boulevard in Moreno Valley. Significant issues included traffic, air quality/health risk, global climate change/greenhouse gas emissions, noise, aesthetics/views, land use and planning, hazards, water resources (hydrology, water quality, water supply), and cumulative effects.

**Pacific Rail Metal Shredder EIR, City of Colton, CA.** Principal-in-charge for controversial scrap metal and auto body shredding facility EIR adjacent UPRR rail lines. Issues included hazardous materials, air quality/air toxics, noise, traffic, surface and groundwater hydrology, and water quality.

**Bellflower Oil Field EIR, City of Long Beach, CA.** Project manager for EIR evaluating impacts of crude oil and gas exploratory drilling and well production within an oil field adjacent LADWP's Haynes Steam Power Plant in Long Beach, and Rossmoor Leisure World community in Seal Beach.

## Professional Affiliations

- American Institute of Certified Planners
- American Planning Association, Chapter Legislative Liaison
- Association of Environmental Professionals
- Natural History Foundation of Orange County

- Planning and Transportation Commission, City of Mission Viejo

CORPORATE
RESUME

# Vincent Mirabella, M.S.

**Senior Air Quality Scientist**

## Overview

- 30 Years Experience
- Master's degree, Meteorology – Pennsylvania State University
- Bachelor's degree, Meteorology – Florida State University

**Vince Mirabella** offers considerable experience consisting of diverse public and private-sector scientific experience, spanning over three decades. This includes the design and management of major air quality research projects dealing with air quality model development application and analysis and the preparation of technical studies in support of CEQA documents. These projects have included the first application of a comprehensive urban photochemical grid model to examine the impacts of power plant emissions in the South Coast Air Basin, characterization of emission dispersion in complex terrain, identify, quantification of visibility impairment in the Grand Canyon, and the application of various emission inventory and dispersion models in health risk and traffic impact assessments. His experience also involves development of emission inventories and meteorological data necessary to drive dispersion models, legislative review, regulatory peer review, CEQA compliance determinations, and expert testimony.

## Recent Project Experience

### Air Quality and Health Risk Studies in Support of CEQA Documents

**Emission Inventory Development.** Applies various emission estimation tools to derive criteria, toxic air contaminant, and greenhouse gas emissions for short-term construction and long-term operations for use in air dispersion models. These estimation tools include the CARB URBEMIS and EMFAC models, the SCAQMD CalEEMod model, and the USEPA AP42 methods. Sources of emissions include mobile source gasoline and diesel powered vehicles, standby emergency generators, gasoline dispensing stations, parking lots, dry cleaning establishments, restaurants, and rail lines. The types of projects requiring such information have included large warehouses, gas turbine peaker facilities, large industrial projects, mixed use residential-commercial, large retail outlets, and residential projects.

**Air Dispersion and Health Risk Model Applications.** Applies a wide variety of air quality models in developing assessments for both criteria pollutants and toxic air contaminants. Such models include the Industrial Source Complex Model, AERMOD Model, HARP air toxic model for health risk assessments, and the CALINE4 traffic intersection model. The results from these air dispersion models are then compared to the significance thresholds and ambient air quality standards established by various regulatory agencies to assess the significance of project impacts. Such applications involve a close relationship with the staffs of the regulatory agencies to insure that the applications are most appropriate to the specific project.

**CEQA Analyses.** Applies the results of the emission inventory and air dispersion model technical studies in determining compliance with the CEQA checklist for air quality and in particular the various significance threshold levels. Such compliance determinations require the Identification of potential mitigation measures to minimize project construction and operational emissions as part of the CEQA compliance process.

### Recent Projects

- 1 million + square-foot warehouse projects in Perris, Banning, Barstow, San Bernardino, Riverside, Chino, Manteca, and Moreno Valley, CA

- Big-box commercial retail centers in Bakersfield, Wildomar, Oakley, Paradise, Highland, Wasco, Rocklin, Fresno, Visalia, Selma, Yucaipa, Murrieta, Del Norte, and Clovis, CA
- Industrial projects in Colton, West Sacramento, Fresno, Volta, CA
- Mixed use residential and commercial projects in Riverside, San Jacinto, Rialto, Corona, CA
- Residential projects in Fontana, Big Bear, Redlands, San Bernardino, Orange, Martinez, CA

### Air Quality Model Development

**Windfield Modeling Techniques.** Developed a number of modeling techniques used to generate three-dimensional windfields that are used to drive photochemical airshed grid models and point source models in both urban and complex terrain mountain environments. These same wind models have been used to derive the optimum placement of wind energy systems in such areas as Palm Springs.

**Lagrangian Models.** Developed one of precursor point source photochemical lagrangian models used to quantify the impacts of NOx and ROG emissions from point sources on ozone and fine particulate matter concentrations in the atmosphere.

**Photochemical Airshed Application.** Coordinated the first urban photochemical airshed application to examine the impacts of emissions from power plants in the South Coast Air Basin on ambient ozone and $NO_2$ levels.

**Aerosol and Acid Rain Models.** Coordinated a number of basic research studies involving the development of aerosol and acid rain models and enhancing the accuracy of numerical techniques used in grid modeling.

**Nested Grid Models.** Developed one of the first "nested" grid models which allowed a detailed examination of individual large emission sources within the context of an urban grid scale model application Gaussian Dispersion Models. Developed several methods for applying Gaussian dispersion models in the siting of power plants in the western US

**City of Melbourne Urban Air Quality Study, Australia.** Was responsible for the on-site management of a multi-year million dollar urban air quality. The study involved the generation of a comprehensive multispecies emission inventory for the entire metropolitan area of three million people including point sources and area sources, the design of a comprehensive monitoring network to measure various air pollutant constituents across the metropolitan area, development of models for forecasting ozone levels in the metropolitan area, model applications to calculate three-dimensional wind fields for air quality model usage, conduct of a tracer study to document the impact of large emission source in the metropolitan area, development of a photochemical trajectory model to examine sources of pollution in the metropolitan area, report preparation and every day interfacing with the State of Victoria Environment Protection Agency.

**South Coast Air Basin Photochemical Airshed Model.** Application of a photochemical airshed model to the South Coast Air Basin to examine the effects of large scale changes in albedo (ie., "whitening" roofs to reduce the urban heat island and slow down the atmospheric chemistry of ozone)

### Air Quality Data Analysis

**Ozone, CO and NO2 Pattern Study.** One of the first studies to examine the weekday-weekend patterns of ozone, CO, and $NO_2$ in the South Coast Air Basin and attribute emission source contributions using emission and ambient pollutant concentration ratios

**Grand Canyon Visibility Impairment.** Performed a comprehensive evaluation of aerosol and visibility data to assess the relative influences of emission sources on the visibility impairment at the Grand Canyon

## Professional Publications and Presentations and Awards

**Management Achievement Award**: Southern California Edison
**Technology Transfer Achievement Award**: Electric Power Research Institute
**Relating Summer Ambient Particulate Sulfur, Sulfur Dioxide, and Light Scattering to Gaseous Tracer Emissions from the Mohave Power Project, Atmospheric Environment**. 2000 V.A. Mirabella and R. Farber

**Attribution of Particulate Sulfur in the Grand Canyon to a Specific Point Source Using Tracer Aerosol Gradient Interpretive Technique (TAGIT)** 1999 H. Kuhns, M. Green, M. Pitchford., L. Vasconcelos, W. White, and V.A. Mirabella.

**Tracking Regional Background in a Haze Attribution Experiment,** 1999 W. White., R. Farber, M. Green, E. Macias, V. Mirabella, M. Pitchford, and L. Vasconcelas, AWMA.

**Meteorological and Photochemical Modeling of Large-Scale Albedo Changes in the South Coast Air Basin,** 1998 K.T. Tran, and V.A. Mirabella, presented at the 1998 annual meeting of the Air and Waste Management Association, San Diego, CA.

**Relating Summer Ambient Particulate Sulfur, Sulfur Dioxide, and Light Scattering to Gaseous Tracer Emissions from the Mohave Power Project, Proceedings, Visual Air Quality, Aerosols & Global Radiation Balance,** 1997 V. Mirabella and R. Farber, AWMA

**Overview of the Varible-Grid Urban Airshed Model (UAM-V)** 1992 R. Morris, M. Yocke, T. Meyers and V. Mirabella, presented at the 85th annual meeting of the Air and Waste Management Association, Kansas City, Mo.

**Adaption of the ISCST Model for Local Fugitive PM10 Modeling With Application to the Riverside/Rubidoux Area,** 1992 I. Wang, R. Countess, T. Umenhofer, R. Farber, and V. Mirabella

**Development of a Nested Grid Urban Airshed Model and Application to Southern California,** 1991 R. Morris, T. Myers, S. Douglas, M. Yocke, and V. Mirabella, presented at the 84th annual meeting of the Air and Waste Management Association, Vancouver, B.C.

**Performance Evaluation of an Improved Urban Airshed Model,** 1991 K. Tran, and V. Mirabella, presented at the 84th annual meeting of the Air and Waste Management Association, Vancouver, B. C.

**A Comparison of Advection Schemes in Existing Photochemical Grid Models,** 1991 K. Tran and V. Mirabella, presented at the 84th annual meeting of the Air and Waste Management Association, Vancouver, B. C.

**Field Measurements Used to Evaluate Implementation Programs for Multiple Standard Violations,** 1990 R. Farber, V. Mirabella, J. Baas, A. Amerzcua, R. Countess, I. Wang, C. Pilinis, and J. Watson, presented at the 83rd annual meeting of the Air and Waste Management Association, Pittsburgh, Pa.

**Development of the SCAQS Emission Inventory,** 1989 Mirabella, V.A. Mirabella and M. Nazemi, presented at the 82nd annual meeting of the Air and Waste Management Association, Anaheim, Ca.

**An Analysis of Weekend/Weekday Ozone Differences in the South Coast Air Basin of California,** 1989 M. Zeldin, Y. Horie, and V. Mirabella, presented at the 82nd annual meeting of the Air and Waste Management Association, Anaheim, Ca.

**Methodologies for Applying the Urban Airshed Model to Determine the Effectiveness of Measures to Reduce Ozone Levels in the Los Angeles Basin,** 1989 M. Yocke, L. Mahoney, H. Hogo, and V. Mirabella, presented at the 82nd annual meeting of the Air and Waste Management Association, Anaheim, Ca.

**Snowpack and Flow Simulation for the Eastern Brook,** 1988 C. Chen, L. Gomez, and V. Mirabella, presented at the Sub-alpine Watershed Processes and Water Quality, Lake Tahoe, Nevada.

**Retention of Acid Anions by Sub-Alpine Meadows,** 1988 C. Chen, L. Gomez, L. Lund, and V. Mirabella, presented at the Sub-alpine Watershed Processes and Water Quality, Lake Tahoe, Nevada.

**Diffusion and Reaction of Pollutants in Stratus Clouds: Application to Nocturnal Acid Formation in Plumes,** 1985 C. Seigneur, P. Saxena, and V. A. Mirabella, Environmental Science Technical Volume 19, No. 9

**Development of an Acid Rain Trajectory Model,** 1984 C. Seigneur, P. Saxena and V. A. Mirabella, presented at the 77th annual meeting of the Air Pollution Control Association, San Francisco

**Estimating Future NO2 Levels in the Greater Los Angeles Area by Source Type Contribution,** 1982 Y. Horie, and V A. Mirabella,:; JAPCA, Vol. 32 No.3.

**"On A Clear Day",** 1982 V. A. Mirabella, Clean Air Journal of Australia and New Zealand, 2nd Quarter, 1982

**Emission Trade-Offs: One Way to Increase Generating Capacity,** 1979 M.D. High, and V.A. Mirabella, presented at the 41st annual meeting of the American Power Conference, Chicago, Illinois.

**Atmospheric Dispersion Modeling,** 1979 V. A. Mirabella, Discussion Paper, JAPCA, Vol 29, No. 9

**Experience in IMPACT Modeling of Complex Terrain,** 1979 R.C. Sklarew, and V.A. Mirabella, presented at the fourth symposium on Atmospheric Turbulence Diffusion and Air Pollution, Reno, Nevada.

**Recent Verification Studies with the SAI Urban Airshed Model in the South Coast Air Basin,** 1979 T.W. Tesche, C.S. Burton and V.A. Mirabella, presented at the fourth symposium on Atmospheric Turbulence Diffusion and Air Pollution, Reno, Nevada.

**Optimum Site Selection for Wind Energy Systems,** 1978 R.C. Sklarew, and V.A. Mirabella, presented at the Second International Conference on Alternative Energy Sources; Palm Springs, California.

**Point Source Modeling for Reactive Plumes in Complex Terrain,** 1977 J.C. Wilson, A.J. Fabrick, R.L. Sklarew, and V.A. Mirabella, presented at the 70th Annual Meeting of the APCA, Toronto, Canada.

**Comparison of Several Models with Ambient Sulfur Dioxide Measurements Near the Navajo Generating Station,** 1976 R.B. Lantz, G.F. Hoffnagle and V.A. Mirabella, presented at the 69th Annual APCA Meeting; Portland, Oregon.

**DEPICT: Detailed Examination of Plume Impact in Complex Terrain,** 1976 R.C. Sklarew, J.C. Wilson, S.J. Fabrick, and V.A. Mirabella, presented at Geothermal Environmental Seminar, Clear Lake, California.

**Model Simulation of a Tracer Study in Rough Terrain,** 1975 G.F.Hoffnagle, V.A. Mirabella, and T.L. Spangler, presented at the First Annual AMS Conference on Regional, and Mesoscale Modeling Analysis and Prediction in Las Vegas, Nevada

**Statistical Properties of Turbulence at the Kennedy Space Center for Aerospace Vehicle Design**, 1971, J. Dutton, H.A. Panofsky, D.C. Deavon, B.R. Kerman, and V.A. Mirabella, prepared for the National Aeronautics and Space Administration

**RICHARD BRADY** is the President of the Matrix Consulting Group. He is the leader of our management studies and law enforcement analytical practices. He has been a consultant to local governments for over thirty years. During that period, he has specialized in the analysis of police services, having conducted over 200 studies of law enforcement and criminal justice systems. Mr. Brady has managed and/or significantly participated in every law enforcement study cited as experience in this proposal. Mr. Brady has conducted law enforcement studies in the following jurisdictions:

| State | Illustrative Law Enforcement Management and Staffing Studies |
|---|---|
| **Alaska** | Anchorage |
| **Arizona** | Goodyear, Prescott Valley |
| **California** | Alameda County, Anaheim, Butte County, Citrus Heights, Contra Costa County, Galt, Gilroy, Glendale, Kern County, Los Angeles, Los Angeles County, Los Gatos, Lynwood, Monrovia, Napa, Ontario, Orange County, Palmdale, Palo Alto, Pittsburg, Poway, Roseville, San Jose, Pasadena, San Bernardino, San Bernardino County, San Mateo County, San Rafael, Santa Ana, Santa Barbara County, Santa Monica, Sonoma County, Santa Clara County, Sunnyvale |
| **Colorado** | Aurora |
| **Connecticut** | Stamford |
| **Florida** | Alachua County, Coral Gable, Jacksonville, Jupiter, North Miami Beach, Orange County, Pasco County, Pinellas County, Port Richey and Venice |
| **Georgia** | Americus, Augusta-Richmond County, Fulton County, Hall County, Chatham County |
| **Louisiana** | Alexandria |
| **Massachusetts** | Beverly, Boston, Lawrence, Milford, Mansfield, Burlington, Pelham, Watertown, Wayland, Westwood, Whitman |
| **Minnesota** | Anoka County |
| **Missouri** | Des Peres and Raymore |
| **Nebraska** | Omaha |
| **Nevada** | Las Vegas Metropolitan Police Service, Sparks and Reno |
| **New Hampshire** | Portsmouth |
| **New York** | Albany, Carthage, Endicott, Vestal and Briarcliff Manor |
| **North Carolina** | Burke County and Durham |
| **Michigan** | Alpena and Detroit |

| State | Illustrative Law Enforcement Management and Staffing Studies |
|---|---|
| **Ohio** | Fairborn |
| **Oregon** | Clackamas County and Grants Pass |
| **Pennsylvania** | York |
| **South Carolina** | Beaufort County, Charleston County, Hilton Head Island, Spartanburg County |
| **Tennessee** | Nashville-Davidson County and Knox County |
| **Texas** | Arlington, San Antonio, Terrell, El Paso, Grand Prairie and Southlake |
| **Utah** | Salt Lake City |
| **Vermont** | Brattleboro |
| **Virginia** | Richmond, Leesburg and Loudoun County |
| **Washington** | Spokane, Kirkland and Snohomish County |
| **Wisconsin** | Sun Prairie, Milwaukee, Dane County |

Mr. Brady has a BA from California State University, Hayward; and a doctorate from Oxford University, U.K.

# FRED GREVE, P.E.
## MESTRE GREVE ASSOCIATES
## DIVISION OF LANDRUM & BROWN, INC.
***MANAGING DIRECTOR***

Mr. Greve has over thirty years experience in all fields of noise assessment and air quality management. Principal experience includes noise and air quality assessment for traffic networks, airports, transportation corridors, and planned communities on the local, state, federal and industrial level. This experience includes legislative monitoring of air and noise regulations, development of ambient air monitoring facilities, and management of aircraft noise monitoring networks. Greenhouse house gas assessments and monitoring of climate change regulations are capabilities that have recently grown out of his work for over 30 years in the air management arena.

Mr. Greve, along with Vince Mestre, established Mestre Greve Associates in 1981. In March 2009, Mestre Greve Associates was purchased by Landrum & Brown, Inc. Landrum & Brown is an aviation planning firm headquartered in Cincinnati, Ohio. Mestre Greve Associates now operates as a division of Landrum & Brown.

**EXPERIENCE**

Principal in Charge for over 500 air quality studies ranging from small developments to master planned communities. Air quality studies have also included a wide range of transportation projects across the United States for roadways, freeways, and airports. Mr. Greve has been at the forefront in conducting greenhouse gas studies (over 15 studies completed as of January 2009) and monitoring greenhouse gas guidelines and regulations.

Principal in Charge of the development of Noise Elements for the Cities of Dana Point, Inglewood, Irvine, Beaumont, Stanton, Rialto, Fountain Valley, Solvang, and Palm Springs. Principal in Charge of updates to the Noise Elements for the Cities of Rancho Cucamonga, Santa Clarita, Glendale, Santee, and the County of Monterey.

Principal in charge, under subcontract with P & D Consultants/ TCB-AECOM and Caltrans, of the preparation of air quality analyses for the addition of the HOV Lane to the Northbound I-405 through the Sepulveda Pass (between I-10 and U.S.101) Project. This proposed highway improvement project required four build alternatives, and one no-build alternative to be analyzed. The initial report analyzed and identified the affected environment, permanent impacts, temporary impacts, cumulative impacts and mitigation measures of each of the five design alternatives along the freeway mainline, the HOV lanes, the freeway ramps, and up to five intersections in the immediate study area for the project. The consultant recently met and worked with Caltrans' Headquarters, FHWA and district staff, and with the appropriate regulatory agencies to resolve all conformity and air quality planning issues.

Principal in charge, under subcontract with P & D Consultants/ TCB-AECOM and Caltrans, of the preparation of air quality analyses for the realignment of the Southbound I-405 connections to the Northbound and Southbound US-101 Project. This proposed highway improvement project required four build alternatives, and one no-build alternative to be analyzed.

Principal in charge for the updated noise assessment based on new traffic data, prepared under contract to Barnard Dunkelberg & Company, for the proposed Northwest Arkansas Regional Airport Authority Intermodal Access Road in Benton County, Arkansas. The access to the new

airport is provided from the Highway 71 bypass on Highway 264 at the Lowell exit and from Bentonville on Highway 12.

Principal in charge, under contract with RBF Consulting, of the NEPA level noise study for the Caltrans Culver Drive Widening project. Mestre Greve Associates has previously conducted comprehensive noise studies for the Culver Drive Widening EIR project as a subconsultant to both RBF Consulting and Templeton Planning Group for the City of Irvine.

Principal in Charge of the technical noise and air quality assessment reports for the following recent EIR projects: Planning Areas 18 and 39 General Plan Amendment and Zone Change, City of Irvine; Perris Ridge Commerce Center, City of Perris; Ontario Gateway Specific Plan, City of Ontario, CA;

Principal in Charge of the noise and air quality assessments for the proposed Foothill Transportation Corridor-South EIS/SEIR project. This study includes the analysis of various alternatives proposed by the Transportation Corridor Agencies.

Principal in Charge of the Carbon Monoxide Monitoring Program for the San Joaquin Hills Transportation Corridor. This program included monitoring air quality levels at three sites near the corridor in order to determine if air quality standards had been exceeded, and to make recommendations as to potential remedial actions if necessary.

Project Manager for the air quality assessment for MCAS El Toro Community Reuse Plan and EIR, the noise assessments for CFB Greenwood Relocation for Base Closure and Realignment Study and CFB Trenton Relocation for Base Closure and Realignment Study, and the air quality assessment for the Master Plan Alternatives for EA Analysis for Jackson Hole Airport.

Project Manager for the noise assessments for the Toland Road Landfill Expansion Project, the Lancaster Landfill Expansion Project, and the North Orange County Landfill and Alternative Technologies Study.

Principal in charge for the noise and air assessments for the proposed Freeway Route 125 in San Diego County, Arizona Route 93, the San Joaquin Hills Transportation Corridor in Orange County, and numerous freeway interchange projects.

Project Manager of the noise assessment for the Orange County Sanitation District Groundwater Replenishment System project; Principal in charge of the noise assessments for the Encino Reservoir Water Quality Improvement Project, the Stone Canyon Water Quality Improvement Project, the Hollywood Water Quality Improvement Project for the Los Angeles Department of Water and Power.

Principal in charge of the air quality assessments for the Eastern Transportation Corridor, HOV Lane Additions to the Orange Freeway and the Riverside Freeway.

Principal in charge for the noise assessments for the Culver Drive Realignment and Widening in Irvine, the I-5/I-405 Freeway Confluence Zone in Orange County, the I-405 Freeway Design Alternatives Study, Route 178 in Bakersfield, Foothill Transportation Corridor, widening of Imperial Highway, and the Moulton Parkway Super Street in South Orange County.

Project Manager for many industrial noise projects including the Coyote Canyon Gas to Energy Plant, the Spadra Landfill Gas to Energy Plant, Anaheim Power Generation Plant, the

expansion of the San Clemente Wastewater Treatment Plant, and expansion of the SERRA Treatment Plant in Dana Point.

Project Manager for air quality assessments for regional planning efforts implemented by the City of Irvine and the planned communities of Aliso Viejo and Laguna Niguel. Projects included coordination with local Air Quality Management Plan (AQMP) efforts.

## EDUCATION

M.S., Environmental Engineering, 1975, University of California, Irvine
B.S., Civil and Environmental Engineering, 1973, UCI
B.S., Biological Science, 1973, University of California, Irvine

## PROFESSIONAL REGISTRATION

Registered Professional Engineer, 1981, Civil Engineering, California, No. C 31701
Certified Acoustical Consultant, County of Orange
LEED Green Associate
Member of Air and Water Management Association
Member of Engineers Without Borders
Registered Private Pilot

## PROFESSIONAL BACKGROUND

Entered the profession in 1973; co-founder of Mestre Greve Associates in 1978. His professional affiliations include membership in the Acoustical Society of America, the Air and Waste Management Association, the Air Pollution Control Association, the National Association of Noise Control Officials, and American Society of Civil Engineers. He is a frequent guest lecturer on air quality assessment techniques at the University of California, Irvine.

## PUBLICATIONS

*Air Quality Modeling as a Management Tool for Airports*, presented at the Airports Council International - Pacific Region in Vancouver, Canada, August 1995.

*Comparison of Noise Measurements along Arterial Roadways with the FHWA Highway Traffic Noise Prediction Model,* with Vincent Mestre, presented at the 1982 National Association of Noise Control Officials Conference.

*A Monitoring System for Long Term Aircraft Noise Measurements,* with Vincent Mestre, Sound and Vibration, February 1982.

*Carbon Monoxide Transport from Freeways: Evaluation of Major Models,* with G. S. Samuelsen, UCI Combustion Laboratory Report UCI-ARTR-78-6.

# MATTHEW B. JONES, P.E.

**MESTRE GREVE ASSOCIATES DIVISION OF LANDRUM AND BROWN – PROJECT MANAGER**
**COMMUNITY NOISE & AIR QUALITY SPECIALIST**

## EXPERIENCE

Mr. Jones joined Mestre Greve Associates in 1987. He has experience in all fields of noise assessment and air quality management. Work includes project management, software development, engineering analysis, report preparation, as well as noise and air quality monitoring. Mr. Jones has considerable noise and air quality modeling experience including FHWA's Traffic Noise Model (TNM), EPA's CALINE3, AERMOD and ISC3-ST dispersion models, FAA's Emissions and Dispersion Modeling System (EDMS), and SCAQMDs URBEMIS and CalEEMod. These services include noise and air quality assessments for EIR/EIS, highways, residential and commercial developments and airports. Mr. Jones is involved in the development of most of the in house computer software modeling programs and is well versed in all of the air quality and noise modeling programs used at Mestre Greve Associates. Representative project experience includes:

EIR noise and air quality assessments for many commercial and residential projects including:

Air Quality And Noise Assessments: Planning Areas 18, 33 (Lot 109), 34, and 39 General Plan Amendment and Zone Change, Irvine, CA; Diemer Water Filtration Plant, Yorba Linda, CA; 2000 Avenue of the Stars, Los Angeles, CA; Chandler Ranch Specific Plan, Paso Robles, CA; Santiago Hills II/East Orange General Plan, Orange; CA; Mission Hospital and Medical Center, Mission Viejo, CA; St. Jude's Hospital Expansion, Fullerton, CA;

Air Quality Assessments: Edom Hill Transfer Station Solid Waste Permit Revision Project, Palm Desert, CA.; Saddleback Medical Office Building, Laguna Hills, CA; The Crest, San Bernardino County, CA, Vista School District Family Literacy Center, Vista, CA.

Noise Assessments: Hoag Hospital, Newport Beach, CA; Northern Sphere Specific Plan, Irvine; CA; UCI Medical Center Long Range Development Plan, Orange, CA; Well No. 12, Huntington Beach, CA, SDG&E Moreno Compressor Station, Moreno Valley, CA;

Highway EIR noise and air quality assessments for: Aviation Boulevard Widening, Los Angeles County, CA, Foothill Transportation Corridor/Santa Margarita Parkway Interchange widening, Orange County; CA, San Joaquin Hills Transportation Corridor/ Interchange addition, Orange County; CA; Northwest Arkansas Airport Intermodal Access Road, AR; Eastern Transportation Corridor, Orange County.

Highway Noise Assessments and noise barrier design to satisfy FHWA and Caltrans requirements for: Kahului Airport Access Road, Kahului, Maui, HI, Foothill Transportation Corridor (SR-241) South Extension, South Orange County

# MATTHEW B. JONES, P.E.

**MESTRE GREVE ASSOCIATES DIVISION OF LANDRUM AND BROWN – PROJECT MANAGER**
**COMMUNITY NOISE & AIR QUALITY SPECIALIST**

Transportation Infrastructure Improvement Program (SOCTIIP), Orange County, CA; Antonio Parkway Widening, Rancho Mission Viejo, CA; State Street Extension, San Bernardino, CA; Jeffery Road Grade Separation, Irvine, CA.

Diesel Particulate Matter Health Risk Assessment for Home Depot at Highland & Arden Avenues, San Bernardino, CA; PA18, PA39, PA34, and PA33 Lot109 General Plan Amendments and Zone Change, City of Irvine, Eagle Rock Services Truck Repair Facility, San Bernardino County, CA; Perris Ridge Commerce Center, Riverside County, CA.

Preparation of the Noise Elements for the General Plans of the Cities of Santa Monica, Glendora, Highland, Stanton, and Dana Point.

Air quality modeling using the FAA's Airport Air Quality Modeling Program (EDMS) for Sonoma County Charles M. Schultz Airport Master Plan, the New Orleans International Airport Phase II EIS, New Orleans, Louisiana; Vancouver International Airport Air Quality Assessment, Vancouver, Canada; Boise Airport, Boise, Idaho.

Noise and vibration monitoring, data analysis and modeling in support of expert witness services for Margrave v. MTA claiming inverse condemnation due to operation of Gold Line LRT through South Pasadena, California.

Noise monitoring and data analysis for the Pilot Aircraft Noise Impact Assessment on the Grand Canyon and Volcano National Parks.

## EDUCATION

B.S. Engineering Physics, Acoustics Specialization, June 1994
University of California, San Diego, Summa Cum Laude

A.A. Liberal Arts with a Certificate in Recording Arts, 1992
Golden West College, Huntington Beach, CA

## Professional Registration

Registered Professional Engineer in the State of California, (Electrical #17156)

## Professional Affiliations

Acoustical Society of America
Association of Environmental Professionals
Air and Waste Management Association
American Institute of Physics
Audio Engineering Society

## DONALD HUBBARD, PE, AICP

Senior Planning Manager, Parsons Brinckerhoff, Inc.

**Years of Experience**

33 (6 with PB Americas; 27 years with others)

**Education**

Master of City and Regional Planning, Harvard University, 1985;
B.S., Engineering Science, Northwestern University, 1979

**Professional Affiliations**

American Planning Association; Institute of Transportation Engineers

**Professional Registrations**

Professional Engineer: Traffic, California, 2004 (TR-2260)
American Institute of Certified Planners: 2002 (018133)

**Key Qualifications**

Don Hubbard is a Senior Planning Manager with extensive experience in travel demand forecasting and traffic engineering. He currently heads the Transportation Planning section of Parsons Brinckerhoff's Sacramento office. Don specializes in improving the performance of traffic models to analyze real-world problems. For example, he helped develop the 4D's modeling technique used by the Sacramento Area Council of Governments (SACOG) for their award-winning Blueprint Project. Much of Don's work involves finding practical approaches to complex, high-profile traffic engineering problems.

**Recent Experience**

- Regional Traffic Mitigation Fee Study, Fresno, California. Don was Project Manager for the development of a new county-wide regional traffic mitigation fee for Fresno COG. This included performing the nexus study, providing policy-makers key information to guide them through a series of policy decisions, working through the administrative details including developing forms and an administrative manual, and drafting the necessary resolutions. The study was unusually challenging because of the need to fit the fee within the framework established in an ambiguously-worded ballot measure as well as the Mitigation Fee Act, and because of the political sensitivities inherent in establishing a new development fee during a downturn in the real estate market. PB's approach resulted in a fee that will raise enough funds to support critical projects while still getting the written support of the development community. PB is currently providing on-call support during implementation of the fee.
- Traffic and Revenue Study for the US-101 Corridor, Marin County, California. Don served as Project Manager for a study assessing the potential revenues and traffic impacts from adding HOT lanes to portions of US-101 or adding tolled lanes parallel to the facility. The project included developing scenarios covering various combinations of physical investments and policy choices, preparing traffic and revenue forecasts, preparing estimates of capital and operating costs, performing quality control checks, writing technical reports and training manuals, and managerial duties regarding the client and sub-consultants.
- World Logistics Center, Moreno Valley, California. Don currently heads the team performing the traffic impact assessment of what will be one of the largest logistics centers in the United States. The study includes forecasting the traffic that will be generated by tens of thousands of workers, analyzing the level of service for hundreds of intersections, determining the level of service on freeways affected by car and truck traffic, and preparing the traffic section of the EIR.
- Guam Military Relocation and Guam Road Network Project, Guam Territory, U.S. Don currently heads the team performing a variety of traffic studies related to the relocation of

several military facilities to the island of Guam. The studies include long-term planning to accommodate a large percentage increase in population, medium-term planning for prioritization and phasing, and short-term planning to mitigation traffic impacts during construction.

- MTC HOT Lanes Feasibility Study, Bay Area, California. Don served as Task Manager for conceptual design on this study to develop a region-wide HOV/HOT lanes network on the freeways in the Bay Area. Was responsible for developing several different conceptual designs for HOT/HOV lanes for use depending on the physical constraints of the site in question, for determining where in the network each design would be applied, and for developing the cost estimates used to determine the feasibility of the system. Also advised on phasing of network sections based on revenue potential, relative costs, state of preparation, and other criteria.
- Wine Country Travel Demand Model, California. Don was the Project Manager for the development of a regional travel demand model covering the Napa, Sonoma, Lake, and Mendocino Counties. The model makes use of existing data sources as well as new origin-destination and traffic surveys to help forecast inter-county travel in future study years. Was responsible for all aspects of the project, including devising the work plan for model development, overseeing work of mid-level and junior staff, performing quality control checks, writing technical reports and training manuals, and managerial duties regarding the client and sub-consultants.
- Congestion Pricing Operating Plan, Los Angeles, California. Don served as Task Manager for conceptual design on this study to convert existing HOV facilities on the I-10 and I-110 freeways in Los Angeles County into HOV/HOT lanes. Don was responsible for developing several different conceptual designs for HOT/HOV lanes for use depending on the physical constraints of the site in question and for developing the cost estimates used to determine the feasibility of the system.
- Sacramento State Tram Study, Sacramento, California. Don served as Project Manager for the feasibility study for a BRT system linking the campus of Sacramento State University to the regional light rail system. Don also served as task manager for the development of ridership forecasts. The forecasts utilized the six-county regional travel demand model in combination with smaller-scale models of parking space availability and comparative travel times between walking and the tram/walk combination. This was one of the first applications of SACOG's new activity-based model (SACSIM). He also preformed the analysis of the traffic impacts that the system may have on the portion of the route when the BRT is operating in mixed traffic on city streets.
- I-215 corridor Improvements, Las Vegas, Nevada. Don was responsible for the development of future forecasts along I-215 corridor between Las Vegas Boulevard and Windmill Lane. This work included devising the methodology for preparing forecasts to meet the needs of several different agencies, detecting and correcting errors in the new regional model, performing with- and with-out project model runs for four forecast years, and converting the model outputs into levels of service (LOS) forecasts by freeway section.

**Publications**

- "Planning a Regional Express Lane Network – Lessons from the Bay Area", presented at the TRB Transportation Planning Applications Conference, Reno, Nevada, May 2011
- "Making Travel Demand Models Sensitive to Smart Growth," published and presented at the ITE District 6 Annual Conference, Honolulu, Hawaii, June 2006.

## DEBRA J. MEIER, AICP

Senior Supervising Planner

**Years of Experience**
28

**Education**
B.S., Urban Planning, California State Polytechnic University, 1983; Associate of Science, Construction Trades Drafting, Sierra Community College, 1977
Additional Studies: Management Program, California State University, 1991

**Professional Affiliations**
American Institute of Certified Planners (AICP); American Planning Association (APA); Association of Environmental Professionals (AEP)

**Professional Registrations**
Certified Planner: AICP, 1995

**Key Qualifications**
Debra Meier is a senior urban planner and development industry professional with expertise in project management, land planning, environmental analysis and entitlement processes. As a former planning commissioner for the City of Highland, California, during the 10 years immediately following the city's incorporation, she was involved in the initial development of the city's general plan and development code. As a project manager for one of the nation's largest home builders, her responsibilities included completing the land use entitlement process (including all environmental and regulatory permitting), selecting project design consultants, managing consultant contracts and work products, preparing and managing project-specific budgets and schedules, selecting and managing land development contractors, and monitoring the land development construction schedule and budget. As a public-sector planner with the City of Rancho Cucamonga, Ms. Meier coordinated four concurrent annexation and development applications with the city's Sphere of Influence, each with separate project-sponsored environmental impact reports (EIRs) requiring close coordination with the County of San Bernardino and other local and state agencies. Her agency coordination work has included working with the California Department of Transportation (Caltrans), the California Department of Fish and Game, the U.S. Army Corps of Engineers (USACE), the U.S. Fish and Wildlife Service and the Santa Ana Regional Water Quality Control Board.

**Industrial Development**
- The Highlands Specific Plan, Moreno Valley, California: deputy project manager/EIR task manager. Prepared for the Highland Fairview Corporation, The Highlands Specific Plan is a proposed logistics/warehouse master plan for a building area of up to 40 million square feet (3.7 million square meters) covering over 2,600 acres (1,052 hectares) in the eastern portion of Moreno Valley. Parsons Brinckerhoff was responsible for preparing the draft specific plan and selected DEIR sections as well as an extensive traffic impact analysis.

**Highways**
- Needles Highway, San Bernardino County, California: project manager for the preparation of preliminary roadway design plans and environmental documents for the realignment of 15 miles (24 kilometers) of Needles Highway from I-40 in the city of Needles to the Nevada state line. The project scope includes preliminary roadway design and National Environmental Policy Act/California Environmental Quality Act (NEPA/CEQA) analysis within county, state, federal and tribal entities.

**Previous Experience**

Prior to joining Parsons Brinckerhoff, Ms. Meier participated on the following projects:

- Gresham Savage Nolan & Tilden, San Bernardino, California (2009-2011): entitlements manager for this law firm specializing in environmental, land use, natural resources management and real estate law. In addition to preparing applications and processing use permits, Ms. Meier supported the attorneys in the Land Use and Real Estate Practice Groups by providing land use research, including historical overview of development entitlements, analysis of easements and development agreements, and review of code requirements and entitlement procedures for city and county jurisdictions throughout California.

- Centex Homes – Inland Empire Division, Corona, California (2004-2009): project manager for one of the largest home builders in the nation with communities in 19 states. Ms. Meier's projects included:
  - The Cove, Highland, California: project manager for the entitlement process and land development for this tract of 132 homes in the East Highlands Ranch master planned community. The land development budget exceeded $8 million with $3.3 million allocated for grading to over-excavate and re-compact historic hydraulic fills. The project was completed and sold out in less than 3 years. In addition to completing the land use entitlement process—including all environmental and regulatory permitting—Ms. Meier selected project design consultants, managed consultant contracts and work activities, prepared budgets and schedules, selected and managed land development contractors, and monitored the budget and schedule.

  - Coyote Canyon, Fontana, California: project manager for the preparation of a specific plan. The project included six subdivision maps providing for the development of 650 homes, a 12-acre (4.8-hectare) city park and a 2-acre (0.8-hectare) parcel for the fire station. The $65 million land development budget included substantial storm drain and public infrastructure to support the new community. Construction began in 2005, and by February 2009, nearly 600 homes were occupied and four of the six subdivision maps had received final acceptance from the city and complete bond exoneration. The project required significant coordination with the San Bernardino Flood Control District, including property exchange, easements and developer construction of over $4 million of district infrastructure.

  - Orchard Park, Redlands, California: project manager for the land entitlement process and land development for this in-fill tract of 64 homes with a land development budget of over $7 million. The lots, in excess of 18,000 square feet (1,670 square meters), were developed with executive-style homes and were the first of the company's homes to be sold for more than $1 million. The project was developed and sold out over a period of 2 years.

  - Tuscany Hills, Lake Elsinore, California: project manager for the entitlement process regulatory permitting. The project, with an estimated land development budget exceeding $135 million, received entitlements from the City of Lake Elsinore for 807 lots, including a specific plan, development agreement and subdivision map. These entitlements were followed by permits and authorizations from the California Department of Fish and Game, the U.S. Fish and Wildlife Service and the Riverside County Multiple Species Habitat Conservation Plan. Ms. Meier negotiated with the Santa Ana Regional Water Quality Control Board to obtain the 401/404 certifications. She also held discussions with the city manager and city attorney to renegotiate the terms of the development agreement.

- City of Rancho Cucamonga, California (2002-2004): as associate planner and project manager, Ms. Meier coordinated four concurrent annexation and development applications with the city's Sphere of Influence and worked with the County of San Bernardino to strategically plan and develop a management plan for the expansion of the North Etiwanda Preserve. The annexation applications totaled nearly 1,000 acres (405 hectares) in the area adjacent to the preserve. The annexations entailed concurrent processing of development applications, review and management of all CEQA documents and consultant contracts and

coordination with the Local Agency Formation Commission (LAFCO) and other city/county agencies.

## JAMES J. IMBIORSKI, P.L.S

Senior Vice President/ Inland Empire Manager

**Years of Experience**
45 (<1 with PB; 33 with AE; 12 with others)

**Education**
San Bernardino Valley College, San Bernardino, California, 1964

**Professional Affiliation**
California Land Surveyors Association
California State University, San Bernardino – Science Advisory Committee
Chairman, Observatory Steering Committee
San Bernardino Unified School District, Advisory Committee for Dr. Herb Fisher
San Bernardino County, Sheriff's Reserves Special Bureau

**Professional Registration**
Land Surveyor, CA #4430 (1977); NV #11588; AZ #30356

**Key Qualifications**
Jim Imbiorski has 45 years of land surveying, construction and construction contract administration experience. He began his surveying career at California Department of Highways (Caltrans) and has provided surveys, mapping and Right-or-Way engineering services in support of Project Study Reports, Project Reports, Major Investment Studies, and final design on proposed highway improvement projects. Jim has served as field party chief, head of the survey department, project manager and principal-in charge. He is a licensed professional land surveyor with a broad background in surveying, including design, construction, cadastral and boundary surveys, mapping and records of survey. He has managed survey operations for design and construction on more than a hundred projects involving airports (landside and airside); access roads, state highways, water/sewer projects, buildings and facilities.

Jim has served in various functions supporting FAA funded airport improvement projects. Jim served as a Principal Oversight/ Project Manager for Taxiway "N" Westerly Extension, LAWA Master Plan at LA/ONT, and Perimeter Fence at VNY. As a sub-consultant to HNTB he provided the same services for the South Airfield Center Taxiway, and Southside Taxiway Design at LAX. Additionally, he has been Field Party Chief for design and construction at Palm Springs, Big Bear, Barstow-Daggett, Chino and Ontario International Airport. Since 1983, Jim has been Project Manager on airport improvement projects at Needles, Redlands, Apple Valley, Chino, Cable and San Bernardino International Airports. His knowledge and past working relationships with FAA Western Region staff is an asset to agencies in applying for and receiving grants.

**Relevant Experience**
**Highway/Roadway**

- Tippecanoe Avenue Widening, San Bernardino, California: principal-in-charge responsible for preparing plans, specifications and cost estimates for the construction of Tippecanoe Avenue from Harry Sheppard Boulevard to the Santa Ana River. The project bid in April 2007, has an anticipated budget of $5,000,000. Provided all surveys, mapping, legal description, hydrology and consultation with the FAA for this 6-lane project.
- District 08 "On-Call" Surveying Services, San Bernardino and Riverside County, California (Contract No. 08A0716): project manager and expert witness in support of CALTRANS. Provided various "On-Call" tasks for District 8. On-call task orders included preparation of Right-of-Way Maps, hardcopy and deeds for projects in San Bernardino and Riverside Counties, preparation of Resolutions of Necessity documents for Segments 10 and 11 of SR 30/210 (new freeway) in San Bernardino; preparation of relinquishment maps for SR30 along Highland; and 19th Street within the Cities of Upland, Rancho Cucamonga and Fontana;

preparation of miscellaneous court exhibits for condemnation actions within Segments 3 and 4 of SR 30/210; and preparation of Right-of-Way maps, hardcopy maps and deeds for Segments of SR 62 in Yucca Valley; and for SR 395 in Victorville.

- I-10/ Etiwanda Avenue Interchange, Fontana, California: project manager for design surveys, aerial mapping, Right-of-Way mapping, utility coordination and civil design for drainage, utility relocation and local streets for the reconfiguration of the existing interchange to bring it up to current requirements. All work was performed in metric to Caltrans Standards for PSR, PR & PS&E.
- Needles Highway Project, Needles, California: project manager for preparation of plans, specifications and Environmental Documents for the realignment of 15 miles of Needles Highway from Interstate 40 in the City of Needles to the Nevada State Line. The project scope includes civil design, Right-of-Way engineering, aerial mapping, and design and construction surveys. Provided GPS surveys to control color digital ortho-photo and aerial mapping for preliminary alignment studies and environmental processing. Color image plotting was also provided.
- State Route 60/ Moreno Beach Drive Project, Moreno Valley, California: project manager providing various survey and mapping support required for the re-construction of the State Route 60/ Moreno Beach Drive in Moreno Valley. Responsible for all survey control, design and tie-in surveys, utility location and mapping, Right-of-Way Land Net surveys, Right-of-Way mapping, legal descriptions and plats. Also prepared surveys, mapping, legal descriptions and plats for the lot line adjustment in the northeast quadrant of the interchange, working directly for the City of Moreno Valley.
- State Route 30 (SR-210) Segments 1, 2, 3, 4, 5, 7, 10 & 11, Los Angeles County Line to the City of San Bernardino: project manager and quality control to provide various survey and mapping support. This 26-mile project involves construction of a new six lane freeway from the Los Angeles County Line through the Cities of Upland, Rancho Cucamonga, Fontana and Rialto, to the I-215 in the City of San Bernardino. Responsible for all design, drainage, bridge, utility and soundwall surveys on Segments 1, 2, 3, 4, 5, 7, 10 and 11 used for the Project Study Report, Project Report and Final Plans. Working closely with Caltrans District 08 Right-of-Way and Survey Department, established a metric centerline. This alignment was used as control for all construction plans and Right-of-Way maps along the entire 26-mile route. All work products were delivered in accordance with Caltrans Survey and Drafting Manuals.
- City of Moreno Valley - Fiscal Year 2005/ 2006 Street Improvement Program (SIP) Capital Improvement Program (CIP) Moreno Valley, California: project oversight to provide engineering and surveying services for the City of Moreno Valley's Capital Improvement Program. Scope of work included surveys necessary for the design of improvements, legal description and plats, tie outs for all monuments (street and property), re-establish destroyed monuments and construction staking. Street projects included Maltby Ave. from Redlands Boulevard to Merwin Street; Campbell Avenue from Redlands Boulevard to Merwin Street; Hotchkiss Street from Campbell Avenue to South End; and Bencliff Avenue from Dracaea Avenue to South End.
- State Route 60, HOV Lanes, Riverside County, California: project manager for all design, drainage, utility bridge and sound wall surveys required for preparation of the Project Study Report, Project Report, and Final PS&E for 7.5 miles of HOV lanes, bridge structure replacements and improvements, and soundwalls. Working closely with Caltrans District 08 – Survey Department, established a metric centerline of improvements, converted existing Imperial Right-of-Way maps and photogrammetry to Metric 1:500 design scale hard copy maps and electronic files.

## STEPHANIE S. OSLICK, AICP

Environmental Manager
Professional Associate/Project Manager

**Years of Experience**
15 (6 with PB; 9 with others)

**Education**
M.S., Environmental Studies, California State University Fullerton, Fullerton, California, 1999;
B.S., Biological Sciences, University of Southern California, Los Angeles, California, 1992

**Professional Affiliations**
American Institute of Certified Planners (AICP), Certification Number 020593; American Planning Association (APA); Association of Environmental Professionals (AEP); Women's Transportation Seminar (WTS)

**Professional Registrations**
American Institute of Certified Planners (AICP), 2006

**Key Qualifications**
Stephanie Oslick is a supervising environmental planner with Parsons Brinckerhoff (PB), and has deep experience successfully managing the environmental planning process on a wide array of transportation-related projects. Ms. Oslick has been responsible for preparing environmental documents and reports to comply with National Environmental Policy Act (NEPA), California Environmental Policy Act (CEQA) and other environmental regulations, obtaining environmental permits and coordinating with local, state and federal officials. Her agency coordination work has included personnel from the Federal Highway Administration (FHWA), California Department of Transportation (Caltrans), Alaska Department of Transportation and Public Facilities, Arizona Department of Transportation (DOT), Colorado DOT, Kentucky Transportation Cabinet, Florida DOT, Maine DOT, Maryland State Highway Administration, New Hampshire DOT, New Jersey Department of Environmental Protection, Ohio DOT, Oregon DOT, Pennsylvania DOT, Texas DOT, Vermont Agency of Transportation, Washington DOT, Wisconsin DOT, Wyoming DOT, U.S. Department of the Army Corps of Engineers (usace), U.S. Fish and Wildlife Service, Regional Water Quality Control Board, California Department of Fish and Game and California Coastal Commission (CCC).

Over her seven years of experience while at Caltrans, Ms. Oslick functioned as a general environmental planner, district biologist, and District Liaison to the CCC for the Division of Environmental Planning. As the District Liaison to the CCC, she was the single point contact for all projects within the Coastal Zone to ensure compliance with the California Coastal Act regulations. She worked as environmental reviewer for encroachment permits and intergovernmental review for projects. Ms. Oslick was also a core member of the project development team to ensure the environmental and project milestones were reached with the schedule and budget. She authored, edited and peer-reviewed environmental documents and biological technical reports and prepared presentations and notices for public meetings.

**Project Management**
- National Cooperative Highway Research Program (NCHRP), Nationwide: task manager for NCHRP 25-25 Task Order research contract for the American Association of State Highway and Transportation Officials' (AASHTO) Standing Committee on the Environment. This required research into a host of topics such as environmental stewardship, air quality, and environmental compliance. Stephanie managed four tasks:
  - Task 37, "Effective Organizational Structures and Management Practices for Achieving Environmental Stewardship and Streamlining in Transportation Agencies"
  - Task 42, "Alternative Methods to Calculate PM2.5 and PM10 Emission Factors for Re-Entrained Road Dust on Transportation Projects"

- Task 46, “Compendium of Best Practices for Environmental Compliance and Stewardship at Transportation Maintenance Facilities”
- Task 52, “Informational Requirements for Jurisdictional Determinations to be Issued by the U.S. Army Corps of Engineers (USACE) Under the Clean Water Act (CWA)”

- County of San Diego On-Farm Composting and Manure Management Project, San Diego County, California: project manager responsible for client relationship and oversight of the whole project, including preparation of the Programmatic Negative Declaration, technical studies, the Best Management Practices Handbook, Permit Process Guide and the development of the On-Farm Composting and Manure Management permit program in coordination with the County Manure Management Committee. The County of San Diego, Department of Public Works Recycling Section proposed to amend the zoning ordinance to allow the transport of green waste from municipal landfills to agricultural facilities for composting.
- Center for Environmental Excellence by AASHTO: project manager for a contract requiring research into various environmental topics including center website development and maintenance, Programmatic Agreement Library (PAL) and NEPA Practitioner Guides.
- AASHTO Center for Environmental Excellence: research investigator for this AASHTO Center for Environmental Excellence partnership with PB to create a PAL for a centralized, organized and accessible “one-stop-shop” for programmatic agreements. These agreements have been developed over the years by various states’ departments of transportation and/or the FHWA in partnership with resource agencies to streamline compliance with federal environmental laws (e.g., the National Environmental Policy Act - Categorical Exclusion, the Endangered Species Act and the National Historic Preservation Act). The database provides examples of executed programmatic agreements, summarizes agreement information, links to the full agreement and allows practitioners to research agreements that meet specific requirements. Programmatic agreements have been included from the following five topic areas: NEPA Categorical Exclusions, Section 7 of the Endangered Species Act, Section 106 of the National Historic Preservation Act, Section 4(f) of the Department of Transportation Act and land management-related agreements. Each agreement presented has been surveyed by an agency representative to provide in-depth information on its development and use. This project was honored as a finalist for the PB Project of the Year 2006 and was a co-author with the client, AASHTO, on a poster showcasing the project at the 2007 Women in Transportation Seminar Conference.

**Regulatory/Public Agency Coordination**

- I-15 La Mesa/Nisqualli Interchange, Victorville, California: environmental task manager for a proposed new local interchange on I-15 in the City of Victorville at La Mesa Road and Nisqualli Road. This fully directional interchange includes a new bridge overcrossing, new freeway ramps, and local street realignments. The project involved the preparation of a Project Report, an Initial Study/Environmental Assessment (IS/EA) leading to a Negative Declaration/Finding of No Significant Impact (ND/FONSI), and final design plans, specifications and estimates (PS&E). She also prepared and obtained approval for the Revalidation, per Caltrans standards. She is also managing the permitting process for impacts to the Mohave Ground Squirrel (Incidental Take Permit from the California Department of Fish and Game) and non-wetland Waters of the United States and State (404 Individual Permit from the Army Corps of Engineers, 401 Certification from the Regional Water Quality Control Board, and 1602 Streambed Alteration Agreement from the California Department of Fish and Game). As part of the alternatives analysis associated with the 404 Individual Permit, she worked with the engineers to do minor engineering modifications that resulted in a reduction of impacts to federal jurisdictional areas by 78%. Ms. Oslick was a co-author on the USACE-approved Habitat Mitigation and Monitoring Plan. She is also managing the purchase of mitigation land

associated with impacts to MGS and the enhancement and preservation of land associated with impacts to waters.

- Caltrans District 8 Value Analysis, San Bernardino, California: value analysis team member who provided environmental analysis expertise on multiple major projects exceeding $25 million. She participated in the workshops for value analysis and risk management for projects within San Bernardino and Riverside counties. The scope of the projects ranged from highway widening, bridge replacements and operational improvements to new interchanges.
- SR 60- Nason Street, Moreno Valley, California: environmental task manager for the approval of the environmental document revalidation (per Caltrans requirements), coordination and approval of permits (404 Nationwide Permit, 401 Certification and 1602 Agreement and Amendment) in-lieu fee transfer to satisfy mitigation requirements. She also proposed to create a mitigation bank with Caltrans to satisfy mitigation requirements and create a "win-win" situation for the City of Moreno Valley and Caltrans. The proposed interchange project would impact several drainages in the local area.

**Environmental Planning (Highway and Road)**

- SR 91 Corridor Improvements Project, Riverside and Orange Counties, California: the SR-91 PR/ED involves preliminary engineering for preparation of a Caltrans project report and an environmental document for extension of the existing 91 toll lanes. This project is a major element of Riverside County Transportation Commission's (RCTC) 10-year construction program with an estimated construction cost of $1.3 billion and is a high priority project within the region. The project includes the addition of one general purpose lane and two toll lanes in each direction on SR 91 from SR 241 to Pierce Street for approximately 12 miles (19 kilometers) and widening of existing structures and realignment and reconstruction of nine local interchanges and two system interchanges within the project limits. The project will also study direct connectors to link I-15 to the toll lanes and extend this connection 1 mile (1.6 kilometers) north and 5 miles (8 kilometers) south along I-15. She performed QA/QC on subconsultant-prepared Section 4(f) Evaluation.
- City of Needles Street Widening and Corridor Improvement Project, City of Needles, San Bernardino County California and the City of Mohave Valley, Mohave County, Arizona: environmental task manager for the preparation of preliminary environmental studies (PES) and environmental document (Initial Study/Environmental Assessment). This project includes various street intersection improvements, widening of Harbor Avenue, North K Street, West Broadway, J Street and Needles Highway as well as modifying the Colorado River Bridge deck to accommodate an overhang sidewalk (cantilever) on the west side and to re-stripe the deck to four lanes.
- Fontana Program Management, Fontana, California: PB provided program management services for the Robert W. Weddle Capital Improvement Program Projects to meet the city's most critical infrastructure improvement needs. The program was created to design and construct much needed storm drains and sewer mainline projects, major arterial roadway widening and reconstruction projects, freeway interchange reconstruction and new construction projects and grade separation construction projects. She assisted with coordination and acted as a third-party reviewer of environmental documents and technical studies prepared by environmental consultants, for the I-10/Cypress OC and the I-10/Citrus Interchange projects.